IEI Group

IEI Group has 20 offices in 14 countries. IEI is alliance with Intel, Microsoft, Wind River, SAP and Amazon to offer a complete intelligent system with various options, including kinds of hardware devices supporting different operating systems, multiple applications, private/ hybrid/public cloud computing and data storage/security for developing integrated solutions, collaborating new applications and expanding the markets.

IEI Integration Corp.
Industrial Integrated IoT Solution Provider

ArmorLink SH Corp.
Unique Electronic Manufacturing Service

MOTORCON INC.
Leading Automation System Product Provider

iEi GROUP 威強電集團

XINGWEI COMPUTER CO., LTD.
Professional Chassis Manufacturer

QNAP Systems, Inc.
Leading Edge Computing Storage Provider

BriteMED Technology Inc.
Intelligent Medical System Provider

About IEI Integration Corp.

IEI Integration Corp. builds up the business as a leading industrial computer provider, and turns to artificial intelligence and networking edge computing. IEI's products are applied in computer-based applications such as factory automation, computer telephony integration, networking appliances, security, systems, and in fields like AI, IoT (Internet of Things), national defense, police administration, transportation, communication base stations and medical instruments. IEI continues to promote its brand products as well as serving ODM vertical markets to offer complete and professional services. IEI strives to achieve the ultimate aim of IoT and AI, and to create comfortable and convenient living spaces for human beings by using advanced technologies.

IEI Global Service

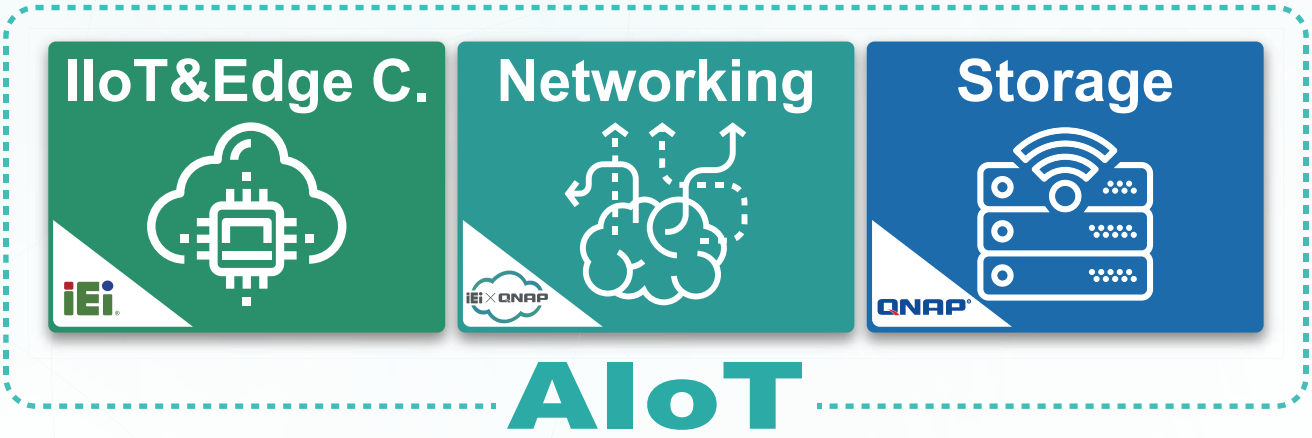
B2B/B2C online shops and RMA service are open 24 hours a day.



www.ieiworld.com

Core Competence

IEI Integration Corp. cooperates with its group company QNAP System Inc. to provide great service and technologies in both hardware and software. The upgraded services and the complete smart solutions enable our customers to easily achieve win-win business success.



Leading industrial computer provider

- Solid experience in a wide range of technologies and vertical know-how
- Support from concept to finished goods
- Specializes in IoT gateway, embedded system, panel PC, image capture and cloud based applications
- Meets market expectations by supplying a complete portfolio of computer-based applications

Leading storage, network & computing solution provider

- Innovative software development and hybrid-cloud-based AI platform
- Complete portfolio from development and hardware design to accelerate enterprise deployment of AI solutions
- Global market allocation
- 1000+ total employees. Software engineers make up 60% of the company workforce

IEI Builds AIoT Integrated Solution in Smart City



Company Awards

Red Dot Design Award



Taiwan Excellence Award



iF Product Design Award



ICT Month Innovative Elite

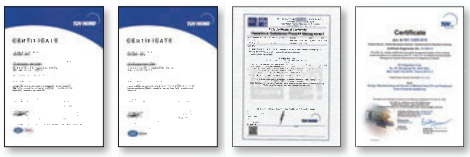


Golden Pin Design Award



Certificates

- ISO 9001 2015
- ISO 14001 2015
- ISO 13485 2016
- ISO 28000 2007
- ISO 27001 2013
- QC 080000 2012
- ISO 45001 2018



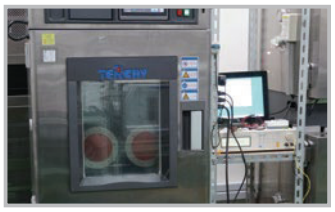
www.ieiworld.com

A Meticulous Commitment to Product Quality

Comprehensive quality assurance tests are performed on all IEI products throughout the product development cycle. Testing is initiated in the research and development phase of a product and continued throughout the manufacturing phase. Quality assurance testing throughout the product development cycle ensures all IEI products to provide stable performance in the industrial environments.

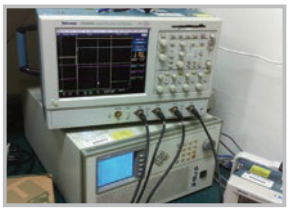
In-house Reliability Testing Facilities

ICP Reliability and Environment Lab


Temperature Testing

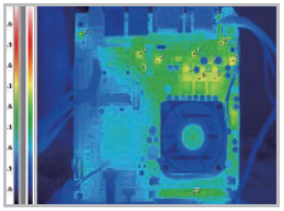

ESD Testing


Vibration Testing


Power Consumption Testing


IP 65 Testing


Drop Testing


Thermal Testing


Safety Testing

Thermal Test Criteria

IEI uses the following thermal measurement criteria for selecting the critical monitor points of thermal testing. Revealing the complete thermal

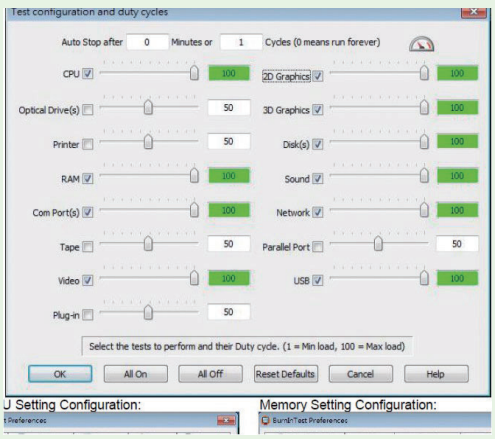
- A minimum of 1 DUT must be tested
- There must be no function error
- No any selected component temperature is higher than the maximum specified components specification.
- The test result of all the selected point should meet the specified DUT components thermal specification.
- The operating DUT power input is fixed on AC 110 V or DC 24V voltage.
- Minimum testing DUT configuration: highest speed CPU, add-on card, SPS, HDD, FDD, CD-ROM, DVD-ROM, CD-R/W, max. RAM memory.

AVIO Neo Thermo TVS-700N Testing Equipment

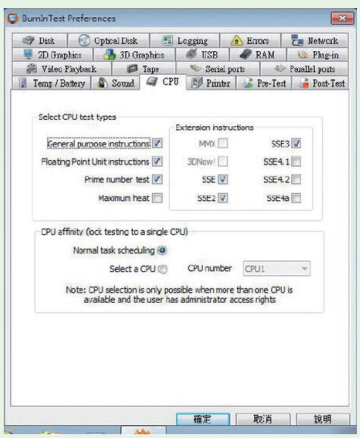

Better temperature control guarantees more reliable system operation in the long run

Test Software

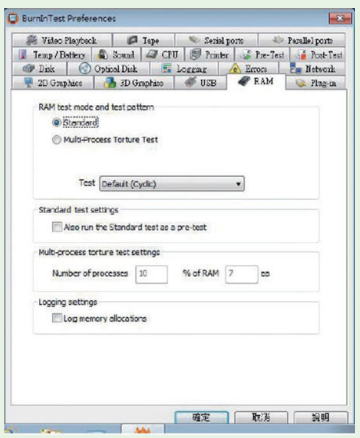
Passmark Burn-In Test Program V6.0



Setting Configuration



CPU Setting Configuration



Memory Setting Configuration

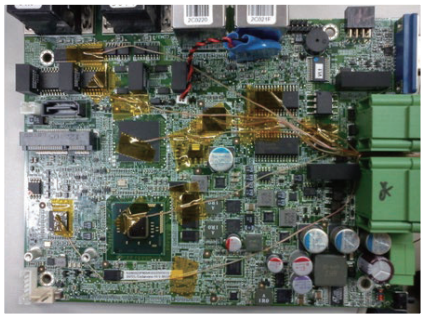
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➤ Thermal Test Results

Against to each testing point, we detected the temperature of system to show the overheat. It reveals how the rugged system we support for user, adapting in wide range temperature situation and application.



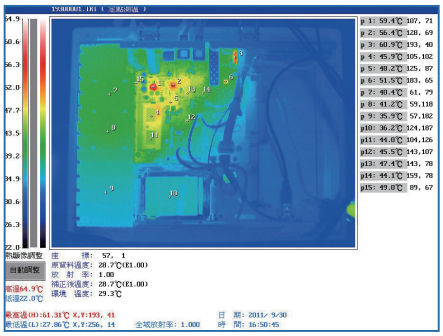
Agilent 34970A-Data Acquisition/Switch Unit



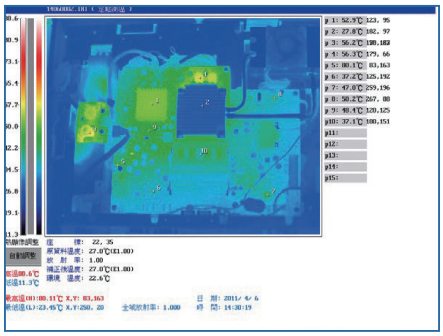
Type K thermocouple

System Thermal Test

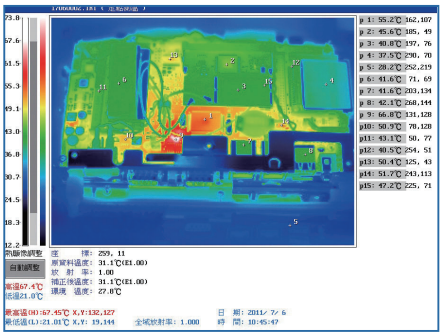
Test Condition: test temperature is 50°C, Test Humidity: 95%



PPC-5152-D525

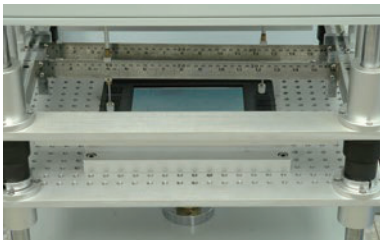


AFL-19i-HM55



AFL-07A-LX

➤ Mobile System In-house Reliability Testing Facilities



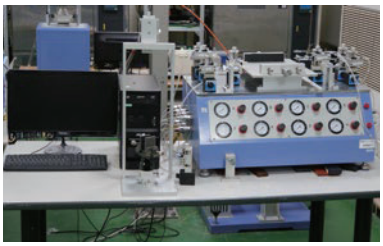
Keypad Life Test/Touch Panel Tap Test

Press the keypad button and taps the touch panel 1,000,000 times using a test fixture. Measures the force and pressure of the keypad button and touch panel to observe potential damage.



I/O Connector and Connector Rubber Insert/ Remove Test

Ensures the I/O function by testing 5000 times.



Touch Panel Scratch Test

Ensures the touch panel resists deformation, surface defects, color-off, spots and scratches by testing the surface 15000 times.

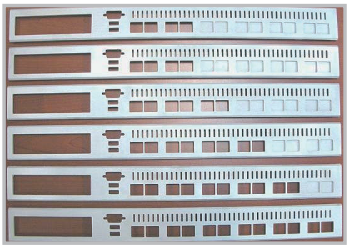


Sunshine Super Long-life Weather Meter

Simulates sunlight environments to estimate the lifespan of the materials.

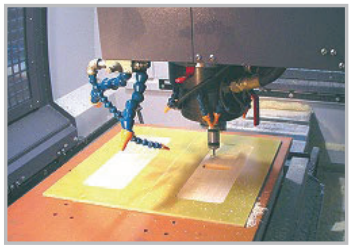
Example:

Front panel customization according to expansion adaptor selections





Front panel smapling by in-house CNC in 2 days



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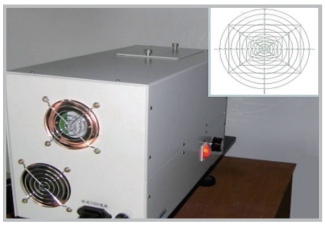
Optical Design

In order to ensure the quality of all IEI optical products, IEI R&D department has its own optical laboratory, and all optical products are developed and tested in accordance with the standard procedure.
Both the optical lens and the camera itself undergo a series of rigorous tests and calibrations, including color balance, contrast and sharpness (by SFR), white balance, gamma correction, dynamic range (DR), distortion, shading, etc. IEI's products give exactly the same output as the original image, achieving the highest level of what you see and what you get.

Optical Lab Facility


Color Matcher


Digital Camera


Resolution Capability Projector


Transparency Illuminator


Light Source Box



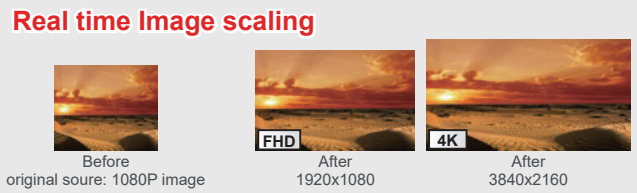
Barcode Reader


Display Color Analyzer


Illuminance Spectrophotometer

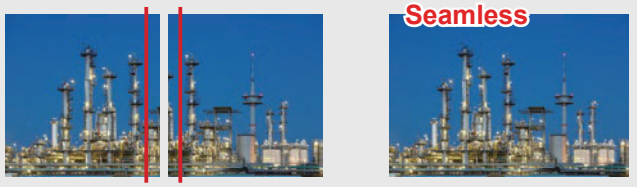
Algorithm

■ Dynamic change output image resolution



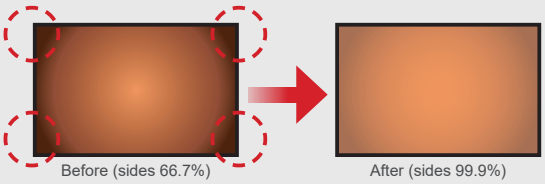
Before
original soure: 1080P image
After
1920x1080
After
3840x2160

■ Image fusion



Before
After

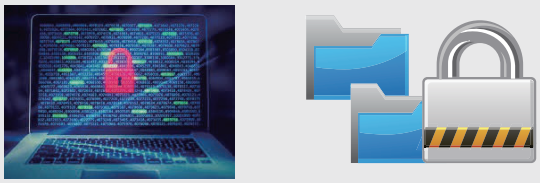
■ Image uniformity


Before (sides 66.7%)
After (sides 99.9%)

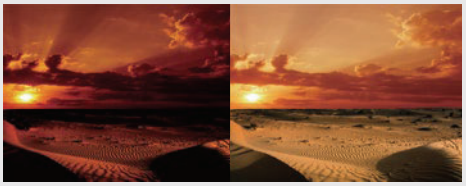
■ 3D image processing



■ Data encryption and decryption algorithm (AES / 3DES)

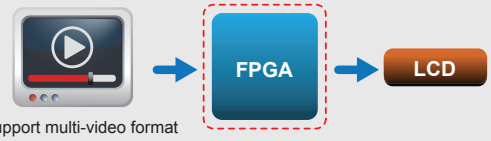


■ Gamma Curve Adjustment, Anti-aliasing , Dithering and Color Space Convertor



■ IC/ASIC/FPGA Customization

IEI's R&D team has the ability to develop FPGA programs. The FPGA technology is implemented in our video capture card, industrial camera and barcode products to optimize image processing. In addition, and more importantly, our products can be customized according to customer specific needs.



Support multi-video format

www.ieiworld.com

IEI AI Ready Solutions

Artificial Intelligence, AI, is changing our lives from the past to the future. It enables machine learning by using a variety of training models to simulate and infer the status or appearance of objects. For example, the inference system with the video analysis model can perform face and vehicle license plate analysis for safety and security purposes.
Today, most of AI technology still rely on the data center to execute the inference, which will increase the risk of real-time application for applications such as traffic monitoring, security CCTV, etc. Therefore, it's crucial to implement a low-latency. real-time edge computing platform.



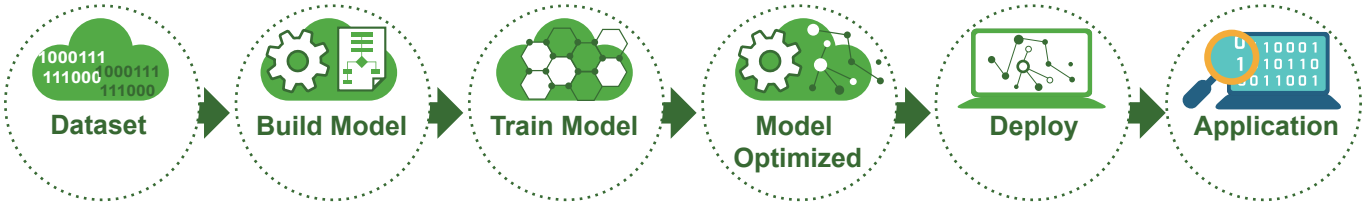
Traffic Monitoring



Security CCTV



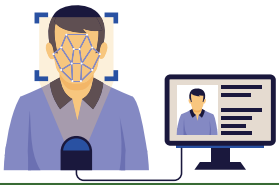
Face recognition



Training

ONNX mxnet TensorFlow Caffe

Images
Annotations
Model



Inferencing

OpenVINO™

New Image
Model
Predict Result

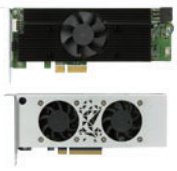




AI Training Server



AI Inference System



Accelerator Card

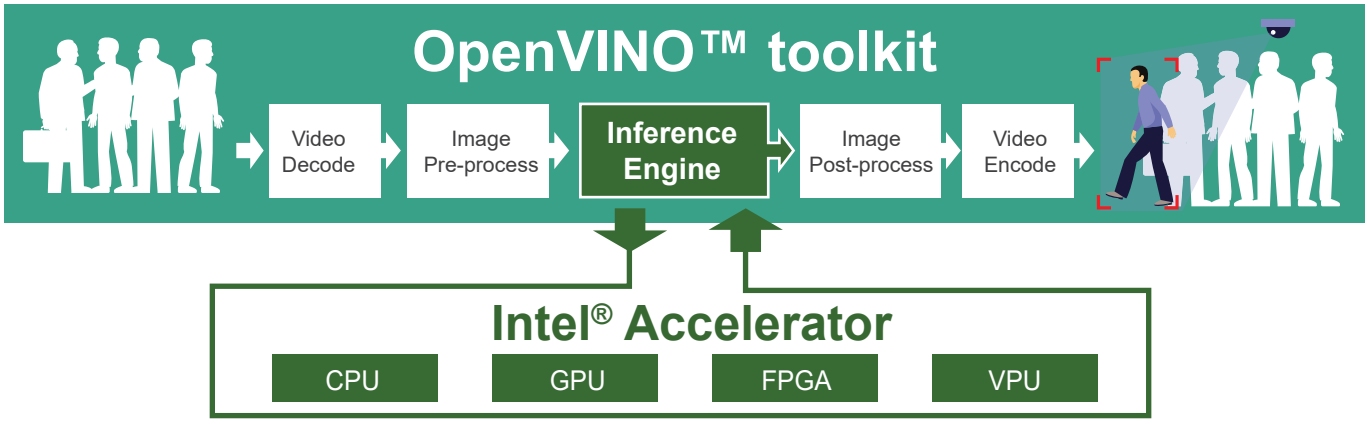


AI Modular Panel PC

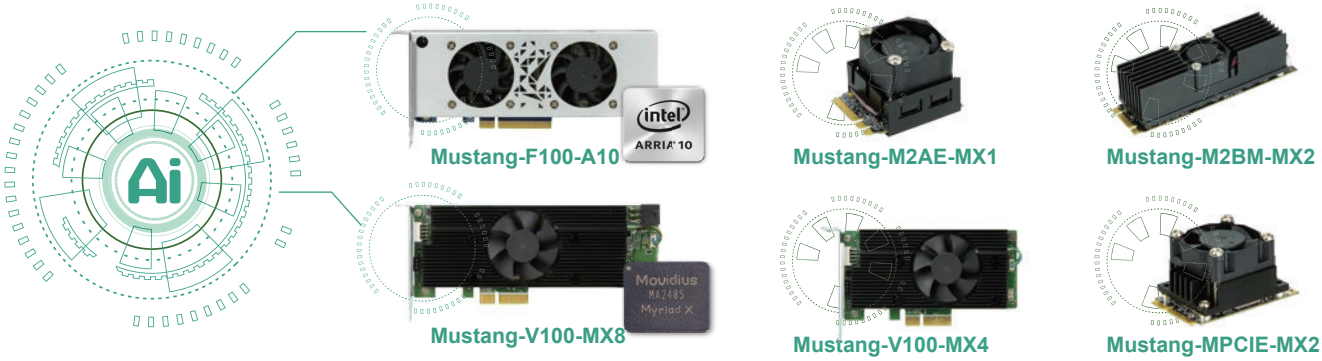
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Intel® Distribution of OpenVINO™ toolkit

Intel® Distribution of OpenVINO™ toolkit is based on convolutional neural networks (CNN), the toolkit extends workloads across multiple types of Intel® platforms and maximizes performance.
It can optimize pre-trained deep learning models such as Caffe, MXNET, and ONNX Tensorflow. The tool suite includes more than 20 pre-trained models, and supports 100+ public and custom models (includes Caffe*, MXNet, TensorFlow*, ONNX*, Kaldi*) for easier deployments across Intel® silicon products (CPU, GPU/Intel®Processor Graphics, FPGA, VPU).



IEI accelerators Systems for Mustang Accelerators



Accelerator / Platform	Mustang-F100-A10 PCIe Gen3x8	Mustang-V100-MX8 PCIe Gen2x4	Mustang-V100-MX4 PCIe Gen2x2	Mustang-MPCIe-MX2 minipcie	Mustang-M2BM-MX2 M.2 B+M
TANK AIoT Dev. Kit Intel® SkyLake AI Dev. Kit		x2	x2		
FLEX-BX-200-Q370 Intel® Coffee Lake AI Modular Box PC		x4	x4		
RACK-500AI Intel® Coffee Lake AI Modular PC		x2	x2		
PAC-400AI Intel® SkyLake AI Modular PC		x2	x2		
ITG-100AI Intel® Atom™x5-E3930					

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Networking Solution

Aiming to The Future with Next Generation Network Appliance

IEI PUZZLE series is the next generation product of network appliance which includes a broad portfolio of x86-based and ARM-based network platform built with the latest generation Intel, AMD, Marvell, NXP or Cavium processors, and Aquantia, Intel, Broadcom, Mellanox network interface controllers. These products are built for proprietary network appliance and uCPE (Universal Customer Premise Equipment).



Proprietary Network Appliance

A Proprietary network appliance is a specialized electronic device that plugs into a network that is optimized for one specialized network purpose like switching, routing, protecting in a network environment. Proprietary network appliances include as Router, Load Balance, Bandwidth Management, Gateway security, WAN Optimization, application delivery controller (ADC), Next Generation Firewall (NGFW), Unified Threat Management (UTM), and Intrusion detection system (IDS).

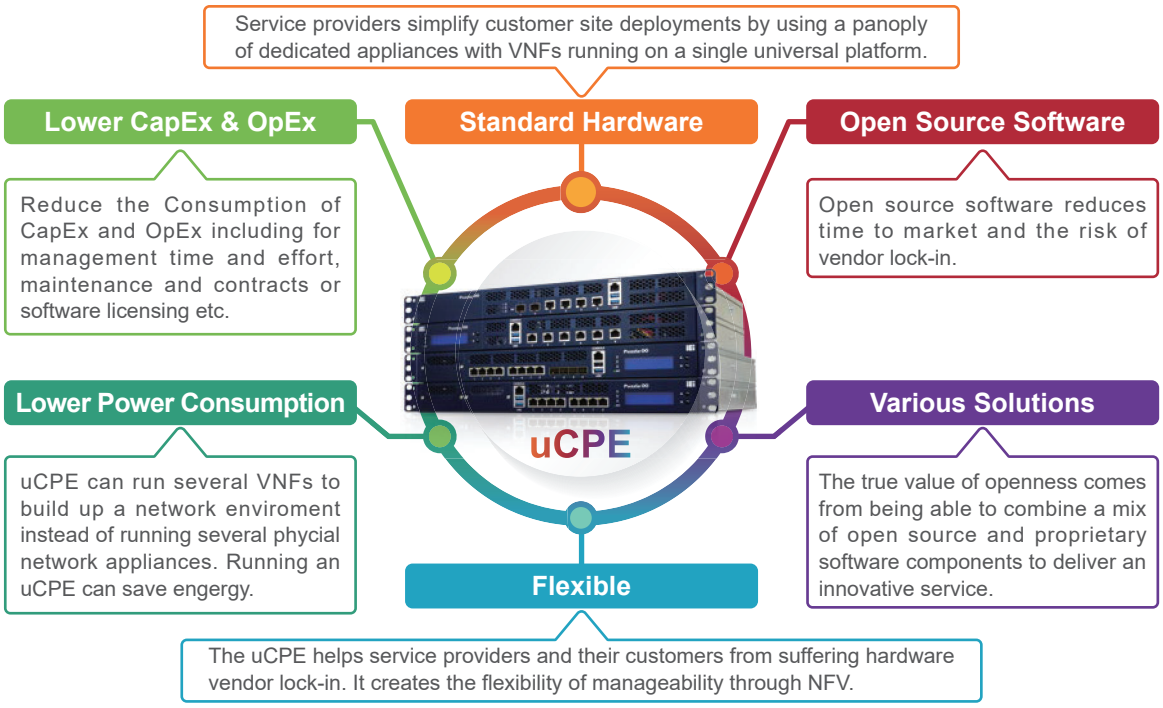
uCPE (Universal Customer Premise Equipment)

uCPE consists of virtual network functions (VNFs) running on a standard operating system hosted on an open server with NFV technology. Now with NFV technology, we can create several virtual machines and install these VNFs in a x86 or ARM based uCPE. VNFs could include popular software services such as a virtual firewall, virtual load-balancing, or other software-defined wide area network (SD-WAN) service. Besiads with NFV Orchestration, uCPU could be an edge computing system or an AI inference computing system.

uCPE in Telecom & Network Operators

Nowadays, telecom and network operators can build network services by deploying VNFs on a uCPE. There are several advantage of uCPE, that is why uCPEs become more and more popular.

This model allows Telecom & Network Operators to deploy services more quickly and with more flexibility and save a lot of money.



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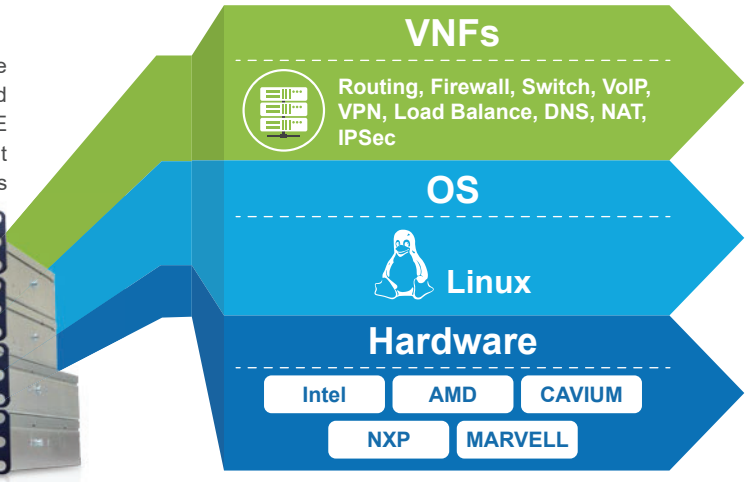
PUZZLE Series Technology

Virtualization is the process of creating a software-based, or virtual, representation of something, such as virtual applications, servers, storage and networks. Network functions virtualization or NFV is a network architecture concept that uses the technologies of IT virtualization to virtualize entire classes of network node functions into building blocks that may connect, or chain together, to create communication services.

PUZZLE Series Ecosystem

PUZZLE is about the uCPE consisting of software virtual network functions (VNFs) running on a standard operating system hosted on an open server. An ideal uCPE deployment supports a multi-vendor multi-component construction and enables rapid development as well as open multi-vendor systems.





Universal CPE (uCPE) is one of the most compelling use cases of Network Function Virtualization (NFV) currently attracting the interest of hosted service providers. uCPE provides a remotely manageable platform on which hosted service providers can easily deploy, modify or delete VNFs over Wide Area Networks (WAN).

The PUZZLE system can provide an open universal customer premises equipment (uCPE) solution that offers real-time software-defined wide-area network (SD-WAN) services that support both Intel x86 and ARM architectures with any additional virtual network functions (VNF) services.

IEI PUZZLE Series is Ready for Next Generation Network

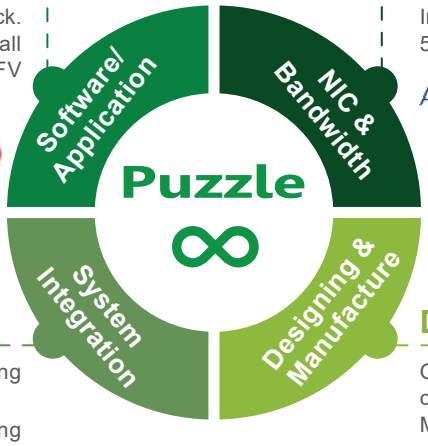
The following picture completely shows the components of the PUZZLE series. Choose the right components from CPU, NIC, software, manufacturing side, and fit them together. You will create a perfect network appliance.

Software/ Application

On the left hand side, it shows the S/W support from IEI. IEI will help customers to get device driver, application, other NFV basic software, DPDK, OvS, VPP, OpenDaylight and OpenStack. IEI will also help customers to deploy and install all of the software and build up their own NFV solutions.

openstack. OvS Open vSwitch OPEN DAYLIGHT

DPDK Device Driver Application



NIC & Bandwidth

On the upper side, it shows the network connection ability of the PUZZLE series.
IEI provides four brands of NIC from Aquantia, Intel, Broadcom, Mellanox, and with 1G, 2.5G, 5G, 10G or 25G different kinds of speed.

AQUANTIA BROADCOM intel Mellanox

10/100Mb, 1G, 2.5G, 5G, 10G, 25G, 100G

System Integration

On the right hand side, it shows the computing ability of the PUZZLE series.

IEI implements 5 major CPU brands, including Intel, AMD, Marvell, NXP, Cavium, and 3 kinds of accelerator cards for edge computing or AI computing .

intel NVIDIA MARVELL NXP Movidius

intel FPGA AMD CAVIUM

Designing & Manufacture

On the bottom side, it shows ARMOR Link cross IEI cross QNAP.
Most of network appliances are about network security. Some of the customers care about where the network appliance is designed and made. Therefore, we provide you two choices, designed and manufactured in Taiwan or in China. QNAP factory is in New Taipei City, Taiwan, and ARMOR Link factory is located in Shanghai, China.

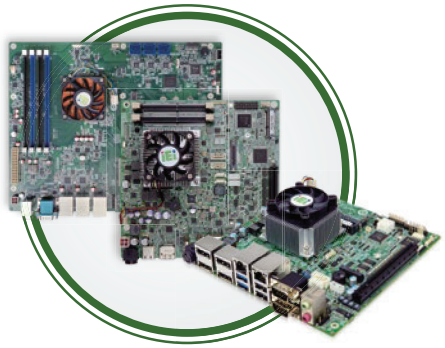
ARMOR Link × iEi × QNAP

www.ieiworld.com

AMD Ryzen 3000 and AM4 Flexible Platform for Gamers

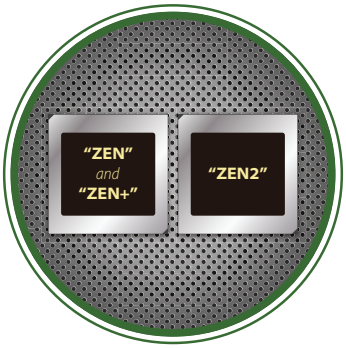
AMD's new generation of Ryzen 3000-series processors are here and they have in many ways matched the sky-high expectations of them. Based on a next-gen Zen 2 architecture, Ryzen 3000 processors offer dramatic performance improvements over their predecessors in the Ryzen 2000 series with improvements to clock speed, core count, and instructions per clock.

They contain the CPU cores and are paired with a 12nm input/output (I/O) processor that gives them direct connections to memory, which should reduce the latency concerns that we saw on similar designs with the Zen and Zen Plus-based Threadripper CPUs.



User Choice

150+ Motherboards Available



Incredibly Scalable

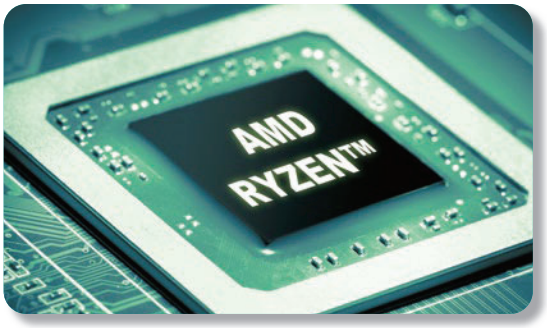
Support Zen, Zen+ and Zen 2



Highly Customizable

Exclusive Tweaking & Tuning Options

3rd Gen Ryzen™ CPU

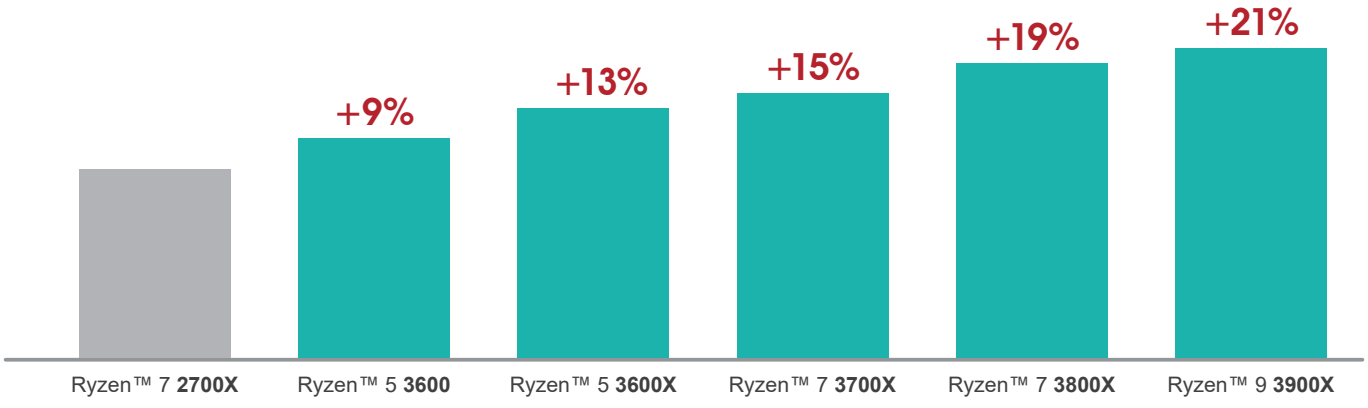


The next gen AM4 Ryzen™ processors feature superior performance and high-performance"Zen 2" CPU core.

- Up to 8C/16T 7nm Zen 2 cores
- 65W
- DDR4 3200MHz dual-channel
- PCIe 4.0: 24 lanes expendable to 32 lanes with AMD premium chipset
- USB 3.2 Gen 2 up to 10Gb/s
- AMD premium chipsets provide additional IO support
- AM4 5yrs availability

Up to 21% More 1T Performance with 3rd Gen AMD Ryzen™ Processors

Cinebench R20 Single Thread



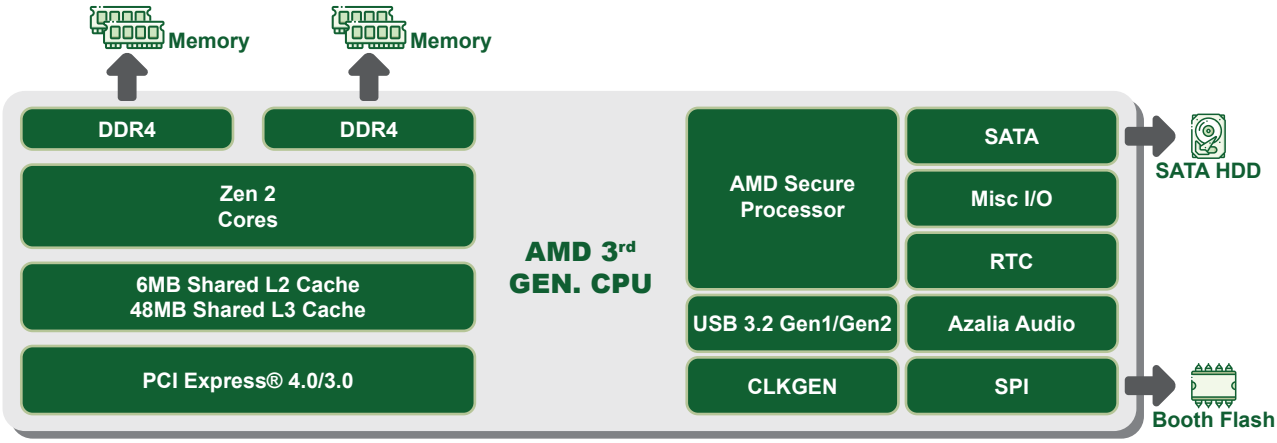
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3rd Gen Ryzen™ Competitive Positioning

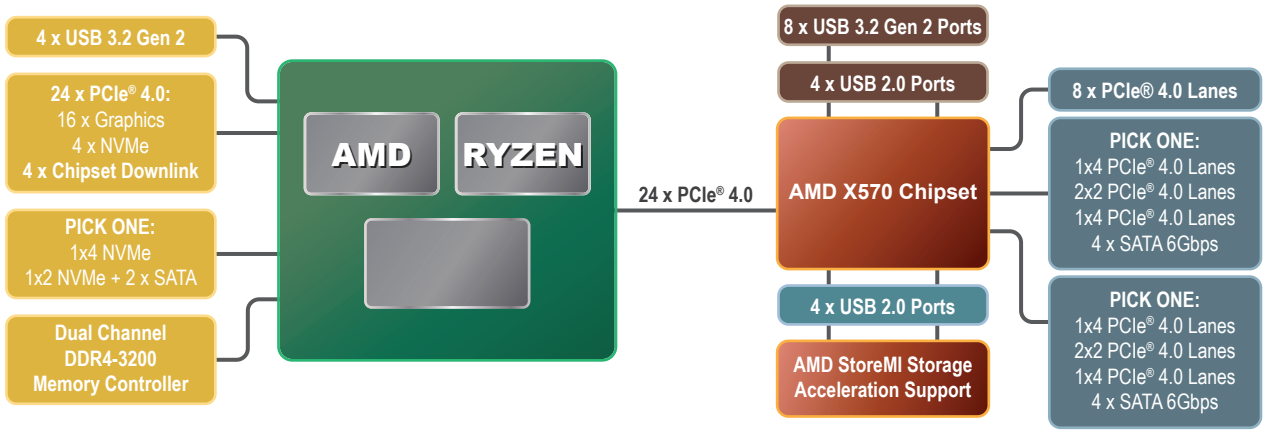
Better Performance	Latest Gen. I/O	AMD Secure Processor
		
>10% Increase in Performance v. Previous Gen. AM4 CPU	Introduction of PCIe 4.0 and USB 3.2 Gen 2 into AM4 CPU	AMD Secure Processor
Higher Effective Frequency for nT Workload	AM4 Compatible	Secure Memory Encryption
Lower TDP at Same Core Count v. Previous Gen. AM4 CPU	New Premium Chipsets provide I/O Expansion with Enhanced PCIe Performance	Secure Boot

Next Generation AMD Ryzen™ 3 Processor

*Subject to Change**



AMD X570 Platform with the Most Modern I/O



16 x Graphics PCIe® 4.0 lanes	12 x Flexible PCIe® 4.0 lanes	4 x SATA 6Gb/s ports
8 x General purpose PCIe® 4.0 lanes	2x4 NVMe + 4 x SATA 6Gb/s	1x4 PCIe® 4.0 uplink to CPU
12 x Super-Speed USB 10Gb/s ports	1x4 NVMe + 8 x SATA 6Gb/s	1x4 PCIe® 4.0 downlink to chipset
4 x Hi-Speed USB 480Mb/s ports	3x4 NVMe	
	*Configuration varies by motherboards	

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AMD V1000 / R1000 Series

The Ryzen Embedded family is 64-bit multi-core x86 embedded microprocessors designed and introduced by AMD, and it is also a low-power variant of the Ryzen line that primarily targets graphics-driven embedded devices such as medical imaging, industrial systems, digital gaming and thin clients. Those parts have lower TDPs and offer configurable I/O for system designers. Ryzen Embedded effectively succeeded the Embedded V and R-Series embedded microprocessors.

Gaming Machines



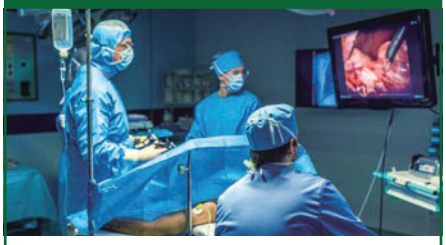
Casino Gaming, Arcade Gaming, Over-the-top Set-top-box Gaming

Digital Signage



Digital Signage, Pos/Kiosk, Quick Service Restaurant

Medical Imaging



Portable Medical Equipment, Clinical Workstation, MRI, X-ray, CT

Industrial Controls & Automation



Industrial HMI/PC, Machine Vision, Surveillance, Smart Server/Gateway

Thin Client & Office Automation



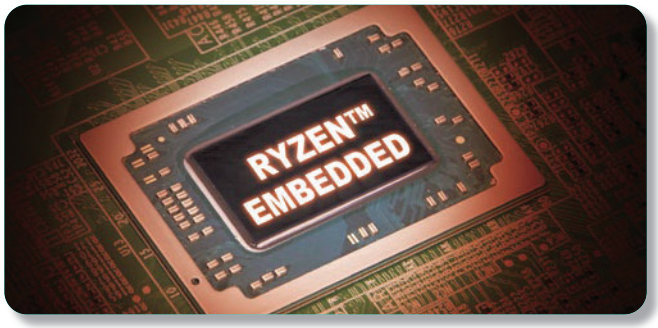
Financial/Education, Converged Devices, Printing & Imaging

Communications Infrastructure



Enterprise/Switch/Router, Service Provider, Networking, Lot Infrastructure

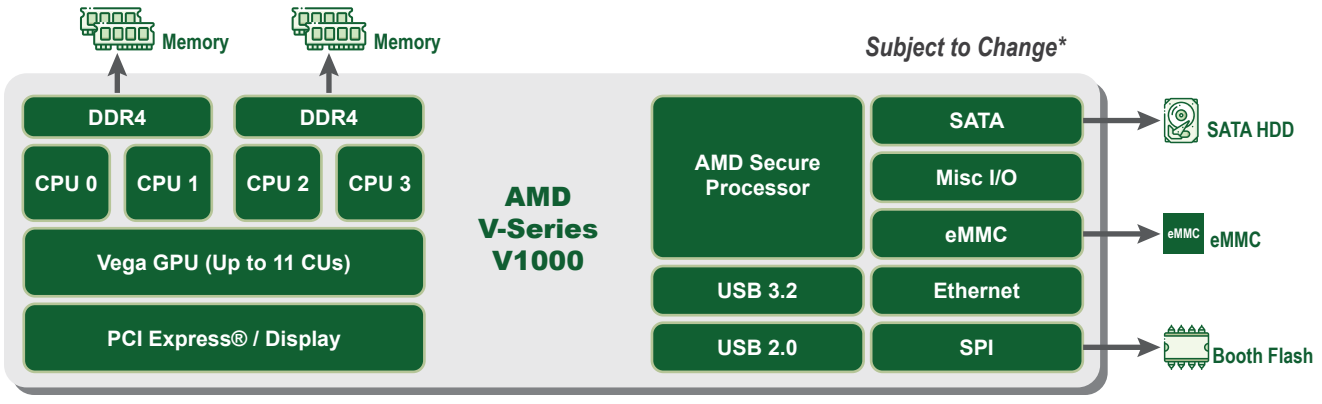
Ryzen™ Embedded V1000 Series APU



The next gen SoC features superior performance and high-performance “Zen” CPU core

- 4C/8T 14nm Zen Cores
- 3.6 TFLOPS*
- 4 4K Displays
- 4K60 Decode & Encode
- Dual 10GbE
- Leading Edge Security SME
- Scalability 12W-54W

Next Generation AMD V-Series V1000



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AMD Ryzen™ Embedded V1000 Competitive Positioning

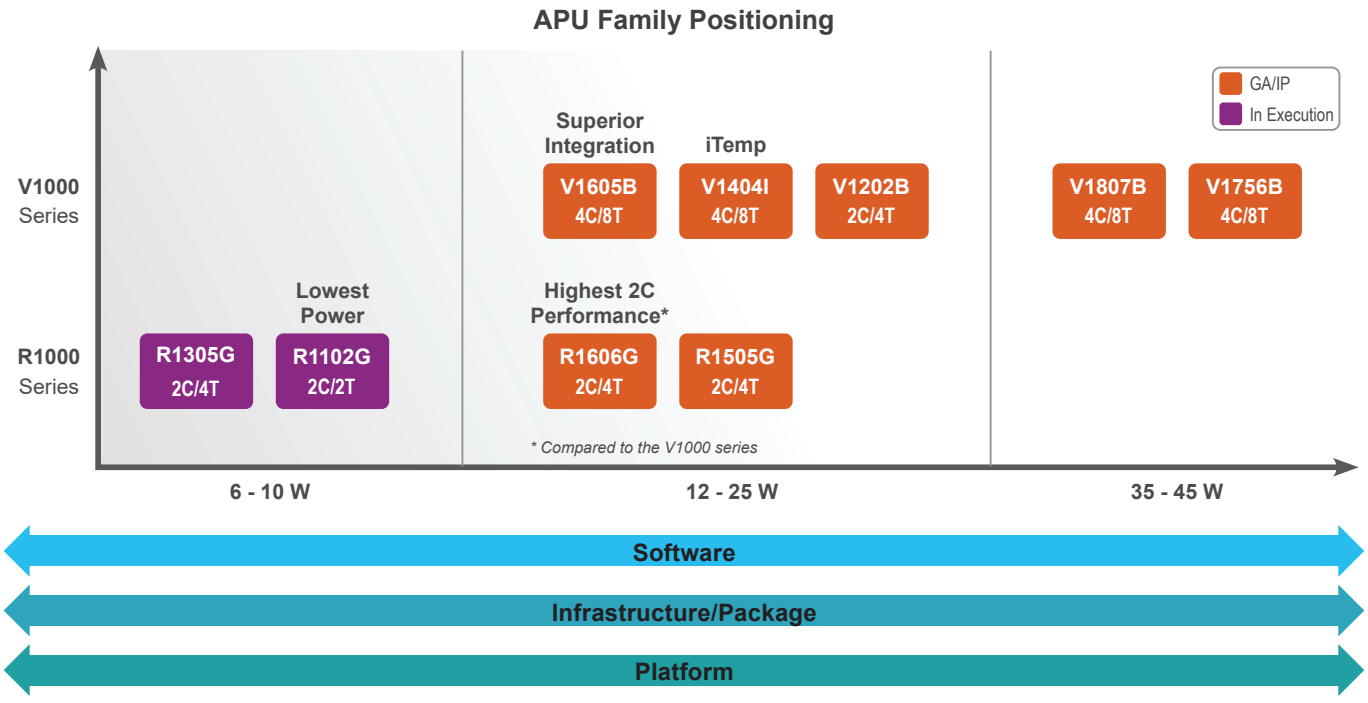
Better Performance	Better Multimedia	Better Security Features	Better I/O
			
Up to 2X Increase in Performance v. Previous Generation*	Bringing Video to Life H.265 enc/dec, VP9 decode*	AMD Secure Processor	Optimized Design 26% Smaller Footprint*
Up to 3X Better GPU Performance v. Competition*	Leading Edge Interfaces HDMI™ 2.0b, Edp1.4, DP1.4	Secure Memory Encryption	Market Leading Memory
Up to 46% Better Multi-threaded Performance v. Competition*	4 x 4K60 Native Display	Secure Boot	Market Leading Memory Bandwidth*

** See EMB-144, EMB-146, EMB-147, EMB-150, EMB-155, GD-81 in endnotes.*

Differences Between Client Ryzen™ Mobile and Ryzen Embedded V1000

Feature	Ryzen Mobile APU	Ryzen Embedded V1000
DRAM ECC Support	No	Yes
Integrated Ethernet MAC	No	Yes
Extended Temp Boot OS Support	No	Yes
eMMC Boot OS Support	No	Yes (Boot BIOS not supported)
DDR4 UDIMM Support	No	Yes
10-year Availability	No	Yes

AMD Ryzen™ Embedded



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AMD Ryzen™ Embedded R1000 Competitive Positioning

A New Class of Performance

3X
Performance Per Watt*

4X
Performance Per Dollar*

Rich Multimedia

3X 4K60
Native Displays

Immersive Video
H.265 Encode/ Decode (10b), VP9 Decode*

Perfect Visuals
With Fanless Designs Starting at 12W TDP

Seamless Integration & Security

Leading Edge Connectivity
HDMI™ 2.0b, Dual 10Gb Ethernet

Family Compatibility
Software and Hardware

Enterprise Class Security Features
Secure Root of Trust & Secure Run Technology

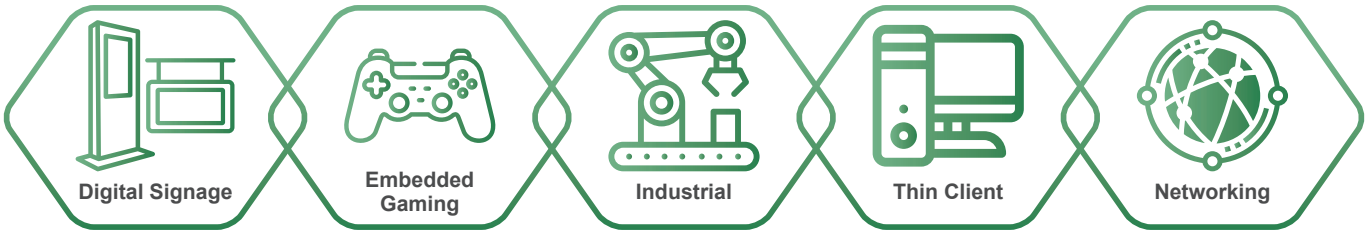
** See EMB-158, EMB-159 and GD-81 in endnotes*

R1000 – OPNs & Feature Set

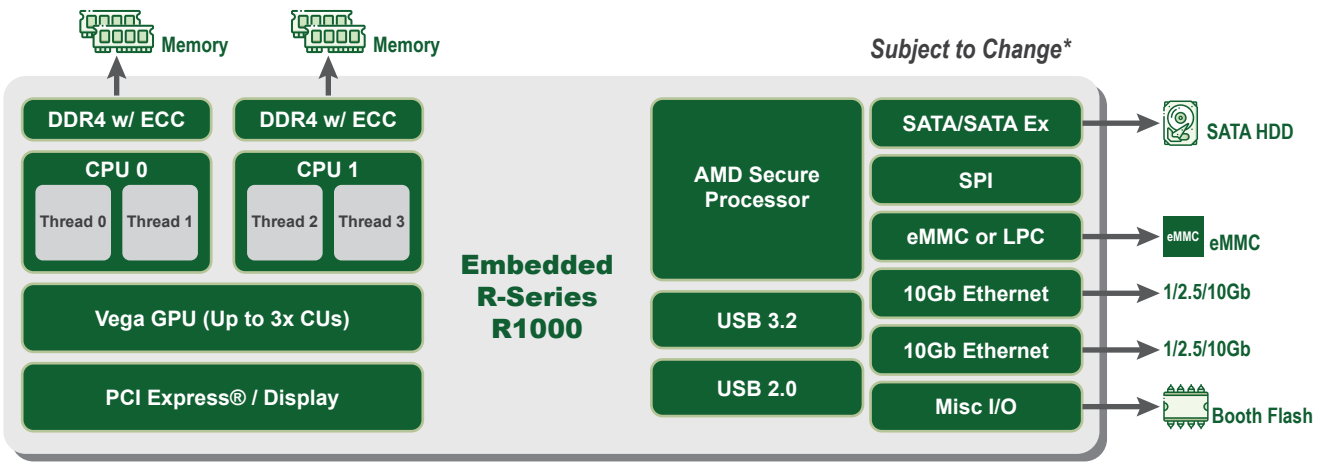
Family		OPNs	TDP Range	Core / Thread Count	Base / Boost Freq. (GHz)	L2 Cache	L3 Cache	DDR Controllers	Max. DDR4 Rate (MHz)	ECC	GPU Computing Units
APU	R100	R1606G	12-25W	43865	2.6 /3.5	1 MB	4 MB	2x	2400	Yes	3
		R1505G	12-25W	43865	2* /3.3	1 MB	4 MB	2x	2400	Yes	3

Family		GPU Freq** (max.) (MHz)	Ind. Displays	Ethernet	PCIe 3.1 Gen (lanes)	USB	Tclt Temp Range	Package
APU	R100	1200	3	2 x 10Gb	8 in total 4 x GFx+ 4 x GPP	4 x USB 3.2 Gen2 (2 x Type-C) 2 x USB 2.0	0-90°C	FPS
		1200	3	2 x 10Gb	8 in total 4 x GFx+ 4 x GPP	4 x USB 3.2 Gen2 (2 x Type-C) 2 x USB 2.0	0-90°C	FPS

AMD Ryzen™ Embedded R1000 Applications



Next Generation AMD R-Series R1000 SoC

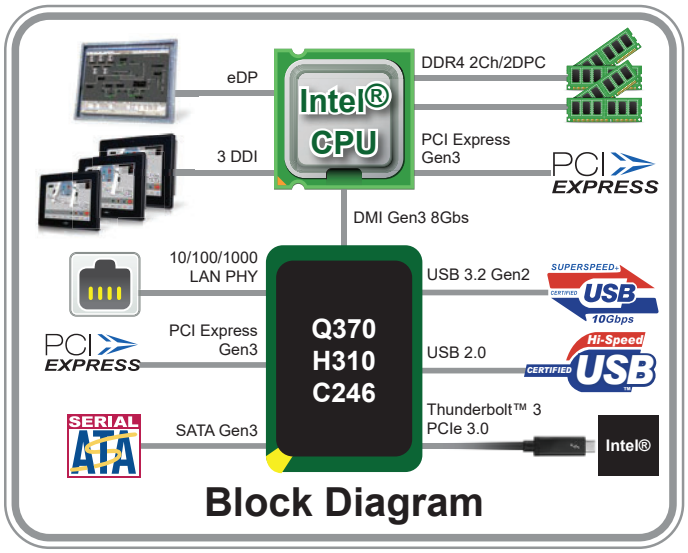


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IEI 8th/9th Generation Intel® Core™ Solution

Intel® Coffee Lake/Coffee Lake R Platform Overview

- Additional performance with 1.37x better productivity and up to 6 processor cores vs 4th generation processors
- Speed and versatility with USB-C and USB 3.2
- Gen 11 graphics engine
  - » 3 independent displays with audio stream
  - » Display resolutions supporting up to 4K@60Hz/5K@30Hz
- Security
  - » Intel® Device Protection Technology with Boot Guard
  - » Intel® Memory Protection Extensions (Intel® MPX)
  - » Intel® Software Guard Extensions (Intel® SGX)



More Features on Coffee Lake/Coffee Lake Refresh



Additional Performance

137% better productivity vs 4th Gen processors or 10% performance gain from 7th Gen processors.



Media/Video Experience

High Dynamic Range (HDR) Rec.2020, HEVC 10-bit encode/ decode, VP9 10-bit decode, Chrome browser VP9 HW acceleration support.



Deep Learning AI

Unlock AI capabilities at the edge to capture, process, and analyze data for near-real-time insights with enhanced CPU performance.



New UX Capabilities

Speed and versatility with USB-C / USB 3.2 (10 Gbps)

Intel® 8 Series, 9 Series & 100 Series Comparison

	2-Chip Platform-S (WS/DT)				2-Chip Platform-H (Mobile)				
Item	**8 Series**	**100 Series**	**100 Series**	**300 Series**	**8 Series**	**9 Series**	**100 Series**	**100 Series**	**300 Series**
Platform Name	Haswell	Skylake	Kaby Lake	Coffee Lake / Coffee Lake Refresh	Haswell	Broadwell	Skylake	Kaby Lake	Coffee Lake / Coffee Lake Refresh
Process	22nm	14nm	14nm	14nm	22nm	14nm	14nm	14nm	14nm
CPU Package	LGA1150	LGA1151	LGA1151	LGA1151	BGA1364	BGA1364	BGA1440	BGA1440	BGA1440
Memory	DDR3/DDR3L	DDR3L/DDR4	DDR3L/DDR4	DDR4	DDR3L	DDR3/DDR3L	DDR3L/DDR4	DDR3L/DDR4	DDR4
PCI Express Lanes	Up to 8 Lanes (Gen2)	Up to 20 PCIe (Gen3)	Up to 24 PCIe (Gen3)	Up to 30 PCIe (Gen3)	Up to 8 Lanes (Gen2)	Up to 12 PCIe (Gen2)	Up to 16 lanes PCIe (Gen3)	Up to 16 lanes PCIe (Gen3)	Up to 24 PCIe (Gen3)
PCH	Q87/C226	C236/Q170/ H110	C236/Q170/ H110	C246/Q370/ H310	HM86/QM87	HM86/QM87	CM236/HM170/ QM170	CM238/ HM175/QM175 (Compatible with Skylake)	CM246/QM370/ HM310

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Intel® Coffee Lake/Coffee Lake Refresh Graphics Support

Display Comparison

Time	2015	2016	2018	2019
Platform Name	Skylake	Kaby Lake	Coffee Lake	Coffee Lake Refresh
Graphics	Gen9 graphics Intel® HD 510~530	Gen9 graphics Intel® HD 615~620	Gen9 graphics Intel® UHD	Gen9.5 Intel® Graphics GT2
DirectX Support	Direct 12/11.3	Direct 12/11.3	Direct 12/11.3	Direct 12/11.3
OpenGL Support	4.4	4.4	4.5	4.5

DisplayPort & 4K UHD Premium Content Support



Intel® Coffee Lake/Coffee Lake Refresh OS Support

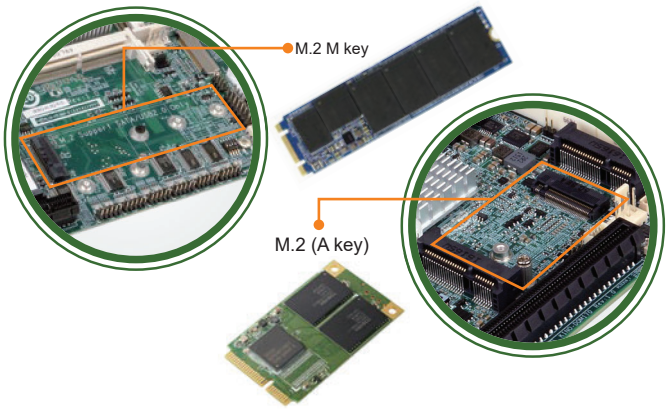
Type	Operating System		Support	
	Coffee Lake	Coffee Lake Refresh	Coffee Lake	Coffee Lake Refresh
Microsoft	Windows* 10 Enterprise & IOT Enterprise (64bit)	Windows* 10 IoT Enterprise RS5 (64bit)	Intel / Microsoft	Intel / Microsoft
Linux	Ubuntu	Ubuntu*, SUSE, Red Hat* Enterprise (64bit)	Open Source community/Canonical Ltd	Canonical Ltd., Attachmate Group, Red Hat, and open source community
	Yocto	Yocto Project* BSP tool-based embedded Linux distribution (64bit)	Yocto project community	Intel, Yocto Project community
RTOS	Wind River VxWorks	Wind River VxWorks* 7 (64bit)	Wind River systems	Wind River systems

** Distributions supported depend on each CPU sku.

Features of IEI Product with 8th/9th Gen Intel® Core™ Processors

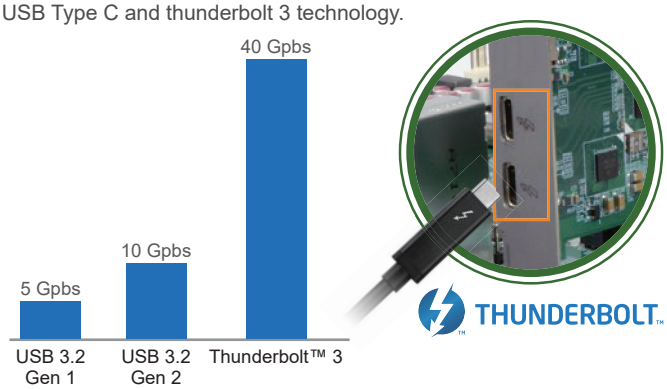
M.2

IEI provides new products supporting Next Generation Form Factor (NGFF) expansion cards in different types, such as SSD, WWAN and WLAN cards suitable for small devices. Products with 8th Gen Intel® Core™ processors supports PCIe Gen3 x 4 NVMe interface.



Thunderbolt 3

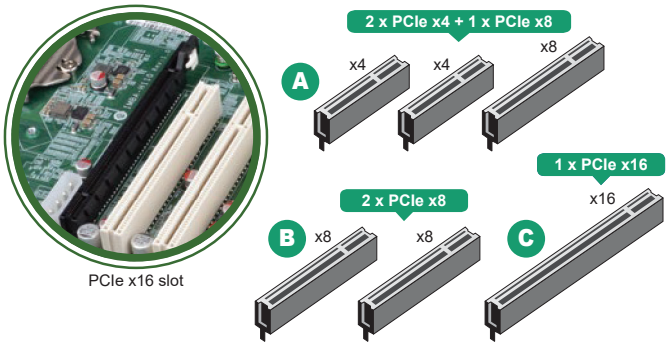
Support dual Thunderbolt 3 by PCIe x4 card with Intel® Alpine Ridge DSL6540. Support more high speed applications through the latest USB Type C and thunderbolt 3 technology.



- 40Gbps Thunderbolt: PCI Express Gen 3
- Four times the data bandwidth of USB 3.2

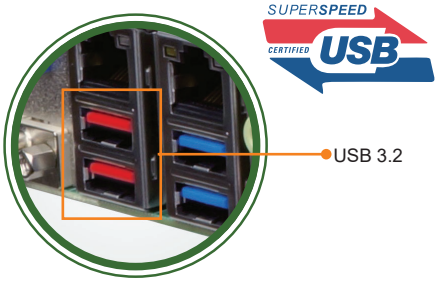
Flexible CPU PCIe x16

Motherboards with high-end CPU has three controllers that can separate PCIe x16 into different sets.



USB 3.2 Gen2

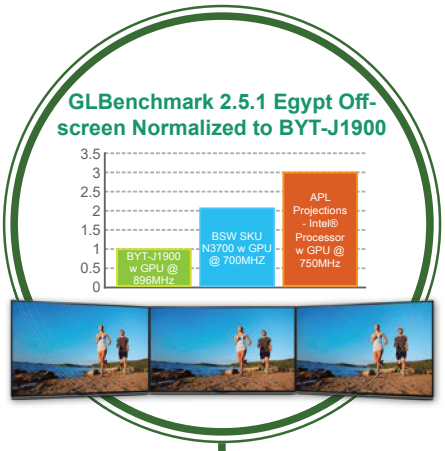
USB 3.2 Gen2 on USB Type A connector doubling the speeds of USB 3.2 Gen1 to as much as 10Gbps.



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Intel® Apollo Lake Platform

Intel® Apollo Lake Platform Overview







Improved 3D & Full-HD Media Performance

- Fast HD video acceleration over previous generation
- Up to 15 simultaneous 1080p30 decode streams
- Fast graphics and media performance @ ISO power over previous generation

Reliable and Efficient Computing

- Highly reliability with ECC
- Wide termperatue SKU with Tj: -40°C ~ 110°C and extreme 15-years lifetime for Industrial applications

Enhanced Security Executions

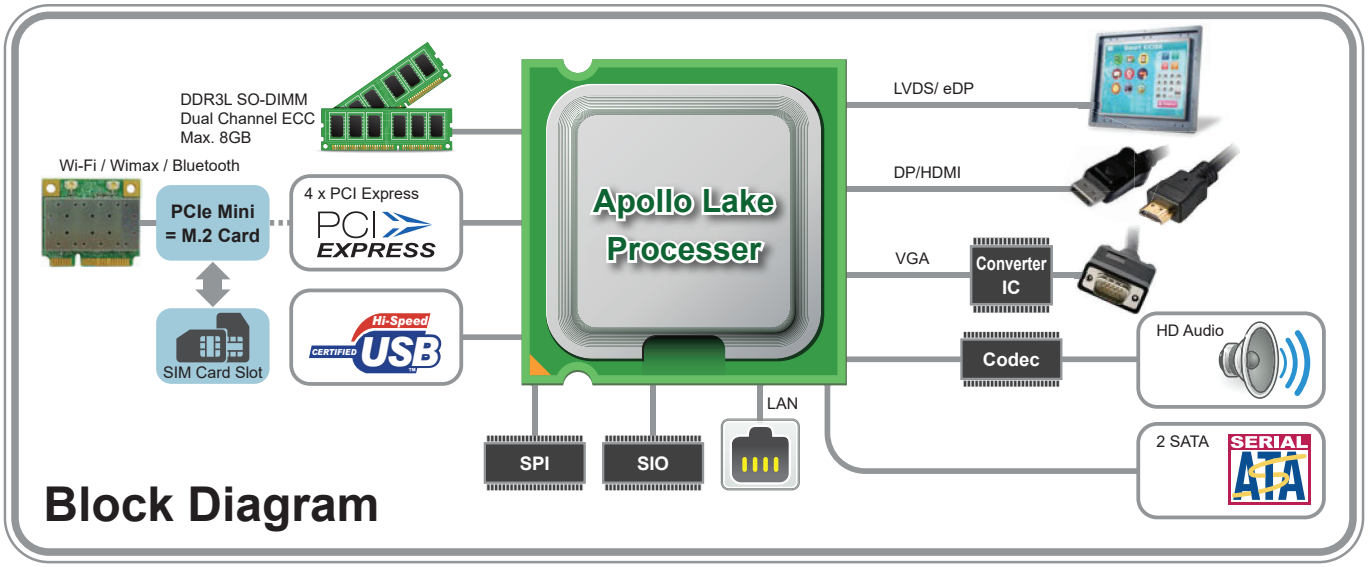
- Integral Intel® Security Engine
- Fast cryptographic execution with Intel ® AES New Instructions (Intel® AES-NI)
- Secure/measured booting features

Intel® Atom™ Comparison



	Cedar Trail	Bay Trail	Braswell	Apollo Lake
Launch	Q1'12	Q4'13	Q1'15	Q4'16
Process	32nm	22nm	14nm	14nm
Processor Frequency & TDP	D2550: 2C, 1.86GHz /10W N2800: 2C, 1.86GHz /6.5W N2600: 2C, 1.6GHz /3.5W	J1900: 4C, 2 GHz /10W N2930: 4C, 1.83 GHz /7.5W N2807: 2C, 1.58 GHz /4.3W E3845: 4C, 1.91 GHz /10W E3827: 2C, 1.75 GHz /8W E3826: 2C, 1.46 GHz /7W E3825: 2C, 1.33 GHz /6W E3815: 1C, 1.46 GHz /5W	N3710: 4C, up to 2.56GHz /6W N3160: 4C, up to 2.24GHz /6W N3060: 2C, up to 2.48GHz /6W N3010: 2C, up to 2.24GHz /4W	N4200: 4C, up to 2.5GHz/6W N3350: 2C, up to 2.3GHz/6W x7-E3950: 4C, up to 2.0GHz/6.5W x5-E3940: 4C, up to 1.8GHz/9.5W x5-E3930: 2C, up to 1.8GHz/12W
Chipset TDP	Intel® NM10: 1.5W	N/A	N/A	N/A
Memory	DDR3 1066 MHz for D2550/N2800 (Max. 4GB) DDR3 800MHz for N2600 (Max. 2GB)	DDR3L 1333MHz for J1900/N2930/ E3845/E3827 (Max. 8GB) DDR3L 1333MHz for N2807 (Max. 4GB) DDR3L 1066MHz for E3826/E3825/ E3815 (Max. 8GB)	DDR3L 1600MHz (Max. 8GB)	DDR3L 1866 MHz (Max. 8GB)
Graphics	2 Independent Displays DirectX9 , OpenGL 3.0 Gfx @ up to 640MHz (D2550/N2800)	Gen 7 graphics 2 Independent Displays Gen 7 4 EUs DirectX11.1 , OpenGL 4.0 Gfx @ up to 854MHz (J1900/N2930)	Gen 8 graphics 3 Independent Displays Gen 8 LP 16 EUs DirectX12 2 , OpenGL 4.2 Gfx @ up to 700MHz (N3700)	Gen9 Low Power graphics 3 Independent Diplats Gen9 LP 18 EUs OpenGL* ES 3.0/3.0+, OpenCL* 1.2 Gfx@ up to 750 MHz (N4200)
Video Decode	MPEG2, h.264, VC-1/WMV9 Up to 1080p	MPEG4, h.264, VC-1/WMV9 VP8 up to 1080p	H.265/HEVC @ level 5, H.264 @ Level 5.2, MPEG2, MVC, VC-1, WMV9, JPEG, VP8	4K Codec Decode & Encode for HEVC , H.264, VP8
Storage & IO	SATA 3Gb/s, 8 USB 2.0	SATA 3Gb/s, 1 USB 3.1 Gen 1, 3 USB 2.0, eMMC 4.51	SATA 6Gb/s, 4 USB 3.1 Gen 1, 1 USB 2.0, eMMC 4.51	SATA 6Gb/s, 5 USB 3.1 Gen 1, 2 USB 2.0, eMMC 5.0

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Intel® Apollo Lake CPU Matrix

Product Family	Brand	Processor No.	CPU Core Count	CPU HFM Freq (GHz)	CPU Burst Freq (GHz)	Memory Speed/ Channel	Gfx Freq (MHz) Nominal/ Turbo	Max. TDP	Junction Temperature Range
Apollo Lake/ Apollo Lake-I	Pentium®	N4200	4	1.1	2.5	1866/2	200/750	6W	0°C ~ 105°C
	Celeron®	N3350	2	1.1	2.3	1866/2	200/650	6W	0°C ~ 105°C
	Atom™	x7-E3950	4	1.6	2	1866/2	500/650	12W	-40°C ~ 110°C
	Atom™	x5-E3940	4	1.6	1.8	1866/2	400/600	9.5W	-40°C ~ 110°C
	Atom™	x5-E3930	2	1.3	1.8	1866/2	400/550	6.5W	-40°C ~ 110°C

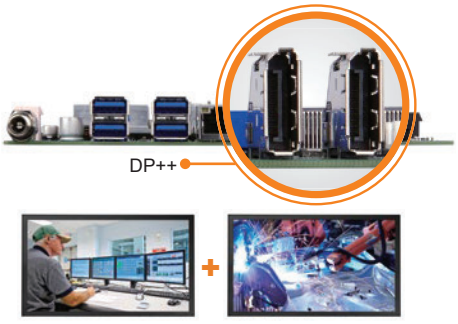
Intel® Apollo Lake Platform OS Support

Type	Operating System	Support
Microsoft	Windows 10 Enterprise (64-bit), IoT Core (32/64-bit)	Intel ®/Microsoft
Linux	Wind River 8.0 Linux distribution (64-bit)	Wind River
	Yocto Project BSP tool-based embedded Linux distribution (64-bit)	Yocto Project and ISV Partners
Android	Android 6.0 (64-bit) Marshmallow	ISV Partners
RTOS	Wind River VxWorks 7.0	Wind River

Features of IEI Apollo Lake Product

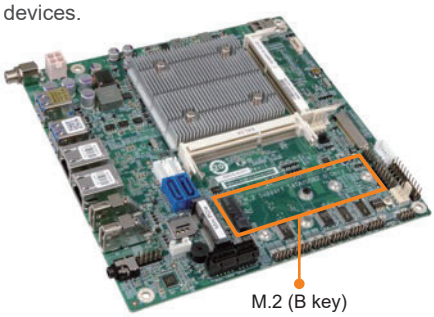
DP++

IEI provides products support Dual-mode DisplayPort output which can auto detect the plugged-in cable type and provide multiple option of display output in single port.



M.2

IEI provides new products supporting Next Generation Form Factor (NGFF) expansion cards in different types, such as SSD, WWAN and WLAN cards suitable for small devices.



Low profile

Thin type products with single layer rear I/O and low profile thermal solution design are suitable for open frame panel PC solutions and also the best choice for thin compact size embedded box solutions.



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OS Support List I (Windows/Linux)

System Chipset		CE 6.0	Embedded Compact 7 CE 7.0	Embedded Compact 2013	2000	XP Pro	7	8.1	10 32 bit	10 64 bit	Server 2003	Server 2008	Server 2012	Server 2016	Server 2019	Linux Kernel
Coffee lake R	Intel® C246									V		V	V	V	V	Linux Kernel 4.19
	Intel® Q370									V						Linux Kernel 4.19
	Intel® H310									V						Linux Kernel 4.19
	Intel® CM246									V						Linux Kernel 4.19
	Intel® QM370									V						Linux Kernel 4.19
	Intel® HM370									V						Linux Kernel 4.19
Intel® whiskey lake ULT								V		V		V	V	V	V	Linux Kernel 4.19
Coffee Lake	Intel® C246									V		V	V	V	V	Linux Kernel 4.14
	Intel® Q370									V						Linux Kernel 4.14
	Intel® H310									V						Linux Kernel 4.14
	Intel® CM246									V						Linux Kernel 4.14
	Intel® QM370									V						Linux Kernel 4.14
	Intel® HM370									V						Linux Kernel 4.14
Intel® Broadwell-DE							V	V		V		V	V	V		Linux Kernel 3.19
Kaby Lake	Intel® C236									V		V	V	V		Linux Kernel 4.14
	Intel® Q170									V						Linux Kernel 4.14
	Intel® H110									V						Linux Kernel 4.14
	Intel® CM238									V						Linux Kernel 4.14
	Intel® QM175									V						Linux Kernel 4.14
	Intel® HM175									V						Linux Kernel 4.14
	Intel® Kaby Lake ULT									V						Linux Kernel 4.14
Skylake	Intel® C236						V	V		V		V	V	V		Linux Kernel 4.0 (3.2)
	Intel® Q170						V	V		V						Linux Kernel 4.0 (3.2)
	Intel® H110						V	V		V						Linux Kernel 4.0 (3.2)
	Intel® CM236						V	V		V						Linux Kernel 4.0 (3.2)
	Intel® QM170						V	V		V						Linux Kernel 4.0 (3.2)
	Intel® HM170						V	V		V						Linux Kernel 4.0 (3.2)
	Intel® Skylake ULT						V	V		V						Linux Kernel 4.0 (3.2)
	Intel® Broadwell ULT						V	V		V						Linux Kernel 3.19
Haswell	Intel® C226					V	V	V		V	V	V	V			Linux Kernel 3.x
	Intel® Q87					V	V	V		V						Linux Kernel 3.x
	Intel® H81					V	V	V		V						Linux Kernel 3.x
	Intel® QM87					V	V	V		V						Linux Kernel 3.x
	Intel® Haswell ULT						V	V		V						Linux Kernel 2.6.3x
Ivy Bridge	Intel® C216					V	V	V		V	V	V	V			Linux Kernel 2.6.3x
	Intel® Q77					V	V	V		V						Linux Kernel 2.6.3x
	Intel® QM77					V	V	V		V						Linux Kernel 2.6.3x

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OS Support List II (Windows/Linux)

System Chipset		CE 6.0	Embedded Compact 7 CE 7.0	Embedded Compact 2013	2000	XP Pro	7	8.1	10 32 bit	10 64 bit	Server 2003	Server 2008	Server 2012	Server 2016	Server 2019	Linux Kernel
Sandy Bridge	Intel® C206					V	V	V			V	V	V			Linux Kernel 2.6.3x
	Intel® Q67	V				V	V	V								Linux Kernel 2.6.3x
	Intel® B65	V				V	V	V								Linux Kernel 2.6.3x
	Intel® H61	V				V	V	V								Linux Kernel 2.6.3x
	Intel® QM67	V				V	V	V								Linux Kernel 2.6.3x
	Intel® HM65	V				V	V	V								Linux Kernel 2.6.3x
Intel® Legacy	Intel® Q57					V	V									Linux Kernel 2.6.2x
	Intel® QM57					V	V									Linux Kernel 2.6.2x
	Intel® HM55					V	V									Linux Kernel 2.6.2x
	Intel® Apollo Lake N4000/E3900									V						Linux Yocto Project 4.1
Intel® Atom™	Intel® Braswell N3000						V	V	V	V						Linux Kernel 3.14 Android 5.0
	Intel® Bay Trail J1900/N2930/ N2807/E3800		V	V			V	V	V	V						Linux Kernel 3.12 Andriod 4.2 (32 bit) Android 4.4 (64 bit)
	Intel® D2550/ N2600/N2800+ NM10					V	V									Linux Kernel 2.6.35
	Intel® D2550/ N2600/N2800 + ICH10R					V	V									Linux Kernel 2.6.35
	Intel® D525/D425/ N455/N425 + ICH8M	V				V	V									Linux Kernel 2.6.2x
AMD®	AMD® R-series (MERLIN FALCON) SoC						V	V		V						Linux Kernel 3.13
	AMD® G-series (eKABINI) SoC	V	V	V		V	V	V		V						Linux Kernel 3.x
	AMD® Geode LX800 + CS5536					V										Linux Kernel 2.6.18

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Intel® CPU and Chipset Matrix Table

Microserver D1500 family CPU List

Supported Sockets	Brand	Process	Cores/ Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCBGA1667	Xeon® E3	22nm Broadwell	16/32	D-1577	1.30 GHz	24 MB	45 W	None	None	DDR4-2133, DDR3L-1600	-
			16/32	D-1571	1.30 GHz	24 MB	45 W				
			12/24	D-1567	2.10 GHz	18 MB	65 W				
			12/24	D-1559	1.50 GHz	18 MB	45 W				
			12/24	D-1557	1.50 GHz	18 MB	45 W				
			8/16	D-1548	2.00 GHz	12 MB	45 W				
			8/16	D-1541	2.10 GHz	12 MB	45 W				
			8/16	D-1540	2.00 GHz	12 MB	45 W			DDR4-2133	
			8/16	D-1539	1.60 GHz	12 MB	35 W			DDR4-2133, DDR3L-1600	
			8/16	D-1537	1.70 GHz	12 MB	35 W				
			6/12	D-1531	2.20 GHz	9 MB	45 W				
			4/8	D-1529	1.30 GHz	6 MB	20 W				
			6/12	D-1528	1.90 GHz	9 MB	35 W				
			4/8	D-1527	2.20 GHz	6 MB	35 W				
			4/8	D-1521	2.40 GHz	6 MB	45 W				
			4/8	D-1520	2.20 GHz	6 MB	45 W			DDR4-2133	
			4/8	D-1518	2.20 GHz	6 MB	35 W			DDR4-2133, DDR3L-1600	
	Pentium®		4/8	D1519	1.50 GHz	6 MB	25 W				
			4/8	D1517	1.60 GHz	6 MB	25 W				
			2/2	D1509	1.50 GHz	3 MB	19 W				
			2/4	D1508	2.20 GHz	3 MB	25 W				
			2/2	D1507	1.20 GHz	3 MB	20 W				

Workstation E3 CPU List

Supported Sockets	Brand	Process	Cores/ Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCLGA2066	Xeon® W	14nm Cascade Lake	18/36	W-2295	3.00 GHz	24.75 MB	165 W	None	None	DDR4 2933	C422
			14/28	W-2275	3.30GHz	19.25 MB	165 W	None	None		
			12/24	W-2265	3.50 GHz	19.25 MB	165 W	None	None		
			10/20	W-2255	3.70 GHz	19.25 MB	165 W	None	None		
			8/16	W-2245	3.90 GHz	16.5 MB	155 W	None	None		
			6/12	W-2235	3.80 GHz	8.25 MB	130W	None	None		
			4/8	W-2225	4.10 GHz	8.25 MB	105W	None	None		
			4/8	W-2223	3.60 GHz	8.25 MB	120W	None	None	DDR4 2666	
FCLGA3647			28/56	W-3275	2.50 GHz	38.5 MB	205W	None	None	DDR4 2933	C621
			24/48	W-3265M	2.70 GHz	33 MB	205W	None	None		
			24/48	W-3265	2.70GHz	33MB	205W	None	None		
			16/32	W-3245M	3.20 GHz	22MB	205W	None	None		
			16/32	W-3245	3.20 GHz	22 MB	205W	None	None		
			12/24	W-3235	3.30 GHz	19.25 MB	180W	None	None		C422
			8/16	W-3225	3.70 GHz	16.5 MB	160W	None	None	DDR4-2666	C621
			8/16	W-3223	3.50 GHz	16.5 MB	160W	None	None		
FCLGA1151	Xeon® E	14nm Coffee lake	6/12	E-2186G	3.80 GHz	12MB	95W	Intel® UHD Graphics P630	350 MHz	DDR4-2666	C246/ C242
			6/12	E-2176G	3.70 GHz	12MB	80W				
			4/8	E-2174G	3.80 GHz	8MB	71W				
			6/12	E-2146G	3.50 GHz	12MB	80W				
			4/8	E-2144G	3.60 GHz	8MB	71W				
			6/12	E-2136	3.30 GHz	12MB	80W	NA	NA		
			4/8	E-2134	3.50 GHz	8MB	71W	NA	NA		
			6/6	E-2126G	3.30 GHz	12MB	80W	Intel® UHD Graphics P630	350 MHz		
			4/4	E-2124	3.30 GHz	8MB	71W	NA	NA		
			4/4	E-2124G	3.40 GHz	8MB	71W	Intel® UHD Graphics P630	350 MHz		

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Workstation E3 CPU List

Supported Sockets	Brand	Process	Cores/ Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCLGA1151	Xeon® E3	14nm Kaby Lake	4/8	E3-1285 V6	4.1GHz	8 MB	79W	Intel® HD Graphics P630	350 MHz	DDR4-2400, DDR3L-1866	C236
			4/8	E3-1280 V6	3.9GHz	8 MB	72W	None	None		
			4/8	E3-1275 V6	3.8GHz	8 MB	73W	Intel® HD Graphics P630	350 MHz		
			4/8	E3-1270 V6	3.8GHz	8 MB	72W	None	None		
			4/8	E3-1245 V6	3.7GHz	8 MB	73W	Intel® HD Graphics P630	350 MHz		
			4/8	E3-1240 V6	3.7GHz	8 MB	72W	None	None		
			4/8	E3-1230 V6	3.5GHz	8 MB	72W	None	None		
			4/4	E3-1225 V6	3.3GHZ	8 MB	73W	Intel® HD Graphics P630	350 MHz		
			4/4	E3-1220 V6	3.0GHz	8 MB	72W	None	None		
FCLGA2066	Xeon® W	14nm Skylake	4/4	W-2123	3.60 GHz	8.25MB	120W	None	None	DDR4-2666 ECC R-DIMM / LR-DIMM	C422
			4/4	W-2125	4.00 GHz	8.25MB	120W	None	None		
			6/12	W-2133	3.60 GHz	8.25MB	140W	None	None		
			6/12	W-2135	3.70 GHz	8.25MB	140W	None	None		
			8/16	W-2145	3.70 GHz	11MB	140W	None	None		
			10/20	W-2155	3.30 GHz	13.75MB	140W	None	None		
			14/28	W-2175	2.50 GHz	19MB	140W	None	None		
			18/36	W-2195	2.30 GHz	24.75MB	140W	None	None		
FCLGA1151	Xeon® E3	14nm Skylake	4/8	E3-1515MV5	2.80 GHz	8 MB	45 W	Intel® Iris™ Pro Graphics P580	350 MHz	DDR4-2133, LPDDR3-1866, DDR3L-1600	C236
			4/8	E3-1505MV5	2.80 GHz	8 MB	45 W	Intel® HD Graphics P530			
			4/8	E3-1578LV5	2.00 GHz	8 MB	45 W	Intel® Iris™ Pro Graphics P580	700 MHz	DDR3L, DDR4 2133MHz at 1.2V	
			4/8	E3-1558LV5	1.90 GHz	8 MB	45 W	Intel® Iris™ Pro Graphics P555	650 MHz		
			4/8	E3-1505LV5	2.00 GHz	8 MB	25 W	Intel® HD Graphics P530	350 MHz	DDR4-2133, LPDDR3-1866, DDR3L-1600	
			4/8	E3-1268LV5	2.40 GHz	8 MB	35 W			DDR4-1866/2133, DDR3L-1333/1600@1.35V	
			4/8	E3-1585V5	3.50 GHz	8 MB	65 W	Intel® Iris™ Pro Graphics P580		DDR3L, LPDDR3 1600MHz, DDR4 2133MHz at 1.2V	
			4/8	E3-1585LV5	3.00 GHz	8 MB	45 W				
			4/8	E3-1565LV5	2.50 GHz	8 MB	35 W				
			4/8	E3-1280V5	3.70 GHz	8 MB	80 W	None	None	DDR4-1866/2133, DDR3L-1333/1600@1.35V	
			4/8	E3-1275V5	3.60 GHz	8 MB	80 W	Intel® HD Graphics P530	400 MHz		
			4/8	E3-1270V5	3.60 GHz	8 MB	80 W	None	None		
			4/8	E3-1260LV5	2.90 GHz	8 MB	45 W				
			4/8	E3-1245V5	3.50 GHz	8 MB	80 W	Intel® HD Graphics P530	400 MHz		
			4/8	E3-1240LV5	2.10 GHz	8 MB	25 W	None	None		
			4/8	E3-1240V5	3.50 GHz	8 MB	80 W				
			4/4	E3-1235LV5	2.00 GHz	8 MB	25 W	Intel® HD Graphics P530	400 MHz		
			4/8	E3-1230V5	3.40 GHz	8 MB	80 W	None	None		
			4/4	E3-1225V5	3.30 GHz	8 MB	80 W	Intel® HD Graphics P530	400 MHz		
			4/4	E3-1220V5	3.00 GHz	8 MB	80 W	None	None		
FCLGA1150	Xeon® E3	22nm Haswell	4/4	E3-1220 v3	3.1 GHz	8 MB	80 W	None	-	DDR3 and DDR3L 1333/1600 at 1.5V	C226
			2/4	E3-1220LV3	1.1 GHz	4 MB	13 W		-	DDR3 1333/1600	
			4/4	E3-1225V3	3.2 GHz	8 MB	84 W	Intel® HD Graphics P4600	350 MHz	DDR3 and DDR3L 1333/1600 at 1.5V	
			4/4	E3-1226V3	3.3 GHz	8 MB	84 W				
			4/8	E3-1230 v3	3.3 GHz	8 MB	80 W	None	-		
			4/8	E3-1230Lv3	1.8 GHz	8 MB	25 W		-		
			4/8	E3-1231V3	3.4 GHz	8 MB	80 W		-		
			4/8	E3-1240 v3	3.4 GHz	8 MB	80 W		-		
			4/8	E3-1240LV3	2 GHz	8 MB	25 W		-		
			4/8	E3-1241V3	3.5 GHz	8 MB	80 W		-		
			4/8	E3-1245 v3	3.4 GHz	8 MB	84 W	Intel® HD Graphics P4600	350 MHz		
			4/8	E3-1246V3	3.5 GHz	8 MB	84 W				
			4/8	E3-1265Lv3	2.5 GHz	8 MB	45 W	Intel® HD Graphics			
			4/8	E3-1268LV3	2.3 GHz	8 MB	45 W	Intel® HD Graphics 4600		DDR3 1333/1600	
			4/8	E3-1270 v3	3.5 GHz	8 MB	80 W	None	-	DDR3 and DDR3L 1333/1600 at 1.5V	
			4/8	E3-1271V3	3.6 GHz	8 MB	80 W		-		
			4/8	E3-1275 v3	3.5 GHz	8 MB	84 W	Intel® HD Graphics P4600	350 MHz		
			4/8	E3-1275LV3	2.7 GHz	8 MB	45 W	Intel® HD Graphics			
			4/8	E3-1276V3	3.6 GHz	8 MB	84 W	Intel® HD Graphics P4600			
			4/8	E3-1280 v3	3.6 GHz	8 MB	82 W	None	-		
			4/8	E3-1281V3	3.7 GHz	8 MB	82 W	None	-		
			4/8	E3-1285 v3	3.6 GHz	8 MB	84 W	Intel® HD Graphics P4700	350 MHz		
			4/8	E3-1285Lv3	3.1 GHz	8 MB	65 W				
			4/8	E3-1286V3	3.7 GHz	8 MB	84 W				
			4/8	E3-1286LV3	3.2 GHz	8 MB	65 W				

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Workstation E3 CPU List

Supported Sockets	Brand	Process	Cores/ Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
LGA1155	Xeon® E3	22nm Ivy Bridge	4/8	E3-1290V2	3.7 GHz	8 MB	87 W	-	-	DDR3-1333/1600	C206/ C216
			4/8	E3-1280V2	3.6 GHz	8 MB	69 W	-	-		
			4/8	E3-1275V2	3.5 GHz	8 MB	77 W	-	1.25 GHz		
			4/8	E3-1270V2	3.5 GHz	8 MB	69 W	-	-		
			4/8	E3-1265LV2	2.5 GHz	8 MB	45 W	-	1.15 GHz		
			4/8	E3-1245V2	3.4 GHz	8 MB	77 W	-	1.25 GHz		
			4/8	E3-1240V2	3.4 GHz	8 MB	69 W	-	-		
			4/8	E3-1230V2	3.3 GHz	8 MB	69 W	-	-		
			4/4	E3-1225V2	3.2 GHz	8 MB	77 W	-	1.25 GHz		
			4/4	E3-1220V2	3.1 GHz	8 MB	69 W	-	-		
			4/2	E3-1220LV2	2.3 GHz	3 MB	17 W	-	-		
	Xeon® E3	32nm Sandy Bridge	4/8	E3-1290	3.6 GHz	8 MB	95 W	-	-	DDR3-1066/1333	
			4/8	E3-1280	3.5 GHz	8 MB	95 W	-	-		
			4/8	E3-1275	3.4 GHz	8 MB	95 W	-	1.35 GHz		
			4/8	E3-1270	3.4 GHz	8 MB	80 W	-	-		
			4/8	E3-1260L	2.4 GHz	8 MB	45 W	-	1.25 GHz		
			4/8	E3-1245	3.3 GHz	8 MB	95 W	-	1.35 GHz		
			4/8	E3-1240	3.3 GHz	8 MB	80 W	-	-		
			4/8	E3-1235	3.2 GHz	8 MB	95 W	-	1.35 GHz		
			4/8	E3-1230	3.2 GHz	8 MB	80 W	-	-		
			4/4	E3-1225	3.1 GHz	6 MB	95 W	-	1.35 GHz		
			4/2	E3-1220L	2.2 GHz	3 MB	20 W	-	-		
			4/4	E3-1220	3.1 GHz	8 MB	80 W	-	-		

Desktop Core™ i7/i5/i3/Pentium®/Celeron® CPU List

Suppoted Sockets	Brand	process	Cores/ Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCLGA1151	Core™ i9	14nm Coffee Lake refresh	8/16	i9-9900KF	3.60 GHz	16MB	95W	N/A	N/A	DDR4-2666	H310/Q370/ C246
			8/16	i9-9900T	2.10 GHz	16MB	35W	Intel® UHD Graphics 630	350 MHz		
			8/16	i9-9900	3.10 GHz	16MB	65W				
	Core™ i7	14nm Coffee Lake refresh	8/8	i7-9700E	2.60 GHz	12MB	65W	Intel® UHD Graphics 630			
			8/8	9700TE	1.80 GHz	12MB	35W				
			8/8	i7-9700K	3.60 GHz	12MB	95W				
			8/8	i7-9700	3.00 GHz	12MB	65W				
			8/8	i7-9700T	2.00 GHz	12MB	35W				
	Core™ i5	14nm Coffee Lake refresh	6/6	i5-9500E	3.00 GHz	9MB	65W	Intel® UHD Graphics 630		DDR4-2666	H310/Q370/ C246
			6/6	i5-9500TE	2.20 GHz	9MB	35W				
			6/6	i5-9600K	3.70 GHz	9MB	95W				
			6/6	i5-9500	3.00 GHz	9MB	65W				
			6/6	i5-9400	2.90 GHz	9MB	65W				
			6/6	i5-9500T	2.20 GHz	9MB	35W				
			6/6	i5-9400T	1.80 GHz	9MB	35W				
	Core™ i3	14nm Coffee Lake refresh	4/4	i3-9100E	3.10 GHz	6MB	65W	Intel® UHD Graphics 630		DDR4-2400	H310/Q370/ C246
			4/4	i3-9100TE	2.20GHz	6MB	35W				
		14nm Coffee Lake	4/4	i3-9100	3.60 GHz	6MB	65W				Q370/C246
			4/4	i3-9300	3.70 GHz	8MB	62W				
			4/4	i3-9300T	3.20 GHz	8MB	35W				
			4/4	i3-9100T	3.10 GHz	6MB	35W				
			4/4	i3-9350K	4.00 GHz	8MB	91W				
FCLGA1151	Core™ i9	14nm Coffee Lake	8/16	i9-9900K	3.60 GHz	16MB	95W	Intel® UHD Graphics 630	350 MHz	DDR4-2666	H310/Q370
	Core™ i7	14nm Coffee Lake	8/8	i7-9700K	3.60 GHz	12MB	95W				
			6/12	i7-8700T	2.40 GHz	12MB	35W				
			6/12	i7-8700K	3.70 GHz	12MB	95W				
			6/12	i7-8700	3.20 GHz	12MB	65W				
			6/12	i7-8086K	4.00 GHz	12MB	95W				
	Core™ i3	14nm Coffee Lake	4/4	i3-8350K	4.00 GHz	8MB	91W	Intel® UHD Graphics 630		DDR4-2400	H310/Q370
			4/4	i3-8300	3.70 GHz	8MB	62W				
		14nm Coffee Lake	4/4	i3-8300T	3.20 GHz	8MB	35W				
			4/4	i3-8100	3.60 GHz	6MB	65W				
			4/4	i3-8100T	3.10 GHz	6MB	35W				

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Desktop Core™ i7/i5/i3/Pentium®/Celeron® CPU List

Suppoted Sockets	Brand	process	Cores/ Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCLGA1151	Core™ i5	14nm Coffee Lake	6/6	i5-9600K	3.70 GHz	9MB	95W	Intel® UHD Graphics 630	350 MHz	DDR4-2666	H310/Q370
			6/6	i5-8600T	2.30 GHz	9MB	35W				
			6/6	i5-8600K	3.60 GHz	9MB	95W				
			6/6	i5-8600	3.10 GHz	9MB	65W				
			6/6	i5-8500T	2.10 GHz	9MB	35W				H310
			6/6	i5-8500	3.00 GHz	9MB	65W				
			6/6	i5-8400T	1.70 GHz	9MB	35W				
			6/6	i5-8400	2.80 GHz	9MB	65W				H310/Q370
	Pentium®	14nm Coffee Lake	2/4	G5600	3.90 GHz	4MB	54W	Intel® UHD Graphics 630		DDR4-2400	H310/Q370
			2/4	G5500T	3.20 GHz	4MB	35W				
			2/4	G5500	3.80 GHz	4MB	54W				
			2/4	G5400T	3.10 GHz	4MB	35W	Intel® UHD Graphics 610			
			2/4	G5400	3.70 GHz	4MB	58W				
	Celeron®	14nm Coffee Lake	2/2	G4920	3.20 GHz	2MB	54W	Intel® UHD Graphics 610		DDR4-2400	H310/Q370
			2/2	G4900T	2.90 GHz	2MB	35W				
			2/2	G4900	3.10 GHz	2 MB	54W				
FCLGA1151	Core™ i7	14nm Kaby Lake	4/8	i7-7700	3.6GHz	8 MB	65W	Intel® HD Graphics 630	350 MHz	DDR4-2133/2400, DDR3L-1333/1600 @ 1.35V	C236/Q170/ H110
			4/8	i7-7700K	4.2GHz	8 MB	91W				
			4/8	i7-7700T	2.9GHz	8 MB	35W				
		14nm Skylake	4/8	i7-6785R	3.30 GHz	8 MB	65 W	Intel® Iris™ Pro Graphics 580		DDR4-1866/2133, DDR3L-1333/1600 @ 1.35V	
			4/8	i7-6700K	4.00 GHz	8 MB	91 W	Intel® HD Graphics 530			
			4/8	i7-6700T	2.80 GHz	8 MB	35 W				
			4/8	i7-6700	3.40 GHz	8 MB	65 W				
			4/8	i7-6700TE	2.40 GHz	8 MB	35 W				
	Core™ i5	14nm Kaby Lake	4/4	i5-7600K	3.8GHz	6 MB	91W	Intel® HD Graphics 630		DDR4-2133/2400, DDR3L-1333/1600 @ 1.35V	
			4/4	i5-7600T	2.8GHz	6 MB	35W				
			4/4	i5-7600	3.5GHz	6 MB	65W				
			4/4	i5-7500	3.4GHz	6 MB	65W				
			4/4	i5-7400T	2.4GHz	6 MB	35W				
			4/4	i5-7500T	2.7GHz	6 MB	35W				
			4/4	i5-7400	3.5GHz	6 MB	65W				
		14 nm Skylake	4/4	i5-6600	3.30 GHz	6 MB	65 W	Intel® Iris™ Pro Graphics 580		DDR4-1866/2133, DDR3L-1333/1600 @ 1.35V	
			4/4	i5-6600K	3.50 GHz	6 MB	91 W				
			4/4	i5-6585R	2.80 GHz	6 MB	65 W				
			4/4	i5-6500	3.20 GHz	6 MB	65 W	Intel® HD Graphics 530			
			4/4	i5-6500T	2.50 GHz	6 MB	35 W				
			4/4	i5-6402P	2.80 GHz	6 MB	65 W	Intel® HD Graphics 510			
			4/4	i5-6400	2.70 GHz	6 MB	65 W	Intel® HD Graphics 530			
			4/4	i5-6400T	2.20 GHz	6 MB	35 W				
			4/4	i5-6500TE	2.30 GHz	6 MB	35 W				
	Core™ i3	14nm Kaby Lake	2/4	i3-7350K	4.2GHz	4 MB	60W	Intel® HD Graphics 630		DDR4-2133/2400, DDR3L-1333/1600 @ 1.35V	C236/Q170/ H110
			2/4	i3-7320	4.1GHz	4 MB	51W				
			2/4	i3-7300	4.0GHz	4 MB	51W				
			2/4	i3-7300T	3.5GHz	4 MB	35W				
			2/4	i3-7101E	3.9GHz	3 MB	54W				
			2/4	i3-7101TE	3.4GHz	3 MB	35W				
			2/4	i3-7100T	3.4GHz	3 MB	35W				
			2/4	i3-7100T	3.9GHz	3 MB	51W				
		14 nm Skylake	2/4	i3-6300	3.80 GHz	4 MB	51 W	Intel® HD Graphics 530		DDR4-1866/2133, DDR3L-1333/1600 @ 1.35V	
			2/4	i3-6300T	3.30 GHz	4 MB	35 W				
			2/4	i3-6320	3.90 GHz	4 MB	51 W				
			2/4	i3-6100	3.70 GHz	3 MB	51 W				
			2/4	i3-6100T	3.20 GHz	3 MB	35 W				
			2/4	i3-6100TE	2.70 GHz	4 MB	35 W				
FCLGA1151	Pentium®	14nm Kaby Lake	2/4	G4620	3.7GHz	3 MB	51W	Intel® HD Graphics 630	350 MHz	DDR4-2133/2400, DDR3L-1333/1600 @ 1.35V	C236/Q170/ H110
			2/4	G4600T	3.0GHz	3 MB	35W				
			2/4	G4600T	3.6GHz	3 MB	51W				
			2/4	G4560T	2.9GHz	3 MB	35W	Intel® HD Graphics 610			
			2/4	G4560	3.5GHz	3 MB	54W				
		14nm Skylake	2/2	G4500	3.50 GHz	3 MB	51W	Intel® HD Graphics 530		DDR4-1866/2133, DDR3L-1333/1600 @ 1.35V	
			2/2	G4500T	3.00 GHz	3 MB	35W				
			2/2	G4520	3.60 GHz	3 MB	51W				
			2/2	G4400	3.30 GHz	3 MB	54W	Intel® HD Graphics 510			
			2/2	G4400T	2.90 GHz	3 MB	35W				
			2/2	G4400TE	2.40 GHz	3 MB	35W				

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Desktop Core™ i7/i5/i3/Pentium®/Celeron® CPU List

Supported Sockets	Brand	Process	Cores/ Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCLGA1151	Celeron®	14nm Kaby Lake	2/2	G3950	3.0GHz	2 MB	51W	Intel® HD Graphics 610	350 MHz	DDR4 2133, DDR3L 1333/1600 @ 1.35V	C236/ Q170/ H110
			2/2	G3930TE	2.7GHz	2 MB	35W			DDR4-2133, DDR3L-1600	
			2/2	G3930T	2.7GHz	2 MB	35W			DDR4 2133, DDR3L 1333/1600 @ 1.35V	
			2/2	G3930E	2.9GHz	2 MB	54W			DDR4-2133, DDR3L-1600	
			2/2	G3930	2.9GHz	2 MB	51W			DDR4 2133, DDR3L 1333/1600 @ 1.35V	
		14 nm Skylake	2/2	G3920	2.90 GHz	2 MB	51 W	Intel® HD Graphics 510		DDR4-1866/2133, DDR3L-1333/1600 @ 1.35V	
			2/2	G3900T	2.60 GHz	2 MB	35 W				
			2/2	G3900	2.80 GHz	2 MB	51 W				
			2/2	G3900TE	2.30 GHz	2 MB	35 W				
FCLGA1150	Core™ i7	22 nm Haswell	4/4	i7-4765T	2 GHz	8 MB	35 W	Intel® HD Graphics 4600	350 MHz	DDR3-1333/1600, DDR3L-1333/1600 @ 1.5V	C226/ Q87/H81 C226/ Q87/H81
			2/4	i7-4770	3.4 GHz	8 MB	84 W		350 MHz		
			4/4	i7-4770K	3.5 GHz	8 MB	84 W		350 MHz		
			4/8	i7-4770S	3.1 GHz	8 MB	65 W		350 MHz		
			4/8	i7-4770T	2.5 GHz	8 MB	45 W		350 MHz		
			4/8	i7-4771	3.5 GHz	8 MB	84 W		350 MHz		
			4/8	i7-4785T	2.2 GHz	8 MB	35 W		350 MHz		
			4/8	i7-4790	3.6 GHz	8 MB	84 W		350 MHz		
			4/8	i7-4790S	3.2 GHz	8 MB	65 W		350 MHz		
			4/8	i7-4790T	2.7 GHz	8 MB	45 W		350 MHz		
	Core™ i5		4/4	i5-4670	3.4 GHz	6 MB	84 W		350 MHz		
			4/4	i5-4670K	3.4 GHz	6 MB	84 W		350 MHz		
			4/4	i5-4670S	3.1 GHz	6 MB	65 W		350 MHz		
			4/4	i5-4670T	2.3 GHz	6 MB	45 W		350 MHz		
			4/4	i5-4690	3.5 GHz	6 MB	84 W		350 MHz		
			4/4	i5-4690S	3.2 GHz	6 MB	65 W		350 MHz		
			4/4	i5-4690T	2.5 GHz	6 MB	45 W		350 MHz		
			4/4	i5-4570	3.2 GHz	6 MB	84 W		350 MHz		
			4/4	i5-4570S	2.9 GHz	6 MB	65 W		350 MHz		
			2/4	i5-4570T	2.9 GHz	4 MB	35 W		200 MHz		
			4/4	i5-4590	3.3 GHz	6 MB	84 W		350 MHz		
			4/4	i5-4590S	3 GHz	6 MB	65 W		350 MHz		
			4/4	i5-4590T	2 GHz	6 MB	35 W		350 MHz		
			4/4	i5-4460T	1.9 GHz	6 MB	35 W		350 MHz		
			4/4	i5-4460S	2.9 GHz	6 MB	65 W		350 MHz		
			4/4	i5-4460	3.2 GHz	6 MB	84 W		350 MHz		
			4/4	i5-4440S	2.8 GHz	6 MB	65 W		350 MHz		
			4/4	i5-4440	3.1 GHz	6 MB	84 W		350 MHz		
			4/4	i5-4430S	2.7 GHz	6 MB	65 W		350 MHz		
			4/4	i5-4430	3 GHz	6 MB	84 W		350 MHz		
	Core™ i3		2/4	i3-4330	3.5 GHz	4 MB	54 W	Intel® HD Graphics 4600	350 MHz		
			2/4	i3-4330T	3 GHz	4 MB	35 W		200 MHz		
			2/4	i3-4340	3.6 GHz	4 MB	54 W		350 MHz		
			2/4	i3-4350	3.6 GHz	4 MB	54 W		350 MHz		
			2/4	i3-4350T	3.1 GHz	4 MB	35 W		200 MHz		
			2/4	i3-4360	3.7 GHz	4 MB	54 W		350 MHz		
			2/4	i3-4360T	3.2 GHz	4 MB	35 W		200 MHz		
			2/4	i3-4370	3.8 GHz	4 MB	54 W		350 MHz		
			2/4	i3-4370T	3.3 GHz	4 MB	35 W	Intel® HD Graphics 4400	200 MHz		
			2/4	i3-4170T	3.2 GHz	3 MB	35 W		200 MHz		
			2/4	i3-4170	3.7 GHz	3 MB	54 W		350 MHz		
			2/4	i3-4160T	3.1 GHz	3 MB	35 W		200 MHz		
			2/4	i3-4160	3.6 GHz	3 MB	54 W		350 MHz		
			2/4	i3-4150T	3 GHz	3 MB	35 W		200 MHz		
			2/4	i3-4150	3.5 GHz	3 MB	54 W		350 MHz		
			2/4	i3-4130T	2.9 GHz	3 MB	35 W		200 MHz		
			2/4	i3-4130	3.4 GHz	3 MB	54 W		350 MHz		

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Supported Sockets	Brand	Process	Cores/ Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCLGA1150	Pentium®	22nm Haswell	2/2	G3470	3.6 GHz	3 MB	53 W	Intel® HD Graphics	350 MHz	DDR3-1333/1600, DDR3L-1333/1600 @ 1.5V	C226/Q87/ H81
			2/2	G3460T	3 GHz	3 MB	35 W		200 MHz		
			2/2	G3460	3.5 GHz	3 MB	53 W		350 MHz		
			2/2	G3450T	2.9 GHz	3 MB	35 W		200 MHz		
			2/2	G3450	3.4 GHz	3 MB	53 W		350 MHz		
			2/2	G3440T	2.8 GHz	3 MB	35 W		200 MHz		
			2/2	G3440	3.3 GHz	3 MB	53 W		350 MHz		
			2/2	G3430	3.3 GHz	3 MB	53 W		350 MHz		
			2/2	G3420T	2.7 GHz	3 MB	35 W		200 MHz		
			2/2	G3420	3.2 GHz	3 MB	53 W		350 MHz		
			2/2	G3260T	2.9 GHz	3 MB	35 W		200 MHz	DDR3-1333, DDR3L-1333 @ 1.5V	
			2/2	G3260	3.3 GHz	3 MB	53 W		350 MHz		
			2/2	G3258	3.2 GHz	3 MB	53 W		350 MHz		
			2/2	G3250T	2.8 GHz	3 MB	35 W		200 MHz		
			2/2	G3250	3.2 GHz	3 MB	53 W		350 MHz		
			2/2	G3240T	2.7 GHz	3 MB	35 W		200 MHz		
			2/2	G3240	3.1 GHz	3 MB	53 W		350 MHz		
			2/2	G3220T	2.6 GHz	3 MB	35 W		200 MHz		
			2/2	G3220	3 GHz	3 MB	53 W		350 MHz		
	Celeron®		2/2	G1820	2.7 GHz	2 MB	53 W		350 MHz		
			2/2	G1820T	2.4 GHz	2 MB	35 W		200 MHz		
			2/2	G1830	2.8 GHz	2 MB	53 W		350 MHz		
			2/2	G1840	2.8 GHz	2 MB	53 W		350 MHz		
			2/2	G1840T	2.5 GHz	2 MB	35 W		200 MHz		
			2/2	G1850	2.9 GHz	2 MB	53 W		350 MHz		
LGA1155	Core™ i7	22nm Ivy Bridge	4/8	i7-3770T	2.5 GHz	8 MB	45 W	-	1.15 GHz	DDR3-1333/1600	Q77/Q67/ B65/H61
			4/8	i7-3770S	3.1 GHz	8 MB	65 W	-	1.15 GHz		
			4/8	i7-3770K	3.5 GHz	8 MB	77 W	-	1.15 GHz		
			4/8	i7-3770	3.4 GHz	8 MB	77 W	-	1.15 GHz		
	Core™ i7	32nm Sandy Bridge	4/8	i7-2700K	3.5 GHz	8 MB	95 W	-	1.35 GHz	DDR3-1066/1333	
			4/8	i7-2600S	2.8 GHz	8 MB	65 W	-	1.35 GHz		
			4/8	i7-2600K	3.4 GHz	8 MB	95 W	-	1.35 GHz		
			4/8	i7-2600	3.4 GHz	8 MB	95 W	-	1.35 GHz		
	Core™ i5	22nm Ivy Bridge	4/4	i5-3570T	2.3 GHz	6 MB	45 W	-	1.15 GHz	DDR3-1333/1600	
			4/4	i5-3570S	3.1 GHz	6 MB	65 W	-	1.15 GHz		
			4/4	i5-3570K	3.4 GHz	6 MB	77 W	-	1.15 GHz		
			4/4	i5-3570	3.4 GHz	6 MB	77 W	-	1.15 GHz		
			4/4	i5-3550S	3 GHz	6 MB	65 W	-	1.15 GHz		
			4/4	i5-3550	3.3 GHz	6 MB	77 W	-	1.15 GHz		
			4/4	i5-3475S	2.9 GHz	6 MB	65 W	-	1.1 GHz		
			2/4	i5-3470T	2.9 GHz	3 MB	35 W	-	1.1 GHz		
			4/4	i5-3470S	2.9 GHz	6 MB	65 W	-	1.1 GHz		
			4/4	i5-3470	3.2 GHz	6 MB	77 W	-	1.1 GHz		
			4/4	i5-3450S	2.8 GHz	6 MB	65 W	-	1.1 GHz		
			4/4	i5-3450	3.1 GHz	6 MB	77 W	-	1.1 GHz		
			4/4	i5-3350P	3.1 GHz	6 MB	69 W	-	1.05 GHz		
			4/4	i5-3330S	2.7 GHz	6 MB	65 W	-	1.05 GHz		
			4/4	i5-3330	3 GHz	6 MB	77 W	-	1.05 GHz		
	Core™ i5	32nm Sandy Bridge	4/4	i5-2550K	3.4 GHz	6 MB	95 W	-	1.25 GHz	DDR3-1066/1333	
			4/4	i5-2500T	2.3 GHz	6 MB	45 W	-	1.25 GHz		
			4/4	i5-2500S	2.7 GHz	6 MB	65 W	-	1.1 GHz		
			4/4	i5-2500K	3.3 GHz	6 MB	95 W	-	1.1 GHz		
			4/4	i5-2500	3.3 GHz	6 MB	95 W	-	1.1 GHz		
			4/4	i5-2450P	3.2 GHz	6 MB	95 W	-	1.1 GHz		
			4/4	i5-2405S	2.5 GHz	6 MB	65 W	-	1.1 GHz		
			4/4	i5-2400S	2.5 GHz	6 MB	65 W	-	1.1 GHz		
			4/4	i5-2400	3.1 GHz	6 MB	95 W	-	1.1 GHz		
			2/4	i5-2390T	2.7 GHz	3 MB	35 W	-	1.1 GHz		
			4/4	i5-2380P	3.1 GHz	6 MB	95 W	-	1.1 GHz		
			4/4	i5-2320	3 GHz	6 MB	95 W	-	1.1 GHz		
			4/4	i5-2310	2.9 GHz	6 MB	95 W	-	1.1 GHz		
			4/4	i5-2300	2.8 GHz	6 MB	95 W	-	1.1 GHz		

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Desktop Core™ i7/i5/i3/Pentium®/Celeron® CPU List

Supported Sockets	Brand	Process	Cores/ Threads	Processor Number	Processor Base Frequency	Cache	TDP	Graphics Base Frequency	Memory Types	Chipset
LGA1155	Core™ i3	22nm Ivy Bridge	2/4	i3-3240T	2.9 GHz	3 MB	35 W	1.05 GHz	DDR3-1333/1600	Q77/Q67/B65/H61
			2/4	i3-3240	3.4 GHz	3 MB	55 W	1.05 GHz		
			2/4	i3-3225	3.3 GHz	3 MB	55 W	1.05 GHz		
			2/4	i3-3220T	2.8 GHz	3 MB	35 W	1.05 GHz		
			2/4	i3-3220	3.3 GHz	3 MB	55 W	1.05 GHz		
	Core™ i3	32nm Sandy Bridge	2/4	i3-2130	3.4 GHz	3 MB	65 W	1.1 GHz	DDR3-1066/1333	
			2/4	i3-2125	3.3 GHz	3 MB	65 W	1.1 GHz		
			2/4	i3-2120T	2.6 GHz	3 MB	35 W	1.1 GHz		
			2/4	i3-2120	3.3 GHz	3 MB	65 W	1.1 GHz		
			2/4	i3-2105	3.1 GHz	3 MB	65 W	1.1 GHz		
			2/4	i3-2102	3.1 GHz	3 MB	65 W	1.1 GHz		
			2/4	i3-2100T	2.5 GHz	3 MB	35 W	1.1 GHz		
			2/4	i3-2100	3.1 GHz	3 MB	65 W	1.1 GHz		
	Pentium®	22nm Ivy Bridge	2/2	G2120	3.1 GHz	3 MB	55 W	1.05 GHz	DDR3-1333/1600	
			2/2	G2100T	2.6 GHz	3 MB	35 W	1.05 GHz		
LGA1155	Pentium®	32nm Sandy Bridge	2/2	G870	3.1 GHz	3 MB	65 W	1.1 GHz	DDR3-1066/1333	Q77/Q67/B65/H61
			2/2	G860T	2.6 GHz	3 MB	35 W	1.1 GHz		
			2/2	G860	3 GHz	3 MB	65 W	1.1 GHz		
			2/2	G850	2.9 GHz	3 MB	65 W	1.1 GHz		
			2/2	G840	2.8 GHz	3 MB	65 W	1.1 GHz		
			2/2	G645T	2.5 GHz	3 MB	35 W	1.1 GHz	DDR3-1066	
			2/2	G645	2.9 GHz	3 MB	65 W	1.1 GHz		
			2/2	G640T	2.4 GHz	3 MB	35 W	1.1 GHz		
			2/2	G640	2.8 GHz	3 MB	65 W	1.1 GHz		
			2/2	G632	2.7 GHz	3 MB	65 W	1.1 GHz		
			2/2	G630T	2.3 GHz	3 MB	35 W	1.1 GHz		
			2/2	G630	2.7 GHz	3 MB	65 W	1.1 GHz		
			2/2	G622	2.6 GHz	3 MB	65 W	1.1 GHz		
			2/2	G620T	2.2 GHz	3 MB	35 W	1.1 GHz		
			2/2	G620	2.6 GHz	3 MB	65 W	1.1 GHz		
	Celeron®	22nm Ivy Bridge	2/2	G1610	2.6 GHz	2 MB	55 W	1.05 GHz		
			2/2	G1620	2.7 GHz	2 MB	55 W	1.05 GHz		
			2/2	G1610T	2.3 GHz	2 MB	35 W	1.05 GHz		
	Celeron®	32nm Sandy Bridge	2/2	G555	2.7 GHz	2 MB	65 W	1 GHz		
			2/2	G550T	2.2 GHz	2 MB	35 W	1 GHz		
			2/2	G550	2.6 GHz	2 MB	65 W	1 GHz		
			2/2	G540T	2.1 GHz	2 MB	35 W	1 GHz		
			2/2	G540	2.5 GHz	2 MB	65 W	1 GHz		
			2/2	G530T	2 GHz	2 MB	35 W	1 GHz		
			2/2	G530	2.4 GHz	2 MB	65 W	1 GHz		
			1/2	G465	1.9 GHz	1.5 MB	35 W	1 GHz		
			1/2	G460	1.8 GHz	1.5 MB	35 W	1 GHz		
			1/1	G440	1.6 GHz	1 MB	35 W	1 GHz		
LGA1156	Core™ i7	45nm	Quad Core	i7-880	2.93G	8M	95W	-	DDR3-1333/1600	Q57
				i7-875K	2.93G	8M	95W	-		
				i7-870S	2.66G	8M	82W	-		
				i7-870	2.93G	8M	95W	-		
				i7-860S	2.53G	8M	82W	-		
				i7-860	2.8G	8M	95W	-		
	Core™ i5			i5-760	2.8G	8M	95W	-		
				i5-750S	2.4G	8M	82W	-		
				i5-750	2.66G	8M	95W	-		
	Core™ i5	32nm	Dual Core	i5-680	3.6G	4M	73W	733MHz		
				i5-670	3.46G	4M	73W	733MHz		
				i5-661	3.33G	4M	87W	900MHz		
				i5-660	3.33G	4M	73W	733MHz		
				i5-665K	3.2G	4M	73W	733MHz		
				i5-650	3.2G	4M	73W	733MHz		
	Core™ i3			i3-560	3.33G	4M	73W	733MHz		
				i3-550	3.2G	4M	73W	733MHz		
				i3-540	3.06G	4M	73W	733MHz		
				i3-530	2.93G	4M	73W	733MHz		
	Pentium®			G6960	2.933G	3M	73W	533MHz	DDR3-1333	
				G6950	2.8G	3M	73W	533MHz		

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ULT CPU List

Supported Sockets	Brand	Process	Cores/ Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCBGA1528	Core™ i7	14nm Whiskey Lake	4/8	i7-8565U	1.8GHz	8MB	15W	Intel® UHD Graphics 620	300 MHz	DDR4-2400, LPDDR3-2133	-
			4/8	i7-8665U	1.9GHz	8MB	15W				-
			4/8	i7-8665UE	1.7GHz	8MB	15W				-
	Core™ i5		4/8	i5-8265U	1.6GHz	6MB	15W				-
			4/8	i5-8365U	1.6GHz	6MB	15W				-
			4/8	i5-8365UE	1.6GHz	6MB	15W				-
	Core™ i3		2/4	i3-8145U	2.10 GHz	4MB	15W				
			2/4	i3-8145UE	2.2GHz	4MB	15W				-
	Pentium®		2/4	5405U	2.3GHz	2MB	15W			DDR4-2133, LPDDR3-1866	-
	Celeron®		2/2	4205U	1.8GHz	2MB	15W	Intel® UHD Graphics 610		DDR4-2133, LPDDR3-1866	
			2/2	4305UE	2.00GHz	2MB	15W			DDR4-2133, LPDDR3-1866	-
FCBGA1356	Core™ i7	14nm Coffee lake	4/8	i7-8559U	2.70 GHz	8MB	28W	Intel® Iris™ Plus Graphics 655	300 MHz	DDR4-2400, LPDDR3-2133	-
	Core™ i5		4/8	i5-8269U	2.60 GHz	6MB	28W				-
			4/8	i5-8259U	2.30 GHz	6MB	28W				-
	Core™ i3		2/4	i3-8109U	3.00 GHz	4MB	28W				
FCBGA1356	Core™ i7	14nm Kabylake	2/4	i7-7660U	2.5GHz	4MB	15W	Intel® Iris™ Plus Graphics 640	300 MHz	DDR4-2133, LPDDR3-1866, DDR3L-1600	-
			2/4	i7-7600U	2.8GHz	4MB	15W	Intel® HD Graphics 620			-
			2/4	i7-7567U	3.5GHz	4MB	28W	Intel® Iris™ Plus Graphics 650			-
			2/4	i7-7560U	2.4GHz	4MB	15W	Intel® Iris™ Plus Graphics 640			-
			2/4	i7-7500U	2.70 GHz	4MB	15 W	Intel® HD Graphics 620			-
	Core™ i5		2/4	i5-7360U	2.3GHz	4MB	15W	Intel® Iris™ Plus Graphics 640			-
			2/4	i5-7300U	2.6GHz	3MB	15W	Intel® HD Graphics 620			-
			2/4	i5-7287U	3.3GHz	4MB	28W	Intel® Iris™ Plus Graphics 650			-
			2/4	i5-7267U	3.1GHz	4MB	28W				-
			2/4	i5-7260U	2.2GHz	4MB	15W	Intel® Iris™ Plus Graphics 640			-
			2/4	i5-7200U	2.50 GHz	3MB	15W	Intel® HD Graphics 620			-
	Core™ i3		2/4	i3-8130U	2.20 GHz	4MB	15W			DDR4-2400, LPDDR3-2133	
			2/4	i3-7130U	2.7GHz	3MB	15W			DDR4-2133, LPDDR3-1866, DDR3L-1600	-
			2/4	i3-7167U	2.8GHz	3MB	28W	Intel® Iris™ Plus Graphics 650			-
			2/4	i3-7100U	2.40 GHz	3MB	15W	Intel® HD Graphics 620			-
	Pentium®		2/4	4415U	2.3GHz	2MB	15W	Intel® HD Graphics 610			-
	Celeron®		2/2	3965U	2.2GHz	2MB	15W				-
			2/2	3865U	1.8GHz	2MB	15W				-
FCBGA1356	Core™ i7	14nm Skylake	2/4	i7-6500U	2.50 GHz	4 MB	15 W	Intel® HD Graphics 520	300 MHz	DDR4-2133, LPDDR3-1866, DDR3L-1600	-
			2/4	i7-6560U	2.20 GHz	4 MB	15 W	Intel® Iris™ Graphics 540			-
			2/4	i7-6567U	3.30 GHz	4 MB	28 W	Intel® Iris™ Graphics 550			-
			2/4	i7-6600U	2.60 GHz	4 MB	15 W	Intel® HD Graphics 520			-
			2/4	i7-6660U	2.40 GHz	4 MB	15 W	Intel® Iris™ Graphics 540			-
			2/4	i7-6650U	2.20 GHz	4 MB	15 W				-
	Core™ i5		2/4	i5-6287U	3.10 GHz	4 MB	28 W	Intel® Iris™ Graphics 550			-
			2/4	i5-6267U	2.90 GHz	4 MB	28 W				-
			2/4	i5-6260U	1.80 GHz	4 MB	15 W	Intel® Iris™ Graphics 540			-
			2/4	i5-6200U	2.30 GHz	3 MB	15 W	Intel® HD Graphics 520			-
			2/4	i5-6300U	2.40 GHz	3 MB	15 W				-
			2/4	i5-6360U	2.00 GHz	4 MB	15 W	Intel® Iris™ Graphics 540			-
	Core™ i3		2/4	i3-6006U	2.00 GHz	3 MB	15 W	Intel® HD Graphics 520			-
			2/4	i3-6167U	2.70 GHz	3 MB	28 W	Intel® Iris™ Graphics 550			-
			2/4	i3-6157U	2.40 GHz	3 MB	28 W				-
			2/4	i3-6100U	2.30 GHz	3 MB	15 W	Intel® HD Graphics 520			-
	Pentium®		2/4	4405U	2.10 GHz	2 MB	15 W	Intel® HD Graphics 510		DDR4-1866/2133, LPDDR3-1600/1866	-
	Celeron®		2/2	3855U	1.60 GHz	2 MB	15 W			DDR4-1866/2133, LPDDR3-1600/1866, DDR3L-1333/1600	-
			2/2	3955U	2.00 GHz	2 MB	15 W				-
FCBGA1168	Core™ i7	14nm Broadwell	2/4	i7-5650U	2.2 GHz	4 MB	15 W	Intel® HD Graphics 6000	300 MHz	DDR3L 1333/1600, LPDDR3 1600/1866	-
	Core™ i5		2/4	i5-5350U	1.8 GHz	3 MB	15 W		300 MHz		-
	Core™ i3		2/4	i3-5010U	2.1 GHz	3 MB	15 W	Intel® HD Graphics 5500	300 MHz	DDR3L 1333/1600, LPDDR 1333/1600	-
	Celeron®		2/2	3765U	1.9 GHz	2 MB	15 W	Intel® HD Graphics	300 MHz		-
	Core™ i7	22nm Haswell	2/4	i7-4650U	1.7 GHz	4 MB	15 W	Intel® HD Graphics 5000	200 MHz	DDR3L 1333/1600, LPDDR3 1333/1600	-
	Core™ i5		2/4	i5-4300U	1.9 GHz	3 MB	15 W	Intel® HD Graphics 4400	200 MHz		-
	Core™ i3		2/4	i3-4010U	1.7 GHz	3 MB	15 W		200 MHz		-
	Celeron®		2/2	2980U	1.6 GHz	2 MB	15 W	Intel® HD Graphics	200 MHz		-

Yellow means long-term support ***HM65/HM55 chipset doesn't support Intel® AMT feature***

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Mobile Core™ i7/i5/i3/Celeron® CPU List

Supported Sockets	Brand	Process	Cores/ Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCLGA1151	Xeon® E	14nm Coffee Lake refresh	8/16	E-2288G	3.70 GHz	16MB	95W	Intel® UHD Graphics P630	350MHz	DDR4-2666	C246
			6/12	E-2286G	4.00 GHz	12MB	95W	N/A	N/A		C240
			8/16	2278GE	3.30 GHz	16MB	80W	Intel® UHD Graphics P630	350MHz		C246
			8/16	2278GEL	2.00 GHz	16MB	35W				
			8/16	E-2278G	3.40 GHz	16MB	80W	N/A	N/A		C240
			6/12	E-2276G	3.80 GHz	12MB	80W	Intel® UHD Graphics P630	350MHz		C246
			4/8	E-2274G	4.00 GHz	8MB	83W				
			6/12	E-2246G	3.60 GHz	12MB	80W				
			4/8	E-2244G	3.80 GHz	8MB	71W				
			6/12	E-2236	3.40 GHz	12MB	80W	N/A	N/A		C240
			4/8	E-2234	3.60 GHz	8MB	71W				
			6/6	E-2226G	3.40 GHz	12MB	80W	Intel® UHD Graphics P630	350MHz		C246
			6/6	E-2226GE	3.40 GHz	12MB	80W				
			4/4	E-2224	3.40 GHz	8MB	71W	N/A	N/A		C240
FCBGA1440	Xeon® E	14nm Coffee lake	6/12	E-2186M	2.90 GHz	12MB	45W	Intel® UHD Graphics P630	350 MHz	DDR4-2666, LPDDR3-2133	CM246
			6/12	E-2176M	2.70 GHz	12MB	45W				
	Xeon® E3	14nm Kabylake	4/8	E3-1535MV6	3.10 GHz	8 MB	45W	Intel® HD Graphics P630		DDR4-2400, LPDDR3-2133, DDR3L-1600	CM236
			4/8	E3-1505MV6	3.00 GHz	8 MB	45 W				
			4/8	E3-1505LV6	2.20 GHz	8 MB	25 W			DDR4-2400	
			4/4	E3-1501LV6	2.10 GHz	6 MB	25 W				
			4/4	E3-1501MV6	2.90 GHz	6 MB	45 W				
	Xeon® E3	14nm Skylake	4/8	E3-1575MV5	3.00 GHz	8 MB	45 W	Intel® Iris™ Pro Graphics P580		DDR4-2133, LPDDR3-1866, DDR3L-1600	CM236
			4/8	E3-1545MV5	2.90 GHz	8 MB	45 W				
			4/8	E3-1535MV5	2.90 GHz	8 MB	45 W	Intel® HD Graphics P530			
			4/8	E3-1515MV5	2.80 GHz	8 MB	45 W	Intel® Iris™ Pro Graphics P580			
			4/8	E3-1505MV5	2.80 GHz	8 MB	45 W	Intel® HD Graphics P530			
FCBGA1440	Core™ i9	14nm Coffee lake	6/12	i9-8950HK	2.90 GHz	12MB	45W	Intel® UHD Graphics 630	350 MHz	DDR4-2666, LPDDR3-2133	CM246
	Core™ i7		6/12	i7-8850H	2.60 GHz	9MB	45W				
			6/12	i7-8750H	2.20 GHz	9MB	45W				
			6/12	i7-8700B	3.20 GHz	12MB	65W			DDR4-2666	
	Core™ i5		6/6	i5-8500B	3.00 GHz	9MB	65W				
			4/8	i5-8400H	2.50 GHz	8MB	45W			DDR4-2666, LPDDR3-2133	
			6/6	i5-8400B	2.80 GHz	9MB	65W			DDR4-2666	
			4/8	i5-8300H	2.30 GHz	8MB	45W			DDR4-2666, LPDDR3-2133	
	Core™ i3		4/4	i3-8100H	3.00 GHz	6MB	35W				
FCBGA1440	Core™ i7	14nm Kabylake	4/8	i7-7920HQ	3.10 GHz	8 MB	45W	Intel® HD Graphics 630	350MHz	DDR4-2400, LPDDR3-2133, DDR3L-1600	CM236
			4/8	i7-7820HQ	2.90 GHz	8 MB	45W				
			4/8	i7-7820HK	2.90 GHz	8 MB	45W				
			4/8	i7-7820EQ	3.00 GHz	8 MB	45W			DDR4-2400	
			4/8	i7-7700HQ	2.80 GHz	6 MB	45W			DDR4-2400, LPDDR3-2133, DDR3L-1600	
	Core™ i5		4/4	i5-7442EQ	2.10 GHz	6 MB	25W			DDR4-2400	
			4/4	i5-7440HQ	2.80 GHz	6 MB	45W			DDR4-2400, LPDDR3-2133, DDR3L-1600	
			4/4	i5-7440EQ	2.90 GHz	6 MB	45W			DDR4-2400	
			4/4	i5-7300HQ	2.50 GHz	6 MB	45W			DDR4-2400, LPDDR3-2133, DDR3L-1600	
	Core™ i3		2/4	i3-7102E	2.10 GHz	3 MB	25W			DDR4-2400	
			2/4	i3-7100E	2.90 GHz	3 MB	35W				
FCBGA1440	Core™ i7	14nm Skylake	4/8	i7-6820EQ	2.80 GHz	8 MB	45 W	Intel® HD Graphics 530	350 MHz	DDR4-2133, LPDDR3-1866, DDR3L-1600	QM170/ HM170
			4/8	i7-6822EQ	2.00 GHz	8 MB	25 W				
			4/8	i7-6700HQ	2.60 GHz	6 MB	45 W				
			4/8	i7-6770HQ	2.60 GHz	6 MB	45 W	Intel® Iris™ Pro Graphics 580			
			4/8	i7-6820HK	2.70 GHz	8 MB	45 W	Intel® HD Graphics 530			
			4/8	i7-6820HQ	2.70 GHz	8 MB	45 W				
			4/8	i7-6870HQ	2.70 GHz	8 MB	45 W	Intel® Iris™ Pro Graphics 580			
			4/8	i7-6920HQ	2.90 GHz	8 MB	45 W	Intel® HD Graphics 530			
			4/8	i7-6970HQ	2.80 GHz	8 MB	45 W	Intel® Iris™ Pro Graphics 580			

Yellow means long-term support ***HM65/HM55 chipset doesn't support Intel® AMT feature***

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Mobile Core™ i7/i5/i3/Celeron® CPU List

Supported Sockets	Brand	Process	Cores/ Threads	Package Type	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCBGA1440	Core™ i5	14nm Skylake	4/4	-	i5-6442EQ	1.90 GHz	6 MB	25 W	Intel® HD Graphics 530	350 MHz	DDR4-2133, LPDDR3-1866, DDR3L-1600	QM170/ HM170
			4/4	-	i5-6440EQ	2.70 GHz	6 MB	45 W				
			4/4	-	i5-6300HQ	2.30 GHz	6 MB	45 W				
			4/4	-	i5-6350HQ	2.30 GHz	6 MB	45 W	Intel® Iris™ Pro Graphics 580			
			4/4	-	i5-6440HQ	2.60 GHz	6 MB	45 W	Intel® HD Graphics 530			
	Core™ i3		2/4	-	i3-6102E	1.90 GHz	3 MB	25 W				
			2/4	-	i3-6100E	2.70 GHz	3 MB	35 W				
			2/4	-	i3-6100H	2.70 GHz	3 MB	35 W				
	Celeron®		2/2	-	G3900E	2.40 GHz	2 MB	35 W	Intel® HD Graphics 510		DDR4-1866/2133, DDR3L-1333/1600 @ 1.35V	
			2/2	-	G3902E	1.60 GHz	2 MB	25 W				
FCBGA1364	Core™ i7	22nm Haswell	4/8	-	i7-4700EC	2.7 GHz	8 MB	43 W	Intel® HD Graphics 4600	400 MHz	DDR3L 1333/1600	QM87/ HM86
			4/8	-	i7-4700EQ	2.4 GHz	6 MB	47 W		400 MHz		
			4/8	-	i7-4702EC	2 GHz	8 MB	27 W	None	400 MHz		
	Core™ i5		2/4	-	i5-4422E	1.8 GHz	3 MB	25 W	Intel® HD Graphics 4600	400 MHz		
			2/4	-	i5-4410E	2.9 GHz	3 MB	37 W		400 MHz		
			2/4	-	i5-4402EC	2.5 GHz	4 MB	27 W	None	-		
			2/4	-	i5-4402E	1.6 GHz	3 MB	25 W	Intel® HD Graphics 4600	400 MHz		
			2/4	-	i5-4400E	2.7 GHz	3 MB	37 W		400 MHz		
	Core™ i3		2/4	-	i3-4100E	2.4 GHz	3 MB	37 W		400 MHz		
			2/4	-	i3-4102E	1.6 GHz	3 MB	25 W		400 MHz		
			2/4	-	i3-4110E	2.6 GHz	3 MB	37 W		400 MHz		
			2/4	-	i3-4112E	1.8 GHz	3 MB	25 W		400 MHz		
	Celeron®		2/2	-	2002E	1.5 GHz	2 MB	25 W	Intel® HD Graphics	400 MHz		
			2/2	-	2000E	2.2 GHz	2 MB	37 W		400 MHz		
rPGA988B	Core™ i7 Extreme Edition	22nm Ivy Bridge	4/8	PGA	i7-3940XM	3 GHz	8 MB	55 W	-	1.35 GHz	DDR3/L/-RS 1333/1600	QM77/ QM67
			4/8		i7-3920XM	2.9 GHz	8 MB	55 W	-	1.3 GHz		
	Core™ i7 Extreme Edition	32nm Sandy Bridge	4/8		i7-2960XM	2.7 GHz	8 MB	55 W	-	1.3 GHz	DDR3-1066/1333/1600	
			4/8		i7-2920XM	2.5 GHz	8 MB	55 W	-	1.3 GHz		
	Core™ i7	22nm Ivy Bridge	4/8		i7-3840QM	2.8 GHz	8 MB	45 W	-	1.3 GHz	DDR3/L/-RS 1333/1600	QM77/ QM67/ HM65
			4/8		i7-3820QM	2.7 GHz	8 MB	45 W	-	1.25 GHz		
			4/8		i7-3740QM	2.7 GHz	6 MB	45 W		1.3 GHz		
			4/8		i7-3720QM	2.6 GHz	6 MB	45 W	-	1.25 GHz		
			4/8		i7-3632QM	2.2 GHz	6 MB	35 W	-	1.15 GHz		
			4/8		i7-3630QM	2.4 GHz	6 MB	45 W	-	1.15 GHz		
			4/8		i7-3612QM	2.1 GHz	6 MB	35 W	-	1.1 GHz		
			4/8		i7-3610QM	2.3 GHz	6 MB	45 W	-	1.1 GHz		
			4/8		i7-3610QE	2.3 GHz	6 MB	45 W	-	1.0 GHz	DDR3/L 1333/1600	
			2/4		i7-3520M	2.9 GHz	4 MB	35 W	-	1.25 GHz	DDR3/L/-RS 1333/1600	
		32nm Sandy Bridge	4/8		i7-2860QM	2.5 GHz	8 MB	45 W	-	1.3 GHz	DDR3-1066/1333/1600	QM77/ QM67/ HM65
			4/8		i7-2820QM	2.3 GHz	8 MB	45 W	-	1.3 GHz		
			4/8		i7-2760QM	2.4 GHz	6 MB	45 W	-	1.3 GHz		
			4/8		i7-2720QM	2.2 GHz	6 MB	45 W	-	1.3 GHz		
			4/8		i7-2710QE	2.1 GHz	6 MB	45 W	-	1.2 GHz		
			4/8		i7-2670QM	2.2 GHz	6 MB	45 W	-	1.1 GHz	DDR3-1066/1333	
			2/4		i7-2640M	2.8 GHz	4 MB	35 W	-	1.3 GHz		
			4/8		i7-2630QM	2 GHz	6 MB	45 W	-	1.1 GHz		
			2/4		i7-2620M	2.7 GHz	4 MB	35 W	-	1.3 GHz		
	Core™ i5	22nm Ivy Bridge	2/4		i5-3610ME	2.7 GHz	3 MB	35 W	-	950 MHz	DDR3/L 1333/1600	
			2/4		i5-3360M	2.8 GHz	3 MB	35 W	-	1.2 GHz	DDR3/L/-RS 1333/1600	
			2/4		i5-3320M	2.6 GHz	3 MB	35 W	-	1.2 GHz		
			2/4		i5-3210M	2.5 GHz	3 MB	35 W	-	1.1 GHz		
	Core™ i5	32nm Sandy Bridge	2/4		i5-2540M	2.6 GHz	3 MB	35 W	-	1.3 GHz	DDR3-1066/1333	
			2/4		i5-2520M	2.5 GHz	3 MB	35 W	-	1.3 GHz		
			2/4		i5-2510E	2.5 GHz	3 MB	35 W		1.1 GHz		
			2/4		i5-2450M	2.5 GHz	3 MB	35 W		1.3 GHz		
			2/4		i5-2435M	2.4 GHz	3 MB	35 W	-	1.3 GHz		
			2/4		i5-2430M	2.4 GHz	3 MB	35 W	-	1.2 GHz		
			2/4		i5-2410M	2.3 GHz	3 MB	35 W	-	1.2 GHz		

Yellow means long-term support ***HM65/HM55 chipset doesn't support Intel® AMT feature***

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Mobile Core™ i7/i5/i3/Celeron® CPU List

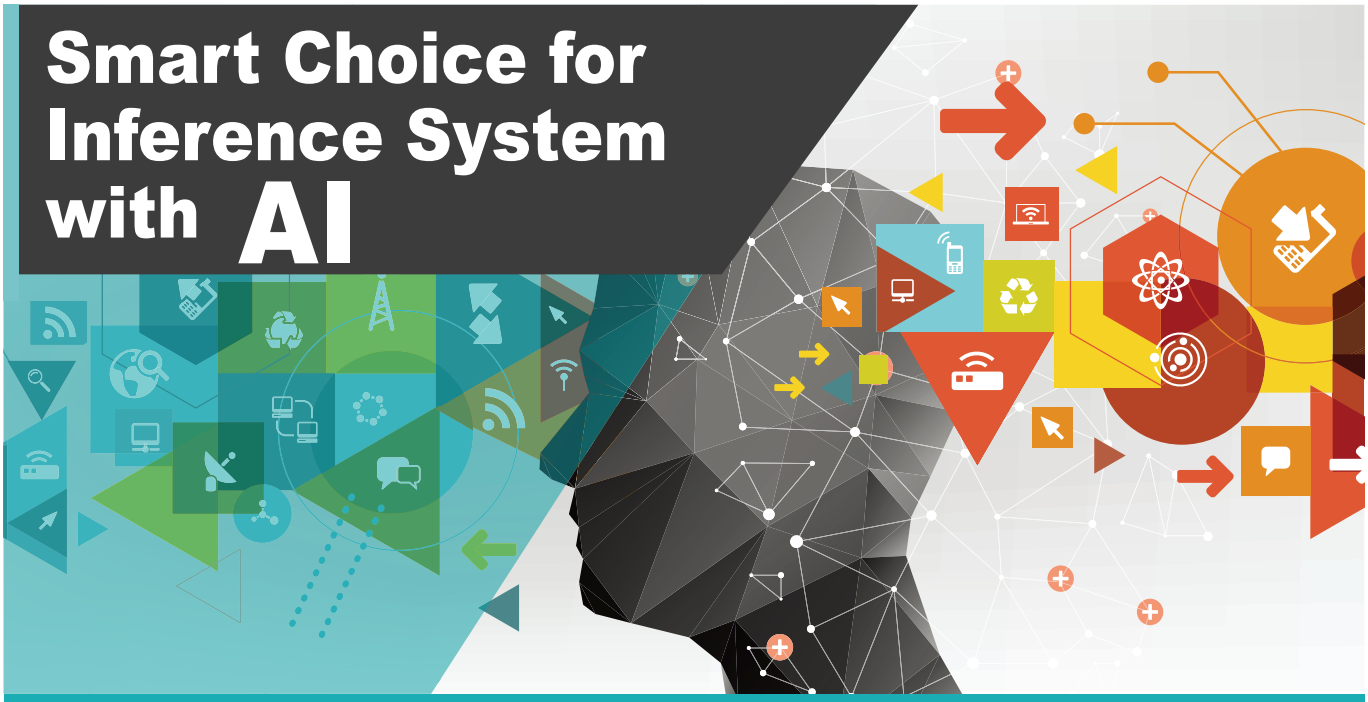
Supported Sockets	Brand	Process	Cores/ Threads	Package Type	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
rPGA988B	Core™ i3	22nm Ivy Bridge	2/4		i3-3120M	2.5 GHz	3 MB	35 W	-	1.1 GHz	DDR3/L/-RS 1333/1600	QM77/ QM67/ HM65
			2/4		i3-3110M	2.4 GHz	3 MB	35 W	-	1 GHz		
	Core™ i3	32nm Sandy Bridge	2/4		i3-2370M	2.4 GHz	3 MB	35 W	-	1.15 GHz	DDR3-1066/1333	
			2/4		i3-2350M	2.3 GHz	3 MB	35 W	-	1.15 GHz		
			2/4		i3-2330M	2.2 GHz	3 MB	35 W	-	1.1 GHz		
			2/4		i3-2330E	2.2 GHz	3 MB	35 W	-	1.05 GHz		
			2/4		i3-2328M	2.2 GHz	3 MB	35 W	-	1.1 GHz		
			2/4		i3-2312M	2.1 GHz	3 MB	35 W	-	1.1 GHz		
			2/4		i3-2310M	2.1 GHz	3 MB	35 W	-	1.1 GHz		
	Celeron®	32nm Sandy Bridge	2/2		B840	1.9 GHz	2 MB	35 W	-	1 GHz		
			2/2		B830	1.8 GHz	2 MB	35 W	-	1.05 GHz		
			2/2		B820	1.7 GHz	2 MB	35 W	-	1.05 GHz		
			2/2		B815	1.6 GHz	2 MB	35 W	-	1.05 GHz		
			2/2		B810	1.6 GHz	2 MB	35 W	-	950 MHz		
			2/2		B800	1.5 GHz	2 MB	35 W	-	1 GHz		
			1/1		B720	1.7 GHz	2 MB	35 W	-	1 GHz		
			1/1		B710	1.6 GHz	1.5 MB	35 W	-	1 GHz		
Socket988A	Core i7 Extreme Edition	45nm	Quad	PGA	i7-940XM	2.13G	8M	55W	-	-	1333 MHz 1066 MHz	QM57/ HM55
	Core i7				i7-920XM	2.0G	8M	55W	-	-		
					i7-840QM	1.86G	8M	45W	-	-		
					i7-820QM	1.73G	8M	45W	-	-		
					i7-740QM	1.73G	6M	45W	-	-		
					i7-720QM	1.6G	6M	45W	-	-		
	Core i5		Dual		i7-640M	2.8G	4M	35W	-	500MHz	1066 MHz 800 MHz	
					i7-620M	2.66G	4M	35W	-			
					i5-580M	2.66G	3M	35W	-			
					i5-560M	2.66G	3M	35W	-			
					i5-540M	2.53G	3M	35W	-			
					i5-520M	2.4G	3M	35W	-			
					i5-480M	2.66G	3M	35W	-			
					i5-460M	2.53G	3M	35W	-			
					i5-450M	2.4G	3M	35W	-			
					i5-430M	2.26G	3M	35W	-			
	Core i3				i3-390M	2.66G	3M	35W	-			
					i3-380M	2.53G	3M	35W	-			
					i3-370M	2.4G	3M	35W	-			
					i3-350M	2.26G	3M	35W	-			
					i3-330M	2.13G	3M	35W	-			
	Celeron				P4600	2.0G	2M	35W	-			
					P4500	1.86G	2M	35W	-			

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Smart Choice for Inference System with AI

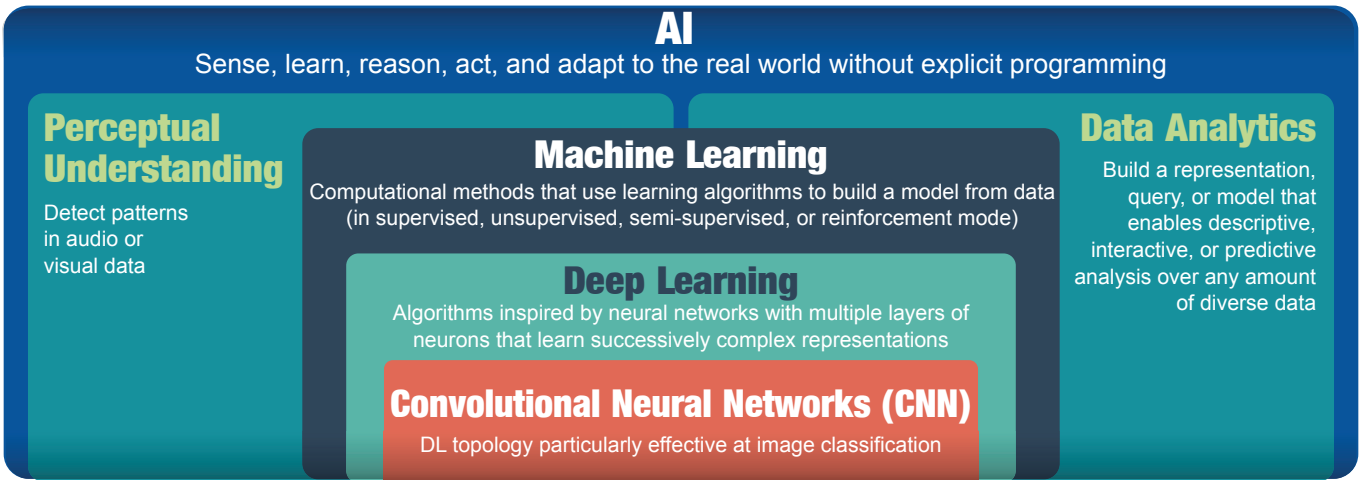


Artificial Intelligence, AI, is changing our lives from the past to the future. It enables machine learning by using a variety of training models to simulate and infer the status or appearance of objects. For example, the inference system with the video analysis model can perform face and vehicle license plate analysis for safety and security purposes.

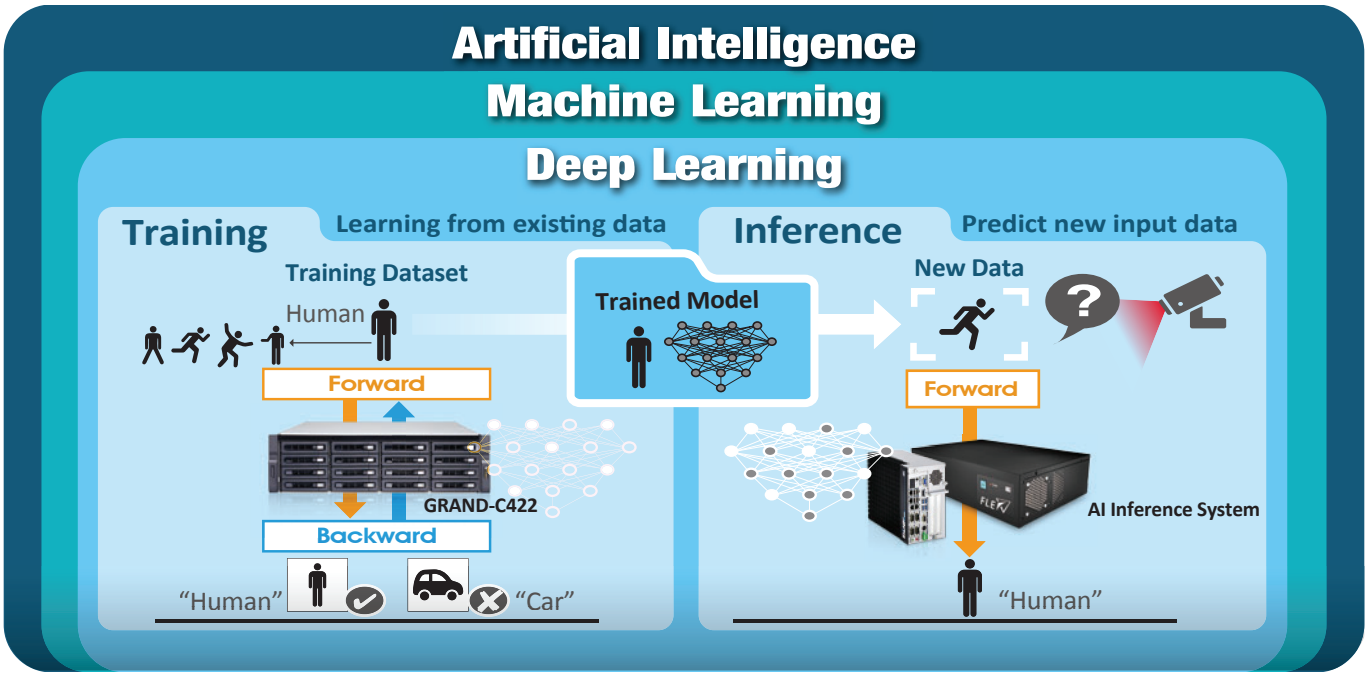
Today, most of AI technology still rely on the data center to execute the inference, which will increase the risk of real-time application for applications such as traffic monitoring, security CCTV, etc. Therefore, it's crucial to implement a low-latency. real-time edge computing platform.

Deep learning and inference

Deep learning is part of the machine learning method. It allows computational models that are composed of multiple processing layers to learn representations of data with multiple levels of abstraction.Deep neural network and recurrent neural network architectures have been used in applications such as object recognition, object detection, feature segmentation, text-to-speech, speech-to-text, translation, etc.In some cases the performance of deep learning algorithms can be even more accurate than human judgement.



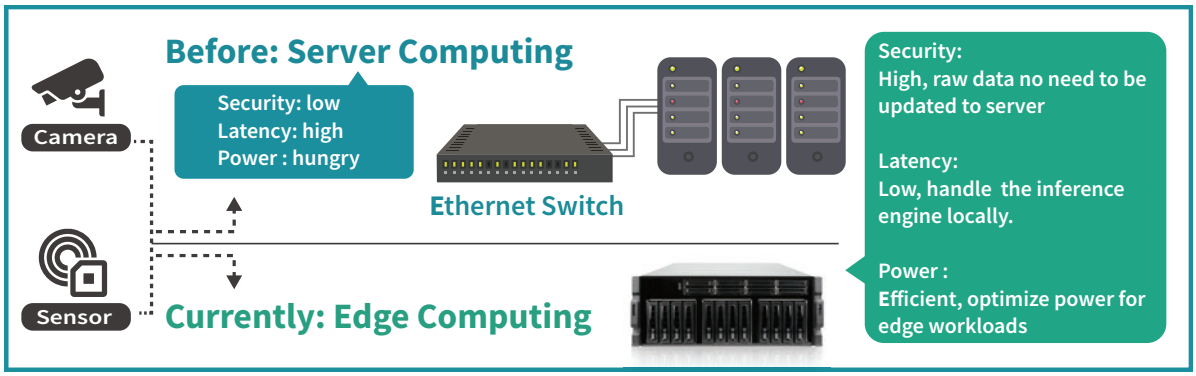
In the past, machine learning required researchers and domain experts knowledge to design filters that extracted the raw data into feature vectors. However, with the contributions of deep learning accelerators and algorithms, trained models can be applied to the raw data, which could be utilized to recognize new input data in inference.



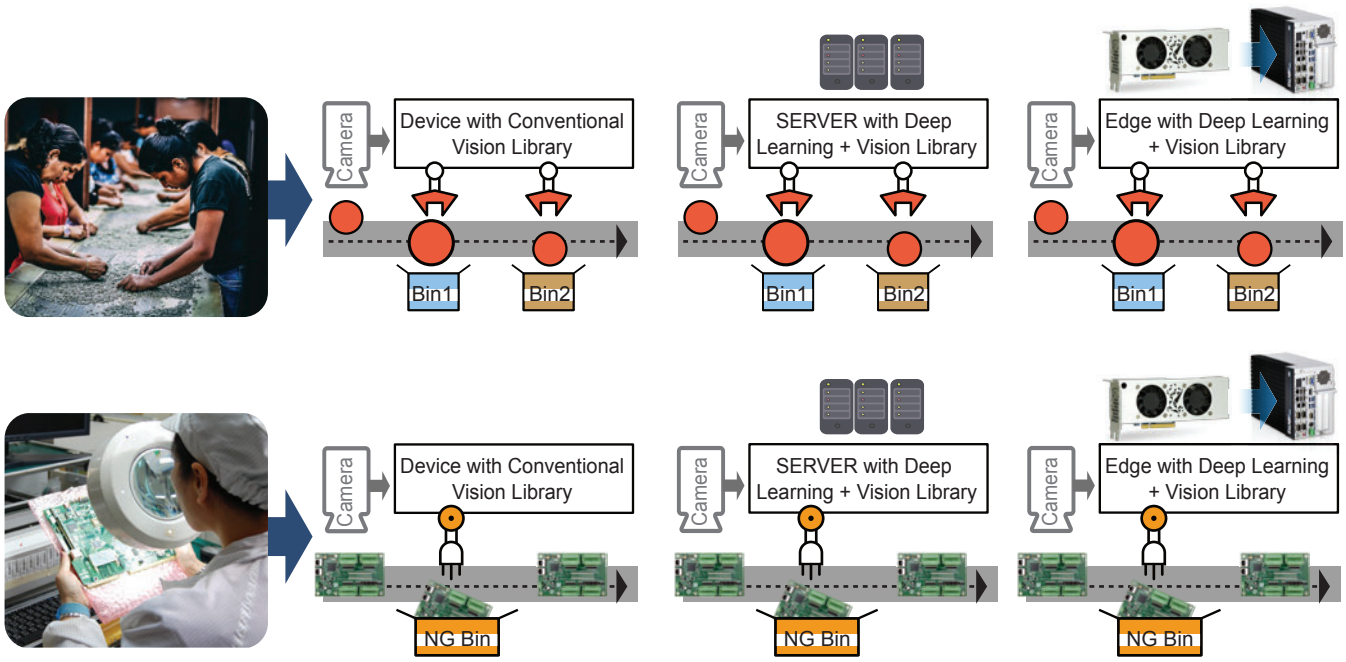
Edge Computing

The advantages of edge computing:

- Reduce data center loading, transmit less data, reduce network traffic bottlenecks.
- Real-time applications, the data is analyzed locally, no need long distant data center.
- Lower costs, no need to implement sever grade machine to achieve non complex applications.



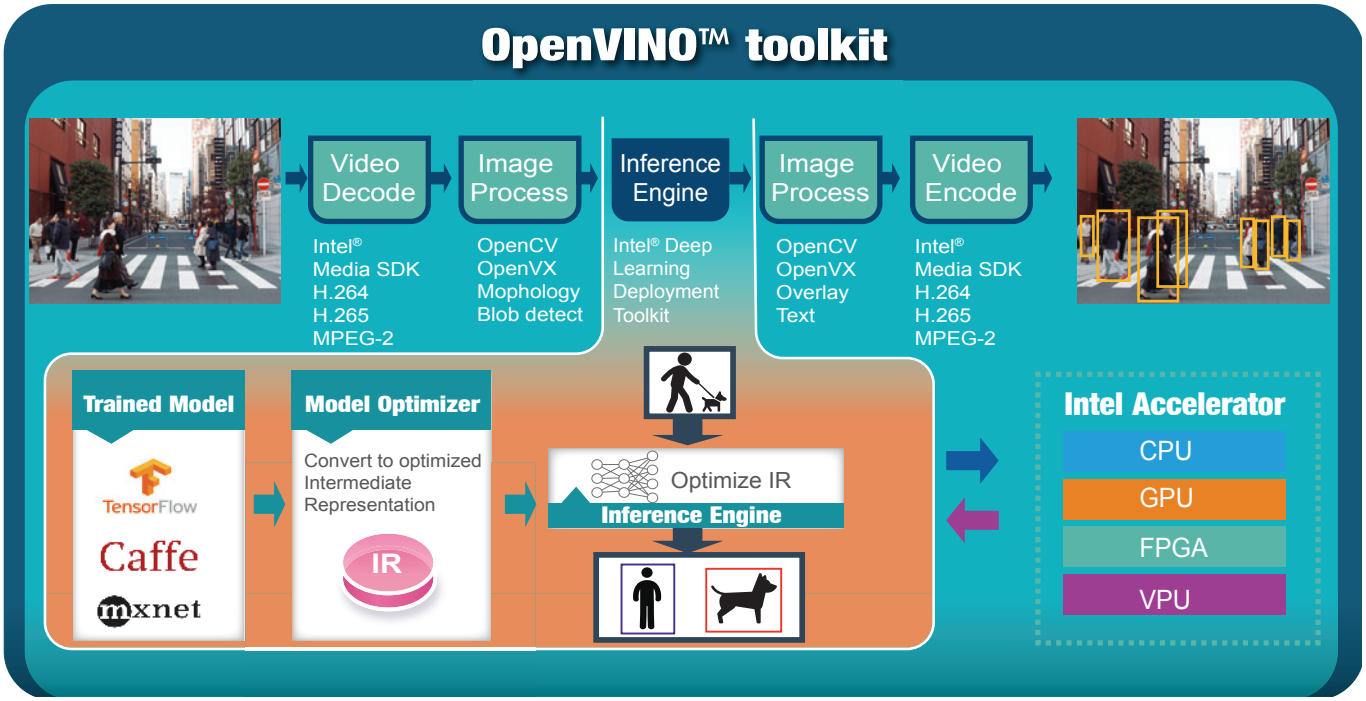
Human Sorting	Machine Vision	Deep Learning Server	Deep learning Edge
Sorting by human bare-eyes, the standard can not fix due to different person. Low accuracy, low productivity	Training and sorting by conventional machine vision method,need well-trained engineer to teach and modify the inspection criteria. Low latency, but low accuracy if product has too much variations.	Implement deep learning method for training and sorting, reduce human bias and machine vision training process. High CTO, high latency, power hungry, high power consumption	Implement deep learning method for training and sorting, reduce human bias and machine vision training process. Low latency, low CTO, power efficiency, low power consumption



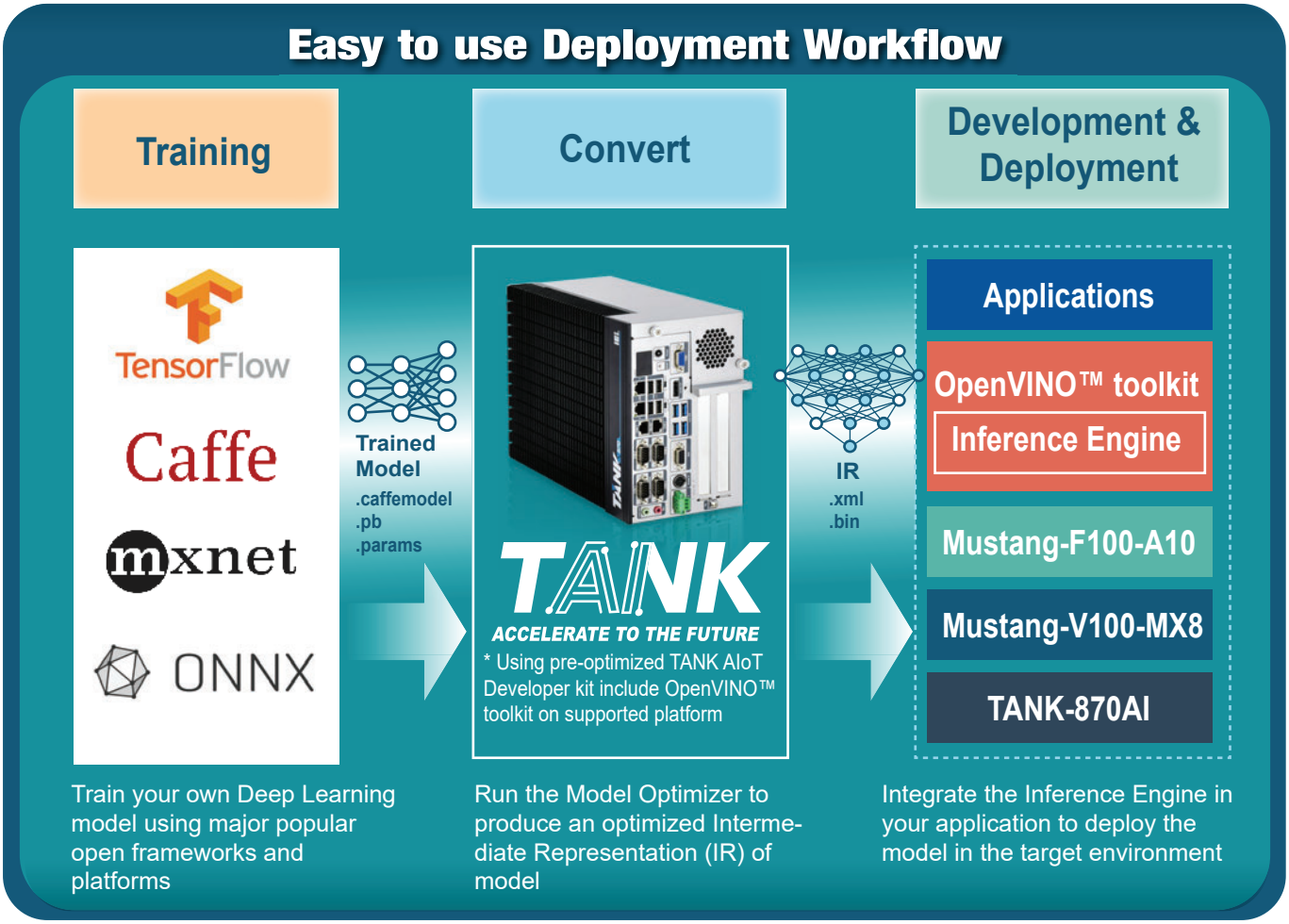
Intel® Distribution of OpenVINO™ toolkit

Intel® Distribution of OpenVINO™ toolkit is based on convolutional neural networks (CNN), the toolkit extends workloads across multiple types of Intel® platforms and maximizes performance.

It can optimize pre-trained deep learning models such as Caffe, MXNET, and ONNX Tensorflow. The tool suite includes more than 20 pre-trained models, and supports 100+ public and custom models (includes Caffe*, MXNet, TensorFlow*, ONNX*, Kaldi*) for easier deployments across Intel® silicon products (CPU, GPU/Intel®Processor Graphics, FPGA, VPU).



Software

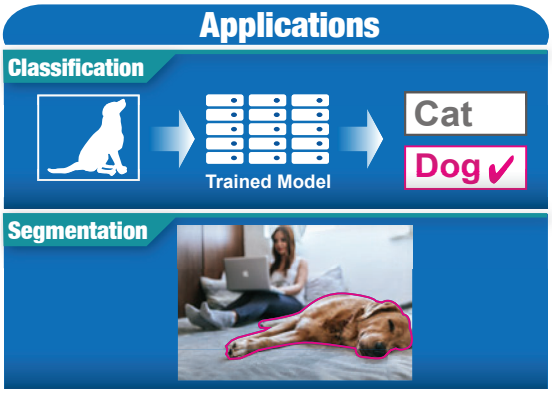


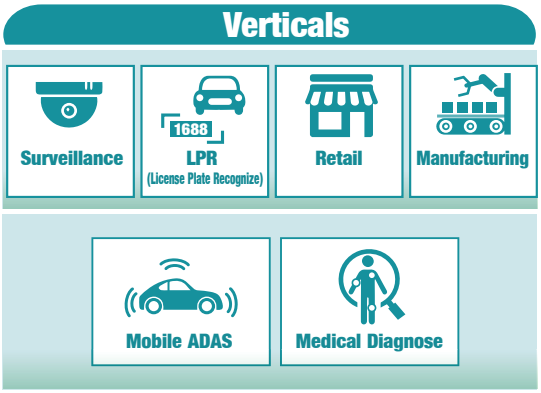
- **Operating Systems**
  Ubuntu 16.04.3 LTS 64bit, CentOS 7.4 64bit, Windows 10 64bit

- **OpenVINO™ toolkit**
  – Intel® Deep Learning Deployment Toolkit
    • Model Optimizer
    • Inference Engine
  – Optimized computer vision libraries
  – Intel® Media SDK
  – Current Supported Topologies: AlexNet, GoogleNet V1/V2/V4, Yolo Tiny V1/V2, Yolo V2/V3, SSD300,SSD512, ResNet-18/50/101/152, DenseNet121/161/169/201, SqueezeNet 1.0/1.1, VGG16/19, MobileNet-SSD, Inception-ResNet-v2,Inception-V1/V2/V3/V4,SSD-MobileNet-V2-coco, MobileNet-V1-0.25-128, MobileNet-V1-0.50-160, MobileNet-V1-1.0-224, MobileNet-V1/V2, Faster-RCNN

* For more topologies support information please refer to Intel® OpenVINO™ Toolkit official website.
[Supported Models]
https://docs.openvinotoolkit.org/latest/_docs_IE_DG_Introduction.html#SupportedFW
[Supported Framework Layers]
https://docs.openvinotoolkit.org/latest/_docs_MO_DG_prepare_model_Supported_Frameworks_Layers.html

- **High flexibility, develop on OpenVINO™ toolkit structure which allows trained data such as Caffe, TensorFlow, and MXNet to execute on it after convert to optimized IR.**

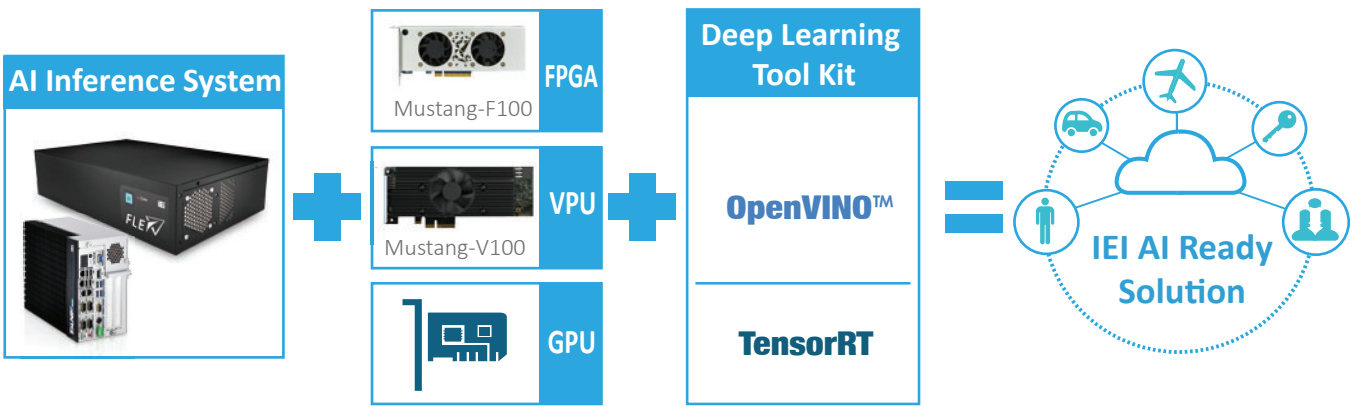




Accelerator / Platform	Mustang-F100-A10 PCIe Gen3x8	Mustang-V100-MX8 PCIe Gen2x4	Mustang-V100-MX4 PCIe Gen2x2	Mustang-MPCIe-MX2 minipcie	Mustang-M2BM-MX2 M.2 B+M
TANK AIoT Dev. Kit Intel® SkyLake AI Dev. Kit		x2	x2		
FLEX-BX-200-Q370 Intel® Coffee Lake AI Modular Box PC		x4	x4		
RACK-500AI Intel® Coffee Lake AI Modular PC		x2	x2		
PAC-400AI Intel® SkyLake AI Modular PC		x2	x2		
ITG-100AI Intel® Atom™x5-E3930					

IEI AI Ready Solution Accelerates Your AI Initiative

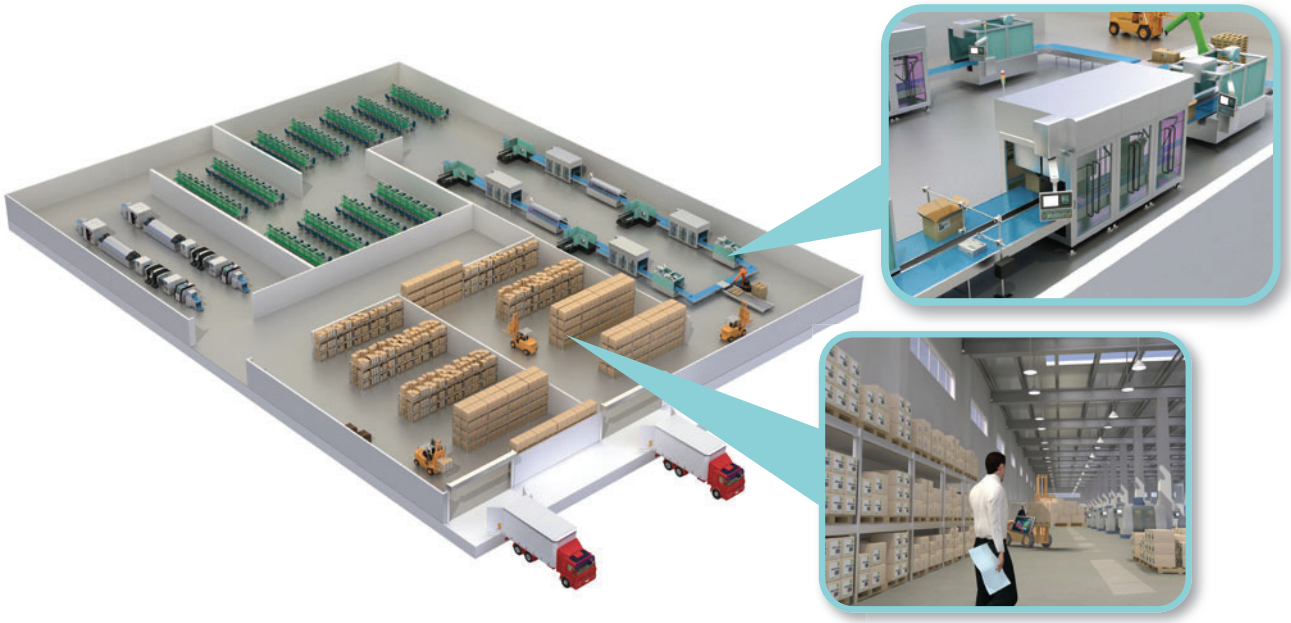
The FLEX-BX200 and TANK-870AI dev. kit are AI hardware ready system ideal for deep learning inference computing to help you get faster, deeper insights into your customers and your business. IEI's FLEX-BX200 and TANK-870AI dev. support graphics cards, Intel® FPGA acceleration cards, and Intel® VPU acceleration cards, and provides additional computational power plus end-to-end solution to run your tasks more efficiently. With the Intel® OpenVINO toolkit and NVIDIA TensorRT, it can help you deploy your solutions faster than ever.



Industrial Manufacturing

• Industrial automation

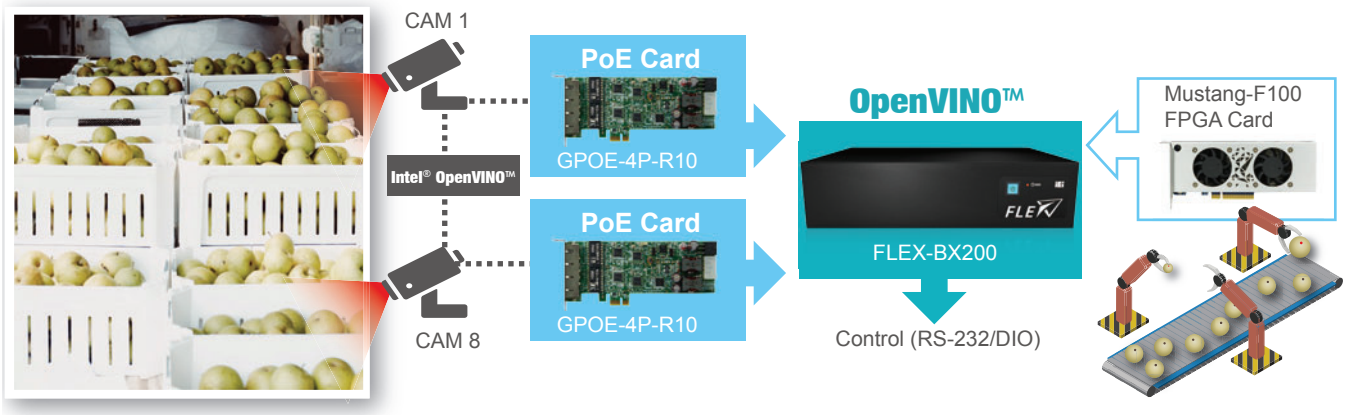
Mustang series solutions help enable intelligent factories to be more efficient on work order schedule arrangements. In today's production line, sticking to manufacturing schedules is becoming more and more important for business efficiency. From raw material storage to fabrication and complete products, all information from factory such as manufacturing equipment process time and warehouse storage status are essential to achieve production goals. Solutions based on AI technology can produce more detailed, accurate, and meaningful digital models of equipment and processes for product management.



• Machine Vision for Sorting and Grading of Agricultural Products

Agricultural products are valued by their appearance. The color indicates parameters like ripeness, defects, etc. The quality decisions vary among the graders and often inconsistent. Machine vision technology offers the solution for all these problems.

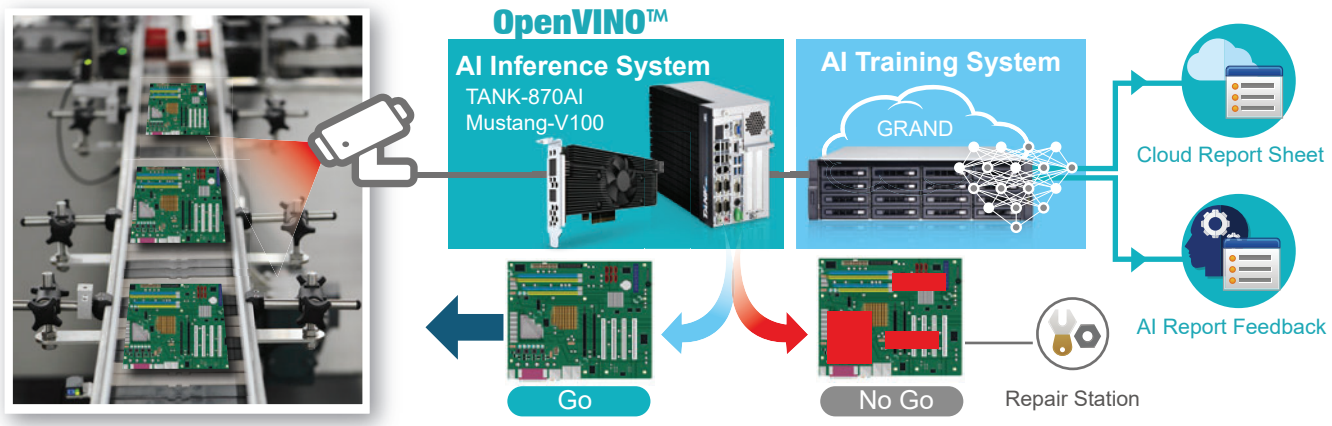
The FLEX series designed for machine vision market has four PCIe 3.0 expansion slots for installing motion controller cards, GP GPU/FPGA/VPU cards and the PoE Ethernet card which is developed by IEI and has four GbE Power over Ethernet (PoE) ports compliant with IEEE 802.3af for direct connection to CCTV cameras without needing separate power.



• AOI Defect Classification

During the manufacturing process, defects could be introduced and harmful to the quality. It is necessary to classify the defects detected by AOI machine appropriately especially killer defects. The higher accuracy to classify defects, the less cost spent on review and repair station.

The TANK AIoT Dev. Kit features rich I/O and dual PCIe x8 signals to support add-ons like the Acceleration cards (Mustang-F100-A10 & Mustang-V100-MX8) or the PoE to enhance the defects detected performance.



Retail

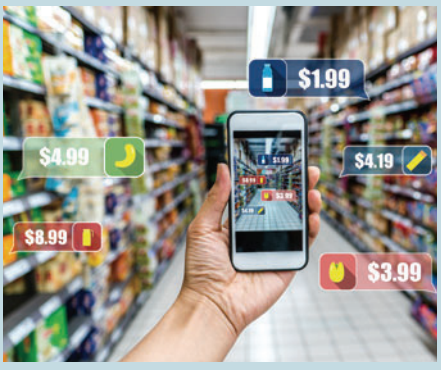
• Smart Retail

Using the Mustang series for computer vision solutions at the edge of retail sites can quickly recognize the gender and age of the customers and provide relevant product information through digital signage display to improve product sales and inventory control. Self-checkout can reduce human resource cost so that retail owners can spend more resources on promoting products and understanding business patterns.

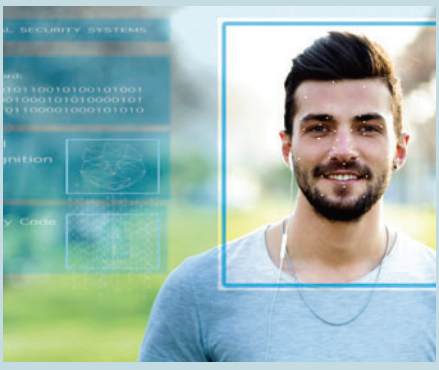
In addition, it can help to analyze customer's in-store behavior, and provide customer information based on gender and age to facilitate product positioning. Quickly converting the business intelligence gained and help build better business practices and increase profitability.



Self-checkout



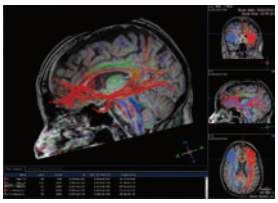
Smart Retail

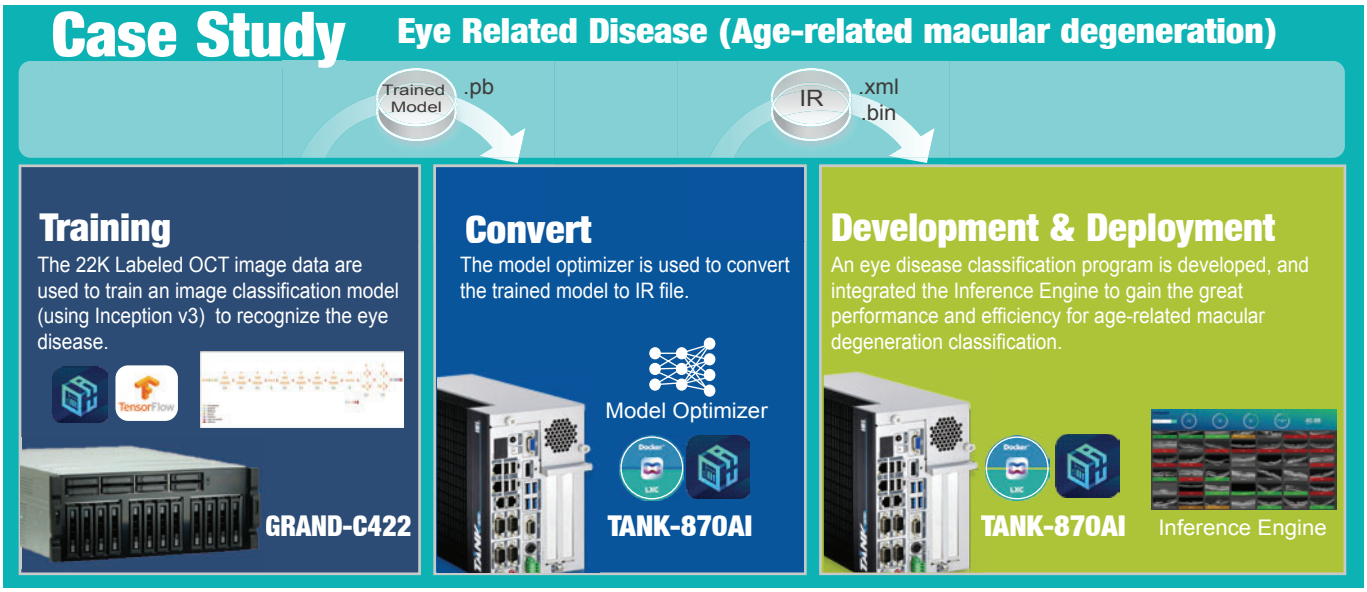

Interactive digital signage

Medical

• Medical Diagnostics

With AI based technology, healthcare and medical centers can diagnose, locate and identify suspicious areas such as tumors and other abnormalities more quickly and accurately. Using segmentation technology and trained models on the Mustang series can be used to locate and identify abnormalities with a high degree of accuracy helping doctors and researchers quickly serve the patient.





Transportation

• Numerous Vehicle License Plate Analysis

Efficient road tolling and parking reduces fraud related to non-payment, makes charging effective, and reduces required manpower to process. Vehicle license plate analysis can be deployed on highways for electronic toll collection, and can be implemented as a method of cataloguing the movement of traffic as well as provide enhanced security by establishing data on suspicious vehicles in a more efficient way.



Traffic management



LPR

TANK
ACCELERATE TO THE FUTURE

AIoT Dev. Kit





The TANK AIoT Dev. Kit features rich I/O and dual PCIe x8 signals to support add-ons like the Acceleration cards (Mustang-F100-A10 & Mustang-V100-MX8) or the PoE card to enhance performance and function for various applications.

Integrate AI into IOT applications

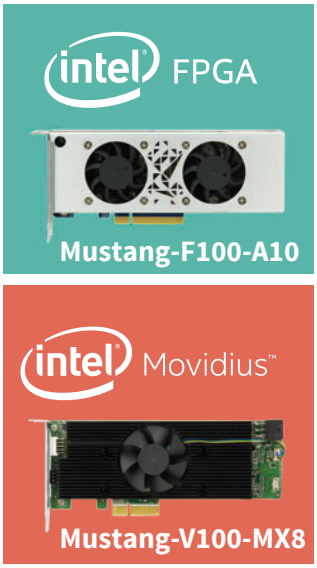
Open the door to faster deployments of Inference Systems with the TANK AIoT Dev. Kit via the Intel® Distribution of OpenVINO™ toolkit & Intel® Media SDK

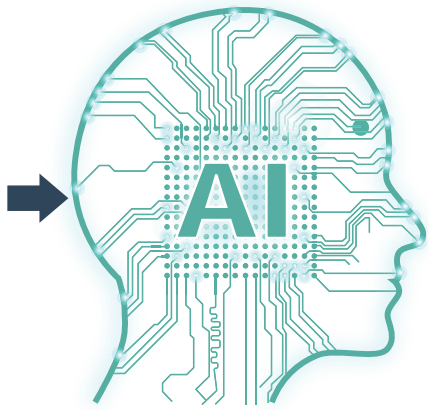
TANK
ACCELERATE TO THE FUTURE



TANK-AIoT Dev. Kit

- 6th/7th Gen Intel® Core™/Xeon® processor platform with Intel® Q170/C236 chipset and DDR4 memory
- Pre-install OpenVINO™ toolkit for AI inference acceleration
- Support Intel® CPU、GPU、FPGA、VPU acceleration





TANK AIoT Developer Kit

NEW



Feature

- 6th/7th Gen Intel® Core™/Xeon® processor platform with Intel® Q170/C236 chipset and DDR4 memory
- Dual independent display with high resolution support
- Rich high-speed I/O interfaces on one side for easy installation
- On-board internal power connector for providing power to add-on cards
- Great flexibility for hardware expansion
- Pre-installed Ubuntu 16.04 LTS
- Pre-installed Intel® Distribution of Open Visual Inference & Neural Network Optimization (OpenVINO™) toolkit,Intel® Media SDK, Intel® System Studio and Arduino® Create



Specifications

Model Name	TANK AIoT Dev. Kit
Chassis	
Color	Black C + Silver
Dimensions (WxDxH)	121.5 x 255.2 x 205 mm (4.7" x 10" x 8")
System Fan	Fan
Chassis Construction	Extruded aluminum alloys
Weight (Net/Gross)	4.2 kg (9.26 lbs)/ 6.3 kg (13.89 lbs)
Motherboard	
CPU	Intel® Xeon® E3-1268LV5 2.4GHz (up to 3.4 GHz, Quad Core, TDP 35W) Intel® Core™ i7-7700T 2.9GHz (up to 3.8 GHz, Quad Core, TDP 35W) Intel® Core™ i5-7500T 2.7GHz (up to 3.3 GHz, Quad Core, TDP 35W) Intel® Core™ i7-6700TE 2.4 GHz (up to 3.4GHz, quad-core, TDP 35W) Intel® Core™ i5-6500TE 2.3 GHz (up to 3.3GHz, quad-core, TDP 35W)
Chipset	Intel® Q170/C236 with Xeon® E3 only
System Memory	2 x 260-pin DDR4 SO-DIMM, 8 GB pre-installed (for i5/i5KBL/i7 sku) 16 GB pre-installed (for i7KBL sku) 32 GB pre-installed (for E3 sku)
Storage	
Hard Drive	2 x 2.5" SATA 6Gb/s HDD/SSD bay, RAID 0/1 support (1x 2.5" 1TB HDD pre-installed)
I/O Interfaces	
USB 3.2 Gen 1	4
USB 2.0	4
Ethernet	2 x RJ-45 LAN1: Intel® I219LM PCIe controller with Intel® vPro™ support LAN2 (iRIS): Intel® I210 PCIe controller
COM Port	4 x RS-232 (2 x RJ-45, 2 x DB-9 w/2.5KV isolation protection) 2 x RS-232/422/485 (DB-9)
Digital I/O	8-bit digital I/O, 4-bit input / 4-bit output
Display	1 x VGA 1 x HDMI/DP 1 x iDP (optional)
Resolution	VGA: Up to 1920 x 1200@60Hz HDMI/DP: Up to 3840x2160@30Hz / 4096×2304@60Hz
Audio	1 x Line-out, 1 x Mic-in
TPM	1x Infineon TPM 2.0 Module
Expansions	
Backplane	2 x PCIe x8
PCIe Mini	1 x Half-size PCIe Mini slot 1 x Full-size PCIe Mini slot (supports mSATA, colay with SATA)
Power	
Power Input	DC Jack: 9 V~36 V DC Terminal Block: 9 V~36 V DC
Power Consumption	19 V@3.68 A (Intel® Core™ i7-6700TE with 8 GB memory)
Internal Power output	5V@3A or 12V@3A
Reliability	
Mounting	Wall mount
Operating Temperature	Xeon® E3 -20°C ~ 60°C with air flow (SSD), 10% ~ 95%, non-condensing i7-7700T -20°C ~ 35°C with air flow (SSD), 10% ~ 95%, non-condensing i5-7500T -20°C ~ 45°C with air flow (SSD), 10% ~ 95%, non-condensing i7-6700TE -20°C ~ 45°C with air flow (SSD), 10% ~ 95%, non-condensing i5-6500TE -20°C ~ 60°C with air flow (SSD), 10% ~ 95%, non-condensing
Operating Vibration	MIL-STD-810G 514.6 C-1 (with SSD)
Safety/EMC	CE/FCC/RoHS
OS	
Supported OS	Win10/Linux Ubuntu 16.04 LTS

Warning: DO NOT install the add-on card into the TANK AIoT Dev. Kit before shipment. It is recommended to ship them with their original boxes to prevent the add-on card from being damaged.

Ordering Information

Part No.	Description
TANK-870AI-E3/32G/2A-R11	Ruggedized embedded system with Intel® Xeon® E3-1268LV5 2.4GHz, (up to 3.4 GHz, Quad Core, TDP 35W), 32 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5” 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, RoHS
TANK-870AI-E3/32G/2A/F-R11	Ruggedized embedded system with Intel® Xeon® E3-1268LV5 2.4GHz, (up to 3.4 GHz, Quad Core, TDP 35W), 32 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5" 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, Mustang-F100, RoHS
TANK-870AI-E3/32G/2A/V-R11	Ruggedized embedded system with Intel® Xeon® E3-1268LV5 2.4GHz, (up to 3.4 GHz, Quad Core, TDP 35W), 32 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5" 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, Mustang-V100, RoHS
TANK-870AI-i7KBL/16G/2A-R11	Ruggedized embedded system with Intel® Core™ i7-7700T 2.9GHz, (up to 3.8 GHz, Quad Core, TDP 35W), 16 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5” 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, RoHS
TANK-870AI-i7KBL/16G/2A/F-R11	Ruggedized embedded system with Intel® Core i7-7700T 2.9GHz, (up to 3.8 GHz, Quad Core, TDP 35W), 16GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5" 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, Mustang-F100, RoHS
TANK-870AI-i7KBL/16G/2A/V-R11	Ruggedized embedded system with Intel® Core i7-7700T 2.9GHz, (up to 3.8 GHz, Quad Core, TDP 35W), 16GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5" 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, Mustang-V100, RoHS
TANK-870AI-i7/8G/2A-R11	Ruggedized embedded system with Intel® Core™ i7-6700TE 2.4GHz, (up to 3.4 GHz, Quad Core, TDP 35W), 8 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5” 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, RoHS
TANK-870AI-i7/8G/2A/F-R11	Ruggedized embedded system with Intel® Core i7-6700TE 2.4GHz, (up to 3.4 GHz, Quad Core, TDP 35W), 8 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5" 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, Mustang-F100, RoHS
TANK-870AI-i7/8G/2A/V-R11	Ruggedized embedded system with Intel® Core i7-6700TE 2.4GHz, (up to 3.4 GHz, Quad Core, TDP 35W), 8 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5" 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, Mustang-V100, RoHS
TANK-870AI-i5KBL/8G/2A-R11	Ruggedized embedded system with Intel® Core™ i5-7500T 2.7GHz, (up to 3.3 GHz, Quad Core, TDP 35W), 8 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5” 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, RoHS
TANK-870AI-i5KBL/8G/2A/F-R11	Ruggedized embedded system with Intel® Core i5-7500T 2.7GHz, (up to 3.3 GHz, Quad Core, TDP 35W), 8 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5" 1TB HDD , TPM 2.0, 9~36V DC, 150W AC DC power adaptor, Mustang-F100, RoHS
TANK-870AI-i5KBL/8G/2A/V-R11	Ruggedized embedded system with Intel® Core i5-7500T 2.7GHz, (up to 3.3 GHz, Quad Core, TDP 35W), 8 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5" 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, Mustang-V100, RoHS
TANK-870AI-i5/8G/2A-R11	Ruggedized embedded system with Intel® Core™ i5-6500TE 2.3GHz, (up to 3.3 GHz, Quad Core, TDP 35W), 8 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5” 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, RoHS
TANK-870AI-i5/8G/2A/F-R11	Ruggedized embedded system with Intel® Core i5-6500TE 2.3GHz, (Up to 3.3 GHz, Quad Core, TDP 35W), 8 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5" 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, Mustang-F100, RoHS
TANK-870AI-i5/8G/2A/V-R11	Ruggedized embedded system with Intel® Core i5-6500TE 2.3GHz, (Up to 3.3 GHz, Quad Core, TDP 35W), 8 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5" 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, Mustang-V100, RoHS

AI Accelerator Card Options

Part No.	Description
Mustang-F100-A10-R10	PCIe FPGA Highest Performance Accelerator Card with Arria 10 1150GX support DDR4 2400Hz 8GB, PCIe Gen3 x8 interface, RoHS
Mustang-V100-MX8-R11	Computing Accelerator Card with 8 x Movidius Myriad X MA2485 VPU, PCIe Gen2 x4 interface, RoHS

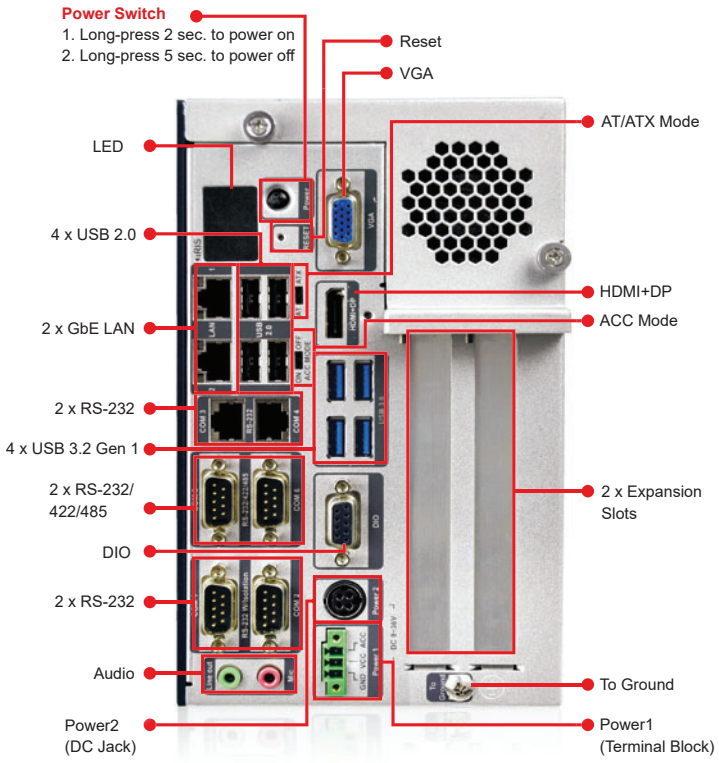
Peripheral Options

Part No.	Description
IPCIE-4POE-R10	PCI Express Power over ethernet card, 4-port 1000 Base(T), 802.3af compliant, RoHS
72213100-5010000-000-RS	2.5" HDD;WD;Caviar Blue;WD10SPZX;SATA3.0(6Gb/s, 600MB/s);1TB;128MB;5400 RPM;NoAssign;NoAssign;;CCL;RoHS

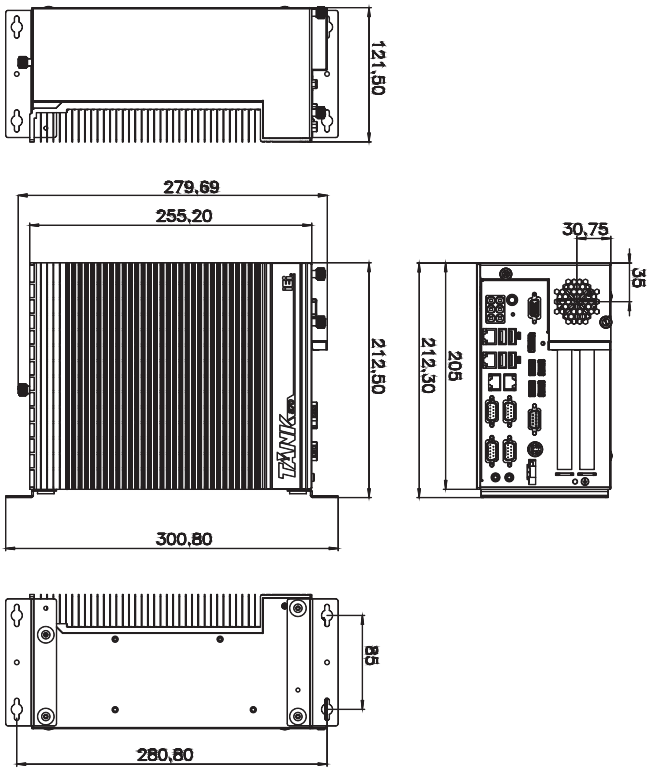
Packing List

1 x Chassis Screw	1 x 150W Adapter
1 x Mounting Bracket	1 x Power Cord
1 x QSG	

Fully integrated I/O



Dimensions (Unit:mm)



IEI AI Ready Modular Box PC



Critical Success Factors for Edge Inference Systems

The FLEX series offers six features to help AI developers to build diverse AI solutions.

Industrial grade

Meet MIL-810F vibration test and support extended operating temperature from -10°C~50°C to assure assures system reliability and endurance under the highest level in volatile, harsh and critical environments.

Interconnectivity

IEI's FLEX series offer diverse I/O, including COM, USB, GbE LAN, HDMI and audio ports, highly interconnected with arrays of sensors and peripherals

Flexible deployment

Compact 2U system for flexible deployment allows it to be installed everywhere by rack mounting, wall mounting, and even converted to an all-in-one panel PC.

High volume RAID 0/1/5/10 storage capacity

AI systems are highly dependent on enormous volumes of data. IEI's inference computing system, the FLEX series, is equipped with 4 hot-swappable HDDs and dual NVMe SSDs supporting massive storage capacity required for AI workloads.

Flexible expansion capability

Two PCIe x8 and two PCIe x4 expansion slots allow AI developers to install AI add-on-cards, like VPU, GPU, capture cards and I/O cards, to accelerate AI development.

8th Generation Intel® Core™ Desktop Processors

Equipped with a powerful CPU processor, IEI's FLEX system offers advanced computing and graphics performance for computationally intensive processes.

8th Generation Intel® Core™ Desktop Processors

For applying inference prediction immediately based on trained model, how to select system components is a huge puzzle. The numbers of GPU, the cores of CPU and the size of the memory always matter. CPU is responsible mainly for data processing and communicating with GPU. Hence, the number of cores and threads per core are paramount. It is better to choose a multi-core processor to handle AI tasks.

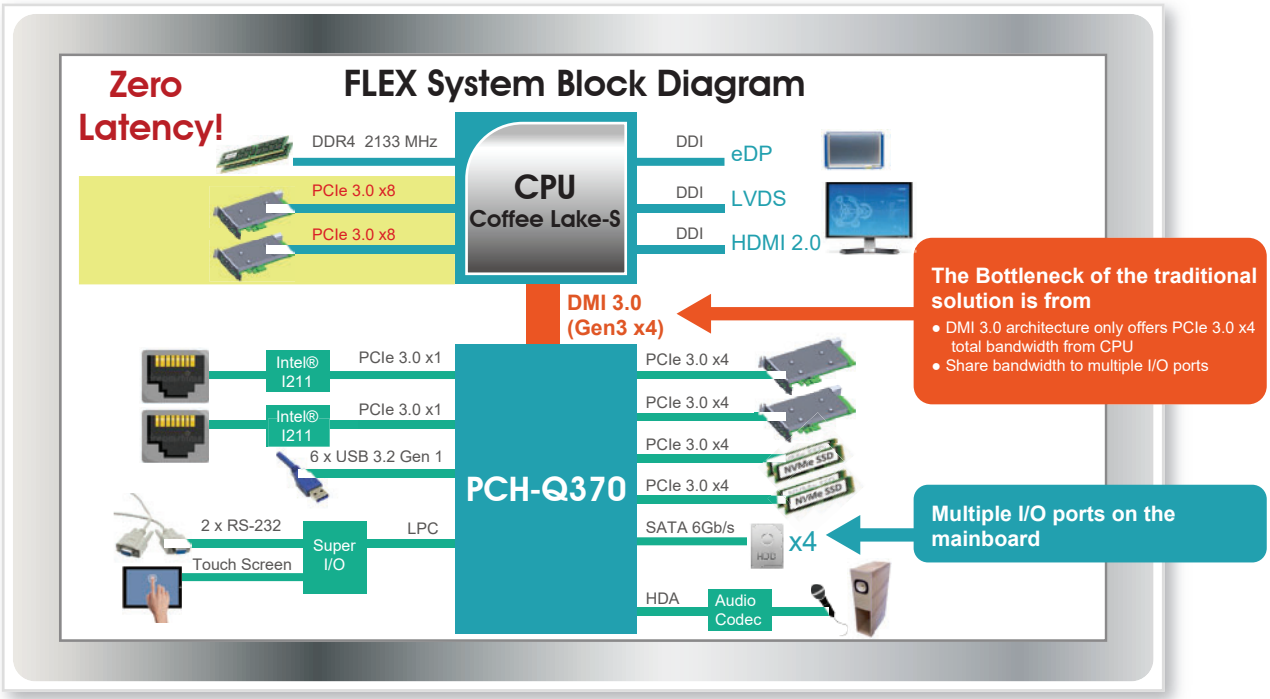
IEI FLEX series adopts the 8th Generation Intel® Core™ desktop processor, of which the Core i7 is moving to six cores with HyperThreading, Core i5 is moving to six cores, and Core i3 is moving to four core. The equipped LGA 1151 socket supports a wide range of performance options up to 65W TDP processors. The dual DDR4 DIMM slot with more direct trace routes support up to 64GB of memory.



CPU Generation	P/N	Lithography	# of Cores	# of Threads	Frequency	TDP
8th Gen. Intel® Coffee Lake	i7-8700T	14nm	6	12	2.40GHz	35W
	i5-8500T	14nm	6	6	2.10GHz	35W
	i3-8100T	14nm	4	4	2.40GHz	35W
	P-G5400T	14nm	2	4	3.10GHz	35W
7th Gen. Intel® Kaby Lake	i7-7700T	14nm	4	8	2.90GHz	35W
	i5-7500T	14nm	4	4	2.70GHz	35W
	i3-7100T	14nm	2	4	3.40GHz	35W
	C-G4900T	14nm	2	2	2.9GHz	35W

Breakthrough the Bottleneck of DMI 3.0

The signal of the two PCIe 3.0 by 8 slots directly connect to CPU instead of DMI 3.0 channel. By doing this, the PCIe 3.0 x8 add-on cards can run with lower latency and achieve complete AI card performance.



PCIe 3.0 High Speed Expansion Slots

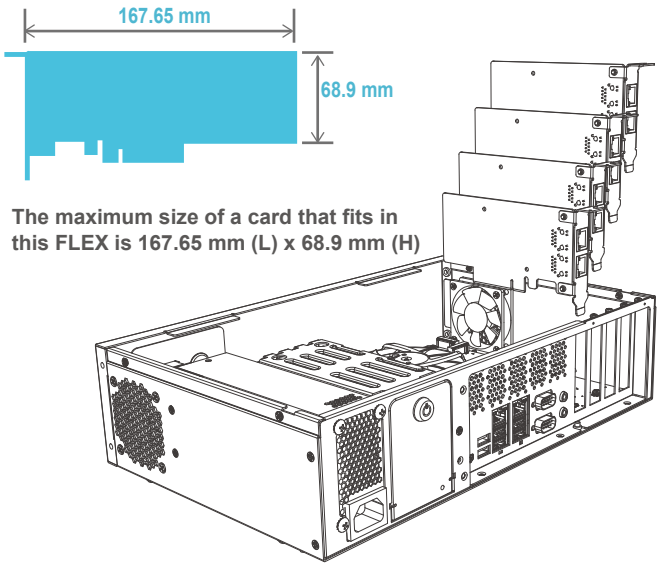
All of the expansion slots of the FLEX series support PCIe 3.0, which doubles the speed per lane from 500MB/s to 1GB/s compared to PCIe 2.0. The high-speed PCIe 3.0 can fulfill the bandwidth requirements of 10G Ethernet cards, USB 3.2 cards, even the high end graphics cards and PCIe NVMe SSDs.

Interface	Theory Bandwidth
PCIe 2.0 x1	5GT/s
PCIe 3.0 x1	8GT/s

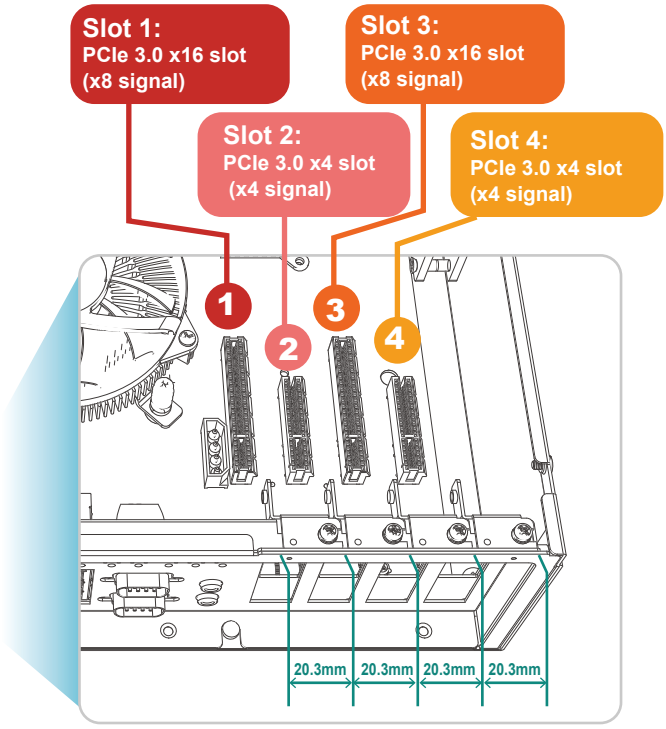
Four PCIe x4/x8 Low Profile Expansion Slots

The FLEX series supports multiple PCIe slots including two PCIe 3.0 x8 and two PCIe 3.0 x4 slots, which are compatible with standard low profile add-on cards, to meet different edge inference computing applications.

- High Speed: 10GbE card, fiber network card
- I/O card: Serial port card, USB card, LAN card, etc.
- AI accelerating card: VPU card, FPGA, GPU card, etc.
- Wireless card: Wi-Fi card, mobile wireless card, etc.
- Storage card



The maximum size of a card that fits in this FLEX is 167.65 mm (L) x 68.9 mm (H)



Thunderbolt™ 3 Dual Ports (optional)

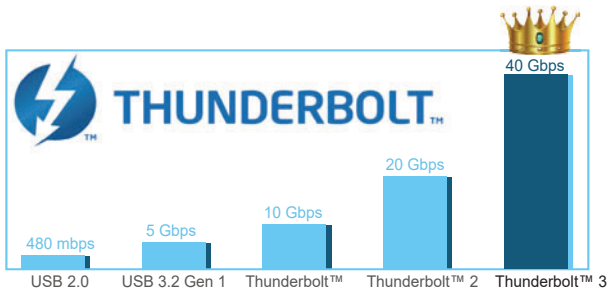
The FLEX series can be built-in with IEI thunderbolt™ 3 card, the TB3-40GDP-R10, to support dual Thunderbolt 3 ports for connecting displays and USB devices and provide more speed.



P/N	TB3-40GDP-R10
Interface	PCIe 3.0 x4
I/O ports	2 x Thunderbolt 3 port (USB Type-C) 1 x mini-DisplayPort

How fast is it?

- 40Gpbs Thunderbolt, PCI Express Gen 3 and Display Port
- Double the speed of previous generation
- Four times the data and twice the vide bandwidth of any other cable

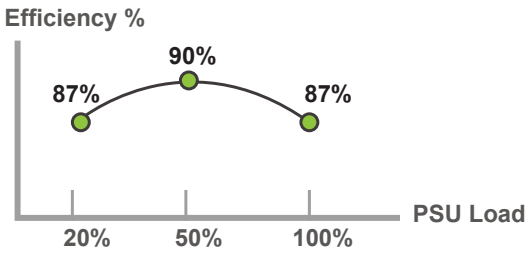


Only supported by the pcieX4_1 slot in the system



Built-in 80-Plus Gold Power Supply

The 80-plus Gold power supply is implemented into the FLEX series, which reduces power loss and increases efficiency during power transition. With the certified power supply, the power transition between AC source and DC source could maintain up to 87% efficiency, and the power loss is only 13% or less. For customers, the high efficiency of power transition could reduce not only cost but also heat loss. Furthermore, it could make an eco-friendly environment.



Parameters	Loading	Gold	Silver	Bronze	80 Plus
Efficiency	20%	87%	85%	82%	80%
	50%	90%	88%	85%	80%
	100%	87%	85%	82%	80%
Power Factor	50%	90% (across the full range)			90% (@100% Load)

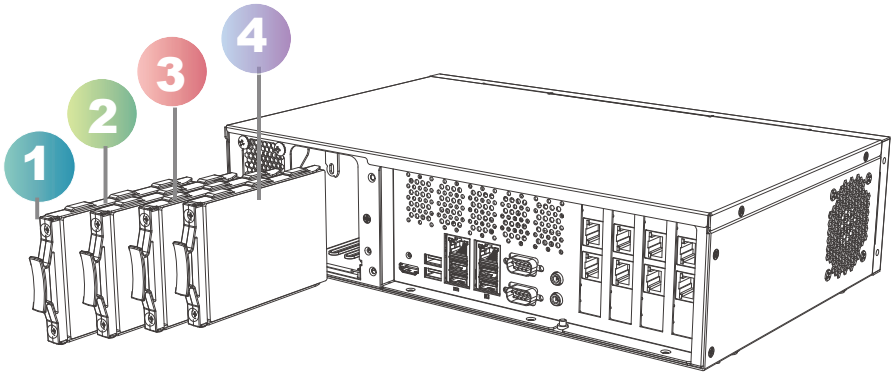
Dual M.2 M-Key NVMe PCIe 3.0 x4 SSD Support

The FLEX series provides higher transfer speed and reliability with support for two additional PCIe by 4 M.2 2280 NVMe SSDs with 32Gb/s high speed transfer rate. It is safer to have NVMe SSDs installed in the system internally, because users can install operating system in it to avoid OS crash caused by unplugging the storage accidentally, and to prevent the drive from being stolen.

- NVMe reduces latency
- Delivers higher input/output per second (IOPS)

4-Bay Hot Swappable HDD RAID 0/1/5/10 Protection

The FLEX series offers four 2.5”HDD bays with high speed SATA 6Gb/s interface that can expand storage capabilities and enable fast data transfers. The equipped Intel Q370 chipset provides reliable and high performance hardware RAID protection to back-up your media and critical information. You can configure the RAID 0/1/5/10 from the BIOS menu to increase performance and/or provide automatic protection against data loss from drive failure.



Secured and Strong HDD Bays





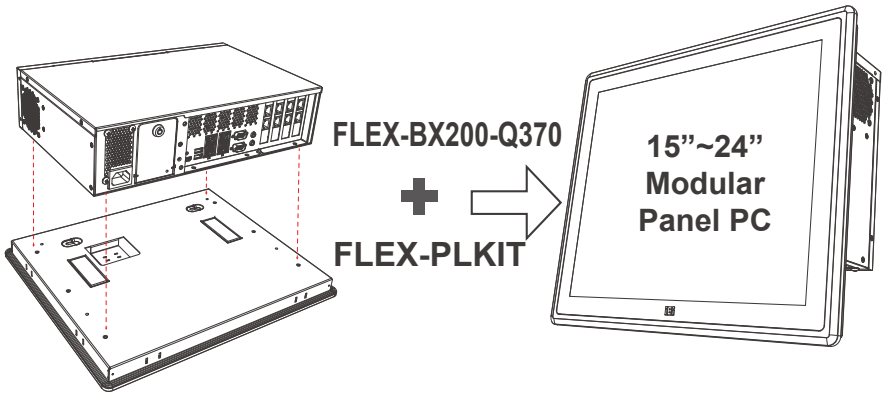


Flexible Deployment

All-in-One Panel PC

The FLEX series featuring a modular design can be fitted with different sizes of panel kits to expand its capabilities.

- Various monitor choices: 15"/15.6"/17"/18.5"/21.5"/23.8"
- PCAP touch screen
- Easy assembly and maintenance
- One stop shopping and build your own system to accelerates time to market



FLEX-BX100-ULT5

NEW



Feature

- Fanless embedded system with Intel® Whiskey Lake Intel® Core™ i5-8365U or Intel® Celeron® 4205U CPU
- Triple GbE LAN ports
- Support IEEE 802.3bt PoE PD power
- Support NVMe SSD

Specifications

Model	FLEX-BX100-ULT5
CPU	8th Genertion Intel® Core™ i5-8365U 4.10GHz 8th Genertion Intel® Celeron® 4205U 2.00GHz
Memory	2 x 260-pin 2400 MHz dual-channel DDR4 unbuffered SO-DIMM supporting up to 32GB
Graphics Engine	Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, 4K codec decode
Ethernet	Intel® I211/I219 controller
Storage	2.5" HDD/SSD SATA 6Gb/s bay
I/O Ports and Switches	4 x USB 3.2 Gen 2 (10Gbps) 1 x HDMI output 1 x RS-232/422/485 1 x RS-232 3 x GbE LAN (2 for IEEE802.3 PoE PD GbE LAN) 1 x 12V DC jack 1 x Power switch with LED indicator (blue) 1 x AT/ATX switch 1 x Line-out 1 x Reset button
Expansion Slots	1 x NGFF M.2 2230 A Key (PCIe x1, USB signal) 1 x NGFF M.2 2280 M Key (support PCIe 3.0x4 NVMe) 2 x PoE PD module socket (by IEI pin definition)
Thermal Solution	Fanless
Watchdog Timer	Software programmable support 1~255 sec. system reset
Dimensions (mm) (W x H x D)	356.5 x 222 x 44
Net Weight (kgs)	3
Color	PANTONE 296 C
Front Frame	Aluminum
Rear Cover	Sheet Metal
Mouting	Wall mount
Operating Temp.	-10°C ~ 60°C (with air flow)
Storage Temp.	-20°C ~ 70°C
Humidity	10% ~ 95% (non-condensing)
Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak
Shock	10G acceleration part to part (11ms)
Power Input	12V DC input

Ordering Information

Part No.	Description
FLEX-BX100-ULT5-i5/4G-R10	Fanless embedded system with 8th generation 14nm Intel® Whiskey Lake Core™ i5-8365UE on-board processor (15W TDP, ULT), 4GB DDR4 RAM, 12V DC input, R10
FLEX-BX100-ULT5-C/4G-R10	Fanless embedded system with 8th generation 14nm Intel® Whiskey Lake Celeron® 4205UE on-board processor (15W TDP, ULT), 4GB DDR4 RAM, 12V DC input, R10

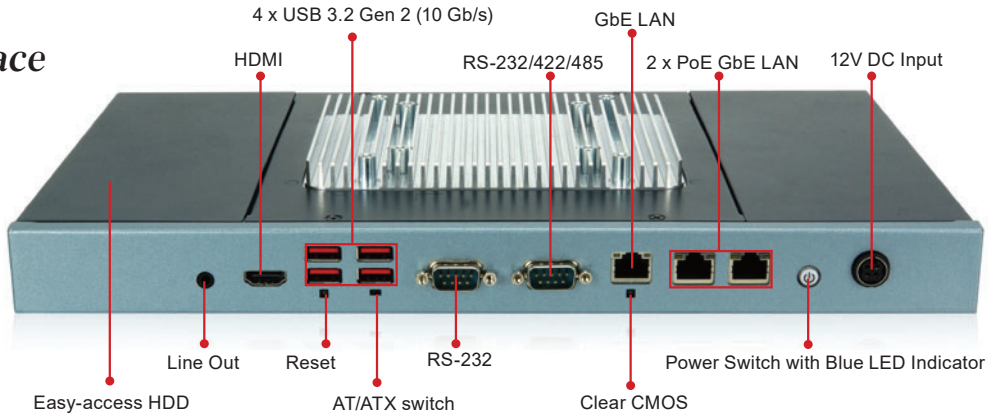
Packing List

Item	Q'ty	Remark
63040-010096-200-RS	1	AC power adapter
AC power cord	1	
Wall mount bracket	2	
Screws (M4*6)	4	for mounting bracket
Screws (M3*4)	4	for HDD installation

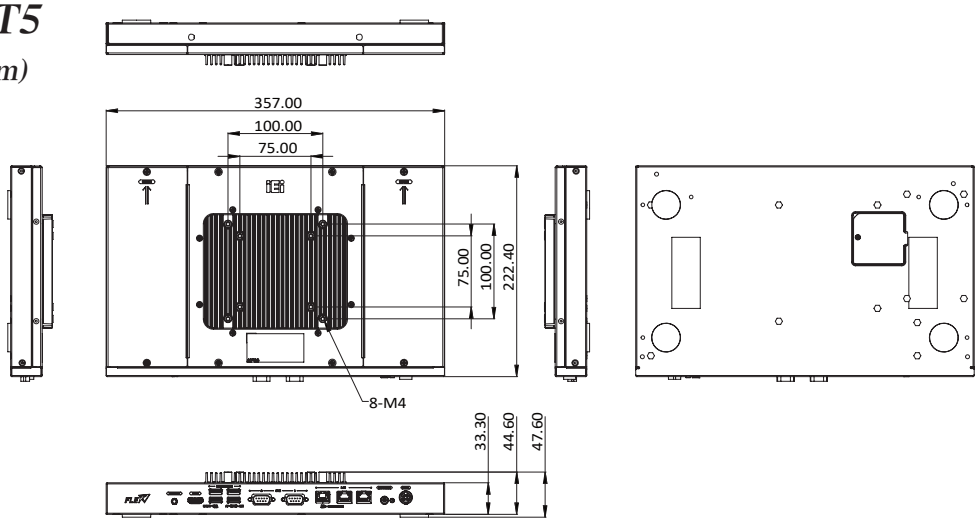
Options

Part No.	Description
PoE PD Kit	GPOE-PD-AT01-R10 (PoE IEEE802.3 af/at, 25.5W) GPOE-PD-BT01-R10 (PoE IEEE802.3 af/at/bt, 71W)
Wi-Fi Kit	EMB-WIFI-KIT03E-R10 (2T2R, 802.11ac/a/b/g/n and Bluetooth v4.1, NGFF 2230 Type A-E)

I/O Interface



FLEX-BX100-ULT5 Dimensions (Unit: mm)



FLEX-BX200

2U AI Modular PC with 8th Generation LGA 1151 Intel® Core™ i7/i5/i3, Pentium® and Xeon® Processor



Feature

- 2U AI Modular PC supports 8th Gen. LGA 1151 Intel® Core™ i7/i5/i3 and Pentium® processor with Intel® Q370 chipset, or Intel® Xeon® Processor with Intel® C246 chipset
- Four hot-swappable and accessible HDD drive bays, support RAID 0/1/5/10
- Two PCIe 3.0 by 4 and two PCIe 3.0 by 8 slots
- Dual M.2 2280 PCIe Gen 3.0 x4 NVMe™ SSD support
- QTS-Gateway support

Specifications

Model		FLEX-BX200-Q370	FLEX-BX200-C246
System	CPU	8th Genertion Intel® Core™ i7/i5/i3 porcessors in the LGA 1151 package (Please choose the TDP of the the processor under 65W)	Intel® Xeon® E-2176G Processor in the LGA 1151 package
	Chipset	Intel® 300 Series Chipsets Q370 (Coffee Lake)	Intel® C240 Series Chipsets C246 (Coffee Lake)
	Memory	2 x 288-pin 2666/2400 MHz dual-channel DDR4 unbuffered DIMM supporting up to 64GB	2 x 288-pin 2666/2400 MHz dual-channel DDR4 SDRAM ECC and non-ECC unbuffered DIMMs support up to 64 GB
	Graphics Engine	Intel® HD Graphics Gen 9 Engines with Low power 16 execution unit, supports DX2015, OpenGL 5.X and OpenCL2.x, ES 2.0	
	Ethernet	Intel® I211 controller	
Storage		4 x accessible 2.5" HDD/SSD SATA 6 Gb/s bay (with RAID 0/1/5/10 support) with LED indicator 2 x NGFF M.2(2280) M Key socket (support NVMe SSD)	
I/O Ports and Switches		1 x HDMI output 2 x GbE LAN 6 x USB 3.2 Gen 1 (5Gb/s) Type-A 2 x RS-232 DB-9 type 1 x Mic in1 x Line out 1 x AC Inlet Power button with power LED (power on=Blue) AT/ATX mode switch Reset button	
Expansion Slots		2 x PCIe 3.0 by 8 (by 16 slot) 2 x PCIe 3.0 by 4 (Maximum card size supported: 68 mm x 167 mm)	
Thermal Solution		System Fan x3, CPU Cooler x1	
Power supply		AC input ATX power supply 1. 250W power supply - Input: 115VAC~230VAC, 50/60Hz - Output (Max.): 3.3V@12A, 5V@14A, 12V@25A, -12V@0.3A,+5Vsb@3A 2. 350W power supply (Build to Order) - Input: 115VAC~264VAC, 50/60Hz - Output (Max.): 3.3V@14A, 5V@16A, 12V@29A, -12V@0.3A,+5Vsb@3A -Efficiency: Full load (100%) 87%, Typical load (50%) 90%, Light load (20%) 87%	AC input ATX power supply - 350W Power supply - Input: 90VAC~264VAC, 50/60Hz - Output (Max.): 3.3V@14A, 5V@16A, 12V@29A, -12V@0.3A -Efficiency: Full load (100%) 87%, Typical load (50%) 90%, Light load (20%) 87%
Watchdog Timer		Software Programmable support 1~255 sec. System reset	
Construction	Chassis Construction	Metal Housing	
	Mounting	Wall and Rack Mount	
	Color	Black	
	Dimensions (LxDxH) (mm)	357 x 230 x 88	
	Weight (kg) Net/Gross	4/6	
Environmental	Operating Temperature	-20°C ~ 50°C (with SSD and TDP 65W processor) -20°C ~ 40°C (with HDD or add-on cards without fan)	-20°C ~ 40°C (with SSD and TDP 80W processor)
	Storage Temperature	-20°C ~ 60°C	
	Operating Humidity	5% ~95%, non-condensing	
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak	
	shock	10G acceleration part to part (11ms)	

Ordering Information

Part No.	Description
FLEX-BX200AI-i5/35/V-R10	2U AI Modular BOX PC, Intel® Core™ i5-8500 Processor (6-core, 6-thread, 3.0 GHz) TDP 65W, 2xPCIex4 and 2xPCIex8 slots, 4x HDD bay, 350W PSU, Pre-installed one of Mustang-V100, R10
FLEX-BX200-C246-XE/35-R10	2U AI Modular BOX PC, Intel® Xeon® E-2176G Processor (6-core, 12-thread, 3.7 GHz), TDP 80W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 350W PSU, R10
FLEX-BX200-Q370-P/25-R10	2U AI Modular Box PC, Intel® Pentium® Gold G5400T Processor (2-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
FLEX-BX200-Q370-i3/25-R10	2U AI Modular Box PC, Intel® Core™ i3-8100T Processor (4-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
FLEX-BX200-Q370-i5/25-R10*	2U AI Modular Box PC, Intel® Core™ i5-8500T Processor (6-core, 6-thread, 2.1 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
FLEX-BX200-Q370-i7/25-R10*	2U AI Modular Box PC, Intel® Core™ i7-8700T Processor (6-core,12-thread,2.4 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
FLEX-BX200-Q370-P/35-R10*	2U AI Modular Box PC, Intel® Pentium® Gold G5400T Processor (2-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 350W PSU, R10
FLEX-BX200-Q370-i3/35-R10*	2U AI Modular Box PC, Intel® Core™ i3-8100T Processor (4-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 350W PSU, R10
FLEX-BX200-Q370-i5/35-R10*	2U AI Modular Box PC, Intel® Core™ i5-8500T Processor (6-core, 6-thread, 2.1 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 350W PSU, R10
FLEX-BX200-Q370-i7/35-R10*	2U AI Modular Box PC, Intel® Core™ i7-8700T Processor (6-core,12-thread,2.4 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 350W PSU, R10

*Build to order

Packing List

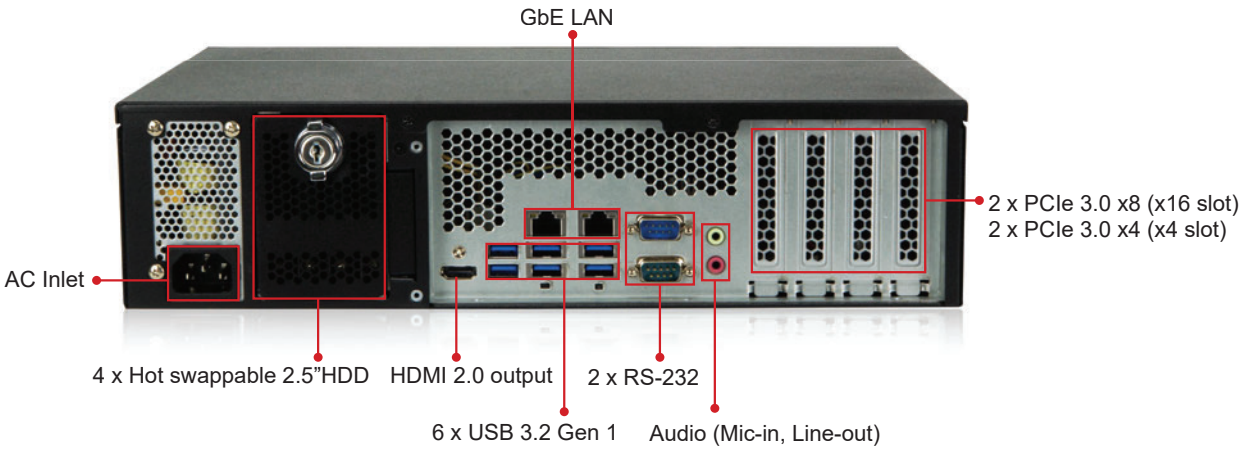
Item	Q'ty	Remark
32702-000200-100-RS	1	European power cord, 1830mm
41020-0521C2-00-RS	2	wall mount kit, black
44035-040062-RS	4	M4*6 oval head screw for wall mount kit, black
	1	Key for HDD cover

Options

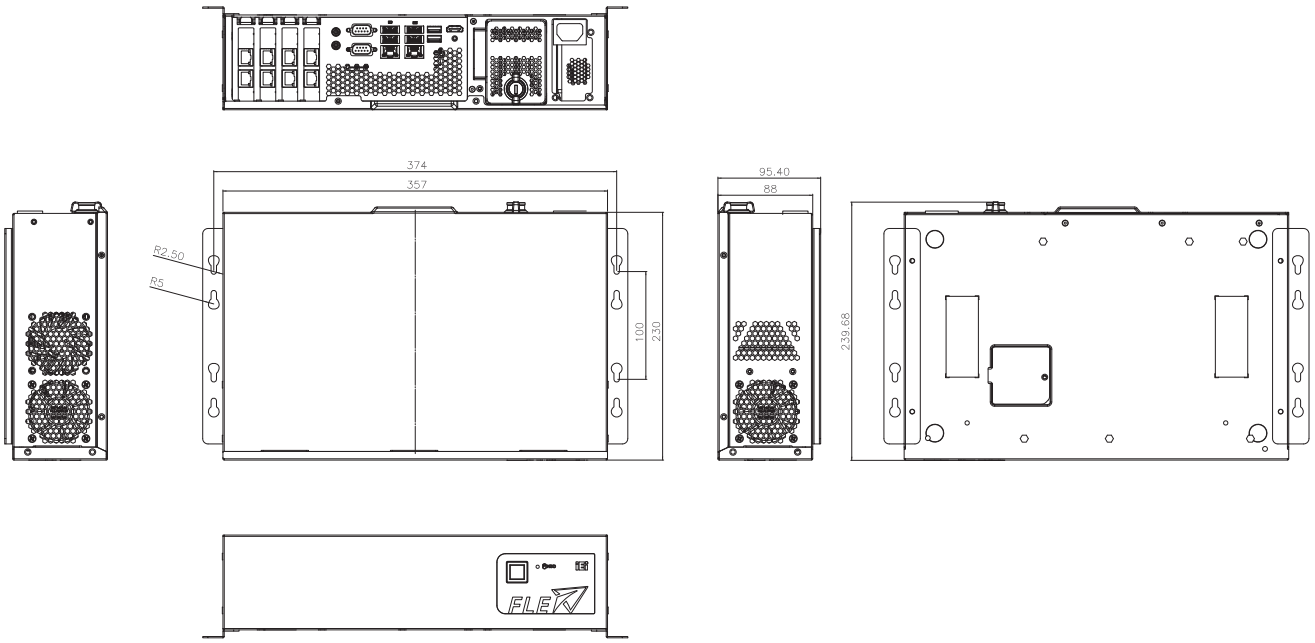
Part No.	Description
FLEX-BXRK-R10	Rack mount kit

I/O Interface





FLEX-BX200
Dimensions (Unit: mm)



Configurable Systems

Panel Kit Modules



Specifications

Model		FLEX-PLKIT-F15	FLEX-PLKIT-F17	FLEX-PLKIT-FW15	FLEX-PLKIT-FW19	FLEX-PLKIT-FW22	FLEX-PLKIT-FW24
TFT LCD	LCD Size	15”	17”	15.6"	18.5"	21.5”	23.8”
	Max. Resolution	1024x768	1280x1024	1366x768	1366x768	1920x1080	1920x1080
	Brightness (cd/m²)	450	350	400	400	250	250
	Contrast Ratio	800:1	1000:1	500:1	1000:1	1000:1	3000:1
	LCD Color	16.2M	16.7M	16.2M	16.7M	16.7M	16.7M
	Viewing Angle (H/V)	160°/150°	170°/160°	170°/160°	170°/160°	170°/160°	178°/178°
	Backlight MTBF (Hrs)	70,000	50,000	50,000	50,000	30,000	30,000
Touch Screen		PCAP touch with 10-point multitouch and anti-glare coating					
Video Interface		LVDS					
IP Rating		IP66-rated front panel					
Other		Support FLEX-BX200-Q370 only					

Ordering Information

Part No.	Description
FLEX-PLKIT-F15/PC-R10	15" 450cd/m² 1024 x768 FLEX modular resistive touch window/LCD kit, R10
FLEX-PLKIT-F17/PC-R10	17" 350cd/m² 1280 x 1024 FLEX modular PCAP touch window/LCD kit, R10
FLEX-PLKIT-FW15/PC-R10	15.6" 400cd/m² 1366 x 768 FLEX modular PCAP touch window/LCD kit, R10
FLEX-PLKIT-FW19/PC-R10	18.5" 400cd/m² 1366 x 768 FLEX modular PCAP touch window/LCD kit, R10
FLEX-PLKIT-FW22/PC-R10	21.5" 250cd/m² 1920 x 1080 FLEX modular PCAP touch window/LCD kit, R10
FLEX-PLKIT-FW24/PC-R10	23.8" 250cd/m² 1920 x 1080 FLEX modular PCAP touch window/LCD kit, R10

Options

Item	FLEX-PLKIT-F15	FLEX-PLKIT-FW15	FLEX-PLKIT-F17	FLEX-PLKIT-FW19	FLEX-PLKIT-FW22	FLEX-PLKIT-FW24
Panel Mount Kit	FPK-12-R10	FPK-14-R10	FPK-13-R10	FPK-13-R10	FPK-13-R10	FPK-14-R10
Rack Mount Kit	FRK15C-R10	FRKW15C-R10	FRK17C-R10	FRKW19C-R10	N.A.	N.A.



FLEX-BX200 Series

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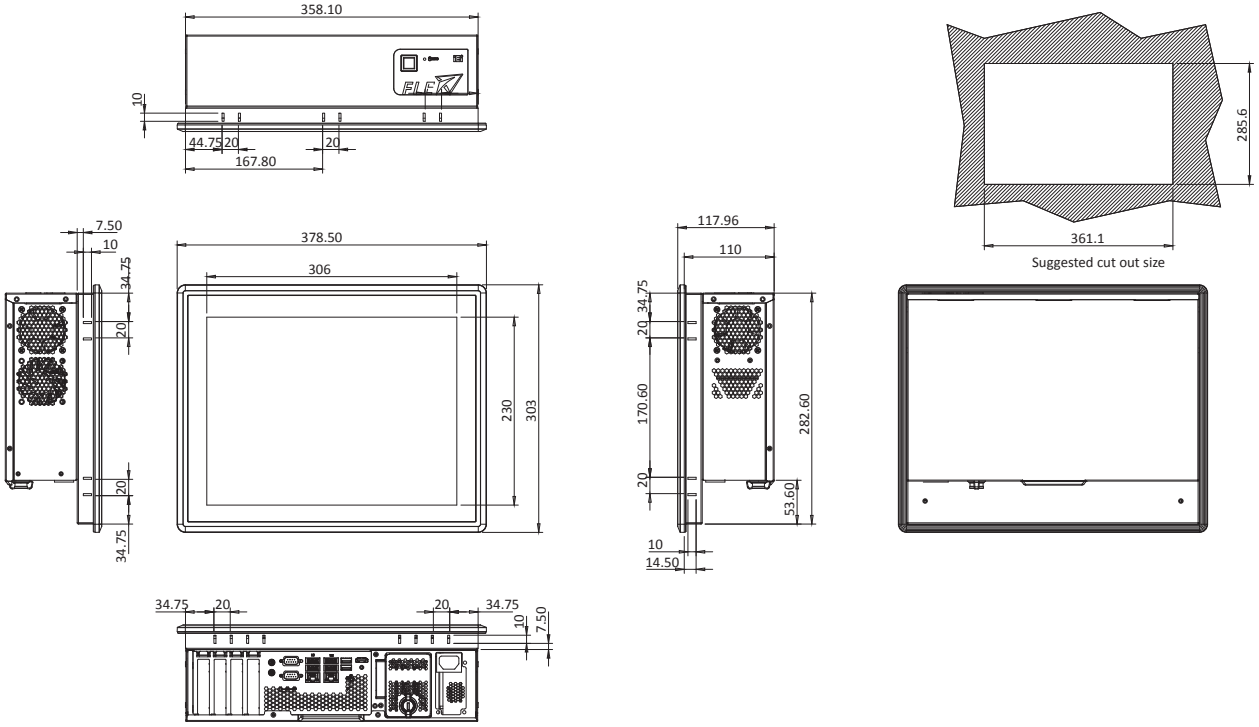
FLEX-PLKIT Series

= PPC-FxxC Series

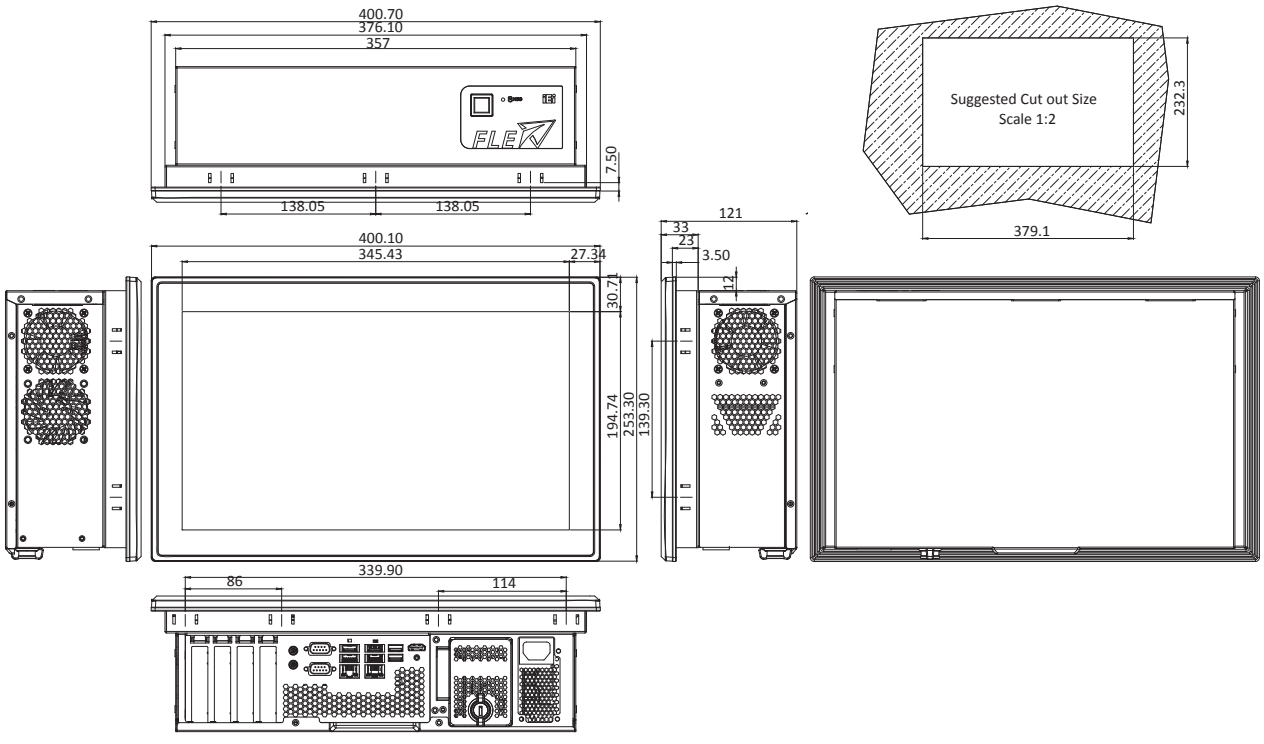


Configurable Systems

FLEX-PLKIT-F15 Dimensions (Unit: mm)

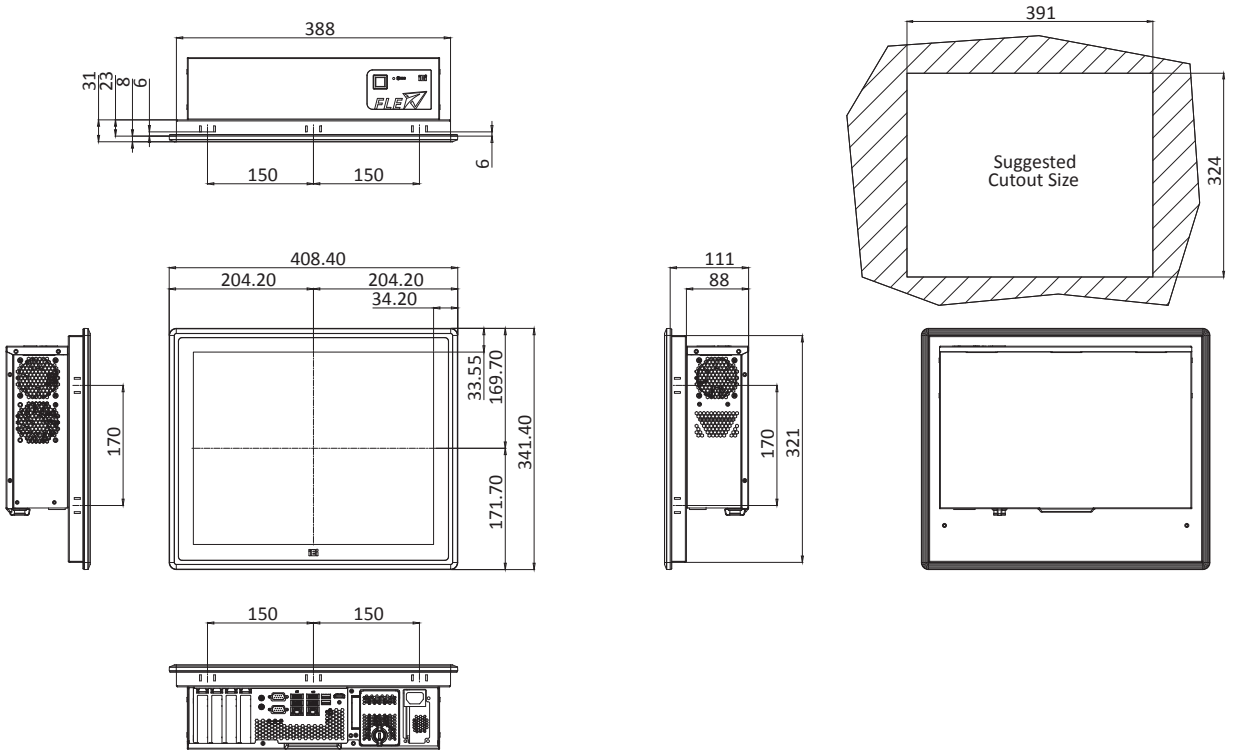


FLEX-PLKIT-FW15 Dimensions (Unit: mm)

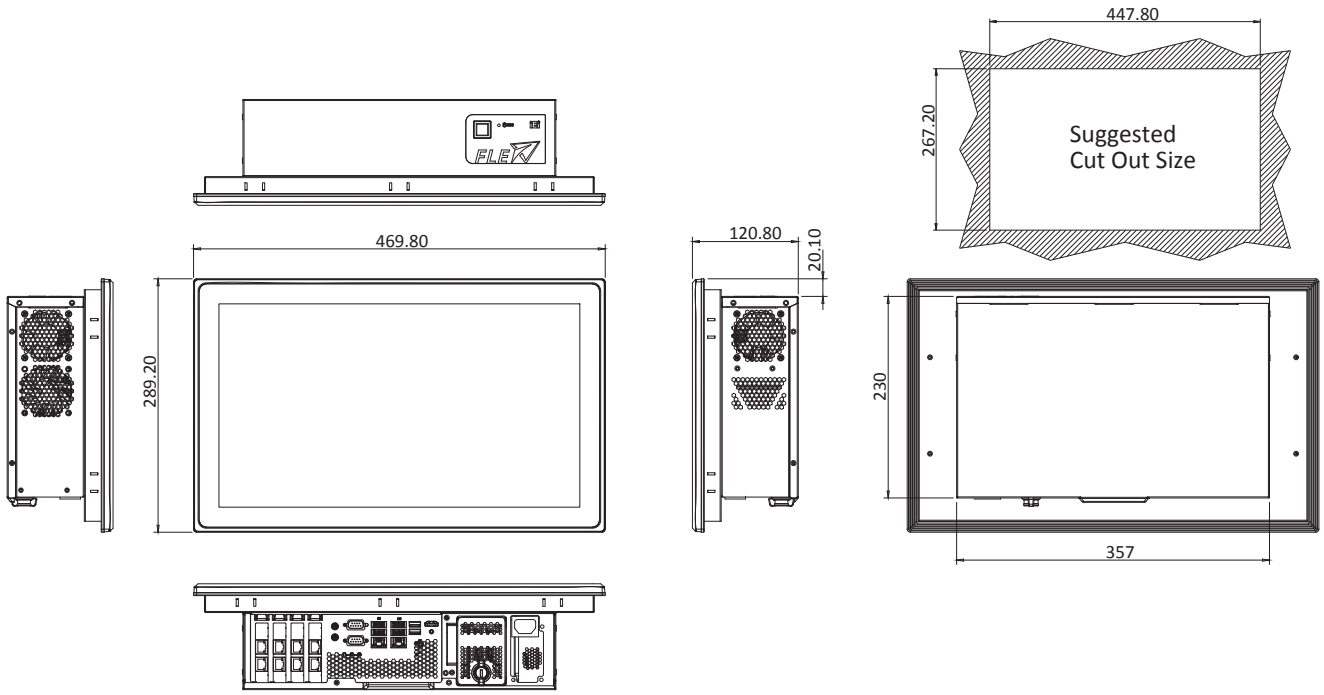


Configurable Systems

FLEX-PLKIT-F17 Dimensions (Unit: mm)

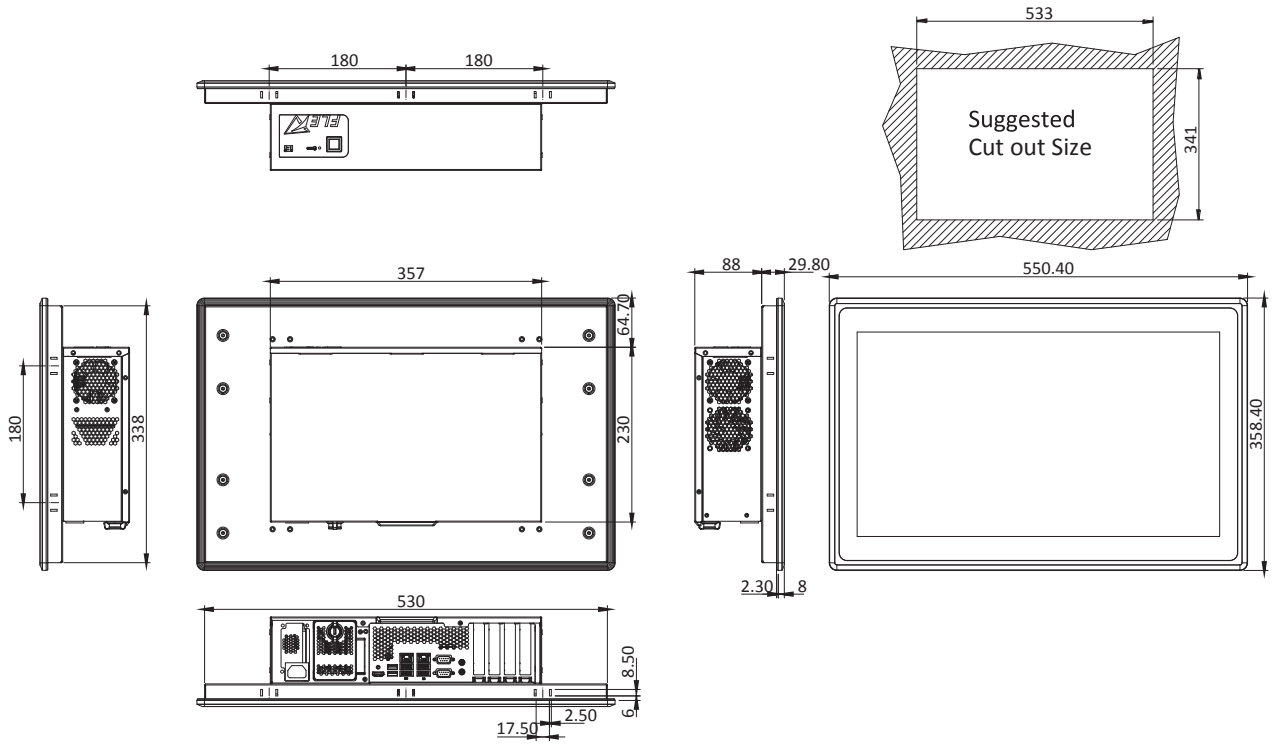


FLEX-PLKIT-F19 Dimensions (Unit: mm)

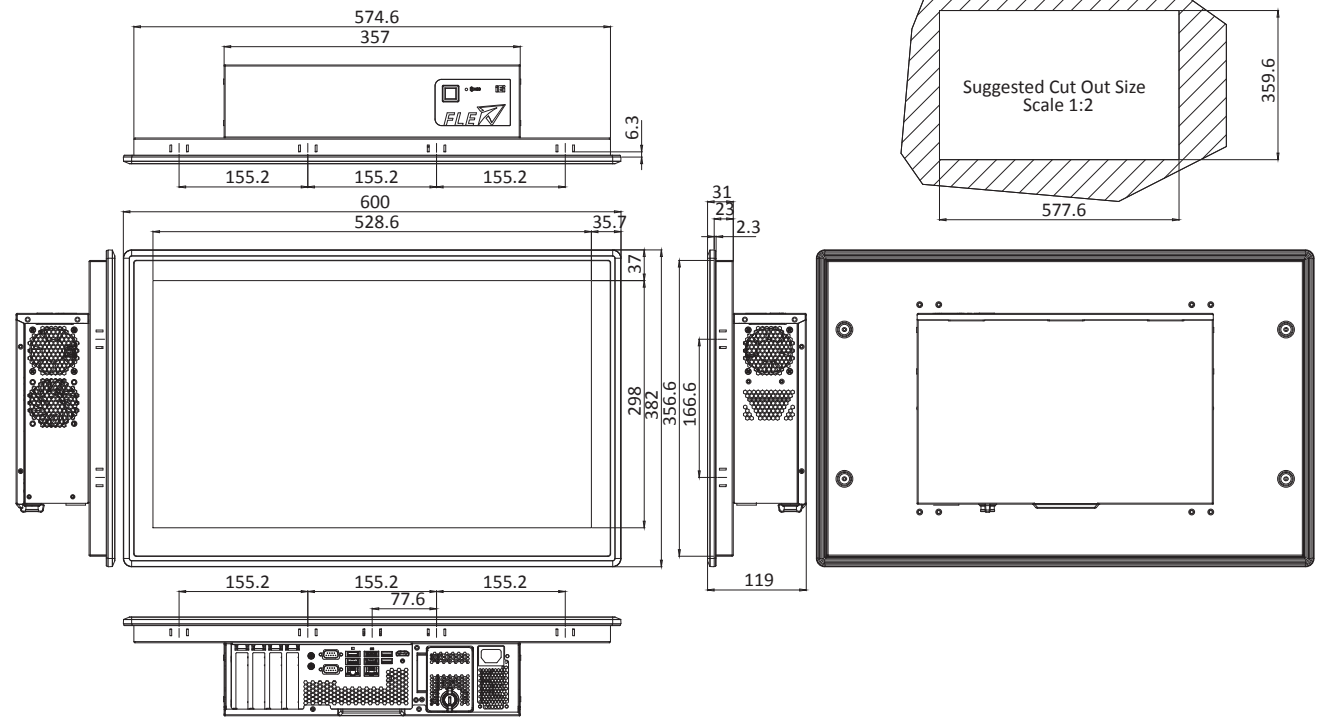


Configurable Systems

FLEX-PLKIT-FW22 Dimensions (Unit: mm)



FLEX-PLKIT-FW24 Dimensions (Unit: mm)

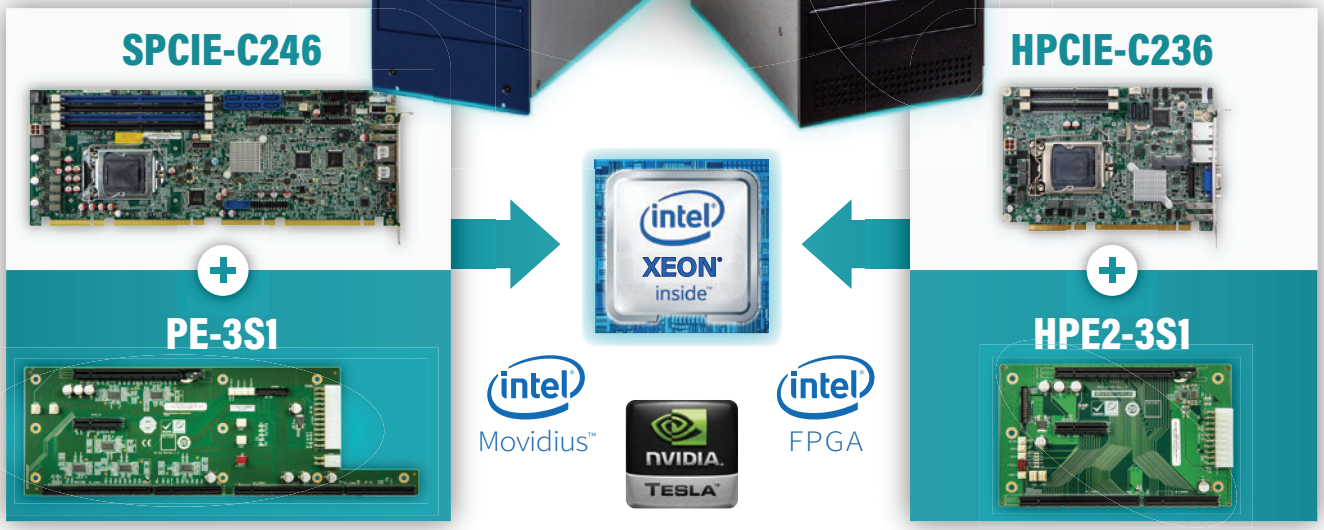


RACK-500AI-C246
PAC-400AI-C236
AI System Series

IEI AI Ready Compact Size System Introduction

RACK-500AI-C246 and PAC-400AI-C236 are suitable for factory automation, artificial intelligence(AI) computing and mechanical automation. They are integrated multiple features and can be added with multiple PCIe cards for expansion.





Verticals and Applications



Factory Automation



AI Computing System



Machine Automation

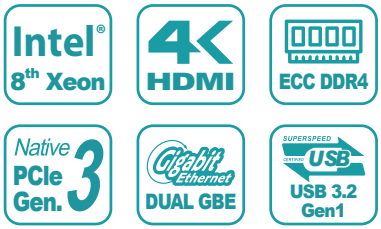
RACK-500AI-C246

NEW



Feature

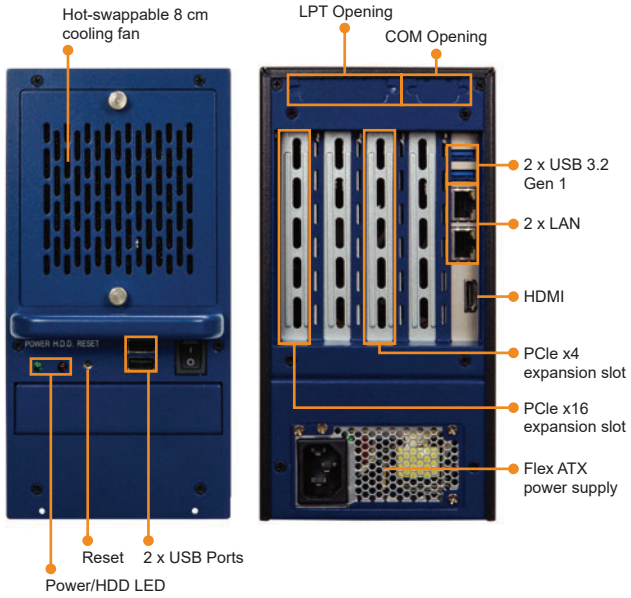
- Intel® Coffee Lake C246 chipset with Xeon® CPU
- 1 x Front-accessible 3.5” and 1 x 3.5” HDD drive capacity
- Integrated one PCIe x16 and one x4 Gen3 expansion slot
- Great flexibility hardware expansion



Specifications

Model Name		RACK-500AI-C246
Chassis	Color	Navy blue and black
	Dimensions (WxDxH)	440.2 mm x 110.6 mm x 221.3 mm
	System Fan	System Fan & CPU Fan
	Chassis Construction	Heavy duty metal
Motherboard	CPU	Intel® Xeon® E-2176G CPU (3.70 GHz, Hexa Core, TDP 80W)
	Chipset	Intel® C246
	System Memory	Four 288-pin 2666MHz dual-channel DDR4 SDRAM unbuffered DIMMs support up to 64GB ECC & non-ECC (2 x 8G Pre-installed)
	Display Output	Dual display supported 1 x HDMI (up to 4096 x 2304@30Hz) 1 x Internal DisplayPort (up to 4096 x 2304@60Hz)
Storage	Hard Drive	1x 3.5" 6 Gb/s SATA removable drive Bay (Hot swap)
	M.2	1 x 2280 M key (PCIe x4)
I/O interfaces	Ethernet	LAN1: Intel® I219LM PHY LAN2: Intel® I211-AT PCIe controller (Co-lay I210-AT)
	USB 3.2	2 x Internal USB 3.2 Gen1 (2x10 pin)
	USB 2.0	6 (pin header)
	RS-232	3 (pin header)
	RS-422/485	1 (1x4 pin, P=2.0)
	Expension	1 x PCIe Gen3 x16 slot 1 x PCIe Gen3 x4 slot **If use 2 slots capacity PCIe add-on Cards (maximum length 338mm) need to change cooler (P/N: 19100-000238-00-RS)
Power	Power Input	ATX Power (350W)
Reliability	Mounting	Rack mount
	Operating Temperature	-20°C~+50°C
	Storage Temperature	-30°C~+60°C
	Relative Humidity	10% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis
	Operation Vibration	MIL-STD-810G 514.6C-1
	Weight (Net/Gross)	8 kg/11 kg
	Safety/EMC	CE/FCC
OS	Supported OS	Microsoft® Windows® 10, Linux

I/O Interface



FDD and HDD are not included in package

CA-950GB-R10

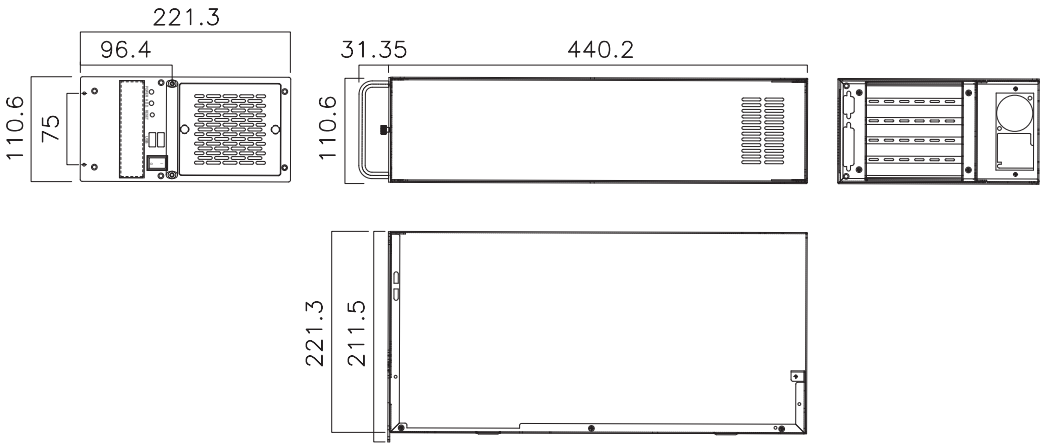


CA-950GB-R10

19” rack carrier can carry four RACK-500AI and fit into standard 19” width rack with 5U height.

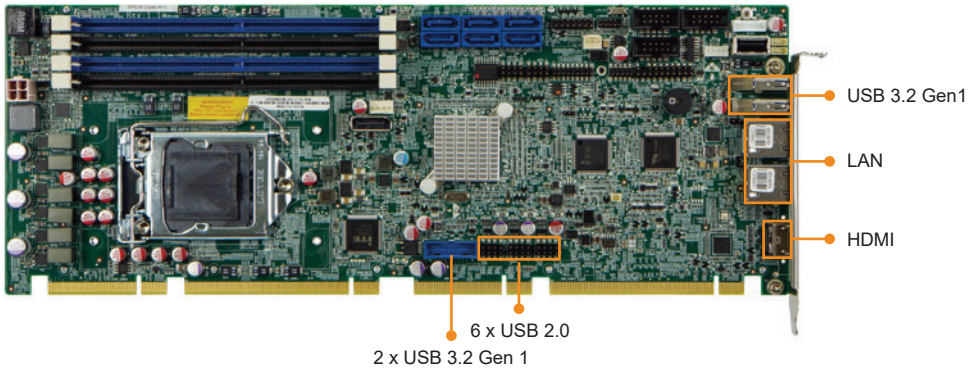


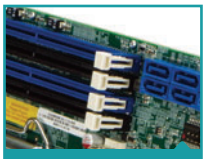
RACK-500AI-C246
Dimensions (Unit: mm)



Single board computer in RACK-500AI (SPCIE-C246)

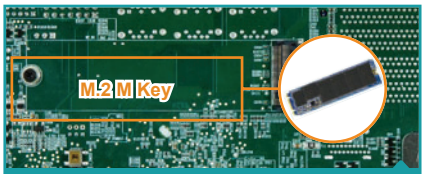
Full-size PICMG 1.3 CPU Card supports LGA1151 Intel® Xeon® E3, Core™ i9/i7/i5/i3/Pentium®/Celeron® CPU per Intel® C246, ECC & non-ECC DDR4, HDMI, DP, Dual Intel® PCIe GbE, USB 3.2, SATA 6Gb/s, M.2, HD Audio, iAMT and RoHS.




Four 288-pin DDR4 SDRAM Supported



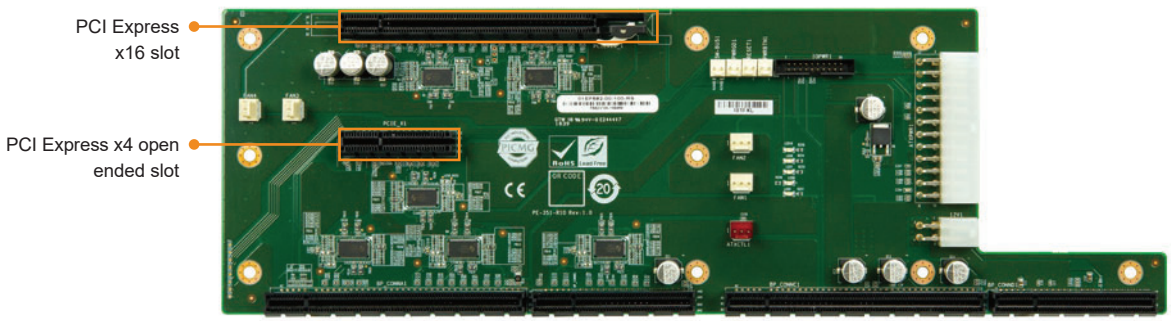
RAID 0, 1, 5, 10 function compatible with six ports of SATA 6Gb/s



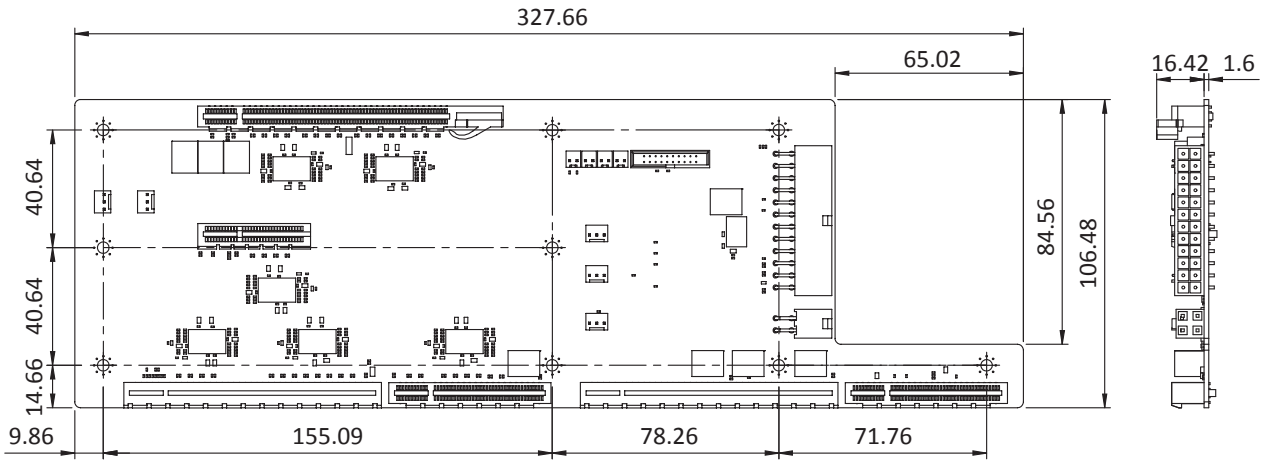
M.2 M key 2280 (PCIe x4)

PCI Express Backplane in RACK-500AI (PE-3S1)

5-slot PICMG 1.3 backplane with one PCIe x16 Slot and one PCIe x4 Slot, RoHS.



PE-3S1
Dimensions (Unit: mm)



Ordering Information

Part No.	Description
RACK-500AI-C246-XE/16G/35-R10	5U AI System with Intel® Xeon® E-2176G CPU (3.70 GHz, Hexa Core, TDP 80W) with Intel® C246, pre-installed 16GB ECC DDR4 memory, HDMI, Dual Intel® PCIe GbE, USB 3.2, iAMT, w/ 1 PCIe x16/x4 Slot BP, w/ FSP350(350W), RoHS
RACK-500AI-C246-35-R10	5U AI System with Intel® C246, HDMI, Dual Intel® PCIe GbE, USB 3.2, iAMT, w/ 1 PCIe x16/x4 Slot BP, w/ FSP350, RoHS

Options

Part No.	Description
GPOE-2P-R20	PCI Express Power over Ethernet card, 2-port 1000 Base(T), 802.3at compliant, low profile, RoHS
GPOE-4P-R20	PCI Express Power over Ethernet card, 4-port 1000 Base(T), 802.3at/af compliant, low profile, RoHS
IPCIE-4POE-R10	PCI Express Power over ethernet card, 4-port 1000 Base(T), 802.3af compliant, RoHS
Mustang-200-i7-1T/32G-R10	Computing Accelerator Card supports Two Intel® Core™ i7-7567U with Intel® 600P 1TB (512GB x2) SSD, 32GB (8GB x4) DDR4, PCIe x4 interface, QTS-Lite, and RoHS
Mustang-200-i5-1T/32G-R10	Computing Accelerator Card supports Two Intel® Core™ i5-7267U with Intel® 600P 1TB (512GB x2) SSD, 32GB (8GB x4) DDR4, PCIe x4 interface, QTS-Lite, and RoHS
Mustang-200-C-8G-R10	Computing Accelerator Card supports Two Intel® Celeron® 3865U with, 8GB (2GB x4) DDR4, PCIe x4 interface, QTS-Lite, and RoHS
Mustang-V100-MX4-R10	Computing Accelerator Card with 4 x Intel® Movidius™ Myriad™ X MA2485 VPU, PCIe Gen2 x2 interface, RoHS
Mustang-V100-MX8-R11	Computing Accelerator Card with 8 x Movidius Myriad X MA2485 VPU, PCIe gen2 x4 interface, RoHS
Mustang-F100-A10-R10	PCIe FPGA Highest Performance Accelerator Card with Arria 10 1150GX support DDR4 2400Hz 8GB, PCIe Gen3 x8 interface
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
AC-KIT-892HD-R10	7.1 channel HD Audio kit with Realtek ALC892 support dual audio streams
SAIDE-KIT01-R10	SATA to IDE/CF Converter board
32102-000100-200-RS	WIRE CABLE; POWER CABLE; SERIAL ATA POWER CABLE; 3; 150MM; 18AWG; (A)MOLEX 8981-4M P=5.08; (B)SATA 15P 180° X2; ONE PCS PKG W/ LABEL; RoHS
32102-044900-100-RS	WIRE CABLE; POWER CABLE; PCIE power cable; 3; 100MM; 20AWG; (A)MOLEX 8981-04M P=5.08*2; (B)TKP:H6657R1-06-B-03 P=4.2;;;;;;;;;;;; Polywell; RoHS
32102-011500-100-RS	WIRE CABLE; POWER CABLE; ; 3; 150MM; 18AWG; MOLEX 8981-04P P=5.08 X2; MOLEX 8981-04M P=5.08;;;;;;;;;;;; Wins Precision; RoHS
19100-000238-00-RS	COOLER MODULE; HEATSINK:105*67*12.1mm; FAN:77*75*15.4mm; STANDARD; 00; HF-XFWD-00383-1710; DC FAN:12V, 4P, 5500RPM, TOW BALL; ; Everflow; B127515BU; CCL; RoHS
CA-950GB-R10	19" Rackmount Carrier for Rack-500G/RACK-900G/RACK-500AI

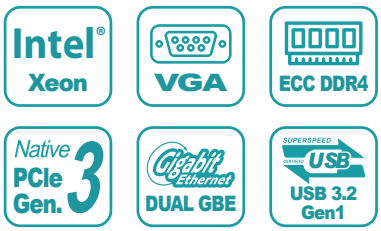
PAC-400AI-C236

NEW



Feature

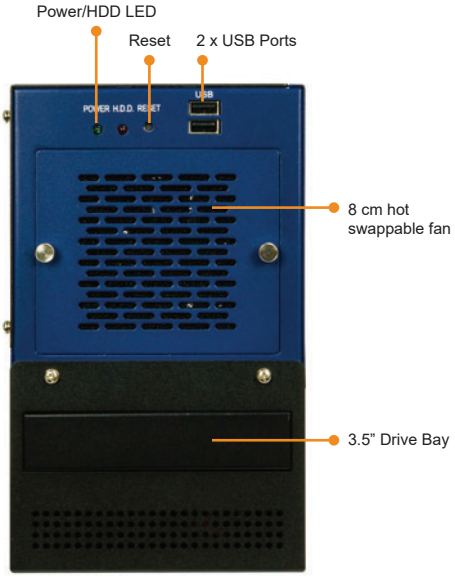
- Intel® Skylake C236 chipset with Xeon® CPU
- One 8 cm hot swappable fan
- Integrated one PCIe x16 and one x4 Gen3 expansion slot
- Great flexibility hardware expansion

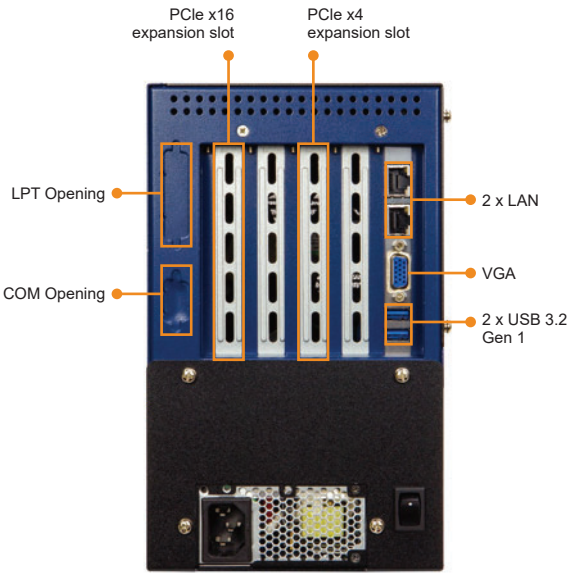


Specifications

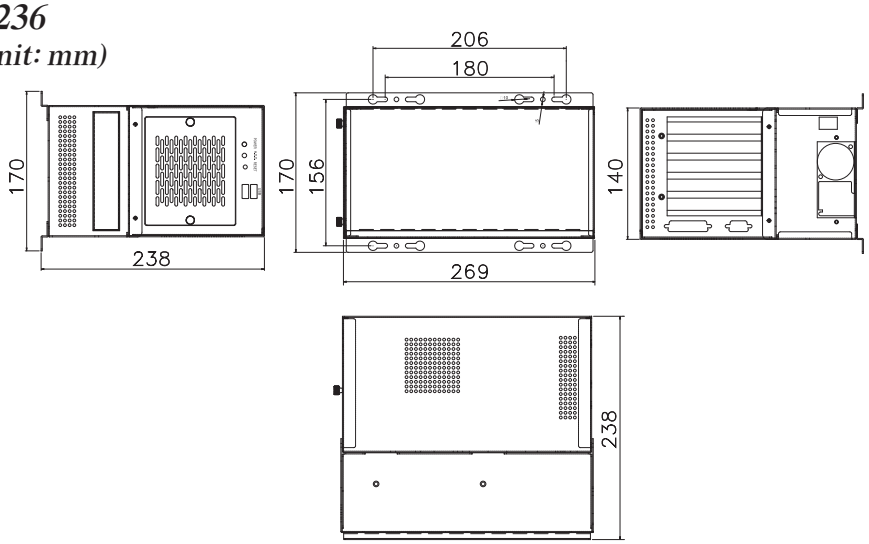
Model Name		PAC-400AI-C236
Chassis	Color	NAVY BLUE & BLACK
	Dimensions (WxDxH)	268.7mm x 140mm x 230.3mm
	System Fan	System Fan & CPU Fan
	Chassis Construction	Heavy duty metal
Motherboard	CPU	Intel® Xeon® E3-1275 v5 CPU (3.60 GHz, Quad Core, TDP 80W)
	Chipset	Intel® C236
	System Memory	Two 260-pin 1600/2133 MHz dual-channel DDR4 ECC and non-ECC unbuffered SODIMMssupport up to 32 GB (2 x 8GB Pre-installed)
	Display Output	1 x VGA (up to 1920x1200@60 Hz) 1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60 Hz)
Storage	Hard Drive	1x 3.5" 6 Gb/s SATA removable drive Bay (Hot swap)
	MSATA	1
I/O interfaces	Ethernet	LAN1: Intel® I219LM Clarkville-V with Intel® AMT 11.0 support LAN2: Intel® I211 PCIe controller
	KB/MS	1 x (1x6 pin)
	USB 3.2	2 x USB 3.2 Gen1
	USB 2.0	2 x USB 2.0
	Expension	1 x PCIe Gen3 x16 slot 1 x PCIe Gen3 x4 slot **PCIe Half Size Cards length support to maximum 169mm
Power	Power Input	ATX Power (250W)
Reliability	Mounting	Wall mount
	Operating Temperature	0°C~+50°C
	Storage Temperature	0°C~+60°C
	Relative Humidity	10% ~ 95%, non-condensing
	Weight (Net/ Gross)	6 kg/7.8 kg
	Safety/EMC	CE/FCC
OS	Supported OS	Microsoft® Windows® 10, Linux

I/O Interface



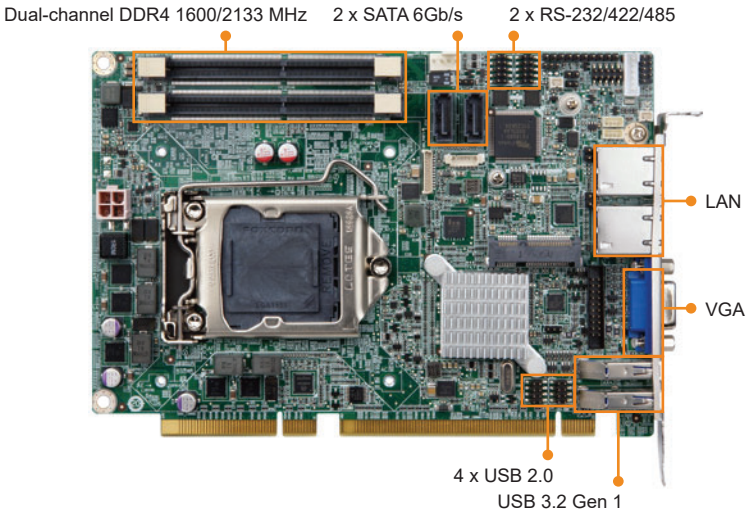


PAC-400AI-C236
Dimensions (Unit: mm)

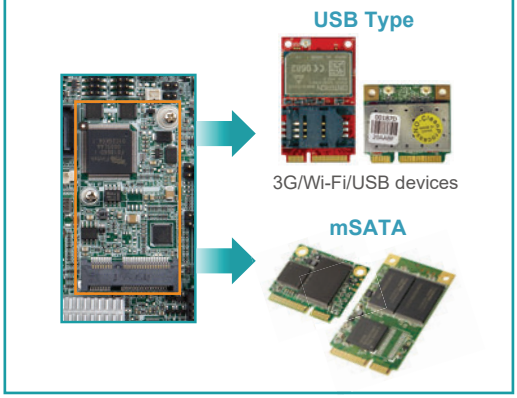


Single board computer in PAC-400AI (HPCIE-C236)

Half-size PICMG 1.3 CPU Card supports LGA 1151 Intel® Xeon® E3, Core™ i3/Pentium®/Celeron® CPU with Intel® C236, ECC & non-ECC DDR4 SO-DIMM, VGA, iDP, Dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, mSATA, HD Audio, Intel® AMT and RoHS.

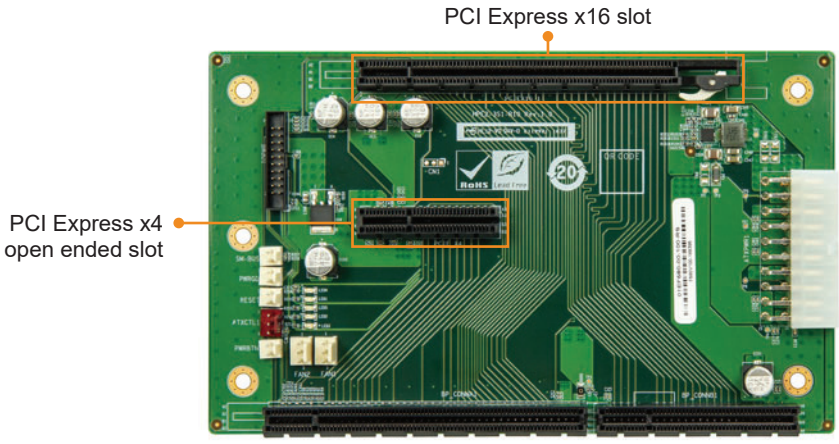


PCIe Mini slot provides mSATA and USB signal for full-size or half-size mSATA SSD and wireless LAN card.

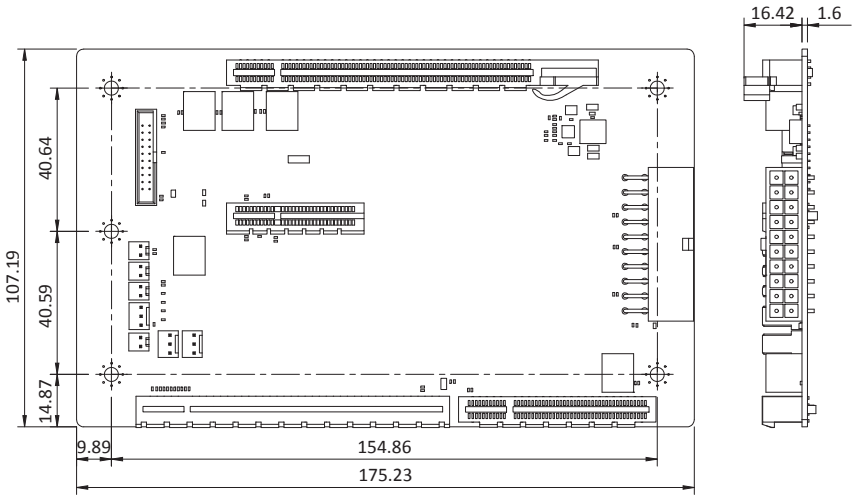


PCI Express Backplane in PAC-400AI (HPE2-3S1)

5-slot PICMG 1.3 backplane for half-size SBC, with one PCIe x16 Slot and one PCIe x4 Slot, RoHS.



HPE2-3S1
Dimensions (Unit: mm)



Ordering Information

Part No.	Description
PAC-400AI-C236-XE/16G/25-R10	Half-size AI System with Intel® Xeon® E3-1275 v5 CPU (3.60 GHz, Quad Core, TDP 80W) w/ Intel® C236, pre-installed 16GB ECC DDR4 SO-DIMM memory, VGA, Intel GbE, USB 3.2, PCIe Mini, w/ 1 PCIe x16/x4 Slot BP, w/ FSP250 (250W), RoHS
PAC-400AI-C236-25-R10	Half-size AI System with Intel® C236, VGA, Intel GbE, USB 3.2, PCIe Mini, w/ 1 PCIe x16/x4 Slot BP, w/ FSP250 (250W), RoHS

Options

Part No.	Description
GPOE-2P-R20	PCI Express Power over Ethernet card, 2-port 1000 Base(T), 802.3at compliant, low profile, RoHS
GPOE-4P-R20	PCI Express Power over Ethernet card, 4-port 1000 Base(T), 802.3at/af compliant, low profile, RoHS
IPCIE-4POE-R10	PCI Express Power over ethernet card, 4-port 1000 Base(T), 802.3af compliant, RoHS
Mustang-V100-MX4-R10	Computing Accelerator Card with 4 x Intel® Movidius™ Myriad™ X MA2485 VPU, PCIe Gen2 x2 interface, RoHS
Mustang-V100-MX8-R11	Computing Accelerator Card with 8 x Movidius Myriad X MA2485 VPU, PCIe gen2 x4 interface, RoHS
Mustang-F100-A10-R10	PCIe FPGA Highest Performance Accelerator Card with Arria 10 1150GX support DDR4 2400Hz 8GB, PCIe Gen3 x8 interface
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
AC-KIT-892HD-R10	7.1 channel HD Audio kit with Realtek ALC892 support dual audio streams
SAIDE-KIT01-R10	SATA to IDE/CF Converter board
32102-000100-200-RS	WIRE CABLE; POWER CABLE; SERIAL ATA POWER CABLE; 3; 150MM; 18AWG; (A)MOLEX 8981-4M P=5.08; (B)SATA 15P 180° X2; ONE PCS PKG W/ LABEL; RoHS
32102-044900-100-RS	WIRE CABLE; POWER CABLE; PCIE power cable; 3; 100MM; 20AWG; (A)MOLEX 8981-04M P=5.08*2; (B)TKP:H6657R1-06-B-03 P=4.2;;;;;;;;;;; Polywell; RoHS
32102-011500-100-RS	WIRE CABLE; POWER CABLE; ; 3; 150MM; 18AWG; MOLEX 8981-04P P=5.08 X2; MOLEX 8981-04M P=5.08;;;;;;;;;;; Wins Precision; RoHS
19100-000238-00-RS	COOLER MODULE; HEATSINK:105*67*12.1mm; FAN:77*75*15.4mm; STANDARD; 00; HF-XFWD-00383-1710; DC FAN:12V, 4P, 5500RPM, TOW BALL; ; Everflow; B127515BU; CCL; RoHS

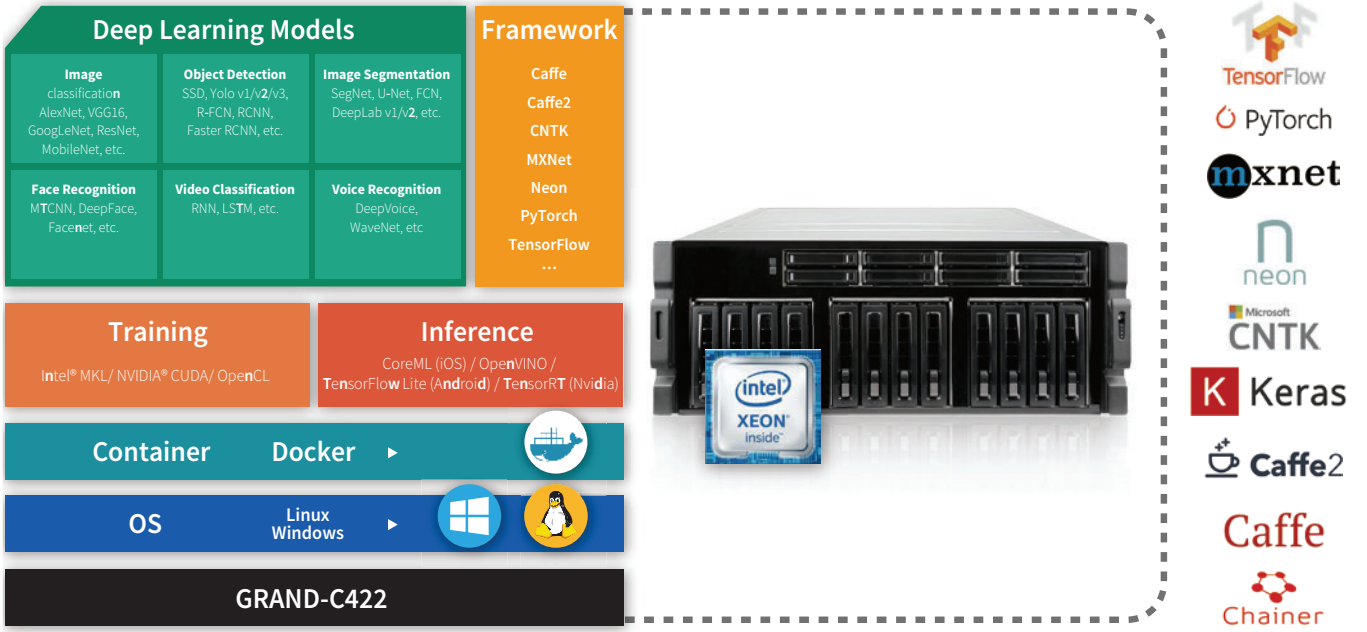
IEI GRAND AI Training Server System



AI Training System

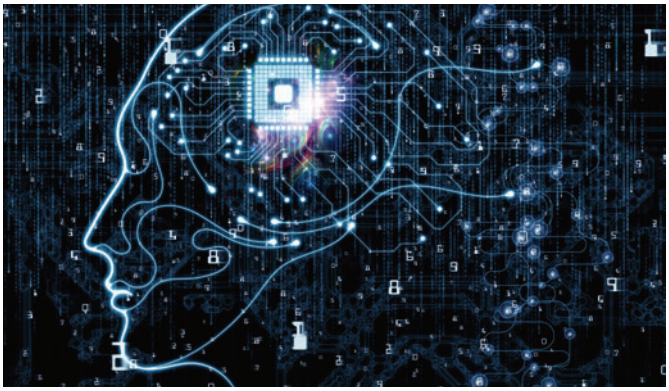
The AI training system GRAND-C442 is dedicated for these tasks because it offers a wide range of slots for storage expansion, acceleration cards and video capture, Thunderbolt™ or PoE add-on cards for unlimited data ac-quisition possibilities. In order to develop a useful training model, existing and widely used deep learning training frameworks such as Caffe, Tensor-Flow or Apache MXNet are recommended. These facilitate the definition of the apt architecture and algorithms for a distinct AI application.

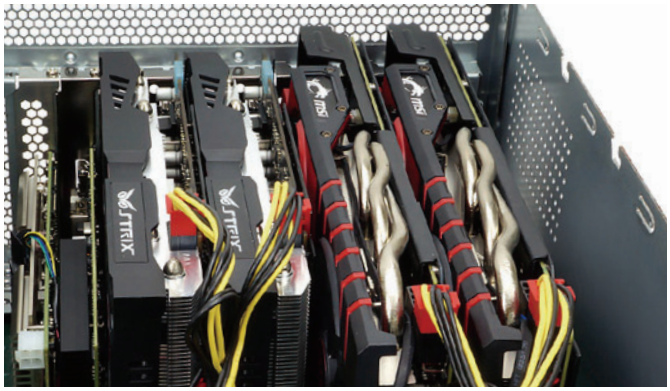
Supported Software



Demand for AI computing is booming

The application of AI computing is absolutely not enough through the CPU computing. With the decentralized architecture, the huge data is calculated to obtain the computing result. Therefore, we have developed a water-cooled chassis system with high expansion capability by adding multiple GPUs, FPGA or VPU acceleration cards for AI deep learning and inference.

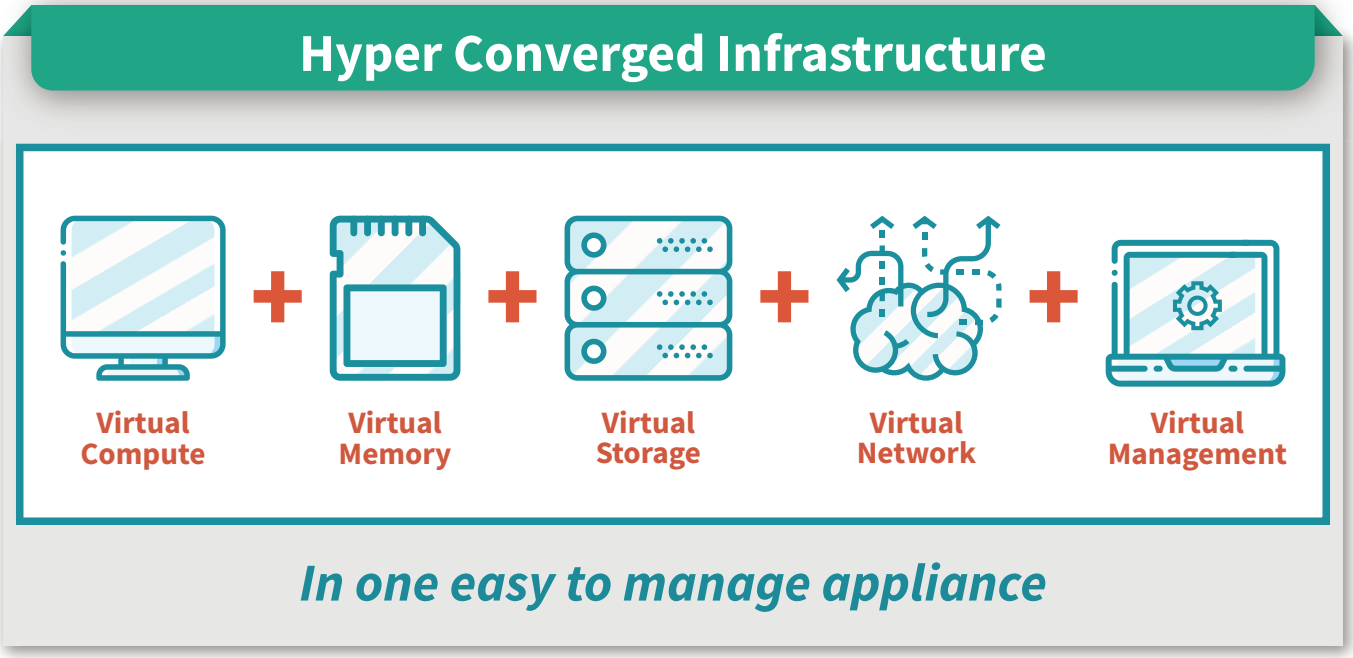




Hyper converged infrastructure

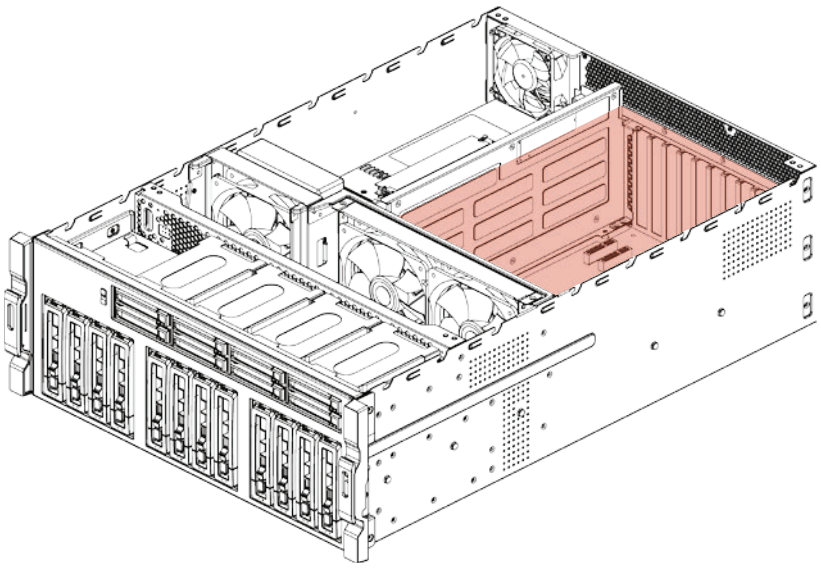
Hyper converged infrastructure (HCI) is scale-out software-defined infrastructure that converges core data services on flash-accelerated, industry-standard servers, delivering flexible and powerful building blocks under unified management.

Efficient, agile, flexible, and integrated, these systems allow for easy scale-out storage, cost-savings, and simplicity to manage your systems. To find out if hyperconverged is the best solution for your Data Center, consider the following.



Expandable to suit your needs

AI computing requires huge computing power, so our system can support up to 4 dual-width expansion slots (PCIe x8) and 2 single-width expansion slots (PCIe x4) for maximum expansion ability to meet computing needs.
All six of the backplane slots connect directly to the system host board. This is perfect for applications that require minimal latency.



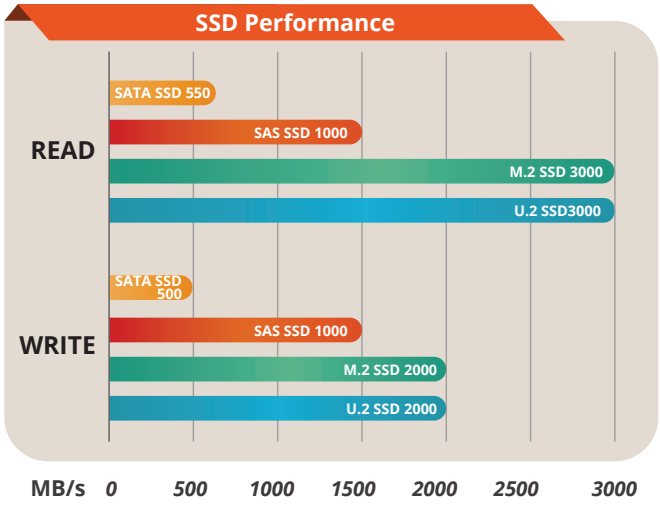
Model Name	PCIe	
GRAND-C422-20D-S1	6 Slots	4 PCIe Gen 3 x8
		2 PCIe Gen 3 x4
GRAND-C422-20D-H1	6 Slots	2 PCIe Gen 3 x16
		1 PCIe Gen 3 x8
		3 PCIe Gen 3 x4
GRAND-C422-20D-H2	7 Slots	5 PCIe Gen 3 x8
		2 PCIe Gen 3 x4

U.2 SSD (GRAND-C422-20D-S supported)

U.2 uses the same concept as a general hard disk. With a connection cable, a hard disk can be installed in the case without occupying the space of the motherboard. Therefore, M.2 and U.2 interfaces can be coexistence because they have different application environment. M.2 is more suitable for laptops or microcomputers, and U.2 is more suitable on a desktop or server. The U.2 interface features high-speed, low-latency, low-power, NVMe standard protocol, and PCIe 3.0 x4 channel. The theoretical transmission speed is up to 32Gbps, while SATA is only 6Gbps, which is 5 times faster than SATA.

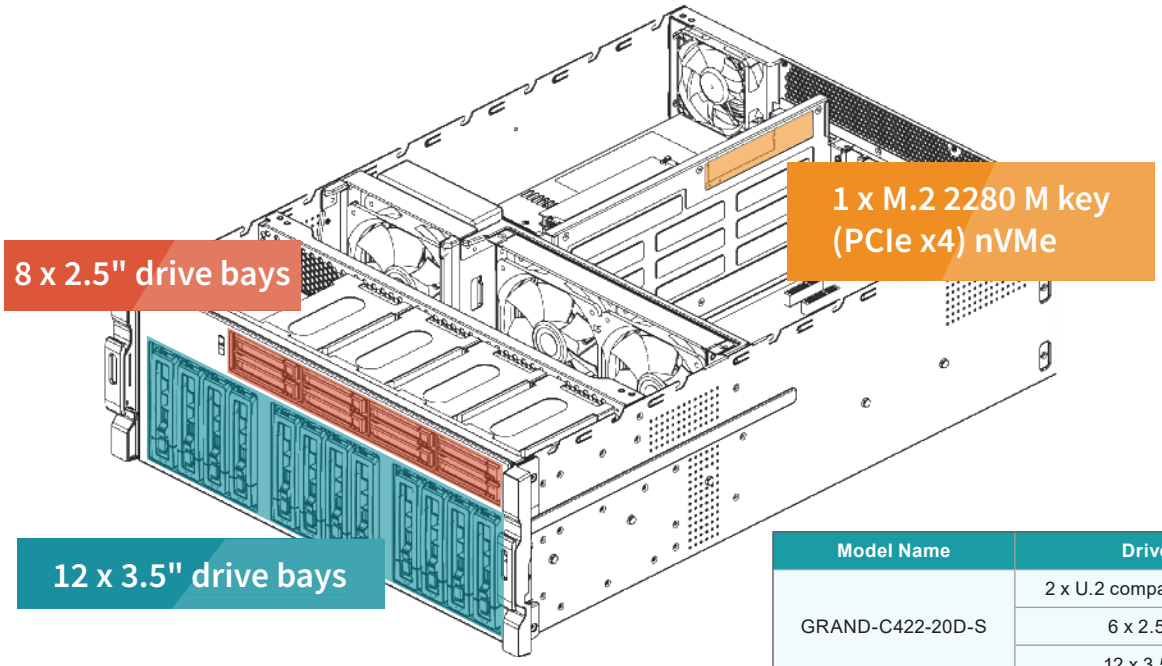
SAS HDD

15K SAS 12Gb HDD Compared to the conventional 7200 rpm speeds of SATA HDD, SAS HDD have disk speeds of up to 15,000 rpm, providing much higher read/write performance of up to 300MB/s. Although SAS 12Gb HDD cannot match the IOPS performance of SSD, its cost-per-gigabyte is more favorable. Enterprise-level SAS HDD also offers up to 2 million hours MTBF, providing dependable reliability. If an HDD failure occurs, the stored data may be recoverable, whereas if an SSD fails it can be harder (if not impossible) to recover data. With these considerations, SAS HDD remains the best choice for an enterprise to build a stable, efficient, and affordable storage medium.



Storage (M.2, SATA, SAS & U.2 by SKU)

The GRAND-C422-20D support M.2 2280 M key (PCIe x4) nVMe, SATA HDD/SSD, SAS HDD & U.2 SSD (by SKU). It has a built-in M.2 2280 M key (PCIe x4) nVMe port and 20 bays of HDD/SSD slots including two U.2 SDD slots. The GRAND-C422-20D supports M.2 solid-state disk which is the next-generation small-sized form factor introduced by Intel after mSATA. It has better performance than general SATA SSD but it is lighter and more power-saving.



Model Name	Drive Bay
GRAND-C422-20D-S	2 x U.2 compatiable to SATA
	6 x 2.5” SATA
	12 x 3.5” SATA
GRAND-C422-20D-H	8 x 2.5” SAS/SATA
	12 x 3.5” SAS/SATA

Water Cooling System for CPU

IEI uses the latest 14nm Intel Xeon Processor W family which uses the LGA2066 interface and Skylake-SP architecture with 4, 6, 8, 10, 14 and 18 core versions.
High performance means higher power consumption, therefore IEI designed water cooling system for CPU with smaller size, higher efficiency cooling system makes CPU cooler and keep the high performance, and it can support up to 250W TDP.

	Water Cooling	Air Cooling
		
Cooler Size	Small	Large
Working Noise	Small	Large
Cooling Efficiency	Better	Worse

GRAND-C422-20D-S

The GRAND-C422-20D is an AI training system which has maximum expansion ability to add in AI computing accelerator cards for AI model training or inference.



Feature

- Intel® Xeon® W family processor supported
- 6 x PCIe Slot, up to 4 dual width GPU cards
- Water cooling system on CPU
- Support two U.2 SSD
- Support one M.2 SSD M-key slot (NVMe PCIe 3.0 x4)
- Support 10GbE network
- IPMI remote management

Specifications

Model		GRAND-C422-20D-S
Chassis	Dimensions (H x W x D)	176.15 x 480.94 x 644 mm
	System Fan	2 x 120 mm, 12V DC
	Chassis Construction	4U, Rackmount
Motherboard	CPU	Intel® LGA-2066 Xeon® W Family processor
	Processor Cooling	Water cooling system
	Chipset	C422
	Memory	Total slot: 4 x DDR4 ECC RDIMM / LRDIMM Memory expandable up to:256GB (4 x 64GB)
Security	TPM	1 x TPM 2.0 Pin header
IPMI	IPMI Solution	IPMI LAN port, IPMI VGA display
Storage	Hard Drive	12 x 2.5" / 3.5" drive bay 8 x 2.5" drive bay
	M.2	1 x 2280 M key (PCIe x4) built in on SBC
	U.2	2 x U.2 SSD drive bay compatible to SATA
Networking	Ethernet IC	1 GbE NIC: Intel® i210-AT with NCSI support 10 GbE NIC: Aquantia AQC107
I/O Interface	USB 3.2 Gen 1	4
	USB 2.0	2
	Ethernet	1 x 1GbE RJ-45 combo LAN ports / IPMI 1 x 10GbE RJ-45 LAN port
	Display	1 x IPMI VGA display
	Buttons	Power button
Internal I/O	COM port	2 x RS-232 pin header
	USB 3.2 Gen 1	2 x USB 3.2 Gen 1 (5Gb/s) pin header
	USB 2.0	2 x USB 2.0 pin header, 1 x USB 2.0 type A
Indicator	LEDs	10 GbE, Status, LAN, Storage Expansion Port Status
	LCM	LCM, 2 buttons
Expansion	PCIe	4 x PCIe Gen 3 x8 2 x PCIe Gen 3 x4
Power	Power Input	100-240V AC, 47-63Hz
	Power Consumption	In Operation: 285W
	Type/Watt	Redundant Power 1200W
Reliability	Operating Temperature	0~40˚C
	Relative Humidity	5 to 95% non-condensing, wet bulb: 27˚C
	Weight	23.59 kg
	Certification	CE/FCC
OS	Support OS	Windows server 2016 Linux

Packing List

Flat head screws (for 2.5" HDD)	Flat head screws (for 3.5" HDD)
1 x Cat5e LAN cable	2 x Power cord
1 x Cat6A LAN cable	1 x QIG

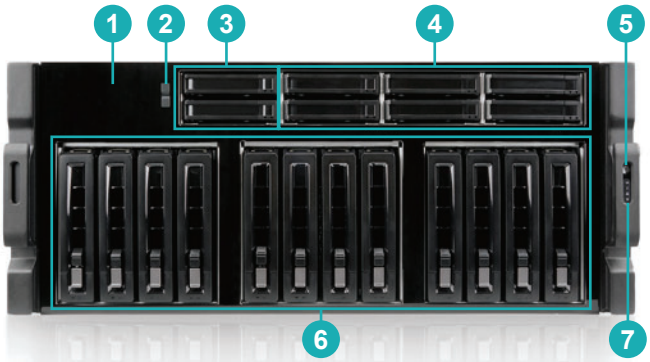
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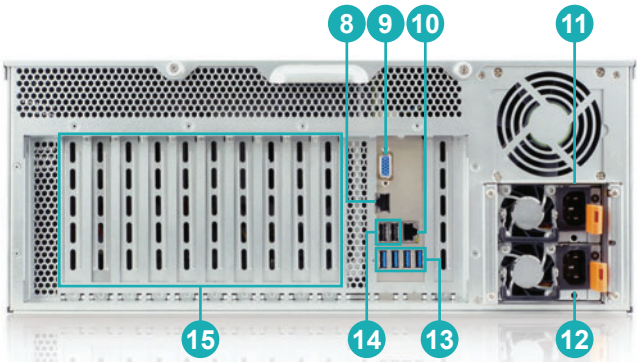
Item	Part No.	Description
Slide Rail	RAIL-A02-90	Kingslide Rail kit, maximum load 90 kg

Ordering Information

Part No.	Description
GRAND-C422-20D-S1A1-R10	20-bay (12 x 3.5", 8 x 2.5") 4U Rackmount, Intel® Xeon® W-2123 with C422 chipset, 32G DDR4 w/ECC, 6 x PCIe expansion slot, and 1200W redundant PSU, RoHS
GRAND-C422-20D-S1B2-R10	20-bay (12 x 3.5", 8 x 2.5") 4U Rackmount, Intel® Xeon® W-2133 with C422 chipset, 64G DDR4 w/ECC, 6 x PCIe expansion slot, and 1200W redundant PSU, RoHS
GRAND-C422-20D-S1C3-R10	20-bay (12 x 3.5", 8 x 2.5") 4U Rackmount, Intel® Xeon® W-2145 with C422 chipset, 128G DDR4 w/ECC, 6 x PCIe expansion slot, and 1200W redundant PSU, RoHS
GRAND-C422-20D-S1D3-R10	20-bay (12 x 3.5", 8 x 2.5") 4U Rackmount, Intel® Xeon® W-2155 with C422 chipset, 128G DDR4 w/ECC, 6 x PCIe expansion slot, and 1200W redundant PSU, RoHS
GRAND-C422-20D-S1E4-R10	20-bay (12 x 3.5", 8 x 2.5") 4U Rackmount, Intel® Xeon® W-2195 with C422 chipset, 256G DDR4 w/ECC, 6 x PCIe expansion slot, and 1200W redundant PSU, RoHS

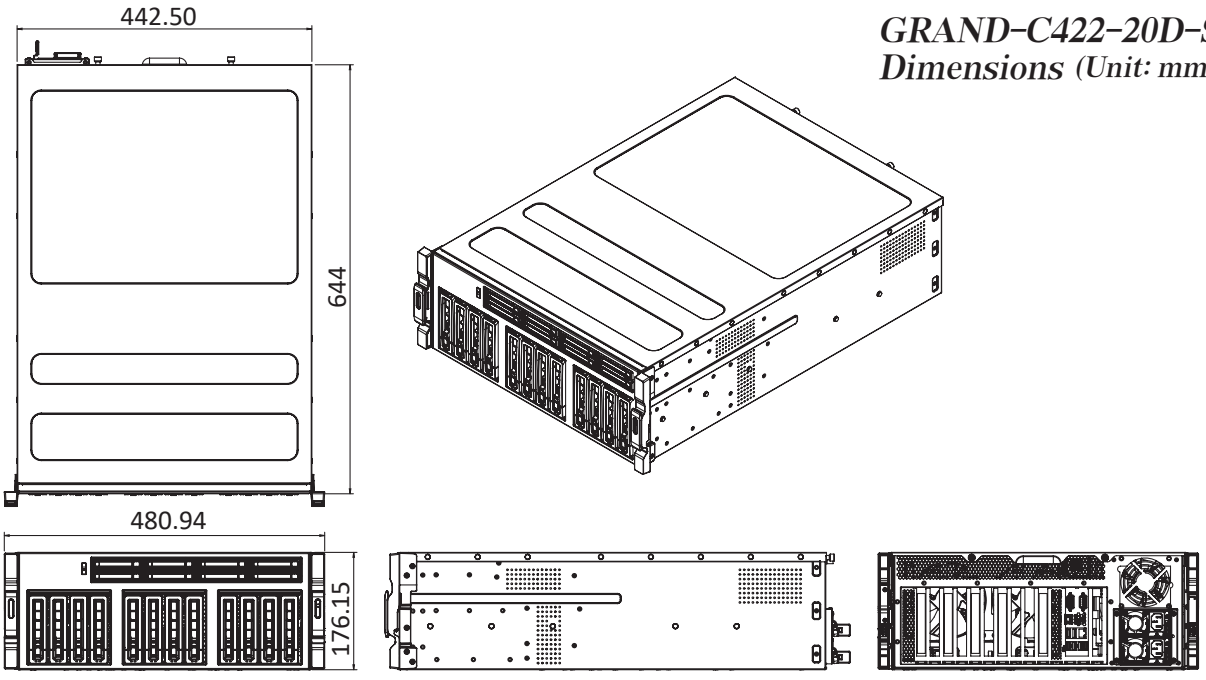
I/O Interface





1. LCM
2. LCM control buttons
3. Two U.2 SSD drive bays compatible with SATA
4. Six 2.5" SATA 6Gb/s drive bays
5. Power button
6. Twelev 2.5"/3.5" SATA 6Gb/s drive bays
7. LED Indicator:
   - 10 10GbE
   - System status
   - LAN
   - Storage expansion port status
8. 10 Gigabit Ethernet port
9. IPMI VGA port
10. Gigabit Ethernet port with NCSI support
11. Power supply unit 1
12. Power supply unit 2
13. Four USB 3.1 Gen 1 ports
14. Two USB 2.0 ports
15. PCIe expansion slots

GRAND-C422-20D-S Dimensions (Unit: mm)



GRAND-C422-20D-H

NEW

The GRAND-C422-20D is an AI training system which has maximum expansion ability to add in AI computing accelerator cards for AI model training or inference.



Feature

- Intel® Xeon® W family processor supported
- Up to 7 x PCIe Slot, with dual width expansion card support
- Water cooling system on CPU
- Support SAS SSD
- Support one M.2 SSD M-key slot (NVMe PCIe 3.0 x4)
- Support 10GbE network
- Support Hardware RAID
- IPMI remote management

Specifications

Model		GRAND-C422-20D-H1	GRAND-C422-20D-H2
Chassis	Dimensions (H x W x D)	176.15 x 480.94 x 644 mm	
	System Fan	2 x 120 mm, 12V DC	
	Chassis Construction	4U, Rackmount	
Motherboard	CPU	Intel® LGA-2066 Xeon® W Family processor	
	Processor Cooling	Water cooling system	
	Chipset	C422	
	Memory	Total slot: 4 x DDR4 ECC RDIMM / LRDIMM Memory expandable up to:256GB (4 x 64GB)	
Security	TPM	1 x TPM 2.0 Pin header	
IPMI	IPMI Solution	IPMI LAN port, IPMI VGA display	
Storage	Hard Drive (need to install RAID card)	12 x 2.5" / 3.5" drive bay (support SAS /SATA) 8 x 2.5" drive bay (support SAS /SATA)	
	M.2	1 x M.2 (PCIe Gen 3 x4) built in on SBC	
	U.2	2 x U.2 SSD drive bay compatible to SATA	
Networking	Ethernet IC	1 GbE NIC: Intel® i210-AT with NCSI support 10 GbE NIC: Aquantia AQC107	
I/O Interface	USB 3.2 Gen 1	4	
	USB 2.0	2	
	Ethernet	1 x 1GbE RJ-45 combo LAN ports / IPMI 1 x 10GbE RJ-45 LAN port	
	Display	1 x IPMI VGA display	
	Buttons	Power button	
Internal I/O	COM port	2 x RS-232 pin header	
	USB 3.2 Gen 1	2 x USB 3.2 Gen 1 (5Gb/s) pin header	
	USB 2.0	2 x USB 2.0 pin header, 1 x USB 2.0 type A	
Indicator	LEDs	10 GbE, Status, LAN, Storage Expansion Port Status	
	LCM	LCM, 2 buttons	
Expansion	PCIe	2 PCIe Gen 3 x16 1 PCIe Gen 3 x8 3 PCIe Gen 3 x4	5 PCIe Gen 3 x8 2 PCIe Gen 3 x4
Power	Power Input	100-240V AC, 47-63Hz	
	Power Consumption	In Operation: 285W	
	Type/Watt	Redundant Power 1200W	
Reliability	Operating Temperature	0~40˚C	
	Relative Humidity	5 to 95% non-condensing, wet bulb: 27˚C	
	Weight	23.59 kg	
	Certification	CE/FCC	
OS	Support OS	Windows server 2016 / Linux	

Packing List

Flat head screws (for 2.5" HDD)	Flat head screws (for 3.5" HDD)
1 x Cat5e LAN cable	2 x Power cord
1 x Cat6A LAN cable	1 x QIG

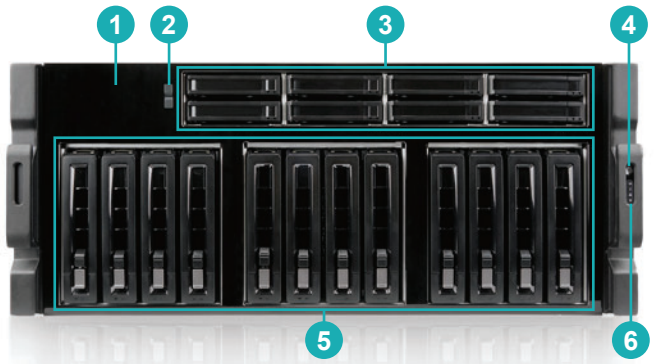
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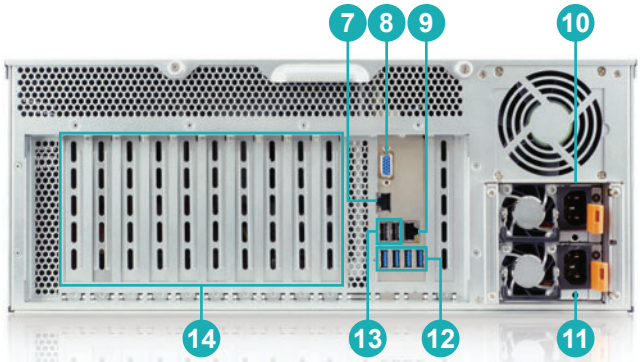
Item	Part No.	Description
Slide Rail	RAIL-A02-90	Kingslide Rail kit, maximum load 90 kg
RAID Controller	7F200-SMARTRAID315424I-RS	Microsemi Adaptec SmartRAID 3154-24i

Ordering Information

Part No.	Description
GRAND-C422-20D-H1A1-R10	20-bay (12 x 3.5", 8 x 2.5") 4U Rackmount, support hardware RAID, Intel® Xeon® W-2123 with C422 chipset, 32G DDR4 w/ECC, 6 x PCIe expansion slot, and 1200W redundant PSU, RoHS
GRAND-C422-20D-H1B2-R10	20-bay (12 x 3.5", 8 x 2.5") 4U Rackmount, support hardware RAID, Intel® Xeon® W-2133 with C422 chipset, 64G DDR4 w/ECC, 6 x PCIe expansion slot, and 1200W redundant PSU, RoHS
GRAND-C422-20D-H1C3-R10	20-bay (12 x 3.5", 8 x 2.5") 4U Rackmount, support hardware RAID, Intel® Xeon® W-2145 with C422 chipset, 128G DDR4 w/ECC, 6 x PCIe expansion slot, and 1200W redundant PSU, RoHS
GRAND-C422-20D-H1D3-R10	20-bay (12 x 3.5", 8 x 2.5") 4U Rackmount, support hardware RAID, Intel® Xeon® W-2155 with C422 chipset, 128G DDR4 w/ECC, 6 x PCIe expansion slot, and 1200W redundant PSU, RoHS
GRAND-C422-20D-H1E4-R10	20-bay (12 x 3.5", 8 x 2.5") 4U Rackmount, support hardware RAID, Intel® Xeon® W-2195 with C422 chipset, 256G DDR4 w/ECC, 6 x PCIe expansion slot, and 1200W redundant PSU, RoHS
GRAND-C422-20D-H2A1-R10	20-bay (12 x 3.5", 8 x 2.5") 4U Rackmount, support hardware RAID, Intel® Xeon® W-2123 with C422 chipset, 32G DDR4 w/ECC, 7 x PCIe expansion slot, and 1200W redundant PSU, RoHS
GRAND-C422-20D-H2B2-R10	20-bay (12 x 3.5", 8 x 2.5") 4U Rackmount, support hardware RAID, Intel® Xeon® W-2133 with C422 chipset, 64G DDR4 w/ECC, 7 x PCIe expansion slot, and 1200W redundant PSU, RoHS
GRAND-C422-20D-H2C3-R10	20-bay (12 x 3.5", 8 x 2.5") 4U Rackmount, support hardware RAID, Intel® Xeon® W-2145 with C422 chipset, 128G DDR4 w/ECC, 7 x PCIe expansion slot, and 1200W redundant PSU, RoHS
GRAND-C422-20D-H2D3-R10	20-bay (12 x 3.5", 8 x 2.5") 4U Rackmount, support hardware RAID, Intel® Xeon® W-2155 with C422 chipset, 128G DDR4 w/ECC, 7 x PCIe expansion slot, and 1200W redundant PSU, RoHS
GRAND-C422-20D-H2E4-R10	20-bay (12 x 3.5", 8 x 2.5") 4U Rackmount, support hardware RAID, Intel® Xeon® W-2195 with C422 chipset, 256G DDR4 w/ECC, 7 x PCIe expansion slot, and 1200W redundant PSU, RoHS

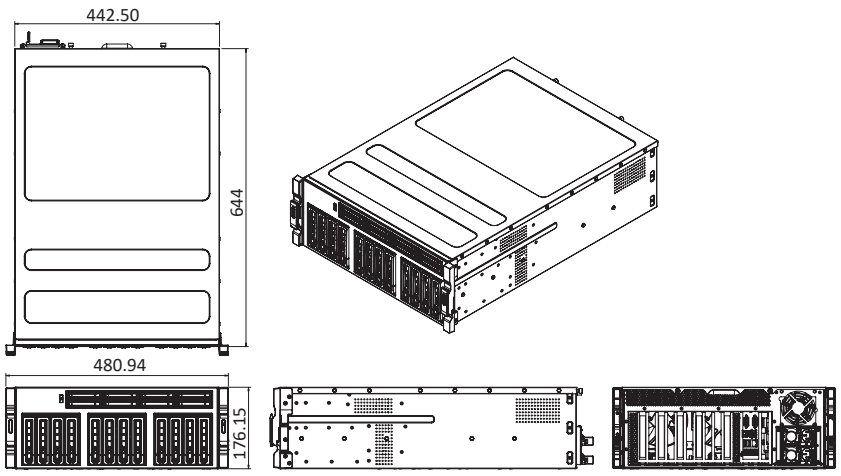
I/O Interface





1. LCM
2. LCM control buttons
3. 2.5" SAS/SATA drive bays
4. Power button
5. Twelev 2.5"/3.5" SAS/SATA drive bays
6. LED Indicator:
   - 10 10GbE
   - i System status
   - LAN
   - Storage expansion port status
7. 10 Gigabit Ethernet port
8. IPMI VGA port
9. Gigabit Ethernet port with NCSI support
10. Power supply unit 1
11. Power supply unit 2
12. Four USB 3.1 Gen 1 ports
13. Two USB 2.0 ports
14. PCIe expansion slots

GRAND-C422-20D-H Dimensions (Unit: mm)



Intel® Vision Accelerator Design Products



Powered by Open Visual Inference & Neural Network Optimization (OpenVINO™) toolkit

- Ubuntu 18.04.x 16.04.x LTS 64bit, CentOS 7.4 64bit, Windows® 10 64bit (more OS are coming soon)
- Supports popular frameworks...such as TensorFlow, MxNet, CAFFE, and ONNX.
- Provides optimized computer vision libraries to quick handle the computer vision tasks

A Perfect Choice for AI Deep Learning Inference Workloads

Compact Size | Multiple Cards | Low Power consumption | OpenVINO™ Toolkit





IEI Mustang Series Accelerators

In AI applications, training models are just half of the whole story. Designing a real-time edge device is a crucial task for today's deep learning applications.

FPGA is short for field programmable gate array, and VPU stands for vision processing unit. It can both run AI faster, and are well suited for real-time applications such as surveillance, retail, medical, and machine vision. With the advantage of low power consumption, it is perfect to be implemented in AI edge computing device to reduce total power usage, providing longer duty time for the rechargeable edge computing equipment. AI applications at the edge must be able to make judgements without relying on processing in the cloud due to bandwidth constraints, and data privacy concerns.Therefore, how to resolve AI task locally is becoming more important.

In the era of AI explosion, various computations rely on server or device which needs larger space and power budget to install accelerators to ensure enough computing performance.

In the past, solution providers have been upgrading hardware architecture to support modern applications, but this has not addressed the question on minimizing physical space. However, space may still be limited if the task cannot be processed on the edge device.

We are pleased to announce the launch of the Mustang-F100-A10 and Mustang-V100-MX8, features with small form factor, low power consumption. Perfect choice for AI deep learning inference workloads and compatible with IEI TANK-870AI compact IPC for those with limited space and power budget.

Mustang-200



Hardware Feature

- Dual 10Gbps network based x86 computing accelerator
- Decentralized computing architecture for independent tasks
- PCI Express x4 delivers scalable and flexible solution
- Two Intel® Core™ i7-7567U/i5-7267/Celeron® 3865U processors, up to 4.00 GHz
- Support high-end graphics engine - Intel® Iris™ Plus Graphics 650
- Pre-installed 32 GB DDR4 (max. 64 GB) and 1 TB NVMe (max. 2 TB)

Specifications

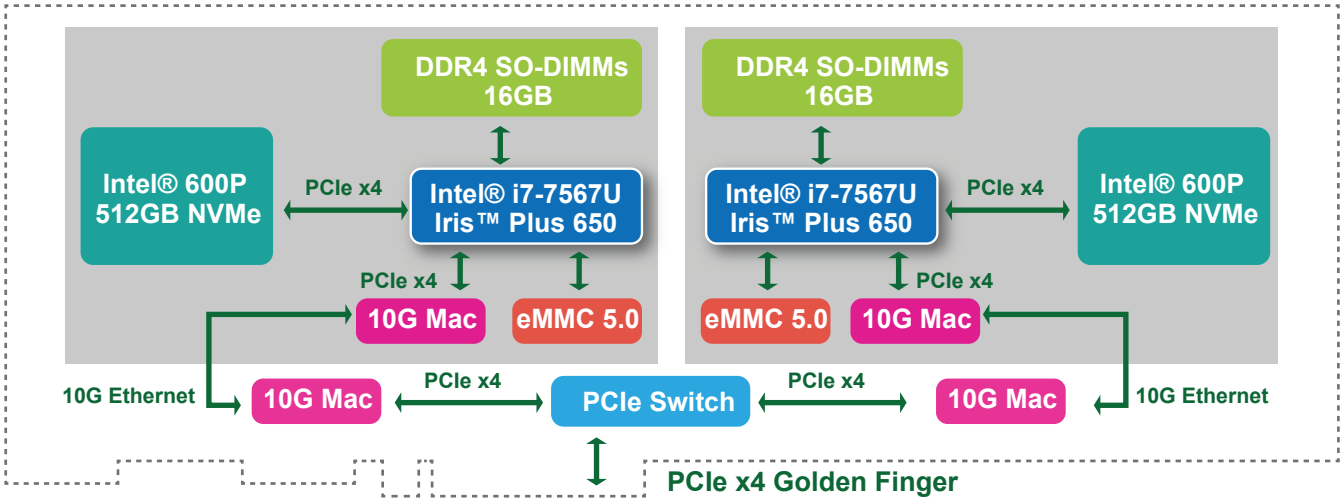
Model Name	Mustang-200
Main Chipset	Two (2) Intel Kabylake ULT CPU
	Intel® Core™ i7-7567U (28 W) (4M Cache, up to 4.00 GHz)
	Intel® Core™ i5-7267U (28 W) (4M Cache, up to 3.50 GHz)
	Intel® Celeron® 3865U (15W) (2M Cache, 1.80 GHz)
Processor Graphics	Intel® Core™ i7-7567U & i5-7267U support Iris™ Plus Graphics 650 (GT3e) •Graphics base frequency 300 MHz •Graphics max dynamic frequency: 1.05 GHz •Embedded graphics DRAM per GPU: 64 MB
	Intel® Celeron® 3865U supports Intel® HD Graphics 610 •Graphics base frequency 300 MHz •Graphics max dynamic frequency: 900 MHz
Hardware Video Decode	H.264, H.265/HEVC
	MPEG2, M/JPEG
	VC-1
	VP8(8 bit)/VP9(10 bit)
Hardware Video Encode	H.264, H.265/HEVC
	MPEG2, M/JPEG
	VC-1
	VP8 (8-bit)
Display Output	2 x Micro HDMI for debugging
USB 2.0	4 x USB 2.0 (pin header) for debugging
Memory	(2 SO-DIMMs per CPU) 4 x DDR4 8GB SO-DIMM (Core™ i7/i5 SKU) 4 x DDR4 2GB SO-DIMM (Celeron® 3865U SKU)
Storage	2 x Intel® SSD 600P series (Core™ i7/i5 SKU only) (512GB M.2 80mm PCIe 3.0 x4, 3D1, TLC)
Dataplane Interface	PCI Express x4
	Compliant with PCI Express Specification V2.0
	Compatible with PCI Express x4, x8, and x16 slots
External Interfaces	Reset button
	Power button
Indicator	Seven segment (indicate card number and debug code)
Power Input	12V PCIe 6-pin power input
Power Consumption	12V@7.41A (Intel® Core™ i7-7567U SKU)
Operating Temperature	0°C~40°C
Fan	Dual fan
Dimensions (DxWxH)	40mm x 210mm x 111mm
Operating Humidity	10% ~ 90%

Ordering Information

Part No.	Description
Mustang-200-i7-1T/32G-R10	Computing Accelerator Card supports Two Intel® Core™ i7-7567U with Intel® 600P 1TB (512GB x2) SSD, 32GB (8GB x4) DDR4, PCIe x4 interface, QTS-Lite, and RoHS
Mustang-200-i5-1T/32G-R10	Computing Accelerator Card supports Two Intel® Core™ i7-7267U with Intel® 600P 1TB (512GB x2) SSD, 32GB (8GB x4) DDR4, PCIe x4 interface, QTS-Lite, and RoHS
Mustang-200-C-8G-R10	Computing Accelerator Card supports Two Intel® Celeron® 3865U with 8GB (2GB x4) DDR4, PCIe x4 interface, QTS-Lite, and RoHS (without NVMe storage)
19B00-000396-00-RS	Mustang-200 dual-port USB cable

Packing List

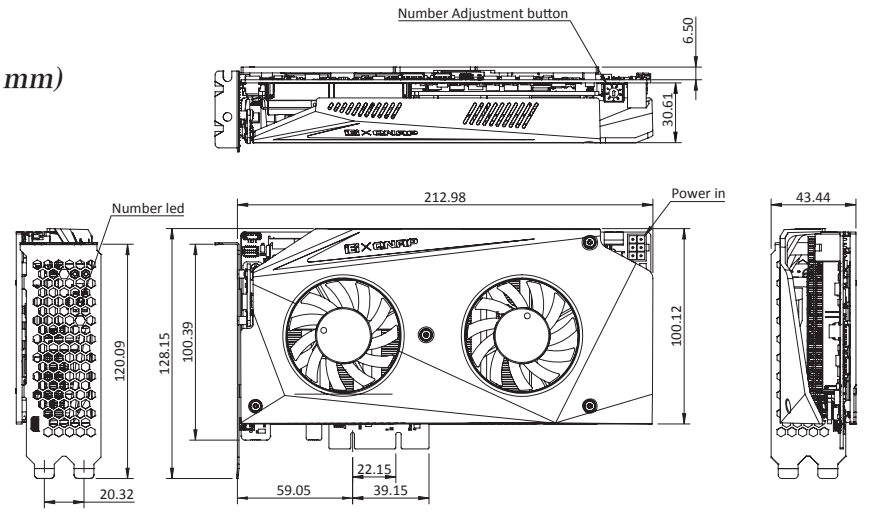
1 x Mustang-200
1 x QIG
1 x 4 pin to PCIe power cable



• Block Diagram

Every CPU on the Mustang-200 is accompanied with 16GB (2 x 8GB) RAM and an Intel® 600P series 512GB NVMe SSD. Once installed in a PCIe x4 slot, the host computer will be connected to both computing nodes on the Mustang-200 with 10GbE networks. The advantage of utilizing network-based structures is that no proprietary hardware is needed thus a lower cost is achieved. The computing nodes are powered by QTS-Lite, a lightweight version of QNAP's award-winning QTS operating system, and the eMMC component will serve as storage for QTS-Lite.

Mustang-200 Dimensions (Unit: mm)



Mustang-F100-A10



Feature

- Half-Height, Half-Length, Double-slot.
- Power-efficiency, low-latency.
- Supported OpenVINO™ toolkit, AI edge computing ready device.
- FPGAs can be optimized for different deep learning tasks.
- Intel® FPGAs supports multiple float-points and inference workloads.

Specifications

Model Name	Mustang-F100-A10
Main FPGA	Intel® Arria® 10 GX1150 FPGA
Operating Systems	Ubuntu 16.04.3 LTS 64-bit, CentOS 7.4 64-bit Ubuntu 18.04.x 16.04.x LTS 64bit, CentOS 7.4 64bit, (Windows® 10 64bit & more OS are coming soon)
Voltage Regulator and Power Supply	Intel® Enpirion® Power Solutions
Memory	8G on board DDR4
Dataplane Interface	PCI Express x8
	Compliant with PCI Express Specification V3.0
Power Consumption	Approximate 40W
Operating Temperature	5°C~60°C
Cooling	Active fan
Dimensions	Standard Half-Height, Half-Length, Double-slot
Operating Humidity	5% ~ 90%
Power Connector	*Preserved PCIe 6-pin 12V external power
Dip Switch/LED indicator	Identify card number
Support Topology	AlexNet; DenseNet-121, -161, -169, -201; GoogLeNet v1, v2, v3, v4; Inception v1, v2, v3, v4; LSTM: CTPN MobileNet v1, v2; MobileNet SSD; MTCNN-o, -p, -r; ResNet-18, -50, -101, -152; ResNet v2-50, -101, -152 Sphereface; SqueezeNet v1.0, v1.1; SSD MobileNet v1, v2; SSD Inception v2, v3; SSD ResNet; SSD300 SSD512; U-Net; VGG16, VGG19; YoloTiny v1, v2, v3; Yolo v2, v3 * For more topologies support information please refer to Intel® OpenVINO™ Toolkit official website. [Supported Models] https://docs.openvinotoolkit.org/latest/_docs_IE_DG_Introduction.html#SupportedFW [Supported Framework Layers] https://docs.openvinotoolkit.org/latest/_docs_MO_DG_prepare_model_Supported_Frameworks_Layers.html

*TANK AIoT dev. kit PCIe slot provides 75W power, this feature is preserved for user in case of different system configuration.
Warning: DO NOT install the Mustang-F100-A10 into the TANK AIoT Dev. Kit before shipment. It is recommended to ship them with their original boxes to prevent the Mustang-F100-A10 from being damaged.

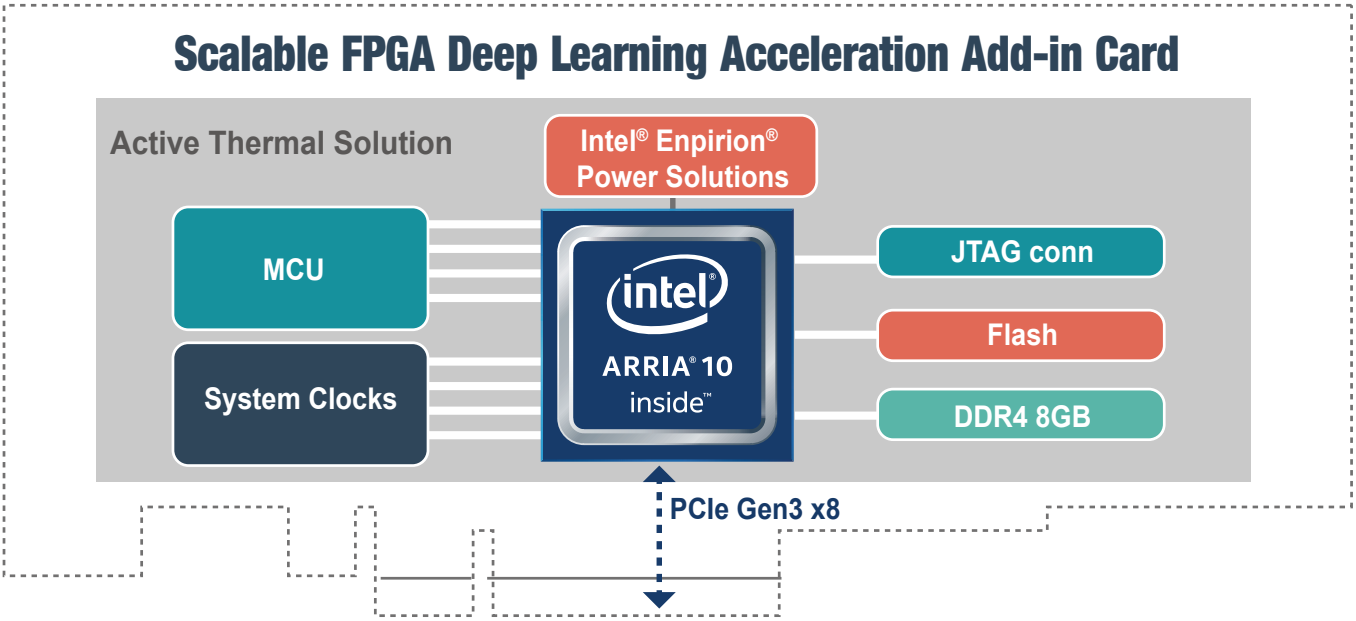
Ordering Information

Part No.	Description
Mustang-F100-A10-R10	PCIe FPGA Highest Performance Accelerator Card with Arria 10 1150GX support DDR4 2400Hz 8GB, PCIe Gen3 x8 interface
7Z000-00FPGA00	7Z0-OTHERS PERIPHERAL DEVICE;FPGA Download Cable; IEI USB DOWNLOAD CABLE;GALAXY;USB Download+USB CABLE+IDE CABLE+FPGA CABLE

*Due to the OpenVINO™ toolkit version is upgraded periodically, IEI strongly recommend users to purchase FPGA programmer kit (7Z000-00FPGA00) to upgrade the latest bitstreams to get best performance.
*If you would like to buy FPGA Download Cable kit(7Z000-00FPGA00), please email to online@ieiworld.com or place an order on IEI USA e-shop, thank you.

Packing List

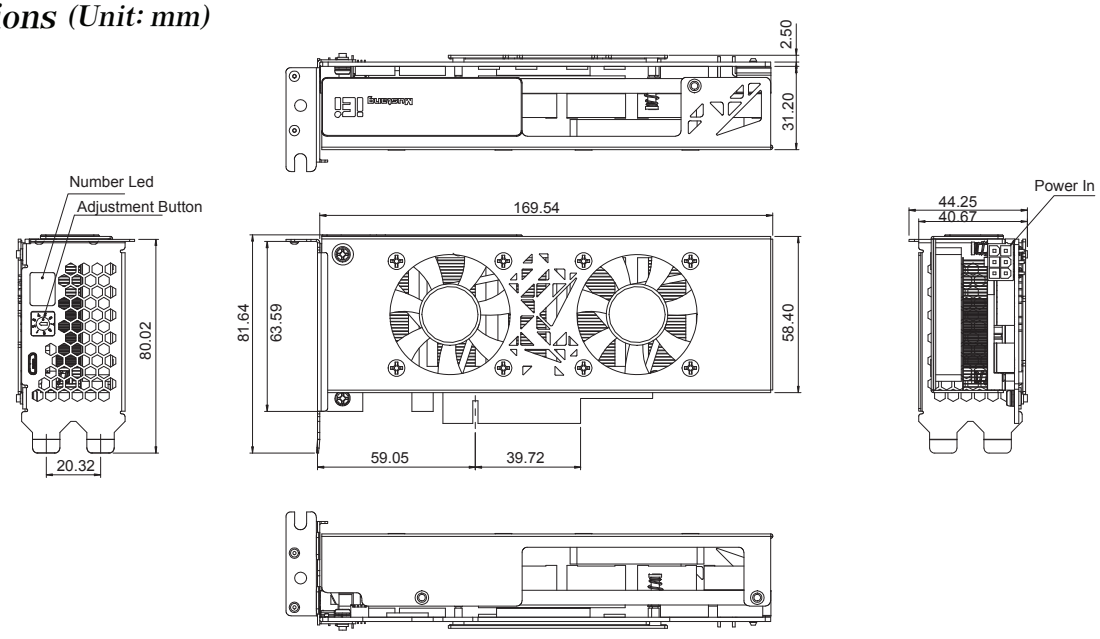
1 X Full height bracket
1 x External power cable
1 x QIG



Mustang-F100-A10 Block Diagram

- Intel® Arria® 10 1150 GX FPGAs delivering up to 1.5 TFLOPs
- Interface: PCIe Gen3 x 8
- Form Factor: Standard Half-Height, Half-Length, Double-slot
- Cooling: Active fan.
- Operation Temperature : 5°C~60°C
- Operation Humidity : 5% to 90% relative humidity
- Power Consumption: Approximate 40W
- Power Connector: *Preserved PCIe 6-pin 12V external power
- DIP Switch/LED Indicator: Identify card number.
- Voltage Regulator and Power Supply: Intel® Enpirion® Power Solutions

Mustang-F100-A10
Dimensions (Unit: mm)



Mustang-V100-MX8



Feature

- Half-Height, Half-Length, Single-slot compact size
- Low power consumption ,approximate 25W
- Supported OpenVINO™ toolkit, AI edge computing ready device
- Eight Intel® Movidius™ Myriad™ X VPU can execute multiple topologies simultaneously.

Specifications

Model Name	Mustang-V100-MX8
Main Chip	Eight Intel® Movidius™ Myriad™ X MA2485 VPU
Operating Systems	Ubuntu 18.04.x 16.04.x LTS 64bit, CentOS 7.4 64bit, Windows® 10 64bit
Dataplane Interface	PCI Express x4
	Compliant with PCI Express Specification V2.0
Power Consumption	Approximate 25W
Operating Temperature	-20°C~60°C
Cooling	Active fan
Dimensions Standard	Half-Height, Half-Length, Single-slot PCIe
Operating Humidity	5% ~ 90%
Power Connector	*Preserved PCIe 6-pin 12V external power
Dip Switch/LED indicator	Identify card number
Support Topology	AlexNet, GoogleNetV1/V2, MobileNet SSD, MobileNetV1/V2, MTCNN, Squeezenet1.0/1.1, Tiny Yolo V1 & V2, Yolo V2, ResNet-18/50/101 * For more topologies support information please refer to Intel® OpenVINO™ Toolkit official website. [Supported Models] https://docs.openvinotoolkit.org/latest/_docs_IE_DG_Introduction.html#SupportedFW [Supported Framework Layers] https://docs.openvinotoolkit.org/latest/_docs_MO_DG_prepare_model_Supported_Frameworks_Layers.html

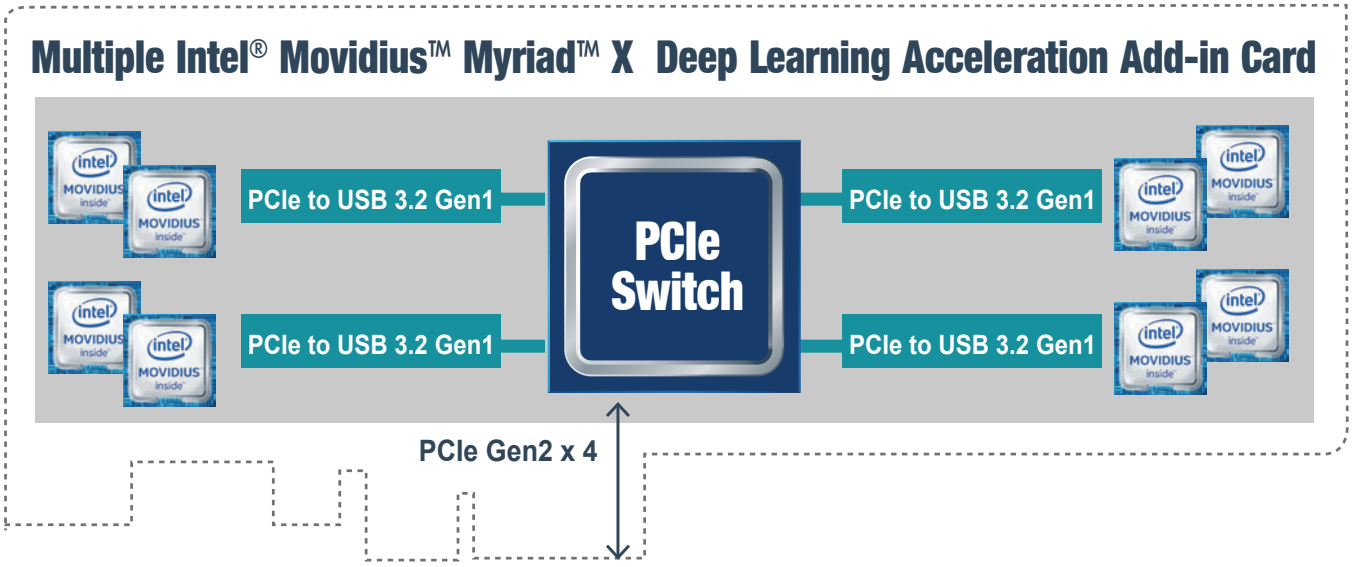
*TANK AIoT dev. kit PCIe slot provides 75W power, this feature is preserved for user in case of different system configuration.
Warning: DO NOT install the Mustang-V100-MX8 into the TANK AIoT Dev. Kit before shipment. It is recommended to ship them with their original boxes to prevent the Mustang-V100-MX8 from being damaged.

Ordering Information

Part No.	Description
Mustang-V100-MX8-R11	Computing Accelerator Card with 8 x Movidius Myriad X MA2485 VPU, PCIe Gen2 x4 interface, RoHS

Packing List

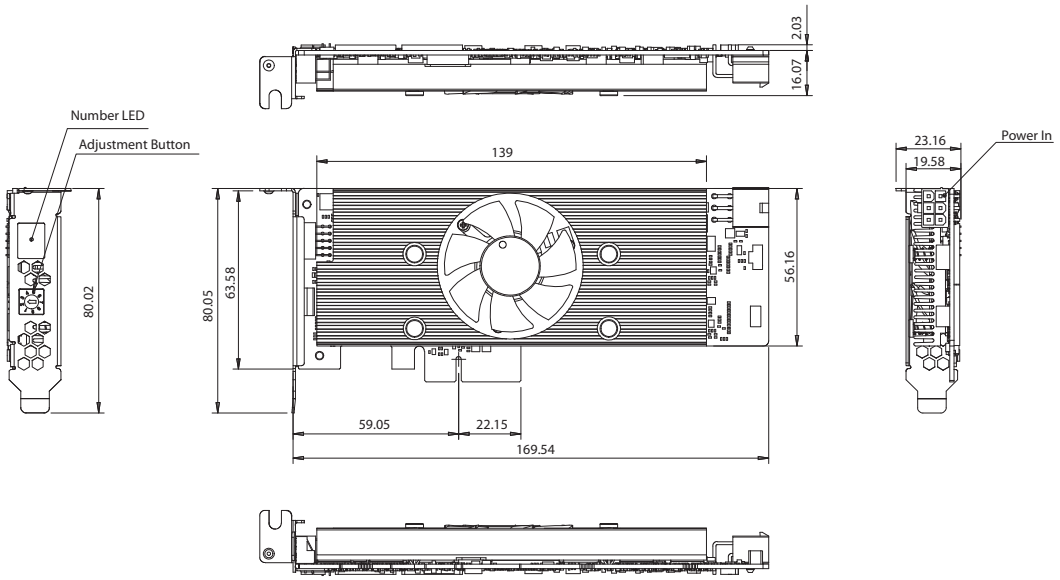
1 X Full height bracket
1 x External power cable
1 x QIG



Mustang-V100-MX8 Block Diagram

- 8 Intel® Movidius™ Myriad™ X VPU delivering up to 8 TOPs of dedicated networks compute
- Interface: PCIe Gen2 x 4
- Form Factor: Standard Half-Height, Half-Length, Single-slot
- Cooling: Active fan.
- Operation Temperature: -20°C~60°C
- Operation Humidity : 5% to 90% relative humidity
- Power Consumption: Approximate 25W
- Power Connector: *Preserved PCIe 6-pin 12V external power
- DIP Switch/LED Indicator: Identify card number.

Mustang-V100-MX8
Dimensions (Unit: mm)



Mustang-V100-MX4



Feature

- PCIe Gen 2 x 2 form factor
- 4 x Intel® Movidius™ Myriad™ X VPU MA2485
- Power efficiency, Approximate 15W.
- Operating Temperature -20°C~60°C
- Powered by Intel's OpenVINO™ toolkit
- Multiple cards supported

Introduction

The Mustang-V100-MX4 is a PCIe Gen 2 x 2 card included 4 Intel® Movidius™ Myriad™ X VPU, providing an flexible AI inference solution for compact size and embedded systems.

VPU is short for vision processing unit. It can run AI faster, and is well suited for low power consumption applications such as surveillance, retail, transportation. With the advantage of power efficiency and high performance to dedicate DNN topologies, it is perfect to be implemented in AI edge computing device to reduce total power usage, providing longer duty time for the rechargeable edge computing equipment.

Specifications

Model Name	Mustang-V100-MX4
Main Chip	4 x Intel® Movidius™ Myriad™ X MA2485 VPU
Operating Systems	Ubuntu 18.04.x 16.04.x LTS 64bit, CentOS 7.4 64bit, Windows® 10 64bit
Dataplane Interface	PCIe Gen 2 x 2
Power Consumption	Approximate 15W
Operating Temperature	-20°C~60°C
Cooling	Active fan
Dimensions	113 x 56 x 23 mm
Operating Humidity	5% ~ 90%
Dip Switch/LED indicator	Identify card number
Support Topology	AlexNet, GoogleNetV1/V2, MobileNet SSD, MobileNetV1/V2, MTCNN, Squeezenet1.0/1.1, Tiny Yolo V1 & V2, Yolo V2, ResNet-18/50/101 * For more topologies support information please refer to Intel® OpenVINO™ Toolkit official website. [Supported Models] https://docs.openvinotoolkit.org/latest/_docs_IE_DG_Introduction.html#SupportedFW [Supported Framework Layers] https://docs.openvinotoolkit.org/latest/_docs_MO_DG_prepare_model_Supported_Frameworks_Layers.html

Ordering Information

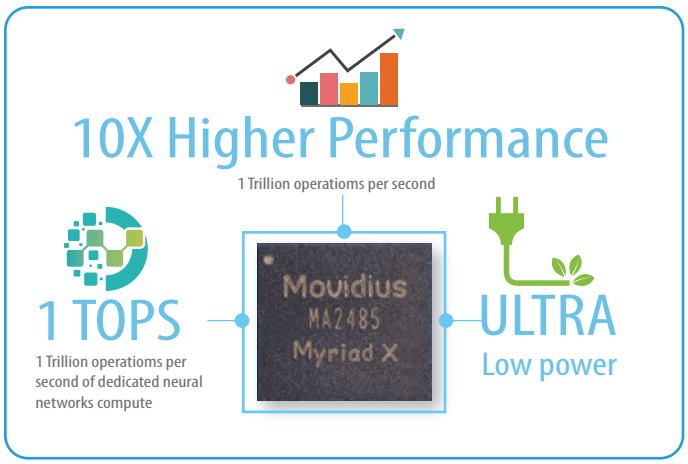
Part No.	Description
Mustang-V100-MX4-R10	Computing Accelerator Card with 4x Intel® Movidius™ Myriad™ X MA2485 VPU, PCIe Gen 2 x 2 interface, RoHS

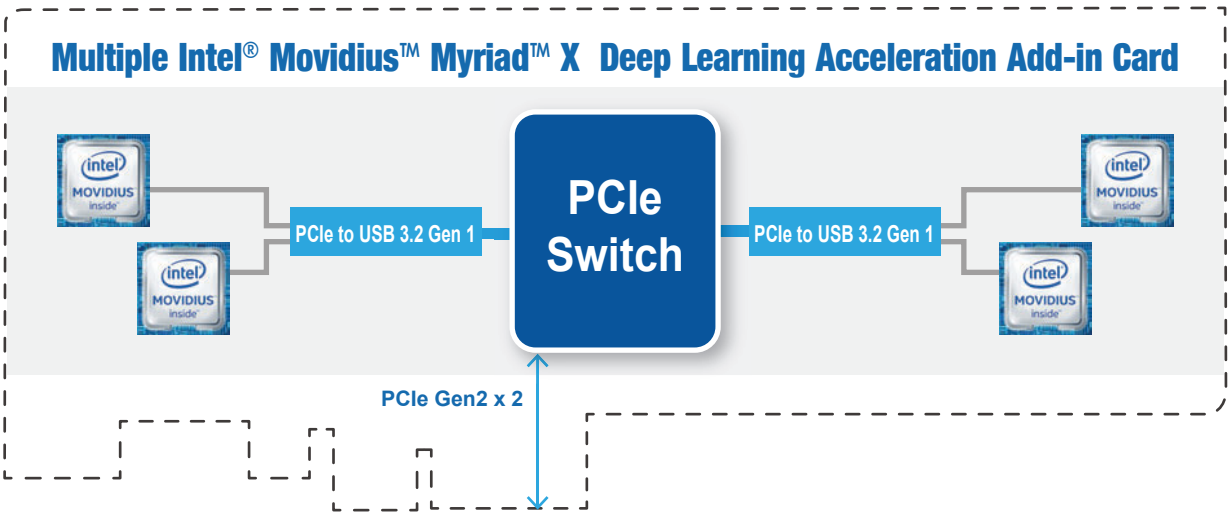
Packing List

1 x Full height bracket

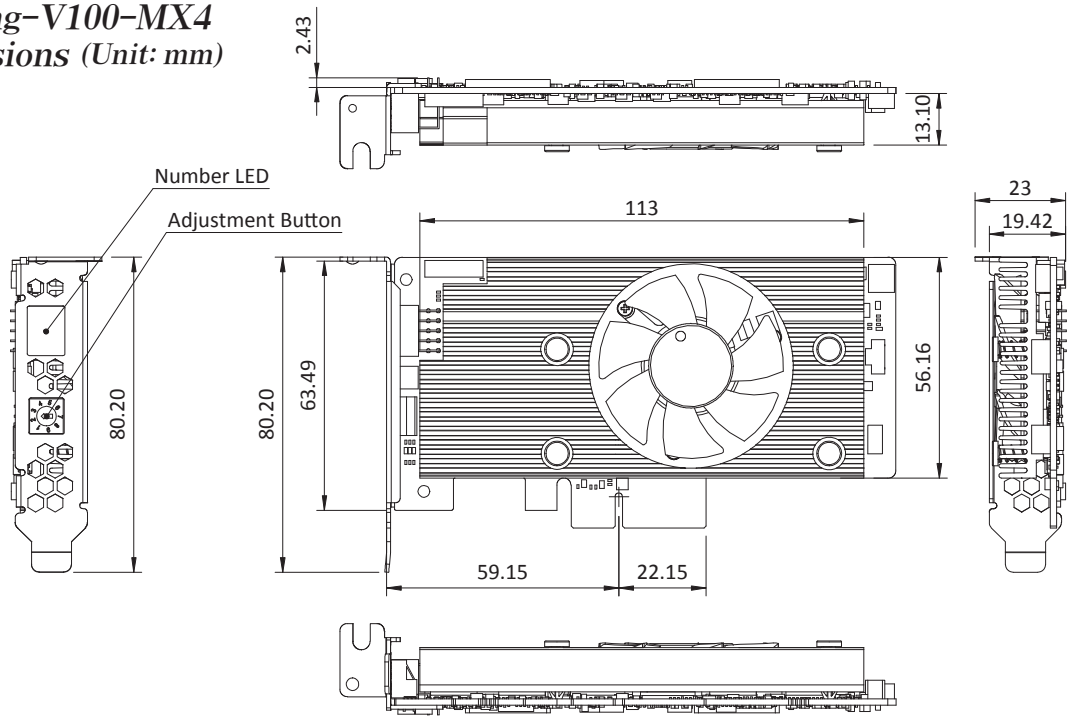
Key Features of Intel® Movidius™ Myriad™ X VPU:

- Native FP16 support
- Rapidly port and deploy neural networks in Caffe and Tensorflow formats
- End-to-End acceleration for many common deep neural networks
- Industry-leading Inferences/S/Watt performance



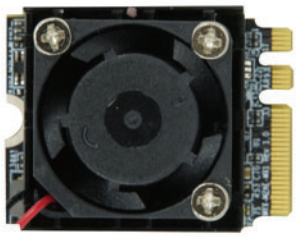


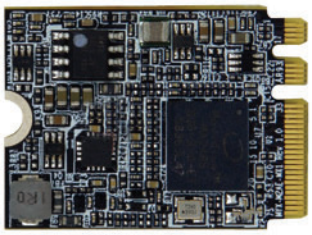
Mustang-V100-MX4
Dimensions (Unit: mm)



Mustang-M2AE-MX1

NEW





Feature

- M.2 AE key form factor (22 x 30 mm)
- 1 x Intel® Movidius™ Myriad™ X VPU MA2485
- Power efficiency, approximate 4.5W
- Operating Temperature -20°C to 60°C
- Powered by Intel's OpenVINO™ toolkit



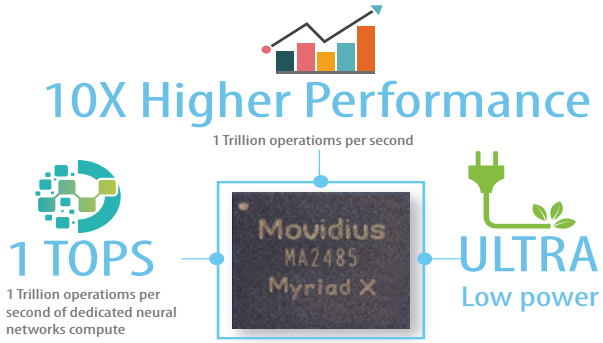
Introduction

The Mustang-M2AE-MX1M.2 AE-key card included one Intel® Movidius™ Myriad™ X VPU, providing an flexible AI inference solution for compact size and embedded systems.

VPU is short for vision processing unit. It can run AI faster, and is well suited for low power consumption applications such as surveillance, retail, transportation. With the advantage of power efficiency and high performance to dedicate DNN topologies, it is perfect to be implemented in AI edge computing device to reduce total power usage, providing longer duty time for the rechargeable edge computing equipment.

Key Features of Intel® Movidius™ Myriad™ X VPU:

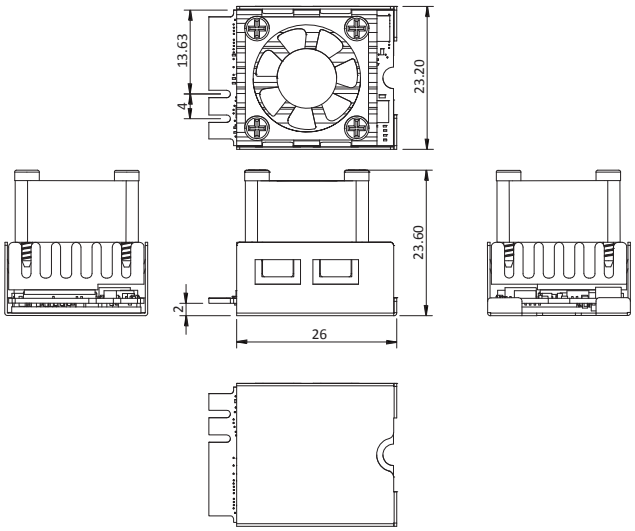
- Native FP16 support
- Rapidly port and deploy neural networks in Caffe and Tensorflow formats
- End-to-End acceleration for many common deep neural networks
- Industry-leading Inferences/S/Watt performance



Specifications

Model Name	Mustang-M2AE-MX1
Main Chip	1 x Intel® Movidius™ Myriad™ X MA2485 VPU
Operating Systems	Ubuntu 18.04.x 16.04.x LTS 64bit, CentOS 7.4 64bit, Windows® 10 64bit
Dataplane Interface	M.2 AE Key
Power Consumption	Approximate 4.5W
Operating Temperature	-20°C to 60°C
Cooling	Active Heatsink
Dimensions	22 x 30 mm
Operating Humidity	5% ~ 90%
Support Topology	AlexNet, GoogleNetV1/V2, MobileNet SSD, MobileNetV1/V2, MTCNN, Squeezenet1.0/1.1, Tiny Yolo V1 & V2, Yolo V2, ResNet-18/50/101 * For more topologies support information please refer to Intel® OpenVINO™ Toolkit official website. [Supported Models] https://docs.openvinotoolkit.org/latest/_docs_IE_DG_Introduction.html#SupportedFW [Supported Framework Layers] https://docs.openvinotoolkit.org/latest/_docs_MO_DG_prepare_model_Supported_Frameworks_Layers.html

Dimensions (Unit: mm)

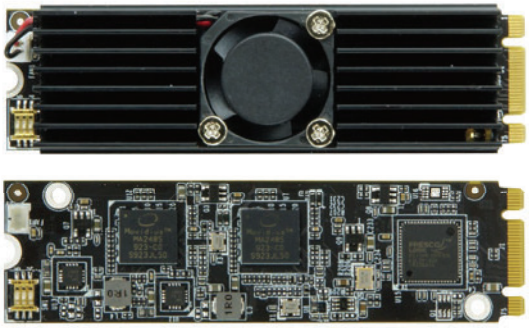


Ordering Information

Part No.	Description
Mustang-M2AE-MX1-R10	Computing Accelerator Card with 1 x Intel® Movidius™ Myriad™ X MA2485 VPU,M.2 AE key interface, 2230, RoHS

Mustang-M2BM-MX2

NEW



Feature

- M.2 BM key form factor (22 x 80 mm)
- 2 x Intel® Movidius™ Myriad™ X VPU MA2485
- Power efficiency, approximate 7W
- Operating Temperature -20°C~60°C
- Powered by Intel's OpenVINO™ toolkit



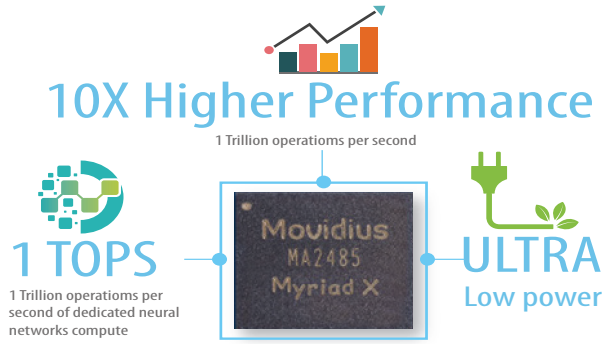
Introduction

The Mustang-M2BM-MX2 card included two Intel® Movidius™ Myriad™ X VPU, providing an flexible AI inference solution for compact size and embedded systems.

VPU is short for vision processing unit. It can run AI faster, and is well suited for low power consumption applications such as surveillance, retail, transportation. With the advantage of power efficiency and high performance to dedicate DNN topologies, it is perfect to be implemented in AI edge computing device to reduce total power usage, providing longer duty time for the rechargeable edge computing equipment.

Key Features of Intel® Movidius™ Myriad™ X VPU:

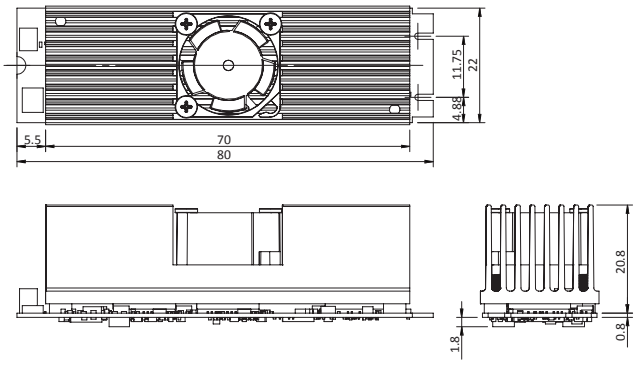
- Native FP16 support
- Rapidly port and deploy neural networks in Caffe and Tensorflow formats
- End-to-End acceleration for many common deep neural networks
- Industry-leading Inferences/S/Watt performance



Specifications

Model Name	Mustang-M2BM-MX2
Main Chip	2x Intel® Movidius™ Myriad™ X MA2485 VPU
Operating Systems	Ubuntu 18.04.x 16.04.x LTS 64bit, CentOS 7.4 64bit, Windows® 10 64bit
Dataplane Interface	M.2 BM Key
Power Consumption	Approximate 7W
Operating Temperature	-20°C~60°C
Cooling	Active Heatsink
Dimensions	22 x 80 mm
Operating Humidity	5% ~ 90%
Support Topology	AlexNet, GoogleNetV1/V2, MobileNet SSD, MobileNetV1/V2, MTCNN, Squeezenet1.0/1.1, Tiny Yolo V1 & V2, Yolo V2, ResNet-18/50/101 * For more topologies support information please refer to Intel® OpenVINO™ Toolkit official website. [Supported Models] https://docs.openvinotoolkit.org/latest/_docs_IE_DG_Introduction.html#SupportedFW [Supported Framework Layers] https://docs.openvinotoolkit.org/latest/_docs_MO_DG_prepare_model_Supported_Frameworks_Layers.html

Dimensions (Unit: mm)



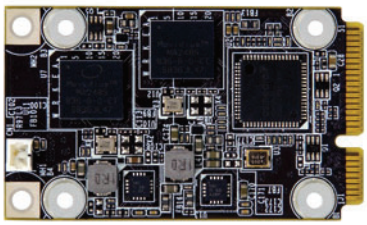
Ordering Information

Part No.	Description
Mustang-M2BM-MX2-R10	Deep learning inference accelerating M.2 BM key card with 2 x Intel® Movidius™ Myriad™ X MA2485 VPU, M.2 interface 22mm x 80mm, RoHS

Mustang-MPCIE-MX2

NEW





Feature

- miniPCIe form factor (30 x 50 mm)
- 2 x Intel® Movidius™ Myriad™ X VPU MA2485
- Power efficiency, approximate 7.5W
- Operating Temperature -20°C~60°C
- Powered by Intel's OpenVINO™ toolkit



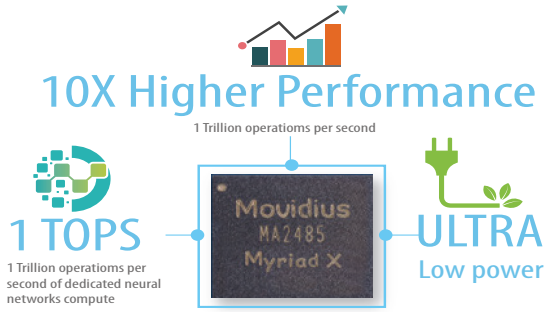
Introduction

The Mustang-MPCIE-MX2 card included two Intel® Movidius™ Myriad™ X VPU, providing an flexible AI inference solution for compact size and embedded systems.

VPU is short for vision processing unit. It can run AI faster, and is well suited for low power consumption applications such as surveillance, retail, transportation. With the advantage of power efficiency and high performance to dedicate DNN topologies, it is perfect to be implemented in AI edge computing device to reduce total power usage, providing longer duty time for the rechargeable edge computing equipment.

Key Features of Intel® Movidius™ Myriad™ X VPU:

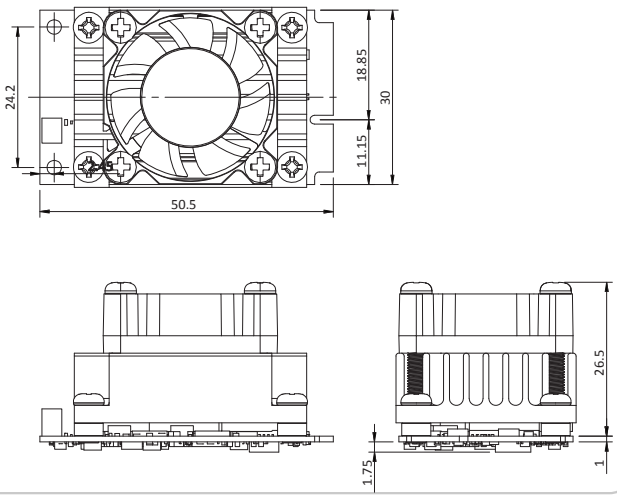
- Native FP16 support
- Rapidly port and deploy neural networks in Caffe and Tensorflow formats
- End-to-End acceleration for many common deep neural networks
- Industry-leading Inferences/S/Watt performance



Specifications

Model Name	Mustang-MPCIE-MX2
Main Chip	2 x Intel® Movidius™ Myriad™ X MA2485 VPU
Operating Systems	Ubuntu 16.04.3 LTS 64bit, CentOS 7.4 64bit, Windows® 10 64bit
Dataplane Interface	miniPCIe
Power Consumption	Approximate 7.5W
Operating Temperature	-20°C~60°C
Cooling	Active Heatsink
Dimensions	30 x 50 mm
Operating Humidity	5% ~ 90%
Support Topology	AlexNet, GoogleNetV1/V2, MobileNet SSD, MobileNetV1/V2, MTCNN, Squeezenet1.0/1.1, Tiny Yolo V1 & V2, Yolo V2, ResNet-18/50/101 * For more topologies support information please refer to Intel® OpenVINO™ Toolkit official website.

Dimensions (Unit: mm)



Ordering Information

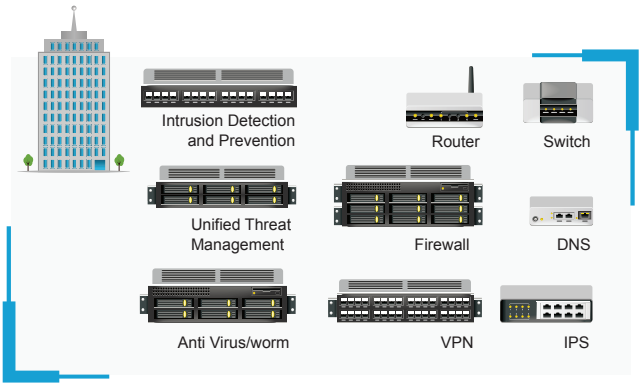
Part No.	Description
Mustang-MPCIE-MX2-R10	Deep learning inference accelerating miniPCIe card with 2 x Intel® Movidius™ Myriad™ X MA2485 VPU, miniPCIe interface 30mm x 50mm, RoHS

IEI PUZZLE Series

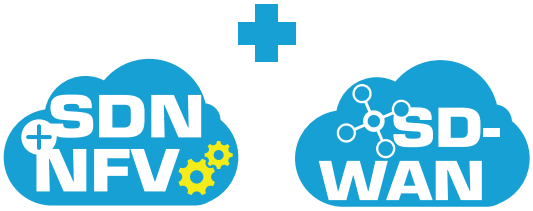


PUZZLE's uCPE Application

In a virtual CPE (vCPE) model, all the network functions can be consolidated using software-based virtual network functions (VNFs) running on top of a single universal CPE (uCPE) appliance. The VNFs may reside inside an on-site hardware device, in an enterprise data center, or in the cloud. Both businesses and service providers can easily operate IEI PUZZLE series.









PUZZLE is Ready for Proprietary Network Appliance



Unified Threat Management (UTM)

Unified threat management or UTM is a single network appliance for all-inclusive security functions, such as network firewall, intrusion detection/prevention system (IDS/IPS), anti-virus gateway, anti-spam gateway, VPN, content filtering, load balancing, data loss prevention and appliance monitoring.

UTM appliances offer cost-effective, all-in-one security ideal for small/medium businesses, remote offices and retail networks.



Intrusion Detection System (IDS)

An intrusion detection system (IDS) is a device that monitors a network or systems for malicious activity or policy violations. Any malicious activity or violation is typically reported either to an administrator or collected centrally using a security information and event management (SIEM) system. A SIEM system combines outputs from multiple sources, and uses alarm filtering techniques to distinguish malicious activity from false alarms.



Application Delivery Controller

An application delivery controller (ADC) is a computer network device to improve the performance of web applications in a data center and it also could be a part of an application delivery network (ADN). In order to deal with the increasing demands of Internet traffic, application delivery controllers (ADC) also provide load balancing, and support multi-tenancy for deployment in data centers and a large number of sessions with a fast transaction rate.



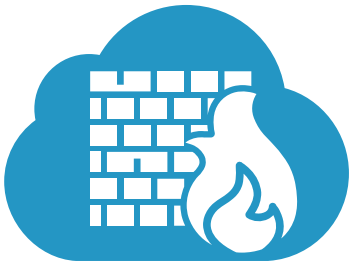
Wireless Gateway

A wireless gateway routes packets from a wireless LAN to another network, wired or wireless WAN. It may be implemented as software or hardware or combination of both. Wireless gateways combine the functions of a wireless access point, a router, and often provide firewall functions as well. They provide network address translation (NAT) functionality, so multiple user can use the internet with a single public IP. It also acts like a dynamic host configuration protocol (DHCP) to assign IPs automatically to devices connected to the network.



WAN Optimization

WAN optimization or WAN acceleration is a collection of techniques to enhance the efficiency of data flow across a wide area network (WAN). The goal of WAN optimization is to speed up the data transfer, to reduce latency and insure bandwidth of access to critical applications and information. The most common industrial WAN connection is from branch to headquarters.



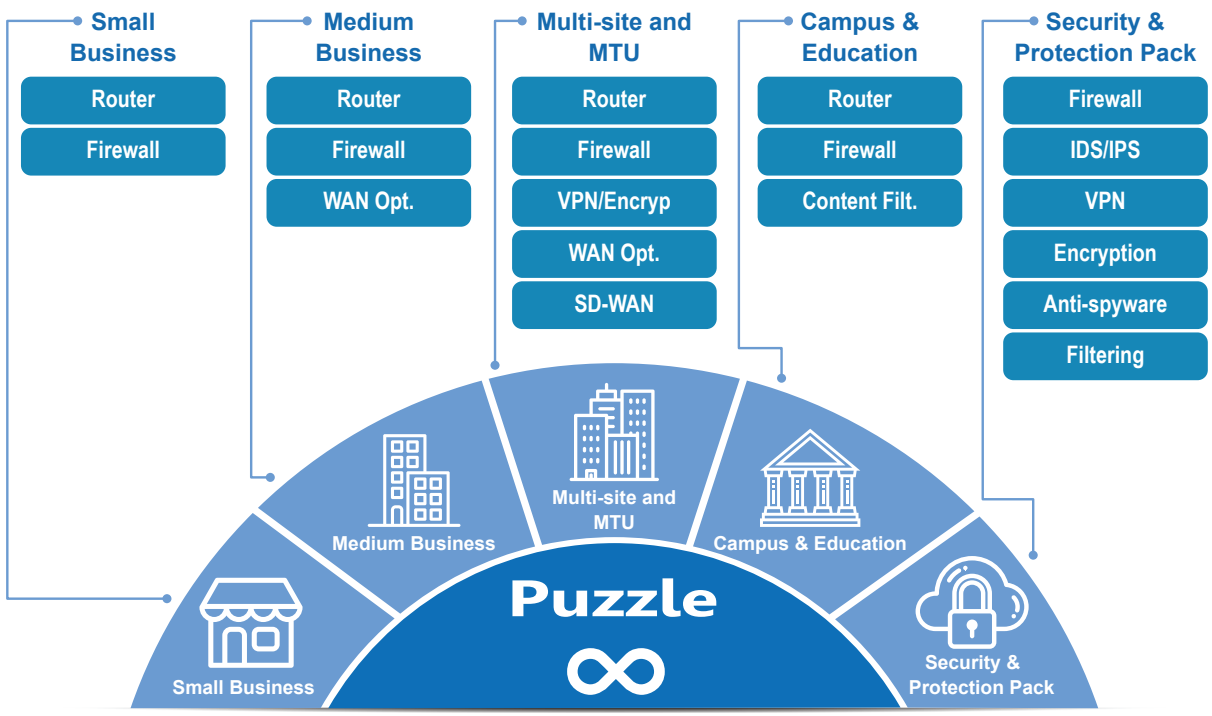
Next Generation Firewall (NGFW)

Both NGFW and traditional firewalls aim to serve the same purpose of protecting an organization's network and data assets, but the most important differences between traditional and next-generation firewalls is that NGFW offer a deep-packet inspection function that goes beyond simple port and protocol inspection by inspecting the data carried in network packets.

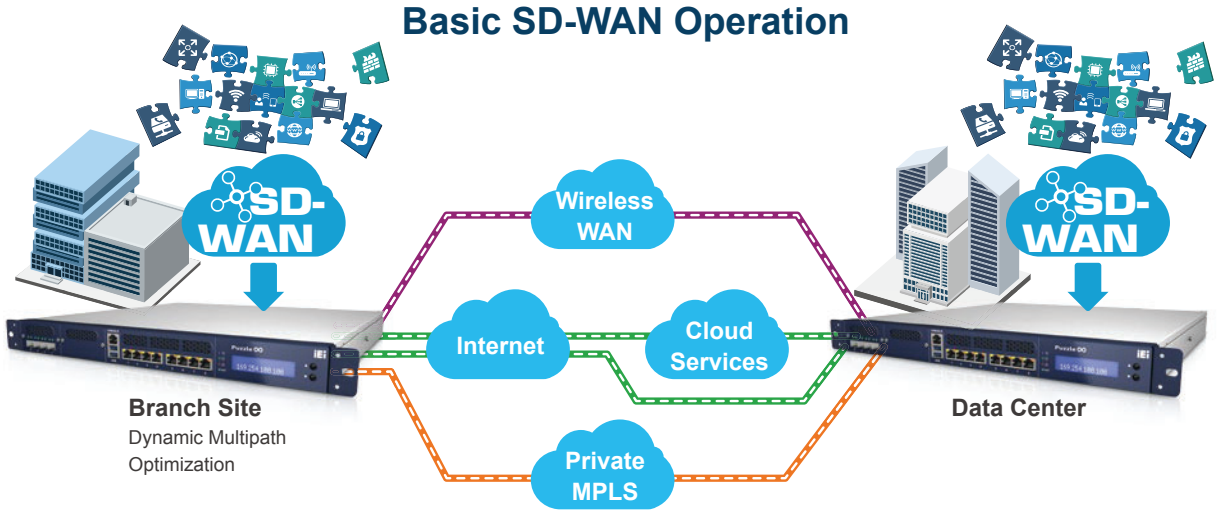
PUZZLE Designed for Every Environment

The PUZZLE series can be used in different environment, from small company to global corporations. Firewall and router are software that is basically used in uCPE, and are ones of the most important software with high usage. Each kind of software is built based on network security and communication system to avoid external attacks. By using SD-WAN (Software-Defined WAN), the problem of insufficient performance and security can be solved at the same time. With simple and easy-to-use programming functions, central device management can be achieved to provide enterprises a full line of protection.

PUZZLE Designed for SMB or Enterprise Application Environment



SD-WAN Application

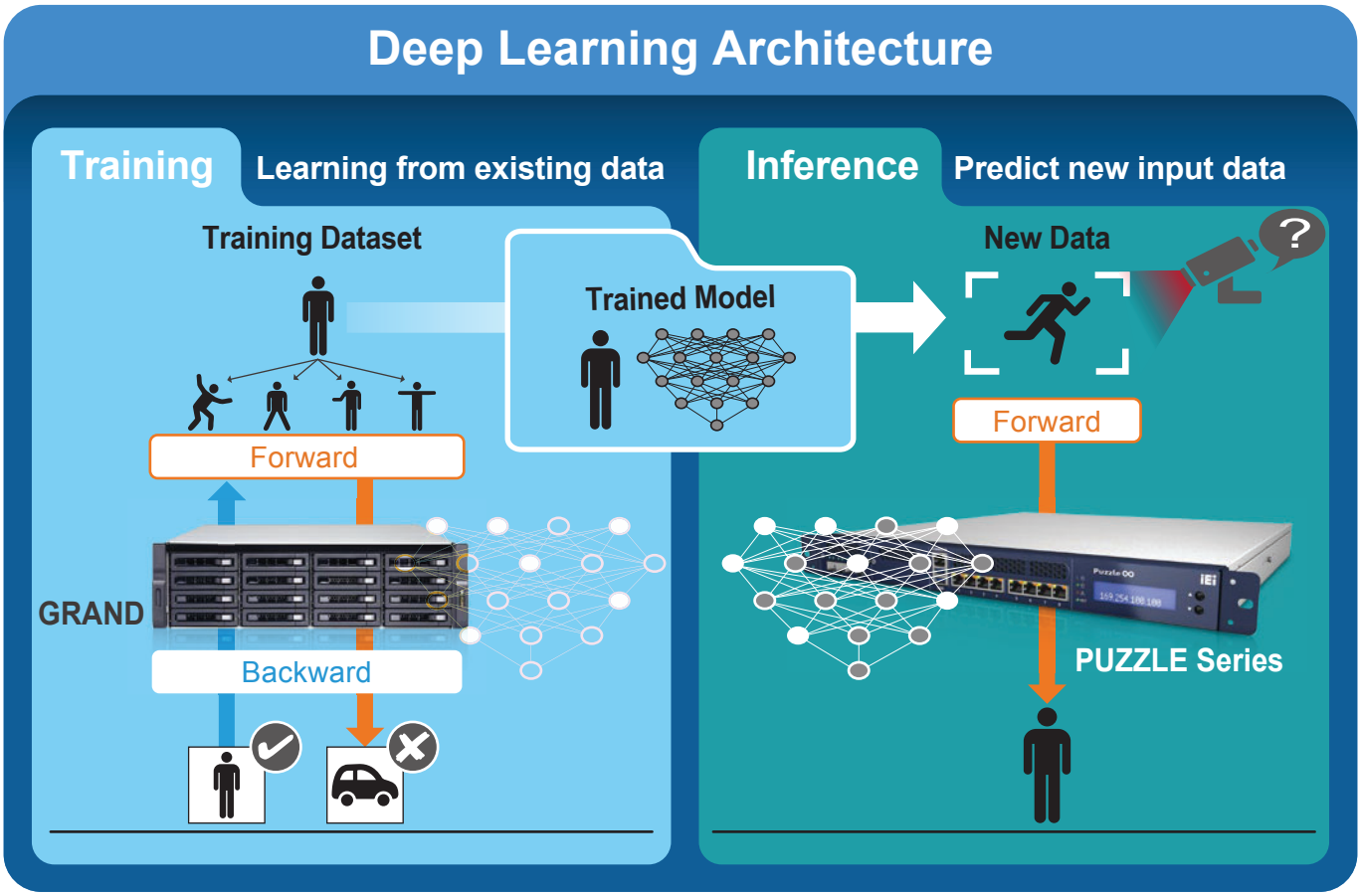


SD-WAN service revenues will see a compound annual growth rate (CAGR) of 69.6% and reach $8.00 billion in 2021

Edge Computing & AI Inference Computing

How Does Deep Learning Work?

Deep learning is a machine learning technique that can learn useful representations of features directly from images, test and sound. There are two phases, training and inference. The training servers designed for AI creates patterns and algorithms from the dataset, and each layer of data is assigned some random weights and your classifier runs a forward pass through the data, predicting the class labels and scores using those weights, after the training model is built, that will be applied into systems that are able to predict the result, this is what inference systems do.



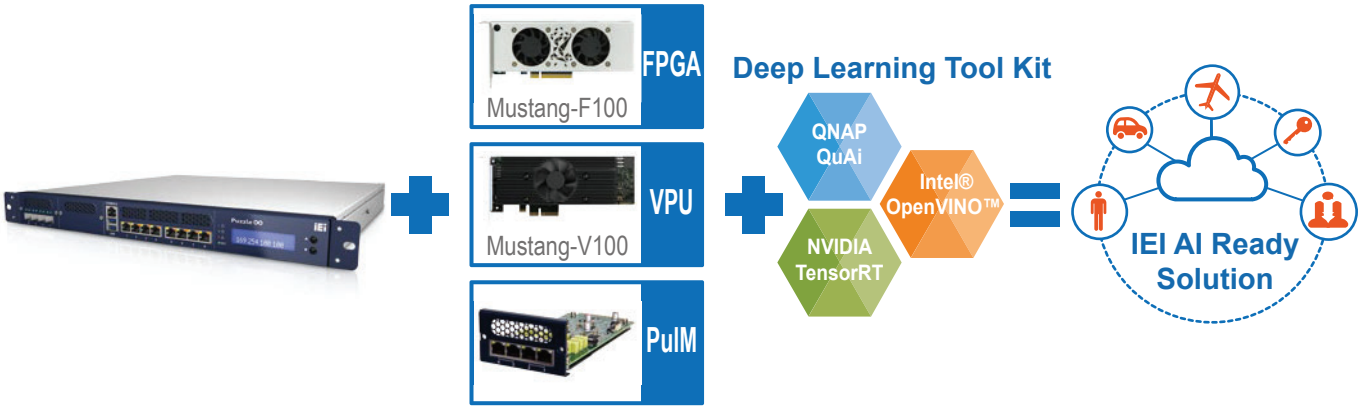
Achieving AI with IEI Deep Learning Solution

The most likely markets to adopt AI technologies will be medicine, biology, media, security, defense and transportation. Each market faces a variety of challenges, for example, transportation traffic flow prediction heavily depends on historical and real-time traffic data collected from various sensor sources, including inductive loops, radars, cameras, etc. It is difficult to find a safe and reliable hardware for the kind of harsh and strict environment.

Therefore, IEI introduces the PUZZLE series which is specifically designed not only for network appliance but also for edge computing and AI inference system, and features modularized, rich interconnectivity, and powerful computing capability. For instance, the PUZZLE-IN001 is equipped with workstation-class Intel® C246 chipset, cutting edge technology, eight GbE ports and two network module slots which support 25GbE, 10GbE interface for transferring huge amount of data. In addition, various add-on card interfaces such as PCIe 3.0 slots, PCIe Mini card slot and M.2 slot are provided for customers to add acceleration cards like VPU, FPGA, GPU cards to increase the computing power. IEI PUZZLE series is perfect to be used as AI inference systems or edge computing systems.

IEI AI Ready Solution Accelerates your AI Initiative

PUZZLE series is an AI hardware ready system ideal for deep learning inference computing to help you get faster, deeper insights into your customers and your business. IEI's PUZZLE series supports graphics cards, Intel FPGA acceleration card, and Intel VPU acceleration card and provides additional computational power and end-to-end solution to help run your tasks more efficiently. With the NVIDIA TensorRT, QNAP QuAI, and Intel OpenVINO AI development toolkit, it helps you deploy your solutions faster than ever.



What is an NFV Orchestration?

Network functions virtualization (NFV) Orchestration (or NFV Orchestration) is used to coordinate the resources and networks needed to set up cloud-based services and applications. This process uses a variety of virtualization software and industry standard hardware. Cloud service providers or global telecom operators use NFV orchestration to quickly deploy services, or virtual network functions (VNFs), using cloud software rather than specialized hardware networks.

With NFV Orchestration technology, we can remotely and quickly deploy VNFs, edge computing software and AI inference trained model into the uCPU-based IEI PUZZLE series products.

Only two steps are needed to create an edge computing or AI inference computing system with the PUZZLE series.



First

Deploy VNFs in the PUZZLE to create network connection ability and security protection.

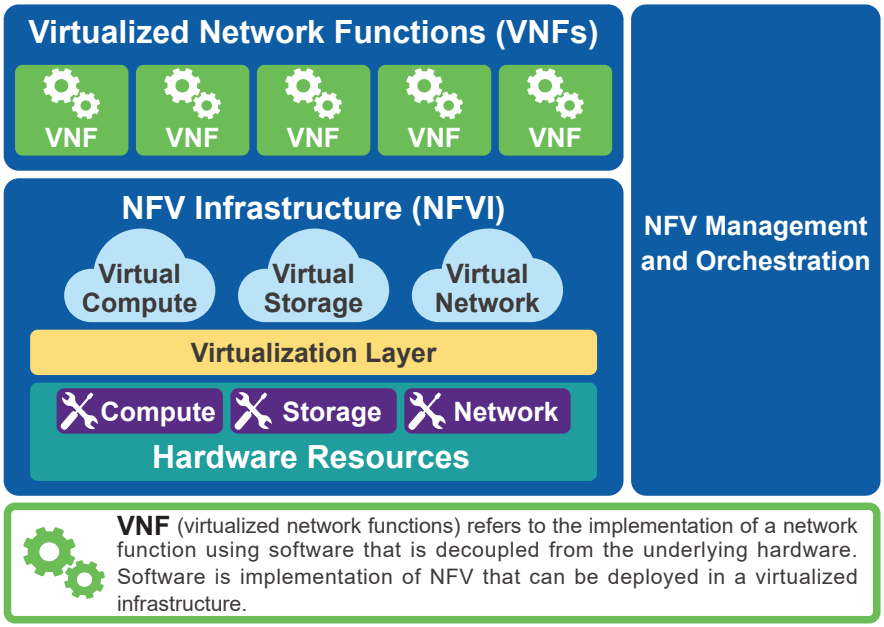
Second

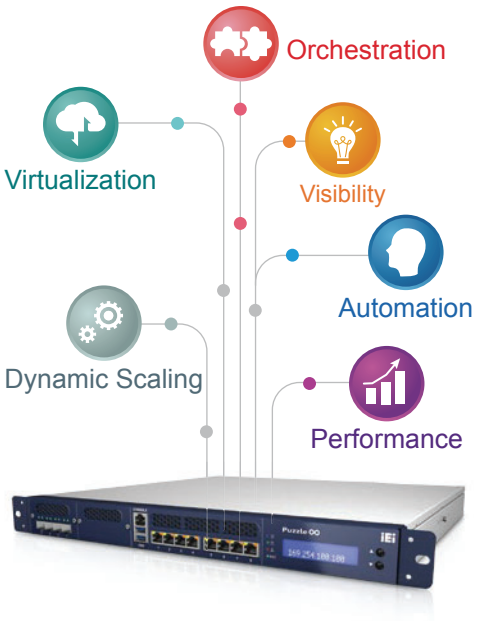
Deploy edge computing software & AI inference trained model to the PUZZLE.

What is NFV?

Advantages of NFV on the PUZZLE's series

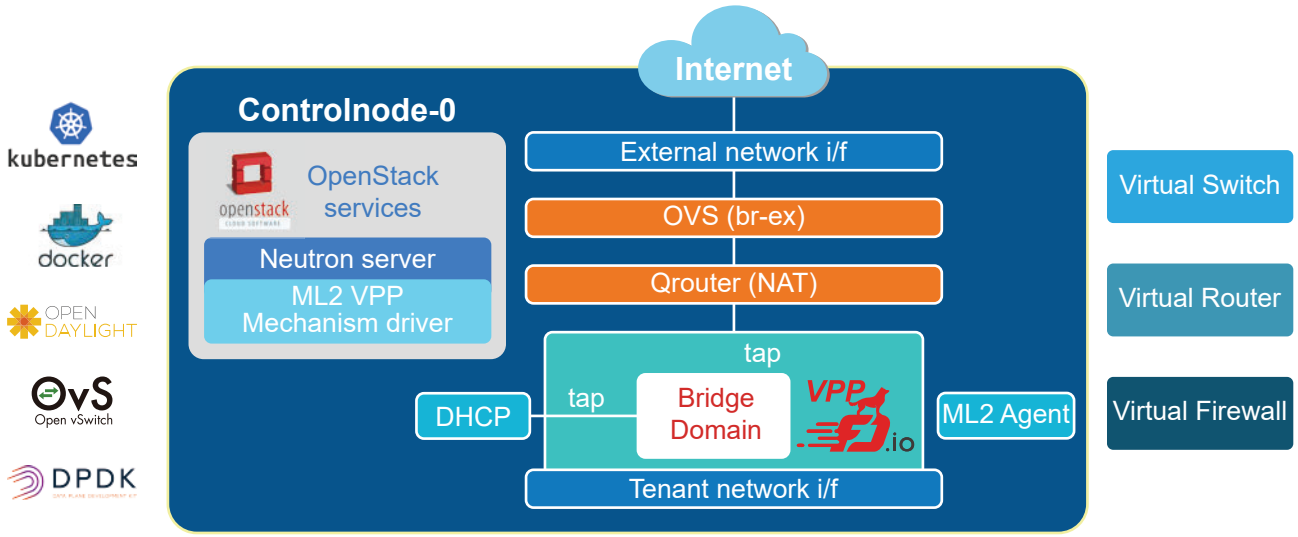
NFV (Network Functions Virtualization) is network architecture concepts that using IT virtualization related technologies, to virtualize entire classes of network node functions into building blocks that may be connected, or chained, together to create communication services. Its purpose is to take your traditional hardware network devices (routers, switches, firewalls, etc.) and deploy them virtually, like computer running as a virtual machine.





Support NFV Technology

IEI uCPEs have been verified with NFV (Network Functions Virtualization) software testing tools based on open source. With the test and verification, IEI uCPEs are ready to implement DPDK (Data Plan Development Kit), OVS (Open vSwitch), or VPP (Vector Packet Processing), which can be installed on OpenStake to create virtual machines and containers. Once the virtual machines and containers are created, it is easy to deploy VNFs (Virtual Network Functions) and to create vFirewall, vRouter, vSwitch, and SD-WAN as needed.



What is SD-WAN?

The software-defined wide-area network (SD-WAN) is a specific application of software-defined networking (SDN) technology. It adds app-layer intelligence and service chaining in WAN connections within enterprise networks, including headquarter, branch offices and data centers. SD-WAN connectivity can be delivered as service using software orchestration.

SD-WAN is appealing because it is a replacement for traditional WAN routers and supports transport technologies like MPLS, Internet, and LTE. SD-WAN also allows load sharing of traffic across multiple WAN connections making it more efficient.

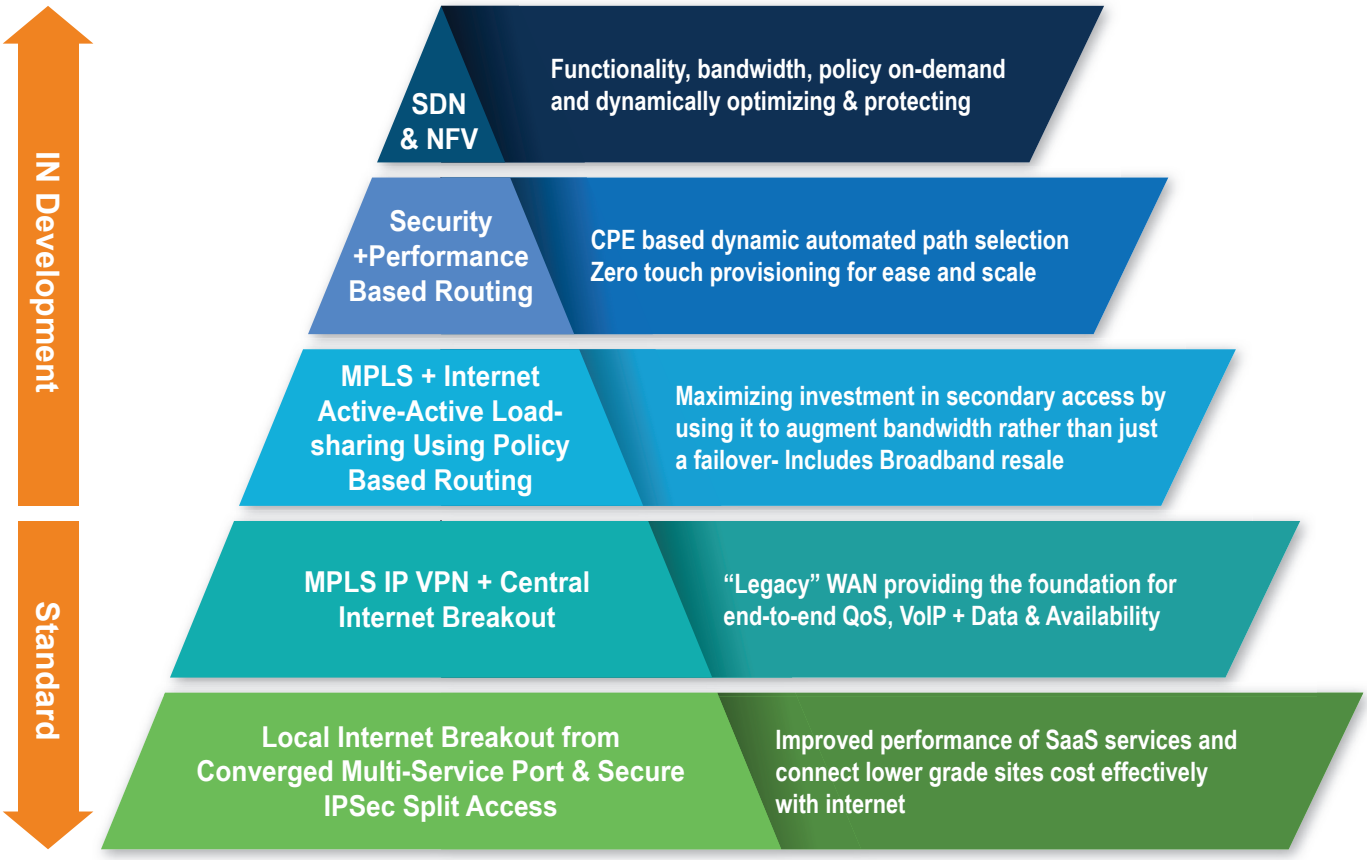
SD-WAN Benefits of PUZZLE's Series

One of the main benefits that most enterprises deploy SD-WAN is that it can reduce their WAN costs by up to 90 percent because it supplements or replaces dedicated private WAN networks, which usually are MPLS, with regular broadband connectivity.

That same cost-benefit can be applied to SD-WAN as a Service. By using this, enterprises can get the flexibility and cost savings of SD-WAN and at the same time minimize the headache of managing the infrastructure and connectivity.

SD-WAN Basic Architecture

The common point between SD-WAN and hybrid WAN is that they both can combine multiple external connections, for example, Internet and wireless network. But the difference between them is SD-WAN allows automated, programmable network management. Thus, traffic can be automatically and dynamically transferred based on network status, security, and service quality requirements.



PUZZLE Software Introduction



PUZZLE Finder Software AP

Use your PC/Laptop as a development environment.

After installing Ubuntu 16.04 on your PUZZLE, you can install the PUZZLE Finder application on your PC/Laptop. PUZZLE Finder can help users quickly develop environment and network applications, and allow them to perform PUZZLE system management, resource monitoring, version maintenance, software installation, software update and gaining information of CPU, memory, Internet, etc.



Easy to Install

The APP center provides the most popular and configured applications.



Eliminate cumbersome installation steps; choose the APP you want to install. The APP can be downloaded and automatically installed. You can immediately enjoy the benefits of the software.

Utilize Virtual Technology, Create Unlimited Value

Docker containerization unlocks the potential for Dev and Ops. Freedom of choice, agile operations and integrated security for legacy and cloud-native applications. Implement Docker Lightweight Micro Services on the IEI PUZZLE.



Installing the Open vSwitch (OVS) can implement domain cutting, QoS, data monitoring, and support openFlow.

Provide a more efficient Linux virtualization solution. Enhance the efficiency of virtualization by enhancing the operating mode of the CPU through QEMU-KVM.

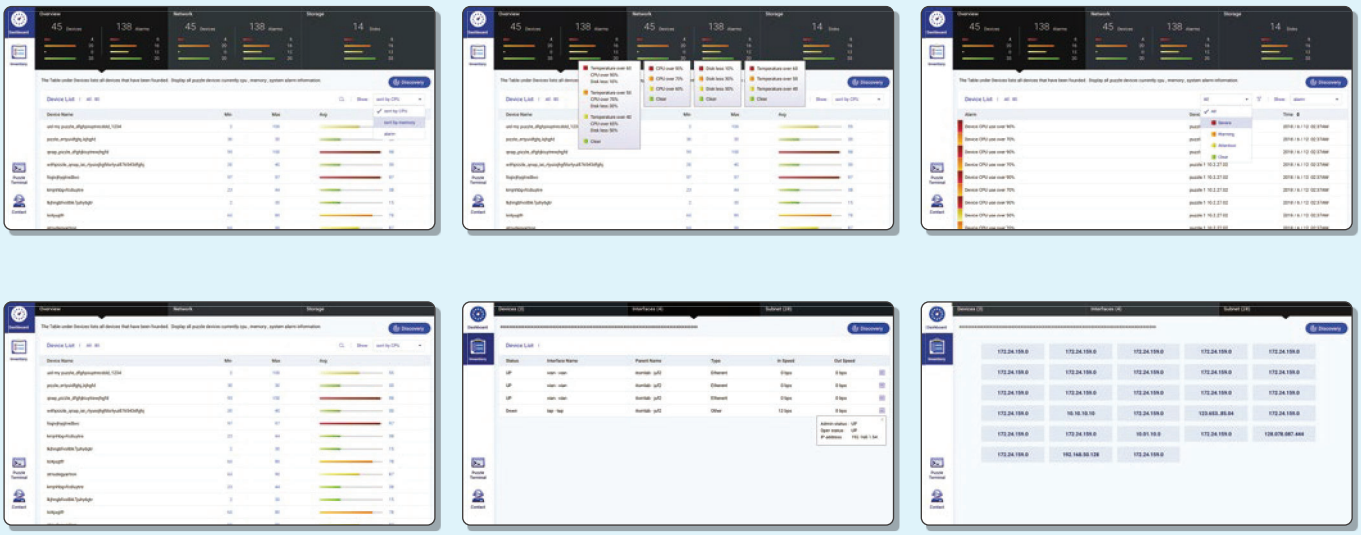
Automate network configuration with Netconf; accelerate network equipment and services in enterprise in order to lower the cost.

Kubernetes is a system that helps us automate the deployment, expansion, and management of containerized applications.

PUZZLE System Status Monitoring

Graphical user interface allows you to easily get an overview of the PUZZLE system and monitor resource status of each PUZZLE system you have.

User Interface



PUZZLE & PuIM Series Introduction



IEI PUZZLE Series for Network Appliances

IEI PUZZLE series includes x86-based and ARM-based product solutions. x86 systems adapt Intel or AMD CPU; ARM-based systems adapt Marvell, NXP or Cavium SoC. Each CPU & SoC has its own advantage for network appliances. For example, Intel is the most popular chip maker and provides complete driver support; AMD provides high performance; ARM-based SoC provides special HW offload for networking function such as packet processor and datapath acceleration.

It is easy to choose the right network appliance or uCPE solution from IEI PUZZLE series.

IEI PUZZLE Series – Processor Options

	X86		ARM		
Brand	**Intel**	**AMD**	**MARVELL**	**NXP**	**CAVIUM**
Platform	Coffee Lake/ Skylake/ Denverton	EPYC 3000 R-Series SoC	Armada 8040 Armada 7040	QorIQ® LS2088	OCTEON CN8300
Advantage	• Most popular • Stability • Complete driver support • Easy to develop	• High core count • High performance • Secure encrypted virtualization • Secure memory encryption	• Quad Cortex-A72 cores • Packet processor • 10GbE integrated • Low cost	• Eight to four Cortex-A72 cores • Packet processor • Datapath acceleration • 10GbE integrated	• Up to 24 Cortex-A72 cores • Packet processor • HW offload for networking • 10GbE integrated • Low cost

IEI PUZZLE Series – Smart NIC Option

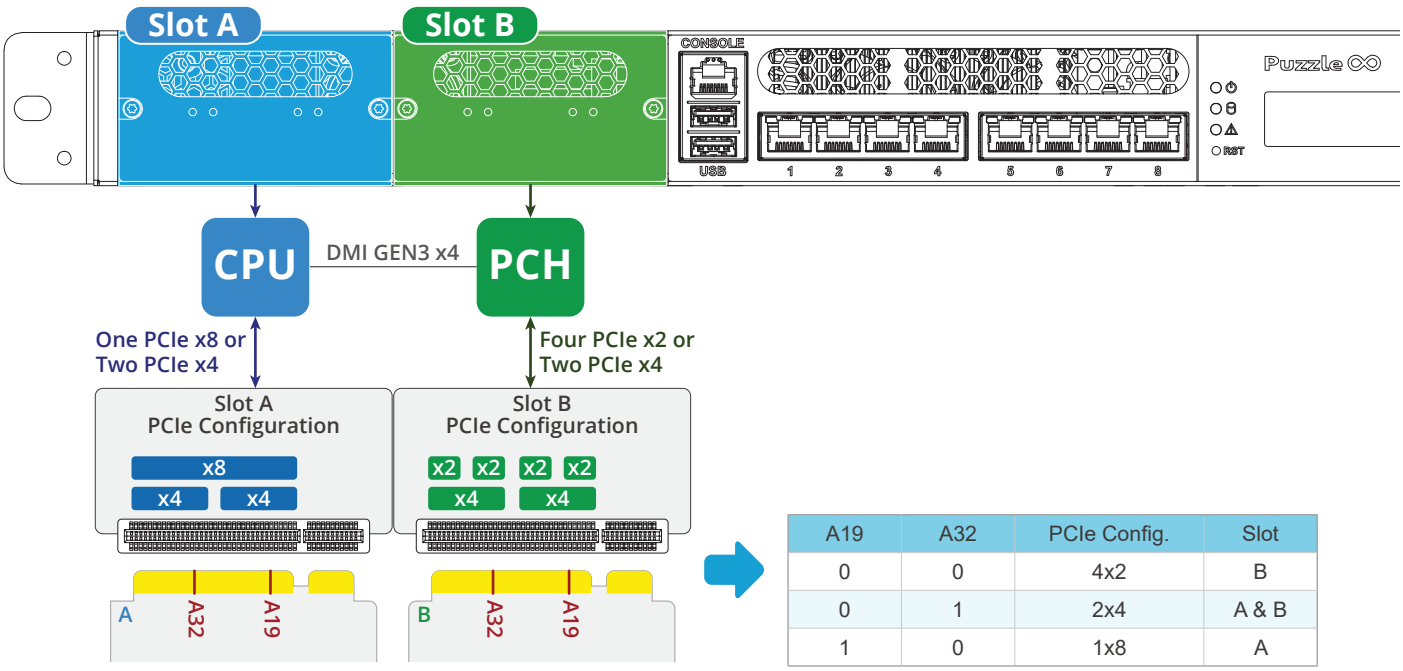


Smart NIC is getting more and more important. It not only increases the performance of system but also provides special functions like virtualization technology and packet processing. It is ideal for users who want to, for instance, build up a network server with virtual machine and provide storage function.

Offload Function		Mellanox	Intel	BROADCOM	AQUANTIA
CPU Offload	LSO	Y	Y	Y	Y
	TSO	Y	Y	Y	
	RSS	Y	Y	Y	Y
	HDS	Y		Y	Y
	MSI-X	Y	Y	Y	Y
Storage Offload	iWARP		Y		
	iSER	Y	Y	Y	
	VEPA		Y	Y	
	NFS RDMA	Y	Y	Y	
	uDAPL	Y		Y	
Virtualization Support	VxLAN	Y	Y	Y	
	NetQueue	Y		Y	
	GENEVE	Y		Y	
	IEEE 802.1Qbg	Y	Y	Y	
	SR-IOV	Y	Y	Y	

Hardware Installation

Install the IEI PulM networking module into the slot of the PUZZLE series. The Slot A supports 8 lanes from CPU (one PCIe x8 or two PCIe x4); the Slot B supports 8 lanes from PCH (two PCIe x4 or four PCIe x2).



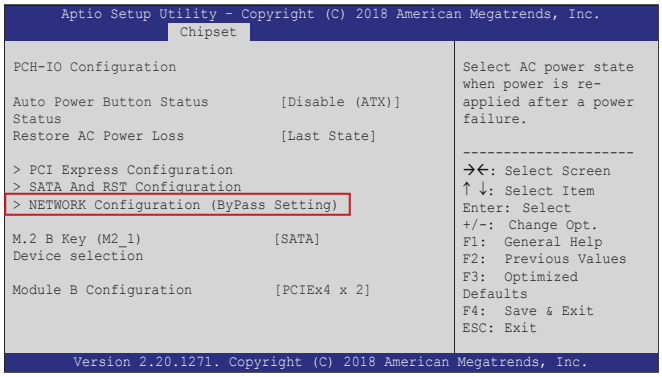
A19	A32	PCIe Config.	Slot
0	0	4x2	B
0	1	2x4	A & B
1	0	1x8	A

Bypass Configuration in BIOS

Some PulM modules support bypass. To enable/disable bypass function, configure the BIOS menu of the PUZZLE series as described below.

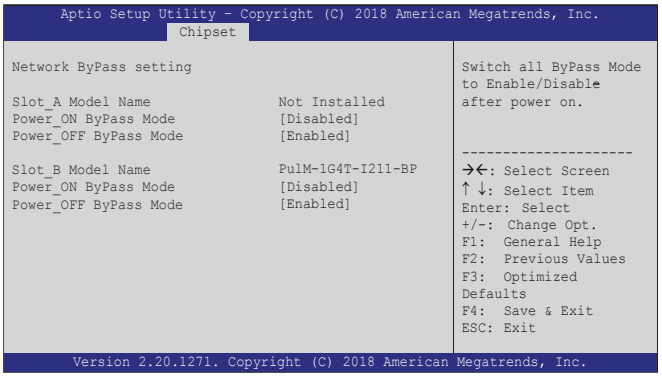
Step 1

Go to Chipset ➔ PCH - IO Configuration ➔ NETWORK Configuration (Bypass Setting)



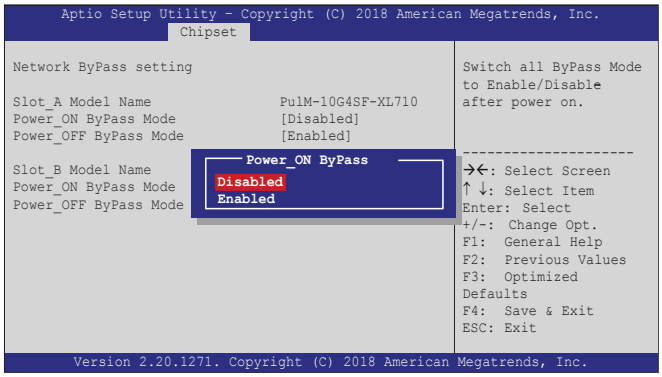
Step 2

The Network ByPass Setting menu appears. The model names of the PulM module installed in the PUZZLE series are shown.



Step 3

Configure the Power_ON ByPass Mode and the Power_OFF ByPass Mode BIOS options to enable/disable bypass function of the installed PulM modules.



PUZZLE System	Power_ON Bypass Mode		Power_OFF Bypass Mode	
BIOS Setting	Disabled	Enabled	Disabled	Enabled
PulM Bypass Modules	Close	Open	Close	Open

Step 4

Press F4 to save and exit the BIOS menu. The PUZZLE series will reboot with the new settings.



PUZZLE Series Selection Guide





		PUZZLE-A001	PUZZLE-A002	PUZZLE-IN001/ PUZZLE-IN001A
Platform	Form Factor	1U	1U	1U
	CPU	AMD EPYC™ Embedded 3201 processor, 8C/8T, up to 3.10 GHz AMD EPYC™ Embedded 3151 processor, 4C/8T, up to 2.90 GHz	AMD R-Series RX-421ND processor, 4C, up to 3.4 GHz	Intel® Xeon® E-2136 Processor, 6C/12T, up to 4.50 GHz 8th Generation Intel® Core™ i3-8100T Processor, 4C/4T, up to 3.10 GHz
	Chipset	Integrated in CPU	Integrated in CPU	Intel® C246
Memory	Memory Technology	4 x DDR4 2666 MHz ECC or non-ECC UDIMM Support RDIMM	2 x DDR4 2400MHz Non-ECC UDIMM	2 x DDR4 2400MHz ECC/Non-ECC UDIMM 4 x DDR4 2400MHz ECC/Non-ECC UDIMM (PUZZLE-IN001A)
	Memory Capacity	UDIMM Up to 64GB RDIMM Up to 128GB	Up to 32GB	Up to 32GB Up to 64GB (PUZZLE-IN001A)
	Memory Socket	4 x 288-pin DIMM	2 x 288-pin DIMM	2 x 288-pin DIMM 4 x 288-pin DIMM (PUZZLE-IN001A)
Network and Security	Network Acceleration and Security Function	• Secure Processor for Crypto Co-processing • Secure Memory Encryption (SME) • Secure Encrypted Virtualization (SEV) • Integrated crypto acceleration supporting the IPsec protocol	• AES-NI encryption acceleration • AMD Secure Processor • Secure boot with AMD Hardware Validated Boot (HVB)	• Intel® AES New Instructions • Intel® Software Guard Extensions (Intel® SGX) • Intel® Memory Protection Extensions (Intel® MPX) • Intel® Trusted Execution Technology
	TPM	1 x TPM 2.0 pin header	1 x TPM 2.0 pin header	1 x TPM 2.0 pin header
Networking	Ethernet IC	1 GbE NIC: Broadcom® BCM5720	1 GbE NIC: Broadcom® BCM5720	1 GbE NIC: Intel® i211-AT 8 x 5GbE NIC : AQC112C (PUZZLE-IN001A)
	Ethernet Port	8 x 1GbE RJ-45 LAN ports 4 x 10GbE SPF+ ports	6 x 1GbE RJ-45 LAN ports	8 x 1GbE RJ-45 LAN ports 8 x 5 GbE RJ-45 LAN ports (PUZZLE-IN001A)
	Network Module Slot	1 x PuIM module slot	N/A	2 x PuIM module slots
Expansion Slot	PCIe Slot	2 x PCIe x4 slots	2 x PCIe x4 slots	1 x PCIe x4 slot, 1 x PCIe x8 slot
	PCIe Mini Card Slot	1 x PCIe Mini card (PCIe, USB 2.0)	1 x PCIe Mini card (PCIe, USB 2.0, Micro SIM slot)	1 x PCIe Mini card (PCIe & SATA, USB 2.0)
	M.2	1 x 3042/2260 M.2 B key (SATA / USB 3.2 Gen1) Support SATA SSD and 4G LTE module	1 x 2230 M.2 A key (PCIe / USB 2.0)	1 x 3042/2260 M.2 B key (SATA / USB 3.2 Gen1) Support SATA SSD and 4G LTE module
Storage	Storage	2 x 2.5" SATA HDD/SSD bay	2 x 2.5" SATA HDD/SSD bay	2 x 2.5" SATA HDD/SSD bay
	eMMC	N/A	8GbE	N/A
	SD Card	N/A	N/A	N/A
External I/O	USB	2 x USB 3.2 Gen 1	2 x USB 3.2 Gen 1	2 x USB 3.2 Gen 1
	Console	1 x RJ-45	1 x RJ-45	1 x RJ-45
Internal I/O	M.2	1 x 3042/2260 M.2 B key (SATA / USB 3.2 Gen1)	1 x 2230 M.2 A key (PCIe / USB 2.0)	1 x 3042/2260 M.2 B key (SATA / USB 3.2 Gen1)
	HDMI	N/A	N/A	1 x HDMI connecter (optional)
	USB	1 x USB USB 3.2 Gen 1 4 x USB 2.0	1 x USB USB 3.2 Gen 1 2 x USB 2.0	4 x USB 2.0 (pin header)
Power and Mechanical	Power Switch	1 x Power Switch	1 x Power Switch	1 x Power Switch
	Reset Button	1 x Reset Button	1 x Reset Button	1 x Reset Button
	Power Input	100 V ~ 240 V	100 V ~ 240 V	100 V ~ 240 V
	Type/Watt	Redundant Power 300W, 90V~264V AC	ATX Power 250W, 90V~264V AC	Redundant Power 300W, 90V~264V AC
	Processor Cooling	1 x Passive CPU Heatsink	1 x Passive CPU Heatsink	1 x Passive CPU Heatsink
	System Cooling	4 x Cooling fans with smart fan	4 x Cooling Fans with Smart Fan	4 x Cooling Fans with Smart Fan
	Antenna Port	1 x Antenna port	1 x Antenna port	1 x Antenna port
Physical and Environmental	Storage Temperature	0 ~ 40°C	0 ~ 40°C	0 ~ 40°C
	Operating Temperature	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)
	Operating Humidity	5% ~ 90% non-condensing	5% ~ 90% non-condensing	5% ~ 90% non-condensing
	Dimensions (W x L x H) (mm)	430 x 426 x 44.2	430 x 320 x 44.2	430 x 426 x 44.2
	Weight	7 kg	5 kg	7 kg
OS and Certifications	Certification	CE / FCC	CE / FCC	CE / FCC
	Operating System	Linux Ubuntu 16.04.04	Linux Ubuntu 16.04.04	Linux Ubuntu 16.04.04
Indicators	LCM	LCM, 2 buttons	LCM, 2 buttons	LCM, 2 buttons
	LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED

PUZZLE Series Selection Guide






		PUZZLE-IN002	PUZZLE-IN003B	PUZZLE-IN004	PUZZLE-M801
Platform	Form Factor	1U	Desktop	1U	1U
	CPU	8th Generation Intel® Core™ i3-8100T Processor, 4C/4T, up to 3.10 GHz Intel® Pentium® Gold G5400T Processor, 2C/4T, up to 3.10 GHz	Intel® Atom® processor C3758 16M cache, up to 2.20 GHz Intel® Atom® processor C3558 8M cache, up to 2.20 GHz	Intel® Xeon® D-2145NT processor 11M cache, 1.90 GHz Intel® Xeon® D-2146NT processor 11M cache, 2.30 GHz Intel® Xeon® D-2166NT processor 16.5M cache, 2.00 GHz Intel® Xeon® D-2187NT processor 22M cache, 2.00 GHz	Marvell® ARMADA® 88F8040 High-Performance CPU System on Chip, 4C, 1.6GHz
	Chipset	Intel® H310	Integrated in CPU	Integrated in CPU	Integrated in CPU
Memory	Memory Technology	2 x DDR4 2400MHz Non-ECC UDIMM	DDR4 2133MHz ECC(By CPU) or non-ECC UDIMM, Support DDR4 RDIMM	DDR4 2666MHz ECC (By CPU) or non-ECC RDIMM	DDR4 2400MHz ECC/Non-ECC/ RDIMM
	Memory Capacity	Up to 32GB	UDIMM up to 64GB RDIMM up to 128GB	UDIMM up to 128GB RDIMM up to 258GB LRDIMM up to 512 GB	Up to 16GB
	Memory Socket	2 x 288-pin DIMM	4 x 288-pin DIMM	8 x 288-pin RDIMM	1 x 288-pin DIMM
Network and Security	Network Acceleration and Security Function	• Intel® AES New Instructions • Intel® Software Guard Extensions (Intel® SGX) • Intel® Memory Protection Extensions (Intel® MPX) • Intel® Trusted Execution Technology	• Intel® AES New Instructions • Intel® Software Guard Extensions (Intel® SGX) • Intel® Virtualization Technology for Directed I/O (VT-d) • Intel® QuickAssist Technology (Intel® QAT)	• Intel® AES New Instructions • Intel® QuickAssist Technology (Intel® QAT) • Intel® Virtualization Technology (Intel® VT) • Intel® Trusted Execution Technology (Intel® TXT)	• Configurable packet processor • HW offload for networking • Acceleration engines for storage, networking and security • Public Key Processor (RSA/DH/ECC) • Secure Storage • Secure boot
	TPM	1 x TPM 2.0 pin header	1 x TPM 2.0 pin header	1 x TPM 2.0 pin header	N/A
Networking	Ethernet IC	1 GbE NIC: Intel® i211-AT	1 GbE NIC: Intel® i211-AT 1 GbE PHY: Marvell 88E1512 10 GbE: Integrated in CPU	1 GbE NIC: Intel® i211-AT	10 GbE PHY: SoC Marvell 88F8040 1 GbE PHY: Marvell 88E1512P
	Ethernet Port	6 x 1GbE RJ-45 LAN ports	2 x 10 GbE SFP+ 6 x 1GbE RJ-45 LAN ports	4 x 10 GbE, SFP+ 8 x 1GbE RJ-45 LAN ports	2 x 10 GbE SFP+ 4 x 1GbE RJ-45 LAN ports
	Network Module Slot	N/A	N/A	1 x PulM module slot	N/A
Expansion Slot	PCIe Slot	1 x PCIe x16 slot	N/A	1 x PCIe x4 slot	1 x PCIe x16 slot (PCIe x2 signal)
	PCIe Mini Card Slot	1 x PCIe Mini card (SATA, USB 2.0) with SIM slot	1 x PCIe Mini (USB 2.0, PCIe x1) with SIM card slot	1 x PCIe Mini (PCIe +USB 2.0) with SIM card	N/A
	M.2	1 x M.2 A key (PCIe & USB 2.0)	1 x M.2 A key (USB 2.0, PCIe x1)	2 x 2260/2280 M key (PCIe x4)	1 x M.2 B Key (3042/2260) (SATA and USB 3.2 Gen 1) Support SATA SSD and 4G LTE module
Storage	Storage	2 x 2.5" SATA HDD/SSD bay	1 x SATA DOM + 1 x SATA power 5V 1 x M.2 M key 2260/2280	2 x 2.5" SATA HDD/SSD bay	1 x 2.5" SATA HDD/SSD
	eMMC	N/A	1 x eMMC 32GB	N/A	32GB
	SD Card	N/A	N/A	N/A	N/A
External I/O	USB	2 x USB 3.2 Gen 1	1 x USB 2.0 1 x USB 3.2 Gen 1	1 x USB 2.0 1 x USB 3.2 Gen 1	2 x USB 3.2 Gen 1
	Console	1 x RJ-45	1 x RJ-45	1 x RJ-45	1 x RJ-45
Internal I/O	M.2	1 x M.2 A key (PCIe & USB 2.0)	1 x M.2 A key (USB 2.0, PCIe x1)	2 x 2260/2280 M key (PCIe x4)	1 x M.2 B key (SATA 6Gb/s & USB 3.2 Gen 1)
	HDMI	1 x HDMI connecter (optional)	N/A	N/A	N/A
	USB	2 x USB 2.0 (pin header)	N/A	1 x USB2.0 QNAP USB DOM	1 x USB 2.0
Power and Mechanical	Power Switch	1 x Power Switch	1 x Power Switch	1 x Power Switch	1 x Power Switch
	Reset Button	1 x Reset Button	1 x Reset Button	1 x Reset Button	1 x Reset Button
	Power Input	100 V ~ 240 V	1 x DC jack	100 V ~ 240 V	100 V ~ 240 V
	Type/Watt	ATX Power 250W, 90V~264V AC	12 V DC-in, 60W	Redundant Power 300W, 90V~264V AC	ATX Power 250W, 90V~264V AC
	Processor Cooling	1 x Passive CPU Heatsink	Passive CPU Heatsink	1 x Passive CPU Heatsink	1 x Active CPU Heatsink with fan
	System Cooling	4 x Cooling Fans with Smart Fan	Two system fans for C3758 sku Fanless for C3558 sku	4 x Cooling fans with smart fan	2 x Cooling Fans with Smart Fan
	Antenna Port	1 x Antenna port	2 for WiFi, 2 for WWAN	1 x Antenna port	1 x Antenna port
Physical and Environmental	Storage Temperature	0 ~ 40°C	0 ~ 40°C	0 ~ 40°C	0 ~ 40°C
	Operating Temperature	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)	0 ~ 40°C (32 ~ 104°F)
	Operating Humidity	5% ~ 90% non-condensing	Relative humidity: 5% ~ 90% non-condensing	Relative humidity: 5% ~ 90% non-condensing	5% ~ 90% non-condensing
	Dimensions (W x L x H) (mm)	430 x 320 x 44.2	225 x 206 x 44.2	430 x 426 x 44.2	430 x 320 x 44.2
	Weight	5 kg	2 kg	7 kg	5 kg
OS and Certifications	Certification	CE / FCC	CE / FCC	CE / FCC	CE / FCC
	Operating System	Linux Ubuntu 16.04.04	Linux 18.04 (CentOS, Red Hat, Ubuntu, etc.)	Linux 18.04 (CentOS, Red Hat, Ubuntu, etc.)	Linux Ubuntu 16.04.04
Indicators	LCM	LCM, 2 buttons	N/A	LCM, 2 buttons	N/A
	LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED	N/A	1 x Power LED, 1 x Storage LED, 1 x Alert LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED

PUZZLE-A001

1U Rackmount Network Appliance with AMD EPYC™ Embedded 3000 series processor, one PulM module slot & 2 PCIe x4 slots



Features

- AMD EPYC™ Embedded 3000 series processor, high-performance System-on-Chip
- Support 8 x GbE RJ-45 via BCM 5720, 4 x 10 GbE SFP+
- 4 x 288-pin DDR4 2666 MHz, UDIMM up to 64GB / RDIMM up to 128GB
- 1 x RJ-45 Console, 2 x USB 3.2 Gen 1 (5Gb/s), LCM
- 2 x 2.5" SATA drive bay, 1 x M.2 B-Key (SATA, USB 3.2 Gen 1 (5Gb/s)), 1 x PCIe Mini card (PCIe, USB 2.0)
- Support two PCIe x4 slots, one PulM module slot
- Redundant PSUs

Specifications

		PUZZLE-A001-SO2	PUZZLE-A001-SO3
Platform	Form Factor	1U	
	CPU	AMD EPYC™ Embedded 3201 processor, 8C/8T, up to 3.10 GHz	AMD EPYC™ Embedded 3151 processor, 4C/8T, up to 2.90 GHz
	Chipset	Integrated in CPU	
Memory	Memory Technology	4 x DDR4 2666 MHz ECC or non-ECC UDIMM Support RDIMM	
	Memory Capacity	UDIMM Up to 64GB / RDIMM Up to 128GB	
	Memory Socket	4 x 288-pin DIMM	
Network and Security	Network Acceleration and Security Function	• Secure Processor for Crypto Co-processing • Secure Memory Encryption (SME) • Secure Encrypted Virtualization (SEV) • Integrated crypto acceleration supporting the IPsec protocol	
	TPM	1 x TPM 2.0 pin header	
Networking	Ethernet IC	1 GbE NIC: Broadcom® BCM5720	
	Ethernet Port	8 x 1GbE RJ-45 LAN ports, 4 x 10 GbE SPF+	
	Network Module Slot	1 x PulM module slot	
Expansion Slot	PCIe Slot	2 x PCIe x4 slot	
	PCIe Mini Card Slot	1 x PCIe Mini card (PCIe, USB 2.0)	
	M.2	1 x 2260/3042 B key (SATA and USB 3.2 Gen 1 (5Gb/s)) Support SATA SSD and 4G LTE module	
Storage	Storage	2 x 2.5" SATA HDD/SSD bay	
	eMMC	N/A	
	SD Card	N/A	
External I/O	USB	2 x USB 3.2 Gen 1 (5Gb/s)	
	Console	1 x RJ-45	
Internal I/O	M.2	1 x 2260/3042 B key (SATA and USB 3.2 Gen 1 (5Gb/s))	
	HDMI	N/A	
	USB	1 x USB 3.2 Gen 1 (5Gb/s) 4 x USB 2.0	
Power and Mechanical	Power Switch	1 x Power switch	
	Reset Button	1 x Reset button	
	Power Input	100 V ~ 240 V	
	Type/Watt	Redundant power 300W	
		90V ~ 264V AC	
	Processor Cooling	1 x Passive CPU heatsink	
	System Cooling	4 x Cooling fans with smart fan	
	Antenna Port	1 x Antenna port	
Physical and Environmental	Storage Temperature	0 ~ 40°C	
	Operating Temperature	0 ~ 40°C (32 ~ 104°F)	
	Operating Humidity	5% ~ 90% non-condensing	
	Dimensions (W x L x H) (mm)	430 x 426 x 44.2	
	Weight	7kg	
OS and Certifications	Certification	CE / FCC	
	Operating System	Linux Ubuntu 18.04.04	
Indicators	LCM	LCM, 2 buttons	
	LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED	

Ordering Information

Part No.	Description
PUZZLE-A001-SO2/16G/R-R10	1U Rackmount Network Appliance with AMD EPYC™ Embedded 3201 processor, 16GB DDR4, two 256GB SSD, four 10 GbE SFP+, eight 1GbE, one PuIM module slot, two PCIe expansion, Redundant Power, RoHS
PUZZLE-A001-SO3/16G/R-R10	1U Rackmount Network Appliance with AMD EPYC™ Embedded 3151 processor, 16GB DDR4, two 256GB SSD, four 10 GbE SFP+, eight 1GbE, one PuIM module slot, two PCIe expansion, Redundant Power, RoHS

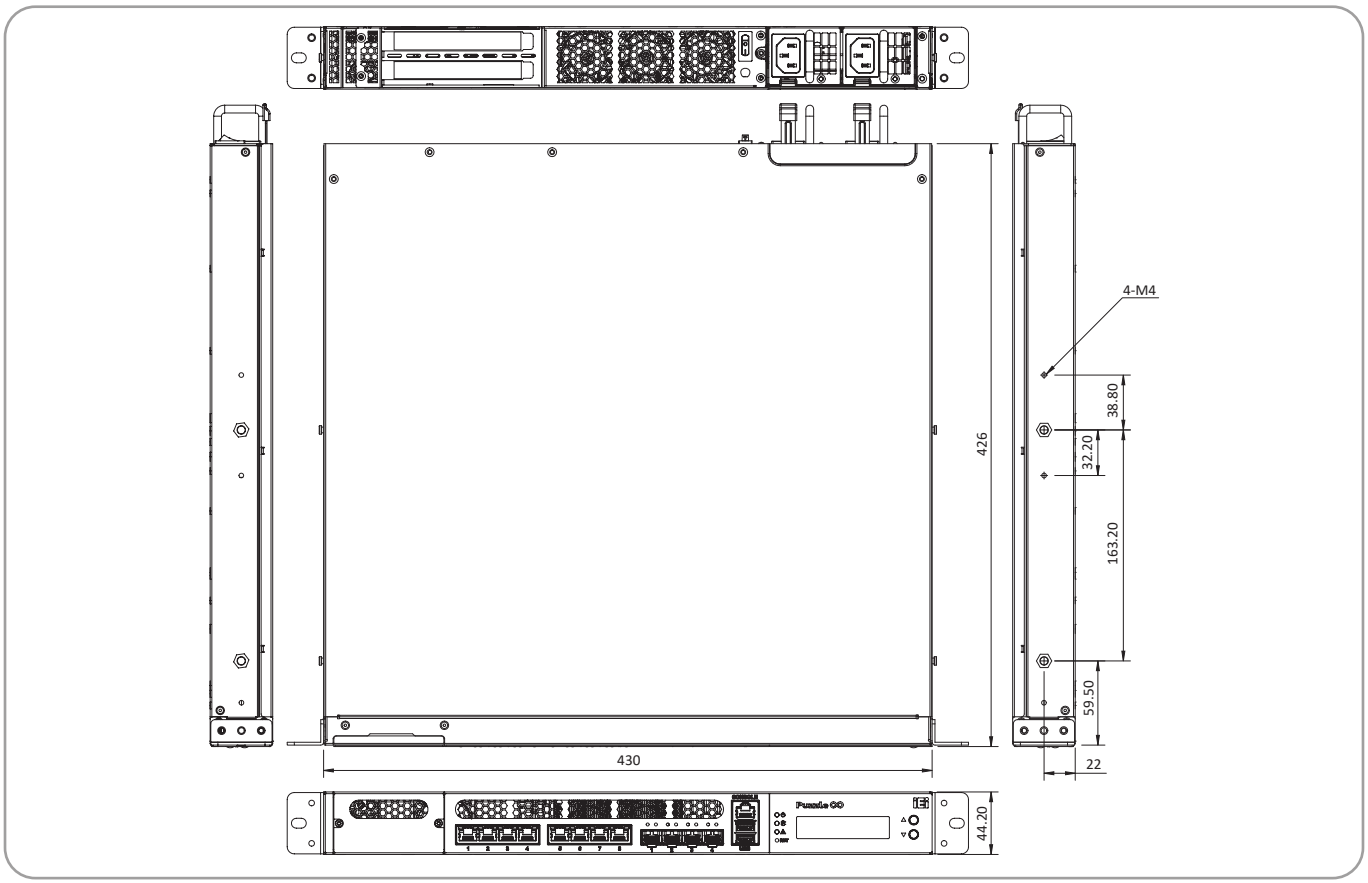
Packing List

	PUZZLE-A001-SO2/16G/R	PUZZLE-A001-SO3/16G/R
Power cord	2	2
Rack mounting ears	2	2
Screws for rack mounting ears	6	6
USB to console cable	1	1
RS-232 to console cable	Option	Option
Slide rail	Option	Option

Options

Item	Part No.	Description
Slide rail	RAIL-B02	New rail kit for new 1U & 2U NAS: TVS-471U, 1253U, etc
USB to console cable	32013-004000-100-RS	ROUND CABLE; LAN CABLE; FTDI Console Cable; 2; 1800MM; (A)USB A TYPE 4P MALE+PCB:FTDI_FT232RL; (B)RJ-45 8P8C; RoHS
RS-232 to console cable	32005-005100-100-RS	ROUND CABLE; RS-232/422/485; PUZZLE RS-232 Cable; 2; 500MM; 24AWG; (A)D-SUB 9P MALE+#4-40 Screw; (B)RJ-45 PLUG 8P8C; ONE PCS PKG; TC&C; RoHS

Dimensions *(Unit: mm)*



PUZZLE-A002

1U Rackmount Network Appliance with AMD R-Series RX-421ND Processor, Support Six GbE RJ-45



Features

- AMD R-Series RX-421ND quad-core 2.1 GHz processor
- 2 x DDR4 2400MHz Non-ECC UDIMM, up to 32 GB
- Support six GbE RJ-45 via BROADCOM BCM 5720
- 1 x RJ-45 Console, 2 x USB 3.2 Gen 1 (5Gb/s), 2 x USB 2.0, LCM
- 1 x PCIe x8, 2 x 2.5" SATA drive bay, 1 x PCIe Mini, 1 x SD slot
- Support two PCIe x4

Specifications

		PUZZLE-A002
Platform	Form Factor	1U
	CPU	AMD R-Series RX-421ND processor, 4C, up to 3.4 GHz
	Chipset	Integrated in CPU
Memory	Memory Technology	2 x DDR4 2400MHz ECC/Non-ECC/RDIMM
	Memory Capacity	Up to 32GB
	Memory Socket	2 x 288-pin DIMM
Network and Security	Network acceleration and Security function	• AES-NI encryption acceleration • AMD Secure Processor • Secure boot with AMD Hardware Validated Boot (HVB)
	TPM	1 x TPM 2.0 pin header
Networking	Ethernet IC	1 GbE NIC: Broadcom® BCM5720
	Ethernet Port	6 x 1GbE RJ-45 LAN ports
	Network Module Slot	N/A
Expansion Slot	PCIe Slot	2 x PCIe x4 slot
	PCIe Mini Card Slot	1 x PCIe Mini card (PCIe, USB 2.0, Micro SIM slot)
	M.2	1 x 2230 A key (PCIe & USB 2.0)
Storage	Storage	2 x 2.5" SATA HDD/SSD bay
	eMMC	8GbE
	SD Card	N/A
External I/O	USB	2 x USB 3.2 Gen 1 (5Gb/s)
	Console	1 x RJ-45
Internal I/O	M.2	1 x 2230 A key (PCIe & USB 2.0)
	HDMI	N/A
	USB	1 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0
Power and Mechanical	Power Switch	1 x Power switch
	Reset Button	1 x Reset button
	Power Input	100 V ~ 240 V
	Type/Watt	ATX power 250W 90V~264V AC
	Processor Cooling	1 x Passive CPU heatsink
	System Cooling	4 x Cooling fans with smart fan
	Antenna Port	1 x Antenna port
Physical and Environmental	Storage Temperature	0 ~ 40°C
	Operating Temperature	0 ~ 40°C (32 ~ 104°F)
	Operating Humidity	5% ~ 90% non-condensing
	Dimensions (W x L x H) (mm)	430 x 320 x 44.2
	Weight	5kg
OS and Certifications	Certification	CE / FCC
	Operating System	Linux Ubuntu 16.04.04
Indicators	LCM	LCM, 2 buttons
	LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED

Ordering Information

Part No.	Description
PUZZLE-A002-MF1-R10	1U Rackmount Network Appliance with AMD® RX-421ND processor, two DDR4 slots, and six 1GbE, two PCIe x4 expansion, RoHS
PUZZLE-A002-MF1/8G-R10	1U Rackmount Network Appliance with AMD® RX-421ND processor, 8GB DDR4, one 256GB SSD, six 1GbE, two PCIe x4 expansion, RoHS

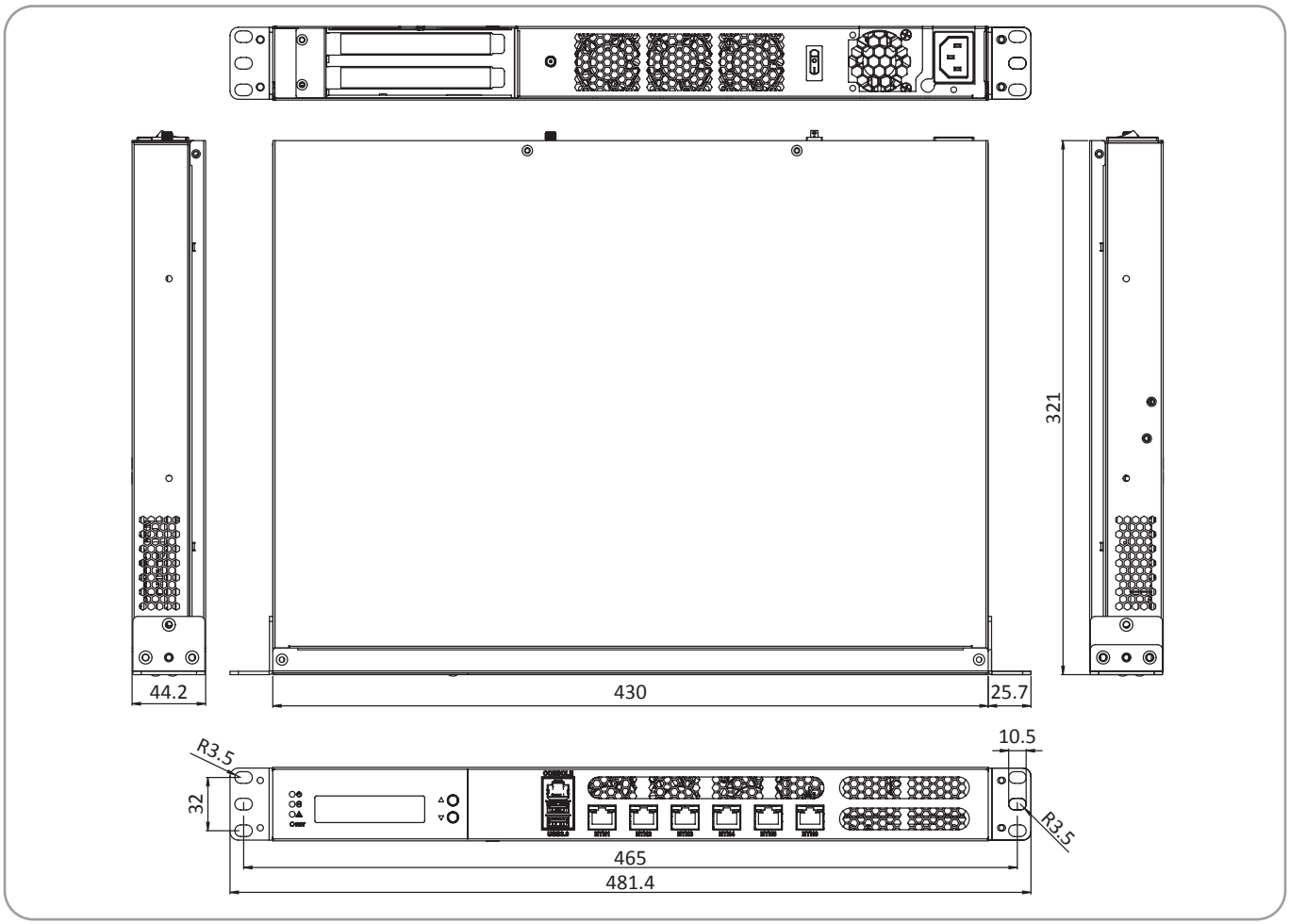
Packing List

	PUZZLE-A002-MF1	PUZZLE-A002-MF1/8G
Power cord	1	1
Rack mounting ears	2	2
Screws for rack mounting ears	6	6
USB to console cable	Option	1
RS-232 to console cable	1	Option
Slide rail	Option	Option

Options

Item	Part No.	Description
USB to console cable	32013-004000-100-RS	ROUND CABLE; LAN CABLE; FTDI Console Cable; 2; 1800MM; (A)USB A TYPE 4P MALE+PCB:FTDI_FT232RL; (B)RJ-45 8P8C; RoHS
RS-232 to console cable	32005-005100-100-RS	ROUND CABLE; RS-232/422/485; PUZZLE RS-232 Cable; 2; 500MM; 24AWG; (A) D-SUB 9P MALE+#4-40 Screw; (B)RJ-45 PLUG 8P8C; ONE PCS PKG; TC&C; RoHS

Dimensions *(Unit: mm)*



PUZZLE-IN001

1U Rackmount Network Appliance with Intel® Xeon® E and 8th Generation Intel® Core™ i3/Pentium®/Celeron® Processor, two PulM module slots and two PCIe slots



Features

- Intel® Xeon® E, 8th Generation Intel® Core™/Pentium®/ Celeron® processor
- 8 x GbE RJ-45 via Intel® I211
- 2 x 288-pin DIMM, DDR4 2400MHz ECC & non ECC, up to 32GB
- 1 x RJ-45 Console, 2 x USB 3.2 Gen 1 (5Gb/s), LCM
- 2 x 2.5” SATA drive bay, 1 x M.2 B-Key (SATA, USB 3.2 Gen 1 (5Gb/s)), 1 x PCIe Mini
- Support PCIe x4, PCIe x8 slot and two PulM module slots
- Redundant PSUs

Specifications

		PUZZLE-IN001-XE	PUZZLE-IN001-i3T
Platform	Form Factor	1U	
	CPU	Intel® Xeon® E-2136 processor, 6C/12T, up to 4.50 GHz	8th Generation Intel® Core™ i3-8100T processor, 4C/4T, up to 3.10 GHz
	Chipset	Intel® C246	
Memory	Memory Technology	2 x DDR4 2400MHz ECC/Non-ECC/RDIMM	
	Memory Capacity	Up to 32GB	
	Memory Socket	2 x 288-pin DIMM	
Network and Security	Network Acceleration and Security Function	• Intel® AES New Instructions • Intel® Software Guard Extensions (Intel® SGX) • Intel® Memory Protection Extensions (Intel® MPX) • Intel® Trusted Execution Technology	
	TPM	1 x TPM 2.0 pin header	
Networking	Ethernet IC	1 GbE NIC: Intel® I211-AT	
	Ethernet Port	8 x 1GbE RJ-45 LAN ports	
	Network Module Slot	2 x PulM module slots	
Expansion Slot	PCIe Slot	1 x PCIe x4 slot, 1 x PCIe x8 slot	
	PCIe Mini Card Slot	1 x PCIe Mini card (PCIe & SATA, USB 2.0)	
	M.2	1 x 2260/2280 B Key (SATA and USB 3.2 Gen 1) Support SATA SSD and 4G LTE module	
Storage	Storage	2 x 2.5" SATA HDD/SSD bay	
	eMMC	N/A	
	SD Card	N/A	
External I/O	USB	2 x USB 3.2 Gen 1 (5Gb/s)	
	Console	1 x RJ-45	
Internal I/O	HDMI	1 x HDMI connecter (optional)	
	USB	4 x USB 2.0 (pin header)	
Power and Mechanical	Power Switch	1 x Power switch	
	Reset Button	1 x Reset button	
	Power Input	100 V ~ 240 V	
	Type/Watt	Redundant power 300W	
		90V ~ 264V AC	
	Processor Cooling	1 x Passive CPU heatsink	
	System Cooling	4 x Cooling fans with smart fan	
	Antenna Port	1 x Antenna port	
Physical and Environmental	Storage Temperature	0 ~ 40°C	
	Operating Temperature	0 ~ 40°C (32 ~ 104°F)	
	Operating Humidity	5% ~ 90% non-condensing	
	Dimensions (W x L x H) (mm)	430 x 426 x 44.2	
	Weight	7kg	
OS and Certifications	Certification	CE / FCC	
	Operating System	Linux Ubuntu 16.04.04	
Indicators	LCM	LCM, 2 buttons	
	LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED	

Ordering Information

Part No.	Description
PUZZLE-IN001-XE/R-R10	1U Rackmount Network Appliance with Intel® Gen8 Xeon® E-2136 processor, two DDR4 slots, and eight 1GbE, two PulM module slots, two PCIe expansion, Redundant Power, RoHS
PUZZLE-IN001-i3T/R-R10	1U Rackmount Network Appliance with Intel® Gen8 Core™ i3-8100T processor, two DDR4 slots, and eight 1GbE, two PulM module slots, two PCIe expansion, Redundant Power, RoHS
PUZZLE-IN001-XE/16G/R-R10	1U Rackmount Network Appliance with Intel® Gen8 Xeon® E-2136 processor, 16GB DDR4, two 256GB SSD, and eight 1GbE, two PulM module slots, two PCIe expansion, Redundant Power, RoHS
PUZZLE-IN001-i3T/16G/R-R10	1U Rackmount Network Appliance with Intel® Gen8 Core™ i3-8100T processor, 16GB DDR4, two 256GB SSD, and eight 1GbE, two PulM module slots, two PCIe expansion, Redundant Power, RoHS

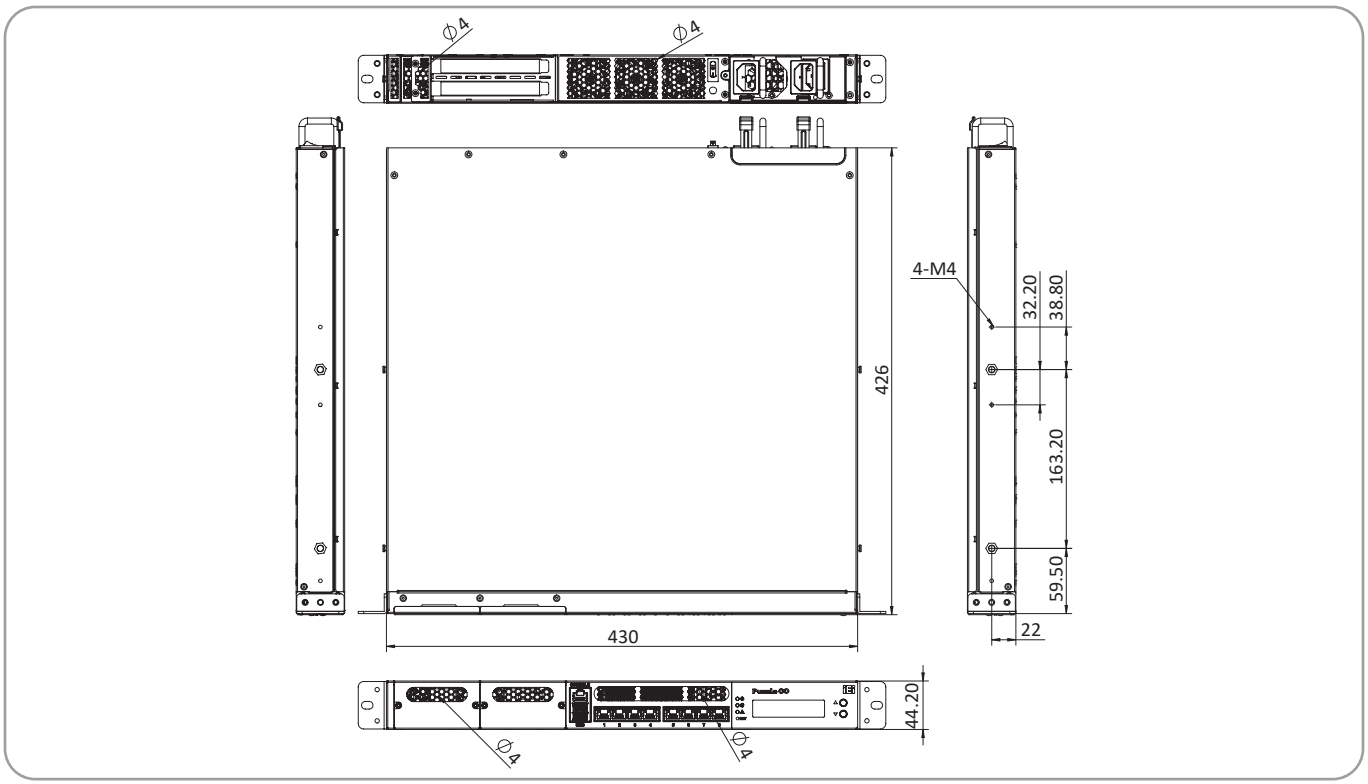
Packing List

	PUZZLE-IN001-XE/R	PUZZLE-IN001-i3T/R	PUZZLE-IN001-XE/16G/R	PUZZLE-IN001-i3T/16G/R
Power cord	2	2	2	2
Rack mounting ears	2	2	2	2
Screws for rack mounting ears	6	6	6	6
USB to console cable	Option	Option	1	1
RS-232 to console cable	1	1	Option	Option
Slide rail	Option	Option	Option	Option

Options

Item	Part No.	Description
Slide rail	RAIL-B02	New rail kit for new 1U & 2U NAS: TVS-471U, 1253U, etc
USB to console cable	32013-004000-100-RS	ROUND CABLE; LAN CABLE; FTDI Console Cable; 2; 1800MM; (A)USB A TYPE 4P MALE+PCB:FTDI_FT232RL; (B)RJ-45 8P8C; RoHS
RS-232 to console cable	32005-005100-100-RS	ROUND CABLE; RS-232/422/485; PUZZLE RS-232 Cable; 2; 500MM; 24AWG; (A) D-SUB 9P MALE+#4-40 Screw; (B)RJ-45 PLUG 8P8C; ONE PCS PKG; TC&C; RoHS

Dimensions *(Unit: mm)*



PUZZLE-IN001A

1U Rackmount Network Appliance with Intel® Xeon® E and 8th Generation Intel® Core™ i3/Pentium®/Celeron® Processor, two PulM module slots and two PCIe slots



Features

- Intel® Xeon® E, 8th Generation Intel® Core™/Pentium®/ Celeron® processor
- 8 x 5 GbE RJ-45 via AQC 112C
- 4 x 288-pin DIMM, DDR4 2400MHz ECC & non ECC, up to 64 GB
- 1 x RJ-45 Console, 2 x USB 3.2 Gen 1 (5Gb/s), LCM
- 2 x 2.5” SATA drive bay, 1 x M.2 B-Key (SATA, USB 3.2 Gen 1 (5Gb/s)), 1 x PCIe Mini
- Support PCIe x4, PCIe x8 slot and two PulM module slots
- Redundant PSUs

Specifications

		PUZZLE-IN001A-XE	PUZZLE-IN001A-i3T
Platform	Form Factor	1U	
	CPU	Intel® Xeon® E-2136 processor, 6C/12T, up to 4.50 GHz	8th Generation Intel® Core™ i3-8100T processor, 4C/4T, up to 3.10 GHz
	Chipset	Intel® C246	
Memory	Memory Technology	4 x DDR4 2400MHz ECC/Non-ECC UDIMM	
	Memory Capacity	Up to 64GB	
	Memory Socket	4 x 288-pin DIMM	
Network and Security	Network Acceleration and Security Function	• Intel® AES New Instructions • Intel® Software Guard Extensions (Intel® SGX) • Intel® Memory Protection Extensions (Intel® MPX) • Intel® Trusted Execution Technology	
	TPM	1 x TPM 2.0 pin header	
Networking	Ethernet IC	8 x 5GbE NIC: AQC112C	
	Ethernet Port	8 x 5 GbE RJ-45 LAN ports	
	Network Module Slot	2 x PulM module slots	
Expansion Slot	PCIe Slot	1 x PCIe x4 slot, 1 x PCIe x8 slot	
	PCIe Mini Card Slot	1 x PCIe Mini card (PCIe & SATA, USB 2.0)	
	M.2	1 x 2260/2280 B Key (SATA and USB 3.2 Gen 1) Support SATA SSD and 4G LTE module	
Storage	Storage	2 x 2.5" SATA HDD/SSD bay	
	eMMC	N/A	
	SD Card	N/A	
External I/O	USB	2 x USB 3.2 Gen 1 (5Gb/s)	
	Console	1 x RJ-45	
Internal I/O	HDMI	1 x HDMI connecter (optional)	
	USB	4 x USB 2.0 (pin header)	
Power and Mechanical	Power Switch	1 x Power switch	
	Reset Button	1 x Reset button	
	Power Input	100 V ~ 240 V	
	Type/Watt	Redundant power 300W	
		90V ~ 264V AC	
	Processor Cooling	1 x Passive CPU heatsink	
	System Cooling	4 x Cooling fans with smart fan	
	Antenna Port	1 x Antenna port	
Physical and Environmental	Storage Temperature	0 ~ 40°C	
	Operating Temperature	0 ~ 40°C (32 ~ 104°F)	
	Operating Humidity	5% ~ 90% non-condensing	
	Dimensions (W x L x H) (mm)	430 x 426 x 44.2	
	Weight	7kg	
OS and Certifications	Certification	CE / FCC	
	Operating System	Linux Ubuntu 18.04.04	
Indicators	LCM	LCM, 2 buttons	
	LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED	

Ordering Information

Part No.	Description
PUZZLE-IN001A-XE/R-R10	1U Rackmount Network Appliance with Intel® Gen8 Xeon® E-2136 processor, four DDR4 slots, and eight 5GbE, two PulM module slots, two PCIe expansion, Redundant Power, RoHS
PUZZLE-IN001A-i3T/R-R10	1U Rackmount Network Appliance with Intel® Gen8 Core™ i3-8100T processor, four DDR4 slots, and eight 5GbE, two PulM module slots, two PCIe expansion, Redundant Power, RoHS

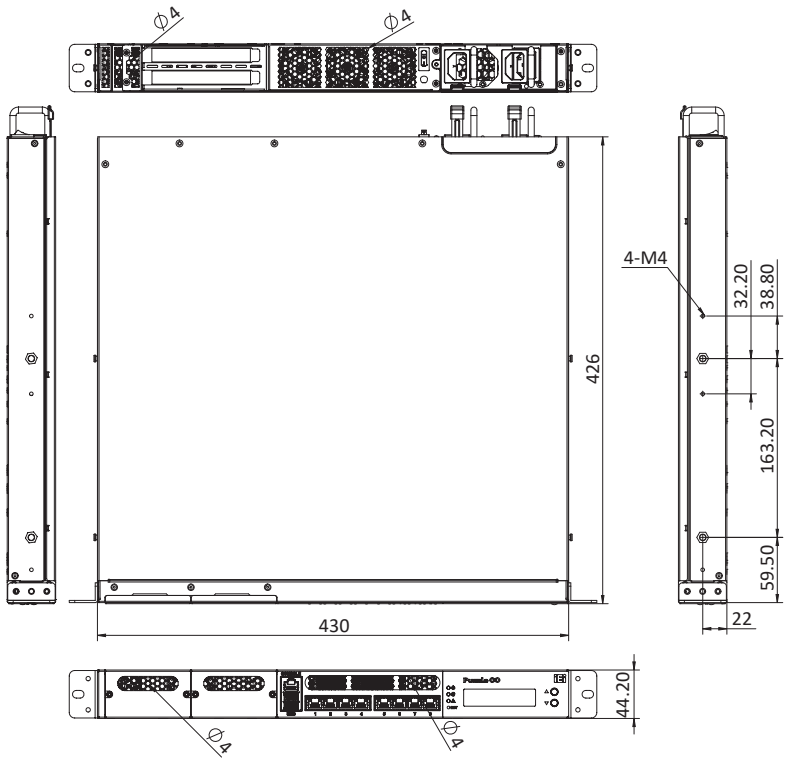
Packing List

	PUZZLE-IN001A-XE/16G/R	PUZZLE-IN001A-i3T/16G/R
Power cord	2	2
Rack mounting ears	2	2
Screws for rack mounting ears	6	6
USB to console cable	1	1
RS-232 to console cable	Option	Option
Slide rail	Option	Option

Options

Item	Part No.	Description
Slide rail	RAIL-B02	New rail kit for new 1U & 2U NAS: TVS-471U, 1253U, etc
USB to console cable	32013-004000-100-RS	ROUND CABLE; LAN CABLE; FTDI Console Cable; 2; 1800MM; (A)USB A TYPE 4P MALE+PCB:FTDI_FT232RL; (B)RJ-45 8P8C; RoHS
RS-232 to console cable	32005-005100-100-RS	ROUND CABLE; RS-232/422/485; PUZZLE RS-232 Cable; 2; 500MM; 24AWG; (A) D-SUB 9P MALE+#4-40 Screw; (B)RJ-45 PLUG 8P8C; ONE PCS PKG; TC&C; RoHS

Dimensions *(Unit: mm)*



PUZZLE-IN002

1U Rackmount Network Appliance with 8th Generation Intel® Core™ i7/i5/i3, Pentium® or Celeron® Processor, 1 PCIe slots



Features

- 8th Generation Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor
- 6 x GbE RJ-45 via Intel® I211
- 2 x DDR4 2400MHz Non-ECC UDIMM, up to 32GB
- 1 x RJ-45 Console, 2 x USB 3.2 Gen 1 (5Gb/s), LCM
- 2 x 2.5" SATA drive bay, 1 x M.2 A key (PCIe & USB 2.0), 1 x PCIe Mini card (SATA, USB 2.0) with SIM slot
- Support PCIe x16

Specifications

		PUZZLE-IN002-i3T	PUZZLE-IN002-PGT
Platform	Form Factor	1U	
	CPU	8th Generation Intel® Core™ i3-8100T processor, 4C/4T, up to 3.10 GHz	Intel® Pentium® Gold G5400T processor, 2C/4T, up to 3.10 GHz
	Chipset	Intel® H310	
Memory	Memory Technology	2 x DDR4 2400MHz Non-ECC UDIMM	
	Memory Capacity	Up to 32GB	
	Memory Socket	2 x 288-pin DIMM	
Network and Security	Network Acceleration and Security Function	• Intel® AES New Instructions • Intel® Software Guard Extensions (Intel® SGX) • Intel® Memory Protection Extensions (Intel® MPX) • Intel® Trusted Execution Technology	
	TPM	1 x TPM 2.0 pin header	
Networking	Ethernet IC	1 GbE NIC: Intel® I211-AT	
	Ethernet Port	6 x 1GbE RJ-45 LAN ports	
	Network Module Slot	N/A	
Expansion Slot	PCIe Slot	1 x PCIe x16 slot	
	PCIe Mini Card Slot	1 x PCIe Mini card (SATA, USB 2.0) with SIM slot	
	M.2	1 x M.2 A key (PCIe & USB 2.0)	
Storage	Storage	2 x 2.5" SATA HDD/SSD bay	
	eMMC	N/A	
	SD Card	N/A	
External I/O	USB	2 x USB 3.2 Gen 1 (5Gb/s)	
	Console	1 x RJ-45	
Internal I/O	M.2	1 x M.2 A key (PCIe & USB 2.0)	
	HDMI	1 x HDMI connecter (optional)	
	USB	2 x USB 2.0 (pin header)	
Power and Mechanical	Power Switch	1 x Power switch	
	Reset Button	1 x Reset button	
	Power Input	100 V ~ 240 V	
	Type/Watt	ATX power 250W	
		90V~264V AC	
	Processor Cooling	1 x Passive CPU heatsink	
	System Cooling	4 x Cooling fans with smart fan	
	Antenna Port	1 x Antenna port	
Physical and Environmental	Storage Temperature	0 ~ 40°C	
	Operating Temperature	0 ~ 40°C (32 ~ 104°F)	
	Operating Humidity	5% ~ 90% non-condensing	
	Dimensions (W x L x H) (mm)	430 x 320 x 44.2	
	Weight	5kg	
OS and Certifications	Certification	CE / FCC	
	Operating System	Linux Ubuntu 16.04.04	
Indicators	LCM	LCM, 2 buttons	
	LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED	

Ordering Information

Part No.	Description
PUZZLE-IN002-i3T-R10	1U Rackmount Network Appliance with Intel® Gen8 Core™ i3-8100T processor, two DDR4 slots, and six 1GbE, one PCIe x16 expansion, RoHS
PUZZLE-IN002-PGT-R10	1U Rackmount Network Appliance with Intel® Gen8 Pentium® Gold G5400T processor, two DDR4 slots, and six 1GbE, one PCIe x16 expansion, RoHS
PUZZLE-IN002-i3T/8G-R10	1U Rackmount Network Appliance with Intel® Gen8 Core™ i3-8100T processor, 8GB DDR4, one 256GB SSD, six 1GbE, one PCIe x16 expansion, RoHS
PUZZLE-IN002-PGT/8G-R10	1U Rackmount Network Appliance with Intel® Gen8 Pentium® Gold G5400T processor, 8GB DDR4, one 256GB SSD, and six 1GbE, one PCIe x16 expansion, RoHS

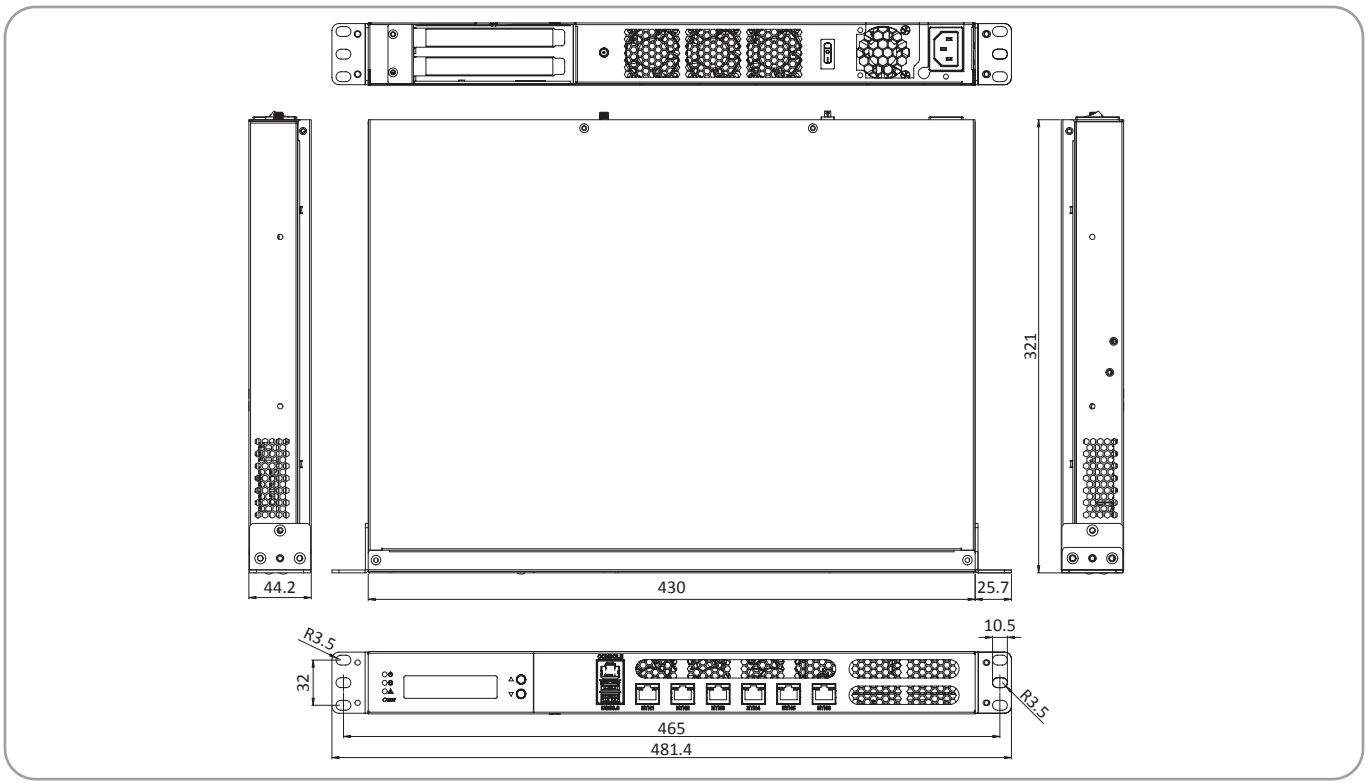
Packing List

	PUZZLE-IN002-i3T	PUZZLE-IN002-PGT	PUZZLE-IN002-i3T/8G	PUZZLE-IN002-PGT/8G
Power cord	1	1	1	1
Rack mounting ears	2	2	2	2
Screws for rack mounting ears	6	6	6	6
USB to console cable	Option	Option	1	1
RS-232 to console cable	1	1	Option	Option
Slide rail	Option	Option	Option	Option

Options

Item	Part No.	Description
USB to console cable	32013-004000-100-RS	ROUND CABLE; LAN CABLE; FTDI Console Cable; 2; 1800MM; (A)USB A TYPE 4P MALE+PCB:FTDI_FT232RL; (B)RJ-45 8P8C; RoHS
RS-232 to console cable	32005-005100-100-RS	ROUND CABLE; RS-232/422/485; PUZZLE RS-232 Cable; 2; 500MM; 24AWG; (A) D-SUB 9P MALE+#4-40 Screw; (B)RJ-45 PLUG 8P8C; ONE PCS PKG; TC&C; RoHS

Dimensions *(Unit: mm)*



PUZZLE-IN003B

Desktop Network Appliance with Intel® Atom® Processor C3000 Processor support up to 6 x 1 GbE, 2 x 10 GbE & 2 x M.2 slots, 1 x PCIe Mini, 1 x eMMC 32GB



Features

- Intel® Atom® processor C3000 processor up to 16 CPU cores
- Support six GbE and two 10 GbE SFP+ via integrated C3558/C3758
- DDR4 2133MHz ECC or non-ECC UDIMM / RDIMM up to 128GB
- 1 x 2230 M.2 A key (USB 2.0, PCIe x1), 1 x 2260/2280 M.2 M Key, 1 x PCIe Mini (USB 2.0, PCIe x1), SIM card slot, 1 x eMMC 32GB

Specifications

		PUZZLE-IN003B-C0	PUZZLE-IN003B-C1
Platform	Form Factor	Desktop	
	CPU	Intel® Atom® processor C3758 16M cache, up to 2.20 GHz	Intel® Atom® processor C3558 8M cache, up to 2.20 GHz
	Chipset	Integrated in CPU	
Memory	Memory Technology	DDR4 2133MHz ECC (By CPU) or non-ECC UDIMM, Support DDR4 RDIMM	
	Memory Capacity	UDIMM up to 64GB / RDIMM up to 128GB	
	Memory Socket	4 x 288-pin DIMM	
Network and Security	Network Acceleration and Security Function	• Intel® AES New Instructions • Intel® Software Guard Extensions (Intel® SGX) • Intel® Memory Protection Extensions (Intel® MPX) • Intel® Virtualization Technology for Directed I/O (VT-d) • Intel® QuickAssist Technology (Intel® QAT)	• Intel® AES New Instructions • Intel® Software Guard Extensions (Intel® SGX) • Intel® Virtualization Technology for Directed I/O (VT-d) • Intel® QuickAssist Technology (Intel® QAT)
	TPM	1 x TPM 2.0 pin header	
Networking	Ethernet IC	1 GbE NIC: Intel® I211-AT 1 GbE PHY: Marvell 88E1512 10 GbE: Integrated in CPU	
	Ethernet Port	2 x 10 GbE SFP+ 6 x 1GbE RJ-45 LAN ports	
	Network Module Slot	N/A	
Expansion Slot	PCIe Slot	N/A	
	PCIe Mini Card Slot	1 x PCIe Mini (USB 2.0, PCIe x1) with SIM card slot	
	M.2	1 x 2230 A key (USB 2.0, PCIe x1)	
Storage	Storage	1 x SATA DOM + 1 x SATA power 5V 1 x M.2 M key 2260/2280	
	eMMC	1 x eMMC 32GB	
	SD Card	N/A	
External I/O	USB	1 x USB 2.0 1 x USB 3.2 Gen 1	
	Console	1 x RJ-45	
Internal I/O	M.2	1 x 2230 A key (USB 2.0, PCIe x1)	
	HDMI	N/A	
	USB	N/A	
Power and Mechanical	Power Switch	1 x Power switch	
	Reset Button	1 x Reset button	
	Power Input	1 x DC jack	
	Type/Watt	12 V DC-in, 60W	
	Processor Cooling	Passive CPU heatsink	
	System Cooling	Two system fans	Fanless
	Antenna Port	2 for Wi-Fi/2 for WWAN	
Physical and Environmental	Storage Temperature	0 ~ 40°C	
	Operating Temperature	0 ~ 40°C (32 ~ 104°F)	
	Operating Humidity	Relative humidity: 5% ~ 90% non-condensing	
	Dimensions (W x L x H) (mm)	225 x 206 x 44.2	
	Weight	2 kg	
OS and Certifications	Certification	CE / FCC	
	Operating System	Linux Ubuntu 18.04	
Indicators	LCM	N/A	
	LED	3 (power, storage, alert)	

Ordering Information

Part No.	Description
PUZZLE-IN003B-C0/8G-R10	Desktop network appliance with Intel® ATOM® C3758 processor, 6 x 1GbE, 2 x 10 GbE & 2 x M.2 slots, 1 x PCIe Mini, 1 x eMMC 32GB
PUZZLE-IN003B-C1/8G-R10	Desktop network appliance with Intel® ATOM® C3558 processor, 6 x 1GbE, 2 x 10 GbE & 2 x M.2 slots, 1 x PCIe Mini, 1 x eMMC 32GB

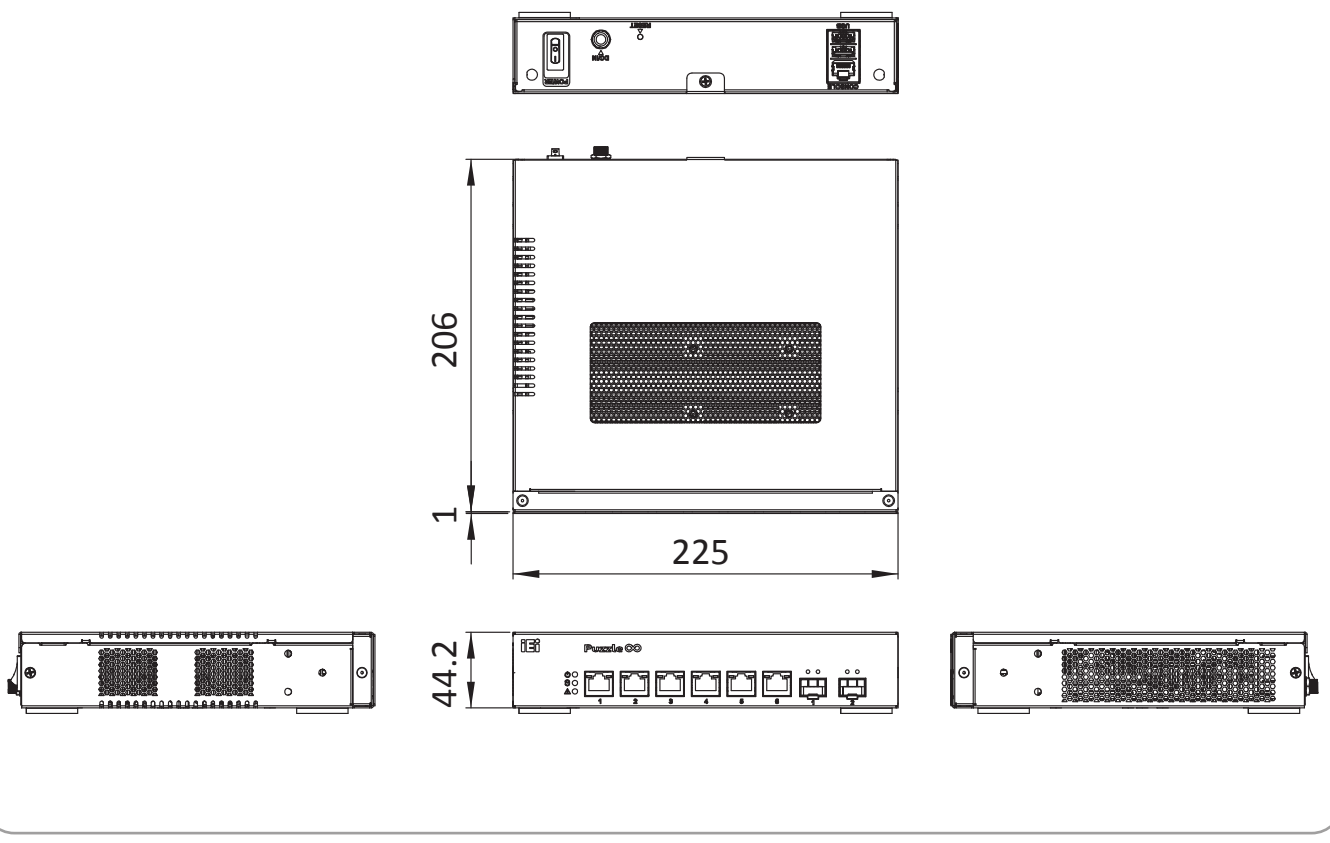
Packing List

	PUZZLE-IN003B-C0/8G-R10	PUZZLE-IN003B-C1/8G-R10
Power cord	1	1
Power adapter	1	1
Rack mounting ears	2	2
Screws for rack mounting ears	6	6
USB to console cable	1	1
RS-232 to console cable	Option	Option

Options

Item	Part No.	Description
USB to console cable	32013-004000-100-RS	ROUND CABLE; LAN CABLE; FTDI Console Cable; 2; 1800MM; (A)USB A TYPE 4P MALE+PCB:FTDI_FT232RL; (B)RJ-45 8P8C; RoHS
RS-232 to console cable	32005-005100-100-RS	ROUND CABLE; RS-232/422/485; PUZZLE RS-232 Cable; 2; 500MM; 24AWG; (A)D-SUB 9P MALE+#4-40 Screw; (B)RJ-45 PLUG 8P8C; ONE PCS PKG; TC&C; RoHS

Dimensions *(Unit: mm)*



PUZZLE-IN004

1U Rackmount Network Appliance with Intel® Xeon® D Processor support 8 x GbE, 4 x 10GbE SFP+ and 1 PCIe x8 slot



Features

- Intel® Xeon D-2100 series processor (Skylake-D) with optional Intel® QAT
- Support eight GbE RJ-45 via Intel® I211-AT, four 10 GbE SFP+ and IEI networking module
- 8 x 288-pin RDIMM, 2 x DDR4 2666MHz, UDIMM up to 128GB / RDIMM up to 256GB / LRDIMM up to 512GB
- 1 x RJ-45 Console, 1 x USB 3.2 Gen 1 (5Gb/s), 1 x USB 2.0, LCM
- 2 x 2.5" SATA drive bay, 2 x M.2 M key 2280 (PCIe x4),1 x PCIe Mini (PCIe + USB 2.0) with SIM card
- Support one PCIe x8 slot, one PuIM module slot
- Redundant PSUs

Specifications

		PUZZLE-IN004-XD1	PUZZLE-IN004-XD2	PUZZLE-IN004-XD3	PUZZLE-IN004-XD4
Platform	Form Factor	1U			
	CPU	Intel® Xeon® D-2145NT processor 8-core, 11M cache, 1.90 GHz	Intel® Xeon® D-2146NT processor 8-core, 11M cache, 2.30 GHz	Intel® Xeon® D-2166NT processor 12-core, 16.5M cache, 2.00 GHz	Intel® Xeon® D-2187NT processor 16-core, 22M cache, 2.00 GHz
	Chipset	Integrated in CPU			
Memory	Memory Technology	DDR4 2666MHz ECC (by CPU) or non-ECC			
	Memory Capacity	UDIMM up to 128GB / RDIMM up to 256GB / LRDIMM up to 512GB			
	Memory Socket	8 x 288-pin DIMM			
Network and Security	Network Acceleration and Security Function	• Intel® AES New Instructions • Intel® Software Guard Extensions (Intel® SGX) • Intel® Memory Protection Extensions (Intel® MPX) • Intel® Trusted Execution Technology			
	TPM	1 x TPM 2.0 pin header			
Networking	Ethernet IC	1 GbE NIC: Intel® I211-AT			
	Ethernet Port	4 x 10 GbE SFP+ / 8 x 1GbE RJ-45 LAN ports			
	Network Module Slot	1 x PuIM module slot			
Expansion Slot	PCIe Slot	1 x FH/HL gen3 x8 slot			
	PCIe Mini Card Slot	1 x PCIe Mini (PCIe + USB 2.0) with SIM card			
	M.2	1 x M.2 A key (USB 2.0, PCIe x1)			
Storage	Storage	2 x 2.5" SATA HDD/SSD bay			
	eMMC	N/A			
	SD Card	N/A			
External I/O	USB	1 x USB 2.0 / 1 x USB 3.2 Gen 1			
	Console	1 x RJ-45			
Internal I/O	M.2	2 x M key 2260/2280 (PCIe x4)			
	HDMI	N/A			
	USB	USB DOM, Digital I/O 4in 4out			
Power and Mechanical	Power Switch	1 x Power switch			
	Reset Button	1 x Reset button			
	Power Input	100 V ~ 240 V			
	Type/Watt	Redundant power 300W, 90V~264V AC			
	Processor Cooling	1 x Passive CPU heatsink			
	System Cooling	3 x Cooling fans with smart fan			
	Antenna Port	1 x Antenna port			
Physical and Environmental	Storage Temperature	0 ~ 40°C			
	Operating Temperature	0 ~ 40°C (32 ~ 104°F)			
	Operating Humidity	Relative humidity: 5% ~ 90% non-condensing			
	Dimensions (W x L x H) (mm)	430 x 426 x 44.2			
	Weight	7 kg			
OS and Certifications	Certification	CE/FCC			
	Operating System	Linux Ubuntu 18.04.04			
Indicators	LCM	LCM, 2 buttons			
	LED	Power status, Storage status, Alert LED			

Ordering Information

Part No.	Description
PUZZLE-IN004-XD1/32G/R-R10	1U Rackmount network appliance with Intel® Xeon® D-2145NT processor, 32GB DDR4, two 256GB SSD, eight 1GbE, four 10 GbE, one PulM module slot and one PCIe expansion, RoHS
PUZZLE-IN004-XD2/32G/R-R10	1U Rackmount network appliance with Intel® Xeon® D-2146NT processor, 32GB DDR4, two 256GB SSD, eight 1GbE, four 10 GbE, one PulM module slot and one PCIe expansion, RoHS
PUZZLE-IN004-XD3/32G/R-R10	1U Rackmount network appliance with Intel® Xeon® D-2166NT processor, 32GB DDR4, two 256GB SSD, eight 1GbE, four 10 GbE, one PulM module slot and one PCIe expansion, RoHS
PUZZLE-IN004-XD4/32G/R-R10	1U Rackmount Network Appliance with Intel® Xeon® D-2187NT processor, 32GB DDR4, two 256GB SSD, eight 1GbE, four 10 GbE, one PulM module slot and one PCIe expansion, RoHS

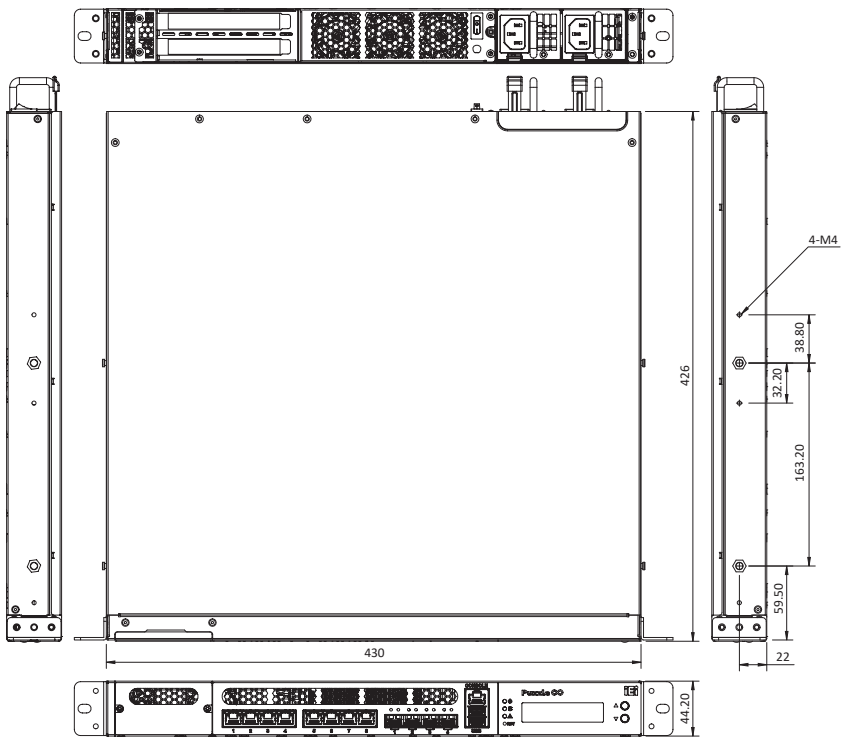
Packing List

	PUZZLE-IN004-XD1/32G/R-R10	PUZZLE-IN004-XD2/32G/R-R10	PUZZLE-IN004-XD3/32G/R-R10	PUZZLE-IN004-XD4/32G/R-R10
Power cord	2	2	2	2
Rack mounting ears	2	2	2	2
Screws for rack mounting ears	6	6	6	6
USB to console cable	1	1	1	1
RS-232 to console cable	option	option	option	option
Slide rail	option	option	option	option

Options

Item	Part No.	Description
Slide rail	RAIL-B02	New rail kit for new 1U & 2U NAS: TVS-471U, 1253U, etc
USB to console cable	32013-004000-100-RS	ROUND CABLE; LAN CABLE; FTDI Console Cable; 2; 1800MM; (A)USB A TYPE 4P MALE+PCB:FTDI_FT232RL; (B)RJ-45 8P8C; RoHS
RS-232 to console cable	32005-005100-100-RS	ROUND CABLE; RS-232/422/485; PUZZLE RS-232 Cable; 2; 500MM; 24AWG; (A) D-SUB 9P MALE+#4-40 Screw; (B)RJ-45 PLUG 8P8C; ONE PCS PKG; TC&C; RoHS

Dimensions *(Unit: mm)*



PUZZLE-M801

1U Rackmount Network Appliance with Marvell® ARMADA® 88F8040 High-Performance Quad-Core CPU



Features

- Marvell® ARMADA® 88F8040 high-performance quad-core System-on-Chip processor
- 2 x 10GbE SFP+ via Marvell® ARMADA® 88F8040
- 4 x GbE RJ-45 via Marvell 88E1512P
- 1 x 288-pin DIMM, DDR4 2400MHz, 16GB (ECC)
- 2 x USB 3.2 Gen 1 (5Gb/s), 1 x RJ-45 console, 1 x M.2 B key (SATA & USB 3.2 Gen 1 (5Gb/s)) with SIM holder, 1 x PCIe x16 slot (PCIe x2 signal)

Specifications

		PUZZLE-M801
Platform	Form Factor	1U
	CPU	Marvell® ARMADA® 88F8040 high-performance quad-core System-on-Chip processor, 1.6GHz
	Chipset	Integrated in CPU
Memory	Memory Technology	DDR4 2400MHz ECC/Non-ECC/RDIMM
	Memory Capacity	Up to 16GB
	Memory Socket	1 x 288-pin DIMM
Network and Security	Network Acceleration and Security Function	• Configurable packet processor • HW offload for networking • Acceleration engines for storage, networking and security • Public Key Processor (RSA/DH/ECC) • Secure Storage • Secure boot
	TPM	N/A
Networking	Ethernet IC	1 GbE PHY: Marvell 88E1512P
	Ethernet Port	2 x 10 GbE SFP+, 4 x 1GbE RJ-45 LAN ports
	Network Module Slot	N/A
Expansion Slot	PCIe Slot	1 x PCIe x16 slot (PCIe x2 signal)
	PCIe Mini Card Slot	N/A
	M.2	1 x M.2 B key (SATA & USB 3.2 Gen 1 (5Gb/s))
Storage	Storage	2 x 2.5" SATA HDD/SSD bay
	eMMC	32GB
	SD Card	N/A
External I/O	USB	2 x USB 3.2 Gen 1 (5Gb/s)
	Console	1 x RJ-45
Internal I/O	M.2	1 x M.2 B Key (3042/2260) (SATA and USB 3.2 Gen 1) Support SATA SSD and 4G LTE module.
	HDMI	N/A
	USB	2 x USB 2.0
Power and Mechanical	Power Switch	1 x Power switch
	Reset Button	1 x Reset button
	Power Input	100 V ~ 240 V
	Type/Watt	ATX Power 250W 90V~264V AC
	Processor Cooling	1 x Active CPU heatsink with fan
	System Cooling	2 x Cooling fans with smart fan
	Antenna Port	1 x Antenna port
Physical and Environmental	Storage Temperature	0 ~ 40°C
	Operating Temperature	0 ~ 40°C (32 ~ 104°F)
	Operating Humidity	5% ~ 90% non-condensing
	Dimensions (W x L x H) (mm)	430 x 320 x 44.2
	Weight	5kg
OS and Certifications	Certification	CE / FCC
	Operating System	Linux Ubuntu 16.04.04
Indicators	LCM	LCM, 2 buttons
	LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED

Ordering Information

Part No.	Description
PUZZLE-M801-A1-R10	1U Rackmount Network Appliance with Marvell Armada 8040 processor, one DDR4 slot, four 1GbE, two 10GbE via SFP+, one PCIe expansion, RoHS
PUZZLE-M801-A1/8G-R10	1U Rackmount Network Appliance with Marvell Armada 8040 processor, 8GB DDR4, one 256GB SSD, four 1GbE, two 10GbE via SFP+, one PCIe expansion, RoHS

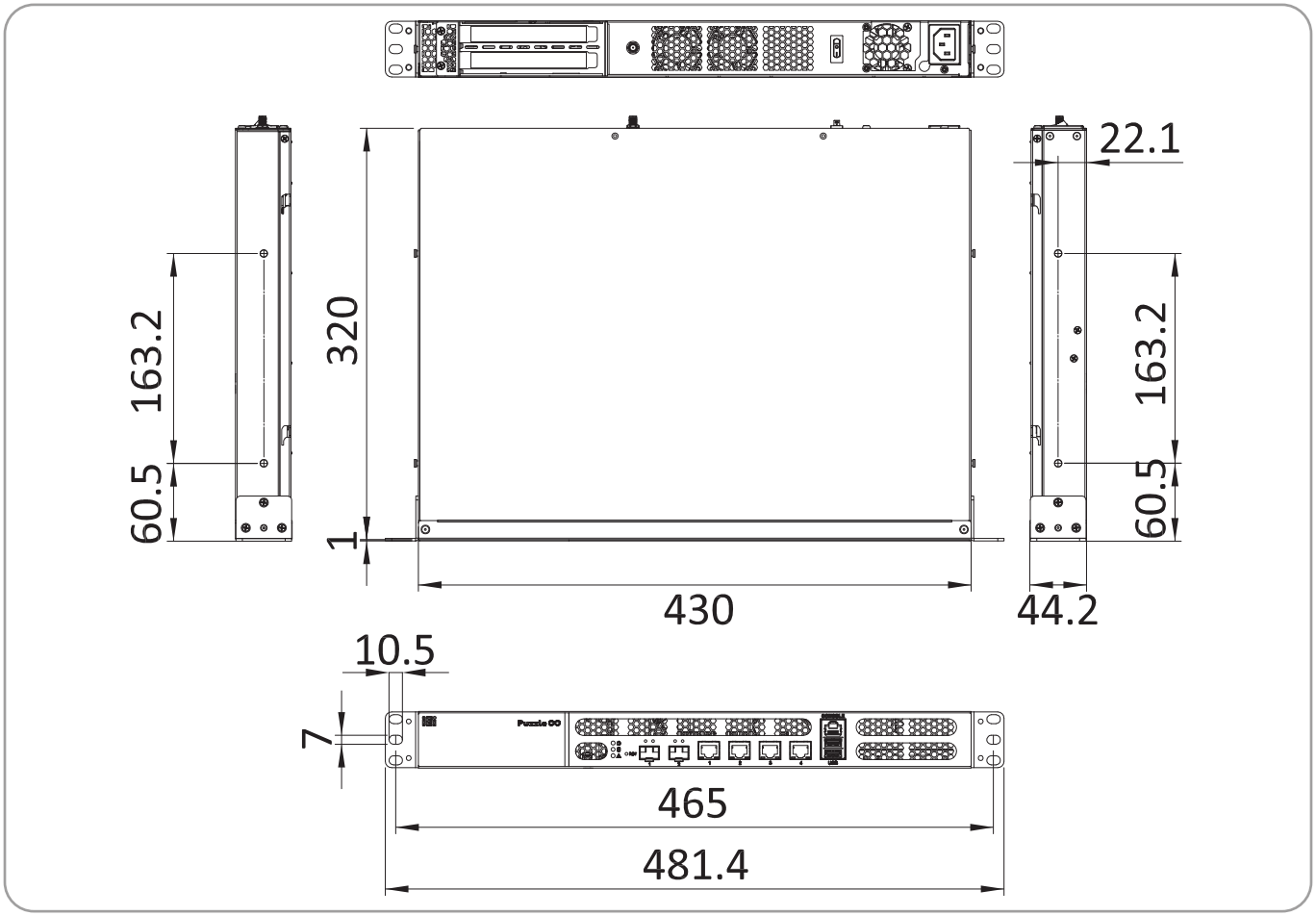
Packing List

	PUZZLE-M801-A1	PUZZLE-M801-A1/8G
Power cord	1	1
Rack mounting ears	2	2
Screws for rack mounting ears	6	6
USB to console cable	Option	1
RS-232 to console cable	1	Option
Slide rail	Option	Option

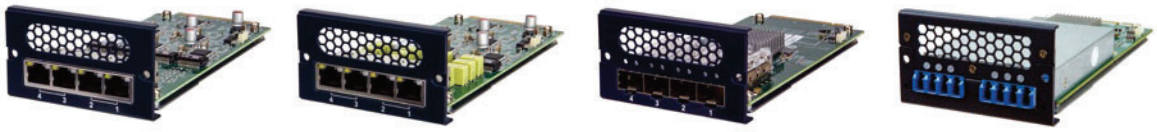
Options

Item	Part No.	Description
USB to console cable	32013-004000-100-RS	ROUND CABLE; LAN CABLE; FTDI Console Cable; 2; 1800MM; (A)USB A TYPE 4P MALE+PCB:FTDI_FT232RL; (B)RJ-45 8P8C; RoHS
RS-232 to console cable	32005-005100-100-RS	ROUND CABLE; RS-232/422/485; PUZZLE RS-232 Cable; 2; 500MM; 24AWG; (A)D-SUB 9P MALE+#4-40 Screw; (B)RJ-45 PLUG 8P8C; ONE PCS PKG; TC&C; RoHS

Dimensions *(Unit: mm)*



PuIM Series Selection Guide



	PuIM-1G4T-I211	PuIM-1G4T-I211-BP	PuIM-10G4SF-XL710	PuIM-10G4SF-XL710-BP
Chipset	Intel® I211	Intel® I211	Intel® XL710	Intel® XL710
Bypass	No	Yes	No	Yes
Host Interface	4 PCIe 2.0 x2	4 PCIe 2.0 x2	PCIe 3.0 x8	PCIe 3.0 x8
LAN Interface	RJ-45	RJ-45	SFP+	Fiber LC (SR&LR)
Speed	GbE	GbE	10 GbE	10 GbE
LAN Port Number	4	4	4	4
Operating Temp	0ºC ~ 40ºC			
Humidity	5% ~ 90% RH, non-condensing			
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)			



	PuIM-10G4T-AQC107	PuIM-1G8T-BCM5720	PuIM-25G2SF-MLX	PuIM-10G4SF-MLX
Chipset	Aquantia AQC107	Broadcom BCM5720	Mellanox ConnectX-4	Mellanox ConnectX-4
Bypass	No	No	No	No
Host Interface	4 PCIe 3.0 x2	4 PCIe 2.0 x2	PCIe 3.0 x8	2 PCIe 3.0 x4
LAN Interface	RJ-45	RJ-45	SFP28	SFP+
Speed	10 GbE	GbE	25 GbE	10 GbE
LAN Port Number	4	8	2	4
Operating Temp	0ºC ~ 40ºC			
Humidity	5% ~ 90% RH, non-condensing			
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)			



Coming Soon

	PuIM-2P1M	PuIM-M2-2S
Interface	2 PCIe 3.0 x4	2 PCIe 3.0 x4
Switch IC	ASM1812 (PCIe Gen2x4) FL1100EX (PCI-E To USB 3.0 (4 Port))	N/A
M.2	1 x 2230/2242 M.2 B key (PCIe, USB 3.0)	2 x M key 2260/2280/22110 (PCIe/NVMe)
PCIe	1 x PCIe Mini (PCIe, USB 2.0) 1 x PCIe Mini (PCIe, USB 2.0) with SIM card slot	N/A
Operating Temp	0ºC ~ 40ºC	
Humidity	5% ~ 90% RH, non-condensing	
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)	

PulM-1G4T-I211

Intel® I211 Ethernet Controller based Network Interface Card with Four 1GbE RJ-45 by 4 PCIe 2.0 x2 Interface



▲ PulM-1G4T-I211

▲ PulM-1G4T-I211-BP

Features

- 1 x Intel® I211-AT Ethernet Controller
- 4 x RJ-45 connector
- 4 PCIe 2.0 x2
- LAN bypass (PulM-1G4T-I211-BP)
- RoHS compliant

Specifications

Model Name	PulM-1G4T-I211	PulM-1G4T-I211-BP
Form Factor	IEI Networking Module - PulM	
NIC	Intel® I211-AT Ethernet Controller	
LAN Bypass	No	Yes, two pairs
LAN Interface	1 GbE RJ-45	
Ports	4	
Host Interface	4 PCIe 2.0 x2	
Operating Temp	0 ~ 40ºC	
Humidity	5% ~ 90% RH, Non-condensing	
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)	
Compliance	RoHS	

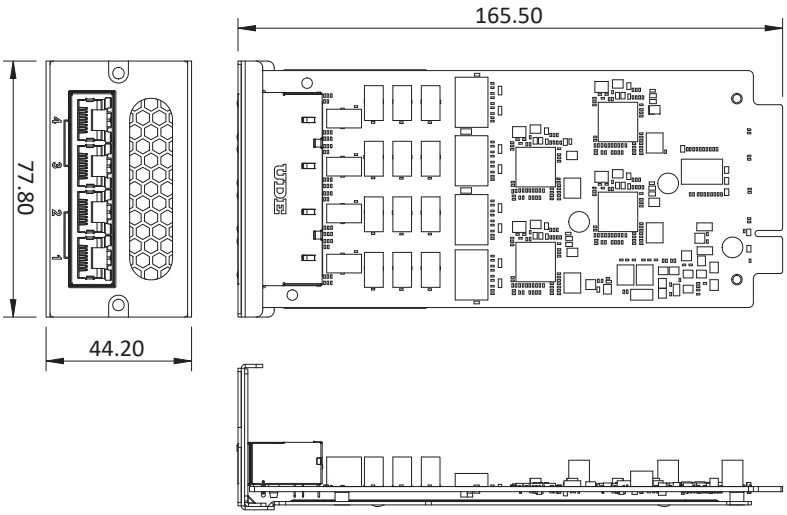
Ordering Information

1 x PulM-1G4T-I211 or PulM-1G4T-I211-BP module	1 x L-shaped T10 PulM wrench
2 x Trox screws	1 x QIG

Packing List

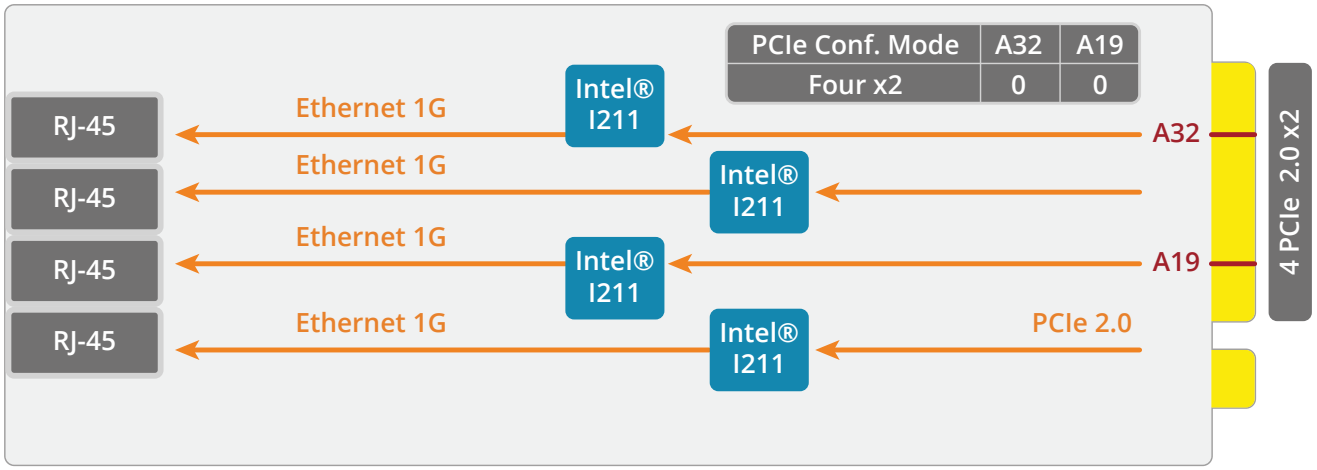
Part No.	Description
PulM-1G4T-I211-R10	Intel® I211 Ethernet controller based network interface card with four 1GbE RJ-45 without bypass, four PCIe 2.0 x2 interfaces
PulM-1G4T-I211-BP-R10	Intel® I211 Ethernet controller based network interface card with four 1GbE RJ-45 with bypass function, four PCIe 2.0 x2 interfaces

Dimensions *(Unit: mm)*

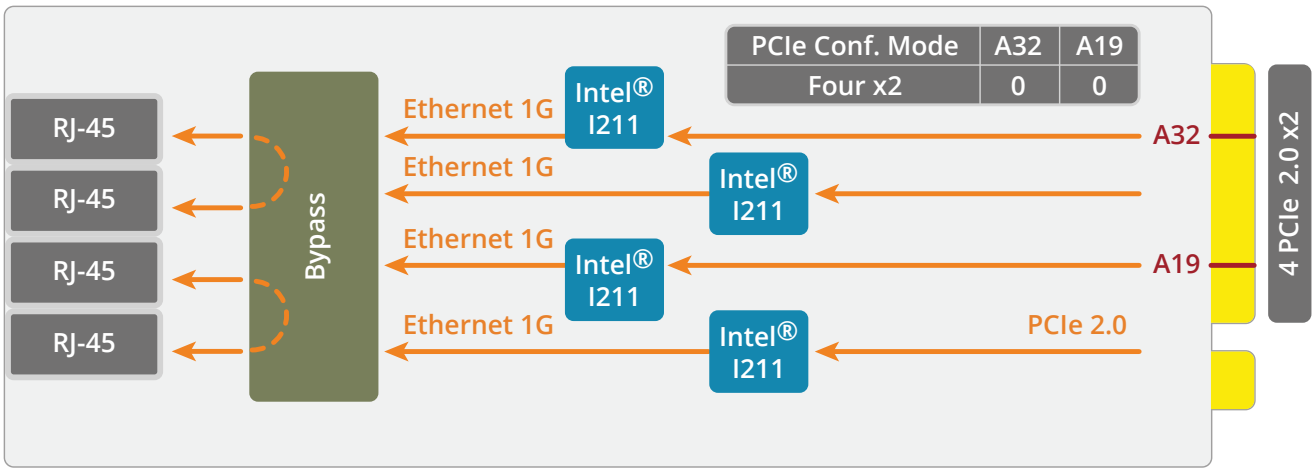


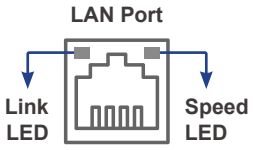
Block Diagram

PuIM-1G4T-I211 Block Diagram



PuIM-1G4T-I211-BP Block Diagram





LED	State	Description
Link (Left)	Yellow	Active
Speed (Right)	Orange	1 Gbps data rate
	Green	100 Mbps data rate
Off (Left/Right)	Off	Bypass function (PuIM-1G4T-I211-BP)

PulM-10G4SF-XL710

Intel® XL710-BM1 Ethernet Controller based Network Interface Card with Four SFP+ by PCIe 3.0 x8 Interface



Features

- 1 x Intel® XL710-BM1 Ethernet Controller
- Four 10 GbE SFP+ connectors
- PCIe 3.0 x8
- RoHS/CE/FCC compliant

Specifications

Model Name	PulM-10G4SF-XL710
Form Factor	IEI Networking Module - PulM
NIC	Intel® XL710-BM1 Ethernet Controller
LAN Bypass	N/A
LAN Interface	10 GbE SFP+
Ports	4
Host Interface	PCIe 3.0 x8
Operating Temp	0 ~ 40ºC
Humidity	5% ~ 90% RH, Non-condensing
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)
Compliance	RoHS/CE/FCC

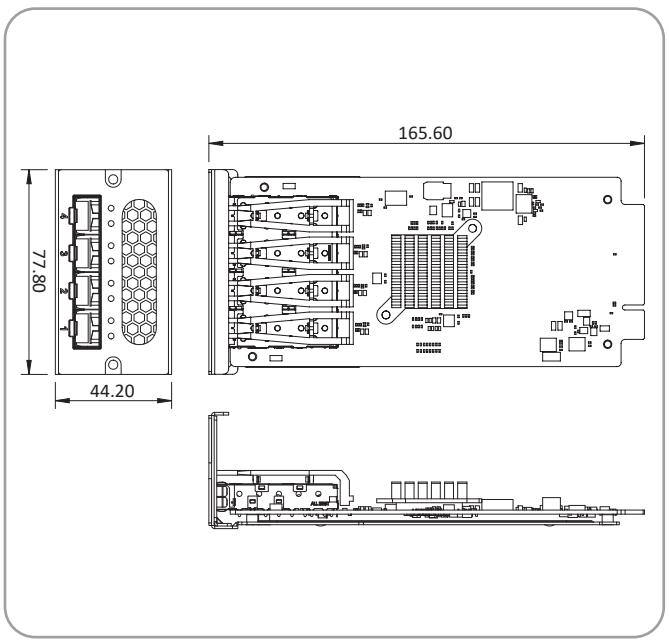
Ordering Information

1 x PulM-10G4SF-XL710 module	1 x L-shaped T10 PulM wrench
2 x Torx screws	1 x QIG

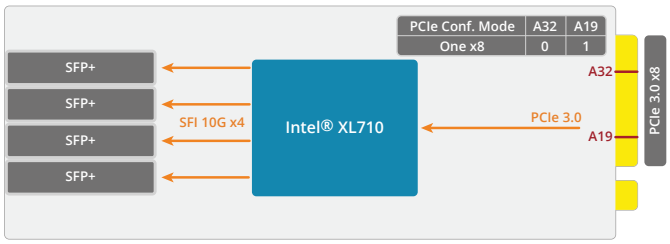
Packing List

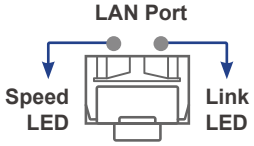
Part No.	Description
PulM-10G4SF-XL710-R10	Intel® XL710-BM1 Ethernet controller based network interface card with four SFP+ by one PCIe 3.0 x8 interface

Dimensions *(Unit: mm)*



Block Diagram





LED	State	Description
Link (Right)	Yellow	Active
Speed (Left)	Green	10 Gbps data rate

PulM-10G4SF-XL710-BP

Intel® XL710-BM1 Ethernet Controller based Network Interface Card with Four 10GbE Fiber Ports, 2-pair Bypass



Features

- 1 x Intel® XL710-BM1 Ethernet Controller
- Four fiber LC (SR & LR) interface
- PCIe 3.0 x8
- LAN bypass model available
- RoHS compliant

Specifications

Model Name	PulM-10G4SF-XL710-BP
Form Factor	IEI Networking Module - PulM
NIC	Intel® XL710-BM1 Ethernet Controller
LAN Bypass	Yes
LAN Interface	10 GbE fiber LC (SR & LR)
Ports	4
Host Interface	PCIe 3.0 x8
Operating Temp	0 ~ 40ºC
Humidity	5% ~ 90% RH, Non-condensing
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)
Compliance	RoHS

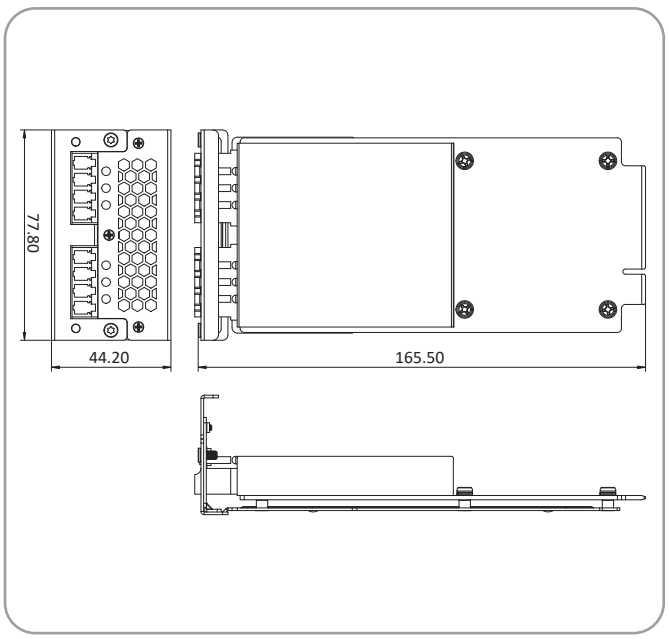
Ordering Information

1 x PulM-10G4SF-XL710-BP module	1 x L-shaped T10 PulM wrench
2 x Torx screws	1 x QIG

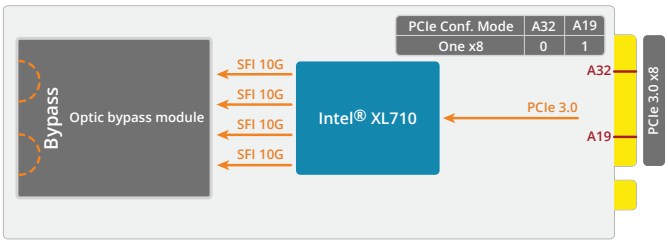
Packing List

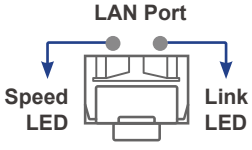
Part No.	Description
PulM-10G4SF-XL710-BP-R10	Intel® XL710-BM1 Ethernet controller based network interface card with four 10GbE fiber ports, two-pair bypass

Dimensions *(Unit: mm)*



Block Diagram





LED	State	Description
Link (Right)	Yellow	Active
Speed (Left)	Green	25 Gbps data rate
Off (Left/Right)	Off	Bypass function

PulM-10G4T-AQC107

Aquantia AQC107 based Network Interface Card with Four 10GBASE-T by 4 PCIe 3.0 x2 Interface



Features

- 4 x Aquantia AQC107
- 4 x 10G BASE-T connector
- 4 PCIe 3.0 x2
- RoHS compliant

Specifications

Model Name	PulM-10G4T-AQC107
Form Factor	IEI Networking Module - PulM
NIC	Aquantia AQC107
LAN Bypass	N/A
LAN Interface	10G BASE-T
Ports	4
Host Interface	4 PCIe 3.0 x2
Operating Temp	0 ~ 40ºC
Humidity	5% ~ 90% RH, Non-condensing
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)
Compliance	RoHS

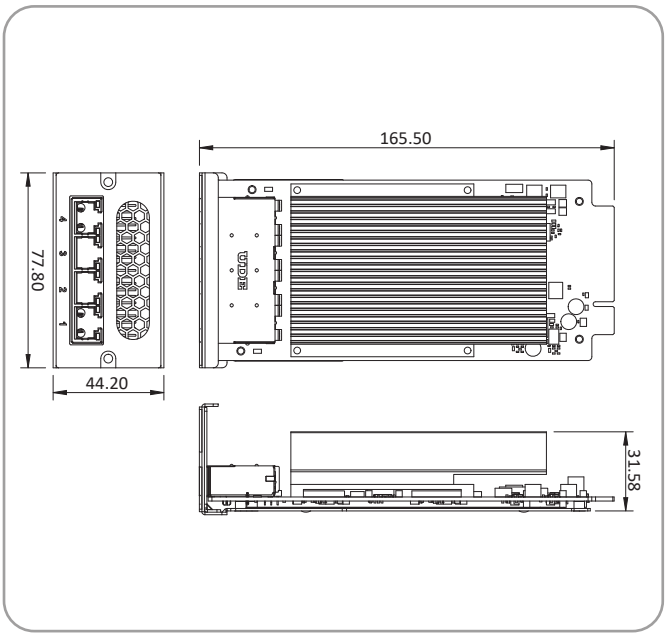
Ordering Information

1 x PulM-10G4T-AQC107 module	1 x L-shaped T10 PulM wrench
2 x Torx screws	1 x QIG

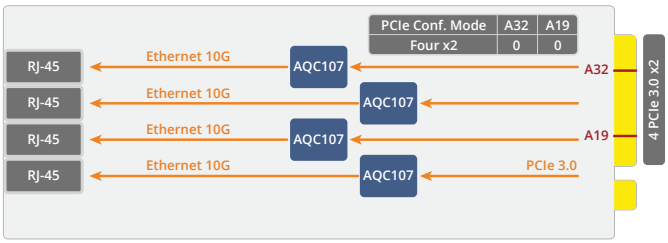
Packing List

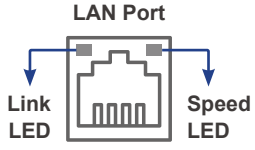
Part No.	Description
PulM-10G4T-AQC107-R10	Aquantia AQC107 based network interface card with four 10GBASE-T by 4 PCIe 3.0 x2 interface

Dimensions *(Unit: mm)*



Block Diagram

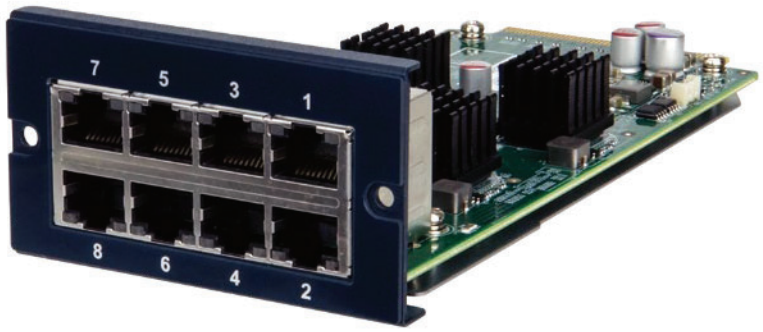




LED	State	Description
Link (Left)	Yellow	Active
Speed (Right)	Orange	10 Gbps data rate
	Green	5 Gbps/1 Gbps/ 100 Mbps data rate

PuIM-1G8T-BCM5720

Broadcom BCM5720 based Network Interface Card with Eight RJ-45 by 4 PCIe 2.0 x2 Interface



Features

- 4 x Broadcom BCM5720
- 8 x RJ-45 connector
- 4 PCIe 2.0 x2
- RoHS compliant

Specifications

Model Name	PuIM-1G8T-BCM5720
Form Factor	IEI Networking Module - PuIM
NIC	Broadcom BCM5720
LAN Bypass	N/A
LAN Interface	1 GbE RJ-45
Ports	8
Host Interface	4 PCIe 2.0 x2
Operating Temp	0 ~ 40ºC
Humidity	5% ~ 90% RH, Non-condensing
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)
Compliance	RoHS

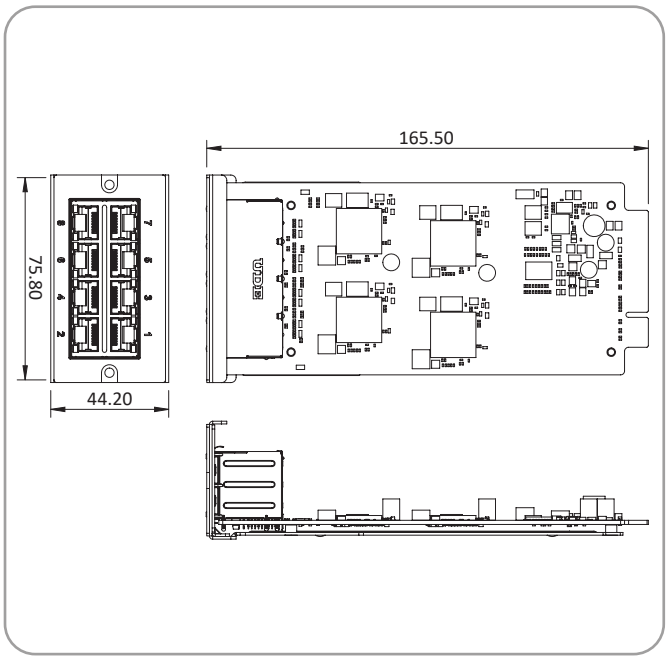
Ordering Information

1 x PuIM-1G8T-BCM5720 module	1 x L-shaped T10 PuIM wrench
2 x Torx screws	1 x QIG

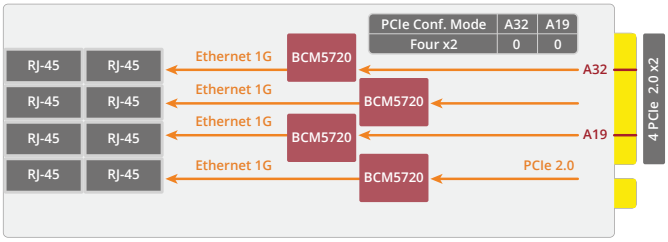
Packing List

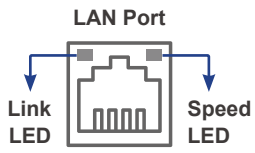
Part No.	Description
PuIM-1G8T-BCM5720-R10	Broadcom BCM5720 based network interface card with eight RJ-45 by 4 PCIe 2.0 x2 interface

Dimensions (Unit: mm)



Block Diagram





LED	State	Description
Link (Left)	Yellow	Active
Speed (Right)	Orange	1 Gbps data rate
	Green	100 Mbps data rate

PulM-25G2SF-MLX

Mellanox ConnectX-4 Lx based Network Interface Card Support Dual 25GbE with Two SFP28 and PCIe 3.0 x8 Interface



Features

- 1 x Mellanox ConnectX-4 Lx EN
- 2 ports 25 GbE SFP28 connector
- PCIe 3.0 x8
- RoHS/CE/FCC compliant

Specifications

Model Name	PulM-25G2SF-MLX
Form Factor	IEI Networking Module - PulM
NIC	Mellanox ConnectX-4 Lx EN
LAN Bypass	N/A
LAN Interface	25 GbE SFP28
Ports	2
Host Interface	PCIe 3.0 x8
Operating Temp	0 ~ 40ºC
Humidity	5% ~ 90% RH, Non-condensing
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)
Compliance	RoHS/CE/FCC

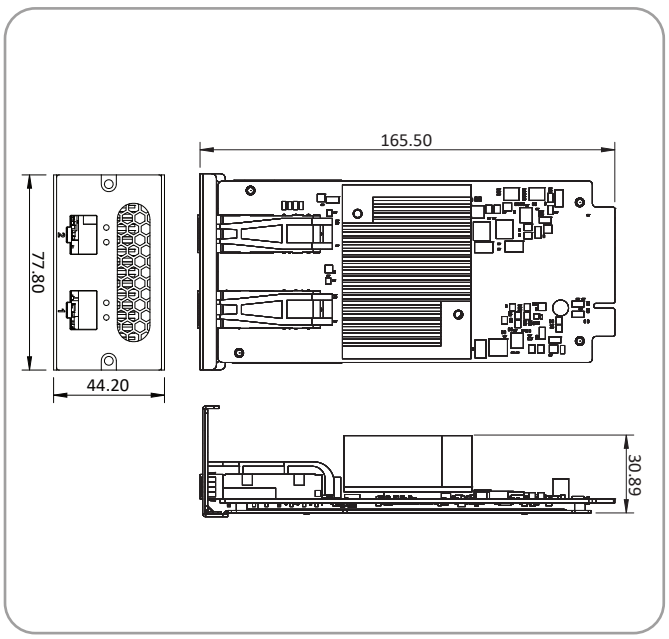
Ordering Information

1 x PulM-25G2SF-MLX module	1 x L-shaped T10 PulM wrench
2 x Torx screws	1 x QIG

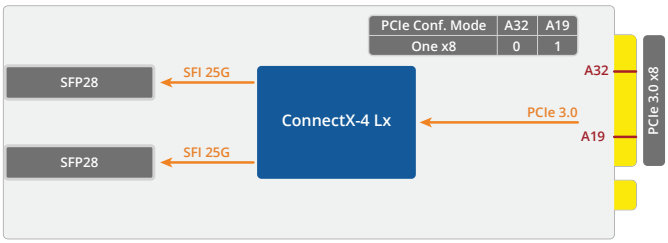
Packing List

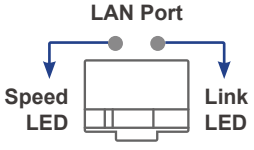
Part No.	Description
PulM-25G2SF-MLX-R10	Mellanox ConnectX-4 Lx based network interface card supporting dual 25GbE with two SFP28 by 1 PCIe 3.0 x8 interface

Dimensions *(Unit: mm)*



Block Diagram





LED	State	Description
Link (Right)	Yellow	Active
Speed (Left)	Green	25 Gbps data rate
	Yellow	10 Gbps/1 Gbps data rate

PuIM-10G4SF-MLX

Mellanox ConnectX-4 Lx based Network Interface Card Support Quad 10GbE with Four SFP+ by 2 PCIe 3.0 x4 Interface



Features

- 2 x Mellanox ConnectX-4
- 4 x 10 GbE SFP+ connector
- 2 PCIe 3.0 x4
- RoHS compliant

Specifications

Model Name	PuIM-10G4SF-MLX
Form Factor	IEI Networking Module - PuIM
NIC	Mellanox ConnectX-4
LAN Bypass	N/A
LAN Interface	10 GbE SFP+
Ports	4
Host Interface	2 PCIe 3.0 x4
Operating Temp	0 ~ 40ºC
Humidity	5% ~ 90% RH, Non-condensing
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)
Compliance	RoHS

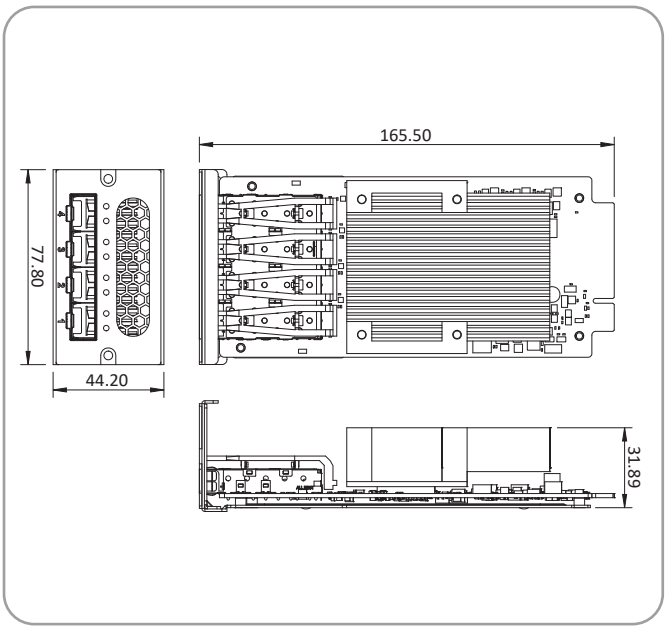
Ordering Information

1 x PuIM-10G4SF-MLX module	1 x L-shaped T10 PuIM wrench
2 x Torx screws	1 x QIG

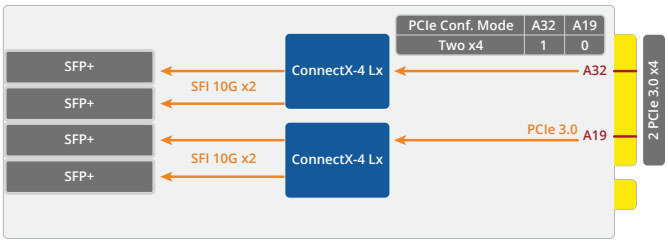
Packing List

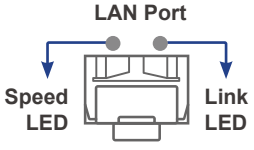
Part No.	Description
PuIM-10G4SF-MLX-R10	Mellanox ConnectX-4 Lx based network interface card supporting quad 10GbE with four SFP+ by 2 PCIe 3.0 x4 interfaces

Dimensions *(Unit: mm)*



Block Diagram





LED	State	Description
Link (Right)	Yellow	Active
Speed (Left)	Green	10 Gbps data rate
	Off	1 Gbps/100 Mbps data rate

High Reliability Storage Server



GRAND Series

Barebone



Software RAID Support

Grand Series is using pure software RAID created by operating system. Software RAID is default built-in function in Windows storage system and Windows 10. And it is also easy to access open source support from Linux operating system. The benefit of Software RAID is RAID array can be moved to a new computer with newer, faster CPU without capability constraint. Our powerful storage server system can enhance the read and write speeds incredibly.

10GbE Network Support Ready

A 10 Gigabit Ethernet (10GbE) network is the essential feature for business that demand high bandwidth for virtualization, fast backup and restoring ever growing database. IEI provides a series of affordable and reliable 10GbE ready storage server that user can be immediately upgraded by purchasing 10GbE network adapter to build a true 10GbE environments for enterprise.

Storage Expandable for Enterprise

The GRAND series storage server is a complete product line. The GRAND series created for enterprise storage supports processors from Celeron J3455 to Xeon E5 series, and all servers are compliant with standard rackmount from 1U to 3U. This product line can meet various storage needs and enterprise applications. Storage capacity options from 4 bays to 30 bays are available to achieve your demands. All of our servers are expandable, allowing you to expand storage via SAS 12Gbps expansion card or USB 3.2 Gen 1 (5Gb/s) connector depending on different product lines.

When expanding your total data storage capacity, deploying multiple storage server can increase both management complexity and costs. The expansion enclosures provide an economical solution for expanding the total storage space of your storage server while greatly streamlining management and maintenance tasks.

GRAND-C610

Hyper converged High-performance Computing, Virtualization, Storage, and Application server in one chassis for streamlined efficiency and manageability.



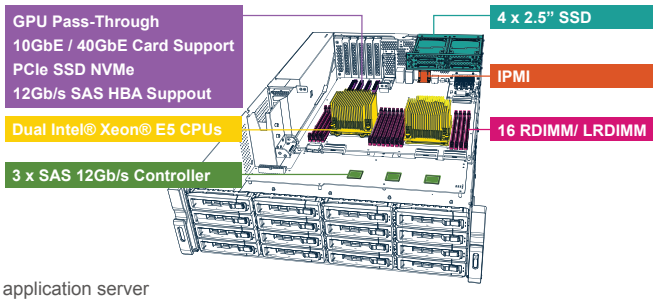
Features

- Double Server, support Intel® Xeon® E5-2600 v3
- 16 x DIMM Slots, up to 1TB memory with 16 x 64GB DIMMs
- 4 x PCIe slot can support 40GbE network card
- Storage expandable, up to 1PB
- IPMI Remote Management
- 10GbE network card support ready



Server-grade Hardware Design Robust, Reliable & Innovative

Suited for enterprise environments which demand the highest performance, simplified IT management, uninterrupted service, and optimized virtualization environments, the GRAND-C610 is designed with high-standard hardware specifications to meet those needs.



Hyperconverged Storage Server

High Computing and Storage Server

- High-performance application server based on dual Intel® E5 CPU
- VMware®, Citrix®, or Windows Hyper-V: for virtualization deployment
- Storage server: This component is used to mount storage using iSCSI/NFS for the application server
- High-speed connection: 10GbE or 40GbE

Specifications

Model	GRAND-C610-20C
CPU	FCLGA2011-3 sockets-support Xeon® E5-2600 v3 family
Memory (RAM)	System memory: RDIMM / LRDIMM Total memory slots: 16 Memory expandable up to: 1 TB (64 GB x 16)
USB 2.0 / 3.2	4 x USB 3.2 Gen 1 (5Gb/s)
Internal Hard Drive and Type	16 x 3.5" SAS (12Gbps/6Gbps) / SATA (6Gbps/3Gbps) HDDs or 2.5" SAS/SATA SSD 4 x 2.5" SAS (12Gbps) SSD or SAS/SATA (6Gbps/3Gbps) SSD
Max. Raw Capacity	128 TB
Interface	SAS 12Gb/s backward-compatible to SAS/SATA 6Gb/s
Ethernet	2 x GbE
PCIe slot	4 (3 x PCIe Gen3 x8, 1 x PCIe Gen3 x16)
Cache	M.2 Gen.2 x4
Form Factor	3U, Rackmount
Dimensions (H x W x D)	88 x 442.5 x 530.5 mm
Power	650W (Redundant)
Fan	Smart Fan 4 (6cm 12V DC)
Weight (Net/Gross) kg	Net (NAS): 22.42 kg / 49.43 lb Gross (with accessories and package): 30.19 kg / 66.56 lb
Noise	Sound Pressure Level (LpAm): 64.8 dB
Power Consumption	Sleep mode: 254.21 W In Operation: 362.86 W

Options

Item	Order P/N	Description
Network card	LAN-40G2SF-MLX	Dual-port 40GbE QSFP+ network expansion card
Network card	LAN-10G2SF-MLX	Dual-port 10GbE SFP+ network expansion card
Network card	LAN-10G2T-X550	Dual-port 10GBASE-T network expansion card
USB card	USB-U31A2P01	USB 3.2 Gen 2 10Gbps Type-A dual-port PCIe card
SAS Card	SAS-12G2E	Dual port storage expansion, SAS 12Gbps
Rail kit	RAIL-A03-57	A03 series (Chassis) slide, Maxmium load 57 kg
Cable	CAB-SAS10M-8644	MiniSAS Cable (SFF-8644 to SFF-8644),1.0m
	CAB-SAS05M-8644	MiniSAS Cable (SFF-8644 to SFF-8644), 0.5m
CPU	Intel® Xeon® Processor E5-2620 v3	Intel® Xeon®, 2.4 GHZ, 0.65V~1.30V, 85W, 15MB(L3), FCLGA, 2011pin, 22nm, CM8064401831400 SR207, LGA 2011-3 Socket, R2, Haswell, Intel® Xeon® Processor E5-2620 v3, RoHS
	Intel® Xeon® Processor E5-2630 v3	Intel® Xeon®, 2.4 GHZ, 0.65V~1.30V, 85W, 20MB(L3), FCLGA, 2011pin, 22nm, CM8064401831000 SR206, LGA2011-3 Socket, R2, Haswell, Intel® Xeon® Processor E5-2630 v3, RoHS
	Intel® Xeon® Processor E5-2640 v3	Intel® Xeon®, 2.6 GHz, 90W, 20MB(L3), FCLGA, 2011pin, 22nm, CM8064401830901 SR205, LGA2011-3 Socket, R2, Haswell, Intel® Xeon® Processor E5-2640 v3, RoHS

Ordering Information

Part No.	Description
GRAND-C610-20C-R10	3U 16Bay front 3.5", 4bay rear 2.5" HDD or SSD support, rackmount storage server (Barebone), with 650W redundant PSU, RoHS

*Pre-install CPU & Memory by Request

Packing List

Ethernet cable x 2	Flat head screws (for 2.5" HDD)
Power cord x 2	Flat head screws (for 3.5" HDD)

GRAND-BDE

Powered by an advanced 14nm Intel® Xeon® D 64-bit SoC processor, up to 128GB DDR4 ECC RDIMM RAM / 64GB DDR4 non-ECC UDIMM RAM, and the 12Gb/s SAS-enabled GRAND-BDE delivers outstanding performance for data transmission and applications. With a thermal design power of only 20-65W, the GRAND-BDE fulfills demands for both performance and energy saving.



Features

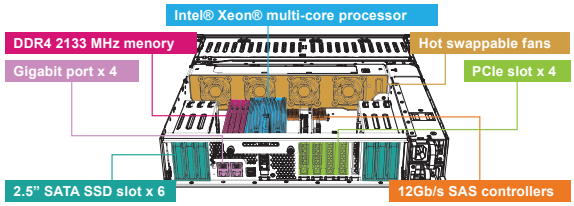
- Intel® Xeon® D processor optimizes performance and efficiency
- 4 x DIMM Slots, up to 128 GB memory with 4 x 32GB DIMMs
- 4 x PCIe slot can support 40GbE network card
- Storage expandable, up to 1PB
- 10GbE network card support ready



Excellent Hardware

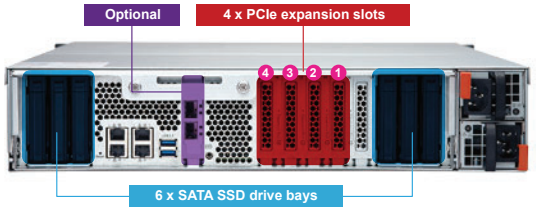
Immensely, Durable & Compact

The GRAND-BDE supports SAS 12Gb/s 2.5" drives, allowing for SAS 12Gb/s and SATA 6Gb/s hard drives and SSDs. Businesses can create the most powerful storage by implementing suitable drives based on their needs.



Expansion Capability

GRAND-BDE provide Five built-in PCIe 3.0 expansion slots provide great expandability options for 10GbE/40GbE network adapters, USB 3.2 Gen 2 (10Gb/s) and 12Gb/s SAS expansion cards, PCIe NVMe SSD - or even a graphics card.



Specifications





Model Name	GRAND-BDE-18B	GRAND-BDE-30B
CPU	Intel® Xeon® Processor D-1521, 4 core 2.4 GHz Intel® Xeon® Processor D-1531, 6 core 2.2 GHz Intel® Xeon® Processor D-1548, 8 core 2.0 GHz (for GRAND-BDE-30B only)	
Memory	Total DIMM slots: 4 Maximum memory: DDR4 128GB (32GB RDIMM x 4)	
Drive Tray SSD drive bay x 6	Front: 2.5" / 3.5" x 12 Rear: 2.5" SSD drive bay x 6	Front: 2.5" x 24 Rear: 2.5" Rear: 2.5" SSD drive bay x 6
Hard Drive	Front: SAS 12Gb/s, SAS 6Gb/s, SATA 6Gb/s and SSD Rear: SATA 6Gb/s and SSD	
Network port	4 x Gigabit ports	
LEDs	10 GbE network, system status, network, drive LED	
Buttons	Power button, Reset button	
Form Factor	2U rack mount	
Dimensions (H x W x D)	88 x 442.5 x 530.5 mm 3.46 x 17.42 x 20.89 inch	88.3 x 439 x 484.5 mm 3.47 x 17.28 x 19.07 inch
Operating Temperature	0°C ~ 40°C	
Relative Humidity	5 to 95% non-condensing, wet bulb: 27°C	
Power Supply	Redundant power: input 90 to 264VAC: 450W x 2	
PCIe Expansion Slots	Quantity: 4 Slot 1: PCIe 3.0 x8 Slot 3: PCIe 3.0 x4 Slot 2: PCIe 2.0 x4 Slot 4: PCIe 3.0 x4 or PCIe 3.0 x8* Note: Slot 4 provides the bandwidth of PCIe 3.0 x8 when Slot 3 is not in use. Slot 4 then provides the bandwidth of PCIe 3.0 x4 only when an expansion board is installed in Slot 3.	
Fan	4 x 6 cm High efficiency fan	
10GbE PCIe Card Slot	Support specific 10GbE network card (P/N: LAN-10G2F-PHY-CS4227)	

Ordering Information

Part No.	Description
GRAND-BDE-18B-D1521-R10	2U 12Bay front 3.5", 6bay rear 2.5" HDD or SSD support, rackmount storage server system (Barebone) with Intel® Xeon® D-1521, 450W redundant PSU, RoHS
GRAND-BDE-18B-D1531-R10	2U 12Bay front 3.5", 6bay rear 2.5" HDD or SSD support, rackmount storage server system (Barebone) with Intel® Xeon® D-1531, 450W redundant PSU, RoHS
GRAND-BDE-30B-D1521-R10	2U 24Bay front 2.5", 6bay rear 2.5" HDD or SSD support, rackmount storage server system (Barebone) wth Intel® Xeon® D-1521, with 450W redundant PSU, RoHS
GRAND-BDE-30B-D1531-R10	2U 24Bay front 2.5", 6bay rear 2.5" HDD or SSD support, rackmount storage server system (Barebone) wth Intel® Xeon® D-1531, with 450W redundant PSU, RoHS
GRAND-BDE-30B-D1548-R10	2U 24Bay front 2.5", 6bay rear 2.5" HDD or SSD support, rackmount storage serversystem (Barebone) wth Intel® Xeon® D-1548, with 450W redundant PSU, RoHS

*Pre-install Memory by Request

Options

Item	Item	Description
Network card	LAN-40G2SF-MLX	Dual-port 40GbE QSFP+ network expansion card
Network card	LAN-10G2SF-MLX	Dual-port 10GbE SFP+ network expansion card
Network card	LAN-10G2T-X550	Dual-port 10GBASE-T network expansion card
USB card	USB-U31A2P01	USB 3.2 Gen 2 10Gbps Type-A dual-port PCIe card
SAS Card	SAS-12G2E	Dual port storage expansion, SAS 12Gbps
Rail kit	RAIL-A03-57	A03 series (Chassis) slide, Maxmium load 57 kg
Cable	CAB-SAS10M-8644	MiniSAS Cable (SFF-8644 to SFF-8644), 1.0m
	CAB-SAS05M-8644	MiniSAS Cable (SFF-8644 to SFF-8644), 0.5m

Packing List

Ethernet cable x 4	Flat head screws (for 2.5" HDD)
Power cord x 2	Flat head screws (for 3.5" HDD, GRAND-BDE-180B only)

GRAND-MF

Powered by a high-performance AMD R-Series quad-core processor with up to 64GB DDR4 RAM, the GRAND-MF provides two M.2 SATA 6Gb/s SSD slots that allows the greatest flexibility in tiered storage configuration and enables cache acceleration. This powerful hardware can also double the encrypted file transfer performance with AES-NI encryption acceleration. The GRAND-MF is designed for small and medium-sized businesses looking for private cloud, cross-platform file sharing and collaboration, efficient backup/restoration, storage for virtualization, and to future-proof their IT infrastructure with maximized ROI.

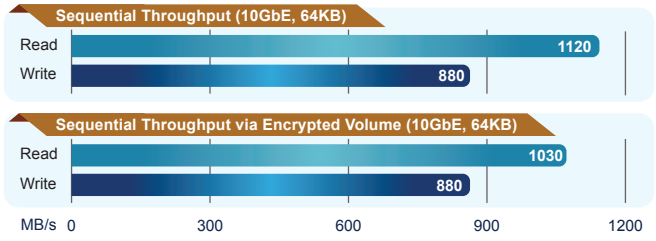


Features

- IAMD R Series RX-421ND quad-core 2.1 GHz CPU (Turbo Core up to 3.4 GHz)
- 4 x DIMM Slots, up to 64 GB memory with 4 x 16GB DIMMs
- Ready to support 10GbE network card
- Storage expandable, up to 1PB

AMD R-Series quad-core CPU, up to 64GB RAM, and AES-NI encryption acceleration

The GRAND-MF is equipped with a next-gen AMD R-Series RX-421ND quad-core 2.1 GHz processor (burst up to 3.4 GHz), dual channel 8GB/16GB/64GB DDR4 RAM (upgradable to 64GB), and four Gigabit LAN ports for lightning-fast multi-tasking with low power consumption and the ability to deliver up to 1531 MB/s throughput with a 10GbE configuration. The GRAND-MF's accelerated encryption engine with AES-NI provides unmatched encryption performance in its class (up to 1315 MB/s with AES 256-bit full storage server volume encryption) to boost system performance, security, and ensure the safety of sensitive business data stored in the storage server.









Specifications

Model	GRAND-MF-16C-RP	GRAND-MF-16C	GRAND-MF-12B-RP	GRAND-MF-12B	GRAND-MF-08B-RP	GRAND-MF-08B
CPU	AMD R-Series RX-421ND quad-core 2.1 GHz processor, turbo core up to 3.4 GHz					
Encryption Acceleration	AES-NI					
Memory	Maximum 64GB (4 x 16GB) 4 x UDIMM DDR4, up to 2400MHz (For dual- or quad-DIMM configurations, you must use a pair of identical DDR4 modules.)					
Drive Types	16 x 3.5"/2.5" SATA 6Gb/s HDDs/SSDs		12 x 3.5"/2.5" SATA 6Gb/s HDDs/SSDs		8 x 3.5"/2.5" SATA 6Gb/s HDDs/SSDs	
M.2 SSD Slots	2 x M.2 2280/2260 SATA 6Gb/s SSDs					
Gigabit LAN Port	4 x Gigabit RJ45 LAN ports					
PCIe Slot	1 x PCIe Gen 3 x4					
USB Ports	2 x USB 3.2 Gen 1 (5Gb/s) port, 4 x USB 2.0 port					
LED Indicator	Status/Power, LAN, USB, Drive 1 - 16		Status/Power, LAN, USB, Drive 1 - 12		Status/Power, LAN, USB, Drive 1 - 8	
Button	Power/Status, Reset					
Maintenance Port	1 x 3.5 mm console port					
Form Factor	3U Rackmount		2U Rackmount			
Dimension (H x W X D)	130 x 481 x 536 mm 5.12 x 18.94 x 21.10 inch		89 x 482 x 534 mm 3.5 x 18.98 x 21.02 inch			
Net Weight	15.42 kg (34 lbs.)	14.25 kg (31.42 lbs.)	11.81 kg (26.04 lbs.)	10.71 kg (23.62 lbs.)	10.96 kg (24.16 lbs.)	9.86 kg (21.74 lbs.)
Operating Temperature & Relative Humidity	0 to 40°C (32 to 104°F), 5 ~ 95% RH non-condensing, wet bulb: 27°C					
Power Suply	500W (x2), 100-240V AC, 50/60 Hz	350W, 100-240V AC, 50/60 Hz	300W (x2), 100-240V AC, 50/60 Hz	350W, 100-240V AC, 50/60 Hz	250W (x2), 100-240V AC, 50/60 Hz	250W, 100-240V AC, 50/60 Hz
Fan	4 x 92 mm, 12V DC		2 x 70 mm, 12V DC			

Ordering Information

Part No.	Description
GRAND-MF-08B-R10	2U 8Bay front 3.5" HDD or SSD support, rackmount storage server system (Barebone) with AMD RX-421ND, 250W single PSU, RoHS
GRAND-MF-08B-RP-R10	2U 8Bay front 3.5" HDD or SSD support, rackmount storage server system (Barebone) with AMD RX-421ND, 250W redundant PSU, RoHS
GRAND-MF-12B-R10	2U 12Bay front 3.5" HDD or SSD support, rackmount storage server system (Barebone) with AMD RX-421ND, 350W single PSU, RoHS
GRAND-MF-12B-RP-R10	2U 12Bay front 3.5" HDD or SSD support, rackmount storage server system (Barebone) with AMD RX-421ND, 350W redundant PSU, RoHS
GRAND-MF-16C-R10	3U 16Bay front 3.5" HDD or SSD support, rackmount storage server system (Barebone) with AMD RX-421ND, 350W single PSU, RoHS
GRAND-MF-16C-RP-R10	3U 16Bay front 3.5" HDD or SSD support, rackmount storage server system (Barebone) with AMD RX-421ND, 500Wredundant PSU, RoHS

*Pre-install Memory by Request

Options

Item	Order P/N	Description
Network card	LAN-10G2SF-MLX	Dual-port 10GbE SFP+ network expansion card
Network card	LAN-10G2T-X550	Dual-port 10GbE 10GBASE-T network expansion card
Network card	LAN-1G2T-I210	Dual-port Gigabit network expansion card
USB card	USB-U31A2P01	USB 3.2 Gen 2 10Gbps Type-A dual-port PCIe card
M.2 SSD	SSD-M2080-256GB-A01	SSD module
Heatsink	HS-M2SSD-01	Heatsink for M.2 SSD module,14 x 14mm
SAS Card	SAS-12G2E	Dual port storage expansion, SAS 12Gbps
Rail kit	RAIL-A03-57	A03 series (Chassis) slide, Maxmium load 57 kg (for GRAND-MF-16C)
	RAIL-B02	Rail kit for 1U & 2U (for GRAND-MF-08B & 12B)
Cable	CAB-SAS10M-8644	MiniSAS Cable (SFF-8644 to SFF-8644),1.0m
	CAB-SAS05M-8644	MiniSAS Cable (SFF-8644 to SFF-8644), 0.5m

Packing List

Ethernet Cable x 2	Flat head screws (for 2.5" HDD)
Power cord x 2 (non RP model only one power cord)	Flat head screws (for 3.5" HDD)

GRAND-SE

The GRAND-SE is a powerful network storage system powered by a high-performance AMD quad-core processor. It can support 10GbE network card, and doubles the encrypted file transfer performance with the AES-NI hardware-accelerated encryption engine to over 800 MB/s. The GRAND-SE is designed for small and medium-sized businesses looking for backup, restoration, private cloud, storage for virtualization, and to future-proof their IT infrastructure for 10GbE networks.



AMD EMBEDDED SOLUTIONS G SERIES X Quad-Core 2.0GHz

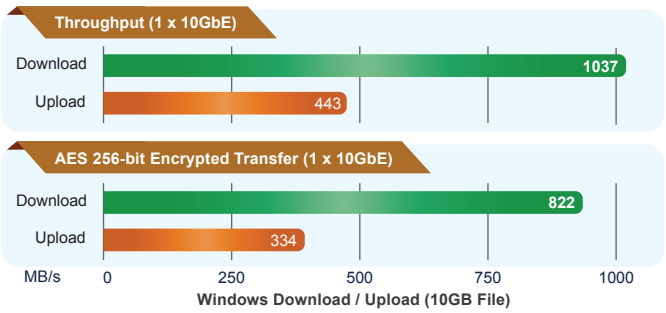
Features

- The power of 64-bit quad-core processor with AES-NI support
- 2 x SODIMM Slots, up to 16 GB memory with 2 x 8GB DIMMs
- Ready to support 10GbE network card
- Storage expandable via USB 3.2 Gen 1 (5Gb/s), up to 200TB



Speedy transfer and hardware-accelerated encryption with AES-NI

The GRAND-SE is equipped with an energy-efficient 64-bit AMD quad-core 2.0GHz processor with maximum 16GB, SATA 6Gb/s, support one SFP+ 10GbE and four Gigabit LAN ports for lightning-fast multi-tasking performance with SSD cache support. The GRAND-SE is a powerful storage server that delivers up to 1,059 MB/s sequential read throughput with expanding one 10GbE configuration. The GRAND-SE's hardware-accelerated encryption engine provides unmatched encryption performance in its class, up to 822 MB/s with AES-256 bit full storage server volume encryption, boosting system performance & security while ensuring the safety of sensitive business data stored in the GRAND-SE.



Specifications



Model	GRAND-SE-04A	GRAND-SE-04A-RP	GRAND-SE-08B	GRAND-SE-08B-RP	GRAND-SE-12B	GRAND-SE-12B-RP
CPU	64-Bit Quad-Core AMD® G-Series 2.0GHz					
Memory	Total memory slots: 2 SODIMM; Memory expandable up to 16GB DDDR3L (8GB x 2)					
Max. HDDs/SSDs	4		8		12	
HDDs/SSDs Type	2.5" or 3.5" SATA 6Gb/s, 3Gb/s; hot-swappable					
Expansion Unit Support	Max. 1 expansion unit					
LAN Ports	4 x GbE ports					
USB Ports	USB 3.2 Gen 1 (5Gb/s): 2, USB 2.0: 3		USB 3.2 Gen 1 (5Gb/s): 2, USB 2.0: 2		USB 3.2 Gen 1 (5Gb/s): 2, USB 2.0: 2	
PCIe Slot	1 x PCIe 2.0 x 4 slot					
LED Indicators	Status, LAN, USB, HDD1-4		Power, Status, LAN, USB, HDD1-8		Power, Status, LAN, USB, HDD1-12	
Buttons	Power, Reset, USB Auto Copy		Power, Reset		Power, Reset	
Form Factor	1U Rackmount		2U Rackmount		2U Rackmount	
Dimensions (HxWxD)	1.73 x 17.28 x 19.65 inch		89 x 482 x 534 mm / 3.50 x 18.97 x 21.02 inch			
Weight (Net/Gross)	7.63 / 11.60 kg 16.82 / 25.57 lb		11.02 / 19.26 kg 24.29 / 42.46 lb		16.14 / 19.41kg 35.58 / 41.84 lb	
Temperature and Humidity	0-40°C, 5~95% RH non-condensing, wet bulb: 27°C					
Power Supply Specification	Input: 100-240V AC, 50/60Hz; Output: 250W					
	250W	2 x 250W	250W	2 x 250W	250W	2 x 250W

Ordering Information

Part No.	Description
GRAND-SE-04A-R10	1U 4Bay front 3.5" HDD or SSD support, rackmount storage server system (Barebone) with AMD GX-424CC, 250W single PSU, RoHS
GRAND-SE-04A-RP-R10	1U 4Bay front 3.5" HDD or SSD support, rackmount storage server system (Barebone) with AMD GX-424CC, 250W redundant PSU, RoHS
GRAND-SE-08B-R10	2U 8Bay front 3.5" HDD or SSD support, rackmount storage server system (Barebone) with AMD GX-424CC, 250W single PSU, RoHS
GRAND-SE-08B-RP-R10	2U 8Bay front 3.5" HDD or SSD support, rackmount storage server system (Barebone) with AMD GX-424CC, 250W redundant PSU, RoHS
GRAND-SE-12B-R10	2U 12Bay front 3.5" HDD or SSD support, rackmount storage server system (Barebone) with AMD GX-424CC, 250W single PSU, RoHS
GRAND-SE-12B-RP-R10	2U 12Bay front 3.5" HDD or SSD support, rackmount storage server system (Barebone) with AMD GX-424CC, 250W redundant PSU, RoHS

*Pre-install Memory by Request

Options

Item	Order P/N	Description
Network card	LAN-10G2SF-MLX	Dual-port 10GbE SFP+ network expansion card
Network card	LAN-10G2T-X550	Dual-port 10GbE 10GBASE-T network expansion card
Network card	LAN-1G2T-I210	Dual-port Gigabit network expansion card
USB card	USB-U31A2P01	USB 3.2 Gen 2 10Gbps Type-A dual-port PCIe card
Rail kit	RAIL-B02	B02 series slide for 1U,2U chassis

Packing List

Ethernet Cable x 2	Flat head screws (for 2.5" HDD)
Power cord x 2 (non RP model only one power cord)	Flat head screws (for 3.5" HDD)

GRAND-AL

The GRAND-AL is a rackmount storage server that easily fits into a standard 19-inch rack, providing an ideal storage solution in the server room for small and medium businesses. The GRAND-AL also provides a wide range of value-added features: 4K video playback and real-time transcoding; and web automation services with IFTTT.

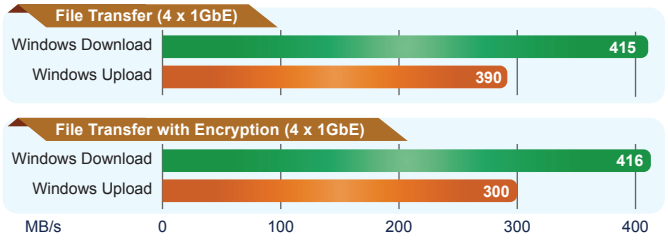


Features

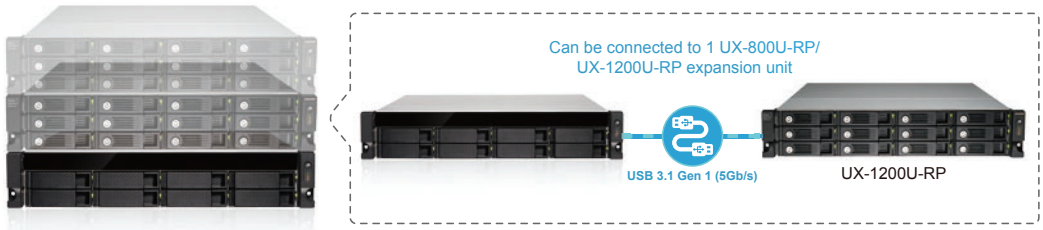
- Intel® Celeron® J3455 quad-core 1.5GHz CPU with AES-NI Encryption
- 2 x SODIMM Slots, up to 8GB memory with 2 x 4GB DIMMs
- Storage expandable via USB 3.2 Gen 1 (5Gb/s), up to 200TB

Intel® Celeron® J3455 quad-core 1.5GHz CPU with AES-NI Encryption

Powered by the latest 14 nm Intel® Celeron® J3455 quad-core 1.5GHz processor (burst up to 2.3 GHz), up to 8GB DDR3L RAM, four Gigabit LAN ports, and SATA 6Gb/s, the GRAND-AL runs tasks smoothly and quickly with up to 415 MB/s read/ write speeds. The GRAND-AL features Intel® AES-NI accelerated encryption to drive transfer speeds of up to 416 MB/s with AES 256-bit encryption for both full storage server volumes and shared folders, boosting system performance while ensuring the confidentiality of sensitive business data stored in the storage server.



Low-cost, Flexible Storage Expansion





Specifications

Model Name	GRAND-AL-04A	GRAND-AL-04A-RP	GRAND-AL-08B	GRAND-AL-08B-RP	GRAND-AL-12B	GRAND-AL-12B-RP
CPU	Intel® Celeron® J3455 4-core 1.5GHz (burst up to 2.3GHz)					
System memory	Total memory slots: 2 SODIMM; Memory expandable up to 8GB DDR3L (4GB x 2)					
Drive Trays	4		8		12	
Drive Types	SATA 6Gb/s, 3Gb/s HDD or SSD; Hot-swappable					
USB	4 x USB 3.2 Gen 1 (5Gb/s) (Rear)					
LAN Ports	4 x GbE					
HDMI Output	1 x HDMI 1.4b					
LED Indicators	System Status, HDD, Expansion, LAN					
Buttons	Power, Reset					
Form Factor	1U, rack mountable		2U, rack mountable		2U, rack mountable	
Dimensions (H x W x D)	44 x 439 x 499 mm 1.73 x 17.28 x 19.65 inch		89 x 482 x 534 mm 3.5 x 18.98 x 21.02 inch		89 x 482 x 534 mm 3.5 x 18.98 x 21.02 inch	
Net Weight	7.63 kg (16.82 lbs.)		11.02 kg (24.29 lbs.)		16.14 kg (35.58 lbs.)	
Temperature	0-40°C					
Relative Humidity	0~95% R.H.					
Power Supply	ATX 250W (single) ATX 250W (redundant x 2)		ATX 250W (single) ATX 250W (redundant x 2)		ATX 350W (single) ATX 250W (Redundant x2)	
Fan	2 x 40mm, 12V		DC 2 x 70mm, 12V		DC 2 x 70mm, 12V DC	

Ordering Information

Part No.	Description
GRAND-AL-04A-R10	1U 4Bay front 3.5” HDD or SSD support, rackmount storage server system (Barebone) with Intel® Celeron® J3455, 250W single PSU, RoHS
GRAND-AL-04A-RP-R10	1U 4Bay front 3.5” HDD or SSD support, rackmount storage server system (Barebone) with Intel® Celeron® J3455, 250W redundant PSU, RoHS
GRAND-AL-08B-R10	2U 8Bay front 3.5” HDD or SSD support, rackmount storage server system (Barebone) with Intel® Celeron® J3455, 250W single PSU, RoHS
GRAND-AL-08B-RP-R10	2U 8Bay front 3.5” HDD or SSD support, rackmount storage server system (Barebone) with Intel® Celeron® J3455, 250W redundant PSU, RoHS
GRAND-AL-12B-R10	2U 12Bay front 3.5” HDD or SSD support, rackmount storage server system (Barebone) with Intel® Celeron® J3455, 350W single PSU, RoHS
GRAND-AL-12B-RP-R10	2U 12Bay front 3.5” HDD or SSD support, rackmount storage server system (Barebone) with Intel® Celeron® J3455, 250W redundant PSU, RoHS

Options

Item	Order P/N	Description
Rail kit	RAIL-B02	B02 series slide for 1U, 2U chassis

Packing List

Ethernet cable x 2	Flat head screw (for 2.5” HDD)
Power cord x2 (non RP model only one power cord)	Flat head screw (for 3.5” HDD)

Automatic Identification and Data Capture (AIDC) Technology

Near Field Communication (NFC) Technology



■ Comparison of Short-range Communication Technologies

Technology	Standard	Frequency	Range	Data Rate
RFID	ISO 10536	13.56 MHz	0~2 mm	9.6 Kbps
	ISO 14443	13.56 MHz	0~10 cm	106, 212, 424 Kbps
	ISO 15693	13.56 MHz	0~70 cm	26 Kpbs
NFC	ECMA-340, 352, 356, ISO/IEC 18092, 2148, 1ETSI TS 102 190	13.56 MHz	0~20 cm	106, 212, 424 Kbps
Infrared	IrFM	405 THz-300 GHz	20 cm~30 cm low power to 1 m~2 m	9.6 Kbps~4 Mbps
Bluetooth	Bluetooth V4.0	2.4 GHz	10 m-100 m	720 Kbps

- NFC, as an open platform technology, is standardized in the NFC Forum, which was found by Philips (MIFARE®), Sony (FeliCa™), Samsung and Nokia.
- NFC is based on and the extension of RFID. It operates on 13.56 MHz frequency and is compatible with today's field proven contactless MIFARE® and FeliCa™ smart cards
- NFC communication range is up to 10 cm.
- NFC standard supports different data transmission rates such as 106 kbps, 212 kbps, and 424 kbps.

■ Three NFC Application Families

The Near Field Communication (NFC) extends the RFID technology, and utilizes the 13.56MHz frequency to communicate and exchange data between devices which are in close proximity (less than 10cm) to each other. Popular applications include payment, gaming, and social networking (e.g. mobile gaming and device-to-device communication).



Radio Frequency Identification (RFID)

The RFID technology uses radio frequency as a data transmission intermediary. It can be classified by the frequency band the RFID system adopts since different frequencies will result in different physical attributes.

Frequency band	Operating range*	Applications	Benefits	Drawbacks
LF, < 135KHz	< 0.5m	• Access control • Animal tracking • Product authentication	Works well around water and metal	• Short read range • Slower read rate
HF, 13.56MHz	< 1m	• Smart cards • Library books • Airline baggage	Low cost	Higher read rate than LF
UHF 860MHZ to 930MHz	< 4m	• Pallet tracking • Carton tracking • Parking lot access	EPC standard built around this frequency	Does not work with items of high water or metal content
Microwave 2.4GHZ	< 1m	• Airline baggage • Electronic toll collection	Most expensive	Fastest read rates

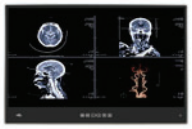
* The operating range depends on reader power and operating environment

■ HF RFID and NFC Supported Models






	AFOKAR-08A	IOVU-210AD-RK39	IOVU-210AR-RK39	MODAT-550A
Size	8”	10.1”	10.1”	5.5”
Protocols supported	•Supports ISO/IEC 14443A Reader/Writer mode up to 848 kbit/s •Supports ISO/IEC 14443B Reader/Writer mode up to 848 kbit/s •Supports contactless communication according to the FeliCa™ protocol at 212 kbit/s and 424 kbit/s •Supports MIFARE® encryption •Typical operating distance in Read/Write mode for communication to ISO/IEC 14443A/MIFARE®, ISO/IEC 14443B cards up to 50 mm depending on antenna size and tuning			•Reader Features (106k-848Kbits/s) -Support ISO 15693-Support ISO14443A -Support NFC Forum Type 1-4 Tag •Card Emulation Mode (106K-848Kbits/s) (optional) -Support ISO 14443A -Support NFC Forum Type 1-4 Tag -Support MIFARE® via CLT •Near Field Communication (106K-424Kbits/s) -Peer to Peer Active/Passive mode -ISO 18092 compliant

	AFL3 Series	POCi-W22C-ULT5
Size	7” ~ 22”	22”
Protocols supported	• ISO/IEC 14443-A and B, MIFARE • JIS X 6319-4 (comparable with FeliCa scheme) • ISO/IEC 15693, ICODE, ISO/IEC 18000-3 mode 3	• NFC protocols - tag reader/writer, P2P • ISO/IEC 14443- type A card emulation • EMVCo compliance

1D/2D Barcode Capability

■ Mobile Barcode Reading

The embedded Honeywell or Motorola scan engine, which is a decoded miniature area imaging scan engine designed to scan 1D and 2D barcodes, features a megapixel imaging sensor, a wide angle lens design, the integration of illumination and aiming function, and an industrial leading decoding software to deliver fast and aggressive scanning performance.

- Accurately decodes all 1D and 2D codes, even wrinkled, damaged or poorly printed
- Large scanning area
- Fast scan rate




Technology	1D Barcode	2D Barcode
Reading Condition	20 to 25 characters	100 to about 2,000 characters
Symbologies	EAN/UPC, RSS, Code 39, Code 128, UCC/EAN 128, ISBN, ISBT, Interleaved, Matrix, Industrial and Standard 2 of 5, Codabar, Code 93/93i, Code 11, MSI, Plessey, Telepen, postal codes.	Data Matrix, PDF417, Micro PDF 417, Maxicode, QR, Aztec, EAN.UCC composite

MODAT-550A

Mobile Data Collector



Features

- 1.5m drop survival and IP 65 protection
- Octa-core 64-bit Cortex-A53 1.5 GHz processor
- 5.5” display PDA
- Optional GSM (850, 900, 1800, 1900)
  WCDMA (Band 1, 2, 5, 8)
  TDS-CDMA (Band 34, 39)
  LTE FDD (Band 1, 2, 3, 4, 5, 7, 8, 20)
  TDD (Band 38, 39, 40, 41b)
- Micro USB port and microSD card slot (max. 64 GB) for maximum connectivity
- Android 7.0 OS
- 1D/2D imager scan engine
- NFC (device to device communication, card reader).



Specifications

Model		MODAT-550A-OA53-R10	MODAT-550A-OA53-ET-R10
Display	LCD size	5.5”	
	Brightness (cd/m²)	300 cd/m²	
	Max. Resolution	1080 x 1920 (Full HD)	
	Viewing Angle	80/80/80/80 Deg.	
	Touchscreen	5-point capacitive	
System	CPU	Octa-core 64-bit Cortex-A53 1.5 GHz processor	
	Operating System	Android 7.0	
	Memory	16GB eMMC 2GB LPDDR3	
	Storage	microSD slot up tp 64GB	
Communication	Wi-Fi	802.11a/b/g/n	
	Bluetooth	4.0 LE	
	Modem (Optional)	GSM (850, 900, 1800, 1900) WCDMA (Band 1, 2, 5, 8) TDS-CDMA (Band 34, 39) LTE FDD (Band 1, 2, 3, 4, 5, 7, 8, 20) TDD (Band 38, 39, 40, 41b)	
	GPS	GPS/Glonass	
Data Collection	NFC	Yes	
	Barcode	1D/2D imager scan engine	N/A
	Camera	13-megapixel AF rear camera	
Indicators & Buttons	LED Indicators	Green/Red	
I/O Interface	Audio	1 x 0.5W speaker 1 x Headset/Mic-in	
	USB	1x High-speed Micro USB 2.0 OTG	
Power	Power Adapter	5V/3A	
	Battery	4000 mAh	
Enviroments	Operating Temperature	-10°C ~ 50°C	
	Storage Temperature	-20°C ~ 60°C	
	Humidity	10% ~ 95%, non condensing	
	Drop Survival	1.5m	
	Environmental Protection	IP 65	
Physical	Dimensions (L x W x H)	160.9 mm x 85.4 mm x 28.85 mm	
	Weight	Under 380g	

Ordering Information

Part No.	Description
MODAT-550A-OA53-R10-TW	5.5" Android 7.0 PDA with Octa-Core Cortex-A53 1.5GHz, 802.11 a/b/g/n WiFi, 4.0 LE Bluetooth, (GSM, 3G, LTE), GPS, 13M pixel camera, 1D/2D barcode, 2GB LPDDR3, 16GB eMMC, NFC, TW reg, RoHS
MODAT-550A-OA53-R10-CN	5.5" Android 7.0 PDA with Octa-Core Cortex-A53 1.5GHz, 802.11 a/b/g/n WiFi, 4.0 LE Bluetooth, (GSM, 3G, LTE), GPS, 13M pixel camera, 1D/2D barcode, 2GB LPDDR3, 16GB eMMC, NFC, CN reg, RoHS
MODAT-550A-OA53-R10-EU	5.5" Android 7.0 PDA with Octa-Core Cortex-A53 1.5GHz, 802.11 a/b/g/n WiFi, 4.0 LE Bluetooth, (GSM, 3G, LTE), GPS, 13M pixel camera, 1D/2D barcode, 2GB LPDDR3, 16GB eMMC, NFC, EU reg, RoHS
MODAT-550A-OA53-R10-US	5.5" Android 7.0 PDA with Octa-Core Cortex-A53 1.5GHz, 802.11 a/b/g/n WiFi, 4.0 LE Bluetooth, (GSM, 3G, LTE), GPS, 13M pixel camera, 1D/2D barcode, 2GB LPDDR3, 16GB eMMC, NFC, US reg, RoHS
MODAT-550A-OA53-ET-R10-TW	5.5" Android 7.0 PDA with Octa-Core Cortex-A53 1.5GHz, 802.11 a/b/g/n WiFi, 4.0 LE Bluetooth, (GSM, 3G, LTE), GPS, 13M pixel camera, 2GB LPDDR3, 16GB eMMC, NFC, TW reg, RoHS
MODAT-550A-OA53-ET-R10-CN	5.5" Android 7.0 PDA with Octa-Core Cortex-A53 1.5GHz, 802.11 a/b/g/n WiFi, 4.0 LE Bluetooth, (GSM, 3G, LTE), GPS, 13M pixel camera, 2GB LPDDR3, 16GB eMMC, NFC, CN reg, RoHS
MODAT-550A-OA53-ET-R10-EU	5.5" Android 7.0 PDA with Octa-Core Cortex-A53 1.5GHz, 802.11 a/b/g/n WiFi, 4.0 LE Bluetooth, (GSM, 3G, LTE), GPS, 13M pixel camera, 2GB LPDDR3, 16GB eMMC, NFC, EU reg, RoHS
MODAT-550A-OA53-ET-R10-US	5.5" Android 7.0 PDA with Octa-Core Cortex-A53 1.5GHz, 802.11 a/b/g/n WiFi, 4.0 LE Bluetooth, (GSM, 3G, LTE), GPS, 13M pixel camera, 2GB LPDDR3, 16GB eMMC, NFC, US reg, RoHS

Optional Accessory List

Item	Part No.	Description
Cradle	MODAT-531A-CR01-R10	charging cradle
Standard Pouch	7Z000-MODAT531APOUCH	pouch, black

Packing List

Item	Part No.	Q'ty
USB Cable	32001-014300-100-RS	1
AC-DC Adapter	63040-480015-001-RS	1
Hand Strap	46035-000300-RS	1

Cradle Specification

Model		Description
I/O Interface	DC Input	1 x Micro USB jack
Power	Power Supply	5V/3A
Environment	Operating Temperature	-10°C ~ 50°C
	Storage Temperature	-20°C ~ 60°C
	Humidity	10% ~ 95% non condensing
Physical Characteristics	Dimensions (LxWxH) (mm)	115.0 x 66.0 x 50.4
	Weight	194 g


Standard Pouch


Cradle



Light Industrial Panel Solution



Today, more and more customers are looking for advanced services such as round-the-clock service or just-in-time delivery. Service automation enables the exchange of information and communication between administrators and clients through the thin, low power consumption portable devices that fit with many circumstances. Upgrade your service platform with IEI service automation solutions, which have advanced communication functions and solid mechanical characteristics. These solutions help you keep up with your customers while staying a step ahead of the competition.

Light Industrial Panel PC Product Line

AFOLUX GEN III Panel PC with PoE PD module

Size	W7”	W10.1”	12.1”	W15.6”	18.5”	21.5”
Intel® Apollo lake	ALF3-W07A-AL	AFL3-W10A-AL	AFL3-12A-AL	AFL3-W15A-AL		
Intel® Whiskly Lake				AFL3-W15C-ULT5	AFL3-W19C-ULT5	AFL3-W22C-ULT5

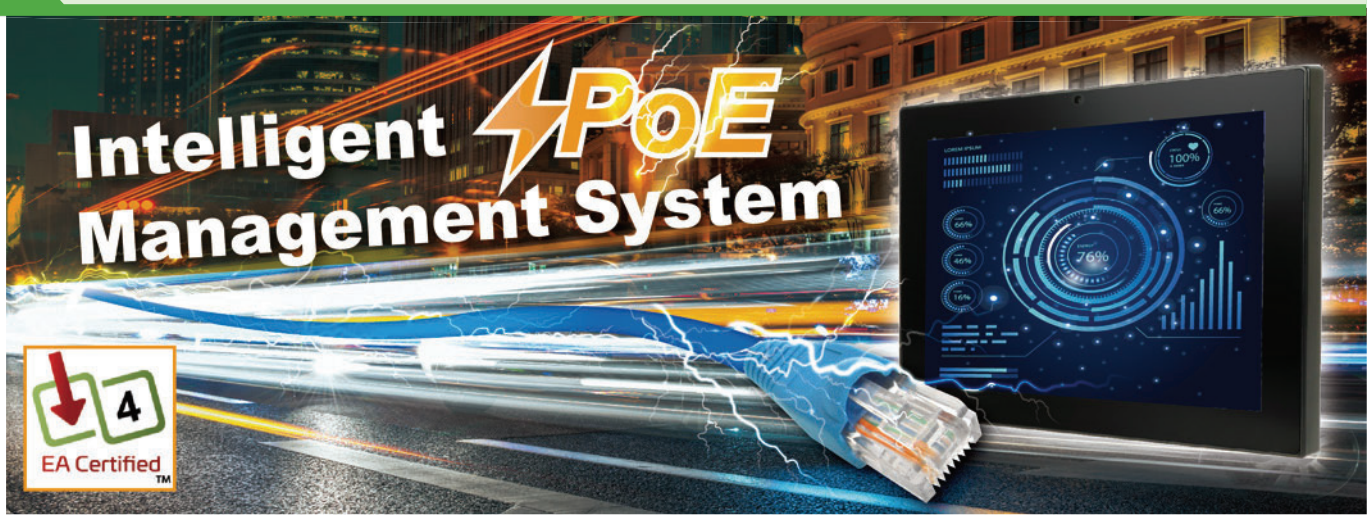
AFOLUX GEN III Panel PC

Size	W7”	8.4”	W10.1”	12.1”	W15”	W19”	W22”
Intel® Dual Core Celeron® N2807	AFL3-W07A-BT						
Intel® Quad Core Celeron® J1900		AFL3-08A-BT	AFL3-W10A-BT	AFL3-12A-BT	AFL3-W15A-BT		
Intel® H81					AFL3-W15B-H81		
6th generation Intel® mobile ULT				AFL3-12C-ULT3	AFL3-W15C-ULT3	AFL3-W19C-ULT3	AFL3-W22C-ULT3
Intel® Apollo lake						AFL3-W19A-AL	

AFOLUX GEN II Panel PC

Size	12.1”
Intel® Atom™ HM65	AFL2-12A-HM65

Intelligent PoE Management System

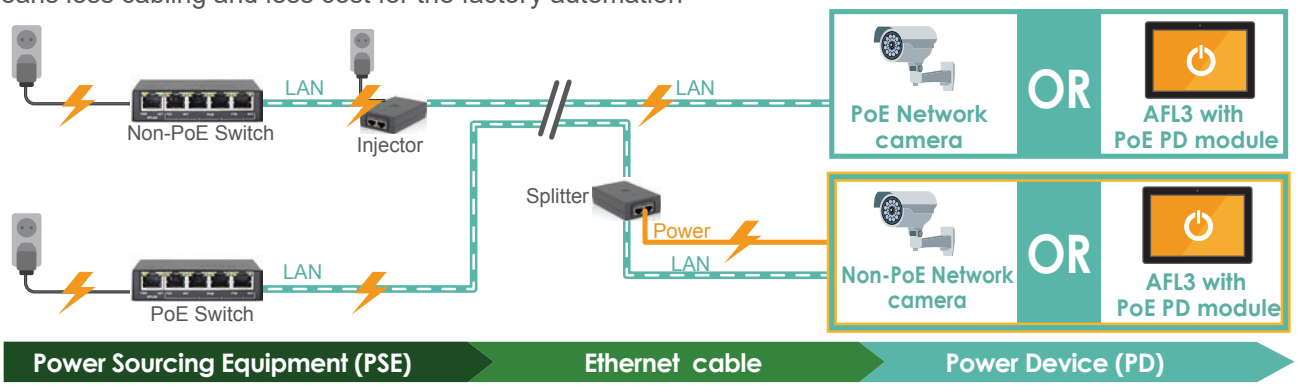


AFL3 Series Products support up to IEEE 802.3bt standard and IEI offer PoE PD bt standard module to option install to AFL3 series panel pc.

Type	Standard	PSE minimum input power	PD minimum input power guaranteed	Cable category	Cable length	Power over
Type 1	IEEE802.3af	15.4 W	12.95 W	Cat5e	100 m	2 pairs
Type 2	IEEE802.3at	30 W	25.5 W	Cat5e	100 m	2 pairs
Type3	IEEE802.3bt	60 W	51 W – 60 W	Cat5e	100 m	2 pairs class 0-4 4 pairs class 0-4 4 pairs class 5-6
Type4	IEEE802.3bt	90 W	71 W – 90 W	Cat5e	100 m	4 pairs class 7-8

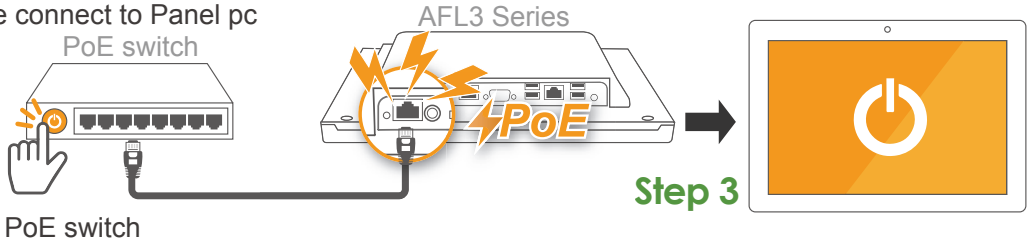
Application

PoE Scenario (Delivery Data and Power Together Thru Ethernet cable) PoE allows electronic devices to receive both power and data through one Ethernet plug-in. The ability to receive both power and data through one cord means less cabling and less cost for the factory automation



Setup intelligent PoE Management System

Step 1
LAN cable connect to Panel pc



Step 2
Power on PoE switch

Step 3

AFL3 Apollo Lake with PoE Selection Guide



LCD Size		7”	10.1”	12.1”	15.6”
Model		AFL3-W07A-AL-R10	AFL3-W10A-AL-R10	AFL3-12A-AL-R10	AFL3-W15A-AL-R10
LCD	Size	7”	10.1”	12.1”	15.6”
	Resolution	1024 x 600 (16:9)	1280 x 800 (16:10)	1024 x 768 (4:3)	1366 x 768 (16:9)
	Brightness (cd/m²)	500	350	500	300
	Contrast Ratio	700:1	800:1	700:1	500:1
	Viewing Angle (H-V)	150 / 145	170 / 170	160 / 160	170 / 160
	Backlight MTBF	20000	15000	50000	50000
Touch	Touch Screen	PCAP with USB interface (anti-UV/AG coating)	PCAP with USB interface (anti-UV/anti-glare coating)		
	Touch Controller	EETI 80H60	EXC3146	EXC3146	EXC3160
Mainboard	CPU	Intel® Celeron N3350 (2M Cache, up to 2.4 GHz) TDP 6W	Apollo lake Intel® Celeron® Processor J3455 (2M Cache, up to 2.3 GHz) TDP 10W		
	RAM	one 204-pin 1866MHz DDR3L DIMMs support up to 8GB			
	Ethernet	LAN1: Intel® I211	LAN1: Intel® I211 + LAN2: Intel® I211		
	Audio Codec	ALC888			
Storage		1 x M.2 B+M key PCIe 2242 (PCIE/SATA signal)	1 x 2.5” SATA 3Gb/s HDD bay 1 x M.2 B+M key PCIe 2242 (USB/PCIE/SATA signal)		
I/O Ports & Switch		2 x GbE LAN 2 x USB 3.2 Gen 1 (5Gb/s) 1 x 12V DC Jack 1 x power switch 1 x Reset button 1 x Clear CMOS button 1 x AT/ATX switch	1 x RS-232/422/485 by RJ45 1 x RS-232 by DP9 2 x GbE LAN 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x HDMI output 1 x 9V~30V DC Jcak 1 x power switch 1 x Line out 1 x Reset button 1 x Clear CMOS button 1 x AT/ATX switch		
E-Window expanasion		N/A	N/A	Yes (option)	Yes (option)
PoE IEEE802.3bt		On board PoE at	Yes (option single channel)		
Audio		AMP 2W (internal speaker)	AMP 2W + 2W	AMP 3W + 3W (internal speaker)	AMP 3W + 3W (internal speaker)
Camera / Microphone		N/A	2-megapixel with low light function, digital microphone		
Wireless & Bluetooth		IEEE 802.11 a/b/g/n/ac, Bluetooth V4.0 (1 x M.2 A + E key 2230)			
Physical	Construction Front Panel	PC + ABS Plastic			
	Mounting	Panel, Wall, Stand and Arm VESA 75mm x 75mm		Panel, Wall, Stand and Arm VESA 75mm x 75mm, 100mm x 100mm	
	Color	Black C			
	Dimensions (W x H x D)(mm)	191 x 127 x 43	262 x 181 x 42	304 x 243 x 44	396 x 250 x 53
	Cut-out Dimensions (W x H)	182 x 111	236 x 149	243 x 205	273 x 226
	Net/Gross Weight (kgs)	0.73/1.81	1.06/2.58	1.92/3.95	3.3/5.6
Environment	Operating Temperature (°C) (Ambient with air flow)	minus -20°C~50°C			
	Storage Temperature (°C)	minus -20°C~60°C			
	Humidity	10% to 95% (non-condensing)			
	IP Level	IP 65 compliant front panel	IP 64 compliant front panel		
	Safety&EMC	CE / FCC class A			
	Termal Solution	Fanless			
Power	Power Requirement	12V only	9V~30V		
ErP		ErP 2009/125/EC			

AFL3 Apollo Lake with PoE

Intelligent PoE Management System

Features

- W7"~ W15.6" light industrial interactive panel PC
- 9 V ~ 30 V wide range DC input with lockable DC jack
- Selectable AT/ATX power mode
- Built-in speakers
- Support PoE PD IEEE803.2 af/at/bt
- IP64/IP65 compliant front panel
- Touch screen wth anti-UV / anti-glare coating
- Support Auto Flow Control over RS-485



Intel® Apollo lake | PoE | Touchscreen | Anti-glare Coating | 9V~30V DC

Specifications

Model		AFL3-W07A-AL	AFL3-W10A-AL	AFL3-12A-AL	AFL3-W15A-AL
LCD	Size	7"	10.1"	12.1"	15.6"
	Resolution	1024 x 600 (16:9)	1280 x 800 (16:10)	1024 x 768 (4:3)	1366 x 768 (16:9)
	Brightness (cd/m²)	500	350	500	300
	Contrast Ratio	700:1	800:1	700:1	500:1
	Viewing Angle (H-V)	150 / 145	170 / 170	160 / 160	170 / 160
	Backlight MTBF	20000	15000	50000	50000
Touch	Touch Screen	PCAP with USB interface (anti-UV/AG coating)	PCAP with USB interface (anti-UV/anti-glare coating)		
	Touch Controller	EETI 80H60	EXC3146	EXC3146	EXC3160
Mainboard	CPU	Intel® Celeron N3350 (2M Cache, up to 2.4 GHz) TDP 6W	Apollo lake Intel® Celeron® Processor J3455 (2M Cache, up to 2.3 GHz) TDP 10W		
	RAM	one 204-pin 1866MHz DDR3L DIMMs support up to 8GB			
	Ethernet	LAN1: Intel® I211 + LAN2: Intel® I211			
	Audio Codec	ALC269			
Storage		1 x M.2 B+M key PCIe 2242 (USB/SATA signal)	1 x M.2 B+M key PCIe 2242 (USB/SATA signal)	*1 x 2.5" SATA 3Gb/s HDD bay (optional one of the two) 1 x M.2 B+M key PCIe 2242 (USB/SATA signal)	
I/O Ports & Switch		2 x GbE LAN 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x 12V DC Jack 1 x power switch 1 x Reset button 1 x Clear CMOS button 1 x AT/ATX switch	1 x RS-232/422/485 by RJ45 (Support Auto Flow Control over RS-485) 1 x RS-232 by DP9 2 x GbE LAN 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x HDMI output 1 x 9V~30V DC Jack 1 x power switch 1 x Line out 1 x Reset button 1 x Clear CMOS button 1 x AT/ATX switch		
E-Window expanasion		N/A	N/A	Yes , optional 1 x M.2 B+M key PCIe 2242 (USB/PCIE/SATA signal)	
PoE IEEE802.3 standard		On board PoE at	Yes (option single channel)		
Audio		AMP 2W (internal speaker)	AMP 2W + 2W	AMP 3W + 3W (internal speaker)	
Camera / Microphone		N/A	2-megapixel with low light function, digital microphone		
Wireless & Bluetooth		IEEE 802.11 a/b/g/n/ac, Bluetooth V4.1 M.2 slot A+E key 2230 slot (PCIe/USB signal)			
Physical	Construction Front Panel	PC + ABS Plastic			
	Mounting	Panel, Wall, Stand and Arm VESA 75mm x 75mm		Panel, Wall, Stand and Arm VESA 75mm x 75mm, 100mm x 100mm	
	Color	Black C			
	Dimensions (W x H x D)(mm)	191 x 127 x 43	262 x 181 x 42	304 x 243 x 44	396 x 250 x 53
	Cut-out Dimensions (W x H)	182 x 111	236 x 149	243 x 205	273 x 226
	Net/Gross Weight (kgs)	0.73/1.81	1.06/2.58	1.92/3.95	3.3/5.6
Environment	Operating Temperature (°C) (Ambient with air flow)	minus -20˚C~50˚C			
	Storage Temperature (°C)	minus -20˚C~60˚C			
	Humidity	10% to 95% (non-condensing)			
	IP Level	IP 65 compliant front panel	IP 64 compliant front panel		
	Safety&EMC	CE / FCC class A			
	Termal Solution	Fanless			
Power	Power Requirement	12V/3A	9~30V , 4~1,2A	9~30V , 6.67~2A	9~30V , 6.67~2A
ErP		ErP 2009/125/EC			

*the 2.5" HDD bay must be removed if one chooses to install the PoE PD module, and vice versa

Ordering Information

Part No.	Description
AFL3-W07A-AL-N1/P/PC/4G-R10	7" 500cd/m² 1024 x 600 Panel PC with Intel® Celeron® Processor N3350 (6W) on-board Processor , on-baord POE at, 1*4GB DDR3L , 802.11a/b/g/n/ac WiFi module, PCAP touch,R10
AFL3-W10A-AL-J2/P/PC/4G-R10	10.1" 350cd/m² 1280 x 800 Panel PC with Intel® Celeron® Processor J3455 (10W) on-board Processor, POE option, 1*4GB DDR3L , 802.11a/b/g/n/ac WiFi module, PCAP touch, 2M camera, microphone,R10
*AFL3-12A-AL-J2/P/PC/4G-R10	12.1"500 cd/m² 1024 x 768 Panel PC with Intel® Celeron® Processor J3455 (10W) on-board Processor, POE option, 1*4GB DDR3L , 802.11a/b/g/n/ac WiFi module, PCAP touch, 2M camera, microphone,R10
*AFL3-W15A-AL-J2/P/PC/4G-R10	Wide 15.6" 300 cd/m² 1366 x 768 Panel PC with Intel® Celeron® Processor J3455 (10W) on-board Processor, POE option, 1*4GB DDR3L , 802.11a/b/g/n/ac WiFi module, PCAP touch, 2M camera, microphone,R10
AFL3-PD-BT01-KIT01-R10	PoE PD IEEE802.3 af/at/bt module kit , only for AFL3-xxx-AL optional (W10A/12A/W15A) , R10

*the 2.5" HDD bay must be removed if one chooses to install the PoE PD module, and vice versa

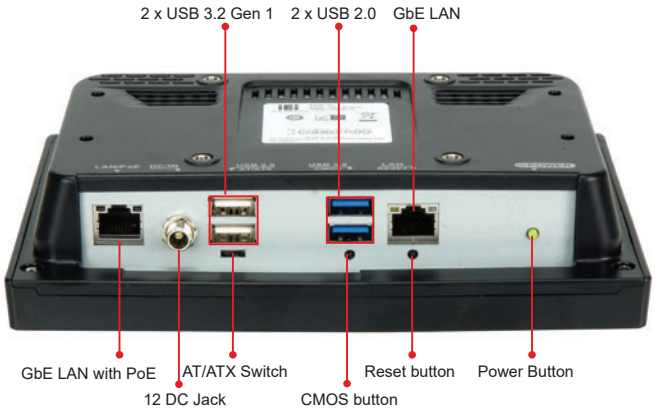
Options

Item	AFL3-W07A-AL	AFL3-W10A-AL	AFL3-12A-AL	AFL3-W15A-AL
Panel Mounting Kit	AFL3PK-W07A-R11	AFL3PK-08A-R10	AFL3PK-08A-R10	AFL3PK-W15A-R10
Wall Mounting Kit	AFLWK-12	AFLWK-12	AFLWK-19B	AFLWK-19B
Rack Mounting Kit	AFL3RK-W07A-R11	AFL3RK-W10A-R10	AFL3RK-12A-R10	AFL3RK-W15A-R11
Arm	ARM-11-RS/ARM-31-RS	ARM-11-RS/ARM-31-RS	ARM-11-RS/ARM-31-RS	ARM-11-RS/ARM-31-RS
Stand	STAND-B08/STAND-100-RS	STAND-C12-R10	STAND-A12-RS/STAND-C12-R10/ STAND-100-RS	STAND-A12-RS/STAND-C12-R10/ STAND-100-RS
V-Stand	VSTAND-A07-R1	VSTAND-A10-R11	VSTAND-A12-R11	
Magnetic Card Reader	AFL3P-W7MSR-U-R10	AFL3P-W10MSR-U-R10	AFL3P-W10MSR-U-R10	AFL3P-W10MSR-U-R10
Barcode Scanner	N/A	AFL3-2D-R11	AFL3-2D-R11	AFL3-2D-R11
RFID Reader (13.56 MHz Mifare Type)	N/A	AFL3-MF-RFID-KIT02-R10	AFL3-MF-RFID-KIT02-R10	AFL3-MF-RFID-KIT02-R10
OS: Win 10 IOT Enterprise (64-bit)	AFL3-W07A-AL-W10E64-E-R10			
PoE PD module	N/A	AFL3-PD-BT01-KIT01-R10	AFL3-PD-BT01-KIT01-R10	AFL3-PD-BT01-KIT01-R10

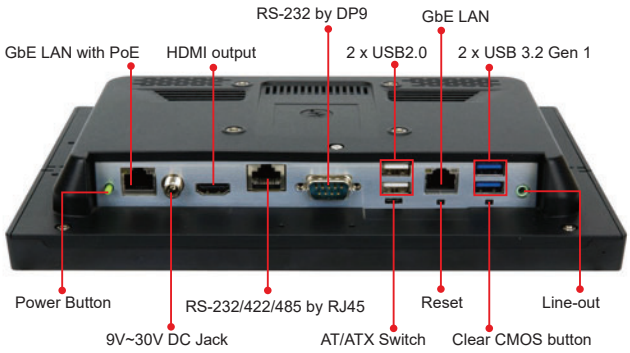
Packing List

Item	Part No.	Q'ty	Remark
Setting kit	46003-002600-RS	2	
Round head machine screw	44003-020041-RS	2	M2*4 round head machine screw
	44003-020041-RS	4	M2*4 round head machine screw
Pan head machine screw	44403-040061-RS	4	M4*6 pan head machine screw
Fix holder	46003-009500-RS	2	
Power cord	32702-000400-200-RS	1	
Power adapter	63040-010036-210-RS	1	Vin:90~264VAC;36W , Vout:12VDC;Φ2.5/Φ5.5/lock (AFL3-W07A-AL / AFL3-W10A-AL)
	63040-010060-211-RS	1	Vin:90~264VAC;36W , Vout:12VDC;Φ2.5/Φ5.5/lock (AFL3-12A-AL / AFL3-W15A-AL)
RJ-45 to DB-9 COM port transfer cable	32005-004600-100-RS	1	300mm, 26AWG, (A) D-SUB 9 male, (B) RJ-45

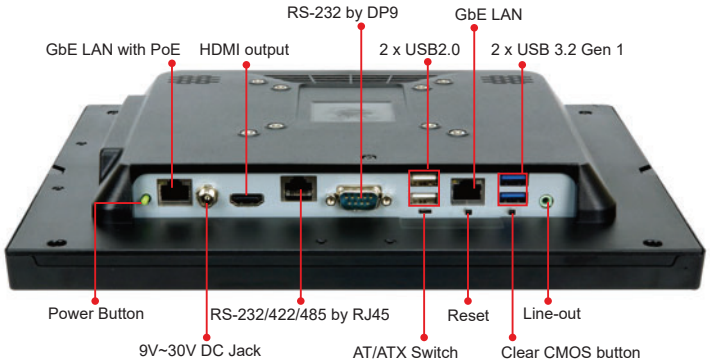
AFL3-W07A-AL Fully Integrated I/O



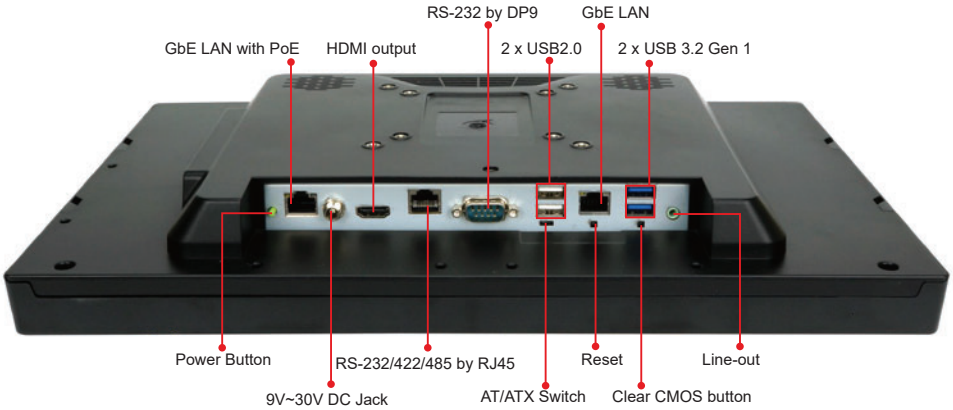
AFL3-W10A-AL
Fully Integrated I/O



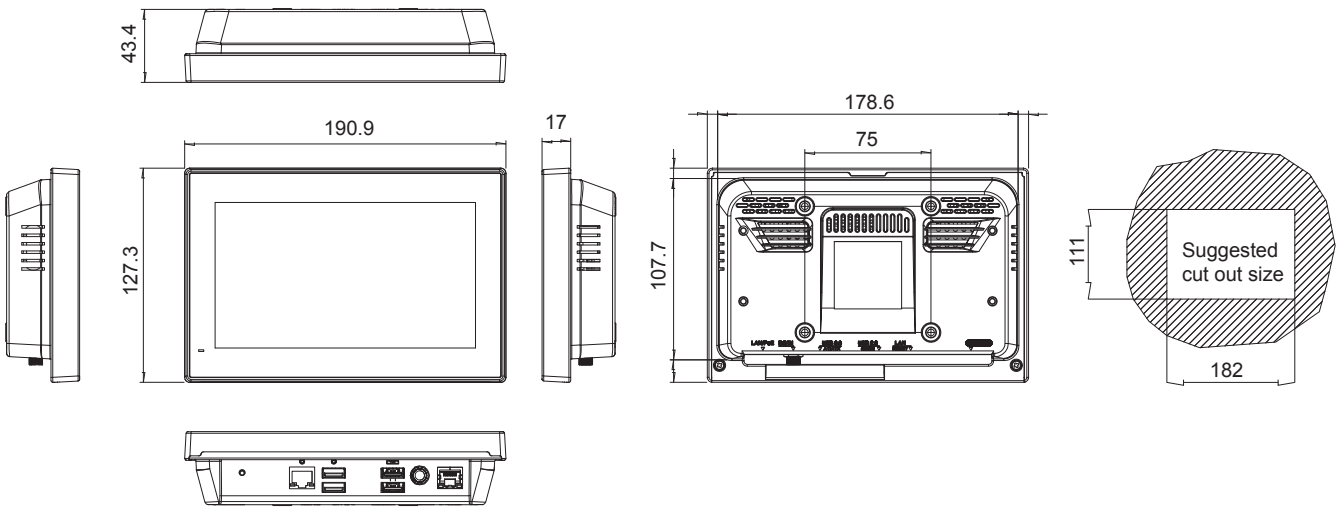
AFL3-12A-AL
Fully Integrated I/O



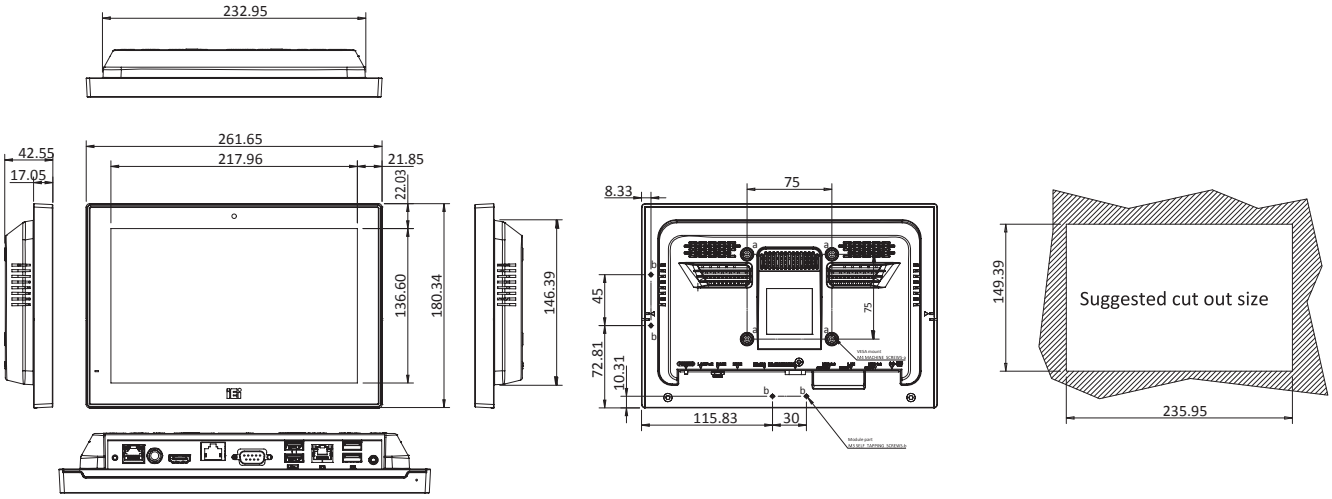
AFL3-W15A-AL
Fully Integrated I/O



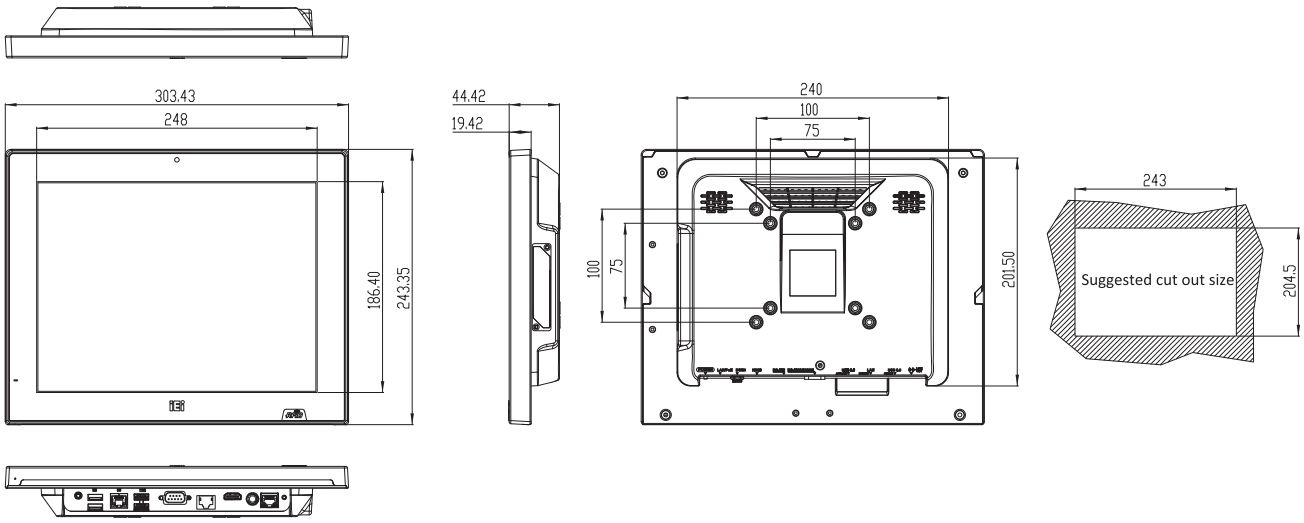
AFL3-W07A-AL Dimensions (Unit: mm)



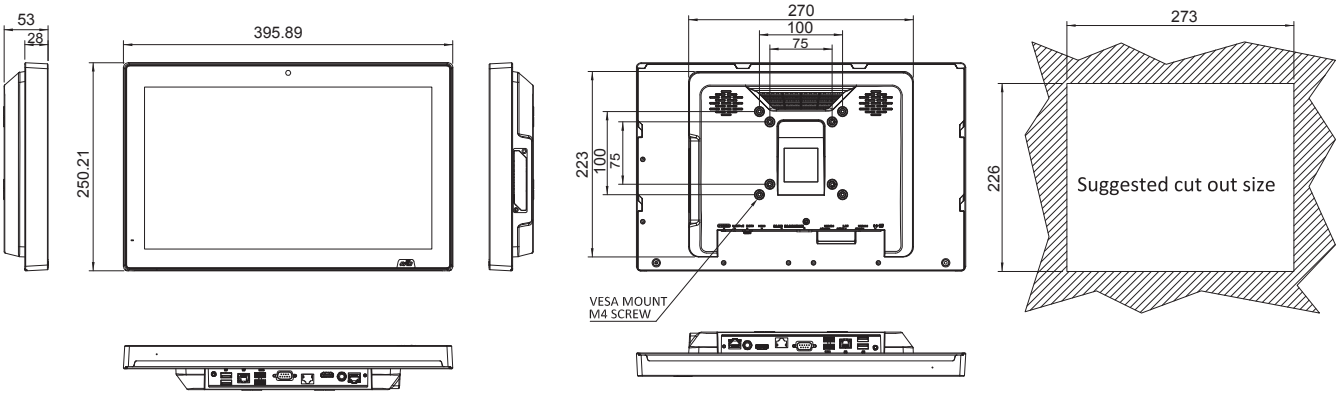
AFL3-W10A-AL Dimensions (Unit: mm)



AFL3-12A-AL Dimensions (Unit: mm)



AFL3-W15A-AL Dimensions (Unit: mm)



AFL3 Whiskly Lake with PoE Selection Guide







LCD Size		15.6”	18.5”	21.5”
Model		AFL3-W15C-ULT5	AFL3-W19C-ULT5	AFL3-W22C-ULT5
LCD	Size	15.6”	18.5”	21.5”
	Resolution	1366 x 768 (16:9)	1366 x 768 (16:9)	1920 x 1080 (16:9)
	Brightness (cd/m²)	300	250	250
	Contrast Ratio	500:01:00	1000:01:00	1000:01:00
	Viewing Angle (H-V)	170°/160°	170°/160°	170°/160°
	Backlight MTBF (hrs)	50000	30000	30000
Touch Screen		PCAP with USB interface (anti-UV/AG coating)		
Touch Controller		EXC3160		
Mainboard	CPU	Intel® Whiskey Lake-U quad-core processor		
	Memory	Two 260-pin 2400MHz dual-channel DDR4 SO-DIMMs supporting up to 32 GB		
	Ethernet	LAN1 & LAN2: Intel® I211; LAN3: Intel® I219		
	Audio Codec	ALC269		
Storage		1 x M.2 M-key 2242/60/80 PCIe 3.0 x4 (PCIe/SATA Signal)		
		1 x 2.5” SATA 3Gb/s HDD bay		
I/O Ports & Switch		2 x PoE GbE LAN (optioal IEEE802.3af/at/bt) 1 x GbE LAN 4 x USB 3.2 Gen.2 1 x HDMI output 1 x RS-232/422/485 1 x RS-232 1 x 12V DC jack 1 x Power switch 1 x AT/ATX switch		
E-Window Expansion		PCIe Mini slot (PCIe+USB)		
Audio		AMP 3W + 3W (internal speaker)		
Camera / Microphone		2-megapixel with low light function, digital microphone		
Wireless & Bluetooth		IEEE 802.11 a/b/g/n/ac, Bluetooth V4.1 M.2 A+E key 2230 slot (PCIe/USB signal)		
Physical	Construction Front Panel	PC + ABS Plastic		
	Mounting	Panel, Wall, Stand and Arm VESA 75mm x 75mm , 100mm x 100mm		
	Color	Black C		
	Dimensions (W x H x D) (mm)	396 x 250 x 64	470 x 290 x 70	528 x 336 x 68
	Cut-out Dimensions (W x H)	369 x 226	443 x 261	502 x 303
	Net/Gross Weight (kgs)	4.5/6.5	7.3/10	8.27/11.27
Environment	Operating Temperature (°C) (Ambient with air flow)	-20°C~50°C		
	Storage Temperature (°C)	-20°C~60°C		
	Humidity	10% to 95% (non-condensing)		
	IP Level	IP 64 compliant front panel		
	Safety & EMC	CE / FCC class A		
	Termal Solution	Fanless		
Power	Power Requirement	12V, 8A		
		PoE IEEE802.3af/at/bt (redundancy, power load-sharing)		
ErP		ErP 2009/125/EC		

AFL3 Whiskly Lake with PoE

NEW

Intelligent PoE Management System

Features

- W15.6"~ W21.5" light industrial interactive panel PC
- 8th Generation Intel® Core™ i5 on-board Whiskey Lake-U processor
- Selectable AT/ATX power mode
- Built-in speakers
- Support PoE PD IEEE803.2 af/at/bt (optional)
- IP64 compliant front panel
- Touch screen wth anti-UV / anti-glare coating
- Support Auto Flow Control over RS-485

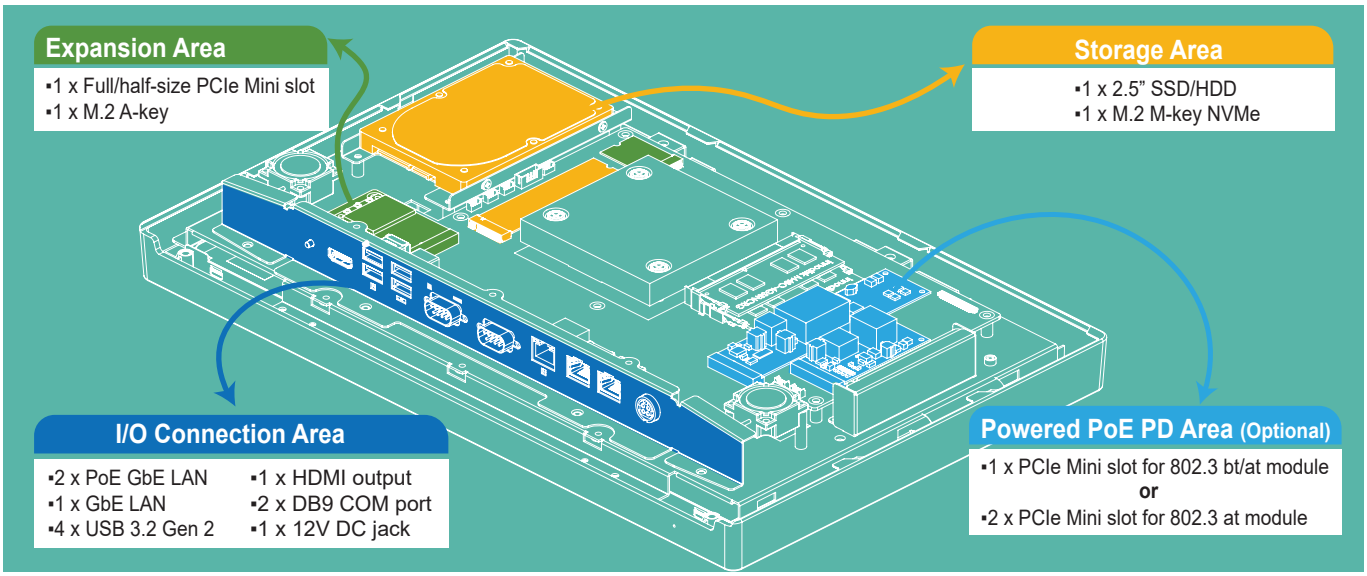


Intel® Whiskey lake | PoE | Touchscreen | Anti-glare Coating | AT/ATX

Specifications

Model		AFL3-W15C-ULT5	AFL3-W19C-ULT5	AFL3-W22C-ULT5
LCD	Size	15.6"	18.5"	21.5"
	Resolution	1366 x 768 (16:9)	1366 x 768 (16:9)	1920 x 1080 (16:9)
	Brightness (cd/m²)	300	250	250
	Contrast Ratio	500:01:00	1000:01:00	1000:01:00
	Viewing Angle (H-V)	170°/160°	170°/160°	170°/160°
	Backlight MTBF (hrs)	50000	30000	30000
Touch Screen		PCAP with USB interface (anti-UV/AG coating)		
Touch Controller		EXC3160		
Mainboard	CPU	Intel® Whiskey Lake-U quad-core processor		
	Memory	Two 260-pin 2400MHz dual-channel DDR4 SO-DIMMs supporting up to 32 GB		
	Ethernet	LAN1 & LAN2: Intel® I211; LAN3: Intel® I219		
	Audio Codec	ALC269		
Storage		1 x M.2 M-key 2242/60/80 PCIe 3.0 x4 (PCIe/SATA Signal) 1 x 2.5" SATA 3Gb/s HDD bay		
I/O Ports & Switch		2 x PoE GbE LAN (optioal IEEE802.3af/at/bt) 1 x GbE LAN 4 x USB 3.2 Gen.2 1 x HDMI output 1 x RS-232/422/485 1 x RS-232 1 x 12V DC jack 1 x Power switch 1 x AT/ATX switch		
E-Window Expansion		PCIe Mini slot (PCIe+USB)		
Audio		AMP 3W + 3W (internal speaker)		
Camera / Microphone		2-megapixel with low light function, digital microphone		
Wireless & Bluetooth		IEEE 802.11 a/b/g/n/ac, Bluetooth V4.1 M.2 A+E key 2230 slot (PCIe/USB signal)		
Physical	Construction Front Panel	PC + ABS Plastic		
	Mounting	Panel, Wall, Stand and Arm VESA 75mm x 75mm , 100mm x 100mm		
	Color	Black C		
	Dimensions (W x H x D) (mm)	396 x 250 x 64	470 x 290 x 70	528 x 336 x 68
	Cut-out Dimensions (W x H)	369 x 226	443 x 261	502 x 303
	Net/Gross Weight (kgs)	4.5/6.5	7.3/10	8.27/11.27
Environment	Operating Temperature (°C) (Ambient with air flow)	-20°C~50°C		
	Storage Temperature (°C)	-20°C~60°C		
	Humidity	10% to 95% (non-condensing)		
	IP Level	IP 64 compliant front panel		
	Safety & EMC	CE / FCC class A		
	Termal Solution	Fanless		
Power	Power Requirement	12V, 8A PoE IEEE802.3af/at/bt (redundancy, power load-sharing)		
ErP		ErP 2009/125/EC		

Rich Interface



IEEE802.3 PD Module



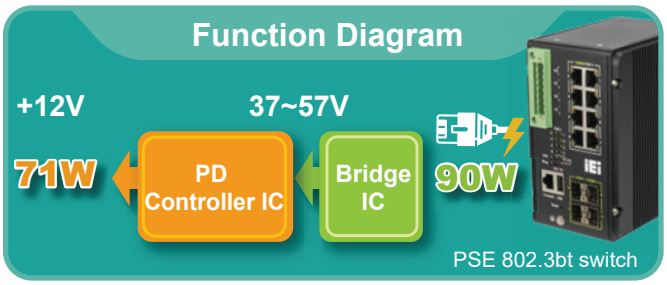
GPOE-PD-BT01-R10

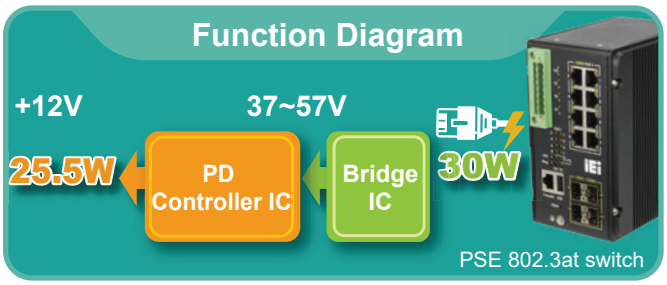
- Support PoE IEEE802.3 af/at/bt
- Support up to 71watt PD
- PCIe Mini form factor (IEI defined pin)
- Operating temperature: -10°C~60°C
- Operating humidity: 5% ~ 95%



GPOE-PD-AT01-R10

- Support PoE IEEE802.3 af/at
- Support up to 25.5watt PD
- PCIe Mini form factor (IEI defined pin)
- Operating temperature: 0°C~60°C
- Operating humidity: 5% ~ 95%

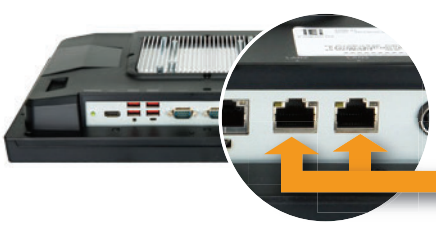


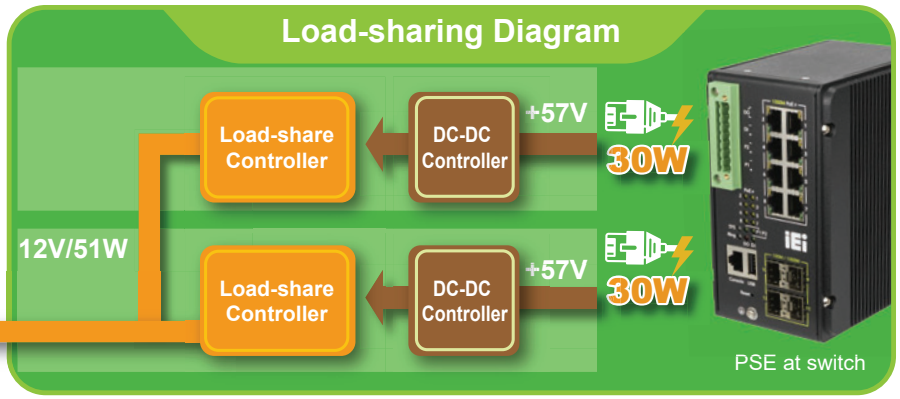


IEEE802.3at Load-sharing

Customers who is unable to upgrade their PSE switch to IEEE802.3bt standard can, simply upgrade the WHL-U panel PC by installing IEI's GPOE-PD-AT01 module, and power the device with two IEEE802.3at standard PSE ports

AFL3-WxxC-ULT5 + 2 x IEEE802.3at card (GPOE-PD-AT01-R10)





Ordering Information

Part No.	Description
AFL3-W15C-ULT5-i5/P/PC/4G-R10	Wide 15.6" 300cd/m² 1366x768 Panel PC with 8th generation 14nm Intel® Whiskey Lake Core™ i5-8365UE (15W) on-board processor (ULT), PoE option, 802.11a/b/g/n/ac Wi-Fi module, PCAP touch, 2M camera, microphone, 1*4GB DDR4 RAM, with AG, R10
AFL3-W19C-ULT5-i5/P/PC/4G-R10	Wide 18.5" 250cd/m² 1366x768 Panel PC with 8th generation 14nm Intel® Whiskey Lake Core™ i5-8365UE (15W) on-board processor (ULT), PoE option, 802.11a/b/g/n/ac Wi-Fi module, PCAP touch, 2M camera, microphone, 1*4GB DDR4 RAM, with AG, R10
AFL3-W22C-ULT5-i5/P/PC/4G-R10	Wide 21.5" 250cd/m² 1920x1080 Panel PC with 8th generation 14nm Intel® Whiskey Lake Core™ i5-8365UE (15W) on-board processor (ULT), PoE option, 802.11a/b/g/n/ac Wi-Fi module, PCAP touch, 2M camera, microphone, 1*4GB DDR4 RAM, with AG, R10
GPOE-PD-AT01-R10	PoE PD IEEE802.3af/at with PCIe Mini form factor, supports AFL3-W15C/W19C/W22C-ULT5, R10
GPOE-PD-BT01-R10	PoE PD IEEE802.3af/at/bt with PCIe Mini form factor, supports AFL3-W15C/W19C/W22C-ULT5, R10

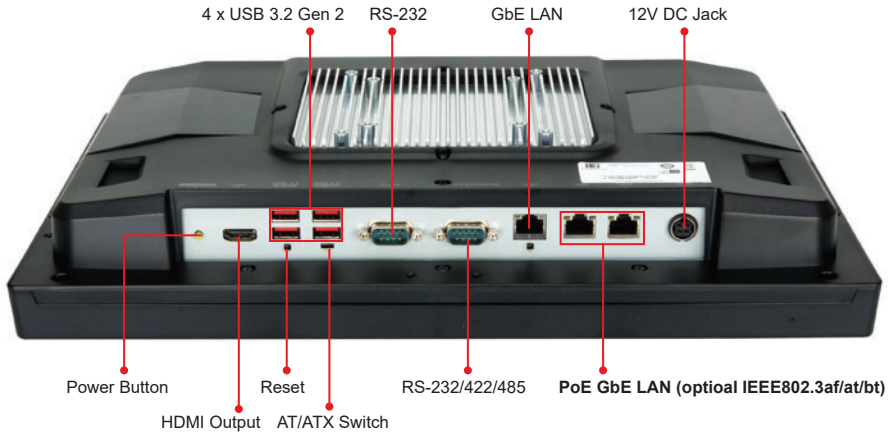
Options

Item	AFL3-W15C-ULT5	AFL3-W19C-ULT5	AFL3-W22C-ULT5
Panel Mounting Kit	AFL3PK-W15A-R10	AFL3PK-W19C-R10	AFL3PK-W19C-R10
Wall Mounting Kit	AFLWK-19B		
Rack Mounting Kit	AFL3RK-W15B-R10	N/A	N/A
Arm	ARM-11-RS/ARM-31-RS		
Stand	STAND-A21-R10/ STAND-210-R11/STAND-A19-RS/STAND-C19-R10		
Magnetic Card Reader	AFL3P-W10MSR-U-R10		
Barcode Scanner	AFL3-2D-R11		
RFID Reader (13.56 MHz Mifare Type For ATO assembly)	AFL3-MF-RFID-KIT02-R11	AFL3-MF-RFID-KIT02-R11	AFL3-MF-RFID-KIT02-R11
*OS: Win 10 IOT Enterprise (64-bit)	AFL3-W15C-ULT5-W10E64-V-R10		

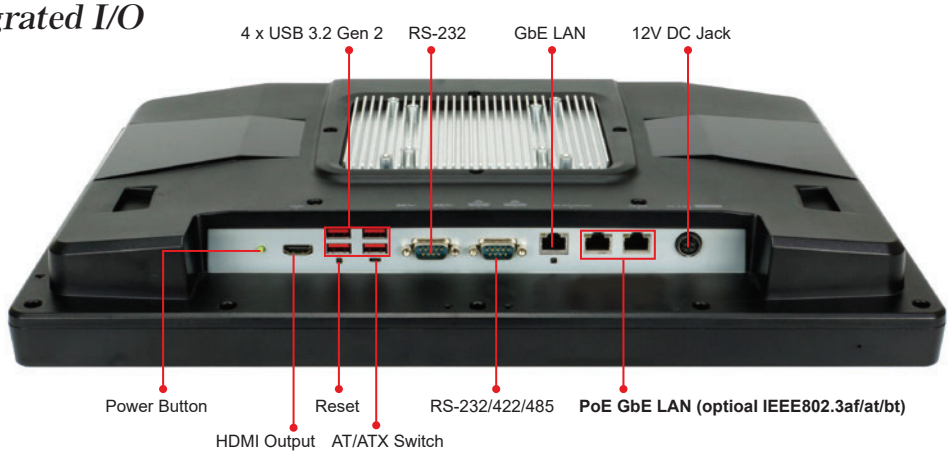
Packing List

Item	Part No.	Q'ty	Remark
Round head machine screw	44003-020041-RS	2	M2*4 round head machine screw
	44003-020041-RS	4	M2*4 round head machine screw
Pan head machine screw	44403-040061-RS	4	M4*6 pan head machine screw
Fix holder	46003-009500-RS	2	
Power cord	32702-000400-200-RS	1	
Power adapter	63040-010096-200-RS	1	Vin: 90~264VAC; 96W, Vout: 12VDC; Din 4Pin/lock
RJ-45 to DB-9 COM port transfer cable	32005-004600-100-RS	1	300mm, 26AWG, (A) D-SUB 9 male, (B) RJ-45

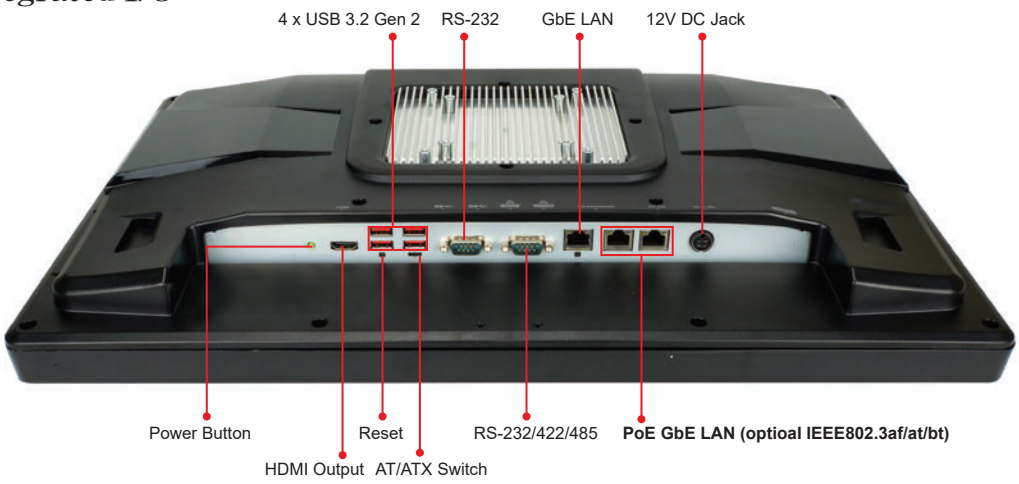
AFL3-W15C-UTL5
Fully Integrated I/O



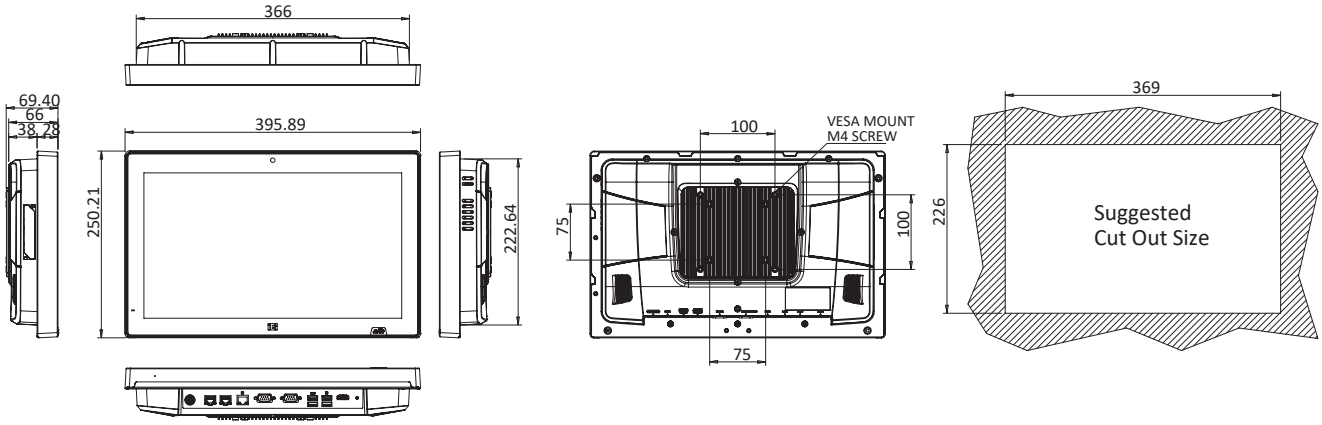
AFL3-W19C-UTL5
Fully Integrated I/O



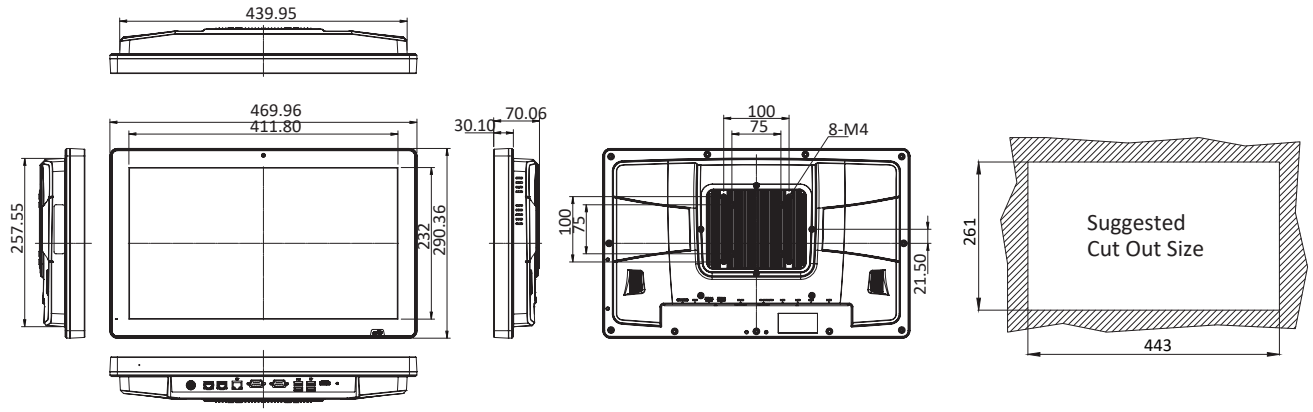
AFL3-W22C-UTL5
Fully Integrated I/O



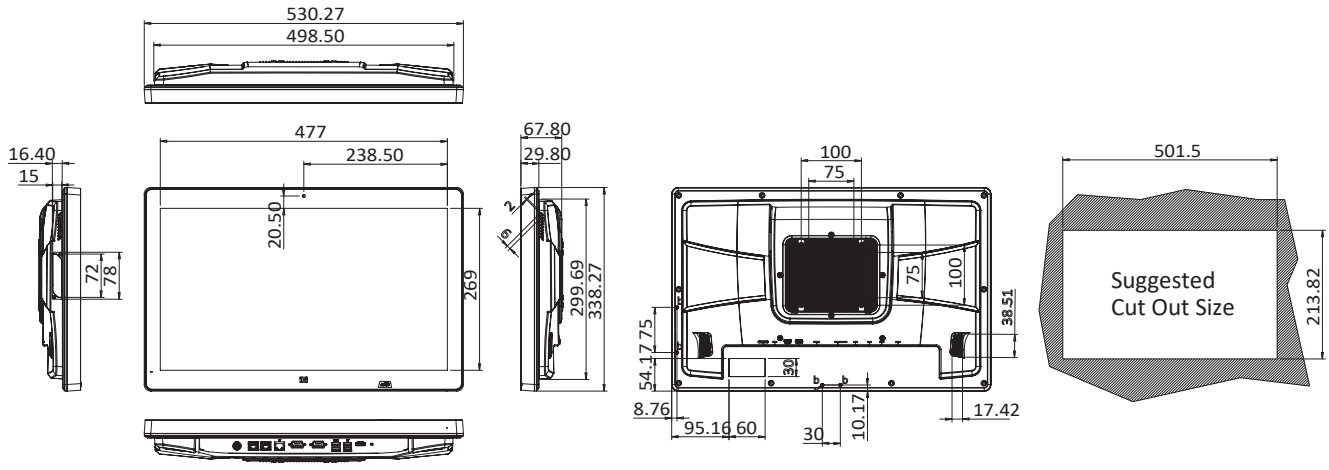
AFL3-W15C-ULT5 Dimensions (Unit: mm)



AFL3-W19C-ULT5 Dimensions (Unit: mm)



AFL3-W22C-ULT5 Dimensions (Unit: mm)



AFOLUX GEN III Interactive Panel PC

Leading the Evolution of Intelligent HMI

AFOLUX GEN III Panel PC, a specialized all-in-one panel computer with 7-inch to 15.6-inch PCAP touchscreen, opens a new era of automation. It looks stylish like a tablet, and supports 802.11ac and Bluetooth 4.0 high speed connectivity. Its robustness meets industrial standards and its scalability make it easy to expand I/O options. The AFOLUX GEN III is designed for a wide range of applications which can be applied in different scenarios.



Robustness

- IP65/IP64 front, IPx1 rear cover
- -10°C~50°C extended operating temperature
- 6H PCAP multi-touch

Scalability

- 1D/2D barcode module for retail applications
- 13.56MHz Mifare reader: meets ISO 14443A/B,15693
- MSR card reader for identifications
- E-Window for function expansion

Stylish

- ABS plus PC plastic light weight hosing
- 2mm bezel seamless design
- Upright portrait installation possible for all touch devices
- Less screw design

Connectivity

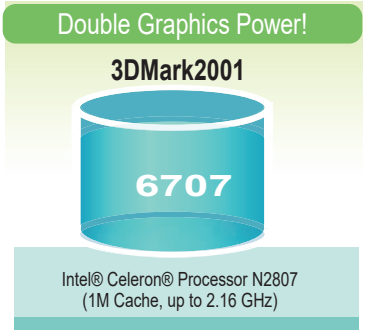
- Digital microphone, 2-megapixel camera, speakers
- Wireless 802.11ac connectivity
- Bluetooth 4.0 (optional)

Multiple Performance Choice

AFOLUX GEN III Panel PC, a specialized all-in-one panel computer with 7-inch to 15.6-inch PCAP touchscreen, opens a new era of automation. It looks stylish like a tablet, and supports 802.11ac and Bluetooth 4.0 high speed connectivity. Its robustness meets industrial standards and its scalability make it easy to expand I/O options. The AFOLUX GEN III is designed for a wide range of applications which can be applied in different scenarios.

A. Fan-free Quad Core and Dual Core Intel® Celeron® Platform

- Quad-core Intel® J1900 2.0 GHz/Dual-core Intel® N2807 Processor
- Intel® HD Graphics Gen 7 Graphics Performance Allows Smooth 2D/3D Graphics Application
- Green Memory
- Fan-free design





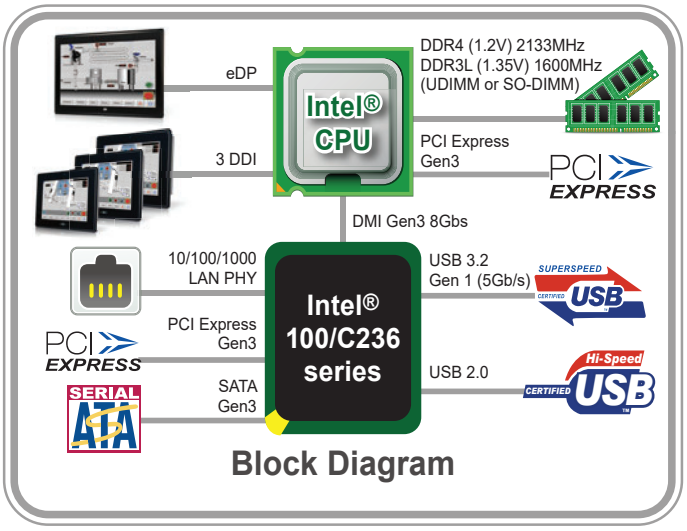
B. 7, 6th Generation Intel® Solution

Breakthrough Performancae

- 15.6" , 18.5" and 22" fanless light-industrial Panel PC with Intel® Skylake / Kabylake Low power ULT BGA 1356 single package platform
- 14nm processor using 2nd generation 3-D tri-gate transistors
- Support dual-channel DDR4 & DDR3L memory (ECC optional)

Enhanced Graphics / Media

- Gen 9 graphics engine
- 3 independent displays with audio
- Display resolutions supporting up to 4K@60Hz



Block Diagram

	ULT			
Item	**8 Series**	**9 Series**	**100 Series**	**100 Series**
Platform Name	Haswell	Broadwell	Skylake	Kabylake
Process	22nm	14nm	14nm	14nm
CPU Package	BGA1168	BGA1168	BGA1356	BGA1356
Memory	DDR3L	DDR3/DDR3L 1600	DDR3L/DR4	DDR3L/DR4
PCI Express Lanes	Up to 8 Lanes PCIe (Gen2)	Up to 12 PCIe (Gen2)	Up to 12 PCIe (Gen3)	Up to 12 PCIe (Gen3)
PCH	PCH-LP	PCH-LP	PCH-LP Premium/Base	PCH-LP Premium/Base

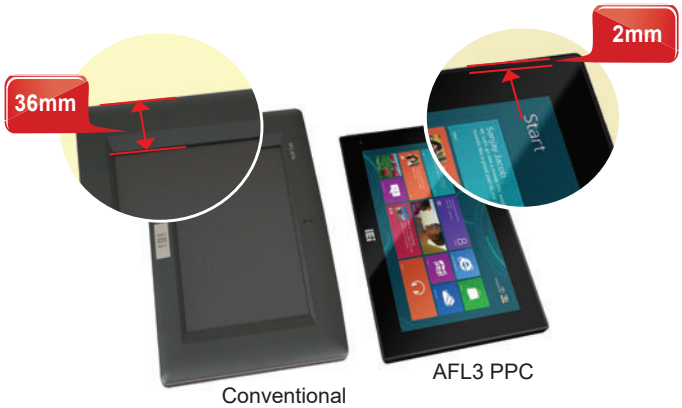
Easy Assembly and Stylish Outlook

Screw-less Design

Only 2 screws are needed for rear cover installation, making it easy to access and replace storage and PCIe Mini card quickly.



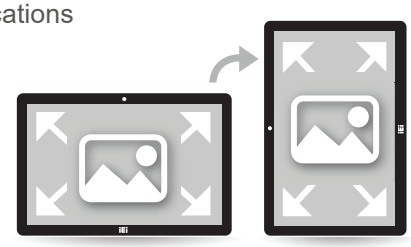
2mm Narrow Bezel



Conventional AFL3 PPC

Symmetric Bezel

Landscape/Portrait screen mode supports different applications



Light Weight Plastic Housing

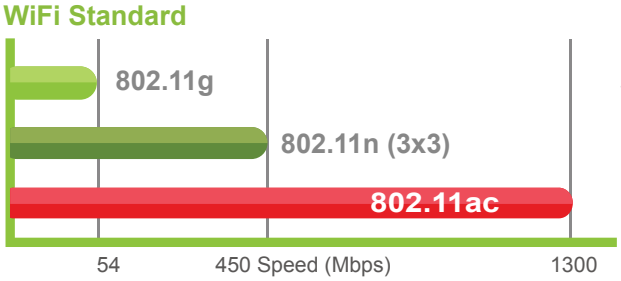
The ABS plus PC plastic housing helps to shape the stylish outlook and only weight 1/3 of metal housing panel PC.



Fast Transmission Wireless 802.11ac

- 2.4 GHz and 5 GHz dual band supplies faster and reliable signal
- The incredible wireless speed makes it ideal for handling multiple HD movie streams, high-resolution on-line games, stereo music, VoIPs and data streams at the same time stably and smoothly.

Maximum Speed: Next generation 802.11ac VS. 802.11n





E-Window Tool Kit

Innovative E-windows technology is a new modular way of adding flexible functionality to a wide range of device. Using standardized component helps system integrators easily add more features without any costly efforts.



E-Window

Features

- Easy maintenance
- Variety module & I/O plate with flexible customization
- Integration of multiple functions
- Easy for replacement with different modules

E-MPCIE-LAN-R10

E-MPCIE-3G-R10

Ordering Information: (shipment by assembly to order)

Item	Description	Support list	
E-MPCIE-LAN-R10	PCIe mini card supports 1-port GbE with REALTEK RTL8111E controller, with PMS 194C I/O bracket and 250mm cable, R10	AFL3-12A-BT * AFL3-W15A-BT * AFL3-W19A-AL	AFL3-W15C-UTL3 AFL3-W19C-UTL3 AFL3-W22C-ULT3
E-MPCIE-DLAN-R10	PCIe mini card supports PCIe mini card supports 2-port GbE with Intel I211 controller, with PMS 194C I/O bracket and 250mm cable, R10	AFL3-12A-BT * AFL3-W15A-BT * AFL3-W19A-AL	AFL3-W15C-UTL3 AFL3-W19C-UTL3 AFL3-W22C-ULT3
E-MPCIE-CClink-R10 CIFX 90E-CC\ET\F	PCIe mini card supports CC-Link Slave interface according to V2.0 and V1.1, with black C I/O bracket and 250mm cable, R10	AFL3-W15C-UTL3 AFL3-W19C-UTL3 AFL3-W19A-AL	AFL3-W22C-ULT3
E-MPCIE-PROFIBUS-R10 CIFX 90E-DP\F	PCIe mini card supports universal PROFI BUS DP card for Master or Slave, with black C I/O bracket and 250mm cable, R10	AFL3-W15C-UTL3 AFL3-W19C-UTL3 AFL3-W19A-AL	AFL3-W22C-ULT3
E-MPCIE-EtherCAT-R10 CIFX 90E-RE\F	PCIe mini card supports universal for all Real-Time Ethernet protocols, with black C I/O bracket and 280mm cable, R10	AFL3-W15C-UTL3 AFL3-W19C-UTL3 AFL3-W19A-AL	AFL3-W22C-ULT3
E-MPCIE-3G-R10	PCIe mini card supports 3G WWAN Module , with PMS 130C I/O bracket, RF antenna 300mm cable and GSM antenna cable, R10	AFL3-12A-BT AFL3-12C-BT AFL3-W15A-BT AFL3-W19A-AL	AFL3-W15C-UTL3 AFL3-W19C-UTL3 AFL3-W22C-ULT3

* Remove AFL3-USBHUB-R10

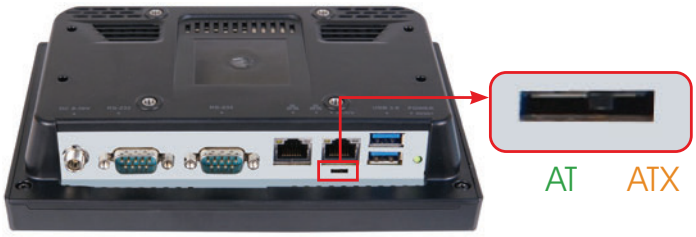
Bluetooth 4.0 (optional)

- Bluetooth 4.0 (BLE :Bluetooth Low Energy)/ 3.0 + HS (High Speed) data rate up to 24 Mbit/s
- 10m~20m (depending on environment)



Version	Data rate	Maximum application throughput
Version 1.2	1 Mbit/s	0.7 Mbit/s
Version 2.0 + EDR	3 Mbit/s	2.1 Mbit/s
Version 3.0 + HS	Perhaps 24 Mbit/s	(note: only with AMP and depends on the AMP , BT itself remains 2.1 Mbit/s max)
Version 4.0	Perhaps 24 Mbit/s	(note: only with AMP and depends on the AMP , BT itself remains 2.1 Mbit/s max)

Selectable AT/ATX Power Mode



Convenient Power Mode Setting

AT Power Mode

With the AT mode selected, the power is controlled by a central power unit rather than a power switch. The AFOLUX PPCs turns on automatically when the power is connected.

ATX Power Mode

With the ATX mode selected, the AFL series panel PC goes in a standby mode when it is turned off. The panel PC can be easily turned on via network or a power switch in standby mode. Remote power control is perfect for advertising applications since the broadcasting time for each panel PC can be set individually and controlled remotely.



Applications

- Plant environment monitoring system
- Factory automation platform
- Manufacturing shop flow

Advantages

- Easy to turn on/off with wall/ panel mounting
- Automatic start when power connected



Applications

- Security surveillance
- Advertising terminal

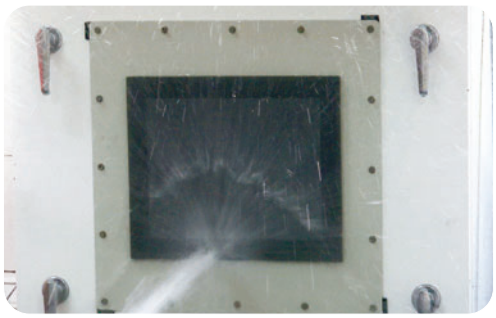
Advantages

- Power management
- Remote control via network advantage

IP65 Front Panel /IPx1 Rear Protection

The IP 65 compliant front panel of the AFOLUX GEN III panel PC has passed tests to check if there is any water, dust or dirt passing the sealing design. Reference IEC60529 Testing Procedures:

Hose Diameter: 25.4 mm (UL50 Type 4X), The distance from water hose to DUT is 3 meters.



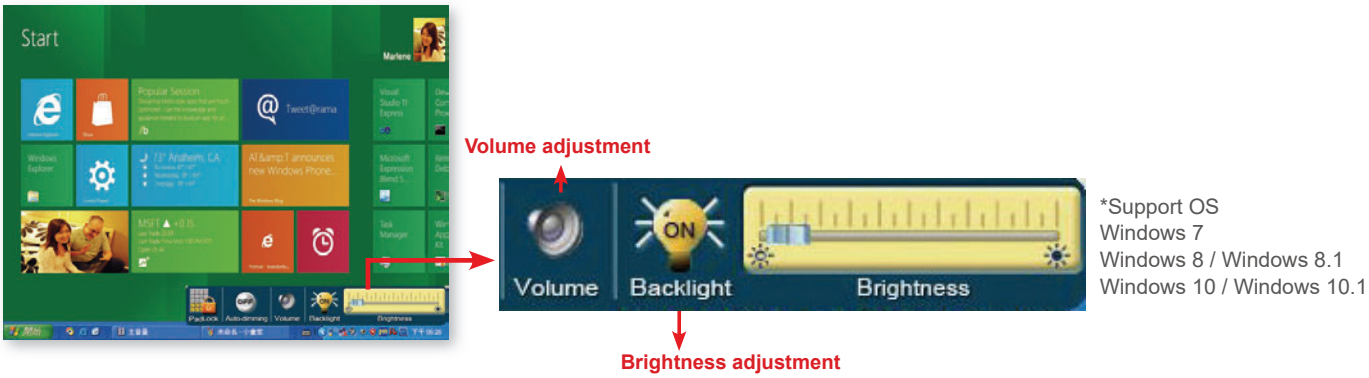
Test for protection against water



Test for protection against dust

Software OSD Configuration

IEI patented system software utility allows users to adjust system settings through the software interface in Windows environment instead of pressing the membrane keypad below the front panel.



Rich Peripherals

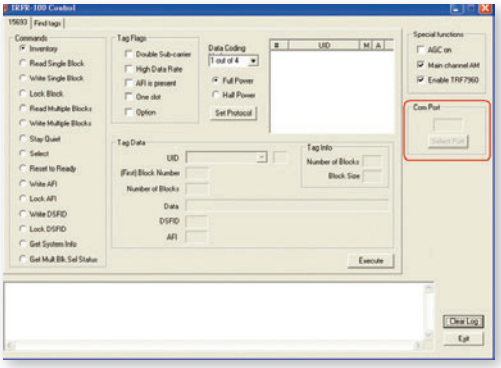


A. Built-in 13.56 MHz Mifare RFID Reader



Model	AFL3-MF-RFID-KIT02-R10	
Support Protocol	ISO 15693/ISO 14443A/ISO 14443B	
RF Frequency	13.56 MHz	
RFID IC	TI TRF7960	
Operating Distance	2-3cm	
Interface	USB	
Driver Support	Windows® 2000 Windows® XP Windows® 7/8 Windows® 10	Windows® Server 2003 Windows® Server 2008 Windows® Server 2008 R2 (x86 and x64)

IEI RFID Software Development Kit



- **COM Port Settings and Activation Area**
  Allows the user to select the serial port that communicates with the RFID reader module.
- **Commands Area**
  Displays various command options for user to select.
- **Data Input Area**
  The data input area is where the user enters block number, key,key data, and other information required by certain commands.
- **Raw Data Display Area**
  Shows all communication logs and responses of the executed commands.
- **Mifare Card ID Display Area**
  Displays the Mifare card ID when the Mifare card is detected.
- **Error Code Display Area**
  Shows the error message when an error occurs.

B. 1D/2D Barcode Reader

Modularized 1D/2D Barcode Scanner and Easy to Assemble

- Accurately decodes all 1D and 2D codes, even wrinkled, damaged or poorly printed
- 752×480 CMOS sensor captures high resolution images for decoding
- Horizontal 42° and Vertical 27.5° large scanning area



123456789

Technology	1D Code	2D Code
Read Condition	20 to 25 characters	100 to about 2,000 characters

Efficient Scanning Performance

- Area-scanning features non-direction reading drive scanning performance
- 120 mm scanning distance



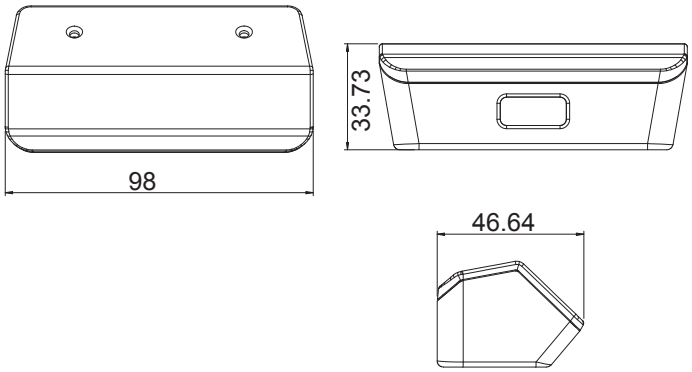




AFL3-2D Specifications



AFL3-2D-R11 Dimensions (Unit: mm)



Model		AFL3-2D-R11
Image Sensor		752 × 480 CMOS
Illumination		Red LED 625±10 nm
Symbologies	2D	PDF417, Data Matrix (ECC200,ECC000,050,080,100,140), QR Code, etc.
	1D	Code128, EAN-13, EAN-8, Code39, UPC-A, UPC-E, Codabar, Interleaved 2 of 5, ITF-6, ITF-14, ISBN, Code 93, UCC/EAN-128, GS1 Databar, Matrix 2 of 5, Code 11, Industrial 2 of 5, Standard 2 of 5, Plessey, MSI-Plessey, etc.
Reading Precision		≥ 5mil
Depth of Field	UPC-A	55mm - 305mm (13mil);
	PDF417	65mm - 175mm (6.67mil); 50mm - 215mm (10mil)
	Data Matrix	50mm - 220mm (15mil);
	QR Code	65mm - 235mm (15mil)
Symbol Contrast		≥ 25%
Field of View		Horizontal 42°; Vertical 27.5°
Scan Angle**		Roll: 360°; Pitch: ±55°; Skew: ±55°
Interface		USB
Operating Temperature		-20°C to +60°C
Storage Temperature		-40°C to +80°C
Humidity		5% to 95% (non-condensing)
Ambient Light		0 ~ 100,000 LUX (natural light)
Scanning prompt		Buzzer

Magnetic Card Reader

Model	AFLP-12AMSR-U-R11
Scan Speed	100 - 1000 mm / sec (3.9 - 39 inch / sec)
Direction	Bi-direction
Life Cycle	Approx. 300,000 passes
MTBF	24,000 hours
Interface	USB
Dimensions	21 cm X 11.7 cm X 5 cm
Weight	220 g
Temperature	-20 oC to 60 oC (-4 oF to 140 oF)
Humidity	20% to 95%



AFOLUX GEN III Selection Guide







LCD Size		7”	8.4”	10.1”
Model		AFL3-W07A-BT	AFL3-08A-BT	AFL3-W10A-BT
LCD	Size	7”	8.4”	10.1”
	Resolution	1024 x 600 (16:9)	800 x 600 (4:3)	1280 x 800 (16:10)
	Brightness (cd/m²)	500	450	350
	Contrast Ratio	700:1	600:1	800:1
	LCD Color	16.2M	16.2M	16.2M
	Pixel Pitch (mm)	0.0635 (H) x 0.1905 (V)	0.213 (H) x 0.213 (V)	0.1695 (H)×0.1695 (V)
	Viewing Angle (H-V)	150º / 145º	160º / 140º	170º / 170º
	Backlight MTBF(hrs)	20000 hrs	50000 hrs	15000 hrs
Touch	Touch Screen	Projected capacitive with USB interface (anti-UV / anti-glare coating)	5-wire resistive with RS-232 interface (anti-glare coating) Projected capacitive with USB interface (anti-UV / anti-glare coating)	Projected capacitive with USB interface (anti-UV / anti-glare coating)
	Touch Controller	EETI EXC3160	PenMount DMC 9000/EETI EXC3146	EETI EXC3146
Motherboard	CPU	Intel® Celeron® N2807 (dual core, 1.58 GHz)	Intel® Celeron® J1900 (quad core, 2.0 GHz)	Intel® Celeron® J1900 (quad core, 2.0 GHz)
	RAM	2GB DDR3L onboard RAM/ 4GB DDR3L onboard RAM	One 204-pin 2 GB 1333MHz single-channel, 2GB DDR3L SO-DIMM pre-installed (system max. 8GB)	One 204-pin 2 GB 1333MHz single-channel, 2GB DDR3L SO-DIMM pre-installed (system max. 8GB)
	Ethernet	2 x PCIe GbE by RTL8111E controller		
	Audio Codec	ALC892		
Storage		mSATA	mSATA	1 x mSATA (E-Window)
I/O Ports & Switch		2 x RS-232 COM port (DB-9 connector) 2 x USB 3.2 Gen 1 (5Gb/s) 2 x GbE LAN 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x 9-30V Lockable power jack	1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB-9 connector) (RI/5V/12V) 2 x USB 3.2 Gen 1 (5Gb/s) 2 x RJ-45 for GbE LAN 1 x Power switch 1 x Audio port (line-out) 1 x Reset button 1 x AT/ATX switch 1 x 9-30V DC Lockable power jack	1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB-9 connector) (RI/5V/12V) 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 2 x RJ-45 for GbE LAN 1 x Power switch 1 x Audio port (line-out) 1 x Reset button 1 x AT/ATX switch 1 x 9-30V DC lockable power jack
Audio		AMP 2W (internal speaker, left channel output)	AMP 2W + 2W (internal speaker)	AMP 2W + 2W (internal speaker)
Camera and Microphone		N/A	2-megapixel with low light function, digital microphone	
Wireless & Bluetooth		IEEE 802.11 a/b/g/n/ac, Bluetooth V4.0 half-size mini-PCIe slot (PCIe/USB signal)	IEEE 802.11a/b/g/n/ac half-size mini-PCIe slot (PCIe signal)	
OSD Function		Software OSD		
Physical	Front Panel Construction	PC + ABS Plastic		
	Mounting	Panel, Wall, Stand, Arm, Rack VESA 75mm x 75mm		
	Color	Black C		
	Dimensions (WxHxD) (mm)	191 x 127 x 43	233 x 175 x 50	262 x 181 x 42
	Cut-out Dimensions (WxH) (mm)	182 x 111	207 x 143	236 x 149
	Net/Gross Weight (kgs)	0.73/1.81	0.8/2.44	1.06/2.58
Environment	Operating Temperature (°C) (Ambient with air flow)	-20°C~50°C	-15°C~55°C	-10°C~50°C
	Storage Temperature (°C)	-20°C~60°C	-20°C~65°C	-20°C~60°C
	Humidity	10% to 95% (non-condensing)		
	IP Level	IP 65 compliant front panel	IP 64 compliant front panel	
	Safety&EMC	CE / FCC		
	Thermal Solution	Fanless		
Power	Power Requirement	9 V ~ 30 V DC		
	Power Consumption	12V@2.08 (Intel® N2807 CPU with 2GB 1333 MHz DDR3L memory)	12V@2A (Intel® J1900 CPU with 2GB 1333 MHz DDR3L memory)	12V@2.3A (Intel® J1900 CPU with 2GB 1333 MHz DDR3L memory)

AFOLUX GEN III Selection Guide





LCD Size		12.1”	
Model		AFL3-12A-BT	AFL3-12C-ULT3
LCD	Size	12.1”	12.1”
	Resolution	1024 x 768 (4:3)	1024 x 768 (4:3)
	Brightness (cd/m²)	500	500
	Contrast Ratio	700:1	700:1
	LCD Color	16.2M	16.2M
	Pixel Pitch (mm)	0.240 (H) x 0.240 (V)	0.240 (H) x 0.240 (V)
	Viewing Angle (H-V)	160° / 160°	160° / 160°
	Backlight MTBF(hrs)	50000 hrs	50000 hrs
Touch	Touch Screen	5-wire resistive with RS-232 interface (anti-glare coating) Projected capacitive with USB interface (anti-UV / anti-glare coating)	Projected capacitive with USB interface (anti-UV / anti-glare coating)
	Touch Controller	PenMount DMC9000/ EETI EXC3146	EETI EXC3180
Motherboard	CPU	Intel® Celeron® J1900 (quad core, 2.0 GHz)	6th Generation Intel® Core™ i5 and Celeron® on-board processor
	RAM	One 204-pin 2 GB 1333MHz single-channel, 2GB DDR3L SO-DIMM pre-installed (system max. 8GB)	One 260-pin 2133MHz single-channel, 4GB DDR4 SO-DIMM pre-installed (system max. 8GB)
	Ethernet	2 x PCIe GbE by RTL8111E controller	2 x PCIe GbE by Intel® i211 controller
	Audio Codec	ALC892	ALC892
Storage		1 x mSATA (E-Window) 1 x 2.5” SATA 3Gb/s HDD bay	1 x mSATA (E-Window) 1 x 2.5” SATA 3Gb/s HDD bay
I/O Ports & Switch		1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB-9 connector)(RI/5V/12V) 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 2 x RJ-45 for GbE LAN 1 x Power switch 1 x Audio port (line-out) 1 x Reset button 1 x AT/ATX switch 1 x 9-30V lockable power jack	1 x RS-232/422/485 (DB-9) 1 x RS232 (RJ-45) 2 x GbE LAN 2 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s) 1 x DC jack (12-30V DC) 1 x HDMI 1 x Power switch 1 x Reset button 1 x AT/ATX switch
E-Window Expansion		Yes, optional (full-size mini-PCIe slot with PCIe/SATA/USB)	Yes, optional (full-size mini-PCIe slot with PCIe/SATA/USB)
Audio		AMP 3W + 3W (internal speaker)	AMP 3W + 3W (internal speaker)
Camera and Microphone		2-megapixel with low light function, digital microphone	
Wireless		IEEE 802.11a/b/g/n/ac half-size mini-PCIe slot (PCIe signal)	IEEE 802.11 a/b/g/n/ac, Bluetooth V4.1 M.2 slot A+E key 2230 slot (PCIe/USB signal)
OSD Function		Software OSD	
Physical	Front Panel Construction	PC + ABS Plastic	
	Mounting	Panel, Wall, Rack, Stand and Arm VESA 75mm x 75mm / 100mm x 100mm	Panel, Wall, Stand and Arm VESA 75mm x 75mm / VESA 100mm x 100mm
	Color	Black C	
	Dimensions (WxHxD) (mm)	304 x 243 x 44	304 x 243 x 58
	Cut-out Dimensions (WxH) (mm)	243 x 205	272 x 223
	Net/Gross Weight (kgs)	1.92/3.95	3/5.03
Environment	Operating Temperature (Ambient with air flow)	-20°C~50°C	-20°C ~ 50°C
	Storage Temperature	-20°C~60°C	-30°C ~ 60°C
	Humidity	10% to 95% (non-condensing)	
	IP Level	IP 64 compliant front panel	
	Safety&EMC	CE / FCC	CE , FCC , ErP 2009/125/EC
	Thermal Solution	Fanless	
Power	Power Requirement	9 V ~ 30 V DC	12 V ~ 30 V DC
	Power Consumption	12V@3.58A (Intel® J1900 CPU with 2GB 1333 MHz DDR3L memory)	12V@6A (Intel® Core™ i5-6300U CPU with 4GB DDR4 2133 MHz DDR4 memory)

AFOLUX GEN III Selection Guide





LCD Size		15.6”		
Model		AFL3-W15A-BT	AFL3-W15B-H81	AFL3-W15C-ULT3
LCD	Size	15.6”		
	Resolution	1366 x 768 (16:9)		
	Brightness (cd/m²)	400		
	Contrast Ratio	500:1		
	LCD Color	16.2M		
	Pixel Pitch (mm)	0.240 (H) x 0.240 (V)		
	Viewing Angle (H-V)	170° / 160°		
	Backlight MTBF(hrs)	50000 (LED backlight)		
Touch	Touch Screen	5-wire resistive with RS-232 interface (anti-glare coating), Projected capacitive with USB interface (anti-UV / anti-glare coating)		
	Touch Controller	PenMount DMC9000 / EETI EXC3188	PenMount DMC9000 / EETI EXC7200	PenMount DMC9000 / EETI EXC3188
Motherboard	CPU	Intel® Celeron® J1900 (quad core, 2 GHz)	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor (TDP 35W)	6th Generation Intel® Core™ i5 and Celeron® on-board processor
	Chipset		Intel® H81	
	RAM	One 204-pin 1333 MHz single-channel DDR3L SO-DIMM, 2GB pre-installed (system max. 8GB)	Two 204-pin 1333 MHz single-channel DDR3 SO-DIMM, 4GB pre-installed (system max. 16GB)	Two 260-pin 2133/1867 MHz dual-channel DDR4 SO-DIMMs (system max. 32 GB)
	Ethernet	2 x PCIe GbE by RTL8111E controller		2 x Intel® I211 PCIe GbE controller
	Audio Codec	ALC892		
Storage		1 x mSATA (E-Window) 1 x 2.5” SATA 3Gb/s HDD bay		1 x mSATA (E-Window) 1 x 2.5” SATA 3Gb/s HDD bay 1 x M.2 M key PCIe (2280 or 22110)
I/O Ports & Switch		1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB-9 connector) (RI/5V/12V) 2 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s) 2 x GbE LAN 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x Audio port (line-out) 1 x 9-30V lockable power jack	1 x RS-232 COM port (DB-9 connector) 1 x RS-232/422/485 COM port (DB-9 connector) (RI/5V/12V) 2 x GbE LAN 4 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s) 1 x HDMI output 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x Audio port (line-out) 1 x 9-30V lockable power jack	1 x RS-232 by DB-9 (RI/5V/12V) 1 x RS-232/422/485 by DB-9 (RI/5V/12V) 2 x GbE LAN 4 x USB 3.2 Gen 1 (5Gb/s) 1 x HDMI output 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x 9-30V lockable power jack
E-Window Expansion		Yes, optional (full-size mini-PCIe slot with PCIe/SATA/USB)	N/A	Yes, optional (full-size mini-PCIe slot with PCIe/SATA/USB)
Audio		AMP 3W + 3W (internal speakers)		
Camera and Microphone		2-megapixel with low light function, digital microphone		
Wireless & Bluetooth		IEEE 802.11a/b/g/n/ac half-size mini-PCIe slot (PCIe signal)	IEEE 802.11 a/b/g/n/ac, Bluetooth V4.0 half-size mini-PCIe slot (PCIe/USB signal)	IEEE 802.11 a/b/g/n/ac, Bluetooth V4.1 M.2 slot A+E key 2230 slot (PCIe/USB signal)
OSD Function		Software OSD		
Physical	Front Panel Construction	PC + ABS Plastic		
	Mounting	Panel, Wall, Rack, Stand and Arm VESA 75mm x 75mm / 100mm x 100mm		
	Color	Black C		
	Dimensions (WxHxD) (mm)	396 x 250 x 53	396 x 250 x 59	396 x 250 x 64
	Cut-out Dimensions (WxH) (mm)	273 x 226	369 x 226	369 x 226
	Net/Gross Weight (kgs)	3.3/5.6	3.74/5.74	4.5/6.5
Environment	Operating Temperature (°C) (Ambient with air flow)	-20°C~50°C	0°C~50°C	-20°C~50°C
	Storage Temperature (°C)	-20°C~60°C		
	Humidity	10% to 95% (non-condensing)		
	IP Level	IP 64 compliant front panel		
	Safety & EMC	CE / FCC		
	Thermal Solution	Fanless	Smart Fan	Fanless
Power	Power Requirement	9 V ~ 30 V		
	Power Consumption	12V@4.16A (Intel® J1900 CPU with 2GB 1333 MHz DDR3 memory)	12V@6.33A (Intel® Pentium® G3320TE CPU with 4GB 1333 MHz DDR3L memory)	12V@.6A (Intel® Core™ i5-6300U CPU with 4GB DDR4 2133 MHz DDR4 memory)

AFOLUX GEN III Selection Guide







LCD Size		18.5”		21.5”
Model		AFL3-W19C-ULT3	AFL3-W19A-AL	AFL3-W22C-ULT3
LCD	Size	18.5”	18.5”	21.5”
	Resolution	1366 x 768 (16:9)	1366 x 768 (16:9)	1920 x 1080
	Brightness (cd/m²)	250		
	Contrast Ratio	1000:1		
	LCD Color	16.7M	262K	16.7M
	Pixel Pitch (mm)	0.240 (H) x 0.240 (V)	0.240 (H) x 0.240 (V)	248.25 (H) × 248.25 (V)
	Viewing Angle (H-V)	170º/160º		
	Backlight MTBF(hrs)	30,000 (LED backlight panel)		
Touch	Touch Screen	Projected capacitive with USB interface (anti-UV / anti-glare coating)		
	Touch Controller	EETI EXC3180	EETI EXC3188	EETI EXC3180
Motherboard	CPU	Intel® Core™ i5 and Celeron® ULT Processor	Intel® Celeron® J3455 (quad core, 1.5GHz up to 2.3 GHz)	Intel® Core™ i5 and Celeron® ULT Processor
	RAM	Two 260-pin 2133/1867 MHz dual-channel DDR4 SO-DIMMs (system max. 32 GB)	One 204-pin 1600/1333 MHz single-channel DDR3L SO-DIMM, 4GB pre-installed (system max. 8GB)	Two 260-pin 2133/1867 MHz dual-channel DDR4 SO-DIMMs (system max. 32 GB)
	Ethernet	2 x Intel® I211-AT PCIe GbE controller	2 x PCIe GbE by Intel® i211 controller	2 x Intel® I211-AT PCIe GbE controller
	Audio Codec	ALC892	ALC269	ALC892
Storage		1 x mSATA (E-Window) 1 x 2.5” SATA 3Gb/s HDD bay 1 x M.2 M key PCIe (2280 or 22110)	1 x mSATA (E-Window) 1 x 2.5” SATA 3Gb/s HDD bay	1 x mSATA (E-Window) 1 x 2.5” SATA 3Gb/s HDD bay 1 x M.2 M key PCIe (2280 or 22110)
I/O Ports & Switch		1 x RS-232 by DB-9 (RI/5V/12V) 1 x RS-232/422/485 by DB-9 (RI/5V/12V) 2 x GbE LAN 4 x USB 3.2 Gen 1 (5Gb/s) 1 x HDMI output 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x 9V ~ 30V lockable power jack	1 x RS-232/422/485 by RJ-45 1 x RS-232 by RJ-45 2 x GbE LAN 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x HDMI output 1 x 12V ~ 34V DC Jack 1 x Power switch 1 x AT/ATX switch 1 x Line out	1 x RS-232 by DB-9 (RI/5V/12V) 1 x RS-232/422/485 by DB-9 (RI/5V/12V) 2 x GbE LAN 4 x USB 3.2 Gen 1 (5Gb/s) 1 x HDMI output 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x 9-30V lockable power jack
E-Window Expansion		Yes, optional (full-size mini-PCIe slot with PCIe/SATA/USB)		
Audio		AMP 3W + 3W (internal speaker)		
Camera and Microphone		2-megapixel with low light function, digital microphone		
Wireless & Bluetooth		IEEE 802.11 a/b/g/n/ac, Bluetooth V4.1 M.2 slot A+E key 2230 slot (PCIe/USB signal)		
OSD Function		Software OSD		
Physical	Front Panel Construction	PC + ABS Plastic		
	Mounting	Panel, Wall, Stand and Arm VESA 75mm x 75mm / 100mm x 100mm	Panel, Wall, Stand and Arm VESA 100mm x 100mm	Panel, Wall, Stand and Arm VESA 75mm x 75mm / 100mm x 100mm
	Color	Black C		
	Dimensions (W x H x D) (mm)	470 x 290 x 70	470 x 280 x 60	528 x 336 x 68
	Cut-out Dimensions (W x H) (mm)	443 x 261	418 x 230	502 x 303
	Net/Gross Weight (kgs)	7.3/10	6.3/9	8.27/11.27
Environment	Operating Temperature (Ambient with air flow)	-20ºC ~ 50ºC	-15ºC ~ 50ºC	-20ºC ~ 50ºC
	Storage Temperature	-20ºC ~ 60ºC		
	Humidity	10% to 95% (non-condensing)		
	IP Level	IP 64 compliant front panel		
	Safety & EMC	CE / FCC		
	Thermal Solution	Fanless		
Power	Power Requirement	9V ~ 30V DC	12V ~ 34V DC	9 V ~ 30 VDC
	Power Consumption	12V@7.1A (Intel® Core™ i5-6300U CPU with 4GB DDR4 2133 MHz DDR4 memory)	12V@3.2A (Intel® Celeron J3455 CPU with 4GB DDR3L 1866 MHz DDR3L memory)	12V@6A (Intel® Core™ i5-6300U CPU with 4GB DDR42133 MHz DDR4 memory)

AFL3-W07A-BT

Intel® Celeron® N2807 (Dual Core, 1.58 GHz)

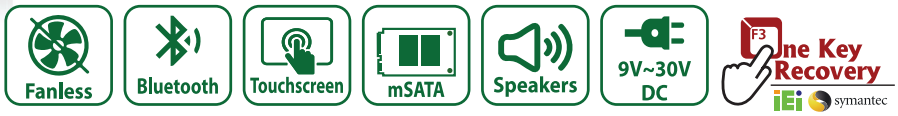
AFL3-08A-BT

Intel® Celeron® J1900 (Quad Core, 2.0 GHz)



Features

- W7"~8.4" light industrial interactive panel PC
- 9 V ~ 30 V wide range DC input with lockable DC jack
- Selectable AT/ATX power mode
- Built-in speakers
- One mSATA slot
- IP64/IP65 compliant front panel
- IEI One Key Recovery solution alllows you to create rapid OS backup and recovery (suggested with over 4GB storage capacity)



Specifications

Model		AFL3-W07A-BT	AFL3-08A-BT
LCD	Size	7"	8.4"
	Resolution	1024 x 600 (16:9)	800 x 600 (4:3)
	Brightness (cd/m²)	500	450
	Contrast Ratio	700:1	600:1
	LCD Color	16.2M	16.2M
	Pixel Pitch (mm)	0.0635 (H) x 0.1905 (V)	0.213 (H) x 0.213 (V)
	Viewing Angle (H-V)	150° / 145°	160° / 140°
	Backlight MTBF(hrs)	20000 hrs	50000 hrs
Touch	Touch Screen	Projected capacitive with USB interface (anti-UV / anti-glare coating)	5-wire resistive with RS-232 interface (anti-glare coating) Projected capacitive with USB interface (anti-UV / anti-glare coating)
	Touch Controller	EETI EXC3160	PenMount DMC 9000/EETI EXC3146
Motherboard	CPU	Intel® Celeron® N2807 (dual core, 1.58 GHz)	Intel® Celeron® J1900 (quad core, 2.0 GHz)
	RAM	2GB DDR3L onboard RAM/ 4GB DDR3L onboard RAM	One 204-pin 2 GB 1333MHz single-channel, 2GB DDR3L SO-DIMM pre-installed (system max. 8GB)
	Ethernet	2 x PCIe GbE by RTL8111E controller	2 x PCIe GbE by RTL8111E controller
	Audio Codec	ALC892	ALC892
Storage		mSATA	mSATA
I/O Ports & Switch		2 x RS-232 COM port (DB-9 connector) 2 x USB 3.2 Gen 1 (5Gb/s) 2 x GbE LAN 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x 9-30V Lockable power jack	1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB-9 connector) (RI/5V/12V) 2 x USB 3.2 Gen 1 (5Gb/s) 2 x RJ-45 for GbE LAN 1 x Power switch 1 x Audio port (line-out) 1 x Reset button 1 x AT/ATX switch 1 x 9-30V DC Lockable power jack
Audio		AMP 2W (internal speaker, left channel output)	AMP 2W + 2W (internal speaker)
Camera and Microphone		N/A	2-megapixel with low light function, digital microphone
Wireless & Bluetooth		IEEE 802.11 a/b/g/n/ac, Bluetooth V4.0 half-size mini-PCIe slot (PCIe/USB signal)	IEEE 802.11a/b/g/n/ac half-size mini-PCIe slot (PCIe signal)
OSD Function		Software OSD	
Physical	Front Panel Construction	PC + ABS Plastic	
	Mounting	Panel, Wall, Stand, Arm, Rack VESA 75mm x 75mm	
	Color	Black C	
	Dimensions (WxHxD) (mm)	191 x 127 x 43	233 x 175 x 50
	Cut-out Dimensions (WxH) (mm)	182 x 111	207 x 143
	Net/Gross Weight (kgs)	0.73/1.81	0.8/2.44
Environment	Operating Temperature (°C) (Ambient with air flow)	-20°C~50°C	-15°C~55°C
	Storage Temperature (°C)	-20°C~60°C	-20°C~65°C
	Humidity	10% to 95% (non-condensing)	
	IP Level	IP 65 compliant front panel	IP 64 compliant front panel
	Safety&EMC	CE / FCC	
	Thermal Solution	Fanless	
Power	Power Requirement	9 V ~ 30 V	
	Power Consumption	12V@2.08 (Intel® N2807 CPU with 2GB 1333 MHz DDR3L memory)	12V@2A (Intel® J1900 CPU with 2GB 1333 MHz DDR3L memory)

Ordering Information

Part No.	Description
AFL3-W07A-BT-N1/PC/2G-R13	7" 500 cd/m² 1024 x 600 HD fanless panel PC with Intel® Celeron® N2807 dual core 1.58 GHz, 802.11a/b/g/n/ac, projected capacitive touch screen, on-board 2GB DDR3L RAM, R13
AFL3-W07A-BT-N1/PC/4G-R13	7" 500 cd/m² 1024 x 600 HD fanless panel PC with Intel® Celeron® N2807 dual core 1.58 GHz, 802.11a/b/g/n/ac, projected capacitive touch screen, on-board 4GB DDR3L RAM, R13
AFL3-W07A-BT-N1/PC/2G/MF-R13	7" 500 cd/m² 1024 x 600 HD fanless panel PC with Intel® Celeron® N2807 dual core 1.58 GHz, 802.11a/b/g/n/ac, projected capacitive touch screen, on-board 2GB DDR3L RAM, Mifare RFID,R13
AFL3-08A-BT-J1/PC/2G-R13	8.4" 450cd/m² SVGA fanless panel PC with Intel® Celeron® J1900 quad core 2 GHz, 802.11a/b/g/n/ac wireless module, projected capacitive touch screen, 2GB DDR3L RAM, R13
AFL3-08A-BT-J1/R/2G-R13	8.4" 450cd/m² SVGA fanless panel PC with Intel® Celeron® J1900 quad core 2 GHz, 802.11 a/b/g/n/ac wireless module, resistive touch window, 2GB DDR3L RAM, R13
AFL3-08A-BT-J1/PC-R13	8.4" 450cd/m² SVGA fanless panel PC with Intel® Celeron® J1900 quad core 2 GHz, 802.11 a/b/g/n/ac wireless module, projected capacitive touch screen,w/o RAM for ATO only , with AG, 2-megapixel camera, microphone, R13
AFL3-08A-BT-J1/PC/2G/MF-R13	8.4" 450cd/m² SVGA fanless panel PC with Intel® Celeron® J1900 quad core 2 GHz, 802.11 a/b/g/n/ac wireless module, projected capacitive touch screen, 2GB DDR3L RAM, Mifare RFID,with AG, 2-megapixel camera, microphone, R13

Options

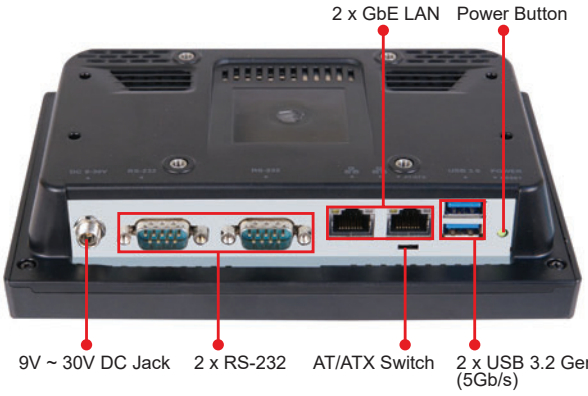
Item	AFL3-W07A-BT	AFL3-08A-BT
Panel Mounting Kit	AFL3PK-W07A-R11	AFL3PK-08A-R10
Wall Mounting Kit	AFLWK-12	AFLWK-12
Rack Mounting Kit	AFL3RK-W07A-R11	AFL3RK-08A-R10
Arm	ARM-11-RS/ARM-31-RS	ARM-11-RS/ARM-31-RS
Stand	STAND-B08/STAND-100-RS	STAND-B08/STAND-100-RS
V-Stand	VSTAND-A07-R11	VSTAND-A10-R11
Magnetic Card Reader	AFL3P-W7MSR-U-R10	AFL3P-W10MSR-U-R10
Barcode Scanner	N/A	AFL3-2D-R11
RFID Reader (13.56 MHz Mifare Type)	AFL3-W07A-BT-N1/PC/2G/MF-R12	N/A (Customized by project base)
*OS: Win 7 Embedded (64-bit)	AFL3-W07A-BT-WES7P64-R11 (for PCAP touch)	AFL3-W07A-BT-WES7P64-R11 (for PCAP touch) AFL3-W07A-BT-WES7E64-R11 (for Resistive touch)
*OS: Win 8 Embedded (64-bit)	AFL3-W07A-BT-WE8S64-R10	
*OS: Win 10 IOT Enterprise (64-bit)	AFL3-W07A-BT-W10E64-E-R10	

*OS image with CD-ROM without storage

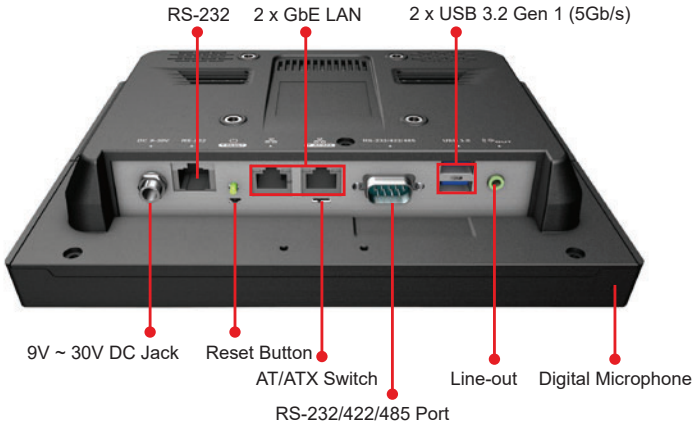
Packing List

Item	Part No.	Q'ty	Remark
Setting kit	46003-002600-RS	2	
Round head machine screw	44003-020041-RS	2	M2*4 round head machine screw
	44003-020041-RS	4	M2*4 round head machine screw
Pan head machine screw	44403-040061-RS	4	M4*6 pan head machine screw
Fix holder	46003-009500-RS	2	
Power cord	32702-000400-200-RS	1	
Power adapter	63040-010036-121-RS	1	36W; Vin: 90V~264V AC; Vout: 12VDC; Φ2.5/Φ5.5/lock
RJ-45 to DB-9 COM port transfer cable	32005-004600-100-RS (AFL3-08A)	1	300mm, 26AWG, (A) D-SUB 9 male, (B) RJ-45

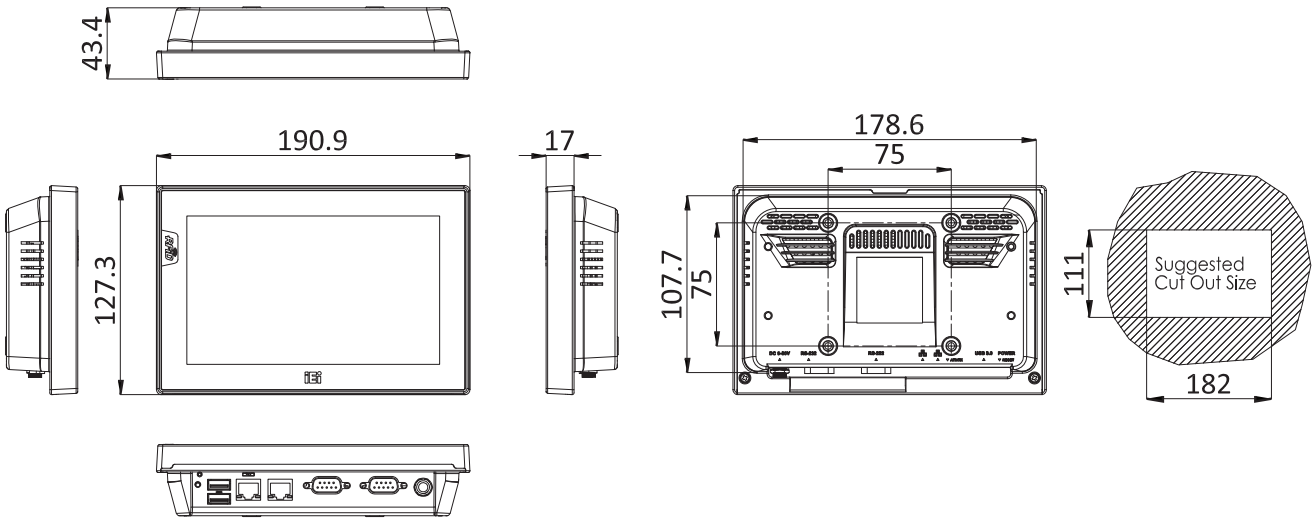
AFL3-W07A
Fully Integrated I/O



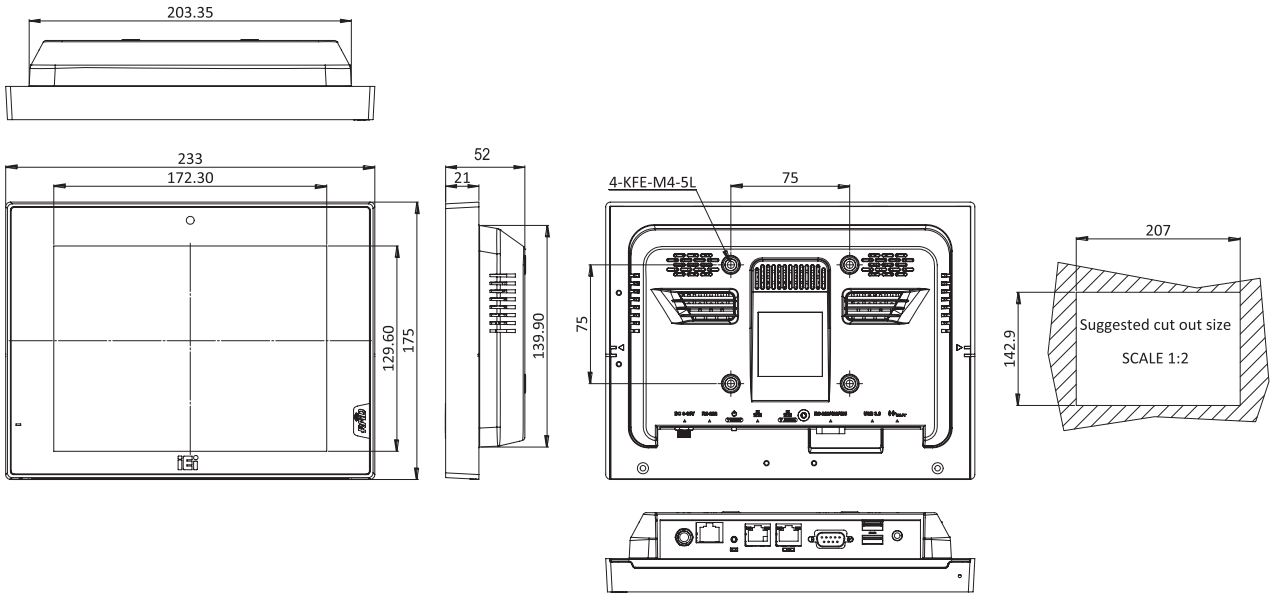
AFL3-08A
Fully Integrated I/O



AFL3-W07A-BT Dimensions (Unit: mm)



AFL3-08A-BT Dimensions (Unit: mm)



AFL3-W10A-BT

Intel® Celeron® J1900 (Quad Core, 2.0 GHz)

AFL3-12A-BT

Intel® Celeron® J1900 (Quad Core, 2.0 GHz)

AFL3-12C-ULT3

Intel® Core™ i5 and Celeron® ULT Processor



Features

- W10”~12.1” light industrial interactive panel PC
- Wide range DC input with lockable DC jack
- Selectable AT/ATX power mode
- Built-in speakers
- One mSATA slot
- IP64 compliant front panel
- IEI One Key Recovery solution alllows you to create rapid OS backup and recovery (suggested with over 4GB storage capacity)



Specifications

Model		AFL3-W10A-BT	AFL3-12A-BT	AFL3-12C-ULT3
LCD	Size	10.1”	12.1”	12.1”
	Resolution	1280 x 800 (16:10)	1024 x 768 (4:3)	1024 x 768 (4:3)
	Brightness (cd/m²)	350	500	500
	Contrast Ratio	800:1	700:1	700:1
	LCD Color	16.2M	16.2M	16.2M
	Pixel Pitch (mm)	0.1695 (H)×0.1695 (V)	0.240 (H) x 0.240 (V)	0.240 (H) x 0.240 (V)
	Viewing Angle (H-V)	170° / 170°	160° / 160°	160° / 160°
	Backlight MTBF(hrs)	15000 hrs	50000 hrs	50000 hrs
Touch	Touch Screen	Projected capacitive with USB interface (anti-UV / anti-glare coating)	5-wire resistive with RS-232 interface (anti-glare coating) Projected capacitive with USB interface (anti-UV / anti-glare coating)	Projected capacitive with USB interface (anti-UV / anti-glare coating)
	Touch Controller	EETI EXC3146	PenMount DMC9000/ EETI EXC3146	EETI EXC3180
Motherboard	CPU	Intel® Celeron® J1900 (quad core, 2.0 GHz)	Intel® Celeron® J1900 (quad core, 2.0 GHz)	6th Generation Intel® Core™ i5 and Celeron® on-board processor
	RAM	One 204-pin 2 GB 1333MHz single-channel, 2GB DDR3L SO-DIMM pre-installed (system max. 8GB)	One 204-pin 2 GB 1333MHz single-channel, 2GB DDR3L SO-DIMM pre-installed (system max. 8GB)	One 260-pin 2133MHz single-channel, 4GB DDR4 SO-DIMM pre-installed (system max. 8GB)
	Ethernet	2 x PCIe GbE by RTL8111E controller	2 x PCIe GbE by RTL8111E controller	2 x PCIe GbE by Intel® i211 controller
	Audio Codec	ALC892	ALC892	ALC892
Storage		1 x mSATA (E-Window)	1 x mSATA (E-Window) 1 x 2.5” SATA 3Gb/s HDD bay	1 x mSATA (E-Window) 1 x 2.5” SATA 3Gb/s HDD bay
I/O Ports & Switch		1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB-9 connector) (RI/5V/12V) 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 2 x RJ-45 for GbE LAN 1 x Power switch 1 x Audio port (line-out) 1 x Reset button 1 x AT/ATX switch 1 x 9-30V DC lockable power jack	1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB-9 connector)(RI/5V/12V) 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 2 x RJ-45 for GbE LAN 1 x Power switch 1 x Audio port (line-out) 1 x Reset button 1 x AT/ATX switch 1 x 9-30V lockable power jack	1 x RS-232/422/485 (DB-9) 1 x RS232 (RJ-45) 2 x GbE LAN 2 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s) 1 x DC jack (12-30V DC) 1 x HDMI 1 x Power switch 1 x Reset button 1 x AT/ATX switch
E-Window Expansion		N/A	Yes, optional (full-size mini-PCIe slot with PCIe/SATA/USB)	Yes, optional (full-size mini-PCIe slot with PCIe/SATA/USB)
Audio		AMP 2W + 2W (internal speaker)	AMP 3W + 3W (internal speaker)	AMP 3W + 3W (internal speaker)
Camera and Microphone		2-megapixel with low light function, digital microphone		
Wireless		IEEE 802.11a/b/g/n/ac half-size mini-PCIe slot (PCIe signal)		IEEE 802.11 a/b/g/n/ac, Bluetooth V4.1 M.2 slot A+E key 2230 slot (PCIe/USB signal)
OSD Function		Software OSD		
Physical	Front Panel Construction	PC + ABS Plastic		
	Mounting	Panel, Wall, Stand, Arm VESA 75mm x 75mm	Panel, Wall, Rack, Stand and Arm VESA 75mm x 75mm / 100mm x 100mm	Panel, Wall, Stand and Arm VESA 75mm x 75mm / VESA 100mm x 100mm
	Color	Black C		
	Dimensions (WxHxD) (mm)	262 x 181 x 42	304 x 243 x 44	304 x 243 x 58
	Cut-out Dimensions (WxH) (mm)	236 x 149	243 x 205	272 x 223
	Net/Gross Weight (kgs)	1.06/2.58	1.92/3.95	3/5.03
Environment	Operating Temperature (Ambient with air flow)	-10°C~50°C	-20°C~50°C	-20°C ~ 50°C
	Storage Temperature	-20°C~60°C	-20°C~60°C	-30°C ~ 60°C
	Humidity	10% to 95% (non-condensing)		
	IP Level	IP 64 compliant front panel		
	Safety&EMC	CE / FCC		CE , FCC , ErP 2009/125/EC
	Thermal Solution	Fanless		
Power	Power Requirement	9 V ~ 30 V DC		12 V ~ 30 V DC
	Power Consumption	12V@2.3A (Intel® J1900 CPU with 2GB 1333 MHz DDR3L memory)	12V@3.58A (Intel® J1900 CPU with 2GB 1333 MHz DDR3L memory)	12V@6A (Intel® Core™ i5-6300U CPU with 4GB DDR4 2133 MHz DDR4 memory)

Ordering Information

Part No.	Description
AFL3-W10A-BT-J1/PC/2G-R13	10.1" 350cd/m² 1280x800 fanless panel PC with Intel® Celeron® J1900 quad core 2 GHz, 802.11 a/b/g/n/ac wireless module, projected capacitive touch screen, 2GB DDR3L RAM , with AG, 2-megapixel camera, microphone, R13
AFL3-12A-BT-J1/PC/2G-R13	12.1"500 cd/m² XGA fanless panel PC with Intel® Celeron® J1900 quad core 2 GHz, 802.11a/b/g/n/ac wireless module, projected capacitive touch screen, 2GB DDR3L RAM , with AG, 2-megapixel camera, microphone, R13
AFL3-12A-BT-J1/R/2G-R13	12.1"500 cd/m² XGA fanless panel PC with Intel® Celeron® J1900 quad core 2 GHz, 802.11a/b/g/n/ac wireless module, resistive touch screen, 2GB DDR3L RAM , with AG, 2-megapixel camera, microphone, R13
AFL3-12C-ULT3-C/PC/4G-R10	12.1" 500cd/m² 1024 x 768 panel PC with 6th generation 14nm Intel® mobile Celeron® 3855U (15W) on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, PCAP touch, 2-megapixel camera, microphone, R10
AFL3-12C-ULT3-i5/PC/4G-R10	12.1" 500 cd/m² 1024 x 768 panel PC with 6th generation 14nm Intel® mobile Core™ i5-6300U (15W) on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, PCAP touch, 2-megapixel camera, microphone, R10
* AFL3-12C-ULT3-i5/R/4G-R10	12.1" 500 cd/m² 1024x768 Panel PC with Intel® 14nm 6th Generation Mobile Core™ i5-6300U (15W) on-board Processor (ULT), 1*4GB DDR4 RAM, 802.11a/b/g/n/ac WiFi module, resistive touch, 2-megapixel camera, microphone, R10
* AFL3-12C-ULT3-C/R/4G-R10	12.1" 500 cd/m² 1024x768 Panel PC with Intel® 14nm 6th Generation Mobile Celeron® 3855U (15W) on-board Processor (ULT), 1*4GB DDR4 RAM, 802.11a/b/g/n/ac WiFi module, resistive touch, 2-megapixel camera, microphone, R10

* by order MOQ 100pcs production

Options

Item	AFL3-W10A-BT	AFL3-12A-BT	AFL3-12C-ULT3
Panel Mounting Kit	AFL3PK-08A-R10		
Wall Mounting Kit	AFLWK-12	AFLWK-19B	AFLWK-19B
Rack Mounting Kit	AFL3RK-W10A-R10	AFL3RK-12A-R10	AFL3RK-12A-R10
Arm	ARM-11-RS/ARM-31-RS		
Stand	STAND-C12-R10	STAND-A12-RS/STAND-C12-R10/ STAND-100-RS	STAND-A12-RS/STAND-C12-R10/ STAND-100-RS
V-Stand	VSTAND-A10-R11	VSTAND-A12-R11	VSTAND-A12-R11
Magnetic Card Reader	AFL3P-W10MSR-U-R10		
Barcode Scanner	AFL3-2D-R11		
RFID Reader **(13.56 MHz Mifare Type) for ATO assembly	AFL3-MF-RFID-KIT02-R10	AFL3-MF-RFID-KIT02-R10**	AFL3-MF-RFID-KIT02-R10
*OS: Win 7 Embedded (64-bit)	AFL3-W07A-BT-WES7P64-R11* (for PCAP touch)	AFL3-W07A-BT-WES7P64-R11* (for PCAP touch) AFL3-W07A-BT-WES7E64-R11* (for Resistive touch)	AFL3-12C-ULT3-WES7P64-R10* (for PCAP touch) AFL3-12C-ULT3-WES7E64-R10* (for Resistive touch)
*OS: Win 10 IOT Enterprise	AFL3-W07A-BT-W10E64-E-R10		AFL3-12C-ULT3-W10E64-V-R10

**RFID is supported from AFL3-xxA-BT R11 version
*OS image with CD-ROM without storage

E-Window (for ATO assembly)

Part No.	Description	Supported Model
E-MPCIE-LAN-R10	PCIe Mini card supports 1-port GbE with Realtek RTL8111E controller, with PMS 194C I/O bracket and 250mm cable, R10	AFL3-12A-BT-J1/PC/2G-R12 AFL3-12A-BT-J1/R/2G-R12 AFL3-12C-ULT3-C/PC/4G-R10 AFL3-12C-ULT3-i5/PC/4G-R10
E-MPCIE-DLAN-R10	PCIe Mini card supports 2-port GbE with Intel I211 controller, with PMS 194C I/O bracket and 250mm cable, R10	
E-MPCIE-3G-R10	PCIe Mini card supports 3G WWAN, with PMS 130C I/O bracket, 300mm RF antenna cable and GSM antenna cable, R10	





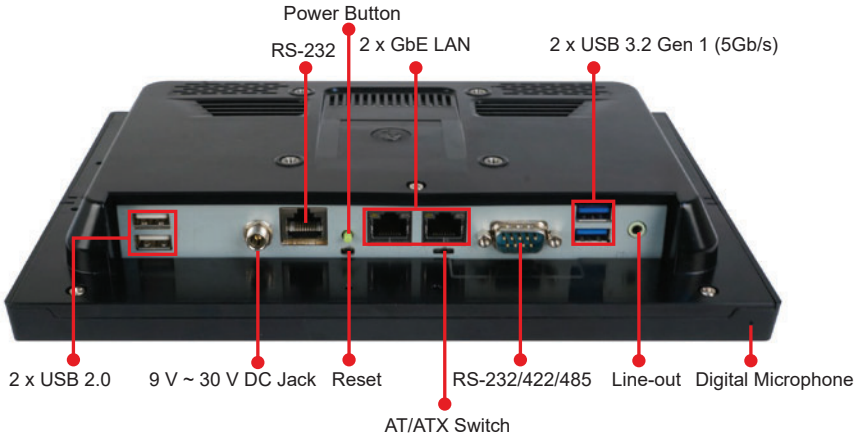
E-Window
(for ATO assembly)

E-Window

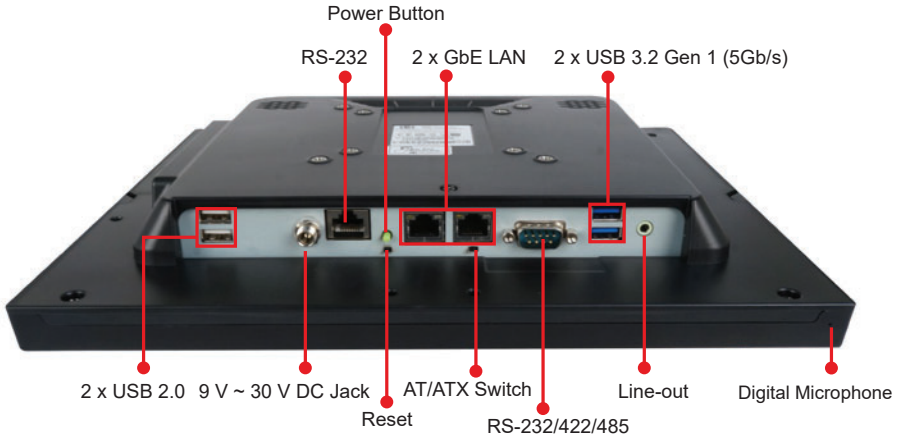
Packing List

Item	Part No.	Q'ty	Remark
Round head machine screw	44003-020041-RS (12A-BT)	2	M2*4 round head machine screw
Pan head machine screw	44403-040061-RS	4	M4*6 pan head machine screw
Fix holder	46003-009500-RS	2	
Power adapter	63040-010036-121-RS (AFL3-W10A-BT) 63040-010060-120-RS (AFL3-12A-BT)	1	36W; Vin: 90V~264V AC; Vout: 12VDC 60W; Vin: 90V~264V AC; Vout: 12VDC
RJ-45 to DB-9 COM port transfer cable	32005-004600-100-RS	1	300mm, 26AWG, (A) D-SUB 9 male, (B) RJ-45

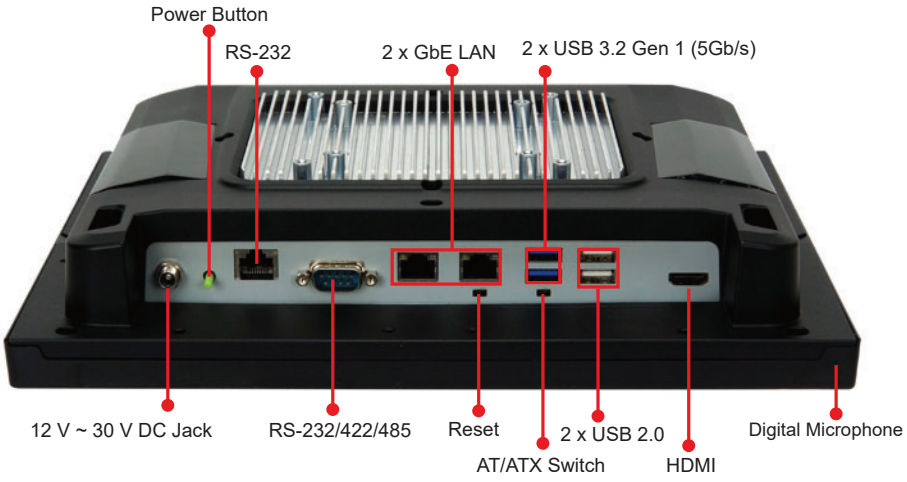
AFL3-W10A
Fully Integrated I/O



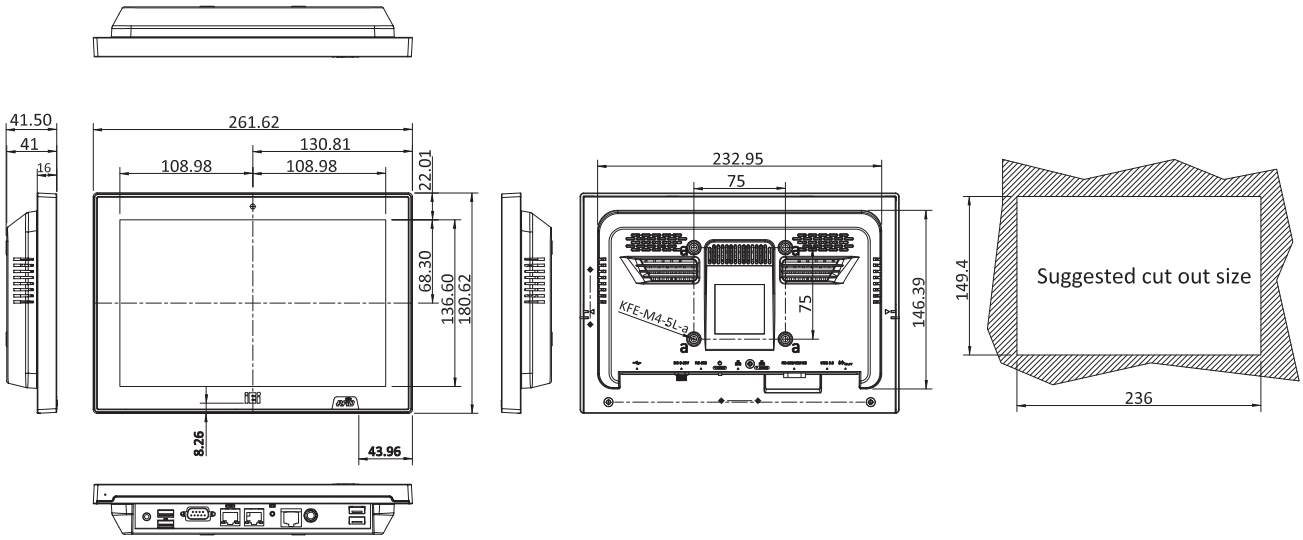
AFL3-12A
Fully Integrated I/O



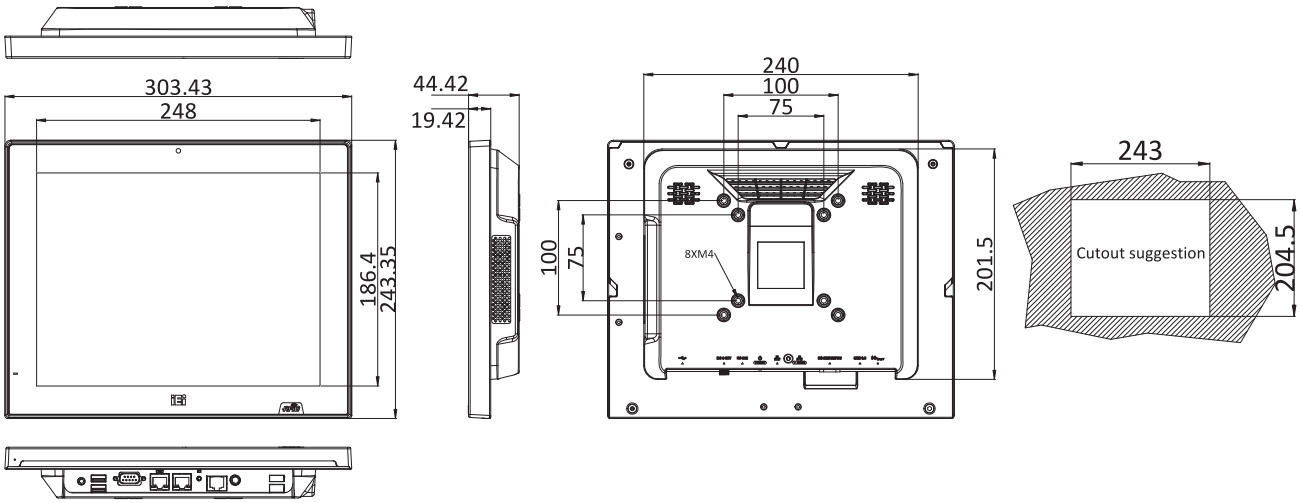
AFL3-12C-ULT3
Fully Integrated I/O



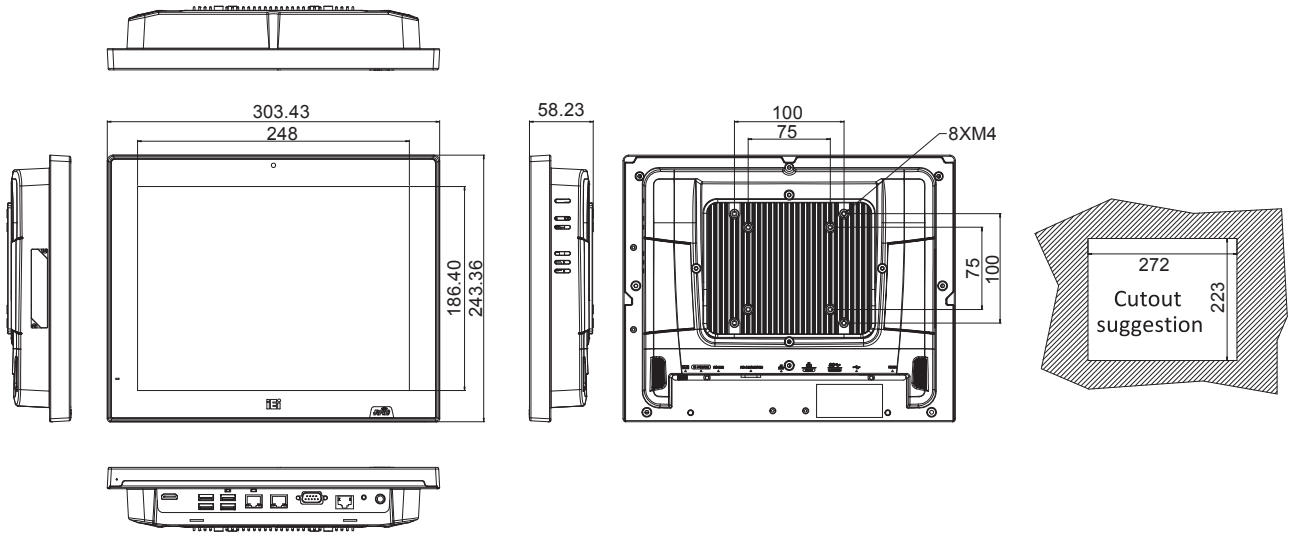
AFL3-W10A-BT Dimensions (Unit: mm)



AFL3-12A-BT Dimensions (Unit: mm)



AFL3-12C-ULT3 Dimensions (Unit: mm)



AFL3-W15A-BT

Intel® Celeron® J1900 (Quad Core, 2.0 GHz)

AFL3-W15B-H81

Intel® Core™ i7/i5/i3, Pentium® and Celeron®

AFL3-W15C-ULT3

Intel® Core™ i5 and Celeron® ULT Processor



Features

- W15” light industrial interactive panel PC
- 9 V ~ 30 V wide range DC power input
- Selectable AT/ATX power mode
- Built-in speakers
- One mSATA slot
- IP64 compliant front panel
- IEI One Key Recovery solution alllows you to create rapid OS backup and recovery (suggested with over 4GB storage capacity)



Specifications

Model		AFL3-W15A-BT	AFL3-W15B-H81	AFL3-W15C-ULT3
LCD	Size	15.6”		
	Resolution	1366 x 768 (16:9)		
	Brightness (cd/m²)	400		
	Contrast Ratio	500:1		
	LCD Color	16.2M		
	Pixel Pitch (mm)	0.240 (H) x 0.240 (V)		
	Viewing Angle (H-V)	170º / 160º		
	Backlight MTBF(hrs)	50000 (LED backlight)		
Touch	Touch Screen	5-wire resistive with RS-232 interface (anti-glare coating), Projected capacitive with USB interface (anti-UV / anti-glare coating)		
	Touch Controller	PenMount DMC9000 / EETI EXC3188	PenMount DMC9000 / EETI EXC7200	PenMount DMC9000 / EETI EXC3188
Motherboard	CPU	Intel® Celeron® J1900 (quad core, 2 GHz)	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor (TDP 35W)	6th Generation Intel® Core™ i5 and Celeron® on-board processor
	Chipset		Intel® H81	
	RAM	One 204-pin 1333 MHz single-channel DDR3L SO-DIMM, 2GB pre-installed (system max. 8GB)	Two 204-pin 1333 MHz single-channel DDR3 SO-DIMM, 4GB pre-installed (system max. 16GB)	Two 260-pin 2133/1867 MHz dual-channel DDR4 SO-DIMMs (system max. 32 GB)
	Ethernet	2 x PCIe GbE by RTL8111E controller		2 x Intel® I211 PCIe GbE controller
	Audio Codec	ALC892		
Storage		1 x mSATA (E-Window) 1 x 2.5” SATA 3Gb/s HDD bay		1 x mSATA (E-Window) 1 x 2.5” SATA 3Gb/s HDD bay 1 x M.2 M key PCIe (2280 or 22110)
I/O Ports & Switch		1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB-9 connector) (RI/5V/12V) 2 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s) 2 x GbE LAN 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x Audio port (line-out) 1 x 9-30V lockable power jack	1 x RS-232 COM port (DB-9 connector) 1 x RS-232/422/485 COM port (DB-9 connector) (RI/5V/12V) 2 x GbE LAN 4 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s) 1 x HDMI output 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x Audio port (line-out) 1 x 9-30V lockable power jack	1 x RS-232 by DB-9 (RI/5V/12V) 1 x RS-232/422/485 by DB-9 (RI/5V/12V) 2 x GbE LAN 4 x USB 3.2 Gen 1 (5Gb/s) 1 x HDMI output 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x 9-30V lockable power jack
E-Window Expansion		Yes, optional (full-size mini-PCIe slot with PCIe/SATA/USB)	N/A	Yes, optional (full-size mini-PCIe slot with PCIe/SATA/USB)
Audio		AMP 3W + 3W (internal speakers)		
Camera and Microphone		2-megapixel with low light function, digital microphone		
Wireless & Bluetooth		IEEE 802.11a/b/g/n/ac half-size mini-PCIe slot (PCIe signal)	IEEE 802.11 a/b/g/n/ac, Bluetooth V4.0 half-size mini-PCIe slot (PCIe/USB signal)	IEEE 802.11 a/b/g/n/ac, Bluetooth V4.1 M.2 slot A+E key 2230 slot (PCIe/USB signal)
OSD Function		Software OSD		
Physical	Front Panel Construction	PC + ABS Plastic		
	Mounting	Panel, Wall, Rack, Stand and Arm VESA 75mm x 75mm / 100mm x 100mm		
	Color	Black C		
	Dimensions (WxHxD) (mm)	396 x 250 x 53	396 x 250 x 59	396 x 250 x 64
	Cut-out Dimensions (WxH) (mm)	273 x 226	369 x 226	369 x 226
	Net/Gross Weight (kgs)	3.3/5.6	3.74/5.74	4.5/6.5
Environment	Operating Temperature (°C) (Ambient with air flow)	-20°C~50°C	0°C~50°C	-20°C~50°C
	Storage Temperature (°C)	-20°C~60°C		
	Humidity	10% to 95% (non-condensing)		
	IP Level	IP 64 compliant front panel		
	Safety & EMC	CE / FCC		
	Thermal Solution	Fanless	Smart Fan	Fanless
Power	Power Requirement	9 V ~ 30 V		
	Power Consumption	12V@4.16A (Intel® J1900 CPU with 2GB 1333 MHz DDR3 memory)	12V@6.33A (Intel® Pentium® G3320TE CPU with 4GB 1333 MHz DDR3L memory)	12V@.6A (Intel® Core™ i5-6300U CPU with 4GB DDR4 2133 MHz DDR4 memory)

Ordering Information

• Intel® Celeron® Platform

Part No.	Description
AFL3-W15A-BT-J1/PC/2G-R13	Wide 15.6" 400 cd/m² 1366 x 768 fanless panel PC with Intel® Celeron® J1900 quad core 2 GHz, 802.11a/b/g/n/ac, projected capacitive touch screen, 2GB DDR3L RAM, 2-megapixel camera, microphone, R13
AFL3-W15A-BT-J1/R/2G-R13	Wide 15.6" 400 cd/m² 1366 x 768 fanless panel PC with Intel® Celeron® J1900 quad core 2 GHz, 802.11a/b/g/n/ac, resistive touch window, 2GB DDR3L RAM, 2-megapixel camera, microphone, R13

• Intel® H81 Platform

Part No.	Description
AFL3-W15B-H81-P/R/4G-R13	Wide 15.6" 400 cd/m² 1366 x 768 panel PC with Intel® H81 chipset, Intel® Pentium® G3320TE dual-core processor (2.3 GHz), TDP 35W, two 2GB DDR3 RAM, 802.11a/b/g/n/ac, resistive touch screen, 2-megapixel camera, microphone, R13
AFL3-W15B-H81-i3/R/4G-R13	Wide 15.6" 400 cd/m² 1366 x 768 panel PC with Intel® H81 chipset, Intel® Core™ i3-4330T dual-core processor (3.0 GHz), TDP 35W, two 2GB DDR3 RAM, 802.11a/b/g/n/ac, resistive touch screen, 2-megapixel camera, microphone, R13
AFL3-W15B-H81-i5/R/4G-R13	Wide 15.6" 400 cd/m² 1366 x 768 panel PC with Intel® H81 chipset, Intel® Core™ i5-4570TE dual-core processor (2.7 GHz), TDP 35W, two 2GB DDR3 RAM, 802.11a/b/g/n/ac, resistive touch screen, 2-megapixel camera, microphone, R13
AFL3-W15B-H81-P/PC/4G-R13	Wide 15.6" 400 cd/m² 1366 x 768 panel PC with Intel® H81 chipset, Intel® Pentium® G3320TE dual-core processor (2.3 GHz), TDP 35W, two 2GB DDR3 RAM, 802.11a/b/g/n/ac, PCAP touch screen, 2-megapixel camera, microphone, R13
AFL3-W15B-H81-i3/PC/4G-R13	Wide 15.6" 400 cd/m² 1366 x 768 panel PC with Intel® H81 chipset, Intel® Core™ i3-4330T dual-core processor (3.0 GHz), TDP 35W, two 2GB DDR3 RAM, 802.11a/b/g/n/ac, PCAP touch screen, 2-megapixel camera, microphone, R13
AFL3-W15B-H81-i5/PC/4G-R13	Wide 15.6" 400 cd/m² 1366 x 768 panel PC with Intel® H81 chipset, Intel® Core™ i5-4570TE dual-core processor (2.7 GHz), TDP 35W, two 2GB DDR3 RAM, 802.11a/b/g/n/ac, PCAP touch screen, 2-megapixel camera, microphone, R13

• Intel® Skylake ULT3 Platform

Part No.	Description
AFL3-W15C-ULT3-C/PC/4G-R13	Wide 15.6" 400 cd/m² 1366 x 768 Panel PC with Intel® 14nm 6th Generation Mobile Celeron®3955U (15W) on-board Processor (ULT), 1*4GB DDR4 RAM, 802.11a/b/g/n/ac WiFi module, PCAP touch, 2M camera, microphone,with AG,R13
AFL3-W15C-ULT3-C/R/4G-R13	Wide 15.6" 400 cd/m² 1366 x 768 Panel PC with Intel® 14nm 6th Generation Mobile Celeron®3955U (15W) on-board Processor (ULT), 1*4GB DDR4 RAM, 802.11a/b/g/n/ac WiFi module, resistive touch, 2M camera, microphone,with AG,R13
AFL3-W15C-ULT3-i5/PC/4G-R13	Wide 15.6" 400 cd/m² 1366 x 768 Panel PC with Intel® 14nm 6th Generation Mobile Core™ i5-6300U (15W) on-board Processor (ULT), 1*4GB DDR4 RAM, 802.11a/b/g/n/ac WiFi module, PCAP touch, 2M camera, microphone , with AG, R13
AFL3-W15C-ULT3-i5/R/4G-R13	Wide 15.6" 400 cd/m² 1366 x 768 Panel PC with Intel® 14nm 6th Generation Mobile Core™ i5-6300U (15W) on-board Processor (ULT), 1*4GB DDR4 RAM, 802.11a/b/g/n/ac WiFi module, resistive touch, 2M camera, microphone , with AG, R13

Options

Item	AFL3-W15A-BT	AFL3-W15B-H81	AFL3-W15C-ULT3
Panel Mounting Kit	AFL3PK-W15A-R10	AFL3PK-W15A-R10	AFL3PK-W15A-R10
Wall Mounting Kit	AFLWK-19B		
Rack Mounting Kit	AFL3RK-W15A-R11	AFL3RK-W15B-R10	AFL3RK-W15B-R10
Arm	ARM-11-RS/ARM-31-RS		
Stand	STAND-A21-R10/ STAND-210-R11/STAND-A19-RS/STAND-C19-R10		
Magnetic Card Reader	AFL3P-W10MSR-U-R10		
Barcode Scanner	AFL3-2D-R11		
RFID Reader (13.56 MHz Mifare Type) (for ATO assembly)	AFL3-MF-RFID-KIT02-R10**	AFL3-MF-RFID-KIT02-R10	AFL3-MF-RFID-KIT02-R10
*OS: Win 7 Embedded (64-bit)	AFL3-W07A-BT-WES7P64-R11 (for PCAP touch) AFL3-W07A-BT-WES7E64-R11 (for resistive touch)	AFL3-W15B-H81-WES7P64-R10 (for PCAP touch) AFL3-W15B-H81-WES7E64-R10 (for resistive touch)	AFL3-W15C-ULT3-WES7P64-R10 (for PCAP touch) AFL3-W15C-ULT3-WES7E64-R10 (for resistive touch)
*OS: Win 8 Embedded (64-bit)	AFL3-W07A-BT-WE8S64-R10	N/A	N/A
*OS: Win 10 IoT Enterprise (64-bit)	AFL3-W07A-BT-W10E64-E-R10	AFL3-W15B-H81-W10E64-V-R10	AFL3-W15C-ULT3-W10E64-V-R10

**RFID is supported after AFL3-xxA-BT R11 version
*OS image with CD-ROM without storage

E-Window (for ATO assembly)

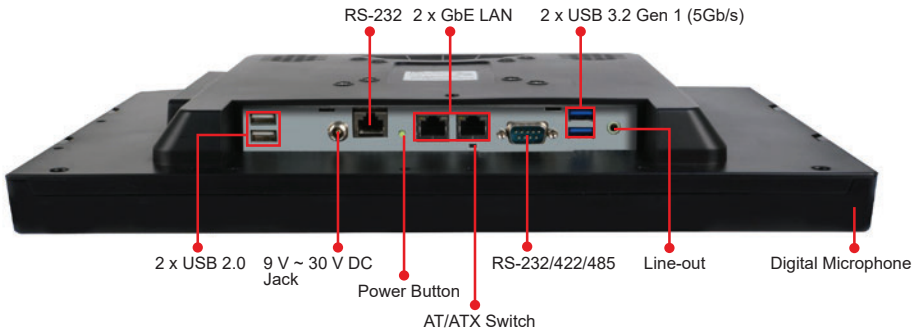
Part No.	Description	Supported Model
E-MPCIE-LAN-R10	PCIe Mini card supports 1-port GbE with Realtek RTL8111E controller, with PMS 194C I/O bracket and 250mm cable, R10	AFL3-W15A-BT-J1/PC/2G-R12* AFL3-W15A-BT-J1/R/2G-R12* AFL3-W15C-ULT3-C/R/4G-R10 AFL3-W15C-ULT3-i5/R/4G-R10 AFL3-W15C-ULT3-C/PC/4G-R10 AFL3-W15C-ULT3-i5/PC/4G-R10
E-MPCIE-DLAN-R10	PCIe Mini card supports 2-port GbE with Intel I211 controller, with PMS 194C I/O bracket and 250mm cable, R10	
E-MPCIE-3G-R10	PCIe Mini card supports 3G WWAN module , with PMS 130C I/O bracket, RF antenna 300mm cable and GSM antenna cable, R10	
E-MPCIE-CClink-R10	PCIe Mini card supports CC-Link Slave interface according to V2.0 and V1.1, with PMS black C I/O bracket and 250mm cable, R10	AFL3-W15C-ULT3-C/R/4G-R10 AFL3-W15C-ULT3-i5/R/4G-R10 AFL3-W15C-ULT3-C/PC/4G-R10 AFL3-W15C-ULT3-i5/PC/4G-R10
E-MPCIE-PROFIBUS-R10	PCIe Mini card supports universal PROFIBUS DP card for Master or Slave, with PMS black C I/O bracket and 250mm cable, R10	
E-MPCIE-EtherCAT-R10	PCIe Mini card supports universal Real-Time Ethernet protocols, with PMS black C I/O bracket and 280mm cable, R10	

*Installation E-MPCIE-LAN-R10 & E-MPCIE-DLAN-R10 after remove AFL3-USBHUB-R10

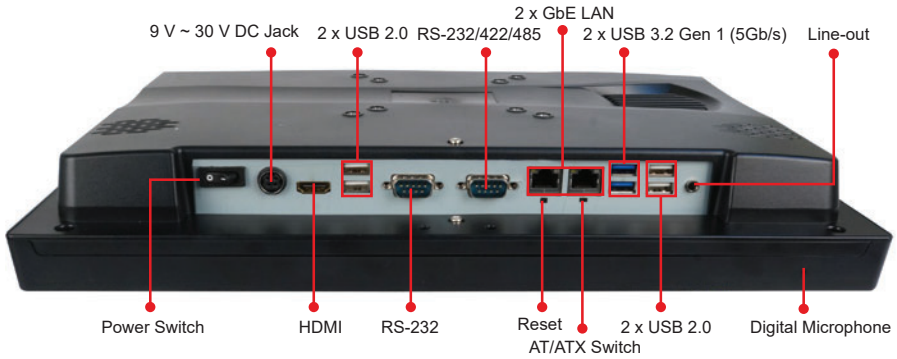
Packing List

Item	Part No.	Q'ty	Remark
Round head machine screw	44003-020041-RS (W15A-BT/15B-H81)	4	M2*4 round head machine screw
Pan head machine screw	44403-040061-RS	4	M4*6 pan head machine screw
Fix holder	46003-009500-RS	2	
Power adapter	63040-010060-120-RS (W15A-BT)	1	60W; Vin: 90V~264V AC; Vout: 12VDC
	63040-010096-100-RS	1	96W; Vin: 90V~264V AC; Vout: 12VDC
RJ-45 to DB-9 COM port transfer cable	32005-004600-100-RS(W15A-BT)	1	300mm, 26AWG, (A) D-SUB 9 male, (B) RJ-45

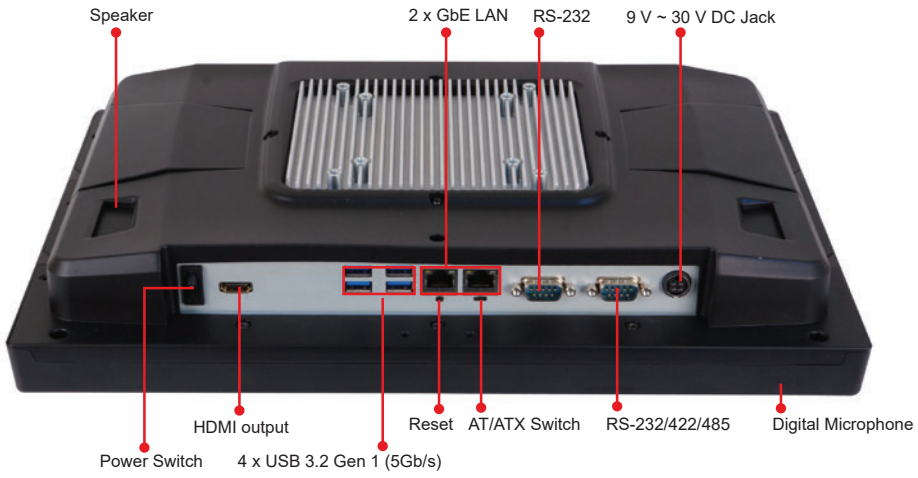
AFL3-W15A-BT Fully Integrated I/O



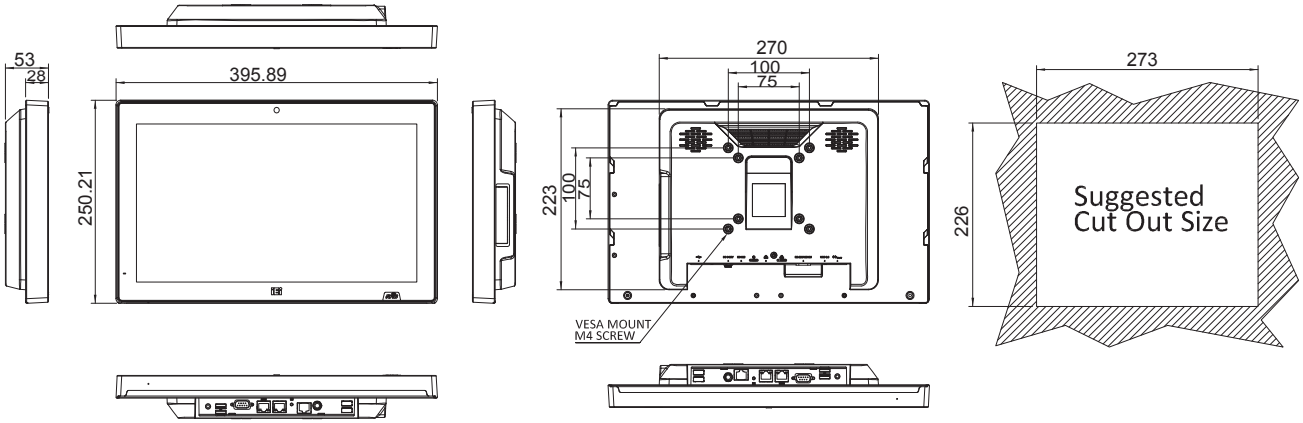
AFL3-15B-H81 Fully Integrated I/O



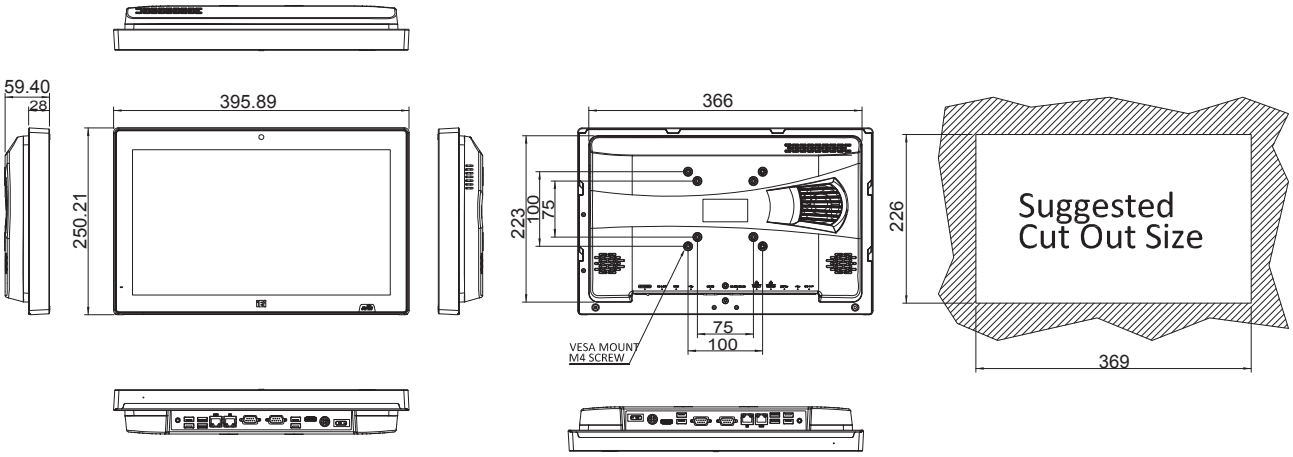
AFL3-W15C-ULT3 Fully Integrated I/O



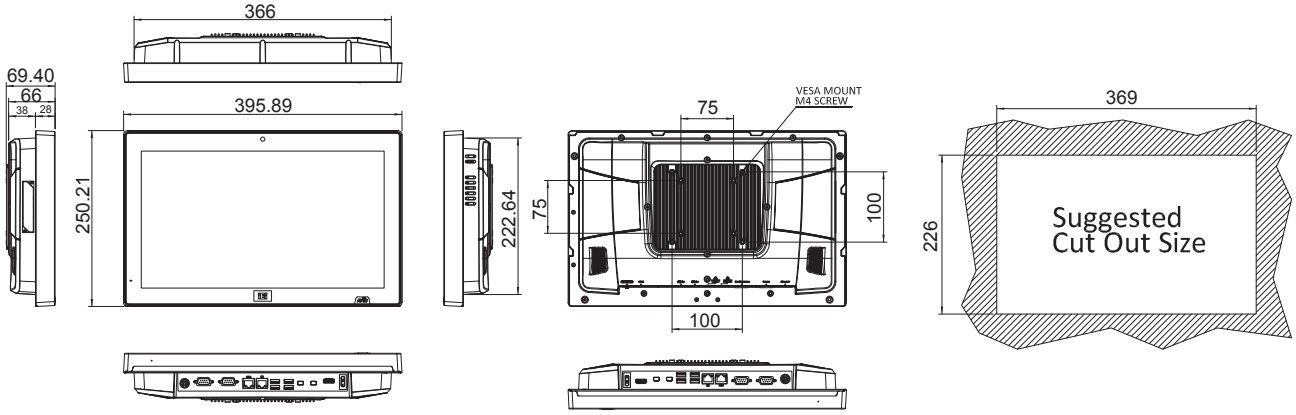
AFL3-W15A-BT Dimensions (Unit: mm)



AFL3-W15B-H81 Dimensions (Unit: mm)



AFL3-W15C-ULT3 Dimensions (Unit: mm)

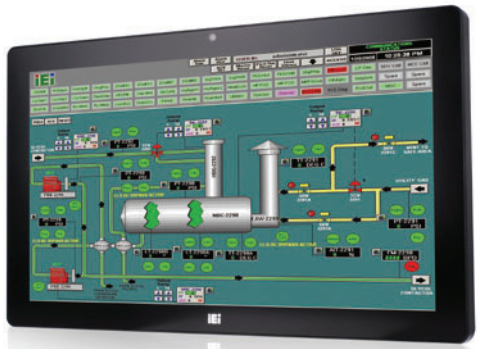


AFL3-W19C-ULT3

Intel® Core™ i5 and Celeron® ULT Processor

AFL3-W19A-AL

Intel® Celeron® / Atom™ Apollo Lake Processor



Features

- 18.5" light industrial interactive panel PC
- Wide range DC power input
- Selectable AT/ATX power mode
- Built-in speakers
- One mSATA slot
- IP64 compliant front panel
- IEI One Key Recovery solution alllows you to create rapid OS backup and recovery (suggested with over 4GB storage capacity)



Specifications

Model		AFL3-W19C-ULT3	AFL3-W19A-AL
LCD	Size	18.5"	18.5"
	Resolution	1366 x 768 (16:9)	1366 x 768 (16:9)
	Brightness (cd/m²)	250	250
	Contrast Ratio	1000:1	1000:1
	LCD Color	16.7M	262K
	Pixel Pitch (mm)	0.240 (H) x 0.240 (V)	0.240 (H) x 0.240 (V)
	Viewing Angle (H-V)	170º/160º	170º/160º
	Backlight MTBF(hrs)	30,000 (LED backlight panel)	30,000 (LED backlight panel)
Touch	Touch Screen	Projected capacitive with USB interface (anti-UV / anti-glare coating)	
	Touch Controller	EETI EXC3180	EETI EXC3188
Motherboard	CPU	Intel® Core™ i5 and Celeron® ULT Processor	Intel® Celeron® J3455 (quad core, 1.5GHz up to 2.3 GHz)
	RAM	Two 260-pin 2133/1867 MHz dual-channel DDR4 SO-DIMMs (system max. 32 GB)	One 204-pin 1600/1333 MHz single-channel DDR3L SO-DIMM, 4GB pre-installed (system max. 8GB)
	Ethernet	2 x Intel® I211-AT PCIe GbE controller	2 x PCIe GbE by Intel® i211 controller
	Audio Codec	ALC892	ALC269
Storage		1 x mSATA (E-Window) 1 x 2.5" SATA 3Gb/s HDD bay 1 x M.2 M key PCIe (2280 or 22110)	1 x mSATA (E-Window) 1 x 2.5" SATA 3Gb/s HDD bay
I/O Ports & Switch		1 x RS-232 by DB-9 (RI/5V/12V) 1 x RS-232/422/485 by DB-9 (RI/5V/12V) 2 x GbE LAN 4 x USB 3.2 Gen 1 (5Gb/s) 1 x HDMI output 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x 9V ~ 30V lockable power jack	1 x RS-232/422/485 by RJ-45 1 x RS-232 by RJ-45 2 x GbE LAN 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x HDMI output 1 x 12V ~ 34V DC Jack 1 x Power switch 1 x AT/ATX switch 1 x Line out
E-Window Expansion		Yes, optional (full-size mini-PCIe slot with PCIe/SATA/USB)	
Audio		AMP 3W + 3W (internal speaker)	
Camera and Microphone		2-megapixel with low light function, digital microphone	2-megapixel with low light function, digital microphone
Wireless & Bluetooth		IEEE 802.11 a/b/g/n/ac, Bluetooth V4.1 M.2 slot A+E key 2230 slot (PCIe/USB signal)	
OSD Function		Software OSD	
Physical	Front Panel Construction	PC + ABS Plastic	PC + ABS Plastic
	Mounting	Panel, Wall, Stand and Arm VESA 75mm x 75mm / 100mm x 100mm	Panel, Wall, Stand and Arm VESA 100mm x 100mm
	Color	Black C	Black C
	Dimensions (W x H x D) (mm)	470 x 290 x 70	470 x 280 x 60
	Cut-out Dimensions (W x H) (mm)	443 x 261	418 x 230
	Net/Gross Weight (kgs)	7.3/10	6.3/9
Environment	Operating Temperature (Ambient with air flow)	-20ºC ~ 50ºC	-15ºC ~ 50ºC
	Storage Temperature	-20ºC ~ 60ºC	
	Humidity	10% to 95% (non-condensing)	
	IP Level	IP 64 compliant front panel	
	Safety & EMC	CE / FCC	
	Thermal Solution	Fanless	
Power	Power Requirement	9V ~ 30V DC	12V ~ 34V DC
	Power Consumption	12V@7.1A (Intel® Core™ i5-6300U CPU with 4GB DDR4 2133 MHz DDR4 memory)	12V@3.2A (Intel® Celeron J3455 CPU with 4GB DDR3L 1866 MHz DDR3L memory)

Ordering Information

Part No.	Description
AFL3-W19C-ULT3-C/PC/4G-R13	Wide 18.5" 250 cd/m² 1366 x 768 Panel PC with withIntel® 14nm 6th Generation Mobile Celeron® 3955U (15W) on-board Processor (ULT), 1*4GB DDR4 RAM, 802.11a/b/g/n/ac WiFi module, PCAP touch, 2 M camera, microphone, R13
AFL3-W19C-ULT3-i5/PC/4G-R13	Wide 18.5" 250 cd/m² 1366 x 768 Panel PC with Intel® 14nm 6th Generation Mobile Core™ i5-6300U (15W) on-board Processor (ULT), 1*4GB DDR4 RAM, 802.11a/b/g/n/ac WiFi module, PCAP touch, 2 M camera, microphone, R13
AFL3-W19A-AL-J2/PC/4G-R10	Wide 18.5" 250 cd/m² 1366 x 768 Panel PC with with Intel® Celeron® Processor J3455 (10W) on-board Processor (Apollo lake), 1*4GB DDR3L RAM, 802.11a/b/g/n/ac WiFi module, PCAP touch, 2 M camera, microphone, R10

Options

Item	AFL3-W19C-ULT3	AFL3-W19A-AL
Panel Mounting Kit	AFL3PK-W19C-R10	
Wall Mounting Kit	AFLWK-19B	
Arm	ARM-11-RS/ARM-31-RS	
Stand	STAND-A21-R10/ STAND-210-R11/STAND-A19-RS/STAND-C19-R10	
Magnetic Card Reader	AFL3P-W10MSR-U-R10	
Barcode Scanner	AFL3-2D-R11	
RFID Reader (13.56 MHz Mifare Type) (For ATO assembly)	AFL3-MF-RFID-KIT02-R10	
*OS: Win 7 Embedded (64-bit)	AFL3-W15C-ULT3-WES7P64-R10	N/A
*OS: Win 10 IOT Enterprise (64-bit)	AFL3-W15C-ULT3-W10E64-V-R10	AFL3-W19A-AL-W10E64-E-R10

*OS image with CD-ROM without storage

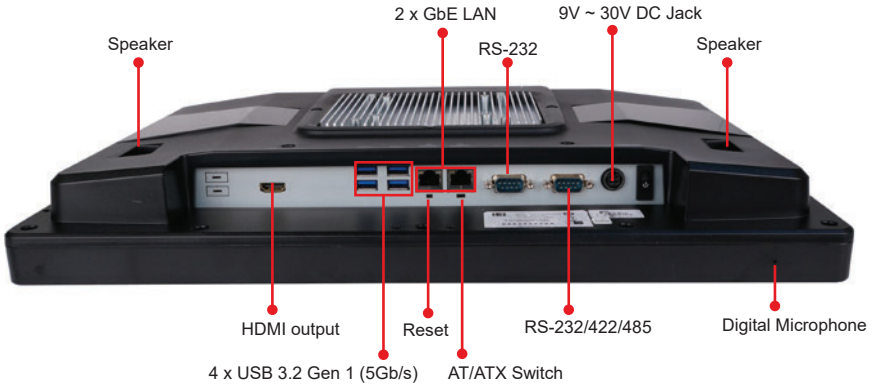
E-Window (for ATO assembly) E-Window

Part No.	Description
E-MPCIE-LAN02-R10	PCIe Mini card supports 1-port GbE with Realtek RTL8111E controller, with PMS 194C I/O bracket and 340 mm cable, R10
E-MPCIE-CClink02-R10	PCIe Mini card supports CC-Link Slave interface according to V2.0 and V1.1, with PMS black C I/O bracket and 300mm cable, R10
E-MPCIE-PROFIBUS02-R10	PCIe Mini card supports universal PROFI BUS DP card for Master or Slave, with PMS black C I/O bracket and 300mm cable, R10
E-MPCIE-EtherCAT-R10	PCIe Mini card supports universal for all Real-Time Ethernet protocols, with PMS black C I/O bracket and 280mm cable, R10
E-MPCIE-3G-R10	PCIe Mini card supports 3G WWAN, with PMS 130C I/O bracket, RF antenna 300mm cable and GSM antenna cable, R10

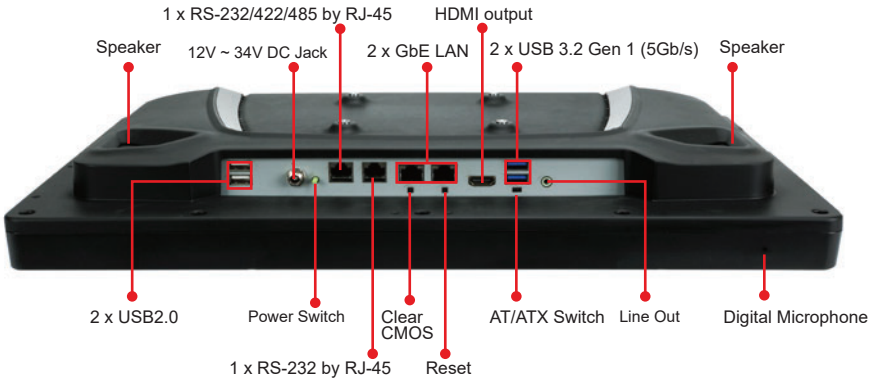
Packing List

Item	Part No.	Q'ty	Remark
Round head machine screw	44403-040061-RS	4	M2*4 round head machine screw
Pan head machine screw	44003-030052-RS	4	M4*6 pan head machine screw
Power adapter	63040-010096-100-RS (AFL3-W19C-ULT3) 63040-010060-120-RS (AFL3-W19A-AL)	1	96W; Vin: 90V~264V AC; Vout: 12VDC 60W; Vin: 90V~264V AC; Vout: 12VDC
RJ-45 to DB-9 COM port transfer cable	32005-004600-100-RS (AFL3-W19A-AL)	1	300mm, 26AWG, (A) D-SUB 9 male, (B) RJ-45

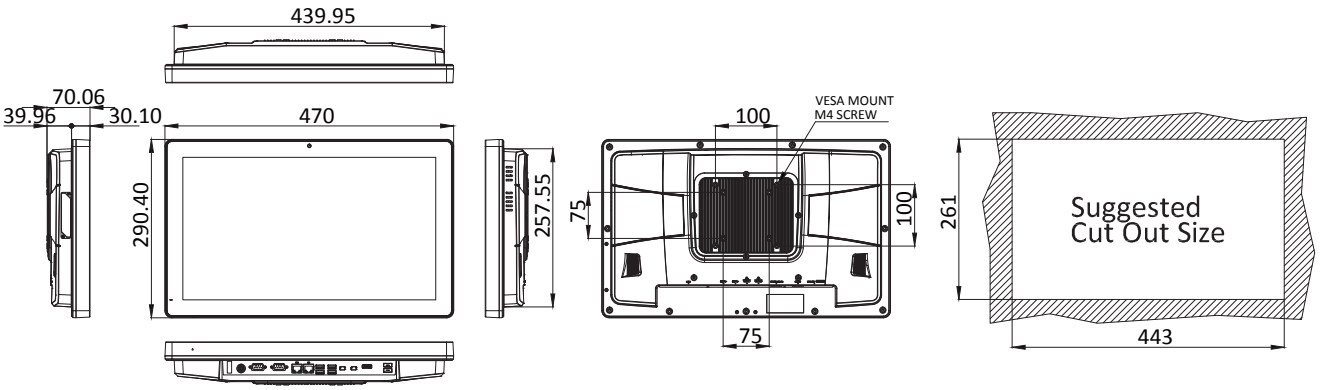
AFL3-W19C-ULT3
Fully Integrated I/O



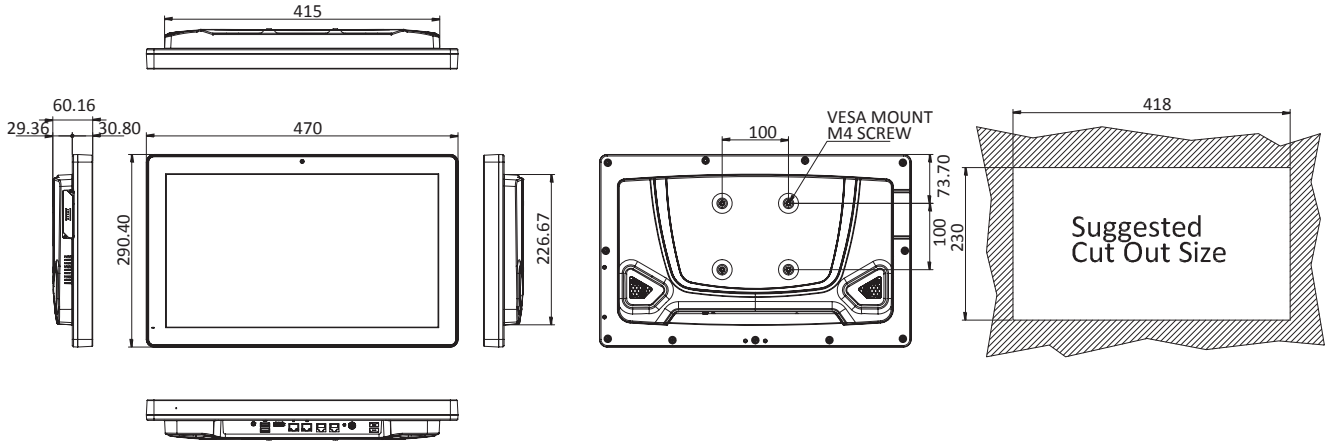
AFL3-W19A-AL
Fully Integrated I/O



AFL3-W19C-ULT3 Dimensions (Unit: mm)

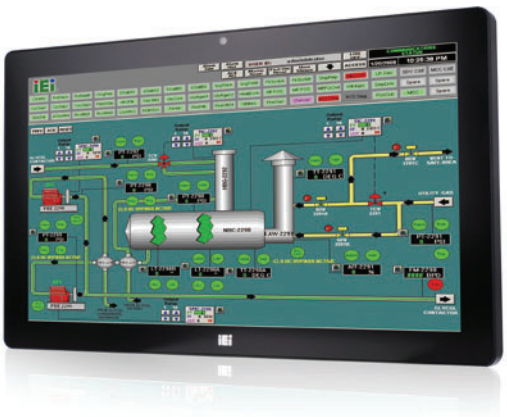


AFL3-W19A-AL Dimensions (Unit: mm)



AFL3-W22C-ULT3

Intel® Core™ i5 and Celeron® ULT Processor



Features

- W21.5 light industrial interactive panel PC
- 9 V ~ 30 V wide range DC power input
- Selectable AT/ATX power mode
- Built-in speakers
- One mSATA slot
- IP64 compliant front panel
- IEI One Key Recovery solution alllows you to create rapid OS backup and recovery (suggested with over 4GB storage capacity)

Fanless | Bluetooth | Touchscreen | IP64 | Camera | Speakers | 9V~30V DC | One Key Recovery

Specifications

Model		AFL3-W22C-ULT3
LCD	Size	21.5"
	Resolution	1920 x 1080
	Brightness (cd/m²)	250
	Contrast Ratio	1000:1
	LCD Color	16.7M
	Pixel Pitch (mm)	248.25 (H) × 248.25 (V)
	Viewing Angle (H-V)	170º/160º
	Backlight MTBF(hrs)	30,000 (LED backlight panel)
Touch	Touch Screen	Projected capacitive with USB interface (nti-UV / anti-glare coating)
	Touch Controller	EETI EXC3180
Motherboard	CPU	Intel® Core™ i5 and Celeron® ULT Processor
	RAM	Two 260-pin 2133/1867 MHz dual-channel DDR4 SO-DIMMs (system max. 32 GB)
	Ethernet	2 x Intel® I211-AT PCIe GbE controller
	Audio Codec	ALC892
Storage		1 x mSATA (E-Window) 1 x 2.5" SATA 3Gb/s HDD bay 1 x M.2 M key PCIe (2280 or 22110)
I/O Ports & Switch		1 x RS-232 by DB-9 (RI/5V/12V) 1 x RS-232/422/485 by DB-9 (RI/5V/12V) 2 x GbE LAN 4 x USB 3.2 Gen 1 (5Gb/s) 1 x HDMI output 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x 9-30V lockable power jack
E-Window Expansion		Yes, optional (full-size mini-PCIe slot with PCIe/SATA/USB)
Audio		AMP 3W + 3W (internal speaker)
Camera and Microphone		2-megapixel with low light function, digital microphone
Wireless & Bluetooth		IEEE 802.11 a/b/g/n/ac, Bluetooth V4.1 M.2 slot A+E key 2230 slot (PCIe/USB signal)
OSD Function		Software OSD
Physical	Front Panel Construction	PC + ABS Plastic
	Mounting	Panel, Wall, Stand and Arm VESA 75mm x 75mm / 100mm x 100mm
	Color	Black C
	Dimensions (W x H x D) (mm)	528 x 336 x 68
	Cut-out Dimensions (W x H) (mm)	502 x 303
	Net/Gross Weight (kgs)	8.27/11.27
Environment	Operating Temperature (Ambient with air flow)	-20ºC ~ 50ºC
	Storage Temperature	-20ºC ~ 60ºC
	Humidity	10% to 95% (non-condensing)
	IP Level	IP 64 compliant front panel
	Safety & EMC	CE / FCC
	Thermal Solution	Fanless
Power	Power Requirement	9 V ~ 30 VDC
	Power Consumption	12V@6A (Intel® Core™ i5-6300U CPU with 4GB DDR42133 MHz DDR4 memory)

Ordering Information

Part No.	Description
AFL3-W22C-ULT3-C/PC/4G-R13	Wide 22" 250 cd/m² 1920x1080 Panel PC with withIntel® 14nm 6th Generation Mobile Celeron®3955U (15W) on-board Processor (ULT), 1*4GB DDR4 RAM, 802.11a/b/g/n/ac WiFi module, PCAP touch, 2M camera, microphone,with AG, R13
AFL3-W22C-ULT3-i5/PC/4G-R13	Wide 22" 250 cd/m² 1920x1080 Panel PC with Intel® 14nm 6th Generation Mobile Core™ i5-6300U (15W) on-board Processor (ULT), 1*4GB DDR4 RAM, 802.11a/b/g/n/ac WiFi module, PCAP touch, 2M camera, microphone , with AG, R13

Packing List

Item	Part No.	Q'ty	Remark
Round head machine screw	44403-040061-RS	4	M2*4 round head machine screw
Pan head machine screw	44003-030052-RS	4	M4*6 pan head machine screw
Power adapter	63040-010096-100-RS	1	96W; Vin: 90V~264V AC; Vout: 12VDC

Options

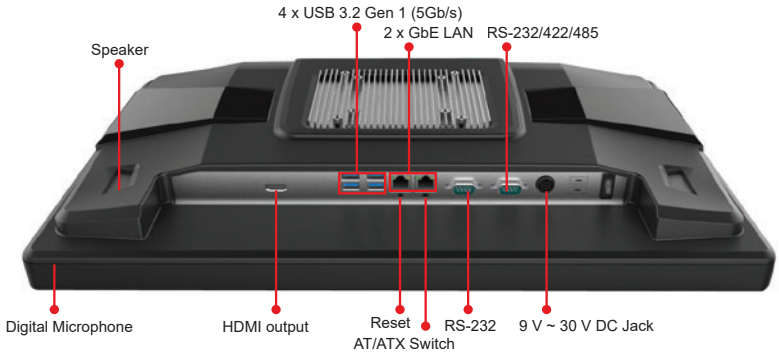
Item	AFL3-W22C-ULT3
Panel Mounting Kit	AFL3PK-W19C-R10
Wall Mounting Kit	AFLWK-19B
Arm	ARM-11-RS/ARM-31-RS
Stand	STAND-A21-R10/ STAND-210-R11/STAND-A19-RS/STAND-C19-R10
Magnetic Card Reader	AFL3P-W10MSR-U-R10
Barcode Scanner	AFL3-2D-R11
RFID Reader (13.56 MHz Mifare Type) (For ATO assembly)	AFL3-MF-RFID-KIT02-R10
*OS: Win 7 Embedded (64-bit)	AFL3-W15C-ULT3-WES7P64-R10
*OS: Win 10 IOT Enterprise (64-bit)	AFL3-W15C-ULT3-W10E64-V-R10

*OS image with CD-ROM without storage

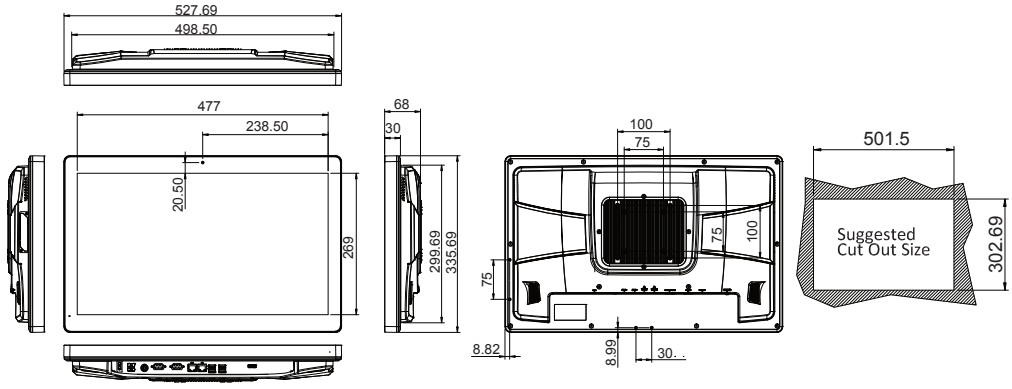
E-Window (for ATO assembly) E-Window

Part No.	Description
E-MPCIE-LAN02-R10	PCIe Mini card supports 1-port GbE with Realtek RTL8111E controller, with PMS 194C I/O bracket and 340 mm cable, R10
E-MPCIE-CClink02-R10	PCIe Mini card supports CC-Link Slave interface according to V2.0 and V1.1, with PMS black C I/O bracket and 300mm cable, R10
E-MPCIE-PROFIBUS02-R10	PCIe Mini card supports universal PROFI BUS DP card for Master or Slave, with PMS black C I/O bracket and 300mm cable, R10
E-MPCIE-EtherCAT-R10	PCIe Mini card supports universal for all Real-Time Ethernet protocols, with PMS black C I/O bracket and 280mm cable, R10
E-MPCIE-3G-R10	PCIe Mini card supports 3G WWAN , with PMS 130C I/O bracket, RF antenna 300mm cable and GSM antenna cable, R10

AFL3-W22C-ULT3 Fully Integrated I/O



AFL3-W22C-ULT3 Dimensions (Unit: mm)



AFOLUX GEN II Panel PC

New Flat Bezel, Multi-touch, Wide Voltage AFOLUX Panel PC

From the heritage of affordable Luxury AFOLUX Panel PC, AFOLUX II Panel PC shows it's spirit to exceed the history. The AFOLUX II Panel PC is slim and stylish and provides two types of touch option. RFID reader, wide voltage power input are its features which make it more flexible and more powerful than ever!

Innovative product design:

- AFOLUX II flat bezel design is thinner than AFOLUX
- Projected capacitive multi-touch and resistive single touch screen options

New technology and multiple functions:

- LED dash system for eye-catching notification
- Integrated EM/ Mifare RFID reader
- Light fanless temperature management
- 9 V ~36V DC wide voltage input fits all power requirements
- IEI Light Fanless technology allows the system to turn on/ off fan automatically, enhancing system stability.
- Exclusive LED Light Bar Simulation displays light signals



Rugged while Stylish

Flat Bezel Design with IP64 Protection

AFOLUX II series is designed in flat bezel panel and against dust and water, enduring flawless operation.



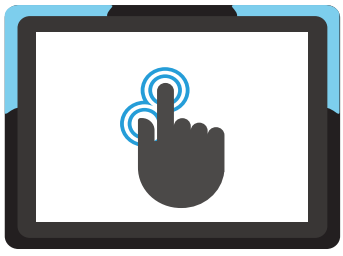
Flat-bezel Features:

- Better visual effects
- Sleek and stylish
- No edge effect
- Easy to clean

Enhanced Touch Technology – Projected Capacitive Touch

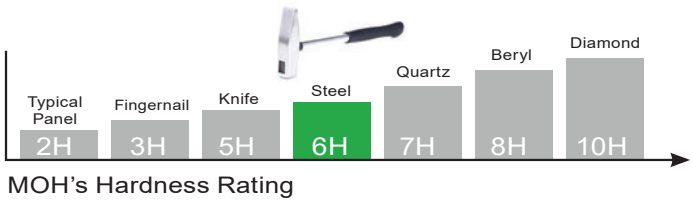
Projected capacitive touch panel is stronger and with higher transparency than the resistive type touch panel. It also supports Windows 7 multi-touch function compatible with glove-wearing users and enhancing ease-of-use.

Model	AFL2-17A-H61/PC	AFL2-17A-H61/R
Type of Touch	Projected capacitive type	5-wire resistive type touch
Touch Function	Multi-touch	Single-touch
Transparency	85%	78%
Hardness	≥6H	≥3H
Input Flexibility	Hand/ glove	Hand/ glove/ stylus



6H Anti-scratch Surface (Projected Capacitive Type Touchscreen)

Projected capacitive touch technology utilizes a durable glass front surface. 6H hardness is stronger than the conventional touch panel and therefore is able to protect the screen from damage.

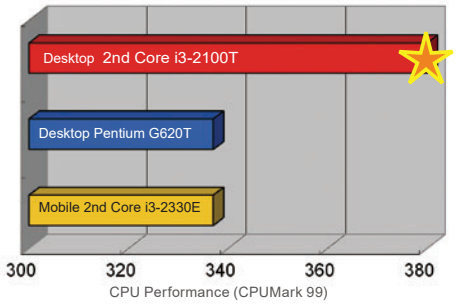


Superior Performance

The Best C/P Value Intel® H61 Platform

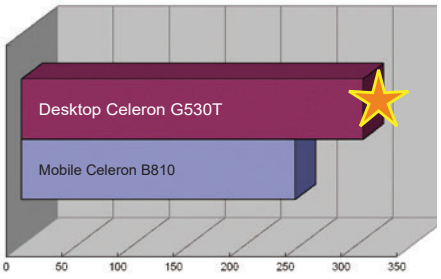
Comparing to mobile solution, Intel® H61 with desktop CPU provides low power consumption but high performance.

Mobile 2nd Core i3 V.S. Desktop Pentium & 2nd Core i3



CPU Type	Intel® 2nd Core™ i3-2330E (Mobile 35W CPU)	Intel® Pentium® G620T (Desktop 35W CPU)	Intel® 2nd Core™ i3-2100T (Desktop 35W CPU)
CPU Performance (CPUMark 99)	337	337	380

Mobile Celeron V.S. Desktop Celeron



CPU Type	Intel® Celeron® B810 (Mobile 35W CPU)	Intel® Celeron® G530T (Desktop 35W CPU)
CPU Performance (CPUMark 99)	245	306

Better Performance with Intel® Atom™ Cedarview Dual Core Processor

AFOLUX II Cedarview panel PC integrates with Intel dual core processor running with DDR3 memory. With fanless system, it reduces system noise and dust accumulation.

N2600 CPU performance is 31% better than N270,
Graphics performance is 36% better than N270,
Memory performance is 21% better than N270



Secondary Display on Full HD

Latest Display Technology: HDMI

HDMI is a compact audio/video interface for transferring uncompressed digital video data and compressed/ uncompressed digital audio data from an HDMI-compliant device to a compatible digital audio device, computer monitor, video projector, or digital television. HDMI is a digital replacement for existing analog video standards.

	Maximum clock rate(MHz)	Maximum total TMDS throughput (Gbit/s)	Maximum color depth (bit/px.)	Maximum resolution over single link at 24-bit/px	Dolby TrueHD bitstream capable	3D over HDMI
Version 1.0 to 1.2	165	4.95	24	1920 x 1200	No	No
Version 1.3	340	10.2	48	2560 x 1600	Yes	No
Version 1.4	340	10.2	48	2096 x 2160	Yes	Yes



Advantages

- Backward compatible with DVI via an adapter.
- Support audio transport (v.s. DVI canonly transmit image).



Latest Display Technology: DisplayPort

It's not only used to connect a video source to a display device, but also be used to transmit audio, USB, and other forms of data. DisplayPort lets you take advantage of today's high-bandwidth content, enabling you to create a professional and powerfully compelling digital signage solution.



Advantages

- Backward compatible with DVI/HDMI with the adapter.
- Support multi-display: It can works with monitors, notebooks or all-in-one computers.



Flexible Design to Fit Various Scenarios

Wide Application to Extreme Circumstance

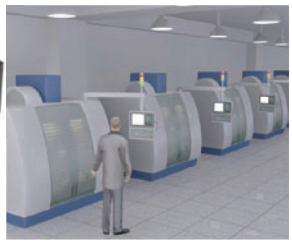
Power supply requirement varies from applications. Incorrect voltage input will damage electronic components thus cause system break down. AFOLUX GEN II offers wide voltage power input, which fits different application scenarios and increase stability of the system.



Wide range 9~36VDC input *

Wide range DC input fits different power source depends on what circumstance needed.

Wide Range Power Input	9~ 36V DC*



Automation Central Control



Factory Manufacture Control



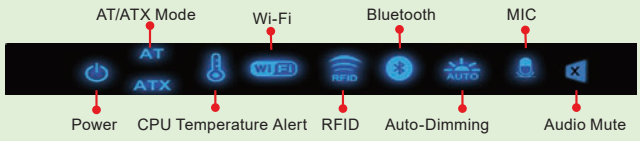
Truck Control (24V)

Easy to Use

LED Indicator and Function Key

- Function key can be more convenient for panel PC users to operate this panel without any keyboard or mouse.
- Indicator is located in front of panel, it can tell users which function is enable or disable

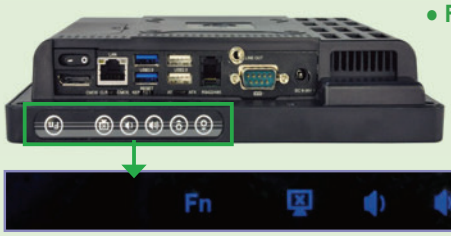
• LED Indicators



- Brightness of LED indicator can be set by manual (3-step) or auto-adjust by ambient light (new function support from AFL2-xxA-N26 R11, AFL2-xxA-N28-R11, AFL2-xxA-H61 R12, AFL2-W21A-H61 R10)



• Function Key



- Fn
- Backlight On/Off
- Audio -
- Audio +
- Brightness -
- Brightness +
- Fn + RFID Enable/Disable
- Fn + Audio Mute
- Fn + Camera Enable/Disable
- Fn + Front Side USB Enable/Disable
- Fn + Power On / Off

Mini USB 2.0 Port & microSD Card Slot on Front Panel





Mini USB 2.0

The AFOLUX GEN II new series has a mini USB 2.0 port on the front panel for easy connecting.

MicroSD card

The AFOLUX GEN II new series has a microSD slot on the front panel for easier access.

Auto-dimming Advantages



Auto-dimming Advantages

- Power Consumption Saving
- Comfortable Viewing Brightness
- Extend Product Lifetime

Auto-dimming

Automatically adjust the optimal brightness to fit the environment.



Day: Higher Ambient Luminance

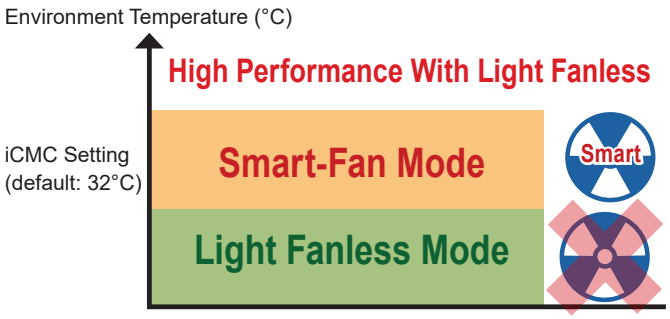


Night: Lower Ambient Luminance

IEI Light Fanless System

IEI Light Fanless System is a highly effective smart system, embedded with a smart sensor to sense the ambient temperature. It can operate quietly with high performance in various applications, such as a patient's bedside multimedia platform, gaming machines, airport kiosks etc.





Benefits

- Power Saving: Auto switch on/off fan can reduce redundant power consumption
- Expanding system lifecycle: Helping users to run system more effectively, it also enhances the lifecycle of CPU.
- Effectively manage system environment: User can monitor the information of the system easily
- High performance with noiseless: IEI supports noiseless situation to have quiet environment and high performance simultaneously.

IEI Light Fanless Applications



Patient Bedside Entertainment System



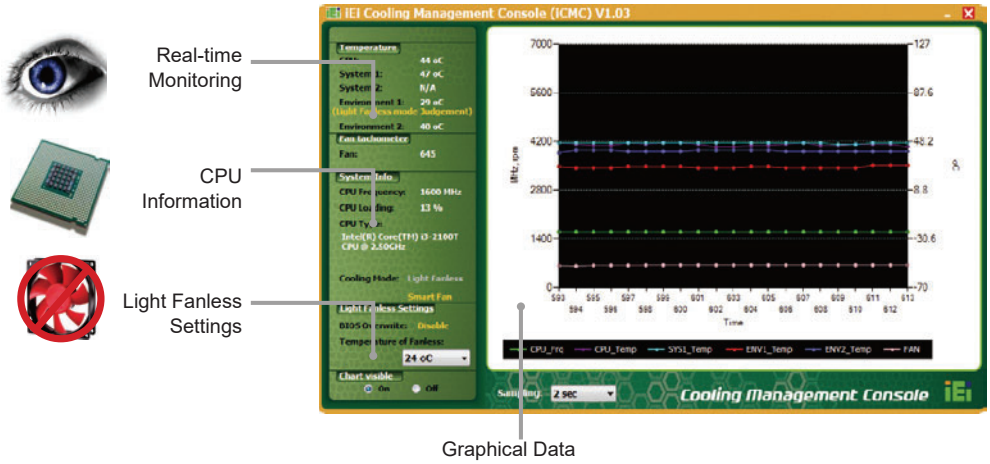
Clean Room



Semi-outdoor Kiosk

iCMC (IEI Cooling Management Console)

iCMC, IEI's exclusive software, provides reliable embedded features for system integrators. It simplifies integration for the AFOLUX II and upgrades system configuration from the BIOS level to the operating system level.



LED Light Visual Management





Support LED Light Bar control API for the customer to suit their own software program. Light bar signal are correspond to the light button. User can customize their own light patterns for different conditions.

Features

- Programmable LED RGB colors
- Signaling light display user demand
- Manual scripts for LED lighting programs
- 100% software programmable colors, light duration, and light patterns
- 30 light sections for AFL2-17A-H61, 34 light sections for AFL2-W19A-H61
  50 light sections for AFL2-W21A-H61, each light section can be configured independently.

LED Dash Board for Visual Visual Alert System and Status Notification


Achieving a smooth production line


Medical care alert system



Showing appealing light simulation

AFL2-12A-HM65

Intel® Core™ i7/i5/i3 Processor



Features

- 12.1" 600nits 1024 x 768 flat-bezel LCD with LED backlight
- Supports projected capacitive touchscreen or 5-wire resistive type touchscreen
- Built-in two 3W speakers and microphone
- GbE LAN for high speed network applications
- One 204-pin DDR3 SO-DIMM slot (system max. 4GB)
- Wi-Fi 802.11b/g/n high speed wireless
- EM or Mifare RFID reader
- IP 64 compliant front panel
- Auto-dimming control
- Built-in 2 megapixels webcam with AF AE and AWB capabilities
- Wide range 9~36 VDC input



Specifications

Model		AFL2-12A-HM65
LCD Specifications	Size	12.1"
	Resolution	1024 (W) x 768 (H)
	Brightness (cd/m²)	600
	Contrast Ratio	700:1
	LCD Color	16.2 M
	Pixel Pitch (mm)	0.240 (H) x 0.240 (V)
	Viewing Angle (H-V)	160° / 140°
	Backlight MTBF	50000 hrs (LED backlight)
Touch	Touch Screen	5-wire rsistive type with RS-232 interface / projected capacitive type with USB interface
	Touch Controller	PenMount DMC9000 / EETI EXC7200 & EXC5400
System	CPU	2nd Generation Intel® Core™ i7/ i5/ i3 and Celeron® processor
	Chipset	Intel® HM65
	RAM	Support one 204-pin DDR3 SO-DIMM slot (Max. 4GB)
	Ethernet	Realtek RTL8111E PCIe GbE controller supporting ASF 2.0
	Storage	2.5" SATA 6Gb/s SSD bay
	Input / Output	1 x RS-232 (DB-9) 1 x RS-232 (RJ-45) 1 x RS-422/485 (4-pin box header) 2 x GbE LAN (RJ-45) 2 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s) 1 x Mini USB 2.0 port on front panel 1 x Audio jack (line-out) 1 x HDMI port 1 x MicroSD card slot on front panel 1 x Power switch 1 x AT/ATX switch 1 x Reset button 1 x Clear CMOS button 1 x DC input jack
Other Features	Audio	AMP 3W + 3W (internal speaker)
	Camera	2 M pixels with low light function
	RFID Reader	EM 125 KHz or Mifare 13.56 MHz card reader (optional)
	MSR Card Reader	MSR card reader (optional)
	OSD Function	LCD on/off, brightness up/down, volume up/down, Hot Key
	Ambient Light Sensor	Yes
	Infrared Remote Controller	Yes
	System Cooling	Smart fan
Connectivity	Wireless	IEEE 802.11b/g/n module Telec certified
Physical	Construction Front Panel	PC + ABS Plastic
	Mounting	Panel, Wall, Rack, Stand and Arm VESA 100 mm x 100 mm
	Color	Black
	Dimensions (WxHxD)(mm)	310 x 265 x 52.6
	Weight (N/G)	3.8 kg / 6.1 kg
Environment	Operating Temperature (°C) (Ambient with air flow)	-20°C ~ 50°C with SSD
	Storage Temperature (°C)	-20°C ~ 60°C
	Humidity	10% to 95% (non-condensing)
	IP Level	IP 64 compliant front panel
	Safety&EMC	CE / FCC
Power	Power Supply	90W power adapter Input: 100VAC~240VAC, 50/60Hz Output: 19VDC
	Power Requirement	9 ~ 36 VDC
	Power Consumption	19V@2.68A (Intel® Core™ i5-2510E processor with 4GB DDR3 memory)

Ordering Information

Part No.		Description
Resistive Touch Screen	AFL2-12A-HM65/R-R15	12.1" 600cd/m² XGA panel PC, 802.11b/g/n wireless module, resistive touch screen, 2M camera, microphone, dual GbE LAN, R15
Projective Capacitive Touch Screen	AFL2-12A-HM65/PC-R15	12.1" 600cd/m² XGA panel PC, 802.11b/g/n wireless module, projected capacitive touchscreen, 2M camera, microphone, dual GbE LAN, R15
CPU Selection	CPU-MB-i7-2640M	2nd Generation Intel® Core™ i7 Processor [Mobile], PPGA-988, dual core 2.8GHz, 35W, iAMT
	CPU-MB-i5-2510E	2nd Generation Intel® Core™ i5 Processor [Mobile], PPGA-988, dual core 2.5GHz, 35W, iAMT
	CPU-MB-i3-2310M	2nd Generation Intel® Core™ i3 Processor [Mobile], PPGA-988, dual core 2.1GHz, 35W
	CPU-MB-CM-B810	Intel® Celeron® Mobile Processor, PPGA-988, dual core 1.6GHz, 35 W
	CPU-MB-CM-B710	Intel® Celeron® Mobile Processor, PPGA-988, single core 1.6GHz, 35 W
Memory Selection	DDR3-SO-1333-1GB	SO-DIMM DDR3 1333MHz 1GB
	DDR3-SO-1333-2GB	SO-DIMM DDR3 1333MHz 2GB
	DDR3-SO-1333-4GB	SO-DIMM DDR3 1333MHz 4GB

Options

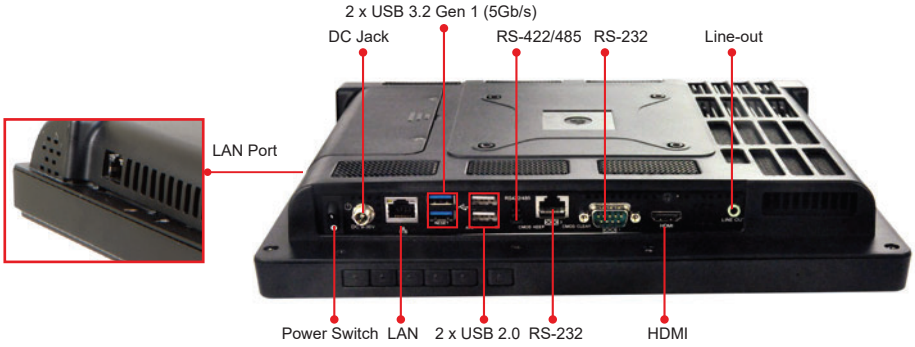
Item	AFL2-12A-HM65
Panel Mounting Kit	AFLPK-15
Wall Mounting Kit	AFLWK-19B
Rack Mounting Kit	AFL2RK-12
Arm	ARM-11-RS
Stand	STAND-A12-RS/STAND-A19-RS/STAND-A21-R10/ STAND-C12-R10
V-Stand	VSTAND-A12-R11
Magnetic Stripe Reader Kit	AFL2P-12AMSR-U-R10
EM RFID Reader	AFL2-EM-RFID-KIT01-R10
Mifare RFID Reader	AFL2-MF-RFID-KIT01-R11
OS: Win XPE (2GB CF Card)	AFL2-12A-HM65-XPE-R15*
OS: Win XPE (4GB CF Card)	AFL2-12A-HM65-XPE-R15*
OS: Win 7 Embedded (4GB CF Card)	AFL2-12A-HM65-WES7P-R14* (for Projected Capacitive Touch) AFL2-12A-HM65-WES7E-R14* (for Resistive Touch)

*OS image with CD-ROM or DVD-ROM

Packing List

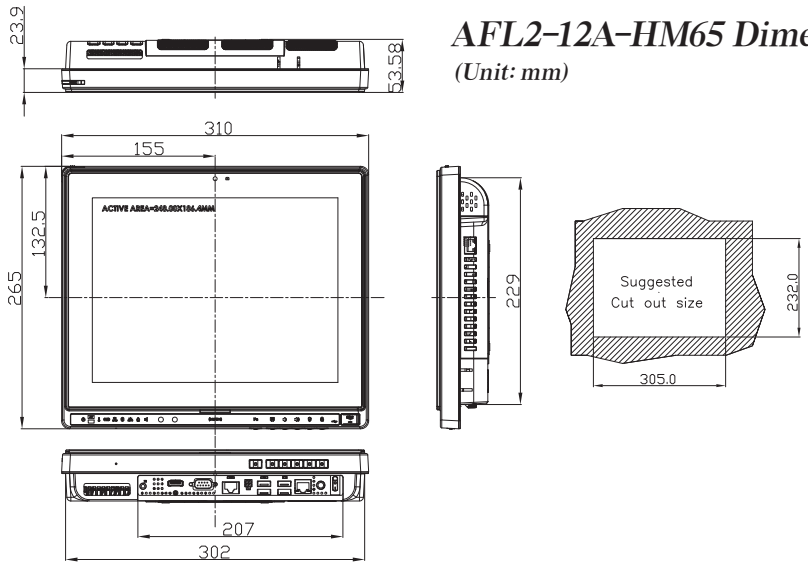
Item	P/N	Q'ty	Remark
Utility CD		1	Drivers and user manual
One Key Recovery CD		1	
Power Adapter	63040-010090-120-RS	1	90W ;19VDC output
Power Cord	32702-000401-100-RS	1	1500 mm, European Standard
Power Transfer Cord	32702-000300-100-RS	1	
M3 Screw Pack	44013-030041-RS	4	M3*4 for securing HDD
M4 Screw Pack	44403-040061-RS	4	M4*4 VESA screw
RJ-45 to DB-9 COM Port Cable	32005-000200-200-RS	1	
IR Remote Controller	7Z000-SLPCB005-RS	1	
RS-422 Cable	32205-002400-100-RS	1	
Pen	43125-0002C0-00-RS	1	For Resistive Touch

AFL2-12A-HM65 Fully Integrated I/O



AFL2-12A-HM65 Dimensions

(Unit: mm)



E-Window Tool Kit

Innovative E-windows technology is a new modular way of adding flexible functionality to a wide range of device. Using standardized component helps system integrators easily add more features without any costly efforts.



Features

- Easy maintenance
- Variety module & I/O plate with flexible customization
- Integration of multiple functions
- Easy for replacement with different modules

Ordering Information: (shipment by assembly to order)

E-Window

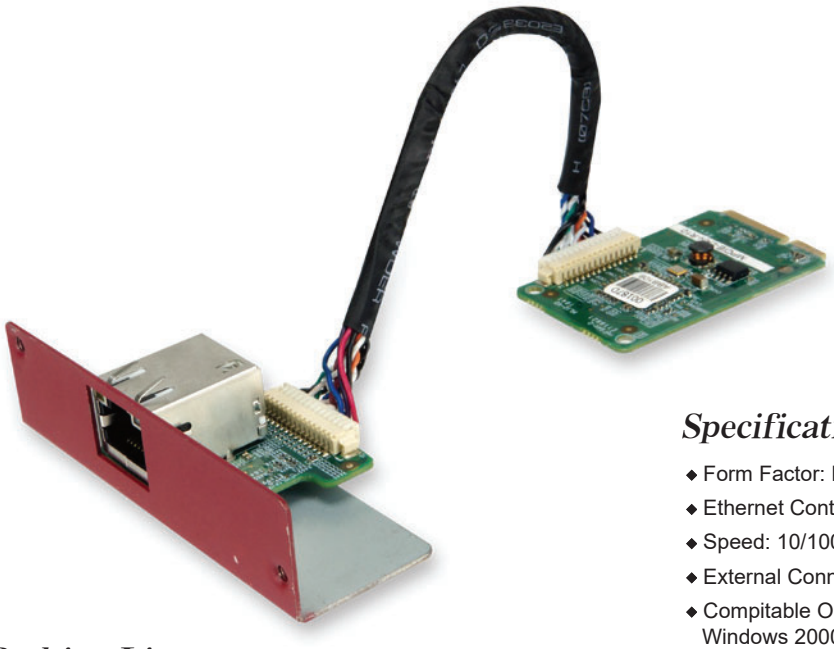
Item	Description	Support list	
E-MPCIE-LAN-R10	PCIe mini card supports 1-port GbE with REALTEK RTL8111E controller, with PMS 194C I/O bracket and 250mm cable, R10	AFL3-12A-BT * AFL3-W15A-BT * AFL3-W19A-AL	AFL3-W15C-UTL3 AFL3-W19C-UTL3 AFL3-W22C-ULT3
E-MPCIE-DLAN-R10	PCIe mini card supports PCIe mini card supports 2-port GbE with Intel I211 controller, with PMS 194C I/O bracket and 250mm cable, R10	AFL3-12A-BT * AFL3-W15A-BT * AFL3-W19A-AL	AFL3-W15C-UTL3 AFL3-W19C-UTL3 AFL3-W22C-ULT3
E-MPCIE-CClink-R10 CIFX 90E-CC\ET\F	PCIe mini card supports CC-Link Slave interface according to V2.0 and V1.1, with black C I/O bracket and 250mm cable, R10	AFL3-W15C-UTL3 AFL3-W19C-UTL3	AFL3-W19A-AL AFL3-W22C-ULT3
E-MPCIE-PROFIBUS-R10 CIFX 90E-DP\F	PCIe mini card supports universal PROFI BUS DP card for Master or Slave, with black C I/O bracket and 250mm cable, R10	AFL3-W15C-UTL3 AFL3-W19C-UTL3	AFL3-W19A-AL AFL3-W22C-ULT3
E-MPCIE-EtherCAT-R10 CIFX 90E-RE\F	PCIe mini card supports universal for all Real-Time Ethernet protocols, with black C I/O bracket and 280mm cable, R10	AFL3-W15C-UTL3 AFL3-W19C-UTL3	AFL3-W19A-AL AFL3-W22C-ULT3
E-MPCIE-3G-R10	PCIe mini card supports 3G WWAN Module , with PMS 130C I/O bracket, RF antenna 300mm cable and GSM antenna cable, R10	AFL3-12A-BT AFL3-12C-BT AFL3-W15A-BT AFL3-W19A-AL	AFL3-W15C-UTL3 AFL3-W19C-UTL3 AFL3-W22C-ULT3
E-MPCIE-CAN-R10	USB to dual isolated CANbus 2.0B Module	AFL3-W15C-ULT3 AFL3-W19A-AL	AFL3-W19C-ULT3 AFl3-W22C-ULT3

* Remove AFL3-USBHUB-R10

E-MPCIE-LAN-R10

PCI Express Mini GbE LAN Module, Full Size, RoHS

NEW



Features

- Support one GbE LAN by RTL8111E
- Compliant with PCI Express Mini specification 1.2

Specifications

- Form Factor: PCI Express Mini card
- Ethernet Controller: Realtek RTL8111E
- Speed: 10/100/1000Mbps
- External Connector: 1 x 8-pin RJ-45
- Compitable OS
  Windows 2000/ XP/ Server 2003/ Server 2008/ Vista/ 7
  Linux kernel version 2.6.32 or above
- Power Supply: On board 3.3V
- Operating Temperature: -10°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions (LxW): 51 mm x 30 mm
- Weight: 70g
- CE/FCC compliant

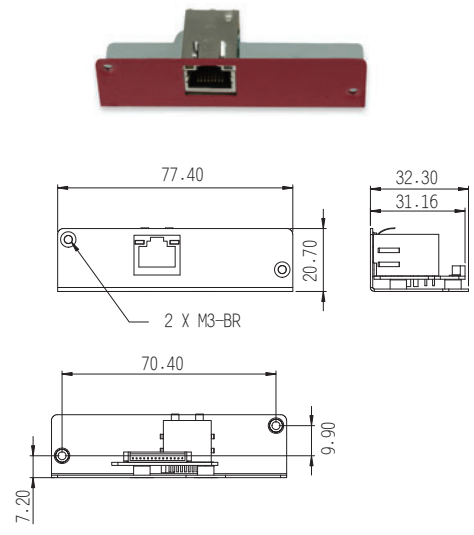
Packing List

1 x MPCIE-LAN module
1 x Flat cable (pitch=1.25mm)
1 x QIG

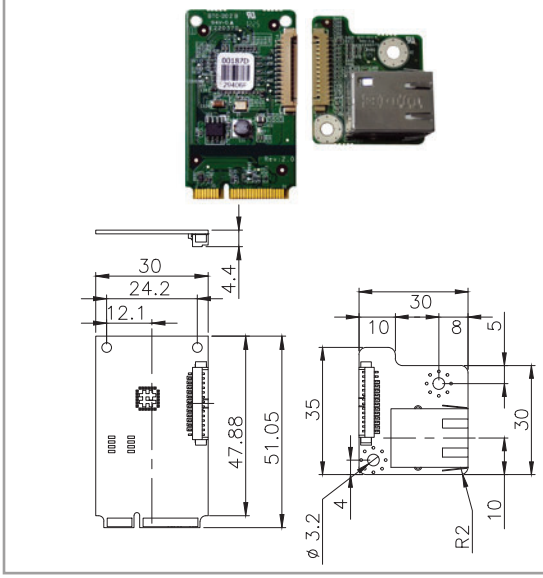
Ordering Information

Part No.	Description
E-MPCIE-LAN-R10	PCIe Mini card supports 1-port GbE with Realtek RTL8111E controller, with PMS 194C I/O bracket and 250mm cable, R10
E-MPCIE-LAN02-R10	PCIe Mini card supports 1-port GbE with Realtek RTL8111E controller, with PMS 194C I/O bracket and 340 mm cable, R10
E-MPCIE-LAN03-R10	PCIe Mini card supports 1-port GbE with Realtek RTL8111E controller, with PMS 194C I/O bracket and 150 mm cable

Dimensions (mm)



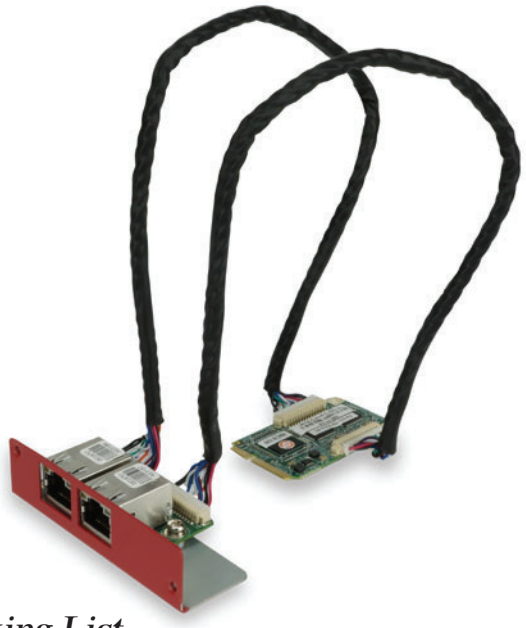
Dimensions (mm)



E-MPCIE-DLAN-R10

PCI Express Mini Dual Intel® GbE LAN Module, Full Size, RoHS

NEW



Features

- Support dual GbE LAN by Intel® I210-IT
- Compliant with PCI Express Mini specification 1.2

Specifications

- Form Factor: PCI Express Mini card
- BIOS: UEFI BIOS
- Ethernet Controller: Dual Intel® I210-IT
- Speed: 10/100/1000Mbps
- External Connector: 2 x 8-pin RJ-45
- Power Supply: On board 3.3V
- Compitable OS
  Windows XP/Server 2003/ Server 2008/ Vista/ 7 /8.1/10
  Linux kernel version 2.6.32 or above
- Operating Temperature: -10°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions (LxW) : 51 mm x 30 mm
- Weight: 55g
- CE/FCC compliant

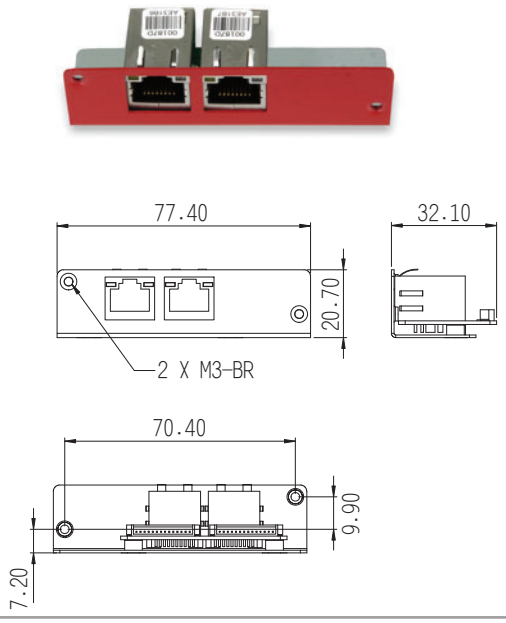
Packing List

1 x MPCIE-DLAN module
2 x Flat cable (pitch=1.25mm)
1 x QIG

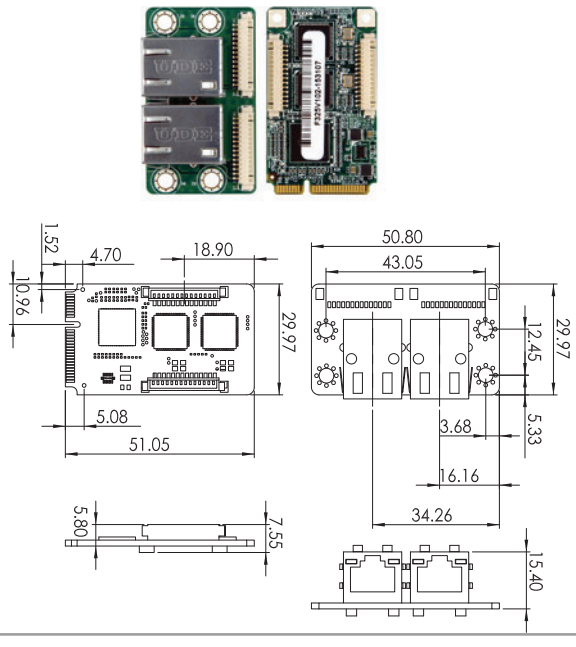
Ordering Information

Part No.	Description
E-MPCIE-DLAN-R10	PCIe Mini card supports 2-port GbE with Intel® I211 controller, with PMS 194C I/O bracket and 250mm cable, R10
E-MPCIE-DLAN02-R10	PCIe Mini card supports 2-port GbE with Intel® I211 controller, with PMS 194C I/O bracket and 150mm cable

Dimensions (mm)



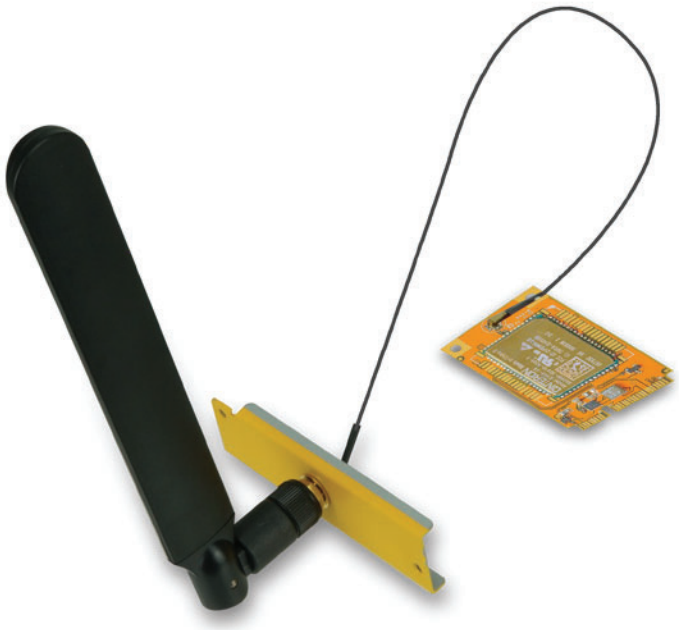
Dimensions (mm)



E-MPCIE-3G-R10

PCI Express Mini 3G Adapter Card, RoHS

NEW



Features

- Real time clock: Timer functions via AT commands
- Phonebook: SIM and phone
- TTY/CTM support: Integrated CTM modem

Specifications

- Form Factor
  PCI Express Mini card
  Antenna 50Ohms. Main GSM/UMTS antenna
- Frequency Bands
  GSM/GPRS/EDGE: 850/900/1800/1900 GPRS/EDGE Class12
  UMTS/HSPA+: Dual band UMTS 800/850/900/1900/2100 MHz
- USB
  USB 2.0 High Speed (480Mbit/s) device interface
- Compatible OS
  Windows® 8, Windows® 7, Windows EC, Linux, Android
- Operating Temperature
  Normal operation: -30°C to +85°C
  Restricted operation: -40°C to +95°C
- Dimensions (W x D x H)
  51.0 mm × 30.0 mm × 4.75 mm

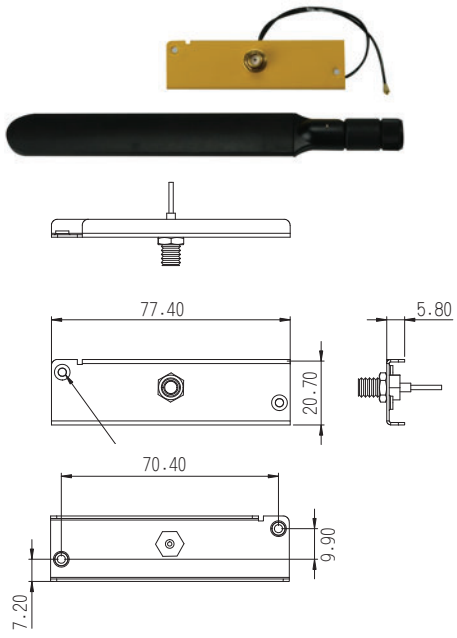
Packing List

1 x PCI Express Mini 3G adapter card

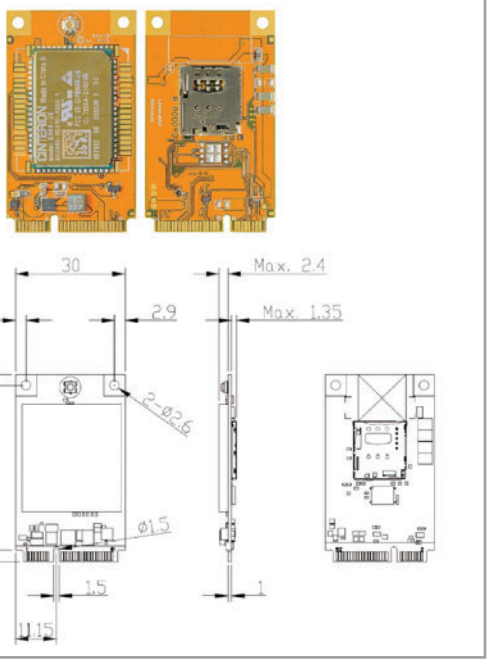
Ordering Information

Part No.	Description
E-MPCIE-3G-R10	PCIe Mini card supports 3G WWAN module, with PMS 130C I/O bracket, 300mm RF antenna cable, and GSM antenna cable, R10
32501-000705-100-RS	Internal antenna cable, 213mm
32503-000100-100-RS	External GSM antenna cable, 300mm

Dimensions (mm)



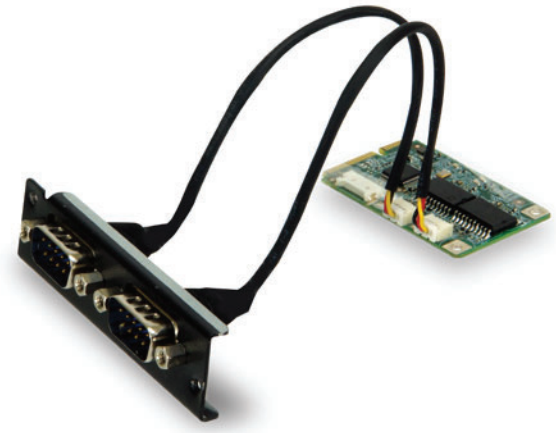
Dimensions (mm)



E-MPCIE-CAN-R10

USB to Dual Isolated CAN Bus 2.0B Module

NEW



Specifications

- Form-factor: full-size PCIe Mini
- Input I/F: PCIe Mini interface (USB interface)
- Communication Baud Rate: 50/125/250/500/1000K @ 40meter
- Host Site Connector: Internal USB port (PCIe Mini via USB)
- Output I/F: 2 x CAN Bus 2.0B port with optional isolation
- CANBus Connector: 1.25 mm, 2 x 3-pins(GND, CAN_H ,CAN_L) male type wafer box
- Support Voltage and Current : 5.0 V
- Output Connector : two 3-pin (GND, CAN_H ,CAN_L) male type wafer connectors (p=1.25 mm)
- LED Status: D1 Green, Power on/off LED
  D2 Red, CAN-1 Tx LED
  D3 Red, CAN-2 Tx LED
- Operating Temperature: -40 to +85 °C
  Storage Temperature: -40 to +85 °C"
- OS Support: Windows /Linux
- Dimensions (L x W x H): 30 x 50.9 x 6 mm
- EMI:
  −Complies with EN61000-4-5 2.5kV surge protection
  −Complies with IEC 60950-1:2005 + A1: 2009 + A2:2013 2.5kV HiPOT protection
  −Complies with EN61000-4-2 (ESD) Air-15kV, Contact-8kV

Packing List

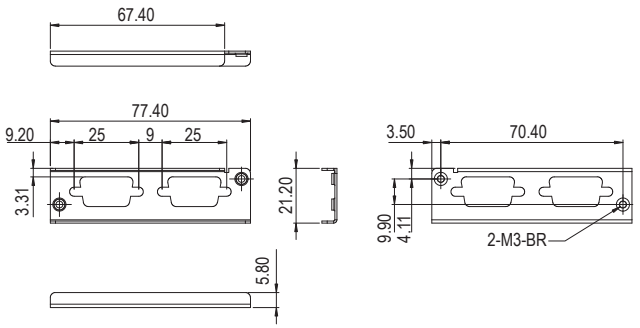
1 x MPCIE-CAN module
2 x DP9 cable, 30 cm
1 x QIG

Ordering Information

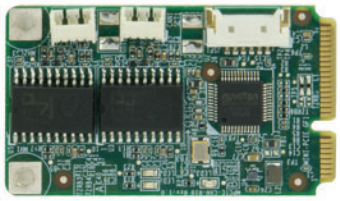
Part No.	Description
E-MPCIE-CAN-R10	PCI Express Mini Dual CAN Bus module, Full size, RoHs

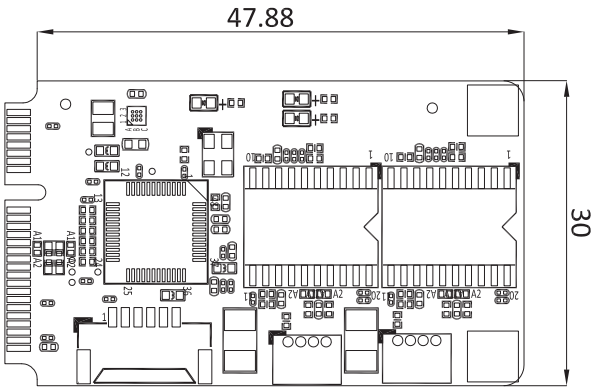
Dimensions (mm)





Dimensions (mm)





Heavy Industrial Panel PC Solution



The Next Era IoT Panel PC Solution

IEI offers complete robust panel solutions for harsh industrial environments. The product portfolio varies from sizes and performance. To catch the wave of cloud computing and intelligent solutions, IEI introduces the iRIS remote management solution to enhance efficiency for system integration. With all these benefits, IEI is your solid solution for industrial computing.

Heavy Industrial Panel PC Product Line

General Purpose Panel PC

Size	Intel® Bay Trail	Intel® H61	Intel® H81	Intel® Q370	Intel® ULT5 NEW
5.7"	PPC-F06B-BT				
8"	PPC-F08B-BT				
10.4"	PPC-F10B-BT				
12.1"	PPC-F12B-BT				
15"	PPC-F15B-BT	PPC-5150A-H61	PPC-F15A-H81	PPC-F15C-Q370	PPC-F15D-ULT5
15.6"				PPC-FW15C-Q370	PPC-FW15D-ULT5
17"	PPC-F17B-BT	PPC-5170A-H61	PPC-F17A-H81	PPC-F17C-Q370	PPC-F17D-ULT5
18.5"				PPC-FW19C-Q370	PPC-FW15D-ULT5
19"	PPC-F19B-BT	PPC-5190A-H61			PPC-FW19D-ULT5
21.5"			PPC-F22A-H81	PPC-FW22C-Q370	PPC-FW22D-ULT5
23.8"			PPC-F24A-H81	PPC-FW24C-Q370	PPC-FW24D-ULT5

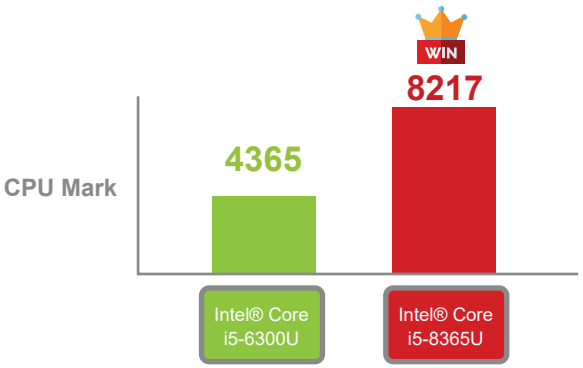
Verticak Market Panel PC

Solutions	Marine Series			UPC Series	INOX Series
Size	Intel® QM87 (PPC)	Monitor	Embedded Box	Intel® Skylake ULT	Intel® Skylake ULT
12”			SBOX-100-QM87	UPC-F12A-ULT3	
15”					INOX-F15C-ULT3
19”	S19A-QM87	S19M-AD			
24”	S24A-QM87	S24M-AD			

PPC-F-ULT5 Series

8th GEN. Intel® Core™ Mobile Processor

Powered by 8th Generation Intel® Whiskey Lake U-Series Processors, PPC-FxxD-ULT5 Series Panel PC not only delivers improved graphics performance but also supports passive cooling design without fans. In addition, it is equipped with HDMI port, allowing users to easily clone or extend screen to a second monitor.



	Intel® Core™ i5-6300U	Intel® Core™ i5-8365U
Cores	2	4
Threads	4	8
Process	14nm	14nm
TDP	15W	15W
Cache	3MB	6MB
Base Clock	2.4GHz	1.6GHz
Boost Clock	3.0GHz	4.1GHz

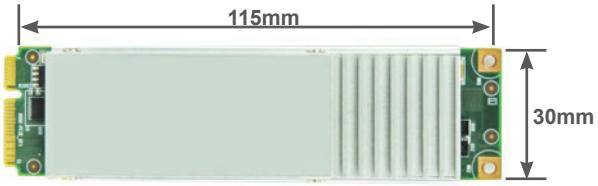
802.3bt PoE PD Supported

The PPC-FxxD-ULT5 industrial Power-over-Ethernet (PoE) modular panel PCs use a totally fanless cooling system and energy efficient CPU for optimal performance. The PoE-powered panel PC has been designed for use in Machine-to-Machine (M2M), Industrial Internet of Things (IIoT), and smart building automation.

PoE technology enables a facility to safely transfer electrical power, along with data, to touchscreen PCs over a standard category 5 cable in an Ethernet network. Thus, the panel PCs do not require modification of existing Ethernet cabling infrastructure and do not require a dedicated power source; making deployment fast, simple, and highly cost-effective. For added convenience and versatility, the PPC-FxxD-ULT5 panel PC with PoE function and P-CAP touchscreen can be mounted in panel, on wall or desktop.

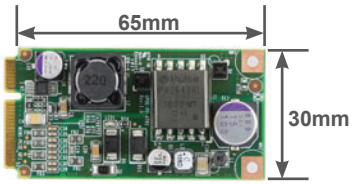
GPOE-PD-BT01-R10

- Support PoE IEEE802.3 af/at/bt
- Support up to 71watt PD
- PCIe Mini form factor (IEI defined pinouts)

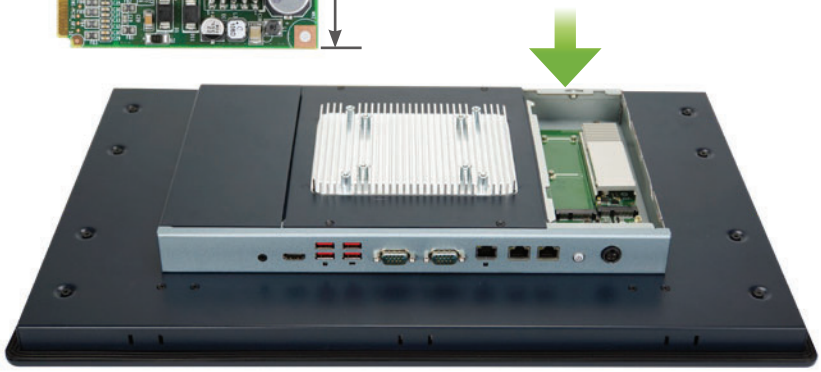


GPOE-PD-AT01-R10

- Support PoE IEEE802.3 af/at
- Support up to 25.5watt PD
- PCIe Mini form factor (IEI defined pinouts)







Modular Architecture

High Flexibility

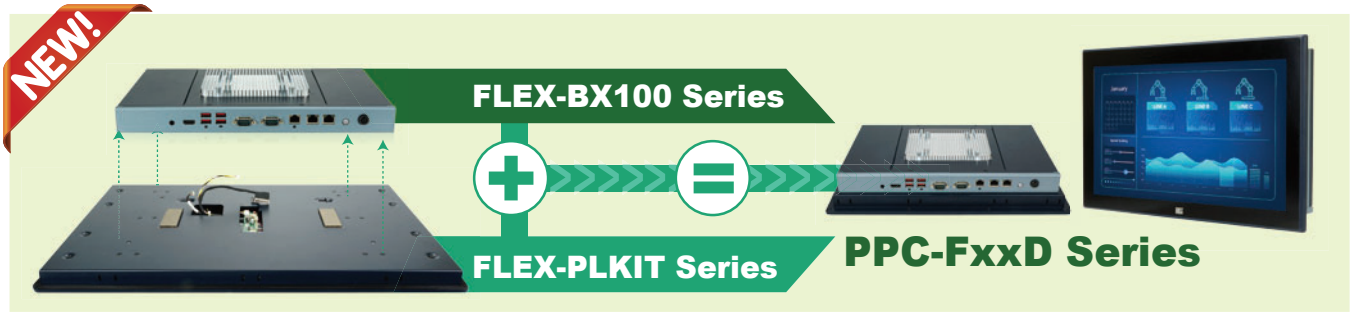
The panel modules (available in 6 sizes) installed on the box PC can be swapped to provide up to 7 platform solutions for diverse applications

Quick Maintenance

The defective module can be separated and replaced with a new module on site; there is no need to unmount the whole system, guaranteeing minimum downtime.

Faster Time to Market

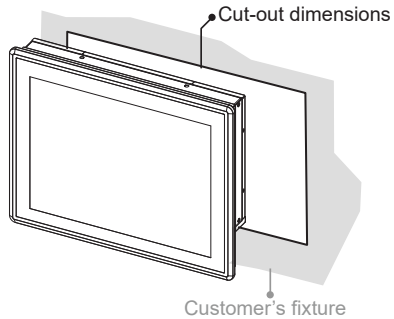
Build the system upon specific hardware (CPU, memory, add-on-card, etc.) requirement with faster time-to-market, reducing total cost of ownership for solution providers.

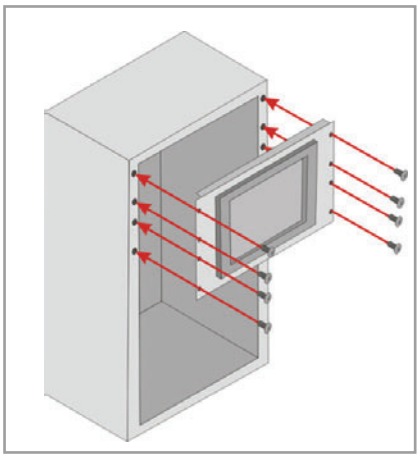


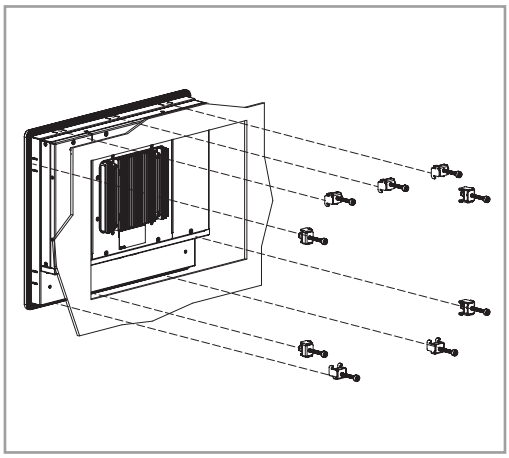


Backward-Compatible with PPC-F series

The cutout size of PPC-FxxD series is backward compatible with PPC-F series in panel mounting. There is no need to build a new fixture to integrate the PPC-FxxD series and it is easy to upgrade the performance from 4th Gen Intel® Core™ to 8th Gen Intel® Core™ with existing fixture.







PPC-F-ULT5 Series Selection Guide







LCD Size		15”	15.6”	17”
Model		PPC-F15D-ULT5	PPC-FW15D-ULT5	PPC-F17D-ULT5
TFT LCD	LCD Size	15”	15.6”	17”
	Max. Resolution	1024 x768	1366x768	1280x1024
	Brightness (cd/m²)	450	400	350
	Contrast Ratio	800:1	500:1	1000:1
	LCD Color	16.2M	16.2M	16.7M
	Pixel Pitch (mm)	0.29 x 0.29	0.252 x 0.252	0.26 x 0.26
	Viewing Angle (H/V)	160°/150°	170°/160°	170°/160°
	Backlight MTBF (Hrs)	70,000	50,000	50,000
Touch Screen	Touchscreen Type	Projected capacitive type with 10-point multitouch and anti-glare coating		
	Touch Controller	EETI EXC3000		
System	CPU	8th Genertion Intel® Core™ i5-8365U 4.10GHz 8th Genertion Intel® Celeron® 4205U 2.00GHz		
	Memory	2 x 260-pin 2400 MHz dual-channel DDR4 unbuffered SO-DIMM supporting up to 32GB		
	Graphics Engine	Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, 4K codec decode		
	Ethernet	2 x Intel® I211,1 x Intel® I219		
Storage		2.5” HDD/SSD SATA 6Gb/s bay		
I/O Ports and Switches		4 x USB 3.2 Gen 2 (10Gbps) 1 x HDMI output 1 x RS-232/422/485 1 x RS-232 3 x GbE LAN (2 for PoE PD GbE LAN) 1 x 12V DC jack 1 x Power switch with LED indicator (blue) 1 x AT/ATX switch 1 x Line-out 1 x Reset button		
Expansion Slots		1 x NGFF M.2 2230 A Key (PCIe x1, USB signal) 1 x NGFF M.2 2280 M Key (support PCIe 3.0 x4 NVMe) 2 x PoE PD module socket (by IEI pin definition)		
Thermal Solution		Fanless		
Watchdog Timer		Software Programmable support 1~255 sec. system reset		
Construction	Dimensions (mm) (W x H x D)	378.5 x 303 x 75	400.1 x 253.3 x 77.1	408.4 x 341.4 x 75.6
	Cutout Dimensions (W x H) (mm)	361.1 x 285.6	379.1 x 232.3	391 x 324
	Net Weight (kg)	6.1	7.1	7.2
	Color	PANTONE 296 C		
	Front Frame	Aluminum die-casting		
	Rear Cover	Sheet metal		
	Mounting	Wall mount, Panel mount, Rack mount		
Environmental	Operating Temp.	-10°C ~ 50°C (with air flow)		
	Storage Temp.	-20°C ~ 60°C		
	Humidity	10% ~ 95% (non-condensing)		
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak		
	Shock	10G acceleration part to part (11ms)		
Power Input		12V DC input		

PPC-F-ULT5 Series Selection Guide



LCD Size		18.5”	21.5”	23.8”
Model		PPC-FW19D-ULT5	PPC-FW22D-ULT5	PPC-FW24D-ULT5
TFT LCD	LCD Size	18.5”	21.5”	23.8”
	Max. Resolution	1366 x 768	1920 x 1080	1920 x 1080
	Brightness (cd/m²)	400	250	250
	Contrast Ratio	1000:1	1000:1	3000:1
	LCD Color	16.7M	16.7M	16.7M
	Pixel Pitch (mm)	0.3 x 0.3	0.25 x 0.25	0.274 x 0.274
	Viewing Angle (H/V)	170°/160°	170°/160°	178°/178°
	Backlight MTBF (Hrs)	50,000	30,000	30,000
Touch Screen	Touchscreen Type	Projected capacitive type with 10-point multitouch and anti-glare coating		
	Touch Controller	EETI EXC3000		
System	CPU	8th Genertion Intel® Core™ i5-8365U 4.10GHz 8th Genertion Intel® Celeron® 4205U 2.00GHz		
	Memory	2 x 260-pin 2400 MHz dual-channel DDR4 unbuffered SO-DIMM supporting up to 32GB		
	Graphics Engine	Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, 4K codec decode		
	Ethernet	2 x Intel® I211, 1 x Intel® I219		
Storage		2.5” HDD/SSD SATA 6Gb/s bay		
I/O Ports and Switches		4 x USB 3.2 Gen 2 (10Gbps) 1 x HDMI output 1 x RS-232/422/485 1 x RS-232 3 x GbE LAN (2 for PoE PD GbE LAN)	1 x 12V DC jack 1 x Power switch with LED indicator (blue) 1 x AT/ATX switch 1 x Line-out 1 x Reset button	
Expansion Slots		NGFF M.2 (2230/2280) A/E Key, M Key sockets (support NVMe SSD)		
Thermal Solution		Fanless		
Watchdog Timer		Software Programmable support 1~255 sec. system reset		
Construction	Dimensions (mm) (W x H x D)	469.8 x 289.2 x 76.9	550.4 x 358.4 x 74.4	600 x 382 x 75.56
	Cutout Dimensions (mm)	447.8 x 257.2	340 x 532	358.6 x 576.6
	Net Weight (kgs)	7.3	9.4	10.8
	Color	PANTONE 296 C		
	Front Frame	Aluminum die-casting		
	Rear Cover	Sheet metal		
	Mounting	Wall mount, Panel mount, Rack mount	Wall mount, Panel mount	
Environmental	Operating Temp.	-10°C ~ 50°C (with air flow)		
	Storage Temp.	-20°C ~ 60°C		
	Humidity	10% ~ 95% (non-condensing)		
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak		
	Shock	10G acceleration part to part (11ms)		
Power Supply		12V DC input		

PPC-F-ULT5

NEW

15”~17” Panel PC Based on Intel® Whiskey Lake ULT Processor

Features

- 15”~17” Panel PC with Intel® Whiskey Lake Core™ i5-8365U, Intel® Celeron® 4205U
- Low power consumption and fanless design
- IP66-rated front panel for water and dust resistance
- Modular architecture
- VESA 100 mm standard mounting holes for varied mounting demands
- Support PoE PD power
- Support NVMe SSD





Specifications

Model		PPC-F15D-ULT5	PPC-FW15D-ULT5	PPC-F17D-ULT5
TFT LCD	LCD Size	15”	15.6”	17”
	Max. Resolution	1024 x768	1366x768	1280x1024
	Brightness (cd/m²)	450	400	350
	Contrast Ratio	800:1	500:1	1000:1
	LCD Color	16.2M	16.2M	16.7M
	Pixel Pitch (mm)	0.29 x 0.29	0.252 x 0.252	0.26 x 0.26
	Viewing Angle (H/V)	160°/150°	170°/160°	170°/160°
	Backlight MTBF (Hrs)	70,000	50,000	50,000
Touch Screen	Touchscreen Type	Projected capacitive type with 10-point multitouch and anti-glare coating		
	Touch Controller	EETI EXC3000		
System	CPU	8th Genertion Intel® Core™ i5-8365U 4.10GHz 8th Genertion Intel® Celeron® 4205U 2.00GHz		
	Memory	2 x 260-pin 2400 MHz dual-channel DDR4 unbuffered SO-DIMM supporting up to 32GB		
	Graphics Engine	Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, 4K codec decode		
	Ethernet	2 x Intel® I211,1 x Intel® I219		
Storage		2.5” HDD/SSD SATA 6Gb/s bay		
I/O Ports and Switches		4 x USB 3.2 Gen 2 (10Gbps) 1 x HDMI output 1 x RS-232/422/485 1 x RS-232 3 x GbE LAN (2 for PoE PD GbE LAN) 1 x 12V DC jack 1 x Power switch with LED indicator (blue) 1 x AT/ATX switch 1 x Line-out 1 x Reset button		
Expansion Slots		1 x NGFF M.2 2230 A Key (PCIe x1, USB signal) 1 x NGFF M.2 2280 M Key (support PCIe 3.0 x4 NVMe) 2 x PoE PD module socket (by IEI pin definition)		
Thermal Solution		Fanless		
Watchdog Timer		Software Programmable support 1~255 sec. system reset		
Construction	Dimensions (mm) (W x H x D)	378.5 x 303 x 75	400.1 x 253.3 x 77.1	408.4 x 341.4 x 75.6
	Cutout Dimensions (W x H) (mm)	361.1 x 285.6	379.1 x 232.3	391 x 324
	Net Weight (kg)	6.1	7.1	7.2
	Color	PANTONE 296 C		
	Front Frame	Aluminum die-casting		
	Rear Cover	Sheet metal		
	Mounting	Wall mount, Panel mount, Rack mount		
Environmental	Operating Temp.	-10°C ~ 50°C (with air flow)		
	Storage Temp.	-20°C ~ 60°C		
	Humidity	10% ~ 95% (non-condensing)		
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak		
	Shock	10G acceleration part to part (11ms)		
Power Input		12V DC input		

PPC-F-ULT5

NEW

18.5”~23.8” Panel PC Based on Intel® Whiskey Lake ULT Processor

Features

- 18.5”~ 23.8” Panel PC with Intel® Whiskey Lake Core™ i5-8365U, Intel® Celeron® 4205U
- Low power consumption and fanless design
- IP66-rated front panel for water and dust resistance
- Modular architecture
- VESA 100 mm standard mounting holes for varied mounting demands
- Support PoE PD power
- Support NVMe SSD





Specifications

Model		PPC-FW19D-ULT5	PPC-FW22D-ULT5	PPC-FW24D-ULT5
TFT LCD	LCD Size	18.5”	21.5”	23.8”
	Max. Resolution	1366x768	1920x1080	1920x1080
	Brightness (cd/m²)	400	250	250
	Contrast Ratio	1000:1	1000:1	3000:1
	LCD Color	16.7M	16.7M	16.7M
	Pixel Pitch (mm)	0.3 x 0.3	0.25 x 0.25	0.274 x 0.274
	Viewing Angle (H/V)	170°/160°	170°/160°	178°/178°
	Backlight MTBF (Hrs)	50,000	30,000	30,000
Touch Screen	Touchscreen Type	Projected capacitive type with 10-point multitouch and anti-glare coating		
	Touch Controller	EETI EXC3000		
System	CPU	8th Genertion Intel® Core™ i5-8365U 4.10GHz 8th Genertion Intel® Celeron® 4205U 2.00GHz		
	Memory	2 x 260-pin 2400 MHz dual-channel DDR4 unbuffered SO-DIMM supporting up to 32GB		
	Graphics Engine	Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, 4K codec decode		
	Ethernet	2 x Intel® I211, 1 x Intel® I219		
Storage		2.5” HDD/SSD SATA 6Gb/s bay		
I/O Ports and Switches		4 x USB 3.2 Gen 2 (10Gbps) 1 x HDMI output 1 x RS-232/422/485 1 x RS-232 3 x GbE LAN (2 for PoE PD GbE LAN) 1 x 12V DC jack 1 x Power switch with LED indicator (blue) 1 x AT/ATX switch 1 x Line-out 1 x Reset button		
Expansion Slots		NGFF M.2(2230/2280) A/E Key, M Key sockets (support NVMe SSD)		
Thermal Solution		Fanless		
Watchdog Timer		Software Programmable support 1~255 sec. system reset		
Construction	Dimensions (mm) (W x H x D)	469.8 x 289.2 x 76.9	550.4 x 358.4 x 74.4	600 x 382 x 75.56
	Cutout Dimensions (mm)	447.8 x 257.2	340 x 532	358.6 x 576.6
	Net Weight (kgs)	7.3	9.4	10.8
	Color	PANTONE 296 C		
	Front Frame	Aluminum die-casting		
	Rear Cover	Sheet metal		
	Mounting	Wall mount, Panel mount, Rack mount	Wall mount, Panel mount	
Environmental	Operating Temp.	-10°C ~ 50°C (with air flow)		
	Storage Temp.	-20°C ~ 60°C		
	Humidity	10% ~ 95% (non-condensing)		
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak		
	Shock	10G acceleration part to part (11ms)		
Power Supply		12V DC input		

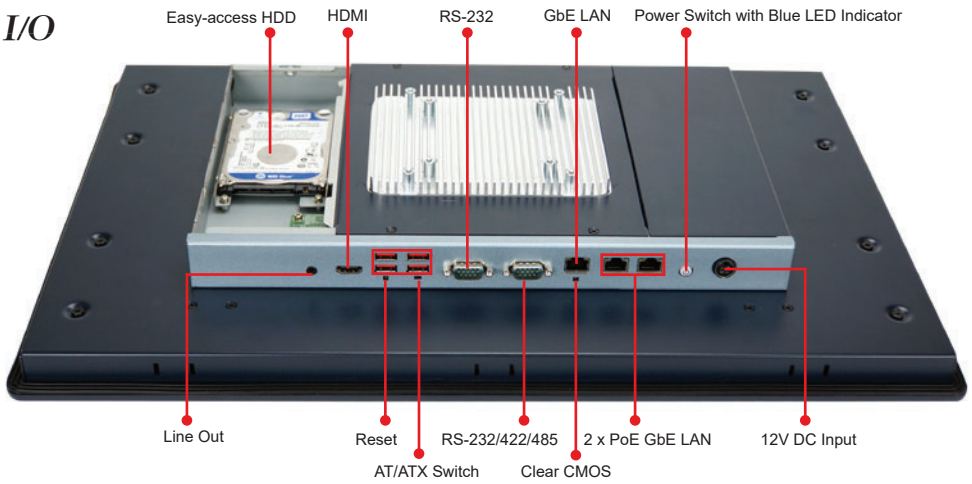
Ordering Information

	Part No.	Description
BOX PC	FLEX-BX100-ULT5-i5/4G-R10	Fanless embedded system with 14nm 8th gen. Intel® Whiskey Lake Core™ i5-8365UE TDP 15W on-board Processor (ULT), one 4GB DDR4 RAM, 12VDC input, R10
	FLEX-BX100-ULT5-C/4G-R10	Fanless embedded system with 14nm 8th gen. Intel® Whiskey Lake Celeron® 4205UE TDP 15W on-board Processor (ULT), one 4GB DDR4 RAM, 12VDC input, R10
15”	PPC-F15D-ULT5-i5/4G/PC-R10	15” 450 cd/m² 1024 x 768 Panel PC with 14nm 8th gen. Intel®h Whiskey Lake Core™ i5-8365UE TDP 15W on-board Processor (ULT), 4GB DDR4 RAM x1, 12VDC input, PCAP touch with AG, R10
	PPC-F15D-ULT5-C/4G/PC-R10	15” 450 cd/m² 1024 x 768 Panel PC with 14nm 8th gen. Intel®h Whiskey Lake Celeron® 4205UE TDP 15W on-board Processor (ULT), 4GB DDR4 RAM x1, 12VDC input, PCAP touch with AG, R10
15.6”	PPC-FW15D-ULT5-i5/4G/PC-R10	15.6” 400 cd/m² 1366 x 768 Panel PC with 14nm 8th gen. Intel®h Whiskey Lake Core™ i5-8365UE TDP 15W on-board Processor (ULT), 4GB DDR4 RAM x1, 12VDC input, PCAP touch with AG, R10
	PPC-FW15D-ULT5-C/4G/PC-R10	15.6” 400 cd/m² 1366 x 768 Panel PC with 14nm 8th gen. Intel®h Whiskey Lake Celeron® 4205UE TDP 15W on-board Processor (ULT), 4GB DDR4 RAM x1, 12VDC input, PCAP touch with AG, R10
17”	PPC-F17D-ULT5-i5/4G/PC-R10	17” 350 cd/m² 1280 x 1024 Panel PC with 14nm 8th gen. Intel®h Whiskey Lake Core™ i5-8365UE TDP 15W on-board Processor (ULT), 4GB DDR4 RAM x1, 12VDC input, PCAP touch with AG, R10
	PPC-F17D-ULT5-C/4G/PC-R10	17” 350 cd/m² 1280 x 1024 Panel PC with 14nm 8th gen. Intel®h Whiskey Lake Celeron® 4205UE TDP 15W on-board Processor (ULT), 4GB DDR4 RAM x1, 12VDC input, PCAP touch with AG, R10
18.5”	PPC-FW19D-ULT5-i5/4G/PC-R10	18.5” 400 cd/m² 1366 x 768 Panel PC with 14nm 8th gen. Intel®h Whiskey Lake Core™ i5-8365UE TDP 15W on-board Processor (ULT), 4GB DDR4 RAM x1, 12VDC input, PCAP touch with AG, R10
	PPC-FW19D-ULT5-C/4G/PC-R10	18.5” 400 cd/m² 1366 x 768 Panel PC with 14nm 8th gen. Intel®h Whiskey Lake Celeron® 4205UE TDP 15W on-board Processor (ULT), 4GB DDR4 RAM x1, 12VDC input, PCAP touch with AG, R10
21.5”	PPC-FW22D-ULT5-i5/4G/PC-R10	21.5” 250 cd/m² 1920 x 1080 Panel PC with 14nm 8th gen. Intel®h Whiskey Lake Core™ i5-8365UE TDP 15W on-board Processor (ULT), 4GB DDR4 RAM x1, 12VDC input, PCAP touch with AG, R10
	PPC-FW22D-ULT5-C/4G/PC-R10	21.5” 250 cd/m² 1920 x 1080 Panel PC with 14nm 8th gen. Intel®h Whiskey Lake Celeron® 4205UE TDP 15W on-board Processor (ULT), 4GB DDR4 RAM x1, 12VDC input, PCAP touch with AG, R10
23.8”	PPC-FW24D-ULT5-i5/4G/PC-R10	23.8” 250 cd/m² 1920 x 1080 Panel PC with 14nm 8th gen. Intel®h Whiskey Lake Core™ i5-8365UE TDP 15W on-board Processor (ULT), 4GB DDR4 RAM x1, 12VDC input, PCAP touch with AG, R10
	PPC-FW24D-ULT5-C/4G/PC-R10	23.8” 250 cd/m² 1920 x 1080 Panel PC with 14nm 8th gen. Intel®h Whiskey Lake Celeron® 4205UE TDP 15W on-board Processor (ULT), 4GB DDR4 RAM x1, 12VDC input, PPCAP touch with AG, R10

Options

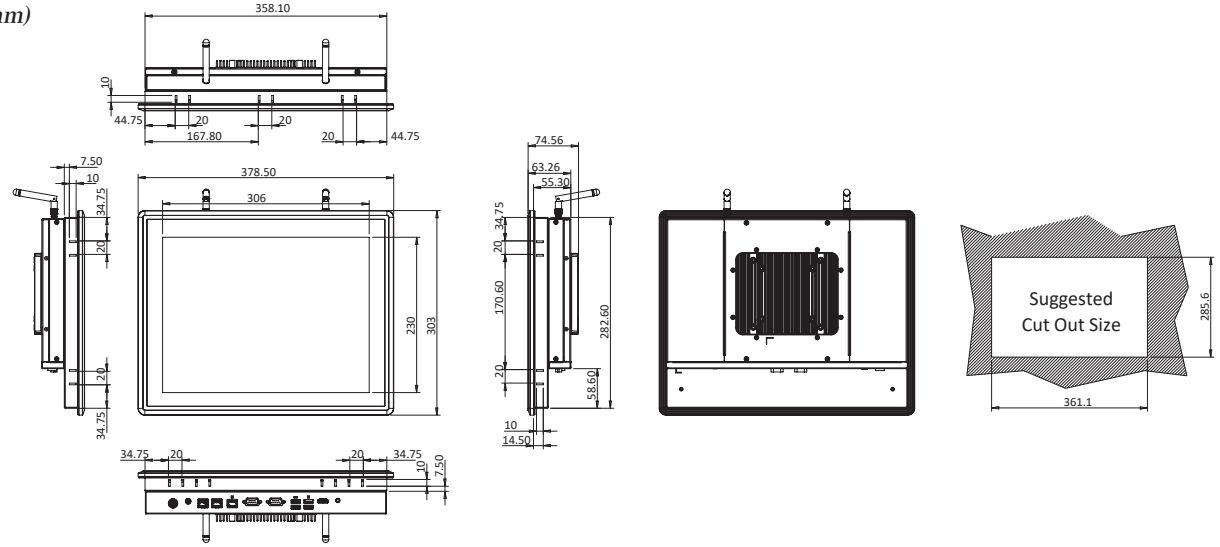
Item	PPC-F15D	PPC-FW15D	PPC-F17D	PPC-FW19D	PPC-FW22D	PPC-FW24D
Arm	ARM-31-RS					
Stand	SAND-A21-R10 STAND-C19-R10					
Wall Mount Kit	WK-190MS-R10					
Panel Mount Kit	FPK-12-R10	FPK-14-R10	FPK-13-R10	FPK-13-R10	FPK-13-R10	FPK-14-R10
Rack Mount Kit	FRK15C-R10	FRKW15C-R10	FRK17C-R10	FRKW19C-R10	N.A.	N.A.
PoE PD Kit	GPOE-PD-AT01-R10 (PoE IEEE802.3 af/at, 25.5W) GPOE-PD-BT01-R10 (PoE IEEE802.3 af/at/bt, 71W)					
WiFi Kit	EMB-WIFI-KIT03E-R10 (2T2R, 802.11 ac/a/b/g/n and BT V4.1,NGFF 2230 Type A-E)					

Fully Integrated I/O



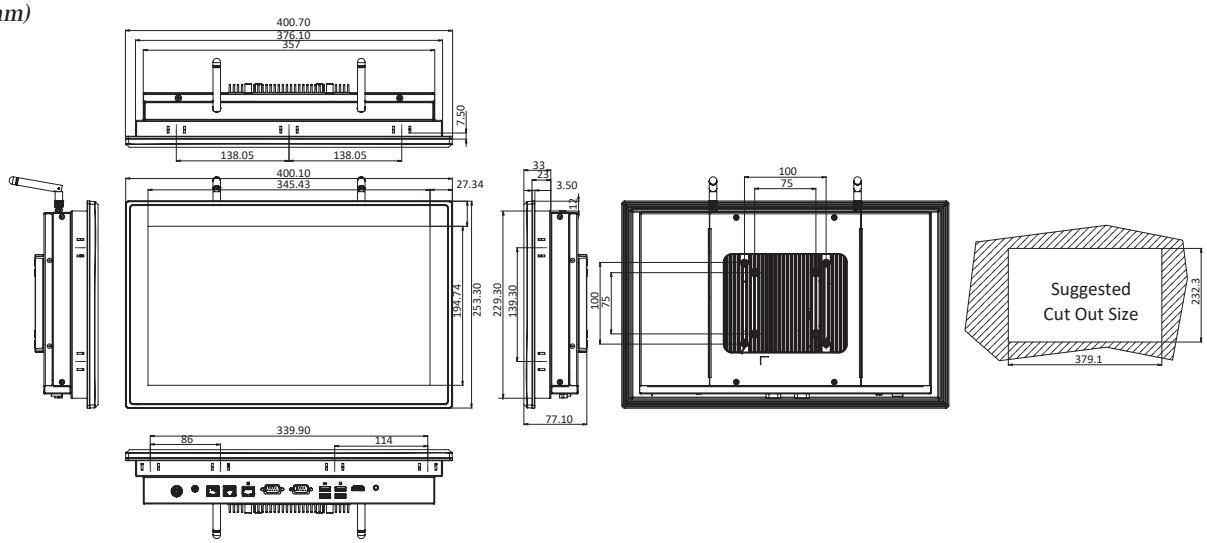
PPC-F15D-ULT5 Dimensions

(Unit: mm)



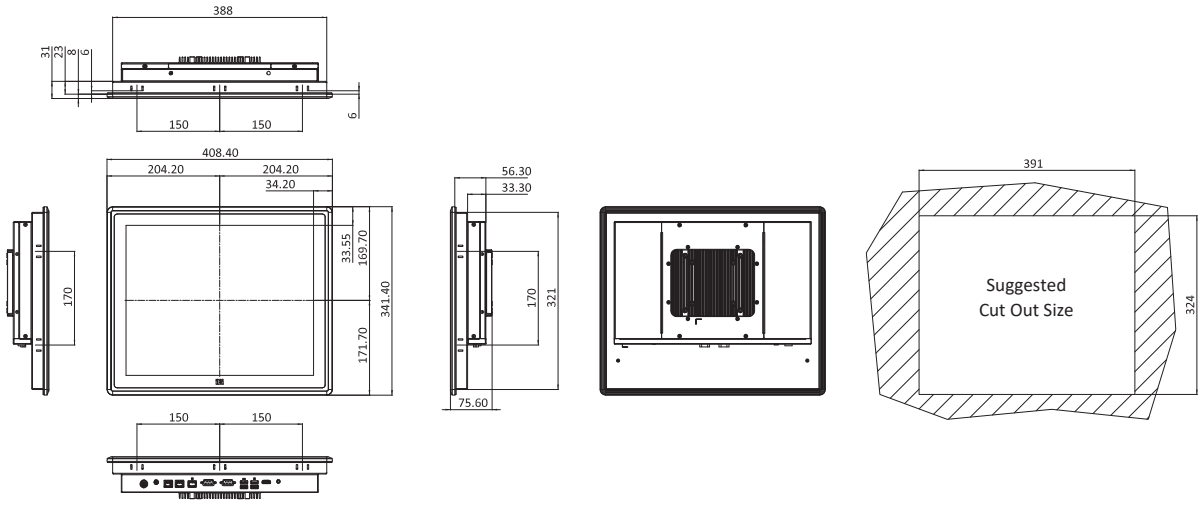
PPC-FW15D-ULT5 Dimensions

(Unit: mm)



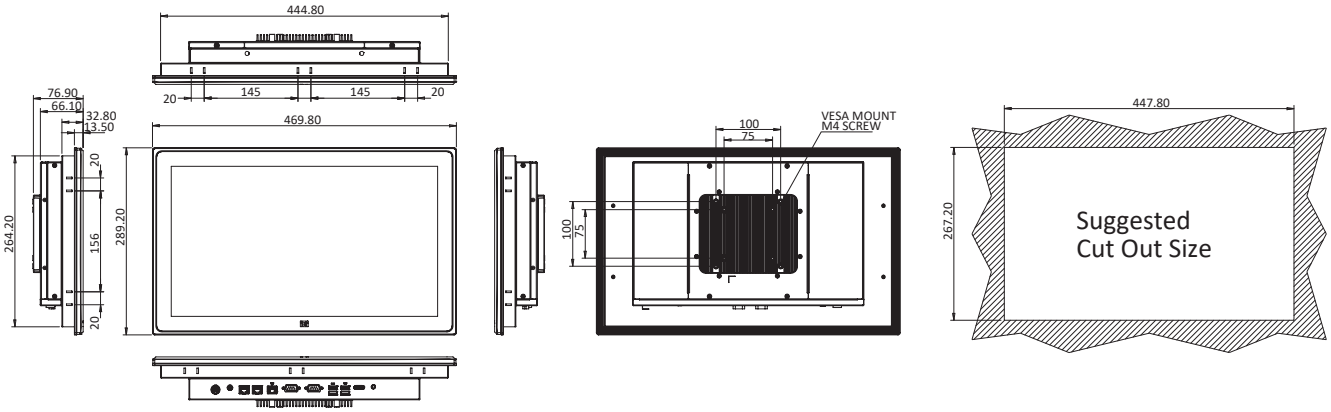
PPC-F17D-ULT5 Dimensions

(Unit: mm)



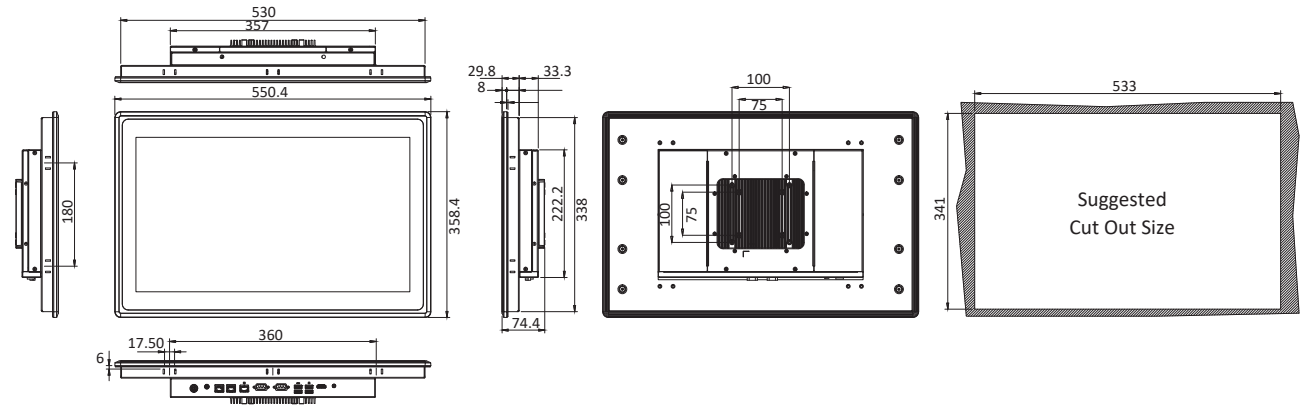
PPC-FW19D-ULT5 Dimensions

(Unit: mm)



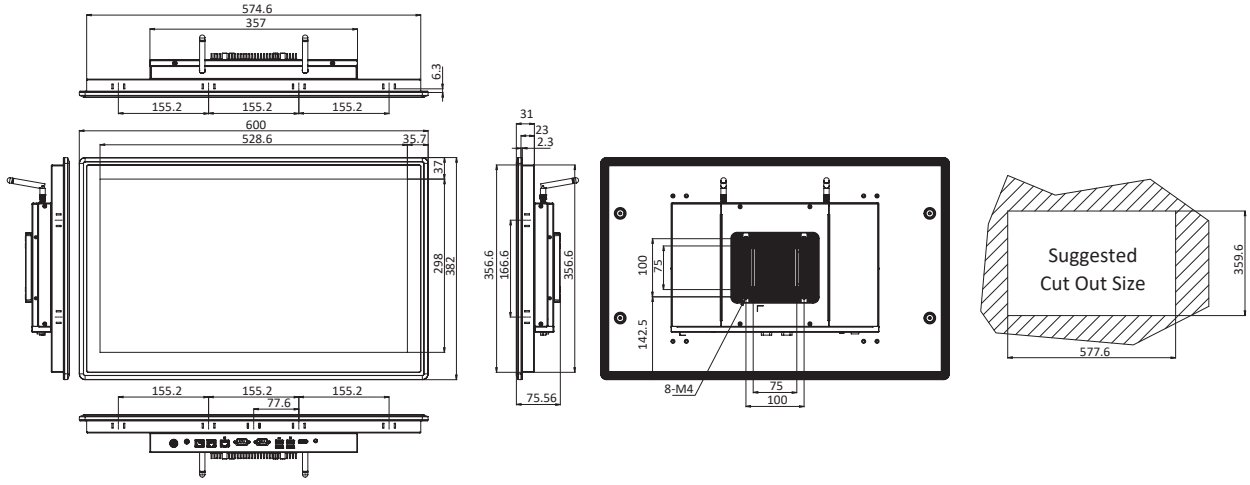
PPC-FW22D-ULT5 Dimensions

(Unit: mm)



PPC-FW24D-ULT5 Dimensions

(Unit: mm)



PPC-F-Q370 Series

8th Generation Intel® Core™ Desktop Processors

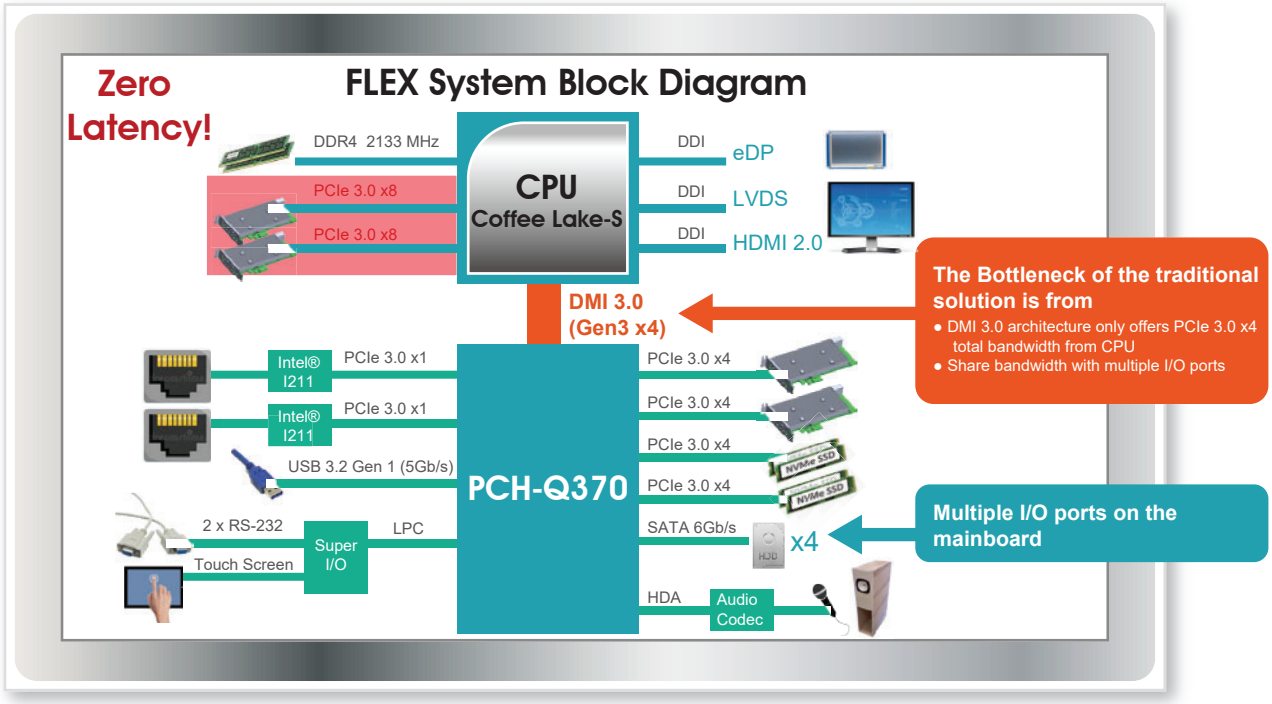
IEI FLEX series adopts the 8th Generation Intel® Core™ desktop processor, of which the Core i7 is moving to six cores with Hyper Threading, Core i5 is moving to six cores, and Core i3 is moving to four cores. The equipped LGA 1151 socket supports a wide range of performance options up to 65W TDP processors. The dual DDR4 DIMM slots with more direct trace routes support up to 64GB of memory.



CPU Generation	P/N	Lithography	# of Cores	# of Threads	Frequency	TDP
8th Gen. Intel® Coffee Lake	i7-8700T	14nm	6	12	2.40GHz	35W
	i5-8500	14nm	6	6	3.0GHz	65W
	i5-8500T	14nm	6	6	2.10GHz	35W
	i3-8100T	14nm	4	4	2.40GHz	35W
	P-G5400T	14nm	2	4	3.10GHz	35W
7th Gen. Intel® Kaby Lake	i7-7700T	14nm	4	8	2.90GHz	35W
	i5-7500T	14nm	4	4	2.70GHz	35W
	i3-7100T	14nm	2	4	3.40GHz	35W
	C-G4900T	14nm	2	2	2.9GHz	35W

Breakthrough the Bottleneck of DMI 3.0

The signal of the two PCIe 3.0 by 8 slots directly connect to CPU instead of DMI 3.0 channel. By doing this, the PCIe 3.0 x8 add-on cards can run with lower latency and achieve complete AI card performance.

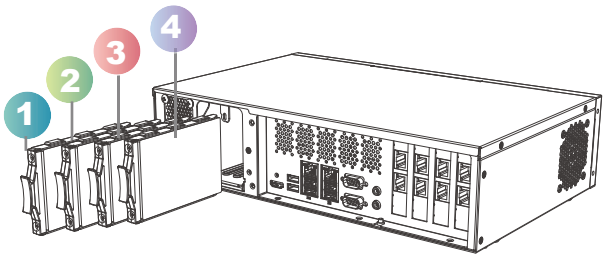


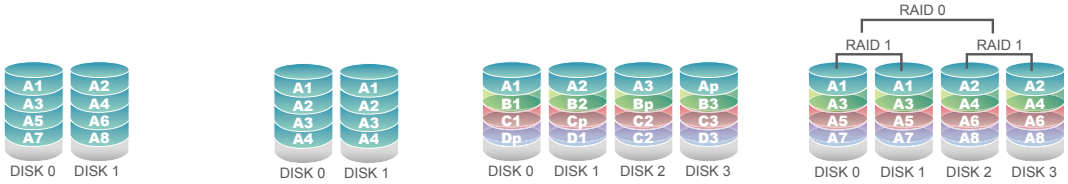
4-Bay Hot-Swappable HDD RAID 0/1/5/10 Protection

The FLEX series offers four 2.5”HDD bays with high speed SATA 6Gb/s interface that can expand storage capabilities and enable fast data transfers. The equipped Intel Q370 chipset provides reliable and high performance hardware RAID protection to back-up your media and critical information. You can configure the RAID 0/1/5/10 from the BIOS menu to increase performance and/or provide automatic protection against data loss from drive failure.

What type of RAID do I need?

- RAID 0 (Striping) -The highest performing level
- RAID 1 (Mirroring) -Data safety
- RAID 5 (Distributed Parity)-offers both data safety and performance
- RAID 10 (combining mirroring and striping) data safety and big data volume





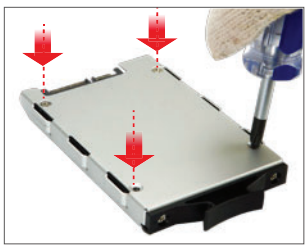
Features	RAID 0	RAID 1	RAID 5	RAID 10
Minimum # Drives	2	2	3	4
Data Protection	No	Single-drive failure	Single-drive failure	Up to one disk failure in each sub-array
Capacity Utilization	100%	50%	67%-94%	50%
Typical Application	High end workstations, data logging, real-time rendering, very transitory data	Operating system, transaction database	Data warehousing, web serving, archiving	Fast databases, applictaion servers

Secured and Strong HDD Bays



STEP 1
Unlock the HDD cover with the secured key







STEP 2
Open the HDD cover and you will see four drive trays

STEP 4
Mount the 2.5” SATA HDD /SSD on to the mounting bracket with 4 screws on the bottom of the drive enclosure



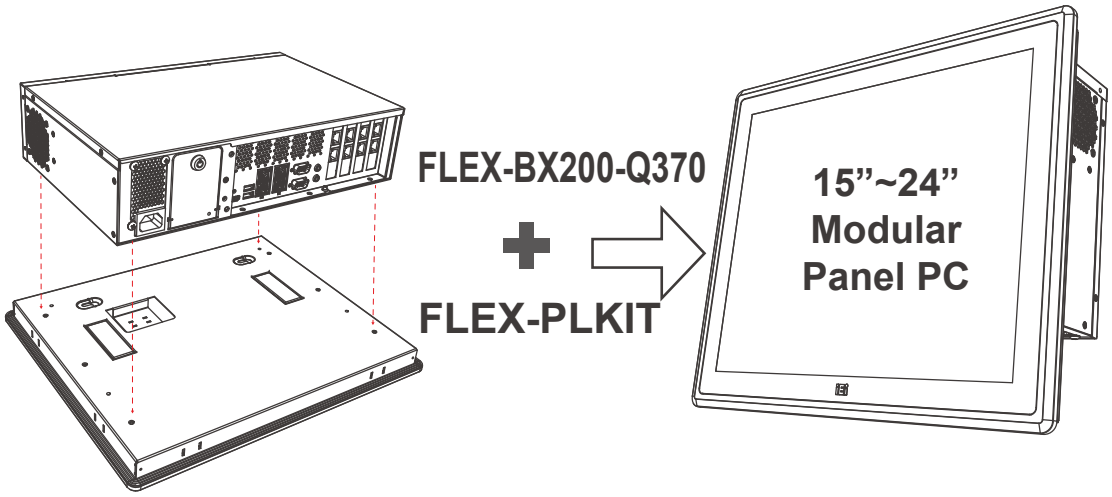
STEP 3
Pull out one of the drive trays



STEP 5
Slide the hard drive together with the bracket till the drive is fully inserted into the SATA connector

Modular Architecture

- Cut-out dimensions are backward compatible to PPC-F series, easy to upgrade your existing project
- More than 12 SKUs by various monitor choices: 15"/17"/15.6"/18.5"/22"/24"
- PCAP touch screen
- 250W/350W DC power supply
- Easy assembly and maintenance
- One-stop shopping and building your own system to accelerate time to market

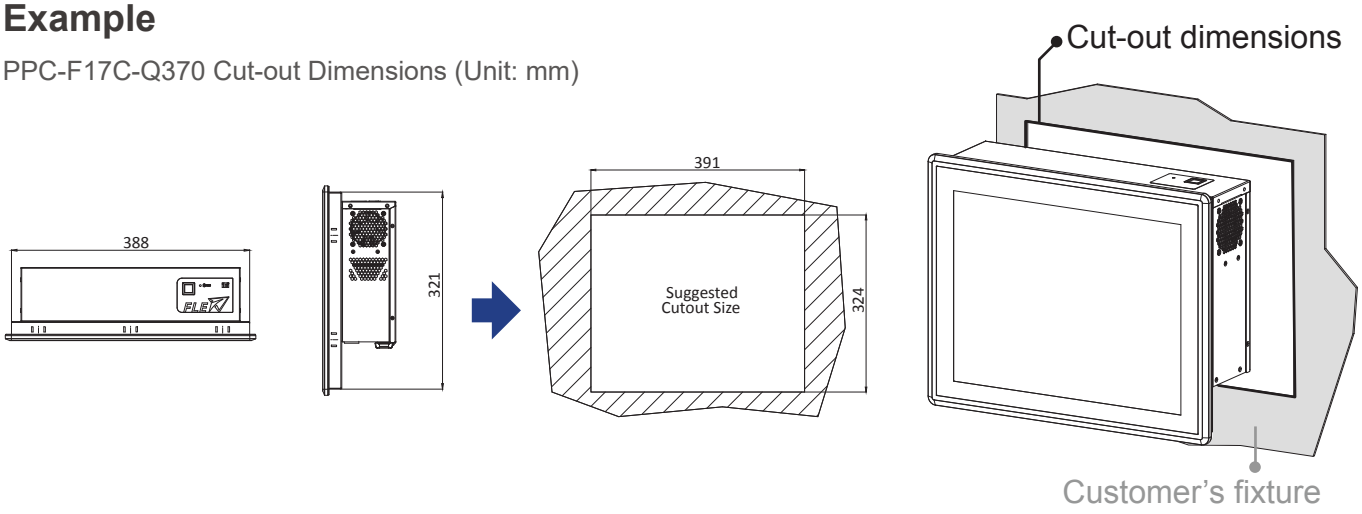


Backward Compatible with PPC-F-Q370 Series

The cutout size of the PPC-FxxC series is backward compatible with the previous PPC-F series in panel mounting. There is no need to build a new fixture for the PPC-FxxC series, making it easy to upgrade the performance from 4th Gen. Intel® Core™ to 8th Gen. Intel® Core™ with the existing fixture.

Example

PPC-F17C-Q370 Cut-out Dimensions (Unit: mm)



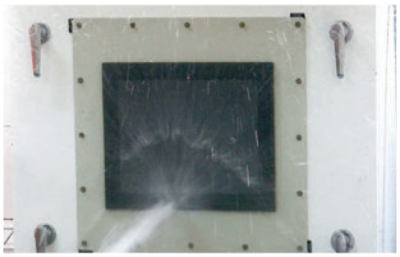
IP66 Front Panel Protection

PPC-FxxC series provides front mechanical IP dust and water resistant design. The sealing concept of PPC-FxxC contains the following product sealing to offer rugged IP66 front protection:

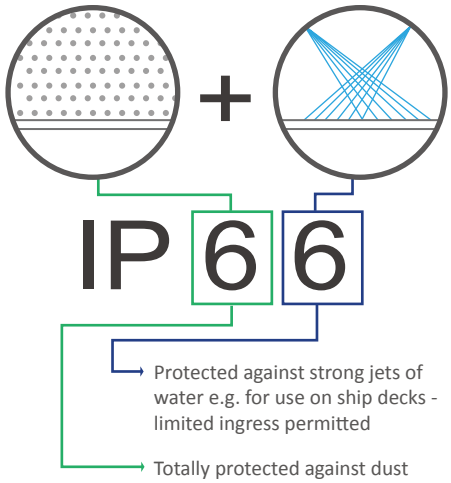
- PCAP touchscreen to front aluminum bezel with waterproof glue dispensing
- Internal dust sealing poron from LCD to the touchscreen
- Rubber sealing for mounting to the equipment



Test for protection against dust



Test for protection against water



Anti-glare and UV-resistant Touch Screen Ideal for Outdoor Applications

Etching anti-glare, never peel off!

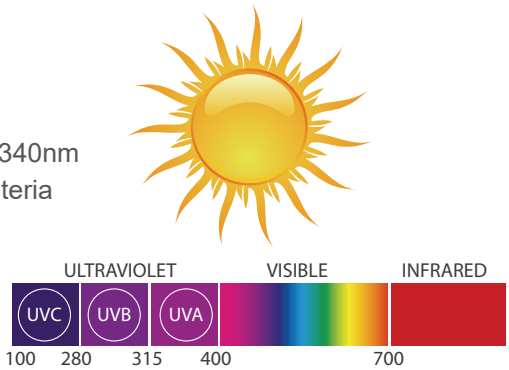
The PPC-FxxC series is built with anti-glare touch screen, which has lower reflection compared to normal touch screen. The reflection will reduce from 8% to 1% and it will eliminate the interference of shine and lights on displays and improve the screen clarity.



UV-resistant ensures reliable continuous operation for mission critical applications

Outdoor applications exposing to direct sunlight and long-term ultraviolet (UV) light will affect PCAP panel appearance such as PCAP top glass hard coat cracking and hazing, or varying degrees of yellowing and bubbling. Thus, IEI offers a UV resistant PCAP touch solution to equip outdoor industrial systems exposed to direct long-term sunlight with anti-UV characteristics.

- Blocks UV wavelengths less than ≈340nm
- Meets ASTM G154 performance criteria Cycle 1 for 1000 hours

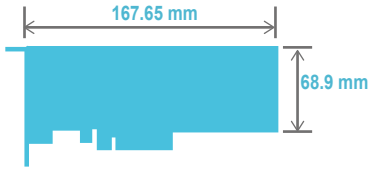




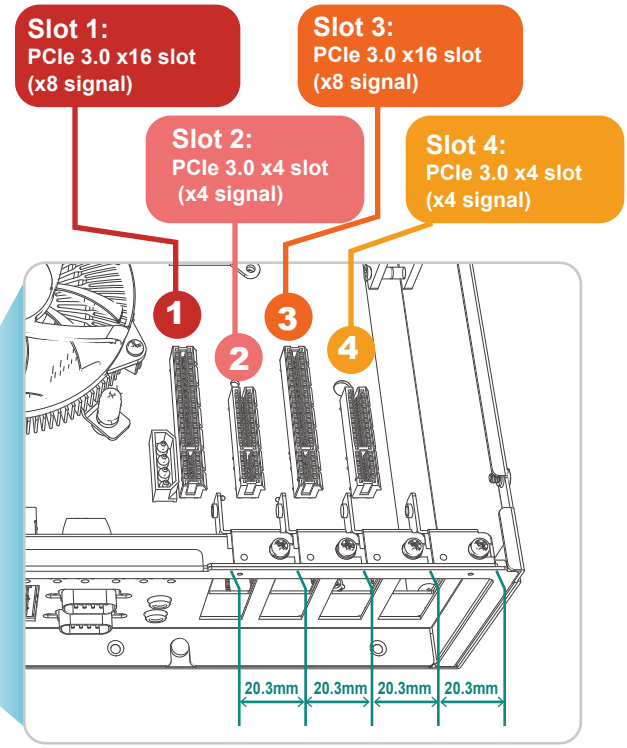
Four PCIe x4/x8 Low Profile Expansion Slots

The PPC-FxxC series supports multiple PCIe slots including two PCIe 3.0 x8 and two PCIe 3.0 x4 slots, which are compatible with standard low profile add-on cards, to meet different edge inference computing applications.

- **High Speed:** 10GbE card, fiber network card
- **I/O card:** Serial port card, USB card, LAN card, etc.
- **AI accelerating card:** VPU card, FPGA, GPU card, etc.
- **Wireless card:** Wi-Fi card, mobile wireless card, etc.
- **Storage card**



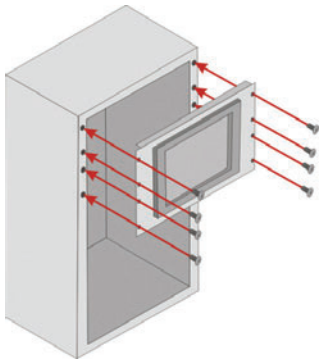
The maximum size of a card that fits in this FLEX is 167.65 mm (L) x 68.9 mm (H)



Flexible Deployment

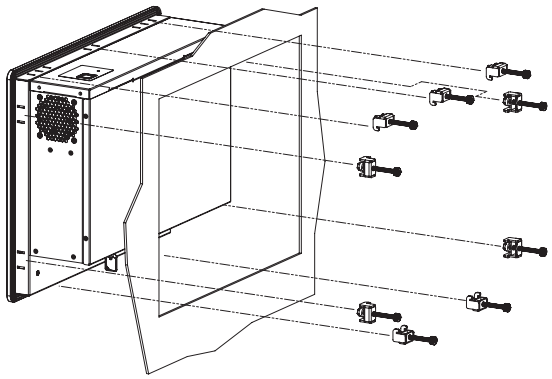
Rack Mount

The PPC-FxxC with rack mounting kit can easily fit the standard 19" cabinet for industrial applications.



Panel Mount

Panel mounting is the mounting way that mounts product into an opening of a customer's fixture from the front and secured from the rear. All user controls are located on the rear of the mechanism, making the panel mount displays a good choice for applications requiring a display with no external or exposed controls such as CNC equipment, gaming, casino system, ATM, and kiosk.



PPC-F-Q370 Series Selection Guide





LCD Size		15”	W15”	17”
Model		PPC-F15C-Q370	PPC-FW15C-Q370	PPC-F17C-Q370
TFT LCD	LCD Size	15”	15.6"	17”
	Max. Resolution	1024x768	1366x768	1280x1024
	Brightness (cd/m²)	450	400	350
	Contrast Ratio	800:1	500:1	1000:1
	LCD Color	16.2M	16.2M	16.7M
	Viewing Angle (H/V)	160°/150°	170°/160°	170°/160°
	Backlight MTBF (Hrs)	70,000	50,000	50,000
Touch Screen		PCAP touch with 10-point multitouch, anti-glare coating		
Mainboard	CPU	8th Generation Intel® Core™ i7/i5/i3 and Pentium® processor in the LGA 1151 package		
	Chipset	Intel® Q370 Chipset		
	Memory	2 x 288-pin 2666/2400 MHz dual-channel DDR4 unbuffered DIMM slot supporting up to 64GB		
	Graphics Engine	Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, supports DX2015, OpenGL 5.X and OpenCL 2 x, ES 2.0		
	Ethernet	Intel® I211 controller		
Storage		(1) 4 x Accessible 2.5” SATA 6Gb/s HDD/SSD bay (RAID 0/1/5/10 support) with LED indicator (2) 2 x M.2 2280 PCIe Gen 3.0 x4 NVMe™ SSD socket		
I/O Ports and Switches		1 x HDMI output 2 x GbE LAN 6 x USB 3.2 Gen 1 (5Gb/s) Type-A 2 x RS-232 DB-9 type 1 x Mic in 1 x Line out 1 x AC power in Inlet Power button with power LED (power on=Blue) AT/ATX mode switch Reset button		
Expansion Slots		2 x PCIe 3.0 by 8 (by 16 slot) 2 x PCIe 3.0 by 4 (maximum card size supported: 68 mm x 167 mm)		
Thermal Solution		Smart Fan		
Power Supply		AC input ATX power supply 1. 250W power supply - Input: 115VAC~230VAC, 50/60Hz - Output (max.): 3.3V@12A, 5V@14A, 12V@25A, -12V@0.3A,+5Vsb@3A 2. 350W power supply (Build to Order) - Input: 115VAC~264VAC, 50/60Hz - Output (max.): 3.3V@14A, 5V@16A, 12V@29A, -12V@0.3A,+5Vsb@3A -Efficiency: Full load (100%) 87%, Typical load (50%) 90%, Light load (20%) 87%		
Watchdog Timer		Software Programmable support 1~255 sec. system reset		
Construction	IP Rating	IP66-rated front panel		
	Chassis Construction	Metal Housing		
	Mounting	Rack/Panel Mount		
	Color	Front Bezel : Cyan-blue (PSM 296C), Others: Black C		
	Cut-out dimensions (LxDxH) (mm)	361.1 x 285.6	379.1 x 232.3	391 x 324
	Dimensions (LxDxH) (mm)	378.5 x 303 x 118	400.1 x 253.3 x 121	408.4 x 341.4 x 119
Environmental	Operating Temperature	-20°C ~ 50°C (with SSD and up to TDP 65W processor) -20°C ~ 40°C (with HDD or add-on cards without fan)		
	Storage Temperature	-30°C ~ 60°C		
	Operating Humidity	5% ~95%, non-condensing		
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak		
	Shock	10G acceleration part to part (11ms)		

PPC-F-Q370 Series Selection Guide



LCD Size		18.5”	21.5”	23.8”
Model		PPC-FW19C-Q370	PPC-FW22C-Q370	PPC-FW24C-Q370
TFT LCD	LCD Size	18.5"	21.5”	23.8”
	Max. Resolution	1366x768	1920x1080	1920x1080
	Brightness (cd/m²)	400	250	250
	Contrast Ratio	1000:1	1000:1	3000:1
	LCD Color	16.7M	16.7M	16.7M
	Viewing Angle (H/V)	170°/160°	170°/160°	178°/178°
	Backlight MTBF (Hrs)	50,000	30,000	30,000
Touch Screen		PCAP touch with 10-point multitouch, anti-glare coating		
Mainboard	CPU	8th Generation Intel® Core™ i7/i5/i3 and Pentium® processor in the LGA 1151 package		
	Chipset	Intel® Q370 Chipset		
	Memory	2 x 288-pin 2666/2400 MHz dual-channel DDR4 unbuffered DIMM slot supporting up to 64GB		
	Graphics Engine	Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, supports DX2015, OpenGL 5.X and OpenCL 2 x, ES 2.0		
	Ethernet	Intel® I211 controller		
Storage		(1) 4 x Accessible 2.5” SATA 6Gb/s HDD/SSD bay (RAID 0/1/5/10 support) with LED indicator (2) 2 x M.2 2280 PCIe Gen 3.0 x4 NVMe™ SSD socket		
I/O Ports and Switches		1 x HDMI output 2 x GbE LAN 6 x USB 3.2 Gen 1 (5Gb/s) Type-A 2 x RS-232 DB-9 type 1 x Mic in	1 x Line out 1 x AC power in Inlet Power button with power LED (power on=Blue) AT/ATX mode switch Reset button	
Expansion Slots		2 x PCIe 3.0 by 8 (by 16 slot) 2 x PCIe 3.0 by 4 (maximum card size supported: 68 mm x 167 mm)		
Thermal Solution		Smart Fan		
Power Supply		AC input ATX power supply 1. 250W power supply - Input: 115VAC~230VAC, 50/60Hz - Output (max.): 3.3V@12A, 5V@14A, 12V@25A, -12V@0.3A,+5Vsb@3A 2. 350W power supply (Build to Order) - Input: 115VAC~264VAC, 50/60Hz - Output (max.): 3.3V@14A, 5V@16A, 12V@29A, -12V@0.3A,+5Vsb@3A -Efficiency: Full load (100%) 87%, Typical load (50%) 90%, Light load (20%) 87%		
Watchdog Timer		Software Programmable support 1~255 sec. system reset		
Construction	IP Rating	IP66-rated front panel		
	Chassis Construction	Metal Housing		
	Mounting	Rack/Panel Mount	Panel Mount	
	Color	Front Bezel : Cyan-blue (PSM 296C), Others: Black C		
	Cut-out dimensions (LxDxH) (mm)	447.8 x 267.2	533 x 341	577.6 x 359.6
	Dimensions (LxDxH) (mm)	469.8 x 289.2 x 120.8	550.4 x 358.4 x 117.8	600 x 356.6 x 119
Environmental	Operating Temperature	-20°C ~ 50°C (with SSD and up to TDP 65W processor) -20°C ~ 40°C (with HDD or add-on cards without fan)		
	Storage Temperature	-30°C ~ 60°C		
	Operating Humidity	5% ~95%, non-condensing		
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak		
	Shock	10G acceleration part to part (11ms)		

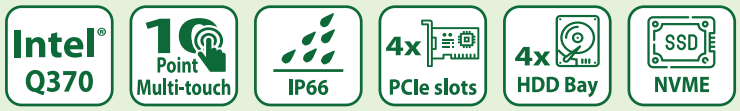
PPC-F-Q370 Series

15”/15.6”/17” AI Ready Panel PC Based on Intel® OpenVINO™ toolkit



Features

- 15”~24" Panel PC with 8th Generation LGA 1151 Intel® Core™ i7/i5/i3 and Pentium® processor
- Four hot-swappable and accessible HDD drive bays, support RAID 0/1/5/10
- Two PCIe 3.0 by 4 and two PCIe 3.0 by 8 slots
- Dual M.2 2280 PCIe Gen 3.0 x4 NVMe™ SSD support



Specifications

Model		PPC-F15C-Q370	PPC-F17C-Q370	PPC-FW15C-Q370
TFT LCD	LCD Size	15”	17”	15.6"
	Max. Resolution	1024x768	1280x1024	1366x768
	Brightness (cd/m²)	450	350	400
	Contrast Ratio	800:1	1000:1	500:1
	LCD Color	16.2M	16.7M	16.2M
	Viewing Angle (H/V)	160°/150°	170°/160°	170°/160°
	Backlight MTBF (Hrs)	70,000	50,000	50,000
Touch Screen		PCAP touch with 10-point multitouch, anti-glare coating		
Mainboard	CPU	8th Generation Intel® Core™ i7/i5/i3 and Pentium® processor in the LGA 1151 package		
	Chipset	Intel® Q370 Chipset		
	Memory	2 x 288-pin 2666/2400 MHz dual-channel DDR4 unbuffered DIMM slot supporting up to 64GB		
	Graphics Engine	Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, supports DX2015, OpenGL 5.X and OpenCL 2 x, ES 2.0		
	Ethernet	Intel® I211 controller		
Storage		(1) 4 x Accessible 2.5” SATA 6Gb/s HDD/SSD bay (RAID 0/1/5/10 support) with LED indicator (2) 2 x M.2 2280 PCIe Gen 3.0 x4 NVMe™ SSD socket		
I/O Ports and Switches		1 x HDMI output 2 x GbE LAN 6 x USB 3.2 Gen 1 (5Gb/s) Type-A 2 x RS-232 DB-9 type 1 x Mic in 1 x Line out 1 x AC power in Inlet Power button with power LED (power on=Blue) AT/ATX mode switch Reset button		
Expansion Slots		2 x PCIe 3.0 by 8 (by 16 slot) 2 x PCIe 3.0 by 4 (maximum card size supported: 68 mm x 167 mm)		
Thermal Solution		Smart Fan		
Power Supply		AC input ATX power supply 1. 250W power supply - Input: 115VAC~230VAC, 50/60Hz - Output (max.): 3.3V@12A, 5V@14A, 12V@25A, -12V@0.3A,+5Vsb@3A 2. 350W power supply (Build to Order) - Input: 115VAC~264VAC, 50/60Hz - Output (max.): 3.3V@14A, 5V@16A, 12V@29A, -12V@0.3A,+5Vsb@3A -Efficiency: Full load (100%) 87%, Typical load (50%) 90%, Light load (20%) 87%		
Watchdog Timer		Software Programmable support 1~255 sec. system reset		
Construction	IP Rating	IP66-rated front panel		
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	Dimensions (LxDxH) (mm)	378.5 x 303 x 118	408.4 x 341.4 x 119	400.1 x 253.3 x 121
Environmental	Operating Temperature	-20°C ~ 50°C (with SSD and up to TDP 65W processor) -20°C ~ 40°C (with HDD or add-on cards without fan)		
	Storage Temperature	-30°C ~ 60°C		
	Operating Humidity	5% ~95%, non-condensing		
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak		
	Shock	10G acceleration part to part (11ms)		
	Safety and EMC	CE & FCC Class A certified		

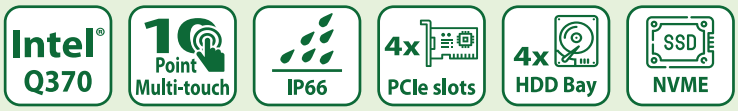
PPC-F-Q370 Series

18.5”/21.5”/23.8” AI Ready Panel PC Based on Intel® OpenVINO™ toolkit



Features

- 15”~24" Panel PC with 8th Generation LGA 1151 Intel® Core™ i7/i5/i3 and Pentium® processor
- Four hot-swappable and accessible HDD drive bays, support RAID 0/1/5/10
- Two PCIe 3.0 by 4 and two PCIe 3.0 by 8 slots
- Dual M.2 2280 PCIe Gen 3.0 x4 NVMe™ SSD support



Specifications

Model		PPC-FW19C-Q370	PPC-FW22C-Q370	PPC-FW24C-Q370
TFT LCD	LCD Size	18.5"	21.5”	23.8”
	Max. Resolution	1366x768	1920x1080	1920x1080
	Brightness (cd/m²)	400	250	250
	Contrast Ratio	1000:1	1000:1	3000:1
	LCD Color	16.7M	16.7M	16.7M
	Viewing Angle (H/V)	170°/160°	170°/160°	178°/178°
	Backlight MTBF (Hrs)	50,000	30,000	30,000
Touch Screen		PCAP touch with 10-point multitouch, anti-glare coating		
Mainboard	CPU	8th Generation Intel® Core™ i7/i5/i3 and Pentium® processor in the LGA 1151 package		
	Chipset	Intel® Q370 Chipset		
	Memory	2 x 288-pin 2666/2400 MHz dual-channel DDR4 unbuffered DIMM slot supporting up to 64GB		
	Graphics Engine	Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, supports DX2015, OpenGL 5.X and OpenCL 2 x, ES 2.0		
	Ethernet	Intel® I211 controller		
Storage		(1) 4 x Accessible 2.5” SATA 6Gb/s HDD/SSD bay (RAID 0/1/5/10 support) with LED indicator (2) 2 x M.2 2280 PCIe Gen 3.0 x4 NVMe™ SSD socket		
I/O Ports and Switches		1 x HDMI output 2 x GbE LAN 6 x USB 3.2 Gen 1 (5Gb/s) Type-A 2 x RS-232 DB-9 type 1 x Mic in	1 x Line out 1 x AC power in Inlet Power button with power LED (power on=Blue) AT/ATX mode switch Reset button	
Expansion Slots		2 x PCIe 3.0 by 8 (by 16 slot) 2 x PCIe 3.0 by 4 (maximum card size supported: 68 mm x 167 mm)		
Thermal Solution		Smart Fan		
Power Supply		AC input ATX power supply 1. 250W power supply - Input: 115VAC~230VAC, 50/60Hz - Output (max.): 3.3V@12A, 5V@14A, 12V@25A, -12V@0.3A,+5Vsb@3A 2. 350W power supply (Build to Order) - Input: 115VAC~264VAC, 50/60Hz - Output (max.): 3.3V@14A, 5V@16A, 12V@29A, -12V@0.3A,+5Vsb@3A -Efficiency: Full load (100%) 87%, Typical load (50%) 90%, Light load (20%) 87%		
Watchdog Timer		Software Programmable support 1~255 sec. system reset		
Construction	IP Rating	IP66-rated front panel		
	Chassis Construction	Metal Housing		
	Mounting	Rack/Panel Mount	Panel Mount	
	Color	Front Bezel : Cyan-blue (PSM 296C), Others: Black C		
	Cut-out dimensions (LxDxH) (mm)	447.8 x 267.2	533 x 341	577.6 x 359.6
	Dimensions (LxDxH) (mm)	469.8 x 289.2 x 120.8	550.4 x 358.4 x 117.8	600 x 356.6 x 119
Environmental	Operating Temperature	-20°C ~ 50°C (with SSD and up to TDP 65W processor) -20°C ~ 40°C (with HDD or add-on cards without fan)		
	Storage Temperature	-30°C ~ 60°C		
	Operating Humidity	5% ~95%, non-condensing		
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak		
	Shock	10G acceleration part to part (11ms)		
	Safety and EMC	CE & FCC Class A certified		

Ordering Information

	Part No.	Description
15”	PPC-F15C-Q370-P/PC/25-R10	15" 450cd/m² 1024 x768 AI modular Panel PC , Intel® Pentium® Gold G5400T Processor (2-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
	PPC-F15C-Q370-i3/PC/25-R10	15" 450cd/m² 1024 x768 AI modular Panel PC, Intel® Core™ i3-8100T Processor (4-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
	PPC-F15C-Q370-i5/PC/25-R10*	15" 450cd/m² 1024 x768 AI modular Panel PC, Intel® Core™ i5-8500T Processor (6-core, 6-thread, 2.1 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
	PPC-F15C-Q370-i7/PC/25-R10*	15" 450cd/m² 1024 x768 AI modular Panel PC, Intel® Core™ i7-8700T Processor (6-core,12-thread,2.4 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
17”	PPC-F17C-Q370-P/PC/25-R10	17" 350cd/m² 1280 x 1024 AI modular Panel PC, Intel® Pentium® Gold G5400T Processor (2-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
	PPC-F17C-Q370-i3/PC/25-R10	17" 350cd/m² 1280 x 1024 AI modular Panel PC, Intel® Core™ i3-8100T Processor (4-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
	PPC-F17C-Q370-i5/PC/25-R10*	17" 350cd/m² 1280 x 1024 AI modular Panel PC, Intel® Core™ i5-8500T Processor (6-core, 6-thread, 2.1 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
	PPC-F17C-Q370-i7/PC/25-R10*	17" 350cd/m² 1280 x 1024 AI modular Panel PC, Intel® Core™ i7-8700T Processor (6-core,12-thread,2.4 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
15.6”	PPC-FW15C-Q370-P/PC/25-R10	15.6" 400cd/m² 1366 x 768 AI modular Panel PC, Intel® Pentium® Gold G5400T Processor (2-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
	PPC-FW15C-Q370-i3/PC/25-R10	15.6" 400cd/m² 1366 x 768 AI modular Panel PC, Intel® Core™ i3-8100T Processor (4-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
	PPC-FW15C-Q370-i5/PC/25-R10*	15.6" 400cd/m² 1366 x 768 AI modular Panel PC, Intel® Core™ i5-8500T Processor (6-core, 6-thread, 2.1 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
	PPC-FW15C-Q370-i7/PC/25-R10*	15.6" 400cd/m² 1366 x 768 AI modular Panel PC, Intel® Core™ i7-8700T Processor (6-core,12-thread,2.4 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
18.5”	PPC-FW19C-Q370-P/PC/25-R10	18.5" 400cd/m² 1366 x 768 AI modular Panel PC, Intel® Pentium® Gold G5400T Processor (2-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
	PPC-FW19C-Q370-i3/PC/25-R10	18.5" 400cd/m² 1366 x 768 AI modular Panel PC, Intel® Core™ i3-8100T Processor (4-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10"
	PPC-FW19C-Q370-i5/PC/25-R10*	18.5" 400cd/m² 1366 x 768 AI modular Panel PC, Intel® Core™ i5-8500T Processor (6-core, 6-thread, 2.1 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
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21.5”	PPC-FW22C-Q370-P/PC/25-R10	21.5" 250cd/m² 1920 x 1080 AI modular Panel PC, Intel® Pentium® Gold G5400T Processor (2-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
	PPC-FW22C-Q370-i3/PC/25-R10	21.5" 250cd/m² 1920 x 1080 AI modular Panel PC, Intel® Core™ i3-8100T Processor (4-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
	PPC-FW22C-Q370-i5/PC/25-R10*	21.5" 250cd/m² 1920 x 1080 AI modular Panel PC, Intel® Core™ i5-8500T Processor (6-core, 6-thread, 2.1 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
	PPC-FW22C-Q370-i7/PC/25-R10*	21.5" 250cd/m² 1920 x 1080 AI modular Panel PC, Intel® Core™ i7-8700T Processor (6-core,12-thread,2.4 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
23.8”	PPC-FW24C-Q370-P/PC/25-R10	23.8" 250cd/m² 1920 x 1080 AI modular Panel PC, Intel® Pentium® Gold G5400T Processor (2-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10"
	PPC-FW24C-Q370-i3/PC/25-R10	23.8" 250cd/m² 1920 x 1080 AI modular Panel PC, Intel® Core™ i3-8100T Processor (4-core, 4-thread, 3.10 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10"
	PPC-FW24C-Q370-i5/PC/25-R10*	23.8" 250cd/m² 1920 x 1080 AI modular Panel PC, Intel® Core™ i5-8500T Processor (6-core, 6-thread, 2.1 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10
	PPC-FW24C-Q370-i7/PC/25-R10*	23.8" 250cd/m² 1920 x 1080 AI modular Panel PC, Intel® Core™ i7-8700T Processor (6-core,12-thread,2.4 GHz) TDP 35W, two PCIe x4 and two PCIe x8 slots, four HDD bays, 250W PSU, R10"

*Build to order
**350W AC PSU models are by build-to-order manufacturing

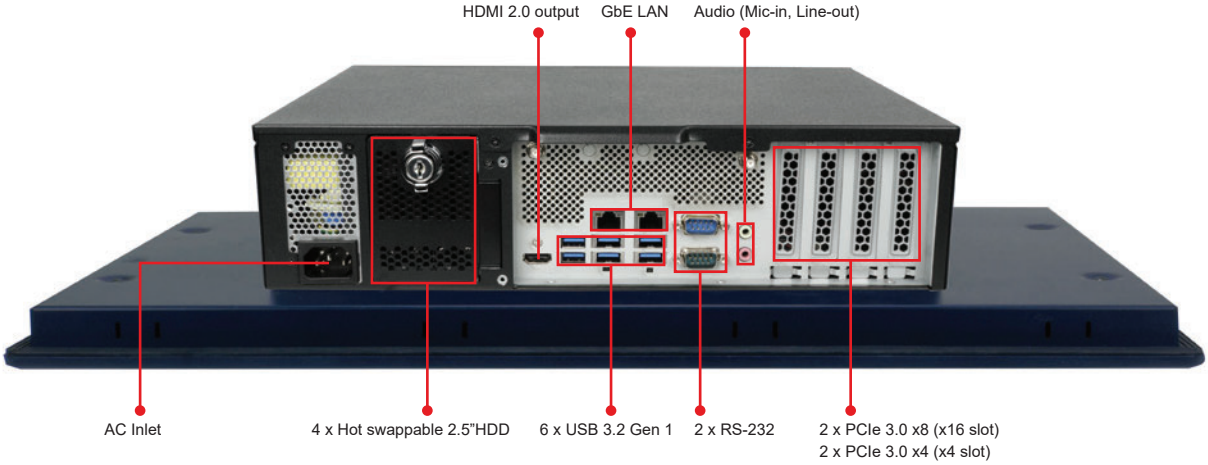
Options

Item	PPC-F15C	PPC-FW15C	PPC-F17C	PPC-FW19C	PPC-FW22C	PPC-FW24C
Panel Mount Kit	FPK-12-R10	FPK-14-R10	FPK-13-R10	FPK-13-R10	FPK-13-R10	FPK-14-R10
Rack Mount Kit	FRK15C-R10	FRKW15C-R10	FRK17C-R10	FRKW19C-R10	N.A.	N.A.

Packing List

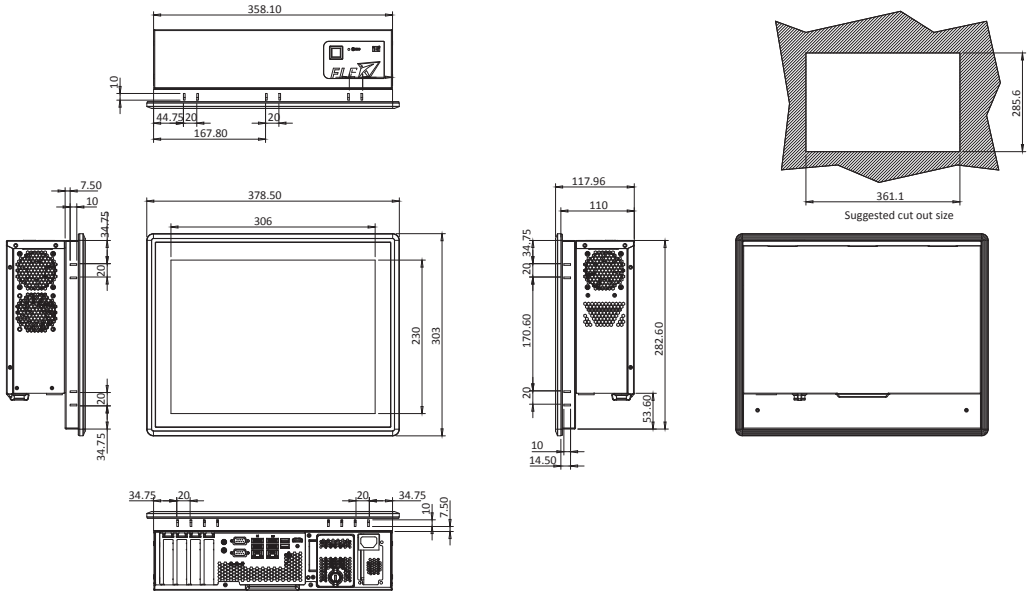
Item	Q'ty	Description
44013-030041-RS	16	Flat head screws for HDD bracket, M3*4
32702-000200-100-RS	1	European power cord, 1830mm

Fully Integrated I/O



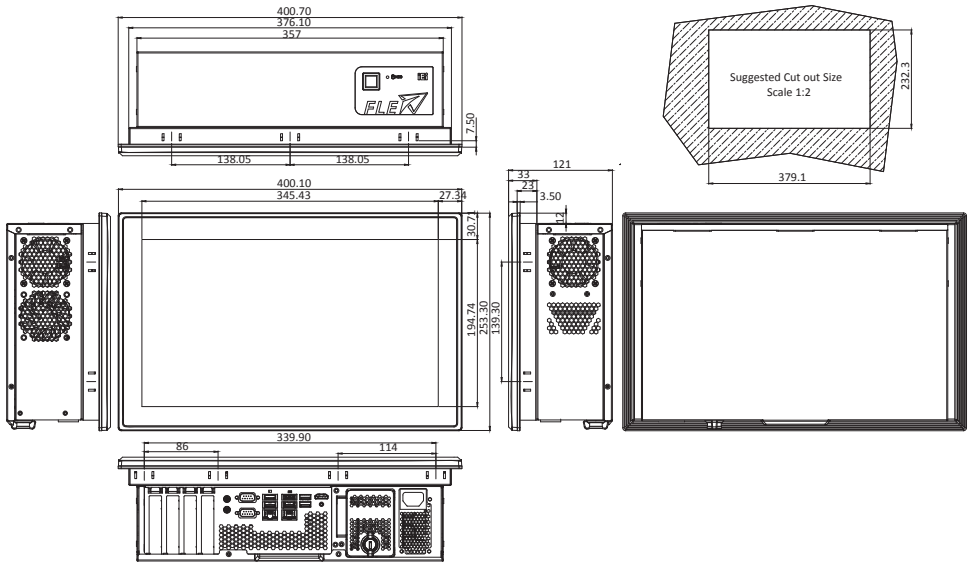
PPC-F15C-Q370 Dimensions

(Unit: mm)



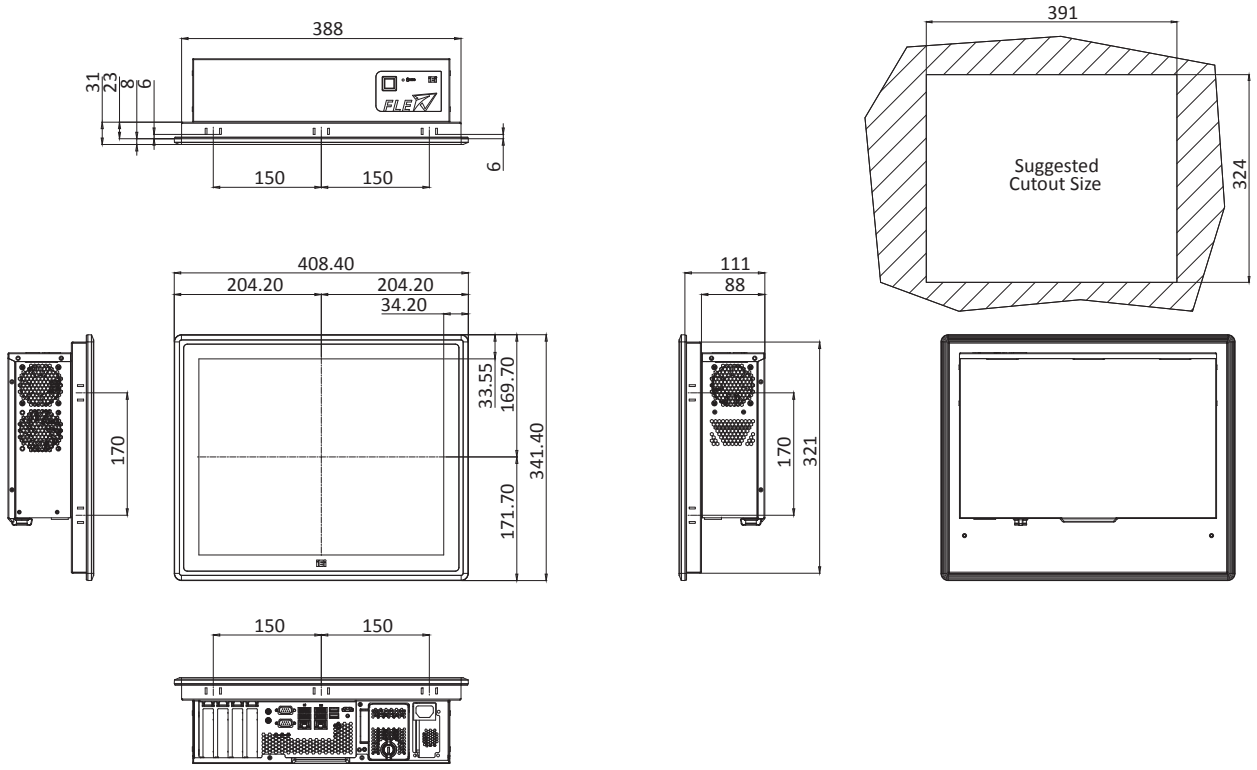
PPC-FW15C-Q370 Dimensions

(Unit: mm)



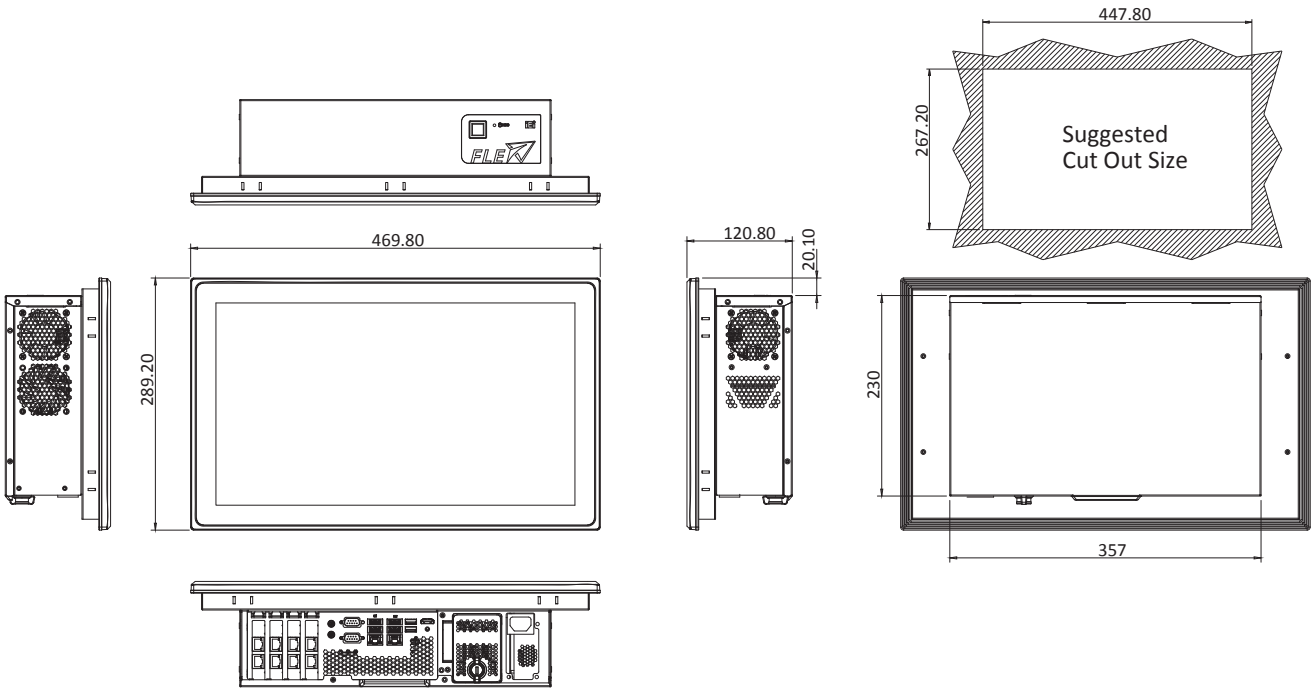
PPC-F17C-Q370 Dimensions

(Unit: mm)



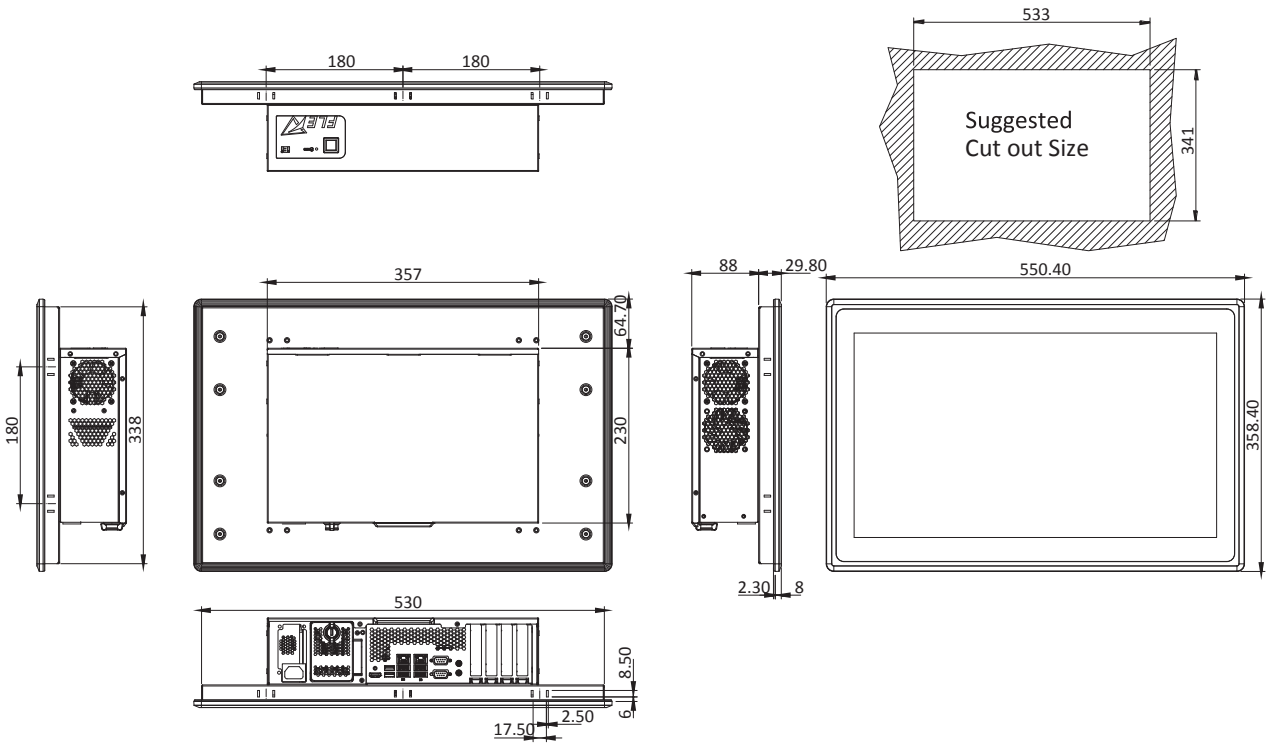
PPC-FW19C-Q370 Dimensions

(Unit: mm)



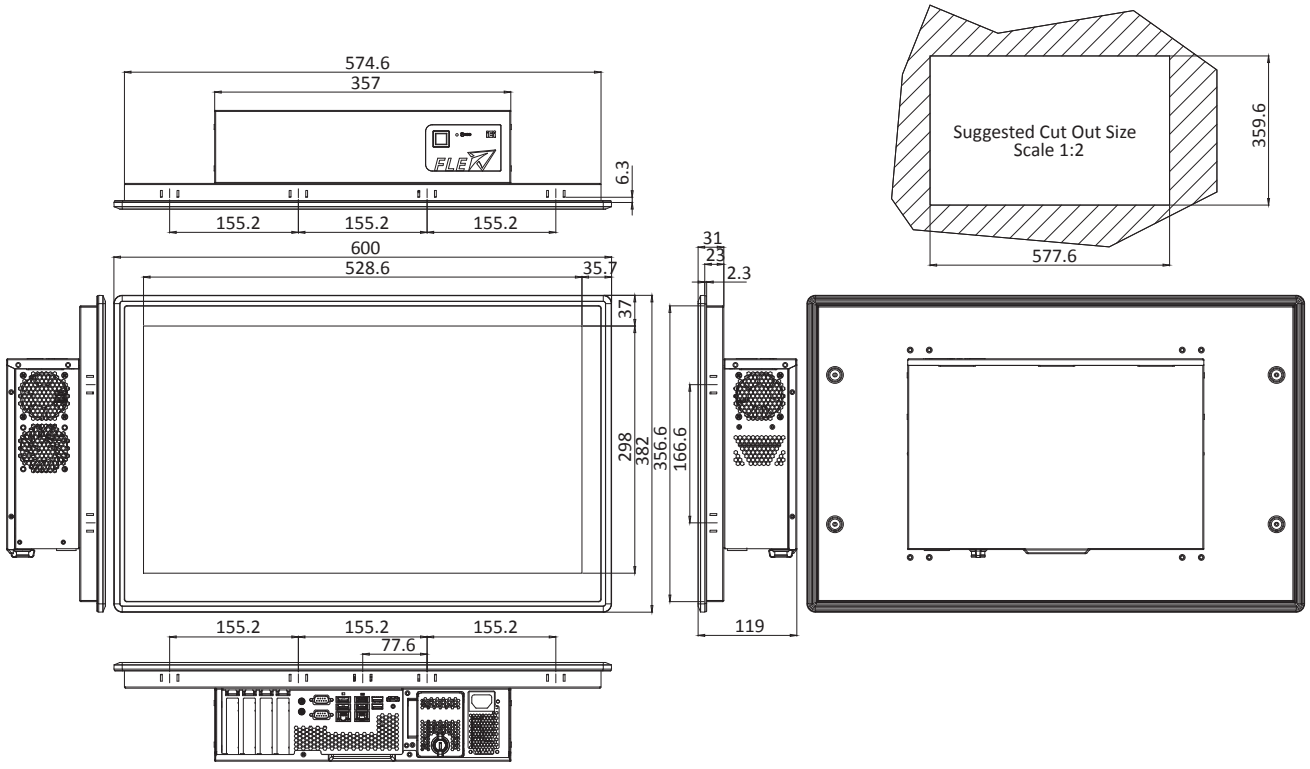
PPC-FW22C-Q370 Dimensions

(Unit: mm)



PPC-FW24C-Q370 Dimensions

(Unit: mm)



PPC-F Series

IEI is dedicated to developing impeccable industrial panel PC products.The PPC and PPC-F series industrial panel PCs not only keep rugged design of IP65 protection but also enrich aesthetic experience by implementing the seamless mounting method. The projected capacitive touch option is added to these new series of products to provide up to 2 points multi-touch solution! Additionally, we also provide high performance H81 series and low power consumption Bay Trail series to meet customers' requests.

■ PPC-F Industrial Panel PC Series

The PPC-F series aims at slim and compact design. Therefore, this new series makes a huge improvement in mechanical design to achieve the goal.



PPC-F15A-H81
262.2 x 322.2 mm

PPC-5150A-H61
309 x 410 mm

PPC-F15A-H81 vs.PPC-5150A-H61



■ 8mm Ultra Thin Bezel Design

To enhance aesthetic experience in industrial automation applications, the depth of the front bezel of the PPC-F is only 8mm to minimize the gap between the wall and the system in wall/panel mounting, which is neat and simple during integration.



■ 10-Point Multi Touch

The PPC series supports 10-point projected capacitive touch, enhancing smooth operations! IEI also provides 12" to 24" resistive single type and projected capacitive type touchscreen options to enrich simple and intuitive user experience.



■ FHD Industrial Panel PC Available

Going big is the market trend on industrial panel PC and monitor products. Thus, IEI launches new PPC-F series industrial panel PC. Users can enjoy high quality graphics and enriched data display at the same time from FHD panels.



■ Impeccable Front Panel

6H Anti-scratch Touch

The PPC-F series equipped with projected capacitive touchscreen uses 6H hardness vandal proof strengthened glass to prevent damages from physical impact.



Front Bezel IP65 Protection

Designed for harsh environments, the PPC-F series provides front bezel IP65 protection to resist dust and water jet.

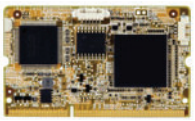


■ IEI Remote Intelligent Management System

The PPC-F supports iEi iRIS remote management, which helps users to manage multiple devices through single management interface and elevates work efficiency. iRIS solution only requires a module and Internet connection! (For PPC-F H81 & PPC-F 12B/15B/17B only)

IPMI 2.0 Compliant





iRIS Solution





QNAP NAS



Remote Power Management

Users can remotely power on/off all the iRIS devices and set up power cycle to simplify power control process.

ON OFF

Unify industrial automation process through a simple setting!



24H Active Recovery

With remote troubleshooting everywhere, there is no need to send out maintenance staff anymore!

Automatic Error Alert
System sends alert by email/SMS to designated members when error happens

Video Streaming and Record
Real-time record main screen video for trouble diagnosis

Remote Troubleshooting
Maintainers can troubleshoot the error through remote KVM

■ Built-in 80-Plus Silver Power Supply

The 80-plus silver power supply is implemented into the PPC-F H81 series, which reduces power loss and increases efficiency during power transition. With the certified power supply, the power transition between AC source and DC source couldmaintain up to 85% efficiency, and the power loss is only 15% or less. For customers, the high efficiency of power transition could reduce not only cost but also heat loss.. Furthermore, it could make a friendly environment. (For PPC-F H81 series only)

Parameters	Loading	Gold	Silver	Bronze	80 Plus
Efficiency	20%	87%	85%	82%	80%
	50%	90%	88%	85%	80%
	100%	87%	85%	82%	80%
Power Factor	50%	90% (across the full range)			90% (@100% Load)



■ PCIe Mini Card Expansion

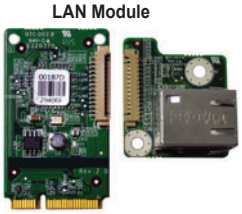
Two full-size PCIe Mini card expansion slots are reserved in the PPC-F series (Depends on models). With a wide variety of IEI PCIe Mini card solutions, it is flexible and easy to add extra functions in the system.

WiFi Module



WIFI-RT3593-DB-R10

LAN Module



MPCIE-LAN-R10

3G Module



MPCIE-3G-R10

USB3.0 Module

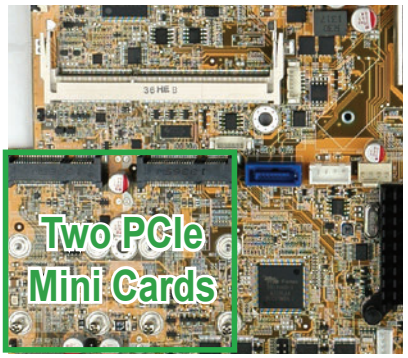


MPCIE-USB3-R10

Capture Card Module



IVCME-C604



PPC-F Series Selection Guide



LCD Size		5.7”	8”	10.4”	12”	15”	
Model		PPC-F06B-BT	PPC-F08B-BT	PPC-F10B-BT	PPC-F12B-BT	PPC-F15A-H81	PPC-F15B-BT
Display	LCD Size	5.7” (4:3)	8” (4:3)	10.4”	12” (4:3)	15” (4:3)	15” (4:3)
	Max. Resolution	640 (W) x 480 (H)	800 (W) x 600 (H)	800 (W) x 600 (H)	1024 (W) x 768 (H)	1024 (W) x 768 (H)	1024 (W) x 768 (H)
	Brightness (cd/m²)	550	500	400	600	450	450
	Contrast Ratio	800 : 1	500 : 1	700 : 1	700 : 1	800 : 1	800 : 1
	LCD Color	262K	16.2M	16.2M	16.2M	16.2M	16.2M
	Pixel Pitch (mm) (HxV)	0.18 x 0.18	0.2025 x 0.0675	0.264 x 0.264	0.24 x 0.24	0.297 x 0.297	0.297 x 0.297
	Viewing Angle (V/H)	160° / 140°	140° / 120°	160° / 140°	160° / 140°	160° / 150°	160° / 150°
	Backlight MTBF (hrs)	50000	50000	30000	50000	70000	70000
Touch	TouchScreen	4-wire resistive type flat touch window, 3H	5-wire resistive type flat touchscreen, 3H	5-wire resistive type flat touchscreen, 3H	5-wire resistive single touch window, 3H (Anti-glare Surface) 10-point Projected capacitive touch window, 6H (Anti-UV, Anti-glare Surface)		
	Touch Controller	PenMount DMC9000	PenMount DMC9000	PenMount DMC9000	Penmount DMC 9000 EETI EXC3188	Penmount DMC 9000 EETI EXC3188	Penmount DMC 9000 EETI EXC3188
Motherboard	CPU	Intel® Celeron® processor N2807, dual-core, 1.58GHz	Intel® Celeron® J1900 on-board SoC, quad-core, 2GHz	Intel® Celeron® J1900 on-board SoC, quad-core, 2GHz	Intel® Celeron® quad-core J1900 SoC, 2GHz	4th generation Intel® Core™ i7/ i5/i3, Pentium® and Celeron® processor, up to TDP 65W CPU	Intel® Celeron® quad-core J1900 SoC, 2GHz
	Chipset	N/A	N/A	N/A	N/A	N/A	Intel® H81
	RAM	2GB DDR3L 1600MHz on-board RAM (system max. 4GB by MOQ=300pcs)	1 x 204-pin DDR3L SO-DIMM slot (max. 8GB)	1 x 204-pin DDR3L SO-DIMM slot (max. 8GB)	2 x 204-pin 1066/1333 MHz DDR3L SO-DIMM supported (max. 8GB)	2 x 204-pin DDR3 SO-DIMM slots (max. 16GB)	2 x 204-pin 1066/1333 MHz DDR3L SO-DIMM supported (max. 8GB)
	Ethernet	2 x RTL 8111E	2 x RTL 8111E	2 x RTL 8111E	1 x PCIe GbE by Intel® I210 controller 1 x PCIe GbE by Intel® I211 controller	1 x PCIe GbE by Intel® I210 controller 1 x PCIe GbE by Intel® I217 controller	1 x PCIe GbE by Intel® I210 controller 1 x PCIe GbE by Intel® I211 controller
	Audio Codec	Realtek ALC662 HD codec	Realtek ALC892 HD codec	Realtek ALC892 HD codec	Realtek ALC662 HD codec	Realtek ALC662 HD codec	Realtek ALC662 HD codec
I/O Ports and Switches		1 x RJ-45 LAN port 1 x RS-232 COM port (DB-9 connector) (RI/5V/12V) 1 x RS-422/485 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x 9 V~36 V DC lockable jack (2-pin) 1 x Audio port (line-out) 1 x Power switch 1 x Reset button 1 x AT/ATX switch	1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB-9 connector) (RI/5V/12V) 2 x USB 3.2 Gen 1 (5Gb/s) 2 x GbE LAN 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x Audio port (line-out) 1 x 9 V~30 V lockable power jack	1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB-9 connector) (RI/5V/12V) 2 x USB 3.2 Gen 1 (5Gb/s) 2 x GbE LAN 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x Audio port (line-out) 1 x 9 V~30 V lockable power jack	2 x RJ-45 LAN port 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x HDMI 2 x RS-232 1 x RS-232/422/485 1 x VGA 1 x 9 V~36 V DC jack (4-pin) 1 x 9 V~36 V DC terminal block 1 x Power switch	2 x RJ-45 LAN Port 2 x USB 3.2 Gen 1 (5Gb/s) 4 x USB 2.0 1 x HDMI output 4 x RS-232 1 x RS-422/485 1 x MIC-in 1 x Line-out 1 x VGA output 1 x AC/DC power plug (DC model is by build to order manufacturing) 1 x AT/ATX switch 1 x Clear CMOS 1 x Reset button 1 x Power switch	2 x RJ-45 LAN port 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x HDMI 2 x RS-232 1 x RS-232/422/485 1 x VGA 1 x 9 V~36 V DC jack (4-pin) 1 x 9 V~36 V DC terminal block 1 x Line-out 1 x Power switch
Drive Bay	HDD Driver Bay	N/A	N/A	1 x 2.5” HDD bay	1 x 2.5” HDD bay	1 x 2.5” HDD bay	1 x 2.5” HDD bay
	SSD	mSATA					
Expansion Slot		1 Full Size PCIe Mini Slot (with mSATA, PCIe/USB Signal)	1 x Full-size PCIe Mini slot (with mSATA/PCIe/USB signal) 1 x Half-size PCIe Mini slot for Wi-Fi modules		1 x Full-size PCIe Mini card slot 1 x Full-size PCIe Mini card slot colay mSATA		
System Cooling		Fanless	Fanless	Fanless	Fanless	Active fan	Fanless
Environment	Operating Temperature	-10°C~50°C (14°F~122°F)					
	Storage Temperature	-20°C~60°C (-4°F~140°F)					

PPC-F Series Selection Guide



LCD Size		17”		19”	22”	23.8”
Model		PPC-F17A-H81	PPC-F17B-BT	PPC-F19B-BT	PPC-F22A-H81	PPC-F24A-H81
Display	LCD Size	17”	17”	19”	22”	23.8”
	Max. Resolution	1280 (W) x 1024 (H)			1920 (W) x 1080 (H)	
	Brightness (cd/m²)	350			250	
	Contrast Ratio	1000 : 1				
	LCD Color	16.7M				
	Pixel Pitch (mm) (HxV)	0.26 x 0.26	0.26 x 0.26	0.294 x 0.294	0.25 x 0.25	0.28 x 0.28
	Viewing Angle (V/H)	170° / 160°	170° / 160°	170° / 160°	165° / 165°	178° / 178°
	Backlight MTBF (hrs)	50000			30000	
Touch	Touchscreen	5-wire resistive single touch window, 3H (Anti-glare Surface) 10-point Projected capacitive touch window, 6H (Anti-UV, Anti-glare Surface)			10-point Projected capacitive touch window, 6H (Anti-UV, Anti-glare Surface)	
	Touch Controller	Penmount DMC 9000 EETI EXC3188			EETI EXC3188	
Motherboard	CPU	4th generation Intel® Core™ i7/ i5/ i3, Pentium® and Celeron® processor, up to TDP 65W CPU	Intel® Celeron® quad-core J1900 SoC, 2GHz	Intel® Celeron® processor J1900 (2M cache, up to 2.42 GHz)	4th generation Intel® Core™ i7/ i5/ i3, Pentium® and Celeron® processor, up to TDP 65W CPU	
	Chipset	Intel® H81	N/A		Intel® H81	
	RAM	2 x 204-pin DDR3 SO-DIMM slots (max. 16GB)	2 x 204-pin 1066/1333 DDR3L SO-DIMM supported (max. 8GB)	2 x 204-pin DDR3L SO-DIMM slot (max. 8GB), pre-installed with 2GB	2 x 204-pin DDR3 SO-DIMM slots (max. 16GB)	
	Ethernet	1 x PCIe GbE by Intel® I210 controller 1 x PCIe GbE by Intel® I211 controller				
	Audio Codec	Realtek ALC662 HD codec				
I/O Ports and Switches		2 x RJ-45 LAN Port 2 x USB 3.2 Gen 1 (5Gb/s) 4 x USB 2.0 1 x HDMI output 4 x RS-232 1 x RS-422/485 1 x MIC-in 1 x Line-out 1 x VGA output 1 x AC/DC power plug (DC model is by build to order manufacturing) 1 x AT/ATX switch 1 x Clear CMOS 1 x Reset button 1 x Power switch	2 x RJ-45 LAN port 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x HDMI 2 x RS-232 1 x RS-232/422/485 1 x VGA 1 x DC jack (4-pin) 1 x Terminal block 1 x Microphone & speaker 1 x power switch	2 x RJ-45 LAN port 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x HDMI 2 x RS-232 1 x RS-232/422/485 1 x VGA 1 x 9 V~36 V DC jack (4-pin) 1 x 9 V~36 V DC terminal block 1 x Line-out (PPC-F15B & PPC-F17B & PPC-F19B only) 1 x Power switch	2 x RJ-45 LAN Port 2 x USB 3.2 Gen 1 (5Gb/s) 4 x USB 2.0 1 x HDMI output 4 x RS-232 1 x RS-422/485 1 x MIC-in 1 x Line-out 1 x VGA output 1 x AC/DC power plug (DC model is by build to order manufacturing) 1 x AT/ATX switch 1 x Clear CMOS 1 x Reset button 1 x Power switch	2 x RJ-45 LAN Port 2 x USB 3.2 Gen 1 (5Gb/s) 4 x USB 2.0 1 x HDMI output 4 x RS-232 1 x RS-422/485 1 x MIC-in 1 x Line-out 1 x VGA output 1 x AC/DC power plug (DC model is by build to order manufacturing) 1 x AT/ATX switch 1 x Clear CMOS 1 x Reset button 1 x Power switch
Drive Bay	HDD Driver Bay	1 x 2.5” SATA HDD bay with anti-shook			1 x 2.5” SATA HDD bay with anti-shook or 1 x 3.5” SATA HDD bay with anti-shook	
	SSD	mSATA				
Expansion Slot		1 x Full-size PCIe Mini card 1 x Full-size PCIe Mini card co-lay mSATA				
System Cooling		Active fan	Fanless	Fanless	Active fan	
Environment	Operating Temperature	-10°C~50°C (14°F~122°F)				
	Storage Temperature	-20°C~60°C (-4°F~140°F)				

PPC-F H81 Series

Intelligent Industrial Panel PC



Features

- Support IEI iRIS-2400 IEI remote intelligent solution
- Scalable Intel® H81 chipset supports LGA1150 Intel® 4th generation Core™ i7/i5/i3, Pentium® or Celeron® processor with up to 65W TDP
- Robust IP65 aluminum front bezel
- Aesthetic ultra-thin bezel for seamless panel mount installation
- Projected capacitive multi-touch
- Dual full-size PCIe Mini card expansion
- AC/DC power input options (DC model by build to order manufacturing)

IPMI 2.0 Compliant | FHD | Multi-touch | IP65 | PCIe Mini | USB 3.2 | MOUNT

Specifications

Model		PPC-F15A	PPC-F17A	PPC-F22A	PPC-F24A
LCD	LCD Display	15" (4:3)	17" (5:4)	21.5" (16:9)	23.8" (16:9)
	Max. Resolution	1024(W) x 768(H)	1280(W) x 1024(H)	1920(W) x 1080(H)	1920(W) x 1080(H)
	Brightness (cd/m²)	450	350	250	250
	Contrast Ratio	800 : 1	800 : 1	1000 : 1	3000 : 1
	LCD Color	16.2M	16.7M	16.7M	16.7M
	Pixel Pitch (mm)	0.297 x 0.297	0.26 x 0.26	0.25 x 0.25	0.28 x 0.28
	Viewing Angle (H-V)	160° / 150°	170° / 160°	170° / 160°	178° / 178°
	Backlight MTBF (hrs)	70000	50000	30000	30000
Motherboard	SBC Model	FPPCMB-H81-R10			
	CPU	LGA1150 Intel® 4th generation Core™ i7/i5/i3, Pentium® or Celeron® processor with up to 65W TDP			
	Chipset	Intel® H81			
	RAM	Support 2 x 204-pin 1066/1333/1600 MHz dual-channel DDR3 SO-DIMM slots (max. 16GB)			
Touch	Touchscreen & Controller	5-wire resistive single touch window, 3H/Penmount 9000 (Anti-glare Surface) 10-point Projected capacitive touch window, 6H/EETI EXC3188 (Anti-UV, Anti-glare Surface)		10-point Projected capacitive touch window, 6H/EETI EXC3188 (Anti-UV, Anti-glare Surface)	
Input Interfaces	I/O Ports & Switch	2 x RJ-45 LAN Port 2 x USB 3.2 Gen 1 (5Gb/s) 4 x USB 2.0 1 x HDMI output 4 x RS-232 1 x RS-422/485 1 x MIC-in 1 x Line-out		1 x VGA output 1 x AC/DC power plug (DC model is by build to order manufacturing) 1 x AT/ATX switch 1 x Clear CMOS 1 x Reset button 1 x Power switch	
	Expansion	1 x Full-size/half-size PCIe Mini card (PCIe and USB signal) 1 x Full-size/half-size PCIe Mini card (PCIe , USB and mSATA signal)			
Wireless LAN		802.11 b/g/n (optional)			
Storage		1 x 2.5" HDD/SSD drive bay 1 x mSATA		1 x 2.5" HDD/SSD drive bay or 1 x 3.5" HDD/SSD drive bay 1 x mSATA	
iRIS Remote Management Solution		iRIS-2400 (optional)			
Physical	Construction Material	Aluminum front cover and sheet metal rear cover			
	Mounting	Panel mount, rack mount, 100x100 VESA mount		Panel mount, 100x100 VESA mount	
	Enclosure Color	Black C			
	Dimensions (mm)	303 x 378.5 x 68.7	341.4 x 408.4 x 73.8	350.4 x 550.4 x 71.7	382 x 600 x 71.7
	Cutout Dimensions (mm)	285.6 x 361.1	323 x 390	341 x 536	359.6 x 577.6
	Net/ Gross Weight (kg)	5.6/ 8.3	7.5/10.7	10.1/14.4	10.5/14.8
Environment	Operating Temperature (with air flow)	-10°C ~ 50°C			
	Storage Temperature	-20°C ~ 60°C			
	Humidity	10% to 95% (non-condensing)			
	IP Level	Front IP 65			
	Safety and EMC	CE & FCC certified			
Power Supply	AC Input	AC input ATX power supply - P/N: 63030-010220-100-RS - 220W power supply - Input: 90VAC-264VAC, 50/60Hz - Output (max.): 3.3V@10A, 5V@14A, 12V@14A, -12V@0.3A			
	DC Input (produced by order)	DC input ATX power supply - P/N: XACE-4520C-RS - 200W power supply - Input: 24VDC, 15A (max) - Output (max.): 3.3V@12A, 5V@12A, 12V@15.4A, -12V@0.5A			
Power Consumption		80W	100W	110W	120W

Ordering Information

Part No.	Description
PPC-F15AA-H81i-P/4G/PC-R22	15" 450 cd/m² XGA Panel PC with Intel® H81 chipset, Intel® Pentium® Processor G3420 (3M Cache, 3.20 GHz), TDP 53W, 2GB RAM*2, support iRIS-2400, black color, PSU ACE-A622B, projective capacitive touch window with AG coating, R22
PPC-F15AA-H81i-i3/4G/PC-R22	15" 450 cd/m² XGA Panel PC with Intel® H81 chipset, Core i3 Dual Core i3-4330 Processor (4M Cache, 3.50 GHz), TDP 54W, 2GB RAM*2, support iRIS-2400, black color, PSU ACE-A622B, PCAP touch window with AG coating, R22
PPC-F15AA-H81i-i5/4G/PC-R22	15" 450 cd/m² XGA Panel PC with Intel® H81 chipset, Core i5 Quad Core i5-4570S Processor (6M Cache, up to 3.60 GHz), TDP 65W, 2GB RAM*2, support iRIS-2400, black color, PSU ACE-A622B, PCAP touch window with AG coating, R22
PPC-F15AA-H81i-P/4G/R-R22	15" 450 cd/m² XGA Panel PC with Intel® H81 chipset, Intel® Pentium® Processor G3420 (3M Cache, 3.20 GHz), TDP 53W, 2GB RAM*2, support iRIS-2400, black color, PSU ACE-A622B, resistive touch window with AG coating, R22
PPC-F15AA-H81i-i3/4G/R-R22	15" 450 cd/m² XGA Panel PC with Intel® H81 chipset, Core i3 Dual Core i3-4330 Processor (4M Cache, 3.50 GHz), TDP 54W, 2GB RAM*2, support iRIS-2400, black color, PSU ACE-A622B, resistive touch window with AG coating, R22
PPC-F15AA-H81i-i5/4G/R-R22	15" 450 cd/m² XGA Panel PC with Intel® H81 chipset, Core i5 Quad Core i5-4570S Processor (6M Cache, up to 3.60 GHz), TDP 65W, 2GB RAM*2, support iRIS-2400, black color, PSU ACE-A622B, resistive touch window with AG coating, R22
PPC-F17AA-H81i-P/4G/PC-R13	17" 350 cd/m² SXGA Panel PC with Intel® H81 chipset, Intel® Pentium® Processor G3420 (3M Cache, 3.20 GHz), TDP 53W, 2GB RAM*2, support iRIS-2400, black color, PSU ACE-A622B, projective capacitive touch window with AG coating, R13
PPC-F17AA-H81i-i3/4G/PC-R13	17" 350 cd/m² SXGA Panel PC with Intel® H81 chipset, Core i3 Dual Core i3-4330 Processor (4M Cache, 3.50 GHz), TDP 54W, 2GB RAM*2, support iRIS-2400, black color, PSU ACE-A622B, projective capacitive touch window with AG coating, R13
PPC-F17AA-H81i-i5/4G/PC-R13	17" 350 cd/m² SXGA Panel PC with Intel® H81 chipset,Core i5 Quad Core i5-4570S Processor(6M Cache,up to 3.60 GHz),TDP 65W,2GB RAM*2,support iRIS-2400,black color,PSU ACE-A622B,projective capacitive touch window with AG coating, R13
PPC-F17AA-H81i-P/4G/R-R13	17" 350 cd/m² SXGA Panel PC with Intel® H81 chipset, Intel® Pentium® Processor G3420 (3M Cache, 3.20 GHz), TDP 53W, 2GB RAM*2, support iRIS-2400, black color, PSU ACE-A622B, resistive touch window with AG coating, R13
PPC-F17AA-H81i-i3/4G/R-R13	17" 350 cd/m² SXGA Panel PC with Intel® H81 chipset, Core i3 Dual Core i3-4330 Processor (4M Cache, 3.50 GHz), TDP 54W, 2GB RAM*2, support iRIS-2400, black color, PSU ACE-A622B, resistive touch window with AG coating, R13
PPC-F17AA-H81i-i5/4G/R-R13	17" 350 cd/m² SXGA Panel PC with Intel® H811 chipset, Core i5 Quad Core i5-4570S Processor (6M Cache, up to 3.60 GHz), TDP 65W, 2GB RAM*2, support iRIS-2400, black color, PSU ACE-A622B, resistive touch window with AG coating, R13
PPC-F22AA-H81i-i3/4G/PC-R13	21.5" 250 cd/m² FHD Panel PC with Intel® H81 chipset, Core i3 Dual Core i3-4330 Processor (4M Cache, 3.50 GHz), TDP 54W, 2GB RAM*2, support iRIS-2400, black color, PSU ACE-A622B, AG projective capacitive touch window, R13
PPC-F22AA-H81i-i5/4G/PC-R13	21.5" 250 cd/m² FHD Panel PC with Intel® H81 chipset, Core i5 Quad Core i5-4570S Processor(6M Cache, up to 3.60 GHz), TDP 65W, 2GB RAM*2, support iRIS-2400,black color,PSU ACE-A622B, AG projective capacitive touch window,R13
PPC-F22AA-H81i-P/4G/PC-R13	21.5" 250 cd/m² FHD Panel PC with Intel® H81 chipset, Intel® Pentium® Processor G3420 (3M Cache, 3.20 GHz), TDP 53W, 2GB RAM*2, support iRIS-2400, black color, PSU ACE-A622B, AG projective capacitive touch window, R13
PPC-F24AA-H81i-P/4G/PC-R21	23.8" 250 cd/m² FHD Panel PC with Intel® H81 chipset, Intel® Pentium® Processor G3420 (3M Cache, 3.20 GHz), TDP 53W, 2GB RAM*2, support iRIS-2400, black color, PSU ACE-A622B, projective capacitive touch window with AG coating, R21
PPC-F24AA-H81i-i3/4G/PC-R21	23.8" 250 cd/m² FHD Panel PC with Intel® H81 chipset, Core i3 Dual Core i3-4330 Processor (4M Cache, 3.50 GHz), TDP 54W, 2GB RAM*2, support iRIS-2400, black color, PSU ACE-A622B, projective capacitive touch window with AG coating, R21
PPC-F24AA-H81i-i5/4G/PC-R21	23.8" 250 cd/m² FHD Panel PC with Intel® H81 chipset, Core i5 Quad Core i5-4570S Processor (6M Cache, up to 3.60 GHz), TDP 65W, 2GB RAM*2, support iRIS-2400, black color, PSU ACE-A622B, projective capacitive touch window with AG coating, R21

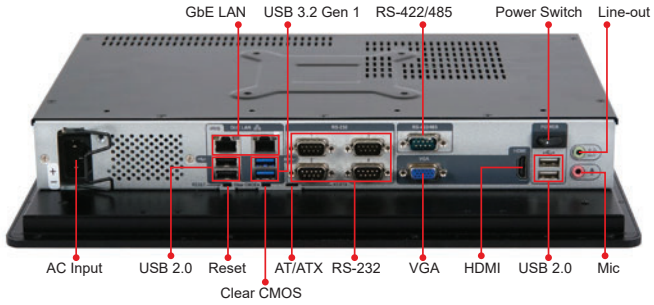
Options

Item	PPC-F15A	PPC-F17A	PPC-F22A	PPC-F24A
Arm	ARM-31-RS	ARM-31-RS	ARM-31-RS	ARM-31-RS
Stand	STAND-A21 STAND-A19-RS STAND-C19-R10	STAND-C19-R10 STAND-A21-R10	STAND-C19-R10 STAND-A21-R10	STAND-C19-R10 STAND-A21-R10
Wall Mount Kit	WK-190MS-R10			
Panel Mount Kit	FPK-04-R10		FPK-05-R10	FPK-06-R10
Rack Mount Kit	FRK15-R10	FRK17-R10	N/A	
Wi-Fi Kit	EMB-WIFI-KIT11-R20			
iRIS (IEI Remote Intelligent System) Kit	iRIS-2400-R10			

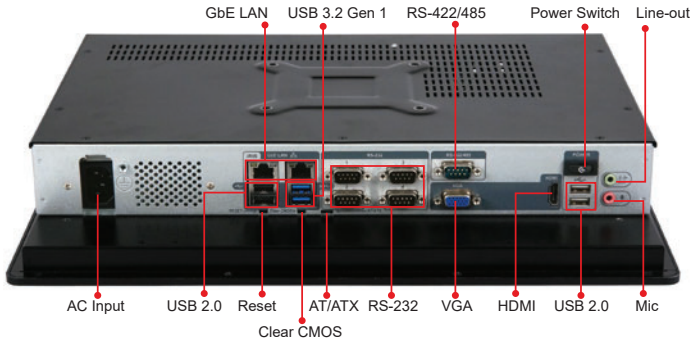
Packing List

Item	Q'ty	Remark
Power Cord	1	Depends on shipping region
Screw Kit	1	

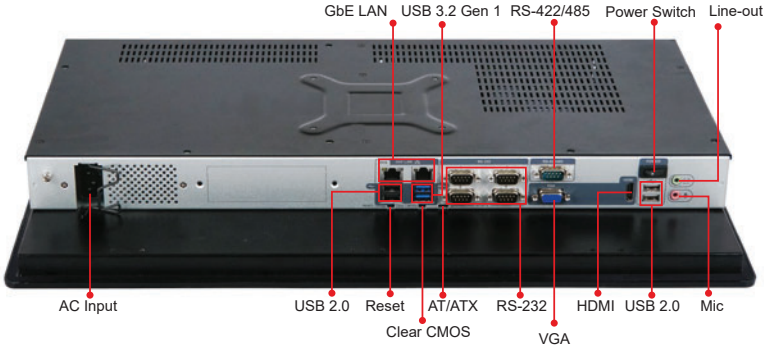
PPC-F15A
Fully Integrated I/O



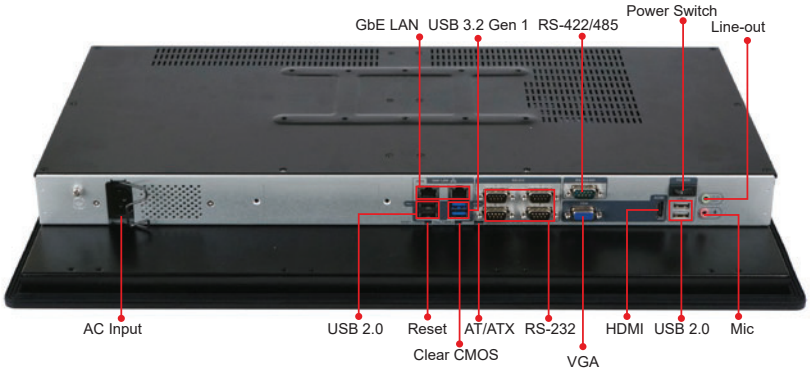
PPC-F17A
Fully Integrated I/O



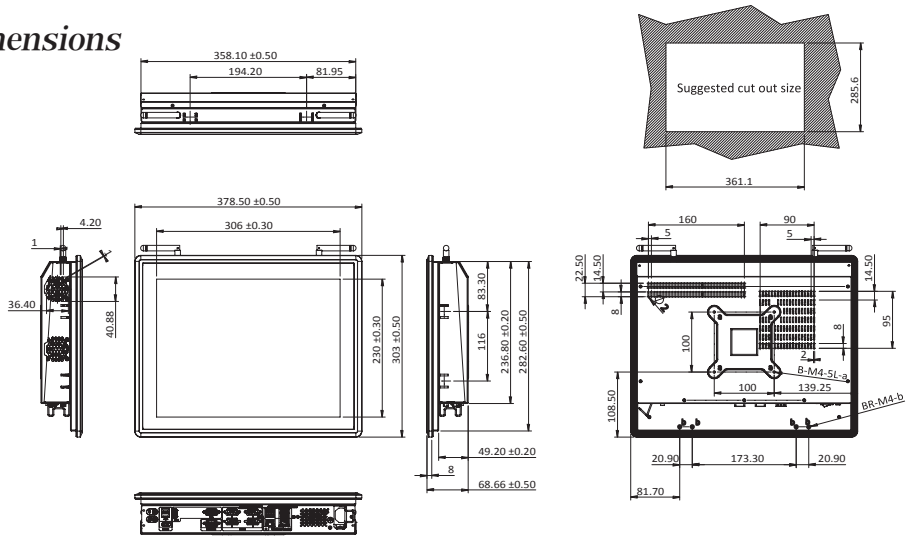
PPC-F22A
Fully Integrated I/O



PPC-F24A
Fully Integrated I/O

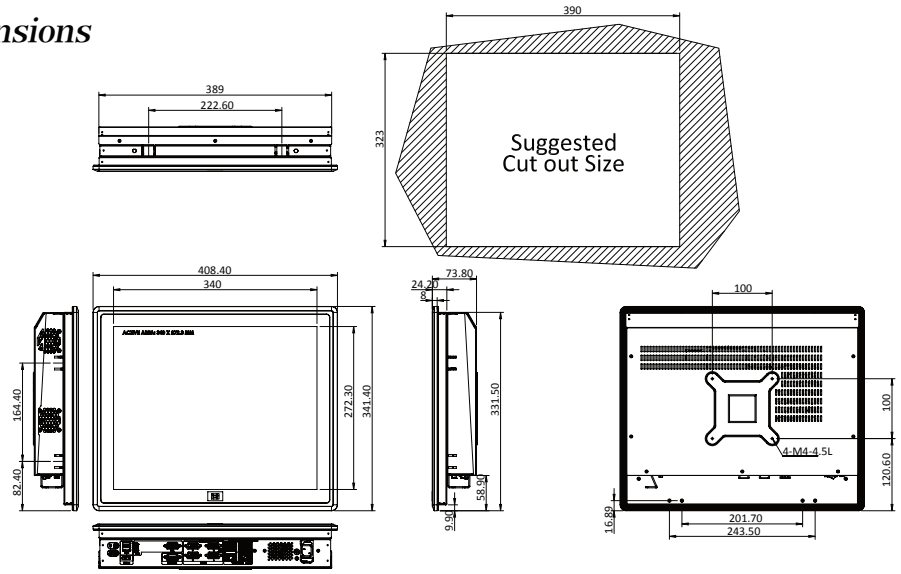


PPC-F15A Dimensions
(Unit: mm)



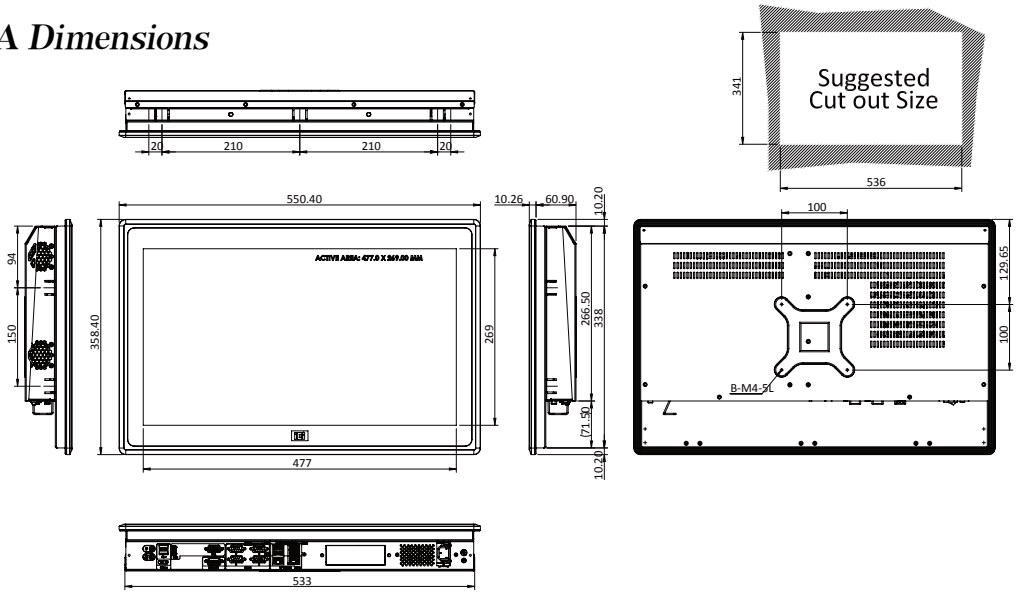
PPC-F17A Dimensions

(Unit: mm)



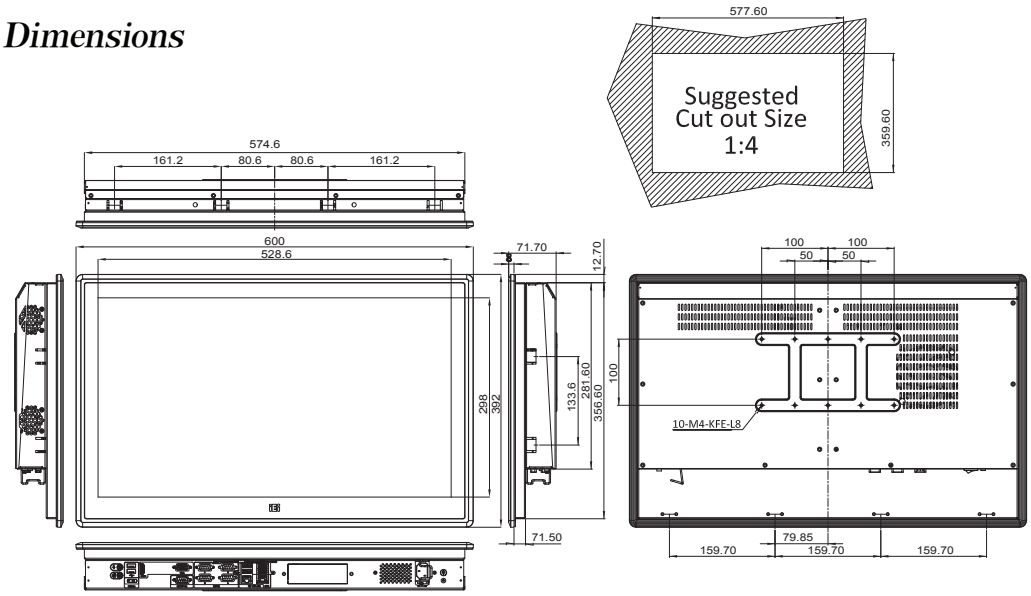
PPC-F22A Dimensions

(Unit: mm)



PPC-F24A Dimensions

(Unit: mm)



PPC-F Bay Trail Fanless Series

5.7”/8”/10.4” Fanless Intel® Bay Trail Solution

Features

- 5.7”, 8” and 10.4” fanless industrial panel PC
- 2.0 GHz Intel® Celeron® J1900 quad-core processor or 1.58 GHz Intel® Celeron® N2807 dual-core processor
- Low power consumption DDR3L memory supported
- IP 65 compliant front panel
- 9 V~30 V wide DC input
- mSATA SSD suppoted
- Dual GbE for backup
- -10°C~50°C extended operating temperature













Specifications

Model		PPC-F06B-BT	PPC-F08B-BT	PPC-F10B-BT
LCD	LCD Display	5.7” (4:3)	8” (4:3)	10.4”
	Max. Resolution	640 (W) x 480 (H)	800 (W) x 600 (H)	800 (W) x 600 (H)
	Brightness (cd/m²)	550	500	400
	Contrast Ratio	800:1	500:1	700:1
	LCD Color	262K	16.2M	16.2M
	Pixel Pitch (mm)	0.18 (H) x 0.18 (V)	0.2025 (H) x 0.0675 (V)	0.264 (H) x 0.264 (V)
	Viewing Angle (H-V)	160° / 140°	140° / 120°	160° / 140°
	Backlight MTBF (hrs)	50000	50000	30000
Motherboard	CPU	Intel® Celeron® N2807 dual-core processor, 1.58GHz	Intel® Celeron® J1900 quad-core on-board SoC, 2GHz	
	RAM	2GB DDR3L 1600MHz on-board RAM (system max. 4GB, by MOQ=300pcs)	1 x 204-pin DDR3L SO-DIMM slots (max. 8GB)	
Touch	Touchscreen & Controller	4-wire resistive type flat touch window, PenMount DMC9000	5-wire resistive type flat touchscreen, PenMount DMC9000	
	Surface Hardness	3H	3H	3H
Input Interfaces	I/O Ports & Switches	2 x RJ-45 LAN port 1 x RS-232 COM port (DB-9 connector) (RI/5V/12V) 1 x RS-422/485 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x 9 V~30 V DC lockable DC jack (2-pin) 1 x Audio port (line-out) 1 x Power switch 1 x Reset button 1 x AT/ATX switch	1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB-9 connector) (RI/5V/12V) 2 x USB 3.2 Gen 1 (5Gb/s) 2 x GbE LAN 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x Audio port (line-out) 1 x 9 V~30 V lockable power jack	1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB9 connector) (RI/5V/12V) 2 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s) 2 x GbE LAN 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x Audio port (line-out) 1 x 9 V~30 V lockable power jack
Expansion		1 x Full-size PCIe Mini slot (mSATA/PCIe/USB signal)	1 x Full-size/half-size PCIe Mini slot (mSATA/PCIe/USB signal) 1 x Half-size PCIe Mini slot (PCIe signal only)	
Wireless LAN		802.11 b/g/n (optional)		
Storage	SSD	mSATA	mSATA	mSATA
	HDD	N/A	N/A	1 x 2.5” HDD bay
Physical	Construction Material	Aluminum front bezel		
	Mounting	Stand, panel mount, rack mount, VESA 75x75	Stand, panel mount, rack mount, VESA 75x75	Stand, panel mount, rack mount, VESA 75x75/100x100
	Enclosure Color	Black C		
	Dimensions (mm)	136.4 x 178.5 x 56.3	182.2 x 222.2 x 44	232.4 x 285.2 x 44
	Net Weight	0.89 kg	1.17 kg	1.77 kg
	Cut-out Dimensions (mm)	157.5 x 115.4	207 x 154	267.2 x 214.4
Environment	Operating Temperature (with air flow)	-10°C~50°C (14°F~122°F)		
	Storage Temperature	-20°C~60°C (-4°F~140°F)		
	Humidity	10% to 95% (non-condensing)		
	IP Level	IP 65 compliant front panel		
	Safety and EMC	CE & FCC Class A certified		
Power	Power Adapter	P/N: 63040-010036-121-RS 36W Power Adapter Input: 90 - 264V AC, 50/60Hz Output: 12V DC		
	Power Requirement	9 ~ 30V DC		
	Power Consumption	24W	28W	34W

Ordering Information

Part No.	Description
PPC-F06B-BT-N1/2G/R-R10	5.7" 450 cd/m² VGA panel PC with Intel® Celeron® processor N2807, TDP 4.3W, 2GB on-board DDR3L RAM, black color, 9-30V DC input, resistive touch window, R10
PPC-F08B-BT-J1/2G/R-R10	8" 500 cd/m² SVGA panel PC with Intel® Celeron® processor J1900, TDP 10W, 2GB DDR3L RAM, black color, 9-30V DC input, resistive touch window, R10
PPC-F10B-BT-J1/2G/R-R10	10.4" 400 cd/m² SVGA panel PC with Intel® Celeron® processor J1900, TDP 10W, 2GB DDR3L RAM, black color, 9-30V DC input, resistive touch window, R10

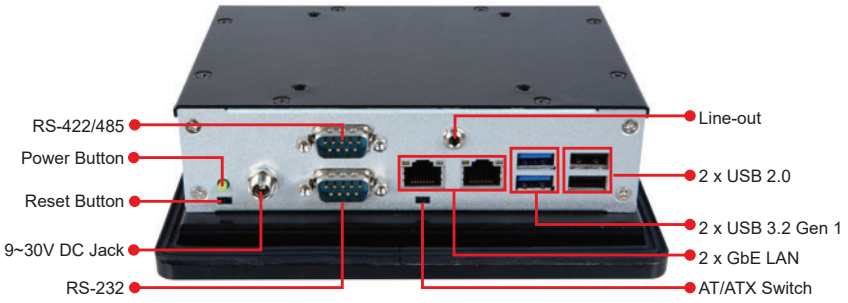
Options

Item	PPC-F06B	PPC-F08B	PPC-F10B
Arm	ARM-11-RS	ARM-11-RS	ARM-11-RS
Stand	STAND-100-RS STAND-B08	STAND-100-RS STAND-B08 STAND-C12-R10	STAND-100-RS STAND-B08 STAND-C12-R10
Wall Mount Kit	AFLWK-12	AFLWK-12	AFLWK-12
Panel Mount Kit	FPK-07-R10	FPK-07-R10	FPK-09-R10
Wi-Fi Kit	EMB-WIFI-KIT01-R20		

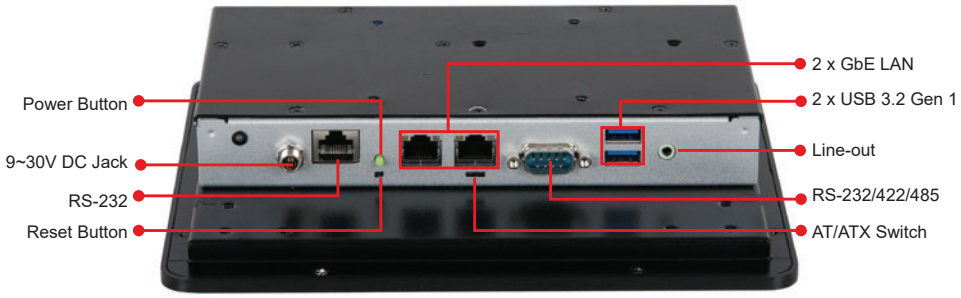
Packing List

Item	Q'ty	Remark
PPC-FxxB-BTi Panel PC	1	
Power Cord	1	Part numbers vary by regions
Screw Pack	1	Including necessary screws
Power Adapter	1	9V~30V DC P/N: 63040-010036-121-RS

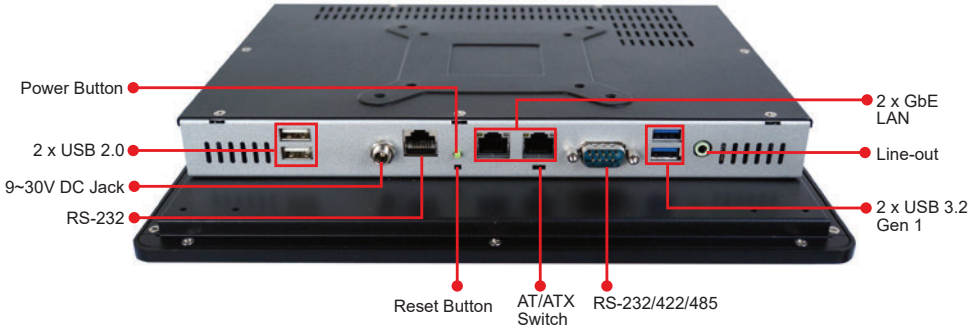
PPC-F06B Fully Integrated I/O



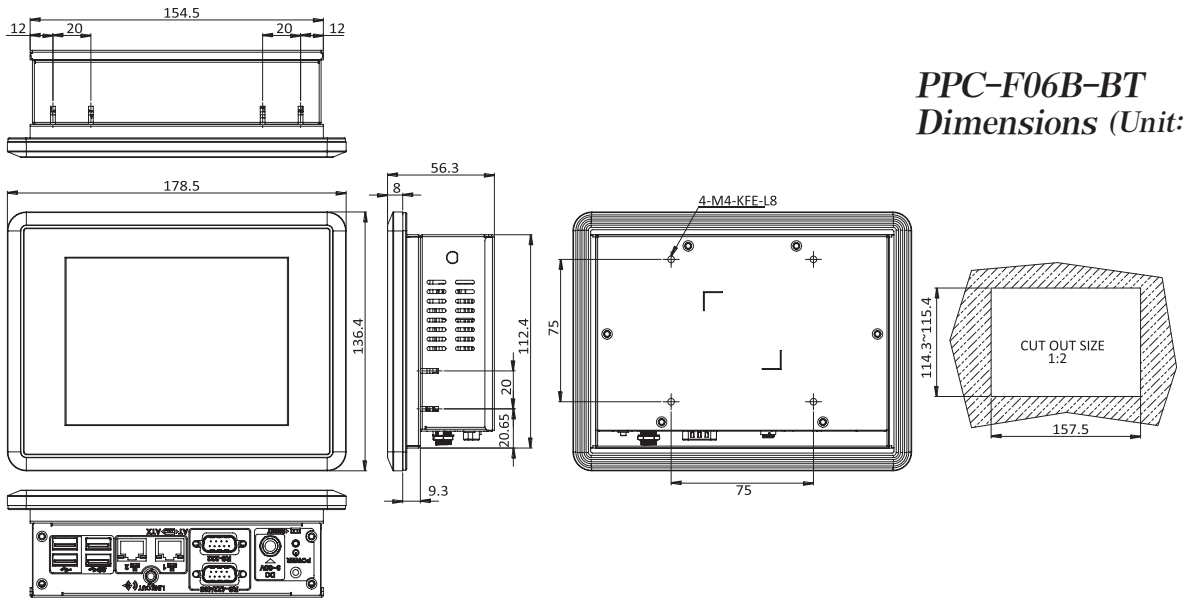
PPC-F08B Fully Integrated I/O



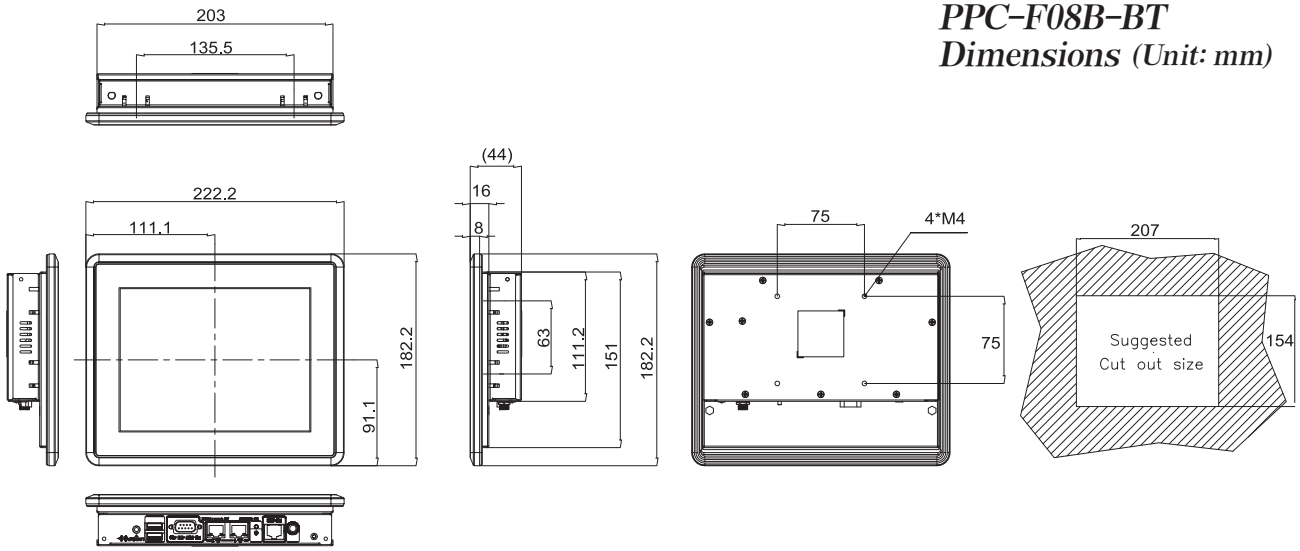
PPC-F10B Fully Integrated I/O



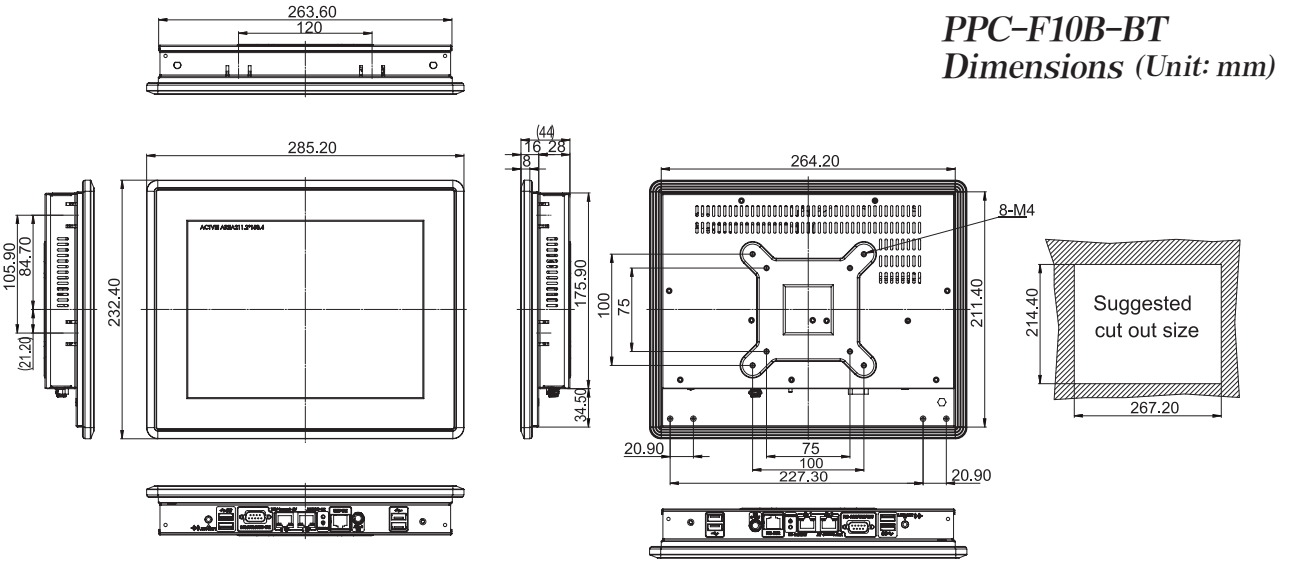
PPC-F06B-BT Dimensions (Unit: mm)



PPC-F08B-BT Dimensions (Unit: mm)



PPC-F10B-BT Dimensions (Unit: mm)



PPC-F Bay Trail Fanless Series

12”/15”/17”/19” Fanless Intel® Bay Trail Solution



Features

- Support IEI iRIS-2400 remote intelligent solution
- Intel® Celeron® J1900 quad-core SoC
- Robust IP65 aluminum front bezel
- Aesthetic ultra-thin bezel for seamless panel mount installation
- Projected capacitive multi-touch and resistive single touch options
- Dual full-size PCIe Mini card expansion
- 9V~36V DC wide range DC input

QTS-Gateway | IPMI 2.0 Compliant | Fanless | Multi-touch | IP65 | PCIe Mini | USB 3.2 | MOUNT

Specifications

Model		PPC-F12B-BT	PPC-F15B-BT	PPC-F17B-BT	PPC-F19B-BT
LCD	LCD Display	12.1” (4:3)	15” (4:3)	17” (5:4)	19” (5:4)
	Max. Resolution	1024 (W) x 768 (H)	1024 (W) x 768 (H)	1280 (W) x 1024 (H)	1280 (W) x 1024 (H)
	Brightness (cd/m²)	600	450	350	350
	Contrast Ratio	700 : 1	800 : 1	800 : 1	1000 : 1
	LCD Color	16.2M	16.2M	16.7M	16.7M
	Pixel Pitch (mm)	0.24 x 0.24	0.297 x 0.297	0.26 x 0.26	0.294 x 0.294
	Viewing Angle (H-V)	160° / 140°	160° / 150°	170° / 160°	170° / 160°
	Backlight MTBF (hrs)	50000	70000	50000	50000
Motherboard	CPU	Intel® Celeron® processor J1900 (2M cache, up to 2.42 GHz)			
	RAM	2 x 204-pin DDR3L SO-DIMM slot (max. 8GB), pre-installed with 2GB			
Touch	Touchscreen & Controller	5-wire resistive single touch window, 3H/Penmount DMC9000 (Anti-glare Surface) 10-point Projected capacitive touch window, 6H/EETI EXC3188 (Anti-UV, Anti-glare Surface)			
Input Interfaces	I/O Ports & Switches	2 x RJ-45 LAN port 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x HDMI 2 x RS-232 1 x RS-232/422/485 1 x VGA 1 x 9 V~36 V DC jack (4-pin) 1 x 9 V~36 V DC terminal block 1 x Line-out (PPC-F15B & PPC-F17B & PPC-F19B only) 1 x Power switch			
	Expansion	1 x Full-size PCIe Mini slot (mSATA/PCIe/USB signal) 1 x Full-size/half-size PCIe Mini slot (PCIe/USB signal)			
Wireless LAN		802.11 b/g/n (optional)			
Drive Bay		1 x 2.5” HDD/SSD drive bay			
Remote Management Solution		iRIS-2400, QTS-Gateway			
Physical	Construction Material	Aluminum front panel and sheet metal rear cover			
	Mounting	Panel mount, rack mount, VESA 100x100			
	Enclosure Color	Black C			
	Dimensions (mm) (W x L x D)	262.2 x 322.2 x 47.2	303 x 378.5 x 46.2	341.4 x 408.4 x 51.8	372.4 x 447.4 x 52.87
	Weight (Net)	3.2 kg	4.1 kg	5 kg	6.5 kg
	Cutout Dimensions (mm)	244.8 x 304.8	285.6 x 361	323 x 390	355 x 430
Environment	Operating Temperature (with air flow)	-10°C~50°C (14°F~122°F)			
	Storage Temperature	-20°C~60°C (-4°F~140°F)			
	Humidity	10% to 95% (non-condensing)			
	IP Level	IP 65 compliant front panel			
	Safety and EMC	CE & FCC Class A certified			
Power	Power Adapter	P/N: 63040-010060-110-RS 60W Power Adapter Input: 90 - 264V AC, 50/60Hz Output: 12V DC			
	Power Requirement	9 V~36 V DC			
	Power Consumption	40W	41W	42W	33W

Ordering Information

Part No.	Description
PPC-F12B-BTi-J1/2G/PC-R12	12.1" 600 cd/m² XGA Panel PC with Intel® Celeron® Processor J1900, TDP 10W, 2GB RAM*1, support iRIS-2400, black color, 9-36V DC input, projected capacitive touch window with AG coating, R12
PPC-F12B-BTi-J1/2G/R-R12	12.1" 600 cd/m² XGA Panel PC with Intel® Celeron® Processor J1900, TDP 10W, 2GB RAM*1, support iRIS-2400, black color, 9-36V DC input, resistive touch window with AG coating, R12
PPC-F15B-BTi-J1/2G/PC-R22	15" 450 cd/m² XGA Panel PC with Intel® Celeron® Processor J1900, TDP 10W, 2GB RAM*1, support iRIS-2400, black color, 9-36V DC input, projected capacitive touch with AG coating, R22
PPC-F15B-BTi-J1/2G/R-R22	15" 450 cd/m² XGA Panel PC with Intel® Celeron® Processor J1900, TDP 10W, 2GB RAM*1, support iRIS-2400, black color, 9-36V DC input, resistive touch window with AG coating, R22
PPC-F17B-BTi-J1/2G/PC-R12	17" 350 cd/m² SXGA Panel PC with Intel® Celeron® Processor J1900, TDP 10W, 2GB RAM*1, support iRIS-2400, black color, 9-36V DC input, projected capacitive touch window with AG coating, R12
PPC-F17B-BTi-J1/2G/R-R12	17" 350 cd/m² SXGA Panel PC with Intel® Celeron® Processor J1900, TDP 10W, 2GB RAM*1, support iRIS-2400, black color, 9-36V DC input, resistive touch window with AG coating, R12
PPC-F19B-BTi-J1/2G/PC-R11	19" 350 cd/m² SXGA Panel PC with Intel® Celeron® Processor J1900, TDP 10W, 2GB RAM*1, support iRIS-2400, black color, 9-36V DC input, AG projected capacitive touch window, R11
PPC-F19B-BTi-J1/2G/R-R11	19" 350 cd/m² SXGA Panel PC with Intel® Celeron® Processor J1900, TDP 10W, 2GB RAM*1, support iRIS-2400, black color, 9-36V DC input, AG resistive touch window, R11

QTS-Gateway

Part No.	Description
PPC-F12B-BT-QGW-J1/4G/PC-R11	12" 600 cd/m² XGA Panel PC with Intel® Celeron® Processor J1900, TDP 10W, 2GB RAM*2,black color, with QTS-Gateway, 9-36V DC input, projected capacitive touch window, R11
PPC-F15B-BT-QGW-J1/4G/PC-R11	15" 450 cd/m² XGA Panel PC with Intel® Celeron® Processor J1900, TDP 10W, 2GB RAM*2, black color, with QTS-Gateway, 9-36V DC input, projected capacitive touch window, R11
PPC-F17B-BT-QGW-J1/4G/PC-R11	17" 350 cd/m² SXGA Panel PC with Intel® Celeron® Processor J1900, TDP 10W, 2GB RAM*2, black color, with QTS-Gateway, 9-36V DC input, projected capacitive touch window, R11

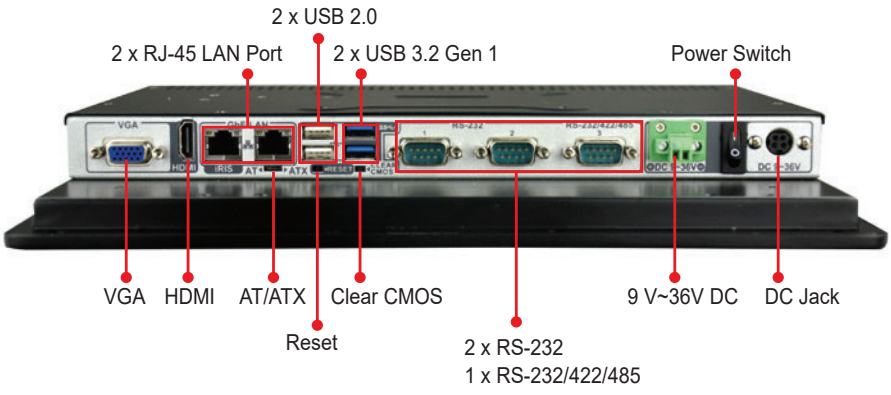
Options

Item	PPC-F12B	PPC-F15B	PPC-F17B	PPC-F19B
Arm	ARM-31-RS			
Stand	STAND-C12-R10 STAND-A12-RS	STAND-C19-R10 STAND-A19-RS	STAND-C19-R10 STAND-A19-RS	STAND-C19-R10 STAND-A19-RS
Wall Mount Kit	WK-190MS-R10			
Panel Mount Kit	FPK-09-R10	FPK-10-R10	FPK-10-R10	FPK-11-R10
Rack Mount Kit	FRK12-R10	FRK15-R10	FRK17-R10	FRK-19P-R10
Wi-Fi Kit	EMB-WIFI-KIT01-R20	EMB-WIFI-KIT11-R20	EMB-WIFI-KIT11-R20	EMB-WIFI-KIT11-R20
iRIS (IEI Remote Intelligent System) Kit	iRIS-2400-RS			

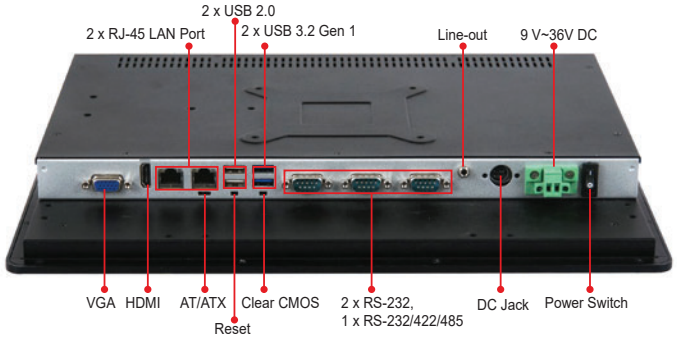
Packing List

Item	Q'ty	Remark
PPC-FxxB-BTi Panel PC	1	
Power Cord	1	Part numbers vary by regions
Screw Pack	1	Including necessary screws
Power Adapter	1	9V~36V DC(P/N: 63040-010060-110-RS)

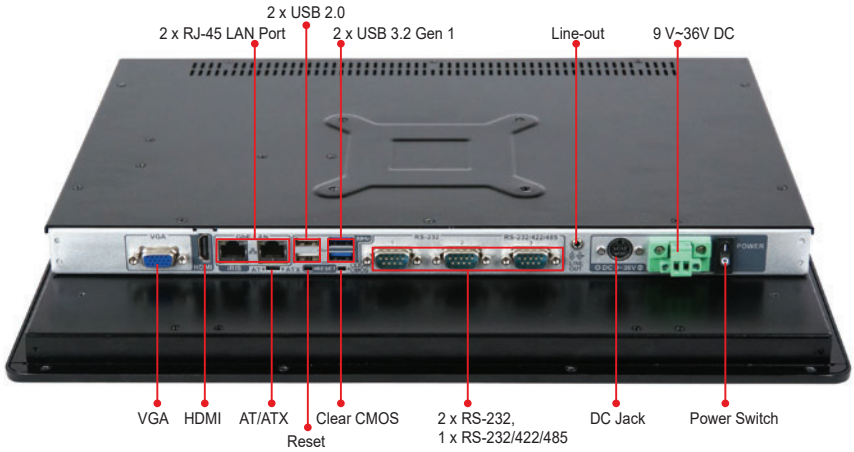
PPC-F12B
Fully Integrated I/O



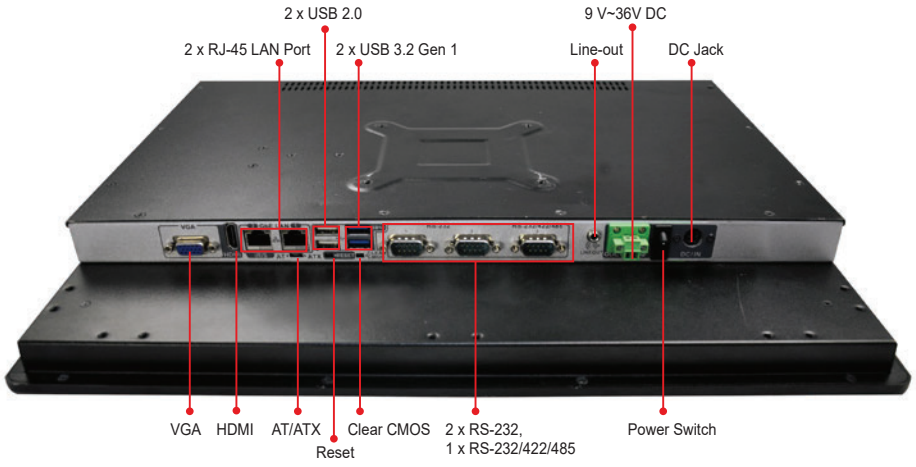
PPC-F15B
Fully Integrated I/O



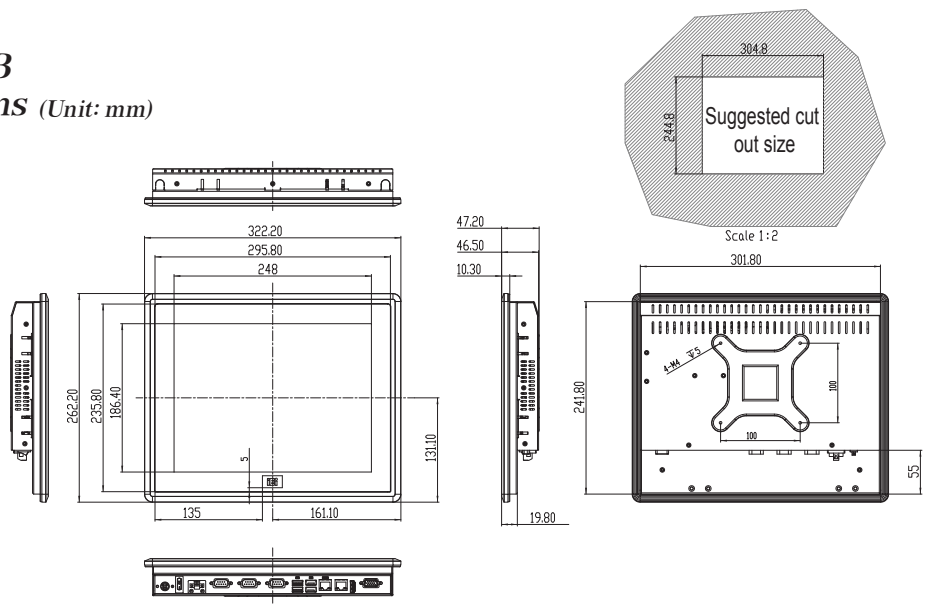
PPC-F17B
Fully Integrated I/O



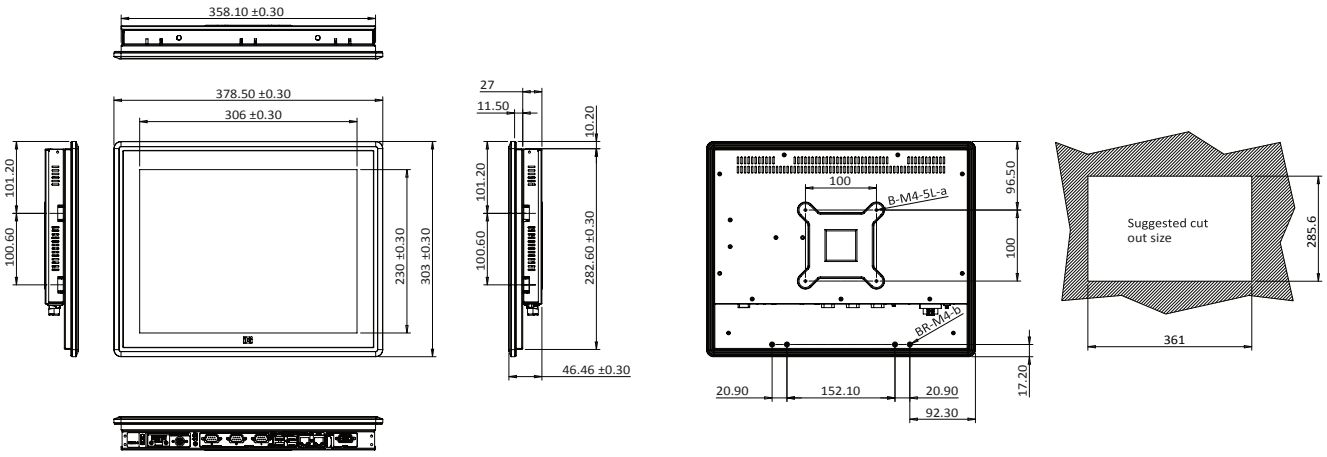
PPC-F19B
Fully Integrated I/O



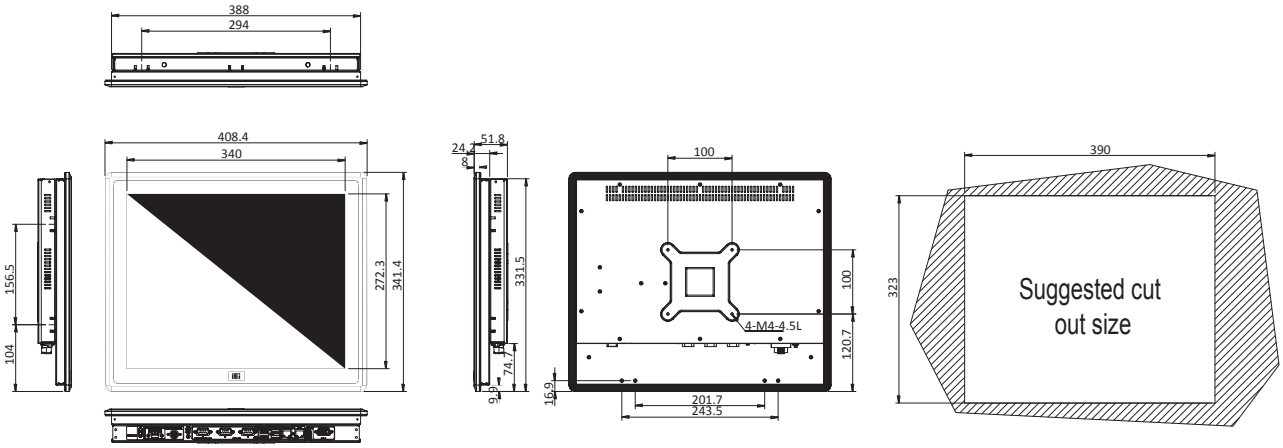
PPC-F12B
Dimensions (Unit: mm)



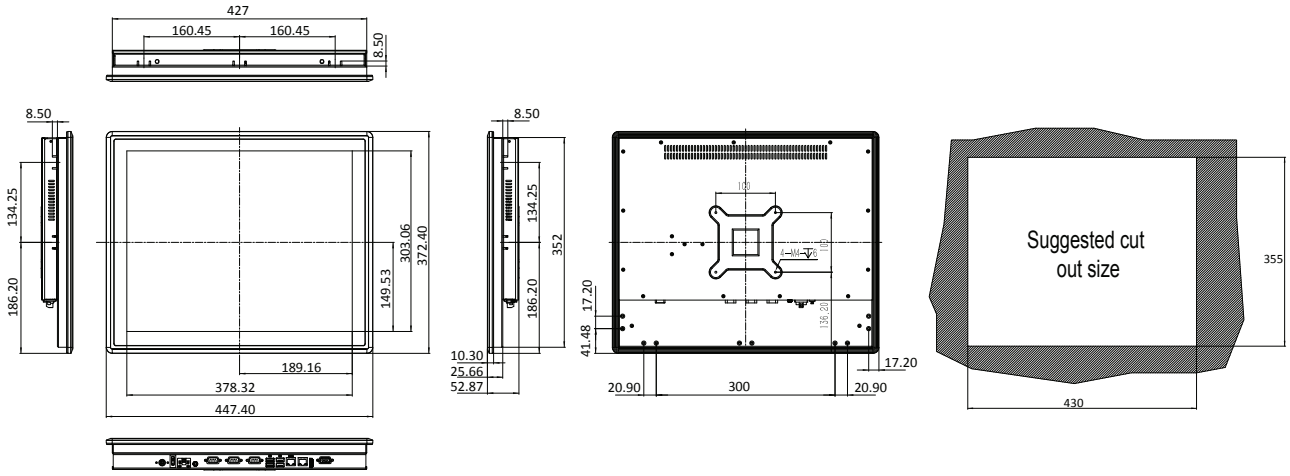
PPC-F15B Dimensions (Unit: mm)



PPC-F17B Dimensions (Unit: mm)



PPC-F19B Dimensions (Unit: mm)



PPC Series

■ Robust Product Design

IP Protection Improvement

The PPC series is equipped with robust front panel for water protection and tightly front assembly against the intrusion from any direction.

IP Code Table

The IP Code (International Protection Rating) consists of the letters IP followed by two digits.

Solids		Liquids	
First Numeral		Second Numeral	
No Protection	0	0	No Protection
Objects Greater than 50mm	1	1	Vertically Dripping Water
Objects Greater than 12mm	2	2	75°-90° Sprayed Water
Objects Greater than 2.5mm	3	3	30°-90° Sprayed Water
Objects Greater than 1.0mm	4	4	Water sprayed-low Pressure
Dust-Protected	5	5	Water jets-low Pressure
Dust-Tight	6	6	Water Jets-high Pressure
IP 66 Compliant!		7	Temporary Immersion
		8	Indefinite Immersion



IP66 Dust and Water Resistant

PPC Series

■ Wide Temperature Range (-20°C~60°C)

The PPC-5150A-H61/ PPC-5170A-H61 and UPC-V315 supports wide operating temperature, surviving from any kinds of harsh environment.



■ High Efficiency Transmission

SFP Fiber LAN

The small form-factor pluggable transceiver (SFP) is a compact, hot-pluggable transceiver used for both telecommunication and data communication applications.

- Immunity to electromagnetic interference
- High electrical resistance
- No sparks
- Long transmission distance – up to 2 km (multi-mode)/120 km (single-mode)

Transmission Distance

Type	Core Diameter	Wavelength (nm)	Cost	Max. Distance (km)
Single-Mode	8 to 10	1310 or 1550	More expensive	120 ★
Multi-Mode	50 or 62.5	850 or 1300	Medium	2
RJ-45	N/A	N/A	Cheaper	0.1

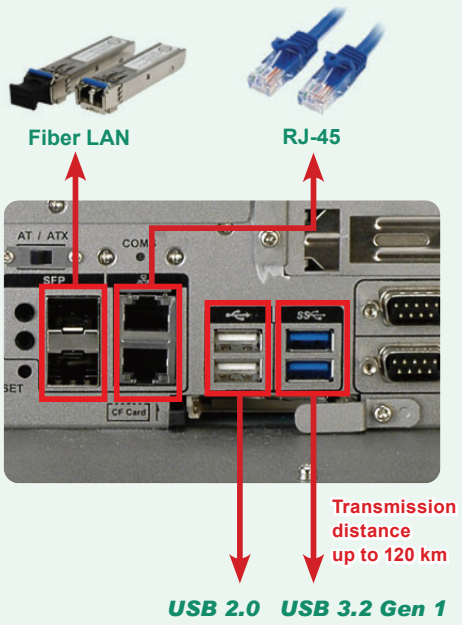
USB 3.2 Gen 1 – Faster Data Transmission

USB 3.2 Gen 1 has higher transmission speed and wider data bandwidth, supporting faster transferring for the user.

USB Version	USB 1.0	USB 2.0	USB 3.2 Gen 1
Data Transfer Rate)	12Mbps	480Mbps	5Gbps ★
Media (Data Size)	Transfer Time		
Song / Pic (4 MB)	5.3 sec	0.1 sec	0.01 sec
HD-Movie (25GB)	9.3 hr	13.9 min	70 sec

Multiple choices

We provide two transmission LAN types for choice, either 2 × Fiber LAN or 2 × RJ-45.



PPC Series Selection Guide





LCD Size		15”	17"	19”
Model		PPC-5150A-H61	PPC-5170A-H61	PPC-5190A-H61
Display	**LCD Size**	**15 "**	**17 "**	**19 "**
	Max Resolution	1024(W) x 768(H)	1280(W) x 1024(H)	1280(W) x 1024(H)
	Brightness (cd/m²)	450	350	350
	Contrast Ratio	800:1	800 : 1	1000 : 1
	LCD Color	16.2M	16.7M	16.7M
	Pixel Pitch (mm) (HxV)	0.297 x 0.297	0.264(H) x 0.264(V)	0.294(H) x 0.294(V)
	Viewing Angle (V/H)	150° / 160°	160° / 160°	160° / 170°
	Backlight MTBF (hrs)	50000		
Touch	Touchscreen	5-wire resistive type with RS-232 interface		
	Touch Controller	DMC 9000		
Motherboard	CPU	2nd/3rd generation Intel® Core™ i7/ i5/ i3, Pentium® and Celeron® processor, up to TDP 65W CPU		
	Chipset	Intel® H61		
	RAM	Two 204-pin DDR3 SO-DIMM slots (max. 16GB)	Two 204-pin DDR3 SO-DIMM slots (max. 16GB)	Two 204-pin DDR3 SO-DIMM slots (max. 16GB)
	Ethernet	Realtek RTL8111E PCIe GbE controller supporting ASF 2.0		
	Audio Codec	Realtek ALC662 audio codec		
I/O Ports and Switches		4 x RS-232 COM port 1 x RS-232/422/485 port 2 x RJ-45 for LAN port 4 x USB 2.0, 2 x USB 3.2 Gen 1 (5Gb/s) on rear 1 x VGA port 1 x Audio (Line-out, MIC-in) 2 x SFP fiber LAN 1 x Power switch 1 x AT/ATX switch 1 x PCI/PCIe slot	1 x RS-232/422/485 2 x RJ-45 for LAN port 4 x USB 2.0, 2 x USB 3.2 Gen 1 (5Gb/s) on rear 1 x VGA port 1 x Audio (Line-out, MIC-in) 2 x SFP fiber LAN 1 x Power switch 1 x AT/ATX switch 1 x PCI/PCIe slot	4 x RS-232COM port 1 x RS-232/422/485 port 2 x RJ-45 for LAN port 4 x USB 2.0, 2 x USB 3.2 Gen 1 (5Gb/s) on rear 1 x VGA port 1 x Audio (Line-out, MIC-in) 2 x SFP fiber LAN 1 x Power switch 1 x AT/ATX switch 1 x PCI/PCIe slot
Drive Bay	HDD Drive Bay	1 x 2.5” SATA HDD bay with anti-shook		
	SSD	CF Type II, mSATA (SATA2)		
	CD-ROM Drive Bay	Slim type CD-ROM bay		
Expansion Slot		Either 1 x PCI slot or 1 x PCIe slot, 1 x PCIe Mini card		
System Cooling		Active with fan		
Environment	Operating Temperature	-20°C ~ 60°C	-20°C ~ 60°C	-10°C ~ 50°C
	Storage Temperature	-30°C ~ 70°C	-30°C ~ 70°C	-20°C ~ 60°C

15" Industrial Panel PC

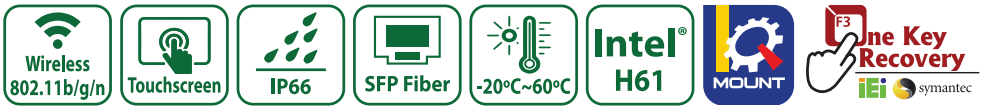
PPC-5150A-H61

Intel® Core™ i7/ i5/ i3, Pentium® and Celeron® Processor



Features

- High brightness TFT-LCD panel with LED backlight
- Multiple storage options: 2.5" SATA HDD, CF slot and mSATA
- Dual Ethernet provides continuous network service and allows sharing among different workgroups in two different subnets
- Optional PCI / PCIe x 1 expansion slot
- Optional slim type CD-ROM drive bay
- Robust aluminum front bezel and metal casing
- IP 66 compliant front panel
- IEI One Key Recovery solution allows you to create rapid OS backup and recovery (over 4GB storage capacity)



Specifications

Model		PPC-5150A-H61
Display	LCD Size	15 "
	Max. Resolution	1024(W) x 768(H)
	Brightness (cd/m²)	450
	Contrast Ratio	800 : 1
	LCD Color	16.2M
	Pixel Pitch (mm) (HxV)	0.297(H) x 0.297(V)
	Viewing Angle (V/H)	150°/160°
	Backlight MTBF (hrs)	50000
Touch	Touchscreen	5-wire resistive type with RS-232 interface
	Touch Controller	DMC 9000
Motherboard	SBC	POS-H61
	CPU	2nd/3rd generation Intel® Core™ i7/ i5/ i3, Pentium® and Celeron® processor, up to TDP 65W CPU
	Chipset	Intel® H61
	RAM	Two 204-pin DDR3 SO-DIMM slots (max. 16GB)
	Ethernet	Realtek RTL8111E PCIe GbE controller supporting ASF 2.0
	Audio Codec	Realtek ALC662 audio codec
I/O Ports and Switches		4 x RS-232 COM port 1 x RS-232/422/485 port 2 x RJ-45 for LAN port 4 x USB 2.0, 2 x USB 3.2 Gen 1 (5Gb/s) on rear 1 x VGA port 1 x Audio (Line-out, MIC-in) 2 x SFP fiber LAN 1 x Power switch 1 x AT / ATX switch 1 x PCI/PCIe slot
Drive Bay	HDD Drive Bay	1 x 2.5" SATA/IDE HDD bay with anti-shock
	SSD	CF Type II, mSATA (SATA2 signal)
	CD-ROM Driver Bay	SATA slim type CD-ROM bay
Expansion Slot		Either 1 x PCI slot or 1 x PCIe slot, 1 x PCIe Mini card
Physical	Front Panel Contruction	Aluminum
	Chassis Construction	Heavy-duty steel
	Mounting	Panel, wall, rack, stand and arm (VESA 100 mm x 100 mm)
	Front Panel Color	Silver (Pantone 8001C)
	Dimensions (WxHxD) (mm)	410 x 309 x 110.5
	Cut Out Dimensions (WxH) (mm)	387 x 286
	Net/Gross Weight	7 kg / 11 kg
Environment	Operating Temperature	-20°C ~ 60°C
	Storage Temperature	-30°C ~ 70°C
	System Cooling	Active with fan
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak
	Shock	10G acceleration part to part (11ms)
	IP Rating	Front IP66 Compliant
Power Supply	AC Input	AC input ATX power supply - P/N: 63030-010220-100-RS - 220W power supply - Input: 90VAC~264VAC, 50/60Hz - Output (max.): 3.3V@10A, 5V@14A, 12V@14A, -12V@0.3A
	DC Input	DC input ATX power supply - P/N: ACE-4520C-RS - 200W power supply - Input: 24 VDC (18~36 VDC) - Output (max.): 3.3V@12A, 5V@12A, 12V@15.4A, -12V@0.5A

Ordering Information

Part No.	Description
PPC-5150A-H61-P/R-R20	15" 450 cd/m² XGA panel PC with POS-H61, Intel® Pentium® G6xxT dual-core CPU (above 2.2GHz), TDP 35W, 2GB DDR3 RAM*2, Silver color, AC input PSU, touch screen, R20
PPC-5150AD-H61-P/R-R20	15" 450 cd/m² XGA panel PC with POS-H61, Intel® Pentium® G6xxT dual-core CPU (above 2.2GHz), TDP 35W, 2GB DDR3 RAM*2, Silver color, PSU ACE-4520C, touch screen, R20
PPC-5150A-H61-i3/R-R20	15" 450 cd/m² XGA panel PC with POS-H61, Intel® Core™ i3 2xxxT dual-core CPU (above 2.5GHz), TDP 35W, 2GB DDR3 RAM*2, Silver color, AC input PSU, touch screen, R20
PPC-5150AD-H61-i3/R-R20	15" 450 cd/m² XGA panel PC with POS-H61, Intel® Core™ i3 2xxxT dual-core CPU (above 2.5GHz), TDP 35W, 2GB DDR3 RAM*2, Silver color, PSU ACE-4520C, touch screen, R20
PPC-5150A-H61-i5/R-R20	15" 450 cd/m² XGA panel PC with POS-H61, Intel® Core™ i5 2xxxT dual-core CPU (above 2.7GHz), TDP 35W, 2GB DDR3 RAM*2, Silver color, AC input PSU, touch screen, R20
PPC-5150AD-H61-i5/R-R20	15" 450 cd/m² XGA panel PC with POS-H61, Intel® Core™ i5 2xxxT dual-core CPU (above 2.7GHz), TDP 35W, 2GB DDR3 RAM*2, Silver color, PSU ACE-4520C , touch screen, R20
PCIR-01H-R10	One PCI slot riser card
PCIER-101H-R10	One PCIe x1 slot riser card

IQ Mounting Options

Item	Part No.
Rack Mount Kit	RK-150MS-R10
Arm	ARM-31-RS
Stand	STAND-210-R11

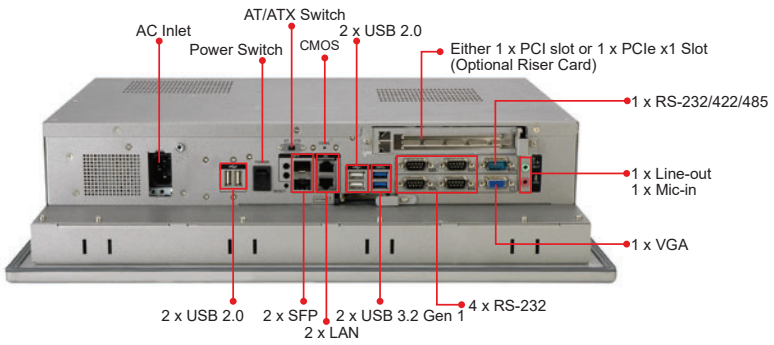
Options

Item	Description
EMB-WIFI-KIT01-R20	Wi-Fi module with RF cable and antenna, 1T1R, 802.11b/g/n
73400-AD7760H01-RS	Slim type SATA DVD-ROM

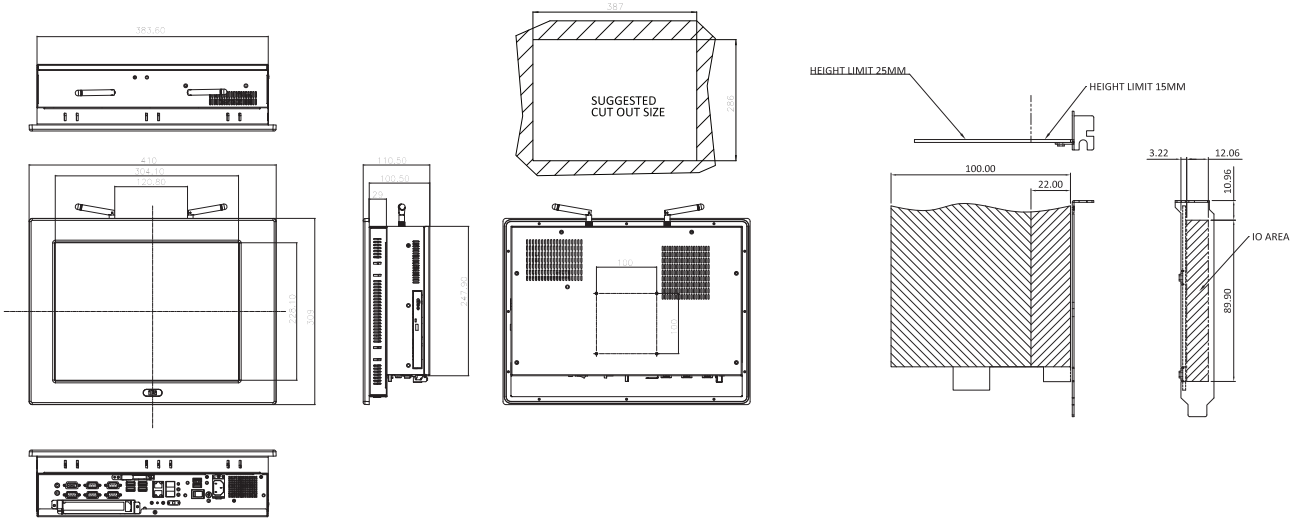
Packing List

Item	Part No.	Remark
SATA CD-ROM Cable	32803-000300-100-RS	Slim-line SATA 7+6P to SATA 7P/4P power, L=200/150 mm
Power Cord	32000-000002-RS	European standard, 1830 mm, plug (16A, 250V), connector (10A, 250V)
Panel Mount Kit	19Z00-000024-RS	19Z00-000024-RS x8
Wall Mount Kit	41020-016102-00-RS	

Fully Integrated I/O



PPC-5150A-H61 Dimensions *(Unit: mm)*



17" Industrial Panel PC

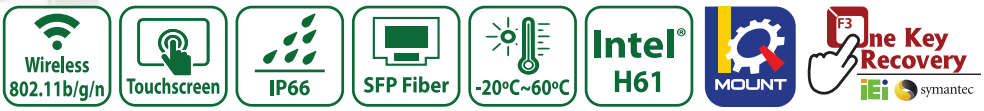
PPC-5170A-H61

Intel® Core™ i7/ i5/ i3, Pentium® and Celeron® Processor



Features

- High brightness TFT-LCD panel with LED backlight
- Multiple storage options: 2.5" SATA HDD, CF slot, and mSATA
- Dual Ethernet provides continuous network service and allows sharing among different workgroups in two different subnets
- Optional PCI / PCIe x1 expansion slot
- Optional slim type CD-ROM drive bay
- Robust aluminum front bezel and metal casing
- IP 66 compliant front panel for PPC-5170A-H61
- IEI One Key Recovery solution allows you to create rapid OS backup and recovery (over 4GB storage capacity)



Specifications

Model		PPC-5170A-H61
Display	LCD Size	17"
	Max. Resolution	1280(W) x 1024(H)
	Brightness (cd/m²)	350
	Contrast Ratio	800 : 1
	LCD Color	16.7M
	Pixel Pitch (mm) (HxV)	0.264(H) x 0.264(V)
	Viewing Angle (V/H)	170°/ 160°
	Backlight MTBF (hrs)	50000
Touch	Touchscreen	5-wire resistive type with RS-232 interface
	Touch Controller	DMC 9000
Motherboard	SBC	POS-H61
	CPU	2nd/3rd generation Intel® Core™ i7/ i5/ i3, Pentium® and Celeron® processor, up to TDP 65W CPU
	Chipset	Intel® H61
	RAM	Two 204-pin DDR3 SO-DIMM slots (Max. 16GB)
	Ethernet	Realtek RTL8111E PCIe GbE controller supporting ASF 2.0
	Audio Codec	Realtek ALC662 audio codec
I/O Ports and Switches		4 x RS-232 COM port 1 x RS-232/422/485 port 2 x RJ-45 for LAN port 4 x USB 2.0, 2 x USB 3.2 Gen 1 (5Gb/s) on rear 1 x VGA port 1 x Audio (Line-out, MIC-in) 2 x SFP fiber LAN 1 x Power switch 1 x AT/ATX switch 1 x PCI/PCIe slot
Drive Bay	HDD Driver Bay	1 x 2.5" SATA HDD bay with anti-shock
	SSD	CF Type II, mSATA (SATA2 signal)
	CD-ROM Driver Bay	SATA slim type CD-ROM bay
Expansion Slot		Either 1 x PCI slot or 1 x PCIe slot
		1 x PCIe Mini card
Physical	Front Panel Contruction	Aluminum
	Chassis Construction	Heavy-duty steel
	Mounting	Panel, wall, rack, stand and arm (VESA 100 mm x 100 mm)
	Front Panel Color	Silver (Pantone 8001C)
	Dimensions (WxHxD) (mm)	452 x 356 x 115
	Cut Out Dimensions (WxH) (mm)	426 x 331
	Net/Gross Weight	8 kg / 12 kg
	IP Rating	Front IP66 compliant
Environment	Operating Temperature	-20°C ~ 60°C
	Storage Temperature	-30°C ~ 70°C
	System Cooling	Active with fan
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak
	Shock	10G acceleration part to part (11ms)
Power Supply	AC Input	AC input ATX power supply - P/N: 63000-ACEA622A166-RS - 220W power supply - Input: 90VAC~264VAC, 50/60Hz - Output (max.): 3.3V@14A, 5V@16A, 12V@10A, -12V@0.8A
	DC Input	DC input ATX power supply - P/N: ACE-4520C-RS - 200W power supply - Input: 24 VDC (18~36 VDC) - Output (max.): 3.3V@12A, 5V@12A, 12V@15.4A, -12V@0.5A

Ordering Information

Part No.	Description
PPC-5170A-H61-P/R-R10	17" 350 cd/m² SXGA panel PC with POS-H61, Intel® Pentium® G6xxT dual-core CPU (above 2.2GHz), TDP 35W, 2GB DDR3 RAM*2, Silver color, PSU ACE-A622A, touch screen, RoHS
PPC-5170AD-H61-P/R-R10	17" 350 cd/m² SXGA panel PC with POS-H61, Intel® Pentium® G6xxT dual-core CPU (above 2.2GHz), TDP 35W, 2GB DDR3 RAM*2, Silver color, PSU ACE-4520C, touch screen, RoHS
PPC-5170A-H61-i3/R-R10	17" 350 cd/m² SXGA panel PC with POS-H61,Intel® Core™ i3 2xxxT dual-core CPU (above 2.5GHz), TDP 35W, 2GB DDR3 RAM*2, Silver color, PSU ACE-A622A, touch screen, RoHS
PPC-5170AD-H61-i3/R-R10	17" 350 cd/m² SXGA panel PC with POS-H61, Intel® Core™ i3 2xxxT dual-core CPU (above 2.5GHz), TDP 35W, 2GB DDR3 RAM*2, Silver color, PSU ACE-4520C, touch screen, RoHS
PPC-5170A-H61-i5/R-R10	17" 350 cd/m² SXGA panel PC with POS-H61, Intel® Core™ i5 2xxxT dual-core CPU (above 2.7GHz), TDP 35W, 2GB DDR3 RAM*2, Silver color, PSU ACE-A622A, touch screen, RoHS
PPC-5170AD-H61-i5/R-R10	17" 350 cd/m² SXGA panel PC with POS-H61, Intel® Core™ i5 2xxxT dual-core CPU (above 2.7GHz), TDP 35W, 2GB DDR3 RAM*2, Silver color, PSU ACE-4520C, touch screen, RoHS
PCIR-01H-R10	One PCI slot riser card
PCIER-101H-R10	One PCIe x1 slot riser card

IQ Mounting Options

Item	Part No.
Rack Mount Kit	RK-170MS-R10
Arm	ARM-31-RS
Stand	STAND-210-R11

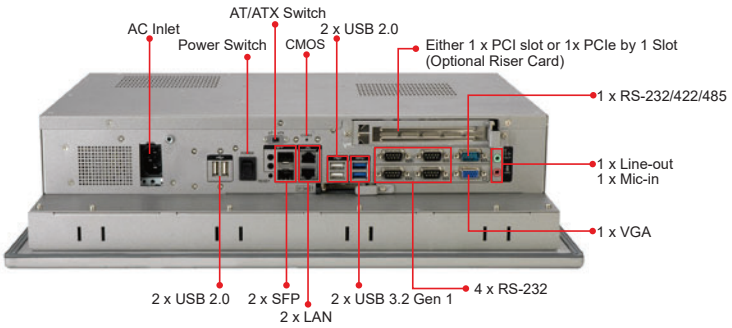
Options

Part Number	Description
19Z00-000112-RS	IDE CD-ROM installation kit (W/O IDE cable)
41019-0393C0-00-RS	IDE HDD bracket
32200-000037-RS	25cm HDD IDE cable
EMB-WIFI-KIT01-R20	Wi-Fi module with RF cable and antenna
73400-AD7760H01-RS	Slim type SATA DVD-ROM

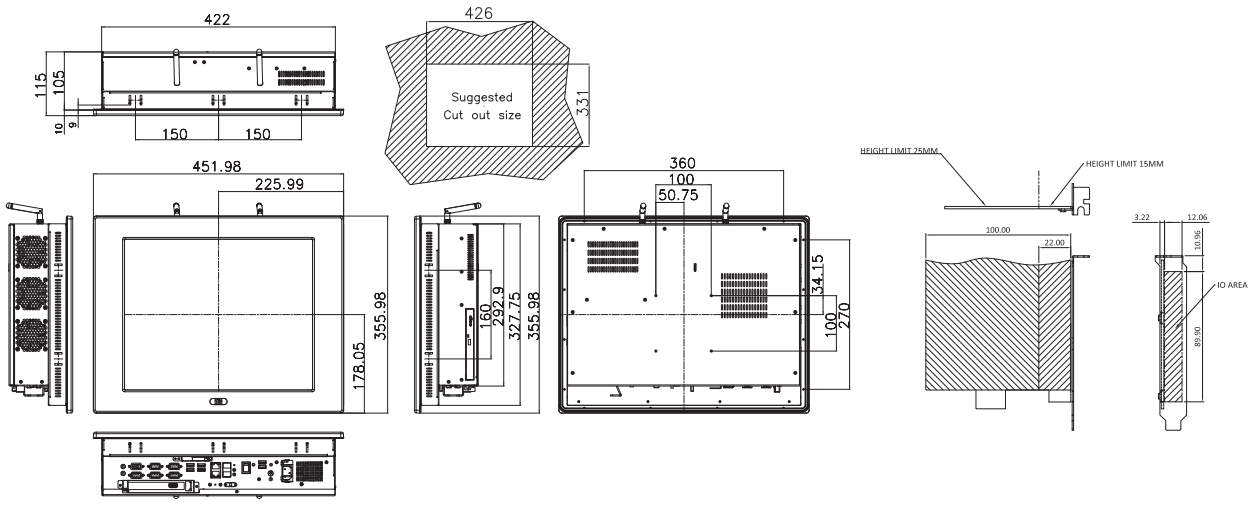
Packing List

Item	Part No.	Remark
SATA CD-ROM Cable	32803-000300-100-RS	Slim-line SATA 7+6P to SATA 7P/4P power, L=200/150 m
Power Cord	32000-000002-RS	European standard, 1830 mm, plug (16A, 250V), connector (10A, 250V)
Panel Mount Kit	19Z00-000024-RS	19Z00-000024-RS x10
Wall Mount Kit	41020-016102-00-RS	

Fully Integrated I/O



PPC-5170A-H61 Dimensions (Unit: mm)



19" Industrial Panel PC

PPC-5190A-H61

Intel® Core™ i7/ i5/ i3, Pentium® and Celeron® Processor



Features

- High brightness TFT-LCD panel with LED backlight
- Multiple storage options: 2.5" SATA HDD, CF slot, and mSATA
- Dual Ethernet provides continuous network service and allows sharing among different workgroups in two different subnets
- Optional PCI / PCIe x1 expansion slot
- Optional slim type CD-ROM drive bay
- Robust aluminum front bezel and metal casing
- IP 66 compliant front panel for PPC-5190A-H61
- IEI One Key Recovery solution allows you to create rapid OS backup and recovery (Over 4GB storage capacity)

Wireless 802.11b/g/n | Touchscreen | IP66 | SFP Fiber | -10°C~50°C | Intel® H61 | MOUNT | F3 One Key Recovery | iEi symantec

Specifications

Model		PPC-5190A-H61
Display	LCD Size	19"
	Max. Resolution	1280(W) x 1024(H)
	Brightness (cd/m²)	350
	Contrast Ratio	1000 : 1
	LCD Color	16.7M
	Pixel Pitch (mm) (HxV)	0.294(H) x 0.294(V)
	Viewing Angle (V/H)	160°/ 170°
	Backlight MTBF (hrs)	50,000
Touch	Touchscreen	5-wire resistive type with RS-232 interface
	Touch Controller	DMC 9000
Motherboard	SBC	POS-H61
	CPU	2nd/3rd generation Intel® Core™ i7/ i5/ i3, Pentium® and Celeron® processor, up to TDP 65W CPU
	Chipset	Intel® H61
	RAM	Two 204-pin DDR3 SO-DIMM slots (max. 16GB)
	Ethernet	Realtek RTL8111E PCIe GbE controller supporting ASF 2.0
	Audio Codec	Realtek ALC662 audio codec
I/O Ports and Switches		4 x RS-232 COM port 1 x RS-232/422/485 port 2 x RJ-45 for LAN port 4 x USB 2.0, 2 x USB 3.2 Gen 1 (5Gb/s) on rear 1 x VGA port 1 x Audio (Line-out, MIC-in) 2 x SFP fiber LAN 1 x Power switch 1 x AT / ATX switch 1 x PCI/PCIe slot
Drive Bay	HDD Driver Bay	1 x 2.5" SATA HDD bay with anti-shook
	SSD	CF Type II, mSATA (SATA2 signal)
	CD-ROM Driver Bay	Slim type CD-ROM bay
Expansion Slot		Either 1 x PCI slot or 1 x PCIe slot 1 x PCIe Mini card
Physical	Front Panel Contruction	Aluminum
	Chassis Construction	Heavy-duty steel
	Mounting	Panel, wall, rack, stand and arm (VESA 100 mm x 100 mm)
	Front Panel Color	Silver (Pantone 8001C)
	Dimensions (WxHxD) (mm)	482 x 399 x 115
	Cut Out Dimensions (WxH) (mm)	450 x 363
	Net/Gross Weight	12.6 kg / 18.2 kg
Environment	Operating Temperature	-10°C ~ 50°C
	Storage Temperature	-20°C ~ 60°C
	System Cooling	Active with Fan
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak
	Shock	10G acceleration part to part (11ms)
	IP Rating	Front IP66 compliant
Power Supply	AC Input	AC input ATX power supply - P/N: 63000-ACEA622A166-RS - 220W power supply - Input: 90VAC~264VAC, 50/60Hz - Output (max.): 3.3V@14A, 5V@16A, 12V@10A, -12V@0.8A
	DC Input	DC input ATX power supply - P/N: ACE-4520C-RS - 200W power supply - Input: 24 VDC (18~36 VDC) - Output (max.): 3.3V@12A, 5V@12A, 12V@15.4A, -12V@0.5A

Ordering Information

Part No.	Description
PPC-5190A-H61-P/R-R10	19" 350 cd/m² SXGA Panel PC with POS-H61, Pentium Dual CoreG6xxT (Above 2.2GHz), TDP 35W, 2GB DDR3 RAM*2, Silver color, PSU ACE-A622A, touch screen, RoHS
PPC-5190AD-H61-P/R-R10	19" 350 cd/m² SXGA Panel PC with POS-H61, Pentium Dual Core G6xxT (Above 2.2GHz), TDP 35W, 2GB DDR3 RAM*2, Silver color, PSU ACE-4520C, touch screen, RoHS
PPC-5190A-H61-i3/R-R10	19" 350 cd/m² SXGA Panel PC with POS-H61, Core i3 Dual Core 2xxxT CPU (Above 2.5GHz), TDP 35W, 2GB DDR3 RAM* 2, Silver color, PSU ACE-A622A, touch screen, RoHS
PPC-5190AD-H61-i3/R-R10	19" 350 cd/m² SXGA Panel PC with POS-H61, Core i3 Dual Core 2xxxT CPU (Above 2.5GHz), TDP 35W, 2GB DDR3 RAM*2, Silver color, PSU ACE-4520C, touch screen, RoHS
PPC-5190A-H61-i5/R-R10	19" 350 cd/m² SXGA Panel PC with POS-H61, Core i5 Dual Core 2xxxTCPU (Above 2.7GHz), TDP 35W, 2GB DDR3 RAM*2, Silver color, PSU ACE-A622A, touch screen, RoHS
PPC-5190AD-H61-i5/R-R10	19" 350 cd/m² SXGA Panel PC with POS-H61, Core i5 Dual Core 2xxxTCPU (Above 2.7GHz), TDP 35W, 2GB DDR3 RAM*2, Silver color, PSU ACE-4520C, touch screen, RoHS
PCIR-01H-R10	1-Slot PCI riser card
PCIER-101H-R10	1-Slot PCIe x 1 riser card

IQ Mounting Options

Item	Part No.
Rack Mount Kit	RK-190MS-R10
Arm	ARM-31-RS
Stand	STAND-210-R11

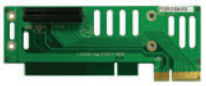
Options

Part Number	Description
EMB-WIFI-KIT11-R20	Wi-Fi module with RF cable and antenna, 1T1R, 802.11b/g/n
73400-AD7760H01-RS	1T1R wifi module kit for embedded system, IEEE802.11a/b/g/n/ac WiFi with Bluetooth 4.0/3.0+HS, 1 x wifi module, 2 x 350mm RF cable, 2 x Antenna, RoHS

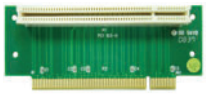
Packing List

Item	Part No.	Remark
SATA CD-ROM Cable	32803-000300-100-RS	Slim-line SATA 7+6P to SATA 7P/4P power, L=200/150 m
Power Cord	32000-000002-RS	European standard, 1830 mm, plug (16A, 250V), connector (10A, 250V)
Panel Mount Kit	19Z00-000024-RS	19Z00-000024-RS x10
Wall Mount Kit	41020-016102-00-RS	

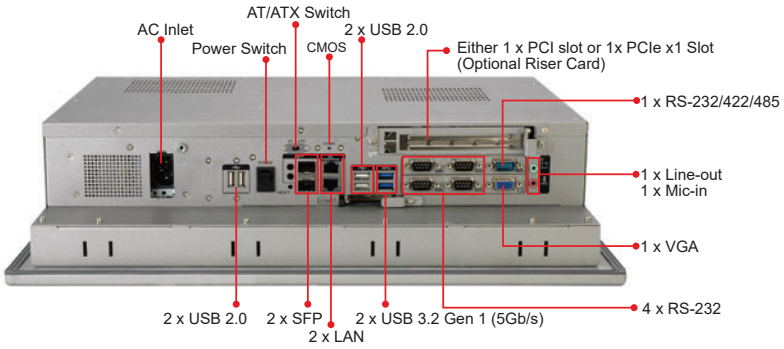
PCIER-101H-R10
PCIe x4 slot with PCIe x1 signal riser card



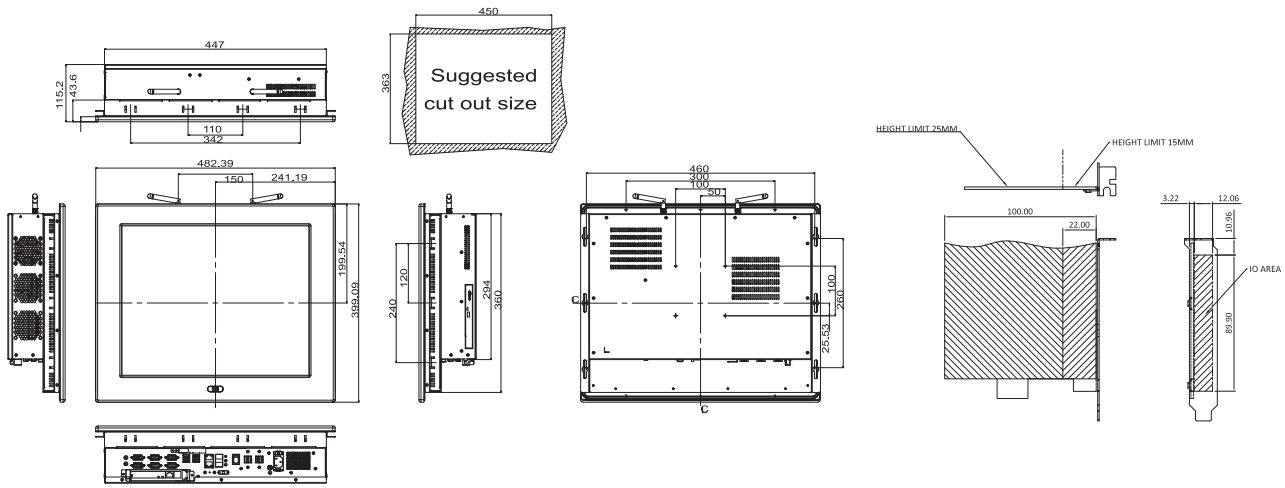
PCIR-01H-R10
One-slot PCI riser card



PPC-5190A-H61 Fully Integrated I/O



PPC-5190A-H61 Dimensions (Unit: mm)



Vertical Market PPC Selection Guide



Marine Series

Model		S19A-QM87	S24A-QM87	S19M	S24M
Display	LCD Size	19”	24”	19”	24”
	Max. Resolution	1280 x 1024	1920 x 1080	1280 x 1024	1920 x 1080
	Brightness (cd/m²)	300	300	300	300
	Contrast Ratio	2000:1	5000:1	2000:1	5000:1
	LCD Color	16.7M	16.7M	16.7M	16.7M
	Pixel Pitch (mm) (HxV)	0.294 x 0.294	276.75 x 276.75	0.294 x 0.294	276.75 x 276.75
	Viewing Angle (V/H)	178° / 178°	178° / 178°	178° / 178°	178° / 178°
	Backlight MTBF (hrs)	50000	50000	50000	50000
Touch	Touchscreen	Projected capacitive touch with USB interface, 6H			
Motherboard	CPU	Intel® 22nm 4th Generation Mobile Core™ i5-4400E 2.7GHz processor		-	-
	Chipset	Intel® QM87	Intel® QM87	-	-
	RAM	Two 204-pin 1600/1333 MHz dual-channel DDR3 SDRAM support up to 16GB		-	-
	Ethernet	GbE1: Intel® I217LM with Intel® AMT 9.0 support GbE2: Intel® I210-AT PCIe controller		-	-
	Audio Codec	N/A	N/A	-	-
I/O Ports and Switches		3 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s) 1 x VGA 1 x DVI-D 1 x HDMI 1 x PS/2 (through Y-type cable supporting KB/MS) 2 x CAN-bus 2.0B, 3-pin terminal block (2.5KV isolation protection) 1 x DB-9 RS-232 (non-isolated) , 4 x DB-9 RS-232/422/485 (2.5KV isolation protection) 2 x RJ-45 GbE LAN with teaming support (2KV isolation protection) 1 x Mic-in 1 x Line-out 1 x Line-in 2 x Antenna SMA hole (reserved) 1 x Isolated 9V ~ 36V DC 3-pin terminal block 1 x Power button		• DVI-D Signal Input: 2 x DVI (24-pin, female) • VGA Signal Input: 2 x D-sub (15-pin, female) • VGA Signal Output: 1 x D-sub (15-pin, female) - Clone of VGA IN* • Composite Video Input: 1 x BNC connector (female) Composite Video Output: 1 x BNC connector (female) • RS-232/422/485 for remote control (Non-isolated) • Touchscreen: 1 x USB Type A connector (female) • Ethernet: 1 x RJ-45 connector for remote control • Isolated AC Power Inlet: 100V~240V AC • Isolated DC Terminal Block: 18V~36V DC • 1 x Buzzer	
Drive Bay	HDD Driver Bay	-	-	-	-
	SSD	2 x SSD Bay & 1 x CFast	2 x SSD Bay & 1 x CFast	-	-
Expansion Slot		2 x PCIe Mini card	2 x PCIe Mini card	-	-
System Cooling		Fanless	Fanless	Fanless	Fanless
Environment	Operating Temperature	-15°C to 55°C (5% to 95% RH)			
	Storage Temperature	-20°C to 60°C			
IP Rating		Front IP 66 / Rear IP 22			

Vertical Market PPC Selection Guide





IP69K Series

Model		UPC-F12C-ULT3	INOX-F15C-ULT3
Display	LCD Size	12.1"	15"
	Max. Resolution	1024 x 768	1024(W) x 768(H)
	Brightness (cd/m²)	600	450
	Contrast Ratio	700 : 1	800 : 1
	LCD Color	16.2M	16.2M
	Pixel Pitch (mm) (HxV)	0.240 (H) x 0.240 (V)	0.297 (H) x 0.297 (V)
	Viewing Angle (V/H)	160° / 140°	160°/ 150°
	Backlight MTBF (hrs)	50000	70000
Touch		P-CAP / Resistive Touc	P-CAP / Resistive Touch
Motherboard	CPU	6th Generation Intel® Core™ i5 and Celeron® ULT Processor	6th Generation Intel® Core™ i5 and Celeron® ULT Processor
	Chipset		
	RAM	1 x 260-pin 2133/1867 MHz single-channel DDR4 SO-DIMMs (system max. 32GB)	2 x 260-pin 2133/1867 MHz Dual-channel DDR4 SO-DIMMs (system max. 32GB)
	Ethernet	LAN1: PCIe GbE by Intel I210 controller LAN2: PCIe GbE by Intel I211 controller	2 x PCIe GbE by Intel I210 controller
	Audio Codec	Realtek ALC892 audio codec	Realtek ALC892 audio codec
I/O Ports and Switches		M12 Type: 1 x 8-pin M12 connector for RS-232 1 x 8-pin M12 connector for RS-232/422/485 1 x 8-pin M12 connector for GbE LAN 2 x 8-pin M12 connector for USB2.0 x2 1 x 5-pin M12 connector for DC Jack (12~36V DC) Standard Type: 1 x DC Jack (12V-36V DC) 1 x DC in Terminal Block (12V-36V DC) 1 x HDMI 1 x VGA 1 x RS-232 (COM1 RJ-45) 1 x RS-232/422/485 (COM2 RJ-45) 2 x LAN 2 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s)	2 x 8-pin M12 connector for RS-232/422/485 2 x 8-pin M12 X-Code connector for GbE LAN 2 x 8-pin M12 connector for 2*USB2.0 1 x 5-pin M12 connector for DC Jack (9-36V DC) 1 x Power switch with power led indicator 1 x Pressure relief valve
Drive Bay	HDD Driver Bay	1 x 2.5" SATA SSD bay	SATA SSD
	SSD	1 x M.2 (B key 2242 with USB 2.0 and SATA signal)	1 x mSATA / 1 x M.2 B-key (2242/2260/2280)
Expansion Slot		1 x Full-size/half-size mini PCIe card slot (PCie x1 and USB 2.0 signal)	1 x Full size mini PCIe card slot (SATA 6G/s) 1 x Full-size/half-size (PCIex1 and USB 2.0 signal) 1 x B key M.2 slot (2242/2260/2280 with USB 3.2 Gen 1 (5Gb/s), PCIe x2 ,SATA signal)
System Cooling		Fanless	Fanless
Environment	Operating Temperature	-20°C ~ 60°C (without heater solution) -40°C ~ 60°C (with heater solution)	-20°C ~ 50°C
	Storage Temperature	-40°C ~ 70°C	-30°C ~ 60°C
IP Rating		Full IP65 or Full IP66 (with M12 connectors)	Front IP69K/ Others IP66

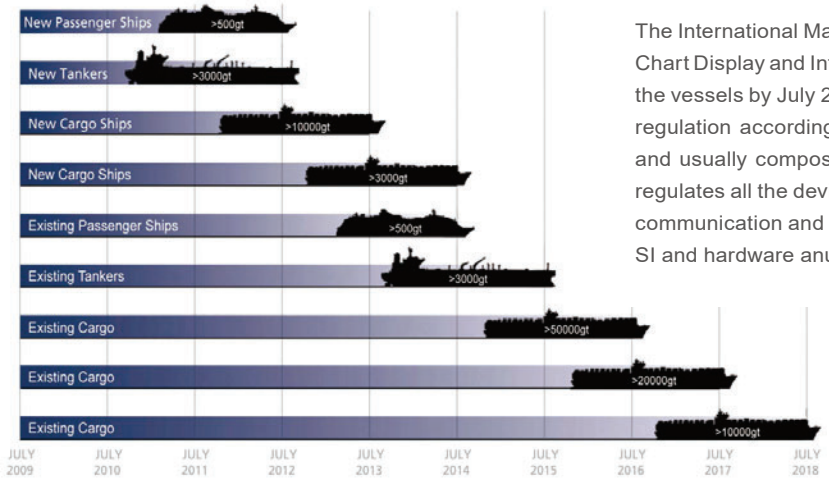
Marine Series

The maritime field faces critical environmental challenges, making reliable and rugged systems essential. IEI provides maritime professionals and marine-grade panel PCs and monitors and embedded box that use leading technologies and reliable designs which are perfect for applications on the dock, on the open deck, or in the control room or bridge.

iRIS™ IPMI 2.0 Compliant

DNV IEC 60945 IACS-E10

ECDIS Implementation Schedule

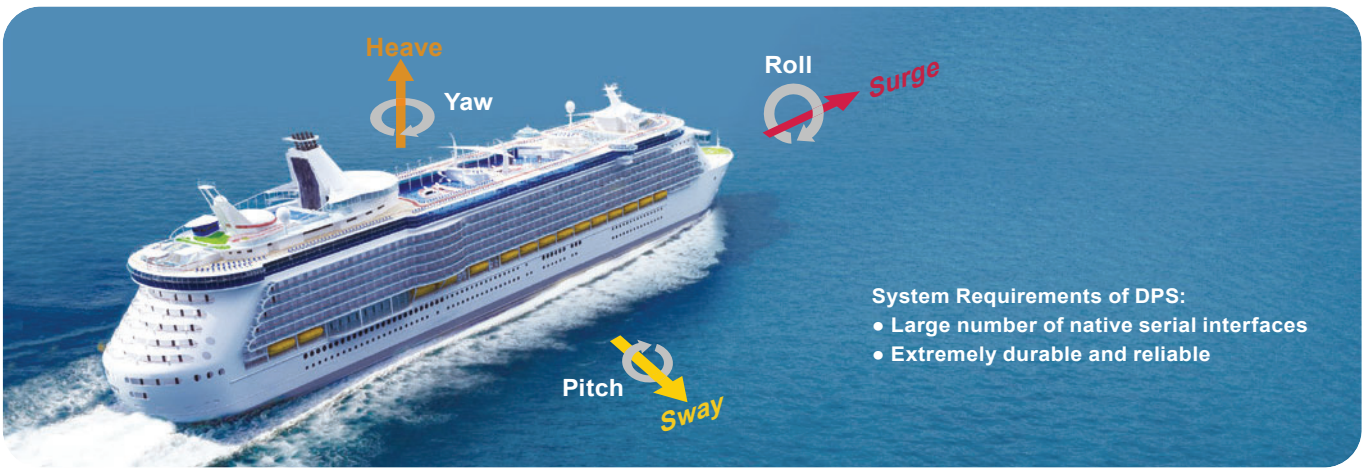


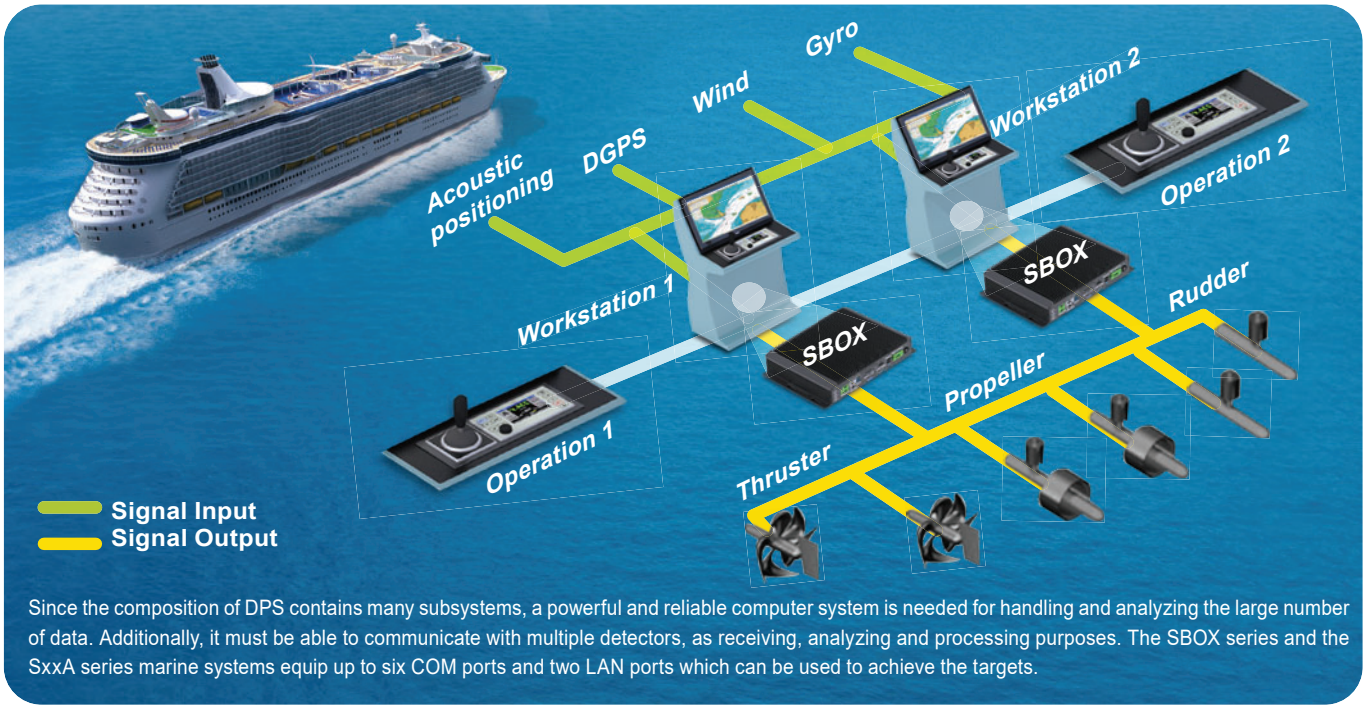
The International Maritime Organization (IMO) has announced that Electronic Chart Display and Information System (ECDIS) should be implemented into all the vessels by July 2018. Both new ships and existing ships should follow this regulation according to the timetable. The bridge systems are complicated and usually composed of multiple sub-systems. ECDIS clearly defines and regulates all the devices and connections, which include data collection, data communication and color calibration. Therefore, this is a huge opportunity for SI and hardware anufacturers.

Dynamic Position System (DPS)

Dynamic Positioning System (DPS) is a closed-loop control system. It is driven by the control system of the ship to counteract the environmental forces to the ship, such as wind, waves and ocean currents. This mechanism could make ship remain in the position on the sea. DPS precisely calculates the propellant force by continuously monitoring the ship position deviation and analyzing the natural forces which could affect ship's navigation direction. This process could make the ship remain in the correct position and maintain the right direction.

DPS is commonly used at various marine applications, such as subsea engineering work, underwater salvage, marine resources survey, marine engineering lifting, marine engineering umbilical laying, deep diving support, underwater engineering operations and marine engineering comprehensive test. DPS consists of measurement systems, control systems, power systems and propulsion systems, and other components. DPS possesses many functions which include maintaining the specified location, targeting, automatic searching for the best bow position, turning point tracking, ROV automatic tracking, changing the center of rotation, automatic navigation, parallel movement and other functions.

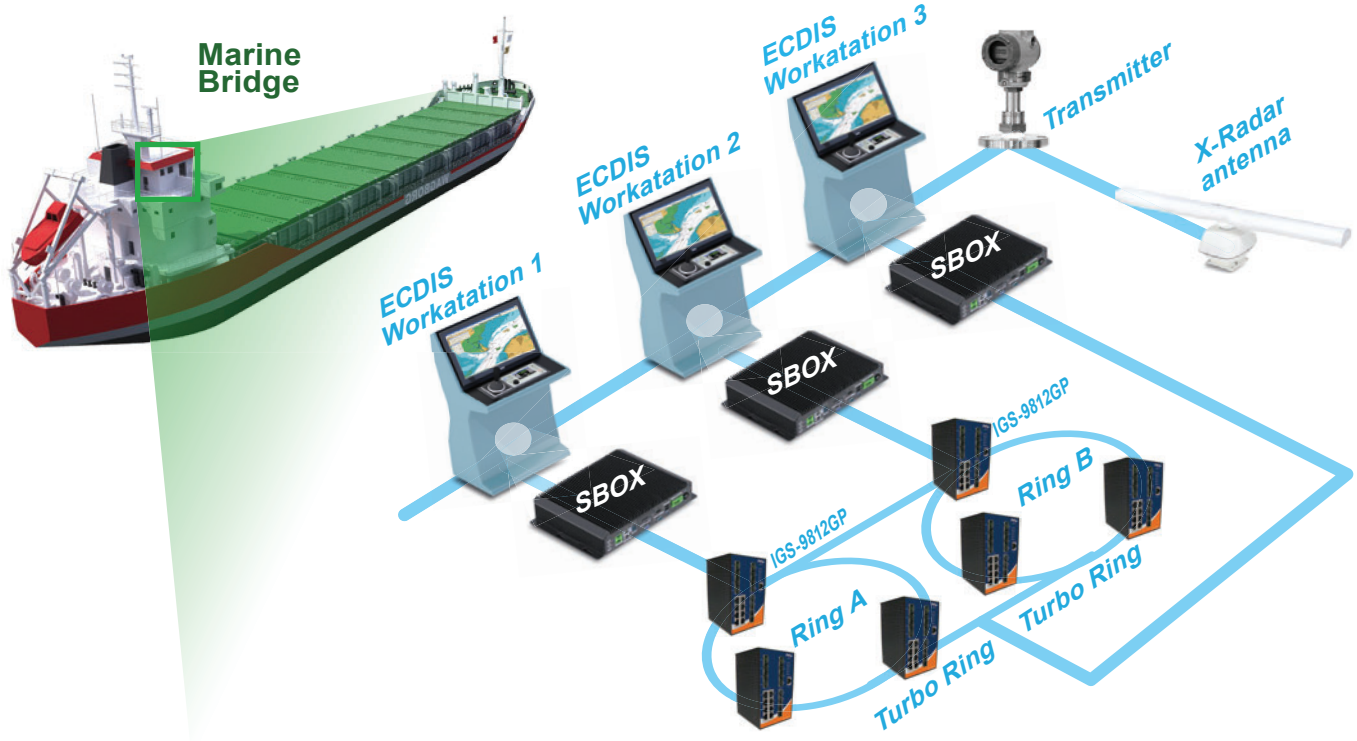




Since the composition of DPS contains many subsystems, a powerful and reliable computer system is needed for handling and analyzing the large number of data. Additionally, it must be able to communicate with multiple detectors, as receiving, analyzing and processing purposes. The SBOX series and the SxxA series marine systems equip up to six COM ports and two LAN ports which can be used to achieve the targets.

Electronic Chart Display and Information System (ECDIS)

The bridge system usually needs to collect and analyze many observation data, including anemometer stations, speed logs, weather stations and GPS signal. In order to precisely observe the changing walruses, the sensors are usually located at the top of ship or in the open deck. Therefore, with the long distance communication, these signals and communication paths should all follow specific regulation such as NEMA 0813. There are large amounts of data received at bridge, and they should be carefully processed and precisely analyzed. A powerful and reliable embedded box or panel PC is necessary for this task. IEI marine embedded box, the SBOX series, equips up to six COM ports which can be used to synchronously handle a large amount of data. The system of ship bridge consists of many sub-systems, which includes navigation system, path control system, radar system, etc. Most of them usually have dual system in order to prevent the failure of primary system. Additionally, dual system could also appear the identical information such as sea chart to the captain and pilot simultaneously. In practical application, dual or more LAN ports are necessary for connecting and controlling multiple monitors. The SBOX series and the S24A/S19A series contain six ports and two LAN ports to fulfill the requirements mentioned above.



Marine Panel PC Series

S19A-QM87

Intel® Core™ i5 Dual-core Processor

S24A-QM87

Intel® Core™ i5 Dual-core Processor



- **19" and 24" Fanless Panel PC with 4th Generation Intel® Core™ i5 Dual-core Processor**
- **-15°C ~ +55°C Wide Temperature and IP66 Protection with Flat-bezel Projected Capacitive Touchscreen**
- **Excellent Visual Performance**
  - Three independent displays
  - Full OSD function configuration
  - 0%~100% full range dimming
  - 178°/178° wide viewing angles
  - Optical bonding improves visibility under bright light (optional)
- **Isolation Protection**
  - RS-232/422/485 isolated serial ports
  - Isolated 18V ~ 36V DC input
  - 2 x Isolated CAN-bus 2.0B
- **iRIS Remote Management Module**

iRIS™ IPMI 2.0 Compliant | DNV | IEC 60945 | IACS -E10 | Fanless | Triple Display | Dual GbE

Specifications

Model		S19A-QM87	S24A-QM87
LCD	LCD Size	19"	24"
	Panel Type	PMVA	AMVA
	Max. Resolution	1280 x 1024 (5:4)	1920 x 1080 (16:9)
	Contrast Ratio	2000 : 1	5000 : 1
	Brightness (cd/m²)	300	300
	LCD Color	16.7M	16.7M
	Pixel Pitch (um)	294 x 294	276.75 x 276.75
	Viewing Angles (H-V)	178° / 178°	178° / 178°
	Backlight MTBF (HRs)	50000	50000
Touchscreen & Controller		EEX3188 (10 point) , 6H	EEX3188 (10 point) , 6H
System	SBC Model	SMB-QM87-R10	
	Chipset	Intel® QM87	
	CPU	Intel® 22nm 4th generation Mobile Core™ i5-4400E 2.7GHz processor	
	RAM	4GB 1600MHz DDR3 SDRAM (2GB*2) Two 204-pin 1600/1333 MHz dual-channel DDR3 SDRAM support up to 16GB	
Input Interfaces	I/O Ports & Switch	2 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s) 1 x VGA 1 x DVI-D 1 x HDMI 1 x Mic-in 1 x Line-out 1 x Line-in 2 x Antenna SMA hole (reserved)	1 x Isolated 18V ~ 36V DC 3-pin terminal block 1 x Power button 1 x PS2 (through Y-type cable supporting KB/MS) 2 x CAN-bus 2.0B, 3-pin terminal block (2.5 kv isolation protection) 1 x DB-9 RS-232 (non-isolated) , 4 x DB-9 RS-232/422/485 (2.5 kv isolation protection) 2 x RJ-45 GbE LAN with teaming support (2KV isolation protection)
	Expansion	2 x Full-size PCIe Mini slot, 1 x iRIS-2400 slot (iRIS remote management module)	
Ethernet Controller		GbE1: Intel® I217LM with Intel® AMT 9.0 support GbE2: Intel® I210-AT PCIe controller	
Sensor		Ambient light sensor (0% ~ 100%)	
OSD		Menu, brightness down, brightness up, LCD on/off by cap-sensor (graphics engine: Genesis STDP6038)	
Storage		2 x 2.5" SSD bay with RAID 0/1 function 1 x Accessible CFast socket	
LED Indicator		Power (power on: green; power off: orange)/storage (red, blinking)/IPMI (blue)	
Power Requirement		Isolated 24V DC (18~31.2 V DC), screw-type 3-pin terminal block	
Operating Temperature		-15°C ~ 55°C (5°F ~ 131°F)	
Storage Temperature		-20°C ~ 60°C (-4°F ~ 140°F)	
Humidity		5% to 95% RH	
Thermal Design		Fanless	
Watchdog Timer		Supports 1~255 sec. system reset	
Certifications		EMC: CE, FCC Safety: DNV, IEC 60945 4th, IACS-E10, IEC 61174 IP rating: IP66 compliant front panel and IP22 compliant rear cover	
Housing		Front aluminum sheet metal (Black C)	
Cut-out Dimensions (L x W)		442 mm x 373 mm	576 mm x 358 mm
Dimensions (L x W x H)		463 mm x 394 mm x 113 mm	592 mm x 374 mm x 113 mm
Net Weight (kg)		9.91	13.03
Gross Weight (kg)		13.38	17.19
Vibration and Shock		IEC 60945 / DNV 2.4 compliant / IACS-E10	
Power Supply (DC Input)		DC Input ATX Power Supply - P/N: 041D710-00-101-RS - 150W power supply - Input: 24V DC, 8-4A (max.) - Output (max.): 12V @13A	
Power Consumption		112W	117W

Ordering Information

P/N	Description
S19A-QM87i-i5/PC/4G-R11	19" 300cd/m² SXGA marine panel PC with Intel® Mobile Core™ i5-4400E 2.7GHz CPU, 2*2GB DDR3 RAM, projected capacitive touch screen, isolated 18-36V DC, iRIS-2400 supported, R11
S24A-QM87i-i5/PC/4G-R11	24" 300cd/m² FHD marine panel PC with Intel® Mobile Core™ i5-4400E 2.7GHz CPU, 2*2GB DDR3 RAM, projected capacitive touch screen, isolated 18-36V DC, iRIS-2400 supported, R11

Options

Item	Part No.	Description
Panel Mount Kit	PK-S19A-R10	For S19A
	PK-S24A-R10	For S24A
Desktop Stand	STAND-S24A-R10	For S19A & S24A
Ceiling Mount Kit	CEILMT-S24-R10	For S19A/S24A
HDMI Lockable Kit	HDMI-LK-R10	Universal HDMI Locking Adapter
iRIS Module	iRIS-2400-R10	IPMI 2.0 adapter card with AST2400 BMC chip for DDR3 SO-DIMM socket interface

Packing List

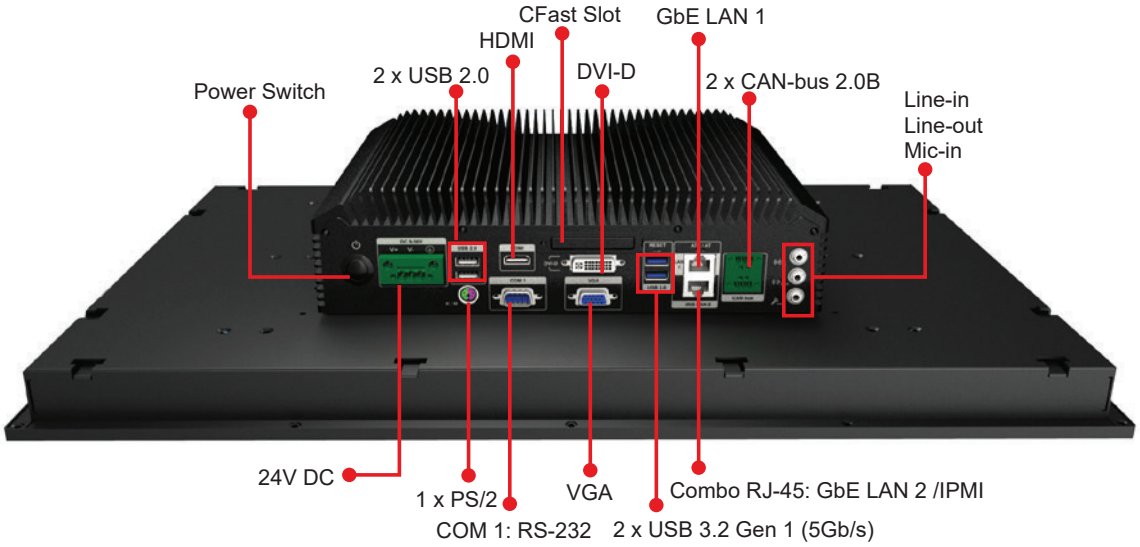
Item	Q'ty	Remark
S19A-QM87 or S24A-QM87	1	
Screw Pack	1	Including necessary screws
PS/2 Cable	1	Round cable; PS/2 cable
Wire Strain Band	3	Wire strain band

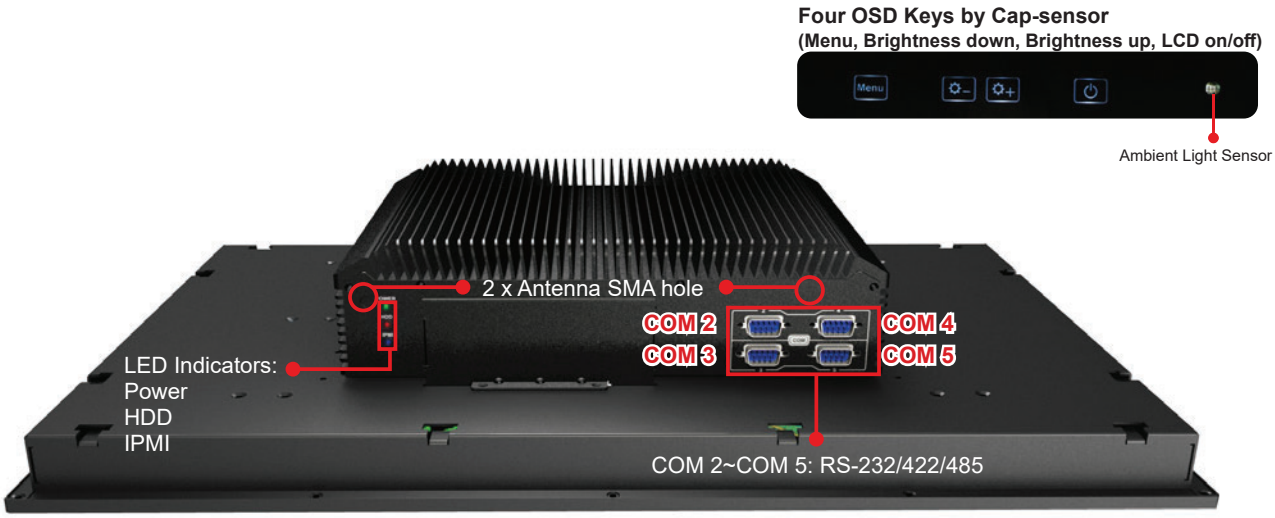


STAND-S24A-R10



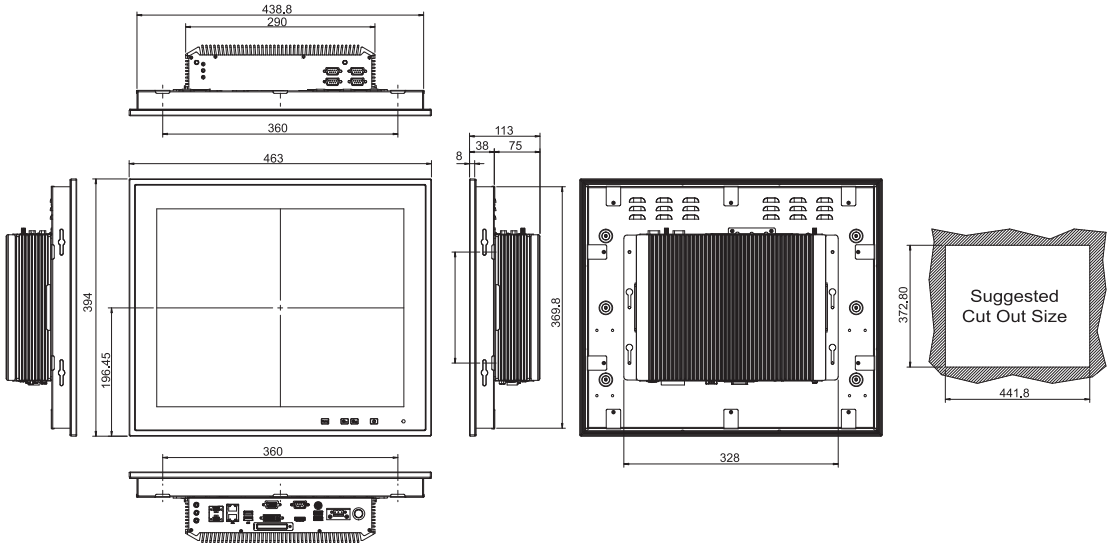
CEILMT-S24-R10





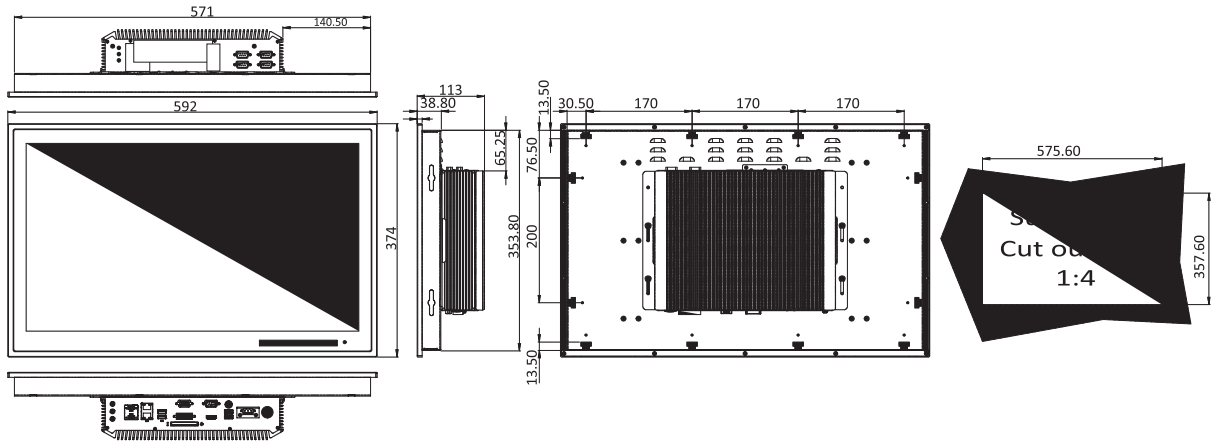
S19A-QM87 Dimensions

(Unit: mm)



S24A-QM87 Dimensions

(Unit: mm)



Marine Embedded Box Series

SBOX-100-QM87

Intel® Core™ i5 Dual-core Processor



Features

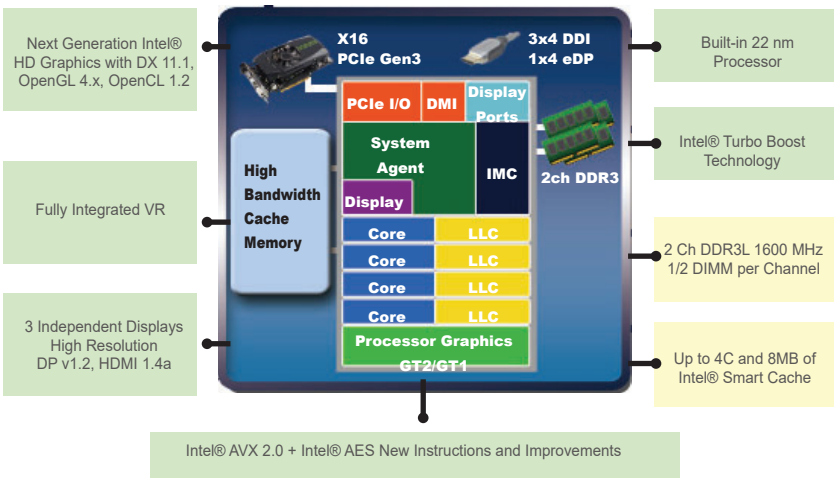
- Fanless marine computer with 4th Generation Intel® Core™ i5 dual-core processor
- -15°C ~ +55°C wide temperature
- Isolation protection
  - » 4 x RS-232/422/485 isolated serial ports
  - » Isolated 18 V~24 V DC input
  - » 2 x Isolated CAN-bus 2.0B
- 2 x 2.5" SSD bay with RAID 0/1 function
- Supports IEI iRIS-2400 (IPMI 2.0 compliant)

QTS-Gateway | IPMI 2.0 Compliant | DNV | Fanless | CAN-Bus | Triple Display | Dual HDD

■ Intel® Core™ i5 High Performance Computing Power in a Fanless Design

IEI's high performance marine solutions are built with the powerful Intel® Core™ i5 CPU within a fanless system architecture. No matter your applications are general marine system management, monitoring or conning systems, radar systems, or ECDIS navigation, IEI's marine computers will give you the most stability than ever.

- Improved CPU performance with Intel® 22nm 4th Generation Mobile Core™ i5-4400E 2.7 GHz processor
- Two 204-pin 1600/1333MHz dual-channel DDR3 SDRAM support up to 16 GB





With IEI's fanless solutions, your vessels can avoid the bothersome of replacement of fan, increasing safety and efficiency for the crew and the entire ship.

Three independent aluminum heat sinks help the heat dissipate averagely, and help the system efficiently achieve wide operating temperature range between -15°C~55°C.

■ 3 independent displays: HDMI, DVI, and VGA

The three simultaneously independent displays are supported via the on-board video output combinations of VGA, DVI and HDMI. This versatile combination of display output options make the marine system ideal for multi-monitor required applications in the bridge room.



■ Multiple Isolated Ports for Comprehensive Protection against Electrical Surges

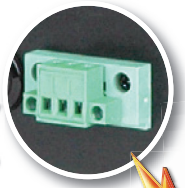
Ground loop and electric surges are common in the marine applications of electronic products due to the dense placement of devices. These stray electrical signals can cause equipment damage or malfunction.



■ 2.5 kV isolation protection on the RS-232/422/485

IEI marine computer is protected from any stray electrical signals from other devices on the ship. Electric surges that were generated from other electronic devices which often passed through serial lines to the marine computer can cause severe damage and malfunction to the computers.



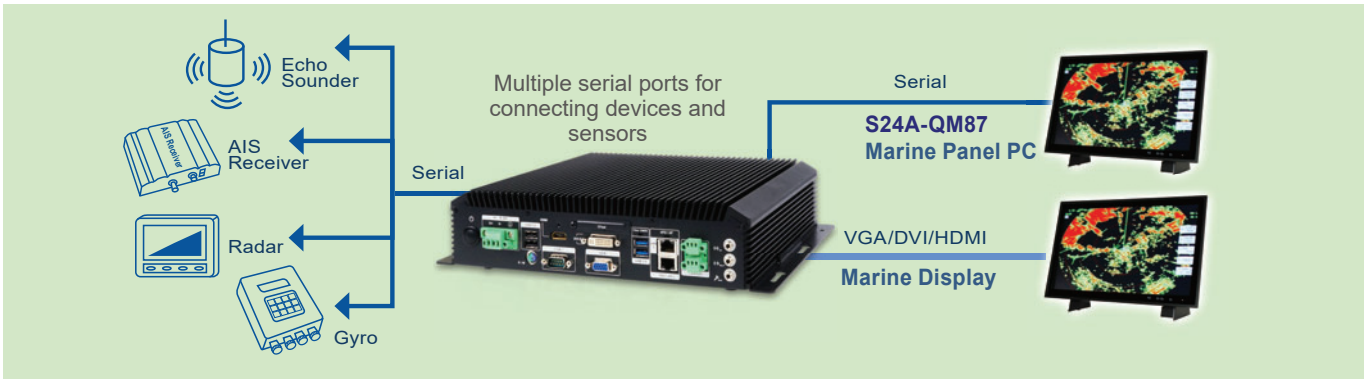


■ Isolated 18 V~24 V DC power 2250 V DC Input to Output Basic Insulation



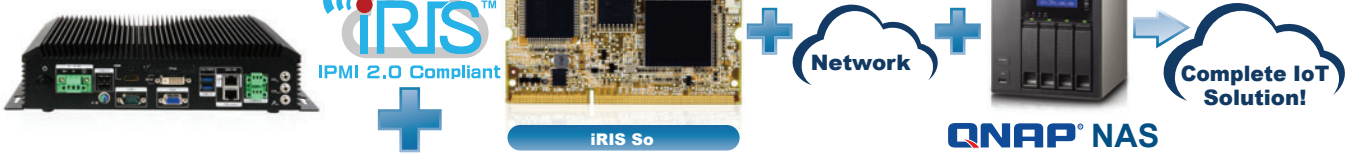
■ Two independent CAN 2.0B channels with 2.5 kV isolation protection

CAN 2.0B is a kind of marine electronic data network for communication between marine electronic devices such as chart plotters, navigation instruments, GPS receivers, etc.



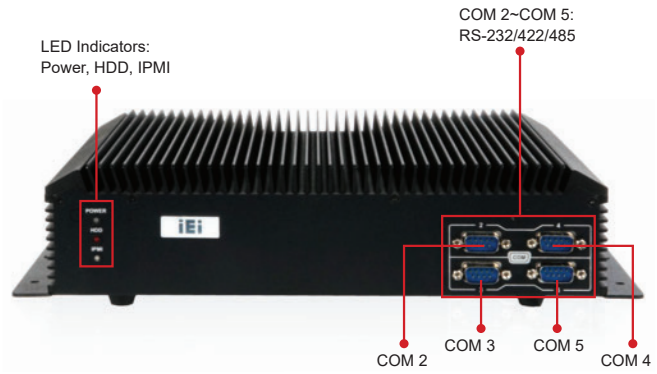
■ IEI Remote Intelligent Management System

The marine computer supports IEI iRIS remote management solution which helps users to manage multiple devices through single management interface and elevates work efficiency. The iRIS solution only requires a module and Internet connection!

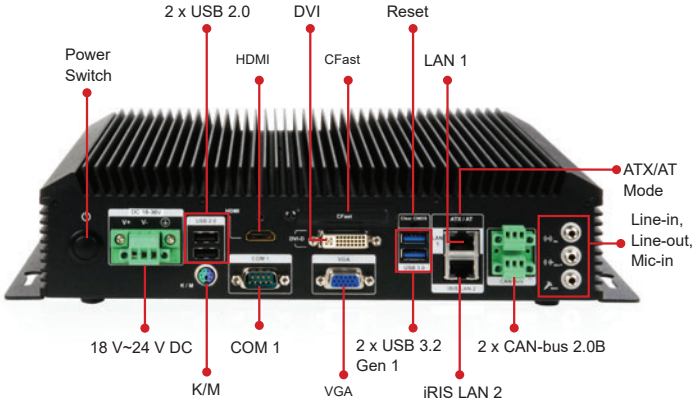


iRIS Key Feature	Detailed Functions	iRIS Key Feature	Detailed Functions
System health monitor	• Hardware monitor • Health log • Event log	**Screen record**	• Remote video streaming record • Event Trigger Setting & video record
Remote system maintenance	• Remote BIOS update • Remote OS recovery • Remote KVM + One Key Recovery • Remote out-off-band backup	**Remote power control**	• Reset Power • Power Off Server – Immediately • Power Off Server – Orderly • Power On Server • Power Cycle Server
Active alert & notice	• Send instant system alerts via e-mail • Send instant system alerts via SMS • Send instant system alerts to management server	**Remote troubleshooting**	• Remote software update • Remote OS installation & recovery • Remote KVM • Post code display
Remote device control	• Fan control • Remote KVM • Remote setting BIOS	**Diagnose before dispatch**	• Health log analysis • Event log analysis
		Group control	• Group control

Front view



Rear view

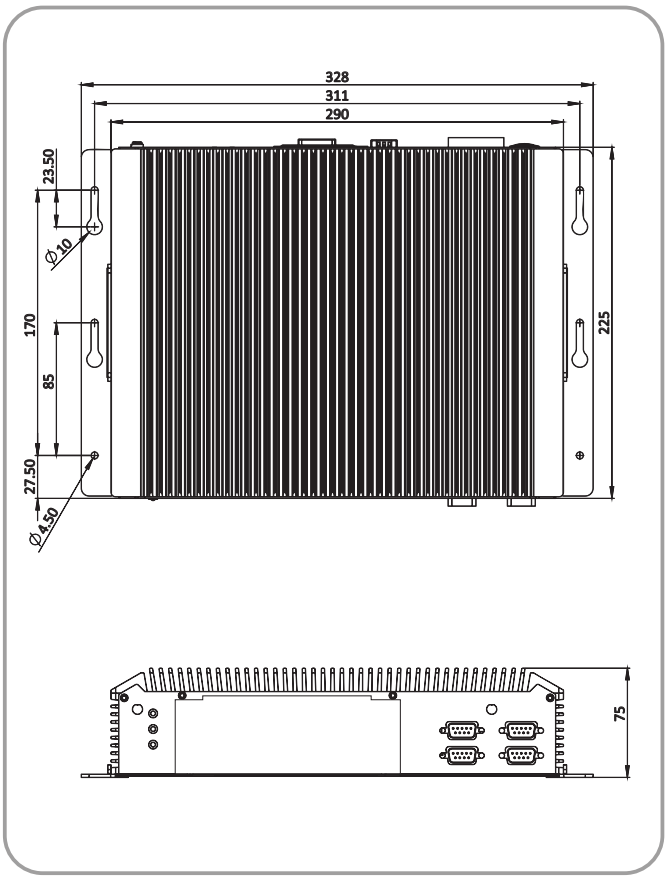


Specifications

Model		SBOX-100-QM87
Chassis	Color	Black
	Dimensions (WxHxD) (mm)	290 x 75 x 225
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	Intel® mobile Core™ i5-4400E (2.7 GHz, 37W)
	Chipset	Intel® QM87
	System Memory	2 x 204-pin DDR3 SO-DIMM slot (system max. 16 GB) Pre-installed 4 GB DDR3 SO-DIMM
IPMI	iRIS Solution	iRIS-2400
Storage	Hard Drive	2 x 2.5" SATA 6Gb/s SSD bay with RAID 0/1 function
	CF Card/CFast	1 x CFast
I/O Interfaces	PS2 (KB/MS)	1
	USB 3.2 Gen 1	2
	USB 2.0	2
	Ethernet	2 x RJ-45 with teaming support 1 x PCIe GbE by Intel® I217LM 1 x PCIe GbE by Intel® I210-AT (2 with 2 kV isolation)
	COM Port	1 x DB-9 (non-isolated) 4 x RS-232/422/485 (with 2.5 kV isolation)
	CAN-bus/OBD-II	2 x CAN-bus (with 2.5 kV isolation)
	Display	1 x VGA, 1 x DVI-D, 1 x HDMI
	Resolution	VGA: Up to 1920 x 1200 @ 60 Hz HDMI: Up to 2500 x 1600 @ 60 Hz DVI-D: Up to 2500 x 1600 @ 60 Hz
	Audio	1 x Line-out, 1 x Line-in, 1 x Mic-in
	Wireless	2 x Antenna SMA hole (reserved)
Expansions	PCIe Mini	2 x Full size*
LED Indicator & Button	Indicator	Power (power on: green, power off: orange), storage (red, blinking), IPMI (blue)
Power	Power Input	Terminal block: Isolated 24V DC (18~31.2 V DC)
	Consumption	100 W (Intel® mobile Core™ i5-4400E with 4 GB DDR3 memory)
Reliability	Mounting	Wall mount
	Operating Temperature	-15°C ~ 55°C (5°F ~131°F) with air flow (SSD)
	Storage Temperature	-20°C ~ 60°C (-4°F ~140°F)
	Humidity	5% ~ 95%, non-condensing
	Operating Shock	IEC 60945 and DNV 2.4 IASC-E10 compliant
	Operating Vibration	
	Weight (Net/Gross)	4.08 kg / 6.03 kg
	Safety/EMC	EMC/CE/FCC/DNV, IEC 60945 4th, IACS-E10, IEC 61174 compliant IP rating: IP22 compliant rear cover
OS	Supported OS	Microsoft® Windows® Embedded 8, Microsoft® Windows® Embedded Standard 7 E

*SBOX-100-QM87i-QGW-R10 has only one Half-size PCIe Mini slot

Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
SBOX-100-QM87i-i5/4G-R10	Fanless marine computer with Intel® Mobile Core™ i5-4400E 2.7 GHz processor, 4 GB DDR3 memory, iRIS-2400 supported, isolated 18 V~36 V DC, R10
SBOX-100-QM87i-QGW-R10	Fanless marine computer with Intel® Mobile Core™ i5-4400E 2.7GHz Processor, DDR3 8GB, iRIS-2400 supported, with QTS-Gateway, isolated 18~36V DC, RoHs

Packing List

Item	P/N	Qty	Remark
PS/2 cable	32006-000300-100-RS	1	PS/2 cable
Rubber pad & screw pack		1	Rubber pad & screw pack

Marine Monitor Series

The marine monitor series possesses many sophisticated features that fit with practical marine environment, including front panel IP 66 dust- and water-proof level, wide-rang operating temperatures, multi-point capacitive touch, wide viewing angles and OSD control. Especially, optical bonding is a good choice for the use of high brightness environments. Versatile mounting ways offer customers flexible methods in accordance with different operating environments.

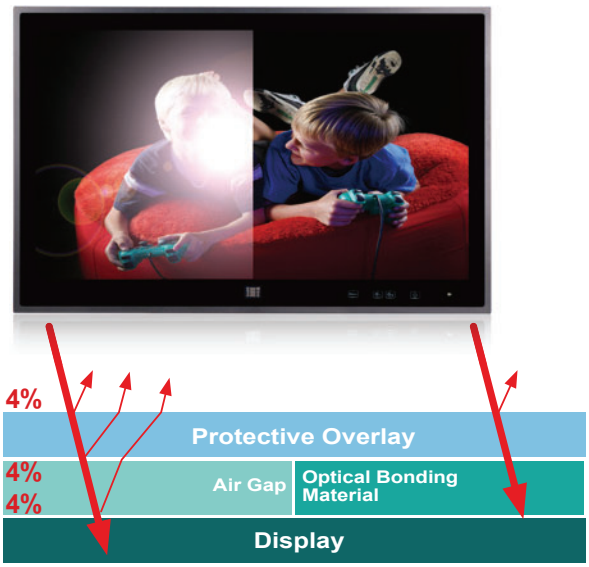
■ Optical Bonding Enhance Visibility (optional)

The lightness is a crucial factor to sailing safety. IEI provides an option for optical bonding between touchscreen and LCD panel. The light transmitting between various medias could produce reflection. Traditionally, there is an air gap between touchscreen and LCD panel, which could reflect light seriously. It could affect the sailing security tremendously. Adding optical bonding material between touchscreen and LCD panel can improve reflection effectively and increase brightness by 10%. Furthermore, it not only increases hardness of touchscreen but also reduces power consumption.

Improving the viewing experience
- Increase contrast ratio by 400% in sunlight
- Increase brightness by 10%

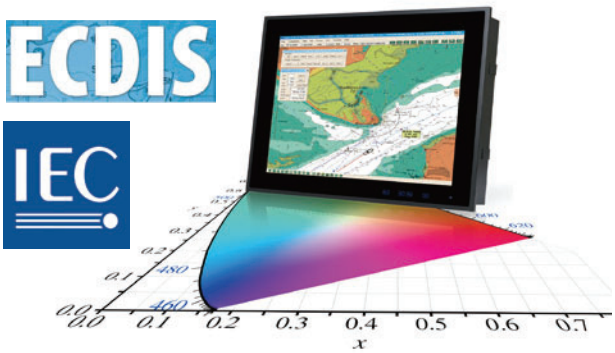
Increasing the display ruggedness
- Increase the falling ball impact resistance by up to 3 times

Reduced power consumption
- By reducing the light loss due to reflection



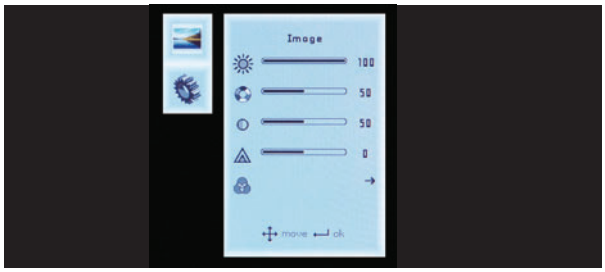
■ ECDIS (optional)

For industrial and commercial applications, color rendering accuracy and consistency are absolutely essential. The human eye is generally likely to be impacted by environment and misled presentation of colors in the brain. The maritime environment is much more ruggedized compared with general industrial environment. The requirements for the degree of light and dark and color of accuracy are more stringent. Color calibration technology ensures that monitor would effectively show the largest accuracy and minimum deviation of artificial color. IEI marine monitors and panel PCs follow the IEC 61174 ECDIS regulation. It is performed by monitoring up to N checkpoints and measuring the color and brightness of the display. After precisely calculating and highly reliable calibrating, the profile matrix will be stored in the firmware of monitor. The monitors (PPCs) compliant with ECDIS specifications will provide a more safe and secure maritime environment.



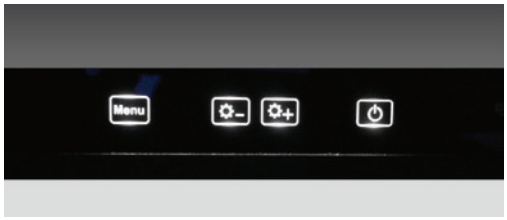
■ Adjustable LCD Brightness and Auto-Dimming Available

The auto-dimming function could slightly modify LCD brightness according to ambient light. To consider the safety of navigation and operators' eye comfort, both LCD brightness and OSD brightness are designed to be programmable.



■ OSD Control on Front Panel

On Screen Display (OSD) offers customers a quick way to modify the LCD brightness. In contrary to traditional tuner, the full flat OSD design not only features beautiful outward appearance but also improves the shortcoming of dust accumulation in physical button.



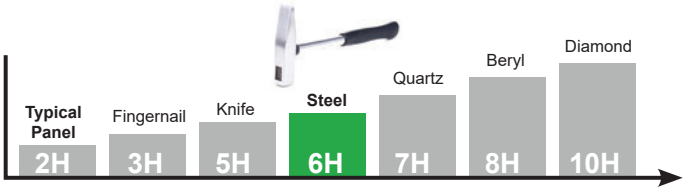
■ Lockable HDMI Cable Support (optional)

The lockable HDMI cable design not only increase reliability but also reduces the possibilities of accidental human errors. Therefore, important information could be displayed continuously.



■ 6H Multiple Projected Capacitive Touchscreen

The IEI marine products provide capacitive multi-touch up to 10 points (2-point on 24" model). In practical applications, 10-point touch can simulate engine button and pump switch so that there will be less real buttons. This can enhance the reliability of marine infrastructure.



MOH's Hardness Rating



6H 10-point Touch for S19M



6H 2-point Touch for S24M

■ Picture-in-Picture (PIP) Function & Surveillance Application

Picture-in-Picture function offers high efficiency to surveillance. You can monitor the radar information and observe surveillance video simultaneously. Simply connect BNC camera to BNC input port and link DVR to BNC output port. Therefore, you can monitor and record at the same time, and the record can be saved for further use.

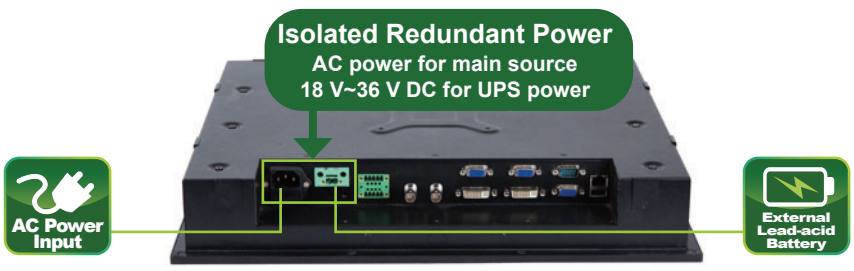


PIP Matching Table

		Main Channel				
		VGA1	VGA2	DVI1	DVI2	CVBS1
Sub Channel	VGA1	X		X	X	X
	VGA2		X	X	X	X
	DVI1	X	X	X		X
	DVI2	X	X		X	X
	CVBS1	X	X	X	X	X

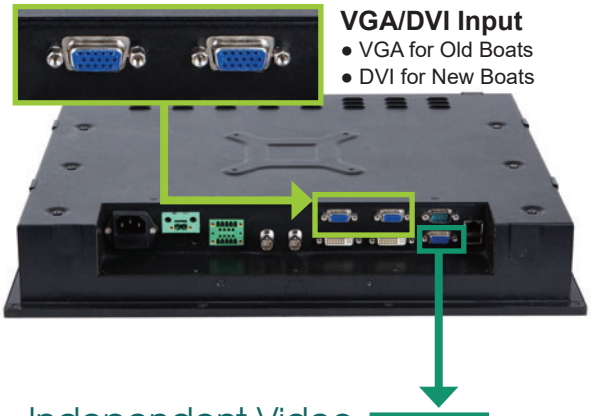
■ Reliable Power System

There are usually two systems - one master for use, and one slave for backup. IEI provides isolated redundant power, which means you will have separate power inputs, including AC source and DC source. When AC source is terminated, the DC source will continue to supply power to the device.



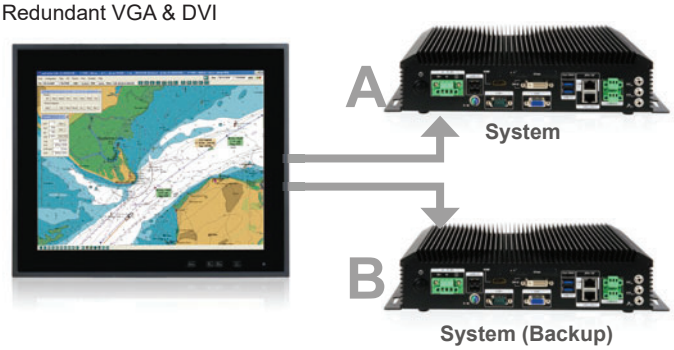
■ Dual Video Input Support

The IEI marine products equips with two VGA inputs and two DVI inputs. VGA is designed for the old ships while DVI is designed for the new ones. Additionally, in order to prevent failure of the main system, dual video input design is provided for much more reliability. Hence, operation will not be terminated due to switching between systems



Dual Video Input Support

Redundant VGA & DVI

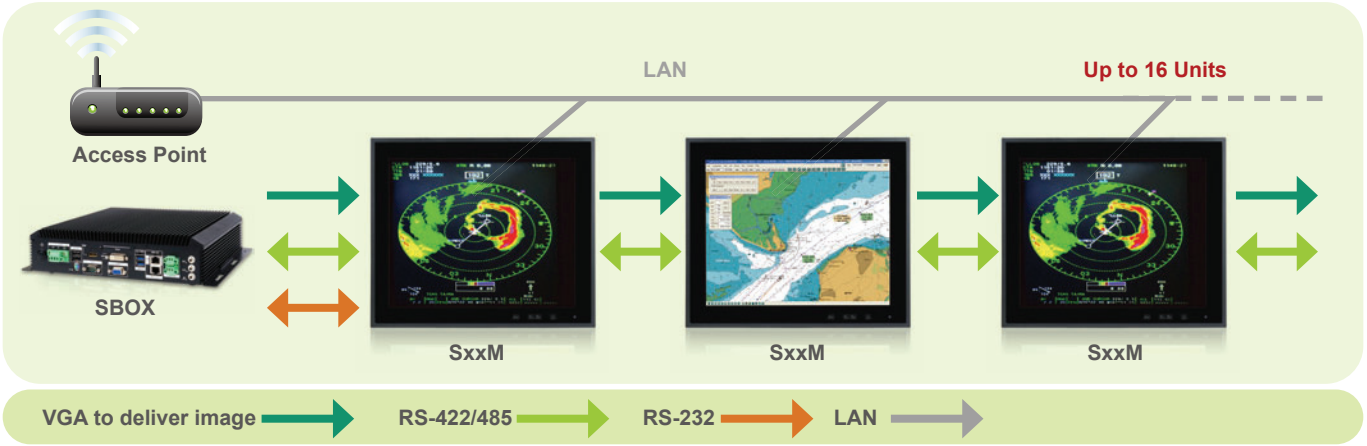


■ Independent Video Output Support

VGA output port features display cascade function, providing a convenient way to duplicate display signal. This function helps customers to connect devices quickly and easily.

■ Daisy Chain OSD Remote Control

It is essential to show the same displays to captains and pilots through the monitors which are usually cascaded at the ship bridge. The marine monitor equips both VGA input and VGA output. By connecting the VGA-out of the first monitor to the VGA-in of the second monitor, the IEI marine monitors feature group display with maximum up to 16 screens in the group. To comply with the ECDIS regulation, adjusting the brightness and contrast on all monitors at the same time is necessary, and this can be achieved through the Ethernet or serial COM ports. LAN is used to communicate in long distance in the group; as for short distance, COM port is the best choice. The LAN port can also be used for updating firmware and maintaining service.



■ Versatile Mounting Methods (optional)

Versatile mounting methods provide customers a secure way to settle the instrument. We provide three different mounting kits for customers, which include stand, ceiling mount kit and panel mount kit.



Stand Alone



Ceiling Mount



Panel Mount

Marine Monitor Series

S19M

19” IP66 Marine Monitors

S24M

24” IP66 Marine Monitors



Features

- **IP66 Front / IP22 Rear**
- **-15°C ~ +55°C Wide Temperature and Flat-bezel Projected Capacitive Touchscreen**
- **Excellent Visual Performance**
  - Full OSD function configuration
  - 0%~100% full range dimming
  - 178°/178° wide viewing angles
- **Multiple Video Input**
  - Two VGA, two DVI, and one BNC
- **Multiple Video Output**
  - One VGA and one BNC
- **Dual Isolated AC/DC Input with Redundant Power Protection**
- **Remote OSD Settings through LAN, RS-232, RS-422 and RS-485**

DNV IEC 60945 IACS -E10 Fanless

Specifications

Model		S19M	S24M
LCD	LCD Size	19”	24”
	Panel Type	PMVA	AMVA
	Max. Resolution	1280 x 1024 (5:4)	1920 x 1080 (16:9)
	Contrast Ratio	2000 : 1	5000 : 1
	Brightness (cd/m²)	300	300
	LCD Color	16.7M	16.7M
	Pixel Pitch (um)	294 x 294	276.75 x 276.75
	Viewing Angles (H-V)	178° / 178°	178° / 178°
	Backlight MTBF (HRs)	50000	50000
Touchscreen & Controller		EXC7920 (10-point), 6H	EXC7200 (2-point), 6H
Scalar Chip		STDP8028	
I/O Ports		• DVI-D Signal Input: 2 x DVI (24-pin, female) • VGA Signal Input: 2 x D-sub (15-pin, female) • VGA Signal Output: 1 x D-sub (15-pin, female) - Clone of VGA IN* • Composite Video Input: 1 x BNC connector (female) Composite Video Output: 1 x BNC connector (female) • RS-232/422/485 for Remote control (non-isolated) • Touchscreen: 1 x USB Type A connector (female) • Ethernet: 1 x RJ-45 connector for remote control • Isolated AC Power Inlet: 100V~240V AC • Isolated DC Terminal Block: 18V~36V DC • 1 x Buzzer	
PIP		Yes	
OSD Button		P-CAP button (LCD on/off, Menu, Auto, Up, Down, Left, Right)	
LED/Sensor		Ambient light sensor (0%~100%)	
Power Requirement		Multi-power Supply: Isolated AC Power: 100-240V, 2-1A, 50-60Hz Isolated DC Power: 18-36V, 8-4A	
Operating Temperature		-15°C ~ 55°C	
Storage Temperature		-20°C ~ 60°C	
Humidity		5% to 95% RH	
Thermal Design		Fanless	
Housing		Aluminum front , sheet metal back (Black C)	
Cut-out Dimensions (W x L)		442 mm x 373 mm	576 mm x 358 mm
Dimensions (W x L x D)		463 mm x 394 mm x 113 mm	592 mm x 374 mm x 113 mm
Mounting		VESA 100mm x 100mm	VESA 100mm x 100mm
Net Weight (kg)		7.74	11.48
Gross Weight (kg)		11.54	15.97
Approvals		EMC: CE, FCC	
		Safety: DNV, IEC 60945 4th, IACS-E10	
		IP Rating: IP66 front, IP22 rear	

Ordering Information

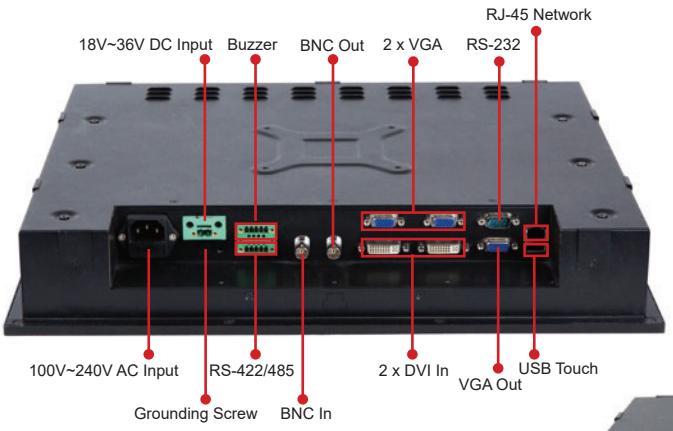
PN	Description
S19M-AD/PC-R11	19" SXGA 300cd/m² Marine Display with AC and DC redundant power, PCAP touch screen, R11
S24M-AD/PC-R11	24" FHD 300cd/m2 Marine Display with AC and DC redundant power, PCAP touch screen, R11

Options

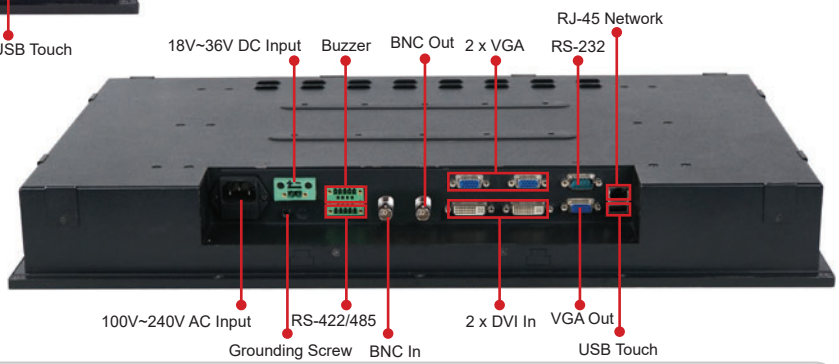
Item	Part No.	Description
Panel Mount Kit	PK-S19M-R10	For S19M
	PK-S24M-R10	For S24M
Desktop Stand	STAND-A21-R10	For S19M & S24M

Packing List

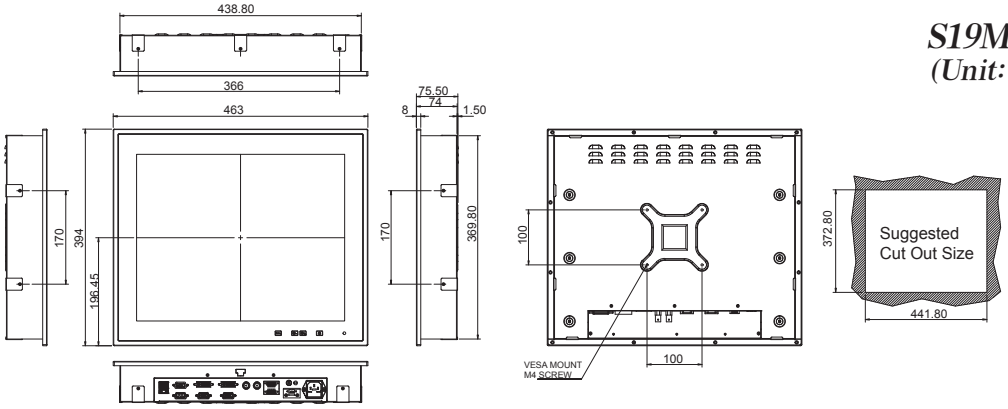
Item	Q'ty	Remark
VGA	1	VGA signal cable
DVI	1	DVI signal cable
USB	1	USB touchscreen cable
Power Cord	1	Power cord
S19M or S24M	1	



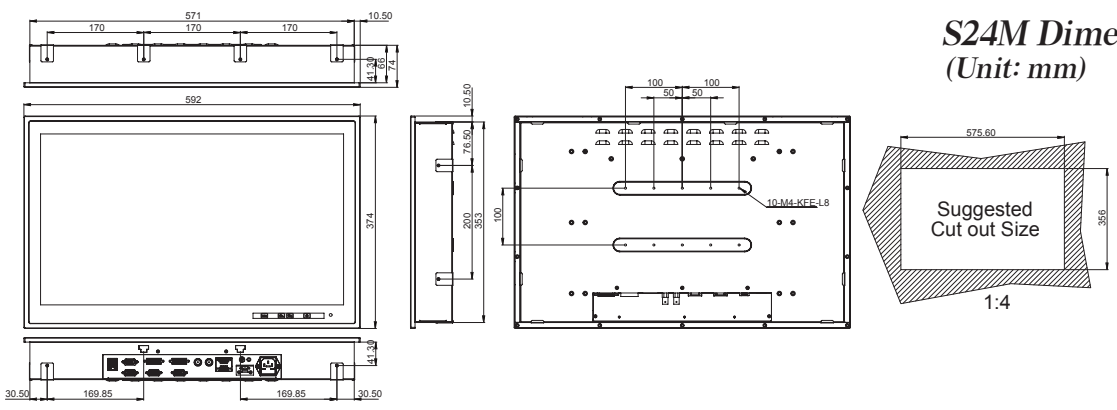
S19M
Fully Integrated I/O



S24M
Fully Integrated I/O



S19M Dimensions
(Unit: mm)



S24M Dimensions
(Unit: mm)

UPC Series

UPC-F12C-ULT3

Intel® Core™ i5 and Celeron® ULT Processor



Features

- 12.1" fanless panel PC with Intel® Skylake ULT processor
- IP66 6-side protection with M12 connector I/O cover
- IP65 6-side protection with standard cable I/O cover
- Built-in wireless 802.11 a/b/g/n/ac and Bluetooth V4.0
- Operating temperature : -20°C ~ 60°C
- Flat glass PCAP touch with 6H hardness, resistive touch window

5 YEARS 5-YEAR SUPPLY GUARANTEE

Wireless 802.11b/g/n | Fanless | Touchscreen | IP66 | -40°C~60°C | Redundant Dual DC

Specifications

Model		UPC-F12CM-ULT3	UPC-F12C-ULT3
Display	LCD Display	12.1"	
	Max Resolution	1024(W) x 768(H)	
	Brightness (cd/m²)	600	
	Contrast Ratio	700:1	
	LCD Color	16.2M	
	Pixel Pitch (mm)	0.24(H) x 0.24(V)	
	Viewing Angle (H-V)	160° / 140°	
	Backlight MTBF (Hrs)	50,000	
Motherboard	CPU	6th generation Intel® Core™ i5 and Celeron® ULT processor	
	RAM	1 x 260-pin 2133/1867 MHz single-channel DDR4 SO-DIMMs	
	Ethernet	LAN1: PCIe GbE by Intel® I211 controller LAN2: PCIe GbE by Intel® I211 controller	
Touchscreen		P-CAP / Resistive Touch	
Input Interfaces	I/O Ports & Switch	M12 Type: 1 x 8-pin M12 connector for RS-232 1 x 8-pin M12 connector for RS-232/422/485 1 x 8-pin M12 connector for GbE LAN 2 x 8-pin M12 connector for two USB 2.0 1 x 5-pin M12 connector for DC jack (12V~36V DC)	Standard Type: 1 x DC jack (12V-36V DC) 1 x DC-in terminal block (12V-36V DC) 1 x HDMI 1 x VGA/CAN Bus 1 x RS-232 (COM1 RJ-45) 1 x RS-232/422/485 (COM2 RJ-45) 2 x LAN 2 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s)
Expansion		1 x Full-size/half-size PCIe Mini card slot (PCIe x1 and USB 2.0 signals)	
Connectivity	Wi-Fi & BT	802.11 a/b/g/n/ac + Bluetooth v4.0	
	RFID	Reserved RFID antenna area (optional)	
Storage		1 x 2.5" HDD bay	
		1 x M.2 (B key 2242 with USB 2.0 and SATA signal)	
Physical	Construction	Aluminum die-casting	
	Mounting	VESA 100mm x 100mm	
	Net/Gross Weight (kg)	4.95 kg / 7.62 kg	5.02 kg / 7.40 kg
	Dimensions (W x L x D) (mm)	316 x 279 x 67	
Environment	Operating Temperature (with air flow)	-20°C ~ 60°C (without heater solution) -40°C ~ 60°C by project base	
	Storage Temperature	-20°C ~ 70°C	
	IP Level	Full IP65 or Full IP66 (with M12 connectors)	
	Safety	CE / FCC	
Power	Power Requirement	Power 1: 12V ~ 36V (terminal block)	
		Power 2: 12V ~ 36V (DC jack)	

Ordering Information

M12 Type

Part No.	Description
UPC-F12CM-ULT3-C/R/4G-R11	12.1" 600cd/m² XGA fanless ultra panel PC with Intel® 14nm 6th generation mobile Celeron® 3955U (15W) on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, resistive touch, M12 I/O, R11
UPC-F12CM-ULT3-C/PC/4G-R11	12.1" 600cd/m² XGA fanless ultra panel PC with Intel® 14nm 6th generation mobile Celeron® 3955U (15W) on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, PCAP touch, M12 I/O, R11
UPC-F12CM-ULT3-i5/R/4G-R11	12.1" 600cd/m² XGA fanless ultra panel PC with Intel® 14nm 6th generation mobile Core™ i5-6300U (15W) on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, resistive touch, M12 I/O, R11
UPC-F12CM-ULT3-i5/PC/4G-R11	12.1" 600cd/m² XGA fanless ultra panel PC with Intel® 14nm 6th generation mobile Core™ i5-6300U (15W) on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, PCAP touch, M12 I/O, R11

Standard Type

Part No.	Description
UPC-F12C-ULT3-C/R/4G-R11	12.1" 600cd/m² XGA fanless ultra panel PC with Intel® 14nm 6th generation mobile Celeron® 3955U (15W) on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, resistive touch, R11
UPC-F12C-ULT3-C/PC/4G-R11	12.1" 600cd/m² XGA fanless ultra panel PC with Intel® 14nm 6th generation mobile Celeron® 3955U (15W) on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, PCAP touch, R11
UPC-F12C-ULT3-i5/R/4G-R11	12.1" 600cd/m² XGA fanless ultra panel PC with Intel® 14nm 6th generation mobile Core™ i5-6300U (15W) on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, resistive touch, R11
UPC-F12C-ULT3-i5/PC/4G-R11	12.1" 600cd/m² XGA fanless ultra panel PC with Intel® 14nm 6th generation mobile Core™ i5-6300U (15W) on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, PCAP touch, R11
UPC-F12C-ULT3-C/CA/PC/4G-R11	12.1" 600cd/m² XGA fanless ultra panel PC with Intel® 14nm 6th Generation Mobile Celeron®3955U (15W) on-board Processor (ULT), 1*4GB DDR4 RAM, 802.11a/b/g/n/ac WiFi module, with CAN bus, PCAP touch, R11
UPC-F12C-ULT3-i5/CA/PC/4G-R11	12.1" 600cd/m² XGA fanless ultra panel PC with Intel® 14nm 6th Generation Mobile Core™ i5-6300U (15W) on-board Processor (ULT), 1*4GB DDR4 RAM, 802.11a/b/g/n/ac WiFi module, with CAN bus, PCAP touch, R11

Optional

Item	Description
63040-010060-110-RS	Power Adapter (for standard only)
63040-030080-000-RS	Water-proof Power Adapter (for M12 only)
CB-M12USB02-R20	USB Cable (for M12 only)
CB-M12RJ45-R20	LAN Cable (for M12 only)
CB-M12COM-R20	COM Port Cable (for M12 only)
Arm	ARM-11-RS
Stand	STAND-A12-RS STAND-C12-R10
MIFARE RFID Kit	UPC-F-MF-RFID-KIT01-R10 (ATO only)



USB cable
(CB-M12USB02-R20)



RJ-45 LAN cable
(CB-M12RJ45-R10)



DB-9 COM port Cable
(CB-M12COM-R20)

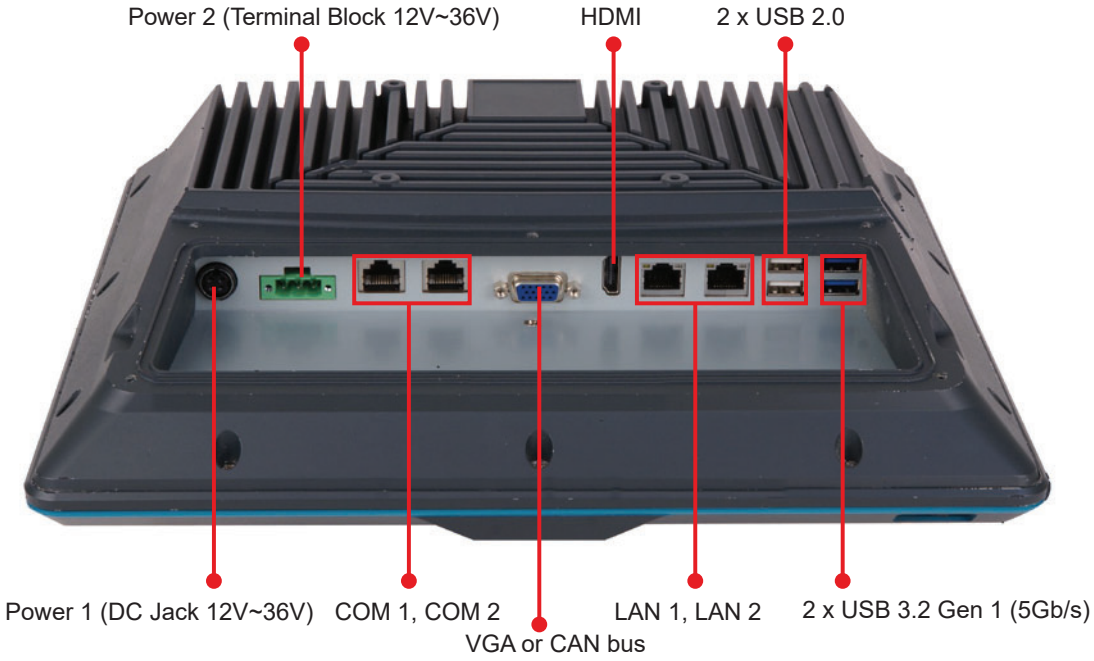


Water-proof Power Adapter
(63040-030080-000-RS)

Packing List

Item	Q'ty	Remark
Touch Pen	1	Resistive type only
Ferrite core	2	
D-Sub to RJ45 cable	2	for standard only
Waterproof plugs: Φ3	10	Φ3x2, Φ4x1, Φ5x1, cover x 6 (for standard only)
M12 to USB cable	1	for M12 only

I/O Interface



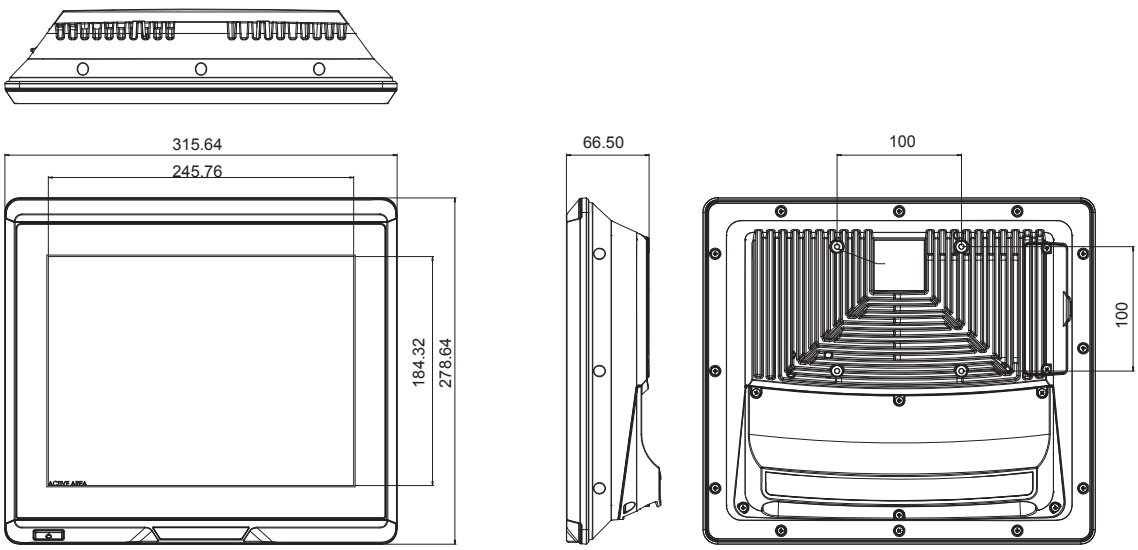


Standard IO cover



M12 IO cover

UPC-F12C Dimensions (Unit: mm)



INOX-F15C-ULT3

Intel® Core™ i5 and Celeron® ULT Processor



Features

- 15'' fanless panel PC with Intel® Skylake ULT processor
- IP69K high pressure, high temperature protection
- SUS304 stainless steel housing
- Operating temperature : -20°C ~ 50°C
- Flat glass PCAP touch with 6H hardness, resistive touch window
- Accessible HDD Bay
- M12 connections



Specifications

Model		INOX-F15C-ULT3
LCD	LCD Display	15"
	Max Resolution	1024(W) x 768(H)
	Brightness (cd/m²)	450
	Contrast Ratio	800:1
	LCD Color	16.2M
	Pixel Pitch (mm)	0.297(H) x 0.297(V)
	Viewing Angle (H-V)	160º /150º
	Backlight MTBF (Hrs)	70000
Motherboard	CPU	6th generation Intel® Core™ i5 and Celeron® ULT processor
	RAM	2 x 260-pin 2133/1867 MHz dual-channel DDR4 SO-DIMMs (system max. 32 GB)
	Ethernet	2 x PCIe GbE by Intel® I210 controller
Touchscreen		Resistive Touch / PCAP Touch
Input Interfaces	I/O Ports	2 x 8-pin M12 connector for RS-232/422/485 2 x 8-pin M12 X-Code connector for GbE LAN 2 x 8-pin M12 connector for two USB 2.0 1 x 5-pin M12 connector for DC jack (9-36V DC) 1 x Power switch with power LED indicator 1 x Pressure relief valve
	Expansions	1 x Full-size PCIe Mini card slot (SATA 6Gb/s) 1 x Full-size/half-size (PCIe x1 and USB 2.0 signals) 1 x M.2 B-key slot (2242/2260/2280 with USB 3.2 Gen 1 (5Gb/s), PCIe x2 and SATA signals)
Storage		1 x 2.5" SATA SSD bay / 1 x mSATA / 1 x M.2 B-key (2242/2260/2280)
Physical	ME Construction	SUS304 stainless steel housing
	Mounting	VESA 100mm x 100mm with M8 screw
	Dimensions (WxHxD) (mm)	414 x 328.4 x 51.9
Environment	Operating Temperature (with air flow)	-20°C ~ 50°C
	Storage Temperature	-30°C ~ 60°C
	IP Level	Front: IP69K; Others: IP66
	Safety	CE / FCC
Power	Adapter	60 W; 63000-CLG6012IC-RS
		60W/12V waterproof power adapter VAC:90V~264V; 12V/5A; 60W
	Requirement	9-36V DC
	Consumption	43W

Ordering Information

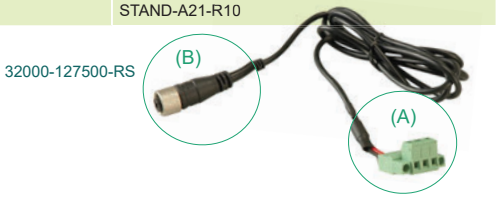
Part No.	Description
INOX-F15C-ULT3-C/R/4G-R10	15" 450cd/m² XGA fanless stainless panel PC with Intel® 14nm 6th generation mobile Celeron® 3955U (15W) on-board processor (ULT), one 4GB DDR4 RAM, resistive touch, R10
INOX-F15C-ULT3-C/PC/4G-R10	15" 450cd/m² XGA fanless stainless panel PC with Intel® 14nm 6th generation mobile Celeron® 3955U (15W) on-board processor (ULT), one 4GB DDR4 RAM, PCAP touch, R10
INOX-F15C-ULT3-i5/R/4G-R10	15" 450cd/m² XGA fanless stainless panel PC with Intel® 14nm 6th generation mobile Core™ i5-6300U (15W) on-board processor (ULT), one 4GB DDR4 RAM, resistive touch, R10
INOX-F15C-ULT3-i5/PC/4G-R10	15" 450cd/m² XGA fanless stainless panel PC with Intel® 14nm 6th generation mobile Core™ i5-6300U (15W) on-board processor (ULT), one 4GB DDR4 RAM, PCAP touch, R10

Packing List

Item	P/N
Power Cable	32000-127500-RS
USB Cable	CB-M12USB02-R20

Options

Item	P/N
Arm	ARM-31-RS
Stand	STAND-A19-RS STAND-C19-R10 STAND-A21-R10



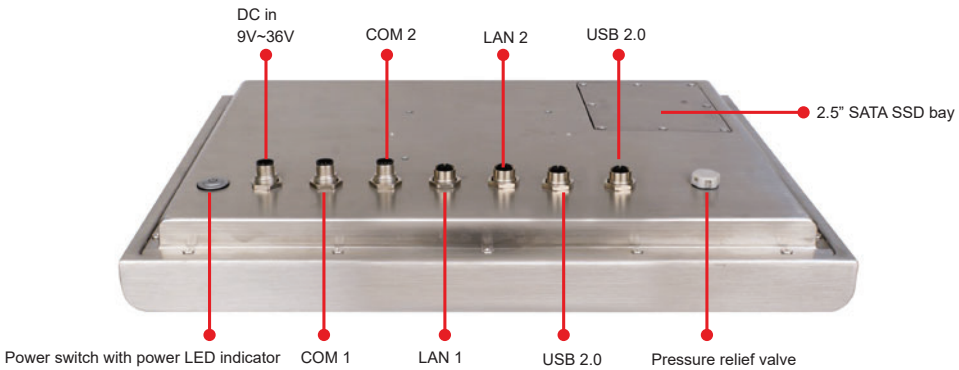
Optional Cables and Adapter

Item	P/N
USB Cable	CB-M12USB02-R20
RJ-45 LAN Cable	CB-M12RJ45X-R10
DB-9 COM Port Cable	CB-M12COM-R20
Water-proof Power Adapter	63040-030080-000-RS

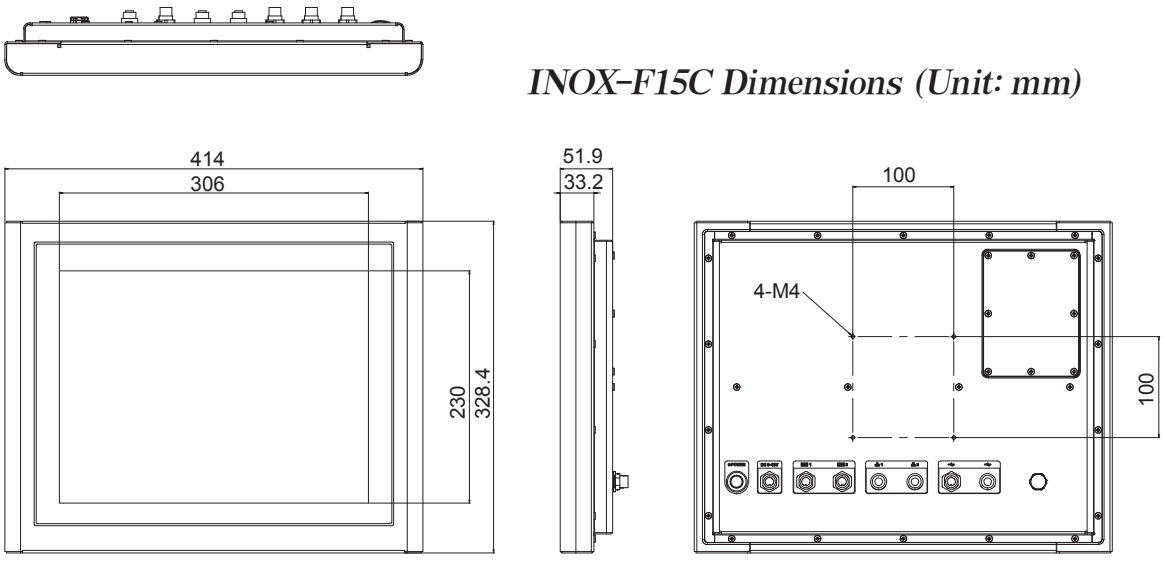


USB cable (CB-M12USB02-R20) | RJ-45 LAN cable (CB-M12RJ45X-R10) | DB-9 COM port Cable (CB-M12COM-R20) | Water-proof Power Adapter (63040-030080-000-RS)

I/O Interface



INOX-F15C Dimensions (Unit: mm)



Waterproof Certification Laboratory

IEI follows standard testing procedures (UL 50) to design ruggedized LCD products with high reliability. We mainly provide IP 64, IP 65 and the latest IP 67 specifications in various dust and water resistant mechanical designs, ideal for outdoor and harsh environment applications.



IEI's LCD products are front sealed and tested in the certified house chamber under UL's Witnessed Test Data Program (WTDP).



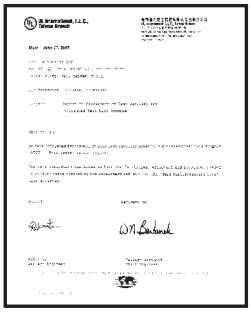
IP 66 / UL 50



IP 64



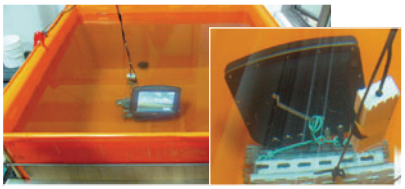
IP 65



UL 50 Certificate
Chamber strickly approved by Underwriters Laboratories Inc.
IEI's in-house water resistance chamber is approved by the UL organization commonly recognized in North America.



IP 69K



IP 67

The IP Code defined in international standard IEC 60529 classifies the degrees of protection provided against the intrusion of solid objects, dust, accidental contact, and water in electrical enclosures. It consists of the letters IP followed by two digits and an optional letter. The digits indicate conformity with the conditions summarized in the tables below.

First digit

The first digit indicates the level of protection that the enclosure provides against access to hazardous parts

Level		Object size protected against	Effective against
0		-	No protection against contact and ingress of objects
1	Ø50mm	>50 mm	Any large surface of the body, such as the back of a hand, but no protection against deliberate contact with a body part
2	Ø12.5mm	>12.5 mm	Fingers or similar objects
3	2.5mm	>2.5 mm	Tools, thick wires, etc.
4	1mm	>1 mm	Most wires, screws, etc.
5		dust protected	Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment; complete protection against contact
6		dust tight	No ingress of dust; complete protection against contact

Second digit

Protection of the equipment inside the enclosure against harmful ingress of water.

Level		Protected against	Details
0	-	not protected	—
1		dripping water	Dripping water (vertically falling drops) shall have no harmful effect
2		dripping water when tilted up to 15°	Vertically dripping water shall have no harmful effect when the enclosure is tilted at an angle up to 15° from its normal position
3		spraying water	Water falling as a spray at any angle up to 60° from the vertical shall have no harmful effect
4		splashing water	Water splashing against the enclosure from any direction shall have no harmful effect
5		water jets	Water projected by a nozzle against enclosure from any direction shall have no harmful effects
6		powerful water jets	Water projected in powerful jets against the enclosure from any direction shall have no harmful effects
7		immersion up to 1 m	Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 m of submersion)
8		immersion beyond 1 m	The equipment is suitable for continuous immersion in water under conditions which shall be specified by the manufacturer
9K	90° 60° 10°	Powerful high temperature water jets	Protected against close-range high pressure, high temperature spray downs.Test duration: 30 seconds in each of 4 angles,Water temperature: 80°C

RISC Based Panel PC Solution

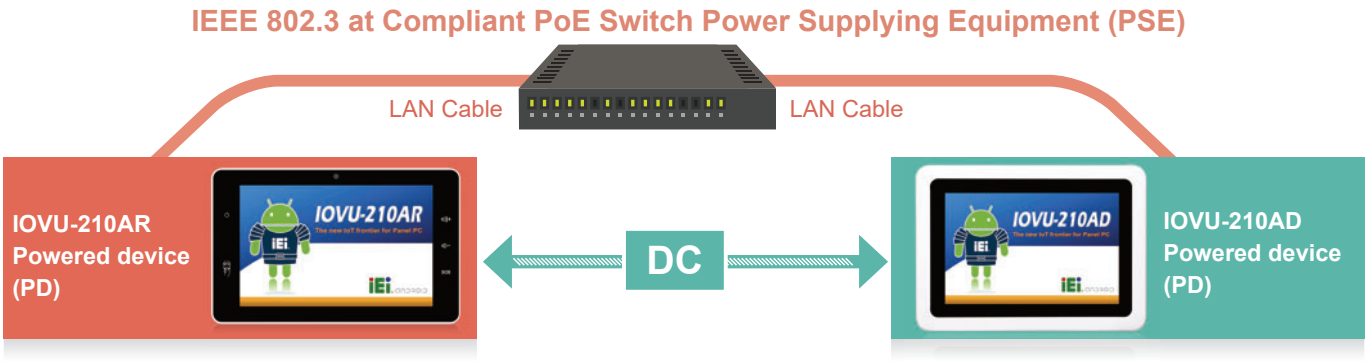


The IOVU RISC Based PC Series enables the great embedded flexibility for smart factory, building automation, factory control, and medical usage applications. Making use of the low power consumption RISC platform, the IOVU series adopts a fan-less and power efficient design, providing a cost-effective, stable, and easy to use solution to collect, transfer, process, access , and manage data.

Power over Ethernet supported

Both of data transfer and power supply through one single LAN cable.

- Simplify the construction.
- Dual power input design.



* When both DC-in and PoE are connected to the device, the connection with higher voltage will be the main power source.

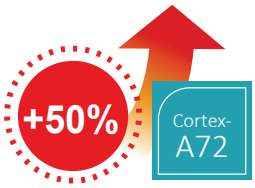
RockChip RK3399 Processor

- Dual-core Cortex-A72 up to 1.8GHz + Quad-core Cortex-A53 up to 1.5GHz)
- Mali-T864 GPU (45% more than Mali-T628)
- 4K UHD H265/H264/VP9
- Dual USB Type-C and USB 2.0
- HDMI 2.0a with HDCP 2.2



Powerful, but low energy

Normally, the CPU will run A53 for low power consumption. If the application needs more computing power, A72 CPU will increase performance by 50%.



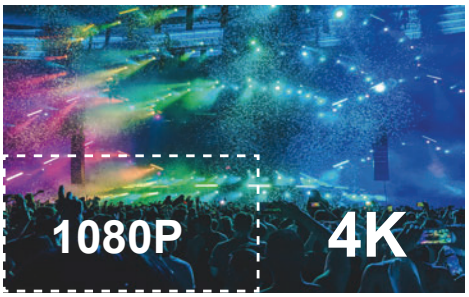
+50% performance than Cortex-A57



-15% power consumption than Cortex-A57

+45% performance than Mali-T628

RK3399 has more powerful GPU and supports 4K resolution video decode.



Mali-T860 MP4



VP9,10-bits H.265/ H.264 60fps

Supported OS

IEI products with RK3399 family CPU support dual OS with full API/SDK, making it easy to develop your own application on Android or Linux environment.

- Android 7.1
- Linux QT 5.9.4



Applications for RK3399

RK3399 has features of high performance, high expansion, all-round application and it will empower AI and assist the layout of industry products.


Digital Signage


KIOSK


POS

RISC Based Panel PC Selection Guide





		IOVU-210AD-RK39-R10-TW	IOVU-207AR-RK39-R10-TW	IOVU-210AR-RK39-R10-TW
Chassis	Color	white		
	Dimensions (WxHxD)	293 x 209.5 x 44.5 (mm)	210.7 x 154.7 x 29.6 (mm)	282.5 x 174.3 x 26.8 (mm)
	System Fan	Fanless		
	Chassis Construction	PC + ABS plastic front, Metal rear	PC + ABS plastic front, Metal rear	PC + ABS plastic
Display	Size	10"	7"	10"
	Resolution	800(RGB) x 1280	720 RGB x 1280	800(RGB) x 1280
	Brightness (cd/m²)	350 cd/m² (typ.)	300 cd/m² (typ.)	350 cd/m² (typ.)
	Pixel Pitch (mm)	0.0564(H) x 0.1692(V)	0.1239 (H) ×0.119 (V)	0.0564(H) x 0.1692(V)
	Viewing Angle (H/V)	85/85/85/85 Deg.	70/70/70/70 Deg.	85/85/85/85 Deg.
	Touchscreen	Projected capacitive		
Motherboard	CPU	Rockchip RK3399 (Dual-core Cortex-A72 up to 1.8GHz + Quad-core Cortex-A53 up to 1.5GHz)		
	System Memory	On-board 2 GB LPDDR3-1866		
Storage	SD Card	1 x Micro SD Slot		
	Flash	On-board 16 GB eMMC		
Communication	WLAN	On-board Wi-Fi 802.11a/b/g/n/ac (2T2R)		
	Bluetooth	Bluetooth 4.1		
	RFID	13.56 MHz ISO4443 A/B, read-write capable (NXP PN553)	N/A	13.56 MHz ISO4443 A/B, read-write capable (NXP PN553)
I/O Interfaces	I/O interface	1 x 10/100/1000Mbps RJ45 LAN w/ POE 1 x RS-232/422/485 1 x RS-232 1 x DIO 4pin (2 in / 2 out) 1 x DC jack 1 x DC in terminal block	1 x 10/100/1000Mbps RJ45 LAN 2 pin terminal block for SOS key 1 x DC jack	1 x RS-232 (4 pin wafer connector) 1 x RS-232/422/485 (4 pin terminal block) 1 x 4 bit (2 in, 2 out) - (terminal block) 2 x 2 bit (1 in, 1 out) - (4 pin wafer connector) 3 x I²C (4 pin wafer connector) 1 x 10/100/1000Mbps RJ45 LAN w/ POE 1 x 10/100/1000Mbps RJ45 LAN 1 x DC jack
	USB 3.2 Gen 1	1 x Type A 1 x Type C OTG	1 x Type A	1 x Type A
	USB 2.0	2 x Type A	1 x Type A	1 x Type A
	Others	2 x USB 2.0 (internal)	1 x Type C OTG (Internal) 2 x UART w/ 3V (internal) 2 x USB 2.0 (internal)	1 x Type C OTG (Internal) 2 x UART w/ 3V (internal) 2 x USB 2.0 (internal)
Multimedia	Speaker / Mic	2 x Mic 1 x 2W speaker	1 x Mic 1 x 2W Speake	1 x Mic 2 x 1.5W Speaker
	Camera	5-megapixel	5-megapixel	5-megapixel
LED Indicator & Button	Indicator	1 x Power LED 1 x WiFi LED 1 x BT LED	1 x Power (green) 1 x Mail (blue) 1 x Phone (green) 1 x Exclamation Mark (red)	1 x Power LED 1 x RFID LED 3 x Key pad LED (Volume / SOS)
	Button	1 x Reset Button	1 x Reset Button 1 x SOS Key (with red bar) 2 x Function Key for AP operation (with green bar)	1 x Reset Button 1 x Volume up 1 x Volume down 1 x SOS Button
Power	Power Input	12V DC input (range : 9V ~ 30V) PoE: IEEE 802.3 at standard (Power Device)	12V DC input (range : 9V ~ 30V)	12V DC input (range : 9V ~ 30V) PoE: IEEE 802.3 at standard (Power Device)
	Consumption	12V @ 1.2A	12V @ 1.05A	12V @ 1.1A
Reliability	Mounting	VESA Mount 75mmx75mm	VESA Mount 75mmx75mm	Panel mount, In wall cage VESA 110mmx100mm
	Operating Temperature	-10°C ~ 50°C with air flow		
	Storage Temperature	-20°C ~ 60°C		
	Humidity	10% ~ 90%, non-condensing		
	Safety/EMC	CE/FCC / Class A compliant	CE/FCC / Class B compliant	CE/FCC / Class B compliant
OS	Supported OS	Android 7.1	Android 7.1 / Linux	Android 7.1 / Linux

IOVU-207AR-RK39

7” RISC-based Panel PC



Features

- CPU: Rockchip RK3399 (Dual-core Cortex-A72 up to 1.8GHz + Quad-core Cortex-A53 up to 1.5GHz)
- Boot Flash: 16G eMMC Nand Flash
- RAM: 2GB LPDDR3-1866
- OS: Android 7.1 / Linux
- 1 x SOS Key (with red bar):
  Press for calling help in case emergency
  2 x Function Keys (with green bar):
  Default hot key by AP programming

Specifications

IOVU IoT

Fanless | Wireless 802.11b/g/n | Bluetooth | Touchscreen | Camera | Android | Linux

Model		IOVU-207AR-RK39
Chassis	Color	White
	Dimensions (WxHxD) (mm)	210.7 x 154.7 x 29.6
	System Fan	Fanless
	Chassis Construction	PC + ABS plastic front, Metal rear
Display	Size	7"
	Resolution	720 RGB (H) x 1280 (V)
	Brightness (cd/m²)	300 cd/m2 (typ.)
	Contrast Ratio	800:1(typ.)
	Pixel Pitch (mm)	0.1239 (H) ×0.119 (V)
	Viewing Angle (H/V)	70/70/70/70 Deg.
	Touchscreen	Projected capacitive
Motherboard	CPU	Rockchip RK3399 (Dual-core Cortex-A72 up to 1.8GHz + Quad-core Cortex-A53 up to 1.5GHz)
	System Memory	2GB LPDDR3-1866
Storage	SD Card	1 x Micro SD slot
	Flash	16GB eMMC NAND FLASH
Communication	WLAN	802.11 a/b/g/n/ac
	Bluetooth	Bluetooth V4.1
I/O Interfaces	COM port	2 x UART pin header with 3V (internal)
	Ethernet	1 x GbE RJ45 by RTL8211E
	USB 3.2 Gen 1	1 x USB 3.2 Gen 1 (5Gb/s) Type A
	USB 2.0	1 x USB 2.0 Type A 2 x USB 2.0 pin header (internal)
	Others	2 pin terminal block for SOS key
Multimedia	Audio	1 x Speaker (2 W) , 1 x Digital Mic in
	Camera	Front 5-megapixel (CMOS)
LED Indicator & Button	Indicator	1 x Power LED 1 x Mail 1 x Phone 1 x Exclamation Mark
	Button	1 x Reset Button 1 x SOS button (red bar) 2 x Function Key (green bar)
Power	Power Input	DC 9 V~30 V, φ2.5/5.5mm DC Jack
	Power Consumption	12V @ 1.05A
Reliability	Mounting	VESA Mount 75mmx75mm
	Operating Temperature	-10°C ~ 50°C with air flow
	Storage Temperature	-20°C ~ 60°C
	Humidity	10% ~ 90%, non-condensing
	Weight (Net)	0.72 kg
	Safety/EMC	CE/FCC Class B compliant
OS	Supported OS	Android 7.1 / Linux
	Watch dog timer	Yes



Ordering Information

Part No.	Description
IOVU-207AR-RK39-R10-TW	7" TFT-LCD; Rockchip 3399 Processor, 2GB LPDDR3 , 16GB eMMC Flash, Camera, WIFI/BT, Gigabit Ethernet, TW reg, ROHS
IOVU-207AR-RK39-R10-CN	7" TFT-LCD; Rockchip 3399 Processor, 2GB LPDDR3 , 16GB eMMC Flash, Camera, WIFI/BT, Gigabit Ethernet, CN reg, ROHS
IOVU-207AR-RK39-R10-EU	7" TFT-LCD; Rockchip 3399 Processor, 2GB LPDDR3 , 16GB eMMC Flash, Camera, WIFI/BT, Gigabit Ethernet, EU reg, ROHS
IOVU-207AR-RK39-R10-US	7" TFT-LCD; Rockchip 3399 Processor, 2GB LPDDR3 , 16GB eMMC Flash, Camera, WIFI/BT, Gigabit Ethernet, US reg, ROHS

Packing List

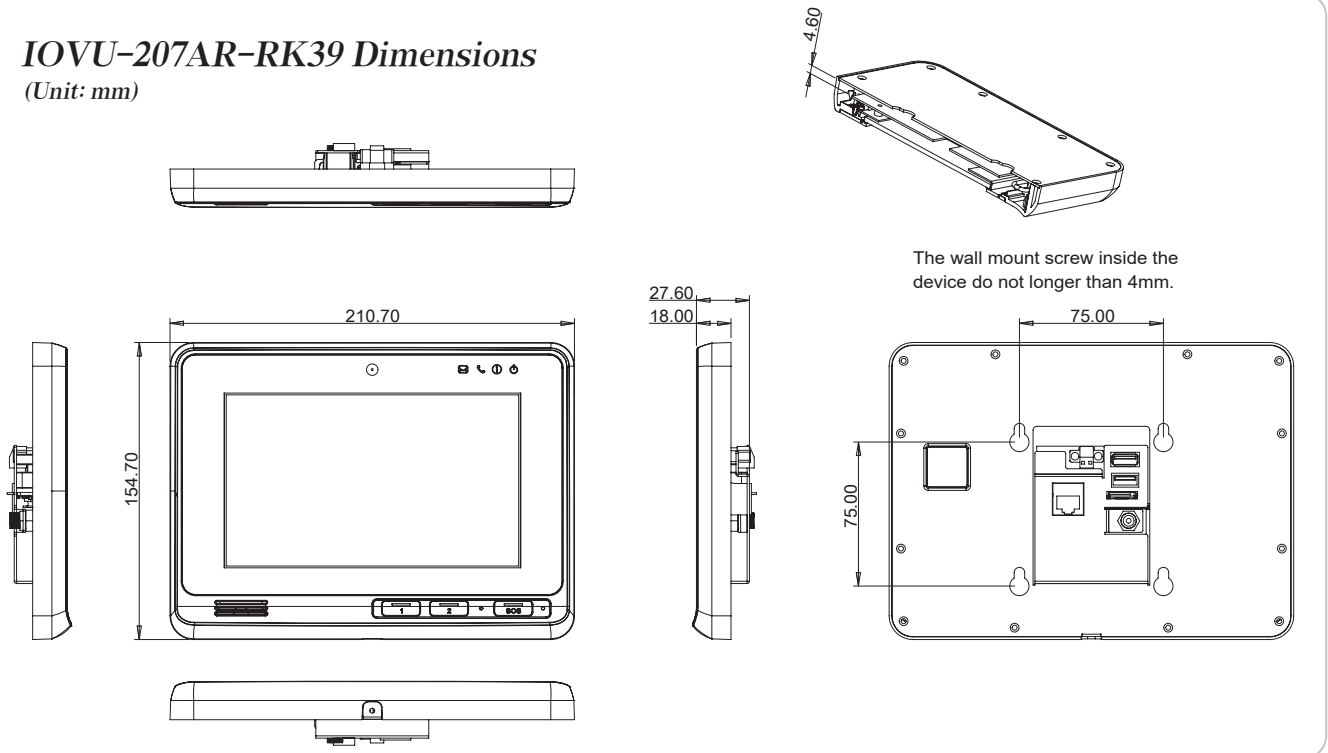
1 x IOVU-207AR Device
1 x Wall mount bracket
1 x Screw set

Options

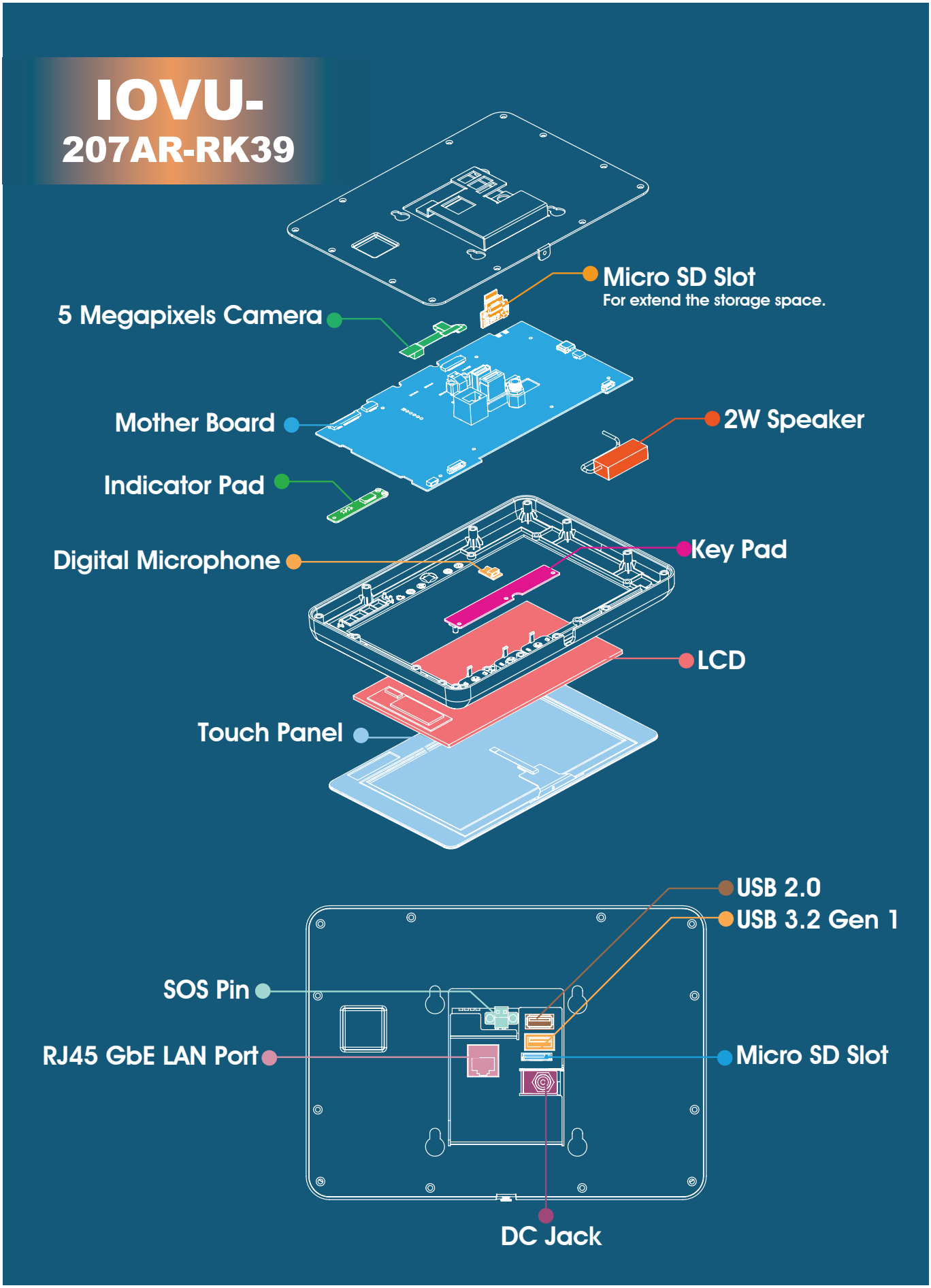
Item	Part No.	Description
Power Adapter	63040-010060-120-RS	Vin:90~264VAC;60W;Φ2.5/Φ5.5/lock

IOVU-207AR-RK39 Dimensions

(Unit: mm)



IOVU-207AR-RK39



IOVU-210AD-RK39

10.1” RISC Base Panel PC



Features

- 10.1” 1280x800 LCD
- Project Capacitive Touch Screen
- CPU: Rockchip RK3399 (Dual-core Cortex-A72 up to 1.8GHz + Quad-core Cortex-A53 up to 1.5GHz)
- OS: Android 7.1
- Boot Flash: 16GB eMMC Nand Flash
- RAM: 2GB LPDDR3

IOVU

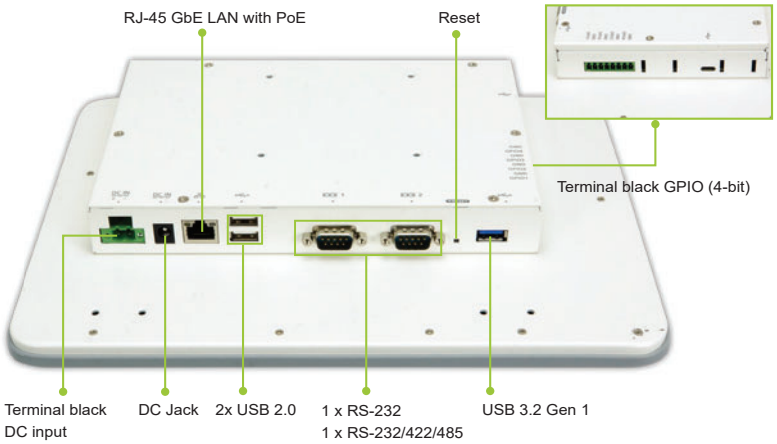
Wireless 802.11b/g/n | Bluetooth | Touchscreen | RFID | RS-232 | Android

Specifications

Model		IOVU-210AD-RK39
Chassis	Color	White
	Dimensions (WxHxD) (mm)	293 x 209.5 x 44.5
	System Fan	Fanless
	Chassis Construction	PC + ABS plastic front, Metal rear
Display	Size	10.1"
	Resolution	800(RGB) x 1280
	Brightness (cd/m²)	350 cd/m² (typ.)
	Contrast Ratio	800:1(typ.)
	Pixel Pitch (mm)	0.0564(H) x 0.1692(V)
	Viewing Angle (H/V)	85/85/85/85 Deg.
	Touchscreen	Project Capacitive
Motherboard	CPU	Rockchip RK3399 (Dual-core Cortex-A72 up to 1.8GHz + Quad-core Cortex-A53 up to 1.5GHz)
	System Memory	2GB LPDDR3-1866
Storage	SD Card	1 x Micro SD slot (Internal)
	Flash	16GB eMMC NAND FLASH
Communication	WLAN	802.11 a/b/g/n/ac
	Bluetooth	Bluetooth V4.1
	RFID	13.56 MHz ISO4443 A/B, read-write capable, ISO 14443A (MIFARE), ISO 14443B (FeliCa)
I/O Interfaces	COM port	1 x RS-232 (DB-9) 1 x RS-232/422/485 (DB-9)
	GPIO	4 bit (2 in, 2 out)
	Ethernet	1 x GbE RJ45 by RTL8211E w/ PoE
	USB 3.2 Gen 1	1 x USB 3.2 Gen 1 (5Gb/s) Type A 1 x USB 3.2 Gen 1 (5Gb/s) Type C OTG
	USB 2.0	2 x USB 2.0 Type A 2 x USB 2.0 pin header (internal)
Multimedia	Audio	1 x Speaker (2 W) , 2 x Digital Mic in
	Camera	Front 5-megapixel (CMOS)
LED Indicator & Button	Indicator	1 x Power, 1 x BT, 1 x Wi-Fi
	Button	1 x Reset Button
Power	Power Input	DC 9 V~30 V * DC input: φ2.5/5.5mm DC Jack or Terminal block * PoE: IEEE 802.3 at standard (Power Device)
	Power Consumption	12V @ 1.2A
Reliability	Mounting	VESA Mount 75mm x 75mm
	Operating Temperature	-10°C ~ 50°C with air flow
	Storage Temperature	-20°C ~ 60°C
	Humidity	10% ~ 90%, non-condensing
	Weight (Net)	1.84 kg
	Safety/EMC	CE/FCC Class A compliant
OS	Supported OS	Android 7.1
	Watch dog timer	Yes

* When both DC-in and PoE are connected to the device, the connection with higher voltage will be the main power source.





Ordering Information

Part No.	Description
IOVU-210AD-RK39-R11-TW	10.1" TFT-LCD; Rockchip 3399 Processor, 2GB LPDDR3 , 16GB eMMC Flash, WiFi/BT, IEEE 802.3at for POE, phone jack, 4xGPIO, Android 7.1, NFC, TW reg, ROHS
IOVU-210AD-RK39-R11-CN	10.1" TFT-LCD; Rockchip 3399 Processor, 2GB LPDDR3 , 16GB eMMC Flash, WiFi/BT, IEEE 802.3at for POE, phone jack, 4xGPIO, Android 7.1, NFC, CN reg, ROHS
IOVU-210AD-RK39-R11-EU	10.1" TFT-LCD; Rockchip 3399 Processor, 2GB LPDDR3 , 16GB eMMC Flash, WiFi/BT, IEEE 802.3at for POE, phone jack, 4xGPIO, Android 7.1, NFC, EU reg, ROHS
IOVU-210AD-RK39-R11-US	10.1" TFT-LCD; Rockchip 3399 Processor, 2GB LPDDR3 , 16GB eMMC Flash, WiFi/BT, IEEE 802.3at for POE, phone jack, 4xGPIO, Android 7.1, NFC, US reg, ROHS

Packing List

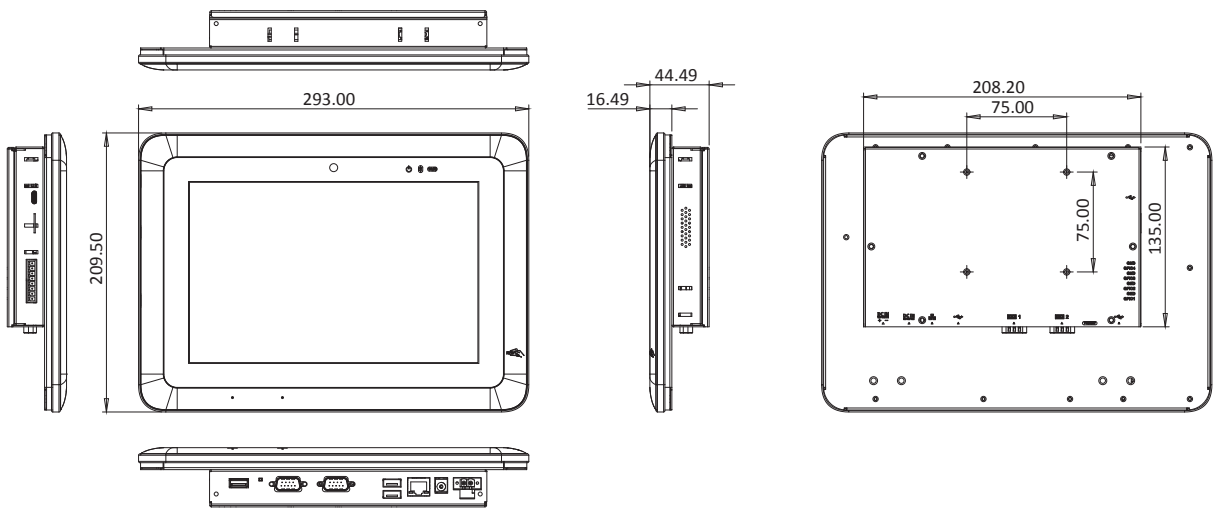
1 x IOVU-210AD Device

Options

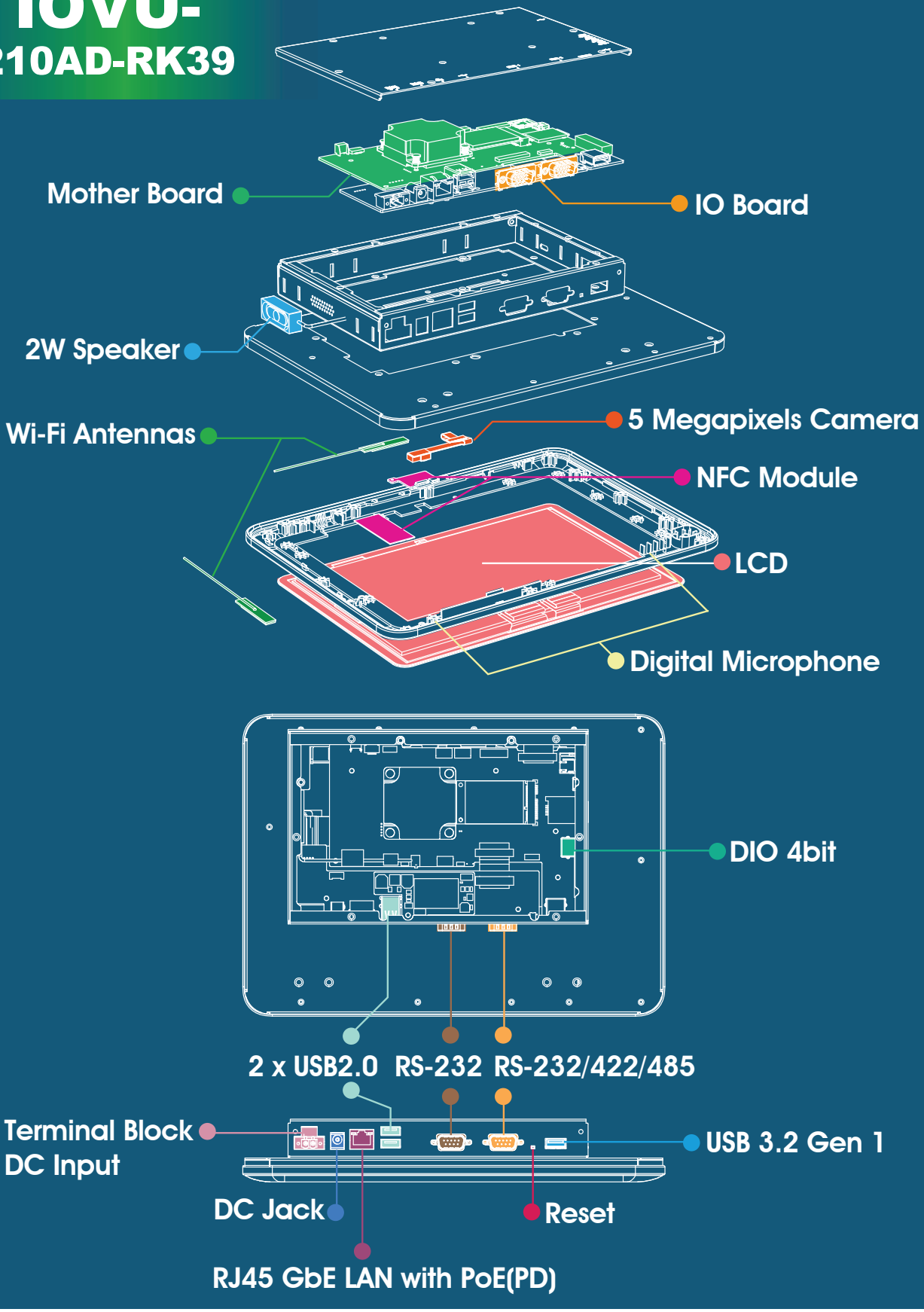
Item	Part No.	Description
Power Adapter	63040-010060-120-RS	Vin:90~264VAC;60W;Φ2.5/Φ5.5/lock
ARM	ARM-11-RS	Flat Panel Monitor ARM
Stand	STAND-A12-RS	LCD MONITOR/PPC STAND
Wall Mount Kit	AFLWK-19B	Monitor Wall mounting kit with lock

IOVU-210AD-RK39 Dimensions

(Unit: mm)



IOVU-210AD-RK39



IOVU-210AR-RK39

10.1” RISC-based Panel PC



Features

- 10.1” 1280x800 LCD
- Project Capacitive Touch Screen
- CPU: Rockchip RK3399 (Dual-core Cortex-A72 up to 1.8GHz + Quad-core Cortex-A53 up to 1.5GHz)
- OS: Android 7.1 / Linux
- Boot Flash: 16GB eMMC Nand Flash
- RAM: 2GB LPDDR3-1866
- Grove Interface IOT Sensor connectors

IOVU

Wireless 802.11b/g/n | Bluetooth | Touchscreen | Camera | Dual GbE | Android | Linux

Specifications

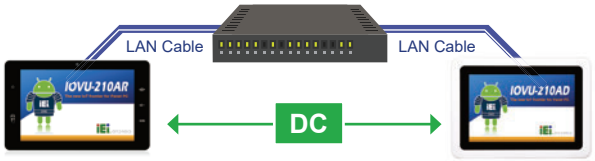
Model		IOVU-210AR-RK39
Chassis	Color	White
	Dimensions (WxHxD) (mm)	282.5 x 174.3 x 26.8
	System Fan	Fanless
	Chassis Construction	PC + ABS plastic
Display	Size	10.1"
	Resolution	800(RGB) x 1280
	Brightness (cd/m²)	350 cd/m² (typ.)
	Contrast Ratio	800:1(typ.)
	Pixel Pitch (mm)	0.0564 (H) × RGB × 0.1692 (V)
	Viewing Angle (H/V)	85/85/85/85 Deg.
	Touchscreen	Project Capacitive
Motherboard	CPU	Rockchip RK3399 (Dual-core Cortex-A72 up to 1.8GHz + Quad-core Cortex-A53 up to 1.5GHz)
	System Memory	2GB LPDDR3-1866
Storage	SD Card	1 x Micro SD slot
	Flash	16GB eMMC NAND FLASH
Communication	WLAN	802.11 a/b/g/n/ac
	Bluetooth	Bluetooth V4.1
	RFID	13.56 MHz ISO4443 A/B, read-write capable, ISO 14443A (MIFARE), ISO 14443B (FeliCa)
I/O Interfaces	COM port	1 x RS-232 (4 pin wafer connector) 1 x RS-232/422/485 (4 pin terminal block) 2 x UART pin header with 3V (internal)
	GPIO	1 x 4 bit (2 in, 2 out) 2 x 2 bit (1 in, 1 out)
	Ethernet	1 x GbE RJ45 by RTL8211E with PoE (PD) 1 x GbE RJ45 by RTL8211E
	USB 3.2 Gen 1	1 x USB 3.2 Gen 1 (5Gb/s) Type A
	USB 2.0	1 x USB 2.0 Type A 2 x USB 2.0 pin header (internal)
	Others	3 x I²C sensor connectors (3V)
Multimedia	Audio	2 x Speaker (1.5W), 1 x Digital Mic in
	Camera	Front 5-megapixel (CMOS)
LED Indicator & Button	Indicator	1 x Power LED 1 x RFID LED
	Button	1 x Reset button 2 x Volume key (up / down) on screen 1 x SOS key on screen
Power	Power Input	DC 9 V~30 V * DC input: φ2.5/5.5mm DC Jack * PoE: IEEE 802.3 at standard (Power Device)
	Power Consumption	12V @ 1.1A
Reliability	Mounting	Panel mount, In wall cage
	Operating Temperature	-10°C ~ 50°C with air flow
	Storage Temperature	-20°C ~ 60°C
	Humidity	10% ~ 90%, non-condensing
	Weight (Net)	0.85 kg
	Safety/EMC	CE/FCC Class B compliant
OS	Supported OS	Android 7.1 / Linux
	Watch dog timer	Yes

* When both DC-in and PoE are connected to the device, the connection with higher voltage will be the main power source.

Power over Ethernet supported
Both of data transfer and power supply through one single LAN cable.

- Simplify the construction.
- Dual power input design.

IEEE 802.3 at Compliant PoE Switch Power Supplying Equipment (PSE)



IOVU-210AR
Powered device (PD)

IOVU-210AD
Powered device (PD)

* When both DC-in and PoE are connected to the device, the connection with higher voltage will be the main power source.



Ordering Information

Part No.	Description
IOVU-210AR-RK39-R11-TW	10.1" TFT-LCD; Rockchip 3399 Processor, 2GB LPDDR3 , 16GB eMMC Flash, Camera, WIFI/BT, POE 802.3at, COM port, DIO, 4pin sensor connector, Front Camera, NFC, TW reg, ROHS
IOVU-210AR-RK39-R11-CN	10.1" TFT-LCD; Rockchip 3399 Processor, 2GB LPDDR3 , 16GB eMMC Flash, Camera, WIFI/BT, POE 802.3at, COM port, DIO, 4pin sensor connector, Front Camera, NFC, CN reg, ROHS
IOVU-210AR-RK39-R11-EU	10.1" TFT-LCD; Rockchip 3399 Processor, 2GB LPDDR3 , 16GB eMMC Flash, Camera, WIFI/BT, POE 802.3at, COM port, DIO, 4pin sensor connector, Front Camera, NFC, EU reg, ROHS
IOVU-210AR-RK39-R11-US	10.1" TFT-LCD; Rockchip 3399 Processor, 2GB LPDDR3 , 16GB eMMC Flash, Camera, WIFI/BT, POE 802.3at, COM port, DIO, 4pin sensor connector, Front Camera, NFC, US reg, ROHS

Packing List

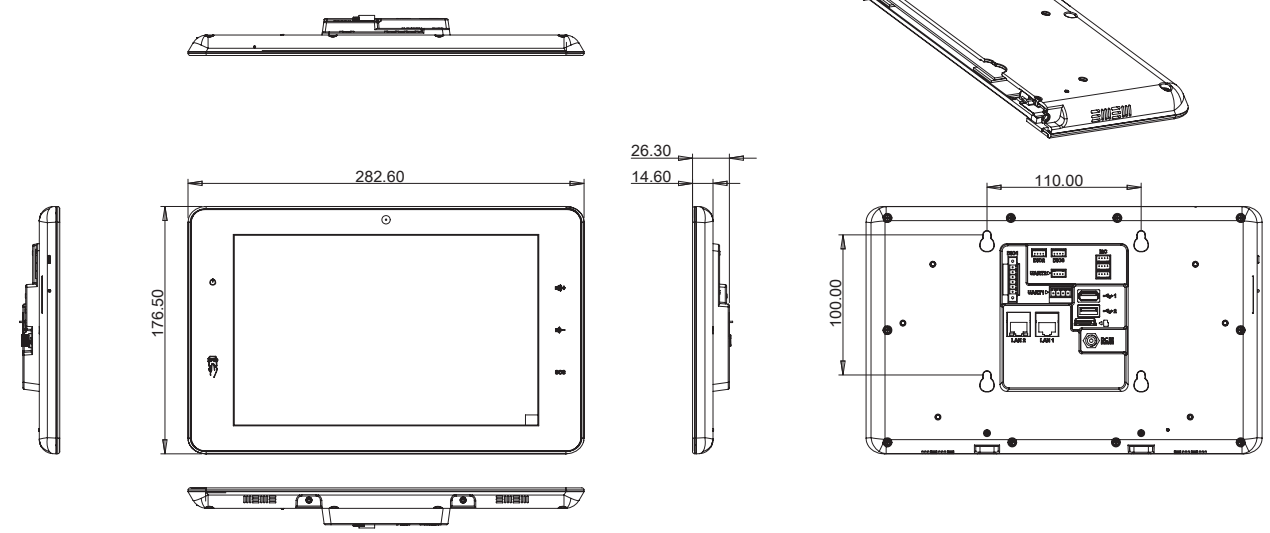
1 x IOVU-210AR Device
1 x Wall mount bracket
1 x Screw set

Options

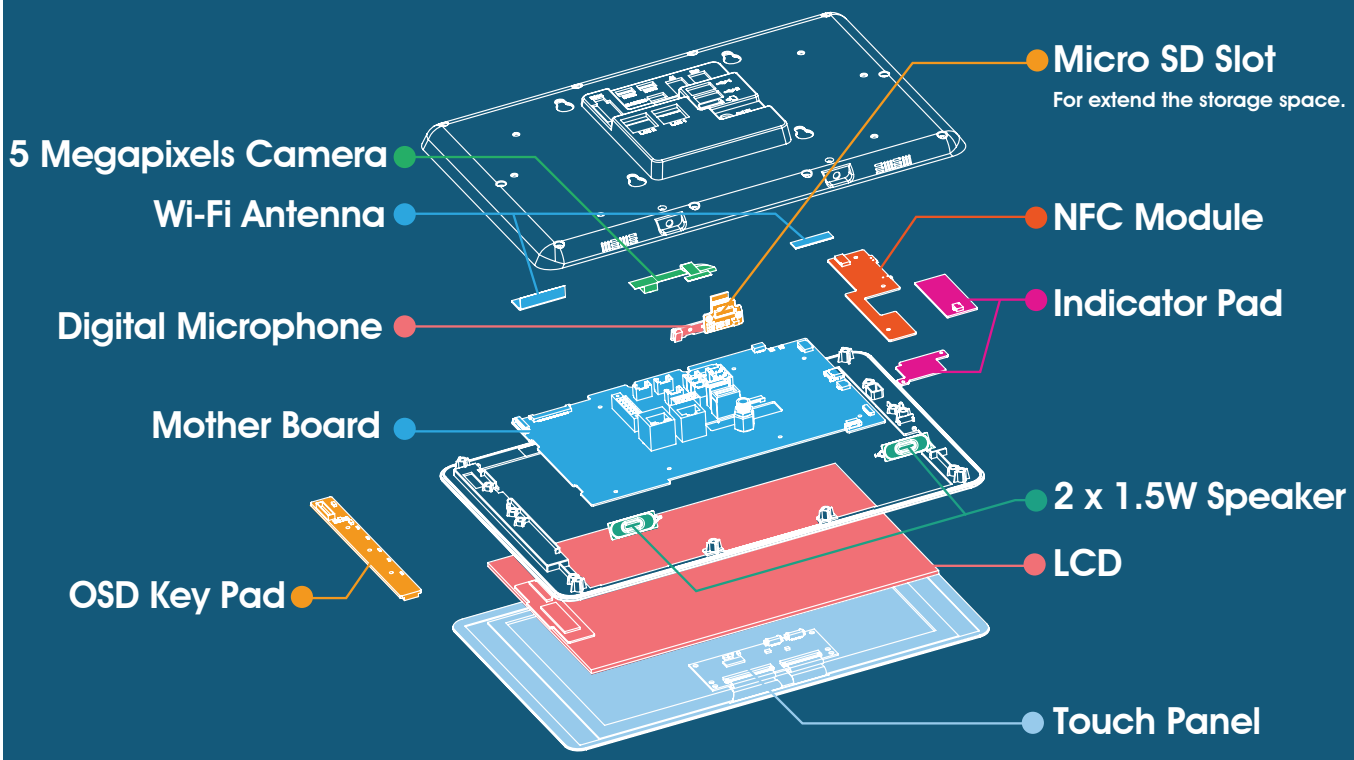
Item	Part No.	Description
Power Adapter	63040-010060-120-RS	Vin:90~264VAC;60W;Φ2.5/Φ5.5/lock
In Wall Cage	41320-0490E4-00-RS	In wall bracket for IOVU-210AR

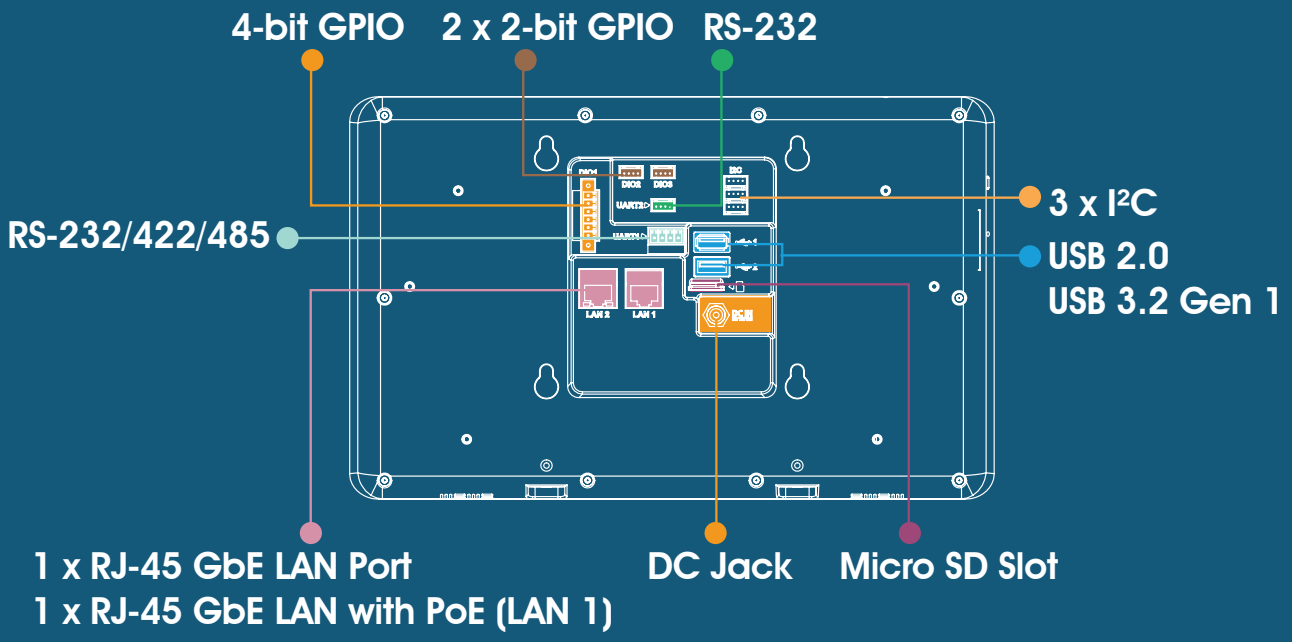
IOVU-210AR-RK39 Dimensions

(Unit: mm)



IOVU-210AR-RK39





Industrial Monitor Solution



Durable waterproof displays are essential in today's commercial and industrial applications. IEI's versatile lines of flat-bezel IP 65 compliant industrial displays with shock and vibration resistance are designed specifically to endure the rigorous demands of modern commerce and industrial environments. These displays are easily integrated into automation applications, ATM machines and human machine interfaces.





Display Monitor

DM-F Series

- IP65 flat-bezel
- Resistive touch window: 6H anti-scratch PCAP multi-touch
- HDMI/DP high definition audio/video interface
- 9~36V wide range DC input
- Anti-glare and UV-resistant Touch Screen

Maritime Monitor

SxxM Series

- IP66 flat-bezel
- PCAP multi-touch
- DVI/VGA/BNC output and BNC input
- Redundant power : AC and 18-36V DC
- 0%~100% dimmable LCD backlight
- Remote OSD control by serial port or LAN port
- Duplicate daisy chain monitor connection by VGA port

Product Line	DM-F Series	SxxM series
LCD Size	6.5" ~ 24"	19" / 24"
Input Signal Interface	6.5"/ 8": VGA+DVI-D 12.1" ~ 24": VGA+HDMI+DisplayPort	2 x VGA, 2 x DVI 1 x BNC input, 1 x BNC output
Brightness (cd/m²)	250 ~ 800	300
Operating Temperature	-20°C ~ 60°C	-15°C ~ 55°C
OSD Function	Yes	Yes
IEI samrtOSD Support	Yes	-
Front Panel Protection	IP 65	IP 66

Industrial Monitor Redefine

Anti-glare and UV-resistant Touch Screen Ideal for Outdoor Applications

Etching anti-glare, never peel off!

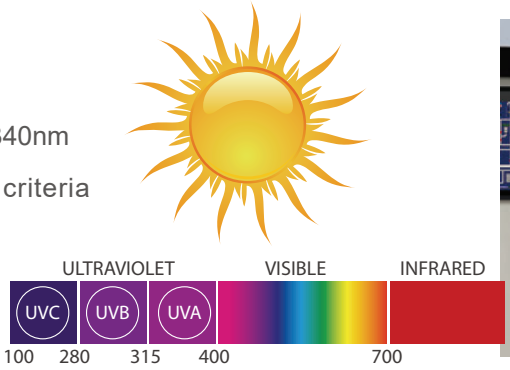
The PPC-FxxC series is built with anti-glare touch screen, which has lower reflection compared to normal touch screen. The reflection will reduce from 8% to 1% and it will eliminate the interference of shine and lights on displays and improve the screen clarity.



UV-resistant ensures reliable continuous operation for mission critical applications

Outdoor applications exposing to direct sunlight and long-term ultraviolet (UV) light will affect PCAP panel appearance such as PCAP top glass hard coat cracking and hazing, or varying degrees of yellowing and bubbling. Thus, IEI offers a UV resistant PCAP touch solution to equip outdoor industrial systems exposed to direct long-term sunlight with anti-UV characteristics.

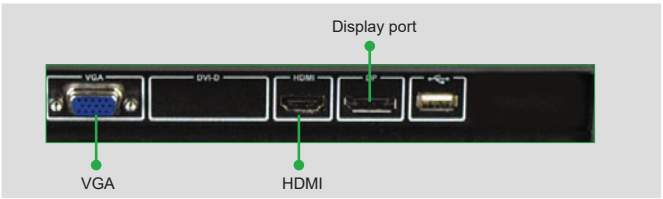
- Blocks UV wavelengths less than ≈340nm
- Meets ASTM G154 performance criteria Cycle 1 for 1000 hours





■ Flexible Video Input Selection

DM-F provides comprehensive video input from conventional analog VGA to broad bandwidth digital HDMI and DisplayPort to fulfill different needs.



Benefits of HDMI

- Single-link bandwidth to 340 MHz (10.2 Gbit/s)
- Blu-ray disc content support
- Downward convertible for DVI

Benefits of DisplayPort

- 17.28 Gbit/s broad bandwidth for faster transmission
- 15M for 1080p 60fps long transmission distance
- Blu-ray disc content support
- Lockable cables against vibration
- Downward convertible for HDMi and DVI


Lockable

■ 9V~36V Wide Range DC Input

Power requirement varies from applications. DM-F series provides 9V~36V DC input which simplifies system integration through adapter or DC source.

Supports Mobile Application

Display Monitor series M models support wide 9V~36V DC power input. Factory and mobile environments, such as vehicles, usually use 12V or 24V DC power source. The wide 9V~36V power input range by terminal block and 12V power input by power jack can be adapted to a wide variety of appliance requirements.



■ Dual Touch Screen Control Interface: RS-232 & USB

Display monitor series provides both RS-232 and USB ports for touch screen connection.

- Lockable RS-232 connector ensures secure attachment (Optional)
- Standard Type A USB 2.0 interface with 480 Mbit/s maximum transfer rate provides faster data transmission than a traditional RS-232 interface

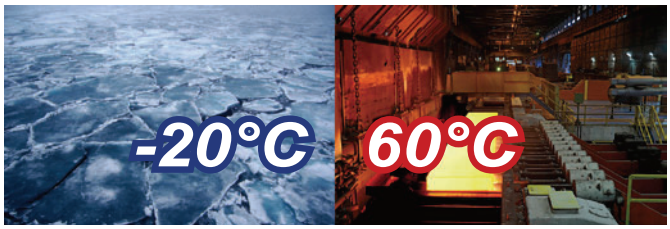
■ IP 65 Waterproof Aluminum Front Panel

IP 65 is the highest dust, water and oil proof standard in ground usage, It absolutely prevents any micro-particles from getting into the system front panel and allows the system to function in harsh environments.



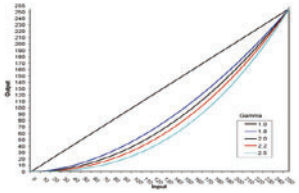
■ Wide Operating Temperature

Design for outdoor applications, DM-F series support wide operating temperature from -20°C ~ 60°C for 12" to 17" models. 22" and 24" are by project request.



■ Gamma Correction - Pursuit of Perfection

Gamma correction enables each panel model to follow the specified look-up-table (LUT) in gamma curve doing color adjustment through software encode. In this way, various monitors can display in an unified color by following Gamma 2.2 standard for PC products, ensuring color consistency for multiple monitor applications.



■ Cable Cover for Neat Cabling

The DM-F series provides an optional cable cover for easy and neat cabling.





On Screen Display (OSD)

■ OSD Keypad on Back

In order to keep the front panel simple and clean, the membrane keypad of the DM-F series is located on the rear panel to prevent the possibility to adjust the setting accidentally.



■ SmartOSD

- 100% compatible with Windows environment -Windows 95/NT 4.0/98/2000/2003/XP/Vista
- Normal video cable (VGA/DVI) connection only
- Overcome operation obstacles

Distance, location and multiple display units no longer present obstacles when controlling the monitors with the SmartOSD.

■ IEI SmartOSD Software OSD for IEI LCD Monitors

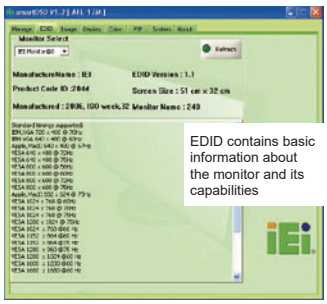
IEI SmartOSD is a proprietary On-Screen-Display (OSD) software solution that enables easy remote monitor setting adjustments in Windows environment. IEI SmartOSD delivers excellent performance and provides more flexibility than typical OSD hardware solutions when adjusting a monitor. SmartOSD also allows monitor settings such as brightness, contrast, screen position, size, and color gain to be read and changed over normal video cable (VGA/DVI by project base).

■ 100% Compatible with VESA DDC / CI Protocol

IEI LCD monitors are implemented with the VESA DDC/CI protocol and standard VESA Monitor Control Command Set (MCCS). Compliance software for designing displays compatible with VESA's DDC/CI and MCCS standards are easily modified and applied in other application programs.

Various Remote Management Functions

1.EDID



2.Image Setting



3.Display Setting



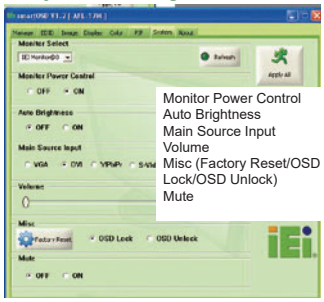
4.Color Setting



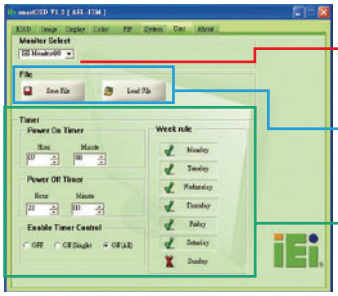
5. Picture in Picture Setting



6. System Setting



7.Monitor Power Management and File Saving



Monitor Select
Selects the monitor unit for which the system parameters will be adjusted

Settings Saving
Saves the referred settings of all the OSD functions as .dat files and load the settings

Power Management
Setts the monitor power on/off by time and week

Heavy Industrial Monitor

6.5”~15.6” DM-F IP65 Industrial Monitor

Features

- Robust IP65 aluminum front bezel
- Aesthetic ultra-thin bezel for seamless panel mount installation
- DC input
- DVI / VGA flexible video input solution
- Resistive single touch
- Wide temperature support



IP65 | High Brightness | -20°C~60°C | MOUNT

Specifications

Model		DM-F65A	DM-F08A	DM-F12A	DM-F15A	DM-FW15A
LCD	LCD Display	6.5" (4:3)	8" (4:3)	12.1" (4:3)	15" (4:3)	15.6" (16:9)
	Max. Resolution	640 (W) x 480 (H)	800 x 600	1024 (W) x 768 (H)	1024 (W) x 768 (H)	1366 (W) x768 (H)
	Brightness (cd/m²)	800	500	600	450	400
	Contrast Ratio	600:1	500:1	700 : 1	800 : 1	500:1
	LCD Color	16.2M	262K	16.2M	16.2M	16.2M
	Pixel Pitch (mm)	0.207 x 0.207	0.0675 x 0.2025	0.24 x 0.24	0.29 x 0.29	0.252 x 0.252
	Viewing Angle (H-V)	160° / 140°	140°/120°	160° /140°	160° / 150°	170° / 160°
	Backlight MTBF (Hrs)	50000	50000	50000	70000	50000
Touchscreen & Controller		5-wire resistive single touch window/ Penmount 6000		5-wire resistive single touch window/ Penmount 6000 (Anti-glare Surface) 10-point Projected capacitive touch window, 6H/EETI EXC3188 (Anti-UV, Anti-glare Surface)		
I/O Ports		1 x VGA (DB-15) 1 x DVI 1 x USB 2.0 (touch) 1 x RS-232 (reserved for resistive touch ATO) 1 x Lockable 12V DC jack		1 x VGA (DB-15) 1 x HDMI 1 x DisplayPort 1.1 1 x USB 2.0 (touch) 1 x RS-232 (reserved for resistive touch ATO) 1 x Lockable 9V-36V DC jack 1 x 9V-36V terminal block		
OSD	OSD Button	5-key membrane OSD keypad		7-key membrane OSD keypad		
	Smart OSD Software	Smart OSD Software				
Physical	Construction Material	Aluminum front frame and sheet metal rear cover				
	Mounting	Panel Mount/ Rack Mount 75 x 75 VESA Mount		Panel Mount/ Rack Mount 100 x 100 VESA Mount		
	Enclosure Color	Black C				
	Dimensions (mm)	191.8 x 154.36 x 42.88	222.2 x 182.2 x 42.7	262.2 x 322.2 x 40.5	303 x 378.5 x 43.2	400.1 x 253.3 x 52.9
	Cutout Dimensions (mm)	180 x 140	206 x 154	244.8 x 304.8	285.6 x 361.1	379.1 x 232.3
	Weight (kg) Net/ Gross	1.1 / 2.6	1.33 / 4.5	2.7 / 4.9	3.5 / 5.5	4 / 6.5
Environment	Operating Temperature (with air flow)	-20°C ~ 60°C (with air flow)				
	Storage Temperature	-20°C ~ 70°C				
	Humidity	10% to 95% (non-condensing)				
	IP Level	IP 65 compliant front panel				
	Safety and EMC	CE & FCC certified				
Power Input		12V DC		9V~36V DC		
Power consumption		12V @ 0.5A	12V @ 0.5A	9V @ 2.2A 36V @ 0.5A	9V @ 1.6A 36V @ 0.4A	9V @ 1.3 36V @ 0.33

Heavy Industrial Monitor

17”~23.8” DM-F IP65 Industrial Monitor

Features

- Robust IP65 aluminum front bezel
- Aesthetic ultra-thin bezel for seamless panel mount installation
- Wide range 9V~36V DC input
- HDMI / DisplayPort / VGA flexible video input solution
- Projected capacitive multi-touch and resistive single touch options
- Wide temperature support



IP65 | 9V~36V DC Input | High Brightness | Multi-touch | MOUNT

Specifications

Model		DM-F17A	DM-FW19A	DM-F19A	DM-F22A	DM-F24A
LCD	LCD Display	17" (5:4)	18.5" (16:9)	19" (5:4)	21.5" (16:9)	23.8" (16:9)
	Max. Resolution	1280 (W) x 1024 (H)	1366 (W) x 768 (H)	1280 (W) x 1024 (H)	1920 (W) x 1080 (H)	1920 (W) x 1080 (H)
	Brightness (cd/m²)	350	400	350	250	250
	Contrast Ratio	1000 : 1	1000 : 1	1000 : 1	1000 : 1	3000 : 1
	LCD Color	16.7M				
	Pixel Pitch (mm)	0.26 x 0.26	0.3 x 0.3	0.294 x 0.294	0.25 x 0.25	0.28 x 0.28
	Viewing Angle (H-V)	170° / 160°			170° / 160°	178° / 178°
	Backlight MTBF (Hrs)	50000			30000	30000
Touchscreen & Controller		5-wire resistive single touch window, 3H/Penmount 6000 (Anti-glare Surface) 10-point Projected capacitive touch window, 6H/EETI EXC3188 (Anti-UV, Anti-glare Surface)			10-point Projected capacitive touch window, 6H/EETI EXC3188 (Anti-UV, Anti-glare Surface)	
I/O Ports		1 x VGA (DB-15) 1 x DVI (F19A only) 1 x HDMI (F17A & FW19A only) 1 x DisplayPort 1.1 1 x USB 2.0 (touch) 1 x RS-232 (reserved for resistive touch ATO) 1 x Lockable 9V-36V DC jack 1 x 9V-36V terminal block			1 x VGA (DB-15) 1 x HDMI 1 x DisplayPort 1.1 1 x USB 2.0 (touch) 1 x RS-232 (reserved for resistive touch ATO) 1 x Lockable 9V-36V DC jack 1 x 9V-36V terminal block	
OSD	OSD Button	7-key membrane OSD keypad				
	Smart OSD Software	Smart OSD Software				
Physical	Construction Material	Aluminum front frame and sheet metal rear cover				
	Mounting	Panel Mount/ Rack Mount 100 x 100 VESA Mount			Panel Mount 100 x 100 VESA Mount	Panel Mount 100 x 100 VESA Mount
	Enclosure Color	Black C				
	Dimensions (mm)	341.4 x 408.4 x 49.3	468.8 x 288.2 x 48.9	372.4 x 447.4 x 49.57	358.4 x 550.4 x 49.1	382 x 600 x 49.4
	Cutout Dimensions (mm)	324 x 391	447.8 x 267.2	430 x 355	340 x 532	358.6 x 576.6
	Weight (kg) Net/Gross	4.4 / 7.1	5 / 8.1	5.4 /8.4	6.3 / 9.6	7.6 / 10.9
Environment	Operating Temperature (with air flow)	-20°C ~ 60°C (with air flow)			-10°C ~ 50°C	-10°C ~ 50°C
	Storage Temperature	-20°C ~ 70°C	-20°C ~ 70°C	-20°C ~ 70°C	-20°C ~ 60°C	-20°C ~ 60°C
	Humidity	10% to 95% (non-condensing)				
	IP Level	IP 65 compliant front panel				
	Safety and EMC	CE & FCC certified				
Power input		9V~36V DC				
Power consumption		9V @ 2.6A 36V @ 0.6A	9V @ 1.33A 36V @ 0.35A	9V @ 3.3A 36V @ 0.8A	9V @ 2.5A 36V @ 0.6A	9V @ 3.4A 36V @ 0.8A

Ordering Information

Part No.	Description
DM-F65A/R-R10	6.5” 800 cd/m² high-luminance VGA LCD monitor with aluminum die casting front panel, black color, USB resistive touchscreen, R10
DM-F08A/R-R10	8” 500 cd/m² SVGA LCD monitor, Aluminum front panel, Black color, W/ USB resistive touch screen, 12V DC input, R10
DM-F12A/R-R21	12.1” 600 cd/m² XGA LCD monitor, Aluminum die casting front panel, Black color, W/ USB resistive touch screen, 9 ~36V DC input, R21
DM-F12A/PC-R21	12.1” 600 cd/m² XGA LCD monitor, Aluminum die casting front panel, Black color, W/ USB projected capacitive touch screen, 9 ~36V DC input, R21
DM-F15A/R-R30	15” 450 cd/m² XGA LCD monitor, Aluminum die casting front panel, Black color, W/ USB resistive touch screen, 9 ~36V DC input, R30
DM-F15A/PC-R30	15” 450 cd/m² XGA LCD monitor, Aluminum die casting front panel, Black color, W/ USB projected capacitive touch screen, 9 ~36V DC input, R30
DM-FW15A/PC-R10	15.6” 400 cd/m² 1366x768 LCD monitor, Aluminum front panel, Black color, W/ USB PCAP touch screen, 9 ~36V DC input, R10
DM-F17A/R-R20	17” 350 cd/m² SXGA LCD monitor, Aluminum die casting front panel, Black color, W/ USB resistive touch screen, 9 ~36V DC input, R20
DM-F17A/PC-R20	17” 350 cd/m² SXGA LCD monitor, Aluminum die casting front panel, Black color, W/ USB projected capacitive touch screen, 9 ~36V DC input, R20
DM-FW19A/PC-R10	18.5” 400 cd/m² 1366x768 LCD monitor, Aluminum front panel, Black color, W/ USB PCAP touch screen, 9 ~36V DC input, R10
DM-F19A/R-R20	19” 350 cd/m² SXGA LCD monitor, Aluminum die casting front panel, Black color, W/ USB resistive touch screen, 9 ~36V DC input, R20
DM-F19A/PC-R20	19” 350 cd/m² SXGA LCD monitor, Aluminum die casting front panel, Black color, W/ USB projected capacitive touch screen, 9 ~36V DC input, R20
DM-F22A/PC-R21	21.5” 250 cd/m² FHD LCD monitor, Aluminum die casting front panel, Black color, W/ USB projected capacitive touch screen, 9 ~36V DC input, R21
DM-F24A/PC-R31	23.8” 250 cd/m² FHD LCD monitor, Aluminum front panel, Black color, W/ USB projected capacitive touch screen, 9 ~36V DC input, R31

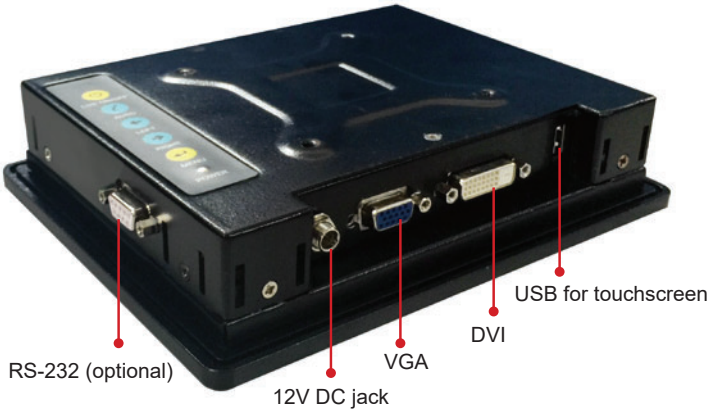
Options

Item	DM-F65A	DM-F08A	DM-F12A	DM-F15A	DM-FW15A	DM-F17A	DM-F19A	DM-FW19A	DM-F22A	DM-F24A
Arm	ARM-11-RS		ARM-11-RS	ARM-31-RS	ARM-31-RS	ARM-31-RS	ARM-31-RS	ARM-31-RS	ARM-31-RS	ARM-31-RS
Stand	STAND-B08		STAND-A12-RS STAND-C12-R10	STAND-A19-RS STAND-C19-R10 STAND-A21-R10						
Wall Mount Kit	AFLWK-12		WK-190MS-R10							
Panel Mount Kit	FPK-07-R10		FPK-01-R10				FPK-02-R10		FPK-02-R10	FPK-03-R10
Rack Mount Kit	FRK65-R10	FRK08-R10	FRK12-R10	FRK15-R10	FRKW15D-R10	FRK17-R10	FRK19D-R10	FRKW19D-R10	N/A	
Cable Cover	N/A		N/A	DM-F-CC01-R10	N/A	DM-F-CC01-R10	DM-F-CC02-R10	N/A	DM-F-CC02-R10	
RS-232 Touch Cable Kit	DM-F-COMKIT-R10		DM-F-COMKIT-R10	DM-F-COMKIT-R10	N/A	DM-F-COMKIT-R10	DM-F-COMKIT01-R10	N/A	N/A	
Power Adapter	N/A		63040-010060-120-RS							

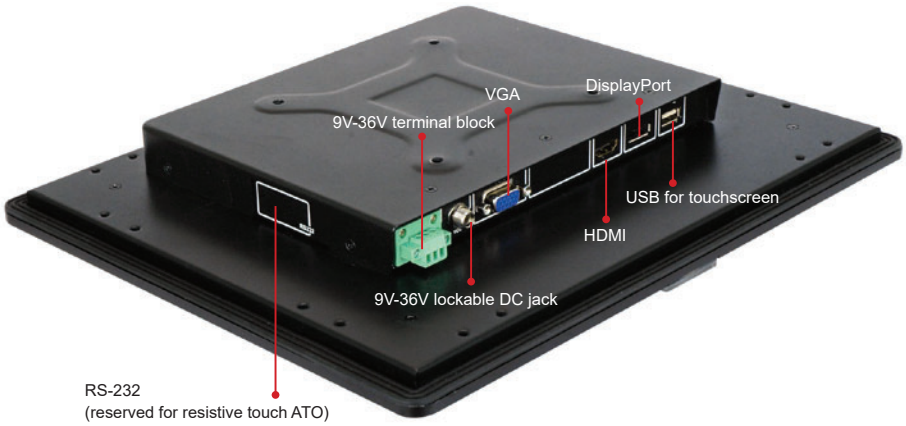
Packing List

Item	P/N	Q'ty	Remark
USB Cable	32001-006100-100-RS	1	For touchscreen
VGA Cable	32000-036200-RS	1	
Power Adapter	63040-010036-121-RS (for DM-F65/08A)		

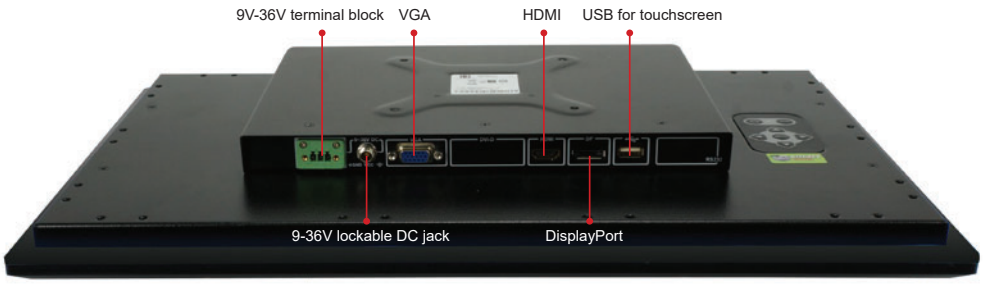
DM-F65A/08A
Fully Integrated I/O



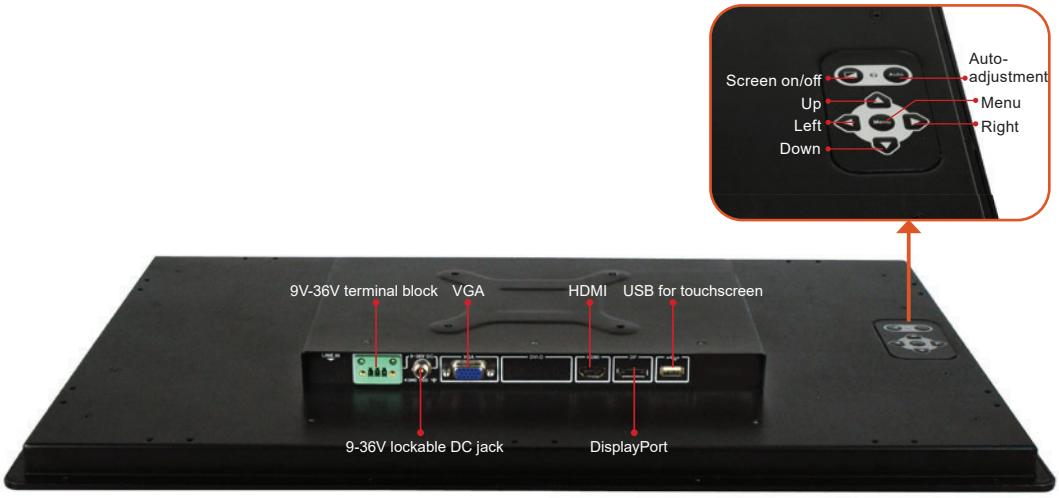
DM-F12A/F15A/FW15A/F17A
Fully Integrated I/O



DM-F19A
Fully Integrated I/O

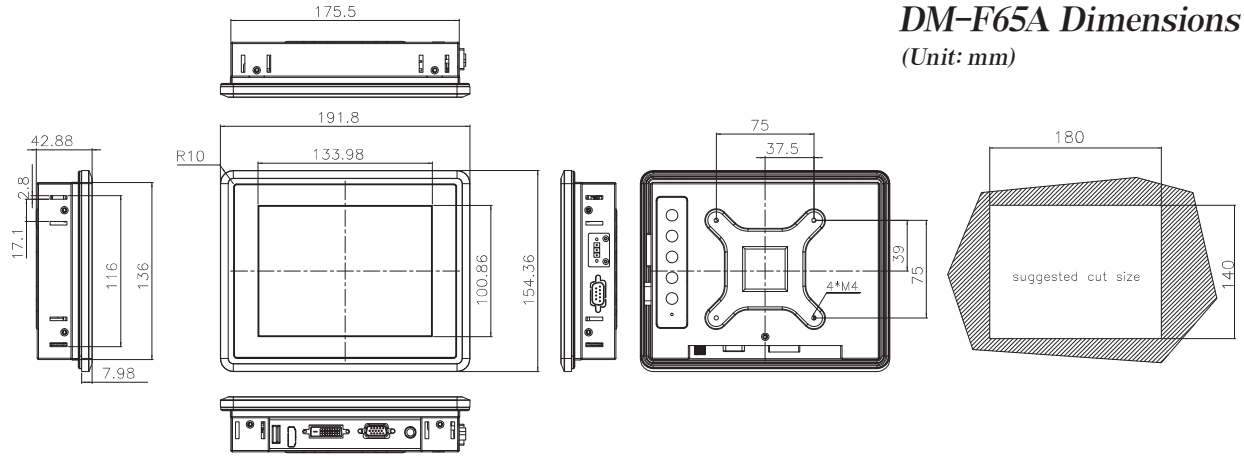


DM-F22A/F24A
Fully Integrated I/O



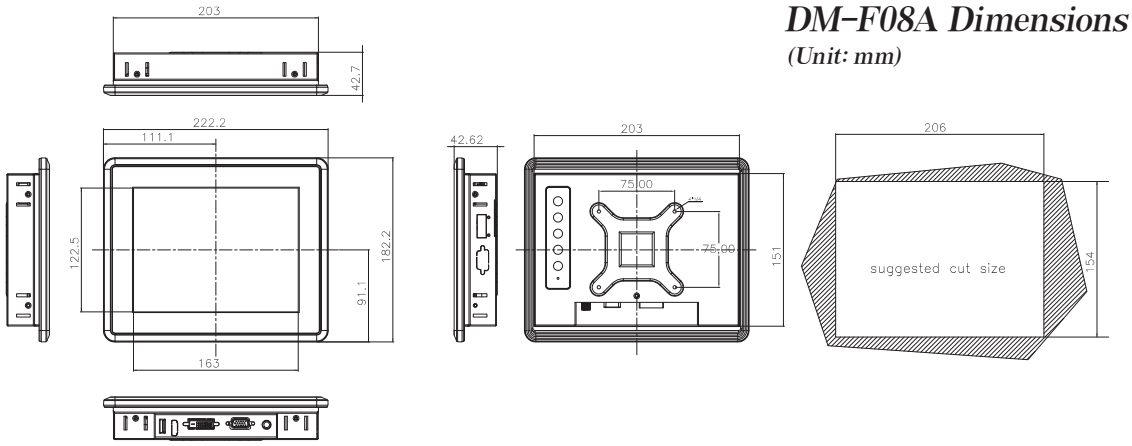
DM-F65A Dimensions

(Unit: mm)



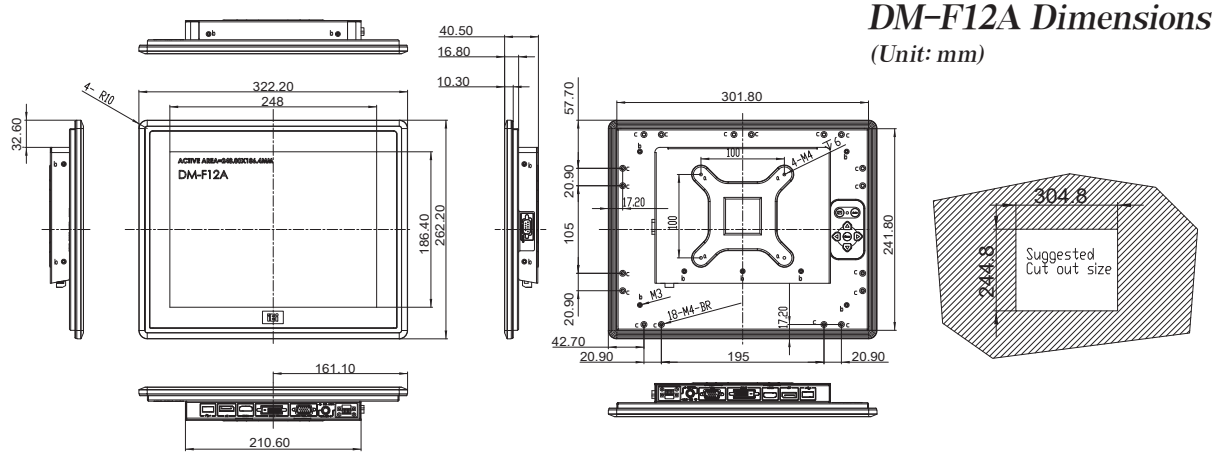
DM-F08A Dimensions

(Unit: mm)



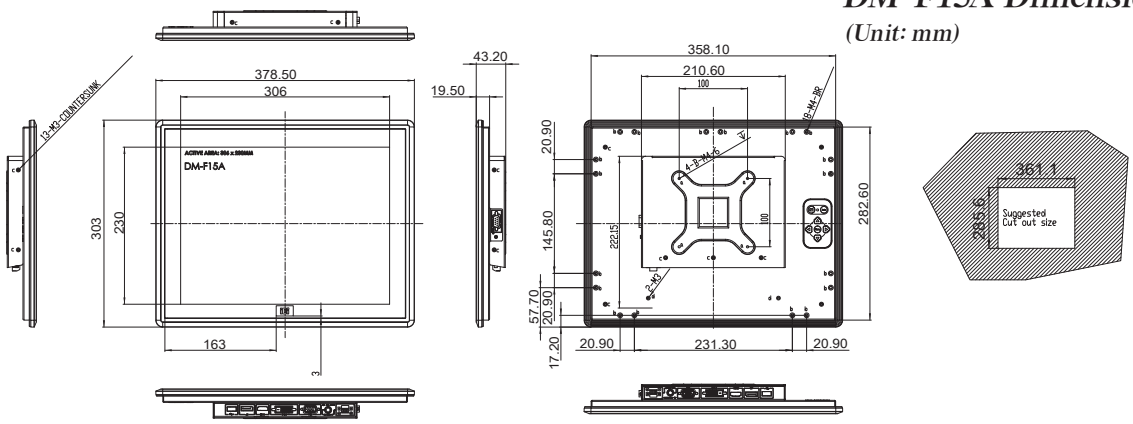
DM-F12A Dimensions

(Unit: mm)



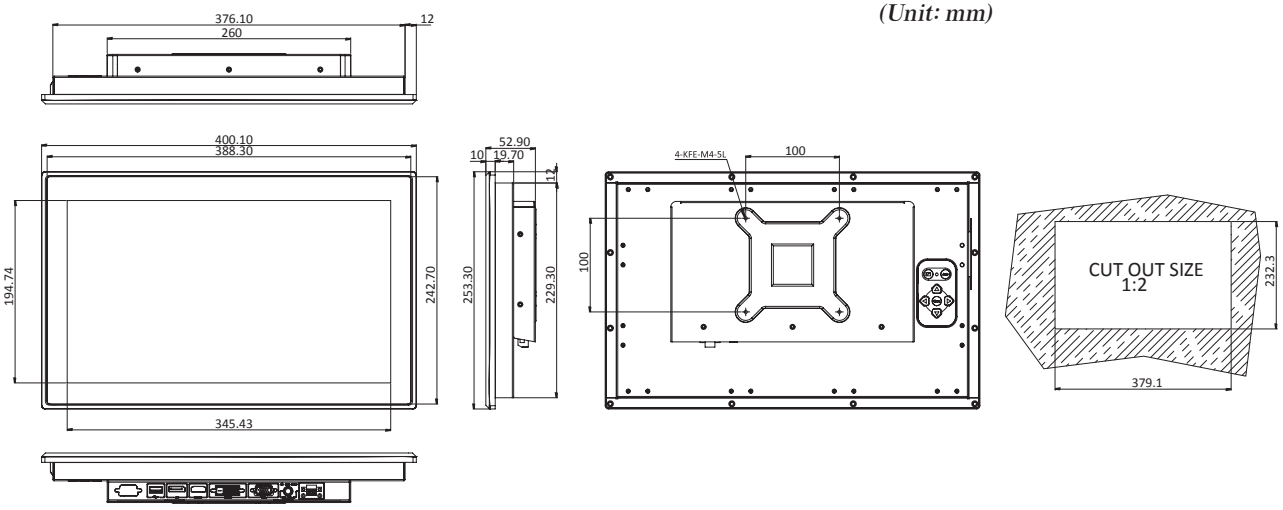
DM-F15A Dimensions

(Unit: mm)



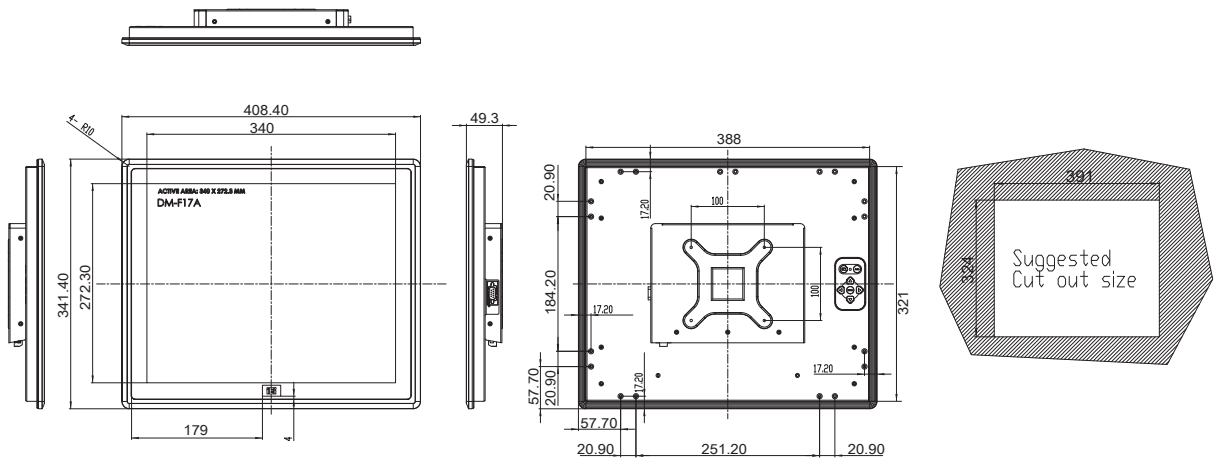
DM-FW15A Dimensions

(Unit: mm)



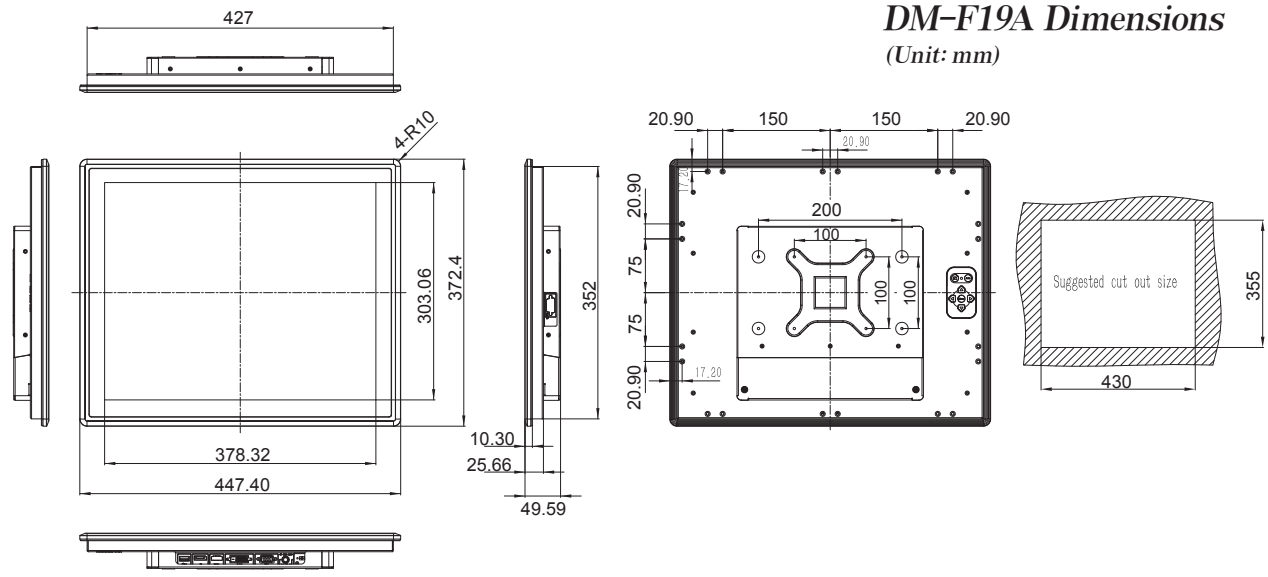
DM-F17A Dimensions

(Unit: mm)



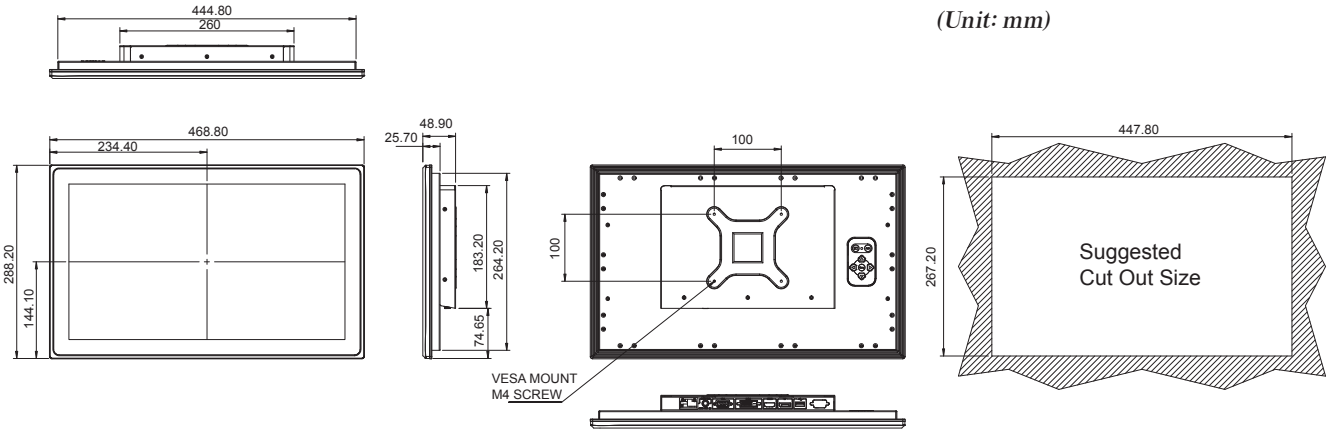
DM-F19A Dimensions

(Unit: mm)



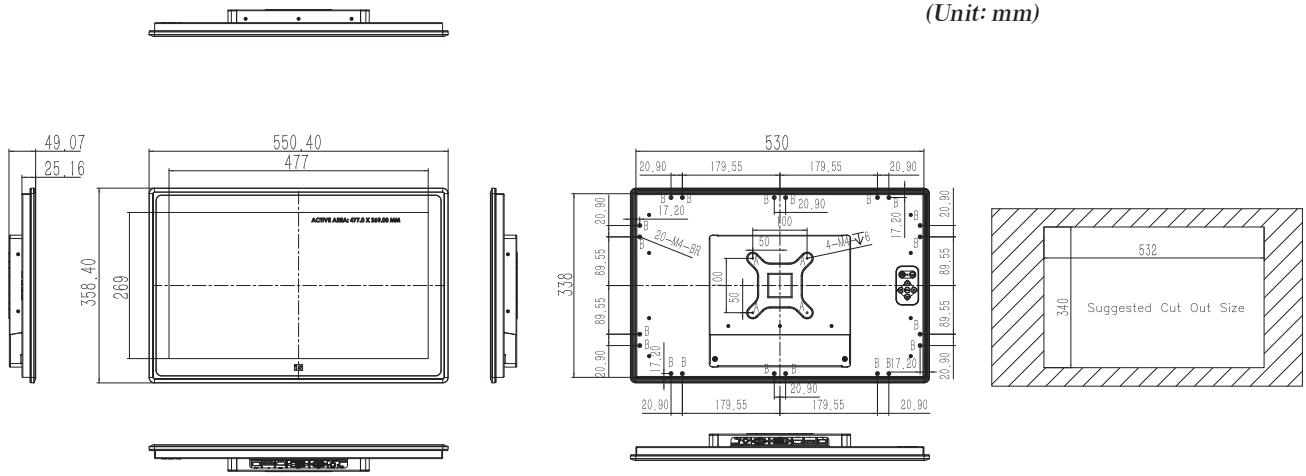
DM-FW19A Dimensions

(Unit: mm)



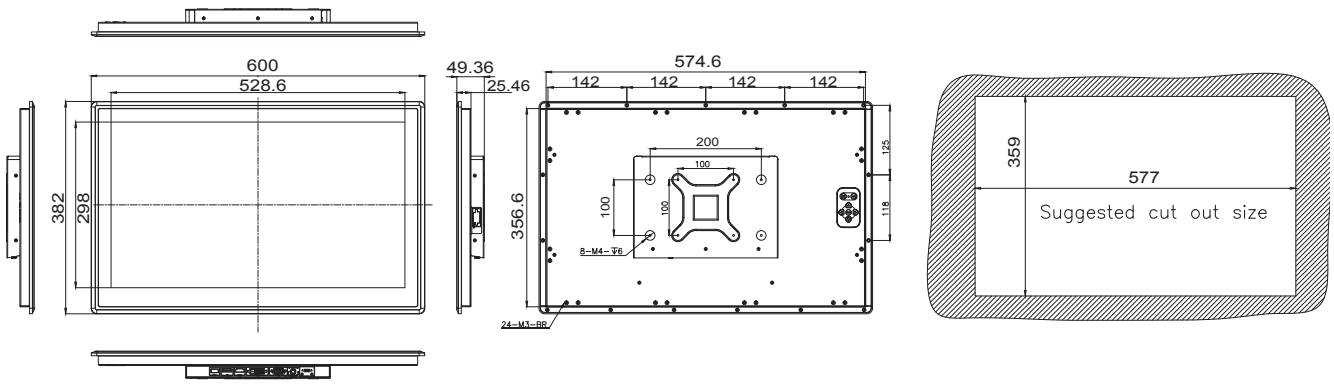
DM-F22A Dimensions

(Unit: mm)



DM-F24A Dimensions

(Unit: mm)



Marine Monitor Series

S19M

19” IP66 Marine Monitors

S24M

24” IP66 Marine Monitors



Features

- **IP66 Front / IP22 Rear**
- **-15°C ~ +55°C Wide Temperature and Flat-bezel Projected Capacitive Touchscreen**
- **Excellent Visual Performance**
  - Full OSD function configuration
  - 0%~100% full range dimming
  - 178°/178° wide viewing angles
- **Multiple Video Input**
  - Two VGA, two DVI, and one BNC
- **Multiple Video Output**
  - One VGA and one BNC
- **Dual Isolated AC/DC Input with Redundant Power Protection**
- **Remote OSD Settings through LAN, RS-232, RS-422 and RS-485**

Specifications

Model		S19M	S24M
LCD	LCD Size	19”	24”
	Panel Type	PMVA	AMVA
	Max Resolution	1280 x 1024 (5:4)	1920 x 1080 (16:9)
	Contrast Ratio	2000 : 1	5000 : 1
	Brightness (cd/m²)	300	300
	LCD Color	16.7M	16.7M
	Pixel Pitch (um)	294 x 294	276.75 x 276.75
	Viewing Angles (H-V)	178° / 178°	178° / 178°
	Backlight MTBF (HRs)	50000	50000
Scalar Chip		STDP8028	
I/O Ports		• DVI-D Signal Input: 2 x DVI (24-pin, female) • VGA Signal Input: 2 x D-sub (15-pin, female) • VGA Signal Output: 1 x D-sub (15-pin, female) - Clone of VGA IN* • Composite Video Input: 1 x BNC connector (Female) Composite Video Output: 1 x BNC connector (Female) • RS-232/422/485 for Remote Control (Non-isolated) • Touchscreen: 1 x USB Type A Connector (Female) • Ethernet: 1 x RJ-45 Connector for Remote Control • Isolated AC Power Inlet: 100V~240V AC • Isolated DC Terminal Block: 18V~36V DC • 1 x Buzzer	
PIP		Yes	
OSD Button		P-CAP Button (LCD on/off, Menu, Auto, Up, Down, Left, Right)	
LED/Sensor		Ambient light sensor (0%~100%)	
Power Requirement		Multi-power Supply: Isolated AC Power: 100-240V, 2-1A, 50-60Hz Isolated DC Power: 18-36V, 8-4A	
Operating Temperature		-15°C ~ 55°C	
Storage Temperature		-20°C ~ 60°C	
Humidity		5% to 95% RH	
Thermal Design		Fanless	
Housing		Aluminum front , sheet metal back (Black C)	
Cut-out Dimensions (L x W)		442 mm x 373 mm	576 mm x 358 mm
Dimensions (L x W x D)		463 mm x 394 mm x 113 mm	592 mm x 374 mm x 113 mm
Mounting		VESA 100mm x 100mm	VESA 100mm x 100mm
Net Weight (kg)		7.74	11.48
Gross Weight (kg)		11.54	15.97
Approvals		EMC: CE, FCC	
		Safety: DNV, IEC 60945 4th, IACS-E10	
		IP Rating: IP66 front , IP22 rear	

Ordering Information

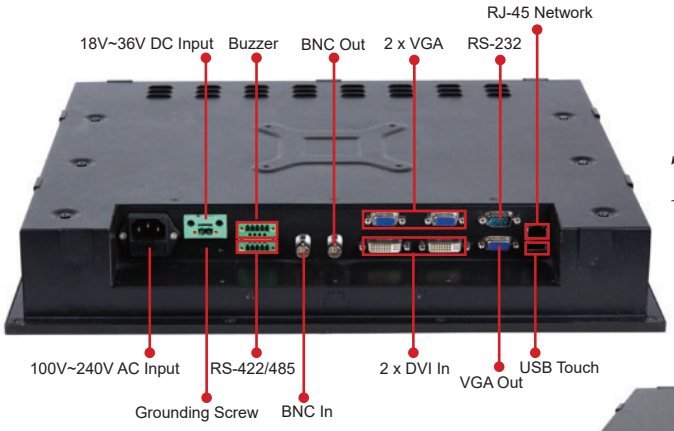
PN	Description
S19M-AD/PC-R11	19" SXGA 300cd/m² Marine Display with AC and DC redundant power, PCAP touch screen, R11
S24M-AD/PC-R11	24" FHD 300cd/m2 Marine Display with AC and DC redundant power, PCAP touch screen, R11

Options

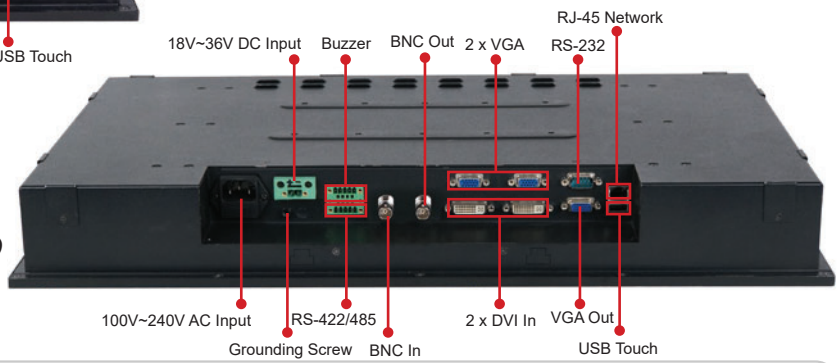
Item	Part No.	Description
Panel Mount Kit	PK-S19M-R10	for S19M
	PK-S24M-R10	for S24M
Desktop Stand	STAND-A21-R10	for S19M & S24M

Packing List

Item	Q'ty	Remark
VGA	1	VGA Signal Cable
DVI	1	DVI Signal Cable
USB	1	Touch Screen Cable USB
Power Cord	1	Power Cord
S19M or S24M	1	

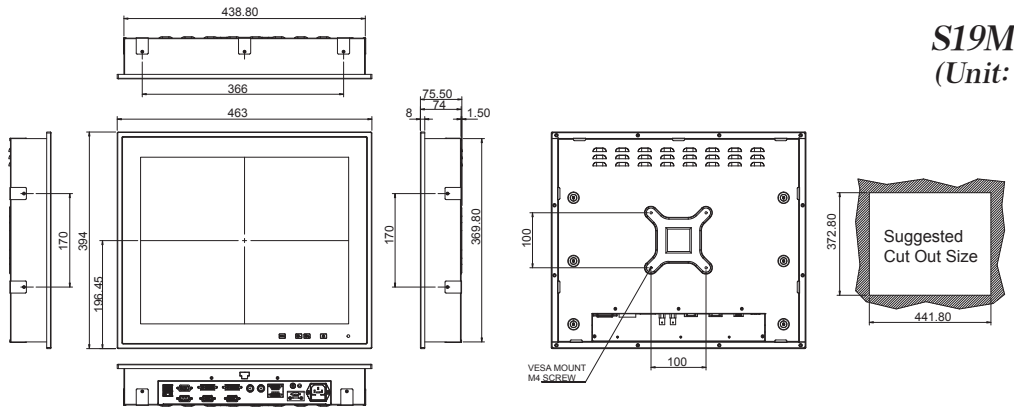


S19M
Fully Integrated I/O

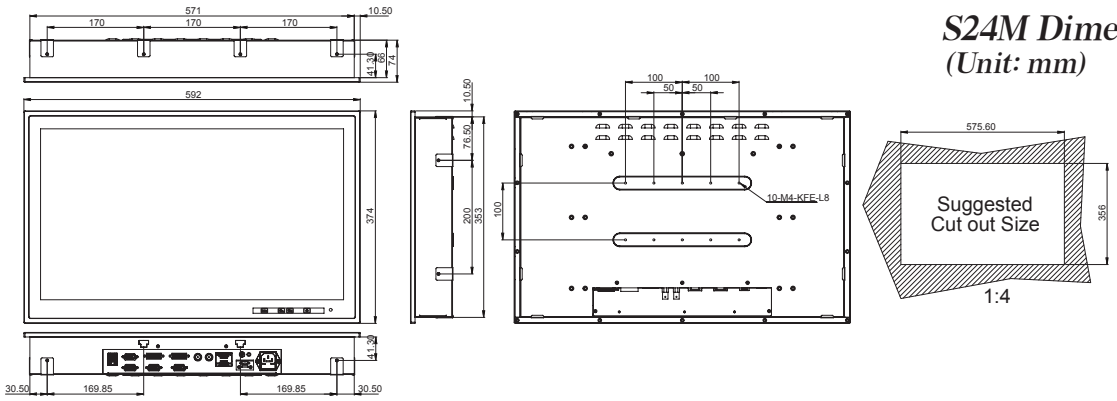


S24M
Fully Integrated I/O

S19M Dimensions
(Unit: mm)



S24M Dimensions
(Unit: mm)



Smart Healthcare Strategies of IEI Group



2009

Advanced Services BriteMED

Providing better services from both IEI and BriteMED

IEI is a leading company providing industrial computer-based boards and system products that could be applied in factory automation, retail management, security, transportation, etc. IEI promises to provide our own-brand products continually as well as serving ODM vertical markets to offer complete, professional and flexible services. Learning from various medical product designs and manufacturing experiences, we found that the medical grade computer locates in a highly customized and professional product segment. For this reason, we planed to expand the market share in the medical field, and our medical business unit was then separated from the mother company to become an independent company called BriteMED on August 1st in 2009.

Population aging and technology approved day by day are the worldwide phenomenons which make the healthcare application become friendlier, such as healthcare digitally (paper-less and automatic data collection), healthcare remotely and healthcare mobility. To provide our customers better services, we divide R&D works into two parts - by IEI and by BriteMED.

IEI Integration Corp.

Medical IT for general healthcare



Intelligence Point-of-Care Terminal



Medical Panel PC



Industrial PDA



Medical Embedded System



AI Box PC

BriteMED

Medical devices for clinical



Medical Monitor



E-Medical Cart

Our Value Propositions





Population Aging → **More chronic conditions, more health-caring needs**

Technology Approving → **Working load optimized**

- **Digitally**
- **Remotely**
- **Mobility**



Manufacturing Certification

Deeply Focus on Advanced Users Experiences

- Anti-bacteria plastic cover (ATCC 6538P, ATCC 8739, ATCC 4352, ATCC 33591 and ATCC 10145) to avoid cross-infection
- Smooth curves design for easy cleaning
- Slim and comfortable sense of touch for moving the cart safely
- Multiple optional peripherals to add on
- Camera cover protects patient privacy
- Magnetic cover for easy system maintenance

Medical Grade Certification

- Safety: UL/cUL, CE
- EMC: FCC Class B Part 18, EN 60601-1-2 (V4.0)
- R.E.D
- ISO 14971
- Usability: IEC 62366 + IEC 60601-1-6
- IEC 62304

R&D Capability

- Thermal analysis
- Front IP65
- DICOM
- Uniformity calibration
- IC design (FPGA)
- Optical design
- 2.5kV isolation port
- Hot swappable battery
- PoE
- Wide power range
- Intel/Freescale development

All-in-one Medical Grade Panel PC



Medical Certifications

FCC Class B | CE 60601-1-2 | UL 60601-1

User-friendly-oriented design is always the core value of us. IEI all-in-one medical grade panel PC series offers three product lines to accommodate all healthcare needs. All products are equiped with antibateria chassis and IP65 front bezel for easy sterilization. The touch panel still works under wearing multi-layer medical gloves. In addition, the products we designed support various communication functions, such as Bluetooth, 1D/2D barcode scanner, RFID, SCR and MSR. These units can provide clinician personnel conveniences and increase the work efficiency.



POC Series

Point-of-care terminal

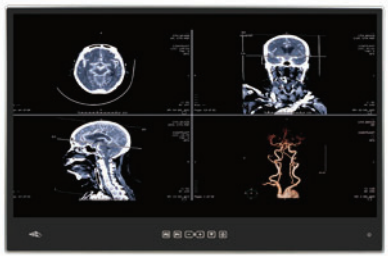
- Rich bottom I/O
- High performance with smart fan/ fanless system
- Ambient light sensor for panel brightness adjustment



POCm Series

Mobile point-of-care terminal

- Lightweight design: under 6.8kg without battery
- High performance with fanless system
- 3 hot swappable batteries with battery management utility design



POCi Series

Intelligence point-of-care terminal

- Ultra slim front bezel
- High performance with fanless system
- PCIe x 4 expension
- optional DICOM preset

Selection Guide





Series		POC		BIS
Model		POC-17C-ULT3	POC-W24C-ULT3	BIS-W19C-ULT4
LCD/Touch	LCD Size (inch)	17"	24"	18.5"
	Max. Resolution	1280 (W) x 1024 (H)	1920 (W) x 1080 (H)	1366 (W) x 768 (H) / 1920 (W) x 1080 (H)
	Brightness (cd/m²)	350	250	250 / 350
	Contrast Ratio	1000:1	1000:1	1000:1
	LCD Color	16.7M	16.7M	16.7M colors
	Viewing Angle (H-V)	170°/160°	178°/ 178°	170°/160°, 178°/178°
	Touchscreen	Projected capacitive type with USB interface	Projected capacitive type with 10-point multi-touch	Projected capacitive type with 10-point multi-touch
System	CPU	6th Generation Intel® mobile ULT Core™ i7/ i5/Celeron® processor	6th Generation Intel® mobile ULT Core™ i7/ i5/Celeron® processor 7th Generation Intel® mobile ULT Core™ i7/ i5/Celeron® processor (by project base)	7th Generation Intel® mobile ULT Core™ i5/ Celeron® processor
	Memory	Two 260-pin 2400/2133MHz dual-channel DDR4 SO-DIMM, 4GB pre-installed (system max.32GB)	Two 260-pin 2400/2133MHz dual-channel DDR4 SO-DIMM, 4GB pre-installed (system max.32GB)	Two 260-pin 2400/2133MHz dual-channel DDR4 SODIMM, 4GB pre-installed (system max.32GB)
	I/O Ports	1 x RJ-11 for 1D/2D barcode reader 4 x USB 2.0 (2 on the side) 4 x USB 3.2 Gen 1 port 1 x HDMI output 2 x GbE LAN port 1 x RS-232/422/485 1 x 12~28V DC jack	1 x RJ-11 for 1D/2D barcode reader 4 x USB 2.0 (2 on the side) 4 x USB 3.2 Gen 1 port 1 x HDMI output 2 x GbE LAN port 1 x RS-232/422/485 1 x 12~28V DC jack	Rear 1 x 1.5kV isolation COM port 1 x 12~28V DC Jack 1 x GbE LAN port 2 x USB 3.2 Gen 1 port Bottom 1 x RJ-11 for barcode scanner 1 x GbE LAN port 2 x USB 3.2 Gen 1 port 1 x HDMI output Side 1 x HDMI input (optional) 2 x USB 2.0 port 1 x Audio out 1 x Mic in
	Storage	2 x 2.5" SATA 6Gb/s accessible HDD bay 1 x mSATA (E-Window)	1 x 2.5" SATA 6Gb/s HDD/SDD bay 1 x mSATA reserved (E-Window)	1 x 2.5" SATA 6Gb/s HDD/SDD bay 1 x mSATA reserved (E-Window)
	Audio	2 x 2W speaker, digital microphone	2 x 2W speaker, digital microphone	2 x 3W Speaker, digital microphone
	LED Function	RFID indicator	RFID indicator	RFID indicator
	OSD Function	1 x LCD on/off 1 x Brightness up 1 x Brightness down 1 x Volume up 1 x Volume down 1 x Touch lock button for cleaning Combinations: 1 x Lock/Unlock OSD 1 x Power on/off	1 x LCD on/off 1 x Brightness up 1 x Brightness down 1 x Volume up 1 x Volume down 1 x Touch lock button for cleaning Combinations: 1 x Lock/Unlock OSD 1 x Power on/off	1 x LCD on/off 1 x Brightness down 1 x Brightness up 1 x Volume down 1 x Volume up 1 x Touch lock (OSD lock included) Combinations: 1 x Auto-dimming on/off
	Auto-dimming	Yes	Yes	Yes
	Expansion	1 x E-Window slot (full-size PCIe Mini slot with PCIe/mSATA/USB)	1 x E-Window slot (full-size PCIe Mini slot with PCIe/mSATA/USB)	1 x E-Window slot (full-size PCIe Mini slot with PCIe/mSATA/USB)
Wireless	Wi-Fi and Bluetooth	IEEE 802.11 a/b/g/n/ac 2T2R module with Bluetooth V4.1 1 x 2230 A/E key (PCIe x 1/USB 2.0)	IEEE 802.11 a/b/g/n/ac 2T2R module with Bluetooth V4.1 1 x 2230 A/E key (PCIe x 1/USB 2.0)	IEEE 802.11 a/b/g/n/ac 2T2R module with Bluetooth V4.1 (M.2 2230 A-E key module)
Physical	Construction Material	ABS+PC plastic with antibacterial material	ABS+PC plastic with anti-bacterial material	ABS + PC plastic with anti-bacterial material
	Mounting	Wall, Stand and Arm VESA 75/100	Wall, Stand and Arm VESA 75/100	Wall, Stand and Arm VESA 75/100
	Net Weight	6.0 kg	7.5 Kg	6.5 kg
	Dimensions (WxHxD) (mm)	435 x 376 x 65	595 x 380 x 61	478.6 x 317.3 x 60.1
Environment	Operating Temperature (°C)	0°C ~ 40°C		
	IP Level	IP65 compliant front panel	IP 65 compliant front panel	IP 65 compliant front panel
	Thermal Solution	Fanless	Fanless	Fanless
Power	Power Requirement	12V~28V DC input	12V~28V DC input	12~28V DC input
	Power Adapter	120W medical power adapter: Input: 90V~264V AC, Output: 19V DC	120W medical power adapter: Input: 90V~264V AC, Output: 19V DC	120W medical power adapter: Input: 90V~264V AC; Output: 19V DC
Certification		CE,FCC Class B Part18 IEC 60601-1:2005+AMD1:2012 (Edition 3.1) IEC 60601-1-2: 2014 (Edition 4.0)	CE,FCC Class B Part18 IEC 60601-1:2005+AMD1:2012 (Edition 3.1) IEC 60601-1-2: 2014 (Edition 4.0)	CE,FCC Class B Part18 IEC 60601-1:2005+AMD1:2012 (Edition 3.1) IEC 60601-1-2: 2014 (Edition 4.0)

Selection Guide







Series		POCm		POCi
Model		POCm-W22C-ULT3	POCm-W24C-ULT3	POCi-W22C-ULT5
LCD Touch Specification	LCD Size (inch)	21.5"	23.8"	21.5'' (16:9)
	Max. Resolution	1920 (W) x 1080 (H)		
	Brightness (cd/m²)	250		
	Contrast Ratio	1000:1		
	LCD Color	16.7M		
	Viewing Angle (H-V)	170°(H) /160°(V)	178°(H) / 178°(V)	178°(H) / 178°(V)
	Touchscreen	Projected capacitive type with 10-point multi-touch		
System	CPU	6th Generation Intel® mobile ULT Core™ i7/i5/Celeron® processor		Intel® Core™ i7-8665UE (Whiskey Lake ULT platform) Intel® Core™ i5-8365UE (Whiskey Lake ULT platform)
	Memory	Two 260-pin 2400/2133MHz dual-channel DDR4 SO-DIMM, 4GB pre-installed (system max. 32GB)		DDR4 SODIMM up to 32GB
	I/O Ports	Bottom I/O 1 x DC Jack 2 x HDMI out 2 x GbE LAN port 2 x RS232/422/485 4 x USB 3.2 Gen 1 port 1 x RJ-11 for barcode module Other 2 x USB 2.0 port (side) 1 x Audio out (side) + 1 x Mic in (side) 1 x Digital Mic (front, bottom)		Bottom I/O 1 x DC Jack 1 x HDMI 1.4 out 1 x Gigabit Isolated LAN (i219 support Intel vPro) 1 x Gigabit Isolated LAN (i211) 1 x Isolated 1.5KV RS232 1 x combo Audio out / Mic in 4 x USB 3.2 Gen 2 port Other 2 x USB 2.0 port (Side)
	Storage	1 x 2.5" Accessible SATA HDD bay 2 x 2280 M key (PCIe x 1/SATA) with RAID 1 x 1630/2230/3030 A/E key (PCIe x 1/USB 2.0)		1 x 2.5" Accessible SATA HDD/SSD bay 1 x M.2 2242/60/80 M key (PCIe x 4)
	Audio	2 x 3W Speaker, digital microphone		2 x 3W speaker
	LED	RFID indicator Battery indicator (color: blue/orange)		RFID indicator Dual LED reading light
	OSD Function	1 x System on/off 1 x Brightness down 1 x Brightness up 1 x Volume down 1 x Volume up 1 x LCD on/off and Touch lock for cleaning		Power on/off Reading light on/off Brightness + Brightness - P1: Backlight & touch lock on/off P2: DICOM Mode button (optional)
	Expansion	1 x E-Window slot (full-size PCIe Mini slot with PCIe/mSATA/USB)		1 x PCIe x4
Wireless	Wi-Fi and Bluetooth	IEEE 802.11 a/b/g/n/ac 2T2R module with Bluetooth V4.1 M.2 2242 A/E key (PCIe x 1/USB 2.0)		IEEE 802.11 ax 2T2R module with Bluetooth V5.0 (M.2 2230)
Physical	Construction Material	ABS+PC plastic with anti-bacterial material		Front Bezel: Aluminum die-casting Rear Cover: ABS+PC plastic with anti-bacterial material
	Mounting	Wall, Stand and Arm VESA 75/100		Wall, Stand and Arm VESA 75/100
	Net Weight	6.8 kg without battery		6.9 kg
	Dimensions (WxHxD) (mm)	543 x 350 x 61	595 x 380 x 61	507.5 x 335.5 x 64.1
Environment	Operating Temperature (°C)	0°C~40°C		
	IP Level	Front: IP65, Back: IP32 above		Front: IP66, Back: IP54
	Thermal Solution	Fanless		Fanless heatsink without fin
Power	Power Requirement	12V~28V DC input		19V DC input
	Power Adapter	150W medical power adapter		
Certification		CE,FCC Class B Part18 IEC 60601-1:2005+AMD1:2012 (Edition 3.1) IEC 60601-1-2: 2014 (Edition 4.0)		

Point-of-Care Terminal

POC-17C-ULT3 | 17” Medical Panel PC with 6th Generation Intel® mobile ULT Core™ i7/i5/Celeron processor



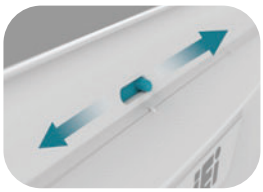
Features

- 17" 5:4 LED panel (1280 x 1024)
- 6th Generation Intel® mobile ULT Core™ i7-6600U / Core™ i5-6300U / Celeron® 3855U
- Projected capacitive type with 10-point multi-touch
- IP65 compliant front bezel
- Anti-bacteria cover
- RAID function supported (RAID 0 and RAID 1) (only for Core™ i5 or Core™ i7)

Intel® Skylake-U | RAID | Fanless | RFID | Camera | SCR | IP65 | Multi-touch | Anti-bacteria | E-Window

• Built-in camera cover

The camera cover protects the privacy of patients. The built-in design also makes the maintenance more convenient, and prevents cover loss.



• RAID 0 and RAID 1 Function

The RAID 0/1 capability offers redundancy through mirroring - data is written identically to two drives. Users in the hospital will not need to worry about data lost anymore.
(only for Core™ i5 or above)





• E-Window for Multiple Expansion

The reserved PCIe Mini slot for expansion helps system integrators add more functions easily without any additional cost efforts.



E-Window

• Front IP65 Compliance

Easy to clean when spray the detergent and wipe at the front

• Advanced Touchscreen for Saline

The PCAP touch not only supports multi-touch function but also provides smooth control when operating with gloves. Moreover, we cooperate with our suppliers to work hard on avoiding the accidental operating from sterile saline.





Specifications

Model		POC-17C-ULT3
LCD Specifications	LCD Display	17” (5:4)
	Max Resolution	1280 (W) x 1024 (H)
	Brightness (cd/m²)	350
	Contrast Ratio	1000:1
	LCD Color	16.7M
	Pixel Pitch (mm)	0.264 (H) x 0.264 (V)
	Viewing Angle (H-V)	170° / 160°
	Backlight MTBF (hrs)	30000 (LED backlight)
Touch	Touchscreen	Projected capacitive type with 10-point multi-touch
	Surface Hardness	6H
System	CPU Support	6th Generation Intel® mobile ULT Core™ i7-6600U / Core™ i5-6300U / Celeron® 3855U
	RAM	Two 260-pin 2400/2133MHz dual-channel DDR4 SO-DIMM, 4GB pre-installed (system max.32GB)
	I/O Port	1 x RJ-11 for barcode module (1D/2D) 4 x USB 2.0 (2 for side) 4 x USB 3.2 Gen 1 port 1 x HDMI output 2 x GbE LAN port 1 x RS-232/422/485 1 x 12~28V DC jack
	Storage	2 x 2.5” SATA 6Gb/s accessible HDD bay with RAID 0,1 (RAID function only for Core™ i5 and Core i7™) 1 x mSATA (E-Window)
	Audio	2 x 2W speaker and digital microphone
	Webcam & Microphone	2-megapixel CMOS front-facing camera with auto-focus and digital microphone
	Expansion	1 x E-Window slot (full-size PCIe Mini slot with PCIe/mSATA/USB)
Other Features	Function Key	1 x LCD on/off 1 x Brightness up 1 x Brightness down 1 x Volume up 1 x Volume down 1 x Touch lock button for cleaning Combinations: 1 x Lock/Unlock OSD 1 x Power on/off
	Auto-dimming	Yes
	Thermal	Fanless
Connectivity	Wi-Fi and Bluetooth	IEEE 802.11 a/b/g/n/ac 2T2R module with Bluetooth V4.1 1x 2230 A/E key (PCIe x 1/USB 2.0)
Physical	Construction Material	ABS+PC plastic with anti-bacterial material pantone RAL 9016 (apple white)
	Mounting	Wall, Stand and Arm VESA 100/75
	Net Weight	6.0 Kg
	Dimensions (WxHxD) (mm)	435 x 376 x 64.5
Environment	Operating Temperature	0°C ~4 0°C
	Storage Temperature	-20°C ~ 65°C
	Humidity	10% to 95% (non-condensing)
	Vibration	1G
	Shock	Operating Shock: 5G peak acceleration (11ms duration) Non-Operating Shock: 15G peak acceleration (11ms duration)
	IP Level	IP65 compliant front panel
Power	Power Input	12V~28V DC input
	Power Adapter	120W medical power adapter: Input: 90V~264V AC, Output: 19V DC
Certification		CE,FCC Class B Part18 IEC 60601-1:2005+AMD1:2012 (Edition 3.1) IEC 60601-1-2: 2014 (Edition 4.0)

Ordering Information

Part No.	Description
POC-17C-ULT3-C/PC/4G-R10	17" 350 cd/m² 1280x1024 Panel PC with 6th generation 14nm Intel® mobile Celeron® 3855U (15W) 1.6GHz on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, PCAP touchscreen, 2-megapixel camera, microphone, R10
POC-17C-ULT3-i5/PC/4G-R10	17" 350 cd/m² 1280x1024 Panel PC with 6th generation 14nm Intel® mobile Core™ i5-6300U (15W) 2.4GHz on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, PCAP touchscreen, 2-megapixel camera, microphone, R10
POC-17C-ULT3-i7/PC/4G-R10	17" 350 cd/m² 1280x1024 Panel PC with 6th generation 14nm Intel® mobile Core™ i7-6600U (15W) 2.6GHz on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, PCAP touchscreen, 2-megapixel camera, microphone, R10

Options

Number	Description
MEDP-HS-R10	USB interface VoIP phone and its holder, white
MEDP-HD-R10	Metal handle covered with soft rubber
MEDP-HD-BR-R11	Metal handle covered with soft rubber, with barcode reader and reading light, white
MEDP-MF-RFID-R11	Mifare RFID reader, 13.56MHz, with LED indicator and 100mm antenna, IEI assembly only
MEDP-TPM-02-R10	Trusted platform module kit with 300mm cable, IEI assembly only
MEDP-EZS-R10	VESA 100 x 100 mm panel PC stand with a cable management hole, white
POC-17C-ULT3-W10E64-V-R10	OS Image with Windows Embedded Standard 10 E Value 64-bit for POC-17C/W24C Series, with DVD-ROM, RoHS
POCP-CC03-R10	POC-17C-ULT3 cable cover, white, plastic, R10

IQ Mounting Options

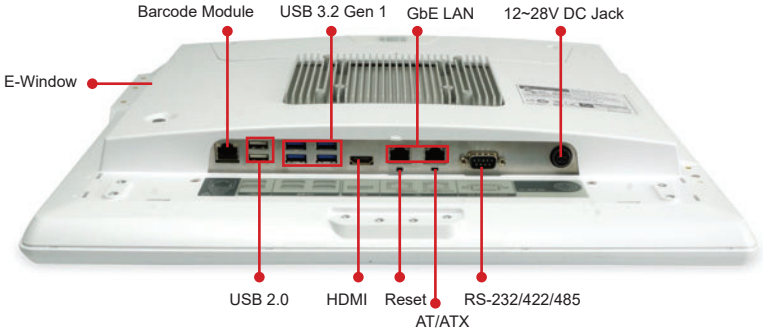
Item	Part No.
Wall Mount Kit	AFLWK-19B
Arm	ARM-31-RS
Stand	STAND-A21-R10

Packing List

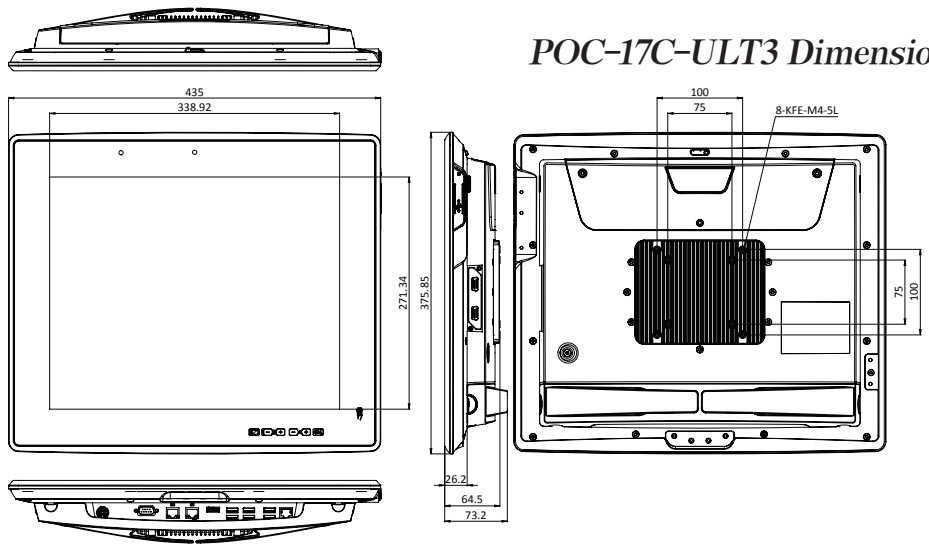
Item	Part No.	Q'ty	Remark
Power Adapter	63040-580120-000-RS	1	120W medical power adapter: Input: 90V~264V AC, Output: 19 V DC
Power Cord		1	European power cords, 183 CM, C13



I/O Interface



POC-17C-ULT3 Dimensions (Unit: mm)



Point-of-Care Terminal

POC-W24C-ULT3

24” Medical Panel PC with 6th Generation Intel® mobile ULT Core™ i7/i5/Celeron® processor

Features

- 24" fanless FHD medical grade panel PC
- Intel® Core™ i5-6300U (Skylake) processor
- PCAP touch allows multi-touch, multi-layer gloves and water on screen operation
- Anti-bacteria housing with IP65 front bezel and IP32 rear cover protection
- E-Window expansion slot



Intel® Skylake-U | Fanless | RFID | Camera | HDMI | IP65 | Multi-touch | E-Window

Specifications

Model		POC-W24C-ULT3
LCD Specifications	LCD Display	24”
	Max Resolution	1920 (W) x 1080 (H)
	Brightness (cd/m²)	250
	Contrast Ratio	1000:1
	LCD Color	16.7M colors (RGB 6-bit + HI_FRC)
	Pixel Pitch (mm)	0.2745 (H) x 0.2745 (V)
	Viewing Angle (H-V)	178°(H) / 178°(V)
	Backlight MTBF (hrs)	30000 (LED backlight)
Touch	Touchscreen	Projected capacitive type with 10-point multi-touch
	Surface Hardness	6H
System	CPU Support	6th generation Intel® mobile ULT Core™ i7-6600U / Core™ i5-6300U /Celeron® 3855U 7th generation Intel® mobile ULT Kaby Lake on-board SoC (by project base)
	RAM	Two 260-pin 2400/2133MHz dual-channel DDR4 SO-DIMM, 4GB pre-installed (system max. 32GB)
	I/O Port	1 x RJ-11 for 1D/2D barcode reader 4 x USB 2.0 (2 on the side) 4 x USB 3.2 Gen 1 port 1 x HDMI output 2 x GbE LAN port 1 x RS-232/422/485 1 x 12~28V DC jack
	Storage	1 x 2.5" SATA 6Gb/s HDD/SDD bay 1 x mSATA (E-Window)
	Audio	2 x 3W Speaker
	Webcam & Microphone	5-megapixel CMOS front-facing camera with auto-focus and digital microphone
	Expansion Interface	1 x PCIe Mini reserved for E-Window expansion
	LED Indicator	RFID indicator
Other Features	Function Key	1 x LCD on/off 1 x Brightness up 1 x Brightness down 1 x Volume up 1 x Volume down 1 x Touch lock button for cleaning Combinations: 1 x Lock/Unlock OSD 1 x Power on/off
	Light Sensor	Ambient light sensor for panel brightness adjustment
	Cooling Method	Fan-less
Connectivity	Wi-Fi and Bluetooth	IEEE 802.11 a/b/g/n/ac 2T2R module with Bluetooth V4.1 1x 2230 A/E key (PCIe x 1/USB 2.0)
Physical	Construction Material	ABS+PC plastic with anti-bacterial material
	Mounting	Wall, Stand and Arm VESA 100/75
	Net Weight	7.5 Kg
	Dimensions (WxHxD) (mm)	594.6 x 379.6 x 60.68mm
Environment	Operating Temperature	0°C~40°C
	Storage Temperature	-20°C~60°C
	Humidity	10% to 95% (non-condensing)
	Vibration	1G
	Shock	Operating Shock: 5G peak acceleration (11ms duration) Non-Operating Shock: 15G peak acceleration (11ms duration)
	IP Level	IP65 compliant front panel
Power	Power Input	12V~28V DC input
	Power Adapter	120W medical power adapter: Input: 90V~264V AC, Output: 19V DC
Certification		CE,FCC Class B Part18 IEC 60601-1:2005+AMD1:2012 (Edition 3.1) IEC 60601-1-2: 2014 (Edition 4.0)

Ordering Information

Part No.	Description
POC-W24C-ULT3-C/PC/4G-R10	24" 250cd/m² 1920 x 1080 panel PC with 6th generation 14nm Intel® mobile Celeron™ 3855U (15W) on-board processor (ULT), one 4GB DDR4 RAM, 802.11 a/b/g/n/ac WiFi module, PCAP touchscreen, 5-megapixel camera, microphone, R10
POC-W24C-ULT3-i5/PC/4G-R10	24" 250 cd/m² 1920 x 1080 panel PC with 6th generation 14nm Intel® mobile Core™ i5-6300U (15W) on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac WiFi module, PCAP touchscreen, 5-megapixel camera, microphone, R10
POC-W24C-ULT3-i7/PC/4G-R10	24" 250 cd/m² 1920 x 1080 panel PC with 7th generation 14nm Intel® mobile Core™ i7-6600U (15W) on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac WiFi module, PCAP touchscreen, 5-megapixel camera, microphone, R10

Options

Part No.	Description
MEDP-HS-R10	USB interface VoIP phone and its holder, white
MEDP-HD-R10	Metal handle covered with soft rubber
MEDP-HD-BR-R11	Metal handle covered with soft rubber, with barcode reader and reading light, white
MEDP-MF-RFID-R11	Mifare RFID reader, 13.56MHz, with LED indicator,200mm antenna,RFID & LED cable, IEI assembly only
MEDP-TPM-03-R10	Trusted platform module kit with 150mm cable, IEI assembly only
MEDP-EZS-R10	VESA 100 x 100 mm panel PC stand with a cable management hole, white
POC-17C-ULT3-W10E64-V-R10	OS Image with Windows Embedded Standard 10 E Value 64-bit for POC-17C/W24C Series, with DVD-ROM, RoHS

IQ Mounting Options

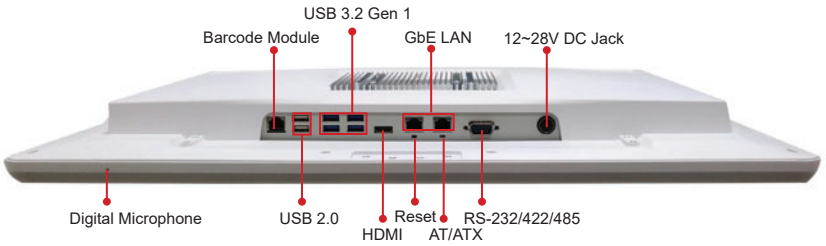
Item	Part No.
Wall Mount Kit	AFLWK-19B
Arm	ARM-31-RS
Stand	STAND-A21-R10

Packing List

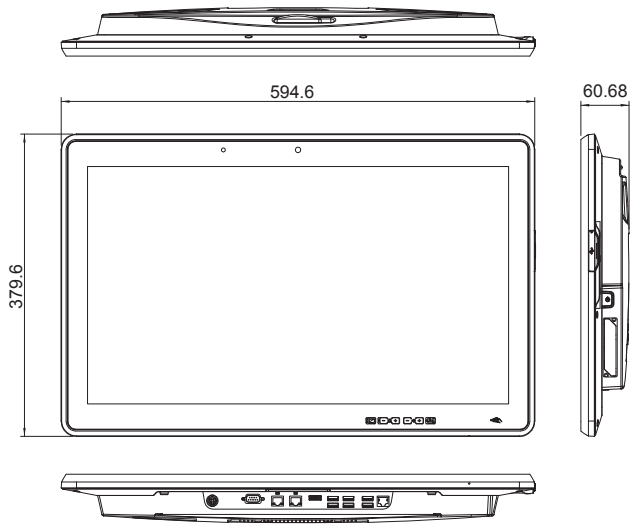
Item	Part No.	Q'ty	Remark
Power Adapter	63040-580120-000-RS	1	120W medical power adapter: Input: 90V~264V AC, Output: 19 V DC
Power Cord		1	European power cords, 183 CM, C13

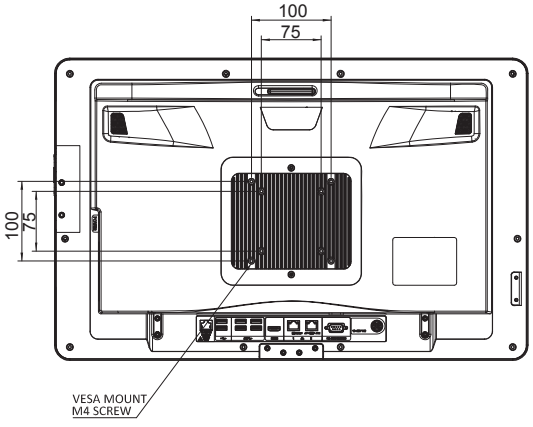


I/O Interface



POC-W24C-ULT3/ULT4 Dimensions (Unit: mm)





Mobile Point-of-Care Terminal

POCm-W22C-ULT3 | 22” Medical Panel PC with 6th Generation Intel® mobile ULT Core™ i7/i5/Celeron® processor

POCm-W24C-ULT3 | 24” Medical Panel PC with 6th Generation Intel® mobile ULT Core™ i7/i5/Celeron® processor

DESIGN AWARD 2019

TAIWAN EXCELLENCE 2020

Features

- 22” and 24” FHD fanless panel PC
- Intel® Celeron®, Core™ i5/i7 Skylake processor
- PCAP touch allows multi-touch, multi-layer gloves and water-on-screen operation
- Anti-bacteria housing with IP65 front bezel and IP32 rear cover protection
- Three hot-swappable batteries with a total runtime of 8 hours is ideal for non-powered medical carts



Intel® Skylake-U | Fanless | RFID | Camera | HDMI | IP65 | Multi-touch | E-Window

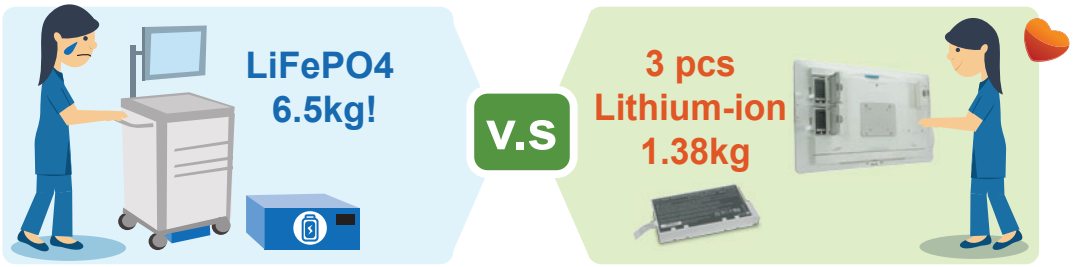
Key Features



3 hot-swappable batteries that can provide sufficient power, and the ergonomic side-facing design ease the use for nurses with different height. Compared to the LiFePO4 battery of the traditional nursing cart, the batteries installed on the POCm have better design by reducing more than 5 kilograms of weight. The battery docking station can perform fast charging, taking only 3.5 hours from 0 to 100%.

● Lightweight Design

Traditionally, the battery of working station is bulky and occupies space. The hot-swappable batteries makes POCm series an ideal medical cart computer for decreasing the total weight up to 5 kg.



● Highly Integration

POCm series product is a highly integrated PPC. When building a mobile working station, the easy installation steps prevent you from facing the trouble of integrating different components and messy cabling.

● Cost Effective

The typical price range of nursing cart battery is more than USD 600 (after service included). Our anti-bacteria battery saves more than USD 400 cost. Charging dock design meets the need of medical context and relieves the waste of time and efforts going back and forth between nursing station and ward.

Specifications

Model		POCm-W22C-ULT3	POCm-W24C-ULT3
LCD Specifications	LCD Display	21.5" (16:9)	23.8"
	Max Resolution	1920 (W) x 1080 (H)	1920 (W) x 1080 (H)
	Brightness (cd/m²)	250	250
	Contrast Ratio	1000:1	1000:1
	LCD Color	16.7M colors (RGB 6-bit)	16.7M colors (RGB 6-bit)
	Pixel Pitch (mm)	0.24825 (H) x 0.24825 (V)	0.2745 (H) x 0.2745 (V)
	Viewing Angle (H-V)	170°/160°	178°(H) / 178°(V)
	Backlight MTBF (hrs)	30000 (LED backlight)	30000 (LED backlight)
Touch	Touchscreen	Projected capacitive type with 10-point multi-touch	
	Surface Hardness	6H	
System	CPU Support	6th Generation Intel® mobile ULT Core™ i7-6600U / Core™ i5-6300U and /Celeron® 3855U	
	RAM	Two 260-pin 2400/2133MHz dual-channel DDR4 SO-DIMM, 4GB pre-installed (system max. 32GB)	
	LAN Controller	1 x Intel® Ethernet Controller I219, 1 x Intel® Ethernet Controller I211	
	I/O Port	Bottom I/O 1 x DC Jack 2 x HDMI out 2 x GbE LAN port 2 x RS232/422/485 4 x USB 3.2 Gen 1 port Other 2 x USB 2.0 port (side) 1 x Audio out (side) + 1 x Mic in (side) 1 x Digital Mic (front, bottom)	
	Storage	1 x 2.5" Accessible SATA HDD bay 2 x 2280 M key (PCIe x 1/SATA) with RAID 1 x 1630/2230/3030 A/E key (PCIe x 1/USB 2.0)	
	Audio	2 x 3W Speaker	
	Webcam & Microphone	5-megapixel CMOS front-facing camera with auto-focus and digital microphone	
	Expansion Interface	1 x Full-size/half-size PCIe Mini (PCIe+USB)	
	LED Indicator	1 x RFID indicator 3 x Battery indicator (Color : Blue/Red) 1 x Power Indicator	
Other Features	Cooling Method	Fan-less	
Connectivity	Wi-Fi and Bluetooth	IEEE 802.11 a/b/g/n/ac 2T2R module with Bluetooth V4.2 M.2 2242 A/E key (PCIe x 1/USB 2.0)	
Physical	Construction Material	ABS+PC plastic with anti-bacterial material	
	Mounting	Wall, Stand and Arm VESA 75/100	
	Net Weight	7.07 kg without batteries 8.43 kg with 3 batteries	8.18 kg without batteries 9.53 kg with 3 batteries
	Dimensions (WxHxD) (mm)	543 x 350 x 71 mm	594.6 x 379.6 x 71 mm
Environment	Operating Temperature	0°C~40°C	
	Storage Temperature	-20°C~60°C	
	Humidity	10% to 90% (non-condensing)	
	Vibration	1G	
	Shock	Operating Shock: 5G peak acceleration (11ms duration) Non-Operating Shock: 10G peak acceleration (11ms duration)	
	IP Level	Front: IP65, Back: IP32	
Power	Power Input	19V DC input	
	Power Adapter	150W medical power adapter	
	Battery	3 slots for Li-ion battery pack	
Certification		CE,FCC Class B Part18 IEC 60601-1:2005+AMD1:2012 (Edition 3.1) IEC 60601-1-2: 2014 (Edition 4.0)	

Ordering Information

Part No.	Description
POCm-W22C-ULT3-C/PC/4G-R11	21.5” 250cd/m² FHD medical panel PC with 6th generation 14nm Intel® mobile Celeron® 3855U (15W) 1.6GHz on-board processor (ULT),one 4GB DDR4 RAM,802.11a/b/g/n/ac Wi-Fi module,PCAP touchscreen,5-megapixel camera,microphone,w/o battery, R11
POCm-W22C-ULT3-i5/PC/4G-R11	21.5” 250cd/m² FHD medical panel PC with 6th generation 14nm Intel® mobile Core™i5-6300U (15W) 2.4GHz on-board processor (ULT),one 4GB DDR4 RAM,802.11a/b/g/n/ac Wi-Fi module,PCAP touchscreen,5-megapixel camera,microphone,w/o battery, R11
POCm-W22C-ULT3-i7/PC/4G-R11	21.5” 250cd/m² FHD medical panel PC with 6th generation 14nm Intel® mobile Core™i7-6600U (15W) 2.6GHz on-board processor (ULT),one 4GB DDR4 RAM,802.11a/b/g/n/ac Wi-Fi module,PCAP touchscreen,5-megapixel camera,microphone,w/o battery, R11
POCm-W24C-ULT3-C/PC/4G-R10	24” 250cd/m² FHD medical panel PC with 6th generation 14nm Intel® mobile Celeron® 3855U (15W) 2.4GHz on-board processor (ULT),one 4GB DDR4 RAM,802.11a/b/g/n/ac Wi-Fi module,PCAP touchscreen,5-megapixel camera,microphone,w/o battery, R10
POCm-W24C-ULT3-i5/PC/4G-R10	24” 250cd/m² FHD medical panel PC with 6th generation 14nm Intel® mobile Core™i5-6300U (15W) 2.4GHz on-board processor (ULT),one 4GB DDR4 RAM,802.11a/b/g/n/ac Wi-Fi module,PCAP touchscreen,5-megapixel camera,microphone,w/o battery, R10
POCm-W24C-ULT3-i7/PC/4G-R10	24” 250cd/m² FHD medical panel PC with 6th generation 14nm Intel® mobile Core™i7-6600U (15W) 2.6GHz on-board processor (ULT),one 4GB DDR4 RAM,802.11a/b/g/n/ac Wi-Fi module,PCAP touchscreen,5-megapixel camera,microphone,w/o battery, R10

Options

Part No.	Description
MEDP-HS-R10	USB interface VoIP phone and its holder, white
MEDP-CR-02-R10	Magnetic card reader/Smart card reader/Fingerprint sensor for BIS-W19C, White
MEDP-TPM-R10	Trusted platform module kit, IEI assembly only
MEDP-EZS-R10	VESA 100 x 100 mm panel PC stand with a cable management hole, white
MEDP-HSBAT-R10	3S3P Li-ion battery pack, 11.1V, 7800mAh, Eco packing should be purchase base on 14 pcs (Per box) or multiple of 14 per order.
POCm-DOCKING-6BAY-R10	6-slot battery charger, LED indicator, 15V/280W power adapter
POCm-W22C-ULT3-W10E64-V-R10	OS image with 64bit Windows 10 IOT Enterprise for POCm series, with DVD-ROM
POCP-CC05-R10	Cable cover, white, plastic, R10
31603-000069-RS	3S3P Li-ion battery pack, 11.1V, 7800mAh, ATO only

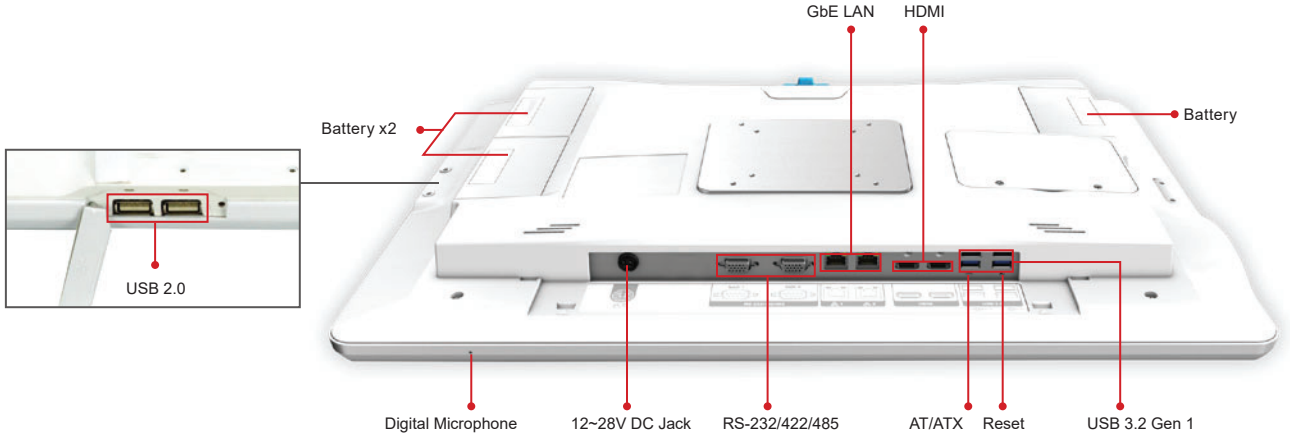
IQ Mounting Options

Item	Part No.
Wall Mount Kit	AFLWK-19B
Arm	ARM-31-RS
Stand	STAND-A21-R10

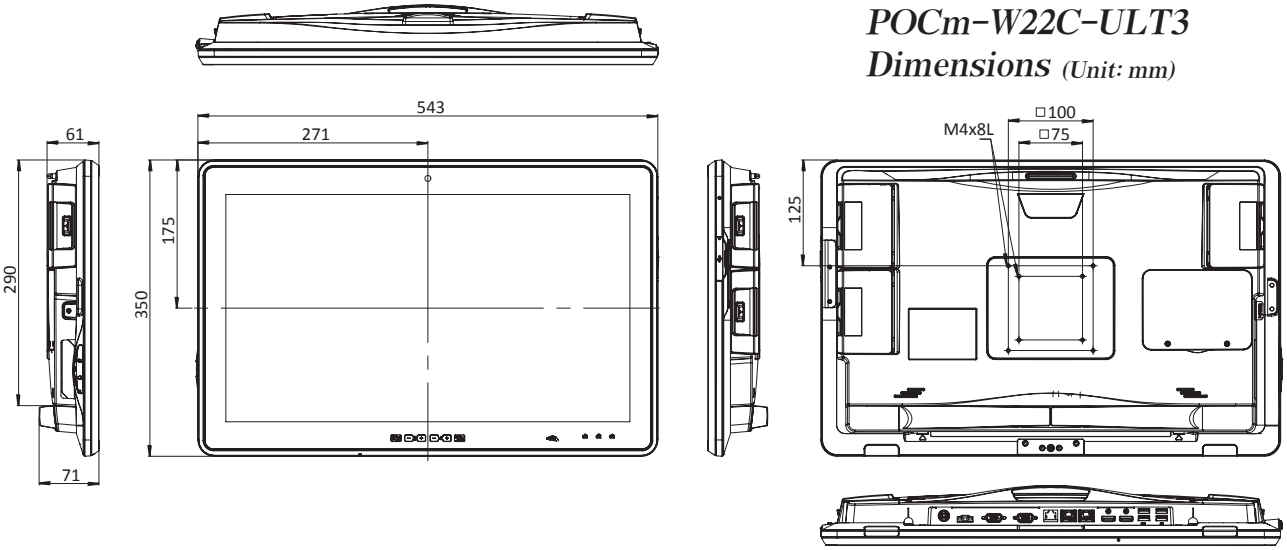
Packing List

Item	Q’ty	Remark
Power Adapter	1	150W medical power adapter
Power Cord	1	European power cords, 183 CM, C13

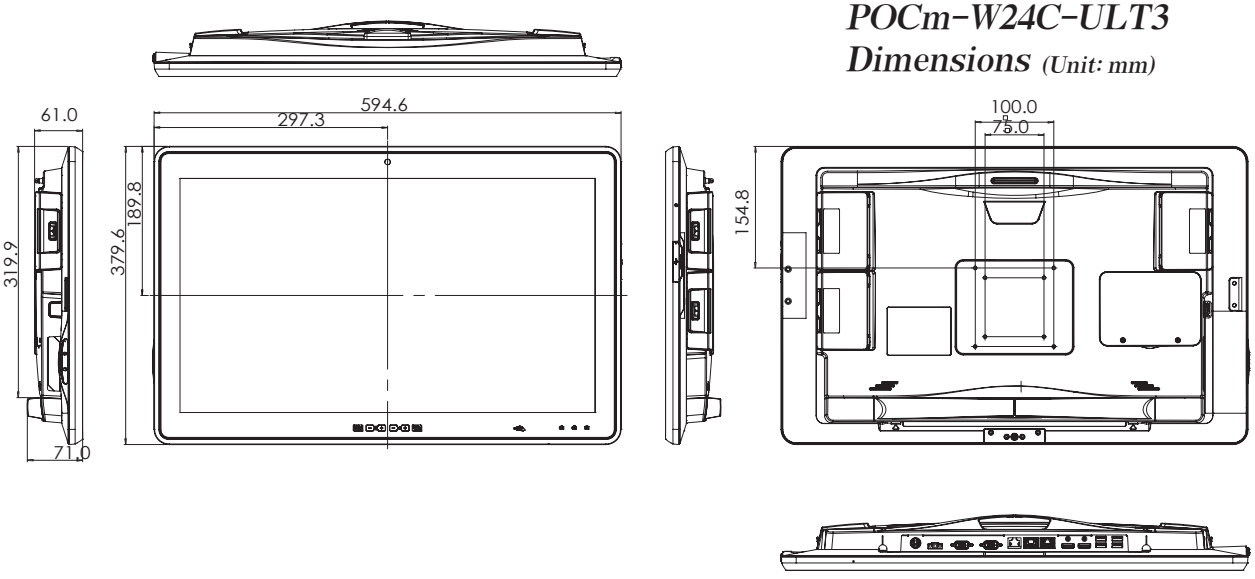
POCm-W22C-ULT3 / POCm-W24C-ULT3
I/O Interface



POCm-W22C-ULT3
Dimensions (Unit: mm)



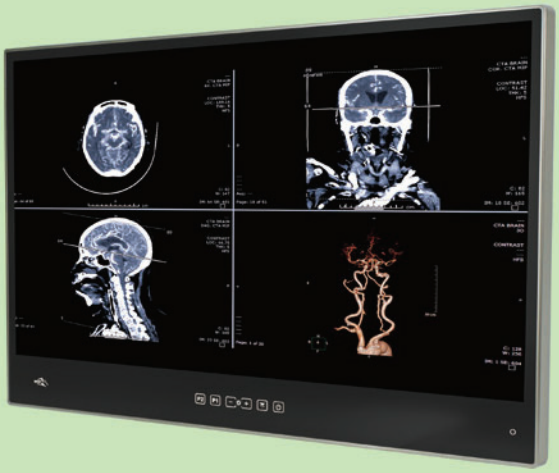
POCm-W24C-ULT3
Dimensions (Unit: mm)



Intelligence Point-of-Care Terminal

NEW

POCi-W22C-ULT5 | 22” Medical Panel PC with 8th Generation Intel® mobile ULT Core™ i7/i5/Celeron® Processor



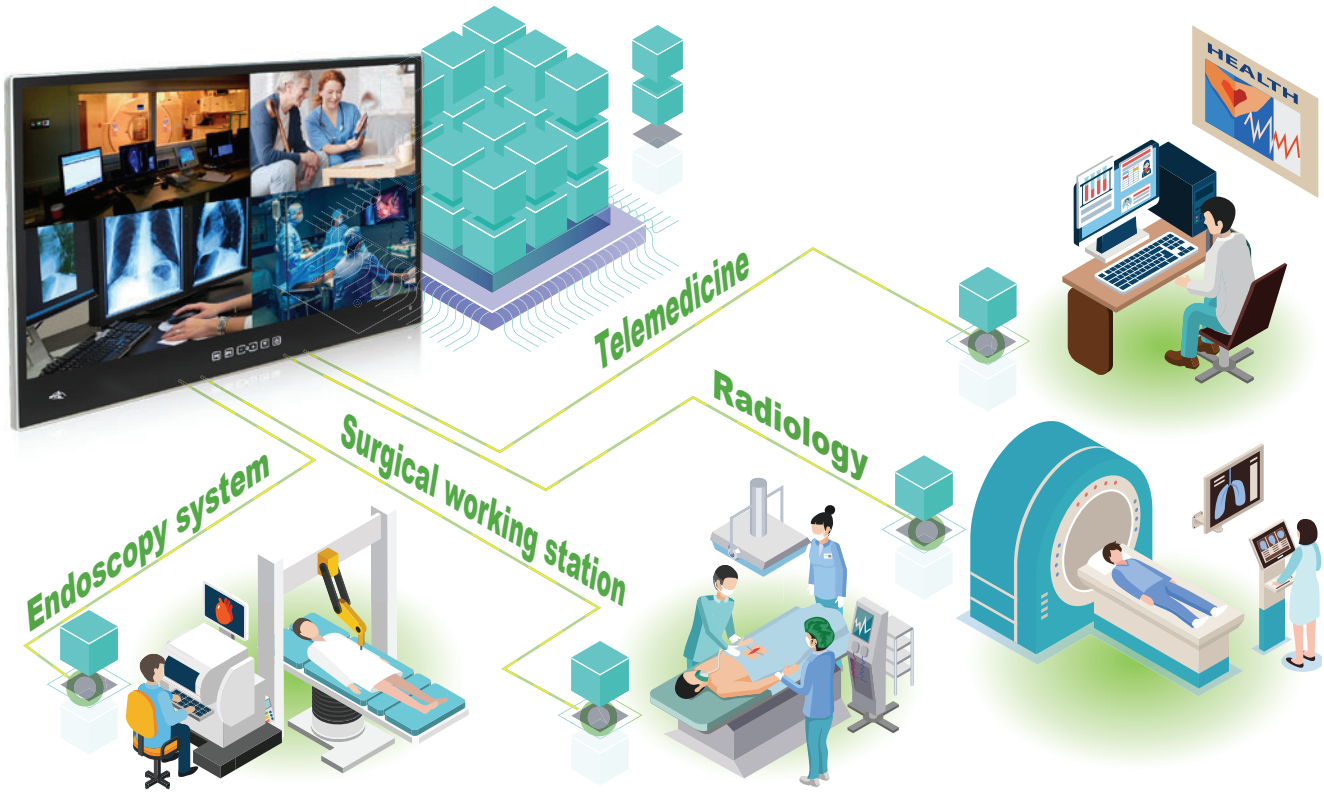
Features

- Medical-grade PPC powered by 14nm 8th generation Intel® Whiskey Lake U platform
- Aluminum front bezel (IP66) & PC/ABS rear cover (IP54)
- Chemical etching AG coating
- Modular PCIe x4 expansion slot
- Dual reading light
- FHD IPS panel with optional DICOM preset



Intelligent Working Station

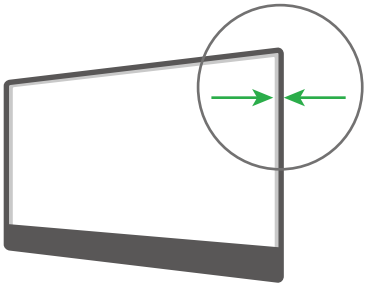
The POCi-W22C-ULT5 is a medical panel PC featuring AI, edge computing with rich expansion functions. It is ideal to work in many kinds of medical scenario such as radiology, telemedicine, endoscopy system or surgical working station.



Perfect Visual Performance

● Ultra Slim Front Bezel

Ultra slim front bezel creates a premium user experience. This design lets the medical personnel more focus on the clinical information displayed on the screen.





● IPS Panel with Chemical Etching AG Coating Glass

High-performance IPS panel enables a wider 178° viewing angles and advanced visual performance. Chemical etching AG coating reduces the watching fatigue resulting from glare or any other light interference in different kinds of environments.



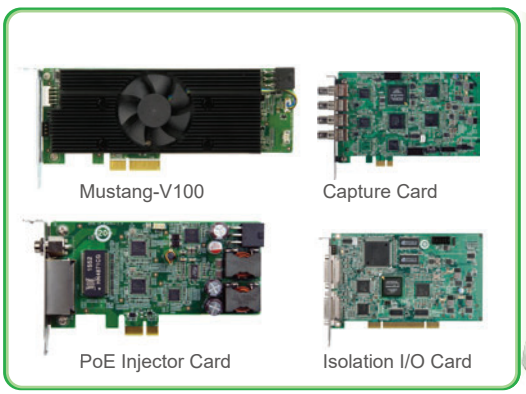
● Optional DICOM Preset

The way the human eye responds to contrasts in light levels is not linear. At low levels, we can notice small changes in luminance. At higher luminance, the change needs to be much greater before we perceive the difference from one level to the next. Calibration of the display system is important to ensure that each image is shown consistently every time it is viewed.



● Modular Expansion Design

Highly expandable PCIe x4 slot makes the whole system more flexible and easily meets the individual needs from different applications. For instance, adopting the Mustang-V100 to enhance computing power, adding an all- in-one capture card to connect with medical devices, integrating PoE injector card with webcam, or expanding the desired I/O card for multiple usage.





• Easy Sterilization

Sterilization is the daily routine of the hospitals. Aluminum front frame is not only lightweight but also very durable for chemical erosion. The PC/ABS back cover is also carefully selected and proved to be resistant to the commonly seen detergents.

Cleaners / Disinfectants



Cavi Wipes


Protex Wipes


Sani-cloth Wipes



Bleach


Alcohol

High-Level Disinfectants



Cidex



Cidex OPA



Metricide 14


Metricide 28


Wavicide



IP66 front bezel, IP54 back cover and true flat OSD button design with no inaccessible corner brings conveniences for the cleaning personnel and increases cleaning efficiency.



• Dual Reading Lights

The IEC 62471 compliant LEDs assure the reading light emits comfortable and safe light for human eyes. Easy adjustable dimming interface allows the user to choose the best brightness in different situations.

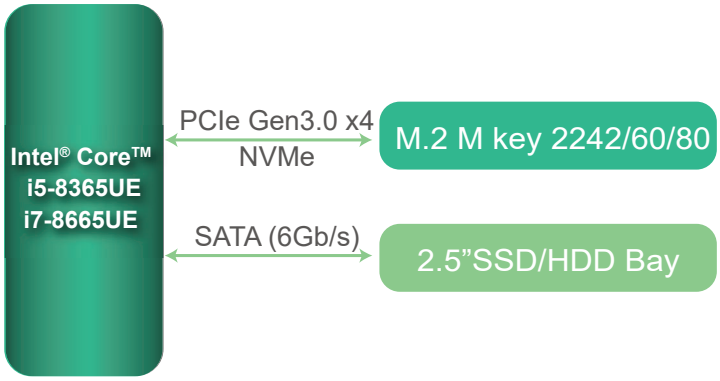


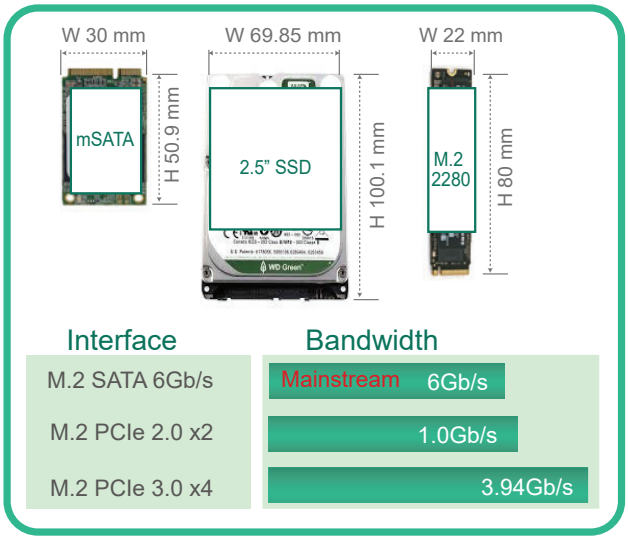


• Storage Device

POCi-W22C-ULT5 provides flexible storage device options

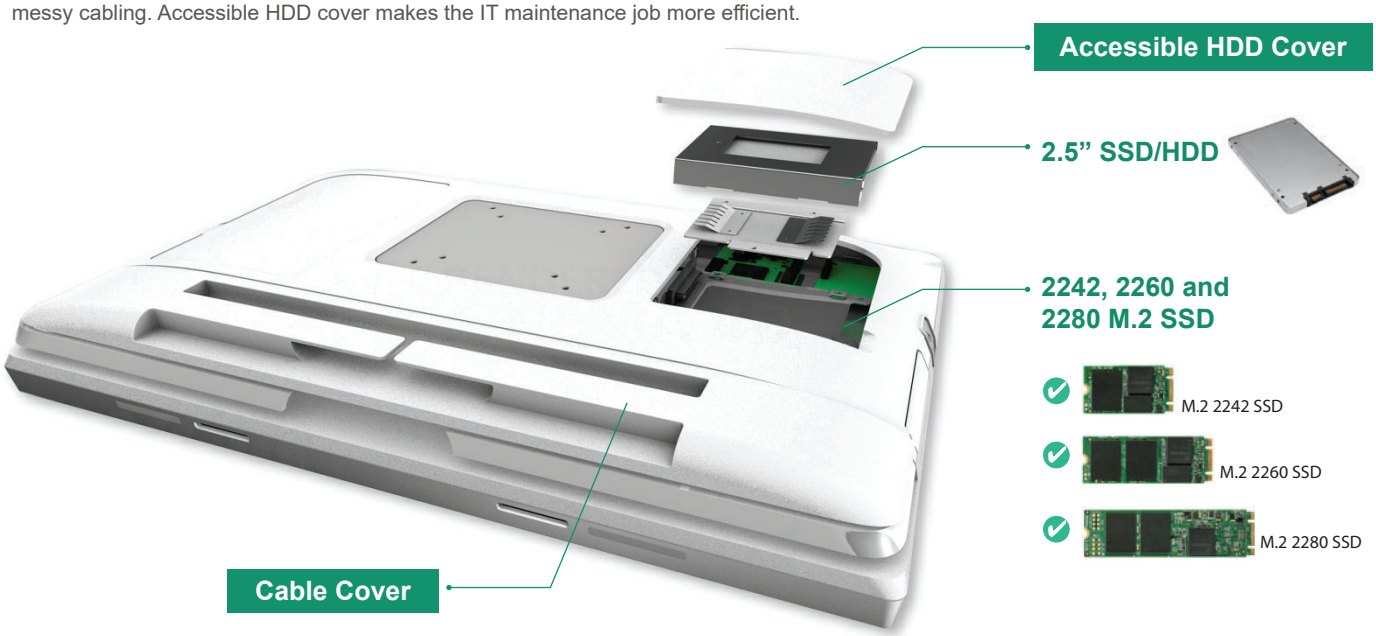
- 2.5” HDD/SSD
- M.2 M key slot for NVMe up to PCIe Gen3.0 x4





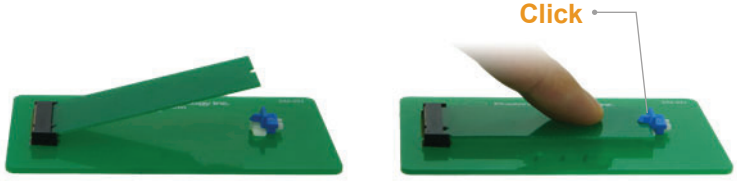
• Accessible HDD Cover & Cable Cover

Users can easily manage all the cables from the I/O ports, preventing splash to IO ports or messy cabling. Accessible HDD cover makes the IT maintenance job more efficient.



• Click-to-fix M.2 Slot

Special click-to-fix plunger design makes the M.2 replacing work much more convenient and prompt.





Specifications

Model		POCi-W22C-ULT5
LCD Specifications	LCD Display	21.5" (16:9)
	Max Resolution	1920 x 1080
	Brightness (cd/m²)	250
	Contrast Ratio	1000:1
	LCD Color	16.7M
	Pixel Pitch (mm)	247.95 x 247.95
	Viewing Angle (H-V)	178˚ / 178˚
	Backlight MTBF (hrs)	30000
Touchscreen	Touchscreen	Projected capacitive type with USB interface
	Touch Controller	EETI (80H84)
	Surface Hardness	6H
	Coating	Chemical etching AG
	Multi-touch	Projected capacitive type with 10-point multi-touch
System	CPU Support	Intel® Core™ i7-8665UE (Whiskey Lake ULT platform) Intel® Core™ i5-8365UE (Whiskey Lake ULT platform)
	RAM	DDR4 SODIMM up to 32GB
	LAN Controller	Intel® I219 Intel® I211
	I/O Port	Bottom I/O 1 x DC Jack 1 x HDMI 1.4 out 1 x Gigabit Isolated LAN (i219 support Intel vPro) 1 x Gigabit Isolated LAN (i211) 1 x Isolated 1.5KV RS232 1 x combo Audio out / Mic in 4 x USB 3.2 Gen 2 port Other 2 x USB 2.0 port (side)
	Storage	1 x 2.5” accessible SATA HDD/SSD bay 1 x M.2 2242/60/80 M key (PCIe x4)
	Audio	2 x 3W speaker
	Expansion Interface	1 x PCIe x4
	LED	1 X RFID indicator Dual LED reading light
	Wi-Fi and Bluetooth	IEEE 802.11 ax 2T2R module with Bluetooth V5.0 (M.2 2230)
Function Key	OSD Key	Power on/off Reading light on/off Brightness + Brightness - P1: Backlight & touch lock on/off P2: DICOM mode button (optional)
Physical	Construction Material	Front bezel: Aluminum die-casting Rear cover: ABS+PC plastic with anti-bacterial material
	Mounting	Wall, Stand and Arm VESA 75/100
	Net Weight	6.9 kg
	Dimensions (WxHxD)	507.5 x 335.5 x 64.1
Environment	Operating Temperature	0°C~40°C
	Storage Temperature	-20°C~60°C
	Humidity	10% to 95% (non-condensing)
	Vibration	1G
	Shock	Operating shock: 5G peak acceleration (11ms duration) Non-Operating shock: 15G peak acceleration (11ms duration)
	IP Level	Front: IP66 Back: IP54
	Thermal	Fanless heatsink without fin
Power	Power Input	19V DC input
	Power Adapter	150W medical power adapter
Certificate	EMC & Safety	CE,FCC Class B Part18 IEC 60601-1:2005+AMD1:2012 (Edition 3.1) IEC 60601-1-2: 2014 (Edition 4.0)

Ordering Information

Part No.	Description
POCi-W22C-ULT5-i5/PC/4G-R10	21.5" 250cd/m² FHD medical panel PC with 8th generation 14nm Intel® mobile Core™i5-8365UE (15W) 1.6GHz on-board processor (ULT),one 4GB DDR4 RAM,802.11 ax Wi-Fi module,PCAP touchscreen w/ AG coating,microphone,R10
POCi-W22C-ULT5-i7/PC/4G-R10	21.5" 250cd/m² FHD medical panel PC with 8th generation 14nm Intel® mobile Core™i5-8665UE (15W) 1.7GHz on-board processor (ULT),one 4GB DDR4 RAM,802.11 ax Wi-Fi module,PCAP touchscreen w/ AG coating,microphone,R10

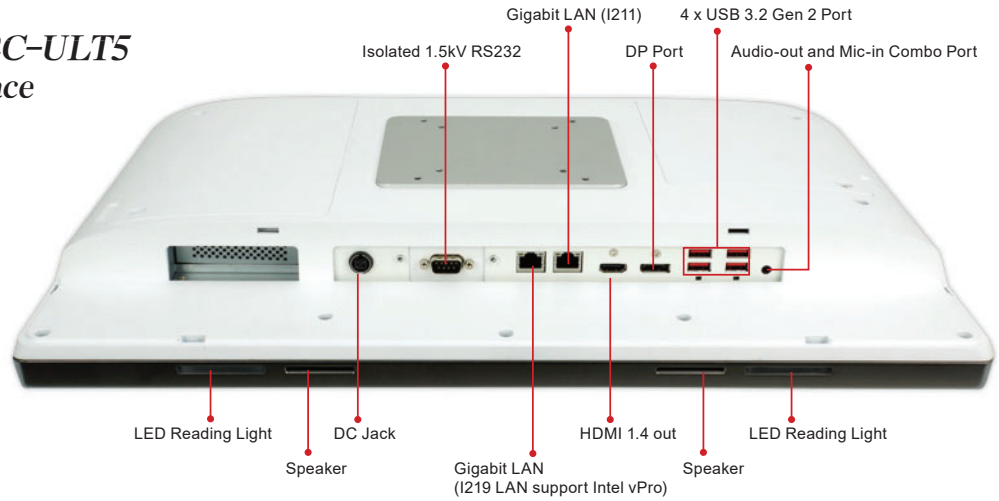
Options

Part No.	Description
MEDP-MF-RFID-R11	Mifare RFID reader, 13.56MHz, PN7362AUHN, with LED indicator, 250mm Antenna cable, IEI assembly only
MEDP-DICOM-R10	DICOM engine for digital image processing, including image enhancement, color adjustment and panel compensation,IEI assembly only
GPoE-2P-R20	PCI Express Power over Ethernet card, 2-port 1000 Base(T), 802.3at compliant, low profile, RoHS
POCP-CC06-R10	POCi-W22C-ULT5 cable cover,white, plastic, R10
TPM-IN03-R10	20-pin Infineon SPI TPM2.0 module, software mangement tool, firmware V7.63

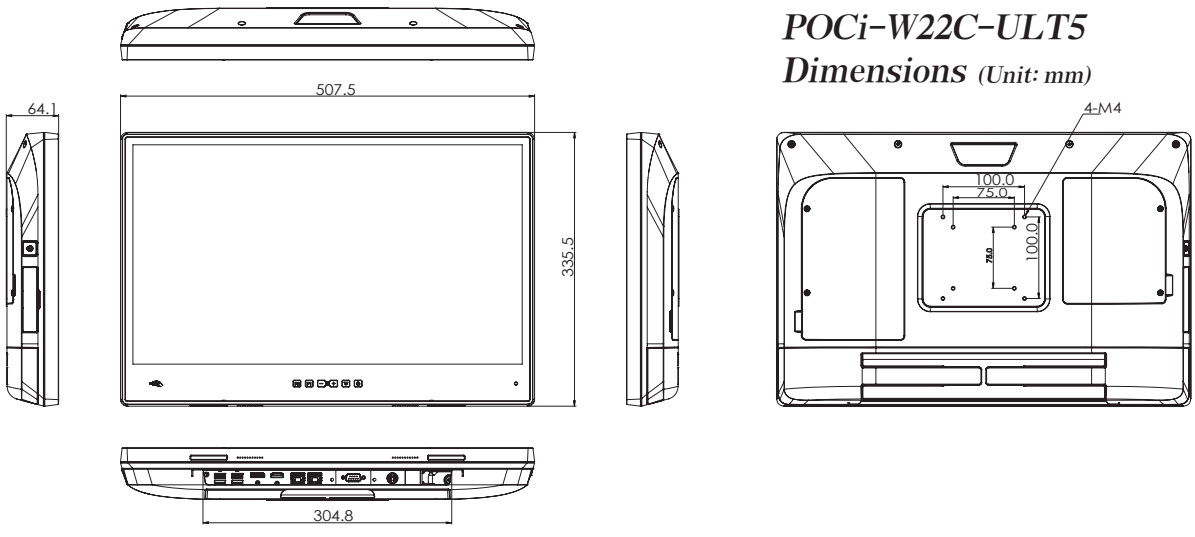
Packing List

Item	Q'ty	Remark
Power Adapter	1	150W medical power adapter
Power Cord	1	European power cords, 183 CM, C13

POCi-W22C-ULT5 I/O Interface



POCi-W22C-ULT5 Dimensions (Unit: mm)



Bedside Infotainment Terminal

BIS-W19C-ULT4 | 18.5” Medical Panel PC with 7th Generation Intel® mobile ULT Core™ i5/Celeron® processor

Features

- 18.5" 16:9 LED panel (1366 x 768 / 1920 x 1080)
- 7th generation Intel® Core™ i5-7300U and Celeron® 3865 CPU
- Projected capacitive touchscreen supports multi-touch
- IP65 compliant front bezel
- Anti-bacteria cover
- HDMI input supported (monitor mode)
- Optional 3-in-1 card reader: MSR, SCR and fingerprint
- Optional Mifare RFID module
- Optional VoIP phone handset
- Optional handle module with barcode scanner and reading light



Intel® Kabylake | Fanless | RFID | Camera | SCR | IP65 | Multi-touch | Anti-bacteria

Monitor Mode Application



- Wireless TX/RX Module
- HDMI input/output
- EMR Carrier
- Operation Room Teaching & Observation



PC mode



Monitor mode

Applications



• Push notification services for patients

Inpatients may need health education from hospital or reading the preoperative notice before surgery. The BIS-W19C-ULT3 could be integrated with the hospital server to realize these functions, with which most of the action of health education could be digitized to reduce human resources.



• HIS/NIS system for nurses

Most of the hospitals make use of digital information system to avoid human error and to optimize caring flow. The BIS-W19C-ULT3 could be integrated with the HIS/NIS system, from which clinicians can easily check doctors' prescriptions and record patients' vital information to the data center directly.



• Entertainment for patients

Inpatients in the hospital may have plenty of time except consultation of doctors or doing a surgery, which means inpatients also need some entertainments. The BIS-W19C-ULT3 could be integrated with the bedside software applications which aggregate various functions that inpatients may need. The bedside solution could offer inpatients all the daily requirements.



• Patient counseling discussion

Ward rounds are a major daily work of doctors. It is difficult for the doctor to carry all patients' medical information during ward rounds. The generation of digital healthcare is happening. The doctor can just bring a tablet during ward rounds to explain all the medical conditions to each inpatient. Wireless video streaming to a bigger screen helps doctors, inpatients and family members have a more convenient discussing environment.

Specifications

Model		BIS-W19C-ULT4
LCD Specifications	LCD Display	18.5” (16:9)
	Max Resolution	1366 (W) x 768 (H) / 1920 (W) x 1080 (H)
	Brightness (cd/m²)	250 / 350
	Contrast Ratio	1000:1
	LCD Color	16.7M colors (RGB 6-bit) / 16.7M colors (RGB true 8-bit)
	Pixel Pitch (mm)	0.3 (H) x 0.3 (V) / 0.213 (H) x 0.213 (V)
	Viewing Angle (H-V)	170°(H) / 160°(V), 178°(H) / 178°(V)
	Backlight MTBF (hrs)	30000 (LED backlight) / 50000 (LED backlight)
Touch	Touchscreen	Projected capacitive type with USB interface
	Surface Hardness	6H
System	CPU Support	Intel® Kabylake ULT platform Core™ i5-7300U and Celeron® 3865U
	RAM	Two 260-pin 2133/1866 MHz dual-channel DDR4 non-ECC unbuffered SO-DIMMs (system max. 32GB)
	I/O Port	Rear 1 x 1.5kV isolation COM port 1 x 12~28V DC Jack 1 x GbE LAN port 2 x USB 3.2 Gen 1 port Bottom 1 x RJ-11 for barcode scanner (1D/2D) 1 x GbE LAN port 2 x USB 3.2 Gen 1 port 1 x HDMI output Side 1 x HDMI input 2 x USB 2.0 port 1 x Audio out 1 x Mic in
	Storage	1 x 2.5” SATA 6Gb/s HDD/SDD bay 1 x mSATA (Reserved)
	Audio	2 x 2W speaker
	Webcam & Microphone	2-megapixel CMOS front-facing camera with auto-focus and digital microphone
	LED Indicator	RFID indicator LED
Other Features	Monitor Mode	Yes
	Function Key	1 x LCD on/off 1 x Brightness up 1 x Brightness down 1 x Volume up 1 x Volume down 1 x Touch lock button for cleaning Combinations: 1 x Auto-dimming on/off
	Light Sensor	Ambient light sensor for panel brightness adjustment
	Cooling Method	Fan-less
Connectivity	Wi-Fi and Bluetooth	IEEE 802.11 a/b/g/n/ac 2T2R module with Bluetooth V4.1 1x 2230 A/E key (PCIe x 1/USB 2.0)
Physical	Construction Material	ABS+PC plastic with anti-bacterial material
	Mounting	Wall, Stand and Arm VESA 100/75
	Net Weight	6.5 kg
	Dimensions (WxHxD) (mm)	478.6 x 317.3 x 60.1
Environment	Operating Temperature	0°C~40°C
	Storage Temperature	-20°C~60°C
	Humidity	10% to 95% (non-condensing)
	Vibration	1G
	Shock	Operating Shock: 5G peak acceleration (11ms duration) Non-Operating Shock: 15G peak acceleration (11ms duration)
	IP Level	IP65 compliant front panel
Power	Power Input	12V~28V DC input
	Power Adapter	120W medical power adapter: Input: 100V~240V AC, Output: 19V DC

Ordering Information

Part No.	Description
BIS-W19CF-ULT4-C/PC/4G-R10	18.5" 350 cd/m² 1920 x 1080 panel PC with 7th generation 14nm Intel® mobile Celeron® 3865U (15W) on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, PCAP touchscreen, 2-megapixel camera, microphone, R10
BIS-W19CF-ULT4-i5/PC/4G-R10	18.5" 350 cd/m² 1920 x 1080 panel PC with 7th generation 14nm Intel® mobile Core™ i5-7300U (15W) on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, PCAP touchscreen, 2-megapixel camera, microphone, R10
BIS-W19C-ULT4-C/PC/4G-R10	18.5" 250 cd/m² 1366 x 768 panel PC with 7th generation 14nm Intel® mobile Celeron® 3865U (15W) on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, PCAP touchscreen, 2-megapixel camera, microphone, R10
BIS-W19C-ULT4-i5/PC/4G-R10	18.5" 250 cd/m² 1366 x 768 panel PC with 7th generation 14nm Intel® mobile Core™ i5-7300U (15W) on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, PCAP touchscreen, 2-megapixel camera, microphone, R10

Options

Part No.	Description
MEDP-HS-R10	USB interface VoIP phone and its holder, white
MEDP-CR-02-R10	Magnetic card reader/Smart card reader/Fingerprint sensor, white
MEDP-HD-R10	Metal handle covered with soft rubber
MEDP-HD-BR-R11	Metal handle covered with soft rubber, with barcode reader and reading light, White
MEDP-TPM-04-R10	Trusted platform module kit with 300mm cable, IEI assembly only
MEDP-EZS-R10	VESA 100 x 100 mm panel PC stand with a cable management hole, white
BIS-W19C-ULT4-W10E64-V-R10	OS Image with Windows Embedded Standard 10 E Value 64-bit for BIS-W19C, with DVD-ROM, RoHS
POCP-CC04-R10	BIS-19C-ULT4 cable cover, white, plastic, R10

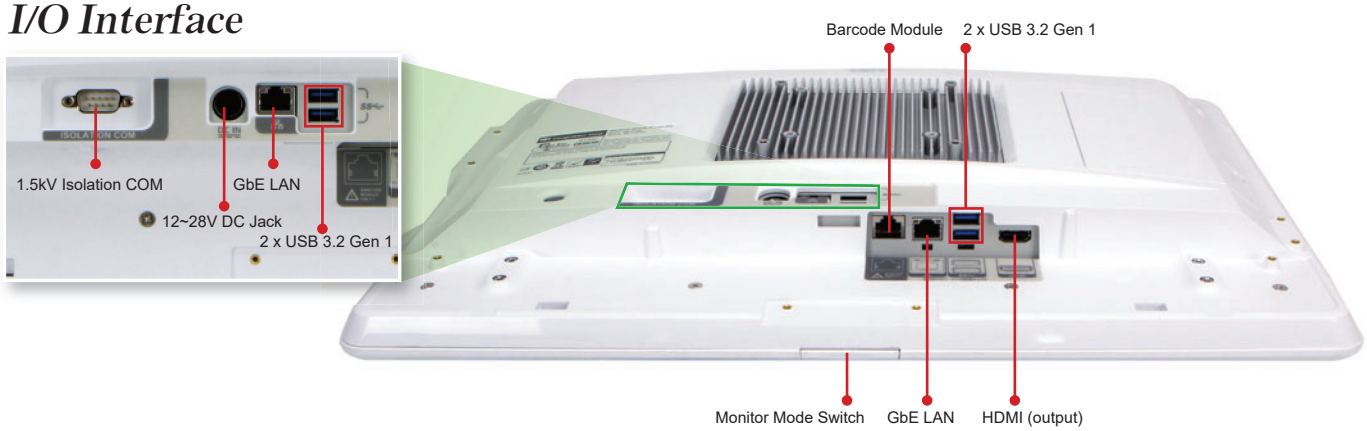
IQ Mounting Options

Item	Part No.
Wall Mount Kit	AFLWK-19B
Arm	ARM-31-RS
Stand	STAND-A21-R10

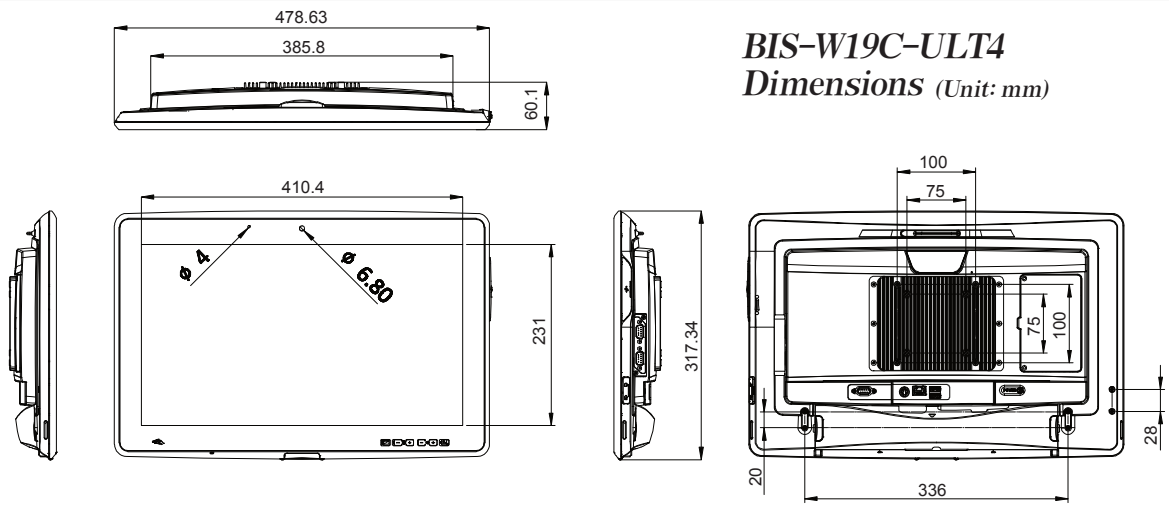
Packing List

Item	Q'ty	Remark
Power Adapter	1	120W medical power adapter: Input: 90V~264V AC, Output: 19 V DC
Power Cord	1	European power cords, 183 CM, C13

I/O Interface



BIS-W19C-ULT4 Dimensions (Unit: mm)



Medical Box PC

HTB-100-HM170 | Fanless Quad Core Box PC

Features

- Medical grade with high performance fanless embedded computing
- 6th Gen Intel® Core™ processor platform with Intel® HM170 chipset and DDR4 memory
- Triple independent display with high resolution support
- Isolated COM ports for enhancing safety among devices
- Optional PCIe x16 expansion slot supports more flexible functions



Fanless | DDR4 | M.2 | Triple Display | Isolated COM Port | Waterproof Top Cover

Smart & Friendly Design! HTB-100 brings you more satisfaction

Isolated COM ports, rich I/O interface, and multiple expansions are built in to the HTB-100. The intelligent HTB-100 medical computing system will meet all demands from the medical applications.



• Compliant with medical standards

The HTB-100 is compliant with medical standards, including IEC 60601-1 V3.1, IEC 60601-1-2 V4.0, IEC 62304, IEC 62366, ISO 14971 and FCC part 18 class B, making the medical environment more reliable.

• Flexible expansion

The flexible expansion is one of the advantages of the HTB-100 for medical applications. The HTB-100 reserves a PCIe x16 slot for add-on card expansions, such as capture card for medical imaging inspection during surgery.

• Waterproof top cover

The HTB-100 is equipped with a waterproof top cover in order to prevent any damage from cleaning or liquid which may indirectly affect patients. The HTB-100 can meet flat design and reduce maintenance effort.

• Cable cover for easy cabling

The cable cover protects the HTB-100 from dust and liquid ingress, and allows the medical staff to easily manage all the cables from the I/O ports, making the cleaning process more convenient in medical environment.



Powerful system design capability with innovative technology



● Isolated COM ports for safety protection

The COM ports support 2.5kV isolation that meets medical standard (IEC 60601-1-2 V4.0). The isolated ports can increase safety on device designed for medical environment, and provide comprehensive protection against electrical surges for patients and medical staffs.

● Fanless and easy maintenance

The HTB-100 is a fanless embedded system, and the heatsink is situated on the bottom side. The design makes the HTB-100 an easy-to-clean and reliable system for the medical environment.

● Ground pin to prevent harm to patients and medical staffs

The perfect grounding pin design can avoid current from the HTB-100 to vital devices which connect to patients, and to avoid the current damage from other devices.

● Easy mounting design

Various mounting methods such as desktop and wall mount are supported for easy use in medical environment. The provided flexible mounting bracket can be oriented 180 degrees to change from desktop to wall mount.



Specifications

Model		HTB-100-HM170
Physical	Color	Silver+Greyish blue
	Dimensions (WxDxH)	294 x 209 x 90.2
	Net Weight	2.2 kg
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	Intel® Core™ i7-6822EQ (2 GHz, quad-core, TDP=25) Intel® Core™ i5-6442EQ (1.9 GHz, quad-core, TDP=25)
	Chipset	Intel® HM170
	System Memory	2 x 260-pin DDR4 SO-DIMM, one 4 GB pre-installed (system max: 32GB)
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD bay
I/O Interfaces	USB 3.2 Gen 1	4
	USB 2.0	2
	Ethernet	2 x RJ-45 PCIe GbE by Intel® I211 controller
	COM Port	2 x RS-232 (DB-9, with 2.5 kV isolation) 2 x RS-232/422/485 (DB-9, with 2.5 kV isolation)
	Display	1 x VGA, 1 x HDMI 2.0, 1 x iDP (optional)
	Resolution	VGA: Up to 1920 x 1200@60HZ HDMI 2.0: Up to 4096 x 2160@60Hz
	Audio	Realtek ALC662, 5.1-channel High Definition Audio (HDA), Line-in, Line-out, Mic-in
	Wireless	1 x 802.11a/b/g/n/ac 2T2R (optional)
Expansions	PCIe	1 x PCIe x16
	PCIe Mini	1 x Half-size PCIe Mini 1 x Full-size PCIe Mini (supports mSATA, colay with SATA)
	M.2	1 x 1630/2230/3030 A/E key (PCIe x 2/USB 2.0)
Power	Power Input	DC Jack: 12~28V DC
	Power Consumption	19V@4.4A (Intel® Core™ i7-6822EQ with 4 GB memory)
	Adapter	Adapter Power; Vin:90~264VAC; 150W; Dim:85*170*42.5mm; Plug=6.5mm; Cable=1200mm; MEDICAL; Vout:19VDC; Din 4Pin/lock; CCL; R10
Reliability	Mounting	Wall mounting
	Operating Temperature	0°C ~ 40°C with air flow (SSD), 10% ~ 95%, non-condensing
	Storage Temperature	-40°C ~ 70°C with air flow (SSD), 10% ~ 90%, non-condensing
	Operating Shock	Half-sine wave shock 5G; 11ms; 100 shocks per axis
	Operating Vibration	MIL-STD-810G 514.6 C-1 (with SSD)
	Safety / EMC	CE, FCC class B part 18, IEC 60601-1 V3.1, IEC 60601-1-2 V4.0, IEC 62304, ISO 14971
OS	Supported OS	Microsoft® Windows 8, Microsoft® Embedded Standard 7

Ordering Information

Part No.	Description
HTB-100-HM170-i5/4G-R10	Ruggedized fanless embedded system with Intel® Core™ i5-6442EQ 1.9 GHz (up to 2.7 GHz, quad core, TDP 25W), 4GB DDR4 pre-installed memory, one PCIe x16 expansion, VGA/HDMI/iDP, COM port, 12~28V DC, Adapter Power; Vin:90~264VAC; 150W; Dim:85*170*42.5mm; Plug=6.5mm; Cable=1200mm; MEDICAL; Vout:19VDC; Din 4Pin/lock; CCL; R10
HTB-100-HM170-i7/4G-R10	Ruggedized fanless embedded system with Intel® Core™ i7-6822EQ 2.0 GHz (up to 2.8 GHz, quad core, TDP 25W), 4GB DDR4 pre-installed memory, one PCIe x16 expansion, VGA/HDMI/iDP, COM port, 12~28V DC, Adapter Power; Vin:90~264VAC; 150W; Dim:85*170*42.5mm; Plug=6.5mm; Cable=1200mm; MEDICAL; Vout:19VDC; Din 4Pin/lock; CCL; R10

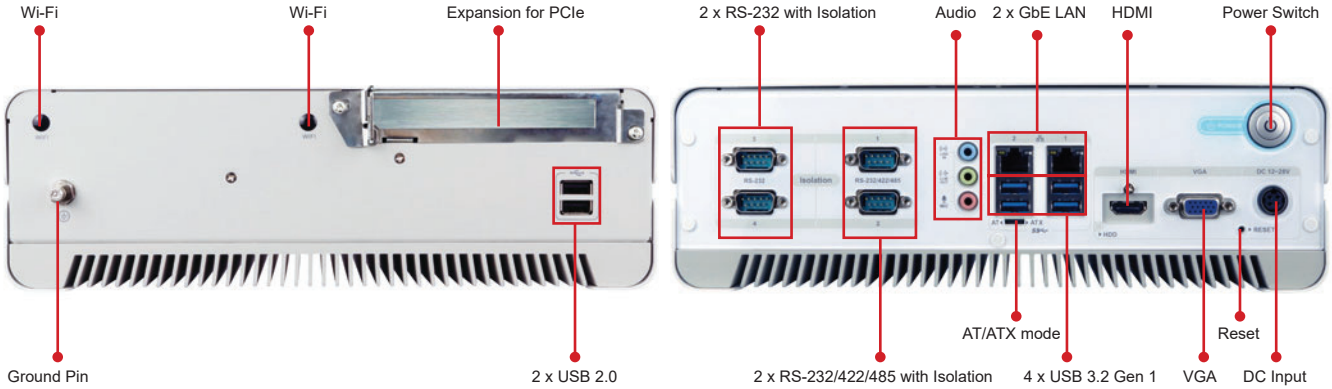
Options

Part No.	Description
41008-0803K6-00-RS	Cable COVER; HTB-100ME; White; R10

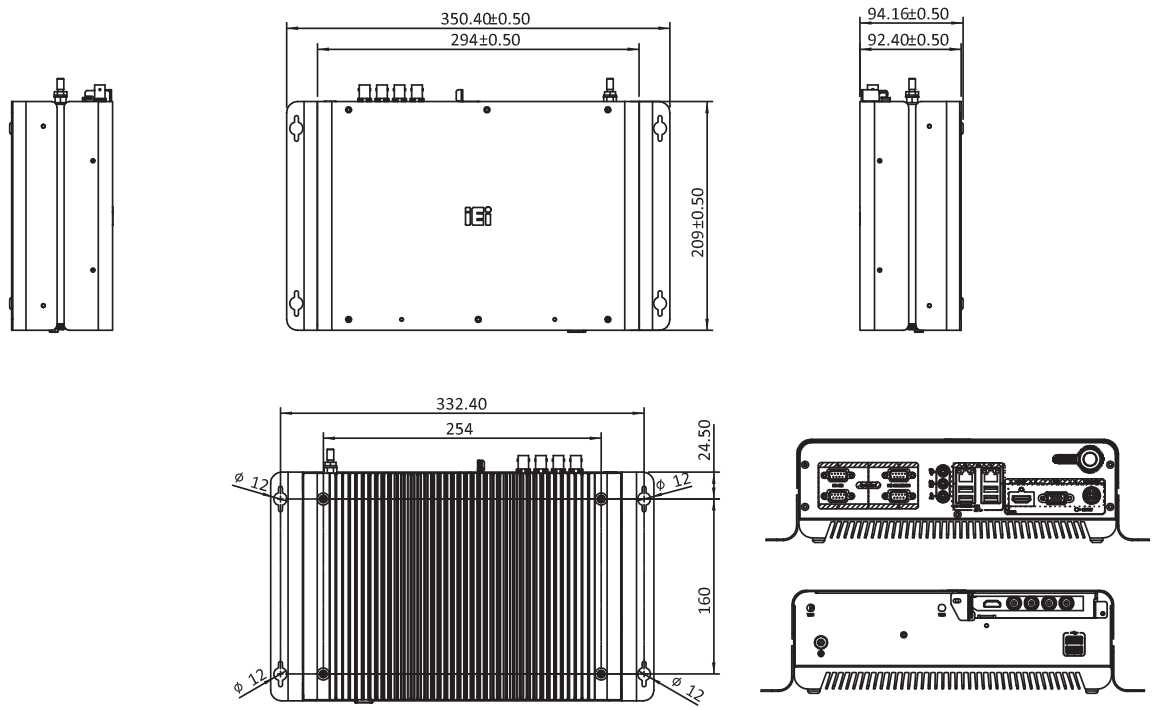
Packing List

1 x Chassis Screw	1 x Mounting Bracket

I/O Interface



HTB-100-HM170 Dimensions *(Unit: mm)*



AI Box PC

NEW

HTB-200-C236 | 6th/7th Generation Intel® Xeon & Core™ Processor

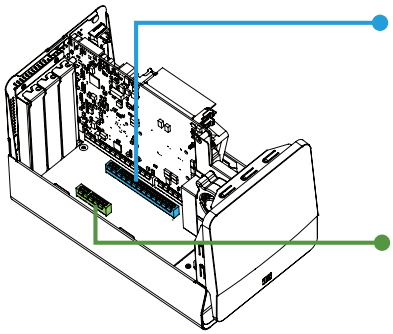
Features

- Compact edge device with great computing & graphics performance
- 6th/7th Gen Intel® Xeon® & Core™ processor platform with Intel® C236 chipset
- Dual ECC & non-ECC unbuffered SO-DIMM memory slot supporting up to 64 GB
- PCIe x16 slot supports NVIDIA GPU or IEI Mustang Acceleration Card
- PCIe x4 slot supports capture cards or other applications



Intel® Kabylake | Smart Fan | USB 3.2 | HDMI | Dual GbE | PCIe slot

Dual PCIe Slots



PCIe x16

Accelerator cards are crucial to data scientists. High compatibility for the GPU cards such as NVIDIA P4/T4/Quadro series or IEI Mustang series allows the end user to choose accelerator cards based on their different needs.

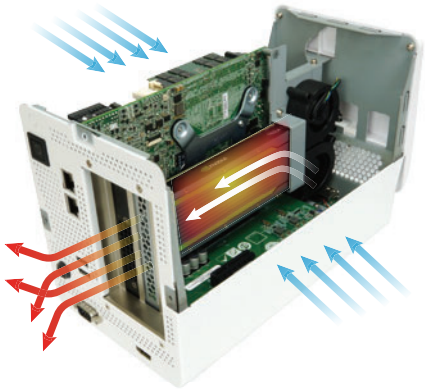
PCIe x4

The redundant PCIe x4 slot is reserved for all-in-one video capture cards or other expansions.

Unique Thermal Solution

The accessible hard drive enables IT technicians to do the maintenance work more easily. The drive bay is located in the bottom of the HTB-200-C236 and accepts 2.5" SSD or HDD. The IT technician can easily check or replace the storage device by removing four cover screws.

Catering to NVIDIA® Tesla T4 passive heat sink design, IEI adopts blower-ventilation solution that not only creates a strong air flow but also minimizes the noise made by fan system.



Easy Maintenance

The accessible hard drive enables IT technicians to do the maintenance work more easily. The drive bay is located in the bottom of the HTB-200-C236 and accepts 2.5" SSD or HDD. The IT technician can easily check or replace the storage device by removing four cover screws.



Specifications

Model		HTB-200-C236
Chassis	Color	White
	Dimension	140 x 171 x 276.6 mm
	System Fan	Smart Fan
	Chassis Construction	Metal housing (SECC)
Motherboard	CPU	Intel® Xeon® E3-1268LV5, 35W TDP Intel® Core™ i5-7500T (Kaby Lake platform), 35W TDP
	Chipset	Intel® C236
	System Memory	Two 260-pin 1600/2133MHz dual-channel ECC & non-ECC unbuffered DDR4 SO-DIMM slots supporting up to 64GB
	Storage	2.5” SATA HDD or SSD
I/O Interfaces	USB	2 x USB 3.2 Gen 1 port, 2 x USB 2.0
	COM	1 x RS-232/422/485
	Ethernet	LAN1: Intel® I219LM Clarkville-V with Intel® AMT 11.0 support LAN2: Intel® I210 PCIe controller
	Display	1 x HDMI output
	Others	1 x Power button 1 x Reset switch 1 x AT/ATX switch
Expansions	PCIe	1 x PCIe 3.0 x16 slot 1 x PCIe 3.0 x4 slot
	PCIe Mini	1 x Half-size PCIe Mini Slot
Power Input		19V DC in
Power Adapter		100V ~ 240V AC input, 19V DC output, 180W
Environment	Operating Temperature	0°C ~ 35°C 10% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis
	Net Weight	2.8 kg
Acceleration Card Supported		NVIDIA Tesla P4 (50W/75W)
		NVIDIA Tesla T4 (75W)
		Mustang F100 (<60W)
		Mustang V100 (<30W)
Supported OS		Windows®10, Linux®

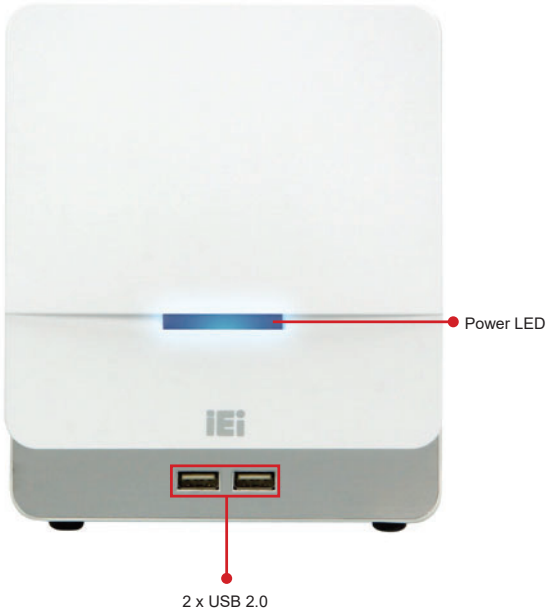
Ordering Information

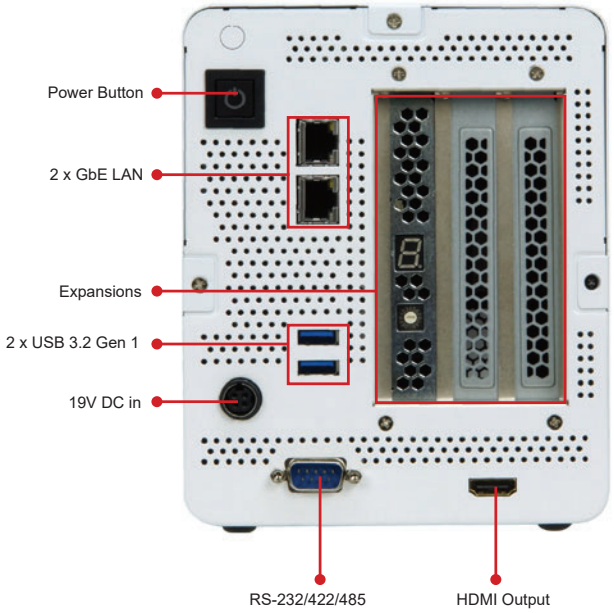
Part No.	Description
HTB-200-C236-E3/32G/2A-R10	Embedded system with Intel® Xeon® E3-1268LV5 2.4GHz (quad-core, 35W TDP), two 16GB DDR4 memory, one PCIe x16 & one PCIe x4 expansion, 19V DC 180W power adapter, white, R10
HTB-200-C236-i5/16G/2A-R10	Embedded system with Intel® Core™ i5-7500T 2.7GHz (quad-core, 35W TDP), two 8GB DDR4 memory,one PCIe x16 & one PCIe x4 expansion, 19V DC 180W power adapter, white, R10

Packing List

Item	Part No.	Q’ty	Remark
Power Adapter	63040-010180-200-RS	1	180W power adapter: Input: 100V~240V AC, Output: 19 V DC
Power Cord	32701-000700-300-RS	1	American power cord, 183 cm, C13
HDD Screw	44043-030041-RS	4	Machine screw; I Head; M3x4

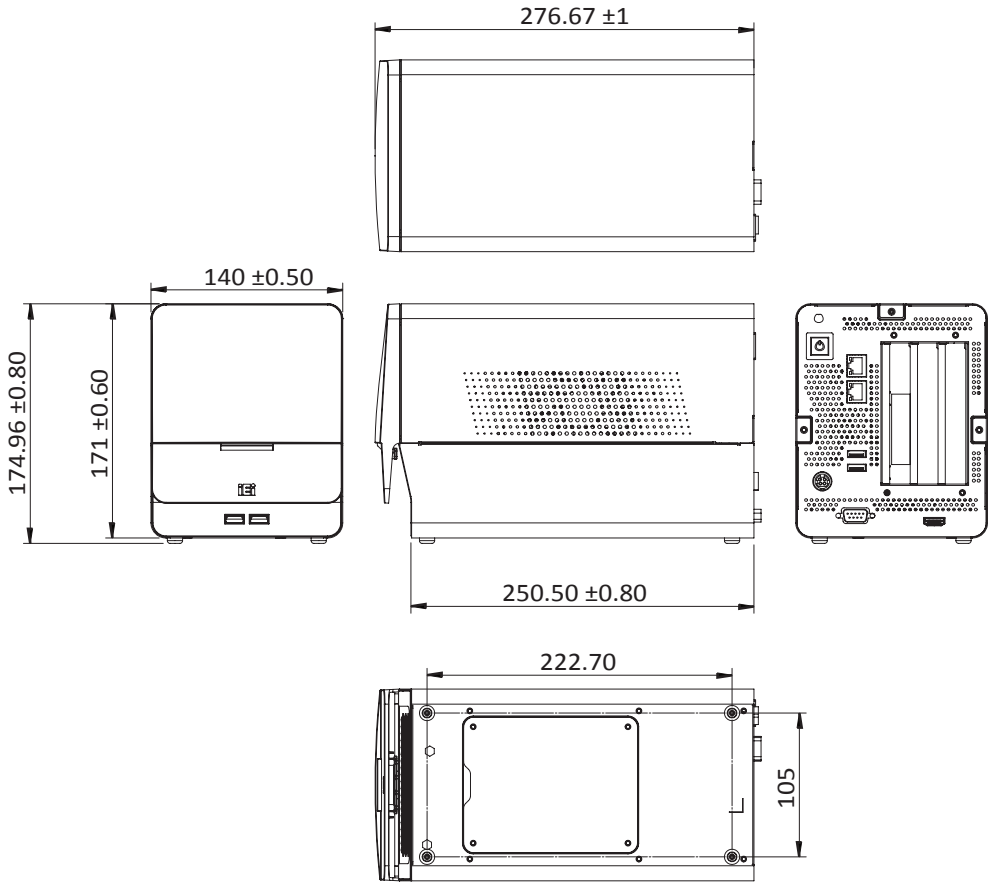
I/O Interface





HTB-200-C236 Dimensions

(Unit: mm)



Solution Partner for Healthcare Industry



Medical Certifications

Celebrate Humanity with Technology

BriteMED is dedicated to developing and applying innovative electronic medical solutions that improve clinical workflow and enhance patient care. At BriteMED, all the solutions are designed, tested and refined with the clinical environment in mind. As an affiliate of the IEI Group, a reputed industrial application provider, we leverage the hardware and software strength to provide integrated solution, including medical device, medical display, computing platform, mobile workstation and powering system. The upmost medical solution together with the advanced technology is our commitment for medical professionals. From product design to integration service, we aim to develop reliable and technology-driven solutions that make people's lives better-whether they are doctors, nurses or patients. We believe perfecting those small details touches our customers and their individual requests.



Medical Monitor

Multi-modality display for endoscopy application and surgical environment

The BriteMED® medical display supports multiple digital and analog inputs, enabling the connection to the state-of–the art devices without extra efforts. The DICOM/GAMMA compliance and adjustable color temperature ensure accurate and artifact-free imaging quality, to help surgeons make decision during operation. The special-coating glass allows precise imaging view experience in the operation theater and facilitates clean purpose for infection control.



Medical Cart

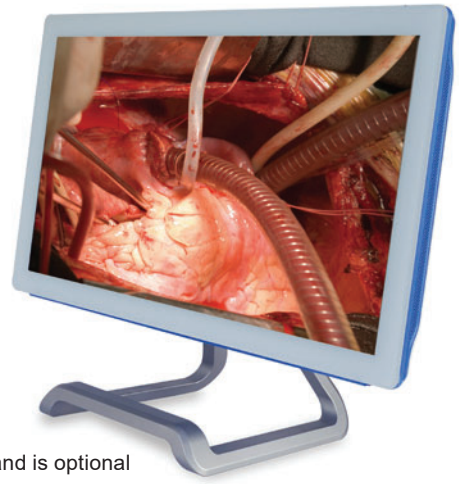
A wide range of medication and documentation carts for ward rounds

The BriteMED® medical carts can be integrated with the medical panel PCs and battery systems, providing an all-in-one solution for EHR workstation. For various hospital preference, a range of colors and accessories can be chosen to maximize the flexibility for different applications.

BriteMED® 21" Medical Display

Multi-Interfaces for CRT Monitor Replacement

Powered by BriteMED



* Stand is optional

Benefits

Versatile Connection

Multiple inputs enable flexible connection by applications: VGA & DVI input for general connection, traditional analog input/output for replacing CRT monitor with old endoscopy system.

Accurate Image Viewing

The compliance with DICOM/ GAMMA ensures optimized color and gray scale reproduction for best image accuracy.

Easy Control

The OSD can be set by PC remotely. The optional GPIO is reserved for customized function development, such as controlling lighting and patient bed.

Easy Installation

The VESA 75/100compliance supports easy installation in the space-limited examination room, on the cart, surgical boom arm, or other mounting kits

Selection Guide

	Model with General VGA & DVI Input	Model with Traditional Analog Video Input	Model with Touchscreen
Without HDMI input/output	MMS-21C	MMS-21CA	MMS-21CT
With HDMI input/output for PIP/PBP display	MMS-21CH	MMS-21CAH	MMS-21CHT

Specifications

Model		MMS-21C	MMS-21CA	MMS-21CH	MMS-21CAH	MMS-21CT	MMS-21CAT	MMS-21CHT	MMS-21CAHT
Description		General VGA, DVI inputs	Multiple analog inputs	VGA, DVI, and HDMI inputs	VGA, DVI, analog, and HDMI inputs	Touch-screen model	Touch-screen model with analog inputs	Touch-screen model with HDMI input	Touch-screen model with analog and HDMI inputs
Picture Performance	LCD Size	21.5" (16:9)							
	Resolution	1920 (W) x 1080 (H) pixels							
	Brightness (max.)	250 nits (typical)							
	Contrast Ratio	5000:1 (typical)							
	Viewing Angle (H/V)	178° / 178° (typical)							
	Color Temperature	Factory calibrated 4500K, 5500K, 6500K, 7500K							
	Gamma Correction	Factory calibrated gamma 2.0 & DICOM							
Function	Touch Screen	N/A	N/A	N/A	N/A	Projected capacitive touchscreen (USB interface)	Projected capacitive touchscreen (USB interface)	Projected capacitive touchscreen (USB interface)	Projected capacitive touchscreen (USB interface)
	Function Keys	1 x OSD rotary knob 1 x Input source quick selection 1 x Monitor sleep							
Input	VGA (DB-15)	1							
	DVI-D	1							
	HDMI	N/A	N/A	1	1	N/A	N/A	1	1
	Component	N/A	BNC x 5 (Y/Pb/Pr, R/Gs/B, R/G/B/C-Sync, R/G/B/H-Sync/V-Sync)	N/A	BNC x 5 (Y/Pb/Pr, R/Gs/B, R/G/B/C-Sync, R/G/B/H-Sync/V-Sync)	N/A	BNC x 5 (Y/Pb/Pr, R/Gs/B, R/G/B/C-Sync, R/G/B/H-Sync/V-Sync)	N/A	BNC x 5 (Y/Pb/Pr, R/Gs/B, R/G/B/C-Sync, R/G/B/H-Sync/V-Sync)
	CVBS	N/A	BNC x 1 (NTSC, PAL)	N/A	BNC x 1 (NTSC, PAL)	N/A	BNC x 1 (NTSC, PAL)	N/A	BNC x 1 (NTSC, PAL)
	S-Video	N/A	1	N/A	1	N/A	1	N/A	1
	Audio	Phone jack x 1							
Output	HDMI	N/A	N/A	1, loop through	1, loop through	N/A	N/A	1, loop through	1, loop through
	Component	N/A	BNC x 5, loop through (Y/Pb/Pr, R/Gs/B, R/G/B/C-Sync, R/G/B/H-Sync/V-Sync)	N/A	BNC x 5, loop through (Y/Pb/Pr, R/Gs/B, R/G/B/C-Sync, R/G/B/H-Sync/V-Sync)	N/A	BNC x 5, loop through (Y/Pb/Pr, R/Gs/B, R/G/B/C-Sync, R/G/B/H-Sync/V-Sync)	N/A	BNC x 5, loop through (Y/Pb/Pr, R/Gs/B, R/G/B/C-Sync, R/G/B/H-Sync/V-Sync)
	CVBS	N/A	BNC x 1, loop through (NTSC, PAL)	N/A	BNC x 1, loop through (NTSC, PAL)	N/A	BNC x 1, loop through (NTSC, PAL)	N/A	BNC x 1, loop through (NTSC, PAL)
	S-Video	N/A	1, loop through	N/A	1, loop through	N/A	1, loop through	N/A	1, loop through
	Audio	0.8W x 2							
Optional Interfaces	3G-SDI	Input x 1 Output x 1 (loop through)							
General	Power Requirement	10V~28V DC input							
	Power Adaptor	Medical grade power adaptor: input: 100-240V AC 50-60Hz; output: 12V DC/5.42A							
	Dimensions (L x W x H)	530 x 325 x 53 mm							
	Weight	6.6 kg							
	Mounting Standard	VESA 75 x 75 mm / 100 x 100 mm							
Environment	Operating Temperature	0°C~40°C							
	Operating Humidity	10%~90% (non-condensing)							
	Storage Temperature	-20°C ~60°C							
	Storage Humidity	10%~90% (non-condensing)							
Certifications	Certifications & Compliance	ANSI/AAMI ES60601-1, EN60601-1, CAN/CSA C22.2 No. 60601-1, and FCC Class B part 18							
Package Content	Monitor	1	1	1	1	1	1	1	1
	Power Adaptor	1	1	1	1	1	1	1	1
	Power Cord	1	1	1	1	1	1	1	1
	Grounding Cable	1	1	1	1	1	1	1	1
	VGA Cable	1	1	1	1	1	1	1	1
	DVI Cable	1	1	1	1	1	1	1	1
	HDMI Cable	N/A	N/A	1	1	N/A	N/A	1	1
	Touchscreen Cable	N/A	N/A	N/A	N/A	1	1	1	1
	USB Cable	1	1	1	1	1	1	1	1
	User Manual (USB flash drive)	1	1	1	1	1	1	1	1

Ordering Information

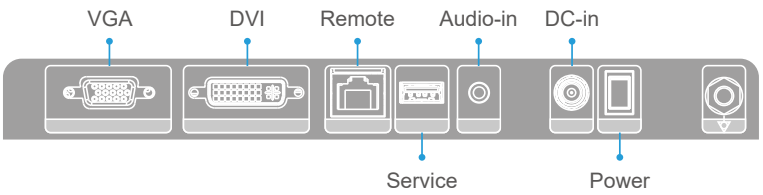
Part No.	Description
MMS-21C-R10	21.5” 1920x1080 color monitor, VGA/DVI-D input, 100~240 VAC to 12V DC power adaptor
MMS-21CA-R10	21.5” 1920 x 1080 color monitor, VGA/DVI-D/Component/CVBS/S-Video input, 100~240 VAC to 12V DC power adaptor
MMS-21CH-R10	21.5” 1920x1080 color monitor, VGA/DVI-D/HDMI input, 100-240V AC to 12V DC power adaptor
MMS-21CAH-R10	21.5” 1920x1080 color monitor, VGA/DVI-D/Component/CVBS/S-Video/HDMI input, 100-240V AC to 12V DC power adaptor
MMS-21CT-R10	21.5” 1920x1080 color monitor, VGA/DVI-D input, P-CAP Touchscreen, 100~240 VAC to 12V DC power adaptor
MMS-21CAT-R10	21.5” 1920x1080 color monitor, VGA/DVI-D/Component/CVBS/S-Video input, P-CAP Touchscreen, 100-240V AC to 12V DC power adaptor
MMS-21CHT-R10	21.5” 1920x1080 color monitor, VGA/DVI-D/HDMI input, P-CAP Touchscreen, 100-240V AC to 12V DC power adaptor
MMS-21CAHT-R10	21.5” 1920x1080 color monitor, VGA/DVI-D/Component/CVBS/S-Video/HDMI input, P-CAP Touchscreen, 100-240V AC to 12V DC power adaptor

Factory Options

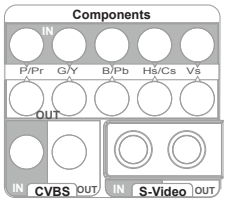
Part No.	Description
MMSO-3GSDI-R10	3GSDI input & output loop-through add-on module
STAND-A19-RS	VESA 75/100 stand, supports up to 7.5 kg, silver
STAND-DWH-R10	VESA 75/100 stand, supports up to 15 kg, white
AFLWK-19B	VESA 100 wall mount kit, supports up to 7.5 kg, silver

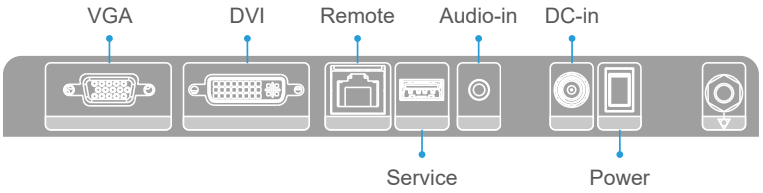
Signal Interface

MMS-21C

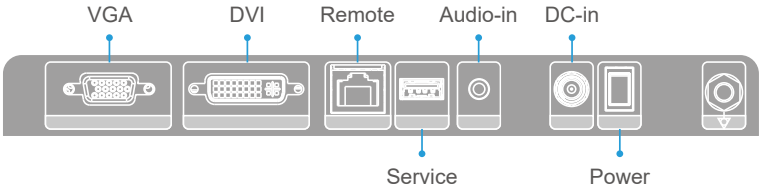


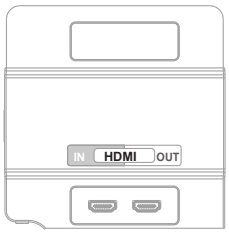
MMS-21CA



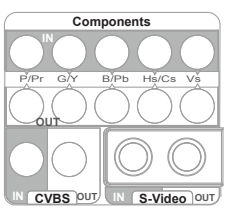


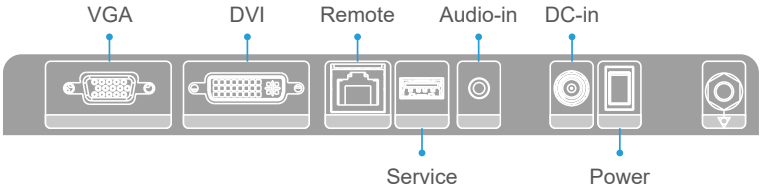
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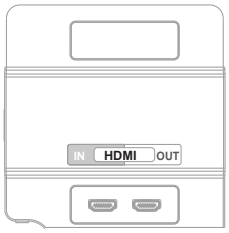




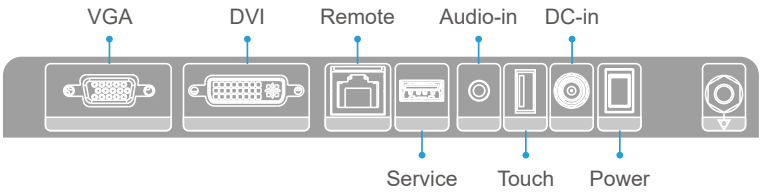
MMS-21CAH



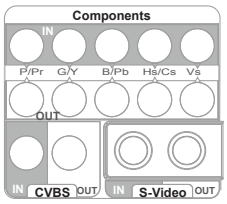


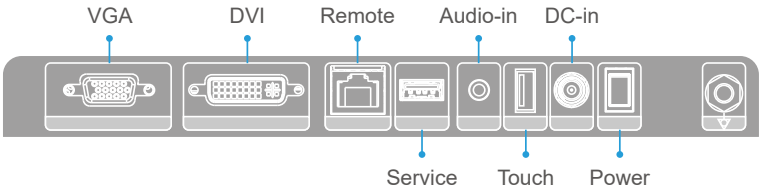


MMS-21CT

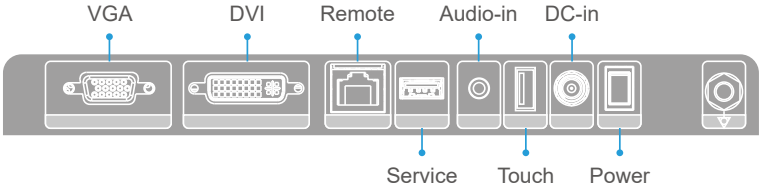


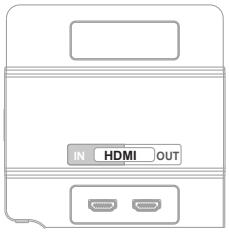
MMS-21CAT



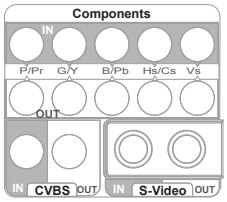


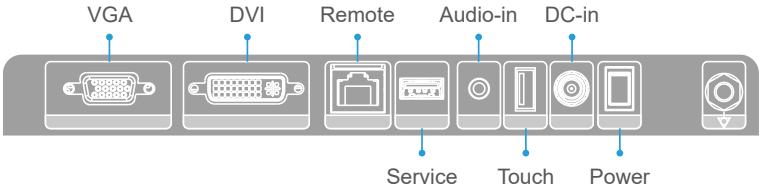
MMS-21CHT

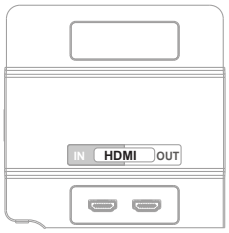




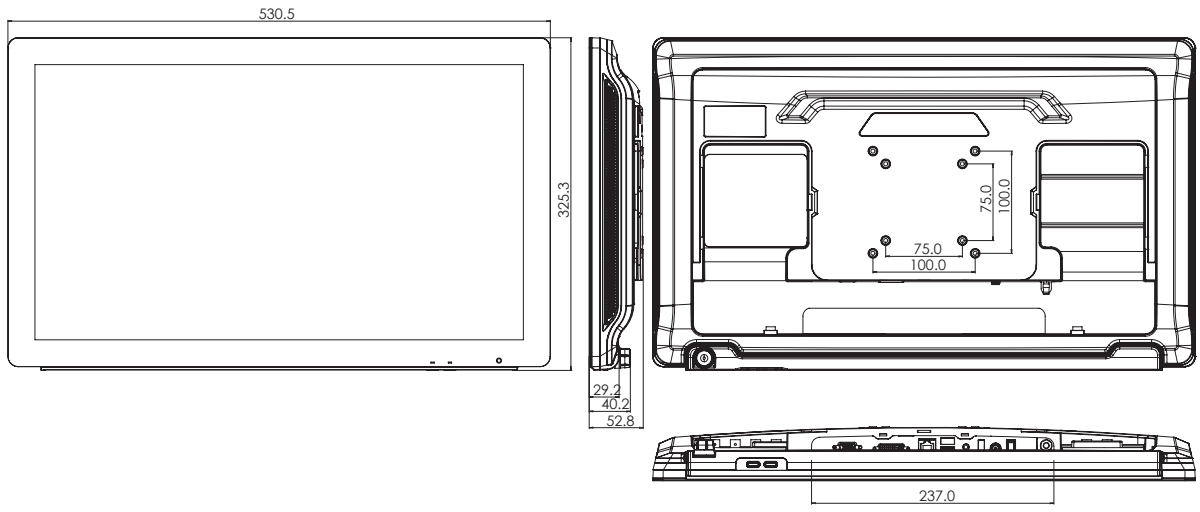
MMS-21CAHT







Dimensions (unit: mm)



BriteMED® 27" Medical Display

High Brightness for Multi-modality Imaging

Powered by BriteMED



* Stand is optional

Benefits

Versatile Connection

Multiple inputs enable flexible connection by applications: VGA & DVI input for general connection, HDMI input/output featuring PIP/PBP function for multi-modality, and optional 3G-SDI module for advanced endoscopy system.

Accurate Image Viewing

The compliance with DICOM/ GAMMA ensures optimized color and gray scale reproduction for best image accuracy.

Exceptional Clarity

The 700-nits high brightness enhances clarity and details for both color and grayscale images.

Multimodality Imaging

The picture-in-picture (PIP) and picture-by-picture settings allow multimodality display capability for various image combinations.

Selection Guide

	With VGA & DVI input for general connection	With analog video input for traditional system
Without HDMI input/output	MMS-27C	MMS-27CA
With HDMI input/output for PIP/PBP display	MMS-27CH	MMS-27CAH

Specifications

Model		MMS-27C	MMS-27CA	MMS-27CH	MMS-27CAH
Description		General VGA, DVI inputs	Multiple analog inputs	VGA, DVI, and HDMI inputs	VGA, DVI, analog, and HDMI inputs
Picture Performance	LCD Size	27" (16:9)			
	Resolution	1920 (W) x 1080 (H) pixels			
	Brightness(max.)	700 nits (typical)			
	Contrast Ratio	1000:1 (typical)			
	View Angle (H/V)	178° / 178° (typical)			
	Color Temeperature	Factory calibrated 5500K, 6500K, 7500K, 9300K			
	Gamma Correction	Factory calibrated gamma 2.0 & DICOM			
Function	Function Keys		1 x MENU 1 x Input source 1 x Custom input	1 x Backlight up /+ 1 x Backlight down / - 1 x Image size adjustment	
Input	VGA (DB-15)	1			
	DVI-D	1			
	HDMI	N/A	N/A	1	1
	Component	N/A	BNC x 5 (Y/Pb/Pr, R/Gs/B, R/G/B/C-Sync, R/G/B/H-Sync/V-Sync)	N/A	BNC x 5 (Y/Pb/Pr, R/Gs/B, R/G/B/C-Sync, R/G/B/H-Sync/V-Sync)
	CVBS	N/A	BNC x 1 (NTSC, PAL)	N/A	BNC x 1 (NTSC, PAL)
	S-Video	N/A	1	N/A	1
	Audio	Phone jack x 1			
Output	HDMI	N/A	N/A	1, loop through	1, loop through
	Component	N/A	BNC x 5, loop through (Y/Pb/Pr, R/Gs/B, R/G/B/C-Sync, R/G/B/H-Sync/V-Sync)	N/A	BNC x 5, loop through (Y/Pb/Pr, R/Gs/B, R/G/B/C-Sync, R/G/B/H-Sync/V-Sync)
	CVBS	N/A	BNC x 1, loop through (NTSC, PAL)	N/A	BNC x 1, loop through (NTSC, PAL)
	S-Video	N/A	1, loop through	N/A	1, loop through
	Audio	0.8W x 2			
Optional Interfaces	3G-SDI	Input x 1 Output x 1 (loop through)			
General	Power Requirement	10V~28V DC input			
	Power Adaptor	Medical grade power adaptor: input: 100-240V AC 50-60Hz; output: 12V DC/7.5A			
	Dimensions (L x W x H)	657 x 399 x 59.5 mm			
	Weight	10 kg			
	Mounting Standard	VESA 100 x 100 mm / 200 x 100 mm			
Environment	Operating Temperature	0°C~40°C			
	Operating Humidity	10%~90% (non-condensing)			
	Storage Temperature	-20°C ~60°C			
	Storage Humidity	10%~90% (non-condensing)			
	Certifications & Compliance	ANSI/AAMI ES60601-1, EN60601-1, CAN/CSA C22.2 No. 60601-1, and FCC Class B part 18			
Package Content	Monitor	1	1	1	1
	Power Adaptor	1	1	1	1
	Power Cord	1	1	1	1
	Grounding Cable	1	1	1	1
	VGA Cable	1	1	1	1
	DVI Cable	1	1	1	1
	HDMI Cable	N/A	N/A	1	1
	USB Cable	1	1	1	1
	User Manual (USB flash drive)	1	1	1	1

Ordering Information

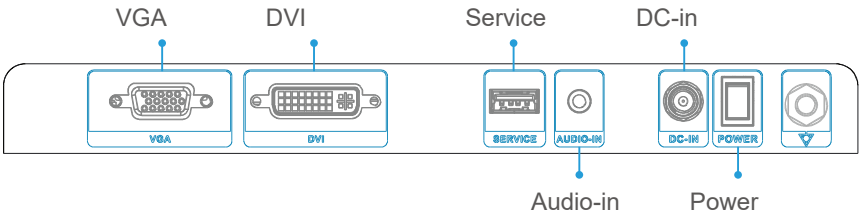
Part No.	Description
MMS-27C-R10	27” 1920x1080 color monitor, VGA/DVI-D input, 100-240V AC to 12V DC power adaptor
MMS-27CA-R10	27” 1920x1080 color monitor, VGA/DVI-D/Component/CVBS/S-Video input, 100-240V AC to 12V DC power adaptor
MMS-27CH-R10	27” 1920x1080 color monitor, VGA/DVI-D/HDMI input, 100-240V AC to 12V DC power adaptor
MMS-27CAH-R10	27” 1920x1080 color monitor, VGA/DVI-D/Component/CVBS/S-Video/HDMI input, 100-240V AC to 12V DC power adaptor

Factory Options

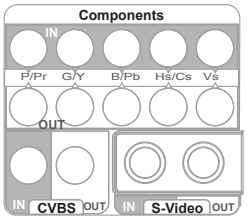
Part No.	Description
MMSO-3GSDI-R10	3GSDI input & output loop-through add-on module
STAND-DWH-R10	VESA 75/100 stand, supports up to 15 kg, white
WK-E35M-R10	VESA 100/200/200x100 wall mount kit, supports up to 35 kg, silver

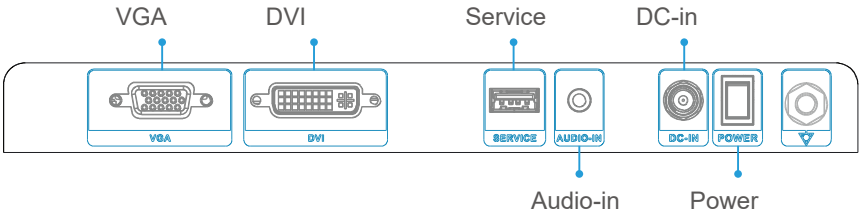
Signal Interface

MMS-27C

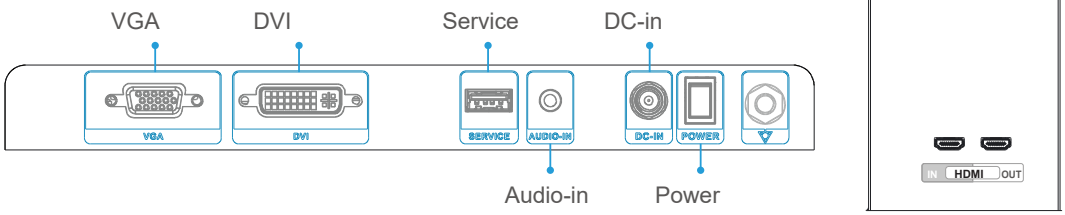


MMS-27CA

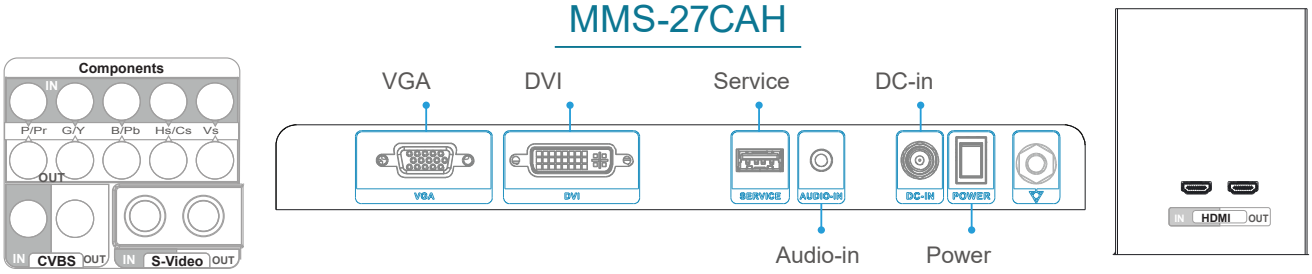




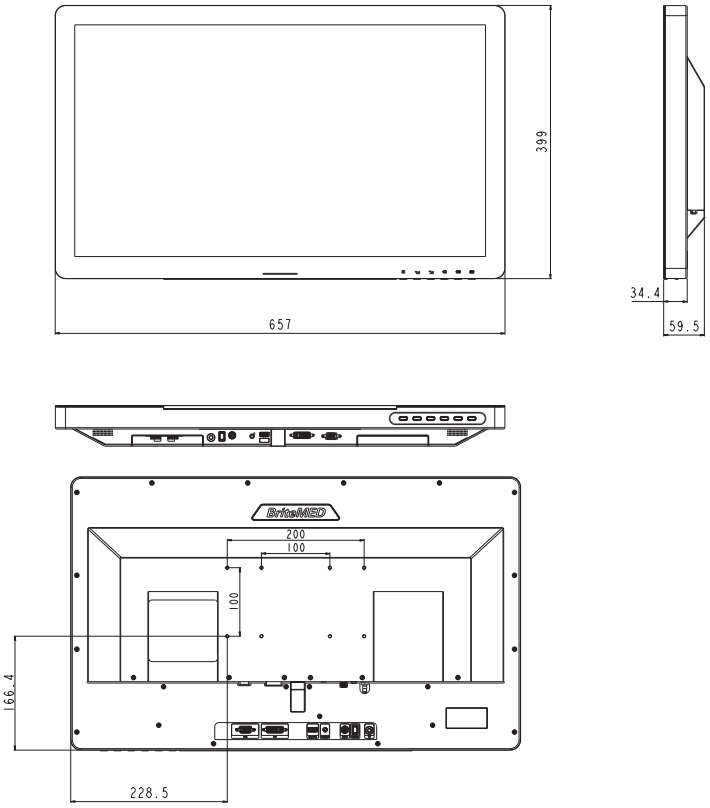
MMS-27CH



MMS-27CAH



Dimensions (unit: mm)



BriteMED® Medical Cart

Powered by BriteMED

A wide range of medication and documentation carts that perform mobile workstation purpose to meet various workflow requirements. The BriteMED® medical carts are designed with aluminum-alloy structure and each metal sheet is connected by electro-welding instead of screw, ensuring the strength and safety when moving around in the hospital. Integrated with the optional panel PCs and batteries, it provides a total solution for mobile health applications



Model No.		pCART-N1	pCART-N3	pCART-D1
Description		Ergonomic for medication use	Small and Compact for use in limited space	Elegant design for documentation purpose
Size (L x W x H)		54 x 68 x 101cm	51 x 46 x 94cm	52 x 54 x 150cm
Working Table Dimensions (L x W)		45 x 59cm		54 x 45cm
Side Table Loading Weight (max.)		8 kg		N/A
Supported Arm Loading Weight (max.)		12kg		10kg
Standard Drawer Configuration	Total Height	27"	24"	N/A
	3" keyboard drawer	1	1	N/A
	3" drawer/ABS tray	1	2	N/A
	3" medication drawer	2	N/A	N/A
	6" drawer	1	1	N/A
	9" drawer	1	1	N/A
Mouse Holder		N/A		1
Document Basket		N/A		1
Barcode Reader Holder		N/A		1
Wheels		5"	4"	4"

*Accessories and panel PC are optional

Faster and New SATA Flash Storage

The anti-vibration IEI SLC flash modules featured low power consumption, high performance and perfect reliability are best for SATA SSD and SATA DOM solutions. The SSD not only has much higher performance than the HDD, but also can be operated anytime due to the lack of moving parts such as motor, bearing or rotating head. In addition, the SSD is able to fulfill any specialized application in any harsh environment.

■ Complete Industrial SLC Solution





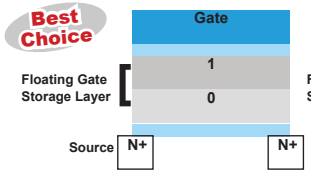




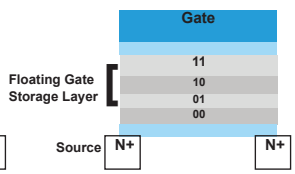
Interface	IDE PATA	SATA 1.5Gb/s	SATA 3Gb/s
Data Transfer Rate	66/100/133 MB/sec.	SATA 6Gb/s	SATA 6Gb/s 3Gb/s
Reliability	Fair	Better	Better
Power Consumption	Higher	Lower	Lower
Heat Delivery	Fair	Better	Better
Chipset Support after 945G/GM	No	Yes	Yes

SLC vs. MLC Comparison Table

SLC
(Single-Level Cell) Structure chart



MLC
(Multi-Level Cell) Structure chart



	SLC	MLC
Endurance (Erase cycle)	100,000	5,000-10,000
Operating Temp. Range	Support Wide Temp. -40°C~+85°C	0°C~+70°C
Power Consumption	Lower	Higher
Read/Write Performance	Better	Worse

■ IEI SATA Flash Module Selection

Item	IFM-3010IS(WS)/IFM-3010IL(WL) IFM-3010IPS(WPS)	IFD-2520IS (WS)
Picture		
Capacity	1GB~32GB	1GB~32GB
Interface	SATA 6Gb/s	SATA 6Gb/s
IDE Transfer Mode	PIO Mode 0-4 MwDMA Mode 0-2 UltraDMA Mode 0-2	PIO Mode 0-4 UltraDMA Mode 0-6
Data Transfer Rate	Read-300MB/sec. ; Write-130MB/sec.	Read-510MB/sec. ; Write-340MB/sec.
Operating Temp.	-0°C~+70°C ; -40°C~+85°C	iFD-25102S: 0°C~+70°C iFD-2520WT: -40°C~+85°C
Storage Temp.	-55°C~+95°C	-55°C~+95°C
Humidity	10%~95%, non-condensing	10%~95%, non-condensing
Vibration	20G	20G (7~2000Hz)
Shock	1500G/10 ms	1500G/0.5 ms
ECC Technology	High reiability based on the internail ECC function	High reiability based on the internail ECC function
MTBF	>3,000,000 hours	>3,000,000 hours
R/W Endurance	2,000,000 times	2,000,000 times
Wear-Leveing	Support	Support
DC Input Voltage	+5V single power supply operation	+5V single power supply operation
Power Mode	Auto stand-by and sleep mode	
Power Consumption	200 mA	
Enclosure Material	PC mechanical cover	Metal mechanical cover
Dimensions (WxLxH)	20.5 x 39.2 x 8 mm	69.8 x 100.1 x 9.3 mm
Certificate	RoHS / CE / FCC	

Ordering Information

- **Industrial SATA Flash Card**

Part No.	Interface	Capacity
IFM-3010IS-XXXX	Vertical SATA 6Gb/s 7 pin	1G~32G
IFM-3010WS-XXXX	Vertical SATA 6Gb/s 7 pin	1G~32G
IFM-3010IL-XXX	Vertical SATA 6Gb/s 7 pin	1G~32G
IFM-3010WL-XXXX	Vertical SATA 6Gb/s 7 pin	1G~32G
IFM-3010IPS-XXXX	Horizontal SATA 6Gb/s 7 pin	1G~32G
IFM-3010WPS-XXXX	Horizontal SATA 6Gb/s 7 pin	1G~32G

- **Industrial SATA 2.5" Flash Disk**

Part No.	Interface	Capacity
IFD-2520IS-XXXX	SATA 6Gb/s 7+15 pin	8GB~128GB
IFD-2520WS-XXXX	SATA 6Gb/s 7+15 pin	8GB~64GB

XXXXX=Capacity-128MB/256MB/512MB/1GB/2GB/4GB/8GB/16GB/32GB/64GB/128GB
I= Standard grade opertion temp.: 0°C~70°C
W=Industrial grade opertion temp.: -40°C~85°C



Intelligent DC UPS Module

12V/9~36V DC Input, 12V DC Output Uninterruptible Power Supply Module with Diagnostics

- VESA 75 or VESA 100 mounting
- 9-36V input through terminal or power jack, or 12V through power jack only
- Battery status and charge monitoring utility. Remote network management capabilities



Features

- 60W (5A @ 12V) or 100W (8.3A @ 12V) output
- 28Wh or 56Wh, for more than 140 minutes operation time (depending on panel PC power requirements)
- Rugged metal enclosure for standard VESA 75/100 mounting
- Web-based, remote network management, no software installation required
- Local PC-based monitoring software for input detection and battery status monitoring
- Auto shut down when battery low
- Remote DC output on/off switch for external switch installation
- Provides stable power to the PC during line sags and spikes and absorbs power surges and transients, protecting expensive equipment





Model Name	AUPS-A10 / AUPS-A20	AUPS-B10 / AUPS-B20
Input Power	AUPS-A10 (12V)	AUPS-B10 (12V)
	AUPS-A20 (9~36V)	AUPS-B20 (9~36V)
Dimensions (mm)	150 x 95 x 34	170 x 150 x 34
Battery Capacity	28 Wh (Watt/Hour)	56 Wh (Watt/Hour)
Output Power	60W (5A@12V)	100W (8.3A@12V)
VESA Support (mm)	75 x 75	75 x 75 / 100 x 100

Intelligent UPS Module

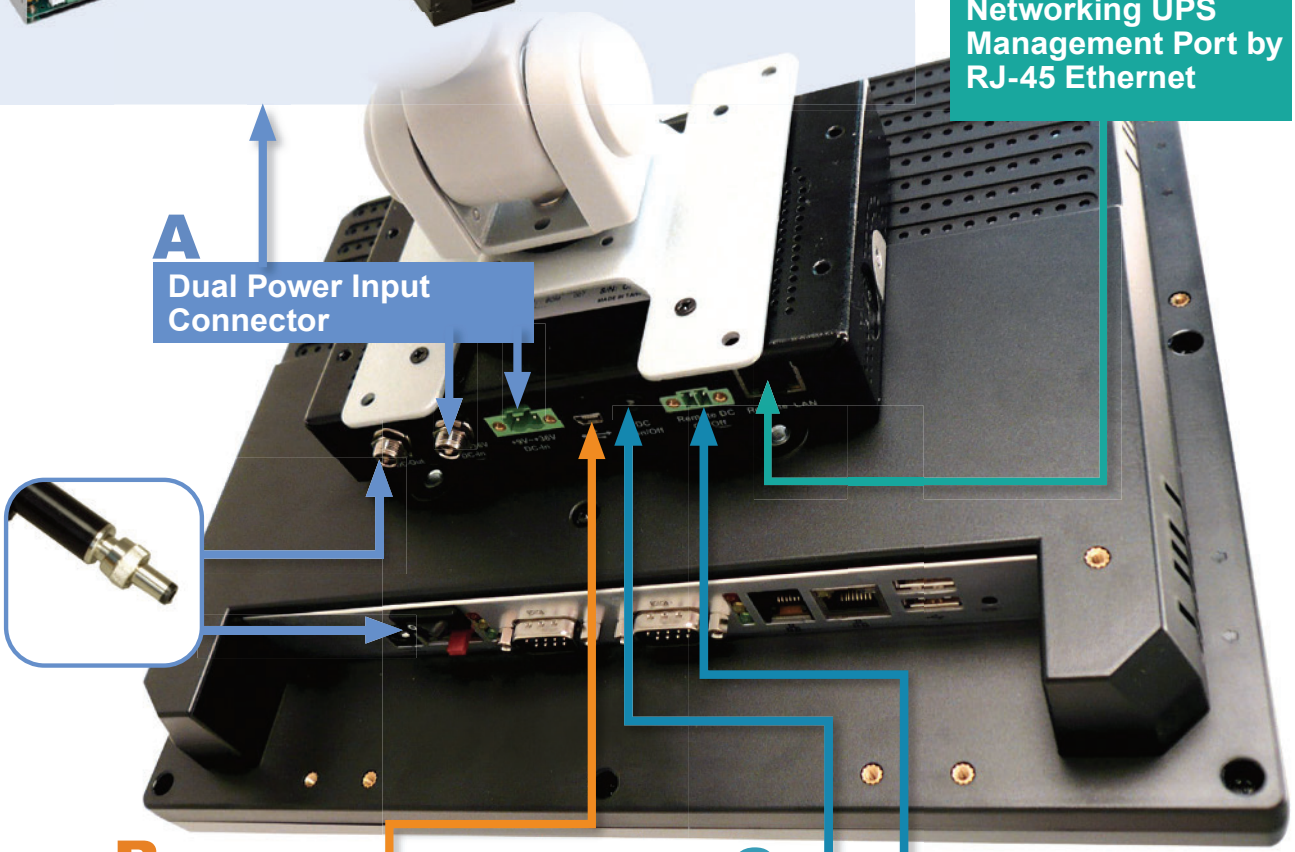
High Energy Density / Lightweight / Compact DC to DC UPS & Power Module

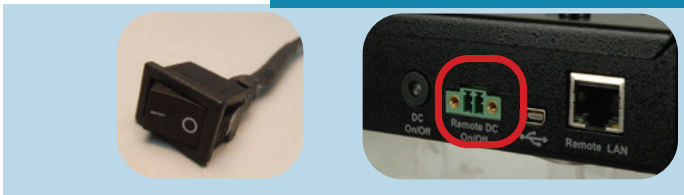
Protect your panel PC from electrical damage and greatly reduce the risk of losing data.
The UPS module serves as temporary power during a short break in power and allows a safe system shutdown for longer periods of power loss.

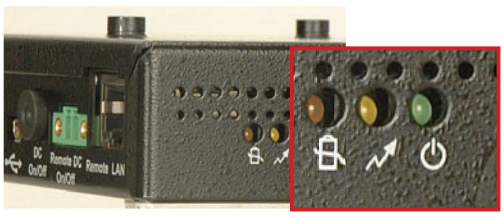


DC 9V~36V input by terminal block (Only AUPS-A20 / AUPS-B20)

- Only 12V input by DC jack (AUPS-A10 / AUPS-B10)
- Wide 9V~36V input by DC jack (AUPS-A20 / AUPS-B20)







LED Signal Table			
	LED 1	LED 2	LED 3
Color	Green	Yellow	Orange
Function	Power Input	Charging Status	Battery Status
Dark	DC Power Out		
Light	DC Power In	Discharging	Battery Full
Blinking		Charging	Battery Low

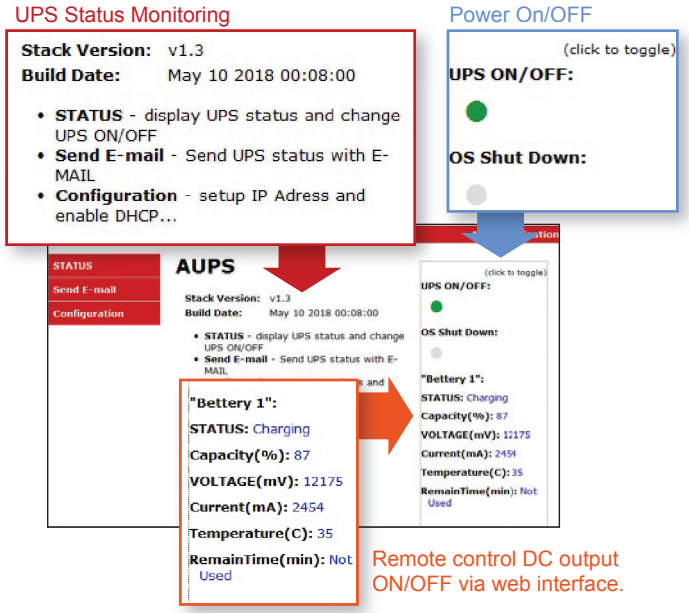
AUPS Network Administration Tool

Intelligent Software Utility

The remote management software utility and application program allow users to easily get the status of the AUPS and to control the AUPS power functions from anywhere with internet connection.



Network Remote Management Software Battery Capacity Status



AUPS Local USB Utility Tool

Monitor the Most Critical Battery Functions on the Local Machine

The battery monitoring utility provides AUPS status monitoring and configuration ability. Uninterruptible Power Systems is a significant product that serves as emergency power when you suffer from electric event.



MONITORING SYSTEM STATUS

Shows system status real-time monitoring
- DC Power indicator
- Battery capacity
- Battery status
- Temperature



BATTERY STATUS

Shows battery status real-time monitoring
- Real-time information update
- Status bar



LAN CONFIGURATION

LAN shows system IP Address information



E-MAIL

The E-mail page is where to set the SMTP settings for sending alert notification via e-mail



SETTING

Setting system management

Buzzer	Enable or disable the buzzer that warns when the system is switching to use battery power.
Enable LAN	Enable or disable the LAN for remote monitoring function.
Power	Click the button to power off the AUPS power module immediately.
Auto DC on	Enable to automatically power on the AUPS once DC power is applied.
Shut down condition (capacity %)	Set the battery capacity parameter for the system to shut down automatically.
DC off delay time (0~65536 sec)	Set the delay time for the AUPS series to power off after the system shut down.
System will be down-converted (capacity %)	Set the battery capacity parameter for the system to automatically switch to the Balanced power plan set in its Windows OS.
System go to sleep mode (capacity %)	Set the battery capacity parameter for the system to go into sleep mode automatically.

AUPS Module Specifications

Model Name		AUPS-A10	AUPS-A20	AUPS-B10	AUPS-B20
VESA Type		VESA 75	VESA 75	VESA 75 and 100	VESA 75 and 100
Input Data	Input voltage Uinated/range	DC +12V	DC +9V~+36V	DC +12V	DC +9V~+36V
	Input current rated	1. Adapter is 12V-6A (Load is 60W) 2. Battery is 6V-12A (Load is 60W)		1. Adapter is 12V-9A (Load is 100W) 2. Battery is 12V-9A (Load is 100W)	
	Standby power consumption	0.3A (0.2A if Network Management disabled)			
	Operation with charging current	500mA			
	Operation with charging power consumption	6W		10W	
	Charging time with system ON/OFF	8hrs / 2hrs (Battery empty)			
Output Data	Output voltage for normal operation	DC +12V +/-5%			
	Output voltage for battery operation (approx).	6~8.4V DC6 V (exhaustive discharge protection)		12~16.8V DC12 V (exhaustive discharge protection)	
	Output current	0A~5A		0A~8.3A	
	Efficiency (nominal operation) / power loss at Vin=12V, Iout=80% of full loading	89%	93%	95%	94%
Protection	Short-circuit protection	Yes			
	Exhaustive discharge protection	1. Battery low is 10% of battery capacity 2. Shuntdown 5% of battery capacity (Default) 3. The end of battery discharge voltage is 6V			
	EMC / Safety certification	CE, FCC			
Monitoring	Ethernet interface	Web-based, specification 10/100Mbps with RJ-45 connection, Cat. 5 cable			
	USB interface	PC-capable, specification 2.0 with full speed, i.e. 2 Mbit/s. Standard 4-core shielded cable, USB Series "mini B" connector to DC-UPS			
Physical	Dimensions (LxWxH)	152mm x 96mm x 28mm		174mm x 147mm x 35mm	
	Weight	1.2 kg		1.8 kg	
LED Indicator	Green	DC power input			
	Yellow	Battery charging			
	Orange	Bettery discharging			
Environment	Operating Tem.	0°C~40°C			
	Storage Tem.	-20°C~50°C			

Note1: Connecting DC input constantly is recommended. Battery will be drained after 14 hours.
Note2: System power consumption + AUPS charging power consumption = Total watts of power source

Battery Module Specifications

Model Name	AUPS-A10	AUPS-A20	AUPS-B10	AUPS-B20
Battery Model Name	31603-000072-RS		31603-000073-RS	
Battery type	Li-Ion 2S2P 7.26V		Li-Ion 4S2P 14.52V	
Battery capacity	7.26V 5200 mAH		14.52V, 5200 mAH	
Maximum charge voltage	8.4V		16.8V	
The end of discharging voltage	5.5V		11V	
Recommended charging current (max.)	2.55A		2.55A	
System continuous discharging current (max.)	7.5A		7.5A	
The end of charge condition	255mA / 1Min		255mA / 1Min	
Discharge protection	Over current protection			
Charge protection	Over current protection			
Ambient temperature	0°C~45°C			
Storage temperatur	-20°C~65°C			
Self-discharge rate	340uA~440uA			
Dimensions (LxWxH)	139mm x 47mm x 26mm		165mm x 76mm x 26mm	
Weight	244g		466g	
Cycle life	300 charge / discharge cycles			
Backup 60W / 10Min 100W / 10Min	50W / 10Min		100W / 10Min	
Safety class	CE, FCC, UN38.3, UL			

Note: Replacing battery module every 2 years is recommended.


31603-000072-RS


31603-000073-RS

Selection Table for UPS Modules and Main Buffering Time

AFOLUX PPC	AUPS-A10	AUPS-A20	AUPS-B10	AUPS-B20
Under 50W solution				
AFL3-W07A-BT (20W)	110min	110min	220min	220min
AFL3-08A-BT (30W)	75min	75min	150min	150min
AFL3-W10A-BT (33W)	70min	70min	140min	140min
AFL3-12A-BT (42W)	55min	55min	110min	110min
AFL3-W15A-BT (50W)	45min	45min	90min	90min
AFL3-W19A-AL (40W)	55min	55min	110min	110min
50W ~ 100W solution				
AFL3-12C-ULT3 (58W)	-	-	75min	75min
AFL3-W15B-H81 (72W)	-	-	60min	60min
AFL3-W15C-ULT3 (68W)	-	-	65min	65min
AFL3-W19C-ULT3 (63W)	-	-	70min	70min
AFL3-W22C-ULT3 (65W)	-	-	70min	70min

Ordering Information

Part No.	Description
AUPS-A10-R20	VESA 75, DC 12V input 60W UPS module with 7.26V; 5200mAH, 2S2P Li-Ion battery, R20
AUPS-A20-R20	VESA 75, DC 9V ~ 36V input 60W UPS module with 7.26V; 5200mAH, 2S2P Li-Ion battery, R20
BATKIT-2S2P5200-R10	Battery installation kit with 2S2P 7.26V 5200mAH Smart Battery pack and accessories
31603-000072-RS	Battery Pack; Li Ion; WELL DONE/WTE; EXIC011K1002; SAMSUNG; ICR18650-26J; 5200mAH; 7.26V; 2S2P; 244±10g;BAT-LI-2S2P5200; CCL; RoHS
AUPS-B10-R20	VESA 100, DC 12V input 100W UPS module with 14.52V; 5200mAH, 4S2P Li-Ion battery, R20
AUPS-B20-R20	VESA 100, DC 9V ~ 36V input 100W UPS module with 14.52V; 5200mAH, 4S2P Li-Ion battery, R20
BATKIT-4S2P5200-R10	Battery installation kit with 4S2P 14.52V 5200mAH Smart Battery pack and accessories
31603-000073-RS	Battery Pack; Li Ion; WELL DONE/WTE; EXIC021K1002; SAMSUNG; ICR18650-26J; 5200mAH; 14.52V; 4S2P; 466±10g; BAT-LI-4S2P5200; CCL; RoHS

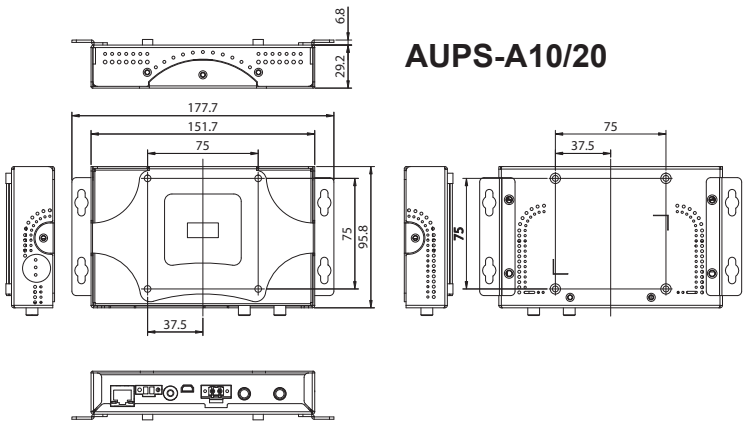
Note: The backup time could be varied on different models or operating temperature.

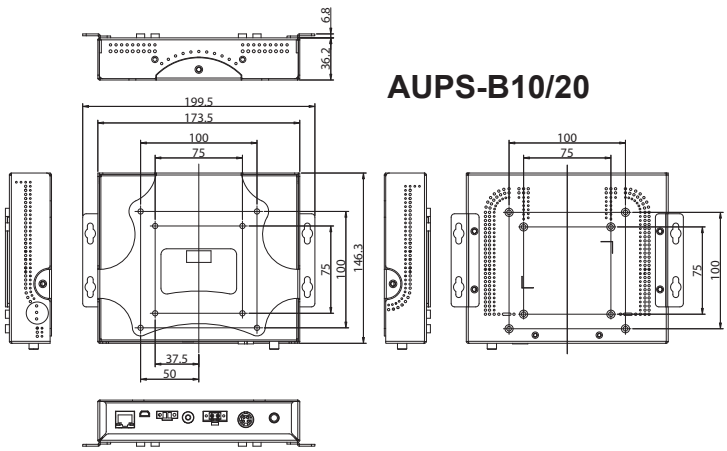
Packing List



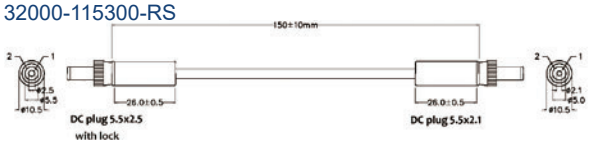
Item	DC power cable, 150mm, DC plug 5.5 x 2.1 to DC plug 5.0 x 2.5 without lock	USB cable, 200mm, USB type A male to mini USB	Remote switch cable, 1200mm	Screw kit
Part Number	32000-120400-RS	32000-115500-RS	32000-124600-RS	44013-030041-RS
Q'ty	1	1	1	1

AUPS Mechanical Drawing (Unit: mm)

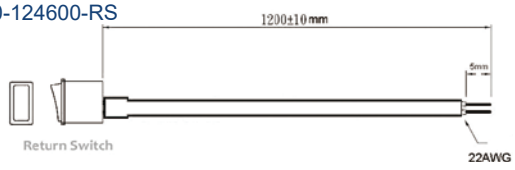




DC Power Cable (DC plug to DC plug) with lock
32000-115300-RS



Remote Switch Cable
32000-124600-RS



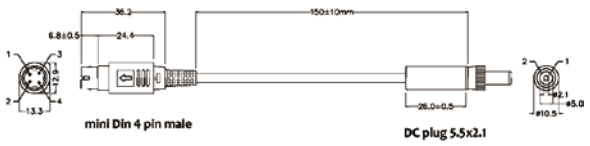
USB Connection Cable
32000-115500-RS



DC Power Cable (DC plug to DC plug) without lock
32000-120400-RS



DC Power Cable (DC plug to mini DIN)
32002-002201-100-RS



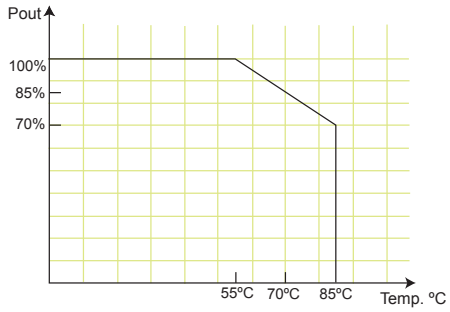
IDD-930160-KIT

60 W DC/DC Converter Module for AFOLUX Panel PC and Monitor

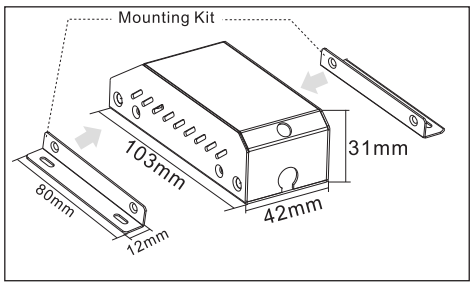


Specifications

- Input voltage: 9-30 VDC
- Input current: Max. 8.2 A at 9 VDC
- Output: 12 V@5 A
- Max. total output: 60W
- Performance characteristics:
  Noise and ripple: <120 mV
  Line regulation: <2.5%
  Load regulation: <2.5%
- Transient toggle rate: 250 Hz (50% duty ratio)
- Transient current step:
  From 0% to 50% and 50% to 100% of max current
- Efficiency: typ. 95% (Vin=12 V, 80% of full load)
- Dimensions: 42 mm x 103 mm x 31 mm
- Mounting kit: 12 mm x 80 mm
- Cable length: 180 cm
- Operating temperature: -10°C~55°C
- Load down protection

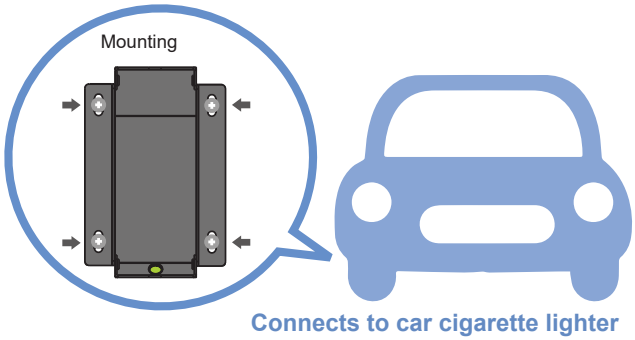


Dimensions (Millimeters)



Typical Applications



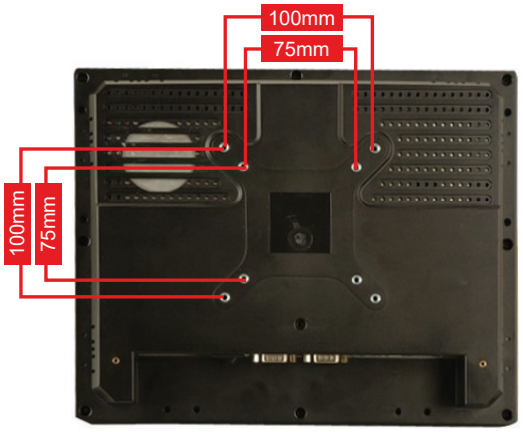


Packing Information

1 x IDD-930160-KIT-R20
1 x Mounting kit
1 x Screw kit
1 x Anti-slip strip
1 x Utility CD

Ordering Information

Part No.	Description
IDD-930160-KIT-R20	60 W DC/DC 9-30 VDC input vehicle power adapter



IEI Quick Mounting Technology

Compliant with VESA Mounting Standards

IEI panel solutions have four mounting holes compliant with the VESA (Video Electronics Standards Association) mounting standard (75mm x 75mm/100mm x 100mm) on the rear panel for stand mounting and other mounting methods.

1. Stand Mounting

VESA 75/100 Universal Stand

STAND-A21-R10





Portrait/Landscape



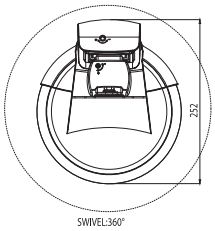
Height Adjustment (13 cm)

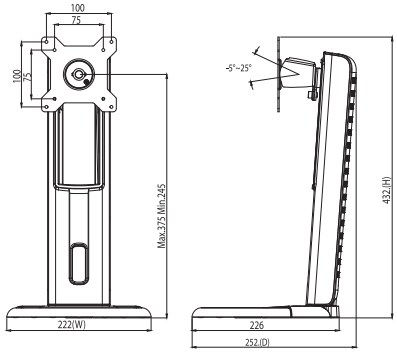


Right/Left Pan (360°)



Forward/Backward Tilt (+25°/-5°)



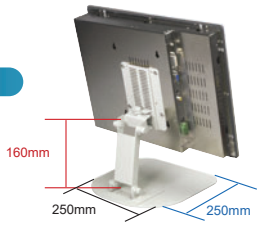


Ordering Information

Part No.	Description
STAND-A21-R10	15”~21” VESA 75x75 mm/100x100 mm PPC/Monitor Stand, support from 6 KG to ~12 KG, Black, RoHS



STAND-100

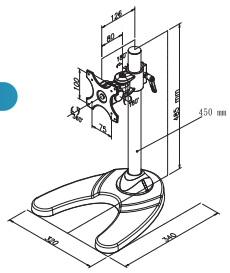


Ordering Information

Part No.	Description
STAND-100-RS	• Material: Heavy-duty steel • Adjustable display angle • 3kg to 8kg loading capacity • Color: White (Pantone 413C)



STAND-210



Ordering Information

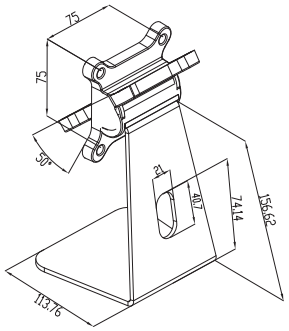
Part No.	Description
STAND-210-R11	• Support VESA 75/100 standard • Weight capacity from 7kg~10kg

VESA 75/100 Easy Stand



STAND-A/Bxx

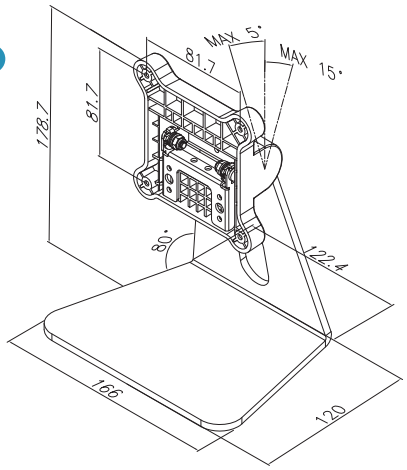
STAND-B08



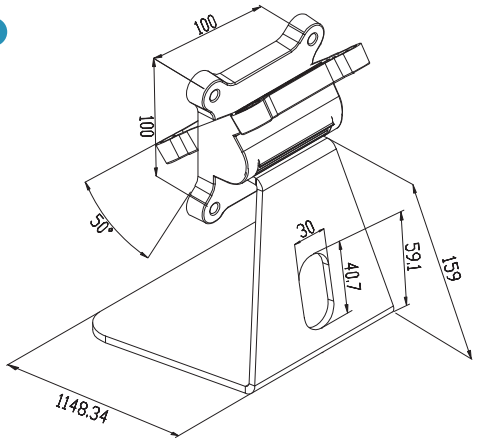


STAND-C12-R10 STAND-C19-R10

STAND-A19-RS



STAND-A12-RS



Ordering Information

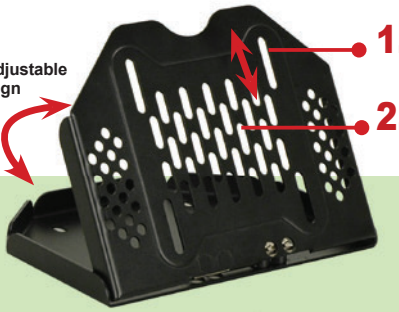
Part No.	Description
STAND-B08	5.6”~8.4" VESA 75x75mm PPC/monitor stand, support up to 5 kg, Silver color, RoHS
STAND-C12-R10	5.7" ~ 12.1" VESA 100x100mm, 75x75mm PPC/Monitor Stand, support up to 7.5kg, Black color, RoHS
STAND-A12-RS	10”~12.1" VESA 100x100mm PPC/monitor stand, support up to 5 kg, Silver color, RoHS
STAND-A19-RS	12.1”~19" VESA 100x100mm PPC/monitor stand, support up to 7.5 kg, Silver color, RoHS

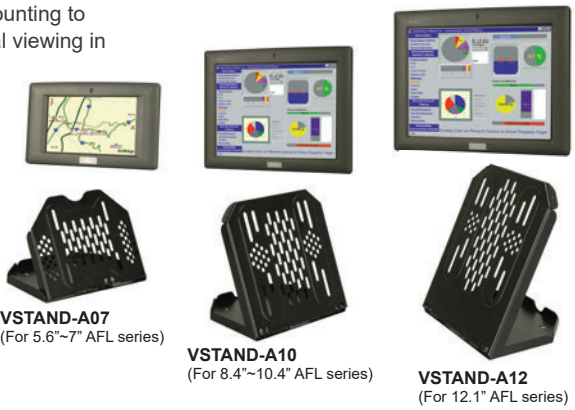
2. V-STAND

VESA Multi-Mounting Stand

IEI patented multi-mounting V-Stand allows wall, ceiling, desk, rear and side mounting to meet diverse applications. Its 0° to 90° adjustable hinge design provides optimal viewing in various environments, such as kitchen, room or shelf.

VESA	Model
75 x 75mm	VSTAND-A07-R11
75 x 75mm / 100 x 100mm	VSTAND-A10-R11
	VSTAND-A12-R11





VSTAND-A07
(For 5.6"~7" AFL series)

VSTAND-A10
(For 8.4"~10.4" AFL series)

VSTAND-A12
(For 12.1" AFL series)

Features:
- 0º to 90º adjustable hinge design allows comfortable viewing
- Standard VESA 75/100 compliance
- Heat dissipation holes
- Compact size, easy to use for mounting anywhere

A. One fits all solution

The V-Stand is a compact and tilt adjustable mounting stand providing mobility and ergonomic comfort to fit common wall mounting and ceiling mounting situations.

Wall Mounting



Entry-Master Systems | Back Office POS System

Ceiling Mounting



Car PC | Medical Control Panel

B. 0° to 90° excellent adjustability

You can change the angle of the stand from 0° to 90° to reach almost any point with ergonomic features for comfortable viewing.



POS System



Self-ordering System

C. Space saving and easy installation



Compact size provides mobility



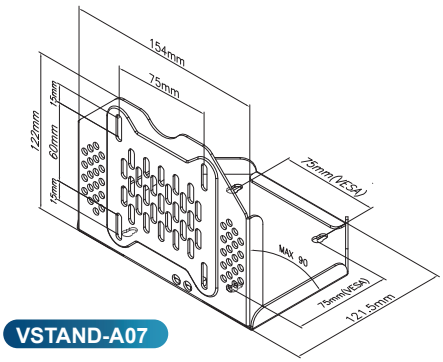
1: Tighten the screws in the rear of the AFOLUX PPC VESA mounting holes



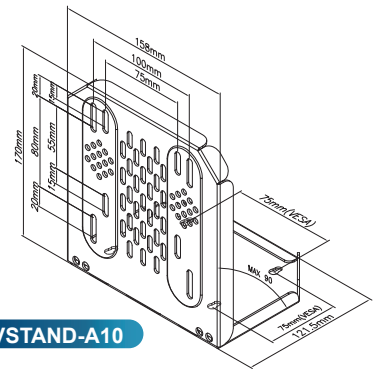
2: Select the position to mount stand kit



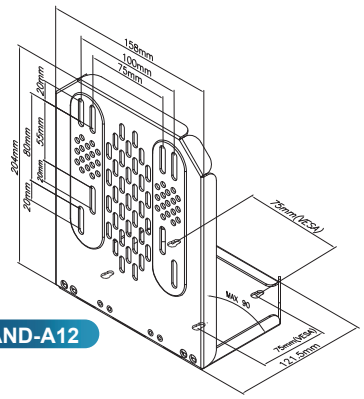
3: Plug in the system to operate



VSTAND-A07



VSTAND-A10



VSTAND-A12

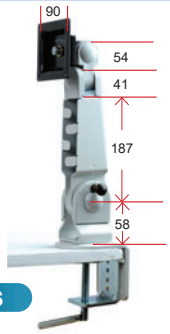
Ordering Information

Part No.	Description
VSTAND-A07-R11	LCD monitor / PPC stand V type, for AFL series, VESA 75, 0°~90° degree adjustable hinge, support up to 2.5 kg, RoHS
VSTAND-A10-R11	LCD monitor / PPC stand V type, for AFL series, VESA 75/100, 0°~90° degree adjustable hinge, support up to 3 kg, RoHS
VSTAND-A12-R11	LCD monitor / PPC stand V type, for AFL series, VESA 75/100, 0°~90° degree adjustable hinge, support up to 3.5 kg, RoHS

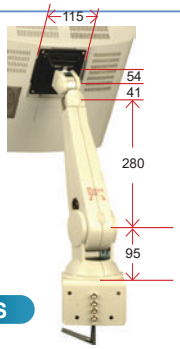
3. ARM

VESA 75/100 Desk ARM

VESA	Model
75x75mm/100x100mm	ARM-11-RS
	ARM-31-RS



ARM-11-RS



ARM-31-RS

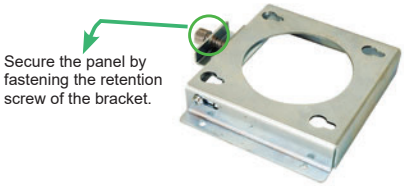
Ordering Information

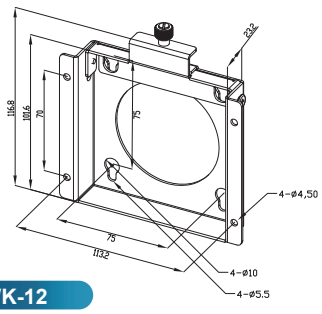
Part No.	Description
ARM-11-RS	LCD Monitor / PPC ARM, VESA 75/100, 3kg~6kg, RoHS
ARM-31-RS	LCD Monitor / PPC ARM, VESA 75/100, 7kg~14kg, RoHS

4. Wall Mounting

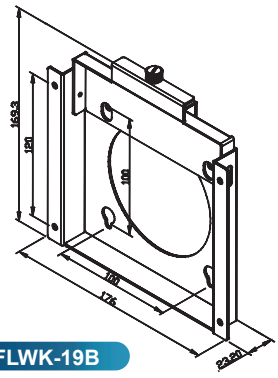
VESA 75/100 Wall Mounting

VESA	Model
75x75mm/100x100mm	AFLWK-12
	AFLWK-19B





AFLWK-12


AFLWK-19B

Ordering Information

Part No.	Description
AFLWK-12	5.6”~12" VESA 75x75mm PPC/Monitor Wall Mount Kit with Retention Screw, Silver color, RoHS
AFLWK-19B	15”~19" VESA 100x100mm PPC/Monitor Wall Mount Kit with Retention Screw, Silver color, RoHS

5. Panel Mounting

*Please refer to product datasheet for mounting way suggestion

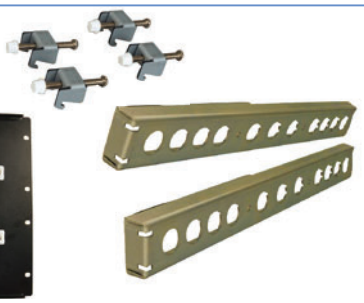
Type A

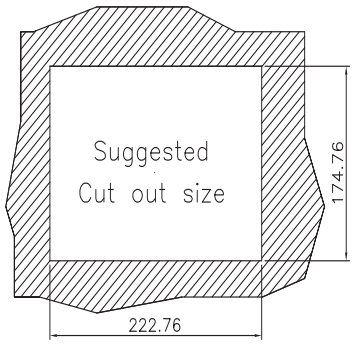


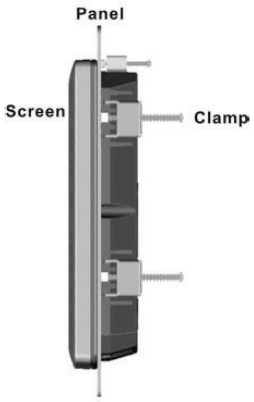


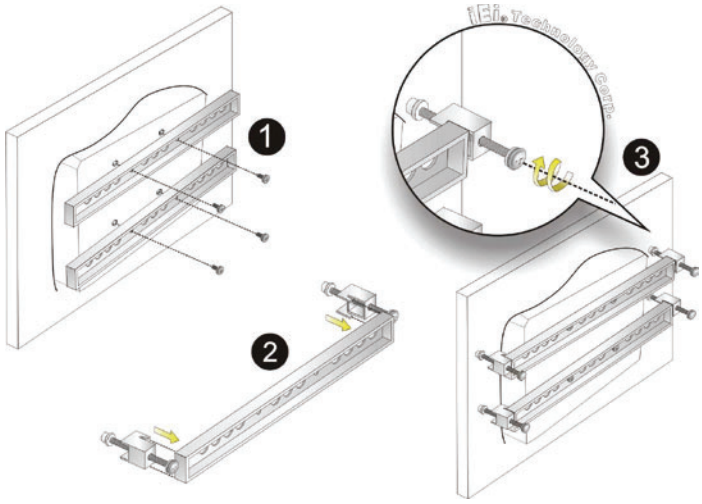
Type B



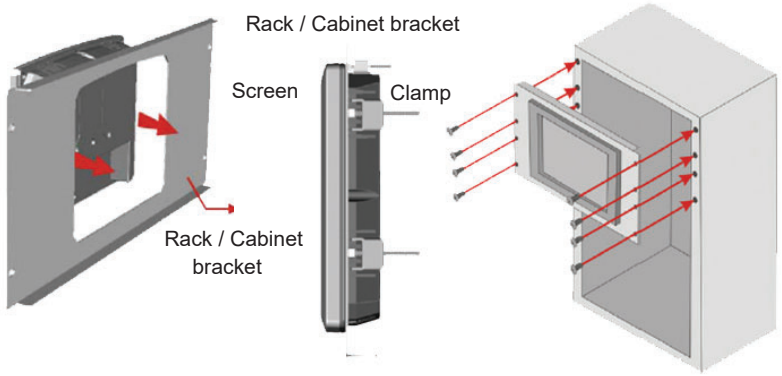








6. Rack Mounting



Ordering Information

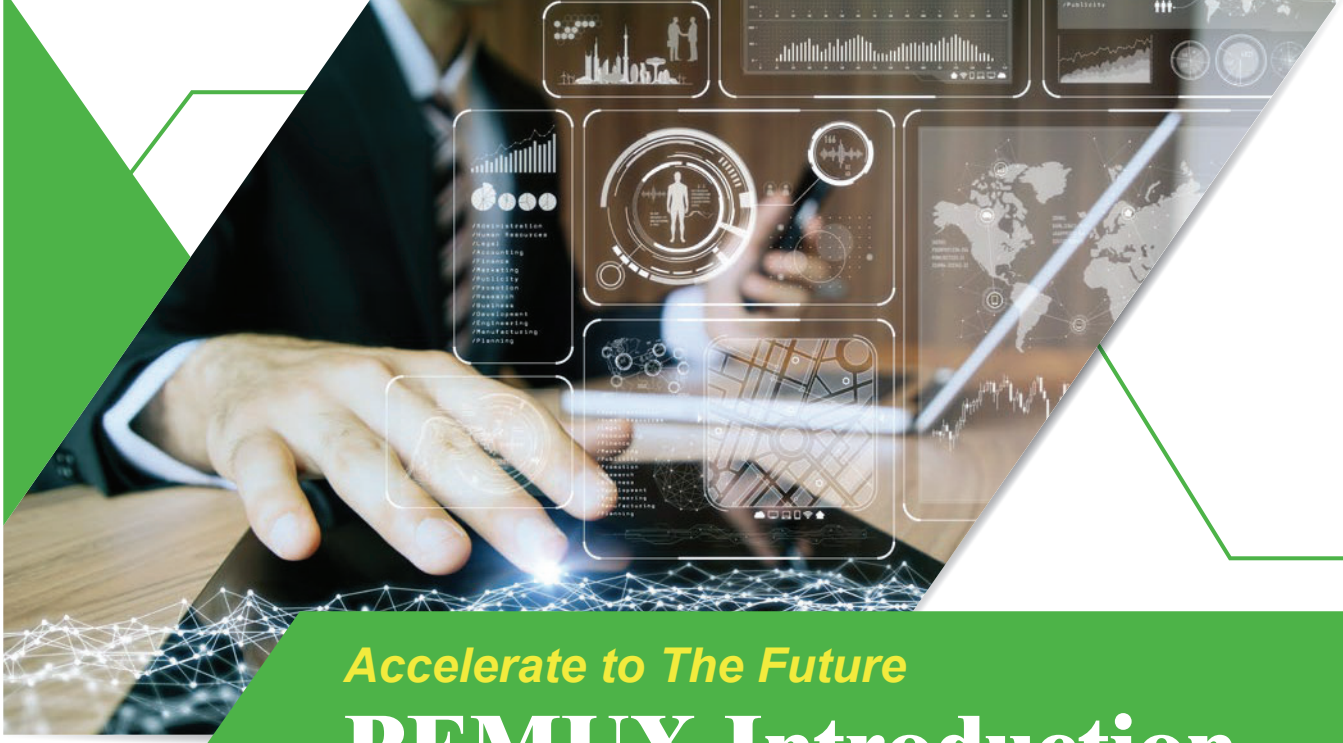
Part No.	Description
AFLRK-xx	For AFOLUX PPC/Monitor Series

7. Din Mounting



Ordering Information

Part No.	Description
DK-84MS	For 6.5"~8.4" Industrial Aluminum Panel PCs/Industrial Monitors



Accelerate to The Future

PEMUX Introduction

The PEMUX allows users to deliver with maximum 56 lane of PCI Express 3.0 to PEMUX backplane while taking advantage of the speed and increased bandwidth of PCI Express.

What is PEMUX ?

- **Bringing PCI Express to your SBC with maximum lane signal quantity, increased speed and bandwidth**
  PEMUX is designed for AI computing usage. AI computing needs to expand accelerator card, and PEMUX can provide up to 56 lane PCIe signals to the backplane.
  All PCIe signal connect to CPU directly, this is perfect for applications that require minimal latency.
- **New pin definition for PCIe signal pass through to backplane**
  With the maximization of PCIe lane signal quantity, we need the brand new pin define for supporting all signals pass through to the backplane, we called PEMUX design which defined by IEI.

The Advantage of PEMUX

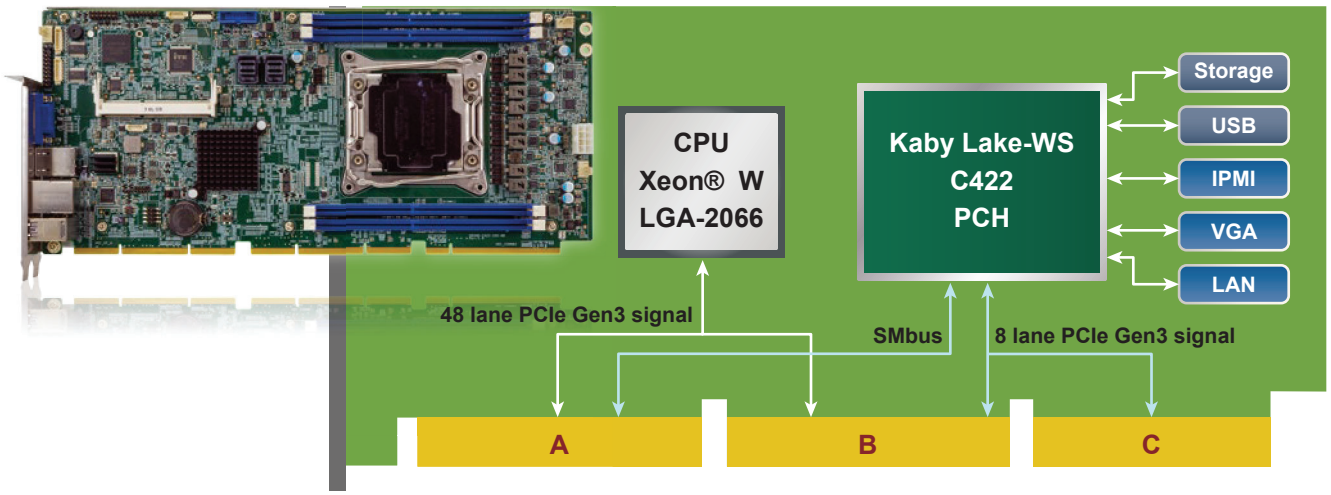
- Maximum 56 lane PCIe signals signals to fulfill AI deep learning or inference demand
- IPMI remote management

The Benefits of PEMUX

- With the backplane can expand up to 4 dual width graphics cards
- Use Intel® Xeon W High performance processor

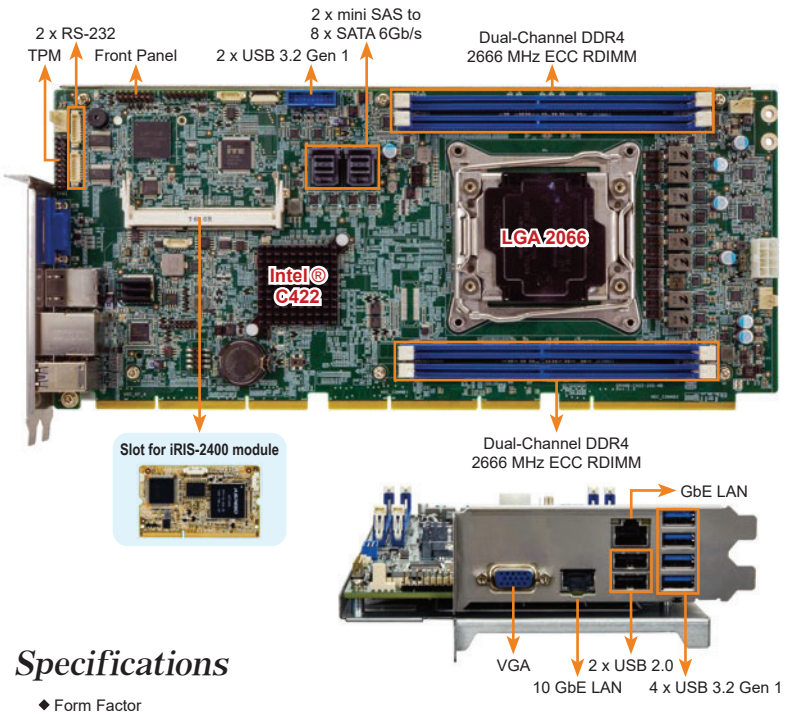
Full-size PEMUX PCIe Slot Configuration

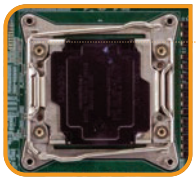
Full-size SBC Type			Server & Graphic Grade	
Combination			A	B
PCIe Slots Available (non switch)	CPU	x16		2
		x8	4	
		x4	4	4
	PCH	x4	2	2
Backplane Solution			PEMUX-DB series	



PEMUX-XEW1

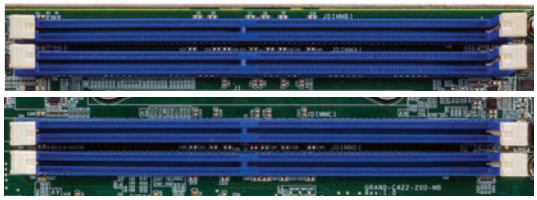
Full-size PEMUX CPU Card supports LGA2066 Intel® Xeon® W CPU per, Intel® C422, DDR4 ECC RDIMM, IPMI VGA output, Aquantia 10GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, M.2 and RoHS





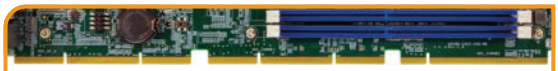
LGA 2066

Support Intel® Xeon W series CPU



Four 288-pin DDR4 ECC RDIMM/LRDIMM Suppotred

Four 288-pin 2666MHz dual-channel DDR4 SDRAM ECC RDIMM / LRDIMM (system max.256GB) supports in IEI full-size server grade CPU card.



PEMUX can provide up to 56 lane PCIe signals to the backplane. With the maximization of PCIe lane signal quantity, we need the brand new pin define for supporting all signals pass through to the backplane, we called PEMUX design which defined by IEI.



TPM 2.0 Support



Specifications

- Form Factor
  PEMUX Full-size CPU card (12 layers)
- CPU
  LGA2066 socket supports Intel® Xeon W processor
- Chipset
  Intel® C422
- Memory
  Four 288-pin Dual-Channel DDR4 ECC RDIMM/LRDIMM supported up to 256GB
- BIOS
  UEFI BIOS
- Super I/O
  Fintek F81216D
- EC
  iWDD
- Display Output
  1 x IPMI VGA display
- Ethernet
  LAN1: 1 GbE NIC: Intel® i210-AT with NCSI support
  LAN2: 10 GbE NIC: Aquantia AQC107
- External I/O Interface
  2 x USB 2.0
  4 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x M.2 2280
  1 x USB DOM header
  2 x mini SAS 8643 (for 8 x SATA 6GB/s)
  2 x RS-232 by pin header
  2 x USB 3.2 Gen 1 (5Gb/s) pin header
- Front Panel
  1 x Front Panel (Power LED, HDD LED, Speaker, Power Button, Reset Button)
- Audio
  2 x 5-pin pin header
- TPM
  2 x 10-pin pin header
- SMBus
  1 x SMBus to backplane
- Expansion
  56-Lane PCIe signal via golden finger
- Watchdog Timer
  software Programmable support 1~255 sec. System reset
- Fan Connector
  1 x 4-pin Smart fan connector (CPU fan)
  2 x 4-pin Smart fan connector (System CPU fan)
- Power Supply
  5V/12V, AT/ATX support
- Operating Temperature
  -20°C ~ 40°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions
  338.58 mm x 150.5 mm
- Weight
  700g

Features

- PEMUX full-size server / graphic grade solution
- LGA2066 socket supports Intel® Xeon W processor
- Four 288-pin Dual-Channel DDR4 ECC RDIMM/LRDIMM supports up to 256GB
- Supports IPMI VGA display.
- Supports M.2 2280 SSD
- Intel® PCIe GbE Intel® i210-AT with NCSI support
- Aquantia AQC107 10 GbE NIC
- Supports RAID function via SATA 6Gb/s
- TPM V2.0 hardware security function supported by TPM module

Packing List

1 x PEMUX-XEW1 single board computer
1 x mini SAS to 4 SATA cable
1 x QIG (Quick Installation Guide)

Ordering Information

Part No.	Description
PEMUX-XEW1-R10	Full-size PEMUX CPU Card supports LGA2066 Intel® Xeon® W C422, DDR4 ECC RDIMM/LRDIMM, VGA, Intel® PCIe GbE, Aquantia 10GbE, USB 3.2 Gen 1 (5Gb/s), USB 2.0, SATA 6Gb/s, HD Audio, IPMI and RoHS
32102-000100-200-RS	SATA Power Cable
CF-2011B-RS	High performance LGA1355/1356/2011 cooler kit, 130W
iRIS-2400-R10	IPMI 2.0 adapter card with AST2400 BMC chip for DDR3 SO-DIMM socket interface
32037-000600-100-RS	1 x mini SAS to 4 SATA Cable
32005-005000-100-RS	RS-232 cable

PEMUX Backplane

Accelerate to The Future

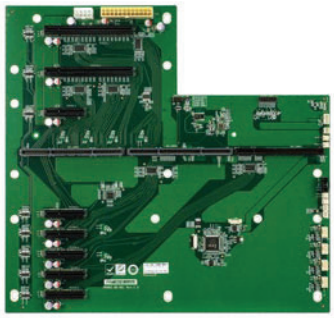
Server grade backplane accommodates multiple PCIe x8 and PCIe x4 add-on cards. It is specially designed for intensive AI computing applications such as deep learning and inference engine that requires more numbers of PCIe slot for accelerator cards. Given the multiple PCIe slots support, it provides a more efficiency solution for end-users.

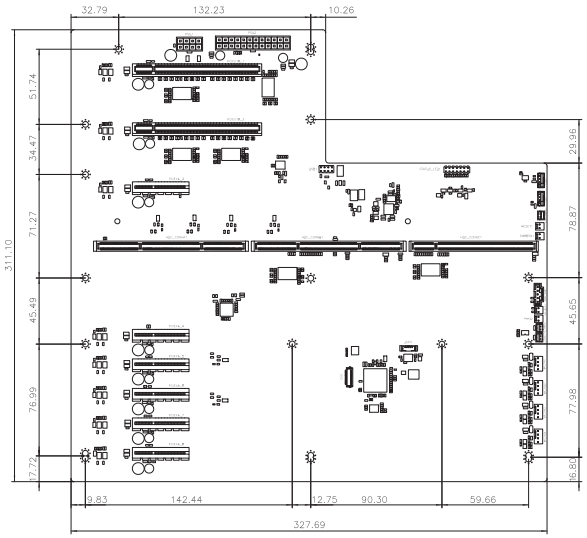
Selection Guide

4U rack-mount chassis

Backplane		PEMUX-DB-10S1	PEMUX-DB-8S1
Total	Slot	11	9
PCIe	x16		2
	x8	4	
	x4	6	6
	x1		
PSU type		24+8pin ATX	24+8pin ATX
Chsaais Option		RACK-305G RACK-360G RACK-3000G	RACK-305G RACK-360G RACK-3000G

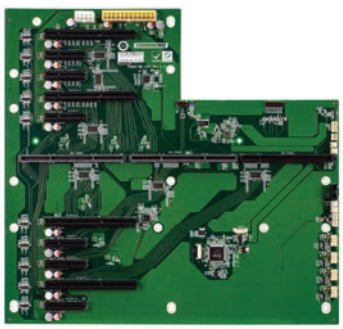
PEMUX-DB-8S1-R10

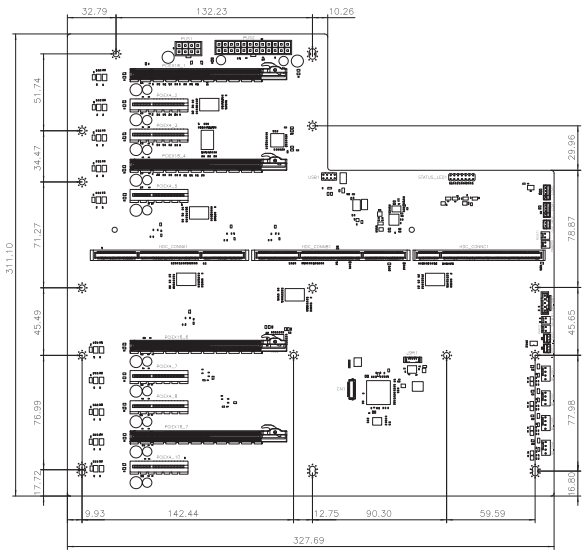




Ordering Information	
PEMUX-DB-8S1-R10	1-Slot PEMUX backplane, 2 PCIe Gen 3.0 x16 w/ x16 slot,6 PCIe Gen3.0 x4 w/ x4 slos, and RoHS
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis
RACK-3000G	4U 14-slot full-size rack-mount chassis
41005-4223C2-00-RS	Rear card frame; black
41005-4222C3-00-RS	Rear card frame; white

PEMUX-DB-10S1-R10





Ordering Information	
PEMUX-DB-10S1-R10	1-Slot PEMUX backplane, 4 PCIe Gen 3.0 x8 w/ x16 slot,6 PCIe Gen3.0 x4 w/ x4 slos, and RoHS
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis
RACK-3000G	4U 14-slot full-size rack-mount chassis
41005-4223C2-00-RS	Rear card frame; black
41005-4222C3-00-RS	Rear card frame; white

PICMG 1.3

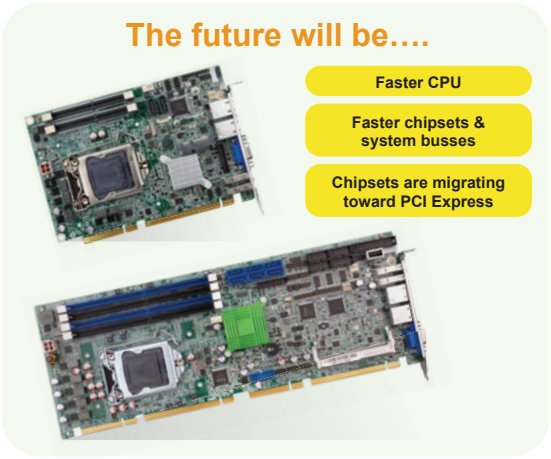
The PICMG 1.3 allows users to protect their investment in PCI technology while taking advantage of the speed and increased bandwidth of PCI Express

What is PICMG 1.3 ?

- **Bringing PCI Express to your SBC with increased speed and bandwidth**
  PICMG 1.3 is designed to interface with PCI Express peripherals on a backplane. The PCI Express interconnects with the backplane and can operate at x1, x4, x8, x16, and more, depending on the capabilities of both the SHB and the backplane.
- **Support PCI on board with flexibility**
  The optional PCI portion of the SHB interconnected with the backplane allows for 32-bit operation. The clock rate can be 33 MHz, 66 MHz, 100 MHz, and 133 MHz, depending on how the backplane and SHB are designed.
- **Miscellaneous IO**
  SATA, USB, IPMB, SMBus, Geographic Addressing, and PCI Wake Up to the backplane are specified, simplifying the cabling on SHB for the system.

PICMG 1.3 Key Features

- **PCI Express**
  20 PCI Express lanes are supported, including PCI Express x16, x4 and x1 configurations
- **ATX power signals are supported**
  Provides AUX voltages for standby power and sleep states (soft starts, wake on LAN), supports PSON#, PWRGD, PWRRBT# and ACPI states

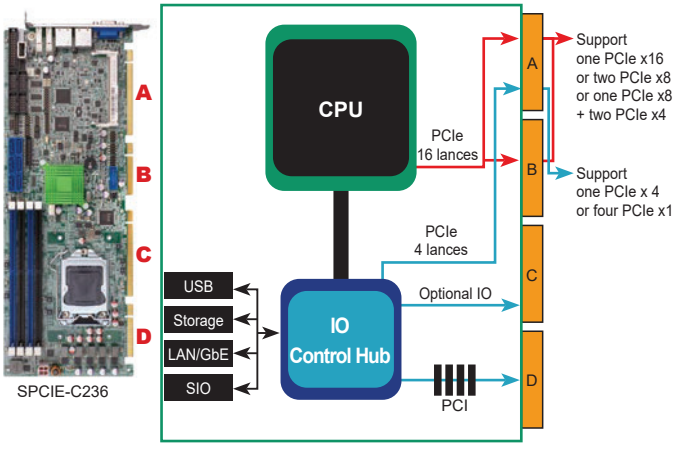


Why PICMG 1.3?

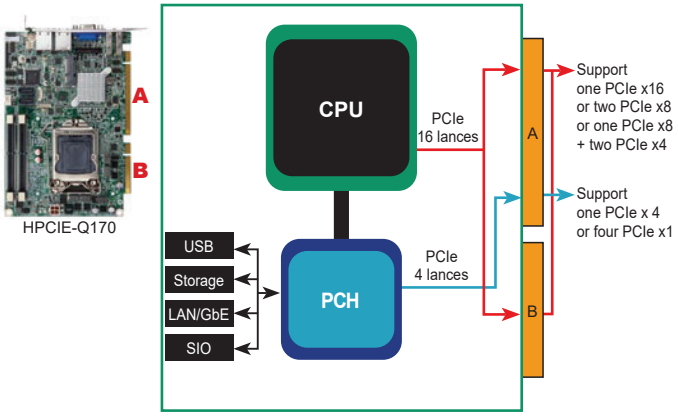
- This new technology is expected to allow PCIe transmission rates to keep pace with processor and I/O advances for the next 10 years or more.
- Same basic mechanical dimensions are maintained to minimize chassis redesign expense
- Better host board power management and simplified I/O cabling
- Supports PCI Express and PCI option cards without driver changing

Graphic & Server Grade PICMG 1.3 Solutions

Full-size PICMG 1.3 Solutions



Half-size PICMG 1.3 Solutions



Full-Size PICMG 1.3 PCIe Slot Configuration

Full-size SBC Type			Server & Graphic Grade		Server Grade			
Combination			A	B	C	D	E	F
PCIe Slots Available (Non-switch)	CPU or NB	x16	1	1	-	-	-	-
		x8	-	-	2	2	1	1
		x4	-	-	-		2	2
	PCH or SB	x4	-	1	-	1	-	1
		x1	4	-	4	-	4	-
Backplane Solution			IEI PE/PXE series		IEI SPE/SPXE series			

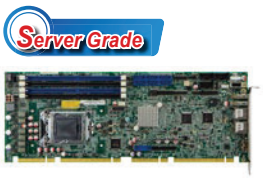
Half-Size PICMG 1.3 PCIe Slot Configuration

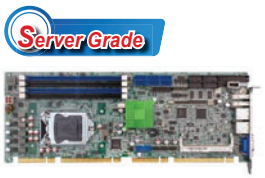
Half-size SBC Type			Any Type		High Performance			
Combination			A	B	C	D	E	F
PCIe Slots Available (Non-switch)	CPU	x16	1	1	-	-	-	-
		x8	-	-	2	2	1	1
		x4	-	-	-		2	2
	PCH	x4	-	1	-	1	-	1
		x1	4	-	4	-	4	-

PICMG 1.3 Selection Guide







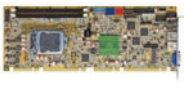


Model Name	HPCIE-C236	HPCIE-Q170	SPCIE-C246	SPCIE-C236
CPU Socket	LGA 1151	LGA 1151	LGA1151	LGA1151
CPU Type	Intel® Xeon® E3, Core™ i3, Pentium®, Celeron® processor	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor	Intel® Xeon® E3, 8th/9th generation Core™ i9/i7/i5/i3, Pentium® or Celeron® processor	Intel® Xeon® E3, Core™ i3, Pentium®, Celeron® processor
Chipset	Intel® C236	Intel® Q170	Intel® C246	Intel® C236
Memory	Two 260-pin 1866/2133 MHz dual-channel DDR4 SO-DIMMs (system max. 32 GB)	Two 260-pin 1866/2133 MHz dual-channel DDR4 SO-DIMMs (system max. 32 GB)	Four 288-pin 2666MHz dual-channel DDR4 SDRAM unbuffered DIMMs support up to 64GB ECC & non-ECC	Four 288-pin 1866/2133 MHz Dual-Channel DDR4 ECC & non-ECC unbuffered DIMM supported up to 64GB
Display Interface	Dual display supported 1 x VGA 1 x iDP interface	Dual display supported 1 x VGA 1 x iDP interface	Dual display supported 1 x HDMI 1 x DP	Triple display supported 1 x VGA 1 x iDP interface
Ethernet	LAN1: Intel® I219-LM with Intel® AMT 11.0 support LAN2: Intel® I211-AT Ethernet controller	LAN1: Intel® I219-LM with Intel® AMT 11.0 support LAN2: Intel® I211-AT Ethernet controller	LAN1: Intel® I219LM PHY LAN2: Intel® I211-AT PCIe controller (Co-lay I210-AT)	LAN1: Intel® I219LM Clarkville-V with Intel® AMT 11.0 supported LAN2: Intel® I210 PCIe controller
iRIS Remote Management Module	N/A	N/A	N/A	1 x iRIS-2400 slot (Optional)
I/O Interface	1 x 6-pin wafer for KB/MS 2 x RS-232/422/485 2 x USB 3.2 Gen 1 4 x USB 2.0	1 x 6-pin wafer for KB/MS 2 x RS-232/422/485 2 x USB 3.2 Gen 1 4 x USB 2.0	1 x 6-pin wafer for KB/MS 1 x RS-422/485 3 x RS-232 4 x USB 3.2 Gen 1 7 x USB 2.0	1 x 6-pin wafer for KB/MS 1 x LPT 2 x RS-232 2 x RS-232/422/485 4 x USB 3.2 Gen 1 7 x USB 2.0
Storage Interface	1 x mSATA (SATA & USB signal) 2 x SATA 6Gb/s (RAID 0/1 supported)	1 x mSATA (SATA & USB signal) 2 x SATA 6Gb/s (RAID 0/1 supported)	6 x SATA 6Gb/s (RAID 0/1/5/10 supported)	6 x SATA 6Gb/s (RAID 0/1/5/10 supported)
Audio	Supports by IEI AC-KIT-892HD-R10 audio kit			
Digital I/O	8-bit programmable digital I/O			
Power Consumption	5V@0.13A, 12V@7.89A, 3.3V@0.10A, 5VSB@0.20A (Intel® Xeon® E3-1275 v5 3.60 GHz with two 16 GB 2133 MHz DDR4 memory)	5V@0.15A, 12V@8.39A, 3.3V@0.11A, 5VSB@0.21A (Intel® Core™ i7-6700K 4.0GHz with two 16 GB 2133 MHz DDR4 memory)	5V@3.12A, 12V@6.85A, 3.3V@1.13A, 5VSB@0.15A (4.0 GHz Intel® Core™ i7-8700K CPU with four 16 GB 2666 MHz DDR4 memory)	5V@3.22A, 12V@6.81A, 3.3V@1.21A, 5VSB@0.18A (Intel® Xeon® E3-1275 v5 3.60 GHz CPU with 64GB (four 16GB) 2133 MHz DDR4 memory)
Watchdog Timer	Software programmable supports 1~255 sec. system reset			
Operation Environment	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing			
Expansion Slot	N/A	N/A	1 x M.2 M key 1 x PCIe x16 & 4 x PCIe x1 signal via golden finger 4 x PCI signal via golden finger	1 x Full-size PCIe Mini card slot (support mSATA)
CPU Cooler	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11

PICMG 1.3 Selection Guide

Server Grade



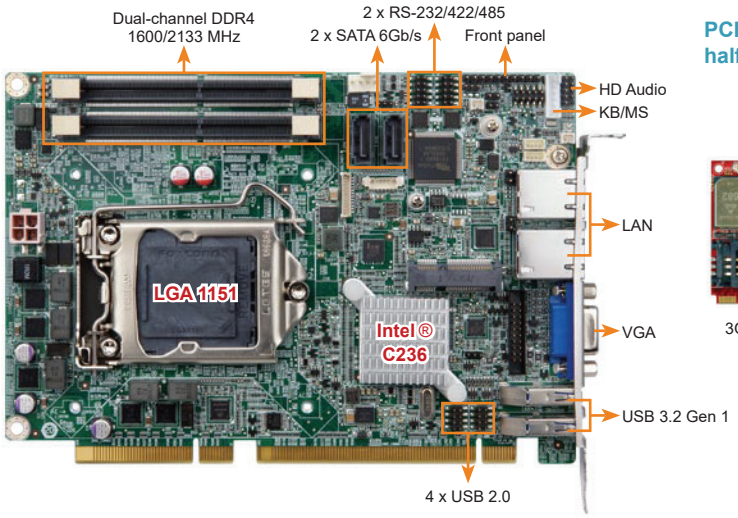





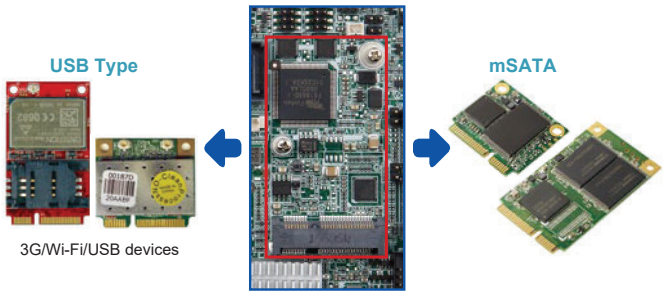
Model Name	SPCIE-C2260-i2	PCIE-Q370	PCIE-Q170	PCIE-H810	PCIE-Q870-i2	PCIE-Q670-R20
CPU Socket	LGA 1150	LGA1151	LGA1151	LGA 1150	LGA 1150	LGA 1155
CPU Type	Intel® Xeon® E3, Core™ i3, Pentium®, Celeron® processor	8th/9th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor	6th generation Intel® Core™ i7/i5/i3, Celeron® and Pentium® processor	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor
Chipset	Intel® C226	Intel® Q370	Intel® Q170	Intel® H81	Intel® Q87	Intel® Q67
Memory	Four 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs (system max. 32 GB)	Four 288-pin 2666MHz dual-channel DDR4 SDRAM unbuffered DIMMs support up to 64GB	Four 288-pin 1866/2133 MHz dual-channel non-ECC unbuffered DDR4 DIMMs (system max. 64 GB)	Two 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs (system max. 16 GB)	Four 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs (system max. 32 GB)	Two 240-pin 1333/1066 MHz dual-channel DDR3 SDRAM DIMMs (system max. 16 GB)
Display Interface	Dual display supported 1 x VGA 1 x iDP interface	Dual display supported 1 x VGA 1 x DP PCIE-Q370-HDMI 1 x HDMI 1 x DP	Triple display supported 1 x VGA 1 x iDP interface	Dual display supported 1 x VGA 1 x iDP interface	Dual display supported 1 x VGA 1 x iDP interface	1 x VGA 1 x DVI-D (via header to IO-KIT-001-R20 DVI-D/ USB module) (optional)
Ethernet	LAN1: Intel® I217LM with Intel® AMT 9.0 support LAN2: Intel® I210-AT PCIe controller with NCSI support	LAN1: Intel® I219LM PHY LAN2: Intel® I211-AT PCIe controller (Co-lay I210-AT)	LAN1: Intel® I219LM Clarkville-V with Intel® AMT 11.0 supported LAN2: Intel® I210 PCIe controller	LAN1: Realtek RTTL8111E PCIe controller LAN: Realtek RTTL8111E PCIe controller	LAN1: Intel® I217LM with Intel® AMT 9.0 support LAN2: Intel® I210-AT PCIe controller with NCSI support	LAN1: Intel® 82583V PCIe controller LAN2: Intel® 82579 PHY with Intel® AMT 7.0 support
iRIS Remote Management Module	1 x iRIS-2400 slot	N/A	1 x iRIS-2400 slot (optinoal)	N/A	1 x iRIS-2400 slot	N/A
I/O Interface	1 x 6-pin wafer for KB/MS 1 x LPT 1 x RS-422/485 4 x RS-232 4 x USB 3.2 Gen 1 8 x USB 2.0	1 x 6-pin wafer for KB/MS 1 x RS-422/485 3 x RS-232 4 x USB 3.2 Gen 1 7 x USB 2.0	1 x 6-pin wafer for KB/MS 1 x LPT 2 x RS-232 2 x RS-232/422/485 4 x USB 3.2 Gen 1 7 x USB 2.0	1 x 6-pin wafer for KB/MS 1 x LPT 1 x RS-422/485 2 x RS-232 2 x USB 3.2 Gen 1 8 x USB 2.0	1 x 6-pin wafer for KB/MS 1 x LPT 1 x RS-422/485 4 x RS-232 4 x USB 3.2 Gen 1 8 x USB 2.0	1 x 6-pin wafer for KB/MS 1 x LPT 1 x RS-422/485 4 x RS-232 8 x USB 2.0
Storage Interface	6 x SATA 6Gb/s (RAID 0/1/5/10 supported)	6 x SATA 6Gb/s (RAID 0/1/5/10 supported)	6 x SATA 6Gb/s (RAID 0/1/5/10 supported)	2 x SATA 3Gb/s 2 x SATA 6Gb/s	6 x SATA 6Gb/s (RAID 0, 1, 5, 10 supported)	2 x SATA 6Gb/s (RAID 0/1/5/10 supported) 4 x SATA 3Gb/s
Audio	Supports by IEI AC-KIT-892HD-R10 audio kit			Supports by IEI AC-KIT-892HD-R10 audio kit	IEI AC-KIT-892HD-R10 7.1-channel HD Audio kit via the on-board 10-pin header connector	
Digital I/O	8-bit programmable digital I/O			8-bit programmable digital I/O		
Power Consumption	5V@3.55A, 12V@0.37A, Vcore_12V@7.61A, 3.3V@1.55A, 5VSB@0.13A (Intel® E3-1240 v3 3.4GHz CPU with 16 GB (four 4GB) 1333 MHz DDR3 memory)	5V@3.12A, 12V@6.85A, 3.3V@1.13A, 5VSB@0.15A (4.0 GHz Intel® Core™ i7-8700K CPU with four 16 GB 2666 MHz DDR4 memory)	5V@3.12A, 12V@6.85A, 3.3V@1.13A, 5VSB@0.15A (Intel® Core™ i7-6700K 4.0GHz CPU with 64GB (four 16GB) 2133 MHz DDR4 memory)	5V@3.41A, 12V@0.35A, Vcore_12V@7.52A, 3.3V@1.41A, 5VSB@0.12A (Intel® Core™ i7-4770K 3.90 GHz CPU with 8 GB (two 4 GB) 1333 MHz DDR3 memory)	5V@3.55A, 12V@0.37A, Vcore_12V@7.61A, 3.3V@1.55A, 5VSB@0.13A (3.4GHz Intel® Qual CoreCPU with four GB 1333 MHz DDR3 memory)	5V@3.98A, 12V@0.38A, Vcore_12V@7.81A, 3.3V@1.61A, 5VSB@0.15A (3.4GHz Intel® Core™ i7-2600K with two 2 GB 1333 MHz DDR3 memory)
Watchdog Timer	Software programmable supports 1~255 sec. system reset			Software programmable supports 1~255 sec. system reset		
Operation Environment	Temperature Range: -20ºC ~ 60ºC (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: -20ºC ~ 60ºC (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing		Temperature Range: -20ºC ~ 60ºC (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing		Temperation Range: -10ºC ~ 60ºC (14°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing
Expansion Slot	1 x Full-size PCIe Mini card slot (support mSATA)	1 x M.2 M key 1 x PCIe x16 & 4 x PCIe x1 signal via golden finger 4 x PCI signal via golden finger	1 x Full/Half-size PCIe Mini card slot 4 x PCI signal via golden finger	1 x Full-size PCIe Mini card slot (support mSATA)	1 x Full-size PCIe Mini card slot (support mSATA)	
CPU Cooler	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11 CF-1150SF-R10	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11 CF-1150SF-R10	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11 CF-1150SF-R10	CF-115XA-R10 CF-115XC-R10 CF-115XD-R10 CF-115XE-R10

HPCIE-C236

Half-size PICMG 1.3 CPU Card supports LGA 1151 Intel® Xeon® E3, Core™ i3/Pentium®/ Celeron® CPU with Intel® C236, ECC & non-ECC DDR4 SO-DIMM, VGA, iDP, Dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, mSATA, HD Audio, Intel® AMT and RoHS



PCIe Mini slot provides mSATA and USB signal for full-size or half-size mSATA SSD and wireless LAN card.





Specifications

- CPU
  LGA 1151 socket supports Intel® Xeon® E3 v5/v6, 6th/7th generation Core™ i3, Pentium® or Celeron® processor
- Chipset
  Intel® C236
- Memory
  Two 260-pin 1866/2133 MHz dual-channel DDR4 ECC and non-ECC unbuffered SO-DIMMs support up to 32 GB
- BIOS
  UEFI BIOS
- Graphics Engine
  Intel® HD Graphics Gen 9 supports DX11/12, OpenCL 2.x and OpenGL 4.3/4.4
  Decode/Encode for HEVC, VP8, VP9, VDENC
- Display Output
  1 x VGA (up to 1920x1200@60 Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60 Hz)
- Ethernet
  LAN1: Intel® I219LM Clarkville-V with Intel® AMT 11.0 support
  LAN2: Intel® I210 PCIe controller
- External I/O Interface
  2 x USB 3.2 Gen 1
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x mSATA (SATA & USB signal)
  2 x RS-232/422/485 (2x5 pin, P=2.0)
  2 x SATA 6Gb/s (RAID 0, 1 supported)
  4 x USB 2.0 (2x4 pin, P=2.0)
- Front Panel
  1 x Front panel (1x10 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED
  2 x LAN LED (1x2 pin)
- Audio
  Support 7.1-channel HD Audio by IEI AC-KIT-892HD kit
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- Expansion
  16-lane PCIe signal from CPU via golden finger
  (supports x16, or x8 + x8, or x4 + x4 + x8)
  4-lane PCIe signal from Q170 via golden finger
  1 x Full/Half-size PCIe Mini card slot (supports mSATA)
- Watchdog Timer
  Software programmable supports 1~255 sec. system reset
- Digital I/O
  8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
- Power Supply
  5V/12V, AT/ATX support
- Power Consumption
  5V@0.13A, 12V@7.89A, 3.3V@0.10A, 5VSB@0.20A
  (Intel® Xeon® E3-1275 v5 3.60 GHz with two 16 GB 2133 MHz DDR4 memory)
- Operating Temperature
  -20°C ~ 60°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions
  169 mm x 126 mm
- Weight
  GW: 1000g / NW: 420g
- CE/FCC compliant

Features

- PICMG 1.3 full-size CPU card
- LGA1151 Intel® 8th Generation Xeon® E3, Core™ i7/i5/i3, Celeron® and Pentium® processor supported
- Dual-channel DDR4 2666MHz
- Support HDMI and DP display
- Intel® PCIe GbE with Intel® AMT 11.0 supported
- Support M.2 M key for storage (PCIe x4)
- Supports RAID 0, 1, 5, 10 function via SATA 6Gb/s

Packing List

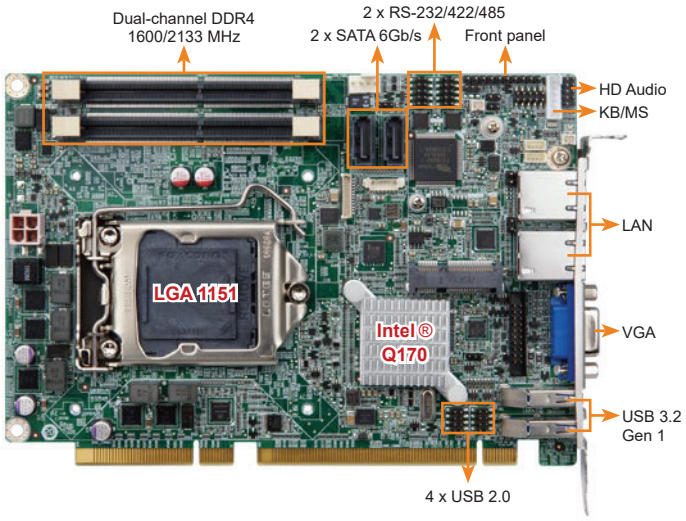
1 x HPCIE-C236 single board computer
1 x SATA cable
1 x QIG

Ordering Information

Part No.	Description
HPCIE-C236-R10	Half-size PICMG 1.3 CPU card supports LGA 1151 Intel® Xeon® E3, Core™ i3/Pentium®/Celeron® CPU with Intel® C236, ECC & non-ECC DDR4 SO-DIMM, VGA, iDP, dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, mSATA, HD Audio, Intel® AMT and RoHS
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-002700-200-RS	RS-232/422/485 cable, 200mm, P=2.0
AC-KIT-892HD-R10	7.1-channel HD Audio kit with Realtek ALC892 supports dual audio streams
CF-115XA-R10	High-performance LGA 1155/LGA 1156 cooler kit, 1U chassis compatible, 73W
CF-115XC-R10	LGA 1155/LGA 1156 cooler kit, 1U chassis compatible, 45W
CF-115XD-R10	LGA 1155/LGA 1156 cooler kit, 1U chassis compatible, 65W
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
SAIDE-KIT01-R10	SATA to IDE/CF converter board

HPCIE-Q170

Half-size PICMG 1.3 CPU Card supports LGA 1151 Intel® Core™ i7/i5/i3, Pentium® or Celeron® CPU with Intel® Q170, DDR4 SO-DIMM, VGA/iDP, Dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, mSATA, HD Audio, Intel® AMT and RoHS



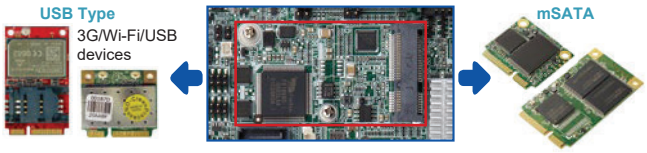
Intel® 6th generation Core™ CPU + Intel® Q170 support 3 controllers of PCI Express Gen 3

Number of PCIe Controller	Configuration
1	PCIe x16
2	PCIe x8, PCIe x8
3	PCIe x4, PCIe x4, PCIe x8

Sets PCIe x16 signal via BIOS

PEG port configuration	[1 x8, 2 x4 PCIE]
USB Power SW1	[+5V DUAL]
USB Power SW2	[+5V DUAL]

PCIe Mini slot provides mSATA and USB signal for full-size or half-size mSATA SSD and wireless LAN card.



Specifications

- CPU
  LGA 1151 socket supports Intel® 6th/7th generation Core™ i7/i5/i3, Pentium® or Celeron® processor
- Chipset
  Intel® Q170
- Memory
  Two 260-pin 1866/2133 MHz dual-channel DDR4 non-ECC unbuffered SO-DIMMs support up to 32 GB
- BIOS
  UEFI BIOS
- Graphics Engine
  Intel® HD Graphics Gen 9 supports DX11/12, OpenCL 2.x and OpenGL 4.3/4.4
  Decode/Encode for HEVC, VP8, VP9, VDENC
- Display Output
  1 x VGA (up to 1920x1200@60 Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60 Hz)
- Ethernet
  LAN1: Intel® I219LM Clarkville-V with Intel® AMT 11.0 support
  LAN2: Intel® I211 PCIe controller
- External I/O Interface
  2 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x mSATA (SATA & USB signal)
  2 x RS-232/422/485 (2x5 pin, P=2.0)
  2 x SATA 6Gb/s (RAID 0, 1 supported)
  4 x USB 2.0 (2x4 pin, P=2.0)
- Front Panel
  1 x Front panel (1x10 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED
  2 x LAN LED (1x2 pin)
- Audio
  Support 7.1-channel HD Audio by IEI AC-KIT-892HD kit
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- Expansion
  16-lane PCIe signal from CPU via golden finger
  (supports x16, or x8 + x8, or x4 + x4 + x8)
  4-lane PCIe signal from Q170 via golden finger
  1 x Full/Half-size PCIe Mini card slot (supports mSATA)
- Watchdog Timer
  Software programmable supports 1~255 sec. system reset
- Digital I/O
  8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
- Power Supply
  5V/12V, AT/ATX support
- Power Consumption
  5V@0.15A, 12V@8.39A, 3.3V@0.11A, 5VSB@0.21A
  (Intel® Core™ i7-6700K 4.0GHz with two 16 GB 2133 MHz DDR4 memory)
- Operating Temperature
  -20°C ~ 60°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions
  169 mm x 126 mm
- Weight
  GW: 1000g / NW: 420g
- CE/FCC compliant

Features

- PICMG 1.3 half-size CPU card
- LGA 1151 Intel® 6th/7th generation Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- Two 260-pin 1866/2133 MHz dual-channel DDR4 SO-DIMMs support up to 32 GB
- Supports dual independent display by VGA & internal DP pin header
- PCIe Mini card slot supports mSATA & USB 2.0
- Intel® PCIe GbE with Intel® AMT 11.0 supported
- Supports RAID 0, 1 function via SATA 6Gb/s
- IEI jumper-less function

Packing List

1 x HPCIE-Q170 single board computer
1 x SATA cable
1 x QIG

Ordering Information

Part No.	Description
HPCIE-Q170-R10	Half-size PICMG 1.3 CPU card supports LGA 1151 Intel® Core™ i7/i5/i3, Pentium® or Celeron® CPU with Intel® Q170, DDR4 SO-DIMM, dual Intel® PCIe GbE, VGA, iDP, mSATA, SATA 6Gb/s, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, HD Audio, Intel® AMT and RoHS
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-002700-200-RS	RS-232/422/485 cable, 200mm, P=2.0
AC-KIT-892HD-R10	7.1-channel HD Audio kit with Realtek ALC892 supports dual audio streams
CF-115XA-R10	High-performance LGA 1155/LGA 1156 cooler kit, 1U chassis compatible, 73W
CF-115XC-R10	LGA 1155/LGA 1156 cooler kit, 1U chassis compatible, 45W
CF-115XD-R10	LGA 1155/LGA 1156 cooler kit, 1U chassis compatible, 65W
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
SAIDE-KIT01-R10	SATA to IDE/CF converter board

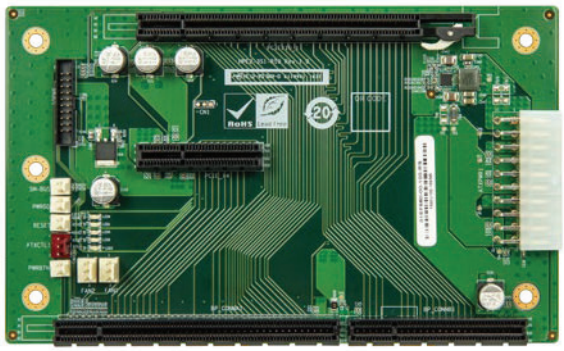
PICMG 1.3 Passive Backplane for Half-Size CPU Card

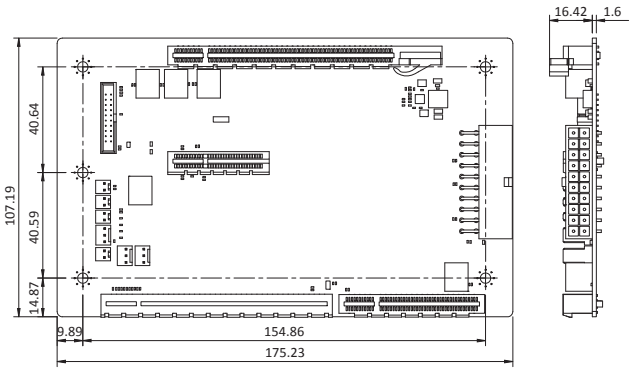
Selection Guide

PAC series wall-mount chassis 4U rack-mount chassis

PICMG 1.3 (PCIe+PCI)	Model	HPE2-3S1	HPXE2-5S1	HPXE2-6S1	HPXE2-7S1	HPXE2-8S1
Total Slot		5	5	6	7	8
Expansion Slots	PCIe x16	1	1	1		
	PCIe x8				2	2
	PCIe x4	1				
	PCIe x1					
	PCI-X					
	PCI		2	3	3	4
PSU Type			24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX
Chassis Option		PAC-400AI PR-1500G	PR-1500G	PAC-1000 PAC-106G	PAC-700G PAC-1700G	PAC-125G
		RACK-500AI	RACK-500G			RACK-3000G RACK-360G
Note		ATX power	ATX power	ATX power	ATX power	ATX power

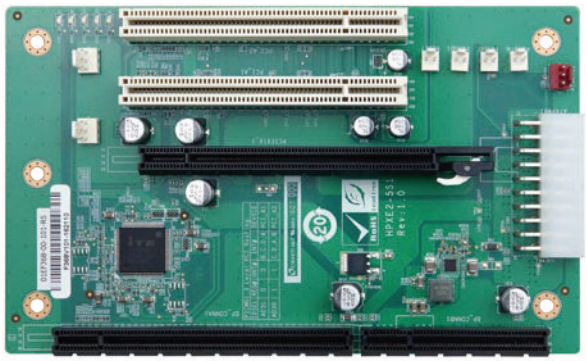
HPE2-3S1-R10

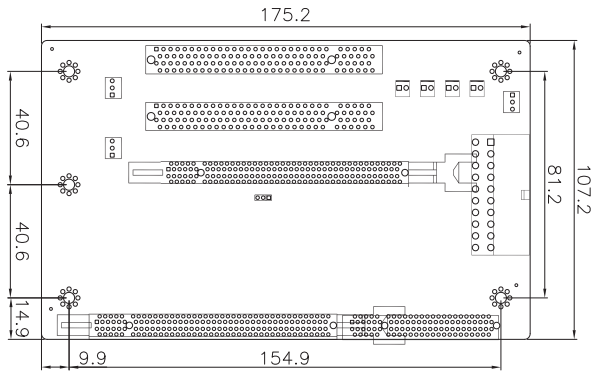




Ordering Information	
HPE2-3S1-R10	5-slot PICMG 1.3 backplane for half-size SBC, with one PCIe x16 Slot and one PCIe x4 slot, RoHS
PAC--400AI	4-slot half-size compact chassis
PR-1500G	5-slot half-size compact chassis
RACK-500AI	5U 5-slot full-size rackmount chassis

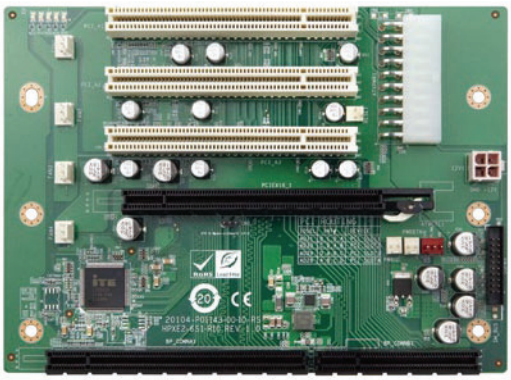
HPXE2-5S1-R10

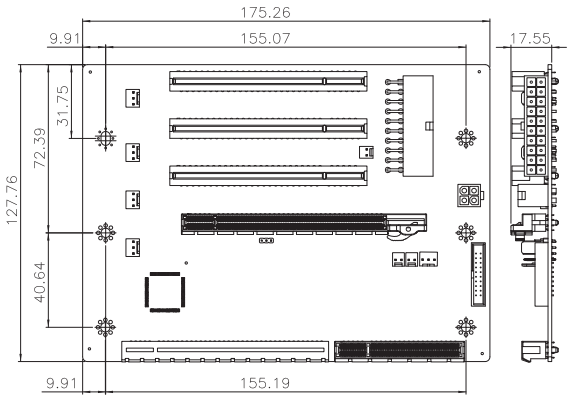




Ordering Information	
HPXE2-5S1-R10	5-slot PICMG 1.3 backplane for half-size SBC, with two PCI slots and one PCIe x16 slot (x16 signal)
PR-1500G	5-slot half-size compact chassis
RACK-500G	5U 5-slot full-size rackmount chassis

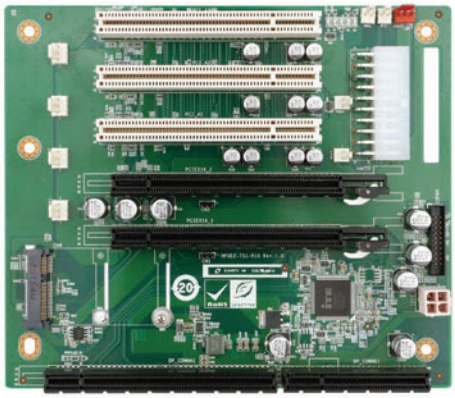
HPXE2-6S1-R10

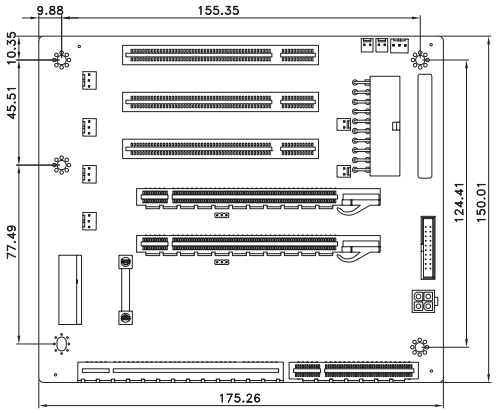




Ordering Information	
HPXE2-6S1-R10	6-slot PICMG 1.3 backplane for half-size SBC, with three PCI slots and one PCIe x16 slot (x16 signal)
PAC-1000G	6-slot full-size compact chassis
PAC-106G	6-slot full-size compact chassis

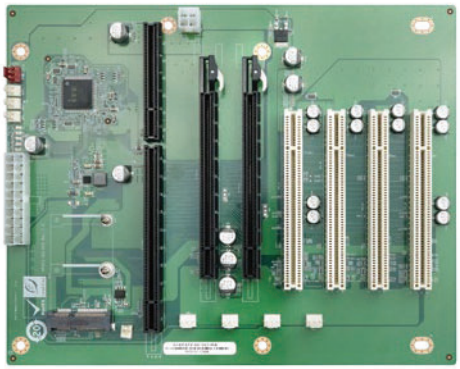
HPXE2-7S1-R10

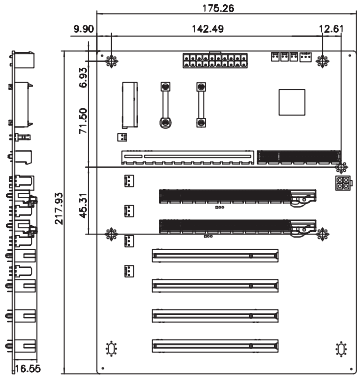




Ordering Information	
HPXE2-7S1-R10	7-slot PICMG 1.3 backplane for half-size SBC, with three PCI slots and two PCIe x16 slots (x8 signal)
PAC-700G	7-slot half-size compact chassis
PAC-1700G	7-slot full-size compact chassis

HPXE2-8S1-R10

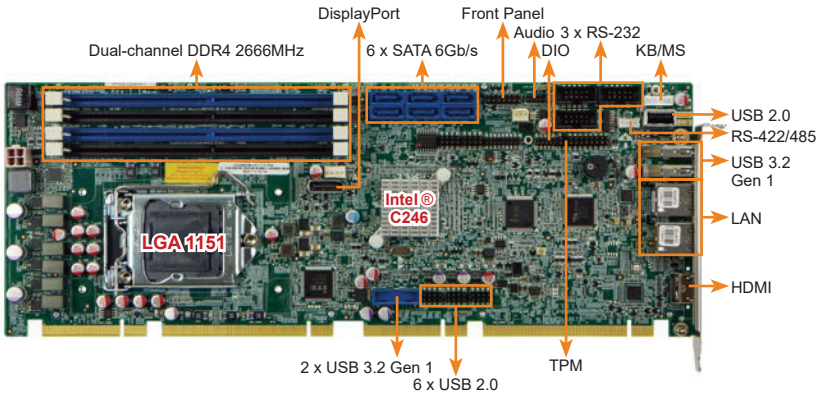


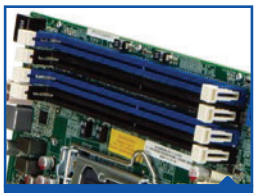


Ordering Information	
HPXE2-8S1-R10	8-slot PICMG 1.3 backplane for half-size SBC, with four PCI slots and two PCIe x 16 slot (x8 signal)
PAC-125G	10-slot full-size compact chassis
RACK-3000G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis

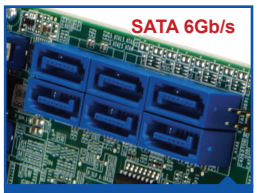
SPCIE-C246

Full-size PICMG 1.3 CPU Card supports LGA1151 Intel® Xeon® E3, Core™ i9/i7/i5/i3/ Pentium®/Celeron® CPU per Intel® C246, ECC & non-ECC DDR4, HDMI, DP, Dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, M.2, HD Audio, Intel® AMT and RoHS

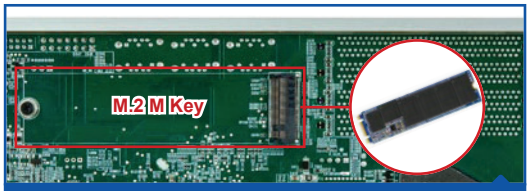




Four 288-pin DDR4 SDRAM Supported



RAID 0, 1, 5, 10 function compatible with six ports of SATA 6Gb/s



M.2 M Key



TPM 2.0 Support

Specifications

- CPU
  LGA1151 socket supports Intel® Xeon® E3, 8th/9th generation Core™ i9/i7/i5/i3, Pentium® or Celeron® processor
- Chipset
  Intel® C246
- Memory
  Four 288-pin 2666MHz dual-channel DDR4 SDRAM unbuffered DIMMs support up to 64GB ECC & non-ECC (C246)
- BIOS
  AMI UEFI BIOS
- Graphic Engine
  Intel® HD Graphics Gen 9 Engines with Low power 16 execution unit, supports DX2015, OpenGL 5.X and OpenCL2.x, ES 2.0
- Display Output
  Dual display supported
  1 x HDMI (up to 4096 x 2304@30Hz)
  1 x Internal DisplayPort (up to 4096 x 2304@60Hz)
- Ethernet
  LAN1: Intel® I219LM PHY
  LAN2: Intel® I211-AT PCIe controller (Co-lay I210-AT)
- External I/O Interface
  2 x USB 3.2 Gen 1 (5Gb/s) (Rear IO type A)
  1 x USB 2.0 (Type A 180°)
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x RS-422/485 (1x4 pin, P=2.0)
  2 x USB 3.2 Gen 1 (5Gb/s) (2x10 pin)
  3 x RS-232 (2x5 pin, P=2.54)
  6 x SATA 6Gb/s (RAID 0/1/5/10 supported)
  6 x USB 2.0 (2x4 pin, P=2.54)
- Audio
  Support 7.1 channel HD audio by IEI AC-KIT-892HD kit
- Front Panel
  1 x Front panel (Power LED, HDD LED, Speaker, Power Button, Reset Button)
- LAN LED
  2 x LAN LED (1x2 pin)
- TPM
  1 x TPM (2x10 pin)
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- Expansion
  1 x M.2 M key (2280, Gen3 PCIe x4)
  1 x PCIe x16 & 4 x PCIe x1 signal via golden finger
  4 x PCI signal via golden finger
- Watchdog Timer
  Software programmable support 1~255 sec. system reset
- Digital I/O
  8-bit digital I/O (2x5 pin)
- FAN Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x3 pin)
- Power Supply
  AT/ATX power supply
  Support AT/ATX mode
  ErP/EuP Compliant
- Power Consumption
  5V@3.12A, 12V@6.85A, 3.3V@1.13A, 5VSB@0.15A
  (4.0 GHz Intel® Core™ i7-8700K CPU with four 16 GB 2666 MHz DDR4 memory)
- Operating Temperature
  -20°C ~ 60°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions
  338 mm x 126 mm
- Weight
  GW: 1000g / NW: 500g
- CE/FCC compliant



Features

- PICMG 1.3 full-size CPU card
- LGA1151 Intel® Xeon® E3, 8th/9th generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor supported
- Dual-channel DDR4 2666MHz
- Support HDMI and internal DP display
- Intel® PCIe GbE with Intel® AMT 11.0 supported
- Support M.2 M key for storage (PCIe x4)
- Supports RAID 0, 1, 5, 10 function via SATA 6Gb/s

Packing List

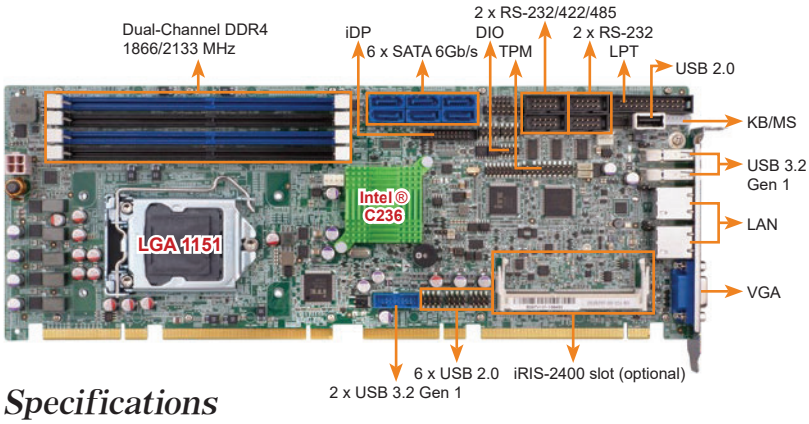
1 x SPCIE-C246 single board computer
1 x Mini jumper pack
1 x SATA cable
1 x QIG (Quick Installation Guide)

Ordering Information

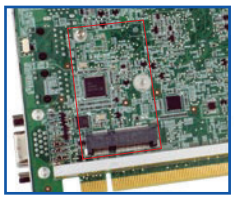
Part No.	Description
SPCIE-C246-R11	Full-size PICMG 1.3 CPU Card supports LGA1151 Intel® Xeon® E3, Core™ i9/i7/i5/i3/Pentium®/Celeron® CPU per Intel® C246, ECC & non-ECC DDR4, HDMI, DP, Dual Intel® PCIe GbE, M.2, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio, iAMT and RoHS
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
AC-KIT-892HD-R10	7.1 channel HD Audio kit with Realtek ALC892 support dual audio streams
CF-1150SA-R10	Special cooler kit for LGA1150, High-performance compatible, 95W
CF-1150SB-R11	Special cooler kit for LGA1150, High-performance compatible, 65W
CF-1150SC-R20	Special cooler kit for LGA1150, 1U chassis compatible, 65W
CF-1150SE-R11	Special cooler kit for LGA1150, high-performance compatible, 95W
CF-1150SF-R10	Special cooler kit for LGA1150, 1U chassis compatible, 54W
SAIDE-KIT01-R10	SATA to IDE/CF Converter board

SPCIE-C236

Full-size PICMG 1.3 CPU Card supports LGA 1151 Intel® Xeon® E3, Core™ i3/Pentium®/ Celeron® CPU per Intel® C236, ECC & non-ECC DDR4, VGA/iDP, Dual Intel® PCIe GbE, mSATA, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio, Intel® AMT, iRIS-2400 and RoHS



PCIe Mini & mSATA colay





◀ mSATA



▲ Half-size wireless LAN card

PCIe Mini interface provides SATA, PCIe x1 and USB signals to support full-size or half-size devices, such as mSATA, PCIe devices, and wireless LAN cards.





TPM 2.0 Support





Specifications

- CPU
  LGA 1151 socket supports Intel® Xeon® E3 v5/v6, 6th/7th generation Core™ i3, Pentium® or Celeron® processor
- Chipset
  Intel® C236
- Memory
  Four 288-pin 1866/2133 MHz dual-channel ECC & non-ECC unbuffered DDR4 DIMMs support up to 64GB
- BIOS
  UEFI BIOS
- Graphics Engine
  Intel® HD Graphics Gen 9 supports DX11/12, OpenCL 2.x and OpenGL 4.3/4.4
  Decode/Encode for HEVC, VP8, VP9, VDENC
- Display Output
  Dual independent display
  1 x VGA (up to 1920x1200@60 Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI and DisplayPort (up to 3840x2160@60 Hz)
- Ethernet
  LAN1: Intel® I219LM Clarkville-V with Intel® AMT 11.0 supported
  LAN2: Intel® I210 PCIe controller
- External I/O Interface
  2 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x LPT (2x13 pin)
  1 x mSATA (SATA & USB signal)
  1 x USB 2.0 (180° Type-A)
  2 x RS-232 (2x5pin, P=2.54)
  2 x RS-232/422/485 (2x5 pin, P=2.54)
  2 x USB 3.2 Gen 1 (5Gb/s) (2x10 pin)
  6 x SATA 6Gb/s (RAID 0/1/5/10 supported)
  6 x USB 2.0 (2x4 pin, P=2.54)
- Front Panel
  1 x Front Panel (1x10 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED
  2 x LAN LED (1x2 pin)
- Audio
  Support 7.1 channel HD audio by IEI AC-KIT-892HD kit
- TPM
  1 x TPM (2x10 pin)
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- iRIS Remote Management Module
  1 x iRIS-2400 slot (optional)
- Expansion
  16-lane PCIe link from CPU via golden finger:
  Supports one PCIe x16, or two PCIe x8, or one PCIe x8 + two PCIe x4 on the backplane (configured via BIOS)
  4-lane PCIe link from PCH via golden finger:
  Supports four PCIe x1 slots or one PCIe x4 slot on the backplane (configured via BIOS switch)
  1 x Full/Half-size PCIe Mini card slot (supports mSATA)
- Watchdog Timer: Software programmable, supports 1~255 sec. system reset
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x3 pin)
- Power Supply
  5V/12V, AT/ATX support
- Power Consumption
  5V@3.22A, 12V@6.81A, 3.3V@1.21A, 5VSB@0.18A (Intel® Xeon® E3-1275 v5 3.60 GHz CPU with 64GB (16GBx4) 2133 MHz DDR4 memory)
- Operating Temperature
  -20°C ~ 60°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions
  338 mm x 126 mm
- Weight
  GW: 1000g / NW: 420g
- CE/FCC compliant

Features

- PICMG 1.3 full-size CPU Card
- LGA 1151 Intel® Xeon® E3 v5/v6, 6th/7th generation Core™ i3, Pentium® or Celeron® processor supported
- Four 288-pin 1866/2133MHz DDR4 ECC & non-ECC unbuffered DIMM
- Supports dual independent display by VGA & internal DP pin header
- Supports PCIe Mini device & mSATA via PCIe Mini card slot
- Intel® PCIe GbE with Intel® AMT 11.0 supported
- Supports RAID 0, 1, 5, 10 function via SATA 6Gb/s
- TPM 1.2 & 2.0 hardware security function supported by TPM module

Packing List

1 x SPCIE-C236 single board computer	1 x Mini jumper pack
1 x SATA cable	1 x QIG

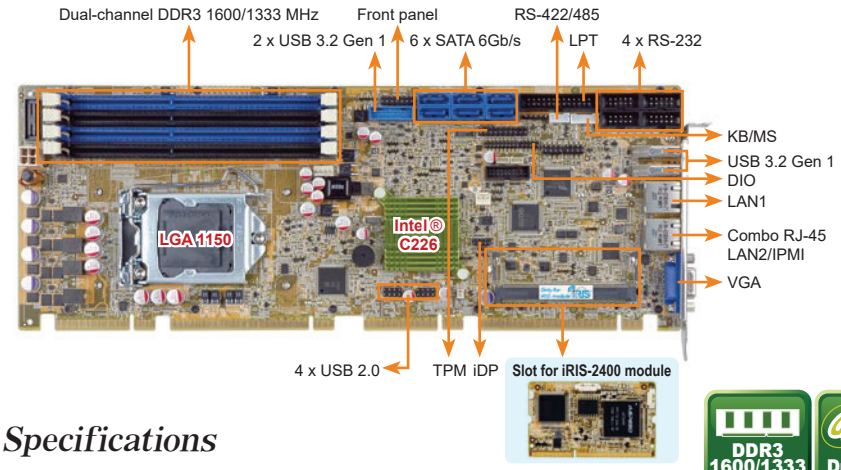
Ordering Information

Part No.	Description
SPCIE-C236-R10	Full-size PICMG 1.3 CPU Card supports LGA 1151 Intel® Xeon® E3, Core™ i3/Pentium®/Celeron® CPU per Intel® C236, ECC & non-ECC DDR4, Dual Intel® PCIe GbE, VGA/iDP, VGA/ iDP, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, PCIe Mini, HD Audio, Intel® AMT, and RoHS
SPCIE-C236-i2-R10**	Full-size PICMG 1.3 CPU Card supports LGA 1151 Intel® Xeon® E3, Core™ i3/Pentium®/Celeron® CPU per Intel® C236, ECC & non-ECC DDR4, Dual Intel® PCIe GbE, VGA/iDP, VGA/ iDP, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, PCIe Mini, HD Audio, Intel® AMT, iRIS-2400 and RoHS
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
AC-KIT-892HD-R10	7.1 channel HD Audio kit with Realtek ALC892 support dual audio streams
CF-1150SA-R10	Special cooler kit for LGA1150, high-performance compatible, 95W
CF-1150SB-R11	Special cooler kit for LGA1150, high-performance compatible, 65W
CF-1150SC-R20	Special cooler kit for LGA1150, 1U chassis compatible, 65W
CF-1150SE-R11	Special cooler kit for LGA1150, high-performance compatible, 95W
CF-1150SF-R10	Special cooler kit for LGA1150, 1U chassis compatible, 54W
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
SAIDE-KIT01-R10	SATA to IDE/CF converter board

**By order production, MOQ: 100

SPCIE-C2260-i2

Full-size PICMG 1.3 CPU Card supports LGA 1150 Intel® Xeon® E3, Core™ i3, Pentium® and Celeron® with Intel® C226, DDR3, VGA, iDP, Dual Intel® PCIe GbE, SATA 6Gb/s, mSATA, PCIe Mini, RS-232, HD Audio, iRIS-2400 and RoHS



PICMG 1.3 Server Grade Solution

IPMI 2.0 Compliant

TPM 2.0 Support

DDR3 1600/1333 | Dual GbE | USB 3.2 | SATA 6Gb/s | mSATA | iDP

Specifications

- CPU
  LGA 1150 Intel® Xeon® E3, Core™ i3, Pentium® or Celeron® processor supported
- Chipset
  Intel® C226
- Memory
  Four 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM ECC and non-ECC unbuffered DIMMs support up to 32 GB
- BIOS
  UEFI BIOS
- Graphics Engine
  Intel® HD Graphics Gen 7.5 supports DX11.1 and OpenCL 1.2, OpenGL 3.2
  Full MPEG2, VC1, AVC Decode
- Display Output
  1 x VGA (up to 1920x1200@60 Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60 Hz)
- Ethernet
  LAN1: Intel® I217LM with Intel® AMT 9.0 support
  LAN2: Intel® I210-AT PCIe controller with NCSI support
- Audio
  Supports 7.1-channel HD Audio by IEI AC-KIT-892HD-R10 kit
- External I/O Interface
  2 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x LPT (2x13 pin)
  1 x mSATA
  1 x RS-422/485 (1x4 pin, P=2.0)
  2 x USB 3.2 Gen 1 (5Gb/s) (2x10 pin)
  4 x USB 2.0 (Golden finger)
  4 x USB 2.0 (2x4 pin, P=2.54)
  4 x RS-232 (2x5pin, P=2.54)
  6 x SATA 6Gb/s (RAID 0/1/5/10 supported)
- LAN LED
  2 x LAN LED (1x2 pin)
- TPM
  1 x TPM (2x10 pin)
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- Infrared Interface
  1 x Infrared Interface (1x5 pin)
- Digital I/O
  8-bit digital I/O (2x5 pin)
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- iRIS Remote Management Module
  1 x iRIS-2400 slot
- Expansion
  PCIe signal and PCI signal via golden finger
  1 x Full-size PCIe Mini card slot (colay mSATA)
- Watchdog Timer
  Software programmable, supports 1~255 sec. system reset
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x3 pin)
- Power Supply
  5V/12V, AT/ATX support
- Power Consumption
  5V@3.55A, 12V@0.37A, Vcore_12V@7.61A, 3.3V@1.55A, 5VSB@0.13A (Intel® E3-1240 v3 3.4GHz CPU with 16 GB (four 4 GB) 1333 MHz DDR3 memory)
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 338 mm x 126 mm
- Weight: GW: 1200g / NW: 420g
- CE/FCC compliant

Features

- PICMG 1.3 full-size server grade solution
- LGA 1150 Intel® Xeon® E3, Core™ i3, Pentium® or Celeron® processor supported
- Four 240-pin 1600/1333 MHz dual-channel DDR3 DIMMs support up to 32 GB
- Supports dual independent display by VGA and iDP interfaces
- Supports PCIe Mini devices and mSATA via PCIe Mini socket
- Supports RAID function via SATA 6Gb/s
- Stiffener bars
- IEI jumper-less function
- Supports IPMI 2.0 via iRIS-2400 module

Packing List

1 x SPCIE-C2260-i2 single board computer
1 x Dual RS-232 cable
1 x USB 2.0 cable
2 x SATA cable
1 x QIG

Ordering Information

Part No.	Description
SPCIE-C2260-i2-R10	Full-size PICMG 1.3 CPU card supports LGA 1150 Intel® Xeon® E3, Core™ i3, Pentium® and Celeron® with Intel® C226, DDR3, VGA, iDP, Dual Intel® PCIe GbE, SATA 6Gb/s, mSATA, RS-232, PCIe Mini, HD Audio, iRIS-2400 and RoHS
iRIS-2400-R10	IPMI 2.0 adapter card with AST2400 BMC chip for DDR3 SO-DIMM socket interface
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
19800-010500-200-RS	USB 3.2 Gen 1 (5Gb/s) cable with bracket, 450mm
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
AC-KIT-892HD-R10	7.1-channel HD Audio kit with Realtek ALC892 supports dual audio streams
CF-1150SB-R11	Special cooler kit for LGA 1150, high-performance compatible, 65W
CF-1150SC-R20	Special cooler kit for LGA1150, 1U chassis compatible, 65W
CF-1150SE-R11	Special cooler kit for LGA1150, high-performance compatible, 95W
CF-1150SF-R10	Special cooler kit for LGA1150, 1U chassis compatible, 54W
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

PICMG 1.3 Backplane

Selection Guide

PAC series wall-mount chassis 4U rack-mount chassis

Backplane		SPE-4S	SPE-6S	SPE-9S	SPXE-11S	SPXE-14S
Total	Slot	4	6	7	11	14
PCIe	x16					
	x8	2 (x16 connector)		1 (x16 connector)		1 (x16 connector)
	x4	1	5	3	6 (x16 connector)	
	x1					12 (x4 connector)
	PCI-X					
	PCI			3	4	
PSU Type		24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+8-pin ATX	24+8-pin ATX
Chassis Option		PAC-106G PAC-1000G	PAC-106G PAC-1000G	PAC-125G	RACK-305G RACK-360G RACK-3000G	RACK-305G RACK-360G RACK-3000G

IEI Server Grade Backplane Solution

Server grade backplane accommodates PCIe x8 and multiple PCIe x4 add-on cards. It is specially designed for intensive data transfer applications such as server data storage and any application that requires more than one PCIe x4 or four PCIe x1 cards. Given the multiple PCIe x4 and x1 support, it provides a more cost effective solution for end-users by reducing the number of systems required.

System Solution for options

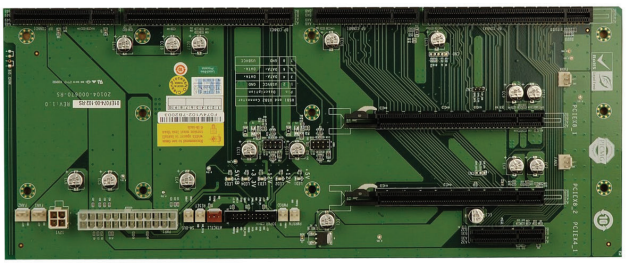
Backplane	Total	PCIe						PSU Type	Chassis Option
	Slot	x16	x8	x4	x1	PCI-X	PCI		
SPE-4S	4	-	2 (x16 connector)	1		-	-	24+4-pin ATX	PAC-106G PAC-1000G
SPE-6S	6	-		5	-	-	-	24+4-pin ATX	PAC-106G PAC-1000G
SPE-9S	7	-	1 (x16 connector)	3			3	24+4-pin ATX	PAC-125G
SPXE-11S	11	-	-	6 (x16 connector)	-	-	4	24+8-pin ATX	RACK-305G RACK-360G RACK-3000G
SPXE-14S	14	-	1 (x16 connector)	-	12 (x4 connector)	-	-	24+8-pin ATX	RACK-305G RACK-360G RACK-3000G

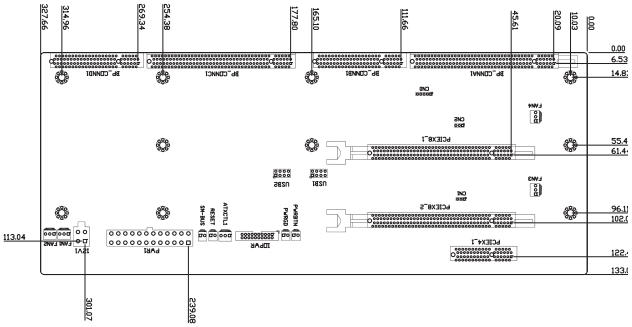
Server Grade Backplane

Example	Corresponding Model
EX1: 2 x8 & 1 x4 slots SHB x8 x8 x4	SPE-4S
EX2: 1 x8 & 3 x4 slots SHB x4 x8 x4 x4	SPE-9S
EX3: 5 x4 slots SHB x4 x4 x4 x4 x4	SPE-6S

SPE-4S-R10

Server Grade



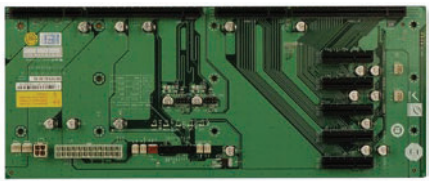


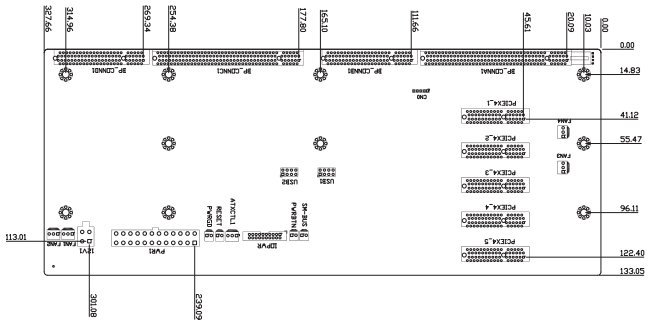
Ordering Information

SPE-4S-R10	4-slot PICMG 1.3 backplane with two PCIe x16 slots (x8 signal) and one PCIe x4 slot
PAC-106G	6-slot full-size compact chassis
PAC-1000G	6-slot full-size compact chassis

SPE-6S-R10

Server Grade



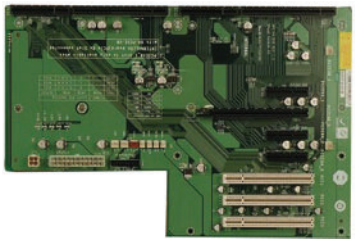


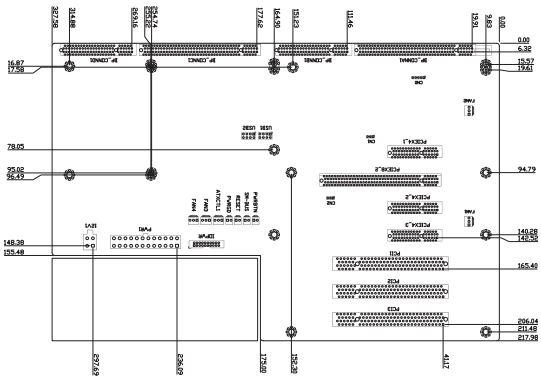
Ordering Information	
SPE-6S-R10	6-slot PICMG 1.3 backplane with five PCIe x4 slots
PAC-106G	6-slot full-size compact chassis
PAC-1000G	6-slot full-size compact chassis

Note: PCIEX4_3 can not work with SPCIE-C2060, SPCIE-C2160, SPCIE-C22260, SPCIE-C236 & HPCIE-C236.

SPE-9S-R11

Server Grade



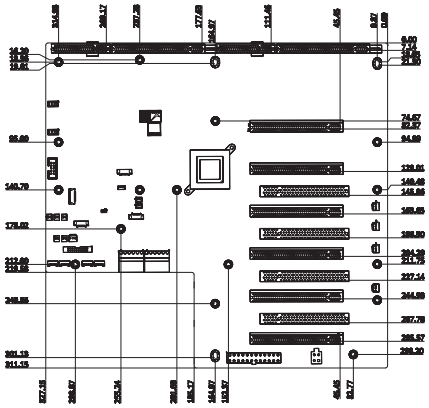


Ordering Information	
SPE-9S-R11	7-slot PICMG 1.3 backplane with one PCIe x16 slot (x8 signal), three PCIe x4 slots and three PCI slots
PAC-125G	10-slot full-size compact chassis

SPXE-11S-R10

Server Grade



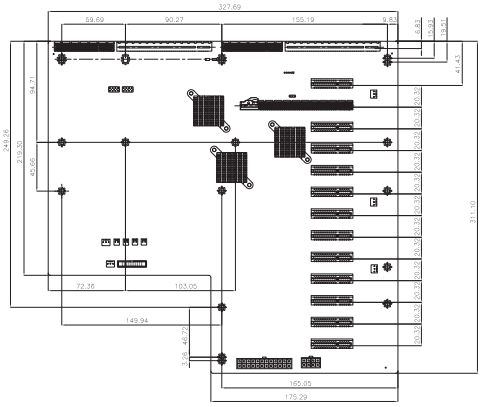


Ordering Information	
SPXE-11S-R10	11-Slot PICMG 1.3 PCIe to PCIe Switch (PLX PEX8724) Backplane, 6 PCIe Gen 3.0 x4 w/ x16 slot,4 PCI, RoHS
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis
RACK-3000G	4U 14-slot full-size rack-mount chassis

SPXE-14S-R20

Server Grade

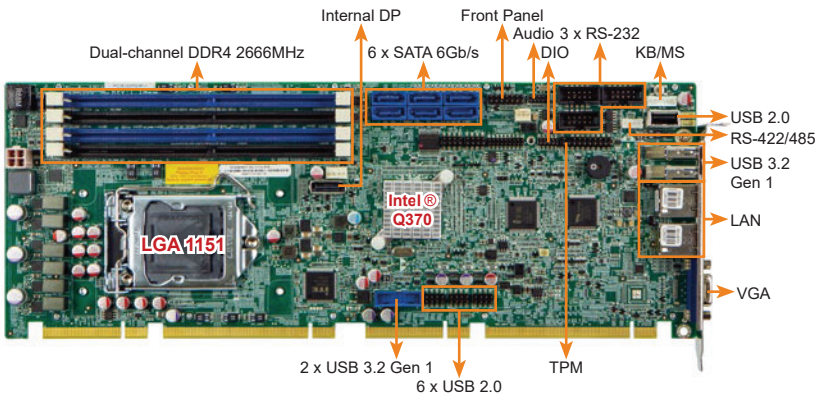


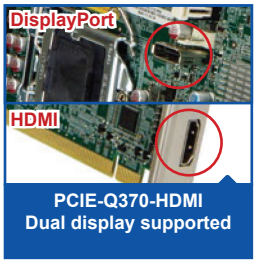


Ordering Information	
SPXE-14S-R20	14-slot PICMG 1.3 backplane with one PCIe x16 slot (x8 signal) and twelve PCIe x4 slots (x1 signal)
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis
RACK-3000G	4U 14-slot full-size rack-mount chassis

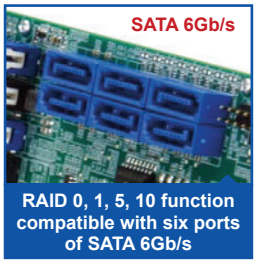
PCIE-Q370

Full-size PICMG 1.3 CPU Card supports LGA1151 Intel® Core™ i9/i7/i5/i3/Pentium®/ Celeron® CPU per Intel® Q370, DDR4, VGA, Dual Intel® PCIe GbE, SATA 6Gb/s, USB 3.2 Gen 1 (5Gb/s), M.2, HD Audio, Intel® AMT and RoHS

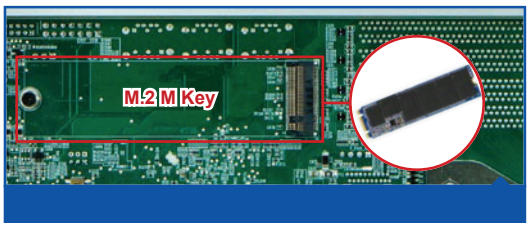


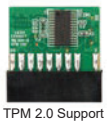


PCIE-Q370-HDMI
Dual display supported



RAID 0, 1, 5, 10 function compatible with six ports of SATA 6Gb/s





TPM 2.0 Support

Specifications

- CPU
  LGA1151 socket supports 8th/9th generation Intel® Core™ i9/i7/i5/i3, Pentium® or Celeron® processor
- Chipset
  Intel® Q370
- Memory
  Four 288-pin 2666MHz dual-channel DDR4 SDRAM unbuffered DIMMs support up to 64GB
- BIOS
  AMI UEFI BIOS
- Graphic Engine
  Intel® HD Graphics Gen 9 Engines with Low power 16 execution unit, supports DX2015, OpenGL 5.X and OpenCL2.x, ES 2.0
- Display Output
  » PCIE-Q370-R11
  Dual display supported
  1 x VGA (up to 1920 x 1080@60Hz) 1 x Internal DP (up to 4096 x 2304@60Hz)
  » PCIE-Q370-HDMI-R11**
  Dual display supported
  1 x HDMI (up to 4096 x 2304@30Hz) 1 x Internal DP (up to 4096 x 2304@60Hz)
- Ethernet
  LAN1: Intel® I219LM PHY
  LAN2: Intel® I211-AT PCIe controller (Co-lay I210-AT)
- External I/O Interface
  2 x USB 3.2 Gen 1 (5Gb/s) (Rear IO type A)
  1 x USB 2.0 (Type A 180°)
- Internal I/O Interface
  1 x KB/MS (1x6 pin) 3 x RS-232 (2x5 pin, P=2.54)
  1 x RS-422/485 (1x4 pin, P=2.0) 6 x SATA 6Gb/s (RAID 0/1/5/10 supported)
  2 x USB 3.2 Gen 1 (5Gb/s) (2x10 pin) 6 x USB 2.0 (2x4 pin, P=2.54)
- Audio
  Support 7.1 channel HD audio by IEI AC-KIT-892HD kit
- Front Panel
  1 x Front panel (Power LED, HDD LED, Speaker, Power Button, Reset Button)
- LAN LED
  2 x LAN LED (1x2 pin)
- TPM
  1 x TPM (2x10 pin)
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- Expansion
  1 x M.2 M key (2280, Gen3 PCIe x4)
  1 x PCIe x16 & 4 x PCIe x1 signal via golden finger
  4 x PCI signal via golden finger
- Watchdog Timer
  Software programmable support 1~255 sec. system reset
- Digital I/O
  8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x3 pin)
- Power Supply
  AT/ATX power supply
  Support AT/ATX mode
  ErP/EuP Compliant
- Power Consumption
  5V@3.12A, 12V@6.85A, 3.3V@1.13A, 5VSB@0.15A
  (4.0 GHz Intel® Core™ i7-8700K CPU with four 16 GB 2666 MHz DDR4 memory)
- Operating Temperature
  -20°C ~ 60°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Diemension: 338 mm x 126 mm
- Weight: GW: 1000g / NW: 500g
- CE/FCC compliant

Features

- PICMG 1.3 full-size CPU card
- LGA1151 Intel® 8th/9th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor supported
- Dual-channel DDR4 2666MHz
- Support VGA/HDMI and internal DP display
- Intel® PCIe GbE with Intel® AMT 11.0 supported
- Support M.2 M key for storage (PCIe x4)
- Supports RAID 0, 1, 5, 10 function via SATA 6Gb/s

Packing List

1 x PCIE-Q370 single board computer	1 x Mini jumper pack
1 x SATA cable	1 x QIG (Quick Installation Guide)

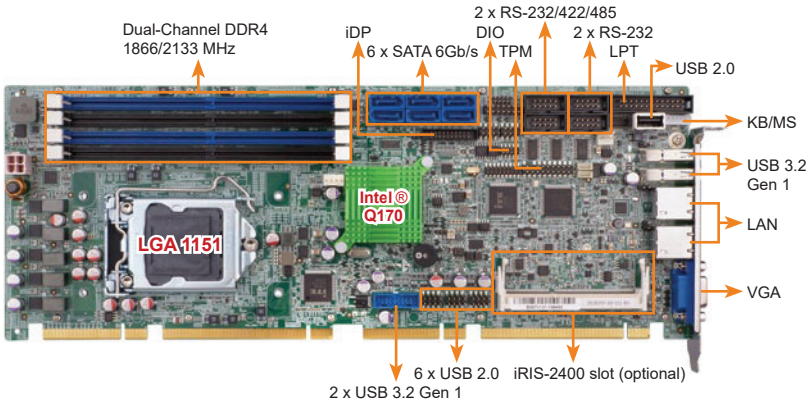
Ordering Information

Part No.	Description
PCIE-Q370-R11	Full-size PICMG 1.3 CPU Card supports LGA1151 Intel® Core™ i9/i7/i5/i3/Pentium®/Celeron® CPU per Intel® Q370, DDR4, VGA, DP, Dual Intel® PCIe GbE, USB 3.2 Gen 1, SATA 6Gb/s, M.2, HD Audio, iAMT and RoHS
PCIE-Q370-HDMI-R11**	Full-size PICMG 1.3 CPU Card supports LGA1151 Intel® Core™ i9/i7/i5/i3/Pentium®/Celeron® CPU per Intel® Q370, DDR4, HDMI, DP, Dual Intel® PCIe GbE, USB 3.2 Gen 1, SATA 6Gb/s, M.2, HD Audio, iAMT and RoHS
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
AC-KIT-892HD-R10	7.1 channel HD Audio kit with Realtek ALC892 support dual audio streams
CF-1150SA-R10	Special cooler kit for LGA1150, High-performance compatible, 95W
CF-1150SB-R11	Special cooler kit for LGA1150, High-performance compatible, 65W
CF-1150SC-R20	Special cooler kit for LGA1150, 1U chassis compatible, 65W
CF-1150SE-R11	Special cooler kit for LGA1150, high-performance compatible, 95W
CF-1150SF-R10	Special cooler kit for LGA1150, 1U chassis compatible, 54W
SAIDE-KIT01-R10	SATA to IDE/CF Converter board

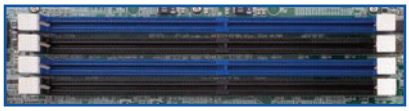
**By order production, MOQ: 100

PCIE-Q170

Full-size PICMG 1.3 CPU Card supports LGA1151 Intel® Core™ i7/i5/i3/Pentium®/ Celeron® CPU per Intel® Q170, DDR4, VGA/iDP, Dual Intel® PCIe GbE, PCIe Mini, mSATA, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio, Intel® AMT, iRIS-2400 and RoHS



Four 288-pin DDR4 SDRAM Supported





RAID 0, 1, 5, 10 function compatible with six ports of SATA 6Gb/s



Specifications

- CPU
  LGA 1151 socket supports Intel® 6th/7th generation Core™ i7/i5/i3, Pentium® or Celeron® processor
- Chipset
  Intel® Q170
- Memory
  Four 288-pin 1866/2133 MHz dual-channel unbuffered DDR4 DIMMs support up to 64GB
- BIOS
  UEFI BIOS
- Graphic Engine
  Intel® HD Graphics Gen 9 supports DX11/12, OpenCL 2.x and OpenGL 4.3/4.4
  Decode/Encode for HEVC, VP8, VP9, VDENC
- Display Output
  Dual independent display
  1 x VGA (up to 1920x1200@60 Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI and DisplayPort (up to 3840x2160@60 Hz)
- Ethernet
  LAN1: Intel® I219LM Clarkville-V with Intel® AMT 11.0 supported
  LAN2: Intel® I210 PCIe controller
- External I/O Interface
  2 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x LPT (2x13 pin)
  1 x mSATA (SATA & USB signal)
  1 x USB 2.0 (180° Type-A)
  2 x RS-232 (2x5pin, P=2.54)
  2 x RS-232/422/485 (2x5 pin, P=2.54)
  2 x USB 3.2 Gen 1 (5Gb/s) (2x10 pin)
  6 x SATA 6Gb/s (RAID 0/1/5/10 supported)
  6 x USB 2.0 (2x4 pin, P=2.54)
- Front Panel
  1 x Front Panel (1x10 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED
  2 x LAN LED (1x2 pin)
- Audio
  Support 7.1 channel HD audio by IEI AC-KIT-892HD kit
- TPM
  1 x TPM (2x10 pin)
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- iRIS Remote Management Module
  1 x iRIS-2400 slot (optional)
- Expansion
  16-lane PCIe link from CPU via golden finger:
  Supports one PCIe x16, or two PCIe x8, or one PCIe x8 + two PCIe x4 on the backplane (configured via BIOS)
  4-lane PCIe link from PCH via golden finger:
  Supports four PCIe x1 slots or one PCIe x4 slot on the backplane (configured via BIOS switch)
  1 x Full/Half-size PCIe Mini card slot
  Four PCI signal via golden finger
- Watchdog Timer
  Software programmable, supports 1~255 sec. system reset
- Digital I/O
  8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x3 pin)
- Power Supply
  5V/12V, AT/ATX support
- Power Consumption
  5V@3.12A, 12V@6.85A, 3.3V@1.13A, 5VSB@0.15A
  (Intel® Core™ i7-6700K 4.0GHz CPU with 64GB (16GB x 4) 2133 MHz DDR4 memory)
- Operating Temperature
  -20°C ~ 60°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions: 338 mm x 126 mm
- Weight: GW: 1000g / NW: 420g
- CE/FCC compliant

Features

- PICMG 1.3 full-size CPU Card
- LGA 1151 Intel® 6th/7th generation Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- Four 288-pin 1866/2133MHz dual-channel DDR4 UDIMMs support up to 64GB
- Supports dual independent display by VGA & internal DP pin header
- Supports PCIe Mini device & mSATA via PCIe Mini card slot
- Intel® PCIe GbE with Intel® AMT 11.0 supported
- Supports RAID 0, 1, 5, 10 function via SATA 6Gb/s
- TPM 1.2 & 2.0 hardware security function supported by TPM module

Packing List

1 x PCIE-Q170 single board computer	1 x Mini jumper pack
1 x SATA cable	1 x QIG

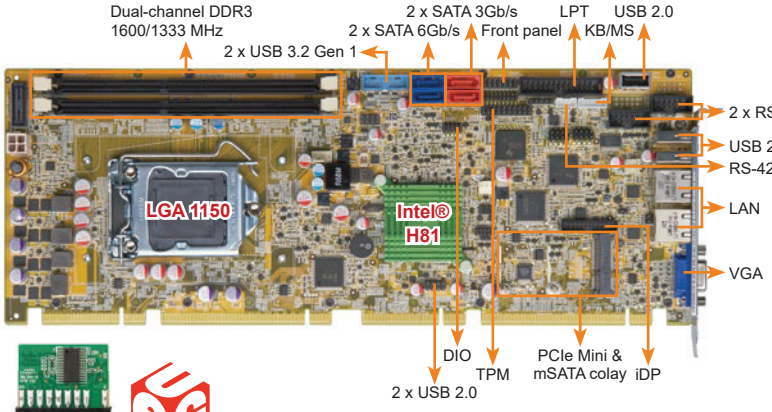
Ordering Information

Part No.	Description
PCIE-Q170-R10	Full-size PICMG 1.3 CPU Card supports LGA1151 Intel® Core™ i7/i5/i3/Pentium®/Celeron® CPU per Intel® Q170, DDR4, VGA/ iDP, Dual Intel® PCIe GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, mSATA, HD Audio, iAMT and RoHS
PCIE-Q170-i2-R10**	Full-size PICMG 1.3 CPU Card supports LGA1151 Intel® Core™ i7/i5/i3/Pentium®/Celeron® CPU per Intel® Q170, DDR4, VGA/ iDP, Dual Intel® PCIe GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, mSATA, HD Audio, iAMT, iRIS-2400 and RoHS
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
AC-KIT-892HD-R10	7.1 channel HD Audio kit with Realtek ALC892 support dual audio streams
CF-1150SA-R10	Special cooler kit for LGA1150, High-performance compatible, 95W
CF-1150SB-R11	Special cooler kit for LGA1150, High-performance compatible, 65W
CF-1150SC-R20	Special cooler kit for LGA1150, 1U chassis compatible, 65W
CF-1150SE-R11	Special cooler kit for LGA1150, high-performance compatible, 95W
CF-1150SF-R10	Special cooler kit for LGA1150, 1U chassis compatible, 54W
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
SAIDE-KIT01-R10	SATA to IDE/CF Converter board

**By order production, MOQ: 100

PCIE-H810

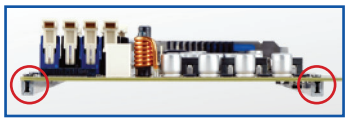
Full-size PICMG 1.3 CPU card supports LGA 1150 Intel® Core™ i7/i5/i3, Pentium® and Celeron® with Intel® H81, DDR3, VGA, iDP, Dual PCIe GbE, SATA 6Gb/s, mSATA, USB 3.2 Gen 1 (5Gb/s), RS-232, HD Audio and RoHS



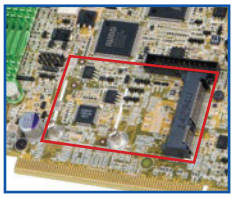
TPM 1.2 Support

Enhanced component protection

Prevent the damage of bottom components



PCIe Mini & mSATA colay



The PCIe Mini interface provides PCIe x1, USB and mSATA signal for full-size or half-size PCIe Mini devices, such as SSD, mSATA and wireless LAN cards.



◀ mSATA



▲ Half-size wireless LAN card



Specifications

- CPU
  4th generation LGA 1150 Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- Chipset
  Intel® H81
- Memory
  Two 240-pin 1600/1333 MHz dual-channel unbuffered DDR3 & DDR3L SDRAM DIMMs support up to 16 GB
- BIOS
  UEFI
- Graphics Engine
  Intel® HD Graphics Gen 7.5 supports DX11.1, OpenCL 1.2 and OpenGL 3.2
  Full MPEG2, VC1, AVC Decode
- Display Output
  Dual independent display
  1 x VGA (up to 1920x1200@60 Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60 Hz)
- Ethernet
  Dual Realtek RTL8111E PCIe GbE controllers supported
- External I/O Interface
  2 x USB 2.0
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x LPT (2x13 pin)
  1 x RS-422/485 (1x4 pin, P=2.0)
  1 x USB 2.0 (180° Type-A)
  2 x RS-232 (2x5 pin, P=2.54)
  2 x SATA 3Gb/s (AHCI supported, no RAID)
  2 x SATA 6Gb/s
  2 x USB 3.2 Gen 1 (5Gb/s) (2x10 pin)
  4 x USB 2.0 (Golden finger)
  4 x USB 2.0 (2x4 pin, P=2.54)
- Audio
  Support 7.1-channel HD Audio by IEI AC-KIT-892HD kit
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED
  2 x LAN LED (1x2 pin)
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- Infrared Interface
  1 x Infrared Interface (1x5 pin)
- Expansion
  1 x Full/Half-size PCIe Mini slot (supports mSATA)
  One PCIe x16 & four PCIe x1 signal via golden finger
- Watchdog Timer
  Software programmable supports 1~255 sec. system reset
- Digital I/O
  8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x3 pin)
- Power Supply
  5V/12V, AT/ATX support
- Power Consumption
  5V@3.41A, 12V@0.35A, Vcore_12V@7.52A, 3.3V@1.41A, 5VSB@0.12A
  (Intel® Core™ i7-4770K 3.90 GHz CPU with 8 GB (two 4 GB) 1333 MHz DDR3 memory)
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 338 mm x 126 mm
- Weight: GW: 1000g / NW: 420g
- CE/FCC compliant

Features

- PICMG 1.3 full-size solution
- 4th generation LGA 1150 Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- Two 1600/1333 MHz DDR3 SDRAM DIMMs support up to 16 GB
- Dual Realtek PCIe GbE supported
- TPM v1.2 hardware security function supported by TPM module
- Stiffener bars
- IEI jumper-less function

Packing List

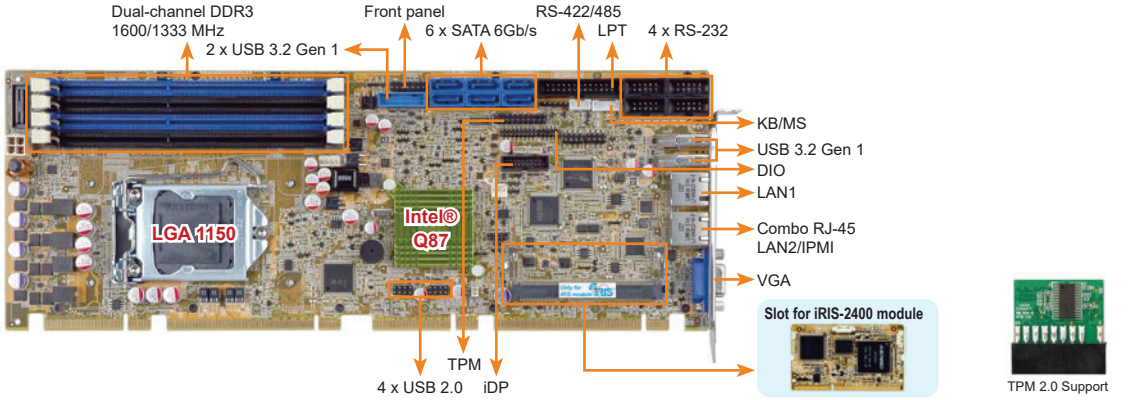
1 x PCIE-H810 single board computer
2 x SATA cable
1 x QIG

Ordering Information

Part No.	Description
PCIE-H810-R10	Full-size PICMG 1.3 CPU Card supports LGA 1150 Intel® Core™ i7/i5/i3, Pentium® and Celeron® CPU with Intel® H81, DDR3, VGA, iDP, dual PCIe GbE, SATA 6Gb/s, mSATA, RS-232, USB 3.2 Gen 1 (5Gb/s), HD Audio and RoHS
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
19800-003100-300-RS	Dual port USB 2.0 cable with bracket, 300mm, P=2.54
19800-010500-200-RS	USB 3.2 Gen 1 (5Gb/s) cable with bracket, 450mm
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-000702-100-RS	RS-232 cable, 230mm, P=2.54
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
AC-KIT-892HD-R10	7.1-channel HD Audio kit with Realtek ALC892 supports dual audio streams
CF-1150SB-R11	Special cooler kit for LGA 1150, high-performance compatible, 65W
CF-1150SC-R20	Special cooler kit for LGA 1150, 1U chassis compatible, 65W
CF-1150SE-R11	Special cooler kit for LGA 1150, high-performance compatible, 95W
CF-1150SF-R10	Special cooler kit for LGA 1150, high-performance compatible, 54W
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

PCIE-Q870-i2

Full-size PICMG 1.3 CPU Card supports LGA 1150 Intel® Core™ i7/i5/i3, Pentium® and Celeron® CPU per Intel® Q87, DDR3, VGA, iDP, Dual PCIe GbE, mSATA, PCIe Mini, iRIS-2400 and RoHS



IPMI 2.0 Compliant

DDR3 1600 | USB 3.2 | SATA 6Gb/s | PCIe GbE | mSATA | iDP

Specifications

- CPU
  LGA 1150 Intel® 4th generation Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- Chipset
  Intel® Q87
- Memory
  Four 240-pin 1600/1333 MHz dual-channel unbuffered DDR3 & DDR3L SDRAM DIMMs support up to 32 GB
- BIOS
  UEFI BIOS
- Graphics Engine
  Intel® HD Graphics Gen 7.5 supports DX11.1, OpenCL 1.2 and OpenGL 3.2
  Full MPEG2, VC1, AVC Decode
- Display Output
  1 x VGA (up to 1920x1200@60 Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60 Hz)
- Ethernet
  LAN1: Intel® I217LM with Intel® AMT 9.0 support
  LAN2: Intel® I210-AT PCIe controller with NCSI support
- External I/O Interface
  2 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x LPT (2x13 pin)
  1 x mSATA
  1 x RS-422/485 (1x4 pin, P=2.0)
  6 x SATA 6Gb/s (RAID 0/1/5/10 supported)
  2 x USB 3.2 Gen 1 (5Gb/s) (2x10 pin)
  4 x RS-232 (2x5pin, P=2.54)
  4 x USB 2.0 (2x4 pin, P=2.54)
  4 x USB 2.0 (Golden finger)
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED
  2 x LAN LED (1x2 pin)
- Audio
  Supports 7.1-channel HD Audio by IEI AC-KIT-892HD-R10 kit
- TPM
  1 x TPM (2x10 pin)
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- Infrared Interface
  1 x Infrared Interface (1x5 pin)
- iRIS Remote Management Module
  1 x iRIS-2400 slot
- Expansion
  PCIe signal and PCI signal via golden finger
  1 x Full-size PCIe Mini card slot (supports mSATA)
- Watchdog Timer
  Software programmable, supports 1~255 sec. system reset
- Digital I/O
  8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x3 pin)
- Power Supply: 5V/12V, AT/ATX support
- Power Consumption
  5V@3.55A, 12V@0.37A, Vcore_12V@7.61A, 3.3V@1.55A, 5VSB@0.13A (Intel® Core™ i7-4770K 3.90 GHz CPU with 16 GB (4x4 GB) 1333 MHz DDR3 memory)
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 338 mm x 126 mm
- Weight: GW: 1200g / NW: 420g
- CE/FCC compliant

Features

- PICMG 1.3 full-size graphics grade solution
- LGA 1150 Intel® 4th generation Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- Four 240-pin 1600/1333 MHz dual-channel DDR3 DIMMs support up to 32 GB memory
- Supports dual independent display by VGA & iDP interfaces
- Supports PCIe Mini devices and mSATA via PCIe Mini socket
- Supports RAID function via SATA 6Gb/s
- Supports IPMI 2.0 via iRIS-2400 module

Packing List

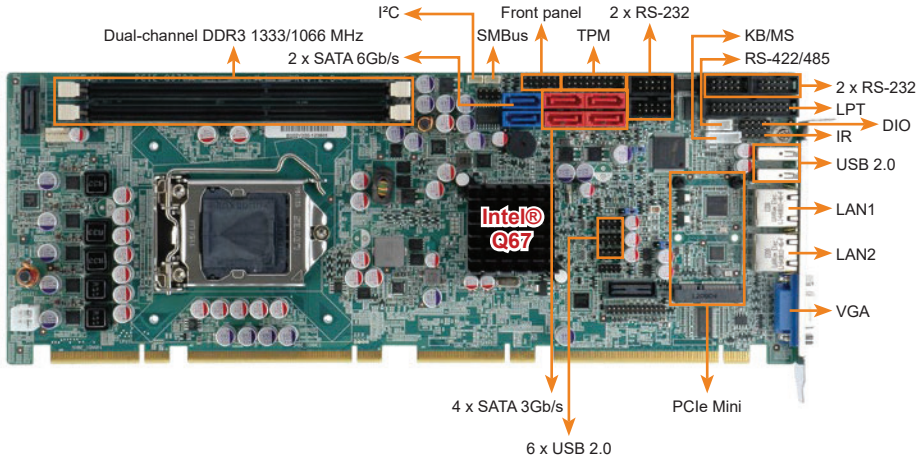
1 x PCIE-Q870-i2 single board computer
1 x Dual RS-232 cable
1 x USB 2.0 cable
2 x SATA cable
1 x QIG

Ordering Information

Part No.	Description
PCIE-Q870-i2-R10	Full-size PICMG 1.3 CPU card supports LGA 1150 Intel® Core™ i7/i5/i3, Pentium® and Celeron® CPU with Intel® Q87, DDR3, VGA, iDP, dual Intel® PCIe GbE, SATA 6Gb/s, mSATA, RS-232, PCIe Mini, Audio, iRIS-2400 and RoHS
iRIS-2400-R10	IPMI 2.0 adapter card with AST2400 BMC chip for DDR3 SO-DIMM socket interface
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
19800-010500-200-RS	USB 3.2 Gen 1 (5Gb/s) cable with bracket, 450mm
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
AC-KIT-892HD-R10	7.1-channel HD Audio kit with Realtek ALC892 supports dual audio streams
CF-1150SB-R11	Special cooler kit for LGA 1150, high-performance compatible, 65W
CF-1150SC-R20	Special cooler kit for LGA 115X, 1U chassis compatible, 65W, copper
CF-1150SE-R11	Special cooler kit for LGA 115X, high-performance compatible, 95W, copper
CF-1150SF-R10	Special cooler kit for LGA 115X Intel® CPU, 107x70x35, 54W
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

PCIE-Q670-R20

Full-size PICMG 1.3 CPU card supports LGA 1155 32nm Intel® Core™ i7/i5/i3, Pentium® or Celeron® CPU with Intel® Q67, DDR3, VGA, dual Intel® PCIe GbE, SATA 6Gb/s, PCIe Mini, HD Audio and RoHS





TPM 1.2 Support

Specifications

- CPU
  LGA 1155 socket supports Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor
- Chipset
  Intel® Q67
- Memory
  Two 240-pin 1333/1066 MHz dual-channel unbuffered DDR3 & DDR3L SDRAM DIMMs support up to 16 GB
- BIOS
  UEFI BIOS
- Graphics Engine
  Intel® HD Graphics Gen 6 supports DX10.1 and OpenGL 3.0
  Full MPEG2, VC1, AVC Decode
- Display Output
  1 x VGA (up to 2048x1536@75Hz)
- Ethernet
  LAN1: Intel® 82583V PCIe controller
  LAN2: Intel® 82579 PHY with Intel® AMT 7.0 support
- External I/O Interface
  2 x USB 2.0
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x LPT (2x13 pin)
  1 x RS-422/485 (1x4 pin, P=2.0)
  2 x SATA 6Gb/s (RAID 0/1/5/10 supported)
  4 x RS-232 (2x5pin, P=2.54)
  4 x SATA 3Gb/s (RAID 0/1/5/10 supported)
  4 x USB 2.0 (Golden finger)
  6 x USB 2.0 (2x4 pin, P=2.54)
- Front Panel
  1 x Front panel connector (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- Audio
  Supports 7.1-channel HD Audio by IEI AC-KIT-892HD-R10 kit
- TPM
  1 x TPM (2x10 pin)
- SMBus
  1 x SMBus (1x4 pin)
- Infrared Interface
  1 x Infrared Interface (1x5 pin)
- Expansion
  PCIe signal and PCI signal via golden finger
  1 x Full/Half-size PCIe Mini card slot
- Watchdog Timer
  Software programmable supports 1~255 sec. system reset
- Digital I/O
  8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x Smart fan (1x4 pin)
- Power Supply
  AT/ATX power supply supported
- Power Consumption
  5V@3.45A, 12V@0.32A, Vcore_12V@5.24A, 3.3V@1.69A, 5VSB@0.17A (3.4GHz Intel® Core™ i7-2600K with two 2 GB 1333 MHz DDR3 memory)
- Operating Temperature
  -10°C ~ 60°C
- Storage Temperature
  -20°C ~ 70°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions: 338 mm x 126 mm
- Weight: GW: 1200g / NW: 420g
- CE/FCC compliant

Features

- PICMG 1.3 full-size graphics grade solution
- LGA 1155 Intel® Core™ i7/i5/i3, Pentium® or Celeron® processors supported
- Up to 16 GB 1333 MHz dual-channel DDR3 SDRAM
- Supports dual independent display by VGA
- Supports RAID function via SATA 6Gb/s and SATA 3Gb/s
- TPM v1.2 hardware security provided by the TPM module

Packing List

1 x PCIE-Q670 single board computer
1 x Dual RS-232 cable
1 x USB cable
4 x SATA cable
1 x Mini jumper pack
1 x QIG

Ordering Information

Part No.	Description
PCIE-Q670-R20	Full-size PICMG 1.3 CPU card supports LGA 1155 32nm Intel® Core™ i7/i5/i3, Pentium® or Celeron® CPU with Intel® Q67, DDR3, VGA, dual Intel® PCIe GbE, SATA 6Gb/s, PCIe Mini, HD Audio and RoHS
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
AC-KIT-892HD-R10	7.1-channel HD Audio kit with Realtek ALC892 supports dual audio streams
CF-115XA-R10	High-performance LGA 1155/LGA 1156 cooler kit, 1U chassis compatible, 73W
CF-115XC-R10	LGA 1155/LGA 1156 cooler kit, 1U chassis compatible, 45W
CF-115XD-R10	LGA 1155/LGA 1156 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High-performance LGA 1155/LGA 1156 cooler kit, 95W
CPU-DT-C-G440	Intel® Celeron® G440 processor, LGA 1155, single core 1.6GHz, 1M cache, 35W, compatible with CF-115XC-R10 CPU cooler
CPU-DT-i3-2120T	Intel® Core™ i3-2120T processor, LGA 1155, dual core 2.6GHz, 3M cache, 35W, compatible with CF-115XC-R10 CPU cooler
CPU-DT-i5-2390T	Intel® Core™ i5-2390T processor, LGA 1155, dual core 2.7GHz, 3M cache, 35W, AMT, compatible with CF-115XC-R10 CPU cooler
CPU-DT-i5-2500T	Intel® Core™ i5-2500T processor, LGA 1155, quad core 2.3GHz, 6M cache, 45W, compatible with CF-115XC-R10 CPU cooler
CPU-DT-P-G630T	Intel® Pentium® G630T processor, LGA 1155, dual core 2.3GHz, 3M cache, 35W, compatible with CF-115XC-R10 CPU cooler
SAIDE-KIT01-R10	SATA to IDE/CF converter board

PICMG 1.3 Passive Backplane

Selection Guide

PAC series wall-mount chassis | 4U/5U rack-mount chassis | 1U/2U rack-mount chassis

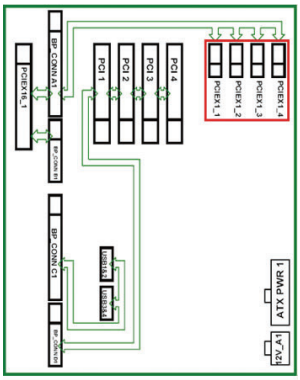
PICMG 1.3 (PCIe+PCI)	Model	PE-2SD1	PE-2SD2	PE-3S1	PE-4S	PE-4S2	PE-5S	PE-5S2	PE-6S	PE-6S2	PE-6SD	PE-6SD3
Total Slot		2	2	5	4	4	5	5	6	6	5	5
Expansion Slots	PCIe Slots x16 *	1		1	1	1	1	1	1	1	1	1
	PCIe Slots x4			1	1		1			1		1
	PCIe Slots x1							3	2		3	
	PCI-X Slots											
	PCI Slots		1		1	2	2		2	3		2
USB Connectors by Pin Header		4	4		4	4	4	4	4	4	4	4
PSU Type		24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX
Chassis		RACK-1150-PE	RACK-1150-PE	RACK-500AI	N/A	N/A	RACK-500G	RACK-500G	RACK-305G RACK-360G RACK-3000G PAC- 1700G PAC-125	PAC-106G PAC-1000G	N/A	N/A
Note		1U Type	1U Type								2U Type	2U Type

PICMG 1.3 (PCIe+PCI)	Model	PE-7S	PE-7S2	PE-8S	PE-9S	PE-10S	PE- 10S2	PE-13SD	PXE-9S2	PXE-12S	PXE-13S	PXE-19S2
Total Slot		7	7	8	9	10	10	13	9	12	13	19
Expansion Slots	PCIe Slots x16 *	1	1	1	1	1	1	1/1	1	1	1	1
	PCIe Slots x4							1/0	3			
	PCIe Slots x1	2	4	3	4	4	4	0/4	0		3	1
	PCI-X Slots								0	4		
	PCI Slots	3	1	3	3	4	4	2/2	4	4	8	16
USB Connectors by Pin Header		4	4	4	4	4	4	8	4	4	4	4
PSU Type		24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	Dual 24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX
Chassis		PAC-1700G	PAC-1700G	PAC-125G	N/A	RACK-305G RACK-360G RACK-3000G	RACK-3000G RACK-305G RACK-360G	RACK-3000G RACK-305G RACK-360G	RACK-3000G RACK-305G RACK-360G	RACK-3000G RACK-305G RACK-360G	RACK-3000G RACK-305G RACK-360G	N/A
Note								Dual System Backplane	PCIe to PCIe Switch Backplane	PCIe to PCI-X Bridge Backplane	PCIe to PCI Bridge Backplane	

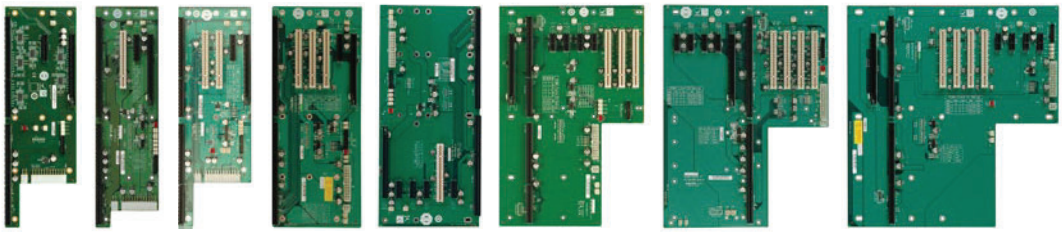
*When using a PCIe x16 add-on card, the length of the card must not exceed 167mm or 6.57 inches.

IEI Graphics Grade Backplane Solution

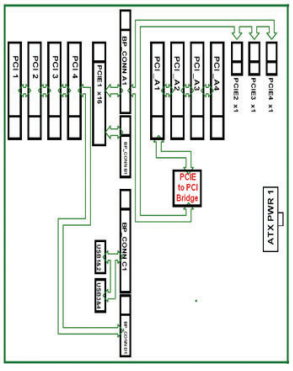
The graphics grade backplane solution targets the applications which concern system speed and performance. It has higher performance over cost ratio than the previous PICMG 1.0 solution.



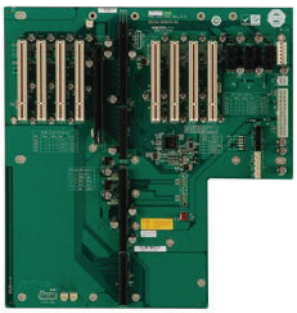
PE-3S1 **PE-4S** **PE-5S** **PE-6S2** **PE-7S2** **PE-9S** **PE-10S** **PE-10S2**



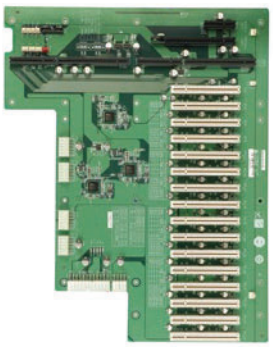
- Twenty PCIe lanes in total
- One PCIe x16 slot
- Up to four PCIe x1 or one PCIe x4 slot
- Up to four local PCI slots (w/o bridge)



PXE-13S



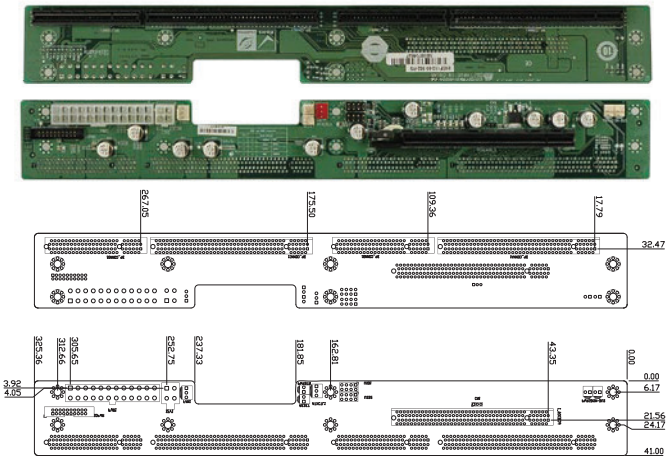
PXE-19S2



- Twenty PCIe lanes in total
- One PCIe x16 slot
- Up to four PCIe x1 slots
- PCI slots expandable via PCIe to PCI bridge

PE-2SD1-R10

For 1U system!

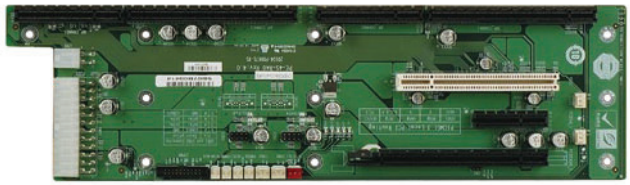


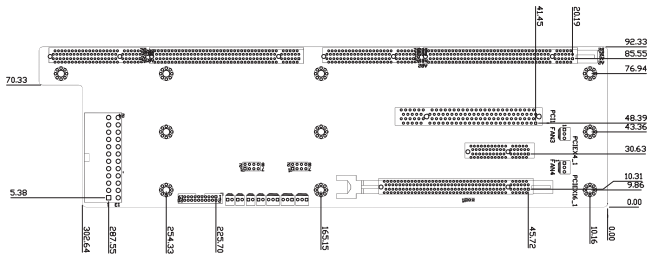
Ordering Information

PE-2SD1-R10	2-slot backplane with one PCIe slot
RACK-1150G-PE	1U full-size rack-mount chassis

PE-4S-R40

Mounting holes compatible with PCI-4S



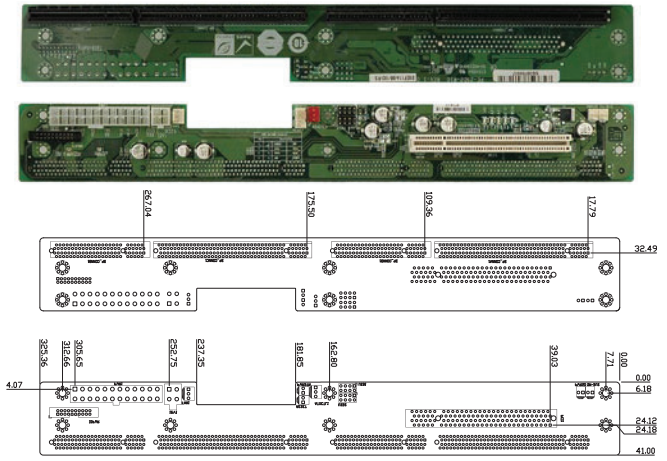


Ordering Information

PE-4S-R40	4-slot backplane with one PCIe x16 slot, one PCIe x4 slot and one PCI slot

PE-2SD2-R10

For 1U system!

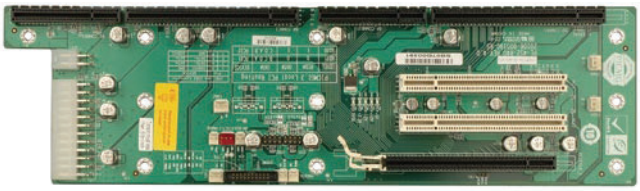


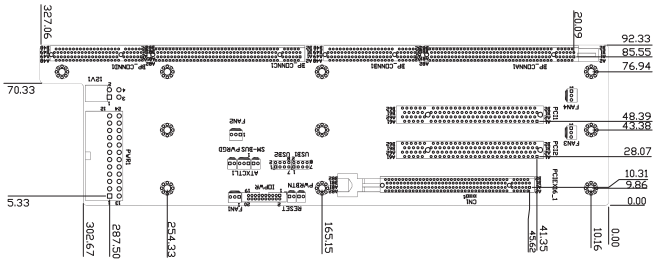
Ordering Information

PE-2SD2-R10	2-slot backplane with one PCI slot
RACK-1150G-PE	1U full-size rack-mount chassis

PE-4S2-R40

Mounting holes compatible with PCI-4S



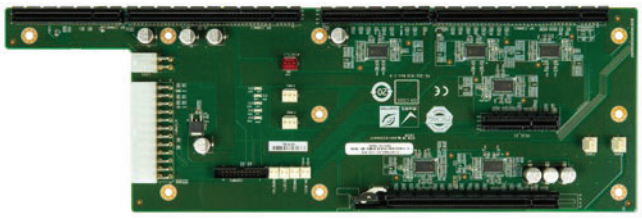


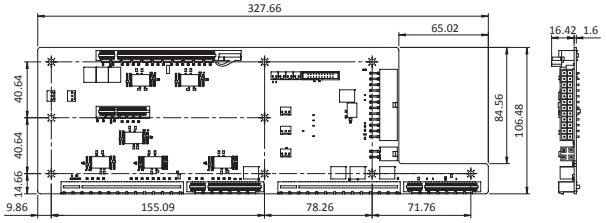
Ordering Information

PE-4S2-R40	4-slot backplane with one PCIe x16 slot and two PCI slots

PE-3S1-R10

New



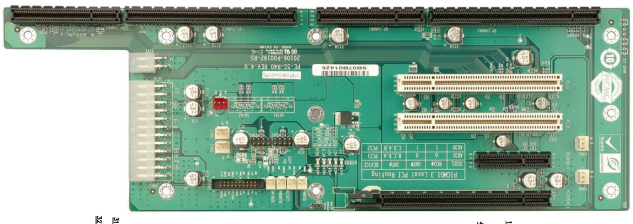


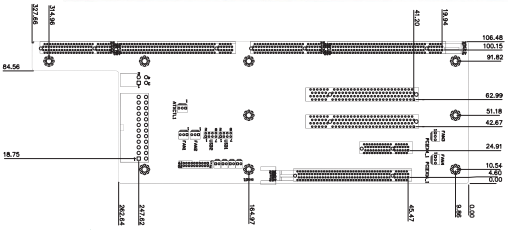
Ordering Information

PE-3S1-R10	5-slot PICMG 1.3 backplane with one PCIe x16 slot and one PCIe x4 Slot, RoHS
RACK-500AI	5U 5-slot full-size rackmount chassis

PE-5S-R40

Mounting holes compatible with PCI-5S



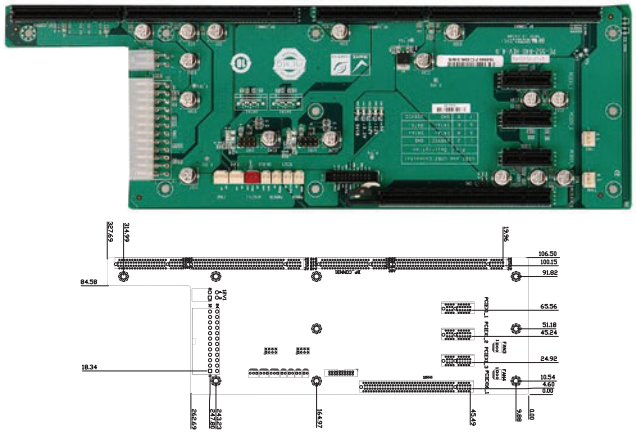


Ordering Information

PE-5S-R40	5-slot backplane with one PCIe x16 slot, one PCIe x4 slot and two PCI slots
RACK-500G	5U 5-slot full-size rack-mount chassis

PE-5S2-R40

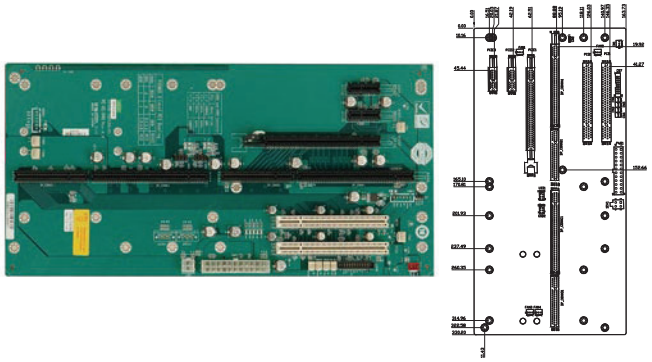
Mounting holes compatible with PCI-5S



Ordering Information	
PE-5S2-R40	5-slot backplane with one PCIe x16 slot and three PCIe x1 slots
RACK-500G	5U 5-slot full-size rack-mount chassis

PE-6S-R41

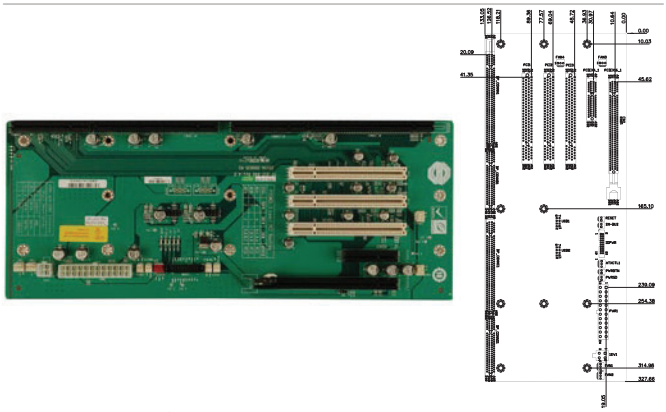
Mounting holes compatible with PCI-7S



Ordering Information	
PE-6S-R41	6-slot backplane with one PCIe x16 slot, two PCIe x1 slots and two PCI slots
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis
RACK-3000G	4U 14-slot full-size rack-mount chassis
PAC-1700G	7-slot full-size compact chassis
PAC-125G	10-slot full-size compact chassis

PE-6S2-R40

Mounting holes compatible with PCI-6S



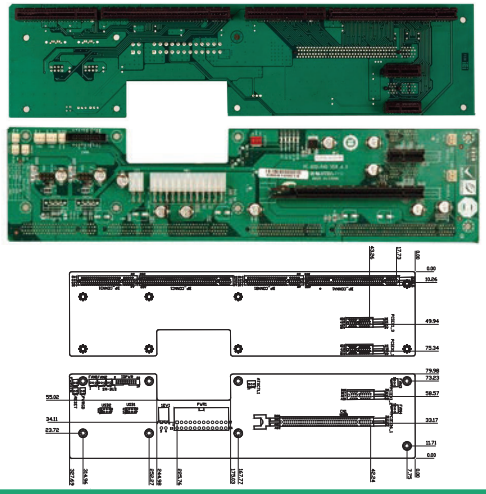
Ordering Information	
PE-6S2-R40	6-slot backplane with one PCIe x16 slot, one PCIe x4 slot and three PCI slots
PAC-106G *	6-slot full-size compact chassis
PAC-1000G	6-slot full-size compact chassis

*** When using a PCIe x16 add-on card, the length of the card must not exceed 167mm or 6.57 inches.**

PE-6SD-R40

Mounting holes compatible with PCI-6SD

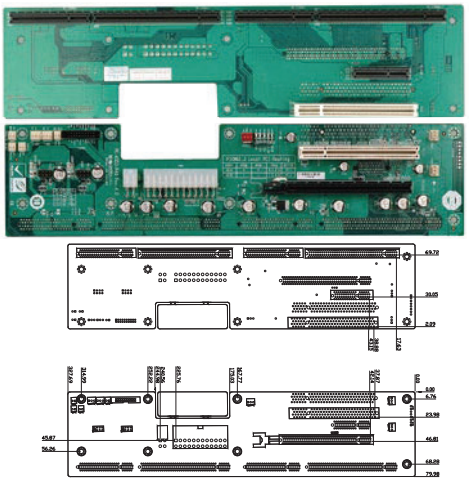
2U Type



Ordering Information	
PE-6SD-R40	5-slot backplane with one PCIe x16 slot and three PCIe x1 slots

PE-6SD3-R40

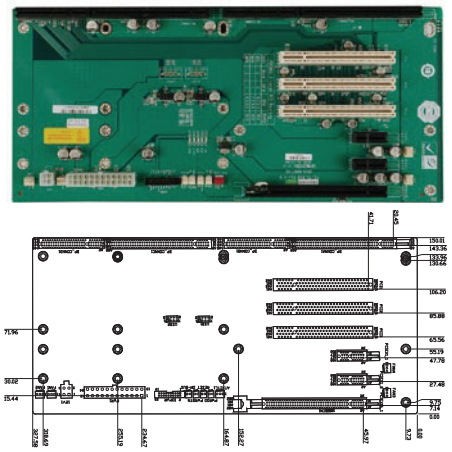
Mounting holes compatible with PCI-6SD



Ordering Information	
PE-6SD3-R40	5-slot backplane with one PCIe x16 slot, one PCIe x4 slot and two PCI slots

PE-7S-R40

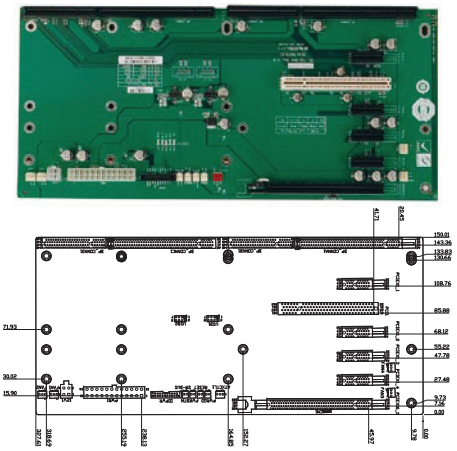
Mounting holes compatible with PCI-7S



Ordering Information	
PE-7S-R40	7-slot backplane with one PCIe x16 slot, two PCIe x1 slots and three PCI slots
PAC-1700G	7-slot full-size compact chassis

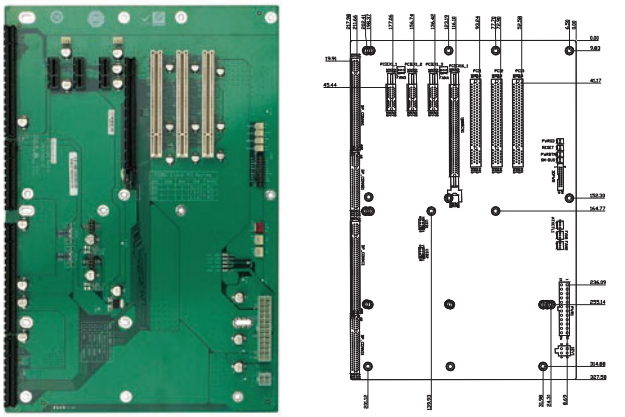
PE-7S2-R40

Mounting holes compatible with PCI-7S



Ordering Information	
PE-7S2-R40	7-slot backplane with one PCIe x16 slot, four PCIe x1 slots and one PCI slot
PAC-1700G	7-slot full-size compact chassis

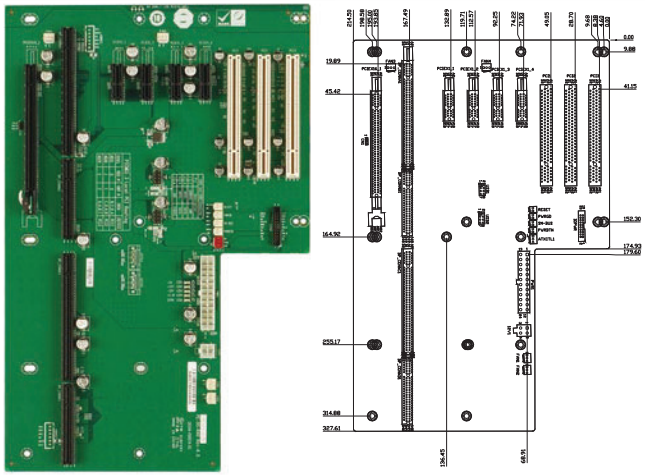
PE-8S-R40



Ordering Information	
PE-8S-R40	8-slot backplane with one PCIe x16 slot, three PCIe x1 slots and three PCI slots
PAC-125G	10-slot full-size compact chassis

PE-9S-R40

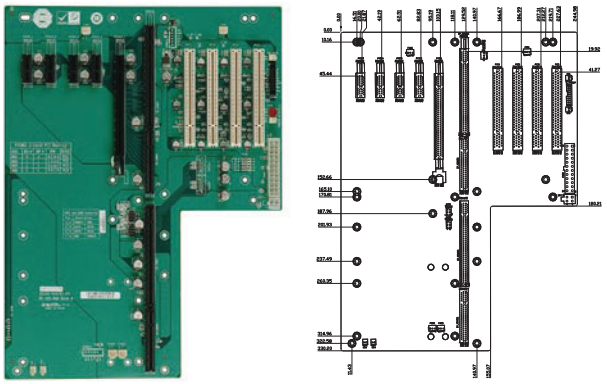
Mounting holes compatible with PCI-10S2



Ordering Information	
PE-9S-R40	9-slot backplane with one PCIe x16 slot, four PCIe x1 slots and three PCI slots

PE-10S-R40

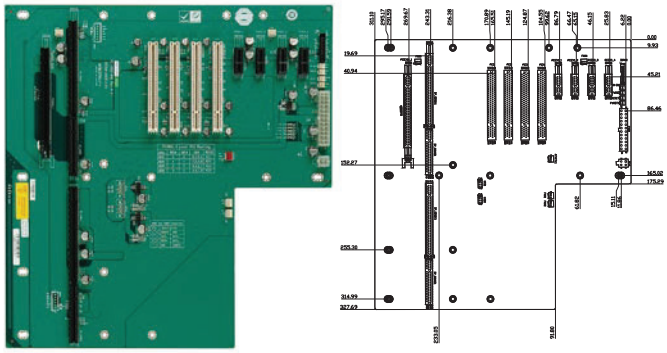
Mounting holes compatible with PCI-14S



Ordering Information	
PE-10S-R40	10-slot backplane with one PCIe x16 slot, four PCIe x1 slots and four PCI slots
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis
RACK-3000G	4U 14-slot full-size rack-mount chassis

PE-10S2-R40

Mounting holes compatible with PCI-14S

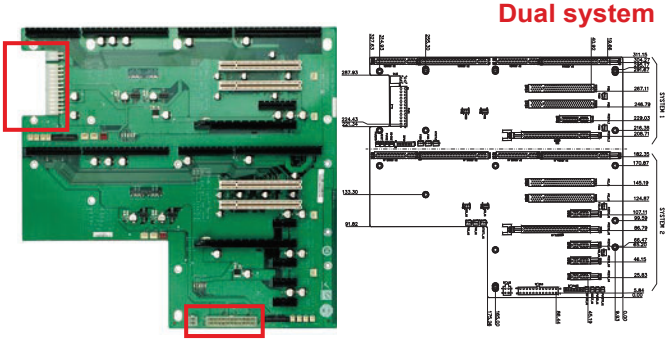


Ordering Information	
PE-10S2-R40	10-slot backplane with one PCIe x16 slot, four PCIe x1 slots and four PCI slots
RACK-3000G	4U 14-slot full-size rack-mount chassis
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis

PE-13SD-R40

Mounting holes compatible with PCI-14S

Dual system

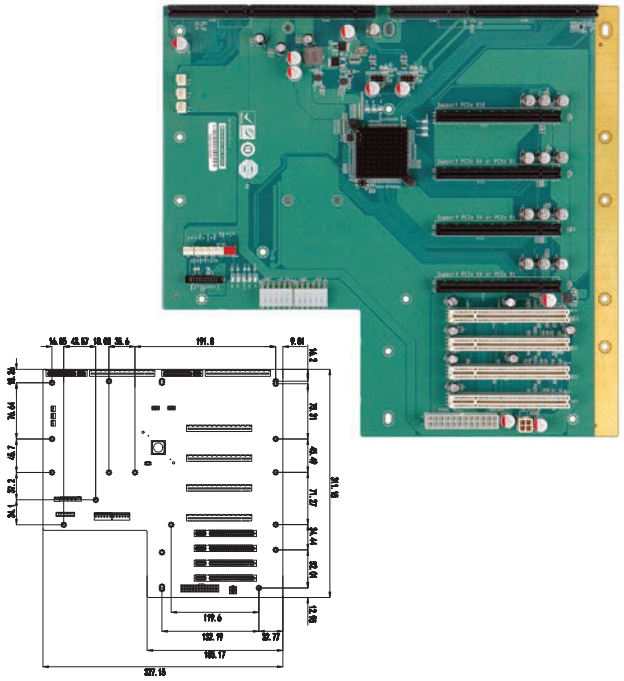


2 independent power resources

Ordering Information	
PE-13SD-R40	13-slot backplane with two PCIe x16 slots, one PCIe x4 slot, four PCIe x1 slot and four PCI slots
RACK-3000G	4U 14-slot full-size rack-mount chassis
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis

PXE-9S2-R10

Mounting holes compatible with PCI-14S

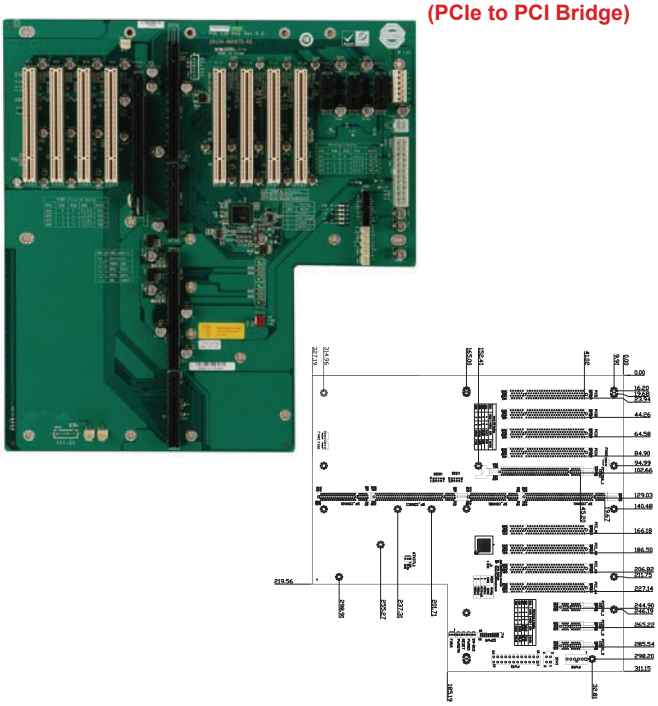


Ordering Information	
PXE-9S2-R10	9-slot PICMG 1.3 backplane with one PCIe x16 by x16 slot, three PCIe x4 by x16 slots, and four PCI slots RoHS
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis
RACK-3000G	4U 14-slot full-size rack-mount chassis

PXE-13S-R51

Mounting holes compatible with PCI-14S

(PCIe to PCI Bridge)

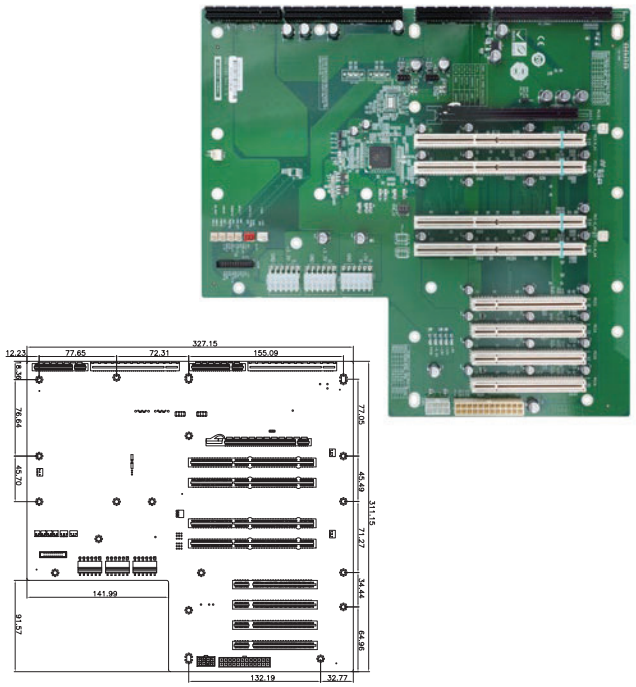


Ordering Information	
PXE-13S-R51	13-slot backplane with one PCIe x16 slot, three PCIe x1 slots and eight PCI slots
RACK-3000G	4U 14-slot full-size rack-mount chassis
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis

PXE-12S-R11

Mounting holes compatible with PCI-14S

(PCIe to PCI-X Bridge)

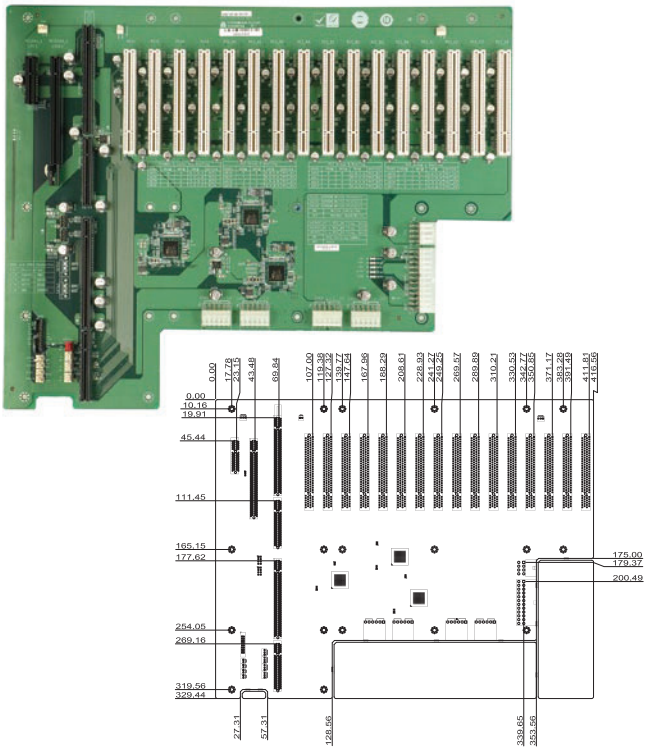


Ordering Information	
PXE-12S-R11	12-slot backplane with one PCIe x16 slot, four PCI-X slots and four PCI slots
RACK-3000G	4U 14-slot full-size rack-mount chassis
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis

PXE-19S2-R10

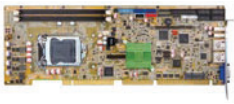
Mounting holes compatible with PCI-19S

(PCIe to PCI Bridge)



Ordering Information	
PXE-19S2-R10	19-slot backplane with one PCIe x16 slot, one PCIe x1 slot and sixteen PCI slots

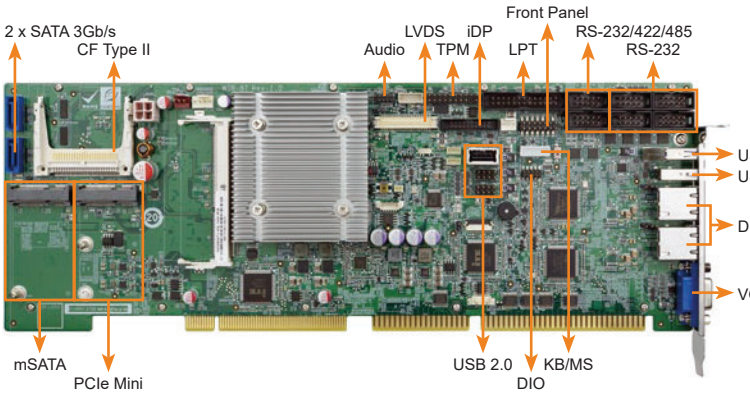
Full-size PICMG 1.0 Selection Guide

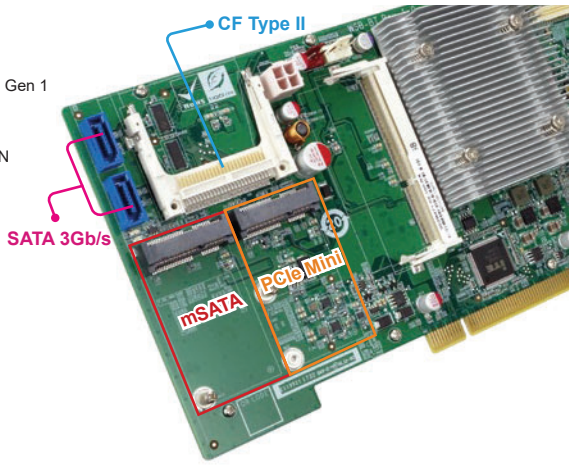

Model Name	WSB-BT	WSB-H810	WSB-H610
CPU Socket	On board	LGA 1150	LGA 1155
CPU Type	Intel® Celeron® J1900 on-board SoC (2GHz, quad-core, 2MB cache, TDP=10W) Intel® Celeron® N2807 on-board SoC (1.58GHz, dual-core, 2MB cache, TDP=4.3W)	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor
Chipset	N/A	Intel® H81	Intel® H61
Memory	One 204-pin 1066/1333 MHz singlechannel DDR3L SDRAM unbuffered DIMM (system max. 8 GB)	Two 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs (system max. 16 GB)	Two 240-pin 1333/1066 MHz dual-channel DDR3 & DDR3L (1.35V) DIMMs supported (system max. 16 GB)
Display Interface	Triple display supported 1 x VGA 1 x 18/24-bit dual-channel LVDS 1 x iDP interface for HDMI, LVDS, VGA, DVI, DP	Dual display supported 1 x VGA 1 x iDP interface	1 x VGA 1 x DVI-D (via header to IO-KIT-001-R20 DVI-D/USB module) (optional)
Ethernet	LAN1: Intel® I211-AT PCIe controller LAN2: Intel® I211-AT PCIe controller	LAN1: Intel® I217-V LAN PHY LAN2: Intel® I211-AT Ethernet controller	LAN1: Realtek RTL8111E PCIe GbE controller with ASF 2.0 support LAN2: Realtek RTL8111E PCIe GbE controller
I/O Interface	1 x KB/MS 1 x LPT 1 x USB 3.2 Gen 1 2 x RS-232/422/485 4 x RS-232 6 x USB 2.0	1 x 6-pin wafer for KB/MS 1 x LPT 1 x RS-422/485 2 x USB 3.2 Gen 1 4 x RS-232 8 x USB 2.0	1 x 6-pin wafer for KB & MS 1 x FDD 1 x LPT 1 x PS/2 KB/MS 1 x RS-422/485 2 x RS-232 7 x USB 2.0
Storage Interface	1 x mSATA (colay SATA2, supports SATA 3Gb/s signal only) 1 x CF Type II 2 x SATA 3Gb/s	1 x SATA 3Gb/s 2 x SATA 6Gb/s	4 x SATA 3Gb/s
Audio	IEI AC-KIT-892HD-R10 7.1-channel HD Audio kit via the on-board 10-pin header connector		
Digital I/O	8-bit digital I/O		
Power Consumption	3.3V@0.009A, 5V@4.68A, 5Vsb@0.008A, 12V@1.143A (Intel® Celeron® J1900 1.99 GHz 10W CPU with 8GB 1600MHz DDR3L memory)	5V@3.41A, 12V@0.35A, Vcore_12V@7.52A, 3.3V@1.41A, 5VSB@0.12A (Intel® Core™ i7-4770K 3.90 GHz CPU with 8 GB (two 4 GB) 1333 MHz DDR3 memory)	5V@4.53A, 12V@0.19A, Vcore_12V@7.81A, 5VSB@0.18A (3.4GHz Intel® Core™ i7-2600K with two 2 GB 1333 MHz DDR3 memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset		
Operation Environment	Temperature Range: -20ºC ~ 60ºC (-4ºF ~ 140ºF) Relative Humidity: 5% ~ 95%, non-condensing		Temperature Range: -10°C ~ 60°C Relative Humidity: 5% ~ 95%, non-condensing
Expansion Slot	1 x Full/Half-size PCIe Mini card slot (support mSATA)	1 x Full/Half-size PCIe Mini card slot (support mSATA)	1 x Full/Half-size PCIe Mini card slot
CPU Cooler	Heatsink	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11 CF-1150SF-R10	CF-115XA-R10 CF-115XC-R10 CF-115XD-R10 CF-115XE-R10

WSB-BT

Full-size PICMG 1.0 CPU Card supports Intel® Celeron™ on-board SoC with VGA, iDP, Dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA, mSATA, COM, CF, Audio and RoHS



Multiple Choice for Storage



DDR4 2133 | USB 3.2 | SATA 3Gb/s | PCIe Mini Expansion | mSATA

Specifications

- CPU
  Intel® Celeron® J1900 on-board SoC (2GHz, quad-core, 2MB cache, TDP=10W)
  Intel® Celeron® N2807 on-board SoC (1.58GHz, dual-core, 2MB cache, TDP=4.3W)
- Memory
  One 204-pin 1333/1066MHz dual-channel DDR3L SDRAM unbuffered DIMM supports up to 8GB (J1900) or 4GB (N2807)
- BIOS
  AMI UEFI BIOS
- Graphics
  Intel® HD Graphics Gen 7 Engines with 4 execution units, supports DX11.1, OpenGL 4.2 and OpenCL1.2
- Display Output
  1 x VGA (up to 1920x1200@60Hz)
  1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 2560x1600@60Hz)
- Ethernet
  LAN1: Intel® I211-AT PCIe controller
  LAN2: Intel® I211-AT PCIe controller
- External I/O
  1 x USB 3.2 Gen 1 (5Gb/s)
  1 x USB 2.0
- Internal I/O
  1 x CF Type II
  1 x KB/MS (1x6 pin)
  1 x LPT (2x13 pin)
  1 x mSATA (SATA 3Gb/s)
  1 x USB 2.0 (180° Type-A)
  2 x RS-232/422/485 (2x5 pin, P=2.54)
  2 x SATA 3Gb/s
  4 x RS-232 (2x5 pin, P=2.54)
  4 x USB 2.0 (2x4 pin, P=2.54)
- Front Panel
  1 x Front panel (Power LED, HDD LED, Speaker, Power Button, Reset Button)
- Digital I/O
  8-bit digital I/O (2x5 pin)
- TPM
  1 x TPM (2x10 pin)
- Audio
  7.1 channel HD Audio supported by IEI AC-KIT-892HD kit
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- Expansion
  1 x Full/Half-size PCIe Mini card slot
  PCI and ISA* signal via golden finger
- Watchdog Timer
  Software programmable supports 1~255 sec. system reset
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x3 pin)
- Power Supply
  5V/12V, AT/ATX support
- Power Consumption
  3.3V@0.009A, 5V@4.68A, 5Vsb@0.008A, 12V@1.143A
  (Intel® Celeron® J1900 1.99 GHz 10W CPU with 8GB 1600MHz DDR3L memory)
- Operating Temperature
  -20°C ~ 60°C
- Storage Temperature
  -30°C ~ 70°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions
  338 mm x 122 mm
- Weight
  GW: 1000g / NW: 260g
- CE/FCC compliant

Features

- Full-size PICMG 1.0 with Intel® Celeron™ J1900 & N2807 on-board SoC
- Dual-channel 1066/1333MHz DDR3L SO-DIMM supports up to 8GB of memory
- Dual Gigabit Ethernet LAN controller
- SATA 3Gb/s, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, mSATA and CF card supported
- TPM v1.2 & 2.0 hardware security function supported by TPM module
- Stiffener bars

Packing List

1 x WSB-BT single board computer
1 x Dual RS-232 cable with bracket
1 x SATA cable
1 x QIG

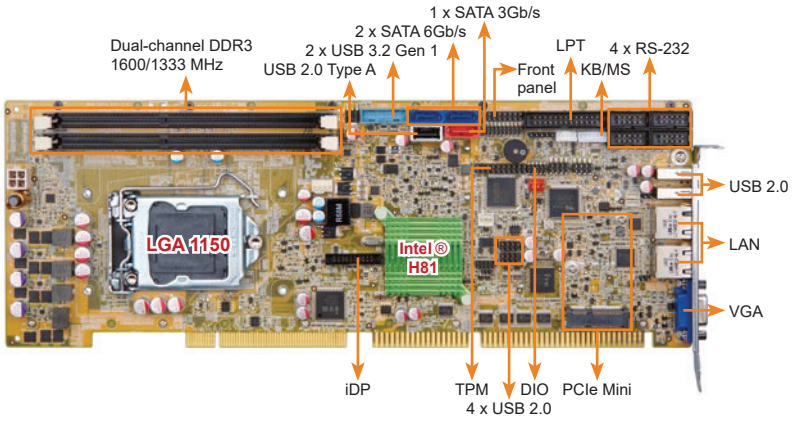
Ordering Information

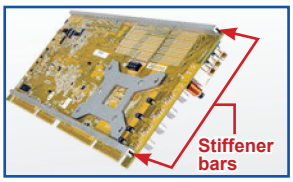
Part No.	Description
WSB-BT-J19001-R10	Full-size PICMG 1.0 CPU card supports Intel® Celeron™ J1900 on-board SoC with VGA, iDP, Dual Intel® PCIe GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA, mSATA, COM, CF, Audio and RoHS
WSB-BT-N28071-R10	Full-size PICMG 1.0 CPU card supports Intel® Celeron™ N2807 on-board SoC with VGA, iDP, Dual Intel® PCIe GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA, mSATA, COM, CF, Audio and RoHS
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
AC-KIT-892HD-R10	7.1 channel HD Audio kit with Realtek ALC892 support dual audio stream
TPM-IN01-R20	20-pin Infineon TPM1.2 module, software management tool, firmware v3.17
TPM-IN02-R20	20-pin Infineon TPM2.0 module, software management tool, firmware v5.5

* ISA Limitation. Please refer to the manual for more information.

WSB-H810

Full-size PICMG 1.0 CPU Card supports LGA 1150 Intel® Core™ i7/i5/i3, Pentium® and Celeron® CPU with Intel® H81, DDR3, VGA, iDP, Dual Intel® GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, mSATA, RS-232, HD Audio and RoHS

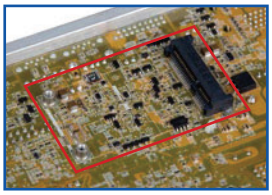




Enhanced stability

Strengthen the mechanism
Prevent PCB bending

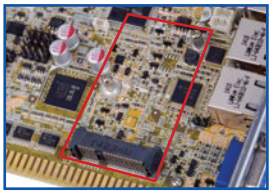
PCIe Mini & mSATA connector



Support PCIe Mini & mSATA



◄ mSATA



Top-side PCIe Mini connector supports PCIe signal for half-size or full-size PCIe device. Solder-side PCIe Mini connector supports SATA 3Gb/s signal for full-size mSATA.



◄ PCIe Mini



Specifications

- ◆ CPU
  4th generation LGA 1150 Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- ◆ Chipset
  Intel® H81
- ◆ Memory
  Twp 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs support up to 16 GB
- ◆ BIOS
  UEFI
- ◆ Graphics Engine
  Intel® HD Graphics Gen 7.5 supports DX11.1 and OpenCL 1.2, OpenGL 3.2
  Full MPEG2, VC1, AVC Decode
- ◆ Display Output
  Dual independent display
  1 x VGA (up to 1920x1200@60 Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60 Hz)
- ◆ Ethernet
  LAN1: Intel® I217-LM Ethernet controller
  LAN2: Intel® I211-AT Ethernet controller
- ◆ Audio
  Supports 7.1-channel HD Audio by IEI AC-KIT-892HD-R10 kit
- ◆ External I/O Interface
  2 x USB 2.0
- ◆ Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x LPT (2x13 pin)
  1 x RS-422/485 (1x4 pin, P=2.0)
  1 x USB 2.0 (180° Type-A)
  2 x SATA 6Gb/s
  2 x USB 3.2 Gen 1 (5Gb/s) (2x10 pin)
  4 x RS-232 (2x5 pin, P=2.54)
  4 x USB 2.0 (2x4 pin, P=2.54)
  1 x SATA 3Gb/s (AHCI supported, no RAID)
- ◆ Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- ◆ LAN LED
  2 x LAN LED (1x2 pin)
- ◆ Digital I/O
  8-bit digital I/O (2x5 pin)
- ◆ TPM
  1 x TPM (2x10 pin)
- ◆ SMBus
  1 x SMBus (1x4 pin)
- ◆ I²C
  1 x I²C (1x4 pin)
- ◆ Infrared Interface
  1 x Infrared Interface (1x5 pin)
- ◆ Expansion
  1 x Full-size PCIe Mini card slot (support mSATA)
  PCI and ISA signal via golden finger
- ◆ Watchdog Timer
  Software programmable supports 1~255 sec. system reset
- ◆ Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x3 pin)
- ◆ Power Supply: 5V/12V, AT/ATX support
- ◆ Power Consumption
  5V@3.4A, 12V@0.36A, Vcore_12V@7.48A, 3.3V@1.42A, 5VSB@0.13A
  (Intel® Core™ i7-4770K 3.90 GHz CPU with 8 GB (two 4 GB) 1333 MHz DDR3 memory)
- ◆ Operating Temperature: -20°C ~ 60°C
- ◆ Storage Temperature: -30°C ~ 70°C
- ◆ Operating Humidity: 5% ~ 95%, non-condensing
- ◆ Dimensions: 338 mm x 122 mm
- ◆ Weight: GW: 1000g / NW: 260g
- ◆ CE/FCC compliant

Features

- Full-size PICMG 1.0 with LGA 1150 Intel® CPU
- Two 1600/1333 MHz DDR3 SDRAM DIMM slots support up to 16 GB of memory
- Dual Intel® Gigabit Ethernet LAN controller
- SATA 6Gb/s and USB 3.2 Gen 1 (5Gb/s) supported
- TPM v1.2 hardware security function supported by TPM module
- Stiffener bars
- IEI jumper-less function

Packing List

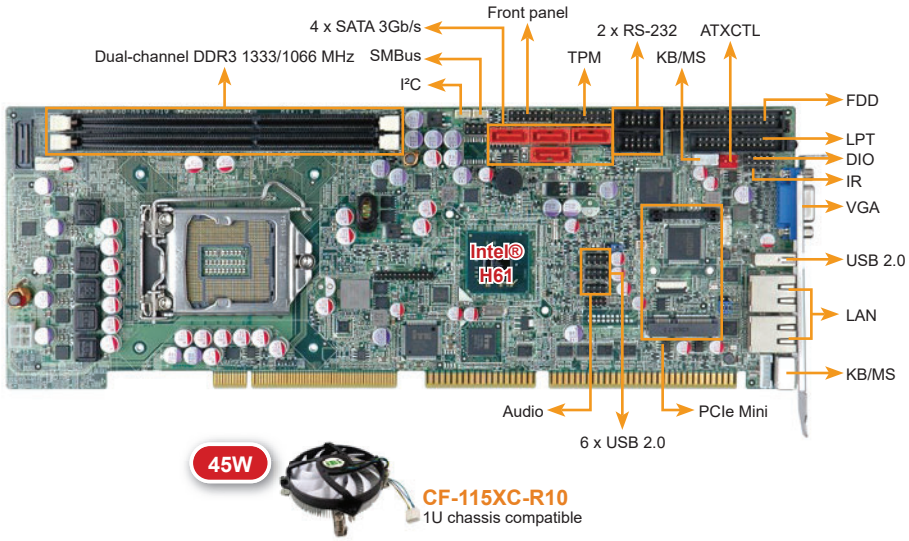
1 x WSB-H810 single board computer	
2 x SATA cable	1 x QIG

Ordering Information

Part No.	Description
WSB-H810-R10	Full-size PICMG 1.0 CPU card supports LGA 1150 Intel® Core™ i7/i5/i3, Pentium® and Celeron® CPU with Intel® H81, DDR3, VGA, iDP, dual Intel® GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, mSATA, RS-232, HD Audio and RoHS
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
19800-003100-100-RS	Dual port USB 2.0 cable with bracket, 300mm, P=2.54
19800-010500-200-RS	USB 3.2 Gen 1 (5Gb/s) cable with bracket, 450mm
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32200-074800-RS	RS-422/485 cable, 200mm, P=2.0
32205-000702-100-RS	RS-232 cable, 230mm, P=2.54
AC-KIT-892HD-R10	7.1-channel HD Audio kit with Realtek ALC892 supports dual audio streams
CF-1150SB-R11	Special cooler kit for LGA 1150, high-performance compatible, 65W
CF-1150SC-R20	Special cooler kit for LGA 1150, 1U chassis compatible, 65W
CF-1150SE-R11	Special cooler kit for LGA 1150, high-performance compatible, 95W
CF-1150SF-R10	Special cooler kit for LGA 1150, 1U chassis compatible, 54W
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

WSB-H610-R11

Full-size PICMG 1.0 CPU card supports 32nm LGA 1155 Intel® Core™ i7/i5/i3, Pentium® or Celeron® CPU with Intel® H61, DDR3, VGA, dual Realtek PCIe GbE, USB 2.0, SATA 3Gb/s, COM, HD Audio and RoHS



CF-115XC-R10
1U chassis compatible

Specifications

- CPU
  LGA 1155 socket supports Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor
- Chipset
  Intel® H61
- Memory
  Two 240-pin 1333/1066 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs support up to 16 GB
- BIOS
  UEFI
- Graphics Engine
  Intel® HD Graphics Gen 6 supports DX10.1 and OpenGL 3.0
  Full MPEG2, VC1, AVC Decode
- Display Output
  1 x VGA (up to 2048x1536@75Hz)
- Ethernet
  LAN1: Realtek RTL8111E PCIe GbE controller with ASF 2.0 support
  LAN2: Realtek RTL8111E PCIe GbE controller
- External I/O Interface
  1 x KB/MS
  1 x USB 2.0
- Internal I/O Interface
  1 x FDD (2x17 pin)
  1 x LPT (2x13 pin)
  2 x RS-232 (2x5pin, P=2.54)
  6 x USB 2.0 (2x4 pin, P=2.54)
  1 x KB/MS (1x6 pin)
  1 x RS-422/485 (1x4 pin, P=2.0)
  4 x SATA 3Gb/s (no AHCI & RAID support)
- Audio
  Supports 7.1-channel HD Audio by IEI AC-KIT-892HD-R10 kit
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- TPM
  1 x TPM (2x10 pin)
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- Expansion
  PCI signal and ISA signal via golden finger
- Watchdog Timer
  Software programmable supports 1~255 sec. system reset
- Digital I/O
  8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x4 pin)
- Power Supply
  5V/12V, AT/ATX support
- Power Consumption
  5V@4.53A, 12V@0.19A, Vcore_12V@7.81A, 5VSB@0.18A
  (3.4GHz Intel® Core™ i7-2600K with two 2 GB 1333 MHz DDR3 memory)
- Operating Temperature
  -10°C ~ 60°C
- Storage Temperature
  -20°C ~ 70°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions
  338 mm x 122 mm
- Weight
  GW: 1000g / NW: 260g
- CE/FCC compliant

Features

- Full-size PICMG 1.0 CPU card with LGA 1155 Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- Two DDR3 & DDR3L 1333/1066 MHz DIMM SDRAM support up to 16 GB
- Embedded controller on board supports infrared and PECI 2.0 technologies
- Dual Realtek PCIe GbE and LAN1 with ASF 2.0 support
- TPM V1.2 hardware security function supported by TPM module

Packing List

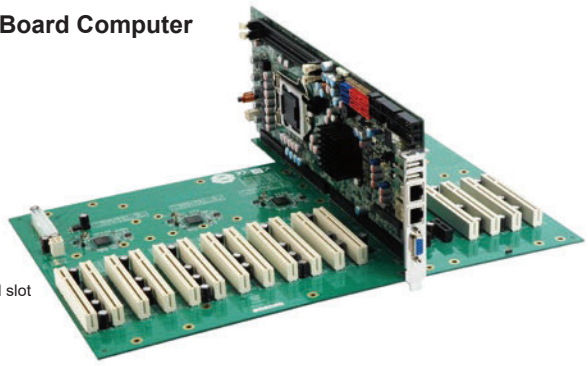
1 x WSB-H610 single board computer
1 x Dual RS-232 cable with bracket
1 x KB/MS Y cable
1 x USB cable
2 x SATA cable
1 x Mini jumper pack
1 x QIG

Ordering Information

Part No.	Description
WSB-H610-R11	Full-size PICMG 1.0 CPU card supports 32nm LGA 1155 Intel® Core™ i7/i5/i3, Pentium® or Celeron® CPU with Intel® H61, DDR3, VGA, dual Realtek PCIe GbE, USB 2.0, SATA 3Gb/s, COM, HD Audio and RoHS
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
32006-000300-100-RS	PS/2 KB/MS Y-cable without bracket, 140mm/120mm
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32200-000017-RS	FDD cable, 520mm, P=2.54
AC-KIT-892HD-R10	7.1-channel HD Audio kit with Realtek ALC892 supports dual audio streams
CF-115XA-R10	High performance LGA 1155/LGA 1156 cooler kit, 1U chassis compatible, 73W
CF-115XC-R10	LGA 1155/LGA 1156 cooler kit, 1U chassis compatible, 45W
CF-115XD-R10	LGA 1155/LGA 1156 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High performance LGA 1155/LGA 1156 cooler kit, 95W
SAIDE-KIT01-R10	SATA to IDE/CF converter board
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

PCI/PX Backplane

Supports PCI and ISA slot on one backplane! For PICMG 1.0 Single Board Computer



The advantages of using the PICMG 1.0 card are numerous:

1. Supports standard PICMG version 1.0 slot on the PCI/PX series passive backplane

2. Compatible with all available PCI/ISA cards. PCI/PX backplane is also integrated with the ROCKY series card slot

Selection Guide

PAC series wall-mount chassis | 4U/5U rack-mount chassis | 1U/2U rack-mount chassis

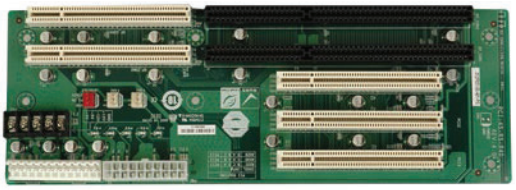
Model	PCI-4S-RS-R40	PCI-5S-RS-R40	PCI-5S2A-RS-R40 PCI-5S2-RS-R40	PCI-6S-RS-R40	PCI-7S-RS-R41	PCI-8S-RS-R40
Total Slot	4	5	5	6	7	8
PCI Slot	3	3	4	4	4	4
ISA Slot	1	2	1	2	3	4
PSU Type	ATX/AT	ATX/AT	ATX/AT	ATX/AT	ATX/AT	ATX/AT
Chassis	N/A	PAC-1000G	RACK-500G	PAC-106G PAC-1000G	PAC-1700G	N/A

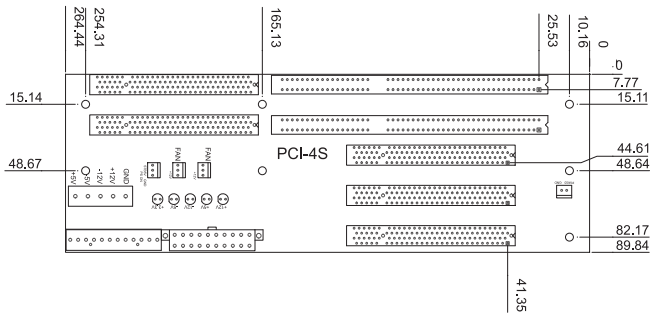
Model	PCI-10S-RS-R41	PCI-10S2-RS-R41	PX-10S-RS-R50	PCI-12S-RS-R40	PCI-13SD-RS-R40	PCI-14S-RS-R40
Total Slot	10	10	10	12	13	14
PCI Slot	4	4	7	4	3+4	4
ISA Slot	5	5	3	7	3+3	9
PSU Type	ATX/AT	ATX/AT	ATX/AT	ATX/AT	ATX/AT	ATX/AT
Chassis	PAC-125G	N/A	PAC-125G	RACK-3000G	RACK-305G RACK-360G RACK-3000G	N/A
Note					For Dual System	

Model	PCI-14S2-RS-R40	PCI-14S3-RS-R40	PX-14S3-RS-R50	PX-14S5-RS-R50
Total Slot	14	14	14	14
PCI Slot	4	4	12	7
ISA Slot	8	9	2	6
PSU Type	ATX/AT	ATX/AT	ATX/AT	ATX/AT
Chassis	RACK-305G RACK-360G RACK-3000G	RACK-305G RACK-360G RACK-3000G	RACK-305G RACK-360G RACK-3000G	RACK-305G RACK-360G RACK-3000G

Model	PCI-2SD2-RS-R41	PCI-5SD6-RS-R40	PCI-5SDA-RS-R40	PCI-6SD-RS-R40
Total Slot	2	6	6	6
PCI Slot	R2	L2+R2	L2+R2	L1+R1
ISA Slot				L1+R1
PSU Type	ATX/AT	ATX	ATX/AT	ATX
Chassis	RACK-1150G	RACK-220G	RACK-220G	RACK-220G

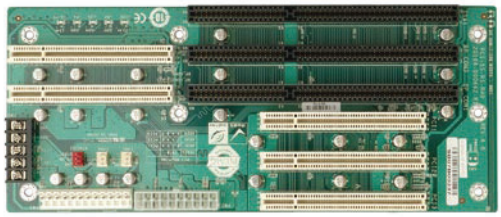
PCI-4S-RS-R40

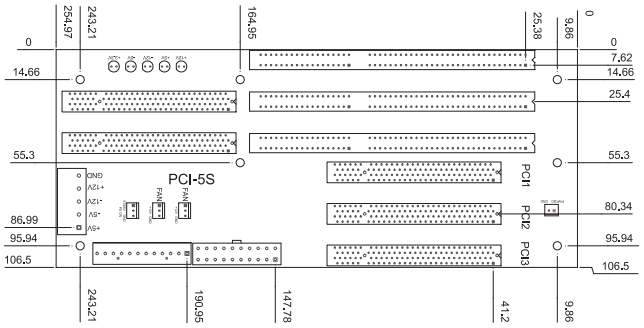




Ordering Information	
PCI-4S-RS-R40	4-slot backplane with three PCI slots and one ISA slot

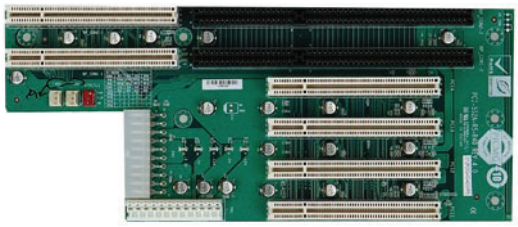
PCI-5S-RS-R40

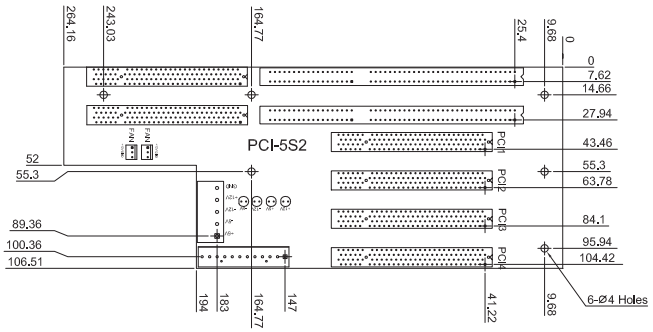




Ordering Information	
PCI-5S-RS-R40	5-slot backplane with three PCI slots and two ISA slots
PAC-1000G	6-slot full-size compact chassis

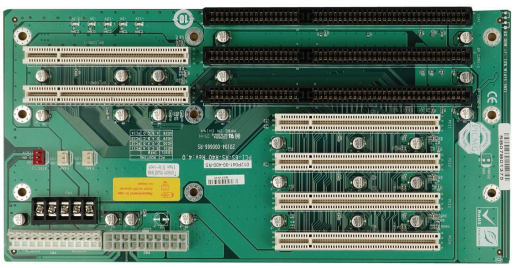
PCI-5S2-RS-R40/PCI-5S2A-RS-R40

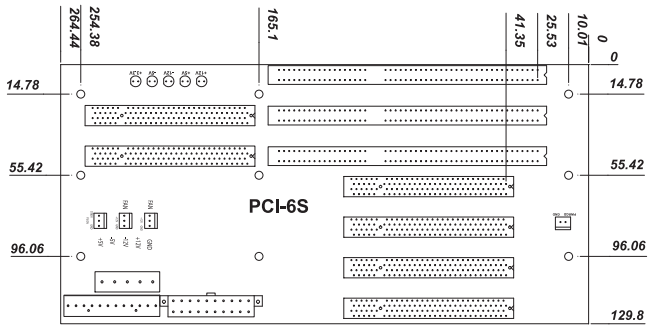




Ordering Information	
PCI-5S2-RS-R40	5-slot AT power backplane with four PCI slots and one ISA slot
PCI-5S2A-RS-R40	5-slot ATX power backplane with four PCI slots and one ISA slot
RACK-500G	5-slot full-size compact chassis

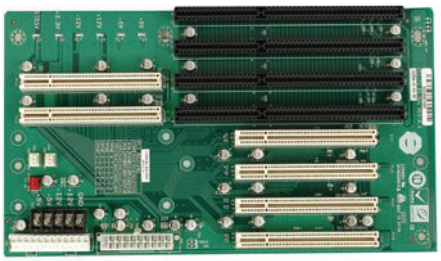
PCI-6S-RS-R40

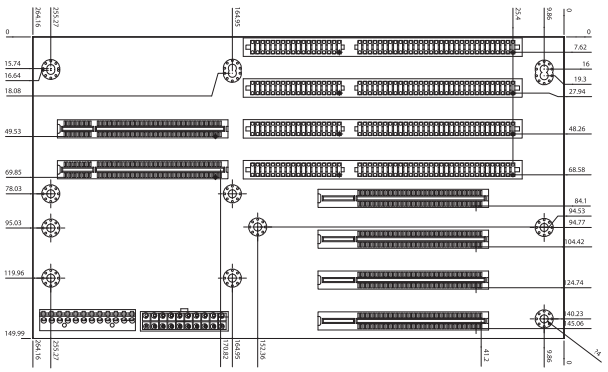




Ordering Information	
PCI-6S-RS-R40	6-slot backplane with four PCI slots and two ISA slots
PAC-106G	6-slot full-size compact chassis
PAC-1000G	6-slot full-size compact chassis

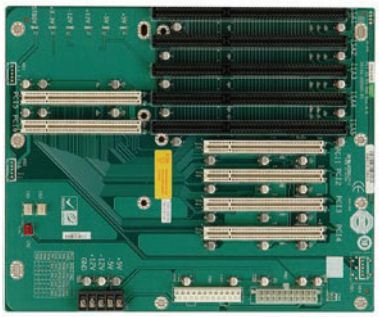
PCI-7S-RS-R41

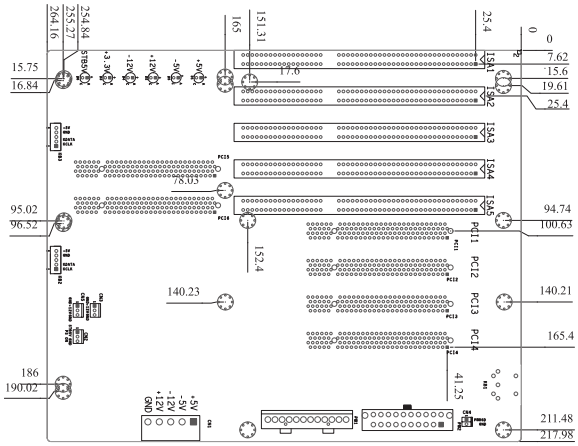




Ordering Information	
PCI-7S-RS-R41	7-slot backplane with four PCI slots and three ISA slots
PAC-1700G	7-slot full-size compact chassis

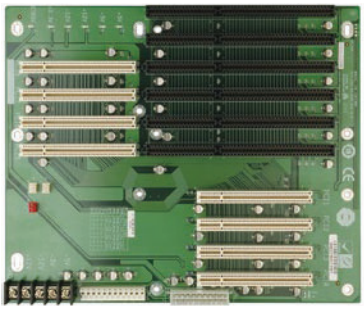
PCI-8S-RS-R40

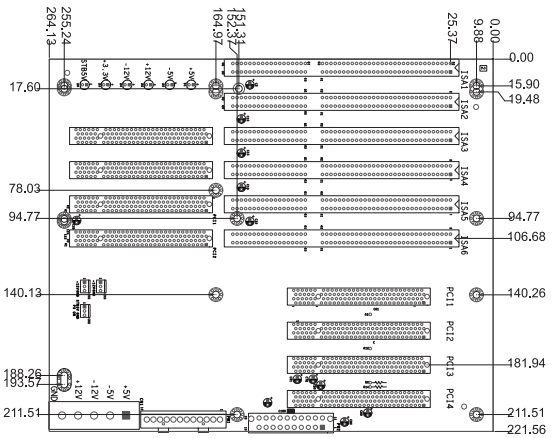




Ordering Information	
PCI-8S-RS-R40	8-slot backplane with four PCI slots and four ISA slots

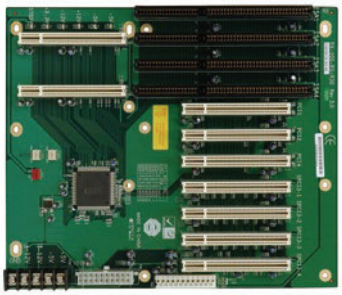
PCI-10S-RS-R41

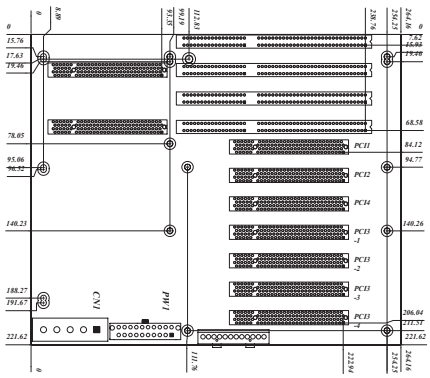




Ordering Information	
PCI-10S-RS-R41	10-slot backplane with four PCI slots and five ISA slots
PAC-125G	10-slot full-size compact chassis

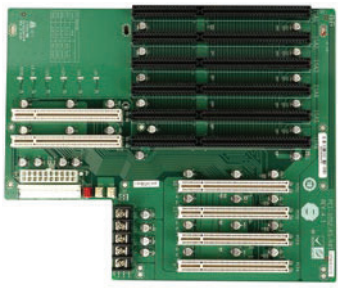
PX-10S-RS-R50

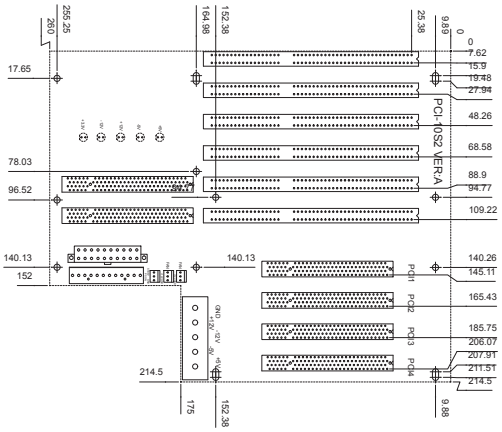




Ordering Information	
PX-10S-RS-R50	10-slot backplane with seven PCI slots and three ISA slots
PAC-125G	10-slot full-size compact chassis

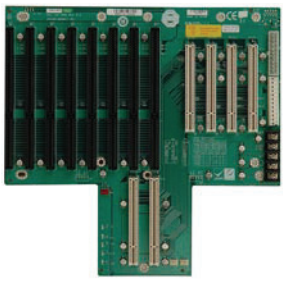
PCI-10S2-RS-R41

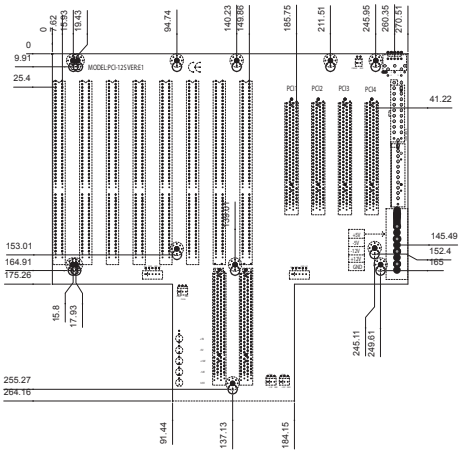




Ordering Information	
PCI-10S2-RS-R41	10-slot backplane with four PCI slots and five ISA slots

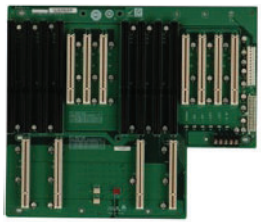
PCI-12S-RS-R40

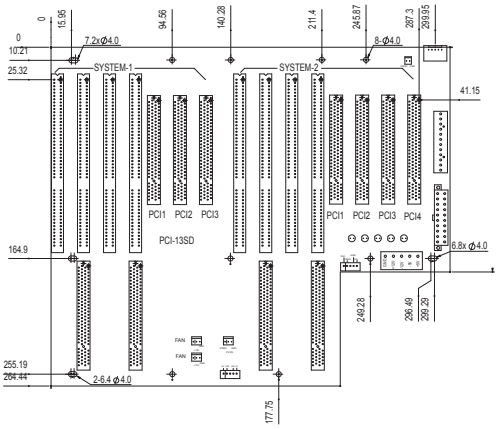




Ordering Information	
PCI-12S-RS-R40	12-slot backplane with four PCI slots and seven ISA slots
RACK-3000G	4U 14-slot full-size rack-mount chassis

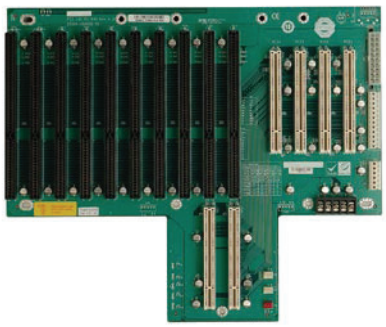
PCI-13SD-RS-R40 Dual System

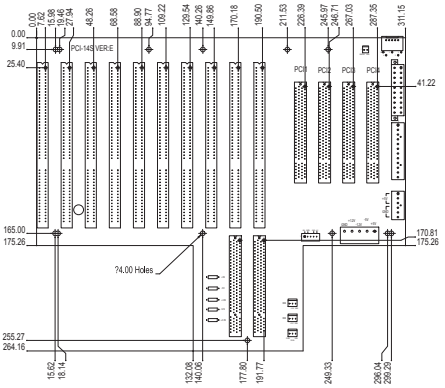




Ordering Information	
PCI-13SD-RS-R40	13-slot dual-system backplane with system 1 having three PCI slots and three ISA slots and system 2 having four PCI slots and three ISA slots
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis
RACK-3000G	4U 14-slot full-size rack-mount chassis

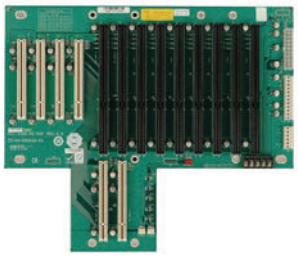
PCI-14S-RS-R40

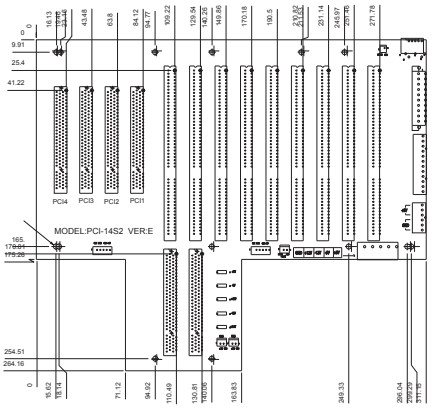




Ordering Information	
PCI-14S-RS-R40	14-slot backplane with four PCI slots and nine ISA slots

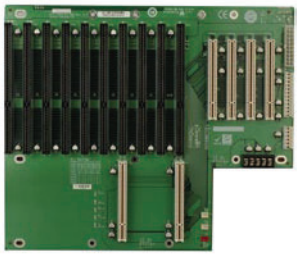
PCI-14S2-RS-R40

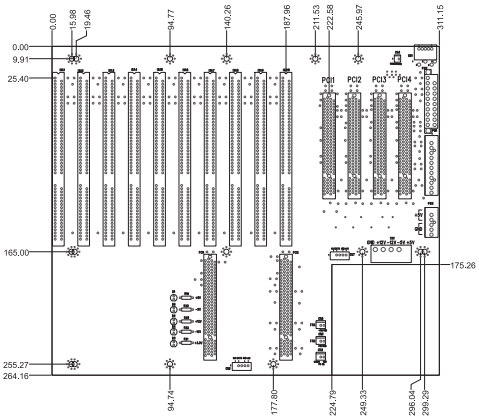




Ordering Information	
PCI-14S2-RS-R40	14-slot backplane with four PCI slots and eight ISA slots
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis
RACK-3000G	4U 14-slot full-size rack-mount chassis

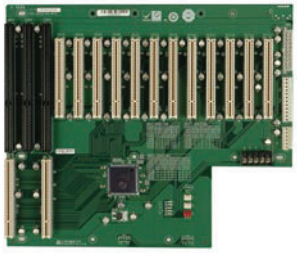
PCI-14S3-RS-R40

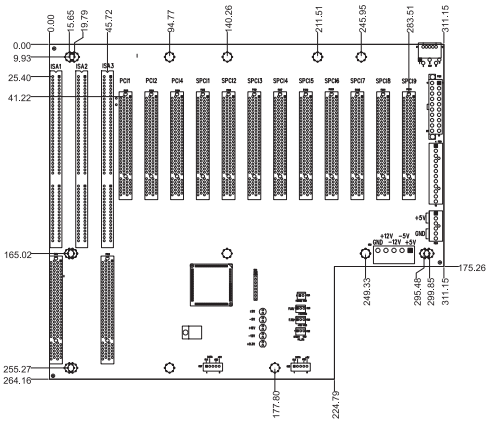




Ordering Information	
PCI-14S3-RS-R40	14-slot backplane with four PCI slots and nine ISA slots
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis
RACK-3000G	4U 14-slot full-size rack-mount chassis

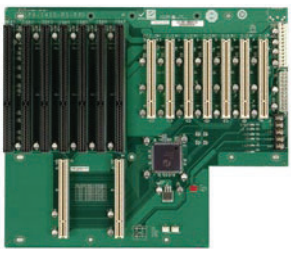
PX-14S3-RS-R50

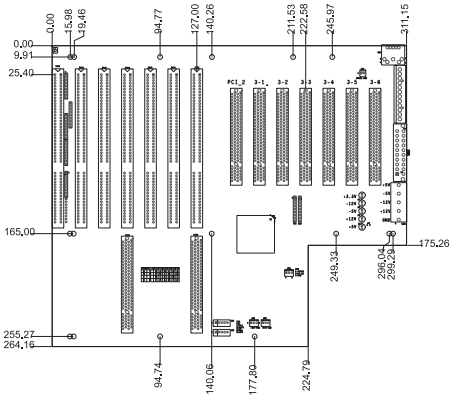




Ordering Information	
PX-14S3-RS-R50	14-slot backplane with twelve PCI slots and two ISA slots
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis
RACK-3000G	4U 14-slot full-size rack-mount chassis

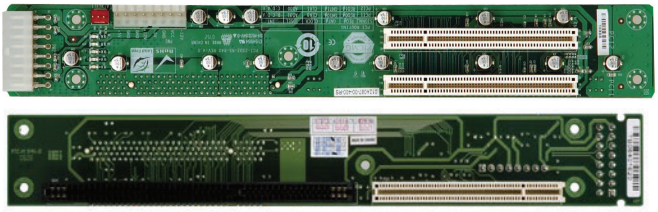
PX-14S5-RS-R50

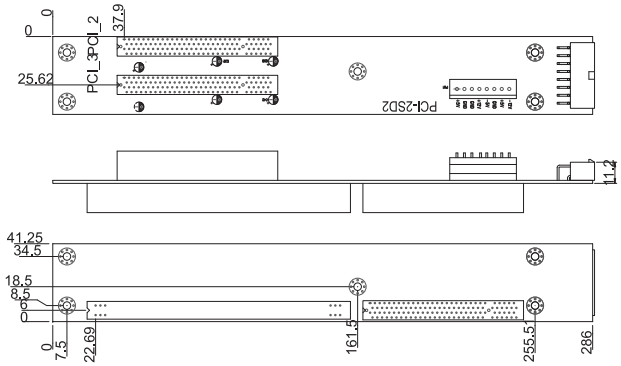




Ordering Information	
PX-14S5-RS-R50	14-slot backplane with seven PCI slots and six ISA slots
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis
RACK-3000G	4U 14-slot full-size rack-mount chassis

PCI-2SD2-RS-R41

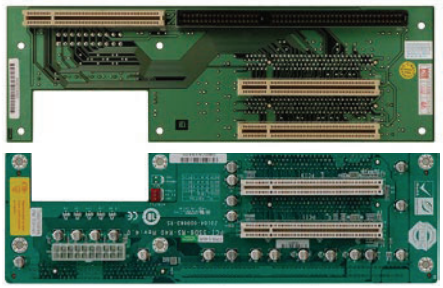


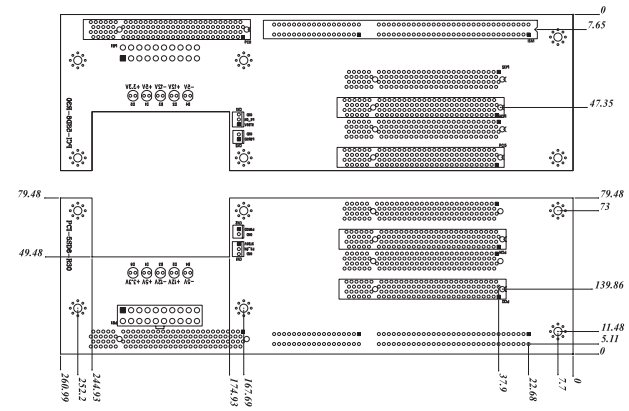


Ordering Information	
PCI-2SD2-RS-R41	1U chassis backplane with two PCI slots
RACK-1150G	1U full-size rack-mount chassis

* The adapter cable 32100-040600-RS is required when connecting PCI-2SD2-RS to a standard ATX supply.

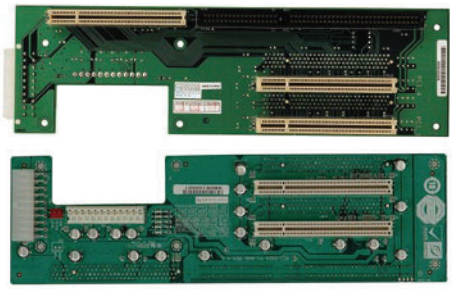
PCI-5SD6-RS-R40 2U Type

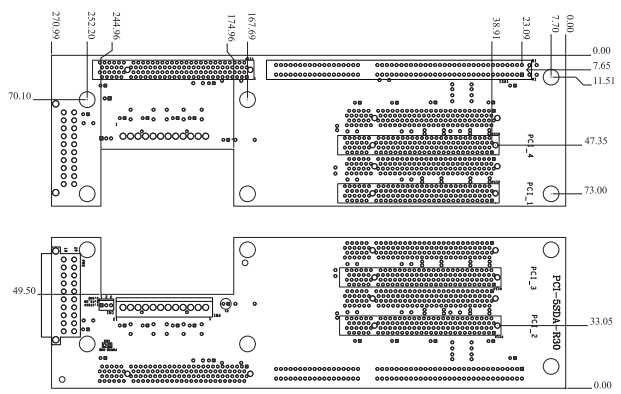




Ordering Information	
PCI-5SD6-RS-R40	2U chassis backplane with four PCI slots
RACK-220G	2U 6-slot full-size rack-mount chassis

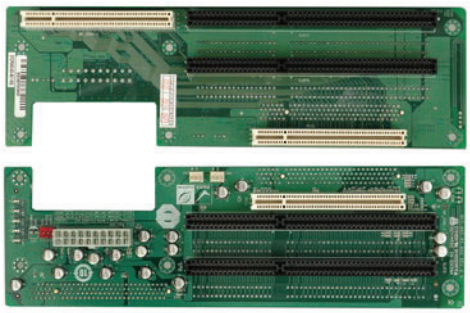
PCI-5SDA-RS-R40 2U Type

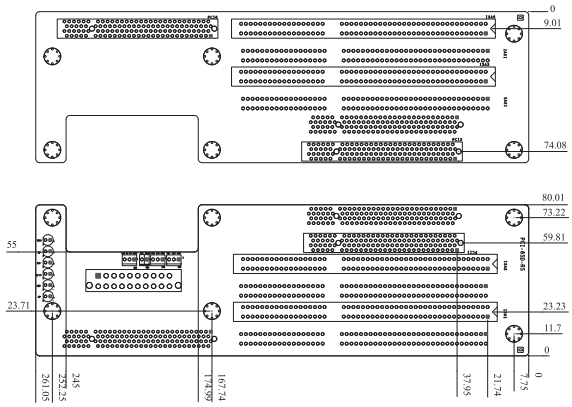




Ordering Information	
PCI-5SDA-RS-R40	2U chassis backplane with four PCI slots
RACK-220G	2U 6-slot full-size rack-mount chassis

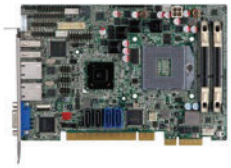
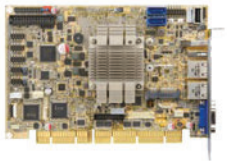
PCI-6SD-RS-R40 2U Type





Ordering Information	
PCI-6SD-RS-R40	2U chassis backplane with two PCI slots and two ISA slots
RACK-220G	2U 6-slot full-size rack-mount chassis

Half-size PICOe, ISA Selection Guide

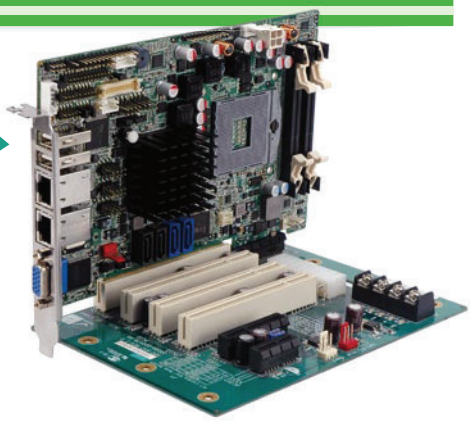




Model Name	PICOe-HM650	PCISA-BT	IOWA-LX
CPU Socket	Socket G2	On board	On board
CPU Type	Socket 988B Intel® Mobile Core™ i7/i5/i3 or Celeron® CPU	Intel® Atom™ E3845 on-board SoC (1.91GHz, quad-core, 2MB cache, TDP=10W) Intel® Atom™ E3825 on-board SoC (1.33GHz, dual-core, 1MB cache, TDP=6W)	AMD Geode™ LX600
Chipset	Intel® HM65	N/A	AMD Geode™ CS5536
Memory	Two 204-pin 1333/1066 MHz dual-channel DDR3 SO-DIMMs supported (system max. 16 GB)	One 204-pin 1066/1333 MHz single-channel DDR3L SDRAM unbuffered DIMM (system max. 8 GB)	On-board 128MB 200/266 MHz DDR SDRAM One 200-pin 200/266 MHz DDR SO-DIMM (system max. 512MB)
Display Interface	Dual display supported 1 x VGA 1 x 18/24-bit dual-channel LVDS	Dual display supported 1 x VGA 1 x iDP interface	1 x VGA
Ethernet	LAN1: Realtek RTL8111E GbE controller with ASF 2.0 support LAN2: Realtek RTL8111E GbE controller	LAN1: Intel® I211-AT PCIe controller LAN2: Intel® I211-AT PCIe controller	10/100Mbps Realtek RTL8100C Ethernet controller
I/O Interface	1 x 6-pin wafer for KB & MS 1 x LPT 1 x RS-422/485 2 x RS-232 8 x USB 2.0	1 x 6-pin wafer for KB/MS 1 x LPT 1 x RS-422/485 2 x RS-232 2 x USB 3.2 Gen 1 8 x USB 2.0	1 x Infrared interface 1 x LPT 1 x PS/2 KB/MS 1 x RS-422/485 2 x RS-232 4 x USB 2.0 (by pin header)
Storage Interface	2 x SATA 3Gb/s 2 x SATA 6Gb/s	1 x mSATA (colay SATA2, supports SATA 3Gb/s signal only) 2 x SATA 3Gb/s	1 x CF Type II 1 x FDD 1 x IDE 2 x SATA (RAID 0, 1)
Audio	IEI AC-KIT-892HD-R10 7.1-channel HD Audio kit via the on-board 10-pin header connector		Realtek ALC203 with AC'97 codec
Digital I/O	8-bit digital I/O		
Power Consumption	5V@3.99A, 12V@0.43A, Vcore_12V@3.80A, 5VSB@0.06A (2.70GHz Intel® Core™ i7-2620M with two 2 GB 1333 MHz DDR3 memory)	5V@1.55A,12V@0.74A (Intel® Atom™ E3845 1.91GHz CPU, one 8 GB 1600 MHz memory)	5V@1.51A, 5VSb@0.09A (On-board AMD Geode™ LX600 CPU 366 MHz with on-board 128MB 200 MHz DDR memory and 512MB 333 MHz DDR memory)
Watchdog Timer	Software programmable supports 1~255 sec. system reset		
Operation Environment	Temperature Range: -10ºC ~ 60ºC Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: -20ºC ~ 60ºC (-4ºF ~ 140ºF) Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: 0ºC ~ 60ºC (32ºF ~ 140ºF) Relative Humidity: 5% ~ 95%, non-condensing
Expansion Slot	NA	1 x PCIe Mini slot	NA
CPU Cooler	CF-989A-RS-R12	NA	Heatsink (fanless)

PICOe CPU Card - The Future of Half-sized CPU Cards

ISA→PCISA→PCI→PICOe

1990~	1996~	2019~
ISA	PCISA ISA + PCI	PICOe PCI + PCIe x4



PICOe-HM650

IEI Patent No CN.: 200986704Y
From SIPO (State Intellectual Property Office of The P.R.C)

The advantages of PICOe

PICOe = PCI + PCIe x4

- PCIe has excellent I/O bandwidth and performance
- Backwards compatible with half-sized CPU cards
- Backplane design for half-size PCIe CPU cards is easy

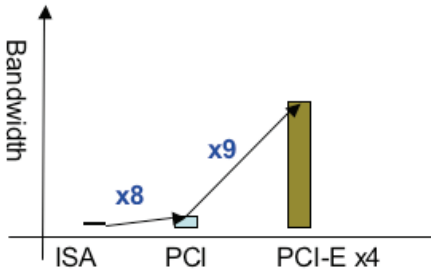
The benefits of PICOe

- Same dimensions, backwards compatible but half the size of PCI SBC
- Higher performance as PCI only solution for the same price
- More configuration options for the same price

The advantages of PICOe

• Increasing I/O bandwidth with leading technology

Specifications	ISA	PCI 33	PCIe x4
Support	(16 MB/s)	(132 MB/s)	(1250 MB/s)



900% bandwidth from ISA to PCIe speed

• Backwards compatible with half-size PCI backplane and chassis

1. Dimensions: 185 mm x 122 mm
   = All half-size CPU cards

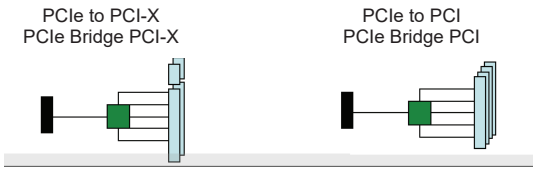
Share the same chassis & I/O design

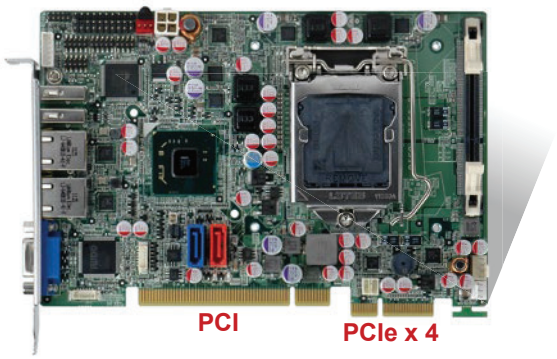
2. PCI pin definition same as PICMG 1.0 PCI
   = All half-size PCI CPU cards

Share all half-size PCI backplanes

• Quick design backplane

1. Four PCI slots and one PCIe x4 or four PCIe x1 lanes
   More configuration options on the backplane with a PCI and PCIe slot
2. PCIe switches and bridges such as PLX or TI solutions

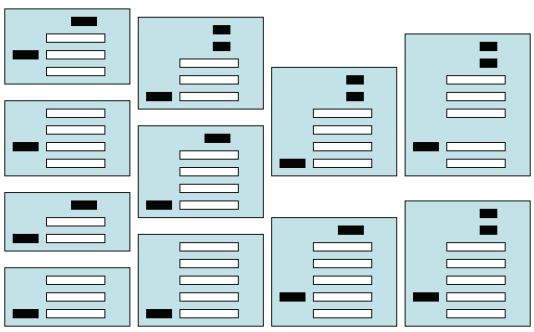




PICOe-B650

IEI PICOe backplane solutions

Complete PICOe backplane solutions fully support all kinds of chassis and power modes. PICOe is the easiest way to upgrade current systems from slow ISA+PCI architecture to the latest high performance PCIe+PCI solution.

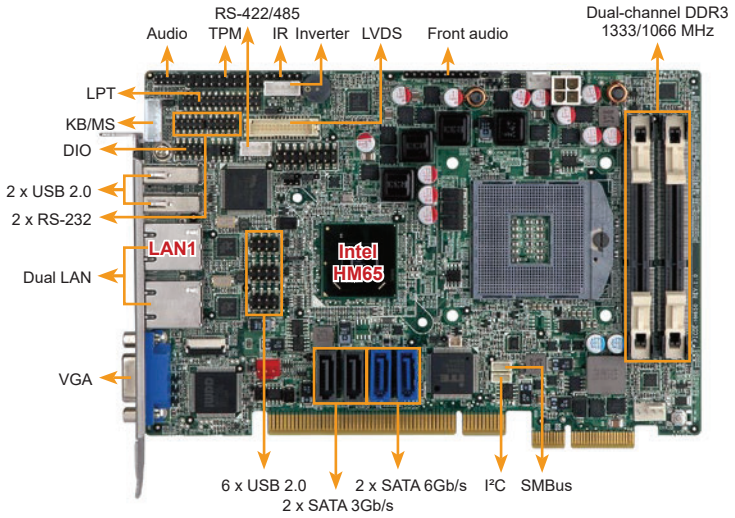


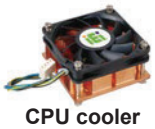
CPU card (located on the right side of the first slot)

Model Name	PCI	PCIe x4	PCIe x1	PSU Type	Note
HPE-3S1	2			ATX/AT	CPU on R1st
HPE-3S2	1	1		ATX/AT	CPU on R1st
HPE-4S1	3			ATX/AT	CPU on R2nd
HPE-4S2	2	1		ATX/AT	CPU on R2nd
HPE-5S1	4			ATX/AT	CPU on R2nd
HPE-5S2	3	1		ATX/AT	CPU on R2nd
HPE-5S3	2	0	2	ATX/AT	CPU on R2nd
HPE-6S1	4	1		ATX/AT	CPU on R1st
HPE-7S1	4	0	2	ATX/AT	CPU on R2nd
HPE-8S0	4	0	2	ATX/AT	Reserved 1 Slot

PICOe-HM650

Half-size PCIe CPU Card supports Socket 988B Intel® Mobile Core™ i7/ i5/i3 or Celeron® CPU with Intel® HM65, DDR3, VGA, LVDS, Dual PCIe GbE, SATA 6Gb/s, HD Audio and RoHS





CPU cooler
P/N: CF-989A-RS-R12



TPM 2.0 Support

Specifications

- CPU
  Socket 988B Intel® Mobile Core™ i7/i5/i3 Chipset: Intel® HM65
- Memory
  Two 204-pin 1333/1066 MHz dual-channel DDR3 SDRAM unbuffered DIMMs support up to 16 GB
- BIOS
  UEFI
- Graphics Engine
  Intel® HD Graphics Gen 6 supports DX10.1 and OpenGL 3.0 Full MPEG2, VC1, AVC Decode
- Display Output
  Dual display supported
  1 x VGA (up to 2048x1536@75Hz)
  1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
- Ethernet
  LAN1: Realtek RTL8111E GbE controller with ASF 2.0 support
  LAN2: Realtek RTL8111E GbE controller
- External I/O Interface
  2 x USB 2.0
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  2 x SATA 3Gb/s
  2 x RS-232 (2x5pin, P=2.0)
  1 x RS-422/485
  2 x SATA 6Gb/s
  6 x USB 2.0 (2x4 pin, P=2.54)
- Audio
  Supports 7.1-channel HD Audio by IEI AC-KIT-892HD-R10 kit
- Front Panel
  1 x Front panel connector (1x10 pin, power LED, HDD LED, speaker, power button, reset button)
- TPM
  1 x TPM (2x10 pin)
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- Expansion
  PCIe signal and PCI signal via golden finger
- Watchdog Timer
  Software programmable supports 1~255 sec. system reset
- Digital I/O
  8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x4 pin)
- Power Supply
  5V/12V, AT/ATX support
- Power Consumption
  5V@3.99A, 12V@0.43A, Vcore_12V@3.80A, 5VSB@0.06A (2.70GHz Intel® Core™ i7-2620M with two 2 GB 1333 MHz DDR3 memory)
- Operating Temperature
  -10°C ~ 60°C
- Storage Temperature
  -20°C ~ 70°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions
  185 mm x 122 mm
- Weight
  GW: 1000g / NW: 260g
- CE/FCC compliant

Features

- Half-size PCIe CPU card supports Socket G2 32nm Intel® Core™ i7/i5/i3 or Celeron® processor
- Up to 16 GB 1333/1066 MHz dual-channel DDR3 SDRAM
- Supports 18/24-bit dual-channel LVDS and analog CRT output
- High-speed I/O interface provided through the 2nd gen PCIe add-on card and SATA 6Gb/s connectors
- Rich media acceleration for hardware encoding and decoding
- TPM V1.2 hardware security provided by the TPM module

Packing List

1 x PICOe-HM650 single board computer
1 x Dual RS-232 cable
1 x USB cable
2 x SATA cable
1 x Mini jumper pack
1 x QIG

Ordering Information

Part No.	Description
PICOe-HM650-R10	Half-size PCIe CPU card supports Socket 988B Intel® Mobile Core™ i7/i5/i3 or Celeron® CPU with Intel® HM65, DDR3, VGA, LVDS, dual PCIe GbE, SATA 6Gb/s, HD Audio and RoHS
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32200-015100-RS	LPT flat cable, 240mm, P=2.54
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
AC-KIT-892HD-R10	7.1-channel HD Audio kit with Realtek ALC892 supports dual audio streams
CF-989A-RS-R12	CPU cooler for mobile socket 989 and 55W CPU
CF-989B-RS-R11	CPU cooler for mobile socket 989 and 50W CPU
SAIDE-KIT01-R10	SATA to IDE/CF converter board
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

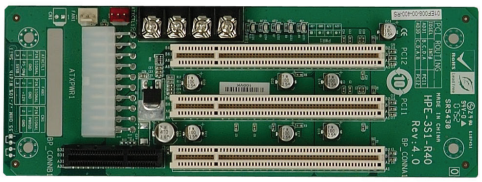
PCI/PICOe Backplane

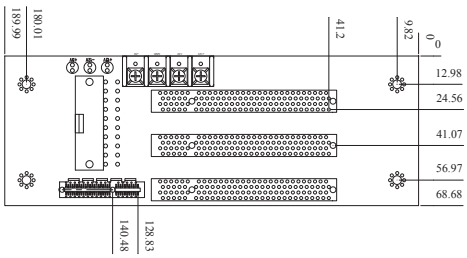
Selection Guide

PAC series wall-mount chassis 4U rack-mount chassis

	PCIe/PCI	PCIe/PCI	HPE-3S1	HPE-3S2	HPE-4S1	HPE-4S2	HPE-5S1	HPE-5S2	HPE-6S1	HPE-8S
Total Slot			3	3	4	4	5	5	6	7
Expansion Slots	PCI		2	1	3	2	4	3	4	4
	PCIe	x4		1		1		1	1	
		x1								2
Chassis			N/A	N/A	PAC-42GH PAC-400G	PAC-42GH PAC-400G	PR-1500G RACK-500G	PR-1500G RACK-500G	N/A	N/A

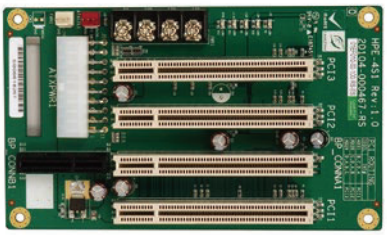
HPE-3S1-R41

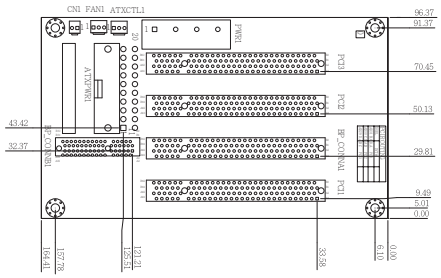




Ordering Information	
HPE-3S1-R41	3-slot backplane with two PCI slots

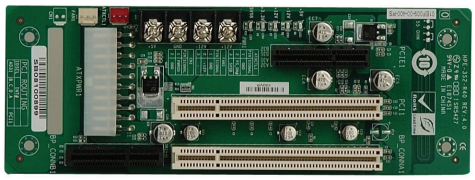
HPE-4S1-R41

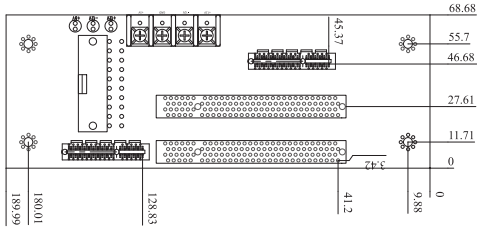




Ordering Information	
HPE-4S1-R41	4-slot backplane with three PCI slots
PAC-42GH	4-slot half-size compact chassis
PAC-400G	4-slot half-size compact chassis

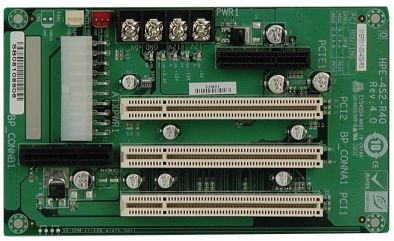
HPE-3S2-R41

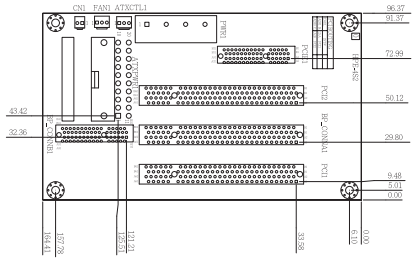




Ordering Information	
HPE-3S2-R41	3-slot backplane with one PCI slot and one PCIe x4 slot

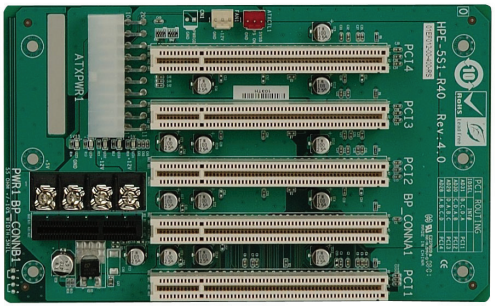
HPE-4S2-R41

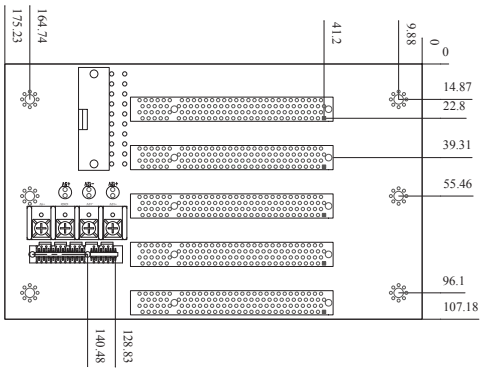




Ordering Information	
HPE-4S2-R41	4-slot backplane with two PCI slots and one PCIe x4 slot
PAC-42GH	4-slot half-size compact chassis
PAC-400G	4-slot half-size compact chassis

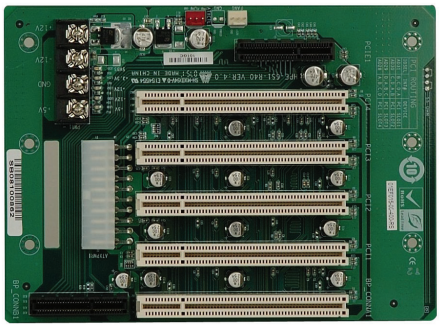
HPE-5S1-R51

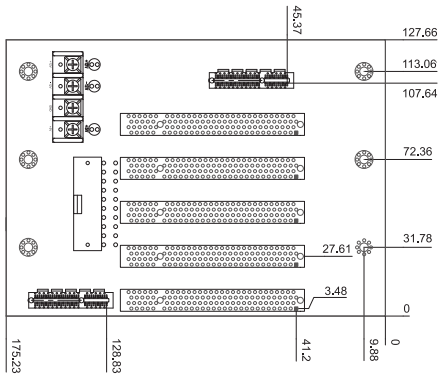




Ordering Information	
HPE-5S1-R51	5-slot backplane with four PCI slots
PR-1500G	5-slot half-size compact chassis
RACK-500G	5U 5-slot full-size rack-mount chassis

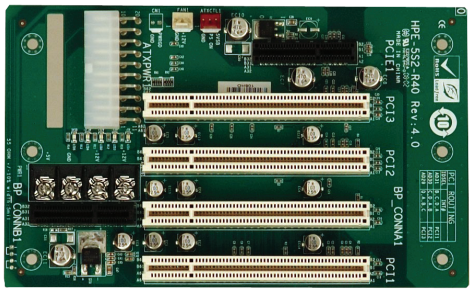
HPE-6S1-R41

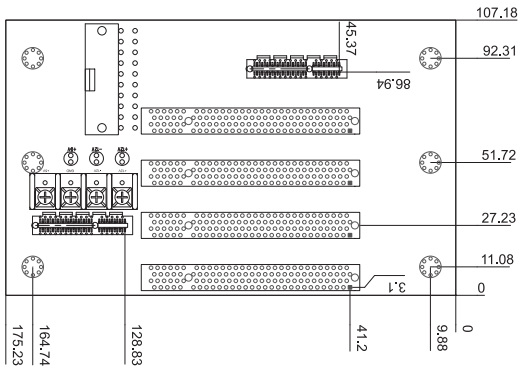




Ordering Information	
HPE-6S1-R41	6-slot backplane with four PCI slots and one PCIe x4 slot

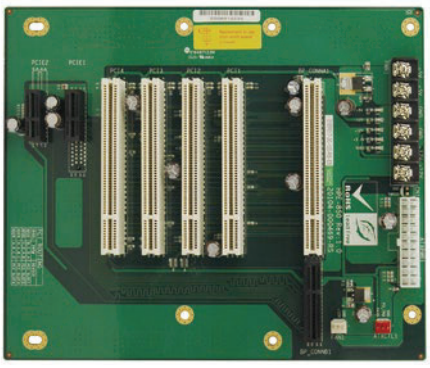
HPE-5S2-R40

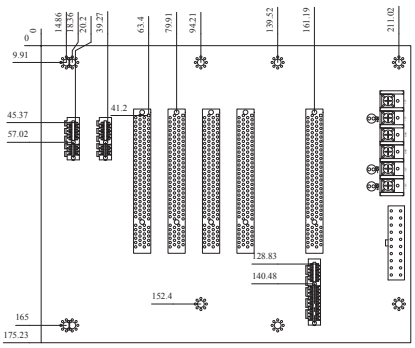




Ordering Information	
HPE-5S2-R40	5-slot backplane with three PCI slots and one PCIe x4 slot
PR-1500G	5-slot half-size compact chassis
RACK-500G	5U 5-slot full-size rack-mount chassis

HPE-8S0-R41

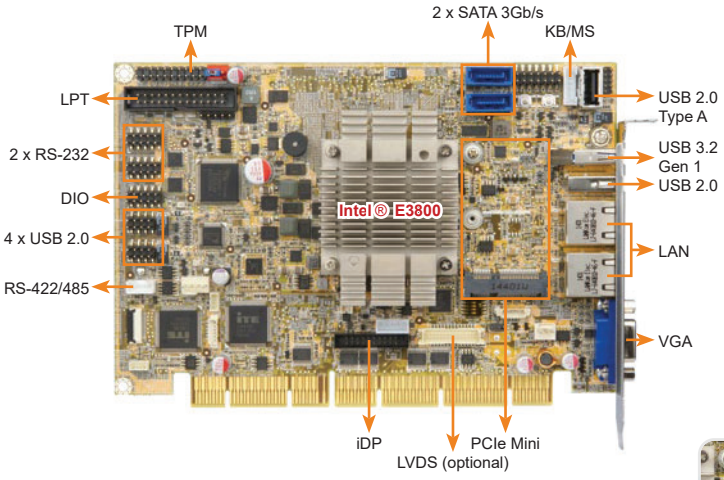


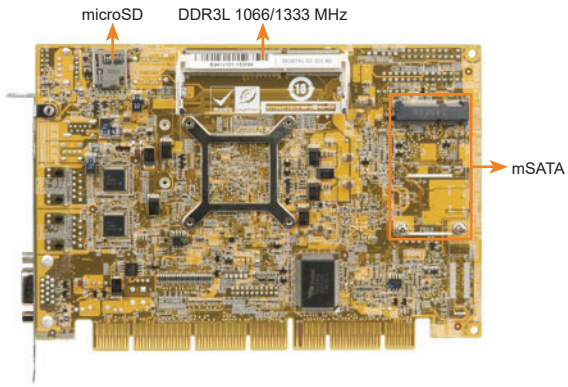


Ordering Information	
HPE-8S0-R41	7-slot backplane with four PCI slots and two PCIe x1 slots

PCISA-BT

Half-size PCISA CPU Card supports 22nm Intel® Atom™ On-board SoC with VGA, iDP, Dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA, mSATA, COM, Audio and RoHS



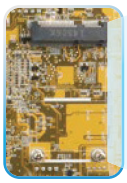




PCIe Mini slot

PCIe Mini slot for full-size or half-size devices





mSATA

mSATA slot for full-size mSATA





Specifications

- SoC
  Intel® Atom™ E3845 on-board SoC (1.91GHz, quad-core, 2MB cache, TDP=10W)
  Intel® Atom™ E3827 on-board SoC (1.75GHz, dual-core, 1MB cache, TDP=8W)
  Intel® Atom™ E3826 on-board SoC (1.46GHz, dual-core, 1MB cache, TDP=7W)
  Intel® Atom™ E3825 on-board SoC (1.33GHz, dual-core, 1MB cache, TDP=6W)
  Intel® Atom™ E3815 on-board SoC (1.46GHz, single-core, 512KB cache, TDP=5W)
- Memory
  One 204-pin 1333/1066 MHz single-channel DDR3L SDRAM unbuffered SO-DIMM slot supports up to 8GB
- Graphics Engine
  Intel® HD Graphics Gen 7 Engines with 4 execution units, supporting DX11.1, OpenGL 4.2 and OpenCL1.2
- Display Output
  Dual independent display
  1 x VGA (up to 2560x1600@60Hz)
  1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz) (optional, MOQ: 100 pcs/lot)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 2560x1600@60Hz)
- Ethernet
  LAN1: Intel® I211-AT PCIe controller
  LAN2: Intel® I211-AT PCIe controller
- External I/O Interface
  1 x USB 2.0
  1 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x LPT (2x13 pin)
  1 x mSATA
  1 x RS-422/485 (1x4 pin, P=2.0)
  1 x USB 2.0 (180° Type-A)
  2 x RS-232 (2x5 pin, P=2.54)
  2 x SATA 3Gb/s
  4 x USB 2.0 (2x4 pin, P=2.54)
- Audio
  Supports 7.1-channel HD Audio by IEI AC-KIT-892HD kit
  1 x Front Audio (2x5 pin)
- TPM
  1 x TPM (2x10 pin)
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- Infrared Interface
  1 x Infrared interface (1x5 pin)
- Expansion
  1 x microSD socket
  1 x PCIe Mini slot
  PCI and ISA signal via golden finger
- Watchdog Timer
  Software programmable supports 1~255 sec. system reset
- Digital I/O
  8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x3 pin)
- Power Supply
  5V/12V, AT/ATX support
- Power Consumption
  5V@1.55A,12V@0.74A (Intel® Atom™ E3845 1.91GHz CPU with one 8 GB 1333 MHz memory)
- Operating Temperature
  -20°C ~ 60°C
- Storage Temperature
  -30°C ~ 70°C
- Dimensions
  185 mm x 128 mm
- Weight
  GW: 1000g / NW: 250g
- CE/FCC compliant

Features

- Half-size PCISA CPU card supports 22nm Intel® Atom™ or Celeron® on-board SoC
- Supports dual LAN by Intel® I211-AT PCIe controllers
- Supports 1.35 V 1333/1066 MHz DDR3L SDRAM up to 8 GB
- Supports dual independent display with one analog CRT, iDP and one 24-bit dual-channel LVDS (optional)
- COM, USB 3.2 Gen 1 (5Gb/s), SATA 3Gb/s, PCIe Mini, mSATA and HD Audio support

Packing List

1 x PCISA-BT single board computer	
1 x SATA cable	1 x QIG

Ordering Information

Part No.	Description
PCISA-BT-E38451-R11	Half-size PCISA CPU card supports Intel® Atom™ E3845 (10W) on-board SoC with VGA, iDP, dual Intel® PCIe GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA, mSATA, COM, Audio and RoHS
PCISA-BT-E38251-R11	Half-size PCISA CPU card supports Intel® Atom™ E3825 (6W) on-board SoC with VGA, iDP, dual Intel® PCIe GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA, mSATA, COM, Audio and RoHS
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
19800-020100-100-RS	RS-232 cable with bracket, Dual 10-pin to dual DB-9, 230mm, P=2.54
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
AC-KIT-892HD-R10	Realtek ALC892 7.1-channel HD Audio peripheral board
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

Note: Models with other CPUs not listed in the table are requested by MOQ - 100 pcs/lot.

IP/IPX Series Backplane

Supports PCI and ISA slot on one backplane!
For half-size PCISA series single board computers

The advantages of using the PCISA card are numerous:

1. Supports standard PISA version 1.0 slot on the IP/IPX series passive backplane.
2. Compatible with all available PCI/ISA cards. IP/IPX backplane is also integrated with the PCISA series card slot.

Selection Guide

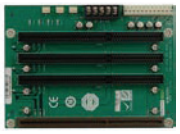
PAC series wall-mount chassis 4U rack-mount chassis

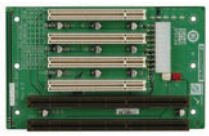
RoHS Ready





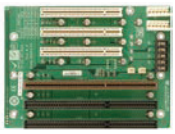




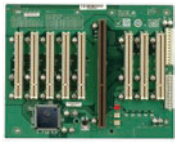


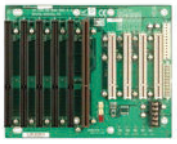
Model	IP-3S-RS	IP-4S-RS	IP-4S2A-RS	IP-4S4-RS	IP-5SA2-RS
Total Slot	3	4	4	4	5
PCI Slot	2	3	3		4
ISA Slot				3	
PSU Type	AT	AT	ATX	AT	ATX
Chassis	PAC-53GH	PAC-400G PAC-42GH	PAC-400G	PAC-400G PAC-42GH	PR-1500G

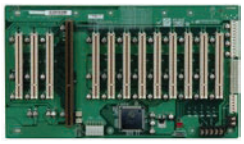
RoHS Ready





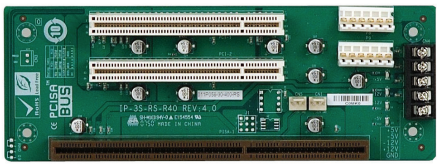


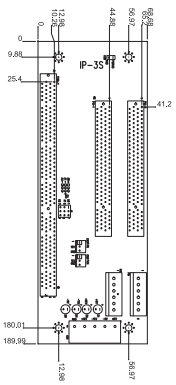




Model	IP-6S-RS	IP-6SA-RS	IPX-9S-RS	IP-10S-RS	IPX-13S-RS
Total Slot	6	6	9	10	13
PCI Slot	3	3	8	4	12
ISA Slot	2	2		5	
PSU Type	AT	ATX	ATX/AT	ATX/AT	ATX/AT
Chassis	PAC-1000G	PAC-106G PAC-1000G	PAC-125G	PAC-125G	RACK-305G RACK-360G RACK-3000G

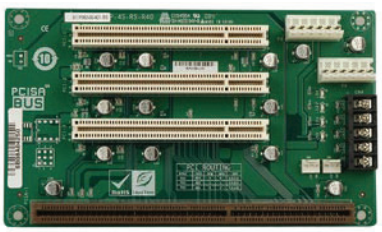
IP-3S-RS-R40

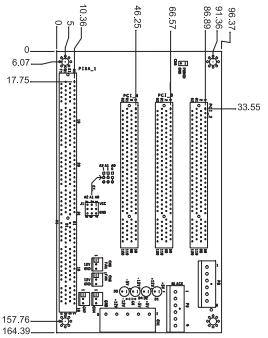




Ordering Information	
IP-3S-RS-R40	3-slot backplane with two PCI slots
PAC-53GH	3-slot half-size compact chassis

IP-4S-RS-R40

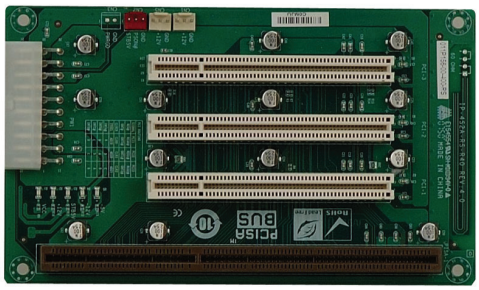


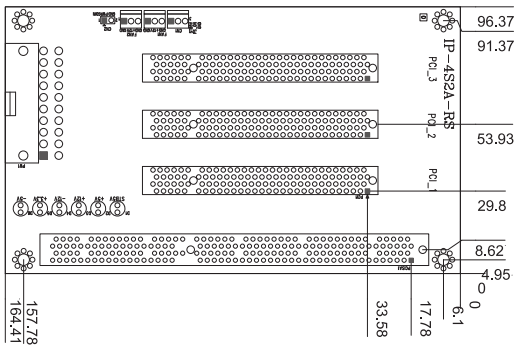


Ordering Information	
IP-4S-RS-R40	4-slot backplane with three PCI slots
PAC-400G	4-slot half-size compact chassis
PAC-42GH	4-slot half-size compact chassis

IP-4S2A-RS-R40

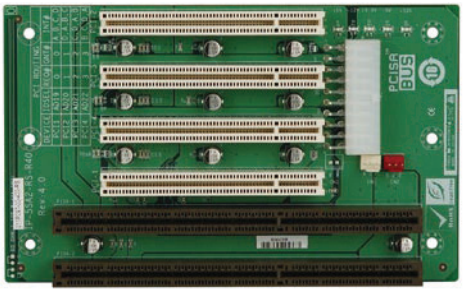
ATX power

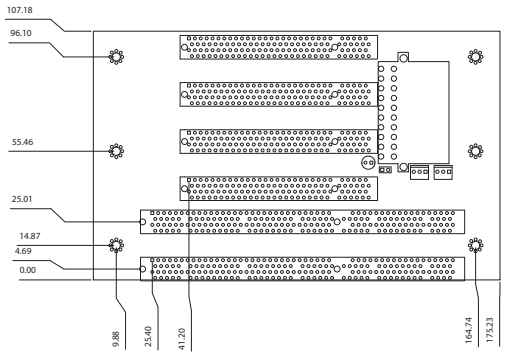




Ordering Information	
IP-4S2A-RS-R40	4-slot backplane with three PCI slots
PAC-400G	4-slot half-size compact chassis

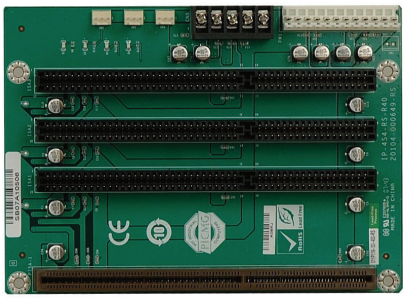
IP-5SA2-RS-R40

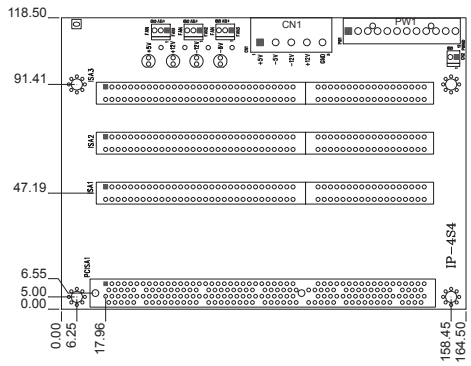




Ordering Information	
IP-5SA2-RS-R40	5-slot backplane with four PCI slots
PR-1500G	5-slot half-size compact chassis

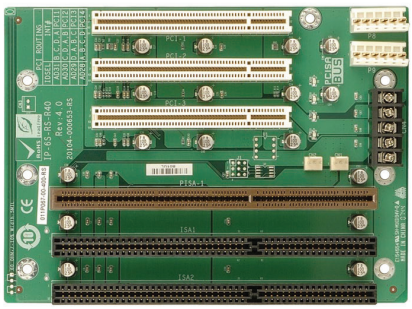
IP-4S4-RS-R40

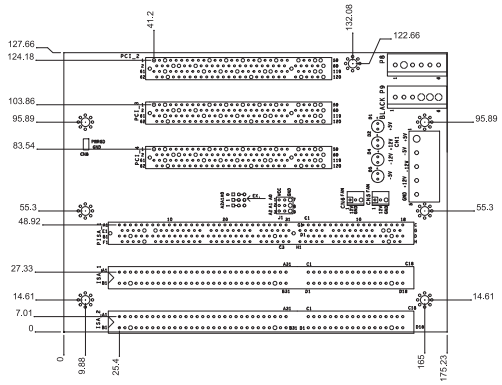




Ordering Information	
IP-4S4-RS-R40	4-slot backplane with three ISA slots
PAC-400G	4-slot half-size compact chassis
PAC-42GH	4-slot half-size compact chassis

IP-6S-RS-R40

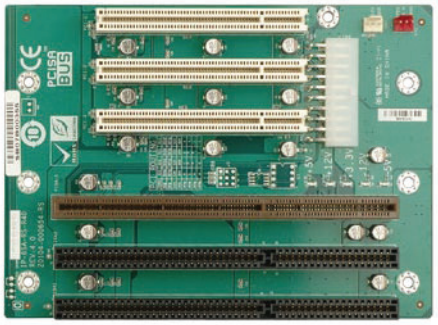


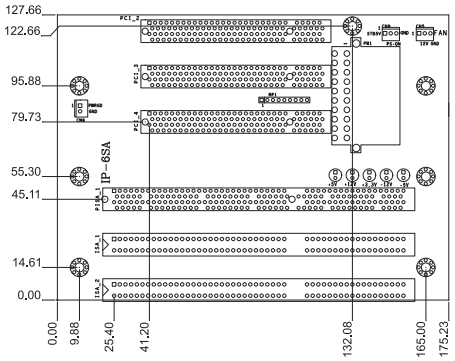


Ordering Information	
IP-6S-RS-R40	6-slot backplane with three PCI slots and two ISA slots
PAC-1000G	6-slot full-size compact chassis

IP-6SA-RS-R40

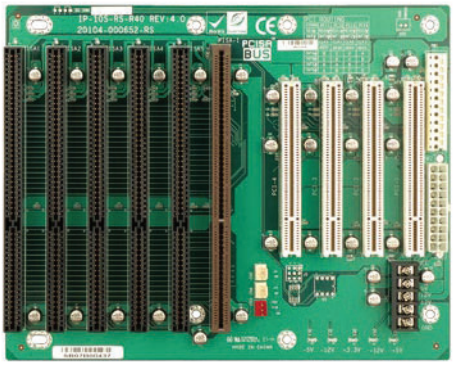
ATX power

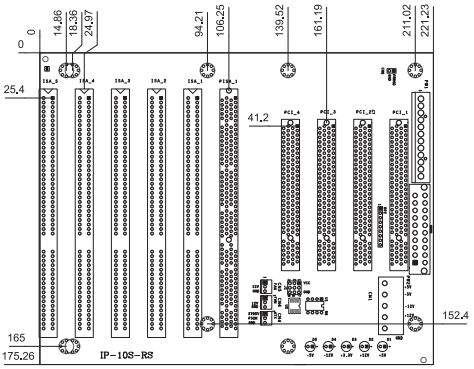




Ordering Information	
IP-6SA-RS-R40	6-slot backplane with three PCI slots and two ISA slots
PAC-106G	6-slot full-size compact chassis
PAC-1000G	6-slot full-size compact chassis

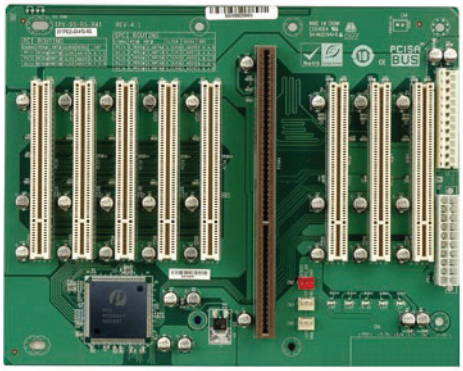
IP-10S-RS-R40

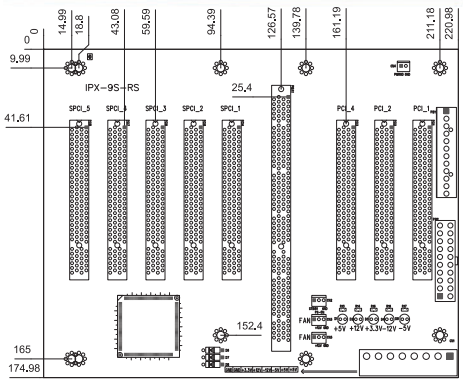




Ordering Information	
IP-10S-RS-R40	10-slot backplane with four PCI slots and five ISA slots
PAC-125G	10-slot full-size compact chassis

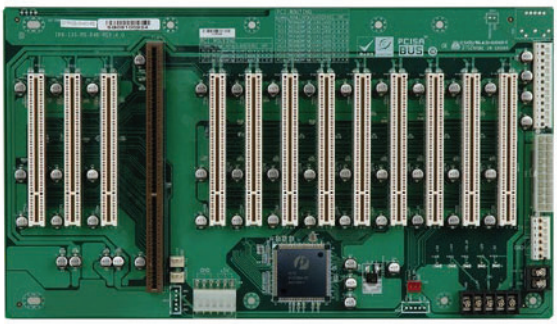
IPX-9S-RS-R41

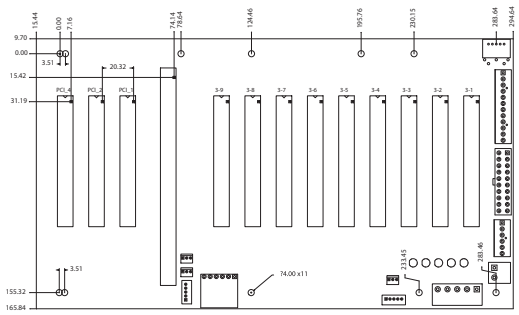




Ordering Information	
IPX-9S-RS-R41	9-slot backplane with eight PCI slots
PAC-125G	10-slot full-size compact chassis

IPX-13S-RS-R40

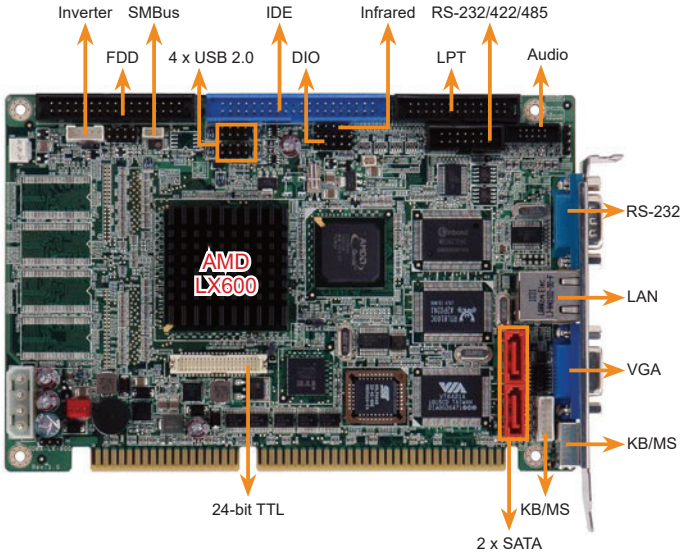


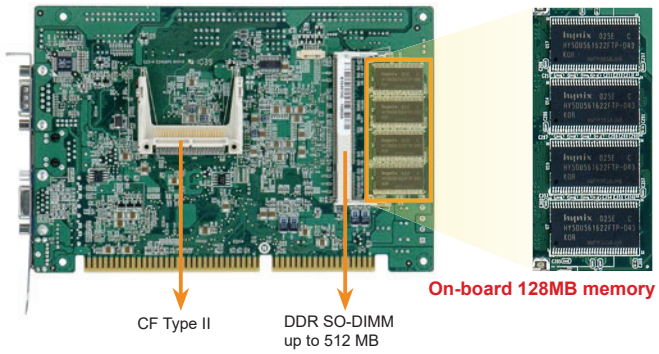


Ordering Information	
IPX-13S-RS-R40	13-slot backplane with twelve PCI slots
RACK-305G	4U 14-slot rack-mount chassis
RACK-360G	4U 14-slot rack-mount chassis
RACK-3000G	4U 14-slot rack-mount chassis

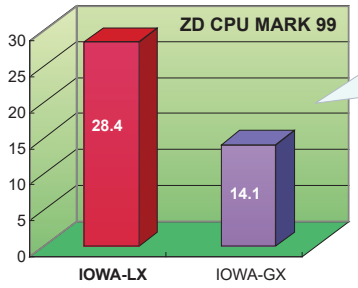
IOWA-LX

Half-size Pure ISA CPU Card with On-board AMD Geode™ LX600 Processor (366 MHz), 128KB L2 cache, On-board 128MB Memory, VGA, LAN, USB 2.0, CF, COM, LPT, Audio and RoHS





Performance Comparison Chart



IOWA-LX platform can easily replace the IOWA-GX platform without any impact to the system for increased levels of performance.

Specifications

- CPU
  On-board AMD Geode™ LX600 processor (366 MHz), 128KB L2 cache
- Chipset
  AMD Geode™ CS5536
- BIOS
  Award BIOS
- Memory
  One 200-pin 266/200 MHz DDR SDRAM SO-DIMMs supports up to 512MB
  On-board 128MB DDR 266/200 MHz memory
- Graphics Engine
  VGA integrated in the AMD Geode™ LX600
- Display Output
  Single HD VOP 2.0 output
  1 x VGA (up to 1920x1440)
  1 x TFT (up to 1600x1200)
- External I/O Interface
  1 x KB/MS 1 x RS-232
- Internal I/O Interface
  1 x CF Type II 1 x RS-232/422/485 (2x7 pin, P=2.54)
  1 x FDD (2x17 pin) 1 x LPT (2x13 pin)
  1 x IDE (2x10 pin) 4 x USB 2.0 (2x4 pin, P=2.54)
  2 x SATA (RAID 0/1 supported on IOWA-LX-600S-R10)
- Ethernet
  10/100Mbps Realtek RTL8100C Ethernet controller
- Audio
  Realtek ALC203 with AC'97 codec
  1 x Front audio (2x5 pin)
- Expansion
  ISA bus supported via golden finger
- Digital I/O
  8-bit digital I/O (2x5 pin)
- Infrared Interface
  1 x Infrared Interface (1x5 pin)
- Watchdog Timer
  Software programmable supports 1~255 sec. system reset
- FAN connctor
  1 x Smart fan (1x3 pin)
- Power supply
  5V/12V, AT/ATX support
- Power Consumption
  5V@1.51A, 5VSb@0.09A
  (On-board AMD Geode™ LX 600 CPU 366 MHz with 128MB 200 MHz on-board DDR memory and 512MB 333 MHz DDR memory)
- Operating Temperature
  -10ºC ~ 60ºC
- Storage Temperature
  -20°C ~ 70°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Weight
  GW: 1000g / NW: 250g
- CE/FCC compliant

Features

- ISA CPU card with on-board AMD Geode™ LX600 processor (366 MHz), 128KB L2 cache
- Flexible on-board DDR SDRAM and one SO-DIMM slot
- Enchanced TTL, RS-232, RS-422/485 and USB 2.0 interfaces for extened connectivities

Packing List

1 x IOWA-LX-600 single board computer
1 x Audio cable
1 x IDE flat cable
1 x KB/MS Y cable
1 x USB cable
1 x Mini jumper pack
1 x QIG

Ordering Information

Part No.	Description
IOWA-LX-600-R10	Half-size pure ISA CPU card with on-board AMD Geode™ LX600 processor (366 MHz), 128KB L2 cache, on-board 128MB memory VGA, LAN, USB 2.0, COM, CF, LPT, audio and RoHS
IOWA-LX-600S-R10	Half-size pure ISA CPU card with on-board AMD Geode™ LX600 processor (366 MHz), 128KB L2 cache, on-board 128MB memory VGA, LAN, USB 2.0, SATA, CF, COM, LPT, Audio and RoHS
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-004400-200-RS	RS-232 & RS-422/485 cable with bracket, 14-pin to two DB-9, 255mm, P=2.54
32801-000703-500-RS	SATA (7-pin to 7-pin) cable, 500mm
32200-000017-RS	FDD Cable, 520mm, P=2.54

BP Series Backplane

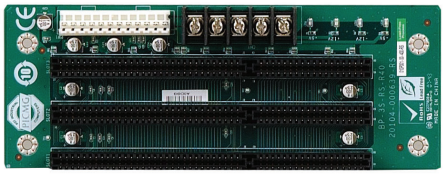
Selection Guide

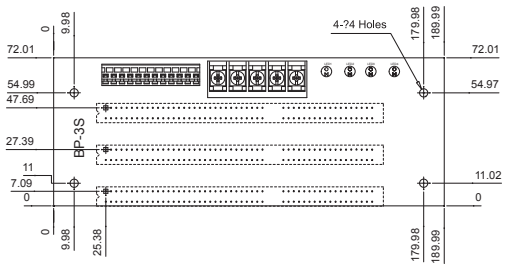
PAC series wall-mount chassis 4U rack-mount chassis



Model	BP-3S-RS-R40	BP-4S-RS-R40	BP-5S-RS-R40	BP-6S-RS-R40	BP-7S-RS-R40	BP-8S-RS-R41	BP-10S-RS-R40
Total Slot	3	4	5	6	7	8	10
ISA Slot	3	4	5	6	7	8	10
PSU Type	AT	AT	AT	AT	AT	AT	AT
Chassis	PAC-53GH	PAC-400G PAC-42GH	PR-1500G	PAC-106G PAC-1000G	PAC-700G PAC-1700G	N/A	PAC-125G

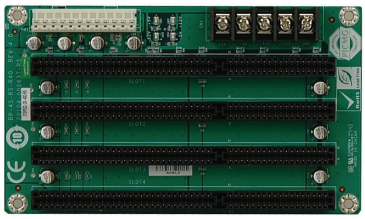
BP-3S-RS-R40

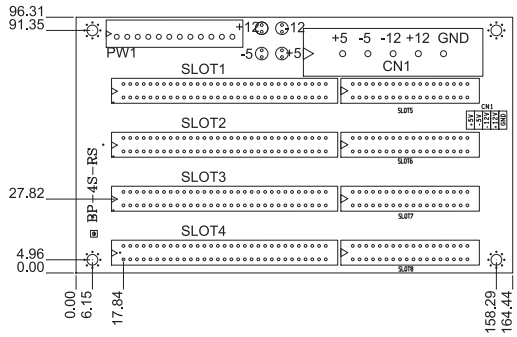




Ordering Information	
BP-3S-RS-R40	3-slot backplane with three ISA slots
PAC-53GH	3-slot half-size compact chassis

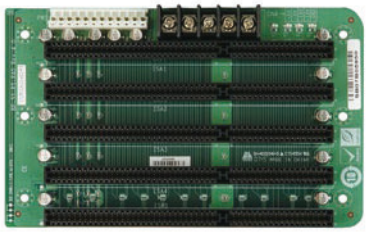
BP-4S-RS-R40

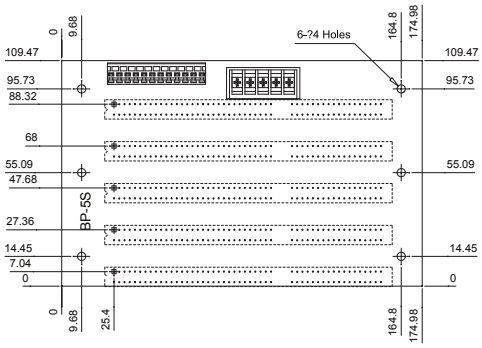




Ordering Information	
BP-4S-RS-R40	4-slot backplane with four ISA slots
PAC-400G	4-slot half-size compact chassis
PAC-42GH	4-slot half-size compact chassis

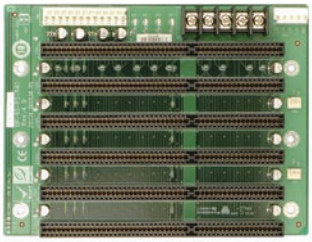
BP-5S-RS-R40



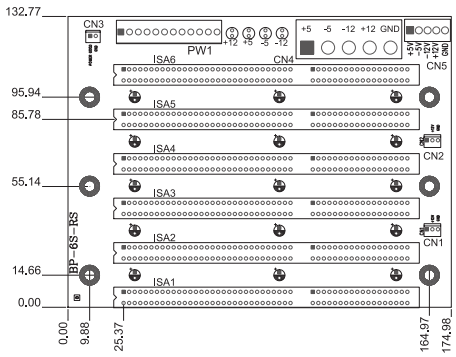


Ordering Information	
BP-5S-RS-R40	5-slot backplane with five ISA slots
PR-1500G	5-slot half-size compact chassis

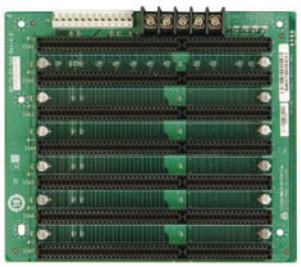
BP-6S-RS-R40



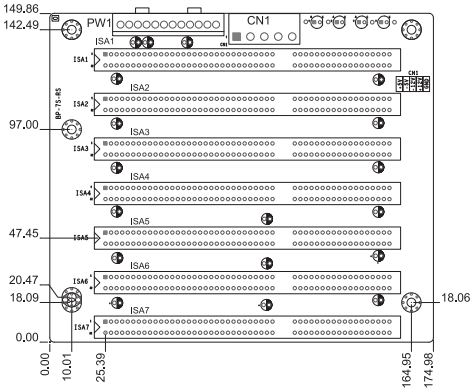
Ordering Information	
BP-6S-RS-R40	6-slot backplane with six ISA slots
PAC-106G	6-slot full-size compact chassis
PAC-1000G	6-slot full-size compact chassis



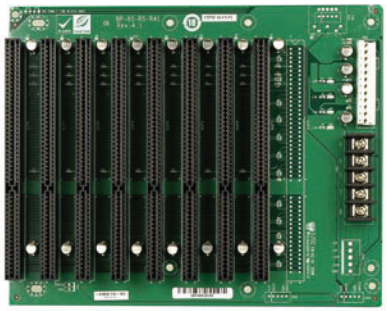
BP-7S-RS-R40



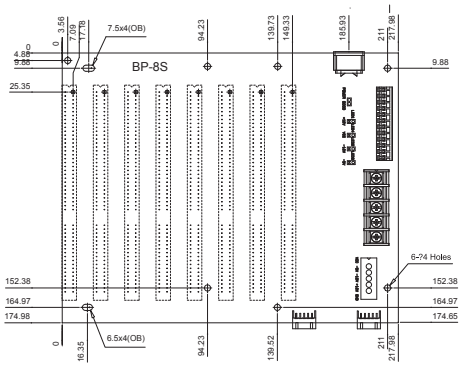
Ordering Information	
BP-7S-RS-R40	7-slot backplane with seven ISA slots
PAC-700G	7-slot half-size compact chassis
PAC-1700G	7-slot full-size compact chassis



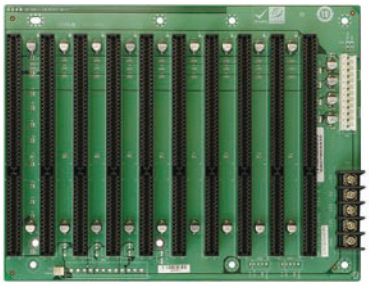
BP-8S-RS-R41



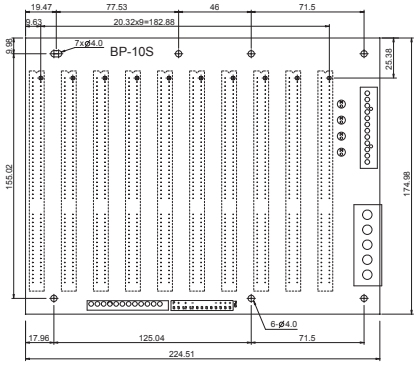
Ordering Information	
BP-8S-RS-R41	8-slot backplane with eight ISA slots



BP-10S-RS-R40

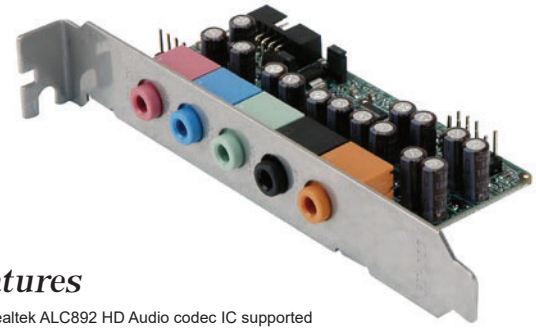


Ordering Information	
BP-10S-RS-R40	10-slot backplane with ten ISA slots
PAC-125G	10-slot full-size compact chassis



AC-KIT-892HD

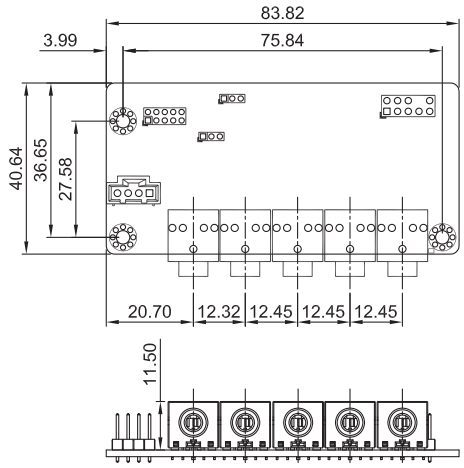
Realtek ALC892 7.1-Channel HD Audio Peripheral Board, RoHS



Features

- Realtek ALC892 HD Audio codec IC supported
- Five audio jacks for microphone, 7.1+2-channel high definition audio input and output
- High performance 7.1+2-channel high definition audio board provides 7.1-channel sound playback and multiple streaming through the front panel stereo outputs
- Digital to Analog Converter (DAC) with 97dB Signal to Noise Ratio (SNR)
- Analog to Digital Converter (ADC) with 90dB Signal to Noise Ratio (SNR)
- All the Digital to Analog Converter (DAC) supports 44.1k/48k/96k/192kHz sampling rate
- All the Analog to Digital Converter (ADC) supports 44.1k/48k/96KHz sampling rate
- Driver supports Windows® 2000/2003/XP/VISTA/7 (32/64 bits) and Linux (Ubuntu or Debian)
- CE/FCC compliant

Dimensions (Unit: mm)



Packing List

1 x AC-KIT-892HD audio peripheral board	
1 x Audio cable	1 x QIG

Ordering Information

AC-KIT-892HD-R10	Realtek ALC892 7.1-channel HD Audio peripheral board
32107-001100-100-RS	Audio cable with length of 200 mm, 2 x 5-pin, pitch=2.0 mm

AC-KIT08R

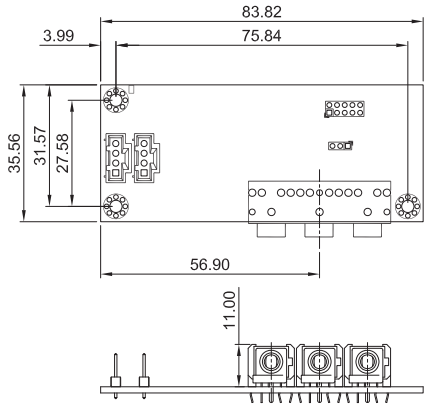
Audio Converter Card via Realtek ALC655 AC'97 5.1-Channel Audio Daughter Board, RoHS



Features

- Realtek ALC655 AC'97 audio codec IC supported
- Three audio jacks for microphone, 5.1-channel AC'97 audio input and output
- Full duplex AC'97 2.3 compatible 5.1-channel audio codec designed for PC multimedia system
- Supports double sampling rate (96kHz) of DVD audio playback
- Driver supports Windows® 2000/2003/XP/VISTA/7 (32/64 bits) and Linux (Ubuntu or Debian)
- CE/FCC compliant

Dimensions (Unit: mm)



Packing List

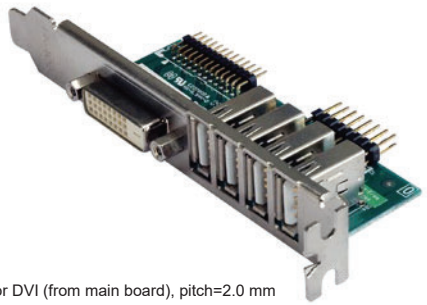
1 x AC-KIT08R audio peripheral board	
1 x Audio cable	1 x QIG

Ordering Information

AC-KIT08R-R10	Realtek ALC655 AC'97 5.1-channel audio peripheral board
32107-001100-100-RS	Audio cable with length of 200 mm, 2 x 5-pin, pitch=2.0 mm

IO-KIT-001-R20

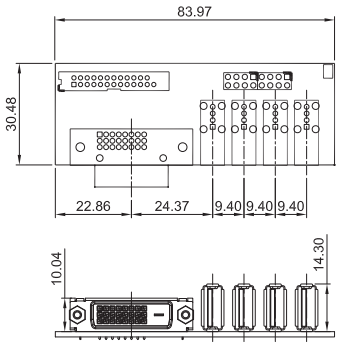
DVI and 4 x USB 1.1/2.0 Translation Daughter Board with Bracket, RoHS



Features

- 26-pin header for DVI (from main board), pitch=2.0 mm
- 2 x 8-pin header for USB 1.1/2.0 (from main board, four sets), pitch=2.54 mm
- DVI-D connector on edge
- Four USB 1.1/2.0 connectors on edge
- CE/FCC compliant

Dimensions (Unit: mm)



Packing List

1 x IO-KIT-001-R20 (DVI and four USB 1.1/2.0 translation daughter board)
1 x DVI cable
1 x USB cable
1 x QIG

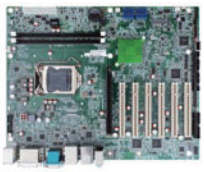
Ordering Information

IO-KIT-001-R20	DVI and four USB 1.1/2.0 translation daughter board
32001-009900-100-RS	USB cable with length of 200 mm, 2 x 8-pin, pitch=2.54 mm
32104-000100-100-RS	DVI cable with length of 200 mm, 2 x 13-pin, pitch=2.0 mm

Industrial Motherboard Selection Guide



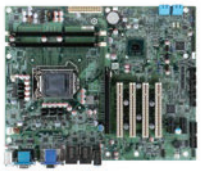


Model Name	IMBA-Q370	IMBA-C2360-i2	IMBA-Q170-i2	IMBA-H112	IMBA-H110
CPU Socket	LGA1151	LGA1151	LGA1151	LGA1151	LGA1151
CPU Type	8th generation Intel® Core™ i7/5/i3/Pentium® and Celeron® processor	Intel® Xeon® E3, Core™ i3, Pentium®, Celeron® processor	6th generation Intel® Core™ i7/ i5/i3 Pentium® and Celeron® processor	6th generation Intel® Core™ i7/ i5/i3, Celeron® and Pentium® processor	6th generation Intel® Core™ i7/ i5/i3, Celeron® and Pentium® processor
Chipset	Intel® Q370	Intel® C236	Intel® Q170	Intel® H110	Intel® H110
Memory	Four 288-pin 2133 MHz dual-channel DDR4 SDRAM unbuffered DIMMs (system Max. 64 GB)	Four 288-pin 2133 MHz dual-channel DDR4 SDRAM unbuffered DIMMs (system Max. 64 GB)	Four 288-pin 2133 MHz dual-channel DDR4 SDRAM unbuffered DIMMs (system Max. 64 GB)	Two 288-pin 2133 MHz dual-channel DDR4 SDRAM unbuffered DIMMs (system Max. 64 GB)	Two 288-pin 2133 MHz dual-channel DDR4 SDRAM unbuffered DIMMs (system Max. 64 GB)
Display Interface	Triple independent display support 1 x HDMI 2.0 1 x DVI-I 1 x iDP interface	Triple independent display support 1 x HDMI 2.0 1 x DVI-D 1 x VGA 1 x iDP interface	Triple independent display support 1 x HDMI 2.0 1 x DVI-D 1 x VGA 1 x iDP interface	Dual independent display support 1 x VGA 1 x HDMI 1 x iDP interface	Dual independent display support 1 x DVI-I 1 x HDMI 1 x iDP interface
Ethernet	LAN1: Intel® I210-AT PCIe controller with NCSI support LAN2: Intel® I219LM with Intel® AMT 11.0 support	LAN1: Intel® I219LM with Intel® AMT 11.0 support LAN2: Intel® I210-AT PCIe controller with NCSI support	LAN1: Intel® I219LM with Intel® AMT 11.0 support LAN2: Intel® I210-AT PCIe controller with NCSI support	LAN1: Intel® I219V PHY LAN2: Intel® I211 PCIe controller	LAN1: Intel® I219V PHY LAN2: Intel® I211 PCIe controller
iRIS Remote Management Module	N/A	1 x iRIS-2400 slot	1 x iRIS-2400 slot	N/A	N/A
I/O Interface	1 x PS/2 KB/MS 1 x LPT 2 x RS-232/422/485 4 x RS-232 4 x USB 2.0 8 x USB 3.2	1 x KB/MS 1 x LPT 2 x RS-232/422/485 4 x RS-232 5 x USB 3.2 Gen 1 7 x USB 2.0	1 x KB/MS 1 x LPT 2 x RS-232/422/485 4 x RS-232 5 x USB 3.2 Gen 1 7 x USB 2.0	1 x KB/MS 1 x LPT 1 x RS-232/422/485 4 x USB 3.2 5 x RS-232 5 x USB 2.0	1 x KB/MS 1 x LPT 2 x RS-232/422/485 4 x RS-232 4 x USB 3.2 Gen 1 5 x USB 2.0
Storage Interface	6 x SATA 6Gb/s (RAID 0/1/5/10 supported)	6 x SATA 6Gb/s (RAID 0/1/5/10 supported)	6 x SATA 6Gb/s (RAID 0/1/5/10 supported)	3 x SATA 6Gb/s	4 x SATA 6Gb/s
Audio	Realtek ALC662 HD Audio codec				
Digital I/O	8-bit programmable I/O (8-bit GPIO is for programming I/O)			N/A	8-bit programmable I/O (8-bit GPIO is for programming I/O)
Power Consumption	3.3V@1.65A, 5V@3.4A, 12V@8.58A, 5VSV@3.4A (Intel® Core® i7-8700K up to 4.60 GHz CPU with 32GB 2600MHz DDR4 memory)	3.3V@1.51A, 5V@3.31A, 12V@9.02A, 5VSB@3.7A (Intel® Xeon® E3-1275 v5 3.60 GHz CPU with 32 GB (four 8GB) 2133 MHz DDR4 memory)	3.3V@1.65A, 5V@3.4A, 12V@8.58A, 5VSB@3.4A (Intel® Core™ i7 6700K 4.0GHz CPU with 32 GB (Four 8 GB) 2133 MHz DDR4 memory)	3.3V@1.53A, 5V@2.95A, 12V@8.38A, 5VSB@3.2A (4.0 GHz Intel® Core™ i7-6700K CPU with two 8 GB 2133 MHz DDR4 memory)	3.3V@1.53A, 5V@2.95A, 12V@8.38A, 5VSB@3.2A (Intel® Core™ i7 6700K 4.0GHz CPU with 16GB (two 8GB) 2133 MHz DDR4 memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset				
Operation Environment	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing				
Expansion Slot	1 x Full-size PCIe Mini card slot (support mSATA) 1 x M.2 (A key) 1 x M.2 (M Key) 1 x PCIe x16 (Gen3) (share x16 signal with 1 x8 & 1 x4 slot) 1 x PCIe x8 (Gen3) 2 x PCIe x4 (Gen3) 2 x PCI slot	1 x Full-size PCIe Mini card slot (support mSATA) 2 x PCIe x8 (Gen3) 3 x PCIe x4 (Gen3) 2 x PCI slot	1 x Full-size PCIe Mini card slot (support mSATA) 2 x PCIe x8 (Gen3) 3 x PCIe x4 (Gen3) 2 x PCI slot	1 x Full-size PCIe Mini card slot (support mSATA) 1 x PCIe x16 slot (Gen3) 1 x PCIe x4 4 x PCI slot	1 x Full-size PCIe Mini card slot (support mSATA) 1 x PCIe x16 slot (Gen3) 6 x PCI slot
CPU Cooler	CF-115XA-R10 CF-115XC-R10 CF-115XD-R10 CF-115XE-R10	CF-115XA-R10 CF-115XC-R10 CF-115XD-R10 CF-115XE-R10	CF-115XA-R10 CF-115XC-R10 CF-115XD-R10 CF-115XE-R10	CF-115XA-R10 CF-115XC-R10 CF-115XD-R10 CF-115XE-R10	CF-115XA-R10 CF-115XC-R10 CF-115XD-R10 CF-115XE-R10

Industrial Motherboard Selection Guide




Model Name	IMBA-H810	IMBA-C2260-i2-R11	IMBA-Q870-i2	IMBA-H610	IMBA-Q670-R30
CPU Socket	LGA1150	LGA1150	LGA1150	LGA1155	LGA1155
CPU Type	4th generation Intel® Core™ i7/ i5/i3 Pentium® and Celeron® processor	Intel® Xeon® E3, Core™ i3, Pentium®, Celeron® processor	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor	Intel® Core™ i7/i5/i3, Pentium® Dual, Celeron® processor
Chipset	Intel®H81	Intel® C226	Intel® Q87	Intel® H61	Intel® Q67
Memory	Two 240-pin 1333/1600 MHz dual-channel DDR3 SDRAM unbuffered DIMM (system max. 16 GB)	Four 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM ECC and non-ECC unbuffered DIMMs (system max. 32 GB)	Four 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs (system max. 32 GB)	Two 240-pin 1333/1066 MHz dual-channel DDR3 SDRAM DIMM (system max. 16 GB)	Four 240-pin 1333/1066 MHz dual-channel DDR3 SDRAM unbuffered DIMM (system max. 32 GB)
Display Interface	Dual independent display support 1 x DVI-D 1 x VGA 1 x iDP interface	Dual display supported 1 x VGA 1 x iDP interface	Triple display supported 1 x VGA 1 x DVI-D 1 x HDMI 1 x iDP interface	Dual display supported 1 x VGA 1 x DVI-D	Dual display supported 1 x VGA 1 x HDMI 1 x DVI-D
Ethernet	LAN1: Intel® I217-LM with Intel® AMT 9.0 support LAN2: Intel® I211-AT PCIe controller	LAN1: Intel® I217LM with Intel® AMT 9.0 support LAN2: Intel® I210-AT PCIe controller with NCSI support	LAN1: Intel® I217LM with Intel® AMT 9.0 support LAN2: Intel® I210-AT PCIe controller with NCSI support	LAN1: Realtek RTL8111E PCIe GbE controller with ASF 2.0 support LAN2: Realtek RTL8111E PCIe GbE controller	LAN1: Intel® 82583V PCIe controller LAN2: Intel® 82579 PHY with Intel® AMT 7.0 support
iRIS Remote Management Module	N/A	1 x iRIS-2400 slot	1 x iRIS-2400 slot	N/A	N/A
I/O Interface	1 x IR 1 x PS/2 for KB/MS 1 x RS-232/422/485 1 x USB 2.0 Type A 2 x USB 3.2 Gen 1 5 x RS-232 6 x USB 2.0	1 x LPT 1 x PS/2 for KB/MS 1 x RS-422/485 4 x USB 3.2 Gen 1 5 x RS-232 8 x USB 2.0	1 x LPT 1 x PS/2 for KB/MS 1 x RS-422/485 4 x USB 3.2 Gen 1 5 x RS-232 8 x USB 2.0	1 x I²C 1 x LPT 1 x PS/2 for KB/MS 1 x RS-422/485 1 x SMBus 1 x TPM (2x10 pin) 5 x RS-232 10 x USB 2.0	1 x I²C 1 x LPT 1 x PS/2 KB & MS 1 x RS-422/485 1 x SMBus 1 x TPM (2x10 pin) 2 x USB 3.2 Gen 1 5 x RS-232 10 x USB 2.0
Storage Interface	2 x SATA 3Gb/s 2 x SATA 6Gb/s	6 x SATA 6Gb/s (RAID 0/1/5/10 supported) 1 x mSATA (colay SATA port 6) (support SATA 6Gb/s signal only)	6 x SATA 6Gb/s (RAID 0/1/5/10 supported) 1 x mSATA (colay SATA port 6) (support SATA 6Gb/s signal only)	4 x SATA 3Gb/s	2 x SATA 6Gb/s 4 x SATA 3Gb/s
Audio	Realtek ALC662 HD Audio codec			Realtek ALC892 HD Audio codec	Realtek ALC662 HD Audio codec
Digital I/O	8-bit programmable I/O (8-bit GPIO is for programming I/O)			8-bit digital I/O (4-bit input/4-bit output)	
Power Consumption	3.3V@0.83A, 5V@2.2A, 12V@3.88A, 5VSB@0.3A (Intel® Core™ i7-4770K 3.90 GHz CPU with 8 GB (two 4 GB) 1333 MHz DDR3 memory)	3.3V@0.57A, 5V@4.50A, 12V@0.14A, Vcore_12V@5.20A, 5VSB@0.19A (Intel® E3-1240 v3 3.4GHz CPU with 16 GB (four 4 GB) 1333 MHz DDR3 memory)	3.3V@0.66A, 5V@4.34A, 12V@0.16A, Vcore_12V@4.01A, 5VSB@0.21A (Intel® Core™ i7-4770K 3.90 GHz CPU with four 1333 MHz 4 GB DDR3 DDR3 memory)	3.3V@1.27A, 5V@3.87A, 12V@0.54A, Vcore@7.67A, 5VSb@0.15A (Intel® Core™ i7-2600K 3.40GHz CPU with two 1333 MHz 2 GB DDR3 Memory)	3.3V@1.65A, 5V@6.31A , 12V@0.18A, Vcore@7.88A, 5VSb@0.15A (Intel® Core™ i5-2400 3.10GHz CPU with four 1333 MHz 4 GB DDR3 memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset				
Operation Environment	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: -10°C ~ 60°C (14°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing			
Expansion Slot	1 x PCIe x 16 2 x PCIe x 1 4 x PCI 1 x PCIe Mini (support mSATA)	1 x PCIe x16 slot 3 x PCIe x4 slot Default setting: 1 x PCIe x8, 2 x PCIe x4 Optional setting: 1 x PCIe x16 by BIOS setting 1 x PCIe x1 slot 2 x PCI slot	1 x PCIe x16 slot (Gen 3) 1 x PCIe x4 slot 1 x PCIe x1 slot 4 x PCI slots	1 x PCIe x16 2 x PCIe x1 4 x PCI	1 x PCIe x16 1 x PCIe x4 1 x PCIe x1 4 x PCI
CPU Cooler	CF-115XA-R10 CF-115XE-R10	CF-115XA-R10 CF-115XE-R10	CF-115XA-R10 CF-115XE-R10	CF-115XA-R10 (for 1U chassis) CF-115XC-R10 CF-115XD-R10 CF-115XE-R10	CF-115XA-R10 (for 1U chassis) CF-115XC-R10 CF-115XD-R10 CF-115XE-R10

Industrial Motherboard Selection Guide

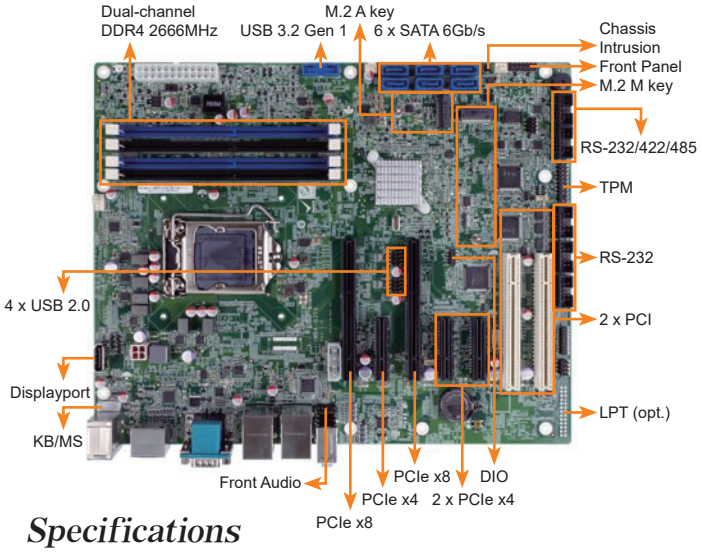


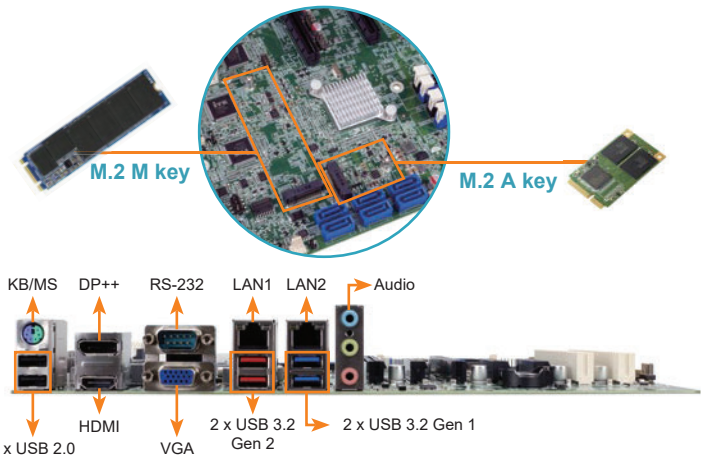


Model Name	IMB-H110	IMB-Q870-i2	IMB-H810-i2-R11
CPU Socket	LGA1151	LGA1150	LGA1150
CPU Type	6th generation Intel® Core™ i7/i5/i3, Celeron® and Pentium® processor	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor
Chipset	Intel® H110	Intel® Q87	Intel® H81
Memory	Two 288-pin 2133MHz Dual-Channel DDR4 SDRAM Unbuffered DIMM supported up to 64GB	Four 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs (system max. 32 GB)	Two 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs (system max. 32 GB)
Display Interface	Dual independent display support 1 x VGA 1 x DVI-I 1 x LVDS 1 x iDP	Triple display supported 1 x VGA 1 x DVI-D 1 x HDMI 1 x iDP interface	Triple display supported 1 x VGA1 1 x VGA2 1 x iDP interface
Ethernet	Dual LAN: RTL 8111GN controller	LAN1: Intel® I217LM with Intel® AMT 9.0 support LAN2: Intel® I210-AT PCIe controller with NCSI support	LAN1: Intel® I217LM LAN2: Intel® I210-AT PCIe controller with NCSI support
iRIS Remote Management Module	N/A	1 x iRIS-2400 slot	
I/O Interface	1 x KB/MS 1 x LPT 2 x RS-232/422/485 4 x USB 3.2 Gen 1 8 x USB 2.0 10 x RS-232	1 x PS/2 for KB/MS 1 x RS-422/485 4 x USB 3.2 Gen 1 5 x RS-232 8 x USB 2.0	1 x LPT 1 x PS/2 for KB/MS 1 x RS-422/485 by s/w selection 2 x RS-232 2 x USB 3.2 Gen 1 8 x RS-232 10 x USB 2.0
Storage Interface	4 x SATA 6Gb/s (RAID 0/1 supported)	4 x SATA 6Gb/s (RAID 0/1/5/10 supported)	2 x SATA 6Gb/s 2 x SATA 3Gb/s (AHCI supported)
Audio	Realtek ALC662 HD Audio codec		
Digital I/O	8-bit programmable digital I/O	8-bit programmable I/O (8-bit GPIO is for programming I/O)	N/A
Power Consumption	3.3V@ 0.93A, 5V@2.99A, 12V@6.88A, 5VSB@0.02A (Intel® Core™ i7-6700K 4.0GHz CPU with 16GB (two 8GB) 2133 MHz DDR4 memory)	3.3V@0.53A, 5V@4.96A, 12V@0.12A, Vcore_12V@3.95A, 5VSB@0.18A (Intel® Core™ i7-4770K 3.90 GHz CPU with 16 GB four 1333 MHz 4 GB DDR3 memory)	3.3V@0.64A, 5V@4.20A, 12V@0.14A, Vcore_12V@3.88A, 5VSB@0.20A (Intel® Core™ i7-4770K 3.90 GHz CPU with 8 GB two 1333 MHz 4 GB DDR3 memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset		
Operation Environment	Temperature Range: -20°C ~ 60°C (-4°F~140°F) Relative Humidity: 5% ~ 95% non-condensing		
Expansion Slot	1 x PCIe x16 slot (Gen3) 1 x Full-size PCIe Mini card slot 1 x PCIe x1 slot (Gen2) 2 x PCI slot	1 x PCIe x16 slot (Gen 3) 1 x PCIe x4 slot 1 x PCIe x1 slot 1 x PCI slot	1 x PCIe x16 slot (Gen 3) 1 x PCIe x1 slot 2 x PCI slot
CPU Cooler	CF-115XA-R10 CF-115XE-R10	CF-115XA-R10 CF-115XE-R10	

IMBA-Q370

ATX motherboard supports 14nm LGA1151 Intel® 8th/9th Generation Core™ i9/i7/ i5/i3, Celeron® and Pentium® processor, DDR4, triple independent displays, dual GbE LAN, M.2, USB 3.2 Gen 2 (10Gb/s), SATA 6Gb/s, HD Audio and RoHS







Specifications

- CPU
  LGA1151 socket supports 8th/9th generation Intel® Core™ i9/i7/i5/i3, Pentium® or Celeron® processor
- Chipset: Intel® Q370
- BIOS: AMI UEFI BIOS
- Memory
  Four 288-pin 2666/2400 MHz Dual-Channel DDR4 SDRAM Unbuffered DIMMs supported up to 64GB
- Graphics Engine
  Intel® HD Graphics Gen9 Engines with Low power 16 execution unit, supports DX11.3/12, OpenGL 4.3/4.4/4.5and OpenCL1.2/2.0/2.1
- Display Output
  Triple independent display
  1 x VGA (up to 1920 x 1080@60Hz)
  1 x DP++ (up to 4096 x 2304@60Hz)
  1 x HDMI (up to 4096 x 2304@30Hz)
  1 x internal Displayport (up to 4096 x 2304@60Hz)
- Ethernet
  LAN1 : Intel® I219LM PCIe controller with AMT 11.0 support
  LAN2: Intel® I211AT PCIe controller
- Super I/O: Embedded Controller
- External I/O Interface
  2 x USB 3.2 Gen 2 (10Gb/s)
  2 x USB 3.2 Gen 1 (5Gb/s)
  2 x USB 2.0
  1 x RS-232
  1 x PS/2 KB/MS
- Internal I/O Interface
  1 x 180° Displyport
  2 x RS-232/422/485 (2x5 pin, P=2.54)
  2 x USB 3.2 Gen 1 (5Gb/s) (2x10 pin, P=2.0)
  6 x SATA 6G/s (RAID 0/1/5/10 supported)
  1 x KB/MS (1x6 pin)
  3 x RS-232 (2x5 pin, P=2.54)
  4 x USB 2.0 (2x4 pin, P=2.54)
- SMBus: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- Audio
  Realtek ALC662 HD codec
  3 x Audio Jack (Line-in, Line-out, Mic-in)
  1 x Analog audio (2x5 pin)
- Front Panel
  1 x Front Panel (2 x 7 pin, Power LED, HDD LED, Speaker, Power Button, Reset Button)
- LAN LED: 2 x LAN LED (1x2 pin)
- Expansion
  2 x PCIe x8
  3 x PCIe x4
  2 x PCI
  1 x M.2 A key (2230, PCIe x1 & USB 2.0)
  1 x M.2 M Key (2280, PCIe x2 only)
- Digital I/O: 1 x 8-bit digital I/O (2x5 pin)
- TPM: 1 x TPM (2x10 pin)
- FAN Connector
  1 x CPU fan connector (1x4 pin)
  2 x System fan connector (1x3 pin)
- Chassis Open: 1 x Chassis intrusion (1x2 pin)
- Power supply
  ATX/AT power supply
  Support AT/ATX mode
  ErP/EuP Compliant
- Watchdog Timer: Software programmable support 1~255 sec. system reset
- Power Consumption
  3.3V@1.65A, 5V@3.4A, 12V@8.58A, 5VSV@3.4A (Intel® Core® i7-8700K up to 4.60 GHz CPU with 32GB 2600MHz DDR4 memory)
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Diemensions: 244mm x 305mm
- Weight: GW:1200g / NW:700g
- CE/FCC compliant

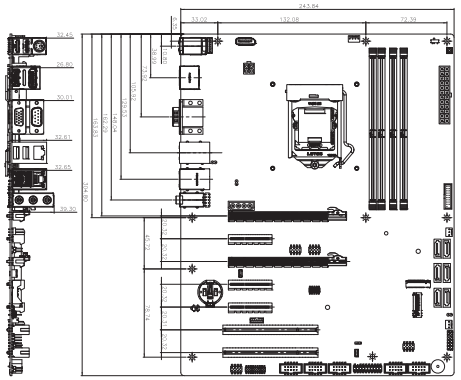
Features

- LGA1151 Intel® 8th/9th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor
- Dual-channel DDR4 2666MHz
- Support VGA, HDMI & DP++
- Support M.2 A key for WLAN expansion, M key for storage

Packing List

1 x IMBA-Q370 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

Dimensions *(Unit: mm)*

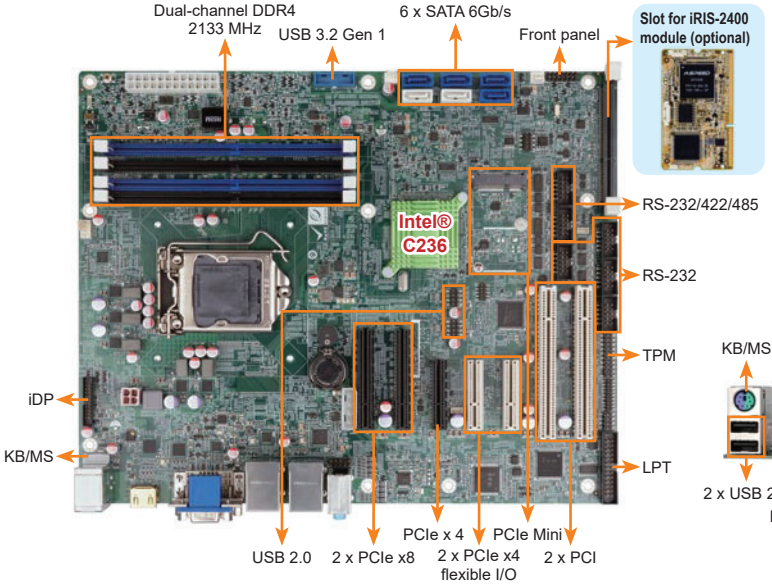


Ordering Information

Part No.	Description
IMBA-Q370-R10	ATX motherboard supports 14nm LGA1151 Intel® 8th/9th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor, DDR4, triple independent displays, dual GbE LAN, M.2, USB 3.2, SATA 6Gb/s, HD Audio and RoHS
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
19800-003100-100-RS	Dual port USB cable with bracket, 30mm, P=2.54
19800-010500-200-RS	USB 3.2 Gen 1 (5Gb/s) cable 457mm with bracket
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-000702-100-RS	RS-232 cable, 230mm, P=2.54
CF-115XA-R10	High performance LGA115X cooler kit ,1U chassis compatible, 73W
CF-115XC-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-115XD-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High-performance LGA1155/1156 cooler kit, 95W
TB3-40GDP-R10	PCI Express Thunderbolt expasion card with Intel® DSL6540, 2 port thunderbolt 3 port (USB Type-C), RoHS
TPM-IN02-R20	20-pin Infineon TPM 2.0 module, software management tool, firmware v5.5

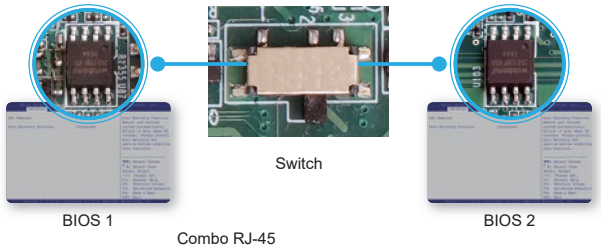
IMBA-C2360-i2

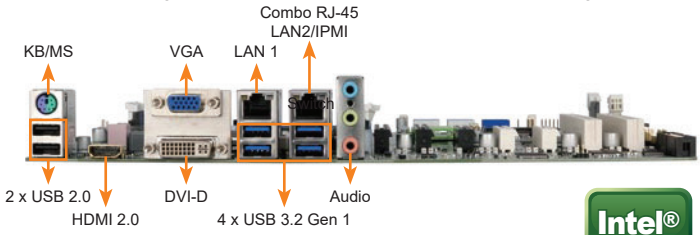
ATX motherboard supports 14nm LGA1151 Intel® Xeon® E3 v5 series, Core™ i3, Pentium®, Celeron® processor per Intel® C236, DDR4, triple independent display, HDMI 2.0, dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio, IPMI 2.0 and RoHS



Dual BIOS (for flexible I/O only)

Easy for customer to switch different ME firmware to achieve I/O flexibility





Intel® AMT 11

DDR4 2133 | Triple Display | USB 3.2 | SATA 6Gb/s | PCIe GbE | HDMI

Specifications

- CPU
  LGA 1151 socket supports Intel® Xeon® E3 v5/v6, 6th/7th generation Core™ i3, Pentium® or Celeron® processor
- Chipset
  Intel® C236
- Memory
  Four 288-pin 2133 MHz dual-channel DDR4 SDRAM ECC and non-ECC unbuffered DIMMs support up to 64 GB
- BIOS
  UEFI BIOS
- Graphics Engine
  Intel® HD Graphics Gen 9 engine with 16 low-power execution units, supports DX11/12, OpenGL 4.3/4.4 and OpenCL2.x, ES 2.0
- Display Output
  Triple independent display
  1 x VGA (up to 1920x1200@60Hz)
  1 x DVI-D (up to 1920x1200@60Hz)
  1 x HDMI 2.0 (up to 4096x2160@60Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60Hz)
- Ethernet
  LAN1: Intel® I219LM with Intel® AMT 11.0 support
  LAN2: Intel® I210AT PCIe controller with NCSI support
- External I/O Interface
  2 x USB 2.0
  4 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x LPT (2x13 pin, P=2.54)
  2 x USB 3.2 Gen 1 (5Gb/s) (2x10 pin, P=2.0)
  2 x RS-232/422/485 (2x5 pin, P=2.54)
  4 x RS-232 (2x5 pin, P=2.54)
  4 x USB 2.0 (2x4 pin, P=2.0)
  6 x SATA 6Gb/s
- SMBus: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- TPM: 1 x TPM (2x10 pin)
- Audio
  Realtek ALC662 HD codec supports 5.1-channel
  3 x Audio jacks (line-out, line-in, mic-in) on rear IO
  1 x Front audio (2x5 pin)
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED: 2 x LAN LED (1x2 pin)
- Expansion
  1 x Full-size PCIe Mini card slot (support mSATA)
  2 x PCI slot
  2 x PCIe x8 slot (Gen3)
  3 x PCIe x4 slot (Gen3)
- iRIS Remote Management Module: 1 x iRIS-2400 slot
- Watchdog Timer: Software programmable supports 1~255 sec. system reset
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  2 x System smart fan (1x3 pin)
- Power Supply: ATX/AT power supply
- Power Consumption
  3.3V@1.51A, 5V@3.31A, 12V@9.02A, 5VSB@3.7A (Intel® Xeon® E3-1275 v5 3.60 GHz CPU with 32 GB (four 8GB) 2133 MHz DDR4 memory)
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 244mm x 305mm
- Weight: GW: 1200g / NW: 700g
- CE/FCC compliant

Features

- LGA 1151 Intel® Xeon® E3 v5/v6, 6th/7th generation Core™ i3, Pentium® or Celeron® processor supported
- Dual-channel DDR4 2133 MHz
- Intel® PCIe GbE with Intel® AMT11.0 support
- Support independent triple display with HDMI, DVI and VGA
- Support PCI Express generation 3.0 at 8GT/s I/O bandwidth
- USB 3.2 Gen 1 (5Gb/s) and SATA 6Gb/s
- Support IPMI 2.0 via iRIS-2400

Packing List

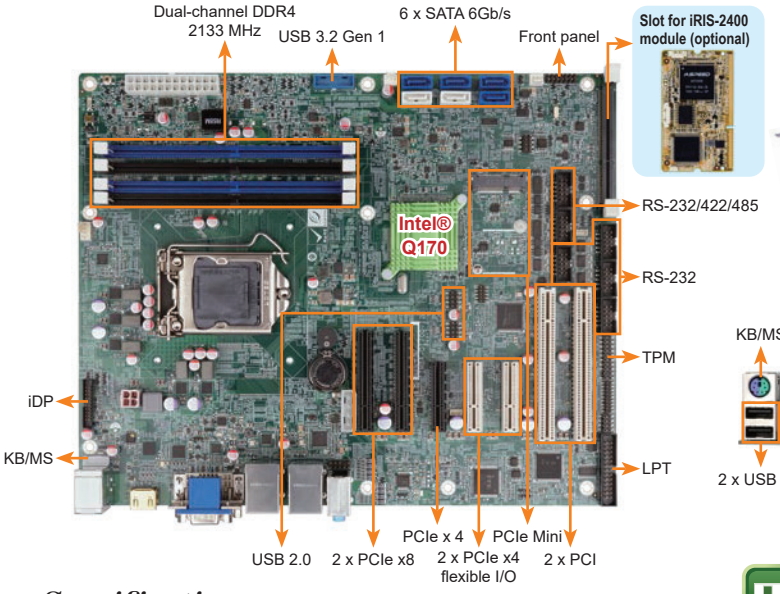
1 x IMBA-C2360-i2 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

Ordering Information

Part No.	Description
IMBA-C2360-i2-R10	ATX motherboard supports 14nm LGA1151 Intel® Xeon® E3 v5 series, Core™ i3, Pentium®, Celeron® processor per Intel® C236, DDR4, triple independent display VGA/DVI-D/HDMI 2.0, dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio, IPMI 2.0 and RoHS
iRIS-2400-R10	IPMI 2.0 adapter card with AST2400 BMC chip for DDR3 SO-DIMM socket interface
PCIES-2PIMSATA-R10	Peripheral card for flexible I/O, 1 x PCIe Mini, 2 x mSATA expansion
PCIES-USB3-R10	Peripheral card for flexible I/O, USB 3.2 Gen 1 (5Gb/s) expansion
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
19800-003100-100-RS	Dual port USB cable with bracket, 30mm, P=2.54
19800-010500-200-RS	USB 3.2 Gen 1 (5Gb/s) cable with bracket, 457mm
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
CF-115XC-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-115XD-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High performance LGA1155/LGA1156 cooler kit, 95W
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to 24-bit dual-channel LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
TPM-IN02-R20	20-pin Infineon TPM 2.0 module, software management tool, firmware v5.5

IMBA-Q170-i2

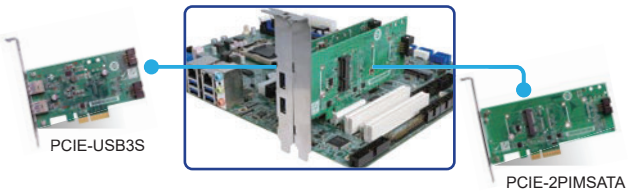
ATX motherboard supports 14nm LGA1151 Intel® CPU, Intel® Q170, DDR4, triple independent display VGA/ DVI-D/ HDMI 2.0, dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio, IPMI 2.0 and RoHS

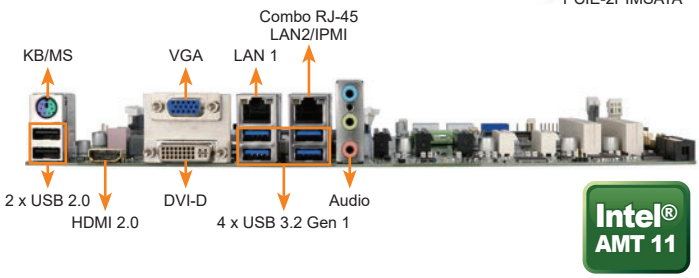


Flexible I/O support

IEI USB 3.2 Gen 1 (5Gb/s) & mSATA/PCIe Mini expansion card

The expansion card can provide more choices to meet users demand





Intel® AMT 11

DDR4 2133 | Triple Display | USB 3.2 | SATA 6Gb/s | PCIe GbE | HDMI

Specifications

- CPU
  LGA 1151 socket supports Intel® 6th/7th generation Core™ i7/i5/i3, Pentium® or Celeron® processor
- Chipset
  Intel® Q170
- Memory
  Four 288-pin 2133 MHz dual-channel DDR4 SDRAM unbuffered DIMMs support up to 64 GB
- BIOS: UEFI BIOS
- Graphics Engine
  Intel® HD Graphics Gen 9 engine with 16 low-power execution units, supports DX11/12, OpenGL 4.3/4.4 and OpenCL2.x, ES 2.0
- Display Output
  Triple independent display
  1 x VGA (up to 1920x1200@60 Hz)
  1 x DVI-D (up to 1920x1200@60Hz)
  1 x HDMI 2.0 (up to 4096x2160@60Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60Hz)
- Ethernet
  LAN1: Intel® I219LM with Intel® AMT 11.0 support
  LAN2: Intel® I210AT PCIe controller with NCSI support
- External I/O Interface
  2 x USB 2.0
  4 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x LPT (2x13 pin, P=2.54)
  2 x USB 3.2 Gen 1 (5Gb/s) (2x10 pin, P=2.0)
  2 x RS-232/422/485 (2x5 pin, P=2.54)
  4 x RS-232 (2x5 pin, P=2.54)
  4 x USB 2.0 (2x4 pin, P=2.0)
  6 x SATA 6Gb/s (RAID 0/1/5/10 supported)
- SMBus: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- TPM: 1 x TPM (2x10 pin)
- Audio
  Realtek ALC662 HD codec supports 5.1-channel
  3 x Audio jacks (line-out, line-in, mic-in) on rear IO
  1 x Front audio (2x5 pin)
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED: 2 x LAN LED (1x2 pin)
- Expansion
  1 x Full-size PCIe Mini card slot (support mSATA)
  2 x PCI slot
  2 x PCIe x 8 slot (Gen3)
  3 x PCIe x 4 slot (Gen3)
- iRIS Remote Management Module: 1 x iRIS-2400 slot
- Watchdog Timer: Software programmable supports 1~255 sec. system reset
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  2 x System smart fan (1x3 pin)
- Chassis Open: 1 x Chassis intrusion (1x2 pin)
- Power Supply: ATX/AT power supply
- Power Consumption
  3.3V@1.65A, 5V@3.4A, 12V@8.58A, 5VSB@3.4A
  (Intel® Core™ i7 6700K 4.0GHz CPU with 32 GB (four 4 GB) 2133 MHz DDR4 memory)
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 244mm x 305mm
- Weight: GW: 1200g / NW: 700g
- CE/FCC compliant

Features

- LGA 1151 Intel® 6th/7th generation Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- Dual-channel DDR4 2133 MHz
- Support triple display with HDMI, DVI and VGA
- Support USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s and PCI Express Gen3
- Support IPMI 2.0 via iRIS-2400 module

Packing List

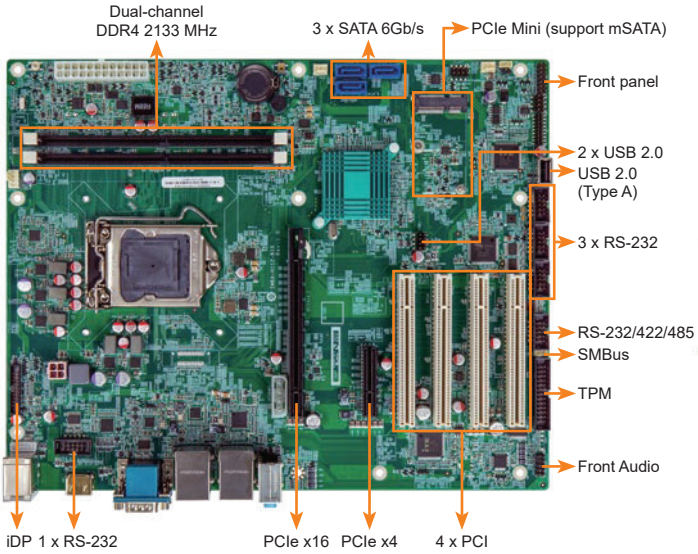
1 x IMBA-Q170-i2 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

Ordering Information

Part No.	Description
IMBA-Q170-i2-R10	ATX motherboard supports 14nm LGA1151 Intel® CPU, Intel® Q170, DDR4, triple independent display VGA/ DVI-D/ HDMI 2.0, dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio, IPMI 2.0 and RoHS
IMBA-Q170-ECO-R10	ATX motherboard supports 14nm LGA1151 Intel® CPU, Intel® Q170, DDR4, triple independent display VGA/ DVI-D/ HDMI 2.0, dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio, ECO packing and RoHS
iRIS-2400-R10	IPMI 2.0 adapter card with AST2400 BMC chip for DDR3 SO-DIMM socket interface
PCIES-2PIMSATA-R10	Peripheral card for flexible I/O, 1 x PCIe Mini, 2 x mSATA expansion
PCIES-USB3-R10	Peripheral card for flexible I/O, USB 3.2 Gen 1 (5Gb/s) expansion
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
19800-003100-100-RS	Dual port USB cable with bracket, 30mm, P=2.54
19800-010500-200-RS	USB 3.2 Gen 1 (5Gb/s) cable 457mm with bracket
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-000702-100-RS	RS-232 cable, 230mm, P=2.54
CF-115XC-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-115XD-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High-performance LGA1155/1156 cooler kit, 95W
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to 24-bit dual-channel LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
TPM-IN02-R20	20-pin Infineon TPM 2.0 module, software management tool, firmware v5.5

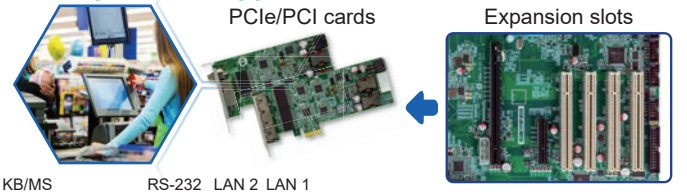
IMBA-H112

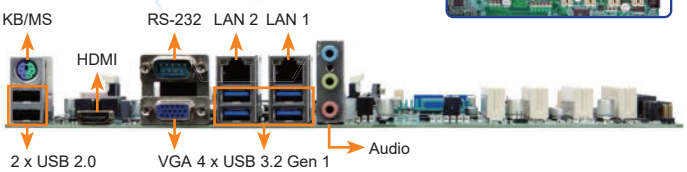
ATX Motherboard supports 14nm LGA1151 6th/7th Generation Intel® Core i7/i5/i3, Celeron® and Pentium® processor, DDR4, Dual Independent Displays VGA and HDMI, Dual®Intel GbE LAN, USB 3.2, SATA 6Gb/s, HD Audio and RoHS



PCIe and PCI Slots for Multiple Expansion Support

New





DDR4 2133 | Dual Display | USB 3.2 | SATA 6Gb/s | PCIe GbE

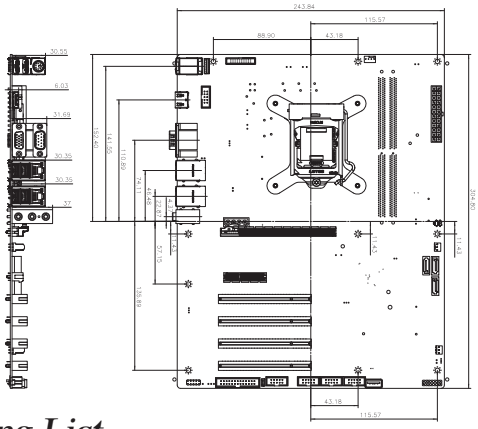
Features

- LGA 1151 Intel® 6th/7th generation Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- Dual-channel DDR4 2133MHz
- Support dual displays with VGA/HDMI/iDP
- Support USB 3.2 Gen 1 (5Gb/s) and SATA 6Gb/s

Specifications

- CPU
  LGA 1151 socket supports Intel® 6th/7th generation Core™ i7/i5/i3, Pentium® or Celeron® processor
- System Chipset
  Intel® H110
- Memory
  Two 288-pin 2133 MHz dual-channel DDR4 SDRAM unbuffered DIMMs support up to 64 GB
- BIOS
  AMI UEFI BIOS
- Graphic Engine
  Intel® HD Graphics Gen 9 Engines with Low power 16 execution unit, supports DX2015, OpenGL 5.X and OpenCL2.x, ES 2.0
- Display Output
  Dual independent display
  1 x VGA (up to 1920 x 1080@60Hz)
  1 x HDMI 1.4 (up to 4096x2160@24Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60Hz)
- Ethernet
  LAN1: Intel® I219V PHY
  LAN2: Intel® I211 PCIe controller
- External I/O Interface
  4 x USB 3.2
  2 x USB 2.0
  1 x RS-232
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x LPT (2x13 pin, P=2.54)
  1 x USB 2.0 (type A)
  2 x USB 2.0 (2x4 pin, P=2.54)
  1 x RS-232/422/485 (2x5 pin, P=2.54)
  3 x SATA 6Gb/s (support Hot plug)
  4 x RS-232 (2x5 pin, P=2.54)
- SMBus: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- Audio
  Realtek ALC662 HD Audio Codec support 5.1 Channel (2 Audio Jack colay 3 Jack) (Line-out, Mic)
- Front Audio
  2 x 5-pin pin header
- Front Panel
  1 x Front Panel (2 x 7 pin, Power LED, HDD LED, Speaker, Power Button, Reset Button)
- LAN LED
  2 x LAN LED (1x2 pin)
- Expansion
  1 x Full-size PCIe Mini card slot (support mSATA)
  1 x PCIe x16 slot (Gen3)
  1 x PCIe x4
  4 x PCI slot
- Watchdog Timer
  Software Programmable support 1~255 sec. system reset
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x4 pin)
- Power Supply: ATX/AT Power Supply
- Power Consumption
  3.3V@1.53A, 5V@2.95A, 12V@8.38A, 5VSB@3.2A (4.0 GHz Intel® Core™ i7-6700K CPU with two 8 GB 2133 MHz DDR4 memory)
- Operating Temperature: -20°C~60°C
- Storage Temperature: -20°C~70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Weight: 1200g / NW: 700g
- CE/FCC compliant

Dimensions *(Unit: mm)*



Packing List

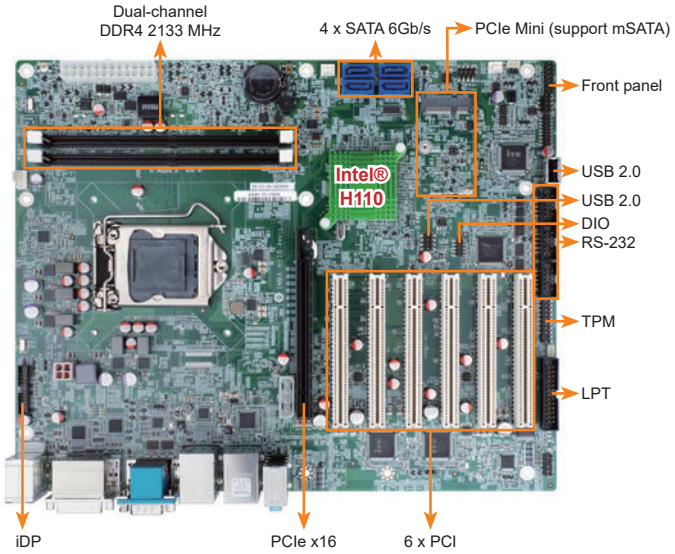
1 x IMBA-H112 single board computer	1 x SATA cable
1 x I/O shielding	1 x QIG

Ordering Information

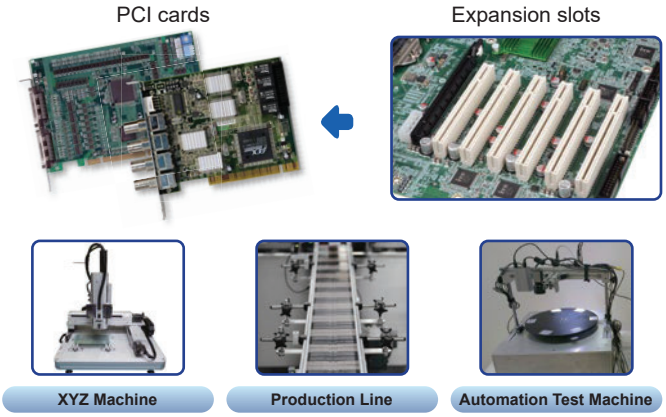
Part No.	Description
IMBA-H112-R10	ATX Motherboard supports 14nm LGA1151 6th/7th Generation Intel® Core i7/i5/i3, Celeron® and Pentium® processor, DDR4, Dual Independent Displays VGA and HDMI, Dual®Intel GbE LAN, USB 3.2, SATA 6Gb/s, HD Audio and RoHS
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
19800-020100-100-RS	RS-232 cable, 230mm, P=2.54
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32801-000703-500-RS	SATA cable, 2, 500mm, 26AWG, 30V, SATA 7P female 180°+LOCK, one pcs pkg W/ label, 32000-062800-RS substitute, Wins Precision, RoHS
CF-115XC-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-115XD-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High performance LGA1155/LGA1156 cooler kit, 95W
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to 24-bit dual-channel LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
TPM-IN02-R20	20-pin Infineon TPM 2.0 module, software management tool, firmware v5.5

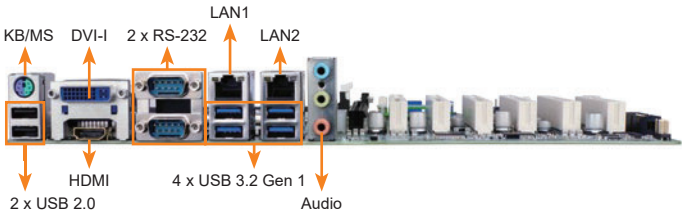
IMBA-H110

ATX motherboard supports 14nm LGA1151 6th Generation Intel® Core™ i7/i5/i3, Celeron® and Pemtium® processor, DDR4, dual independent displays DVI-I/HDMI/ iDP, dual Intel® GbE LAN, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio and RoHS



Multiple PCI Expansion Support







Specifications

- CPU
  LGA 1151 socket supports Intel® 6th/7th generation Core™ i7/i5/i3, Pentium® or Celeron® processor
- Chipset
  Intel® H110
- Memory
  Two 288-pin 2133 MHz dual-channel DDR4 SDRAM unbuffered DIMMs support up to 64 GB
- BIOS
  UEFI BIOS
- Graphics Engine
  Intel® HD Graphics Gen 9 engine with 16 low-power execution units supports DX2015, OpenGL 5.X and OpenCL2.x, ES 2.0
- Display Output
  Dual independent display
  1 x DVI-I (up to 1920x1200@60Hz)
  1 x HDMI 1.4 (up to 4096x2160@24Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60Hz)
- Ethernet
  LAN1: Intel® I219LM PCIe controller
  LAN2: Intel® I211 PCIe controller
- External I/O Interface
  4 x USB 3.2 Gen 1 (5Gb/s)
  2 x USB 2.0
  2 x RS-232
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x LPT (2x13 pin, P=2.54)
  1 x RS-232/422/485 (2x5 pin, P=2.54)
  1 x USB 2.0 (180° Type-A)
  2 x RS-232 (2x5 pin, P=2.54)
  2 x USB 2.0 (2x4 pin, P=2.54)
  4 x SATA 6Gb/s
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- TPM
  1 x TPM (2x10 pin)
- Audio
  Realtek ALC662 HD codec supports 5.1-channel
  3 x Audio jacks (line-out, line-in, mic-in) on rear IO
  1 x Front audio (2x5 pin)
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED: 2 x LAN LED (1x2 pin)
- Expansion
  1 x Full-size PCIe Mini card slot (support mSATA)
  1 x PCIe x16 slot (Gen3)
  6 x PCI slot
- Watchdog Timer: Software programmable supports 1~255 sec. system reset
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  2 x System fan (1x3 pin)
- Power Supply: ATX/AT power supply
- Power Consumption
  3.3V@1.53A, 5V@2.95A, 12V@8.38A, 5VSB@3.2A
  (Intel® Core™ i7 6700K 4.0GHz CPU with 16GB (two 8GB) 2133 MHz DDR4 memory)
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 244mm x 305mm
- Weight: GW: 1200g / NW: 700g
- CE/FCC compliant

Features

- LGA 1151 Intel® 6th/7th generation Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- Dual-channel DDR4 2133 MHz
- Support dual displays with DVI-I/HDMI/iDP
- Support USB 3.2 Gen 1 (5Gb/s) and SATA 6Gb/s

Packing List

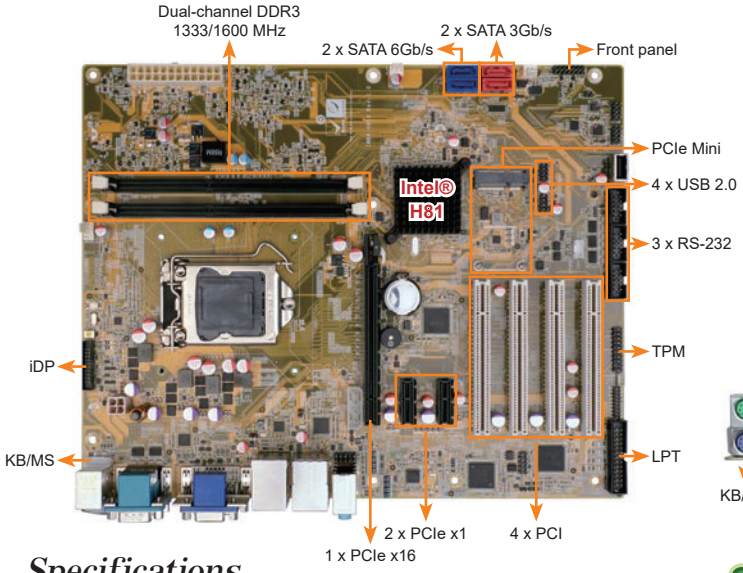
1 x IMBA-H110 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

Ordering Information

Part No.	Description
IMBA-H110-R10	ATX motherboard supports 14nm LGA1151 6th Generation Intel® Core™ i7/i5/i3, Celeron® and Pemtium® processor, DDR4, dual independent displays DVI-I/HDMI/iDP, dual Intel® GbE LAN, SATA 6Gb/s, USB 3.2 Gen 1 (5Gb/s), HD Audio and RoHS
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
19800-020100-100-RS	RS-232 cable, 230mm, P=2.54
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
CF-115XC-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-115XD-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High performance LGA1155/LGA1156 cooler kit, 95W
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to 24-bit dual-channel LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
TPM-IN02-R20	20-pin Infineon TPM 2.0 module, software management tool, firmware v5.5

IMBA-H810

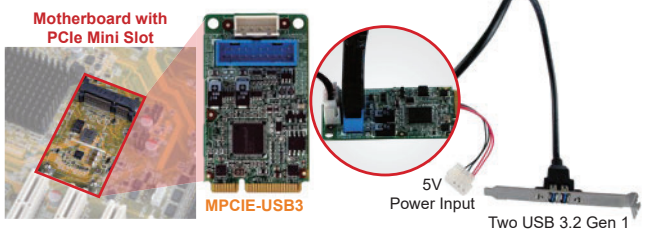
ATX motherboard supports 22nm LGA 1150 4th generation Intel® Core™ i7/i5/i3, Pentium® and Celeron® CPU with Intel® H81, DDR3, VGA/DVI-D/iDP, dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio and RoHS

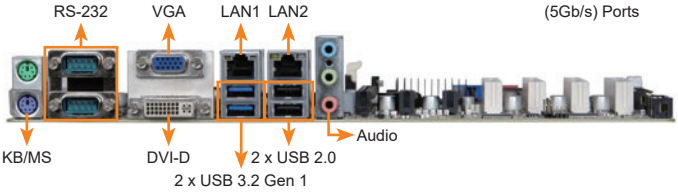


PCIe Mini Add-on Value

IEI USB 3.2 Gen 1 (5Gb/s) Expanded Solution

The MPCIE-USB3 board can be installed to add two additional SuperSpeed USB 3.2 Gen 1 (5Gb/s) ports for the motherboard via the PCIe Mini slot.







Specifications

- CPU
  LGA1150 Intel® Core™ i7/i5/i3, Pentium® and Celeron® processor supported
- Chipset
  Intel® H81
- Memory
  Two 240-pin 1600/1333 MHz dual-channel DDR3 SDRAM ECC and non-ECC unbuffered DIMMs support up to 16GB
- BIOS
  UEFI BIOS
- Graphics Engine
  Intel® HD Graphics Gen 7.5 supports DX11.1 and OpenCL 1.2, OpenGL 3.2 Full MPEG2, VC1, AVC Decode
- Display Output
  Dual independent display
  1 x VGA (up to 1920x1200@60 Hz)
  1 x DVI-D (up to 2560x1600@60 Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60 Hz)
- Ethernet
  LAN1: Intel® I217-LM with Intel® AMT9.0 support
  LAN2: Intel® I211-AT PCIe Controller
- External I/O Interface
  1 x KB/MS
  2 x RS-232
  2 x USB 2.0
  2 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x LPT (2x13 pin)
  1 x mSATA (share with SATA4)
  1 x RS-422/485 (1x4 pin, P=2.0)
  2 x SATA 6Gb/s (SATA1, SATA2) (AHCI supported, no RAID) (Blue)
  1 x USB 2.0 (180° Type-A)
  2 x SATA 3Gb/s (SATA3, SATA4) (Red)
  3 x RS-232 (2x5 pin, P=2.54)
  4 x USB 2.0 (2x4 pin, P=2.54)
- Audio
  Realtek ALC662 HD codec supports 5.1-channel
  3 x Audio jacks (line-out, line-in, mic-in) on rear IO
  1 x Front audio (2x5 pin)
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED
  2 x LAN LED (1x2 pin)
- TPM
  1 x TPM (2x10 pin)
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- Infrared Interface
  1 x Infrared Interface (1x5 pin)
- Expansion
  1 x Full-size PCIe Mini card slot (support mSATA)
  1 x PCIe x16
  2 x PCIe x1
  4 x PCI
- Watchdog Timer
  Software programmable supports 1~255 sec. system reset
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x 4 pin)
  1 x System fan (1x 3 pin)
- Chassis Intrusion Detection: 1 x Chassis intrusion connector (1x2 pin)
- Power Supply: ATX power supply, ATX/AT mode support
- Power Consumption
  3.3V@0.83A, 5V@2.2A, 12V@3.88A, 5VSB@0.3A
  (Intel® Core™ i7-4770K 3.90GHz CPU with 8 GB (two 4 GB) 1333 MHz DDR3 memory)
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 244 mm x 305 mm
- Weight: GW: 1200g / NW: 700g
- CE/FCC compliant

Features

- 4th generation LGA1150 Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- Dual-channel DDR3 1333/1600 MHz support up to 16 GB
- Intel® HD Graphics technology integrates high-performance graphics and media processing
- USB 3.2 Gen 1 (5Gb/s), and SATA supported
- TPM V1.2 hardware security function supported by TPM module

Packing List

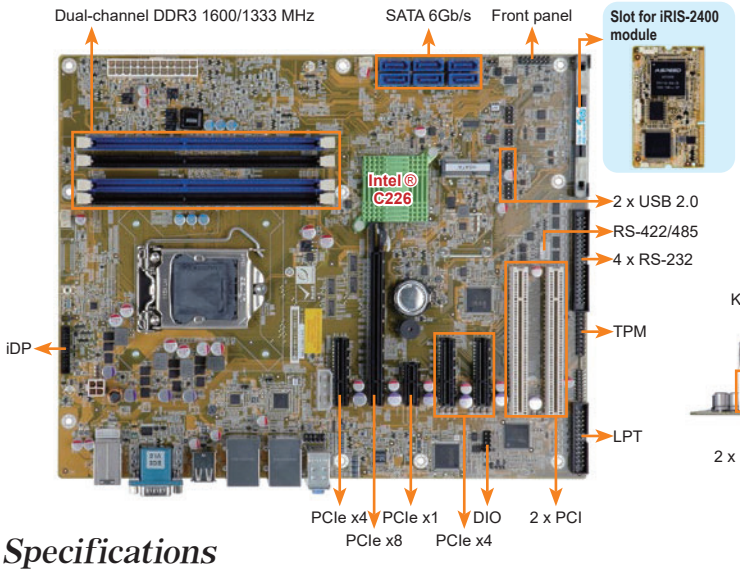
1 x IMBA-H810 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

Ordering Information

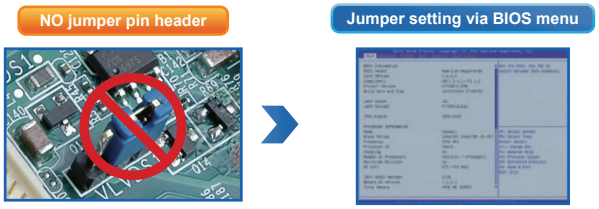
Part No.	Description
IMBA-H810-R10	ATX motherboard supports 22nm LGA 1150 4th generation Intel® Core™ i7/i5/i3, Pentium® and Celeron® CPU with Intel® H81, DDR3, VGA/DVI-D/iDP, dual Intel® PCIe GbE, SATA 6Gb/s, USB 3.2 Gen 1 (5Gb/s), HD Audio and RoHS
IMBA-H810-ECO-R10	ATX motherboard supports 22nm LGA 1150 4th generation Intel® Core™ i7/i5/i3, Pentium® and Celeron® CPU with Intel® H81, DDR3, VGA/DVI-D/iDP, dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio, ECO packing, RoHS (10 pce/ pack)
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
19800-010500-200-RS	USB 3.2 Gen 1 (5Gb/s) cable with bracket, 450mm
19800-020100-100-RS	RS-232 cable with bracket, Dual 10-pin to dual DB-9, 230mm, P=2.54
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-001203-100-RS	RS-232 cable with bracket, Dual 10-pin to dual DB-9, 230mm, P=2.54
32205-003800-200-RS	RS-422/485 cable, 200mm, P=2.0
CF-115XA-R10	High performance LGA1155/LGA1156 cooler kit, 1U chassis compatible, 73W
CF-115XE-R10	High performance LGA1155/LGA1156 cooler kit, 95W
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to 24-bit dual-channel LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

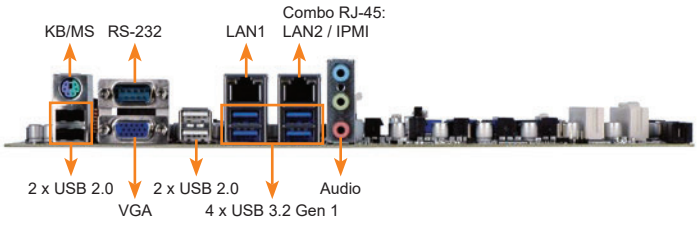
IMBA-C2260-i2-R11

ATX motherboard supports 22nm LGA1150 Intel® Xeon E3, Core™ i3, Pentium® and Celeron®, DDR3, VGA, dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, iRIS-2400 and RoHS



Fully Jumper-less Support





IPMI 2.0 Compliant

DDR3 1600 | Jumper-less | USB 3.2 | SATA 6Gb/s | PCIe GbE | mSATA

Specifications

- CPU
  LGA1150 Intel® Xeon® E3, Core™ i3, Pentium® or Celeron® processor supported
- Chipset
  Intel® C226
- Memory
  Four 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM ECC and non-ECC unbuffered DIMMs support up to 32 GB
- BIOS
  UEFI BIOS
- Ethernet
  LAN1: Intel® I217LM with Intel® AMT 9.0 support
  LAN2: Intel® I210-AT PCIe controller with NCSI support
- Graphics Engine
  Intel® HD Graphics Gen 7.5 supports DX11.1 and OpenCL 1.2, OpenGL 3.2
  Full MPEG2, VC1, AVC Decode
- Display Output
  Triple independent display
  1 x VGA (up to 1920x1200@60 Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60 Hz)
- Audio
  Realtek ALC662 HD codec supports 5.1-channel
  3 x Audio jacks (line-out, line-in, mic-in) on rear IO
  1 x Front audio (2x5 pin)
- External I/O Interface
  1 x KB/MS
  1 x RS-232
  4 x USB 2.0
  4 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x LPT (2x13 pin, P=2.54)
  1 x mSATA (colay SATA 6)
  6 x SATA 6Gb/s (RAID 0/1/5/10 supported)
  1 x RS-422/485 (1x4 pin, P=2.0)
  4 x RS-232 (2x20 pin, P=2.54)
  4 x USB 2.0 (2x4 pin,P=2.54)
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED
  2 x LAN LED (1x2 pin)
- TPM
  1 x TPM (2x10 pin)
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- iRIS Remote Management Module: 1 x iRIS-2400 slot
- Expansion
  1 x PCIe x16 slot
  3 x PCIe x4 slot (support PCIe x1)
  Default setting: 1 x PCIe x8 Gen 3 + 2 x PCIe x4 Gen 3 signal
  Optional setting: 1 x PCIe x16 Gen 3 by BIOS setting
  1 x PCIe x1 slot
  2 x PCI slot
- Watchdog Timer: Software programmable, support 1~255 sec. system reset
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU fan (1x4 pin)
  2 x System fan (1x3 pin)
- Power Supply: ATX power supply
- Power Consumption
  3.3V@0.57A, 5V@4.50A, 12V@0.14A, Vcore_12V@5.20A, 5VSB@0.19A
  (Intel® E3-1240 v3 3.4GHz CPU with 16 GB (4x4 GB) 1333 MHz DDR3 memory)
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 244mm x 305mm
- Weight: GW: 1200g / NW: 700g
- CE/FCC compliant

Features

- LGA1150 Intel® Xeon® E3/Core™ i3/Pentium®/Celeron® processor supported
- Dual-channel DDR3 1600/1333 MHz support up to 32 GB
- Intel® PCIe GbE with Intel® AMT 9.0 support
- Support PCI Express generation 3.0 at 8GT/s I/O bandwidth
- USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s and mSATA supported
- High-speed interface for one PCIe x8 or two PCIe x4 add-on cards
- IEI jumper-less function
- Support IPMI 2.0 via iRIS-2400 module

Packing List

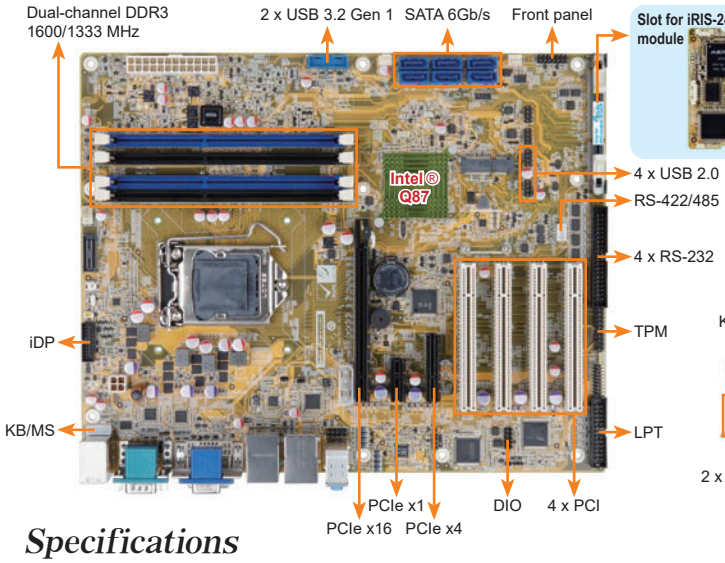
1 x IMBA-C2260-i2 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

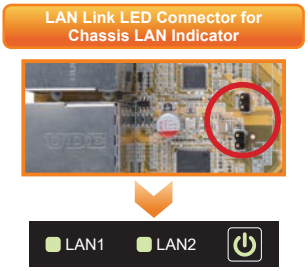
Ordering Information

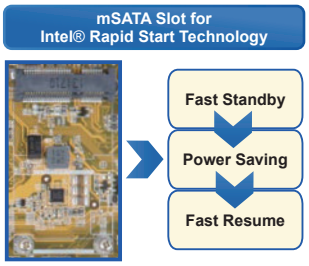
Part No.	Description
IMBA-C2260-i2-R11	ATX motherboard supports 22nm LGA1150 Intel® Xeon E3, Core™ i3, Pentium® and Celeron® per Intel® C226, DDR3, VGA, Dual Intel® PCIe GbE, HD Audio, four USB 3.2 Gen 1 (5Gb/s), six SATA 6Gb/s, iRIS-2400 and RoHS
iRIS-2400-R10	IPMI 2.0 adapter card with AST2400 BMC chip for DDR3 SO-DIMM socket interface
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
19800-003100-300-RS	Dual port USB cable with bracket, 300mm, P=2.54
19800-010500-200-RS	USB 3.2 Gen 1 (5Gb/s) cable 457mm with bracket
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-001203-200-RS	RS-232 cable, 40-pin to four DB-9, 400mm, P=2.54
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
CF-115XA-R10	High performance LGA1155/LGA1156 cooler kit, 1U chassis compatible, 73W
CF-115XE-R10	High performance LGA1155/LGA1156 cooler kit, 95W
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to 24-bit dual-channel LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

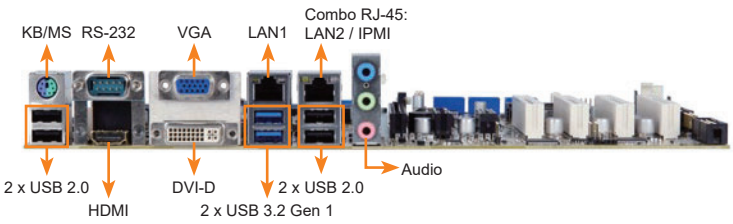
IMBA-Q870-i2

ATX motherboard supports 22nm LGA1150 Intel® Core™ i7/i5/i3, Pentium® and Celeron® CPU per Intel® Q87, DDR3, triple independent display VGA, DVI-D, HDMI, iDP, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, iRIS-2400









Specifications

- CPU
  LGA1150 4th generation Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- Chipset
  Intel® Q87
- Memory
  Four 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs support up to 32 GB
- BIOS
  UEFI BIOS
- Ethernet
  LAN1: Intel® I217LM with Intel® AMT 9.0 support
  LAN2: Intel® I210-AT PCIe controller with NCSI support
- Graphics Engine
  Intel® HD Graphics Gen 7.5 supports DX11.1 and OpenCL 1.2, OpenGL 3.2
  Full MPEG2, VC1, AVC Decode
- Display Output
  Triple independent display
  1 x VGA (up to 1920x1200@60 Hz)
  1 x DVI-D (up to 2560x1600@60 Hz)
  1 x HDMI (up to 2560x1600@60 Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60 Hz)
- Audio
  Realtek ALC662 HD codec supports 5.1-channel
  3 x Audio jacks (line-out, line-in, mic-in) on rear IO
  1 x Front audio (2x5 pin)
- External I/O Interface
  1 x KB/MS
  1 x RS-232
  2 x USB 3.2 Gen 1 (5Gb/s)
  4 x USB 2.0
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x LPT (2x13 pin, P=2.54)
  1 x mSATA (colay SATA 6)
  1 x RS-422/485 (1x4 pin,P=2.54)
  2 x USB 3.2 Gen 1 (5Gb/s) (2x10 pin, P=2.0)
  4 x RS-232 (2x20 pin,P=2.54)
  4 x USB 2.0 (2x4 pin, P=2.54)
  6 x SATA 6Gb/s (RAID 0/1/5/10 supported)
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED
  2 x LAN LED (1x2 pin)
- TPM
  1 x TPM (2x10 pin)
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- iRIS Remote Management Module: 1 x iRIS-2400 slot
- Expansion
  1 x PCIe x16 slot (Gen 3)
  1 x PCIe x1 slot
  1 x PCIe x4 slot
  4 x PCI slots
- Watchdog Timer
  Software programmable, support 1~255 sec. system reset
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  2 x System fan (1x3 pin)
- Power Supply: ATX Power Supply
- Power Consumption
  3.3V@0.66A, 5V@4.34A, 12V@0.16A, Vcore_12V@4.01A, 5VSB@0.21A
  (Intel® Core™ i7-4770K 3.90 GHz CPU with 16 GB (4x4 GB) 1333 MHz DDR3 memory)
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 244mm x 305mm
- Weight: GW: 1200g / NW: 700g
- CE/FCC compliant



Features

- LGA1150 4th generation Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- Dual-channel DDR3 1600/1333 MHz
- Intel® PCIe GbE with Intel® AMT 9.0 support
- Support triple independent display with HDMI, DVI and VGA and iDP
- Support PCI Express generation 3.0 at 8GT/s I/O bandwidth
- USB 3.2 Gen 1 (5Gb/s) and SATA 6Gb/s mSATA supported
- IEI jumper-less function
- Support IPMI 2.0 via iRIS-2400 module

Packing List

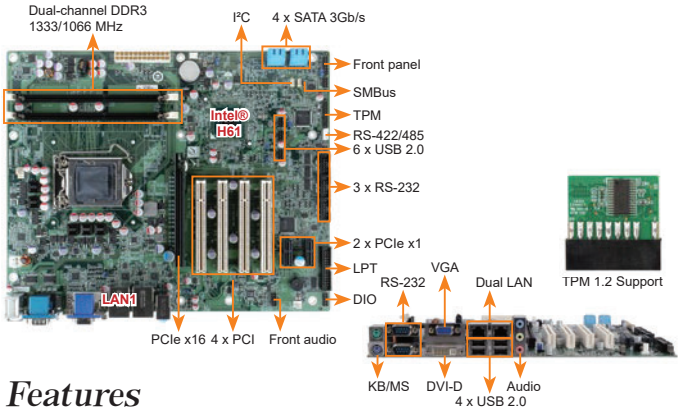
1 x IMBA-Q870-i2 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

Ordering Information

Part No.	Description
IMBA-Q870-i2-R10	ATX motherboard supports 22nm LGA1150 Intel® Core™ i7/i5/i3, Pentium® and Celeron® CPU per Intel® Q87, DDR3, triple independent display VGA/DVI-D/HDMI/iDP, dual Intel® GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, audio, iRIS-2400 and RoHS
IMBA-Q870-ECO-R10	LGA1150 Intel® Core™ i7/i5/i3, Pentium® and Celeron® CPU per Intel® Q87, DDR3, triple independent display VGA, DVI-D, HDMI, iDP, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, ECO packing, RoHS (10 pce/pack)
iRIS-2400-R10	IPMI 2.0 adapter card with AST2400 BMC chip for DDR3 SO-DIMM socket interface
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
19800-003100-300-RS	Dual port USB cable with bracket, 300mm, P=2.54
19800-010500-200-RS	USB 3.2 Gen 1 (5Gb/s) cable 457mm with bracket
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-001203-200-RS	RS-232 cable, 40-pin to four DB-9, 400mm, P=2.54
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
CF-115XA-R10	High performance LGA1155/LGA1156 cooler kit, 1U chassis compatible, 73W
CF-115XE-R10	High performance LGA1155/LGA1156 cooler kit, 95W
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to 24-bit dual-channel LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

IMBA-H610

ATX motherboard supports LGA1155 Intel® Core™ i7/i5/i3/Pentium®/Celeron® CPU with Intel® H61, DDR3, VGA/DVI-D, dual Realtek PCIe GbE, SATA 3Gb/s, USB 2.0, HD Audio and RoHS



Features

- LGA1155 Intel® Core™ i7/i5/i3/Pentium®/Celeron® processor supported
- Up to 32GB 1333 MHz dual-channel DDR3 SDRAM
- Intel® HD Graphics technology integrates high-performance graphics and media processing
- TPM V1.2 hardware security provided by the TPM module

Specifications

- CPU
  LGA1155 socket supports Intel® Core™ i7/i5/i3/ Pentium®/Celeron® processor
- Chipset: Intel® H61
- Memory
  Two 240-pin 1333/1066 MHz dual-channel DDR3 SDRAM unbuffered DIMMs support up to 16 GB
- BIOS: UEFI BIOS
- Ethernet
  LAN1: Realtek RTL8111E PCIe GbE controller with ASF 2.0 support
  LAN2: Realtek RTL8111E PCIe GbE controller
- Graphics Engine
  Intel® HD Graphics 2000/3000 (based on CPU type)
  Supports DX10.1 and OpenGL 3.0
  Full MPEG2, VC1, AVC Decode
- Display Output
  Dual independent display
  1 x VGA (up to 2048x1536@75Hz)
  1 x DVI-D (up to 1920x1200@60Hz)
- Audio
  Realtek ALC662 HD codec supports 5.1-channel
  3 x Audio jacks (line-out, line-in, mic-in) on rear IO
  1 x Front audio (2x5 pin)
- TPM: 1 x TPM (2x10 pin)
- SMBus: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- Digital I/O: 8-bit digital I/O (2x5 pin)
- External I/O Interface
  1 x KB/MS 2 x RS-232 4 x USB 2.0
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x LPT(2x13 pin, P=2.54)
  1 x RS-422/485 (1x4 pin, P=2.0)
  4 x RS-232 (2x5 pin, P=2.54)
  4 x SATA 3Gb/s (AHCI supported)
  6 x USB 2.0 (2x4 pin, P=2.54)
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- Expansion
  1 x PCIe x16 slot 2 x PCIe x1 slot
  4 x PCI slot
- Watchdog Timer: Software programmable supports 1~255 sec. system reset
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  2 x System fan (1x3 pin)
- Power Supply: ATX power supply
- Power Consumption
  3.3V@1.27A, 5V@3.87A, 12V@0.54A, Vcore@7.67A, 5VSb@0.15A (Intel® Core™ i7-2600K 3.40GHz CPU with two 1333 MHz 2 GB DDR3 memory)
- Operating Temperature: -10°C ~ 60°C
- Storage Temperature: -20°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 244 mm x 305 mm
- Weight: GW: 1200g / NW: 700g
- CE/FCC compliant

Packing List

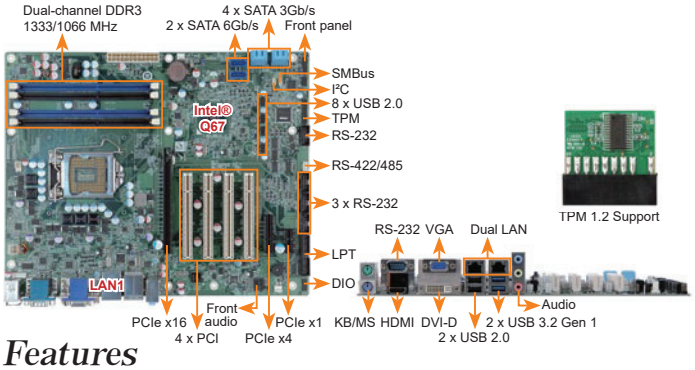
1 x IMBA-H610 single board computer	
4 x SATA cable	1 x Mini jumper pack
1 x I/O shielding	1 x QIG

Ordering Information

Part No.	Description
IMBA-H610-R10	ATX motherboard supports LGA1155 Intel® Core™ i7/i5/i3/Pentium®/ Celeron® CPU with Intel® H61, DDR3, VGA/DVI-D, dual Realtek PCIe GbE, USB 2.0, SATA 3Gb/s, HD Audio and RoHS
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-003100-100-RS	Dual port USB cable with bracket, 300mm, P=2.54
19800-020100-100-RS	RS-232 cable with bracket, Dual 10-pin to dual DB-9, 230mm, P=2.54
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
CF-115XA-R10	High-performance LGA1155/LGA1156 cooler kit, 1U chassis compatible, 73W
CF-115XC-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-115XD-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High-performance LGA1155/LGA1156 cooler kit, 95W
CPU-DT-C-G440	Intel® Celeron® G440 processor, LGA1155, single core 1.6GHz, 1M cache, 35W, compatible with CF-115XC-R10 CPU cooler
CPU-DT-i3-2120T	Intel® Core™ i3-2120T processor, LGA1155, dual core 2.6GHz, 3M cache, 35W, compatible with CF-115XC-R10 CPU cooler
CPU-DT-i5-2390T	Intel® Core™ i5-2390T processor, LGA1155, dual core 2.7GHz, 3M cache, 35W, AMT, compatible with CF-115XC-R10 CPU cooler
CPU-DT-i5-2500T	Intel® Core™ i5-2500T processor, LGA1155, quad core 2.3GHz, 6M cache, 45W, compatible with CF-115XC-R10 CPU cooler
CPU-DT-P-G630T	Intel® Pentium® G630T processor, LGA1155, dual core 2.3GHz, 3M cache, 35W, compatible with CF-115XC-R10 CPU cooler
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

IMBA-Q670-R30

ATX motherboard supports LGA1155 Intel® Core™ i7/i5/i3/Pentium®/Celeron® CPU with Intel® Q67, DDR3, VGA/DVI-D/HDMI, dual Intel® PCIe GbE, SATA 6Gb/s, USB 3.2 Gen 1 (5Gb/s), HD Audio and RoHS



Features

- LGA1155 Intel® Core™ i7/i5/i3/Pentium®/Celeron® processor supported
- Up to 32 GB 1333 MHz dual-channel DDR3 SDRAM
- Intel® PCIe GbE with Intel® AMT 7.0 support
- USB 3.2 Gen 1 (5Gb/s) and SATA 6Gb/s supported

Specifications

- CPU
  LGA1155 socket supports Intel® Core™ i7/i5/i3/ Pentium®/Celeron® processor
- Chipset: Intel® Q67
- Memory
  Four 240-pin 1333/1066 MHz dual-channel DDR3 SDRAM unbuffered DIMMs support up to 32 GB
- BIOS: UEFI BIOS
- Ethernet
  LAN1: Intel® 82583V PCIe controller
  LAN2: Intel® 82579 PHY with Intel® AMT 7.0 supported
- Graphics Engine
  Support for DX10.1 and OpenGL3.0
  Full MPEG2, VC1, AVC Decode
- Display Output
  Dual independent display
  1 x VGA (up to 2048x1536@75Hz)
  1 x HDMI (up to 1920x1200@60Hz)
  1 x DVI-D (up to 1920x1200@60Hz)
- Audio: Realtek ALC662 HD Audio codec
  3 x Audio jacks (line-out, line-in, mic-in) on rear IO
  1 x Front audio (2x5 pin)
- TPM: 1 x TPM (2x10 pin)
- SMBus: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- Digital I/O: 8-bit digital I/O (2x5 pin)
- External I/O Inteface
  1 x KB/MS 2 x USB 2.0
  1 x RS-232 2 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x LPT (2x13 pin, P=2.54)
  1 x RS-422/485 (1x4 pin, P=2.0)
  2 x SATA 6Gb/s (RAID 0/1/5/10 supported)
  4 x RS-232 (2x5 pin, P=2.54)
  4 x SATA 3Gb/s (RAID 0/1/5/10 supported)
  8 x USB 2.0 (2x4 pin, P=2.54)
- Expansion
  1 x PCIe x16 slot 1 x PCIe x1 slot
  1 x PCIe x4 slot4 x PCI slots
- Watchdog Timer: Software programmable supports 1~255 sec. system reset
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  2 x System fan (1x3 pin)
- Power Supply: ATX/AT power supply
- Power Consumption
  3.3V@1.65A, 5V@6.31A , 12V@0.18A, Vcore@7.88A, 5VSb@0.15 (Intel® Core™ i5-2400 3.10GHz CPU with four 4 GB 1333 MHz DDR3 memory)
- Operating Temperature: -10°C ~ 60°C
- Storage Temperature: -20°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 244mm x 305mm
- Weight: GW: 1200g / NW: 700g
- CE/FCC compliant

Packing List

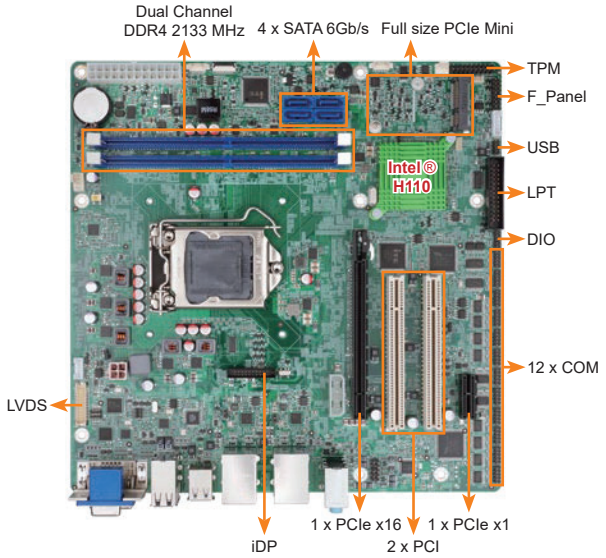
1 x IMBA-Q670 single board computer	
1 x I/O shielding	1 x Mini jumper pack
4 x SATA cable	1 x QIG

Ordering Information

Part No.	Description
IMBA-Q670-R30	ATX motherboard supports LGA1155 Intel® Core™ i7/i5/i3/Pentium®/ Celeron® CPU with Intel® Q67, DDR3, VGA/DVI-D/HDMI, dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio and RoHS
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-003100-300-RS	Dual port USB cable with bracket, 300mm, P=2.54
19800-020100-100-RS	RS-232 cable with bracket, Dual 10-pin to dual DB-9, 230mm, P=2.54
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-003800-300-RS	RS-422/485 cable, 200mm
CF-115XA-R10	High-performance LGA1155/LGA1156 cooler kit, 1U chassis compatible, 73W
CF-115XC-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-115XD-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High-performance LGA1155/LGA1156 cooler kit, 95W
CPU-DT-C-G440	Intel® Celeron® G440 processor, LGA1155, single core 1.6GHz, 1M cache, 35W, compatible with CF-115XC-R10 CPU cooler
CPU-DT-i3-2120T	Intel® Core™ i3-2120T processor, LGA1155, dual core 2.6GHz, 3M cache, 35W, compatible with CF-115XC-R10 CPU cooler
CPU-DT-i5-2390T	Intel® Core™ i5-2390T processor, LGA1155, dual core 2.7GHz, 3M cache, 35W, AMT, compatible with CF-115XC-R10 CPU cooler
CPU-DT-i5-2500T	Intel® Core™ i5-2500T processor, LGA1155, quad core 2.3GHz, 6M cache, 45W, compatible with CF-115XC-R10 CPU cooler
CPU-DT-P-G630T	Intel® Pentium® G630T processor, LGA1155, dual core 2.3GHz, 3M cache, 35W, compatible with CF-115XC-R10 CPU cooler
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

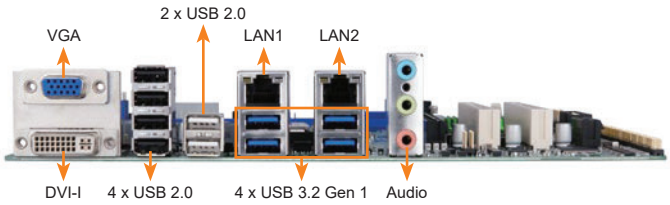
IMB-H110

microATX Motherboard supports 14nm LGA1151 Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor, DDR4, Dual Independent Displays VGA/ DVI-I/LVDS, Dual GbE LAN, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio and RoHS



Multiple Expansion Support







Specifications

- CPU
  LGA 1151 socket supports Intel® 6th/7th generation Core™ i7/i5/i3, Pentium® or Celeron® processor
- Chipset
  Intel® skylake H110
- Memory
  Two 288-pin 2133MHz Dual-Channel DDR4 SDRAM Unbuffered DIMM supported up to 64GB
- BIOS
  UEFI BIOS
- Graphics Engine
  Intel® HD Graphics Gen 9 Engines with Low power 16 execution unit, supports DX2015, OpenGL 5.X and OpenCL2.x, ES 2.0
- Display Output
  Dual independent display
  1 x VGA (up to 1920x1200@60Hz)
  1 x DVI-I (up to 1920x1200@ 60Hz)
  1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60Hz)
- Ethernet
  LAN1: RTL 8111GN controller
  LAN2: RTL 8111GN controller
- External I/O Interface
  4 x USB 3.2 Gen 1 (5Gb/s)
  6 x USB 2.0
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x LPT (2x13 pin, P=2.54)
  4 x SATA 6Gb/s
  2 x RS-232/422/485 (2x5 pin, P-=2.0)
  2 x USB 2.0 (2x4 pin, P=2.0)
  10 x RS-232 (2x5 pin, P=2.0)
- SMBus
  1 x SMBus (1x4 pin)
- TPM
  1 x TPM (2x10 pin)
- Audio
  Realtek ALC662 HD Audio codec supports 5.1-channel
  3 x Audio jacks (line-out, line-in, mic-in) on rear IO
  1 x Front audio (2x5 pin)
- Front Panel
  1 x Front Panel (2x7 pin, Power LED, HDD LED, Speaker, Power Button, Reset Button)
- LAN LED
  2 x LAN LED (1x2 pin)
- I²C
  1 x I²C (1x4 pin)
- Expansion
  1 x PCIe x16 slot (Gen3)
  1 x PCIe x1 slot (Gen2)
  1 x Full/Half-size PCIe Mini card slot
  2 x PCI slot
- Watchdog Timer
  Software programmable, supports 1~255 sec. system reset
- Digital I/O: 8-bit Digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System fan (1x3 pin)
- Power Supply: ATX/AT Power Supply
- Power Consumption
  3.3V@ 0.93A, 5V@2.99A, 12V@6.88A, 5VSB@0.02A (Intel® Core™ i7-6700K 4.0GHz CPU with 16GB (two 8GB) 2133 MHz DDR4 memory)
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 9%, non-condensing
- Weight: GW: 1200g / NW: 700g
- CE/FCC compliant

Features

- LGA 1151 Intel® 6th/7th generation Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- Dual-channel DDR4 2133MHz support up to 64GB
- Support Dual displays via VGA/DVI-I/LVDS
- USB 3.2 Gen 1 (5Gb/s) and SATA 6Gb/s supported
- 12 COM & 12 USB

Packing List

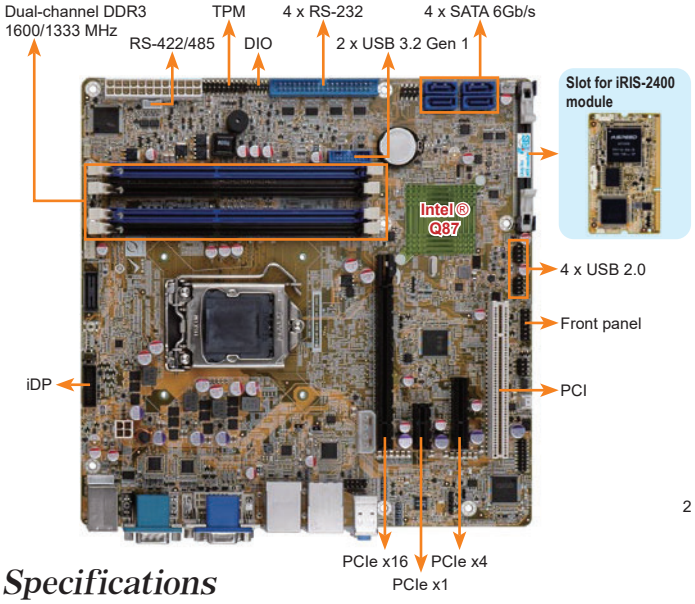
1 x IMB-H110 motherboard	2 x SATA cable
1 x I/O shielding	1 x QIG

Ordering Information

Part No.	Description
IMB-H110-R10	microATX motherboard supports 14nm LGA1151 Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor supported, DDR4, Dual independent displays VGA/DVI-I/LVDS, Dual GbE LAN, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio and RoHS
IMB-H110-ECO-R10	microATX Motherboard supports 14nm LGA1151 6th Generation Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor per Intel® H110, DDR4, VGA/DVI-I/LVDS, Dual GbE LAN, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio, ECO Packing and RoHS
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
19800-000200-100-RS	RS-232 cable with bracket, Dual 10-pin to dual DB-9, 300mm, P=2.0
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
CF-115XA-R10	High performance LGA1155/LGA1156 cooler kit, 1U chassis compatible, 73W
CF-115XE-R10	High performance LGA1155/LGA1156 cooler kit, 95W
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to 24-bit dual-channel LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
TPM-IN02-R20	20-pin Infineon TPM 2.0 module, software management tool, firmware v5.5

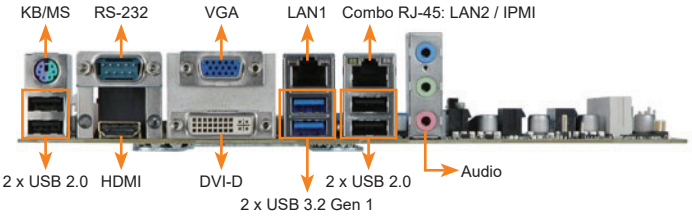
IMB-Q870-i2

microATX motherboard supports 22nm LGA1150 Intel® Core™ i7/i5/i3, Pentium® and Celeron® CPU per Intel® Q87, DDR3, HDMI, DVI-D, VGA, iDP, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, six serial ports, iRIS-2400



New and More Powerful Graphics

2nd Generation Intel® Core™ Processor (Sandy Bridge)	3rd Generation Intel® Core™ Processor (Ivy Bridge)	4th Generation Intel® Core™ Processor (Haswell)	
Intel® HD Graphics 3000 series	Intel® HD Graphics 4000 series	GT3- Intel® HD Graphics 5000 series	Core i7
Intel® HD Graphics 2000 series	Intel® HD Graphics 2500 series	GT2- Intel® HD Graphics 4000 series	Core i5/ Core i3
Intel® HD Graphics series	Intel® HD Graphics series	GT1- Intel® HD Graphics series	Celeron/ Pentium



IPMI 2.0 Compliant

Native PCIe Gen. 3

DDR3 1600 | Jumper-less | Triple Display | USB 3.2 | SATA 6Gb/s | PCIe GbE

Specifications

- CPU
  LGA1150 Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- Chipset
  Intel® Q87
- Memory
  Four 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs support up to 32 GB
- BIOS
  UEFI BIOS
- Ethernet
  LAN1: Intel® I217LM with Intel® AMT 9.0 support
  LAN2: Intel® I210-AT PCIe controller with NCSI support
- Graphics Engine
  Intel® HD Graphics Gen 7.5 supports DX11.1 and OpenCL 1.2, OpenGL 3.2
  Full MPEG2, VC1, AVC Decode
- Display Output
  Triple independent display
  1 x VGA (up to 1920x1200@60Hz)
  1 x DVI-D (up to 2560x1600@60Hz)
  1 x HDMI (up to 2560x1600@60Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60Hz)
- Audio
  Realtek ALC662 HD Audio codec supports 5.1-channel
  3 x Audio jacks (line-out, line-in, mic-in) on rear IO
  1 x Front audio (2x5 pin)
- External I/O Inteface
  1 x KB/MS
  1 x RS-232
  2 x USB 3.2 Gen 1 (5Gb/s)
  4 x USB 2.0
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x RS-422/485 (1x4 pin, P=2.0)
  2 x USB 3.2 Gen 1 (5Gb/s) (2x10 pin)
  4 x SATA 6Gb/s (RAID 0/1/5/10 supported)
  4 x RS-232 (2x5 pin, P=2.54)
  4 x USB 2.0 (2x4 pin, P=2.54)
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED
  2 x LAN LED (1x2 pin)
- TPM: 1 x TPM (2x10 pin)
- SMBus: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- iRIS Remote Management Module: 1 x iRIS-2400 slot
- Expansion
  1 x PCIe x16 slot (Gen 3)
  1 x PCIe x1 slot
  1 x PCIe x4 slot
  1 x PCI slot
- Watchdog Timer
  Software programmable, support 1~255 sec. system reset
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  2 x System smart fan (1x3 pin)
- Power Supply: ATX power supply
- Power Consumption
  3.3V@0.53A, 5V@4.96A, 12V@0.12A, Vcore_12V@3.95A, 5VSB@0.18A
  (Intel® Core™ i7-4770K 3.90 GHz CPU with 16 GB (4x4 GB) 1333 MHz DDR3 memory)
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 244mm x 244mm
- Weight: GW: 1200g / NW: 700g
- CE/FCC compliant

Features

- LGA1150 4th generation Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- Dual-channel DDR3 1600/1333 MHz supported
- Intel® PCIe GbE with Intel® AMT 9.0 support
- Support triple display via HDMI, DVI, VGA and iDP
- Support PCI Express generation 3.0 at 8GT/s I/O bandwidth
- USB 3.2 Gen 1 (5Gb/s) and SATA 6Gb/s supported
- IEI jumper-less function
- Support IPMI 2.0 via iRIS-2400 module

Packing List

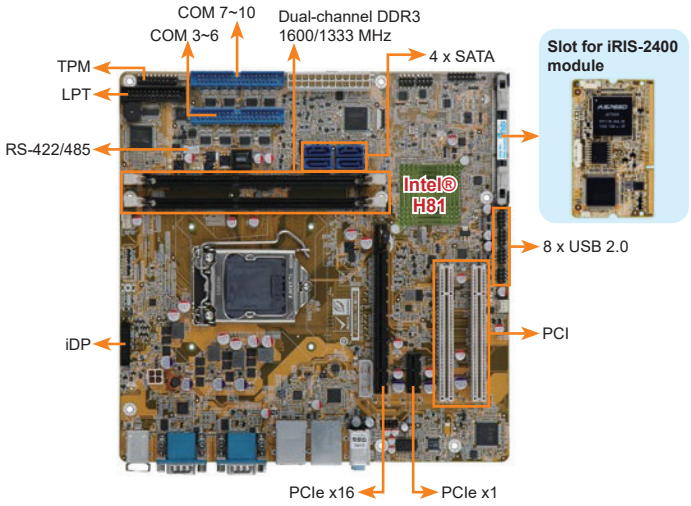
1 x IMB-Q870-i2 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

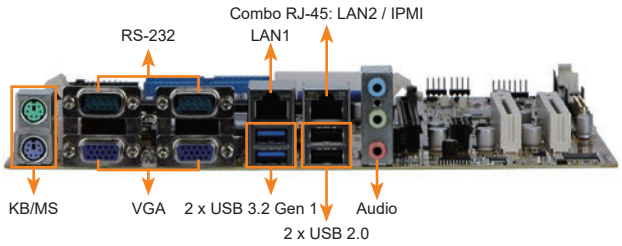
Ordering Information

Part No.	Description
IMB-Q870-i2-R10	microATX motherboard supports 22nm LGA1150 Intel® Core™ i7/i5/i3/Pentium® and Celeron® CPU per Intel® Q87, DDR3, dual Intel® PCIe GbE, HDMI, DVI-D, VGA, DP, audio, SATA 6Gb/s, USB 3.2 Gen 1 (5Gb/s), six serial ports, iRIS-2400 and RoHS
iRIS-2400-R10	IPMI 2.0 adapter card with AST2400 BMC chip for DDR3 SO-DIMM socket interface
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
19800-003100-300-RS	Dual port USB cable with bracket, 300mm, P=2.54
19800-010500-200-RS	USB 3.2 Gen 1 (5Gb/s) cable with bracket, 450mm
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-001203-200-RS	RS-232 cable, 40-pin to four DB-9, 400mm, P=2.54
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
CF-115XA-R10	High performance LGA1155/LGA1156 cooler kit, 1U chassis compatible, 73W
CF-115XE-R10	High performance LGA1155/LGA1156 cooler kit, 95W
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to 24-bit dual-channel LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

IMB-H810-i2-R11

microATX motherboard supports 22nm LGA1150 Intel® Core™ i7/i5/i3, Pentium®, Celeron® CPU per Intel® H81, DDR3, VGA, dual GbE, LPT, COM, SATA 6Gb/s, iRIS-2400





IPMI 2.0 Compliant

DDR3 1600 | USB 3.2 | SATA 6Gb/s | PCIe GbE

Specifications

- CPU
  LGA1150 Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- Chipset
  Intel® H81
- Memory
  Two 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs support up to 16 GB
- BIOS
  UEFI BIOS
- Ethernet
  LAN1: Intel® I217LM with Intel® AMT9.0 support
  LAN2: Intel® I210-AT PCIe controller with NCSI support
- Graphics Engine
  Intel® HD Graphics Gen 7.5 supports DX11.1 and OpenCL 1.2, OpenGL 3.2
  Full MPEG2, VC1, AVC Decode
- Display Output
  Dual independent display
  2 x VGA (up to 1920x1200@60Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60Hz)
- Audio
  Realtek ALC662 HD Audio codec supports 5.1-channel
  3 x Audio jacks (line-out, line-in, mic-in) on rear IO
  1 x Front audio (2x5 pin)
- iRIS Remote Management Module
  1 x iRIS-2400 slot
- TPM
  1 x TPM (2x10 pin)
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- LAN LED: 2 x LAN LED (1x2 pin)
- External I/O Interface
  1 x KB/MS
  2 x RS-232
  2 x USB 2.0
  2 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x LPT (2x13 pin, P=2.54)
  1 x RS-422/485 (1x4 pin, P=2.0)
  2 x SATA 3Gb/s
  2 x SATA 6Gb/s
  8 x RS-232 (2x20 pin, P=2.54)
  8 x USB 2.0 (2x4 pin, P=2.54)
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- Expansion
  1 x PCIe x16 slot (Gen 3)
  1 x PCIe x1 slot
  2 x PCI slot
- Watchdog Timer
  Software programmable, supportS 1~255 sec system reset
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x3 pin)
- Power Supply
  ATX power supply
- Power Consumption
  3.3V@0.64A, 5V@4.20A, 12V@0.14A, Vcore_12V@3.88A, 5VSB@0.20A
  (Intel® Core™ i7-4770K 3.90 GHz CPU with 8 GB (two 4 GB) 1333 MHz DDR3 memory)
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 244mm x 244mm
- Weight: GW: 1200g / NW: 680g
- CE/FCC compliant

Features

- LGA1150 4th generation Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- Dual-channel DDR3 1333/1600 MHz support up to 16 GB
- Intel® HD Graphics technology integrates high-performance graphics and media processing
- Supports legacy PCI 32-bit 33/66 MHz
- Ten COM ports, USB 3.2 Gen 1 (5Gb/s) and SATA supported
- TPM V1.2 hardware security function supported by TPM module
- Support IPMI 2.0 via iRIS-2400 module
- IEI jumper-less function

Packing List

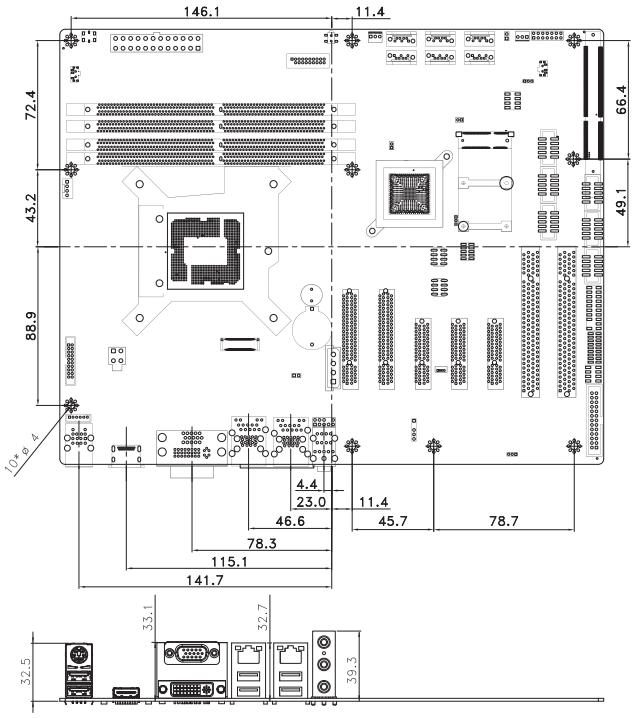
1 x IMB-H810-i2 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

Ordering Information

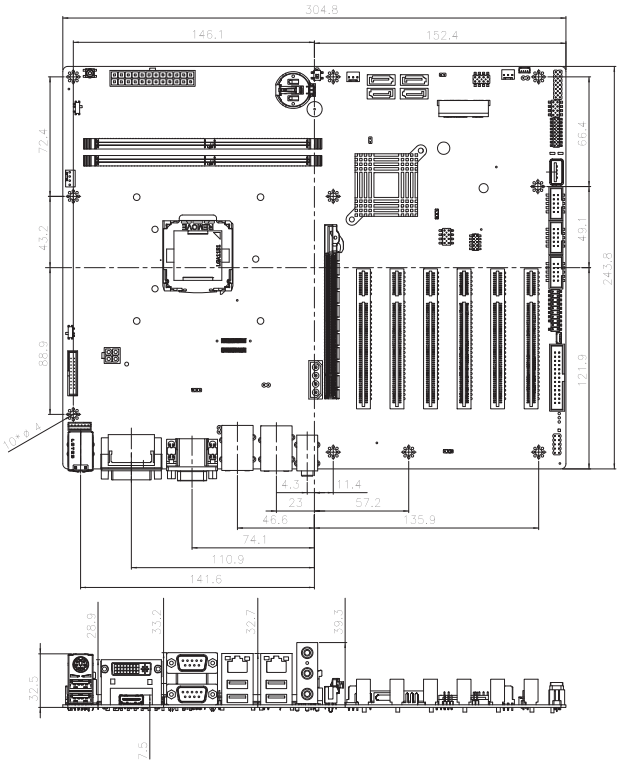
Part No.	Description
IMB-H810-i2-R11	microATX motherboard supports 22nm LGA1150 Intel® Core™ i7/i5/i3/Pentium® and Celeron® CPU per Intel® H81, DDR3, VGA, Dual Intel® PCIe GbE, USB 2.0, PCI, COM, SATA 6Gb/s, LPT, HD Audio, iRIS-2400 and RoHS
IMB-H810-ECO-R11	LGA1150 Intel® Core™ i7/i5/i3, Pentium® and Celeron® CPU per Intel® H81, DDR3, VGA, Dual PCIe GbE, USB 2.0, COM, LPT, SATA 6Gb/s, HD Audio, ECO packing, RoHS (10 pce/pack)
iRIS-2400-R10	IPMI 2.0 adapter card with AST2400 BMC chip for DDR3 SO-DIMM socket interface
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
19800-003100-100-RS	Dual port USB cable with bracket, 30mm, P=2.54
19800-010500-200-RS	USB 3.2 Gen 1 (5Gb/s) cable with bracket, 450mm
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-001203-200-RS	RS-232 cable, 40-pin to four DB-9, 400mm, P=2.54
32205-003801-100-RS	RS-232/422/485, RS-422/485 cable, 500mm
CF-115XA-R10	High performance LGA1155/LGA1156 cooler kit, 1U chassis compatible, 73W
CF-115XE-R10	High performance LGA1155/LGA1156 cooler kit, 95W
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to 24-bit dual-channel LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

Dimensions (Unit: mm)

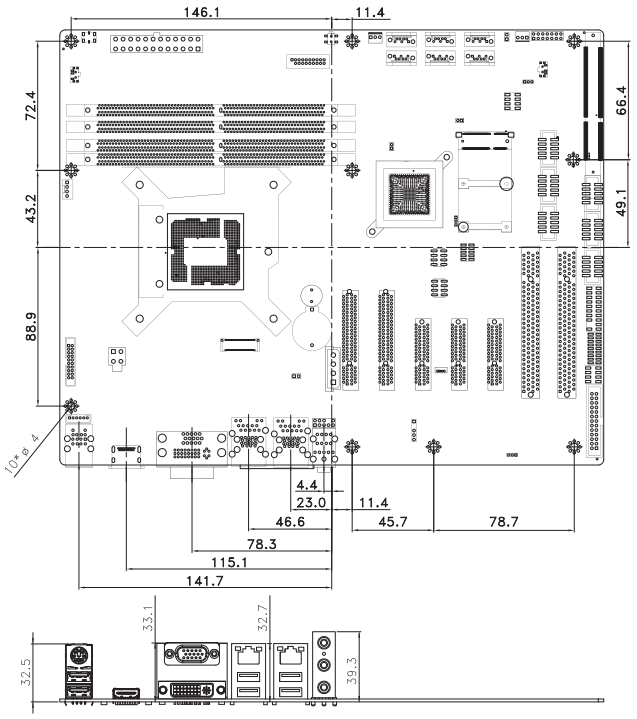
IMBA-C2360-i2



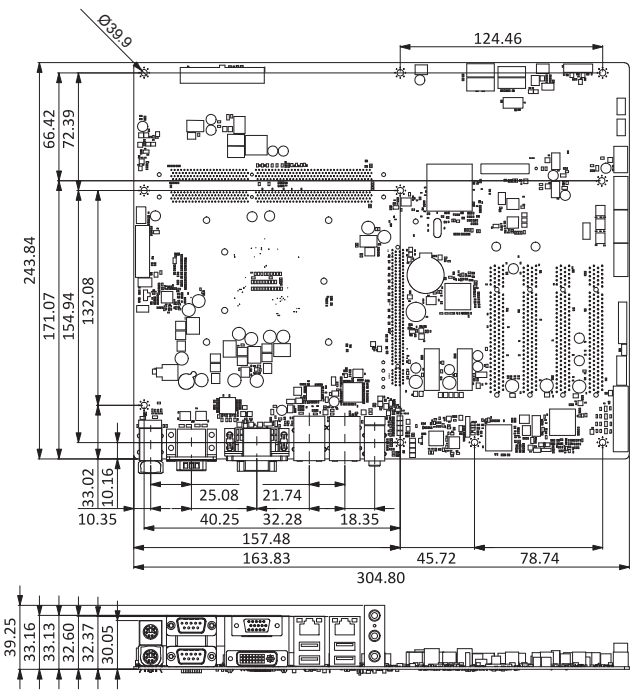
IMBA-H110



IMBA-Q170-i2

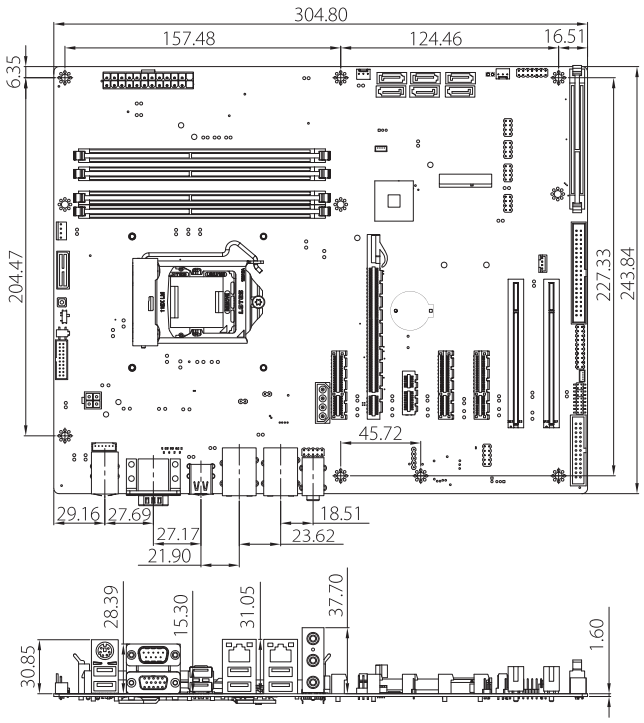


IMBA-H810

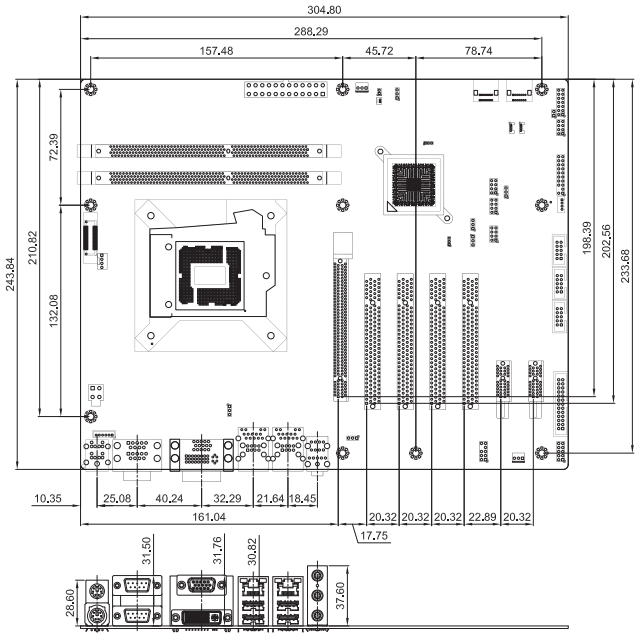


Dimensions (Unit: mm)

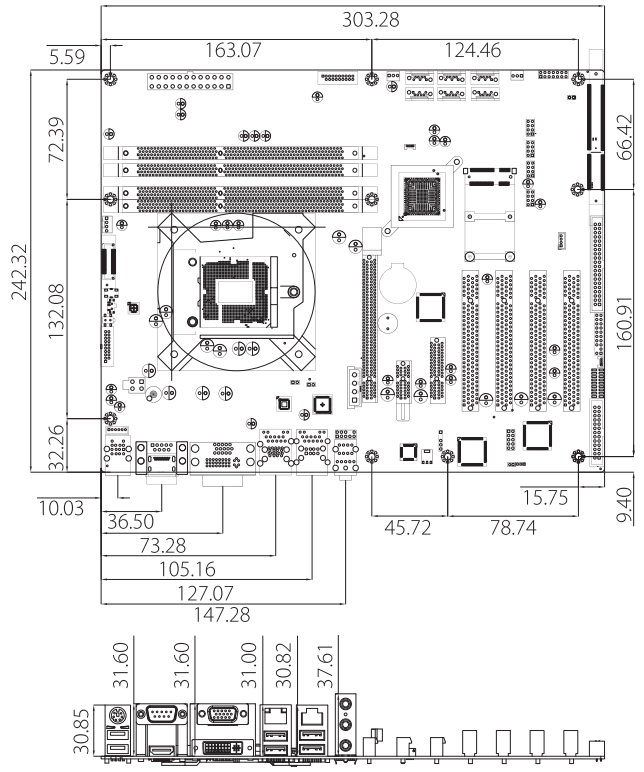
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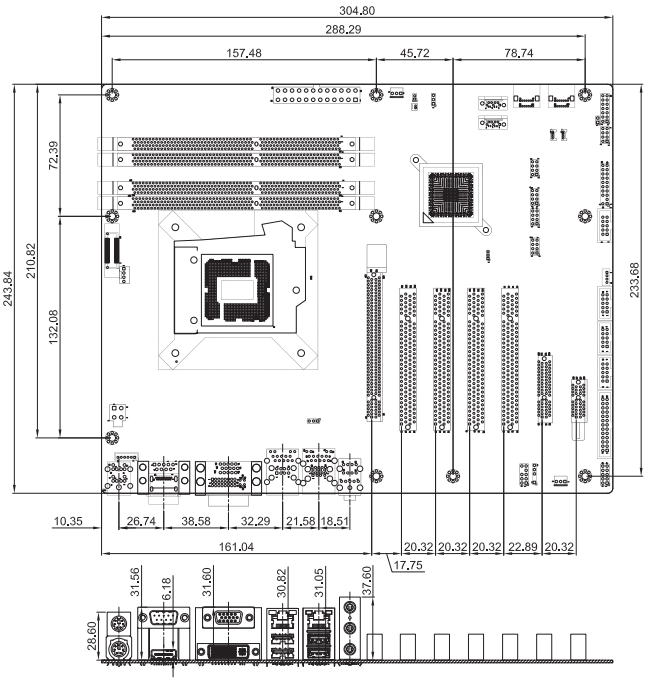
IMBA-H610



IMBA-Q870-i2

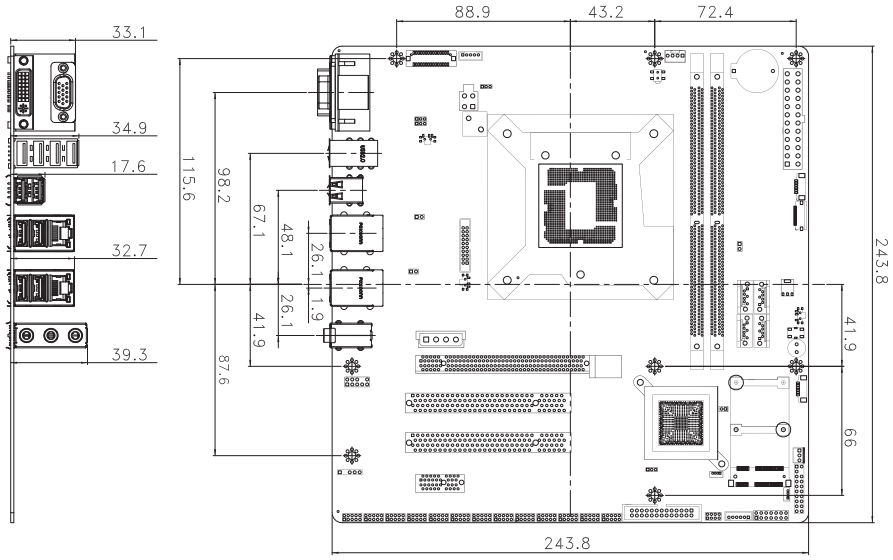


IMBA-Q670-R30

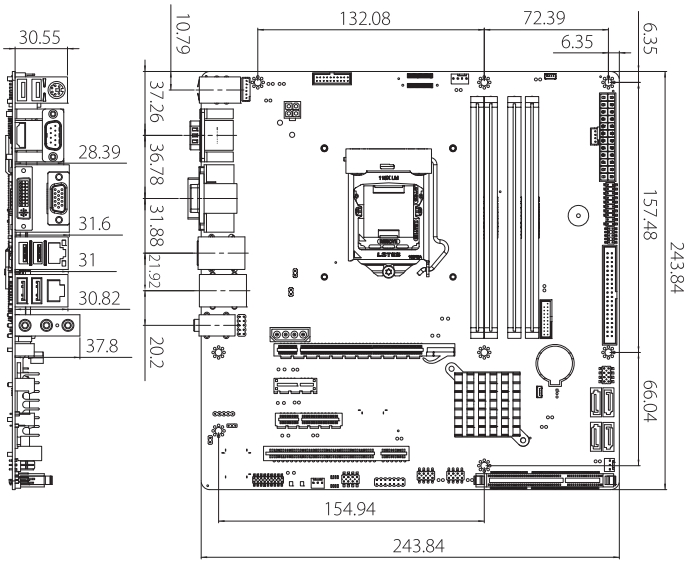


Dimensions (Unit: mm)

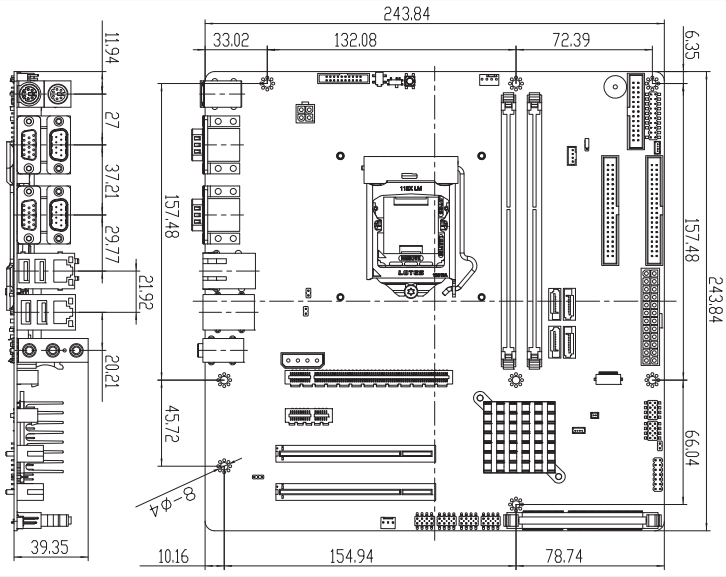
IMB-H110



IMB-Q870-i2



IMB-H810-i2-R11



Mini-ITX Selection Guide

Preliminary








Model Name	KINO-V1000/R1000	KINO-DH310	KINO-DH110	KINO-DAL	tKINO-AL	gKINO-DMF
CPU Socket	On Board	LGA1151	LGA1151	On Board	On Board	On Board
CPU Type	AMD® Ryzen™ Embedded V1000/R1000 series on board SoC	8th generation Intel® Core™ i7/i5/i3 Pentium® and Celeron® processor	6th/7th generation Intel® Core™ i7/i5/i3 Pentium® and Celeron® processor	Intel® Atom™/Celeron®/ Pentium® on-board SoC	Intel® Atom™/Celeron®/ Pentium® on-board SoC	AMD G-series on board SoC Merlin Falcon
Chipset	AMD® Ryzen™ Embedded V1000/R1000 series on board SoC	Intel® H310	Intel® H110	Intel® Atom™/Celeron®/ Pentium® on-board SoC	Intel® Atom™/Celeron®/ Pentium® on-board SoC	AMD G-series on board SoC Merlin Falcon
Memory	2 x SO-DIMM DDR4 2400MHz up to 64GB	2 x 260-pin 2666/2400 MHz dual-channel DDR4 SDRAM SO-DIMMs (system Max. 64 GB)	2 x 260-pin 2666/2400 MHz dual-channel DDR4 SDRAM SO-DIMMs (system Max. 64 GB)	2 x 204-pin 1866/1600 MHz single-channel DDR3L SO-DIMM (system max. 8 GB)	2 x 204-pin 1866/1600 MHz single-channel DDR3L SO-DIMM (system max. 8 GB)	2 x SO-DIMM DDR4 2400MHz up to 64GB
Display Interface	Triple independent display 4 x DP (KINO-V1000) 3 x DP (KINO-R1000)	Dual independent display 2 x HDMI 1 x iDP interface	Dual independent display 1 x DP++ 1 x HDMI 1 x iDP interface	Triple independent display 1 x VGA 1 x HDMI 1 x 18/24-bit dual channel LVDS	Triple independent display 2 x DP++ 1 x eDP	Triple independent display 1 x HDMI 2.0 1 x HDMI 1.4 1 x DP++
Ethernet	Dual LAN: RTL8111GN	Dual LAN: RTL8111H	LAN1: Intel® I210-AT PCIe controller with NCSI support LAN2: Intel® I219LM with Intel® AMT 11.0 support	Dual LAN: Intel® I210-IT/211AT PCIe controller	Dual LAN: RTL8111	Dual LAN: RTL8111GN
iRIS Remote Management Module	N/A					
I/O Interface	8 x RS-232 (2 support綜 AFC, 2 support Cctalk, TTL) 4 x USB 2.0 2 x USB 3.2 Gen1	1 x KB/MS 1 x RS-422/485 3 x RS-232, 4 x USB 3.2 Gen 1 4 x USB 2.0	1 x KB/MS 1 x RS-232/422/485 2 x RS-232, 4 x USB 3.2 Gen 1 4 x USB 2.0 2 x SATA 6G/s	1 x PS2 KB/MS 2 x RS-232/422/485 2 x USB 2.0 4 x RS-232 4 x USB 3.2 Gen1	1 x PS/2 KB/MS 2 x RS-232/422/485 2 x USB 2.0 4 x RS-232 4 x USB 3.2 Gen 1	2 x RS-232/422/485 4 x RS-232 (2 support cctalk, TTL) 4 x USB 3.2 Gen 1 5 x USB 2.0
Storage Interface	2 x SATA 6G/s 1 x M.2 2242/2280 M key (PCIe x2/SATA)	2 x SATA 6G/s	1 x M.2 (B Key) (2242) (SATA signal)	2 x SATA 6Gb/s with 12/5V SATA power connector 1 x 8 GB eMMC (optional) 1 x M.2 (B Key) (2242) (SATA port1 + USB 2.0 signal) 1 x Micro SD slot (Optional)	2 x SATA 6Gb/s with 12/5V SATA power connector 1 x M.2 (B Key) (2242) (SATA port1 + USB 2.0 signal) 1 x Micro SD slot (Optional)	2 x SATA 6Gb/s with 5V/12V SATA power connector 1 x MicroSD slot 1 x M.2 (B key) (SATA signal)
Audio	Realtek ALC662 HD codec				Realtek ALC269 HD Audio codec	Realtek ALC662 HD Audio codec
Digital I/O	8-bit programmable digital I/O					
Power Consumption	TBD	12V@11.32A (Intel® Core™ i7-8700 up to 4.60 GHz CPU with two 8GB 2666MHz DDR4 memory)	12V@12.16A (3.4GHz Intel® Core™ i7-6700 with two 8GB 2133MHz 16GB DDR4 memory)	8-bit programmable digital I/O 12V@3.62A (Intel® Pentium® N4200 CPU with two 8GB 1600MHz DDR3L memory)	12V@2.58A (Intel® Pentium® N4200 CPU with two 8GB 1600MHz DDR3L memory)	12V@5.54A (AMD RX-421BD 2.1GHz CPU with 2400 MHz 16GB DDR4 memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset					
Operation Enviornment	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95% non-condensing			Temperature Range: KINO-DAL: -20°C ~ 70°C (-4°F ~ 158°F) KINO-DALW2: -40°C ~ 85°C (-40°F ~ 185°F) Relative Humidity: 5% ~ 95% non-condensing	Temperature Range: -20°C ~ 70°C (-4°F ~ 158°F) Relative Humidity: 5% ~ 95% non-condensing	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95% non-condensing
Expansion Slot	1 x PCIe x16 slot 1 x M.2 2242/2280 M key (PCIe x2/SATA)	1 x PCIe x16 1 x M.2 M key (2280, Gen2 PCIe x2 only) 1 x M.2 A Key (2230, PCIe x1 & USB 2.0)	1 x Full-size PCIe Mini card slot 1 x PCIe x1 slot	1 x PCIe x1 slot 1 x Full/Half-size PCIe Mini card slot (w/ SIM holder)	1 x PCIe x1 slot 1 x Full/Half-size PCIe Mini card slot (w/ SIM holder)	1 x PCIe x8 slot 1 x Full-size PCIe Mini card slot 1 x MicroSD slot
CPU Cooler	Cooler	CF-115XA-R10 CF-115XC-R10 CF-115XD-R10 CF-115XE-R10	CF-115XC-R10 CF-115XD-R10 CF-115XE-R10	Heatsink	Heatsink	Cooler

Mini-ITX Selection Guide








Model Name	tKINO-ULT3	KINO-DCM236	KINO-DQM170	KINO-AQ170	tKINO-BW	KINO-DBT
CPU Socket	On Board	On Board	On board	LGA1151	On board	On board
CPU Type	Intel® Core™ i7/i5/i3, Celeron® ULT processor	Intel® Xeon® E3, Core™ i3, Celeron® process	6th generation Intel® Core™ i7/i5/i3 and Celeron® processor	6th/7th generation Intel® Core™ i7/i5/i3, Pentium® and Celeron® processor	Intel® Pentium®/ Celeron® on board SoC	Intel® Atom™/Celeron® on board SoC
Chipset	Intel® Core™ i7/i5/i3, Celeron® ULT processor	Intel® CM236	Intel® QM170	Intel® Q170	Intel® Pentium®/ Celeron® on-board SoC	Intel® Atom™/Celeron® on-board SoC
Memory	2 x SO-DIMM DDR4 2133MHz, system maximun up to 32GB	2 x SO-DIMM DDR4 2133MHz up to 32GB with ECC support	Two 260-pin 2133 MHz dual-channel DDR4 SDRAM SO-DIMMs (system Max. 64 GB)	Two 260-pin 2133 MHz dual-channel DDR4 SDRAM SO-DIMMs (system Max. 64 GB)	Two 204-pin 1600/1333 MHz dual-channel DDR3L SDRAM SO-DIMMs (support up to 8 GB)	Two 204-pin 1066/1333 MHz dual-channel unbuffered DDR3L SDRAM SO-DIMM support up to 8 GB (J1900, N2930, E3845, E3827, E3826) One 204-pin 1066/1333 MHz dual-channel unbuffered DDR3L SDRAM SO-DIMM supports up to 4 GB (N2807, E3825, E3815)
Display Interface	Triple independent display 1 x HDMI/DP 1 x HDMI 1 x LVDS/eDP	Triple independent display 1 x HDMI 2.0 2 x HDMI 1.4 1 x LVDS	Triple independent display supported 1 x HDMI 2.0 2 x HDMI 1.4 1 x LVDS	Triple independent display supported 1 x HDMI 2.0 1 x HDMI/DP 1 x VGA 1 x iDP interface	Triple independent display supported 1 x HDMI/DP 1 x VGA 1 x 18/24-bit dual-channel LVDS	Dual independent display supported 1 x VGA 1 x DVI-D
Ethernet	LAN1: Intel® I219LM LAN2: Intel® I211AT	LAN1: Intel® I219LM LAN2: Intel® I211	LAN1: Intel® I219-LM with Intel® AMT 11.0 support LAN2: Intel® I211 PCIe controller	LAN1: Intel® I211 PCIe controller LAN2: Intel® I219LM with intel AMT 11.0 support	Dual LAN: Realtek RTL8111G PCIe controller	Dual LAN: Realtek RTL8111G PCIe controller
iRIS Remote Management Module	N/A					
I/O Interface	2 x RS-232/422/485 4 x RS-232 4 x USB 2.0 4 x USB 3.2 Gen 1	1 x KB/MS 2 x RS-232/422/485 4 x RS-232 4 x USB 2.0 4 x USB 3.2 Gen 1	1 x KB/MS 2 x RS-232/422/485 4 x RS-232 4 x USB 2.0 4 x USB 3.2 Gen 1	1 x KB/MS 2 x RS-232/422/485 4 x RS-232 4 x USB 3.2 Gen 1 6 x USB 2.0	1 x KB/MS 2 x RS-232/422/485 2 x USB 3.2 Gen 1 4 x RS-232 4 x USB 2.0	1 x KB/MS 1 x RS-422/485 2 x USB 3.2 Gen 1 4 x USB 2.0 5 x RS-232
Storage Interface	2 x SATA 6Gb/s with 5V SATA power connector 1 x eMMC5.0 (up to 32G, optional)	4 x SATA6Gb/s 1 x mSATA	4 x SATA 6Gb/s (RAID 0/1/5/10 supported)	4 x SATA 6Gb/s (RAID 0/1/5/10 supported)	2 x SATA 6Gb/s 1 x mSATA 1 x Micro SD slot	2 x SATA 3Gb/s 1 x Micro SD slot (E38xx sku only)
Audio	Realtek ALC662 HD Audio Codec					
Digital I/O	8-bit programmable digital I/O		8-bit digital I/O			
Power Consumption	12V@4.68A (Intel® Core™ i7-6600U up to3.4GHz CPU with 16GB (8GB x 2) DDR4-2133 memory running in 3.2GHz)	12V@6.93A (Intel Xeon E3-1505M V5 2.8GHz CPU with 32 GB (two 16 GB) 2133 MHz DDR4 memory)	12V@5.08A (Intel® Core™ i7-6820EQ, 3.5GHz CPU with 16 GB (two 8 GB) 2133 MHz DDR4 memory)	3.3V@1.62A, 5V@3.54A, 12V@8.17A, 5VSB@3.6A (Intel® Core™ i7 6700K 4.0 GHz CPU with 16 GB (two 8 GB) 2133 MHz DDR4 memory)	12V@1.61A (Intel® Celeron® N3710 CPU with two 4 GB 1600 MHz DDR3L memory)	12V@1.64A (Intel® Celeron® J1900 CPU with 4 GB 1333 MHz DDR3L memory)
Watchdog Timer	Software programmable supports 1~255 sec. system reset					
Operation Enviornment	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing					
Expansion Slot	1 x PCIe x4 slot 1 x Full-size PCIe Mini card slot (support mSATA, colay with SATA2) 1 x Full-size PCIe Mini card slot (with SIM card slot)	1 x PCIe x16 slot 1 x Full-size PCIe Mini card slot (support mSATA) 1 x Half-size PCIe Mini card slot 1 x M.2 2230 (A key)	1 x PCIe x16 slot 1 x Full-size PCIe Mini card slot (support mSATA) 1 x Half-size PCIe Mini card slot 1 x M.2 2230 (A key)	1 x PCIe x8 slot 1 x Full-size PCIe Mini card Slot (support mSATA)	1 x PCIe x1 slot 1 x PCIe Mini card slot	1 x Full-size PCIe Mini card slot (support mSATA) 1 x PCIe x4 slot (with PCIe x1 signal)
CPU Cooler	Heatsink	Heatsink	Heatsink	CF-115XC-R10 CF-115XD-R10 CF-115XE-R10	Heatsink	Heatsink

Mini-ITX Selection Guide





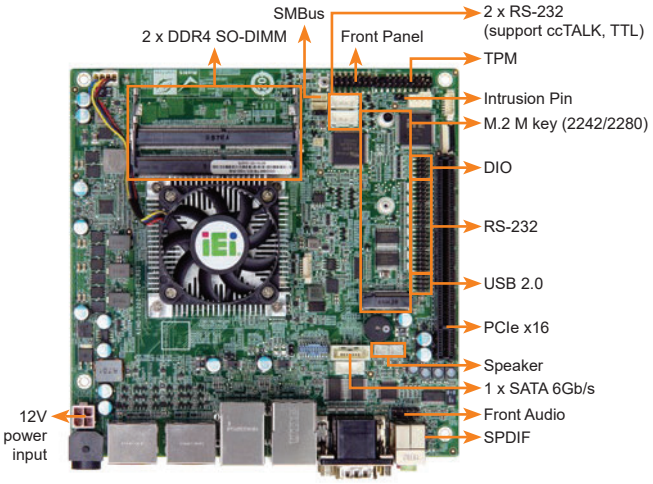


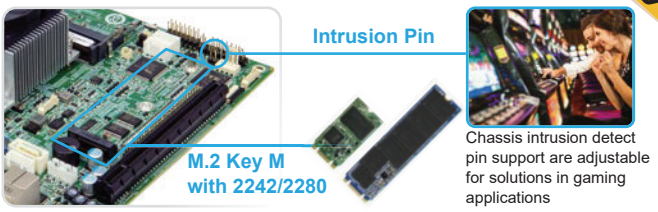

Model Name	KINO-DH810	eKINO-BT	KINO-DQM871-i1	KINO-QM770	KINO-DH610	KINO-AH612
CPU Socket	LGA1150	On board	On Board	Socket G2	Socket H2	Socket H2
CPU Type	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor	Intel® Atom™/Celeron® on-board SoC	Intel® Core™ i7/i5/i3 Mobile processor	Intel® Mobile processor	Intel® Core™ i3, Pentium®, Celeron® processor	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor
Chipset	Intel® H81	Intel® Atom™/Celeron® on-board SoC	Intel® QM87	Intel® QM77	Intel® H61	Intel® H61
Memory	Two 204-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs (system max. 16 GB)	Two 204-pin 1066/1333 MHz dual-channel unbuffered DDR3L SDRAM SO-DIMM support up to 8 GB (J1900, N2930, E3845, E3827, E3826) One 204-pin 1066/1333 MHz dual-channel unbuffered DDR3L SDRAM SO-DIMM supports up to 4 GB (N2807, E3825, E3815)	2 x 204-pin, Max. 16 GB, 1333/1600 MHz dual-channel DDR3 SO-DIMMs	2 x 204-pin, Max. 16 GB, 1066/1333/1600 MHz dual-channel DDR3 SO-DIMMs	2 x 204-pin 1066/1333 MHz dual-channel DDR3 SO-DIMMs (system max. 16 GB)	2 x 204-pin 1066/1333 MHz dual-channel DDR3 SO-DIMMs (system max. 16 GB)
Display Interface	Dual display supported 1 x VGA 1 x DVI-D 1 x iDP interface	Dual display supported 1 x VGA 2 x 18/24-bit dual-channel LVDS	Triple display supported 2 x HDMI 1 x VGA 1 x 18/24-bit dual-channel LVDS 1 x iDP interface	Triple display supported 2 x HDMI 1 x DVI-I 1 x18/24-bit dual-channel LVDS	Dual display supported 1 x VGA 1 x HDMI 1 x DVI-D	Dual display supported 1 x VGA 1 x DVI-D
Ethernet	Dual LAN: Intel® I211-AT PCIe controller	Dual LAN: Realtek RTL8111E PCIe controller	LAN1: Intel® I217LM with Intel® AMT 9.0 support LAN2: Intel® I210-AT PCIe controller	LAN1:Intel® 82579 PHY with Intel® AMT 8.0 support LAN2:Intel® 82583V PCIe controller	LAN1: Realtek RTL8111E PCIe GbE controller with ASF 2.0 support LAN2: Realtek RTL8111E PCIe GbE controller	Dual LAN: Realtek RTL8111E PCIe GbE controller with ASF 2.0 support
iRIS Remote Management Module	N/A		1 x iRIS-1010 slot	N/A		
I/O Interface	1 x PS/2 for KB/MS 1 x RS-422/485 2 x USB 3.2 Gen 1 5 x RS-232 6 x USB 2.0	1 x PS/2 for KB/MS 1 x RS-422/485 2 x USB 3.2 Gen 1 4 x RS-232 4 x USB 2.0	1 x PS/2 for KB/MS 1 x RS-422/485 1 x SMBus 1 x TPM (2x10 pin) 4 x USB 3.2 Gen 1 5 x RS-232 10 x USB 2.0	1 x KB/MS 1 x RS-422/485 1 x SMBus 1 x TPM (2x10 pin) 2 x RS-232 4 x USB 2.0 4 x USB 3.2 Gen 1	1 x KB/MS 1 x RS-232 1 x RS-422/485 1 x TPM (2x10 pin) 10 x USB 2.0	1 x PS/2 for KB/MS 1 x RS-422/485 1 x TPM (2x10 pin) 5 x RS-232 8 x USB 2.0
Storage Interface	2 x SATA 6Gb/s	2 x SATA 3Gb/s	2 x SATA 6Gb/s 2 x SATA 3Gb/s 1 x mSATA	2 x SATA 6Gb/s 2 x SATA 3Gb/s	4 x SATA 3Gb/s	4 x SATA 3Gb/s
Audio	Realtek ALC662 HD Audio codec			Realtek ALC892 HD Audio codec	Realtek ALC662 HD Audio codec	
Digital I/O	8-bit programmable digital I/O					
Power Consumption	12V@6.03A (Intel® Core™ i7-4770K 3.90 GHz CPU with two 1333 MHz 4 GB DDR3 memory)	12V@1.55A (Intel® Celeron® J1900 CPU with two 8 GB 1333 MHz DDR3L memory)	12V@5.03A (2.0GHz Intel® Core™ i7 processor with two 1333 MHz 4 GB DDR3 memory)	12V@6.08A (2.3GHz Intel® Core™ i7-3610QE with two 1333 MHz 4 GB DDR3 memory running 3DMark06 burn in)	12V@5.07A (2.2GHz Intel® G620T with two 2GB DDR3 1066 MHz running 3DMark06 burn in) 12V@8.85A (2.8GHz Intel® Core™ i7-2600S with two 1066 MHz 2 GB DDR3 running 3DMark06 burn in)	5V@3.9A, 12V@0.36A, Vcore_12V@8.28A, 3.3V@1.24A, 5VSB@0.18A (3.4GHz Intel® Core™ i7-2600 with two 1333 MHz 2 GB DDR3)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset					
Operation Environment	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: 0°C ~ 60°C (32°F ~ 140°F) Relative Humidity: 5% ~ 95% non-condensing	Temperature Range: -10°C ~ 60°C (14°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing			
Expansion Slots	1 x Full-size PCIe Mini card slot 1 x PCIe x1 slot	1 x Full-size PCIe Mini card slot 1 x PCIe x1 slot	1 x PCIe x16 slot 1 x Full-size PCIe Mini slot (support mSATA)	1 x PCIe x16 slot 1 x PCIe Mini card slot (support mSATA)	1 x PCI slot 1 x PCIe x1 slot	1 x PCIe x4 slot
CPU Cooler	CF-115XA-R10 CF-115XE-R10	Heatsink	XCF-479B-RS CF-989B-RS-R11	CF-989A-RS-R12	CF-115XA-R10 CF-115XC-R10 CF-115XD-R10 CF-115XE-R10	CF-115XA-R10 CF-115XC-R10 CF-115XD-R10 CF-115XE-R10

KINO-V1000/R1000

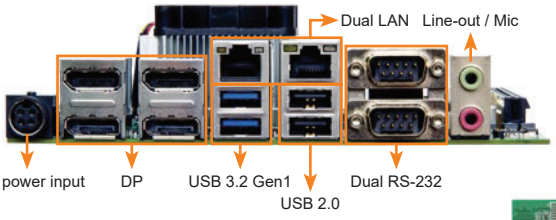
Mini-ITX SBC supports AMD® Ryzen™ Embedded V1000/R1000 Series on board SoC, DDR4, triple independent displays, quadruple DP, dual GbE, SATA 6Gb/s, USB 3.2, M.2, COM, TPM 2.0, HD audio and RoHS

Preliminary





Chassis intrusion detect pin support are adjustable for solutions in gaming applications



ECC DDR4 | 4K ULTRA HD | DisplayPort | M.2 | Intrusion Pin



TPM 2.0 Support

Specifications

- CPU
  AMD® Ryzen™ Embedded V1605B, Quad Core, 2MB Cache, 8 CU, 2.0GHz (3.6GHz), 12-25W
  AMD® Ryzen™ Embedded V1202B, Dual Core, 1MB Cache, 3 CU, 2.3GHz (3.2GHz), 12-25W
  AMD® Ryzen™ Embedded R1606G, Dual Core, 1MB Cache, 3 CU, 2.6GHz (3.5GHz), 12-25W
  AMD® Ryzen™ Embedded R1505G, Dual Core, 1MB Cache, 3 CU, 2.4GHz (3.3GHz), 12-25W
- BIOS: AMI BIOS
- Memory: 2 x SO-DIMM DDR4 2400MHz up to 64GB (ECC support) (lying down)
- Graphic
  AMD high performance RadeonTM VEGA series graphics
  AMD Radeon™ GPUs (Radeon™ HD 7000 series), support DX11, UVD3 H.264, VC-1, MPEG-2, DivX Direct X® 11, Open CL™ 1.1, OpenGL 4.2
  OpenGL 4.2 support, future OpenGL 4.3 support when driver upgrade available for AMD Gen2 R processors
- Display Output

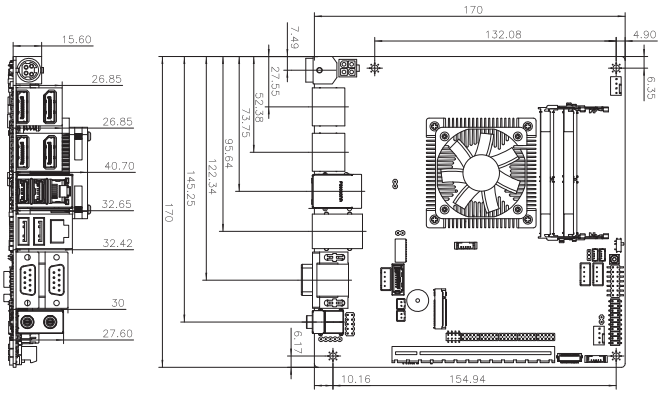
4 x DP (KINO-V1000):	**3 x DP (KINO-R1000):**
» 1 x 4K UHD 3840x2160	» 1 x 4K UHD 3840x2160
» 3 x 1920x1080	» 2 x 1920x1080

- Ethernet: 2 x GbE LAN (RTL 8111GN)
- External I/O Interfaces
  2 x RS-232 support AFC
  2 x USB 2.0
  2 x USB 3.2 Gen1
- Internal I/O Interfaces
  1 x SATA 3.0 (6Gb/s) with 5V/12V output
  2 x RS-232 (support Cctalk, TTL)(1x4 pin, P=2.54)
  4 x RS-232 (2x5 pin, P=2.00)
  2 x SATA power connector
  2 x USB 2.0 (2x4 pin, P=2.0)
- Audio
  Realtek ALC662 HD audio codec
  2 x 6W audio amplifier L+R Digital out onboard (SPDIF output)
  2 x Audio jacks (line-out, mic-in) on rear IO
  1 x Front audio (2x5-pin)
- Front Panel
  1 x Front panel connector (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED: 2 x LAN LED (1x2 pin)
- TPM: 1 x TPM 2.0 connector (2x10 pin) (LPC interface)
- SMBUS: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Expansion
  1 x PCIe x16 slot (with x8 Gen 3.0 signal)
  1 x M.2 2242/2280 M key (PCIe x2/SATA)
- Watchdog Timer
  Software programmable support 1~255 sec. system reset by super I/O
- Chassis Open: 1 x Intrusion pin (1x2 pin)
- Power Supply
  12V DC input
  1 x External DC jack (4-pin DIN)
  1 x Internal power connector (2x2 pin)
- Fan Connector
  1 x CPU smart (1x4 pin)
  1 x System fan (1x4 pin)
- Power Consumption
  TBD
- Storage Temperature: -10°C ~ 70°C
- Operating temperature: 0°C ~ 60°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Weight: GW:900g / NW:400g
- Dimensions: 170mm x 170mm
- CE/FCC compliant

Features

- Mini ITX form factor with AMD® Ryzen™ Embedded processor supports dual-channel ECC DDR4 SO-DIMMs
- Maximum up to quadruple DisplayPort output for multi-display support
- M.2 slot support SATA or PCIe (2242/2280) & PCIe x16 slot support
- Chassis intrusion detect pin and ECC support in gaming applications
- COM RS-232 support Cctalk, TTL
- TPM 2.0 hardware security function supported by TPM module

Dimensions *(Unit: mm)*



Packing List

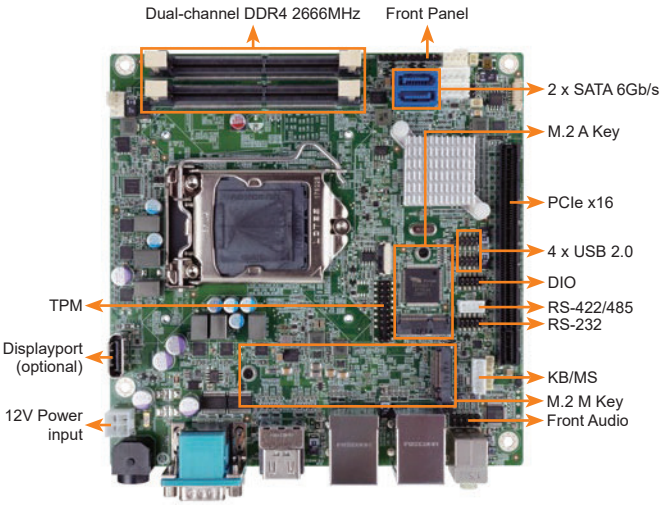
1 x KINO-V1000/R1000 series SBC with CPU cooler	1 x SATA cable
1 x I/O shielding	1 x QIG

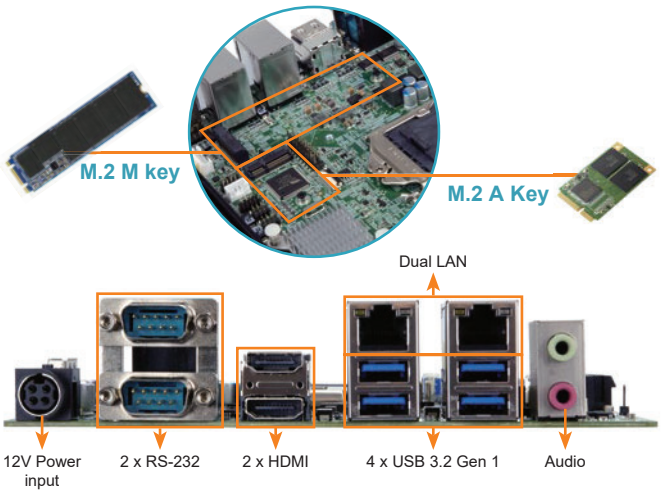
Ordering Information

Part No.	Description
KINO-V1605B-R10	Mini-ITX SBC supports AMD® Ryzen™ Embedded V1605B on board SoC (quad-core 2.0GHz, 15W) , DDR4, triple independent displays, quadruple DP, dual GbE, SATA 6Gb/s, USB 3.2, M.2, COM, TPM 2.0, HD audio and RoHS
KINO-V1202B-R10	Mini-ITX SBC supports AMD® Ryzen™ Embedded V1202B on board SoC (dual-core 2.3GHz, 15W) , DDR4, triple independent displays, quadruple DP, dual GbE, SATA 6Gb/s, USB 3.2, M.2, COM, TPM 2.0, HD audio and RoHS
KINO-R1606G-R10	Mini-ITX SBC supports AMD® Ryzen™ Embedded R1606G on board SoC (dual-core 2.6GHz, 15W) , DDR4, triple independent displays, triple DP, dual GbE, SATA 6Gb/s, USB 3.2, M.2, COM, TPM 2.0, HD audio and RoHS
KINO-R1505G-R10	Mini-ITX SBC supports AMD® Ryzen™ Embedded R1505G on board SoC (dual-core 2.4GHz, 15W) , DDR4, triple independent displays, triple DP, dual GbE, SATA 6Gb/s, USB 3.2, M.2, COM, TPM 2.0, HD audio and RoHS
19800-000300-100-RS	RS-232 cable with bracket, 300mm, P=2.0
CB-USB02A-RS	Dual-port USB cable with bracket, 300mm, P=2.0
TPM-IN02-R20	20-pin Infineon TPM 2.0 module, software management tool, firmware v5.5

KINO-DH310

Mini-ITX SBC supports 14nm LGA1151 Intel® 8th/9th Generation Core™ i9/i7/ i5/i3, Celeron® and Pentium® processor, DDR4, dual independent displays, dual GbE LAN, M.2, SATA 6Gb/s, HD Audio and RoHS







Specifications

- CPU
  LGA1151 socket supports 8th/9th generation Intel® Core™ i9/i7/i5/i3, Pentium® or Celeron® processor (35W/65W)
- Chipset
  Intel® H310
- BIOS
  AMI UEFI BIOS
- Memory
  Two 260-pin 2666/2400 MHz Dual-Channel DDR4 SDRAM Unbuffered SO-DIMM slots supported up to 64GB
- Graphics Engine
  Intel® HD Graphics Gen9 Engines with Low power 16 execution unit, supports DX11.3/12, OpenGL 4.3/4.4/4.5and OpenCL1.2/2.0/2.1
- Display Output
  Dual independent display
  2 x HDMI (up to 4096x2160@30Hz)
  1 x internal Displayport (up to 4096x2304@60Hz) (optional)
- Ethernet
  LAN1: Realtek RTL8111H PCIe GbE controller
  LAN2: Realtek RTL8111H PCIe GbE controller
- External I/O Interface
  4 x USB 3.2 Gen 1 (5Gb/s)
  2 x RS-232
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x RS-422/485 (1x4 pin, P=2.0)
  2 x SATA 6G/s with 5/12V SATA power connector (No RAID)
  4 x USB 2.0 (2x4 pin, P=2.0)
  1 x RS-232 (2x5 pin, P=2.0)
- I²C: 1 x I²C (1x4 pin)
- TPM: 1 x TPM (2x10 pin)
- SMBus: 1 x SMBus (1x4 pin)
- Audio
  Realtek ALC662 HD codec
  2 x Audio Jack (Lin-out, Mic-in)
  1 x Front audio (2x5 pin)
- Front Panel
  1 x Front Panel (1x10 pin, Power LED, HDD LED, Power Button, Reset Button)
- LAN LED: 2 x LAN LED (1x2 pin)
- Expansion
  1 x PCIe x16
  1 x M.2 M key (2280, Gen2 PCIe x2 only)
  1 x M.2 A Key (2230, PCIe x1 & USB 2.0)
- Digital I/O: 1 x 8-bit digital I/O (2x5 pin)
- FAN Connector: 2 x Smart fan connector (1x4 pin)
- Chassis Open
  1 x Chassis intrusion (1x2 pin)
- Power supply
  DC 12V input
  1 x External DC jack (4-pin DIN)
  1 x Internal power connector (2x2 pin)
  Support AT/ATX mode
  ErP/EuP Compliant
- Watchdog Timer: Software Programmable support 1~255 sec. System reset
- Power Consumption
  12V@11.32A (Intel® Core™ i7-8700 up to 4.60 GHz CPU with two 8GB 2666MHz DDR4 memory)
- Operating Temperature: 0°C ~ 60°C
- Storage Temperature: -10°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimension: 170mm x 170mm
- Weight: GW:900g / NW:400g
- CE/FCC compliant

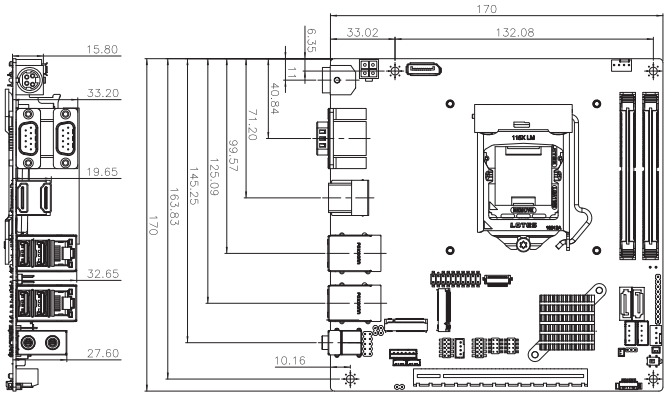
Features

- LGA1151 Intel® 8th/9th generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor
- Dual-channel DDR4 2666MHz
- Support eDP & Dual HDMI
- Support M.2 A Key for WLAN expansion & M key for storage

Packing List

1 x KINO-DH310 single board computer	1 x SATA cable
1 x I/O Shielding	1 x QIG

Dimensions *(Unit: mm)*



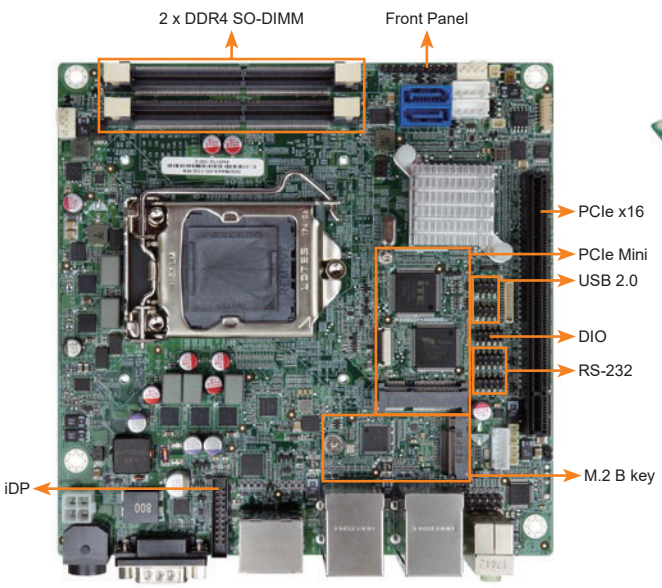
Ordering Information

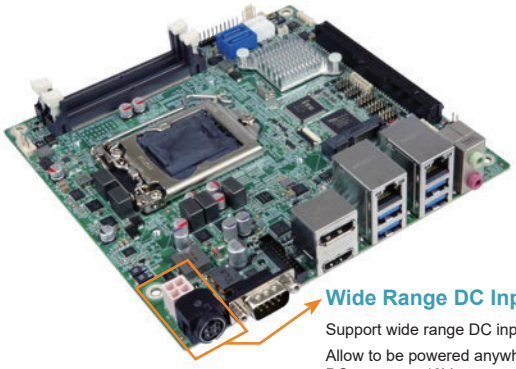
Part No.	Description
KINO-DH310-R10	Mini-ITX SBC supports 14nm LGA1151 Intel® 8th/9th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor, DDR4, dual independent displays, dual GbE LAN, M.2, SATA 6Gb/s, HD Audio and RoHS
KINO-DH310-DP-R10**	Mini-ITX SBC supports 14nm LGA1151 Intel® 8th/9th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor, DDR4, dual independent displays, dual GbE LAN, M.2, SATA 6Gb/s, HD Audio, DP and RoHS
32000-070301-RS	Dual port USB cable, 210mm, P=2.0
32006-001100-201-RS	PS/2 KB/MS cable, 135mm, P=2.0
32205-002700-200-RS	RS-232 cable, 200mm, P=2.0
CF-115XA-R10	High performance LGA115X cooler kit ,1U chassis compatible, 73W
CF-115XC-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-115XD-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High-performance LGA1155/1156 cooler kit, 95W
TPM-IN02-R20	20-pin Infineon TPM 2.0 module, software management tool, firmware v5.5

** By order production, MOQ: 100

KINO-DH110

Mini-ITX SBC supports 14nm 6th/7th Generation LGA1151 Intel® Core™ i7/ i5/i3, Celeron® and Pemtium® Processor, DDR4, Dual Independent Display, Dual GbE LAN, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, M.2, HD Audio and RoHS



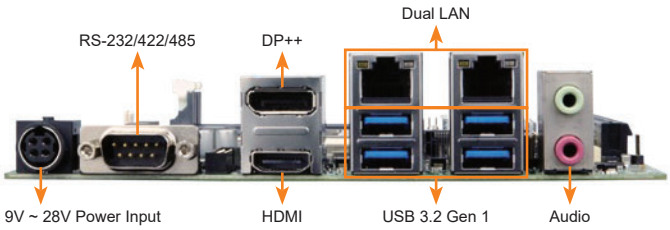


Wide Range DC Input Support

Support wide range DC input from 9V to 28V.

Allow to be powered anywhere, no matter if a 12V/24V DC source or 19V power adapter is available.







Specifications

- CPU
  LGA1151 socket supports 6th/7th generation Intel® Core™ i7/i5/i3, Celeron® and Pentium® processor
- System Chipset
  Intel® H110
- Memory
  Two 260-pin 2133MHz dual-channel DDR4 SDRAM unbuffered SO-DIMM support up to 32GB
- BIOS
  UEFI BIOS
- Graphic Engine
  Intel® HD Graphics Gen 9 engines with 16 low-power execution units, support DX2015, OpenGL 5.X, OpenCL2.x, ES 2.0
- Display Output
  Dual independent display
  1 x HDMI (up to 4096x2160@30Hz)
  1 x DP++ (up to 4096x2160@60Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 4096x2160@60Hz)
- Ethernet
  LAN1: Intel® I219LM PCIe controller
  LAN2: Intel® I211 PCIe controller
- External I/O Interface
  4 x USB USB 3.2 Gen 1 (5Gb/s)
  1 x RS-232/422/485
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  2 x RS-232 (2x5 pin, P=2.0)
  2 x SATA 6Gb/s
  4 x USB 2.0 (2x4 pin, P=2.0)
- SMBus: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- Audio
  Realtek ALC662 HD codec supports 5.1-channel
  2 x Audio jacks (line-out, mic-in) on rear IO
  1 x Front audio (2x5 pin)
- Front Panel
  1 x Front panel (1x10 pin, power LED, HDD LED, power button, reset button)
- LAN LED: 2 x LAN LED (1x2 pin)
- Expansion
  1 x Full-size PCIe Mini card slot (PCIe & USB)
  1 x M.2 B key (SATA)
  1 x PCIe x16 slot (Gen2)
- Watchdog Timer
  Software programmable, supports 1~255 sec. system reset
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x4 pin)
- Power Supply
  9V ~ 28V DC input
  1 x External DC jack (4-pin DIN)
  Support ATX/AT mode
  1 x Internal power connector (2x2 pin)
- Power Consumption
  12V@12.16A (3.4GHz Intel® Core i7-6700 with two 2133MHz 16GB DDR4 memory)
- Operating Temperature: -20°C~60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 170mm x 170mm
- Weight: GW: 900g / NW: 400g
- CE/FCC compliant

Features

- LGA1151 Intel® 6th/7th Generation Core™ i7/i5/i3, Celeron® and Pemtium® processor
- Dual-channel DDR4 2133MHz
- Support HDMI, DP++
- Support M.2 B key, PCIe Mini
- Support USB 3.2 Gen 1 (5Gb/s) and SATA 6Gb/s

Packing List

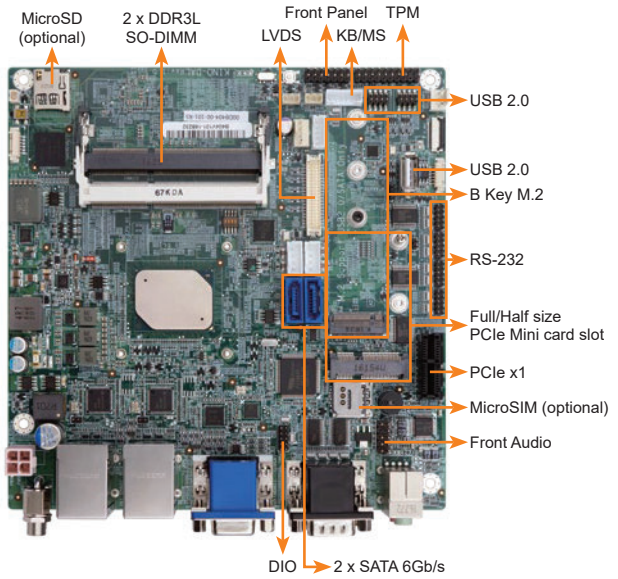
1 x KINO-DH110 single board computer	1 x SATA cable
1 x I/O shielding	1 x QIG

Ordering Information

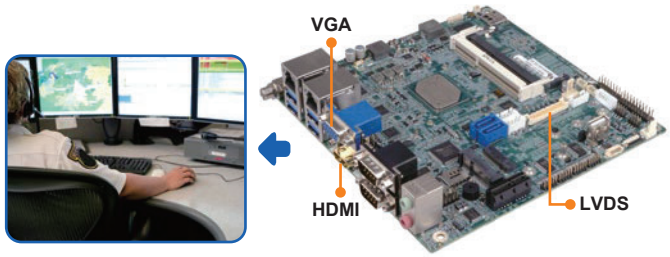
Part No.	Description
KINO-DH110-R10	Mini-ITX Motherboard supports 14nm LGA1151 Intel® 6th/7th Generation Core™ i7/i5/i3, Celeron® and Pemtium® processor, DDR4, dual independent displays, dual GbE LAN, M.2, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio and RoHS
32000-070301-RS	Dual USB Cable
32200-000049-RS	RS232 cable, 200mm
CF-115XC-R10	LGA1155/1156 kit, 1U chassis compatible, 45W
CF-115XD-R10	LGA1155/1156 kit, 1U chassis compatible, 65W
CF-115XE-R10	High performance LGA1155/LGA1156 cooler kit, 95W
DP-DP-R10	DisplayPort to DP converter board (for IEI connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI connector)
DP-LVDS-R10	DisplayPort to 24 bit dual channel LVDS converter board (for IEI connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI connector)

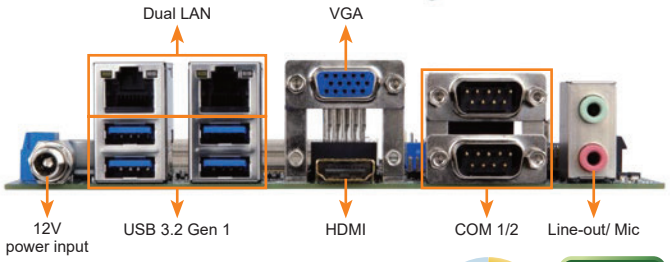
KINO-DAL

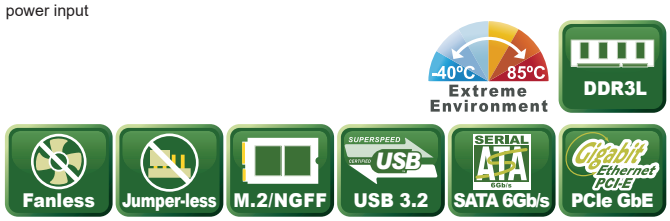
Mini-ITX SBC supports Intel® 14nm Atom™, Pentium® or Celeron® on-board SoC with HDMI/LVDS/VGA, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, SATA 6Gb/s, COM, Audio and RoHS



Triple Independent Displays







Specifications

- SoC
  Intel® Atom® x7-E3950 on-board SoC (up to 2.0GHz, quad-core, 2M Cache, TDP=12W)
  Intel® Atom® x5-E3940 on-board SoC (up to 1.8GHz, quad-core, 2M Cache, TDP=9W)
  Intel® Atom® x5-E3930 on-board SoC (up to 1.8GHz, dual-core, 2M Cache, TDP=6W)
  Intel® Pentium® N4200 on-board SoC (up to 2.5GHz, quad-core, 2M Cache, TDP=6W)
  Intel® Celeron® N3350 on-board SoC (up to 2.4GHz, dual-core, 2M Cache, TDP=6W)
- BIOS
  UEFI BIOS
- Memory
  Two 204-pin 1866/1600MHz Dual-channel DDR3L SO-DIMMs support up to 8GB
- Graphics Engine
  Intel® HD Graphics Gen9 Low Power; 18 Execution Units
  4K Codec Decode & Encode for HEVC 4 , H.264, VP8, SVC, MVC
- Display Output
  Triple independent display
  1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
  1 x VGA (up to 1920x1200@60Hz)
  1 x HDMI (up to 3840x2160@30Hz)
- Ethernet: 2 x PCIe GbE LAN Intel® i211 AT controller
- External I/O Interface
  4 x USB 3.2 Gen 1 (5Gb/s)
  2 x RS-232/422/485
- Internal I/O Interface
  1 x eMMC 5.0 (optional, up to 32G)
  1 x MicroSD card slot (optional)
  1 x USB 2.0 (180° Type-A)
  1 x KB/MS (1x6 pin)
  4 x RS-232 (2x5 pin, P=2.0)
  4 x USB 2.0 (2x4 pin, P=2.0)
  2 x SATA 6Gb/s with 12/5V SATA power connector
- SMBus: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- TPM: 1 x TPM (2x10 pin)
- Audio
  Realtek ALC662 HD codec
  2 x Audio jacks (line-out, mic-in) on rear IO
  1 x Front audio (2x5 pin)
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED: 2 x LAN LED (1x2 pin)
- Expansion
  1 x PCIe x1 card slot
  1 x Full/Half-size PCIe Mini card slot
  1 x M.2 B key (2242/2260/2280, USB 2.0 & colay SATA2)
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x3 pin)
- Power Supply
  12V only DC input as Default/ 9V~30V DC input (optional)
  1 x Internal power connector (2x2 pin)
  1 x External DC power Jackc (Ø5.5mm)
  Support AT/ATX mode
- Watchdog Timer
  Software programmable, supports 1~255 sec. system reset
- Power Consumption
  12V@3.64A (Intel® Pentium® N4200 CPU with two 8GB 1600MHz DDR3L memory)
- Operating Temperature: -20°C ~ 70°C / -40°C ~ 85°C (KINO-DAL-ExW2)
- Storage Temperature: -40°C ~ 85°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 170mm x 170mm
- Weight: GW: 1100g / NW: 700g
- CE/FCC compliant

Features

- Mini-ITX SBC supports Intel® 14nm Atom®, Pentium® or Celeron® on-board SoC supports dual-channel DDR3L SO-DIMMs
- Triple independent display support
- Optional wide range 9V~30V DC input design
- Full size PCIe Mini slot for 3G/LTE expansion
- COM, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, M.2, eMMC 5.0 and audio support

Packing List

1 x KINO-DAL single board computer with heatsink	1 x I/O Shielding
1 x SATA with power cable kit	1 x QIG

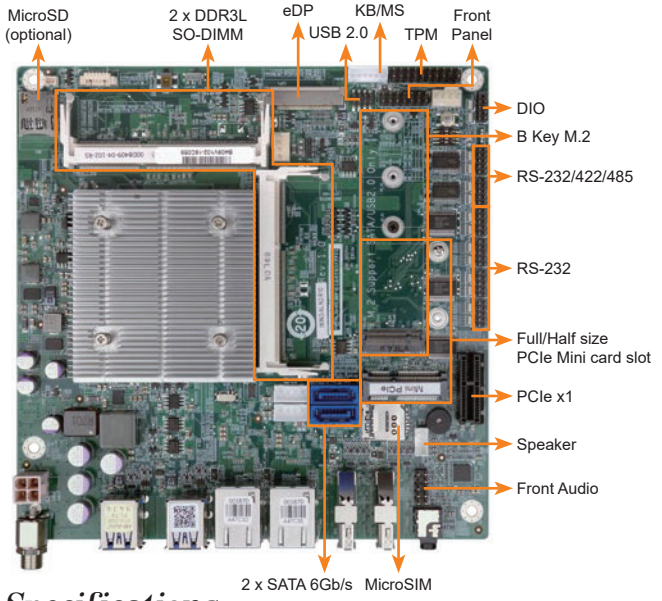
Ordering Information

Part No.	Description
KINO-DAL-N2-R10**	Mini-ITX SBC supports Intel® 14nm quad-core Pentium® N4200 2.5GHz on-board SoC with HDMI/LVDS/VGA, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, SATA 6Gb/s, COM, Audio and RoHS
KINO-DAL-N1-R10	Mini-ITX SBC supports Intel® 14nm dual-core Celeron® N3350 2.3GHz on-board SoC with HDMI/LVDS/VGA, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, SATA 6Gb/s, COM, Audio and RoHS
KINO-DAL-J2-R10	Mini-ITX SBC supports Intel® 14nm quad-core Celeron® J3455 2.3GHz on-board SoC with HDMI/LVDS/VGA, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, SATA 6Gb/s, COM, Audio and RoHS
KINO-DAL-E3W2-R10**	Mini-ITX SBC supports Intel® 14nm quad-core Atom® x7-E3950 2.0GHz on-board SoC with HDMI/LVDS/VGA, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, SATA 6Gb/s, COM, Audio and RoHS, -40°C ~ 85°C
KINO-DAL-E2W2-R10**	Mini-ITX SBC supports Intel® 14nm quad-core Atom® x5-E3940 1.8GHz on-board SoC with HDMI/LVDS/VGA, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, SATA 6Gb/s, COM, Audio and RoHS, -40°C ~ 85°C
KINO-DAL-E1W2-R10**	Mini-ITX SBC supports Intel® 14nm dual-core Atom® x5-E3930 1.8GHz on-board SoC with HDMI/LVDS/VGA, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, SATA 6Gb/s, COM, Audio and RoHS, -40°C ~ 85°C
32000-070301-RS	Dual-port USB cable, 210mm, P=2.0
32006-001100-201-RS	PS/2 KB/MS cable, 135mm, P=2.0
32205-002700-200-RS	RS-232 cable, 200mm, P=2.0
TPM-IN02-R20	20-pin Infineon TPM 2.0 module, software management tool, firmware v5.5

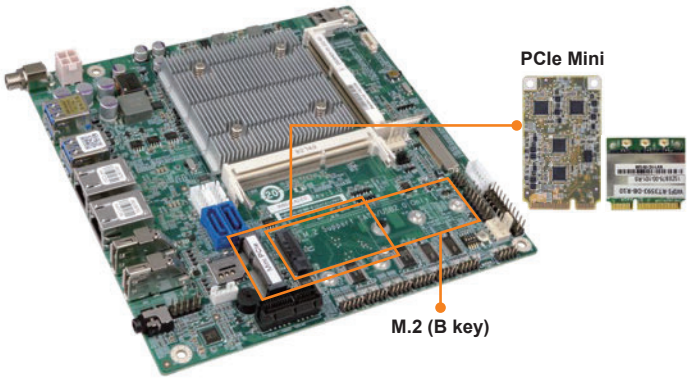
**By order production, MOQ: 100

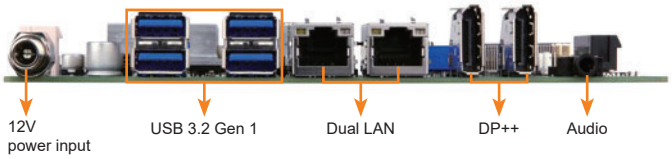
tKINO-AL

Thin Mini-ITX SBC supports Intel® 14nm Atom™, Pentium® or Celeron® on-board SoC with DP++, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, SATA 6Gb/s, COM, Audio and RoHS



Flexible Selection of Modules with Different Functions







Specifications

- SoC
  Intel® Pentium® N4200 on-board SoC (up to 2.5GHz, quad-core, 2M Cache, TDP=6W)
  Intel® Celeron® N3350 on-board SoC (up to 2.4GHz, dual-core, 2M Cache, TDP=6W)
- BIOS
  UEFI BIOS
- Memory
  Two 204-pin 1867/1600MHz Dual-channel DDR3L DIMMs support up to 8GB
- Graphics Engine
  Intel® HD Graphics Gen9 Low Power; 18 Execution Units
  4K Codec Decode & Encode for HEVC , H.264, VP8, SVC, MVC
- Display Output
  Triple Independent Display
  1 x eDP (up to 3840x2160@60Hz)
  2 x DP++ (up to 4096x2160@60Hz)
- Ethernet
  2 x PCIe GbE LAN Realtek RTL8111
- External I/O Interface
  4 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x MicroSD card slot (optional)
  2 x USB 2.0 (2x4 pin, P=2.0)
  2 x SATA 6Gb/s with 12/5V SATA power connector (No RAID)
  2 x RS-232/422/485 (2x5 pin, P=2.0)
  4 x RS-232 (2x5 pin, P=2.0)
- SMBus
  1 x SMBus (1x4 pin)
- TPM
  1 x TPM (2x10 pin)
- Audio
  Realtek ALC269 HD codec
  1 x Audio jacks (line-out, mic-in) on rear IO
  1 x Front audio (2x5 pin)
  1 x Speaker (1x4 pin)
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED: 2 x LAN LED (1x2 pin)
- Expansion
  1 x PCIe x1 slot
  1 x Full/Half-size PCIe Mini card slot (w/ SIM holder)
  1 x M.2 B key (2242/2260/2280, USB 2.0 & colay SATA2)
- Digital I/O: 8-bit digital I/O (2x5 pin)
- FAN Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x4 pin)
- Power supply
  12V only DC input as Default
  1 x Internal power connector (2x2 pin)
  1 x External DC power Jackc (Ø5.5mm)
  Support AT/ATX mode
- Watchdog Timer: Software programmable, supports 1~255 sec. system reset
- Power Consumption
  12V@2.58A (Intel® Pentium® N4200 CPU with two 8GB 1600MHz DDR3L memory)
- Operating Temperature: -20°C ~ 70°C
- Storage Temperature: -40°C ~ 85°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 170mm x 170mm
- Weight: GW: 1100g / NW: 700g
- CE/FCC compliant

Features

- Thin Mini-ITX SBC supports Intel® 14nm Atom™, Pentium® or Celeron® on-board SoC supports dual-channel DDR3L SO-DIMMs
- Triple independent display support
- Full size PCIe Mini slot with SIM sockets for WWAN expansion
- COM, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s and audio support

Packing List

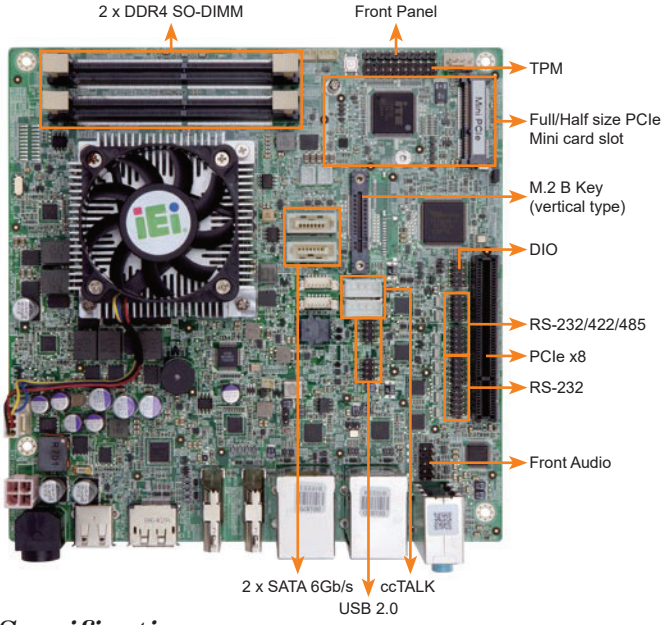
1 x tKINO-AL single board computer with heatsink
1 x SATA with power cable kit
1 x I/O Shielding
1 x QIG

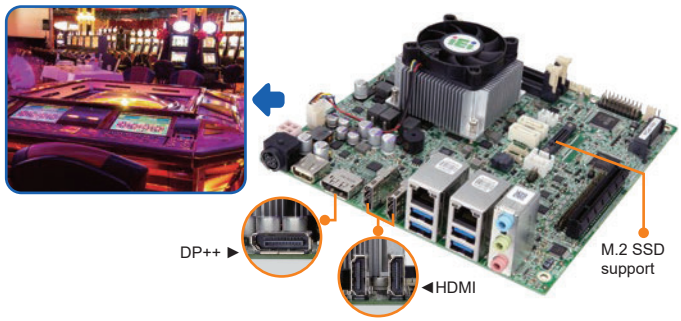
Ordering Information

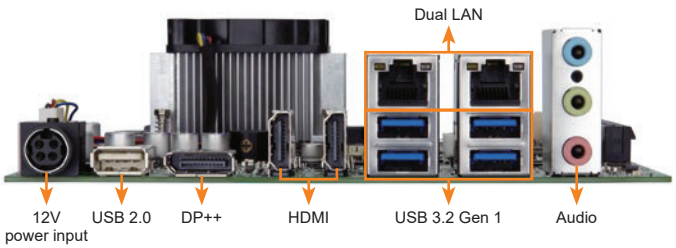
Part No.	Description
tKINO-AL-N2-R10	Thin Mini-ITX SBC supports Intel® 14nm quad-core Pentium® N4200 2.5GHz on-board SoC with DP++, Dual PCIe GbE, M.2, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA 6Gb/s, COM, Audio and RoHS
tKINO-AL-N1-R10	Thin Mini-ITX SBC supports Intel® 14nm dual-core Celeron® N3350 2.4GHz on-board SoC with DP++, Dual PCIe GbE, M.2, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA 6Gb/s, COM, Audio and RoHS
32000-070301-RS	Dual-port USB cable, 210mm, P=2.0
32006-001100-201-RS	PS/2 KB/MS cable, 135mm, P=2.0
32205-002700-100-RS	RS-232 cable, 200mm, P=2.0
TPM-IN02-R20	20-pin Infineon TPM 2.0 module, software management tool, firmware v5.5

gKINO-DMF

Mini-ITX SBC supports AMD Merlin Falcon SoC Proccessor, HDMI 2.0, M.2, PCIe Mini, SATA 6Gb/s, USB 3.2 Gen 1 (5Gb/s), HD audio and RoHS

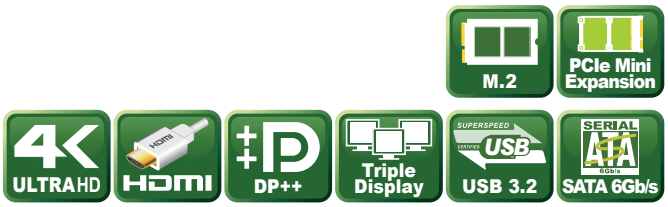






Specifications

- SoC
  FP4 BGA supports AMD Merlin Falcon SoC
  RX-421BD on-board SoC (2.1GHz, quad-core, 2MB cache, TDP=35W)
- BIOS
  UEFI BIOS
- Memory
  Two 260-pin 2400MHz dual-channel DDR4 non-ECC unbuffered SO-DIMMs support up to 64 GB
- Graphics Engine
  AMD Radeon HD 10000graphic,3rd Gen. graphic core,support DX 12, HSA 2.0
  UVD v6 decode for H.265 MPEG2/4, VC-1, MVC
  VCE v3.1 encode for H.254 VCE
- Display Output
  Triple independent display
  2 x HDMI 1.4 (up to 4096x2160@24Hz)
  1 x DP++ (up to 3840x2160@60Hz)
- Ethernet
  Dual GbE RTL 8111GN
- External I/O Interface
  4 x USB 3.2 Gen 1 (5Gb/s)
  1 x USB 2.0
- Internal I/O Interface
  1 x MicroSD card slot
  2 x RS-232 (2x5 pin, P=2.0)
  4 x USB 2.0 (2x4 pin, P=2.0)
  2 x RS-232/422/485 (2x5 pin, P=2.0)
  2 x RS-232 (support Cctalk, TTL)(1x4 pin, P=2.54)
  2 x SATA with 5V/12V output
- Audio
  Realtek ALC662 HD audio codec
  3 x Audio jacks (line-out, line-in, mic-in) on rear IO
  1 x Front audio (2x5-pin)
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED
  2 x LAN LED (1x2 pin)
- SMBUS
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- TPM
  1 x TPM (2x10 pin)
- Digital I/O
  8-bit digital I/O (2x5 pin)
- Expansion
  1 x PCIe x 8 slot
  1 x Full size PCIe Mini card slot
- Watchdog Timer: Software programmable, supports 1~255 sec. system reset
- Chassis Intrusion Detection: 1 x Chassis intrusion connector (1x2 pin)
- Power Supply
  12V DC input
  Support AT/ATX mode
  1 x Internal power connector (2x2 pin)
  1 x External DC jack (4-pin DIN)
- FAN Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x4 pin)
- Power Consumption
  12V@5.54A (AMD RX-421BD 2.1GHz CPU with 2400 MHz 16GB DDR4 memory)
- Storage Temperature: -10°C ~ 70°C
- Operating Temperature: 0°C ~ 60°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 170mm x 170 mm
- Weight: GW: 1100g / NW: 700g
- CE/FCC compliant



Features

- Mini ITX form factor with AMD Merlin Falcon processor supports dual-channel DDR4 SO-DIMMs
- Triple independent display support via dual HDMI and DP++
- Full size PCIe Mini slot and vertical type M.2 B key slot for expansion
- COM, Cctalk, TTL, and USB 3.2 Gen 1 (5Gb/s) support

Packing List

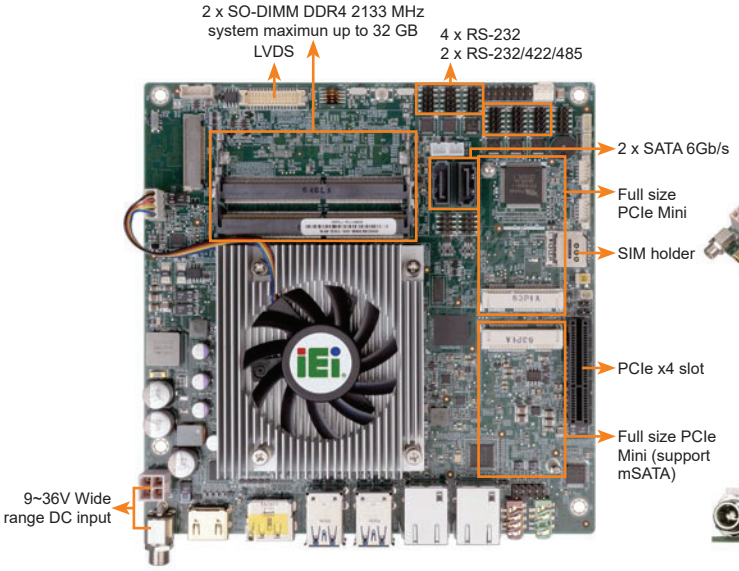
1 x gKINO-DMF single board computer with CPU cooler
1 x SATA cable
1 x I/O shielding
1 x QIG

Ordering Information

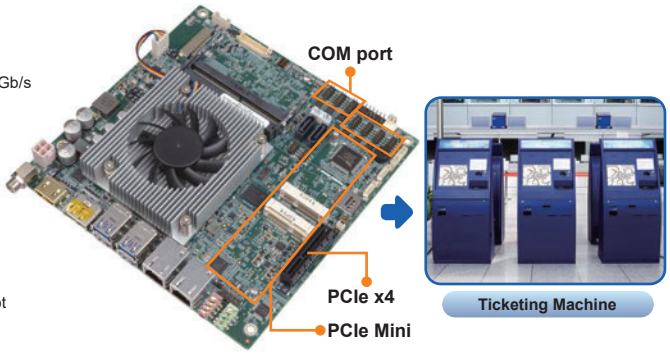
Part No.	Description
gKINO-DMF-421-R10	Mini-ITX SBC supports AMD RX-421BD on board SoC (quad-core 2.1GHz, 35W), DDR4 ,triple independent displays,HDMI/DP, dual GbE, SATA 6Gb/s, USB 3.2, PCIe Mini, M.2, HD audio and RoHS
19800-000300-100-RS	RS-232 cable with bracket, 300mm, P=2.0
CB-USB02A-RS	Dual-port USB cable with bracket, 300mm, P=2.0
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

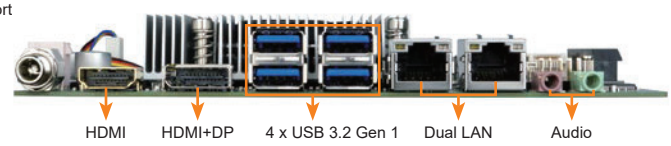
tKINO-ULT3

Thin Mini-ITX SBC supports Intel® Skylake-U Proccessor, 9~36V DC input, Dual HDMI, LVDS, SATA 6Gb/s, Dual Intel® GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, eMMC 5.0, HD audio and RoHS



Multiple expansion with COM port, PCIe x4, and PCIe Mini.







Specifications

- CPU
  6th generation Intel® mobile ULT on-board processor
  Intel® Core™ i7-6600U (up to 3.4GHz, dual-core, 4M Cache, TDP=15W)
  Intel® Core™ i5-6300U (up to 3.0GHz, dual-core, 3M Cache, TDP=15W)
  Intel® Core™ i3-6100U (up to 2.3GHz, dual-core, 3M Cache, TDP=15W)
  Intel® Celeron® 3955U (up to 2.0GHz, dual-core, 2M Cache, TDP=15W)
  Intel® Celeron® 3855U (up to 1.6GHz, dual-core, 2M Cache, TDP=15W)
- BIOS
  UEFI BIOS
- Memory
  2 x SO-DIMM DDR4 2133MHz, system maximun up to 32GB
- Graphics Engine
  Intel® HD graphic
- Display Output
  1 x HDMI 1.4 (up to 4096x2160@24Hz)
  1 x HDMI/DP (up to 4096x2160@24Hz)
  1 x LVDS/eDP (select by switch)
- Ethernet
  LAN1: Intel® I219LM (with Intel® AMT11.0 support)
  LAN2: Intel® I211AT PCIe controller with NCSI support
- External I/O Interface
  4 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x eMMC 5.0 (optional, up to 32G)
  2 x RS-232/422/485 (2x5 pin, P=2.0)
  2 x SATA with 5V output (RAID 0/1 supported)
  4 x RS-232 (2x5 pin, P=2.0)
  4 x USB 2.0 (2x4 pin, P=2.0)
- Audio
  Realtek ALC662 HD Audio Codec support 5.1 Channel
  2 x Audio jacks (line-out, mic-in) on rear IO
  1 x Front audio (2x5-pin)
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED,power button, reset button)
- LAN LED
  2 x LAN LED(1x2 pin)
- SMBUS: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Expansion
  1 x PCIe x4 slot
  1 x Full-size PCIe Mini card slot (support mSATA, colay SATA2)
  1 x Full-size PCIe Mini card slot (with SIM holder)
  **3855U belongs to Skylake ULT Base series CPU, PCIe signal support only PCIe Gen 2*
- Watchdog Timer
  Software programmable, supports 1~255 sec. system reset by Super I/O
- Power Supply
  9~36V DC input
  1 x Internal power connector (2x2 pin)
  1 x External DC power Jackc (Ø5.5mm)
  Support AT/ATX mode
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System fan (1x3 pin)
- Chassis Intrusion Detection: 1 x Chassis intrusion connector (1x2 pin)
- Power Consumption
  12V@4.68A (Intel® Core™ i7-6600U up to3.4GHz CPU with 16GB (8GB x 2) DDR4-2133 memory running in 3.2GHz)
- Operating Temperature: -20°C ~ 60°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 170mm x 170 mm
- Weight: GW: 900g / NW: 375g
- CE/FCC compliant

Features

- Mini ITX form fator with Intel® Skylake-U processor support DDR4-2133 memory
- Wide range 9~36V DC Input
- Support dual HDMI (one HDMI/DP combo support), LVDS/eDP
- Intel® GbE LAN with Intel® AMT 11.0 supported
- SATA 6Gb/s, mSATA and eMMC 5.0 (option) supported
- High speed I/O for USB 3.2 Gen 1 (5Gb/s), PCIe x4, full-size PCIe Mini support

Packing List

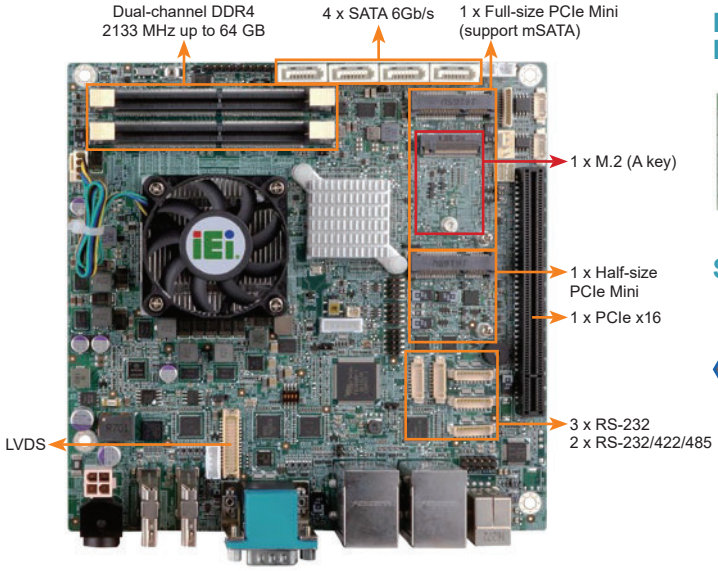
1 x tKINO-ULT3 single board computer with CPU cooler
2 x SATA cable
1 x I/O shielding
1 x QIG

Ordering Information

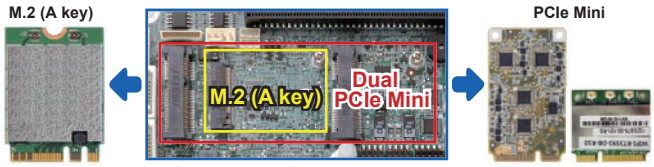
Part No.	Description
tKINO-ULT3-i7-R10	Thin Mini-ITX SBC supports Intel® 6th Generation Mobile Core™ i7-6600U (15W) on-board Processor (ULT), 9~36V DC input, Dual HDMI, LVDS, eDP, SATA 6 Gb/s, Dual Intel® GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), eMMC 5.0, HD audio and RoHS
tKINO-ULT3-i5-R10	Thin Mini-ITX SBC supports Intel® 6th Generation Mobile Core™ i5-6300U (15W) on-board Processor (ULT), 9~36V DC input, Dual HDMI, LVDS, eDP,SATA 6 Gb/s, Dual Intel® GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), eMMC 5.0, HD audio and RoHS
tKINO-ULT3-i3-R10	Thin Mini-ITX SBC supports Intel® 6th Generation Mobile Core™ i3-6100U (15W) on-board processor (ULT), 9~36V DC input, Dual HDMI, LVDS, eDP, SATA 6 Gb/s, Dual Intel® GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), eMMC 5.0, HD audio and RoHS
tKINO-ULT3-C-R10	Thin Mini-ITX SBC supports Intel® 6th Generation Mobile Celeron® 3955U (15W) on-board processor (ULT), 9~36V DC input, Dual HDMI, LVDS, eDP, SATA 6 Gb/s, Dual Intel® GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), eMMC 5.0, HD audio and RoHS
tKINO-ULT3-CE-R10	Thin Mini-ITX SBC supports Intel® 6th Generation Mobile Celeron® 3855U (15W) on-board processor (ULT), 9~36V DC input, Dual HDMI, LVDS, eDP, SATA 6 Gb/s, Dual Intel® GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), eMMC 5.0, HD audio and RoHS
32205-002700-200-RS	RS-232/422/485, 200mm, P=2.0
34000-000645-RS	Fanless heatsink module, 93.5 x 84 x 30mm

KINO-DCM236

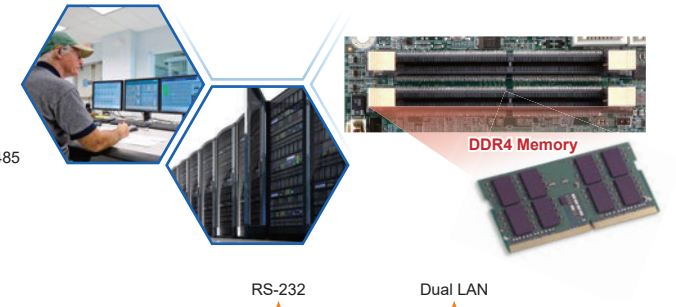
Mini-ITX SBC supports 6th Intel® Xeon® Processor E3 v5 series, Core™ i3, Celeron® per Intel® CM236, DDR4 with ECC support, HDMI 2.0, dual Intel® GbE, SATA 6Gb/s, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, HD Audio and RoHS

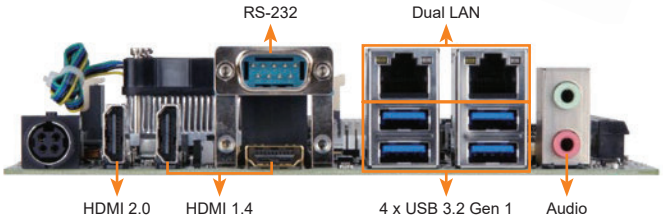


Flexible Selection of Modules with Different Functions



SO-DIMM DDR4 ECC support







Specifications

- CPU
  6th generation Intel® processor
  Intel® Xeon® processor E3-1505M v5 (up to 3.7GHz, quad-core, 8M Cache, TDP=45W)
  Intel® Xeon® processor E3-1505L v5 (up to 2.0GHz, quad-core, 8M Cache, TDP=25W)
  Intel® Core™ i3-6102E processor (up to 1.90GHz, dual-core, 3M cache, TDP=25W)
  Intel® Celeron® processor G3902E (up to 1.60GHz, dual-core, 2M cache, TDP=25W)
- Chipset: Intel® CM236
- BIOS: UEFI BIOS
- Memory
  Two 260-pin 2133/1866 MHz dual-channel DDR4 ECC and non-ECC unbuffered SDRAM SO-DIMMs support up to 64GB
- Graphics Engine
  Intel® HD Graphics Gen 9 support for DX11/12, OCL 2.x, OGL 4.3/4.4, ES 2.0
- Display Output
  Triple independent display
  2 x HDMI 1.4 (up to 4096x2160@24Hz)
  1 x HDMI 2.0 (up to 4096x2160@60Hz)
  1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
- Ethernet
  LAN1: Intel® I219LM with (Intel® AMT 11.0 support)
  LAN2: Intel® I211 PCIe controller with NCSI support
- External I/O Interface
  4 x USB 3.2 Gen 1 (5Gb/s)
  1 x RS-232
- Internal I/O Interface
  1 x KB/MS (1x6 pin, P=2.0)
  2 x RS-232/422/485 (1x9 pin, P=1.25)
  3 x RS-232 (1x9 pin, P=1.25)
  4 x SATA 6Gb/s (RAID 0/1/5/10 support)
  4 x USB 2.0 (2x4 pin, P=2.0)
- Audio
  Realtek ALC662 HD Audio codec supports 5.1-channel
  2 x Audio jacks (line-out, mic-in) on rear IO
  1 x Front audio (2x5-pin)
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED: 2 x LAN LED (1x2 pin)
- SMBus: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Expansion
  1 x PCIe x16 slot
  1 x M.2 2230 (A key)
  1 x Full-size PCIe Mini card slot (support mSATA)
  1 x Half-size PCIe Mini card slot
- Cooler Module
  19100-000219-00-RS for Intel® Xeon® E3-1505M v5 (45W)
  19100-000203-00-RS for Intel® Xeon® E3-1505L v5/Core™ i3/Celeron® (25W)
- Watchdog Timer
  Software programmable supports 1~255 sec. system reset by super I/O
- Chassis Intrusion Detection: 1 x Chassis intrusion connector (1x2 pin)
- Power Supply
  12V DC input
  1 x External DC jack (4-pin DIN)
  1 x Internal power connector (2x2 pin)
  Support AT/ATX mode
- Fan Connector
  1 x CPU smart (1x4 pin)
  1 x System fan (1x4 pin)
- Power Consumption
  12V@6.93A (Intel Xeon E3-1505M V5 2.8GHz CPU with 32 GB (two 16 GB) 2133 MHz DDR4 memory)
- Operating Temperature: -20°C ~ 60°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 170mm x 170 mm
- Weight: GW: 900g / NW: 450g
- CE/FCC compliant

Features

- Mini ITX form factor with 6th Intel® Xeon® Processor E3 v5 series, Core™ i3,Celeron® support DDR4-2133 memory with ECC support
- HDMI 2.0
- ECC support
- Triple display with independent audio
- PCIe x16, dual PCIe Mini and M.2 A key feature support for various function module
- Rich High speed I/O interface for USB 3.2 Gen 1 (5Gb/s) and SATA 6Gb/s
- Support IEI jumpless

Packing List

1 x KINO-DCM236 single board computer with CPU coole	2 x SATA cable
1 x I/O shielding	1 x QIG

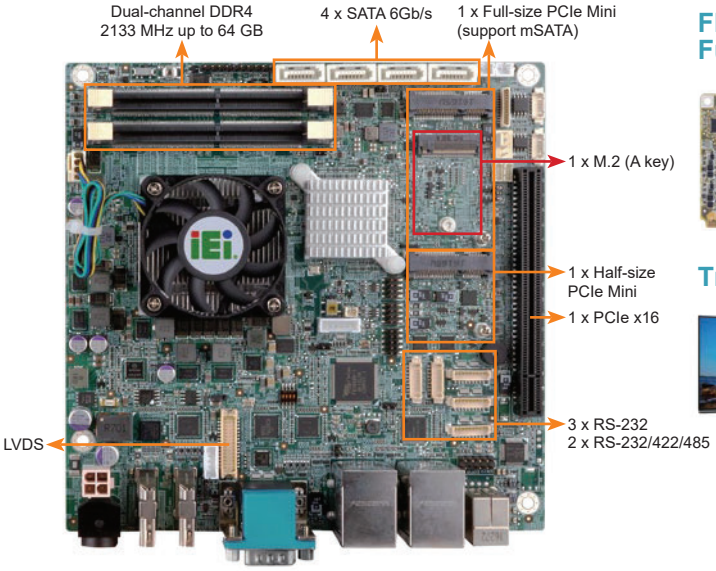
Ordering Information

Part No.	Description
KINO-DCM-236-E3-R10	Mini-ITX SBC supports 6th Intel® Xeon® processor E3-1505M v5 (45W) , DDR4 with ECC support, HDMI 2.0, SATA 6Gb/s, dual Intel® GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, HD Audio and RoHS
KINO-DCM-236-E3E-R10	Mini-ITX SBC supports 6th Intel® Xeon® processor E3-1505L v5 (25W), DDR4 with ECC support, HDMI 2.0, SATA 6Gb/s, dual Intel® GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, HD Audio and RoHS
KINO-DCM-236-i3E-R10**	Mini-ITX SBC supports 6th Intel® Core™ i3-6102E processor (25W), DDR4 with ECC support, HDMI 2.0, SATA 6Gb/s, dual Intel® GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, HD Audio and RoHS
KINO-DCM-236-CE-R10**	Mini-ITX SBC supports 6th Intel® Celeron® processor G3902E (25W), DDR4 with ECC support, HDMI 2.0, SATA 6Gb/s, dual Intel® GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, HD Audio and RoHS
32001-008600-200-RS	Dual-port USB cable, 210mm, P=2.0
32005-000900-200-RS	RS-232/422/485 cable, 100mm, P=1.25
32006-001100-201-RS	PS/2 KB/MS cable, 135mm/110mm, P=2.0

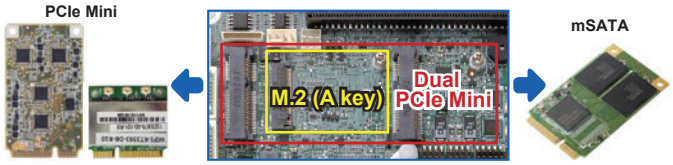
**By order production, MOQ: 100

KINO-DQM170

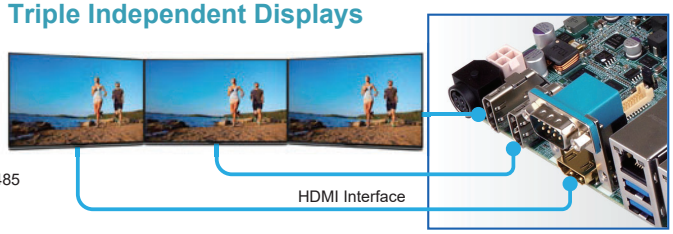
Mini-ITX SBC supports 6th Intel® Core™ Mobile CPU, HDMI 2.0, M.2, SATA 6Gb/s, dual Intel® GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, HD Audio and RoHS

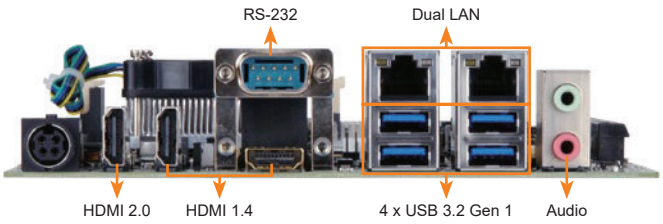


Flexible Selection of Modules with Different Functions



Triple Independent Displays







Specifications

- CPU
  6th generation Intel® Core™ mobile processor
  Intel® Core™ i7-6820EQ (up to 3.5GHz, quad-core, 8M cache, TDP=45W)
  Intel® Core™ i5-6440EQ (up to 3.4GHz, quad-core, 6M cache, TDP=45W)
  Intel® Core™ i3-6102E (up to 1.90GHz, dual-core, 3M cache, TDP=25W)
- Chipset: Intel® QM170
- BIOS: UEFI BIOS
- Memory
  Two 260-pin 2133/1866 MHz dual-channel unbuffered DDR4 SDRAM SO-DIMMs support up to 64GB
- Graphics Engine
  Intel® HD Graphics Gen 9 support for DX11/12, OCL 2.x, OGL 4.3/4.4, ES 2.0
- Display Output
  Triple independent display
  2 x HDMI 1.4 (up to 4096x2160@24Hz)
  1 x HDMI 2.0 (up to 4096x2160@60Hz)
  1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
- Ethernet
  LAN1: Intel® I219LM with (Intel® AMT 11.0 support)
  LAN2: Intel® I211 PCIe controller with NCSI support
- External I/O Interface
  4 x USB 3.2 Gen 1 (5Gb/s)
  1 x RS-232
- Internal I/O Interface
  1 x KB/MS (1x6 pin, P=2.0)
  2 x RS-232/422/485 (1x9 pin, P=1.25)
  3 x RS-232 (1x9 pin, P=1.25)
  4 x SATA 6Gb/s (RAID 0/1/5/10 support)
  4 x USB 2.0 (2x4 pin, P=2.0)
- Audio
  Realtek ALC662 HD Audio codec supports 5.1-channel
  2 x audio jacks(line out, mic in) on rear I/O (colay with 3x audio jack)
  1 x Front audio (2x5 pin)
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED: 2 x LAN LED (1x2 pin)
- SMBus: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Expansion
  1 x PCIe x16 slot
  1 x M.2 2230 (A key)
  1 x Full-size PCIe Mini card slot (support mSATA)
  1 x Half-size PCIe Mini card slot
- Cooler Module
  19100-000219-00-RS for Intel® Core™ i7/i5 (45W)
  19100-000203-00-RS for Intel® Core™ i3/Celeron® (25W)
- Watchdog Timer
  Software programmable supports 1~255 sec. system reset by super I/O
- Chassis Intrusion Detection: 1 x Chassis intrusion connector (1x2 pin)
- Power Supply
  12V DC input
  1 x External DC jack (4-pin DIN)
  1 x Internal power connector (2x2 pin)
  Support AT/ATX mode
- Fan Connector
  1 x CPU smart (1x4 pin)
  1 x System fan (1x4 pin)
- Power Consumption
  12V@5.08A (Intel® Core™ i7-6820EQ, 3.5GHz CPU with 16 GB (two 8 GB) 2133 MHz DDR4 memory)
- Operating Temperature: -20°C ~ 60°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 170mm x 170 mm
- Weight: 900g / NW: 450g
- CE/FCC compliant

Features

- Mini ITX form factor with 6th Gen Intel® Core™ i7/i5/i3/Celeron® processor support DDR4 memory
- Support HDMI 2.0 (4096x2160@60Hz)
- Triple display with independent audio via HDMI
- PCIe x16, dual PCIe Mini and M.2 A key feature support for various function module
- Rich High speed I/O interface for USB 3.2 Gen 1 (5Gb/s) and SATA 6Gb/s
- Support IEI jumpless

Packing List

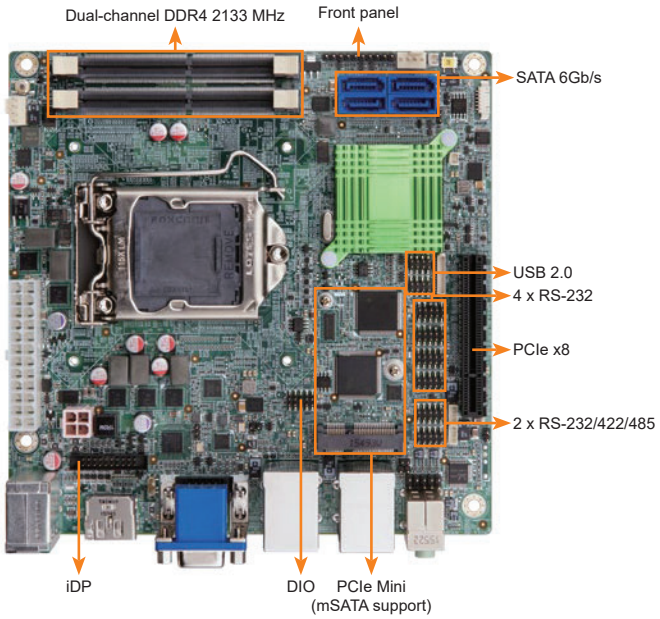
1 x KINO-DQM170 single board computer with CPU cooler
2 x SATA cable
1 x I/O shielding
1 x QIG

Ordering Information

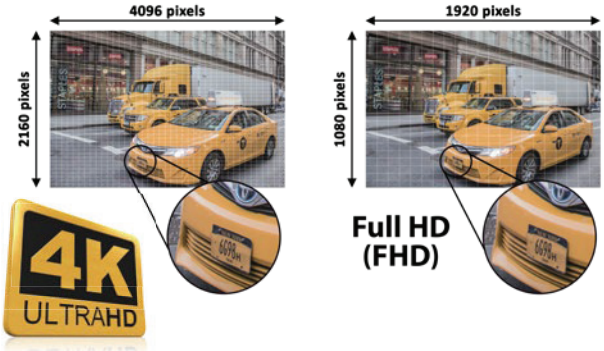
Part No.	Description
KINO-DQM170-i7-R10	Mini-ITX SBC with BGA 1440 supports 6th Gen Intel® Core™ i7-6820EQ processor, HDMI 2.0, SATA 6Gb/s, dual Intel® GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, HD Audio and RoHS
KINO-DQM170-i5-R10	Mini-ITX SBC with BGA 1440 supports 6th Gen Intel® Core™ i5-6440EQ processor, HDMI 2.0, SATA 6Gb/s, dual Intel® GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, HD Audio and RoHS
KINO-DQM170-i3E-R10	Mini-ITX SBC with BGA 1440 supports 6th Gen Intel® Core™ i3-6102E processor, HDMI 2.0, SATA 6Gb/s, dual Intel®GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, HD Audio and RoHS
32001-008600-200-RS	Dual-port USB cable, 210mm, P=2.0
32001-008600-200-RS	Dual-port USB cable, 210mm, P=2.0
32005-000900-200-RS	RS-232/422/485 cable, 100mm, P=1.25
32006-001100-201-RS	PS/2 KB/MS cable, 135mm/110mm, P=2.0

KINO-AQ170

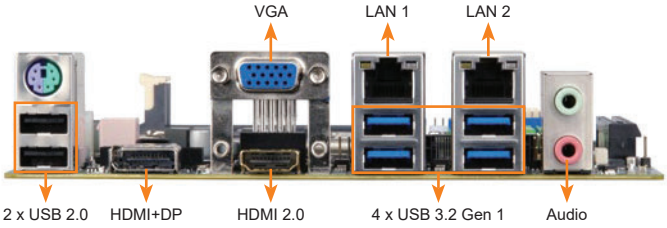
Mini-ITX SBC supports LGA 1151 Intel® Core™ i7/i5/i3, Pentium® or Celeron® CPU with Intel® Q170, HDMI 2.0/HDMI+DP/VGA, Dual Intel® GbE, SATA 6Gb/s, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, HD Audio and RoHS



HDMI 2.0 Ultra HD (4,096x2,160@60Hz)



	HDMI 1.4	HDMI 2.0
Bandwidth	10.2Gbps	18Gbps
4K@30hz	Yes	Yes
4K@60hz	No	Yes
Up to 32 Audio Channels	No	Yes



DDR4 2133 | 4K ULTRA HD | SUPERSPEED USB USB 3.2 | PCIe Mini Expansion

Specifications

- CPU
  LGA 1151 socket supports Intel® 6th/7th generation Core™ i7/i5/i3, Pentium® or Celeron® processor
- Chipset
  Intel® Q170
- BIOS
  UEFI BIOS
- Memory
  Two 260-pin 2133 MHz dual-channel DDR4 SDRAM SO-DIMM support up to 64GB
- Graphics Engine
  Intel® HD Graphics Gen 9 support for DX11/12, OCL 2.x, OGL 4.3/4.4, ES 2.0
  Decode/Encode for HEVC, VP8, VP9 2, VDENC
- Display Output
  Triple independent display
  1 x HDMI 2.0 (up to 4096x2160@60Hz)
  1 x HDMI/DP (up to 3840x2160@60Hz)
  1 x VGA (up to 1920x1200)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60Hz)
- Ethernet
  LAN1: Intel® I219LM with (Intel® AMT 11.0 support)
  LAN2: Intel® I211 PCIe controller with NCSI support
- External I/O Interface
  2 x USB 2.0
  4 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  2 x RS-232/422/485 (2x5 pin, P=2.0)
  4 x RS-232 (2x5 pin, P=2.0)
  4 x SATA 6Gb/s (RAID 0/1/5/10 supported)
  4 x USB 2.0 (2x4 pin, P=2.0)
- Audio
  Realtek ALC662 HD Audio codec
  2 x Audio jacks (line-out, mic-in) on rear IO
  1 x Front audio (2x5-pin)
- Front Panel
  1 x Front panel (1x10 pin, power LED, HDD LED, power button, reset button)
- LAN LED: 2 x LAN LED (1x2 pin)
- SMBus: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Expansion
  1 x PCIe x8 slot
  1 x Full-size PCIe Mini card slot (support mSATA)
- Chassis Intrusion Detection: 1 x Chassis intrusion connector (1x2 pin)
- Watchdog Timer
  Software programmable supports 1~255 sec. system reset by super I/O
- Power Supply
  ATX power supply
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x4 pin)
- Power Consumption
  3.3V@0.62A, 5V@3.3A, 12V@7.51A, 5VSB@0.23A
  (Intel® Core™ i7 6700K 4.0GHz CPU with 16 GB (two 8 GB) 2133 MHz DDR4 memory)
- Operating Temperature: -20°C ~ 60°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 170mm x 170mm
- Weight: GW: 900g / NW: 450g
- CE/FCC compliant

Features

- LGA 1151 Intel® 6th/7th generation Core™ i7/i5/i3, Pentium® or Celeron® processor and DDR4 2133MHz memory support
- Support HDMI 2.0 (4096x2160@60Hz)
- Dual Intel® GbE support Intel® AMT 11.0
- Triple display via HDMI 2.0/HDMI/DP 1.2/VGA/iDP
- High speed I/O interface for USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s and mSATA support
- Support IEI jumpless

Packing List

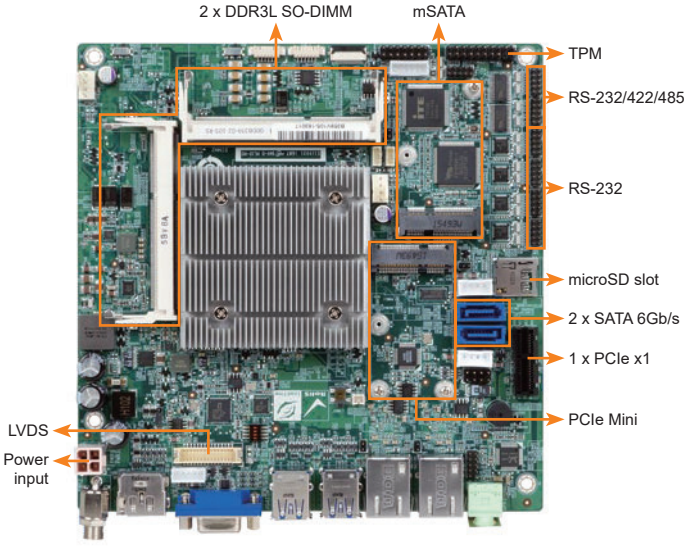
1 x KINO-AQ170 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

Ordering Information

Part No.	Description
KINO-AQ170-R10	Mini-ITX SBC supports 6th generation Intel® Core™ i7/i5/i3, Pentium® and Celeron® processor, HDMI 2.0/HDMI/DP/VGA, SATA 6Gb/s, dual Intel® GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, HD Audio and RoHS
32001-008600-200-RS	Dual-port USB cable, 210mm, P=2.0
32205-002700-200-RS	RS-232/422/485 cable, 230mm, P=2.0
CF-115XC-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-115XD-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High performance LGA1155/LGA1156 cooler kit, 95W
DP-DP-R10	DisplayPort to DP converter board (for IEI connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI connector)
DP-LVDS-R10	DisplayPort to 24-bit dual-channel LVDS converter board (for IEI connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI connector)

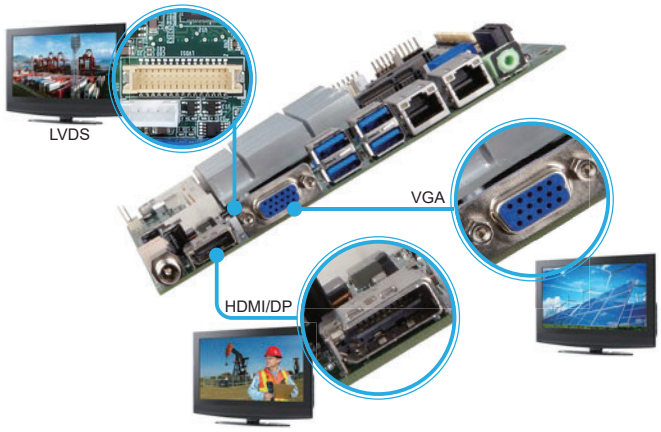
tKINO-BW

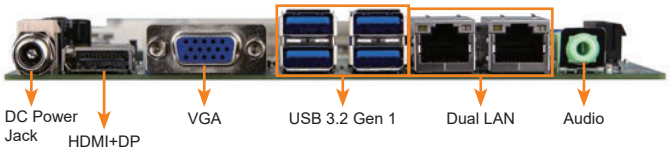
Thin Mini-ITX SBC supports 14nm Intel® Pentium®/Celeron® on-board SoC, 9~30V DC input, VGA/LVDS/DP+HDMI, SATA 6Gb/s, dual GbE, USB 3.2 Gen 1 (5Gb/s), HD Audio and RoHS



Three Digital Display Interfaces

3 independent displays under Window® 7 OS and up







Specifications

- SoC
  Intel® Pentium® N3710 on-board SoC (up to 2.56GHz, quad-core, 2MB cache, TDP=6W)
  Intel® Celeron® N3160 on-board SoC (up to 2.24GHz, quad-core, 2MB cache, TDP=6W)
  Intel® Celeron® N3060 on-board SoC (up to 2.48GHz, dual-core, 2MB cache, TDP=6W)
  Intel® Celeron® N3010 on-board SoC (up to 2.24GHz, dual-core, 2MB cache, TDP=4W)
- BIOS
  UEFI BIOS
- Memory
  Two 204-pin 1333/1600 MHz single-channel DDR3L SDRAM unbuffered SO-DIMM slots support up to 8 GB
- Graphics Engine
  Intel® HD Graphics Gen 8 Engines with 16 low-power execution units, supporting DX11.1, OpenGL 4.2 and OpenCL1.2
- Display Output
  Triple independent display
  1 x HDMI/DP (up to 3840x2160@30Hz)
  1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
  1 x VGA (up to 1920x1200@60Hz)
- Ethernet
  Dual Realtek RTL8111E PCIe GbE controller
- External I/O Interface
  4 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x MicroSD card slot
  1 x mSATA (colay SATA2)
  2 x RS-232/422/485 (2x5 pin, P=2.0)
  2 x SATA 6Gb/s with 5V output
  2 x USB 2.0 (2x4 pin, P=2.54)
  4 x RS-232 (2x5 pin, P=2.0)
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED
  2 x LAN LED (1x2 pin)
- SMBus
  1 x SMBus (1x4 pin)
- TPM
  1 x TPM (2x10 pin)
- I²C
  1 x I²C (1x4 pin)
- Digital I/O
  8-bit digital I/O (2x5 pin)
- Expansion
  1 x PCIe x1
  1 x Full-size PCIe Mini card slot
- Audio
  Realtek ALC662 HD codec
  1 x Audio jacks (line-out) on rear IO
  1 x Front audio (2x5 pin)
- Watchdog Timer: Software programmable supports 1~255 sec. system reset
- Power Supply
  1 x External DC power jack (ø5.5 mm)
  1 x Internal power connector (2x2 pin)
  Input Voltage Range: 9V ~ 30V
  Support AT/ATX mode
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x4 pin)
- Power Consumption
  12V@1.61A (Intel® Celeron® N3710 CPU with two 4 GB 1600 MHz DDR3L memory)
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Weight: GW: 900g / NW: 400g
- CE/FCC compliant

Features

- Thin Mini-ITX form factor with 14nm Intel® Pentium®/Celeron® on-board SoC processor supports DDR3L memory
- Supports USB 3.2 Gen 1 (5Gb/s), two SATA 6Gb/s
- Triple independent display, supporting 4K resolution
- Supports IEI jumperless function

Packing List

1 x tKINO-BW single board computer with heatsink
1 x I/O shielding
1 x SATA cable
1 x QIG

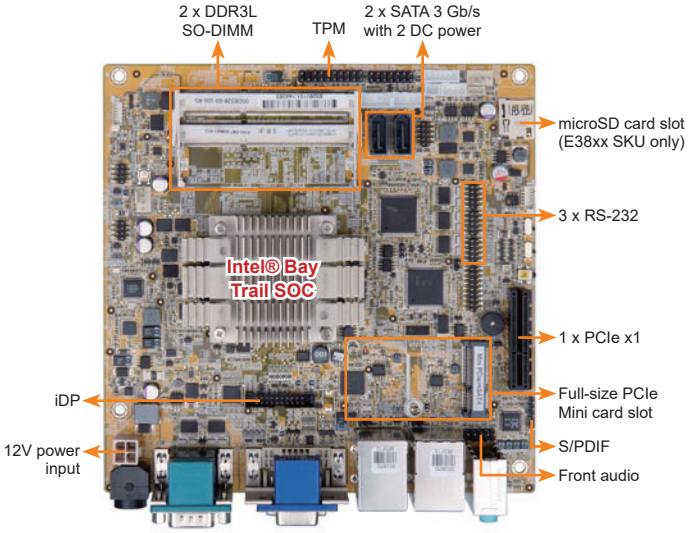
Ordering Information

Part No.	Description
tKINO-BW-N4-R20	Thin Mini-ITX SBC supports Intel® Pentium® quad-core processor N3710 up to 2.56GHz (6W), VGA/LVDS/DP+HDMI, SATA, dual GbE, USB 3.2 Gen 1 (5Gb/s), HD Audio and RoHS
tKINO-BW-N3-R20	Thin Mini-ITX SBC supports Intel® Celeron® quad-core processor N3160 up to 2.24GHz (6W), VGA/LVDS/DP+HDMI, SATA, dual GbE, USB 3.2 Gen 1 (5Gb/s), HD Audio and RoHS
tKINO-BW-N2-R20	Thin Mini-ITX SBC supports Intel® Celeron® dual-core processor N3060 up to 2.48GHz (6W), VGA/LVDS/DP+HDMI, SATA, dual GbE, USB 3.2 Gen 1 (5Gb/s), HD Audio and RoHS
tKINO-BW-N1-R20**	Thin Mini-ITX SBC supports Intel® Celeron® dual-core processor N3010 up to 2.24GHz (4W), VGA/LVDS/DP+HDMI, SATA, dual GbE, USB 3.2 Gen 1 (5Gb/s), HD Audio and RoHS
32205-002700-200-RS	RS-232/422/485 cable, 200mm, P=2.0
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

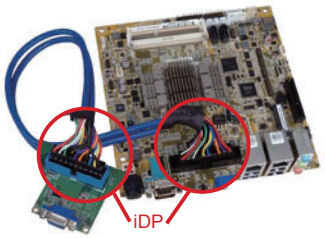
**By order production, MOQ: 100

KINO-DBT

Mini-ITX SBC supports 22nm Intel® Atom™ or Celeron® on-board SoC, VGA/DVI/iDP, dual Realtek PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA, HD Audio, RoHS



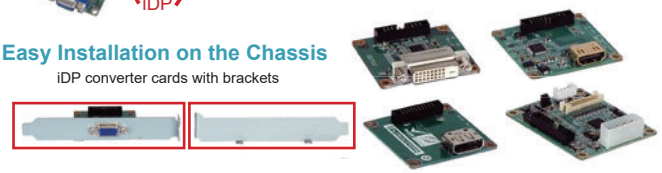
iDP (IEI Internal DisplayPort)

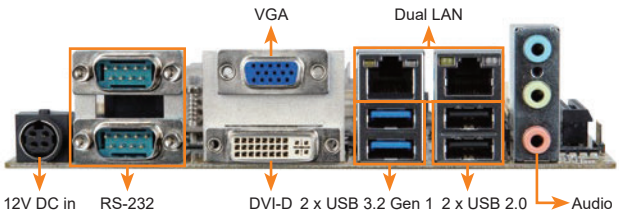


Model	Output	External Power
DP-VGA-R10	VGA	No
DP-HDMI-R10	HDMI	No
DP-DVI-R10	DVI	No
DP-LVDS-R10	LVDS	Yes
DP-DP-R10	DP	No

Easy Installation on the Chassis

iDP converter cards with brackets







Specifications

- SoC
  Intel® Atom™ E3845 on-board SoC (1.91GHz, quad-core, 2MB cache, TDP=10W)
  Intel® Atom™ E3827 on-board SoC (1.75GHz, dual-core, 1MB cache, TDP=8W)
  Intel® Atom™ E3826 on-board SoC (1.46GHz, dual-core, 1MB cache, TDP=7W)
  Intel® Atom™ E3825 on-board SoC (1.33GHz, dual-core, 1MB cache, TDP=6W)
  Intel® Atom™ E3815 on-board SoC (1.46GHz, single-core, 512KB cache, TDP=5W)
  Intel® Celeron® J1900 on-board SoC (2GHz, quad-core, 2MB cache, TDP=10W)
  Intel® Celeron® N2930 on-board SoC (1.83GHz, quad-core, 2MB cache, TDP=7.5W)
  Intel® Celeron® N2807 on-board SoC (1.58GHz, dual-core, 2MB cache, TDP=4.5W)
- BIOS
  UEFI BIOS
- Memory
  Two 204-pin 1066/1333 MHz dual-channel unbuffered DDR3L SDRAM SO-DIMM support up to 8 GB (J1900, N2930, E3845, E3827, E3826)
  One 204-pin 1066/1333 MHz dual-channel unbuffered DDR3L SDRAM SO-DIMM supports up to 8 GB (E3825, E3815) or 4 GB (N2807)
- Graphics Engine
  Intel® HD Graphics Gen 7 engine with 4 execution units, supporting DX11.1, OpenGL 4.2 and OpenCL1.2
- Display Output
  Dual independent display
  1 x VGA (up to 2560x1600@60 Hz)
  1 x DVI-D (up to 1920x1080@60 Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 2560x1600@60 Hz)
- Ethernet
  LAN1: Realtek RTL8111E PCIe GbE controller
  LAN2: Realtek RTL8111E PCIe GbE controller
- External I/O Interface
  2 x RS-232
  2 x USB 2.0
  2 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x mSATA (colay SATA2)
  2 x SATA 3Gb/s
  4 x USB 2.0 (2x4 pin, P=2.0)
  1 x MicroSD card slot (E38xx sku only)
  1 x RS-422/485 (1x4 pin, P=2.0)
  3 x RS-232 (2x5 pin, P=2.0)
- SMBus: 1 x SMBus (1x4 pin)
- TPM: 1 x TPM (2x10 pin)
- Audio
  Realtek ALC662 HD Audio codec supports 5.1-channel
  3 x Audio jacks (line-out, line-in, mic-in) on rear IO
  1 x Front audio (2x5 pin)
  1 x S/PDIF (1x5 pin)
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED: 2 x LAN LED (1x2 pin)
- Expansion
  1 x PCIe x4 slot (with PCIe x1 signal)
  1 x Full-size PCIe Mini card slot
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Chassis Intrusion Detection: 1 x Chassis intrusion connector (1x2 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x4 pin)
- Power Supply
  12V DC input
  1 x External DC jack (4-pin DIN)
  1 x Internal power connector (2x2 pin)
- Power Consumption
  12V@1.64A (Intel® Celeron® J1900 CPU with 4 GB 1333 MHz DDR3L memory)
- Watchdog Timer: Software programmable supports 1~255 sec. system reset
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 170mm x 170mm
- Weight: GW: 900g / NW: 400g
- CE/FCC compliant

Features

- Mini-ITX SBC with 22nm Intel® Atom™ on-board SoC
- 1.35V DDR3L 1066/1333 MHz SDRAM supporting up to 8 GB of memory
- Dual independent display support
- COM, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, PCIe Mini, mSATA and HD Audio support
- Support Intel® VT-x techology

Packing List

1 x KINO-DBT single board computer	1 x SATA cable with power output cable
1 x IO shielding	1 x QIG

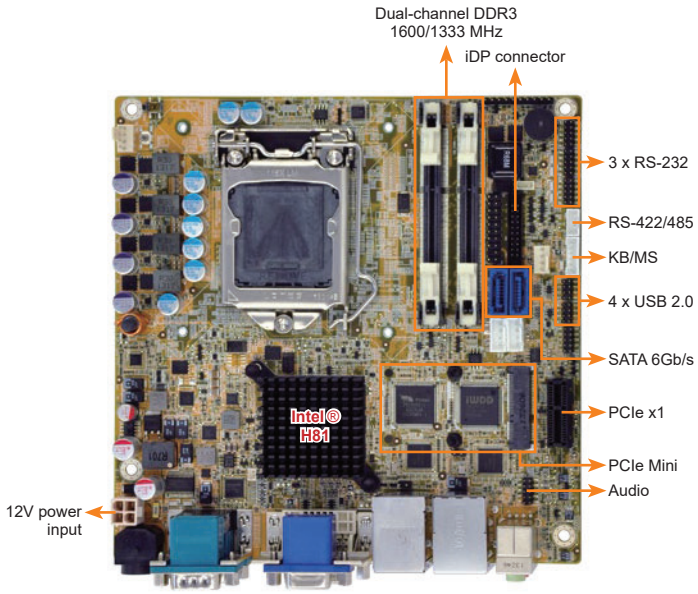
Ordering Information

Part No.	Description
KINO-DBT-J19001-R10	Mini-ITX SBC supports Intel® Celeron® quad-core processor J1900 (10W), VGA/DVI/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA, HD Audio and RoHS
KINO-DBT-N29301-R10	Mini-ITX SBC supports Intel® Celeron® quad-core processor N2930 (7.5W), VGA/DVI/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA, HD Audio and RoHS
KINO-DBT-N28071-R10	Mini-ITX SBC supports Intel® Celeron® dual-core processor N2807 (4.5W), VGA/DVI/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA, HD Audio and RoHS
KINO-DBT-E38XX1-R10**	Mini-ITX SBC supports Intel® Atom™ processor E38XX, VGA/DVI/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA, HD Audio and RoHS
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
32205-002700-200-RS	RS-232 cable, 200mm, P=2.0
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to 24-bit dual-channel LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

**By order production, MOQ: 100

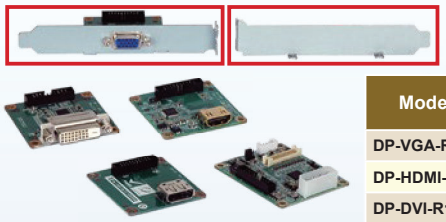
KINO-DH810

Mini-ITX SBC with LGA1150 4th generation Intel® Core™ i7/i5/i3, Pentium® or Celeron® CPU, DDR3, DVI-D, VGA, iDP, dual Intel® PCIe GbE, SATA 6Gb/s, USB 3.2 Gen 1 (5Gb/s), HD Audio and RoHS



iDP (IEI Internal DisplayPort)

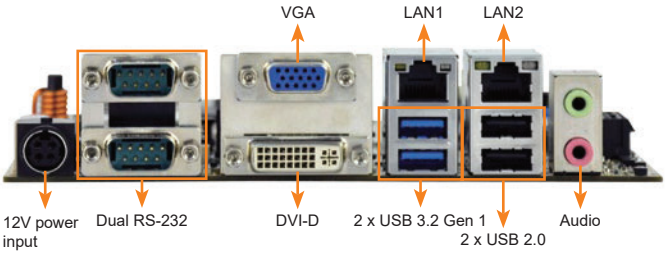
The iDP connector is provided on the IEI 8-series products. Through the IEI iDP converter cards, the iDP connector can support different display specifications, such as VGA, HDMI, DVI-D and LVDS.

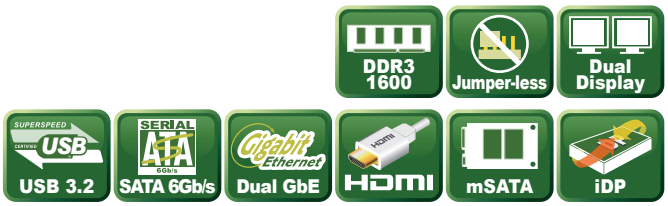


iDP converter cards with brackets

Easy Installation on the Chassis

Model	Output	External Power
DP-VGA-R10	VGA	No
DP-HDMI-R10	HDMI	No
DP-DVI-R10	DVI	No
DP-LVDS-R10	LVDS	Yes
DP-DP-R10	DP	No





Specifications

- CPU
  4th generation LGA1150 Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- Chipset
  Intel® H81
- Memory
  Two 204-pin 1600/1333 MHz dual-channel DDR3 SDRAM unbuffered SO-DIMM support up to 16 GB
- BIOS
  UEFI BIOS
- Ethernet
  Dual LAN: Intel® I211-AT PCIe controller
- Graphics Engine
  Intel® HD Graphics Gen 7.5 supports DX11.1 and OpenCL 1.2, OpenGL 3.2
  Full MPEG2, VC1, AVC Decode
- Display Output
  1 x VGA (up to 1920x1200@60Hz)
  1 x DVI-D (up to 2560x1600@60Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60Hz)
- Audio
  Realtek ALC662 HD Audio codec
  2 x Audio jacks (line-out, mic-in) on rear IO
  1 x Front audio (2x5 pin)
- External I/O Interface
  2 x RS-232
  2 x USB 2.0
  2 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x RS-422/485 (1x4 pin, P=2.0)
  3 x RS-232 (2x5 pin, P=2.0)
  2 x SATA 6Gb/s with SATA power connector
  4 x USB 2.0 (2x4 pin, P=2.0)
- Front Panel
  1 x Front panel (1x10 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED: 2 x LAN LED (1x2 pin)
- SMBus: 1 x SMBus (1x4 pin)
- TPM: 1 x TPM (2x10 pin)
- Expansion
  1 x PCIe x1 slot
  1 x Full-size PCIe Mini card slot (support mSATA)
- Watchdog Timer
  Software programmable, support 1~255 sec. system reset
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x4 pin)
- Power Supply
  12V only DC input
  1 x External DC jack (4-pin DIN)
  1 x Internal power connector (2x2 pin)
  Support AT/ATX mode
- Power Consumption
  +12V@6.03A
  (Intel® Core™ i7-4770K 3.90 GHz CPU with two 1333 MHz 4 GB DDR3 memory)
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 170mm x 170mm
- Weight: GW: 900g / NW: 450g
- CE/FCC compliant

Features

- 4th generation LGA1150 Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- DDR3 1066/1333/1600 MHz dual-channel SDRAM
- 3D micro-architecture enhancement supports DX11.1, OCL 1.2 and OGL 3.2
- Rich media acceleration for hardware decode and encode acceleration
- High-speed I/O interface for USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s and mSATA
- IEI Jumper-less function

Packing List

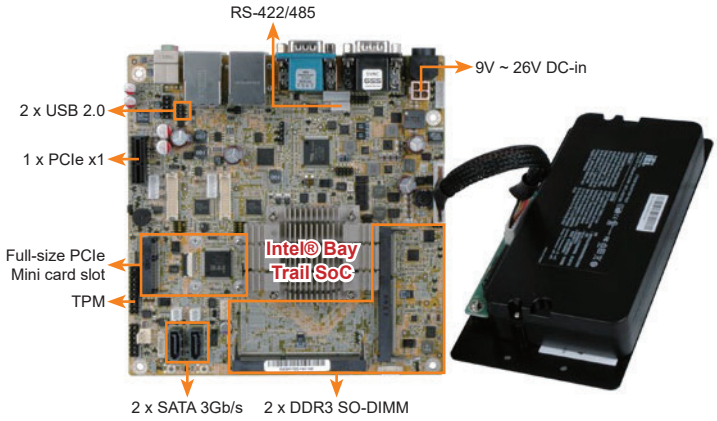
1 x KINO-DH810 single board computer	2 x SATA with power cable kit
1 x I/O shielding	1 x QIG

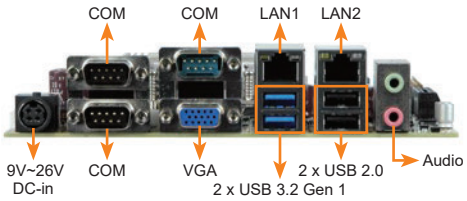
Ordering Information

Part No.	Description
KINO-DH810-R10	Mini-ITX SBC with LGA1150 Intel® Core™ i7/i5/i3, Celeron® CPU, DDR3, dual Intel® PCIe GbE, DVI-D, VGA, DP, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio and RoHS
KINO-DH810-ECO-R10	Mini-ITX SBC with LGA1150 Intel® Core™ i7/i5/i3, Pentium® or Celeron® CPU, DDR3, DVI-D, VGA, iDP, dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio, ECO packing and RoHS (10 pcs/pack)
32001-008600-200-RS	Dual-port USB cable, 210mm, P=2.0
32006-001100-201-RS	PS/2 KB/MS cable, 135mm, P=2.0
32205-002700-200-RS	RS-232/422/485 cable, 200mm, P=2.0
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
CF-115XA-R10	High-performance LGA1155/LGA1156 cooler kit, 1U chassis compatible, 73W
CF-115XC-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-115XD-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High-performance LGA1155/LGA1156 cooler kit, 95W
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

eKINO-BT

Mini-ITX SBC supports AUPS sub-system, 22nm Intel® Atom™/Celeron® on-board SoC, wide-range 9V ~ 26V DC input, VGA/dual LVDS, SATA, dual GbE, USB 3.2 Gen 1 (5Gb/s), audio, CFast and RoHS





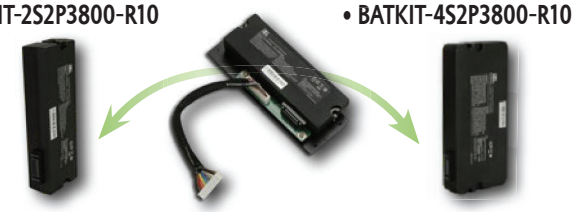
DDR3L 1333 | Fanless | Dual Display | USB 3.2 | SATA 3Gb/s | Dual GbE

Specifications

- CPU
  Intel® Atom™ E3845 on-board SoC (1.91GHz, quad-core, 2MB cache, TDP=10W)
  Intel® Atom™ E3827 on-board SoC (1.75GHz, dual-core, 1MB cache, TDP=8W)
  Intel® Atom™ E3826 on-board SoC (1.46GHz, dual-core, 1MB cache, TDP=7W)
  Intel® Atom™ E3825 on-board SoC (1.33GHz, dual-core, 1MB cache, TDP=6W)
  Intel® Atom™ E3815 on-board SoC (1.46GHz, single-core, 512KB cache, TDP=5W)
  Intel® Celeron® J1900 on-board SoC (2GHz, quad-core, 2MB cache, TDP=10W)
  Intel® Celeron® N2930 on-board SoC (1.83GHz, quad-core, 2MB cache, TDP=7.5W)
  Intel® Celeron® N2807 on-board SoC (1.58GHz, dual-core, 2MB cache, TDP=4.3W)
- BIOS
  UEFI BIOS
- Memory
  Two 204-pin 1066/1333 MHz dual-channel unbuffered DDR3L SDRAM SO-DIMM support up to 8 GB (J1900, N2930, E3845, E3827, E3826)
  One 204-pin 1066/1333 MHz dual-channel unbuffered DDR3L SDRAM SO-DIMM supports up to 8 GB (E3825, E3815) or 4 GB (N2807)
- Graphics Engine
  Intel® HD Graphics Gen 7 Engines with 4 execution units, supporting DX11.1, OpenGL 4.2 and OpenCL1.2
- Display Output
  1 x VGA (up to2560x1600@60Hz)
  2 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
- External I/O Interface
  2 x USB 2.0
  2 x USB 3.2 Gen 1 (5Gb/s)
  3 x RS-232
- Internal I/O Interface
  1 x CFast slot
  1 x KB/MS (1x6 pin)
  1 x MicroSD card slot
  1 x RS-232 (2x5 pin, P=2.0)
  1 x RS-422/485 (1x4 pin, P=2.0)
  2 x SATA 3Gb/s with 5V SATA power connector
  2 x USB 2.0 (2x4 pin, P=2.0)
- Ethernet
  Dual LAN: Realtek RTL8111E PCIe controller
- TPM
  1 x TPM (2x10 pin)
- SMBus
  1 x SMBus (1x4 pin)
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- LAN LED
  2 x LAN LED (1x2 pin)
- Digital I/O
  8-bit digital I/O (2x5 pin)
- Expansion
  1 x PCIe x1 slot
  1 x Full-size PCIe Mini card slot
- Audio
  Realtek ALC662 HD Audio codec
  2 x Audio jacks (line-out, mic-in) on rear IO
  1 x Front audio (2x5 pin)
- Watchdog Timer
  Software programmable supports 1~255 sec. system reset
- Power Supply
  1 x External DC power jack (4-pin DIN)
  1 x Internal power connector (2x2 pin)
  Input voltage range: 9V ~ 26V
  Recommended operating input voltage range: 12V~24V
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System fan (1x3 pin)
- Power Consumption
  +12V@1.55A
  (Intel® Celeron® J1900 CPU with two 4 GB 1333 MHz DDR3L memory)
- Operating Temperature
  0°C ~ 40°C with AUPS sub-system
  -20°C ~ 60°C without AUPS sub-system
- Storage Temperature
  -10°C ~ 50°C with AUPS sub-system
  -30°C ~ 70°C without AUPS sub-system
- Operating Humidity
  5% ~ 95%, non-condensing
- Weight
  GW: 1100g / NW: 400g
- CE/FCC compliant

AUPS Battery Kit

- BATKIT-2S2P3800-R10
- BATKIT-4S2P3800-R10



P/N: BAT-LI-2S2P3800
2S2P 7.4V 3800mAh

P/N: BAT-LI-4S2P3800
4S2P 14.8V 3800mAh

Battery Specifications

Battery Model	BAT-LI-2S2P3800	BAT-LI-4S2P3800
Battery type	Li-Ion 2S2P 7.4V	Li-Ion 4S2P 14.8V
Battery capacity	7.4V 3800mAh	14.8V, 3800mAh
Maximum charge voltage	8.4V	16.8V
The end of discharging voltage	5.6V	11.2V
Battery charge time (Power off)	2.5hrs	5hrs
Battery charge time (Power on)	6.5hrs	13hrs
Operating temp.	0°C ~ 40°C	0°C ~ 40°C
Storage temp.	-20°C ~ 60°C	-20°C ~ 60°C
Cycle life	300 charge/discharge cycles	
Backup	60W/10Min	100W/10Min
Safety class	CE	

Features

- Mini ITX supports Intel® 22nm Atom™ or Celeron® on-board SoC
- Wide-range 9V ~ 26V DC input design
- Supports dual independent display with dual LVDS and VGA
- Equipped with AUPS sub-system, acts as a simple UPS system
- Supports four USB 2.0, two USB 3.2 Gen 1 (5Gb/s), two SATA and four COM
- IEI jumper-less function

Packing List

1 x eKINO-BT single board computer
2 x SATA with 5V output cable kit
1 x I/O shielding
1 x QIG

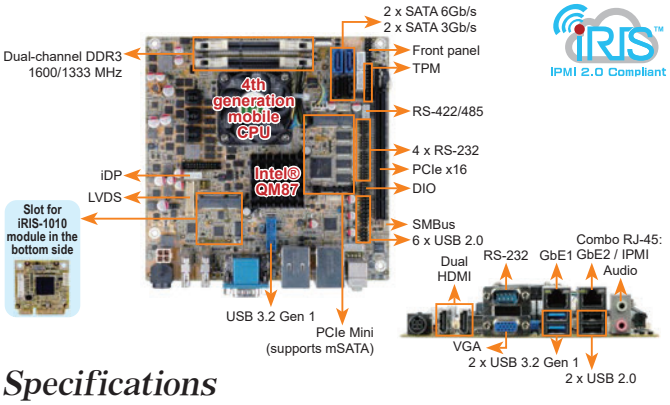
Ordering Information

Part No.	Description
EKINO-BT-J19001-R10	Mini-ITX SBC supports AUPS sub-system, Intel® Celeron® quad-core processor J1900 (10W), wide-range 9V ~ 26V DC input, VGA/dual LVDS, SATA, USB 3.2 Gen 1 (5Gb/s), dual GbE, audio, CFAST and RoHS
EKINO-BT-N29301-R10	Mini-ITX SBC supports AUPS sub-system, Intel® Celeron® quad-core processor N2930 (7.5W), wide-range 9V ~ 26V DC input, VGA/dual LVDS, SATA, USB 3.2 Gen 1 (5Gb/s), dual GbE, audio, CFast and RoHS
EKINO-BT-N28071-R10	Mini-ITX SBC supports AUPS sub-system, Intel® Celeron® dual-core processor N2807 (4.3W), wide-range 9V ~ 26V DC input, VGA/dual LVDS, SATA, USB 3.2 Gen 1 (5Gb/s), dual GbE, audio, CFast and RoHS
EKINO-BT-E38XX1-R10**	Mini-ITX SBC supports AUPS sub-system, Intel® Atom™ E38XX on-board SoC, wide-range 9V ~ 26V DC input, VGA/dual LVDS, SATA, dual GbE, USB 3.2 Gen 1 (5Gb/s), audio, CFast and RoHS (by request MOQ: 100pcs/lot)
BATKIT-2S2P3800-R10	2S2P 7.4V 3800mAh AUPS battery kit
BAT-LI-2S2P3800	2S2P 7.4V 3800mAh smart battery
BATKIT-4S2P3800-R10	4S2P 14.8V 3800mAh AUPS battery kit
BAT-LI-4S2P3800	4S2P 14.8V 3800mAh smart battery
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
32001-008600-200-RS	Dual-port USB 2.0 cable, 210mm, P=2.0
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
63040-010060-110-RS	60W/12V power adaptor, 90VAC~260VAC, 4-pin DIN
63040-010120-210-RS	120W/19V power adapter, 90VAC~264VAC, 4-pin DIN
CB-USB02A-RS	Dual-port USB 2.0 cable with bracket, 300mm, P=2.0

**By order production, MOQ: 100

KINO-DQM871-i1

Mini-ITX SBC supports 4th generation 22nm Intel® mobile processors, HDMI/ VGA/LVDS/DP, dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, iRIS-1010, audio and RoHS



Specifications

- CPU
  Intel® mobile Core™ i7-4700EQ on-board processor with Intel® AMT 9.0 support (2.4GHz, quad-core, 6MB cache, TDP=47W)
  Intel® mobile Core™ i5-4402E on-board processor with Intel® AMT 9.0 support (1.6GHz, dual-core, 3MB cache, TDP=25W)
  Intel® mobile Core™ i5-4400E on-board processor with Intel® AMT 9.0 support (2.7GHz, dual-core, 3MB cache, TDP=37W) (by request)
- Chipset: Intel® QM87
- Memory: Two 204-pin 1600/1333 MHz dual-channel DDR3 SDRAM unbuffered DIMMs support up to 16 GB
- BIOS: UEFI BIOS
- Ethernet
  LAN1: Intel® I217LM with Intel® AMT 9.0 support
  LAN2: Intel® I210-AT PCIe controller
- Graphics Engine
  Intel® HD Graphics Gen 7.5 supports DX11.1 and OpenCL 1.2, OpenGL 3.2
  Full MPEG2, VC1, AVC Decode
- Audio
  Realtek ALC662 HD codec supports 5.1-channel
  2 x Audio jacks (line-out, mic-in) on rear IO
- iRIS Remote Management Module
  1 x iRIS-1010 slot
- LAN LED: 2 x LAN LED (1x2 pin)
- Display Output
  1 x VGA (up to 1920x1200@60Hz)
  1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
  2 x HDMI (up to 2500x1600@60Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60Hz)
- External I/O Interface
  1 x RS-232 2 x USB 2.0
  2 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x RS-422/485 (1x4 pin, P=2.0)
  2 x SATA 3Gb/s
  2 x SATA 6Gb/s (RAID 0/1/5/10 supported)
  2 x USB 3.2 Gen 1 (5Gb/s) (2x10 pin, P=2.0)
  4 x RS-232 (2x5 pin, P=2.0)
  6 x USB 2.0 (2x4 pin, P=2.54)
- Front Panel: 1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- SMBus: 1 x SMBus (1x4 pin)
- TPM: 1 x TPM (2x10 pin)
- Expansion: 1 x PCIe x16 slot
  1 x Full-size PCIe Mini card slot (support mSATA)
- Watchdog Timer: Software programmable, support 1~255 sec. system reset
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Fan Connector: 1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x4 pin)
- Power Supply: 12V DC input
  1 x Internal power connector (2x2 pin)
  1 x External DC jack (4-pin DIN)
  Support AT/ATX mode
- Power Consumption: 12V@6.03A (Intel® Core™ i7-4770EQ, 2.4GHz CPU with 8 GB (two 4 GB) 1333 MHz DDR3 memory)
- Operating Temperature: -20°C ~ 60°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 170mm x 170mm
- Weight: GW: 900g / NW: 450g
- CE/FCC compliant

Packing List

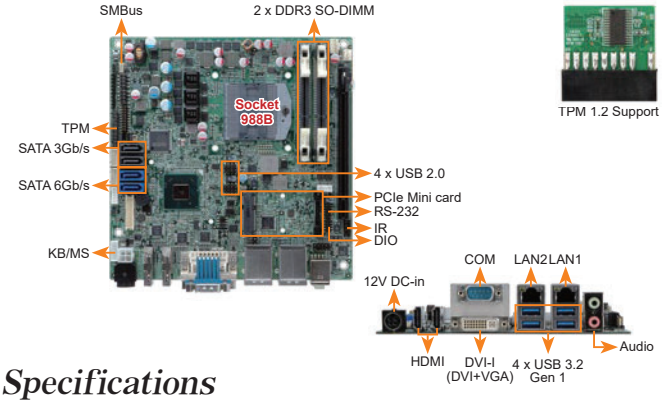
1 x KINO-DQM871-i1 motherboard	2 x SATA with power output cable
1 x CPU cooler	1 x Mini jumper pack
1 x I/O shielding	1 x QIG

Ordering Information

Part No.	Description
KINO-DQM871-i1-i7-R10	Mini-ITX SBC supports Intel® 22nm mobile Core™ i7-4700EQ on-board processor, HDMI/VGA/LVDS/DP, AMT 9.0, dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, iRIS-1010, audio and RoHS
KINO-DQM871-i1-i5E-R10	Mini-ITX SBC supports Intel® 22nm mobile Core™ i5-4402E on-board processor, HDMI / VGA / LVDS / DP, dual Intel® PCIe GbE, AMT 9.0, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, iRIS-1010, audio and RoHS
iRIS-1010-R10	IPMI 2.0 adapter card with AST1010 BMC chip (W/O KVM over IP function) for PCIe Mini socket interface
19800-000300-100-RS	RS-232 cable with bracket, 300mm, P=2.0
19800-003100-100-RS	Dual port USB 2.0 cable with bracket, 300mm, P=2.54
19800-010500-200-RS	USB 3.2 Gen 1 (5Gb/s) cable with bracket, 450mm
32006-001100-201-RS	PS/2 KB/MS cable, 135mm/110mm, P=2.0
32205-003800-200-RS	RS-422/485 cable, 200mm, P=2.0
DP-DP-R10	DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to 24-bit dual-channel LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

KINO-QM770

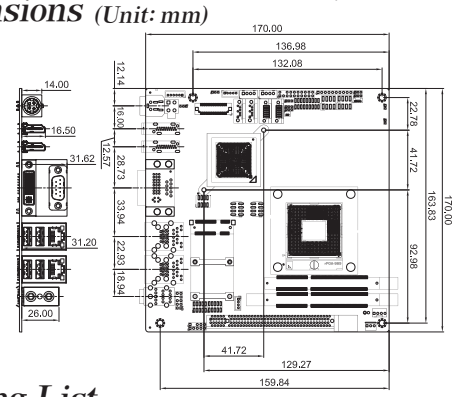
Mini-ITX SBC with Socket G2 for Intel® 22nm mobile CPU, DVI-I, dual HDMI, LVDS, dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA 6Gb/s and audio



Specifications

- CPU: Socket G2 for 3rd generation Intel® 22nm mobile processor
- Chipset: Intel® QM77
- Memory: Two 240-pin 1600/1333 MHz dual-channel DDR3 SDRAM unbuffered DIMMs support up to 16 GB
- BIOS: UEFI BIOS
- Ethernet
  LAN1:Intel® 82579 PHY with Intel® AMT 8.0 support
  LAN2:Intel® 82583V PCIe controller
- Graphics Engine
  Supports DX11 and OpenGL 3.1
  Full MPEG2, VC1, AVC Decode
- Display Output
  1 x DVI-I (up to 1920x1200@60Hz)
  1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
  2 x HDMI (up to 1920x1200@60Hz)
- Audio
  Realtek ALC892 HD codec
  2 x Audio jacks (line-out, mic-in) on rear IO
  1 x Front Audio (2x5 pin)
- SMBus: 1 x SMBus (1x4 pin)
- TPM: 1 x TPM (2x10 pin)
- Expansion
  1 x PCIe x16 slot 1 x PCIe Mini card slot
- Digital I/O: 8-bit digital I/O (2x5 pin)
- External I/O Interface
  1 x RS-232 4 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  2 x SATA 3Gb/s
  1 x RS-232 (2x5 pin, P=2.0)
  2 x SATA 6Gb/s (RAID 0/1/5/10 supported)
  1 x RS-422/485 (1x4 pin, P=2.0)
  4 x USB 2.0 (2x4 pin, P=2.54)
- Watchdog Timer: Software programmable supports 1~255 sec. system reset
- Infrared Interface: 1 x Infrared interface (1x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System fan (1x3 pin)
- Power Supply
  12V DC input
  1 x Internal power connector (2x2 pin)
  1 x External DC jack (4-pin DIN)
  Support AT/ATX mode
- Power Consumption
  12V@6.08A (2.3GHz Intel® Core™ i7-3610QE with two 1333 MHz 4 GB DDR3 memory running 3DMark06 burn in)
- Operating Temperature: -10°C ~ 60°C
- Storage Temperature: -20°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 170 mm x 170 mm
- Weight: GW: 900g / NW: 450g
- CE/FCC compliant

Dimensions *(Unit: mm)*



Packing List

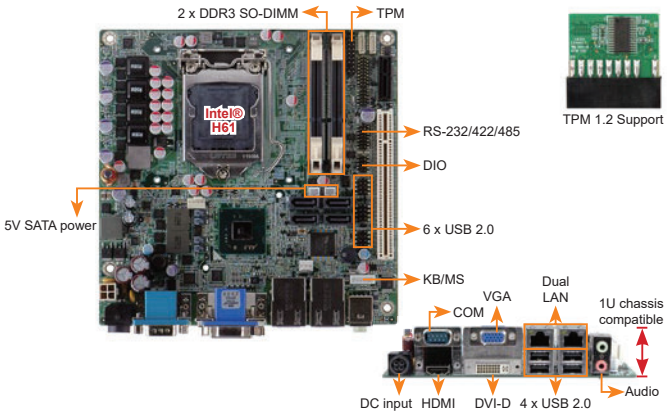
1 x KINO-QM770 single board computer	2 x SATA with power output cable
1 x I/O shielding	1 x Mini jumper pack
1 x RS-232 cable with bracket	1 x QIG

Ordering Information

Part No.	Description
KINO-QM770-R10	Mini-ITX SBC with Socket G2 for Intel® 22nm mobile CPU, DVI-I/dual HDMI/LVDS, dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA 6Gb/s and Audio
19800-003100-100-RS	Dual port USB 2.0 cable with bracket, 300mm, P=2.54
32006-001100-201-RS	PS/2 KB/MS cable, 135mm/110mm, P=2.0
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
33Z00-000031-RS	DVI-I to VGA adapter connector
CF-989A-RS-R12	CPU cooler for mobile socket-G (PGA988) up to 55W processor, copper, 60 x 60 x 27.6mm, RoHS
SACF-KIT01-R10	SATA to CF converter board
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

KINO-DH610

Mini-ITX SBC supports LGA1155 Intel® Core™ i7/i5/i3/Pentium®/Celeron® CPU, DDR3, VGA/DVI-D/HDMI, dual PCIe GbE, USB 2.0, SATA 3Gb/s, HD Audio and RoHS



Specifications

- CPU
  LGA1155 socket supports Intel® Core™ i7/i5/i3/ Pentium®/Celeron® dual-core processor (TDP 65W max.)
- Chipset: Intel® H61
- Memory
  Two 204-pin 1066/1333 MHz dual-channel unbuffered DDR3L SDRAM SO-DIMM support up to 16 GB
- BIOS: UEFI BIOS
- Ethernet
  LAN1: Realtek RTL8111E PCIe GbE controller with ASF 2.0 support
  LAN2: Realtek RTL8111E PCIe GbE controller
- Graphics Engine
  Supports DX10.1 and OpenGL 3.0
  Full MPEG2, VC1, AVC Decode
- Display Output
  Dual display supported
  1 x VGA (up to 2048x1536@75Hz)
  1 x HDMI (up to 1920x1200@60Hz)
  1 x DVI-D (up to 1920x1200@60Hz)
- External I/O Interface
  1 x RS-232 4 x USB 2.0
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x RS-232/422/485 (2x7 pin, P=2.0)
  2 x SATA power connector
  4 x SATA 3Gb/s 6 x USB 2.0 (2x4 pin, P=2.54)
- TPM: 1 x TPM (2x10 pin)
- Audio
  Realtek ALC662 HD codec
  2 x Audio jacks (line-out, mic-in) on rear IO
- Expansions
  1 x PCI slot 1 x PCIe x1 slot
- Watchdog Timer: Software programmable supports 1~255 sec. system reset
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System fan (1x3 pin)
- Power Supply
  Maximum input voltage range: 9V ~ 28V
  Recommended operating input voltage range: 12V ~ 24V
  1 x External DC jack (4-pin DIN)
  1 x Internal power connector (2x2 pin)
- Power Consumption
  12V@5.07A (2.2GHz Intel® G620T with two 1066 MHz 2 GB DDR3 memory running 3DMark06 burn in)
  12V@8.85A (2.8GHz Intel® Core™ i7-2600S with two 1066 MHz 2 GB DDR3 memory running 3DMark06 burn in)
- Operating Temperature: -10°C ~ 60°C
- Storage Temperature: -20°C ~ 70°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions: 170 mm x 170 mm
- Weight: GW: 1100g / NW: 700g
- CE/FCC compliant

Packing List

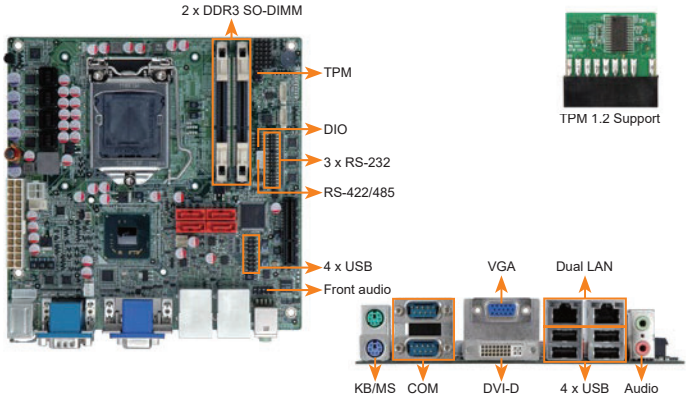
1 x KINO-DH610 single board computer	
1 x I/O shielding	1 x Mini jumper pack
2 x SATA with 5V power cable	1 x QIG

Ordering Information

Part No.	Description
KINO-DH610-R10	Mini-ITX SBC supports LGA1155 Intel® Core™ i5/i3/Pentium®/ Celeron® CPU, DDR3, VGA/DVI-D/HDMI, dual PCIe GbE, USB 2.0, SATA 3Gb/s, HD Audio and RoHS
CPU-DT-i5-2500T	Intel® Core™ i5-2500T processor, LGA1155, quad core 2.3GHz, 6M cache, 45W, compatible with CF-115XC-R10 CPU cooler
CPU-DT-i5-2390T	Intel® Core™ i5-2390T processor, LGA1155, dual core 2.7GHz, 3M cache, 35W, AMT, compatible with CF-115XC-R10 CPU cooler
CPU-DT-i3-2120T	Intel® Core™ i3-2120T processor, LGA1155, dual core 2.6GHz, 3M cache, 35W, compatible with CF-115XC-R10 CPU cooler
CPU-DT-C-G440	Intel® Celeron® G440 processor, LGA1155, single core 1.6GHz, 1M cache, 35W, compatible with CF-115XC-R10 CPU cooler
CPU-DT-P-G630T	Intel® Pentium® G630T processor, LGA1155, dual core 2.3GHz, 3M cache, 35W, compatible with CF-115XC-R10 CPU cooler
19800-003100-300-RS	Dual port USB cable with bracket, 300mm, P=2.54
19800-004300-100-RS	RS-232 & RS-422/485 cable with bracket, 14-pin to two DB-9, 250mm, P=2.0
32006-001100-201-RS	PS/2 KB/MS cable, 135mm, P=2.0
63040-010060-110-RS	12V 60W power adaptor with 4-pin DIN lock, 90 ~ 264VAC input, ErP
CF-115XA-R10	High-performance LGA1155/LGA1156 cooler kit, 1U chassis compatible, 73W
CF-115XC-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-115XD-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High-performance LGA1155/LGA1156 cooler kit, 95W
SACF-KIT01-R10	SATA to CF converter board
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

KINO-AH612

Mini-ITX SBC supports LGA1155 Intel® Core™ i7/i5/i3/Pentium®/Celeron® CPU with H61, DDR3, VGA/DVI-D, six COMs, dual PCIe GbE, SATA 3Gb/s, HD Audio and RoHS



DDR3 1333

1.35V DDR3

Features

- LGA1155 Intel® Core™ i7/i5/i3/Pentium®/Celeron® processor supported
- Dual-channel 1333/1066 MHz DDR3 supports up to 16 GB
- Supports dual independent display by VGA and DVI-D
- Supports six COM ports, four SATA 3Gb/s ports and one PCIe x4 slot for IO expansion card

Specifications

- CPU
  LGA1155 socket supports Intel® Core™ i7/i5/i3/ Pentium®/Celeron® processor
- Chipset: Intel® H61
- Memory
  Two 204-pin 1066/1333 MHz dual-channel unbuffered DDR3L SDRAM SO-DIMM support up to 16 GB
- BIOS: UEFI BIOS
- Ethernet
  Dual LAN: Realtek RTL8111E PCIe GbE controller with ASF 2.0 support
- Graphics Engine
  Supports DX10.1 and OpenGL 3.0
  Full MPEG-2, VC1, AVC Decode
- Display Output
  Dual display supported
  1 x VGA (up to 2048x1536@75Hz)
  1 x DVI-D (up to 1920x1200@60Hz)
- Audio: Realtek ALC662 HD codec
  2 x Audio jacks (line-out, mic-in) on rear IO
  1 x Front Audio (2x5 pin)
- External I/O Interface
  1 x KB/MS 2 x RS-232 4 x USB 2.0
- Internal I/O Interface
  1 x KB/MS (1x6 pin) 4 x SATA 3Gb/s
  1 x RS-422/485 (1x4 pin, P=2.0)
  3 x RS-232 (2x5 pin, P=2.0)
  4 x USB 2.0 (2x4 pin, P=2.54)
- TPM: 1 x TPM (2x10 pin)
- Expansion: 1 x PCIe x4 slot
- Watchdog Timer
  Software programmable supports 1~255 sec. system reset
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System fan (1x3 pin)
- Power Supply: ATX power supply
- Power Consumption
  5V@3.9A, 12V@0.36A, Vcore_12V@8.28A, 3.3V@1.24A, 5VSB@0.18A (3.4GHz Intel® Core™ i7-2600 with two 1333 MHz 2 GB DDR3 memory)
- Operating Temperature: -10°C ~ 60°C
- Storage Temperature: -20°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 170 mm x 170 mm
- Weight: GW: 1100g / NW: 700g
- CE/FCC compliant

Packing List

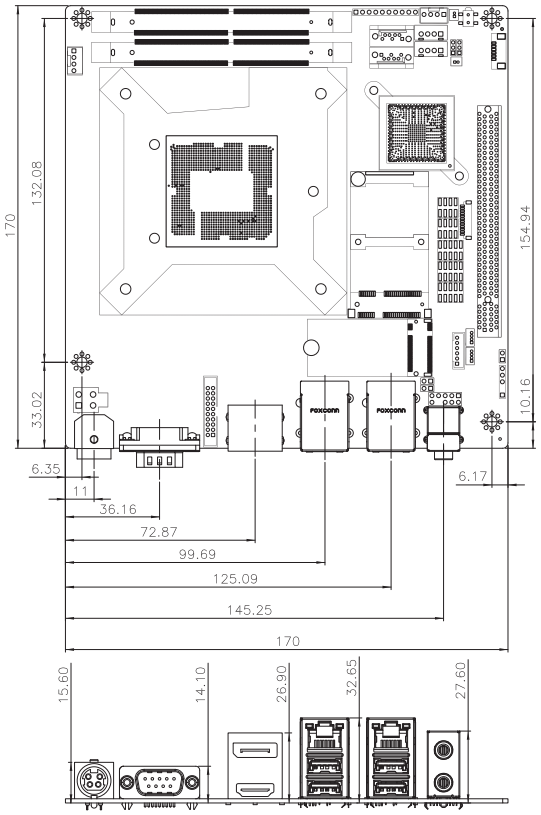
1 x KINO-AH612 single board computer	2 x SATA cable
1 x Dual RS-232 cable	1 x Mini jumper pack
1 x I/O shielding	1 x QIG

Ordering Information

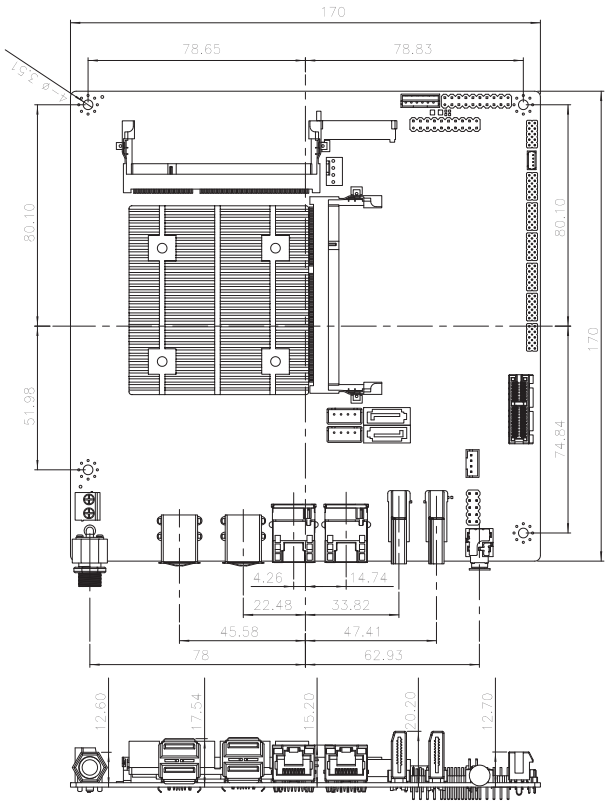
Part No.	Description
KINO-AH612-R10	Mini-ITX SBC supports LGA1155 Intel® Core™ i7/i5/i3/Pentium®/Celeron® CPU with H61, DDR3, VGA/DVI-D, 6 COM, dual PCIe GbE, SATA 3Gb/s, HD Audio and RoHS
CPU-DT-i5-2500T	Intel® Core™ i5-2500T processor, LGA1155, quad core 2.3GHz, 6M cache, 45W, compatible with CF-115XC-R10 CPU cooler
CPU-DT-i5-2390T	Intel® Core™ i5-2390T processor, LGA1155, dual core 2.7GHz, 3M cache, 35W, AMT, compatible with CF-115XC-R10 CPU cooler
CPU-DT-i3-2120T	Intel® Core™ i3-2120T processor, LGA1155, dual core 2.6GHz, 3M cache, 35W, compatible with CF-115XC-R10 CPU cooler
CPU-DT-C-G440	Intel® Celeron® G440 processor, LGA1155, single core 1.6GHz, 1M cache, 35W, compatible with CF-115XC-R10 CPU cooler
CPU-DT-P-G630T	Intel® Pentium® G630T processor, LGA1155, dual core 2.3GHz, 3M cache, 35W, compatible with CF-115XC-R10 CPU cooler
19800-003100-100-RS	Dual port USB 2.0 cable with bracket, 300mm, P=2.54
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
CF-115XA-R10	High-performance LGA1155/LGA1156 cooler kit, 1U chassis compatible, 73W
CF-115XC-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-115XD-R10	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High-performance LGA1155/LGA1156 cooler kit, 95W
SACF-KIT01-R10	SATA to CF converter board
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

Mini-ITX Dimensions (Unit: mm)

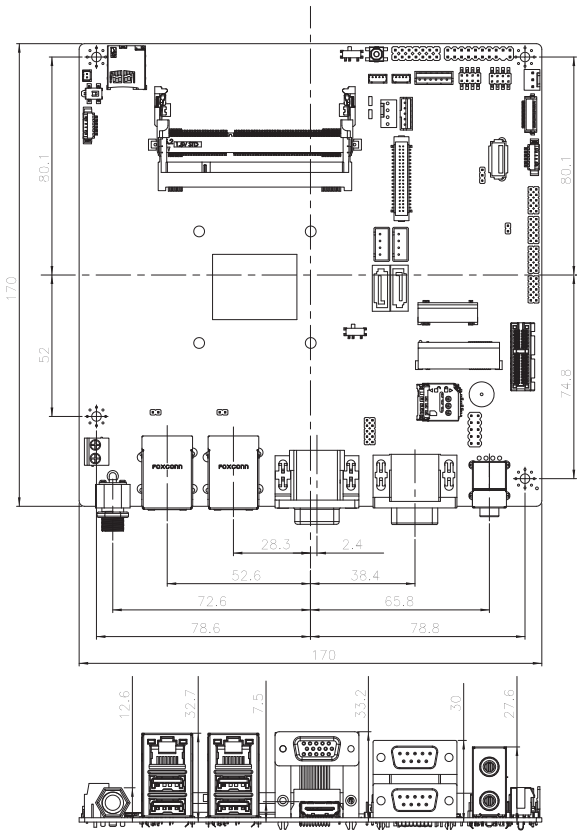
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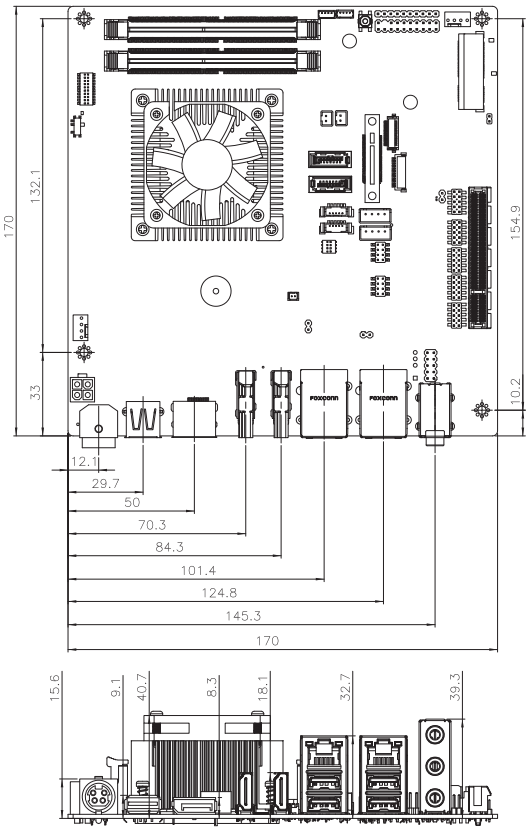
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KINO-DAL

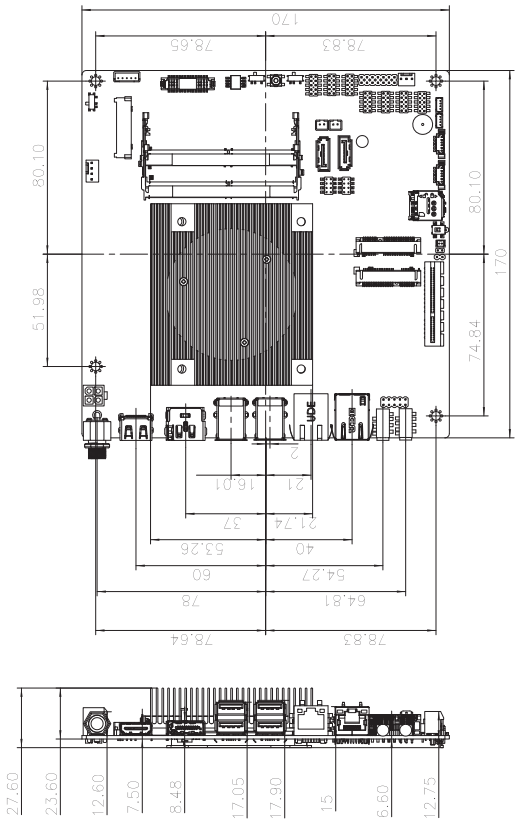


gKINO-DMF

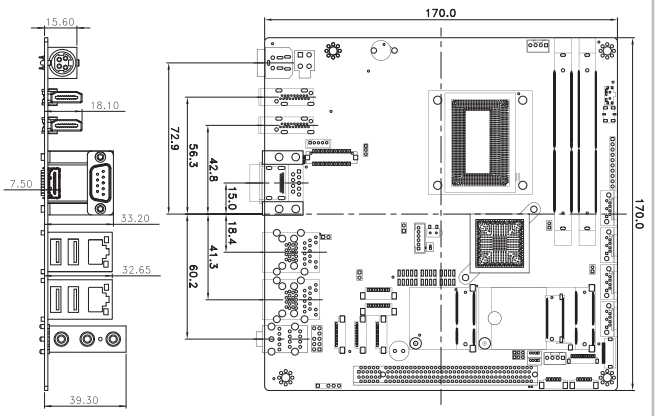


Mini-ITX Dimensions (Unit: mm)

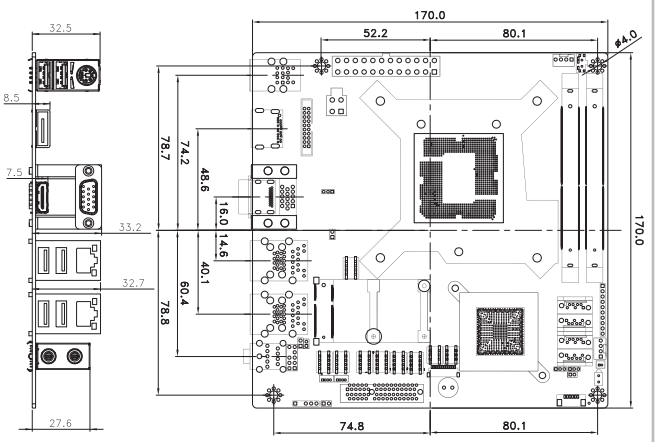
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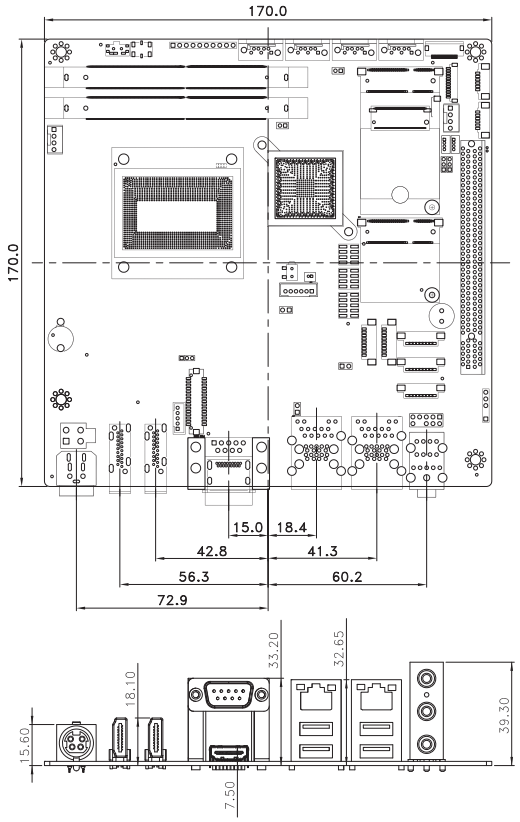
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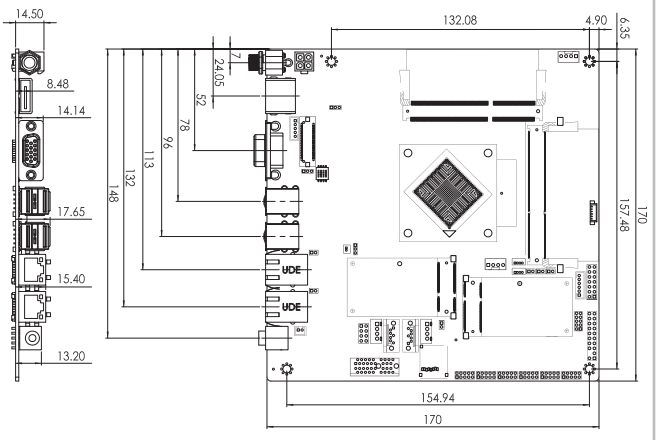
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KINO-DCM236

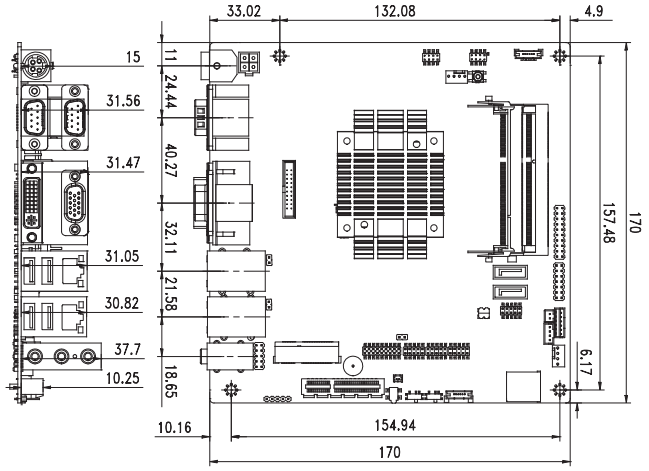


tKINO-BW

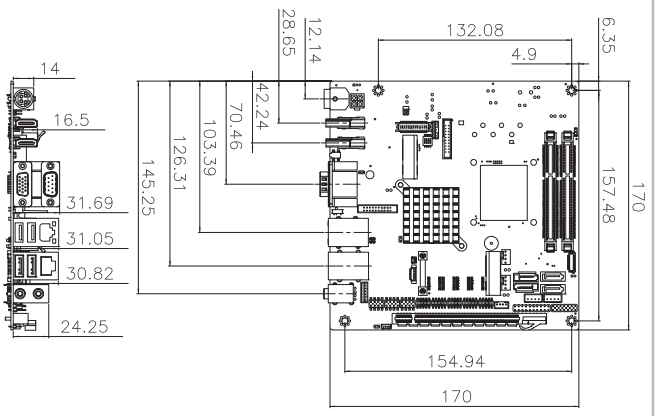


Mini-ITX Dimensions (Unit: mm)

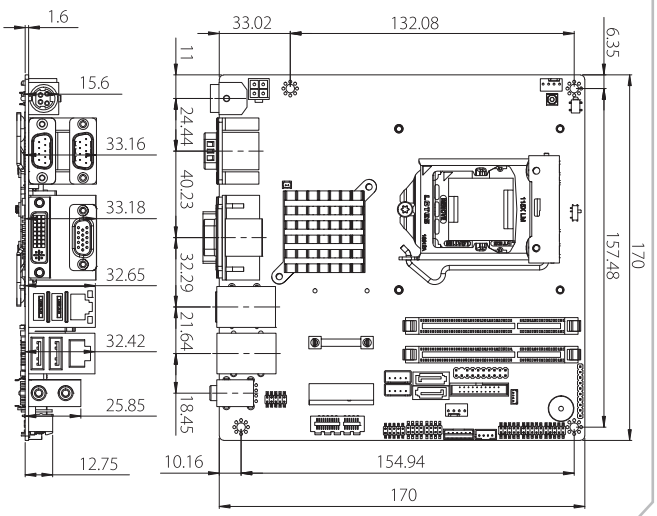
KINO-DBT



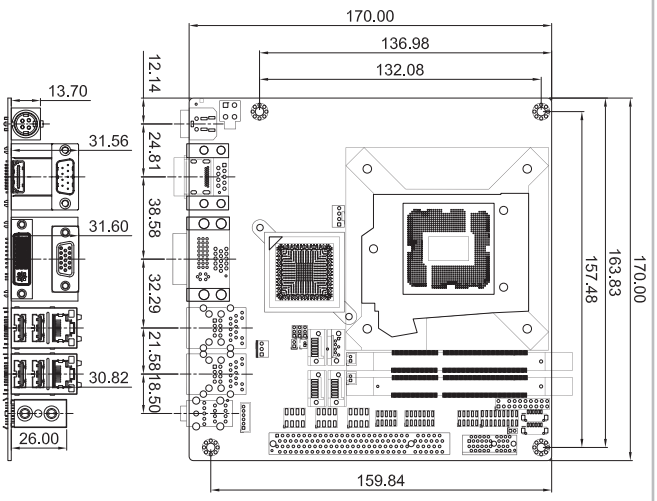
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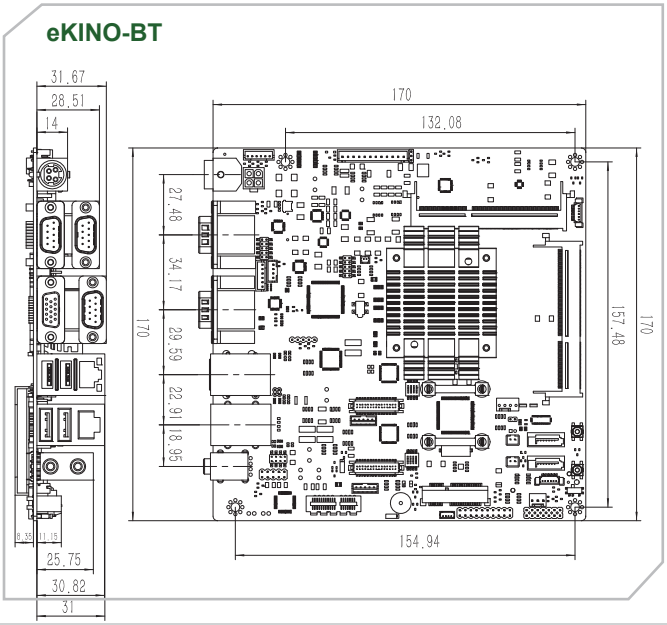
KINO-DH810



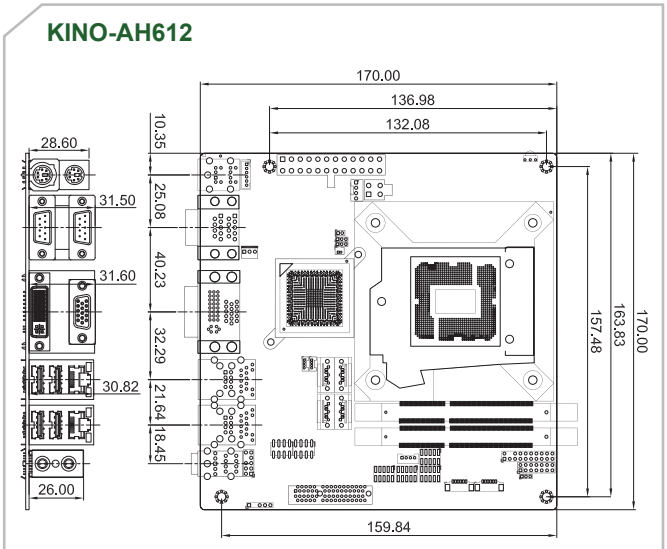
KINO-DH610



eKINO-BT



KINO-AH612



IEI Embedded Boards

IEI provides various sizes of embedded boards from Pico-ITX (100mm x 72mm) to 5.25" SBC and can meet different applications involving data acquisition, video processing, telecommunications, networking, motion control plus the associated field wiring termination, I/O circuit protection, etc. IEI embedded boards are all with rich rear I/O and multiple I/O expansion options. IEI also provides suitable chassis for our embedded boards, you can easily build feature-rich embedded systems for industrial, medical, military, transportation, and commercial applications.

IEI Embedded Single Board Computer Form Factors

Ultra compact mainboard form factor for a small footprint
Embedded PCs, Systems and Appliances



Pico-ITX
100 x 72mm
HYPER series



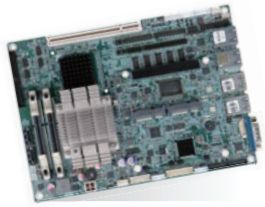
PC/104
96 x 90mm
PM series



3.5"
146 x 102mm
WAFER series



EPIC
165 x 115mm
NANO series



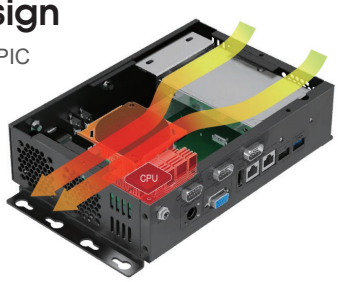
5.25" / EBX
203 x 146mm
NOVA series

Two Types of Thermal Solution

IEI provides types of thermal solution for embedded boards with high flexibility. Heatsink and heat spreader design are both with various advantages and meet the needs of different applications.

With heatsink design

- Easy upgrading from same EPIC form factor CPU boards
- Complex I/O functions based on customers' requirements
- Small form factor
- Saves money and space with cables and shared chassis



With heat spreader

- Heat is spreading out from system surface
- Multiple screw mounting holes for easy chassis design
- Possibility of totally enclosed design



Embedded System Mapping

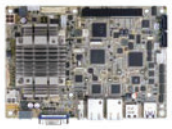
	ECN		ECW	ulBX
				
Embedded System	ECN-380	ECN-360A	ECW-281B	ulBX-230
Model	NANO-QM871 NANO-QM770	NANO-ULT3	WAFER-BT-i1	HYPER-BT

	EBC		
			
Embedded System	EBC-2200	EBC-2100	EBC-1100
Model	NANO-BT-i1 NANO-QM871-i1	NANO-LX	WAFER-BT-E38001W2

EPIC NANO Selection Guide

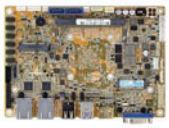
New

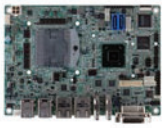


Model Name	NANO-ULT5	NANO-AL	NANO-ULT3	NANO-BT-i1/BTW2
CPU Socket	On Board	On board	On board	On board
CPU Type	Intel® Core™ i7/i5/i3, Celeron® ULT processor	Intel® Atom™/Celeron®/Pentium® on-board SoC	Intel® Core™ i7/i5/i3, Celeron® ULT processor	Intel® Atom™, Celeron® SoC
Chipset	Intel® Core™ i7/i5/i3, Celeron® ULT processor	Intel® Atom™/Celeron®/Pentium® on-board SoC	Intel® Core™ i7/i5/i3, Celeron® ULT processor	Intel® Atom™/Celeron® on-board SoC
Memory	2 x 260-pin 2400/2133 MHz Dual-channel DDR3L/DDR4, SO-DIMM (system max. 32 GB)	1 x 204-pin 1866/1600 MHz single-channel DDR3L SO-DIMM (system max. 8 GB)	2 x 260-pin 2133/1867 MHz dual-channel DDR4 SO-DIMMs (system max. 32 GB)	1 x 204-pin 1333/1066 MHz single-channel DDR3L SO-DIMM (system max. 8 GB)
Display Interface	Triple independent displays 1 x HDMI 1 x DP 1 x Internal LVDS	Triple independent display 2 x HDMI 1 x 18/24-bit dual-channel LVDS 1 x iDP	Triple independent display 2 x HDMI 1 x 18/24-bit dual-channel LVDS 1 x iDP interface	Dual display supported 1 x VGA 1 x HDMI 1 x 18/24-bit dual-channel LVDS
Ethernet	1 x PCIe GbE LAN Intel® i211 controller 1 x PCIe GbE LAN Intel® i219 controller	Dual LAN: Intel® I210-IT/I211-AT PCIe controller	LAN1: Intel® I219-LM PHY with Intel® AMT 11.0 supported LAN2: Intel® I211-AT PCIe GbE Controller	LAN1: Intel® I210-AT PCIe controller with NCSI support LAN2: Intel® I211-AT PCIe controller
iRIS Remote Management Module	N/A			1 x iRIS-1010 slot
I/O Interface	1 x TPM (2x10 pin SPI interface) 1 x RS-422/485 (Support Auto Flow Control over RS-485) 2 x RS-232 2 x SATA 6G/s with 5V SATA power connector 2 x USB 2.0 4 x USB 3.2 Gen 2	1 x PS/2 KB/MS 2 x RS-232/422/485 2 x USB 2.0 4 x RS-232 4 x USB 3.2 Gen 1	1 x PS/2 KB/MS 1 x RS-232/422/485 2 x RS-232 2 x USB 2.0 4 x USB 3.2 Gen 1	1 x PS/2 KB/MS 1 x RS-422/485 1 x USB 3.2 Gen 1 3 x RS-232 3 x USB 2.0
Storage Interface	2 x SATA 6Gb/s with 5V SATA power connector 1 x M.2 (M Key with SATA/PCIe interface) (Celeron with M.2 M Key PCIe only)	2 x SATA 6Gb/s with 5V SATA power connector 1 x M.2 (B Key) (SATA only)	2 x SATA 6Gb/s with 5V SATA power connector 1 x 8 GB eMMC (optional)	2 x SATA 3Gb/s with 5V SATA power connector
Audio	Realtek ALC662 2 x Audio jacks 1 x Analog audio	Realtek ALC662 HD Audio codec		
Digital I/O	8-bit programmable digital I/O			
Power Consumption	TBD	12V@2.13 A (Intel® Pentium® N4200 CPU with one 8GB 1600MHz DDR3L memory)	12V@2.48A (Intel® Core™ i3-6100U CPU)	12V@1.52A (Intel® Atom™ Processor J1900 CPU with one 8 GB 1333 MHz DDR3L memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset			
Operating Environment	Temperage Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: NANO-AL: -20°C ~ 70°C (-4°F~158°F) NANO-ALW2: -40°C ~ 85°C (-40°F~185°F) Relative Humidity: 5% ~ 95% non-condensing	Temperage Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: NANO-BT-i1: -20°C ~ 60°C (-4°F~140°F) NANO-BTW2: -40°C ~ 85°C (-40°F~185°F) Relative Humidity: 5% ~ 95% non-condensing
Expansion Slots	1 x Full-size PCIe Mini slot 1 x M.2 slot with 2230 A key 1 x M.2 slot with 2280 M key 1 x SIM card	1 x Full/Half-size PCIe Mini slot (w/ Micro SIM holder)	1 x Full-size PCIe Mini card slot (with SIM holder & mSATA support) 1 x Half-size PCIe Mini card slot	1 x Full-size PCIe Mini card slot with mSATA support 1 x PCI-104 slot
CPU Cooler	Heat Spreader	Heatsink	Heat Spreader	Heatsink

EPIC NANO Selection Guide

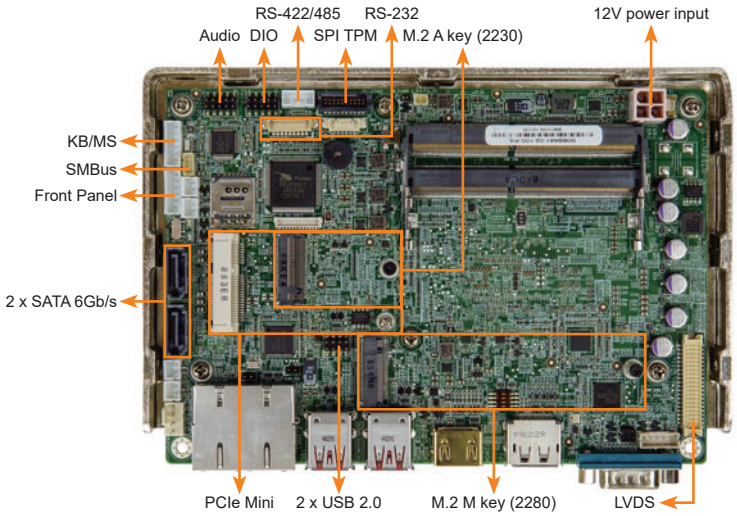





Model Name	NANO-SE/KBN-i1	NANO-QM871-i1	NANO-QM770	NANO-LX-R12
CPU Socket	On board	On board	Socket G2	On board
CPU Type	AMD® Embedded G-Series SoC	Intel® Core™ i7/i5/i3, Celeron® Mobile processor	Intel® Core™ i7/i5/i3, Celeron® Mobile processor	AMD Geode™ LX800
Chipset	AMD® Embedded G-Series SoC	Intel® QM87	Intel® QM77	AMD Geode™ LX800 + AMD CS5536
Memory	1 x 204-pin 1600/1333 MHz single-channel DDR3 & DDR3L SO-DIMM (system max. 8 GB)	1 x 204-pin 1600/1333 MHz dual-channel DDR3/DDR3L SO-DIMM (system max. 8 GB)	1 x 204-pin 1600/1333 MHz single-channel DDR3 SO-DIMM (system max. 8 GB)	1 x 200-pin 400/333 MHz DDR SO-DIMM (system max. 1GB)
Display Interface	Dual display supported 1 x VGA 1 x HDMI 1 x 18/24-bit dual-channel LVDS	Dual display supported 1 x VGA 2 x HDMI 1 x 18/24-bit dual-channel LVDS	Dual display supported 1 x DVI-I 2 x HDMI 1 x 24-bit dual-channel LVDS	Dual display supported 1 x VGA 1 x 18-bit single-channel LVDS 1 x 24-bit TTL (LVDS to TTL)
Ethernet	LAN1: Intel® I210-AT PCIe controller with NCSI support LAN2: Intel® I211-AT PCIe controller	LAN1: Intel® I217-LM PHY with Intel® AMT 9.0 supported LAN2: Intel® I211-AT PCIe GbE controller	LAN1: Intel® 82583V PCIe controller LAN2: Intel® 82579 PHY with Intel® AMT 8.0 supported	10/100Mbps Realtek RTL8100C
iRIS Remote Management Module	1 x iRIS-1010 slot		N/A	
I/O Interface	1 x PS/2 KB/MS 1 x RS-422/485 2 x USB 3.2 Gen 1 5 x RS-232 6 x USB 2.0	1 x PS/2 KB/MS 1 x RS-422/485 2 x RS-232 2 x USB 3.2 Gen 1 4 x USB 2.0	1 x I²C 1 x Infrared 1 x PS/2 KB/MS 1 x RS-422/485 1 x SMBus 1 x TPM connector 2 x RS-232 2 x USB 2.0 4 x USB 3.2 Gen 1	1 x Infrared interface 1 x LPT 1 x PS/2 for KB/MS 1 x RS-422/485 4 x USB 2.0 6 x RS-232
Storage Interface	2 x SATA 6Gb/s with 5V SATA power connector	2 x SATA 6Gb/s with 5V SATA power connector (RAID 0, 1)	2 x SATA 6Gb/s with 5V SATA power connector (RAID 0, 1)	2 x SATA 1.5Gb/s (RAID 0,1) 1 x IDE 1 x CF Type II
Audio	Realtek ALC892 HD Audio codec	Realtek ALC662 HD Audio codec		Realtek ALC203 with AC'97 codec
Digital I/O	8-bit programmable digital I/O			
Power Consumption	12V@1.02A (AMD GX-415GA 1.5GHz CPU with 1600 MHz 8 GB DDR3 memory)	12V@3.78A (Intel® 4th Gen. 2.0GHz CPU with one 1333HMz DDR3 4 GB memory)	12V@4.89A (Intel® 1.8GHz CPU with 1333 MHz DDR3 4 GB memory)	12V@0.92A (AMD LX800, 256 MB 400 MHz DDR)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset			
Operation Environment	Temperature Range: 0°C ~ 60°C (32°F ~ 140°F) Relative Humidity: 5% ~ 95% non-condensing	Temperature Range: -10°C ~ 60°C (14°F ~ 140°F) Relative Humidity: 5% ~ 95% non-condensing		Temperature Range: 0°C ~ 60°C (32°F ~ 140°F) Relative Humidity: 5% ~ 95% non- condensing
Expansion Slots	1 x Full-size PCIe Mini card slot with mSATA support	1 x Full-size PCIe Mini card slot	1 x PCIe Mini card slot with mSATA support	1 x PC/104-Plus
CPU Cooler	GX-415GA (with hearsink) GX-210HA (with cooler)	XCF-479B-RS / CF-989B-RS-R11	CF-989A-RS-R12 / CF-989B-RS-R11	Heatsink

NANO-ULT5

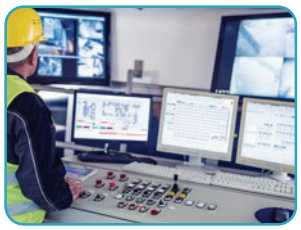
EPIC SBC supports Intel® 14nm 8th Generation Mobile Core™ i3/i5/i7 and Celeron® on-board processor (ULT) with HDMI, DP LVDS, mPCIE, M.2 A key M key, USB 3.2 Gen 2, SATA 6Gb/s, COM, Audio and RoHS, -20°C ~ 60°C

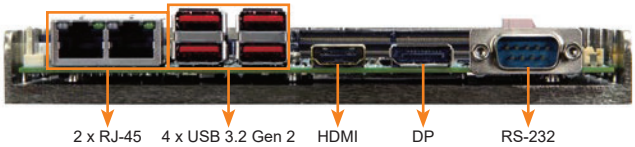


Multiple Expansion for Diverse Applications

New









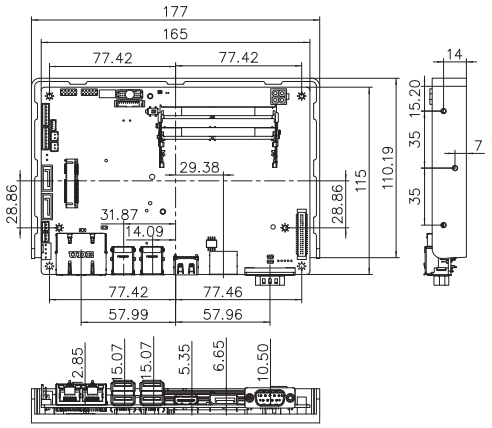
Specifications

- SoC
  Intel® Celeron® processor 4305UE (2.0 GHz Dual Core, 2MB cache, TDP=15W)
  Intel® Core™ i3-8145UE (2.2 GHz Dual Core, 4MB cache, TDP=15W)
  Intel® Core™ i5-8365UE (1.6 GHz, Quad Core, 6MB cache, TDP=15W)
  Intel® Core™ i7-8665UE (1.7 GHz Quad Core, 8MB cache, TDP=15W)
- BIOS:
  AMI UEFI BIOS
- Memory
  Dual 260-pin 2400MHz Dual-channel DDR4 SO-DIMMs support up to 32GB
- Graphics Engine
  Intel® HD Graphics Gen9 Low Power; 16 Execution Units
  4K Codec Decode
- Display Output
  Triple Independent Displays
  1 x HDMI up to 3840x2160@60Hz
  1 x DP up to 3840x2160@60Hz
  1 x Internal LVDS up to 1920x1200@60Hz
- Ethernet
  1 x PCIe GbE LAN Intel® i211 controller
  1 x PCIe GbE LAN Intel® i219 controller
- Embedded Controller
  iWDD IT8587VG
- External I/O Interface
  4 x USB 3.2 Gen 2
  1 x RS-232
- Internal I/O Interface
  1 x 32 GB eMMC 5.1 (optional)
  1 x TPM (2x10 pin, p=0.5)
  1 x RS-422/485 (1x4 pin, P=2.0) (Support Auto Flow Control over RS-485)
  1 x RS-232 (1x9 pin, P=1.25)
  2 x SATA 6G/s with 5V SATA power connector
  2 x USB 2.0 (2x4 pin, P=2.0)
- SMBus/I²C
  1 x 4-pin connector (1x4)
- Audio
  Realtek ALC662
  1 x Analog audio (2x5 pin)
- Front Panel
  1 x Power LED & HDD LED (1x6 pin)
  1 x Power button (1x2 pin)
  1 x Reset button (1x2 pin)
- LAN LED
  2 x LAN LED (1x2 pin)
- Expansion
  1 x M.2 slot with 2230 A key
  1 x M.2 slot with 2280 M key
  1 x Full-size PCIe Mini slot
  1 x SIM card
- Digital I/O
  1 x 8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x Smart fan connector (1x4 pin)
- Power Supply
  12V DC input
  1 x Internal power connector (2x2 pin)
  Support AT/ATX mode
- Watchdog Timer: Software programmable support 1~255 sec. system reset
- Power Consumption: TBD
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 115mm x 165mm
- Weight: GW:850g / NW:350g

Features

- EPIC SBC supports Intel® 8th Generation ULT processor or Celeron® on-board SoC supports dual-channel DDR4 SO-DIMMs
- Triple independent display support
- 12V DC input design
- M.2 slot with A key, M.2 M Key PCIe Mini slot with SIM holder
- COM, USB 3.2 Gen 2, SATA 6Gb/s, eMMC 5.1 and audio support
- Support temperature operation: -20°C ~ 60°C
- Support Auto Flow Control over RS-485

Dimensions (Unit: mm)



Packing List

1 x NANO-ULT5 single board computer with heatspreader	1 x Power cable
1 x Audio cable	2 x RS-232 cable
1 x SATA with power cable kit	1 x QIG

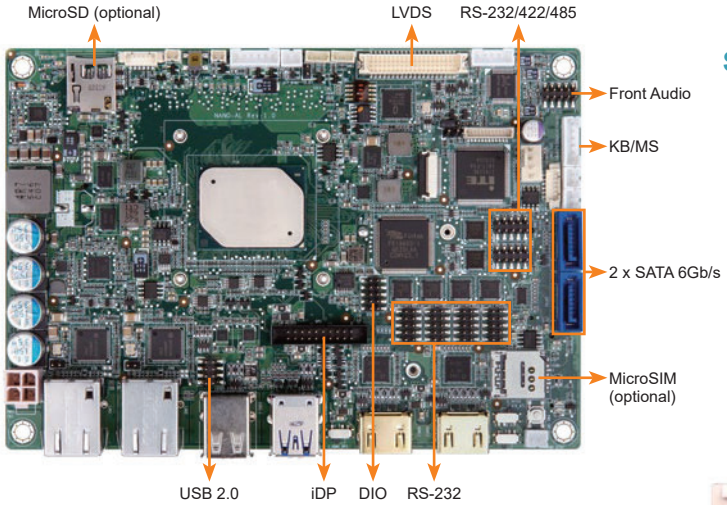
Ordering Information

Part No.	Description
NANO-ULT5-C-R10**	EPIC SBC supports Intel® 14nm 8th Generation Mobile Celeron™4305UE (15W) on-board Processor (ULT) with HDMI/ LVDS/DP, Dual PCIe GbE, USB 3.2 Gen 2, PCIe Mini, M.2 A & M Key, SATA 6Gb/s, SPI TPM, COM, Audio and RoHS
NANO-ULT5-i3-R10	EPIC SBC supports Intel® 14nm 8th Generation Mobile Core™ i3-8145UE (15W) on-board Processor (ULT) with HDMI/LVDS/ DP, Dual PCIe GbE, USB 3.2 Gen 2, PCIe Mini, M.2 A & M Key, SATA 6Gb/s, SPI TPM, COM, Audio and RoHS
NANO-ULT5-i5-R10	EPIC SBC supports Intel® 14nm 8th Generation Mobile Core™ i5-8365UE (15W) on-board Processor (ULT) with HDMI/LVDS/ DP, Dual PCIe GbE, USB 3.2 Gen 2, PCIe Mini, M.2 A & M Key, SATA 6Gb/s, COM, SPI TPM, Audio and RoHS
NANO-ULT5-i7-R10	EPIC SBC supports Intel® 14nm 8th Generation Mobile Core™ i7-8665UE (15W) on-board Processor (ULT) with HDMI/LVDS/ DP, Dual PCIe GbE, USB 3.2 Gen 2, PCIe Mini, M.2 A & M Key, SATA 6Gb/s, COM, SPI TPM, Audio and RoHS

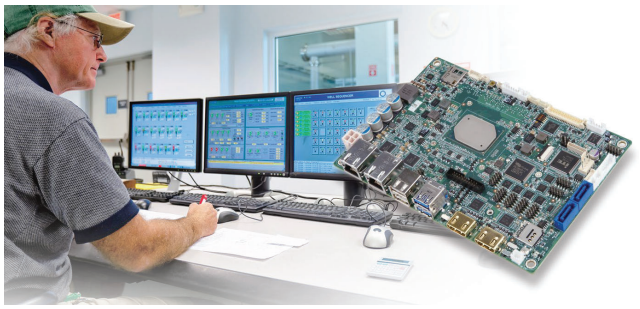
** Without full functions support, please refer to user manual

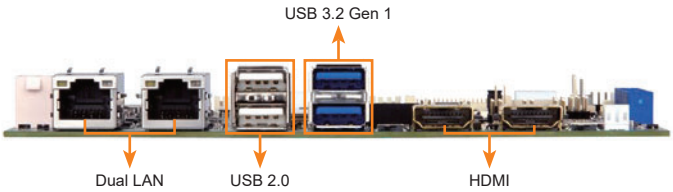
NANO-AL

EPIC SBC supports 14nm Intel® Pentium®/Celeron®/Atom™ on-board SoC with Dual HDMI/LVDS/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, SATA 6Gb/s, COM, Audio and RoHS, -40°C ~ 85°C



Support Triple Display Configuration







Specifications

- SoC
  Intel® Pentium® N4200 on-board SoC (up to 2.5GHz, quad-core, 2M Cache, TDP=6W)
  Intel® Celeron® N3350 on-board SoC (up to 2.4GHz, dual-core, 2M Cache, TDP=6W)
  Intel® Atom® x7-E3950 on-board SoC (up to 2.0GHz, quad-core, 2M Cache, TDP=12W)
  Intel® Atom® x5-E3940 on-board SoC (up to 1.8GHz, quad-core, 2M Cache, TDP=9W)
  Intel® Atom® x5-E3930 on-board SoC (up to 1.8GHz, dual-core, 2M Cache, TDP=6W)
- BIOS
  AMI UEFI BIOS
- Memory
  One 204-pin 1866/1600MHz Single-channel DDR3L SO-DIMM supports up to 8GB
- Graphics Engine
  Intel® HD Graphics Gen9 Low Power, 18 Execution Units
  4K Codec Decode & Encode for HEVC 4, H.264, VP8, SVC, MVC
- Display Output
  Triple independent display
  1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
  2 x HDMI (up to 3840x2160 @ 30Hz)
  1 x iDP interface for HDMI. LVDS, VGA, DVI, DP (up to 4096x2304@60Hz) (colay with HDMI1)
- Ethernet
  Intel® I211-AT PCIe controller
- External I/O Interface
  2 x USB 3.2 Gen 1 (5Gb/s)
  2 x USB 2.0
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  2 x USB 2.0 (2x4 pin, P=2.0)
  2 x RS-232/422/485 (2x5 pin, P=2.0)
  4 x RS-232 (2x5 pin, P=2.0)
  2 x SATA 6Gb/s with 5V SATA power connector (no RAID)
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- Audio
  Realtek ALC662 HD codec
  1 x Front audio (2x5 pin)
- Front Panel
  1 x Power LED & HDD LED (1x6 pin)
  1 x Power button (1x2 pin)
  1 x Reset button (1x2 pin)
- LAN LED
  2 x LAN LED (1x2 pin)
- Expansion
  1 x Full/Half-size PCIe Mini slot with SIM holder (optional)
  1 x M.2 2242 (B key, SATA, USB 2.0, USB 3.2 Gen 1 (5Gb/s) signal only)
  1 x Micro SD (Optional)
- Digital I/O
  8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x Smart fan connector (1x4 pin)
- Power Supply
  9V~30V DC input
  1 x Internal power connector (2x2 pin)
  Support AT/ATX mode
- Watchdog Timer
  Software programmable, supports 1~255 sec. system reset
- Power Consumption
  12V@2.13A (Intel® Pentium® N4200 CPU with one 8GB 1600MHz DDR3L memory)
  12V@2.81A (Intel® Atom™ x7-E3950 CPU with one 8GB 1600MHz DDR3L memory)
- Operating Temperature: -20°C ~ 70°C / -40°C ~ 85°C (NANO-AL-ExW2)
- Storage Temperature: -40°C ~ 85°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 115mm x 165mm
- Weight: GW: 850g / NW: 350g
- CE/FCC compliant

Features

- EPIC SBC supports Intel® 14nm Generation Atom®, Celeron® or Pentium® on-board SoC supports single-channel DDR3L SO-DIMMs
- Triple independent display support
- Wide range 9V~30V DC input design
- COM, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, M.2 and audio support
- Support temperature operation: -20°C ~ 70°C / -40°C ~ 85°C (NANO-AL-ExW2)

Packing List

1 x NANO-AL single board computer with Heatsink	1 x RS-232 cable
1 x SATA with power cable kit	1 x Power cable
1 x Screw set (for half-size PCIe Mini card)	1 x QIG

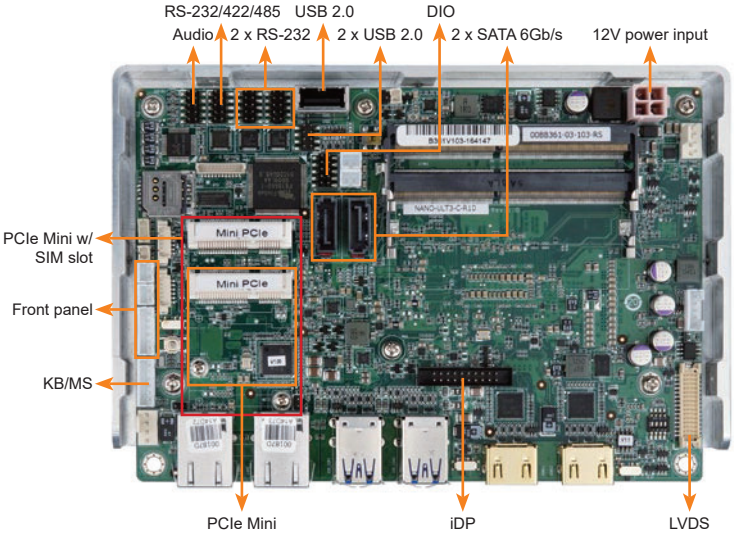
Ordering Information

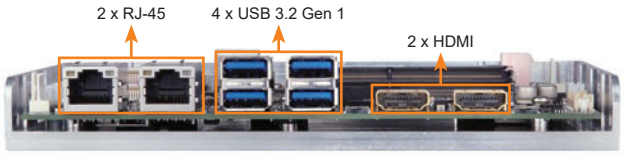
Part No.	Description
NANO-AL-N2-R10**	EPIC SBC supports Intel® 14nm quad-core Pentium® N4200 2.5GHz on-board SoC with Dual HDMI/LVDS/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, SATA 6Gb/s, COM, Audio and RoHS
NANO-AL-N1-R10	EPIC SBC supports Intel® 14nm dual-core Celeron® N3350 2.4GHz on-board SoC with Dual HDMI/LVDS/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, SATA 6Gb/s, COM, Audio and RoHS
NANO-AL-E3W2-R10**	EPIC SBC supports Intel® 14nm quad-core Atom® x7-E3950 2.0GHz on-board SoC with Dual HDMI/LVDS/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, SATA 6Gb/s, COM, Audio and RoHS, -40°C ~ 85°C
NANO-AL-E2W2-R10**	EPIC SBC supports Intel® 14nm quad-core Atom® x5-E3940 1.8GHz on-board SoC with Dual HDMI/LVDS/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, SATA 6Gb/s, COM, Audio and RoHS, -40°C ~ 85°C
NANO-AL-E1W2-R10**	EPIC SBC supports Intel® 14nm dual-core Atom® x5-E3930 1.8GHz on-board SoC with Dual HDMI/LVDS/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, SATA 6Gb/s, COM, Audio and RoHS, -40°C ~ 85°C
32000-070301-RS	Dual-port USB cable, 210mm, P=2.0
32006-001100-201-RS	PS/2 KB/MS cable, 135mm, P=2.0
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to 24-bit dual-channel LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)

**By order production, MOQ: 100

NANO-ULT3

EPIC SBC supports Intel® 14nm 6th Generarion Mobile Core™ i7/i5/i3 and Celeron® on-board Processor (ULT) with HDMI/LVDS/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA 6Gb/s, mSATA, COM, Audio and RoHS







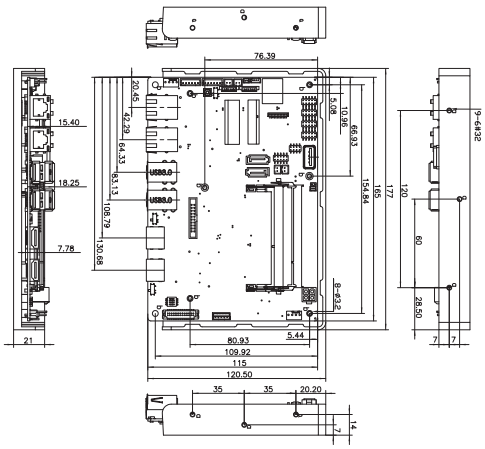
Features

- EPIC SBC with 6th generation Intel® ULT proccessor supports dual-channel DDR4 SO-DIMMs
- Triple independent display support
- Easy assembly heat spreader for thermal management
- Full-size PCIe Mini slot with SIM sockets for 3G/LTE expansion
- COM, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, mSATA, eMMC 5.0 and audio support

Specifications

- ◆ SoC
  6th generation Intel® mobile ULT on-board SoC
  Intel® Core™ i7-6600U (up to 3.4GHz, dual-core, 4MB cache, TDP=15W)
  Intel® Core™ i5-6300U (up to 3.0GHz, dual-core, 3MB cache, TDP=15W)
  Intel® Core™ i3-6100U (up to 2.3GHz, dual-core, 3MB cache, TDP=15W)
  Intel® Celeron® processor 3955U (up to 2.0GHz, dual-core, 2MB cache, TDP=15W)
  Intel® Celeron® processor 3855U (up to 1.6GHz, dual-core, 2MB cache, TDP=15W)
- ◆ BIOS
  AMI UEFI BIOS
- ◆ Memory
  Two 260-pin 2133/1866 MHz dual-channel DDR4 non-ECC unbuffered SO-DIMMs support up to 32GB
- ◆ Graphics Engine
  Intel® HD Graphics Gen 9 Engine with 16 low-power execution units, supporting DX11/12, OpenGL 4.3/4.4 and OpenCL2.x, ES 2.0
- ◆ Display Output
  Triple independent display
  2 x HDMI (up to 4096x2160@24Hz)
  1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60Hz) (colay with HDMI1)
- ◆ Ethernet
  LAN1: Intel® I219-LM PHY with Intel® AMT 11.0 supported
  LAN2: Intel® I211-AT PCIe GbE controller
- ◆ External I/O Interface
  4 x USB 3.2 Gen 1 (5Gb/s)
- ◆ Internal I/O Interface
  1 x 8 GB eMMC (optional)
  1 x KB/MS (1x6 pin)
  1 x RS-232/422/485 (2x5 pin, P=2.0)
  2 x SATA 6Gb/s with 5V SATA power connector (no RAID)
  1 x USB 2.0 (180° Type-A)
  2 x USB 2.0 (2x4 pin, P=2.0)
  2 x RS-232 (2x5 pin, P=2.0)
- ◆ SMBus
  1 x SMBus (1x4 pin)
- ◆ Audio
  Realtek ALC662 HD codec
  1 x Front audio (2x5 pin)
- ◆ Front panel
  1 x Power LED & HDD LED (1x6 pin)
  1 x Power button (1x2 pin)
  1 x Reset button (1x2 pin)
- ◆ LAN LED
  2 x LAN LED (1x2 pin)
- ◆ Expansion
  1 x Full-size PCIe Mini card slot (with SIM holder & mSATA support)
  1 x Half-size PCIe Mini card slot
  ** 3855U belongs to Skylake ULT Base series which supports PCIe Gen 2 signal only.*
- ◆ Digital I/O
  8-bit digital I/O (2x5 pin)
- ◆ Fan Connector
  1 x CPU fan connector (1x4 pin)
  1 x System fan connector (1x4 pin)
- ◆ Power Supply
  12V only DC input
  1 x Internal power connector (2x2 pin)
  Support AT/ATX mode
- ◆ Watchdog Timer
  Software programmable supports 1~255 sec. system reset
- ◆ Power Consumption
  12V@2.48A (Intel® Core™ i3-6100U CPU with two 8 GB memory)
- ◆ Operating Temperature: -20°C ~ 60°C
- ◆ Storage Temperature: -30°C ~ 70°C
- ◆ Operating Humidity: 5% ~ 95%, non-condensing
- ◆ Dimensions: 115mm x 165mm
- ◆ Weight: GW: 850g / NW: 350g
- ◆ CE/FCC compliant

Dimensions *(Unit: mm)*



Packing List

1 x NANO-ULT3 single board computer with heatspreader	1 x Audio cable
1 x RS-232 cable	1 x Power cable
1 x SATA with power cable kit	1 x QIG

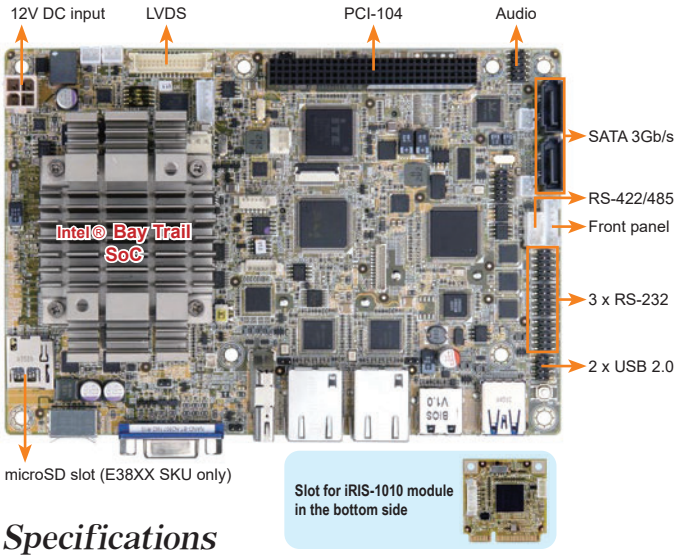
Ordering Information

Part No.	Description
NANO-ULT3-i7-R10	EPIC SBC supports Intel® 14nm 6th Generation Mobile Core™ i7-6600U (15W) on-board Processor (ULT) with HDMI/LVDS/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, Dual PCIe Mini, mSATA, COM, Audio and RoHS
NANO-ULT3-i5-R10	EPIC SBC supports Intel® 14nm 6th Generation Mobile Core™ i5-6300U (15W) on-board Processor (ULT) with HDMI/LVDS/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, Dual PCIe Mini, mSATA, COM, Audio and RoHS
NANO-ULT3-i3-R10	EPIC SBC supports Intel® 14nm 6th Generation Mobile Core™ i3-6100U (15W) on-board Processor (ULT) with HDMI/LVDS/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, Dual PCIe Mini, mSATA, COM, Audio and RoHS
NANO-ULT3-C-R10	EPIC SBC supports Intel® 14nm 6th Generation Mobile Celeron® 3955U (15W) on-board Processor (ULT) with HDMI/LVDS/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, Dual PCIe Mini, mSATA, COM, Audio and RoHS
NANO-ULT3-CE-R10*	EPIC SBC supports Intel® 14nm 6th Generation Mobile Celeron® 3855U (15W) on-board Processor (ULT) with HDMI/LVDS/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, Dual PCIe Mini, COM, Audio and RoHS
32001-008600-200-RS	Dual-port USB cable, 210mm, P=2.0
32006-001100-201-RS	PS/2 KB/MS cable, 135mm/110mm, P=2.0

*Without full functions support, please refer to user manual.

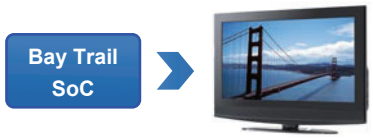
NANO-BTW2 / BT-i1

EPIC SBC supports 22nm Intel® Atom™/Celeron® on-board SoC with VGA, HDMI, LVDS, Dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), Dual PCIe Mini, SATA 3Gb/s, mSATA, COM, Audio and RoHS



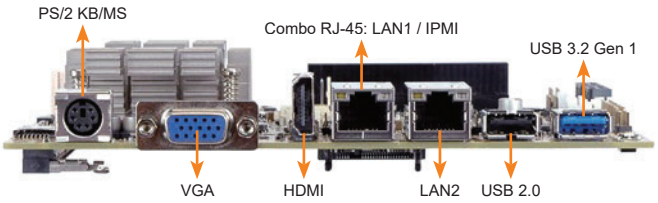
Highly efficient and power optimized multi-format codec engine

- **Full HW Acceleration for Video Decoding**
  H.264, VC1 MPEG2, MVC, VP8, MPEG-4/H.263 MJPEG formats



- **Video Encoding**
  » Full HW acceleration for H.264
  » Hybird HW acceleration of MPEG2







Specifications

- SoC
  Intel® Atom™ E3827 on-board SoC (1.75GHz, dual-core, 1MB cache, TDP=8W)
  Intel® Atom™ E3826 on-board SoC (1.46GHz, dual-core, 1MB cache, TDP=7W)
  Intel® Atom™ E3815 on-board SoC (1.46GHz, single-core, 512KB cache, TDP=5W)
  Intel® Celeron® J1900 on-board SoC (2GHz, quad-core, 2MB cache, TDP=10W)
  Intel® Celeron® N2807 on-board SoC (1.58GHz, dual-core, 2MB cache, TDP=4.3W)
- BIOS
  AMI UEFI BIOS
- Memory
  One 204-pin 1333/1066 MHz single-channel unbuffered DDR3L SDRAM SO-DIMM supports up to 8 GB (J1900, N2930, E3827, E3826, E3815) or 4 GB (N2807)
- Graphics Engine
  Intel® HD Graphics Gen 7 Engine with four execution units, supporting DX11.1, OpenGL 4.2 and OpenCL1.2
- Display Output
  Dual independent display
  1 x VGA (up to 2560x1600@60 Hz)
  1 x HDMI (up to 1920x1080@60 Hz)
  1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
- Ethernet
  » NANO-BT-i1
  LAN1: Intel® I210-AT PCIe controller with NCSI support
  LAN2: Intel® I211-AT PCIe controller
  » NANO-BT-E38XX1W2
  LAN1: Intel® I210-IT PCIe controller with NCSI support
  LAN2: Intel® I210-IT PCIe controller
- External I/O Interface
  1 x PS/2 KB/MS
  1 x USB 2.0
  1 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x RS-422/485 (1x4 pin, P=2.0)
  2 x SATA 3Gb/s with 5V SATA power connector (no RAID)
  2 x USB 2.0 (2x4 pin, P=2.0)
  3 x RS-232 (2x5 pin, P=2.0)
- iRIS Remote Management Module: 1 x iRIS-1010 slot
- SMBus: 1 x SMBus (1x4 pin)
- Audio
  Realtek ALC662 HD Audio codec
  1 x Front audio (2x5 pin)
- Front Panel
  1 x Power LED & HDD LED (1x6 pin)
  1 x Power button (1x2 pin)
  1 x Reset button (1x2 pin)
- LAN LED: 2 x LAN LED (1x2 pin)
- Expansion
  1 x Full-size PCIe Mini card slot (support mSATA co-lay SATA port 2)
  1 x PCI-104 slot (PCI signal)
  1 x microSD slot (E38XX SKU only)
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x3 pin)
  1 x System smart fan (1x3 pin)
- Power Supply
  12V only DC input
  1 x Internal power connector (2x2 pin)
  Support AT/ATX mode
- Power Consumption
  12V@1.52A (Intel® Atom™ processor J1900 with one 8 GB 1333 MHz DDR3 memory)
- Watchdog Timer: Software programmable, support 1~255 sec. system reset
- Operating Temperature: -20°C ~ 60°C, -40°C ~ 85°C (NANO-BT-E38XX1W2)
- Storage Temperature: -30°C ~ 70°C, -40°C ~ 85°C (NANO-BT-E38XX1W2)
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 115mm x 165mm
- Weight: GW: 850g / NW: 350g
- CE/FCC compliant

Features

- EPIC SBC supports 22nm Intel® Atom™ or Celeron® on-board SoC
- Supports dual independent display with LVDS, VGA and HDMI
- 1.35V DDR3L 1333/1066 MHz SDRAM support up to 8 GB
- Support IPMI 2.0 with iRIS-1010 module

Packing List

1 x NANO-BT single board computer with heatsink	
1 x Power cable	2 x SATA with power cable kit
2 x RS-232 cable	1 x QIG

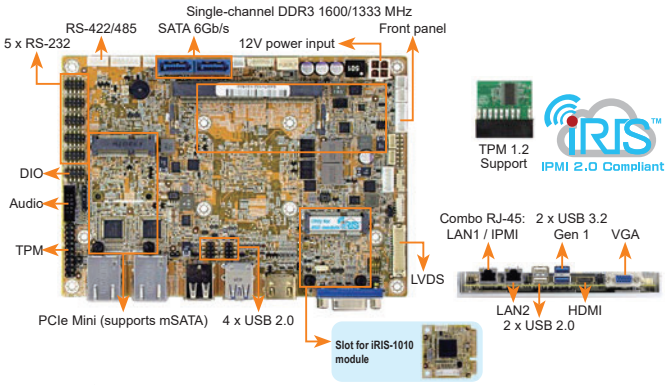
Ordering Information

Part No.	Description
NANO-BT-E38XX1W2-R11**	EPIC SBC supports Intel® 22nm single-Core Atom™ E381XX on-board SoC with VGA/HDMI/LVDS, Dual PCIe GbE, Dual PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 3Gb/s, mSATA , COM, audio and RoHS, -40~85°C
NANO-BT-i1-J19001-R11	EPIC SBC supports Intel® 22nm quad-core J1900 2.0GHz (10W) on-board SoC with VGA/HDMI/LVDS, Dual PCIe GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 3Gb/s, mSATA, COM, iRIS-1010, Audio and RoHS
NANO-BT-i1-N28071-R11	EPIC SBC supports Intel® 22nm dual-core N2807 1.58GHz (4.3W) on-board SoC with VGA/HDMI/LVDS, Dual PCIe GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 3Gb/s, mSATA, COM, iRIS-1010, Audio and RoHS
NANO-BT-i1-E38XX1-R11**	EPIC SBC supports Intel® Atom™ E38XX on-board SoC with VGA/HDMI/LVDS, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA 3Gb/s, mSATA, COM, iRIS-1010, Audio and RoHS
NANO-BT-J19001-ECO-R10	Intel® 22nm Quad-Core J1900 2.0GHz (10W) on-board SoC with VGA/HDMI/LVDS, Dual PCIe GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA, mSATA , COM, Audio, ECO packing and RoHS (10 pcs/pack)
iRIS-1010-R10	IPMI 2.0 adapter card with AST1010 BMC chip (w/o KVM over IP function) for PCIe Mini socket interface
32001-008600-200-RS	Dual-port USB 2.0 cable, 210mm, P=2.0
32006-000300-100-RS	PS/2 KB/MS Y-cable without bracket, 140mm/120mm
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0

**By order production, MOQ: 100

NANO-SE-i1/KBN-i1/GLX

EPIC SBC supports AMD® Embedded G-Series SoC with VGA/HDMI/LVDS, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA 6Gb/s, mSATA, COM, iRIS-1010 and RoHS



Specifications

- SoC
  - » AMD® Embedded G-Series "Steppe Eagle" SoC GX-424CC on-board Soc (2.4GHz, quad-core, 2MB cache, TDP=25W)
  - » AMD® Embedded G-Series "eKabini" SoC GX-415GA on-board Soc (1.5GHz, quad-core, 2MB cache, TDP=15W)
  - » AMD® Embedded G-Series "LX" SoC GX-210KL on-board Soc (1.0GHz, dual-core, 1MB cache, TDP=4.5W)
- BIOS: AMI UEFI BIOS
- Memory: One 204-pin 1600/1333 MHz single-channel DDR3 & DDR3L SDRAM unbuffered SO-DIMM slot supports up to 8 GB
- Graphics Engine
  Support DX11.1, OpenGL 4.1 and OpenCL1.2
  UVD4.2 decode for H.264, MPEG2/4, VC1, MVC
  VCE 2.0 encode for H.264, VCE
- Display Output
  Dual independent display
  1 x VGA (up to 2048x1536@60Hz)
  1 x HDMI (up to 3840x2160@60Hz)
  1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
- LAN LED: 2 x LAN LED (1x2 pin)
- Ethernet
  LAN1: Intel® I210-AT PCIe controller with NCSI support
  LAN2: Intel® I211-AT PCIe controller
- iRIS Remote Management Module
  1 x iRIS-1010 slot (NANO-GLX-2101-R10 support by request)
- External I/O Interface
  2 x USB 2.0
  2 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  4 x USB 2.0 (2x4 pin, P=2.0)
  1 x RS-422/485 (1x4 pin, P=2.0)
  5 x RS-232 (2x5 pin, P=2.0)
  2 x SATA 6Gb/s with 5V SATA power connector (no RAID)
- TPM: 1 x TPM (2x10 pin)
- SMBus: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- Audio
  Realtek ALC892 HD Audio codec
  1 x Front audio (2x5 pin)
  1 x S/PDIF (1x4 pin)
- Front Panel
  1 x Power LED & HDD LED (1x6 pin)
  1 x Power button (1x2 pin)
  1 x Reset button (1x2 pin)
- Expansion: 1 x Full-size PCIe Mini card slot (supports mSATA co-lay SATA port 2)
- Watchdog Timer: Software programmable, support 1~255 sec. system reset
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Fan Connector: 1 x System smart fan (1x4 pin)
- Power Supply: 12V only DC input
  1 x Internal power connector (2x2 pin)
  Support AT/ATX mode
- Power Consumption
  12V@1.02A (AMD GX-415GA 1.5GHz CPU with 1600 MHz 8 GB DDR3 memory)
- Operating Temperature: 0°C ~ 60°C
- Storage Temperature: -10°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 115mm x 165mm
- Weight: GW: 850g / NW: 350g
- CE/FCC compliant

Packing List

1 x NANO-KBN/SE-i1 single board computer with heatspreader	1 x Audio cable
2 x RS-232 cable	1 x Power cable
2 x SATA with power cable kit	1 x QIG

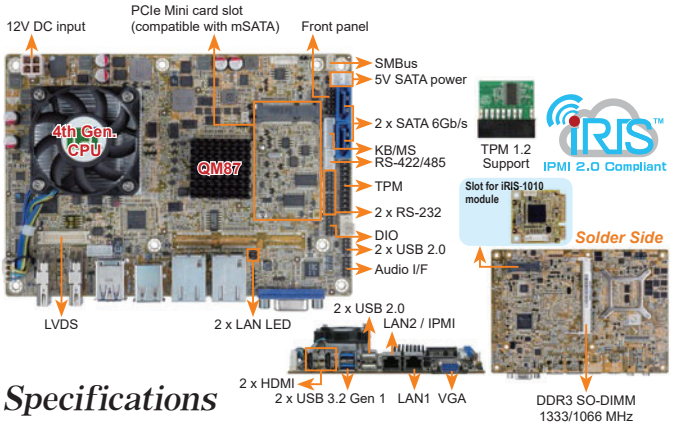
Ordering Information

Part No.	Description
NANO-SE-i1-4241-R10	EPIC SBC supports AMD® 28nm quad core GX-424CC 2.4GHz (25W) on-board SoC with VGA/HDMI/LVDS, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), Dual PCIe Mini, SATA 6Gb/s, mSATA , COM and Audio, iRIS-1010 and RoHS
NANO-KBN-i1-4151-R10	EPIC SBC supports AMD® 28nm quad-core GX-415GA 1.5GHz (15W) on-board SoC with VGA/HDMI/LVDS, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA 6Gb/s, mSATA, COM, iRIS-1010, HD Audio and RoHS
NANO-GLX-2101-ECO-R10	EPIC SBC supports AMD® 28nm dual core GX-210KL 1.0GHz (4.5W) on-board SoC with VGA/HDMI/LVDS, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), Dual PCIe Mini, SATA 6Gb/s, mSATA, COM and Audio, ECO packing and RoHS
iRIS-1010-R10	IPMI 2.0 adapter card with AST1010 BMC chip (w/o KVM over IP function) for PCIe Mini socket interface
32001-008600-200-RS	Dual-port USB cable, 210mm, P=2.0
32006-001100-201-RS	PS/2 KB/MS cable, 135mm/110mm, P=2.0
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

Note: Models with other CPUs not listed in the table are requested by MOQ - 100 pcs/lot.

NANO-QM871-i1

EPIC SBC supports 4th Generation Intel® Mobile Processor with VGA/Dual HDMI/LVDS, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, iRIS-1010



Specifications

- CPU
  Intel® mobile Core™ i7-4700EQ on-board processor with Intel® AMT 9.0 support (2.4GHz, quad-core, 6MB cache, TDP=47W)
  Intel® mobile Core™ i5-4400E on-board processor with Intel® AMT 9.0 support (2.7GHz, dual-core, 3MB cache, TDP=37W)
  Intel® mobile Core™ i3-4100E on-board processor (2.4GHz, dual-core, 3MB cache, TDP=37W)
  Intel® mobile Celeron® 2000E on-board processor (2.2GHz, dual-core, 2MB cache, TDP=37W)
  Intel® mobile Core™ i5-4402E on-board processor with Intel® AMT 9.0 support (1.6GHz, dual-core, 3MB cache, TDP=25W)
  Intel® mobile Core™ i3-4102E on-board processor (1.6GHz, dual-core, 3MB cache, TDP=25W)
  Intel® mobile Celeron® 2002E on-board processor (1.5GHz, dual-core, 2MB cache, TDP=25W)
- Chipset: Intel® QM87
- BIOS: UEFI BIOS
- Memory: One 204-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMM supports up to 8 GB
- Graphics Engine
  Intel® HD Graphics Gen 7.5 supports DX11.1 and OpenCL 1.2, OpenGL 3.2
  Full MPEG2, VC1, AVC Decode
- Display Output
  1 x VGA (up to 1920x1200@60Hz)
  1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
  2 x HDMI (up to 2500x1600@60Hz)
- TPM: 1 x TPM connector (2x10 pin)
- SMBus: 1 x SMBus (1x4 pin)
- Ethernet
  LAN1: Intel® I217-LM PHY with Intel® AMT 9.0 support
  LAN2: Intel® I210-AT PCIe controller
- External I/O Interface
  2 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x RS-422/485(1x4 pin, P=2.0)
  2 x RS-232 (2x5 pin, P=2.0)
  2 x SATA 6Gb/s with 5V SATA power connector (RAID 0,1 supported)
  2 x USB 2.0 (2x4 pin, P=2.0)
- iRIS Remote Management Module: 1 x iRIS-1010 slot
- Audio
  Realtek ALC662 HD Audio codec
  1 x Front audio (2x5 pin)
- Front Panel: 1 x Front Panel (2x5 pin)
- LAN LED: 2 x LAN LED (1x2 pin)
- Expansion
  1 x Full-size PCIe Mini card slot (supports mSATA)
  1 x PCIe/104 Type 2 slot (optional)
- Watchdog Timer: Software programmable, support 1~255 sec. system reset
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x4 pin)
- Power Supply
  12V only DC input
  1 x Internal power connector (2x2 pin)
  Support AT/ATX mode
- Power Consumption
  12V@4.78A (Intel® Core™ i7-4770EQ 2.4GHz CPU with 4 GB 1333 MHz DDR3 memory)
- Operating Temperature: -10°C ~ 60°C
- Storage Temperature: -20°C ~ 60°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 115 mm x 165 mm
- Weight: GW: 850g / NW: 350g
- CE/FCC compliant

Packing List

1 x NANO-QM871-i1 single board computer	
1 x Audio cable	2 x RS-232 cable
1 x CPU cooler	2 x SATA with power cable kit
1 x Power cable	1 x QIG

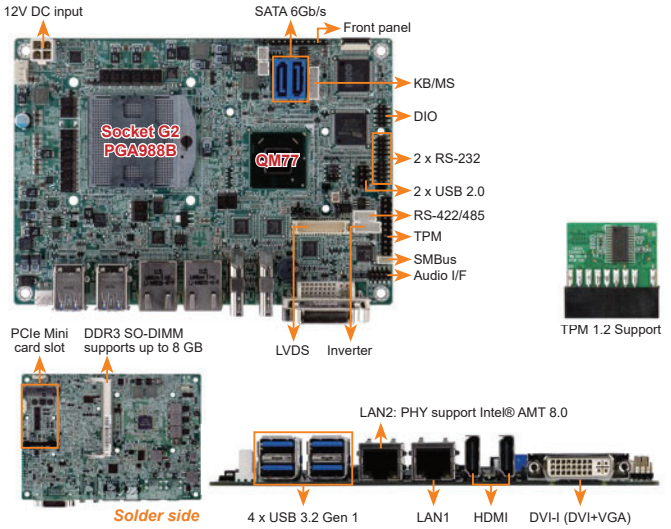
Ordering Information

Part No.	Description
NANO-QM871-i1-i7-R10	EPIC SBC supports Intel® 22nm Mobile Core™ i7-4700EQ on-board Processor with VGA/Dual HDMI/LVDS, Dual PCIe GbE, AMT 9.0, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, iRIS-1010, Audio and RoHS
NANO-QM871-i1-i5-R10	EPIC SBC supports Intel® 22nm Mobile Core™ i5-4400E on-board Processor with VGA/Dual HDMI/LVDS, Dual PCIe GbE, AMT 9.0, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, iRIS-1010, Audio and RoHS
NANO-QM871-i1-i3-R10	EPIC SBC supports Intel® 22nm Mobile Core™ i3-4100E on-board Processor with VGA/Dual HDMI/LVDS, Dual PCIe GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, iRIS-1010, Audio and RoHS
NANO-QM871-i1-C-R10	EPIC SBC supports Intel® 22nm Celeron 2000E on-board Processor (37W) with VGA/Dual HDMI/LVDS, Dual PCIe GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, iRIS-1010, Audio and RoHS
iRIS-1010-R10	IPMI 2.0 adapter card with AST1010 BMC chip (W/O KVM over IP function) for PCIe Mini socket interface
32001-008600-200-RS	Dual-port USB 2.0 cable, 210mm. P=2.0
32006-001100-201-RS	PS/2 KB/MS cable, 135mm/110mm, P=2.0
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

Note: Models with other CPUs not listed in the table are requested by MOQ - 100 pcs/lot.

NANO-QM770

EPIC SBC Supports Socket G2 for Intel® 22nm Mobile CPU, DVI-I/Dual HDMI/ LVDS, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA 6Gb/s and Audio



Features

- EPIC SBC with Socket G2 for Intel® 22nm mobile processor
- Triple independent display supports with dual HDMI+DVI/dual HDMI+LVDS (HDMI V1.3a compliant)
- 1066/1333/1600 MHz DDR3 SDRAM supports up to 8 GB
- Supports three COM, four USB 3.2 Gen 1 (5Gb/s), two SATA 6Gb/s and audio
- Intel® GbE LAN with Intel® AMT 8.0 supported

Specifications

◆ CPU
Socket G2 for 3rd generation 22nm Intel® mobile processor
◆ Chipset: Intel® QM77
◆ BIOS: UEFI BIOS
◆ Memory
One 204-pin 1600/1333 MHz single-channel DDR3 & DDR3L SDRAM unbuffered SO-DIMM slot supports up to 8 GB
◆ Graphics
Intel® HD Graphics Gen 7 with 12 execution units
DirectX 11, OpenGL 3.1, OpenCL 1.1
◆ Display Output
1 x DVI-I (up to 2048x1536@75Hz)
1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
2 x HDMI (up to 1920x1200@60Hz)
◆ Ethernet
LAN1: Intel® 82583V PCIe controller
LAN2: Intel® 82579 PHY with Intel® AMT 8.0 support
◆ External I/O Interface: 4 x USB 3.2 Gen 1 (5Gb/s)
◆ Internal I/O Interface
1 x KB/MS (1x6 pin)
2 x USB 2.0 (2x4 pin, P=2.54)
1 x RS-422/485 (1x4 pin, P=2.0)
2 x RS-232 (2x5 pin, P=2.0)
2 x SATA 6Gb/s with 5V SATA power connector (RAID 0,1 supported)
◆ TPM: 1 x TPM (2x10 pin)
◆ Audio
Realtek ALC662 HD codec
1 x Front audio (2x5 pin)
◆ Front Panel
1 x Front panel (1x10 pin)
◆ Expansion
1 x Full-size PCIe Mini card slot (supports mSATA)
◆ Watchdog Timer
Software programmable supports 1~255 sec. system reset
◆ Programmable I/O: 8-bit digital I/O
◆ Fan Connector
1 x CPU smart fan (1x4 pin)
1 x System smart fan (1x3 pin)
◆ Power Supply
12V only DC input
1 x Internal power connector (2x2 pin)
Support AT/ATX mode
◆ Power Consumption
12V@4.89A (Intel® 1.8GHz CPU with one 1333 MHz 4 GB DDR3 SO-DIMM)
◆ Operating Temperature: -10°C ~ 60°C
◆ Storage Temperature: -20°C ~ 70°C
◆ Operating Humidity: 5% ~ 95%, non-condensing
◆ Dimensions: 115 mm x 165 mm
◆ Weight: GW: 850g / NW: 350g
◆ CE/FCC compliant

Packing List

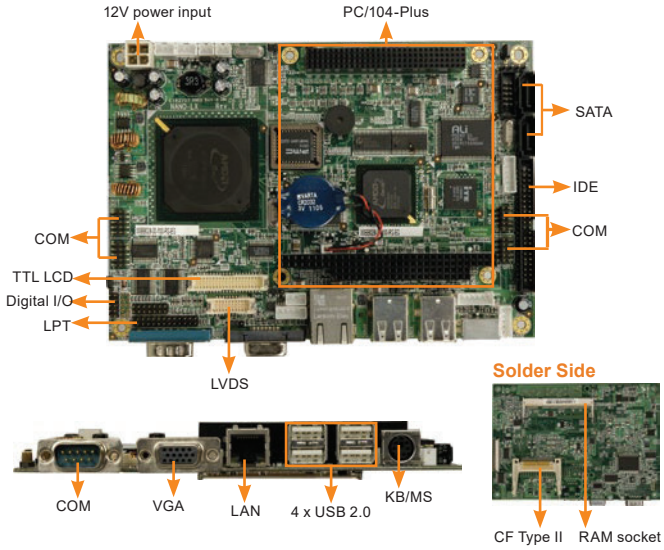
1 x NANO-QM770 single board computer	
1 x Audio cable	2 x SATA with power cable kit
1 x Power cable	1 x Mini jumper pack
2 x RS-232 cable	1 x QIG

Ordering Information

Part No.	Description
NANO-QM770-R10	EPIC SBC supports Socket G2 for Intel® 22nm mobile CPU, DVI-I/dual HDMI/LVDS, dual PCIe GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s and Audio
32000-044300-RS	Dual port USB cable, 210mm, P=2.54
32006-001100-201-RS	PS/2 KB/MS cable, 135mm/110mm, P=2.0
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
CF-989A-RS-R12	CPU cooler for mobile socket-G (PGA988) up to 55W processor, copper, 60 x 60 x 27.6mm, RoHS
TPM-IN01-R20	20-pin Infineon TPM module, software management tool, firmware v3.17

NANO-LX

EPIC SBC with AMD LX800 CPU, Audio, VGA/LVDS, SATA and RAID 0, 1, JBOD Function Support



Features

- EPIC form factor AMD LX800 processor embedded board with RoHS compliant
- DDR 400 MHz SO-DIMM SDRAM up to 1 GB
- VGA, 24-bit TTL, and 18-bit single-channel LVDS
- SATA RAID 0, 1, JBOD function support
- Complete I/O support with two SATA, IDE, PC/104-Plus and four USB 2.0

Specifications

◆ CPU
AMD Geode™ LX800 (500 MHz) processor
◆ Chipset: AMD Geode LX800 + AMD CS5536
◆ BIOS: AWARD
◆ System Memory
One 200-pin 400/333 MHz DDR SDRAM SO-DIMM supports up to 1GB
◆ Ethernet
LAN: 10/100Mbps Realtek RTL8100C
◆ External I/O Interface
1 x PS/2 KB/MS
1 x RS-232
4 x USB 2.0
◆ Internal I/O Interface
1 x CF Type II 1 x IDE
1 x LPT 1 x RS-232/422/485
4 x USB 2.0 5 x RS-232
2 x SATA (VIA VT6421A RAID 0, 1 function support)
◆ Expansion
1 x PC/104 slot (ISA)
1 x PCI-104 slot (PCI)
◆ Audio: Realtek ALC203 with AC'97 codec
◆ Digital I/O: 8-bit digital I/O (2x5 pin)
◆ Infrared Interface: 1 x Infared interface (1x5 pin)
◆ Display Output
1 x VGA (up to 1920x1440@60Hz)
1 x 24-bit single-channel TTL (up to 1600x1200@60Hz)
1 x 18-bit single-channel LVDS (up to 1280x1024@60Hz)
◆ Watchdog Timer: Software programmable supports 1~255 sec. system reset
◆ Power Supply: 12V only DC input
1 x Internal power connector (2x2 pin)
support AT/ATX mode
◆ Power Consumption: 12V@0.92A (AMD LX800 with 400 MHz 256MB DDR RAM)
◆ Operating Temperature : 0°C ~ 60°C
◆ Storage Temperature: -10°C ~ 70°C
◆ Operating Humidity: 5% ~ 95%, non-condensing
◆ Dimensions: 115 mm x 165 mm
◆ Weight: GW: 950g / NW: 350g
◆ CE/FCC compliant

Packing List

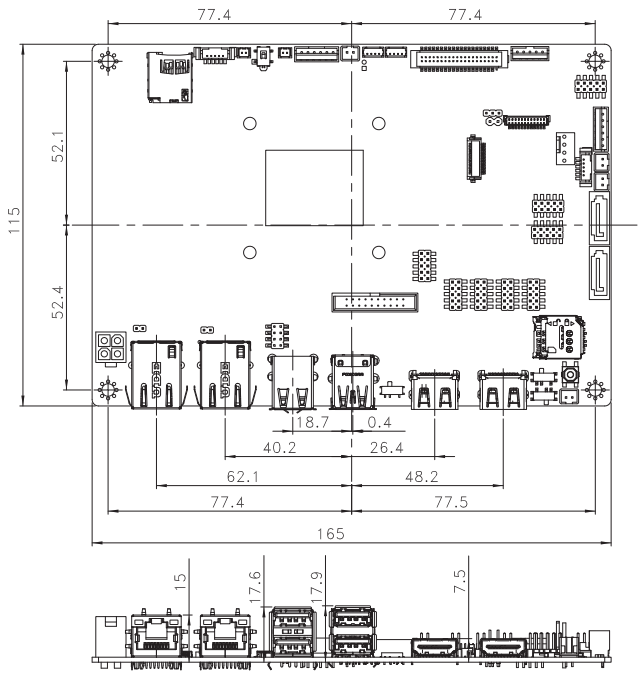
1 x NANO-LX single board computer	1 x SATA power cable
1 x Audio cable	2 x RS-232 port cable
1 x IDE flat cable 44p/44p	2 x SATA cable
1 x KB/MS Y cable	1 x Mini iumper pack
1 x Power cable	1 x QIG

Ordering Information

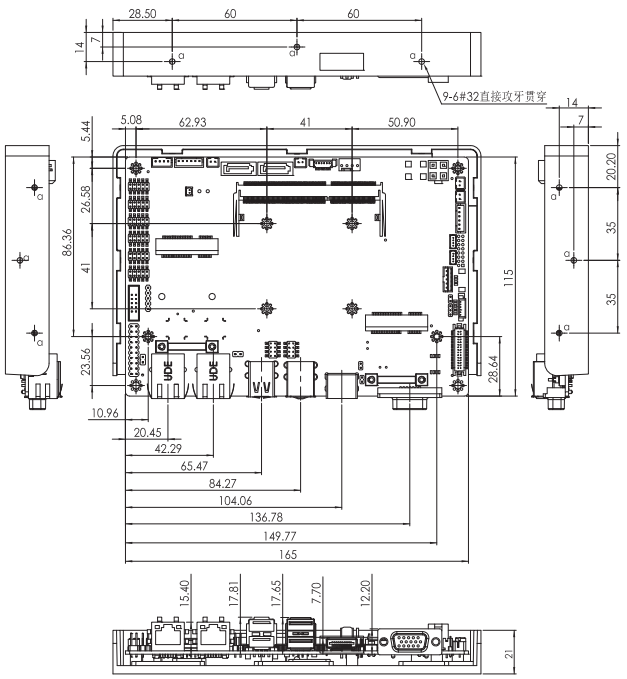
Part No.	Description
NANO-LX-800-R12	EPIC SBC, AMD LX800 500 MHz processor, VGA/LVDS/TTL, LAN, SATA and Audio
32102-022100-100-RS	ATX power cable, 300mm
32200-015100-RS	LPT cable, 280mm, P=2.0
19800-004300-100-RS	RS-232 & RS-422/485 cable with bracket, 14-pin to two DB-9, 250mm, P=2.0

EPIC NANO Dimensions (Unit: mm)

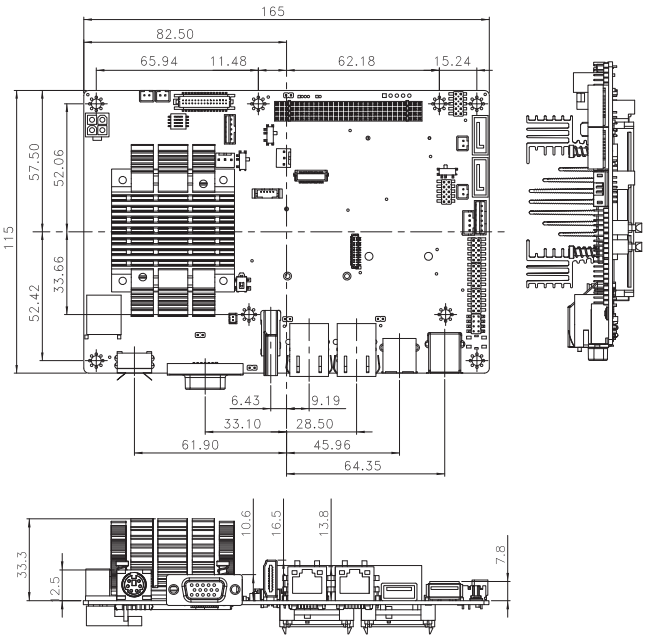
NANO-AL

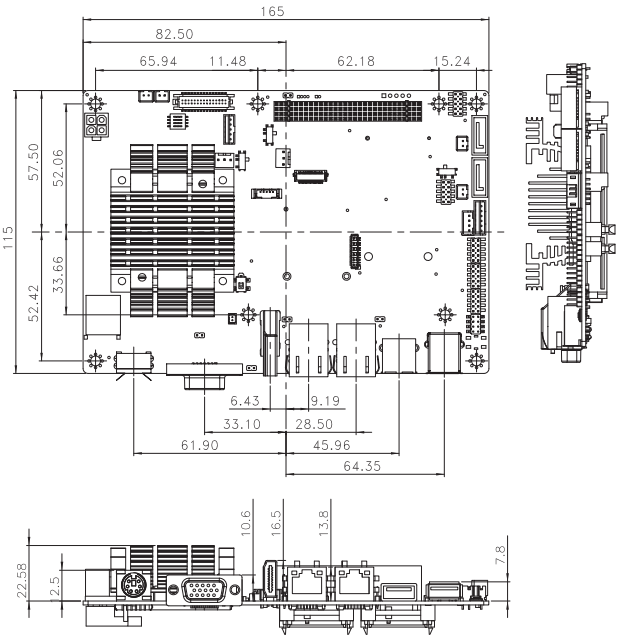


NANO-SE-i1/NANO-KBN-i1



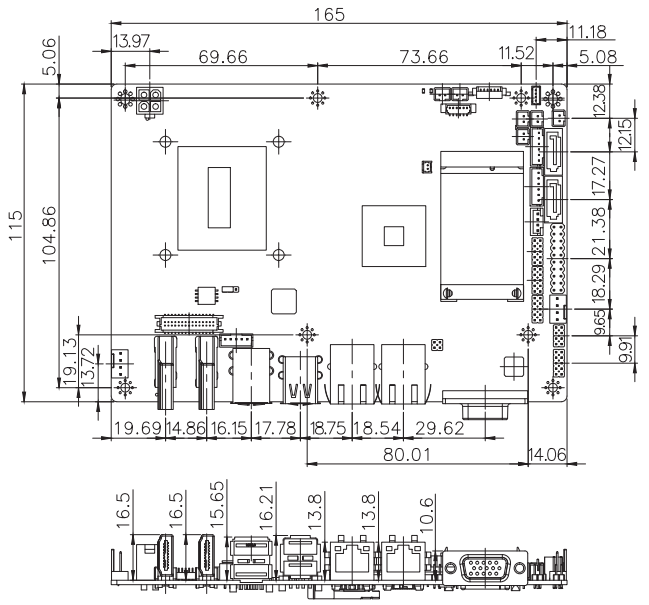
NANO-BTW2/NANO-BT-i1



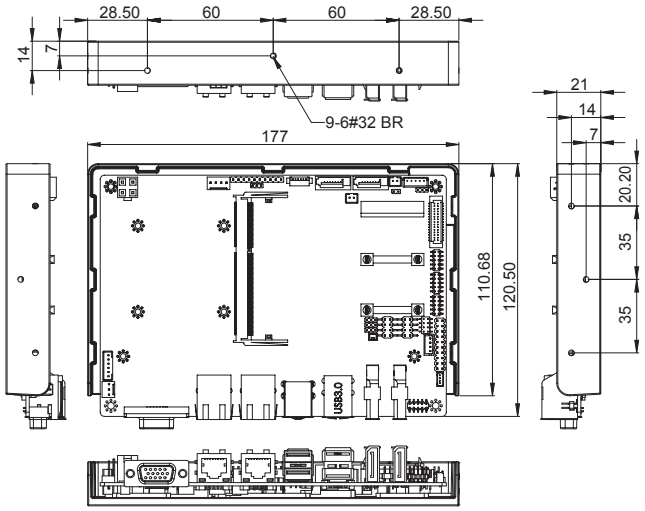


EPIC NANO Dimensions (Unit: mm)

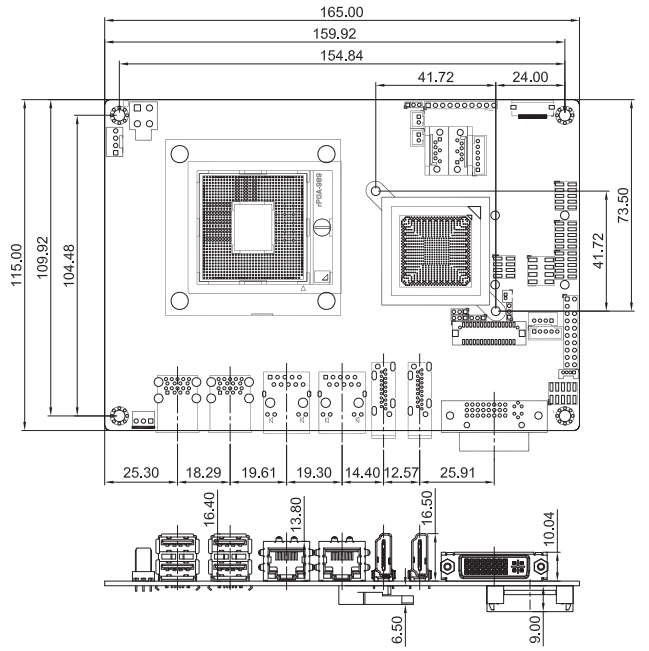
NANO-QM871-i1



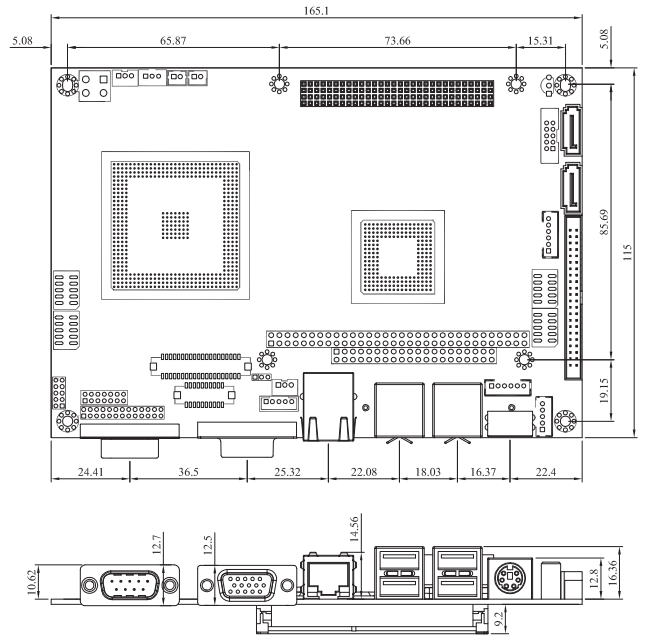
NANO-HM651



NANO-QM770



NANO-LX



3.5" WAFER Selection Guide

New







Model Name	WAFER-ULT5	WAFER-AL	WAFER-ULT4/ULT3	WAFER-BW	WAFER-BTW2
CPU Socket	On Board	On board	On board	On board	On board
CPU Type	Intel® Mobile ULT processor	Intel® Atom™/Celeron®/ Pentium® on-board SoC	Intel® Mobile ULT processor	Intel® Pentium®/Celeron® SoC	Intel® Atom™/Celeron® SoC
Chipset	Intel® Mobile ULT processor	Intel® Atom™/Celeron®/ Pentium® on-board SoC	Intel® Mobile ULT processor	Intel® Pentium®/Celeron® SoC	Intel® Atom™/Celeron® SoC
Memory	1 x 260-pin 2400MHz DDR4 SDRAM SO-DIMM (channel 1)	1 x 204-pin 1866/1600 MHz single-channel DDR3L SO-DIMM (system max. 8 GB)	1 x 260-pin 2133MHz DDR4 SDRAM SO-DIMM (channel 1) On-board DDR4 memory (optional 4/8GB support)	1 x 204-pin 1600/1333 MHz single-channel DDR3L SDRAM unbuffered SO-DIMM slot (system max. 8 GB)	4 GB solder-down 1066/1333 MHz DDR3L memory (for E3845) 2 GB solder-down 1066/1333 MHz DDR3L memory (for E3825)
Display Interface	Triple independent display 2 x HDMI 1 x 18/24-bit dual-channel LVDS	Triple independent display 1 x VGA 1 x DP++ 1 x 18/24-bit dual-channel LVDS 1 x iDP	Triple independent displays 1 x VGA 1 x HDMI 1 x 18/24-bit dual-channel LVDS 1 x iDP interface for HDMI, LVDS, VGA, DVI, DP	Triple independent display 2 x HDMI 1 x 18/24-bit dual-channel LVDS	Dual independent dispaly 1 x VGA 1 x 18/24-bit dual-channel LVDS 1 x iDP interface
Ethernet	LAN1: Intel® I211AT LAN2: Intel® I211AT LAN3: Intel® I219LM	LAN1: Realtek RTL8111 Controller LAN2: Realtek RTL8111 Controller	1 x Intel® I219LM 1 x Intel® I211AT	LAN1: Realtek RTL8111GN controller LAN2: Realtek RTL8111GN controller	LAN1: Intel® I210-IT PCIe controller LAN2: Intel® I210-IT PCIe controller
iRIS Remote Management Module	N/A				
I/O Interface	1 x RS-232 1 x RS-232/422/485 (Support Auto Flow Control over RS-485) 2 x USB 2.0 4 x USB 3.2 Gen 2	2 x RS-232 2 x RS-232/422/485 2 x USB 3.2 Gen 1 4 x USB 2.0	2 x RS-232/422/485 4 x USB 3.2 Gen 1 2 x USB 2.0	1 x PS/2 KB/MS 2 x RS-232/422/485 2 x USB 3.2 Gen 1 4 x RS-232 4 x USB 2.0	1 x PS/2 KB/MS 1 x RS-422/485 1 x USB 3.2 Gen 1 3 x RS-232 5 x USB 2.0
Storage Interface	1 x SATA 6G/s with 5V SATA power connector	2 x SATA 6Gb/s with 5V SATA power connector	1 x SATA 6Gb/s with 5V SATA power connector	2 x SATA 6Gb/s with 5V SATA power connector (no RAID) 1 x eMMC4.51 (optional)	2 x SATA 3Gb/s with 5V SATA power connector (no RAID) 1 x 4 GB on-borad SSD (optional) 1 x microSD 1 x mSATA
Audio	N/A	Realtek ALC662 HD Audio codec	N/A	Realtek ALC662 HD Audio codec	
Digital I/O	8-bit programmable digital I/O				
Power Consumption	12V@3.38A (Intel® Core™ i7--8665UE up to 4.4 GHz With 16GB 2666MHz DDR4 Memory)	12V@2.57A (Intel® Pentium® N4200 up to 2.5GHz with 8GB DDR3L memory)	12V@4.27A (Intel® Core™ i7-6600U up to 3.4GHz CPU with 16GB (16GB x1) DDR4-2133 memory running in 3.0GHz)	12V@1.52A (Intel® Pentium® processor N3710 with 8 GB 1600MHz DDR3L memory)	12V@1.32A (Intel® Atom™ processor E3845 with on-board 2 GB 1333 MHz DDR3L memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset				
Operating Environment	Temperature Range: -20°C ~ 60°C (-4°F~140°F) Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: -20°C ~ 70°C (-4°F~158°F) Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: -20°C ~ 60°C (-4°F~140°F) Relative Humidity: 5% ~ 95%, non-condensing		
Expansion Slot	1 x Full-size PCIe Mini slot (w/ SATA signal, support mSATA) 1 x M.2 slot with A Key 2230	2 x Full/Half-size PCIe Mini card slot (one supports mSATA, another one with SIM holder)	1 x Full-size PCIe Mini slot (w/ SATA signal, support mSATA) 1 x Full-size PCIe Mini slot (w/ SIM card slot support)	2 x Full/Half-size PCIe Mini card slot (one with SIM holder)	2 x Full-size PCIe Mini card slot (one with SIM holder)
Recommended CPU Cooler	Heat Spreader	Heatsink	Heat Spreader	Heat Spreader	Heatsink

3.5" WAFER Selection Guide



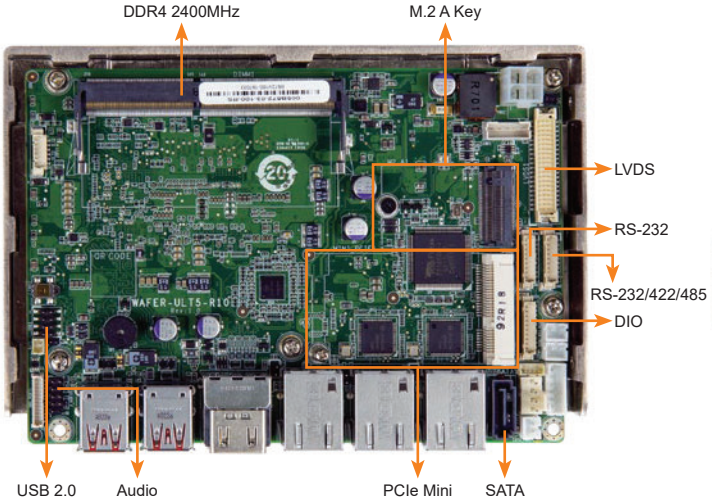





Model Name	WAFER-ULT2/ULT-i1	WAFER-BT-E38001W2	WAFER-BT	WAFER-KBN-i1	WAFER-LX-R12	WAFER-LX2-R12
CPU Socket	On board	On Board	On board	On board	On board	On board
CPU Type	Intel® Mobile ULT processor	Intel® Atom™ SoC	Intel® Atom™/Celeron® SoC	AMD® Embedded G-Series SoC	AMD Geode™ LX800	AMD Geode™ LX800
Chipset	Intel® Lynx Point SoC	Intel® Atom™ SoC	Intel® Atom™/Celeron® on-board SoC	AMD® Embedded G-Series SoC	AMD Geode™ LX800 + AMD CS5536	AMD Geode™ LX800 + AMD CS5536
Memory	2 x 204-pin 1600/1333 MHz dual-channel DDR3L SO-DIMMs (system max. 16 GB)	On-board DDR3L memory 2GB for E3825 4GB for E3845	1 x 204-pin 1066/1333 MHz dual-channel DDR3L SO-DIMMs (system max. 8 GB)	1 x 204-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SO-DIMM (system max. 8 GB)	1 x 200-pin 333/400 MHz. 1 GB (max.) DDR SO-DIMM	1 x 200-pin 400 MHz. 1 GB (max.) DDR SO-DIMM
Display Interface	Dual display supported 1 x VGA 1 x 18/24-bit dual-channel LVDS 1 x iDP interface	Dual display supported 1 x VGA 1 x 18/24-bit dual-channel LVDS 1 x iDP interface	Dual display supported 1 x VGA 1 x 18/24-bit dual-channel LVDS 1 x iDP interface	Dual display supported 1 x VGA 1 x 18/24-bit dual-channel LVDS 1 x iDP interface	Dual display supported 1 x VGA 1 x 18-bit single-channel LVDS 1 x 24-bit TTL	Dual display supported 1 x VGA 1 x 18-bit single-channel LVDS 1 x 24-bit TTL
Ethernet	LAN1: Intel® I218LM PHY with Intel® AMT 9.0 support LAN2: Intel® I210-AT PCIe GbE controller	LAN1: Intel® I210-IT PCIe controller LAN2: Intel® I211-IT PCIe controller	LAN1: Intel® I210-AT PCIe controller with NCSI support LAN2: Intel® I211-AT PCIe controller	LAN1: Intel® I210-AT PCIe controller with NCSI support LAN2: Intel® I211-AT PCIe controller	Dual LAN: 10/100Mbps RTL8100C Ethernet Controller	LAN1: 10/100Mbps RTL8100C Ethernet Controller
iRIS Remote Management Module	1 x iRIS-1010 slot	N/A	N/A	1 x iRIS-1010 slot	N/A	N/A
I/O Interface	1 x PS/2 KB/MS 1 x RS-422/485 2 x USB 2.0 2 x USB 3.2 Gen 1 3 x RS-232	1 x PS/2 KB/MS 1 x RS-422/485 1 x RS-232 4 x USB 2.0	1 x PS/2 KB/MS 1 x RS-422/485 1 x USB 3.2 Gen 1 3 x RS-232 5 x USB 2.0	1 x PS/2 KB/MS 1 x RS-422/485 2 x USB 3.2 Gen 1 3 x RS-232 4 x USB 2.0	1 x LPT 1 x PS/2 for KB/MS 1 x RS-422/485 2 x RS-232 4 x USB 2.0	1 x RS-232/422/485 4 x USB 2.0 7 x RS-232
Storage Interface	2 x SATA 6Gb/s with 5V power connector	2 x SATA 3Gb/s with 5V SATA power connector (no RAID)	2 x SATA 3Gb/s with 5V SATA power connector (no RAID)	2 x SATA 6Gb/s with 5V SATA power connector	2 x SATA 1.5Gb/s RAID 1 x IDE 1 x CF Type II	1 x IDE 1 x CF Type II
Audio	Realtek ALC662 HD Audio codec				Realtek ALC203 with AC'97 codec	
Digital I/O	8-bit programmable digital I/O					
Power Consumption	12V@2.72A (Intel® Core™ i5-4300U CPU with two 8 GB 1600 MHz DDR3 memory)	12V@1.332A (Intel® Atom E3840 Processor 1.91GHz with one 2 GB 1333 MHz DDR3 memory)	12V@1.45A (Intel® Celeron® Processor J1900 CPU with one 8 GB 1333 MHz DDR3L memory)	12V@2.12A (AMD GX-415GA 1.5GHz CPU with 1333 MHz 4 GB DDR3 memory)	5V@1.53A (AMD Geode™ LX 800 1 GB 400 MHz DDR)	5V@1.33A (AMD Geode™ LX800 512MB 333 MHz DDR)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset					
Operating Environment	Temperature Range: -10°C ~ 60°C (14°F~140°F) Relative Humidity: 5% ~ 95% non-condensing	Temperature Range: -40°C ~ 85°C Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: -20°C ~ 60°C Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: 0°C ~ 60°C (32°F~140°F) Relative Humidity: 5% ~ 95% non-condensing	Temperature Range: 0°C ~ 60°C (32°F~140°F) Relative Humidity: 5% ~ 95% non- condensing	
Expansion Slot	1 x Full-size PCIe Mini card slot (supports mSATA)	2 x Full-size PCIe Mini card slot (one supports mSATA)	1 x Full-size PCIe Mini card slot (supports mSATA)	1 x Full-size PCIe Mini card slot (supports mSATA)	1 x PC/104	1 x PC/104
Recommended CPU Cooler	Heat Spreader	Heatsink	N/A	GX-415GA (with hearsink) GX-210HA (with cooler)	Heatsink	Heatsink

WAFER-ULT5

3.5" SBC supports Intel® 8th Generation Whiskey Lake processor with DDR4 SO-DIMM, Triple display with dual HDMI 1.4, LVDS, Triple GbE, USB 3.1 Gen2, M.2 A key, mPCIe with mSATA support, SATA 6Gb/s, COM and RoHS

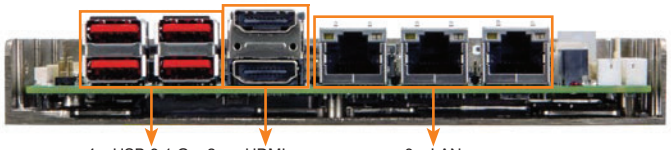




New



Fanless heatsink module (Optional)





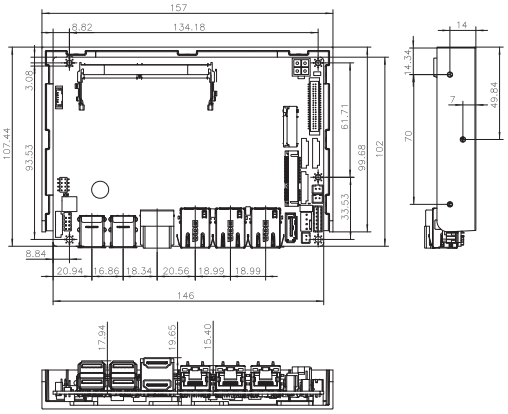
Specifications

- SoC
  8th generation Intel® mobile ULT Processor
  Intel® Core™ i7-8665UE 1.7 GHz (up to 4.4GHz, Quad-core, 8MB cache, TDP=15W)
  Intel® Core™ i5-8365UE 1.6 GHz (up to 4.1GHz, Quad-core, 6MB cache, TDP=15W)
  Intel® Core™ i3-8145UE 2.2 GHz (up to 3.9GHz, Dual-core, 4MB cache, TDP=15W)
  Intel® Celeron® processor 4305UE (up to 2.0GHz, Dual-core, 2MB cache, TDP=15W)
  Intel® Celeron® processor 4205U (up to 1.8GHz, Dual-core, 2MB cache, TDP=15W)
- BIOS
  AMI UEFI BIOS
- Memory
  1 x DDR4 2400MHz SO-DIMM support up to 32GB
- Graphics Engine
  Intel® UHD Graphics 620
- Display Output
  Triple Independent Displays
  2 x HDMI 1.4 (up to 4096x2160@30Hz)
  1 x LVDS: 18/24-bit dual-channel LVDS by CH7511B DP to LVDS converter (up to 1920x1200@60Hz)
- Ethernet
  2 x Intel I211AT (colay with I210)
  1 x PCIe GbE LAN Intel i219 Controller
- Embedded Controller
  ITE IT8587VG-FX
- External I/O Interface
  4 x USB 3.1 Gen2
- Internal I/O Interface
  1 x RS-232 (1x9 pin, P=1.25)
  1 x RS-232/422/485 (1x9 pin, P=1.25) (Support Auto Flow Control over RS-485)
  1 x SATA 6G/s with 5V SATA power connector
  2 x USB 2.0 (2x4 pin, P=2.0)
- I²C
  1 x I²C (1x4 pin)
- Audio
  1 x HD audio (2x5 pin, support 7.1 channel HD audio by AC-KIT-892HD-R10)
- Front Panel
  1 x Power LED & HDD LED (1x6 pin)
  1 x Power button (1x2 pin)
  1 x Reset button (1x2 pin)
- LAN LED
  3 x LAN LED (1x2 pin)
- Expansion
  1 x Full-size PCIe Mini slot (w/ SATA signal, support mSATA)
  1 x M.2 slot with A Key 2230
- Digital I/O
  1 x 8-bit digital I/O (1x10 pin)
- Fan Connector
  1 x Smart fan connector (1x4 pin)
- Power Supply
  12V DC input
  1 x Internal power connector (2x2 pin)
  Support AT/ATX mode
- Watchdog Timer
  Software programmable support 1~255 sec. system reset
- Power Consumption
  TBD
- Operating Temperature
  -20°C ~ 60°C
- Storage Temperature
  -30°C ~ 70°C
- Operating Humidity: 5% ~95%, non-condensing
- Dimensions: 115mm x 165mm
- Weight: GW: 700g / NW: 350g

Features

- 3.5" SBC supports Intel® 8th generation Whiskey Lake processor with DDR4 SO-DIMMs
- Triple display with dual HDMI, LVDS selection
- M.2 A Key, PCIe Mini slot with mSATA spport
- COM, USB 3.1 Gen2, SATA 6Gb/s support
- Support temperature operation: -20°C ~ 60°C
- Support Auto Flow Control over RS-485

Dimensions *(Unit: mm)*



Packing List

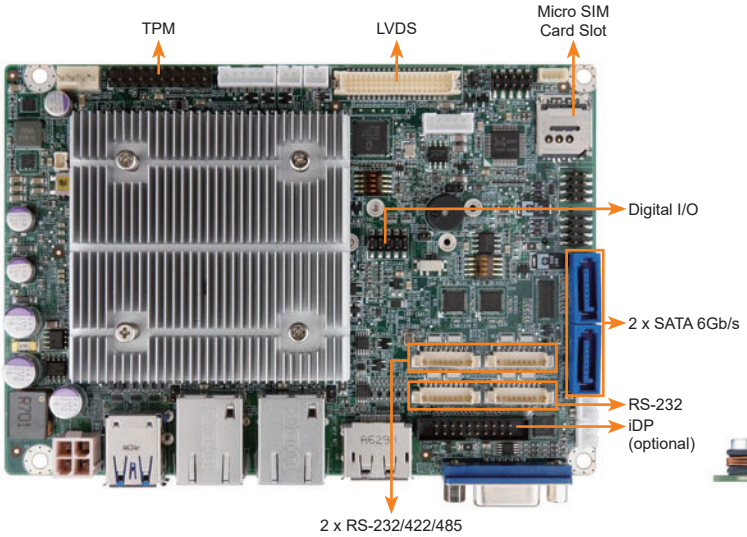
1 x WAFER-ULT5 single board computer with Heatspreader	
1 x Power cable	1 x SATA with power cable kit
2 x RS-232/422/485 cable	1 x QIG (Quick Installation Guide)

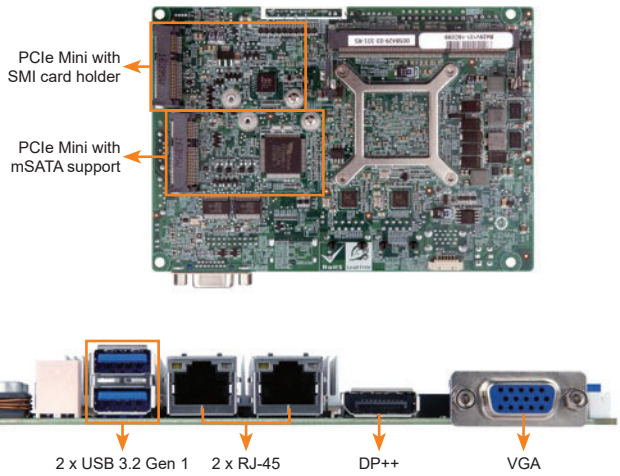
Ordering Information

Part No.	Description
WAFER-ULT5-i7-R10	3.5" SBC supports Intel® 8th Generation Core™ i7-8665UE with DDR4 SO-DIMM, triple display with dual HDMI 1.4, LVDS, Triple GbE, USB 3.1, M.2 A key, mPCIe with mSATA support, SATA 6Gb/s, COM and RoHS
WAFER-ULT5-i5-R10	3.5" SBC supports Intel® 8th Generation Core™ i5-8365UE with DDR4 SO-DIMM, triple display with dual HDMI 1.4, LVDS, Triple GbE, USB 3.1, M.2 A key, mPCIe with mSATA support, SATA 6Gb/s, COM and RoHS
WAFER-ULT5-i3-R10	3.5" SBC supports Intel® 8th Generation Core™ i3-8145UE with DDR4 SO-DIMM, triple display with dual HDMI 1.4, LVDS, Triple GbE, USB 3.1, M.2 A key, mPCIe with mSATA support, SATA 6Gb/s, COM and RoHS
WAFER-ULT5-C-R10	3.5" SBC supports Intel® 8th Generation Celeron® 4305UE with DDR4 SO-DIMM, triple display with dual HDMI 1.4, LVDS, Triple GbE, USB 3.1, M.2 A key, mPCIe support, SATA 6Gb/s, COM and RoHS
WAFER-ULT5-CE-R10	3.5" SBC supports Intel® 8th Generation Celeron® 4305UE with DDR4 SO-DIMM, triple display with dual HDMI 1.4, LVDS, Triple GbE, USB 3.1, M.2 A key, mPCIe support, SATA 6Gb/s, COM and RoHS
32005-003500-200-RS	Round cable, RS-232/422/485, RS-232 cable, 2, 250mm, 26AWG, (A) D-SUB 9P MALE+HEXAGONAL screw, (B) MOLEX 51021-0900 P=1.25, Wins Precision, RoHS
32801-000201-300-RS	SATA cable, 3, 150mm, 26AWG, SATA 7+15P female 180°, SATA 7P female 180°+LOCK, JST PHR-2 P=2.0, one pcs PKG w/ label, Wins Precision, RoHS

WAFER-AL

3.5" SBC supports Intel® 14nm Generation Atom™ or Celeron® on-board SoC with DP++/VGA/LVDS/iDP support, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini with mSATA support, SATA 6Gb/s, COM, Audio and RoHS





Specifications

- SoC
  Intel® Pentium® N4200 on-board SoC (up to 2.5GHz, quad-core, 2M Cache, TDP=6W)
  Intel® Celeron® N3350 on-board SoC (up to 2.4GHz, dual-core, 2M Cache, TDP=6W)
- BIOS
  AMI UEFI BIOS
- Memory
  One 204-pin 1866/1600MHz Single-channel DDR3L DIMMs support up to 8GB
- Graphics Engine
  Intel® HD Graphics Gen9 Low Power; 18 Execution Units
  4K Codec Decode & Encode for HEVC 4, H.264, VP8, SVC, MVC
- Display Output
  Triple independent display
  1 x DP++ (up to 4096x2160@60Hz)
  1 x VGA (up to 1920x1200@60Hz)
  1 x LVDS: 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
  1 x iDP (colay with VGA, support by request)
- Ethernet
  2 x PCIe GbE LAN Realtek RTL8111 Controller
- External I/O Interface
  2 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  2 x RS-232 (1x9 pin, P=1.25)
  2 x RS-232/422/485 (1x9 pin, P=1.25)
  2 x SATA 6Gb/s with 5V SATA power connector (no RAID)
  4 x USB 2.0 (2x4 pin, P=2.0)
- SMBus/I²C
  1 x SMBus (1x4 pin, P=2.0)
- TPM
  1 x TPM (2x10 pin)
- Audio
  Realtek ALC662 HD codec
  1 x Front audio (2x5 pin)
- Front Panel
  1 x Power LED & HDD LED (1x6 pin)
  1 x Power button (1x2 pin)
  1 x Reset button (1x2 pin)
- LAN LED
  2 x LAN LED (1x2 pin)
- Expansion
  1 x Full/Half-size PCIe Mini slot (supports mSATA, colay with SATA port 2)
  1 x Full/Half-size PCIe Mini slot (supports SIM card holder)
- Digital I/O
  1 x 8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x System fan connector (1x4 pin)
- Power supply
  +12V DC input power (AT/ATX mode)
- Watchdog Timer
  Software programmable, supports 1~255 sec. system reset
- Power Consumption
  12V@2.57A (Intel® Pentium® N4200 up to 2.5GHz with 8GB DDR3L memory)
- Operating Temperature: -20°C ~ 70°C
- Storage Temperature: -20°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 146mm x 102mm
- Weight: 600g / NW: 250g
- CE/FCC compliant

New Intel® Atom™ solution for entry level system







TPM 2.0 Support



Features

- 3.5" SBC with Intel® Apollo Lake platform on-board SoC
- One SO-DIMM DDR3L 1867/1600MHz support up to system maximum 8GB
- Triple displays with 1 x DP++, 1 x VGA / 1 x iDP, 1 x LVDS selection
- High speed I/O interface for USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s
- PCIe Mini with mSATA support

Packing List

1 x WAFER-AL single board computer	
1 x Power cable	1 x SATA with power cable kit
1 x RS-232/422/485 cable	1 x QIG

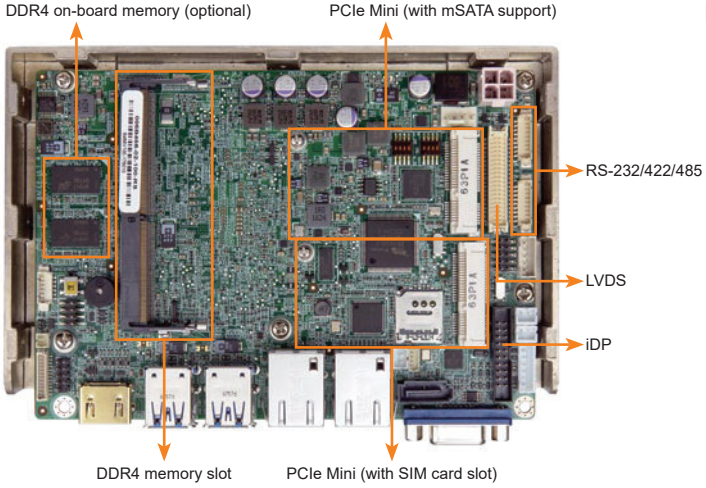
Ordering Information

Part No.	Description
WAFER-AL-N2-R10	3.5" SBC supports Intel® 14nm quad-core Pentium® N4200 2.5GHz on-board SoC with tripple display, Dual PCIe GbE, PCIe Mini with mSATA support, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, COM, Audio and RoHS
WAFER-AL-N1-R10	3.5" SBC supports Intel® 14nm dual-core Celeron® N3350 2.4GHz on-board SoC with tripple display, Dual PCIe GbE, PCIe Mini with mSATA support, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, COM, Audio and RoHS
WAFER-AL-Nx-iDP-R10**	3.5" SBC supports Intel® 14nm quad-core Pentium® N4200/ Celeron® N3350 on-board SoC with iDP, DP++, LVDS tripple display, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini with mSATA support, SATA 6Gb/s, COM, Audio and RoHS
32001-008600-200-RS	Dual-port USB 2.0 cable, 210mm, P=2.0
32005-003500-200-RS	RS-232/422/485 cable, 250mm, P=1.25
32007-005200-200-RS	Audio cable, 300mm, P=2.0
TPM-IN02-R20	20-pin Infineon TPM 2.0 module, software management tool, firmware v5.5

**By order production, MOQ: 100

WAFER-ULT3/ULT4

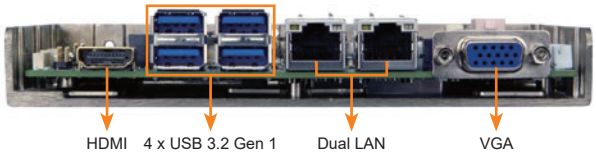
3.5" SBC supports Intel® 6th/7th Generation ULT Processor with DDR4 SO-DIMM/On-board Memory Support, Triple Display, PCIe Mini with SIM Card Slot/mSATA Support, SATA 6Gb/s, COM, Audio, and RoHS



Passenger information system for transportation



34000-000673-RS
Fanless heatsink module (optional)





Specifications

- CPU
  7th generation Intel® mobile ULT processor
  Intel® Core™ i7-7600U (up to 3.9GHz, dual-core, 4MB cache, TDP=15W)
  Intel® Core™ i5-7300U (up to 3.5GHz, dual-core, 3MB cache, TDP=15W)
  Intel® Core™ i3-7100U (up to 2.4GHz, dual-core, 3MB cache, TDP=15W)
  6th generation Intel® mobile ULT processor
  Intel® Core™ i7-6600U (up to 3.4GHz, dual-core, 4MB cache, TDP=15W)
  Intel® Core™ i5-6300U (up to 3.0GHz, dual-core, 3MB cache, TDP=15W)
  Intel® Core™ i3-6100U (up to 2.3GHz, dual-core, 3MB cache, TDP=15W)
  Intel® Celeron® processor 3955U (up to 2.0GHz, dual-core, 2MB cache, TDP=15W)
  Intel® Celeron® processor 3855U (up to 1.6GHz, dual-core, 2MB cache, TDP=15W)
- BIOS
  AMI UEFI BIOS
- Memory
  1 x 260-pin 2133MHz DDR4 SDRAM SO-DIMM (channel 1, supports up to 16GB)
  On-board 4GB DDR4 memory (channel 2, optional support by request)
- Graphics Engine
  Intel® HD Graphics
- Display Output
  Triple independent display
  1 x VGA (up to 1920x1200@60Hz)
  1 x HDMI (up to 4096x2160@30Hz)
  1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (co-layout with VGA)
- Ethernet
  1 x Intel® I219LM
  1 x Intel® I211AT
- External I/O Interface
  4 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x SATA 6Gb/s with 5V SATA power connector
  2 x USB 2.0 (2x4 pin, P=2.0)
  2 x RS-232/422/485 (1x9 pin, P=1.25)
- SMBus
  1 x SMBus (1x4 pin, P=2.0)
- Audio
  1 x HD audio (2x5 pin, supports 7.1-channel HD audio by AC-KIT-892HD-R10)
- Front Panel
  1 x Power LED & HDD LED (1x6 pin)
  1 x Power button (1x2 pin)
  1 x Reset button (1x2 pin)
- Expansion
  1 x Full-size PCIe Mini slot (w/ SATA signal, supports mSATA)
  1 x Full-size PCIe Mini slot (w/ SIM card slot support)
  **3855U belongs to Skylake ULT Base series which supports PCIe Gen 2 signal only.*
- Digital I/O
  1 x 8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x System fan connector (1x4 pin)
- Watchdog Timer
  Software programmable, supports 1~255 sec. system reset
- Power Supply
  12V only DC input
  1 x Internal power connector (2x2 pin, or optional terminal block)
- Power Consumption
  12V@4.27A (Intel® Core™ i7-6600U up to 3.4GHz CPU with 16GB 2133MHz DDR4 memory running in 3.0GHz)
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 146mm x 102mm
- Weight: GW: 600g / NW: 250g
- CE/FCC compliant

Features

- 3.5" SBC with Intel® 6th/7th Generation ULT processor supports DDR4 SO-DIMM (on-board memory support by request)
- Triple display with VGA/iDP, HDMI and LVDS selection
- Two PCIe Mini with mSATA/SIM card slot support
- Intel® GbE LAN with Intel® AMT 11.0 supported

Packing List

1 x WAFER-ULT3/ULT4 single board computer (heat spreader by default)	
1 x Power cable	1 x SATA with power cable kit
1 x RS-232/422/485 cable	1 x QIG

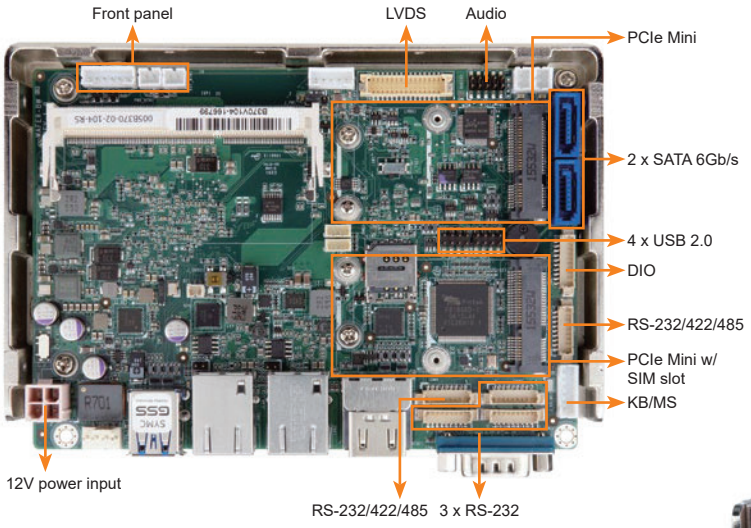
Ordering Information

Part No.	Description
WAFER-ULT3-i7-R10	3.5" SBC supports Intel® 6th Generation ULT Core™ i7-6600U processor with DDR4 SO-DIMM, triple display with VGA/iDP, HDMI, LVDS, Dual GbE, PCIe Mini with SIM card slot/mSATA support, SATA 6Gb/s, COM and RoHS
WAFER-ULT3-i5-R10	3.5" SBC supports Intel® 6th Generation ULT Core™ i5-6300U processor with DDR4 SO-DIMM, triple display with VGA/iDP, HDMI, LVDS, Dual GbE, PCIe Mini with SIM card slot/mSATA support, SATA 6Gb/s, COM and RoHS
WAFER-ULT3-i3-R10	3.5" SBC supports Intel® 6th Generation ULT Core™ i3-6100U processor with DDR4 SO-DIMM, triple display with VGA/iDP, HDMI, LVDS, Dual GbE, PCIe Mini with SIM card slot/mSATA support, SATA 6Gb/s, COM and RoHS
WAFER-ULT3-C-R10	3.5" SBC supports Intel® 6th Generation ULT Celeron® 3955U processor with DDR4 SO-DIMM, triple display with VGA/iDP, HDMI, LVDS, Dual GbE, PCIe Mini with SIM card slot/mSATA support, SATA 6Gb/s, COM and RoHS
WAFER-ULT3-CE-R10	3.5" SBC supports Intel® 6th Generation ULT Celeron® 3855U processor with DDR4 SO-DIMM, triple display with VGA/iDP, HDMI, LVDS, Dual GbE, PCIe Mini with SIM card slot/mSATA support, SATA 6Gb/s, COM and RoHS
WAFER-ULT4-i7-R10**	3.5" SBC supports Intel® 7th Generation ULT Core™ i7-7600U processor with DDR4 SO-DIMM, triple display with VGA/iDP, HDMI, LVDS, Dual GbE, PCIe Mini with SIM card slot/mSATA support, SATA 6Gb/s, COM and RoHS
WAFER-ULT4-i5-R10	3.5" SBC supports Intel® 7th Generation ULT Core™ i5-7300U processor with DDR4 SO-DIMM, triple display with VGA/iDP, HDMI, LVDS, Dual GbE, PCIe Mini with SIM card slot/mSATA support, SATA 6Gb/s, COM and RoHS
WAFER-ULT4-i3-R10**	3.5" SBC supports Intel® 7th Generation ULT Core™ i3-7100U processor with DDR4 SO-DIMM, triple display with VGA/iDP, HDMI, LVDS, Dual GbE, PCIe Mini with SIM card slot/mSATA support, SATA 6Gb/s, COM and RoHS
32001-008600-200-RS	Dual-port USB 2.0 cable, 210mm, P=2.0
32005-003500-200-RS	RS-232/422/485 cable, 250mm, P=1.25
34000-000673-RS	Optional fanless heatsink module, 146mm x 102mm x 16mm

**By order production, MOQ:100

WAFER-BW

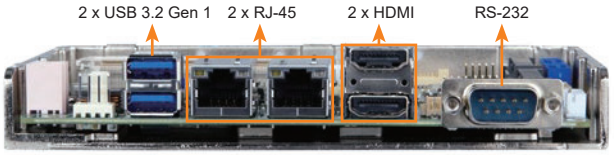
3.5" SBC with Intel® 14nm Pentium®/Celeron® on-board SoC with Dual HDMI and LVDS, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA 6Gb/s, mSATA, COM, Audio and RoHS



Triple independent display

(Dual HDMI and one 18/24-bit dual-channel LVDS)





Specifications

- SoC
  Intel® Pentium® N3710 on-board SoC (up to 2.56GHz, quad-core, 2MB cache, TDP=6W)
  Intel® Celeron® N3160 on-board SoC (up to 2.24GHz, quad-core, 2MB cache, TDP=6W)
  Intel® Celeron® N3060 on-board SoC (up to 2.48GHz, dual-core, 2MB cache, TDP=6W)
  Intel® Celeron® N3010 on-board SoC (up to 2.24GHz, dual-core, 2MB cache, TDP=4W)
- BIOS
  AMI UEFI BIOS
- Memory
  One 204-pin 1600/1333 MHz single-channel DDR3L SDRAM unbuffered SO-DIMM slot supports up to 8 GB
- Graphics Engine
  Intel® HD Graphics Gen 8 Engine with 16 low-power execution units, supporting DX11.1, OpenGL 4.2 and OpenCL1.2
- Display Output
  Triple independent display
  2 x HDMI (up to 3840x2160@30Hz)
  1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
- Ethernet
  LAN1: Realtek RTL8111GN
  LAN2: Realtek RTL8111GN
- External I/O Interface
  1 x RS-232
  2 x USB 3.2 Gen 1 (5Gb/s) (on rear I/O)
- Internal I/O Interface
  1 x eMMC4.51 (optional)
  1 x KB/MS (1x6 pin)
  1 x mSATA
  2 x RS-232/422/485 (2 by pin header) (1x9 pin, P=1.25)
  2 x SATA 6Gb/s with 5V SATA power connector (no RAID)
  3 x RS-232 (1x9 pin, P=1.25)
  4 x USB 2.0 (2x4 pin, P=2.0)
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- Audio
  Realtek ALC662 HD codec
  1 x Front audio (2x5 pin)
- Front Panel
  1 x Power LED & HDD LED (1x6 pin)
  1 x Power button (1x2 pin)
  1 x Reset button (1x2 pin)
- LAN LED
  2 x LAN LED (1x2 pin)
- Expansion
  1 x Full/Half-size PCIe Mini slot (with SIM card holder)
  1 x Full/Half-size PCIe Mini slot (supports mSATA, colay with SATA port 2)
- Digital I/O: 8-bit digital I/O (1x10 pin, P=1.25)
- Fan Connector
  1 x Smart fan connector (1x4 pin)
- Power Supply
  12V only DC input
  1 x Internal power connector (2x2 pin)
  Support AT/ATX mode
- Power Consumption
  12V@1.52A (Intel® Pentium® processor N3710 with 8 GB 1600 MHz DDR3L memory)
- Watchdog Timer: Software programmable supports 1~255 sec. system reset
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 146mm x 102mm
- Weight: GW: 600g/ NW: 250g
- CE/FCC compliant



Features

- 3.5" SBC supports Intel® 14nm Pentium®/Celeron® on-board SoC
- Triple independent display support
- 1.35V DDR3L 1333/1600 MHz SDRAM up to 8 GB
- COM, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, PCIe Mini, mSATA and Audio support
- Two full-size PCIe Mini slots (one with SIM holder for WLAN/WWAN expansion)

Packing List

1 x WAFER-BW single board computer	
1 x Audio cable	
1 x Power cable	2 x SATA with power cable kit
1 x RS-232/422/485 cable	1 x QIG

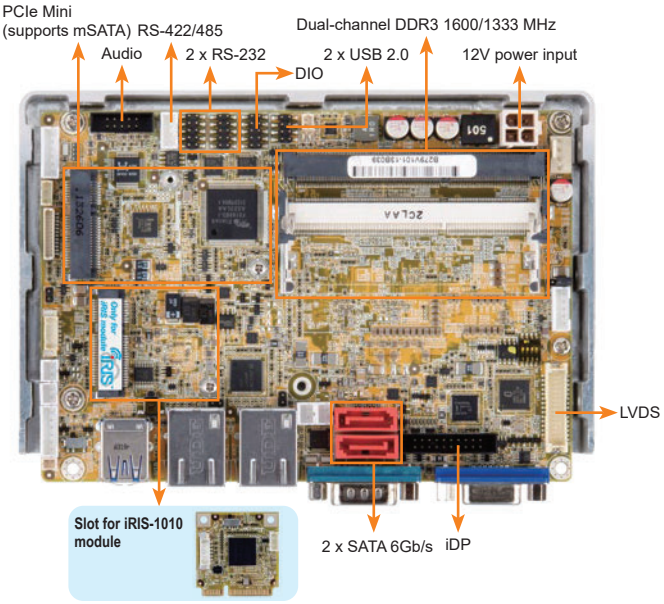
Ordering Information

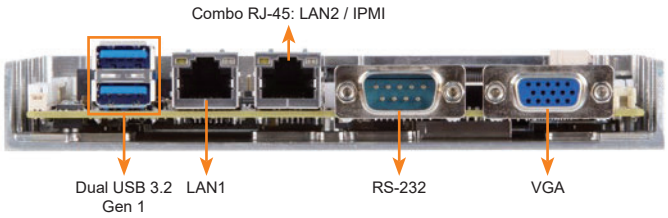
Part No.	Description
WAFER-BW-N4-R20	3.5" SBC supports Intel® Pentium® quad-core processor N3710 up to 2.56GHz (6W) with dual HDMI and LVDS, Dual PCIe GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, mSATA, COM, Audio and RoHS
WAFER-BW-N3-R20	3.5" SBC supports Intel® Celeron® quad-core processor N3160 up to 2.24GHz (6W) with dual HDMI and LVDS, Dual PCIe GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, mSATA, COM, Audio and RoHS
WAFER-BW-N2-R20	3.5" SBC supports Intel® Celeron® dual-core processor N3060 up to 2.48GHz (6W) with dual HDMI and LVDS, Dual PCIe GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, mSATA, COM, Audio and RoHS
WAFER-BW-N1-R20**	3.5" SBC supports Intel® Celeron® dual-core processor N3010 up to 2.24GHz (4W) with dual HDMI and LVDS, Dual PCIe GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, mSATA, COM, Audio and RoHS
32001-008600-200-RS	Dual-port USB 2.0 cable, 210mm, P=2.0
32006-001100-201-RS	PS/2 KB/MS cable, 135mm/110mm, P=2.0
32005-003500-200-RS	RS-232/422/485 cable, 250mm, P=1.25

**By order production, MOQ: 100

WAFER-ULT2-i1 / WAFER-ULT-i1

3.5" SBC supports Intel® 22nm 4th/14nm 5th Generation Mobile Core™ i7/ i5/i3 and Celeron® on-board Processor (ULT), VGA/LVDS/iDP, Dual GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s Audio, iRIS-1010 and RoHS





IPMI 2.0 Compliant

1.35V DDR3L | Heat Spreader | USB 2.0 | SATA 6Gb/s | PCIe GbE | mSATA

Specifications

- CPU
  - » 5th generation Intel® mobile ULT on-board SoC
    - Intel® Core™ i7-5650U (2.2GHz, dual-core, 4MB cache, TDP=15W)
    - Intel® Core™ i5-5350U (1.8GHz, dual-core, 3MB cache, TDP=15W)
    - Intel® Core™ i3-5010U (2.1GHz, dual-core, 3MB cache, TDP=15W)
    - Intel® Celeron® processor 3765U (1.9GHz, dual-core, 2MB cache, TDP=15W)
  - » 4th generation Intel® mobile ULT on-board SoC
    - Intel® Core™ i7-4650U (1.7GHz, dual-core, 4MB cache, TDP=15W)
    - Intel® Core™ i5-4300U (1.9GHz, dual-core, 3MB cache, TDP=15W)
    - Intel® Core™ i3-4010U (1.7GHz, dual-core, 3MB cache, TDP=15W)
    - Intel® Celeron® processor 2980U (1.6GHz, dual-core, 2MB cache, TDP=15W)
- BIOS: UEFI BIOS
- Memory
  - Two 204-pin 1600/1333 MHz dual-channel DDR3L SDRAM SO-DIMM slots support up to 16 GB
- Graphics Engine
  - Intel® HD Graphics Gen 7.5 supports DX11.1, OpenGL 4.2 and OpenCL1.2 Full MPEG2, VC1, AVC decode (4th generation SoC)
  - Intel® HD Graphics Gen 8 supports DX11.1, OpenGL 4.2 and OpenCL1.2 Full MPEG2, VC1, AVC decode (5th generation SoC)
- Display Output
  - Triple independent display
  - 1 x VGA (up to 2560x1600@60 Hz)
  - 1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
  - 1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60 Hz)
- Ethernet
  - LAN1: Intel® I218LM PHY with Intel® AMT 9.0 support
  - LAN2: Intel® I210-AT PCIe controller with NCSI support
- External I/O Interfaces
  - 2 x USB 3.2 Gen 1 (5Gb/s)
  - 1 x RS-232
- Internal I/O Interfaces
  - 1 x KB/MS (1x6 pin)
  - 1 x RS-422/485 (1x4 pin, P=2.0)
  - 2 x SATA 6Gb/s with 5V power connector
  - 2 x USB 2.0 (2x4 pin, P=2.0)
  - 2 x RS-232 (2x5 pin, P=2.0)
- iRIS Remote Management Module
  - 1 x iRIS-1010 slot
- Expansion: 1 x Full-size PCIe Mini card slot (mSATA support)
- Audio
  - Realtek ALC662 HD Audio codec
  - 1 x audio (2x5 pin)
- Front Panel
  - 1 x Power LED & HDD LED (1x6 pin)
  - 1 x Power button (1x2 pin)
  - 1 x Reset button (1x2 pin)
- LAN LED: 2 x LAN LED (1x2 pin)
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Fan Connector: 1 x System smart fan (1x4 pin)
- Watchdog Timer: Software programmable, support 1~255 sec. system reset
- Power Supply
  - 12V only DC input
  - 1 x Internal power connector (2x2 pin)
  - Support AT/ATX mode
- Power Consumption
  - 12V@2.72A (Intel® Core™ i5-4300U CPU with two 8 GB 1600 MHz DDR3 memory)
- Operating Temperature: -10°C ~ 60°C
- Storage Temperature: -20°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 146mm x 102mm
- Weight: GW: 600g/ NW: 250g
- CE/FCC compliant

Features

- 3.5" form fator with 4th/5th generation Intel® ULT SoC supports dual-channel DDR3L SO-DIMMs
- 12V only single voltage design with AT/ATX mode support
- 18/24-bit dual-channel LVDS support
- Support triple independent display via LVDS, VGA and iDP
- Support PCIe Mini card slot for mSATA, 3G card, wireless card and DOM

Packing List

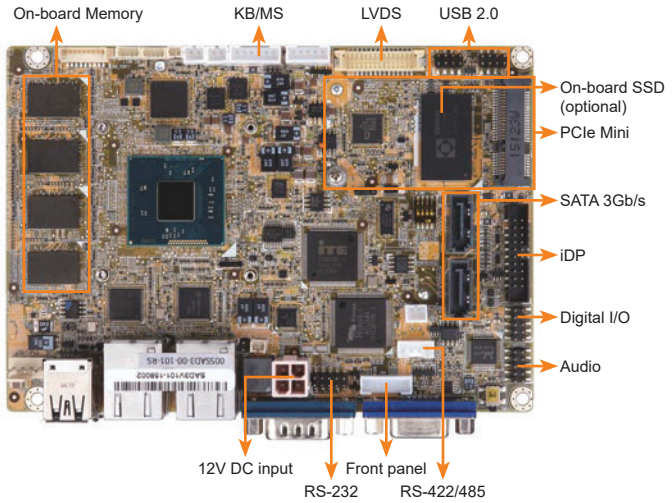
1 x WAFER-ULT/ULT2 single board computer with heatsink enclosure	
1 x Audio cable	
1 x Dual-port USB 2.0 cable	2 x SATA with 5V output cable kit
1 x Power cable	1 x QIG

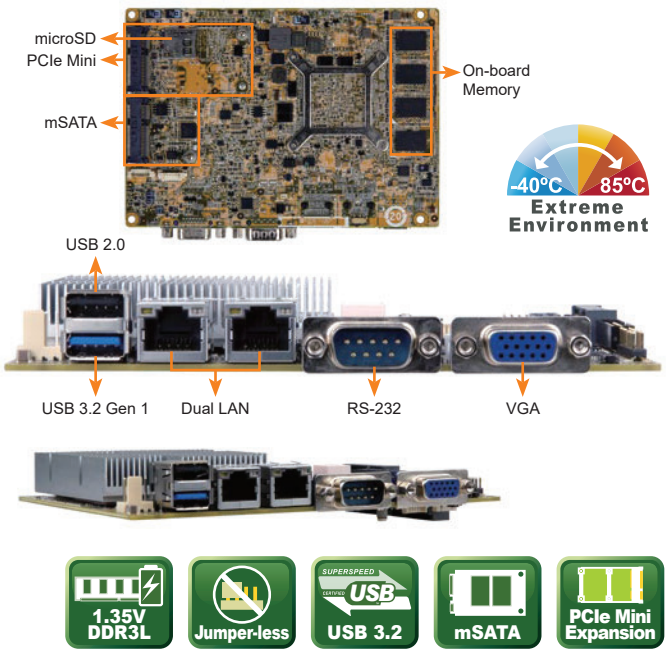
Ordering Information

Part No.	Description
WAFER-ULT2-i1-i7-R11	3.5" SBC with Intel® 14nm 5th Generation ULT Mobile Core™ i7-5650U processor (ULT), VGA/LVDS/iDP, Dual GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s and iRIS
WAFER-ULT2-i1-i5-R11	3.5" SBC with Intel® 14nm 5th Generation ULT Mobile Core™ i5-5350U processor (ULT), VGA/LVDS/iDP, Dual GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s and iRIS
WAFER-ULT2-i1-i3-R11	3.5" SBC with Intel® 14nm 5th Generation ULT Mobile Core™ i3-5010U processor (ULT), VGA/LVDS/iDP, Dual GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s and iRIS
WAFER-ULT2-i1-C-R11	3.5" SBC with Intel® 14nm 5th Generation ULT Mobile Celeron® 3765U processor (ULT), VGA/LVDS/iDP, Dual GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s and iRIS
WAFER-ULT-i1-i7-R11	3.5" SBC supports Intel® 22nm 4th Generation Mobile Core™ i7-4650U processor (ULT), VGA/LVDS/iDP, Dual GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s Audio, iRIS-1010 and RoHS
WAFER-ULT-i1-i5-R11	3.5" SBC supports Intel® 22nm 4th Generation Mobile Core™ i5-4300U processor (ULT), VGA/LVDS/iDP, Dual GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA 6Gb/s Audio, iRIS-1010 and RoHS
WAFER-ULT-i1-i3-R11	3.5" SBC supports Intel® 22nm 4th Generation Mobile Core™ i3-4010U processor (ULT), VGA/LVDS/iDP, Dual GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s Audio, iRIS-1010 and RoHS
WAFER-ULT-i1-C-R11	3.5" SBC supports Intel® 22nm 4th Generation Mobile Celeron™ 2980U processor (ULT), VGA/LVDS/iDP, Dual GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s Audio, iRIS-1010 and RoHS
iRIS-1010-R10	IPMI 2.0 adapter card with AST1010 BMC chip (w/o KVM over IP function) for PCIe Mini socket interface
19800-000300-200-RS	RS-232 cable, 300mm, P=2.0
32006-001100-201-RS	PS/2 KB/MS cable, 135mm/110mm, P=2.0
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)

WAFER-BT-E38001W2

3.5" SBC with Intel® 22nm Atom™ SoC, -40°C ~ 85°C, VGA/LVDS/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA 3Gb/s, mSATA, COM, Audio and RoHS





Specifications

- SoC
  Intel® Atom™ E3845 on-board SoC (1.91GHz, quad-core, 2MB cache, TDP=10W)
  Intel® Atom™ E3827 on-board SoC (1.75GHz, dual-core, 1MB cache, TDP=8W)
  Intel® Atom™ E3826 on-board SoC (1.46GHz, dual-core, 1MB cache, TDP=7W)
  Intel® Atom™ E3815 on-board SoC (1.46GHz, single-core, 512KB cache, TDP=5W)
- BIOS
  UEFI BIOS
- Memory
  4 GB solder-down 1066/1333 MHz DDR3L memory (for E3845)
- Graphics
  Intel® HD Graphics Gen 7 Engine with 4 execution units, supporting DX11.1, OpenGL 4.2 and OpenCL1.2
- Display Output
  Dual independent dispaly
  1 x VGA (up to 2560x1600@60Hz)
  1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 2560x1600@60Hz)
- Ethernet
  LAN1: Intel® I210-IT PCIe controller
  LAN2: Intel® I210-IT PCIe controller
- External I/O Interface
  1 x RS-232
  1 x USB 2.0
  1 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x PS/2 KB/MS (1x6 pin)
  4 x USB 2.0 (2x4 pin, P=2.0)
  2 x SATA 3Gb/s with 5V SATA power connector (no RAID)
  1 x RS-232 (2x5 pin, P=2.0)
  1 x RS-422/485 (1x4 pin, P=2.0)
- Expansion
  2 x Full-size PCIe Mini slot
- Audio
  Realtek ALC662 HD Audio codec
  1 x Front audio (2x5 pin)
- Storage
  On-board SSD 4 GB colay SATA port 1 (optional)
  1 x mSATA colay SATA port 2
  1 x microSD socket
- Front Panel
  1 x Power LED & HDD LED (1x6 pin)
  1 x Power button (1x2 pin)
  1 x Reset button (1x2 pin)
- SMBus: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- LAN LED: 2 x LAN LED (1x2 pin)
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x Smart fan connector (1x4 pin)
- Watchdog Timer: Software programmable supports 1~255 sec. system reset
- Power Supply
  12V only DC input
  1 x Internal power connector (2x2 pin)
  Support AT/ATX mode
- Power Consumption
  12V@1.32A (Intel® Atom™ processor E3845 with on-board 2 GB 1333 MHz DDR3L memory)
- Operating Temperature: -40°C ~ 85°C
- Storage Temperature: -40°C ~ 85°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 146mm x 102mm
- Weight: GW: 600g / NW: 250g
- CE/FCC compliant

Features

- 3.5" SBC supports Intel® 22nm Atom™ on-board SoC
- Dual independent display support
- On-board 2 GB/4 GB 1066/1333 MHz DDR3L memory
- COM, USB 3.2 Gen 1 (5Gb/s), SATA 3Gb/s, PCIe Mini, mSATA and Audio support
- Supports -40°C ~ 85°C

Packing List

1 x WAFER-BT single board computer	1 x SATA with power cable kit
1 x Power cable	1 x QIG

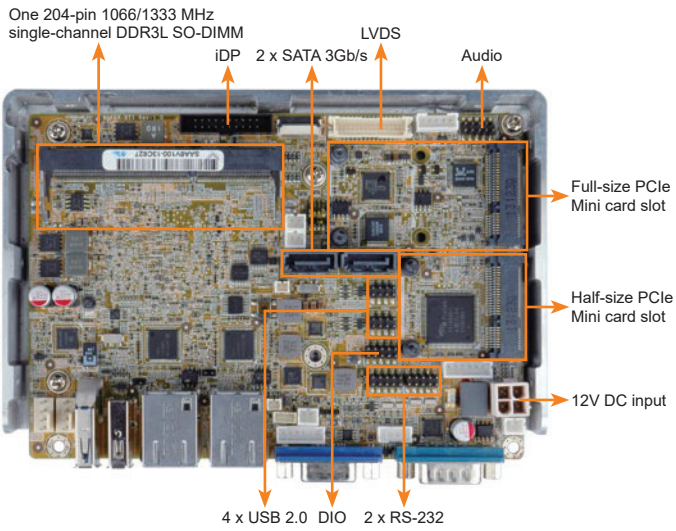
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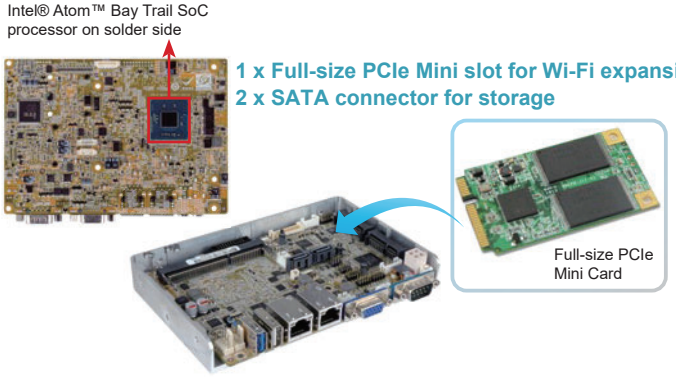
Part No.	Description
WAFER-BT-E38451W2-R11	3.5" SBC with Intel® 22nm Atom™ quad-core E3845 1.91GHz (10W) on-board SoC supports -40°C ~ 85°C, 4 GB DDR3 memory on board, VGA/LVDS/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA 3Gb/s, mSATA, COM, Audio and RoHS
WAFER-BT-E38271W2-R11**	3.5" SBC with Intel® 22nm Atom™ dual-core E3827 1.75GHz (8W) on-board SoC supports -40°C ~ 85°C, 2 GB DDR3 memory on board, VGA/LVDS/iDP, Dual PCIe GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 3Gb/s, mSATA, COM, Audio and RoHS
WAFER-BT-E38261W2-R11**	3.5" SBC with Intel® 22nm Atom™ dual-core E3826 1.46GHz (7W) on-board SoC supports -40°C ~ 85°C, 2 GB DDR3 memory on board, VGA/LVDS/iDP, Dual PCIe GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 3Gb/s, mSATA, COM, Audio and RoHS
WAFER-BT-E38151W2-R11**	3.5" SBC with Intel® 22nm Atom™ single-core E3815 1.46GHz (5W) on-board SoC supports -40°C ~ 85°C, 2 GB DDR3 memory on board, VGA/LVDS/iDP, Dual PCIe GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 3Gb/s, mSATA, COM, Audio and RoHS
19800-000300-100-RS	RS-232 cable with bracket, 300mm, P=2.0
32001-008600-200-RS	Dual-port USB cable, 210mm, P=2.0
32006-001100-201-RS	PS/2 KB/MS cable, 135mm/110mm, P=2.0
32007-005200-200-RS	Audio cable, 300mm, P=2.0
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)

**By order production, MOQ: 100

WAFER-BT

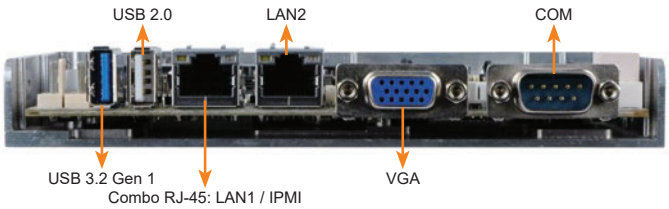
3.5" SBC with Intel® 22nm Atom™/Celeron® on-board SoC, VGA/LVDS/ iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA 3Gb/s, mSATA, COM, Audio and RoHS





Dual independent display (max. support 1920x1200@60Hz)







Specifications

- SoC
  Intel® Atom™ E3845 on-board SoC (1.91GHz, quad-core, 2MB cache, TDP=10W)
  Intel® Atom™ E3825 on-board SoC (1.33GHz, dual-core, 1MB cache, TDP=6W)
  Intel® Atom™ E3815 on-board SoC (1.46GHz, single-core, 512KB cache, TDP=5W)
  Intel® Celeron® J1900 on-board SoC (2GHz, quad-core, 2MB cache, TDP=10W)
  Intel® Celeron® N2930 on-board SoC (1.83GHz, quad-core, 2MB cache, TDP=7.5W)
  Intel® Celeron® N2807 on-board SoC (1.58GHz, dual-core, 2MB cache, TDP=4.3W)
- BIOS
  AMI UEFI BIOS
- Memory
  One 204-pin 1066/1333 MHz single-channel DDR3L SO-DIMM slot supports up to 8 GB (J1900, N2930, E3845, E3827, E3826, E3825, E3815) or 4 GB (N2807)
- Graphics Engine
  Intel® HD Graphics Gen 7 Engine with 4 execution units, supports DX11.1, OpenGL 4.2 and OpenCL1.2
- Display Output
  Dual independent display
  1 x VGA (up to 2560x1600@60Hz)
  1 x 24-bit dual-channel LVDS connector (up to 1920x1200@60Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 2560x1600@60Hz)
- Ethernet
  LAN1: Intel® I210-AT PCIe controller with NCSI support
  LAN2: Intel® I211-AT PCIe controller
- External I/O Interface
  1 x RS-232
  1 x USB 2.0
  1 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin)
  1 x RS-422/485 (1x4 pin, P=2.0)
  2 x RS-232 (2x5 pin, P=2.0)
  2 x SATA 3Gb/s with 5V SATA power connector
  4 x USB 2.0 (2x4 pin, P=2.0)
- SMBus
  1 x SMBus (1x4 pin)
- Audio
  Realtek ALC662 HD codec
  1 x Front audio (2x5 pin)
- Front Panel
  1 x Power LED & HDD LED (1x6 pin)
  1 x Power button (1x2 pin)
  1 x Reset button (1x2 pin)
- LAN LED
  2 x LAN LED (1x2 pin)
- Expansion
  1 x Full-size PCIe Mini card slot (supports mSATA, colay with SATA port 2)
  1 x Half-siza PCIe Mini card slot (except for ECO sku)
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System smart fan (1x4 pin)
- Power Supply
  12V only DC input
  1 x Internal power connector (2x2 pin)
  Support AT/ATX mode
- Watchdog Timer: Software programmable, supports 1~255 sec. system reset
- Power Consumption
  12V@1.45A (Intel® Celeron® J1900 with one 8 GB 1333 MHz DDR3 memory)
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 146mm x 102mm
- Weight: GW: 600g / NW: 250g
- CE/FCC compliant

Features

- 3.5" SBC supports Intel® 22nm Atom™ on-board SoC
- Dual independent display support
- 1333/1066 MHz 1.35V DDR3L SDRAM up to 8 GB
- COM, USB 3.2 Gen 1 (5Gb/s), SATA 3Gb/s, PCIe Mini, mSATA and Audio support

Packing List

1 x WAFER-BT-i1 single board computer	
1 x Audio cable	1 x SATA with power cable kit
1 x Power cable	1 x QIG

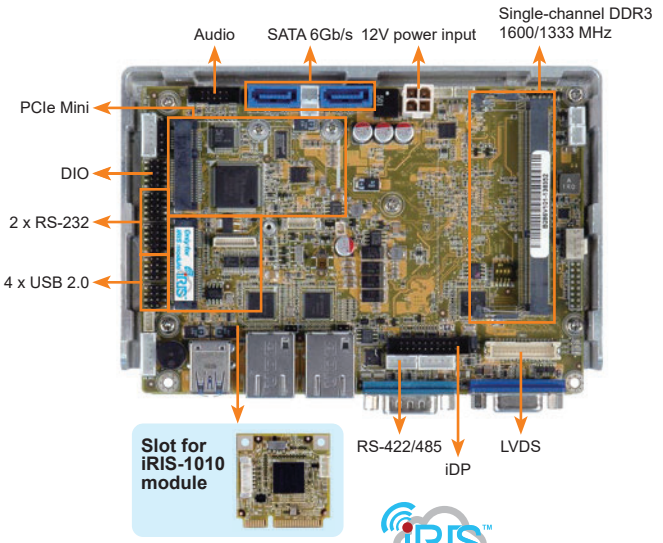
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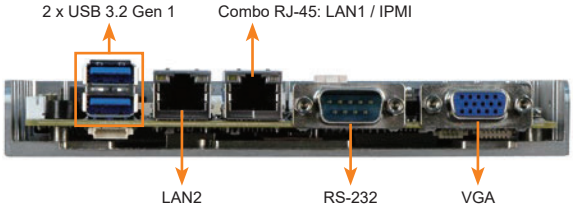
Part No.	Description
WAFER-BT-J19001-R20	3.5" SBC supports Intel® 22nm Quad-Core Celeron™ J1900 2.0GHz (10W) on-board SoC with VGA/LVDS/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA, mSATA, COM, Audio and RoHS
WAFER-BT-N28071-R20	3.5" SBC supports Intel® 22nm Dual-Core Celeron™ N2807 1.58GHz (4.5W) on-board SoC with VGA/LVDS/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA, mSATA, COM, Audio and RoHS
WAFER-BT-N29301-R20	3.5" SBC supports Intel® 22nm Quad-Core Celeron™ N2920 1.86GHz (7.5W) on-board SoC with VGA/LVDS/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA, mSATA, COM, Audio and RoHS
WAFER-BT-E38XX1-R20**	3.5" SBC supports Intel® 22nm Quad-Core Atom™ E38XX 1.91GHz (10W) on-board SoC with VGA/LVDS/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA, mSATA, COM, Audio and RoHS
WAFER-BT-J19001-ECO-R20	3.5" SBC supports Intel® 22nm Quad-Core Celeron™ J1900 2.0GHz (10W) on-board SoC with VGA/LVDS/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA, mSATA, COM, Audio, ECO packing and RoHS
19800-000300-100-RS	RS-232 cable, 300mm, P=2.0
32001-008600-200-RS	Dual-port USB cable, 210mm, P=2.0
32006-001100-201-RS	PS/2 KB/MS cable, 135mm/110mm, P=2.0
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0

**By order production, MOQ: 100

WAFER-KBN-i1

3.5" SBC supports AMD® Embedded G-Series SoC with VGA/LVDS/ iDP, Dual GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, iRIS-1010, HD Audio and RoHS





Specifications

- SoC
  AMD® Embedded G-Series SoC
  GX-415GA on-board SoC (1.5GHz, quad-core, 2MB cache, TDP=15W)
  GX-210HA on-board SoC (1.0GHz, dual-core, 1MB cache, TDP=9W)
  GX-420CA on-board SoC (2.0GHz, quad-core, 2MB cache, TDP=25W)
  GX-217GA on-board SoC (1.65GHz, dual-core, 1MB cache, TDP=15W)
- BIOS
  AMI UEFI BIOS
- Memory
  One 204-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM SO-DIMM slot supports up to 8 GB
- Graphics Engine
  GPU frequency 500 MHz (Radeon™ HD 8330E) for GX-415GA
  GPU frequency 300 MHz (Radeon™ HD 8210E) for GX-210HA
  GPU frequency 600 MHz (Radeon™ HD 8400E) for GX-420CA
  GPU frequency 450 MHz (Radeon™ HD 8280E) for GX-217GA
  Support DX11.1, OpenGL 4.1 and OpenCL1.2
  UVD4.2 decode for H.264, MPEG2/4, VC1, MVC
  VCE 2.0 encode for H.264, VCE
- Display Output
  1 x VGA (up to 2048x1536@60Hz)
  1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 2560x1600@60 Hz)
- Ethernet
  LAN1: Intel® I210-AT PCIe controller with NCSI support
  LAN2: Intel® I211-AT PCIe controller
- External I/O Interface
  1 x RS-232 2 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin) 2 x SATA 3Gb/s with 5V SATA power connector
  1 x RS-422/485 (1x4 pin, P=2.0) 4 x USB 2.0 (2x4 pin, P=2.0)
  2 x RS-232 (2x5 pin, P=2.0)
- iRIS Remote Management Module: 1 x iRIS-1010 slot
- SMBus: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- Audio
  Realtek ALC892 HD codec
  1 x Front audio (2x5 pin)
  1 x S/PDIF (1x4 pin)
- Front Panel
  1 x Power LED & HDD LED (1x6 pin)
  1 x Power button (1x2 pin)
  1 x Reset button (1x2 pin)
- LAN LED: 2 x LAN LED (1x2 pin)
- Expansion: 1 x Full-size PCIe Mini card slot (supports mSATA co-lay SATA port 2)
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Fan Connector: 1 x 4-pin system fan connector
- Watchdog Timer: Software programmable, support 1~255 sec. system reset
- Power Supply
  12V only DC input
  1 x Internal power connector (2x2 pin)
  Support AT/ATX mode
- Power Consumption
  12V@2.12A (AMD GX-415GA 1.5GHz CPU with one 4 GB 1333 MHz DDR3 memory)
- Operating Temperature: 0°C ~ 60°C
- Storage Temperature: -10°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 146mm x 102mm
- Weight: GW: 600g/ NW: 250g
- CE/FCC compliant

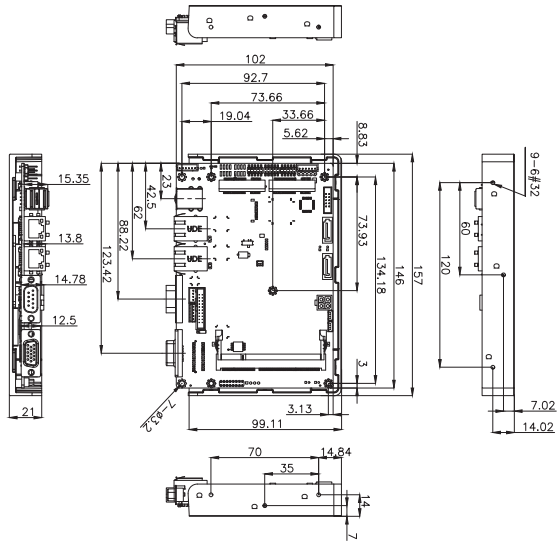
Features

- 3.5" form fator with AMD® Embedded G-Series SoC
- 12V only single voltage design with AT/ATX mode
- 18/24-bit dual-channel LVDS for high resolution panel
- Support IPMI 2.0 with iRIS-1010 module
- Support full-size PCIe Mini card slot for mSATA, wireless card and DOM

Packing List

1 x WAFER-KBN single board computer with Enclosure Heatsink	
1 x Audio cable	
1 x Power cable	2 x SATA with 5V output cable kit
1 x RS-232 cable	1 x QIG

Dimensions *(Unit: mm)*



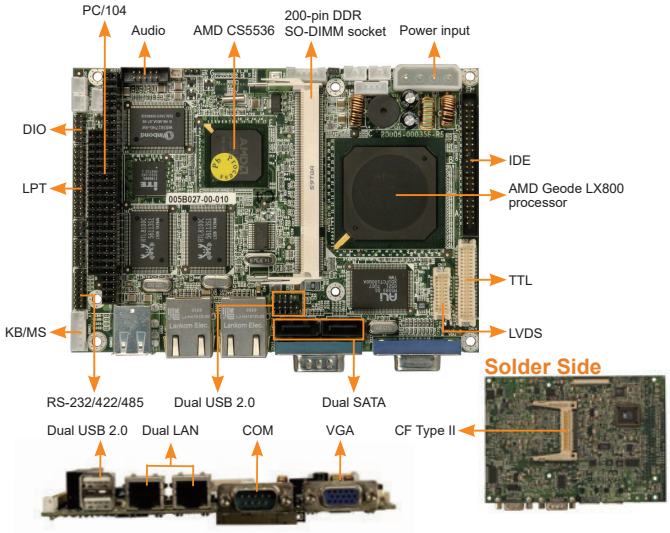
Ordering Information

Part No.	Description
WAFER-KBN-i1-4151-R10	3.5" SBC supports AMD 28nm quad-core GX-415GA 1.5GHz (15W) on-board SoC with VGA/LVDS, Dual GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, iRIS-1010, HD Audio and RoHS
WAFER-KBN-i1-2101-R10	3.5" SBC supports AMD 28nm dual-core GX-210HA 1.0GHz (9W) on-board SoC with VGA/LVDS, Dual GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, iRIS-1010, HD Audio and RoHS
iRIS-1010-R10	IPMI 2.0 adapter card with AST1010 BMC chip (W/O KVM over IP function) for PCIe Mini socket interface
32001-008600-200-RS	Dual-port USB cable, 210mm, P=2.0
32006-001100-201-RS	PS/2 KB/MS cable, 135mm/110mm, P=2.0
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to LVDS converter board (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)

Note: Models with other CPU not listed in the table are requested by MOQ: 100 pcs/lot.

WAFER-LX

3.5" SBC with on-board AMD Geode™ LX 800 Processor VGA/LVDS/TTL, Dual LAN and SATA



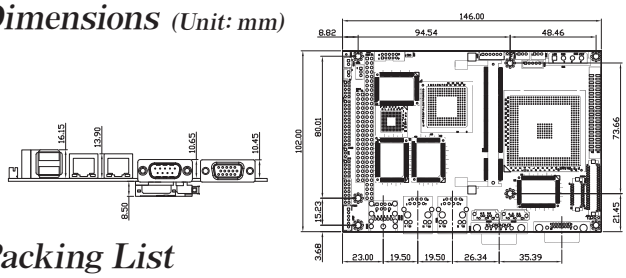
Features

- 3.5" form factor embedded board with AMD Geode™ LX 800 processor and RoHS compliant
- 333/400 MHz DDR SDRAM SO-DIMM supports up to 1 GB
- Complete I/O support with two SATA, IDE, CF Type II, PC/104, dual LAN and four USB 2.0
- 24-bit TTL/18-bit single-channel LVDS
- Value embedded applications with low power and fanless design. Support Windows® XP/CE/XPe
- The best choice for thin client Windows® CE 5.0, XPe OS image with ICA, RDP and IE APs ready

Specifications

- CPU
  AMD Geode™ LX800 (500 MHz) processor
- Chipset: AMD CS5536
- BIOS: Award BIOS
- System Memory
  One 200-pin 400/333 MHz DDR SDRAM SO-DIMM slot supports up to 1 GB
- Ethernet
  Dual LAN: 10/100Mbps RTL8100C Ethernet Controller
- External I/O Interface
  1 x RS-232 2 x USB 2.0
- Internal I/O Interface
  1 x CF Type II 1 x IDE (2x22 pin, P=2.0)
  1 x KB/MS (1x6 pin) 1 x LPT (2x13 pin, P=2.0)
  1 x RS-232 (2x5 pin, P=2.0)
  1 x RS-422/485 (2x2 pin, P=2.0)
  2 x SATA 1.5Gb/s (RAID 0, 1 support)
  2 x USB 2.0 (2x4 pin, P=2.0)
- Expansion: 1 x PC/104
- Digital I/O: 8-bit digital I/O (2x5 pin)
- Audio: Realtek ALC203 with AC'97 codec
- Display Output
  1 x VGA (up to 1920x1440@60Hz)
  1 x 18-bit single-channel LVDS (up to 1280x1024@60Hz)
- Infrared Interface: 1 x Infrared interface (1x5 pin)
- Watchdog Timer
  Software programmable supports 1~255 sec. system reset
- Power Supply
  5V only DC input
  1 x Internal power connector (1x4 pin)
  Support AT/ATX mode
- Power Consumption
  5V@1.53A (AMD LX800 with one 1 GB 400 MHz DDR memory)
- Operating Temperature: 0°C ~ 60°C
- Storage Temperature: -10°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 146 mm x 102 mm
- Weight: GW: 670g / NW: 230g
- CE/FCC compliant

Dimensions *(Unit: mm)*



Packing List

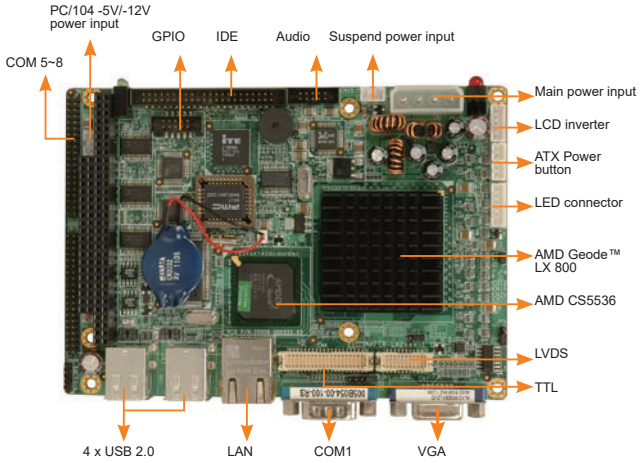
1 x WAFER-LX single board computer	1 x SATA power cable
1 x Audio cable	1 x USB cable
1 x IDE flat cable 44p/44p	2 x SATA cable
1 x KB/MS Y cable	1 x Mini jumper pack
1 x RS-232/422/485 cable	1 x QIG

Ordering Information

Part No.	Description
WAFER-LX-800-R12	3.5" SBC with AMD Geode™ LX 800 processor, audio, VGA/ LVDS/TTL, dual LAN and SATA connectors
WAFER-LX-800-NS-R12	3.5" SBC with AMD Geode™ LX 800 processor, audio, VGA/ LVDS/TTL, dual LAN and w/o SATA connectors
32200-015100-RS	LPT cable, 280mm, P=2.0

WAFER-LX2

3.5" SBC with AMD Geode™ LX 800 Processor, Eight COM, DDR 400 MHz, VGA/ LVDS/TTL Display Interfaces, PC/104, Four USB 2.0, Embedded OS Support



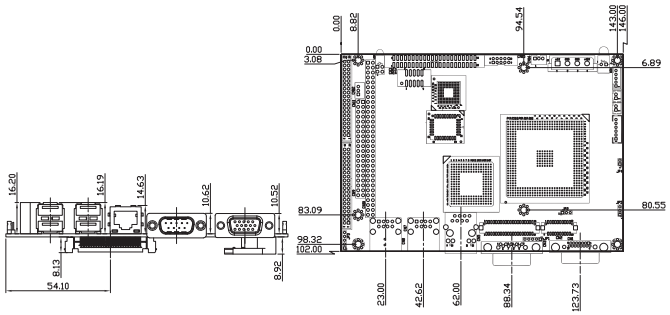
Features

- 3.5" form factor with AMD Geode™ LX 800 CPU
- One 333/400 MHz DDR SO-DIMM socket supports up to 1 GB memory
- VGA, 24-bit TTL, 18-bit LVDS display interfaces
- Seven RS-232 and one RS-232/422/485

Specifications

- CPU
  AMD Geode™ LX 800 (500 MHz)
- Chipset
  CS5536
- BIOS
  Award BIOS
- System Memory
  One 200-pin 400/333 MHz DDR SDRAM SO-DIMM slot supports up to 1 GB
- Ethernet
  LAN: 10/100Mbps RTL8100C Ethernet Controller
- External I/O Interface
  1 x RS-232 4 x USB 2.0
- Internal I/O Interface
  1 x CF Type II
  1 x IDE (2x22 pin, P=2.0)
  1 x RS-232/422/485 (2x7 pin, P=2.0)
  6 x RS-232 (2x5 pin, P=2.0)
- Expansion
  1 x PC/104 (ISA Bus)
- Digital I/O
  8-bit digital I/O (2x5 pin)
- Display Output
  1 x VGA (up to 1920x1440@60Hz)
  1 x 24-bit single-channel TTL (up to 1600x1200@60Hz)
  1 x 18-bit single-channel LVDS (up to 1280x1024@60Hz)
- Audio: Realtek ALC203 with AC`97 codec
- Watchdog Timer
  Software programmable supports 1 ~255 sec. system reset
- Power Supply
  5V only DC input
  1 x Internal power connector (1x4 pin)
  Support AT/ATX mode
- Power Consumption
  5V@1.33A (AMD Geode™ LX 800 with one 1 GB 400 MHz DDR memory)
- Operating Temperature
  0°C ~ 60°C (32°F ~ 140°F)
- Storage Temperature: -10°C ~ 70°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions: 146 mm x 102 mm
- Weight: GW: 670g / NW: 230g
- CE/FCC compliant

Dimensions *(Unit: mm)*



Packing List

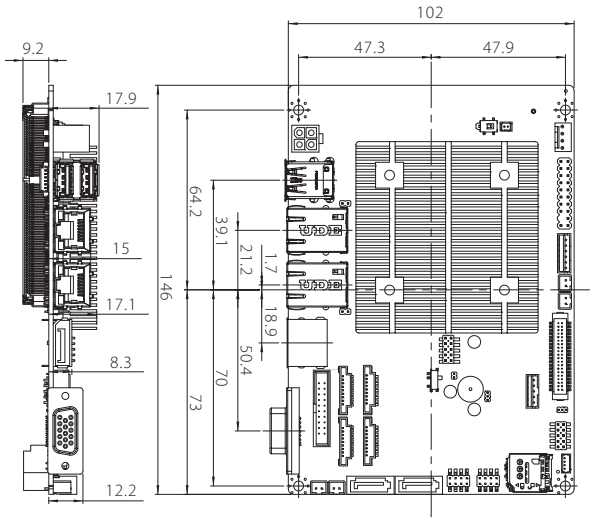
1 x WAFER-LX2 single board computer	2 x Quad RS-232 adapter cable
1 x Audio cable	1 x Mini jumper pack
1 x IDE flat cable 44p/44p	1 x QIG

Ordering Information

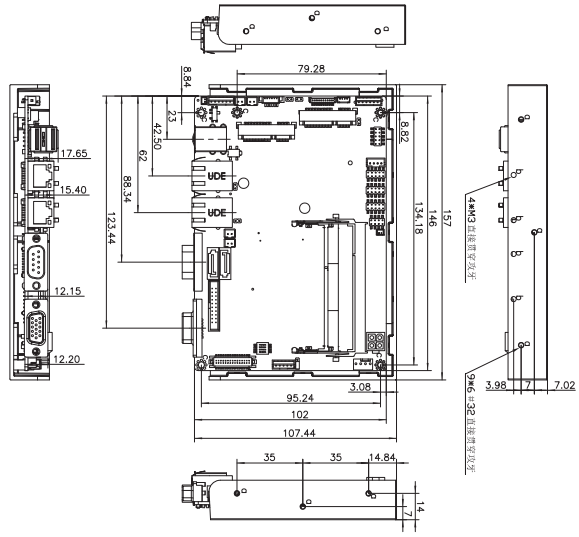
Part No.	Description
WAFER-LX2-800-R12	3.5" SBC with AMD Geode™ LX 800 processor, Audio, VGA/LVDS, TTL/LVDS, four USB 2.0, seven RS-232 and one RS-232/422/485

WAFER Dimensions (Unit: mm)

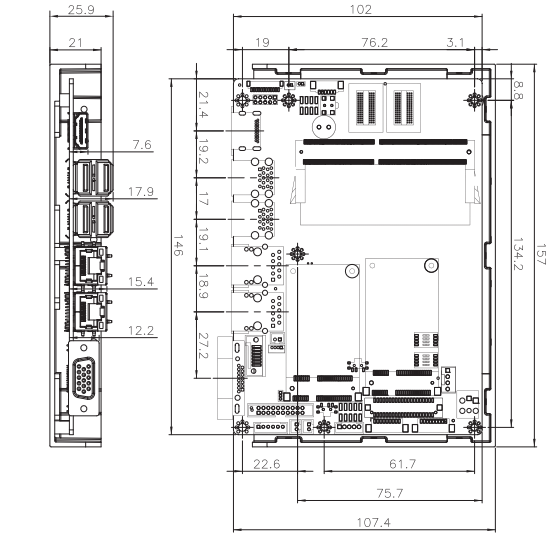
WAFER-AL



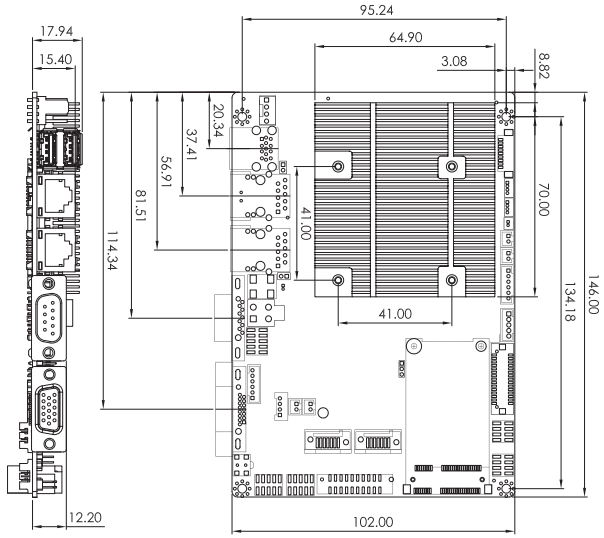
WAFER-ULT2-i1/WAFER-ULT-i1



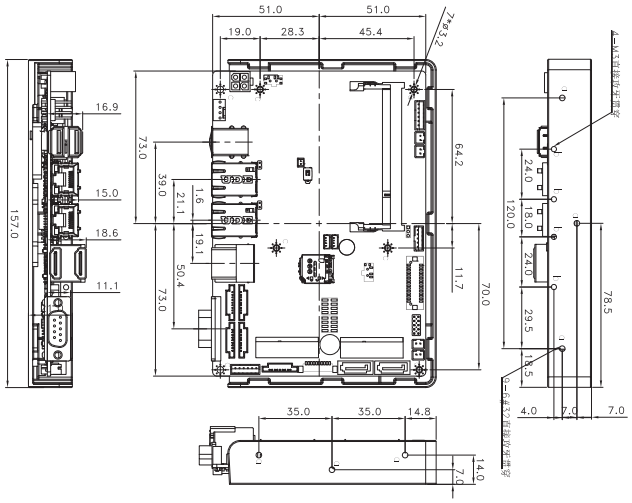
WAFER-ULT4/ULT3



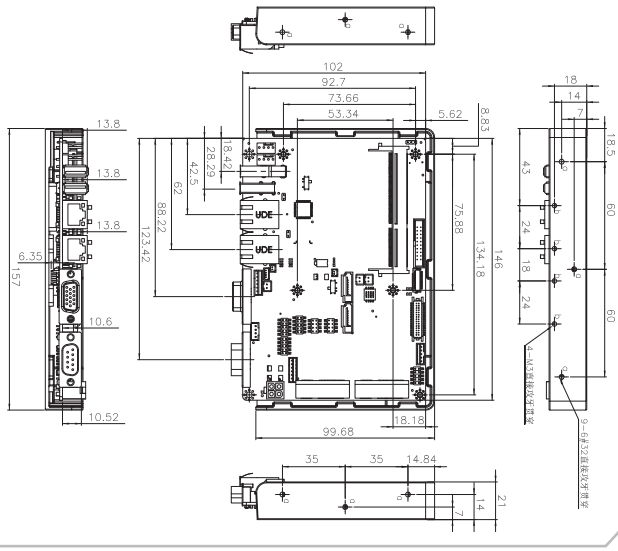
WAFER-BT-E38001W2



WAFER-BW



WAFER-BT-i1



PC/104 Selection Guide

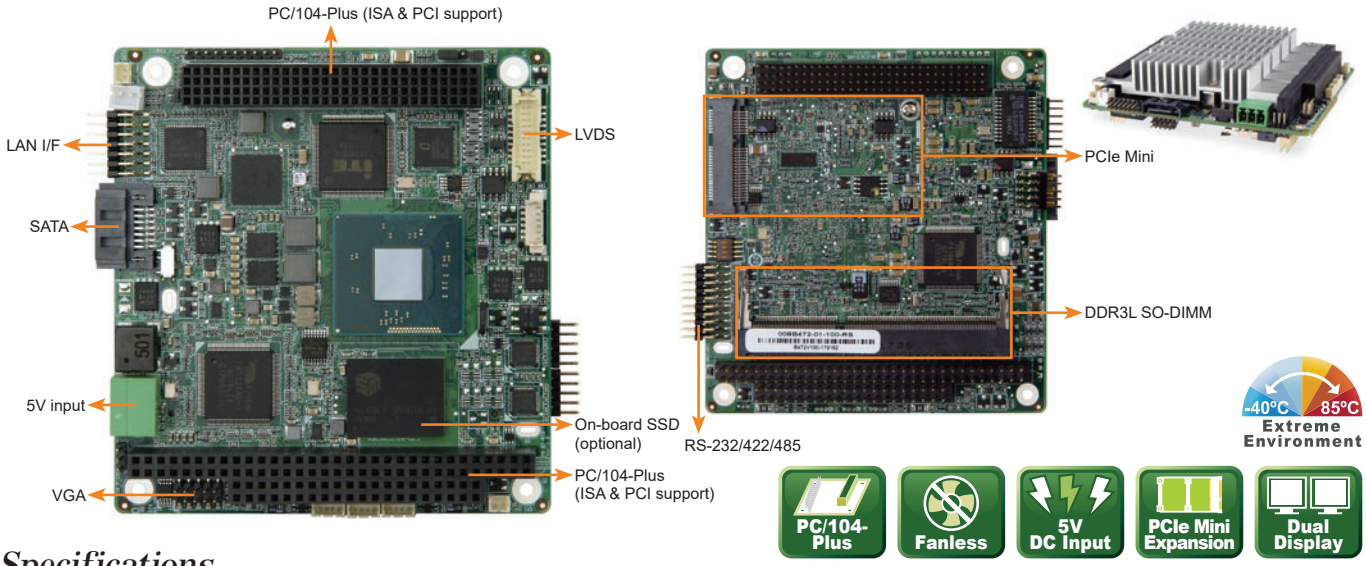




Model Name	PM-BT	PM-LX	PM-LX2
CPU Socket	On board	On board	On board
CPU Type	Intel® Atom™/Celeron® SoC	AMD Geode™ LX 800 500 MHz	AMD Geode™ LX 800 500 MHz
Chipset	Intel® Atom™/Celeron® SoC	Geode™ LX800 + CS5536	Geode™ LX800 + CS5536
Memory	1 x 204-pin 1066/1333 MHz DDR3L SO-DIMM (system max. 8 GB)	1 x 200-pin 400 MHz 1 GB (max.) DDR SDRAM SO-DIMM	1 x 200-pin 400 MHz 1 GB (max.) DDR SDRAM SO-DIMM
Display Interface	Dual display supported 1 x VGA 1 x 18/24-bit single-channel LVDS	Dual display supported 1 x VGA 1 x 24-bit TTL	Dual display supported 1 x VGA 1 x 24-bit TTL
Ethernet	GbE by Intel® I210 Ethernet PHY	10/100Mbps LAN by Realtek RTL8100C	10/100Mbps LAN by Realtek RTL8100C
iRIS Remote Management Module	N/A		
I/O Interface	2 x RS-232/422/485 (2x5, P=2.0) 3 x USB 2.0 (1x4 pin, P=1.25)	1 x KB/MS by pin header 1 x LPT 1 x RS-422/485 2 x RS-232 2 x USB 2.0	1 x KB/MS by pin header 1 x LPT 1 x RS-422/485 2 x RS-232 2 x USB 2.0
Storage Interface	1 x SATA 3Gb/s with 5V SATA power connector On-board SSD (optional)	1 x IDE 1 x CF Type II	1 x Slim FDD 1 x IDE 1 x CF Type II
Audio	N/A		
Digital I/O	1 x 8-bit DIO	N/A	
Power Consumption	5V@1.70A (Intel® Celeron® J1900 CPU with 8GB memory)	5V@1.13A (AMD Geode™ LX 800 with 1 GB DDR 400 MHz)	5V@1.09A (AMD Geode™ LX 800 with 512MB DDR 400 MHz)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset		
Operating Environment	-20°C ~ 60°C (for J1900/N2930/N2807) -40°C ~ 85°C (for E38xx)	Temperature Range: 0°C ~ 60°C Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: -40°C ~ 70°C (W) Relative Humidity: 5% ~ 95%, non-condensing
Expansion Slot	1 x Full-size PCIe Mini slot (support mSATA) 1 x PC/104-Plus (ISA+PCI)	1 x PCI-104	1 x PC-104
CPU Cooler	Heatsink	Heatsink	Heatsink

PM-BT

PC/104-Plus SBC with Intel® Atom™/Celeron® on-board SoC with DDR3L, VGA, LVDS, GbE, USB 2.0, SATA 3Gb/s, RS-232/422/485 and 5V DC input, RoHS



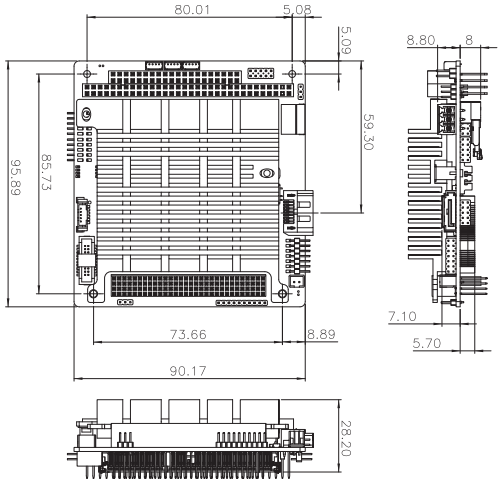
Specifications

- SoC
  Intel® Atom™ E3845 on-board SoC (1.91GHz, quad-core, 2MB cache, TDP=10W)
  Intel® Atom™ E3825 on-board SoC (1.33GHz, dual-core, 1MB cache, TDP=6W)
  Intel® Celeron® J1900 on-board SoC (2GHz, quad-core, 2MB cache, TDP=10W)
  Intel® Celeron® N2807 on-board SoC (1.58GHz, dual-core, 2MB cache, TDP=4.3W)
- BIOS
  AMI UEFI BIOS
- Memory
  One 204-pin 1333/1066 MHz single-channel DDR3L SO-DIMM supports up to 8 GB (J1900, N2930, E3845, E3827, E3826, E3825, E3815) or 4 GB (N2807)
- Graphics Engine
  Intel® HD Graphics Gen 7 Engine with four execution units, supporting DX11.1, OpenGL 4.2 and OpenCL1.2
- Display Output
  Dual independent display
  1 x VGA (up to 2560x1600@60 Hz)
  1 x 18/24-bit single-channel LVDS (2x10 pin)
- Ethernet
  1 x Intel® I210
- Super I/O
  Fintek F81866
- Internal I/O Interface
  1 x SATA 3Gb/s with 5V SATA power connector
  3 x USB 2.0 (1x4 pin, P=1.25)
  2 x RS-232/422/485 (2x5, P=2.0)
- Storage
  On-board SSD (optional, support by request)
- Front Panel
  1 x 10-pin header, P=2.0 (power LED, HDD LED, power button and reset button)
- Expansion
  1 x Full-size PCIe Mini slot (supports mSATA)
  1 x PC/104-Plus (ISA+PCI)*
- Digital I/O
  1 x 8-bit digital I/O (2x5 pin, P=2.0)
- Power Supply
  5V DC input
  12V for fan, LVDS and PCI-104 plus
  » 5V for PCI-104 plus (1x3 pin, P=2.0)
  » 12V for PCI-104 plus (1x3 pin, P=2.0)
  3/5V jumper for PCI-104 plus
  Support AT/ATX mode
  ErP/EuP Compliant
- Power Consumption
  5V@1.70A (Intel® Celeron® J1900 CPU with 8GB memory)
- Watchdog Timer
  Software programmable, supports 1~255 sec. system reset
- Operating Temperature
  -20°C ~ 60°C (for J1900/N2930/N2807)
  -40°C ~ 85°C (for E38xx)
- Storage Temperature
  -40°C ~ 85°C
- Thermal
  Heatsink
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions
  96 mm x 90 mm
- Weight
  GW: 500g / NW 120g
- CE/FCC compliant

Features

- PC/104 form factor SBC supports 22nm Intel® Atom™ on-board SoC
- PC/104-Plus (ISA and PCI signal) function support
- 5V DC input solution
- Support 2 COM, PCIe Mini, USB and optional on-board SSD
- Dual display from VGA and LVDS
- Wide range temperature support froom -40°C ~ 85°C (for E38xx series CPU)

Dimensions *(Unit: mm)*



Packing List

1 x PM-BT single board computer	
1 x COM port cable	1 x SATA cable kit
1 x Heatsink	1 x Single-port USB cable
1 x LAN cable	1 x VGA cable

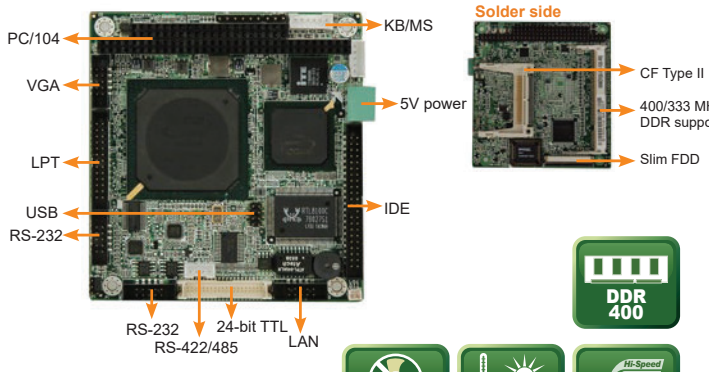
Ordering Information

Part No.	Description
PM-BT-J19001-R10	PC/104-Plus single board computer with Intel® Celeron® J1900 SoC with DDR3L, VGA, LVDS, USB 2.0, SATA 3Gb/s, GbE, RS-232/422/485 and 5V DC input, RoHS
PM-BT-N28071-R10	PC/104-Plus single board computer with Intel® Celeron® N2807 SoC with DDR3L, VGA, LVDS, USB 2.0, SATA 3Gb/s, GbE, RS-232/422/485 and 5V DC input, RoHS
PM-BT-E38xx1W2-R10**	PC/104-Plus single board computer with Intel® Atom™ E38xx SoC with DDR3L, VGA, LVDS, USB 2.0, SATA 3Gb/s, GbE, RS-232/422/485 and 5V DC input, RoHS,-40°C ~ 85°C
33403-000015-RS	PC104 plus spacer (for PCI) 120 pin socket connector
33403-000016-RS	PC104 plus spacer (for ISA) 64+40 pin socket connector

** Note: Models with other CPUs not listed in the table are requested by MOQ - 100 pcs/lot.
* ISA limitation, Please refer to the user manual for more information.

PM-LX2

AMD Geode™ LX 800 CPU on-board PC/104 Module

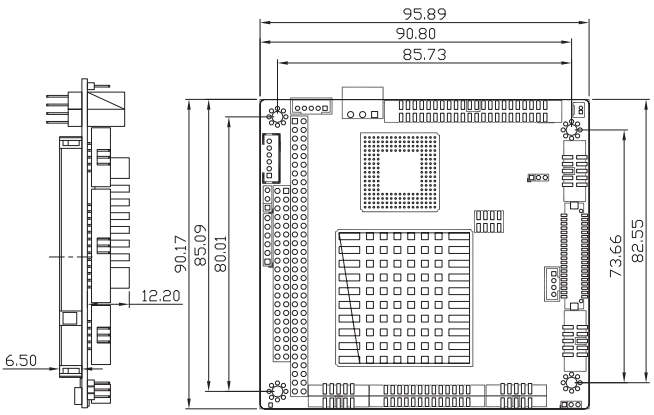


DDR 400 | Fanless | Wide Temperature | USB 2.0

Specifications

- CPU
  AMD Geode™ LX 800 (500 MHz)
- Chipset
  AMD CS5536
- BIOS
  AMI BIOS
- System Memory
  One 200-pin 400 MHz DDR SDRAM SO-DIMM supports up to 1 GB
- Ethernet
  One Realtek RTL8100C 10/100Mbps Ethernet chipset
- Internal I/O Interface
  1 x CF Type II
  1 x IDE (2x22 pin, P=2.0)
  1 x LPT (2x13 pin, P=2.0)
  1 x KB/MS (1x6 pin)
  2 x RS-232 (2x5 pin, P=2.0)
  1 x RS-422/485 (1x4 pin, P=2.0)
  1 x Slim FDD
  2 x USB 2.0 (2x4 pin, P=2.0)
- Expansion
  1 x PC/104
- Display Output
  1 x VGA (up to 1920x1440@60Hz)
  1 x 24-bit single-channel TTL (up to 1600x1200@60Hz)
- Watchdog Timer
  Softwafe programmable supports 1~255 sec. system reset.
- Power Supply
  5V only DC input
  1 x Internal power connector (1x2 pin)
  Support AT mode
- Power Consumption
  5V@1.09A (AMD Geode™ LX 800 with one 512MB 400 MHz DDR)
- Operating Temperature
  PM-LX2-800-R10: 0°C ~ 60°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions
  96mm (L) x 90mm (W)
- Weight
  GW: 500g / NW 110g
- CE/FCC compliant

Dimensions *(mm)*



Packing List

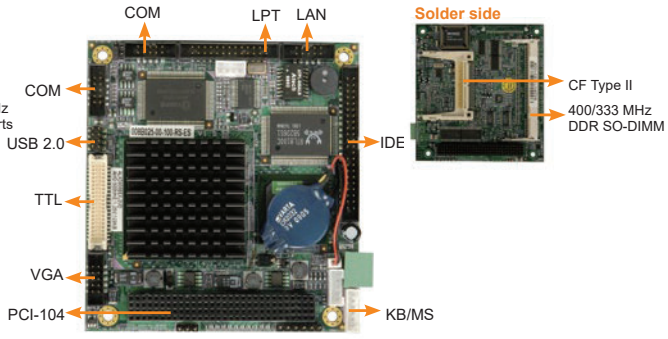
1 x PM-LX2 single board computer	1 x PS/2 KB/MS cable
1 x ATA33 flat cable	1 x VGA cable
1 x Dual USB cable	2 x RS-232 cable
1 x LAN cable	1 x Mini jumper pack
1 x Power cable	1 x QIG

Ordering Information

Part No.	Description
PM-LX2-800-R10	PC/104 SBC with AMD Geode™ LX 800 500 MHz, VGA/TTL, LAN, USB 2.0 and CF Type II
32200-015100-RS	LPT cable, 280mm, P=2.0
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0

PM-LX

PCI-104 Module with on-board AMD Geode™ LX 800 CPU

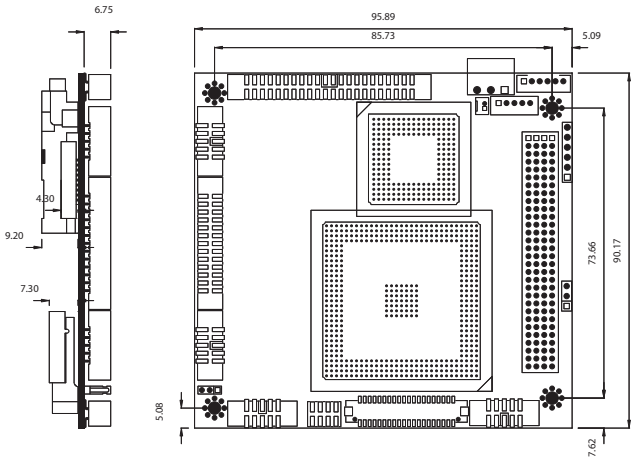


DDR 400 | Fanless | USB 2.0

Specifications

- CPU
  AMD Geode™ LX 800 (500 MHz) processor
- Chipset
  AMD CS5536
- BIOS
  Award BIOS
- System Memory
  One 200-pin 400 MHz DDR SDRAM SO-DIMM supports up to 1 GB
- Ethernet
  10/100Mbps realtek RTL8100C Ethernet chipset
- Internal I/O Interface
  1 x CF Type II
  1 x IDE (2x22 pin, P=2.0)
  1 x LPT (2x13 pin, P=2.0)
  1 x KB/MS (1x6 pin)
  2 x RS-232 (2x5 pin, P=2.0)
  1 x RS-422/485 (1x4 pin, P=2.0)
  2 x USB 2.0 (2x4 pin, P=2.0)
- Expansion
  1 x PCI-104
- Display Output
  1 x VGA (up to 1920x1440@60Hz)
  1 x 24-bit single-channel TTL (up to 1600x1200@60Hz)
- Watchdog Timer
  Software programmable supports 1~255 sec. system reset
- Power Supply
  5V only DC input
  1 x Internal power connector (1x2 pin)
  Support AT mode
- Power Consumption
  5V@1.13A (AMD Geode™ LX 800 with one 1 GB 400 MHz DDR memory)
- Operating Temperature
  0°C ~ 60°C
- Storage Temperature
  -10°C ~ 70°C
- Operating Humidity
  5% ~ 95%
- Dimensions: 95 mm x 95 mm
- Weight: GW: 500g / NW: 110g
- CE/FCC compliant

Dimensions *(mm)*



Packing List

1 x PM-LX single board computer	1 x USB cable
1 x ATA33 flat cable	1 x VGA cable
1 x KB/MS Y cable	2 x RS-232 cable
1 x LAN cable	1 x Mini jumper pack
1 x Power cable	1 x QIG

Ordering Information

Part No.	Description
PM-LX-800-R11	PCI-104 SBC with AMD Geode™ LX 800 processor , VGA/TTL, LAN, USB 2.0, CF Type II
32200-015100-RS	LPT cable, 280mm, P=2.0
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0

Pico-ITX Selection Guide

New

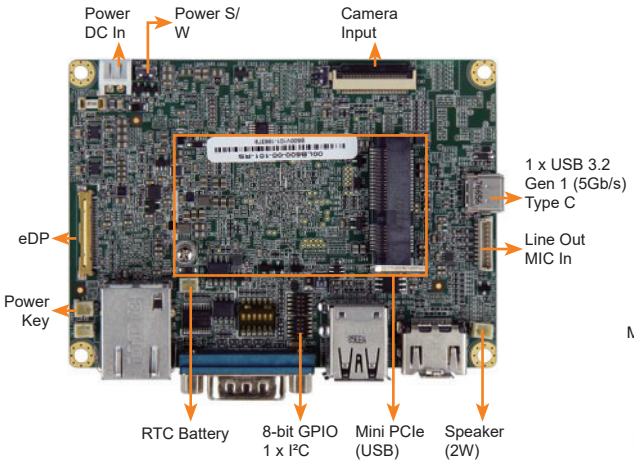


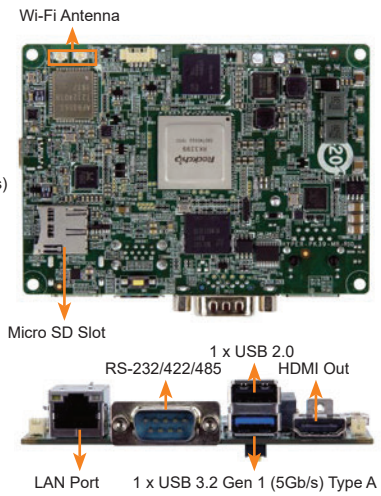



Model Name	HYPER-RK39	HYPER-AL	HYPER-BW	HYPER-BT
CPU Socket	On board	On board	On board	On board
CPU Type	Rockchip RK3399 (Dual-core Cortex-A72 up to 1.8GHz + Quad-core Cortex-A53 up to 1.5GHz)	Intel® Celeron® SoC	Intel® Pentium®/Celeron® SoC	Intel® Atom™/Celeron® SoC
Chipset	SoC	Intel® Celeron® SoC	Intel® Pentium®/Celeron® SoC	Intel® Atom™/Celeron® SoC
Memory	On board 2GB LPDDR3-1866	1 x 204-pin 1866/1600MHz single-channel DDR3L SDRAM unbuffered SO-DIMM slot (system max. 8GB)	1 x 204-pin 1600/1333 MHz single-channel DDR3L SDRAM unbuffered SO-DIMM slot (system max. 8 GB)	1 x 204-pin 1600/1333 MHz single-channel DDR3L SDRAM unbuffered SO-DIMM slot (system max. 8 GB)
Display Interface	Dual independent dispaly 1 x HDMI 1 x eDP	Dual independent dispaly 1 x HDMI 1 x LVDS	Dual independent dispaly 2 x Mini HDMI	Dual independent dispaly 1 x VGA 1 x iDP interface
Ethernet	LAN: Realtek RTL8211E	LAN1: Realtek RTL8111H controller LAN2: Realtek RTL8111H controller	LAN: Realtek RTL8111GN controller	LAN: Intel® I211-AT PCIe GbE controller
iRIS Remote Management Module	N/A			
I/O Interface	1 x RS-232/422/485 1 x USB 3.2 Gen 1 (5Gb/s) Type A 1 x USB 3.2 Gen 1 (5Gb/s) Type C 1 x USB 2.0 Type A 1 x I²C 1 x MIPI CSI interfaces for Camera 8 bit (4 in / 4 ot)	1 x RS-232 2 x USB 2.0 2 x USB 3.2 Gen 1	1 x RS-232 1 x USB 3.2 Gen 1 3 x USB 2.0	1 x RS-232 1 x USB 3.2 Gen 1 3 x USB 2.0
Storage Interface	1 x Micro SD slot	1 x SATA 6Gb/s with 5V SATA power connector (no RAID)	1 x SATA 6Gb/s with 5V SATA power connector (no RAID)	1 x SATA 3Gb/s with 5V SATA power connector (no RAID)
Audio	1 x 2 pin for speaker (1.5W 8Ω) 1 x 10 pin (Line in / Line out)	10 pin header on board support 7.1 channel HD Audio by AC-KIT-892HD-R10		Realtek ALC662 HD Audio codec
Power Consumption	12V@1.2A	12V@2.36A (Intel® Celeron® processor N3350 with 8 GB 1600 MHz DDR3L memory)	12V@1.52A (Intel® Pentium® processor N3710 with 8 GB 1600 MHz DDR3L memory)	12V@1.35A (Intel® Celeron® processor J1900 with one 8 GB 1333 MHz DDR3L memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset			
Operating Environment	Temperage Range: -10°C ~ 50°C Relative Humidity: 10% ~ 90%, non-condensing	Temperage Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing		
Expansion Slot	1 x Full-size PCIe Mini (reserved for WWAN)	1 x M.2 A key 2230 1 x M.2 B key 2242	1 x M.2 (B key)	N/A
CPU Cooler	Heatsink	Heat Spreader	Heatsink	Heat Spreader

HYPER-RK39

PICO-ITX SBC with Rockchip 3399 Processor, 2GB LPDDR3, 16GB eMMC Flash, HDMI, eDP, GbE LAN, PCIe mini, USB 3.2 Gen 1, USB 2.0, COM, RoHS







Features

- Pico-ITX SBC supports Rockchip RK3399
- HDMI and eDP dual display support
- OS: Android 9.0



Specifications

Model Name		HYPER-RK39
Chassis	Dimensions (WxHxD) (mm)	Single board: 100mm x 72mm
Motherboard	CPU	Rockchip RK3399 (Dual-core Cortex-A72 up to 1.8GHz + Quad-core Cortex-A53 up to 1.5GHz)
	System Memory	2GB LPDDR3-1866
Storage	SD Card	1 x Micro SD slot
	Flash	16GB eMMC NAND FLASH
Communication	WLAN	802.11 a/b/g/n/ac
	Bluetooth	Bluetooth V4.1
	WWAN	PCIe Mini LTE (optional)
I/O Interfaces	COM port	1 x RS-232/422/485
	GPIO	8 bit (4 in / 4 out)
	Ethernet	1 x GbE RJ45 by RTL8211E
	USB 3.2 Gen 1	1 x USB 3.2 Gen 1 (5Gb/s) Type A 1 x USB 3.2 Gen 1 (5Gb/s) Type C
	USB 2.0	1 x USB 2.0 Type A
	Display	1 x HDMI out 1 x eDP port
	Others	1 x I²C
Expansions	PCIe Mini	1 x Full-size PCIe Mini (reserved for WWAN)
Multimedia	Audio	1 x 2 pin for speaker (1.5W 8Ω) 1 x 10 pin (Line in / Line out)
	Camera	1 x MIPI CSI interfaces for Camera
Power	Power Input	1 x 2 pin DC 12V in wafer connector
	Power Consumption	12V @ 1.2A
Reliability	Operating Temperature	-10°C ~ 50°C with air flow
	Storage Temperature	-20°C ~ 60°C
	Humidity	10% ~ 90%, non-condensing
	Weight (Net)	80 g
	Safety/EMC	CE/FCC Class A compliant
OS	Supported OS	Android 9.0 / Linux (Qt only)
	Watchdog Timer	Yes

Ordering Information

Part No.	Description
HYPER-RK39-R10	PICO-ITX SBC with Rockchip 3399 Processor, 2GB LPDDR3 , 16GB eMMC Flash, Android 7.1, HDMI, eDP, GbE LAN, PCIe mini, USB 3.2 Gen 1, USB 2.0, COM, RoHS
HYPER-RK39-R10-TW	PICO-ITX SBC with Rockchip 3399 Processor, 2GB LPDDR3 , 16GB eMMC Flash, Android 7.1, HDMI, eDP, GbE LAN, PCIe mini, USB 3.2 Gen 1, USB 2.0, COM, Wi-Fi TW reg, RoHS
HYPER-RK39-R10-US	PICO-ITX SBC with Rockchip 3399 Processor, 2GB LPDDR3 , 16GB eMMC Flash, Android 7.1, HDMI, eDP, GbE LAN, PCIe mini, USB 3.2 Gen 1, USB 2.0, COM, Wi-Fi US reg, RoHS
HYPER-RK39-R10-EU	PICO-ITX SBC with Rockchip 3399 Processor, 2GB LPDDR3 , 16GB eMMC Flash, Android 7.1, HDMI, eDP, GbE LAN, PCIe mini, USB 3.2 Gen 1, USB 2.0, COM, Wi-Fi EU reg, RoHS
HYPER-RK39-R10-CN	PICO-ITX SBC with Rockchip 3399 Processor, 2GB LPDDR3 , 16GB eMMC Flash, Android 7.1, HDMI, eDP, GbE LAN, PCIe mini, USB 3.2 Gen 1, USB 2.0, COM, Wi-Fi CN reg, RoHS

Packing List

1 x Hyper-RK single board
1 x Two pin to DC in power cable
1 x Heatsink set
1 x RTC battery

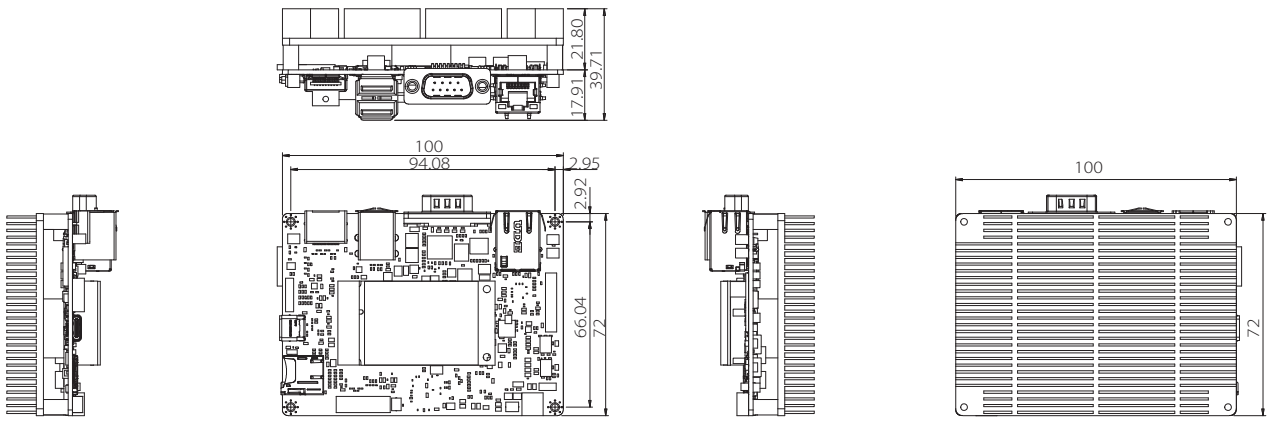
Options

Item	Part No.	Description
Power Adapter	63040-010060-120-RS	Vin:90~264VAC; 60W; Φ2.5/Φ5.5/lock
GPIO Cable	32133-030000-100-RS	FEMALE 2*5P P=1.0*2; (B)PIN HEADER 2*5P P=2.54*2
Audio Cable	32107-005200-100-RS	Audio Jack:Ø3.5,6P
Power Switch Cable	19S00-015600-100-RS	ROCKER SWITCH:250V/6A, 2P, ON/OFF
ePD Cable	32602-030700-100-RS	CABLE, 2;300MM, 34AWG, (A)I-PEX:20454-240T P=0.5+PULL BAR*2
Speaker	19800-025000-100-RS	SPEAKER+CABLE MODULE, 2;300MM, 28AWG, (A)Speaker:26.6*15.6*9.0MM,8Ω,1.5W
IPEX to SMA cable	32501-000705-100-RS	RF CABLE FOR DVBT, LINE DIAMETER:1.37mm;213MM, 50Ω, Exceltek, 0-6GHz
Wi-Fi Antenna	32505-004800-100-RS	WLAN, 2.4G+5G WI-FI ANTENNA
Camera module	7I001-COC794A5SFE-RS	Image Module, 2592*1944
LTE Antenna	32505-004200-100-RS	WLAN, LTE FULL BAND ANTENNA
LTE Module	27552-000004-RS	WCDMA/HSPA+/LTE, SIM7500SA
	27552-000005-RS	GSM/LTE/WCDMA, SIM7500E
	27552-000006-RS	LTE/WCDMA, SIM7500A

* Use LTE module need to add a SIM card slot board.

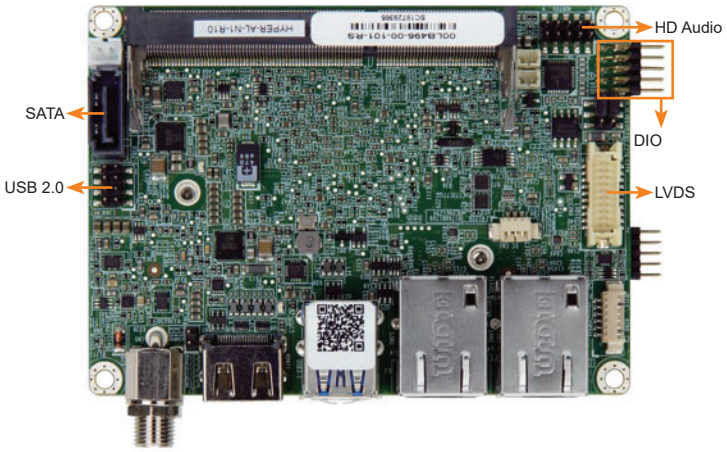
HYPER-RK39 Dimensions

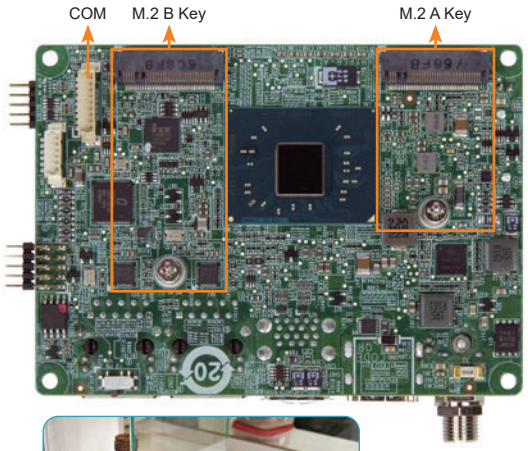
(Unit: mm)

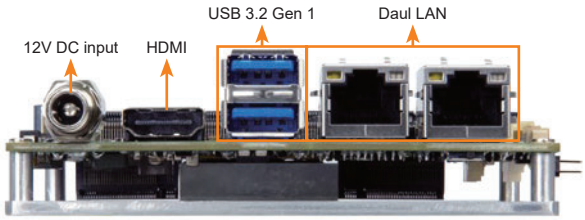


HYPER-AL

PICO-ITX SBC supports Intel® 14nm Apollo Lake on-board SoC with DDR3L, HDMI, LVDS, dual GbE, USB 3.2 Gen 1 (5Gb/s), SATA, M.2 and RoHS









DDR3L 1600 | M.2 | Dual GbE | USB 3.2 | SATA 6Gb/s

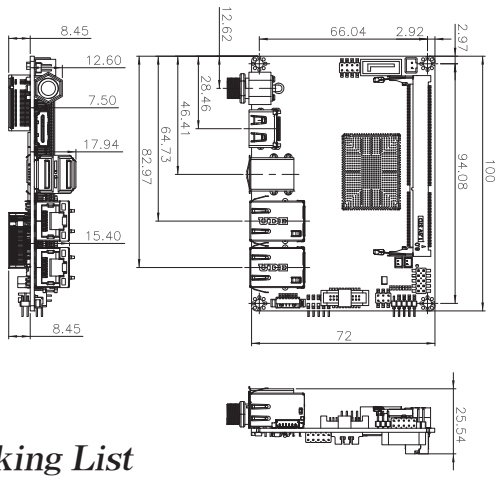
Specifications

- SoC
  Intel® Celeron® N3350 on-board SoC (up to 2.4GHz, dual-core, 2M Cache, TDP=6W)
- BIOS
  AMI UEFI BIOS
- Memory
  One 204-pin 1866/1600MHz single-channel DDR3L SDRAM unbuffered SO-DIMM slot (system max. 8GB)
- Graphics Engine
  Intel® HD Graphics Gen9 Low Power, 18 Execution Units
  4K Codec Decode & Encode for HEVC 4, H.264, VP8, SVC, MVC
- Display Output
  1 x HDMI
  1 x LVDS (2x10 pin, single channel, 24bit)
- Ethernet
  LAN1: Realtek RTL8111H controller
  LAN2: Realtek RTL8111H controller
- External I/O interface
  2 x USB 3.2 Gen 1 (5Gb/s) (on rear I/O)
- Internal I/O interface
  1 x RS-232 (1x9 pin, P=1.25)
  1 x SATA 6Gb/s (w/ 5V SATA PWR)
  2 x USB 2.0 (2 by pin header) (2x4 pin, P=2.0)
- Audio
  1 x HD audio (2 x 5 pin, support 7.1 channel HD audiou by AC-KIT-892HD-R10)
- Front Panel
  1 x Front panel (1 x 8 pin, power LED, HDD LED, power buttom, reset buttom)
- Expansion
  1 x M.2 A key 2230 (PCIe, USB)
  1 x M.2 B key 2242 (USB, SATA)
- Digital I/O
  1 x 8-bit DIO (2x5 pin, P=2.0)
- Watchdog Timer
  Software programmable support 1~255 sec. system reset
- Power Supply
  12V DC input only (DC jack)
  Support AT/ATX mode
- Power Consumption
  12V@2.36A (Intel® Celeron® N3350 with 8GB 1600MHz DDR3L memory)
- Operating Temperature
  -20°C ~ 60°C
- Storage Temperature
  -30°C ~ 70°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions
  100mm x 72mm
- Weight
  GW:600g/NW:250g
- CE/FCC compliant

Features

- PICO-ITX SBC supports Intel® 14nm Apollo Lake on-board SoC supports Intel® 14nm Apollo Lake on-board SoC
- Dual GbE LAN support
- Flexible expansion with M.2 A key 2230 and M.2 B key 2242 support
- HDMI and internal LVDS for independent display
- 12V only single voltage design for AT/ATX power by DC power jack

Dimensions *(Unit: mm)*



Packing List

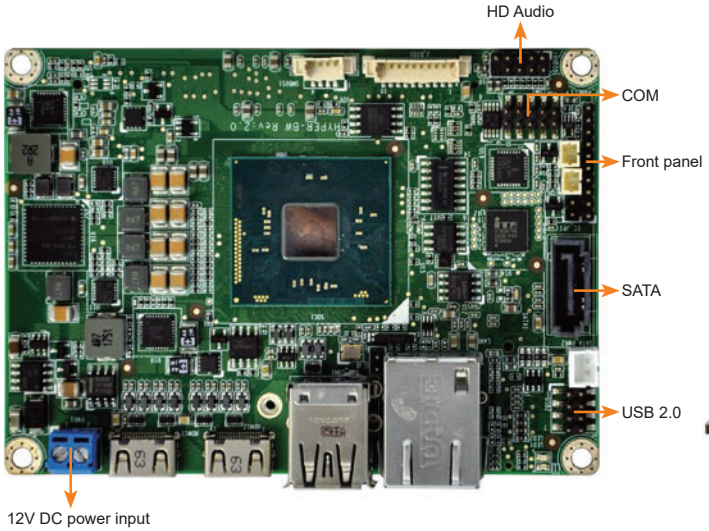
1 x HYPER-AL single board computer (heat spreader by default)	
1 x COM port cable	1 x QIG (Quick Installation Guide)
1 x SATA cable kit	

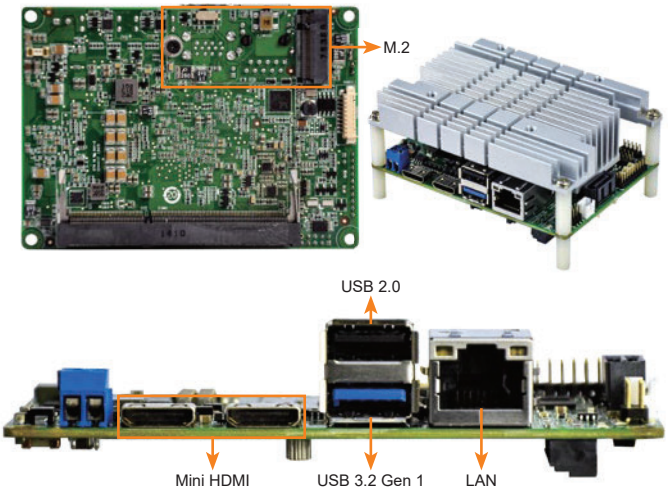
Ordering Information

Part No.	Description
HYPER-AL-N1-R10	PICO-ITX SBC supports Intel® 14nm dual-core Celeron® N3350 2.4GHz on-board SoC with HDMI, LVDS, dual LAN, M.2, COM, USB 3.2 Gen 1 (5Gb/s), SATA 6GB/s and RoHS
34000-000706-RS	Optional fanless heatsink module, 100mm x 72mm x 20.5mm
32001-008600-200-RS	Dual port USB cable, 210mm, P=2.0
AC-KIT-892HD-R10	Realtek ALC892 7.1 Channel HD Audio peripheral board, RoHS

HYPER-BW

Pico-ITX SBC with Intel® 14nm Pentium®/Celeron® on-board SoC with dual Mini HDMI, M.2, GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, COM, Audio and RoHS





Specifications

- SoC
  Intel® Pentium® N3710 on-board SoC (up to 2.56GHz, quad-core, 2MB cache, TDP=6W)
  Intel® Celeron® N3160 on-board SoC (up to 2.24GHz, quad-core, 2MB cache, TDP=6W)
  Intel® Celeron® N3060 on-board SoC (up to 2.48GHz, dual-core, 2MB cache, TDP=6W)
  Intel® Celeron® N3010 on-board SoC (up to 2.24GHz, dual-core, 2MB cache, TDP=4W)
  Intel® Atom® x5-E8000 on-board SoC (up to 2.00 GHz, quad-core, 2M cache, TDP=5W)
- BIOS
  AMI UEFI BIOS
- Memory
  One 204-pin 1600/1333 MHz single-channel DDR3L SDRAM SO-DIMM slot supports up to 8 GB
- Graphics Engine
  Intel® HD Graphics Gen 8 Engine with 16 low-power execution units, supporting DX11.1, OpenGL 4.2 and OpenCL1.2
- Display Output
  Dual independent display
  2 x Mini HDMI (up to 3840x2160@30Hz)
- Ethernet
  LAN1: Realtek RTL8111 controller
- External I/O Interface
  1 x USB 2.0
  1 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x RS-232 (1x9 pin, P=1.25)
  1 x SATA 6Gb/s with 5V SATA power connector
  2 x USB 2.0 (2x4 pin, P=2.0)
- Audio
  1 x HD audio (2 x 5 pin, support 7.1 channel HD audiou by AC-KIT-892HD-R10)
- Front Panel
  1 x Front panel (1x10 pin, power LED, HDD LED, power buttom, reset buttom)
- LAN LED
  1 x LAN LED (1x2 pin)
- Expansion
  1 x M.2 2242 (B key)
- Digital I/O
  8-bit digital I/O (2x5 pin)
- Power Supply
  12V DC input only
  1 x Power terminal block (1x2 pin)
  Support AT/ATX mode
- Power Consumption
  12V@1.52A (Intel® Pentium® processor N3710 with 8 GB 1600 MHz DDR3L memory)
- Watchdog Timer
  Software programmable supports 1~255 sec. system reset
- Operating Temperature
  -20°C ~ 60°C
- Storage Temperature
  -30°C ~ 70°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions
  100mm x 72mm
- Weight
  GW:600g/ NW:250g
- CE/FCC compliant



Features

- Pico-ITX SBC supports Intel® 14nm Pentium®/Celeron® on-board SoC
- IEI jumper-less function
- Dual independent display support
- 1333/1600 MHz 1.35V DDR3L SDRAM up to 8 GB supported
- COM, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s and Audio support
- 1 x M.2 B key slot for expansion possibility

Packing List

1 x HYPER-BW single board computer with heatsink	1 x RS-232 cable
1 x SATA with power cable kit	1 x QIG

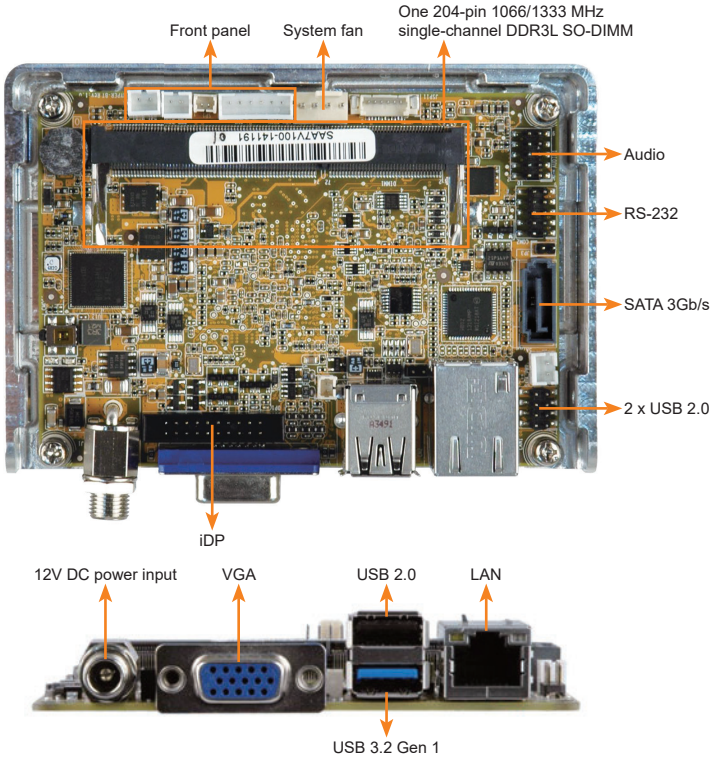
Ordering Information

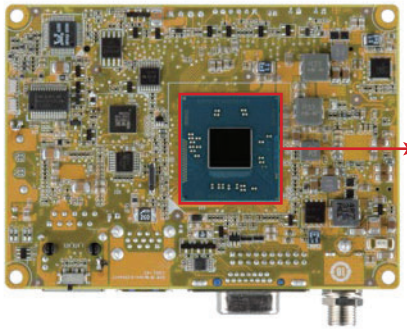
Part No.	Description
HYPER-BW-N4-R20	Pico-ITX SBC with Intel® Pentium® 14nm quad-core N3710 up to 2.56GHz (6W) on-board SoC with dual Mini HDMI, PCIe GbE, M.2, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, COM, Audio and RoHS
HYPER-BW-N3-R20	Pico-ITX SBC with Intel® Celeron® 14nm quad-core N3160 up to 2.24GHz (6W) on-board SoC with dual Mini HDMI, PCIe GbE, M.2, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, COM, Audio and RoHS
HYPER-BW-N2-R20	Pico-ITX SBC with Intel® Celeron® 14nm dual-core N3060 up to 2.48GHz (6W) on-board SoC with dual Mini HDMI, PCIe GbE, M.2, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, COM, Audio and RoHS
HYPER-BW-N1-R20**	Pico-ITX SBC with Intel® Celeron® 14nm dual-core N3010 up to 2.24GHz (4W) on-board SoC with dual Mini HDMI, PCIe GbE, M.2, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, COM, Audio and RoHS
HYPER-BW-E8-R20	Pico-ITX SBC with Intel® Atom® 14nm quad-core x5-E8000 up to 2.00GHz (5W) on-board SoC with dual Mini HDMI, PCIe GbE, M.2, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, COM, Audio and RoHS
HYPER-BW-E8-ECO-R20	Pico-ITX SBC with Intel® Atom® 14nm quad-core x5-E8000 up to 2.00GHz (5W) on-board SoC with dual Mini HDMI, PCIe GbE, M.2, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, COM, Audio, ECO packing and RoHS
32001-008600-200-RS	Dual-port USB cable, 210mm, P=2.0
32102-045100-100-RS	DC JACK 5.5*2.5+NUT to open end power cable, 100mm
63040-010036-111-RS	12V 36W AC/DC adapter
AC-KIT-892HD-R10	Realtek ALC892 7.1 Channel HD Audio peripheral board, RoHS

**By order production, MOQ: 100

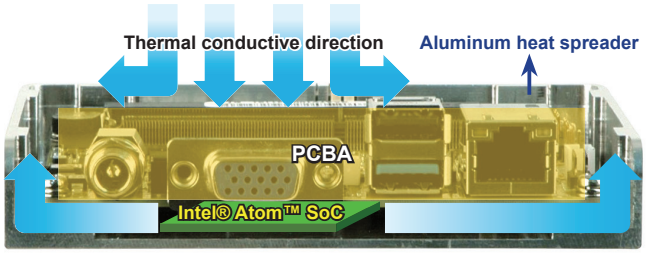
HYPER-BT

Pico-ITX SBC supports Intel® 22nm Atom™/Celeron® on-board SoC, DDR3L, VGA/iDP, GbE, USB 3.2 Gen 1 (5Gb/s), SATA 3Gb/s, HD Audio and RoHS





You can attach aluminum heat spreader directly to your construction for better heat dissipation



DDR3 1333 | SATA 3Gb/s | PCIe GbE

Specifications

- SoC
  Intel® Atom™ E3845 on-board SoC (1.91GHz, quad-core, 2MB cache, TDP=10W)
  Intel® Atom™ E3827 on-board SoC (1.75GHz, dual-core, 1MB cache, TDP=8W)
  Intel® Atom™ E3826 on-board SoC (1.46GHz, dual-core, 1MB cache, TDP=7W)
  Intel® Atom™ E3825 on-board SoC (1.33GHz, dual-core, 1MB cache, TDP=6W)
  Intel® Atom™ E3815 on-board SoC (1.46GHz, dual-core, 1MB cache, TDP=5W)
  Intel® Celeron® J1900 on-board SoC (2GHz, quad-core, 2MB cache, TDP=10W)
  Intel® Celeron® N2930 on-board SoC (1.83GHz, quad-core, 2MB cache, TDP=7.5W)
  Intel® Celeron® N2807 on-board SoC (1.58GHz, dual-core, 2MB cache, TDP=4.3W)
- BIOS
  AMI UEFI BIOS
- Memory
  One 204-pin 1066/1333 MHz single-channel DDR3L SO-DIMM supports up to 8 GB (J1900, N2930, E3845, E3827, E3826) or 4 GB (N2807, E3825, E3815)
- Graphics
  Intel® HD Graphics Gen 7 Engine with 4 execution units, supporting DX11.1 OpenGL 4.2 and OpenCL 1.2
- Display Output
  Dual independent display
  1 x VGA (up to 2560x1600@60Hz)
  1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 2560x1600@60Hz)
- Ethernet: LAN: Intel® I211-AT PCIe controller
- External I/O Interface
  1 x USB 2.0
  1 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x RS-232 (2x5 pin, P=2.0)
  1 x SATA 3Gb/s with 5V SATA power connector
  2 x USB 2.0 (2x4 pin, P=2.0)
- Audio: Realtek ALC662 HD codec supports 5.1-channel
- Front Panel
  1 x Power LED & HDD LED (1x6 pin)
  1 x Power button (1x2 pin)
  1 x Reset button (1x2 pin)
- LAN LED: 1 x LAN LED (1x2 pin)
- Fan Connector: 1 x Smart fan connector (1x4 pin)
- Watchdog Timer: Software programmable, support 1~255 sec. system reset
- Power Supply
  12V only DC input
  1 x External DC power jack (ø5.5 mm)
  Support AT/ATX mode
- Power Consumption
  12V@1.35A (Intel® Celeron® J1900 with one 4 GB 1333 MHz DDR3 memory)
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions (LxW)
  Single board: 100mm x 72mm / Heat spreader: 112mm x 78mm
- Weight: GW: 600g / NW: 250g
- CE/FCC compliant

Features

- Pico-ITX SBC supports Intel® 22nm Atom™ or Celeron® on-board SoC
- 12V only single voltage design for AT/ATX power by DC power jack
- VGA and iDP support dual display

Packing List

1 x HYPER-BT single board computer	
1 x Audio cable	1 x SATA with 5V output cable kit
1 x RS-232 cable	1 x QIG

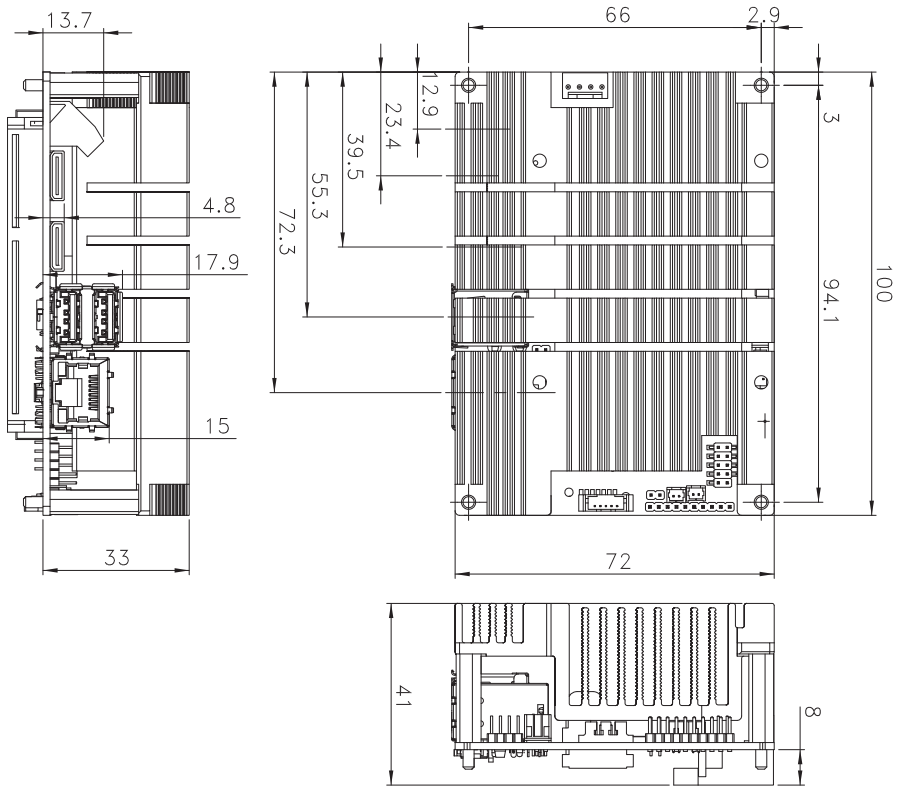
Ordering Information

Part No.	Description
HYPER-BT-J19001-R10	PICO-ITX SBC supports Intel® Celeron® quad-core J1900 (10W) on-board SoC with DDR3L, VGA/iDP, GbE, USB 3.2 Gen 1 (5Gb/s), SATA 3Gb/s, Audio and RoHS
HYPER-BT-N29301-R10	PICO-ITX SBC supports Intel® Celeron® quad-core N2930 (7.5W) on-board SoC with DDR3L, VGA/iDP, GbE, USB 3.2 Gen 1 (5Gb/s), SATA 3Gb/s, Audio and RoHS
HYPER-BT-N28071-R10	PICO-ITX SBC supports Intel® Celeron® dual-core N2807 (4.3W) on-board SoC with DDR3L, VGA/iDP, GbE, USB 3.2 Gen 1 (5Gb/s), SATA 3Gb/s, Audio and RoHS
HYPER-BT-E38XX1-R10**	PICO-ITX SBC supports Intel® Atom™ E38XX on-board SoC with DDR3L, VGA/iDP, GbE, USB 2.0, SATA 3Gb/s, Audio and RoHS
32001-008600-200-RS	Dual-port USB cable, 210mm, P=2.0
32006-000300-100-RS	PS/2 KB/MS Y-cable without bracket, 140mm/120mm
32200-000049-RS	RS-232 cable, 240mm, P=2.0
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI iDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI iDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI iDP connector)
DP-LVDS-R10	DisplayPort to LVDS converter borad (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)

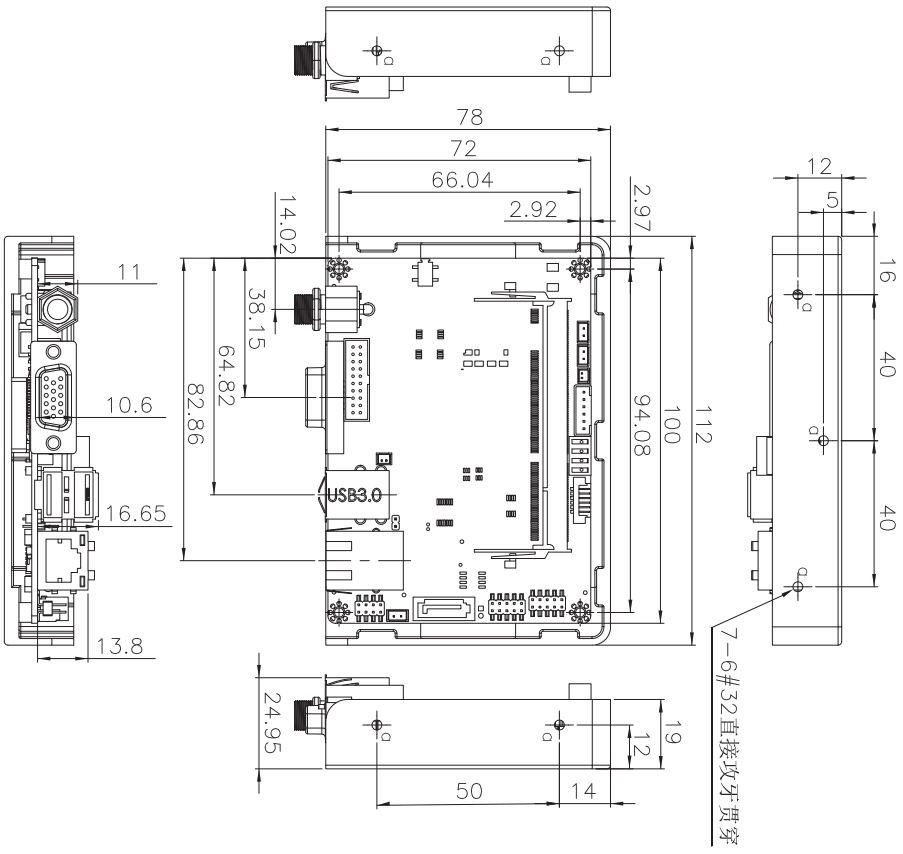
**By order production, MOQ: 100

HYPER Dimensions (Unit: mm)

HYPER-BW



HYPER-BT



IEI Computer on Modules

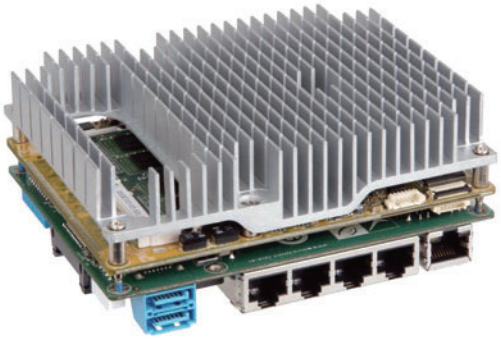
A computer-on-module (COM) is a type of single-board computer (SBC), a subtype of an embedded computer system. An extension of the concept of system on chip (SoC) and system in package (SiP), COM lies between a full-up computer and a microcontroller in nature.

Design

Computer-on-modules are complete embedded computers built on a single circuit board. The design is centered on a CPU or a microprocessor with RAM, input/output controllers and all other features needed to be a functional computer on the one board. However, unlike a single-board computer, the Computer-on-module will usually lack the standard connectors for any input/output peripherals to be attached directly to the board.

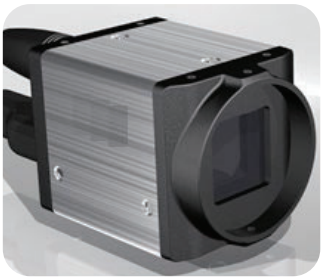
The module will usually need to be mounted on a carrier board (or baseboard) which breaks the bus out to standard peripheral connectors. Some Computer-on-modules also include peripheral connectors and/or can be used without a carrier.

A Computer-on-module solution offers a dense package computer system for use in small or specialized applications requiring low power consumption or small physical size as is needed in embedded systems.



Typical Applications

High Density



Smart Camera



Speed Camera



Mobile Device

Automation & Robot Controller



Robot Controller

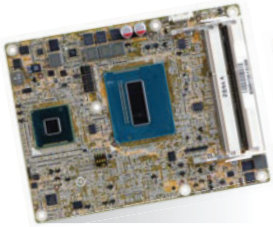


CNC

IEI Computer on Module Form Factors









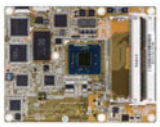


COM Express Type 10	COM Express Type 6	COM Express Type 6	COM Express Type 7	Qseven 2.0
Mini: 84 mm x 55 mm	Compact: 95 mm x 95 mm	Basic: 125 mm x 95 mm	Basic: 125 mm x 95 mm	70 mm x 70 mm

Computer on Module Selection Guide



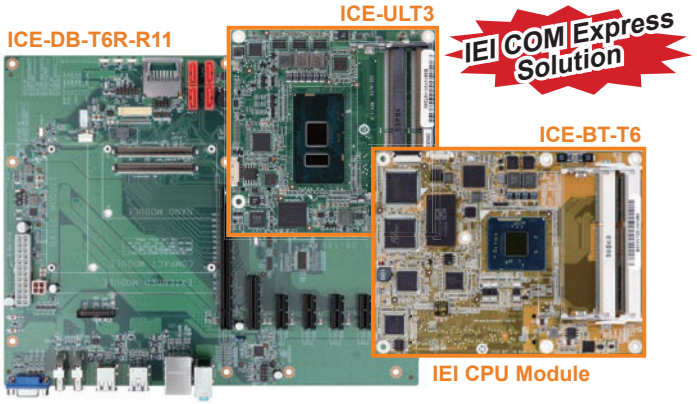





Computer on Module	COM Express Type 10	COM Express Type 7	COM Express Type 6	COM Express Type 6	Qseven 2.0
COM Express Size	Mini: 84 mm x 55 mm	Basic: 125 mm x 95 mm	Compact: 95 mm x 95 mm	Basic: 125 mm x 95 mm	70 mm x 70 mm
Model Name	**ICE-BT-T10W2**	**ICE-BDE-T7**	**ICE-ULT3**	**ICE-BT-T6**	**iQ7-BT-E38001 iQ7-BT-E38001W2**
CPU Socket	On board	On Board	On board	On board	On board
CPU Type	Intel® Atom™/Celeron® on-board SoC	Intel® Xeon® D Processor On-Board SoC	Intel® Skylake ULT on-board SoC	Intel® Atom™/Celeron® on-board SoC	Intel® Atom™/Celeron® on-board SoC
Chipset	Intel® Atom™/Celeron® on-board SoC	Intel® Xeon® D and Pentium® D SoC	Intel® Skylake ULT	Intel® Atom™/Celeron® on-board SoC	Intel® Atom™/Celeron® on-board SoC
Memory	2 GB soldered down 1066/1333 MHz DDR3L memory (up to 8 GB)	Two 240-pin 2133/1867 MHz dual-channel DDR4 SDRAM Unbuffered DIMM supported (system max. 32GB) Support ECC	Two 260-pin 2133/1867 MHz dual-channel DDR4 SDRAM Unbuffered DIMM supported (system max. 32GB)	Two 204-pin 1066/1333 MHz dual-channel DDR3L SO-DIMM supported (system max. 8 GB)	2 GB soldered down 1066/1333 MHz DDR3L memory (up to 4 GB)
Display Interface	Dual display supported 1 x VGA 1 x DDI 1 x eDP	N/A	Tripal display supported 2 x DDI: DisplayPort/HDMI/DVI 1 x DDI: Embedded DP (Option with 1 x Dual Channel LVDS 18/24 bit via CH7511B)	Dual display supported 1 x VGA 1 x DDI 1 x 18/24-bit dual-channel LVDS	Dual display supported 1 x DDI 1 x 18/24-bit dual-channel LVDS
Ethernet	LAN1: Intel® I210 PCIe controller	LAN1: Intel® I210 2 x 10G KR Interface 10G sideband Signals	LAN1: Intel® I219LM	LAN1: Intel® I210 PCIe controller	LAN1: Intel® I210 PCIe controller
I/O Interface	1 x I²C 1 x SMBus 1 x LPC 1 x USB 3.2 Gen 1 2 x Serial port (TX & RX) 4 x USB 2.0	2 x RS-232 (2-Wire) to base board 4 x USB 3.0 to base board (With 4 x USB 2.0)	2 x RS-232 (2-Wire) to base board 4 x USB 2.0 to base board 4 x USB 3.2 Gen 1 to base board (with 4 x USB 2.0)	1 x I²C 1 x LPC 1 x SMBus 2 x Serial port (TX & RX) 4 x USB 3.2 Gen 1 7 x USB 2.0	1 x LPC 1 x SDIO 1 x SMBus 1 x USB 3.2 Gen 1 3 x I²C 6 x USB 2.0
Storage Interface	2 x SATA 3Gb/s Optional soldered down SSD up to 64 GB (SATA port 1)	2 x SATA 6Gb/s signal to baseboard	2 x SATA 6Gb/s signal to base board eMMC 5.0 (optional)	2 x SATA 3Gb/s Optional soldered down SSD up to 64 GB (SATA port 1)	2 x SATA 3Gb/s Optional soldered down SSD up to 64 GB (SATA port 1)
Audio	High-definition Audio interface	N/A	High-definition Audio interface		
Power Consumption	12V@0.43A, Vcore_12V@0.9 A (Intel® Atom™ E3845 CPU with 2 GB 1333 MHz DDR3L memory)	12V@2.75A, 5VSB@0.30A, 5V@3.15A (Intel Xeon D-1518 2.2GHz with two 8GB 2133 MHz DDR4 memory)	12V@2.57A, 5VSB@0.04A, 5V@0.02A (Intel® Core™ i7-6600U with two 8GB 2400 MHz DDR4 memory)	12V@0.54A, Vcore_12V@0.95A (Intel® Celeron® J1900 CPU with two 8 GB 1333 MHz DDR3 memory)	3.3V@0.13A, 5V@0.13A, 12V@1.35A, 5VSB@0.12A (Intel® Atom™ E3845 CPU with 2 GB on-board memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset				
Operation Enviornment	Temperature Range: -20°C ~ 60°C -40°C ~ 85°C (ICE-BT-10-E38001W2) Relative Humidity: 10% ~ 95% non-condensing	Operating Temperature: -20°C ~ 60°C Operating Humidity: 5% ~ 95%, non-condensing		Temperature Range: -20°C ~ 60°C Relative Humidity: 10% ~ 95% non-condensing	Temperature Range: -20°C ~ 60°C -40°C ~ 85°C (iQ7-BT-E38001W2) Relative Humidity: 10% ~ 95% non-condensing
Expansion Slot	3 x PCIe x1 signal to baseboard	1 x PCIe x16 Gen 3 (Bifurcatable to 2x8, 1x8 & 2x4 or 4 x4) 1 x PCIe x8 Gen 3 (Bifurcatable to 1x8 & 2x4) 8 x PCIe x1 (Gen2) signal to baseboard Bifurcatable to 1x8 or 2x4 or 4x1 or 8x1	1 x PCIe x1 signal to base board (Via PCIe x16 channel) 8 x PCIe x1 signal to base board	5 x PCIe x1 signal to baseboard	3 x PCIe x1 signal to baseboard

IEI COM Express Series

COM Express is a computer-on-module (COM) form factor series. It can be integrated in various customized applications. Each COM Express module integrates CPU, memory and common I/O of a PC/AT including USB, audio, graphics, and Ethernet. All I/O signals are mapped to two high density, low profile connectors on the bottom side of the module. The COM Express specification is hosted by PICMG. The ICE (IEI COM Express) modules provide complete performance range for users to choose. With the IEI COM Express baseboard deign service, users can quickly enjoy the benefits of modulization and efficiency.



Transfer your ETX Module to IEI COM Express Solution

COM Express provides PCI Express, dual-channel LVDS, GbE, eight USB and four SATA ports for I/O expansion

Platform	ETX	COM Express Type 2 Basic Module
Size	95 mm x 114 mm	95 mm x 125 mm
VGA	Yes	Yes
LCD	TTL or LVDS	Up to 2 x single LVDS or dual-channel LVDS
SDVO	N/A	Up to 2 SDVO (shared with PCIe x16)
Expansion	PCI & ISA	PCIe & PCI
Ethernet	10/100 Mbps	10/100/1000 Mbps
USB	Up to 4 ports	Up to 8 ports
SATA	Up to 2 Ports (ETX 3.0 only)	Up to 4 SATA
IDE	Up to 2 channels	Up to 1 channel

COM Express Pinout Types

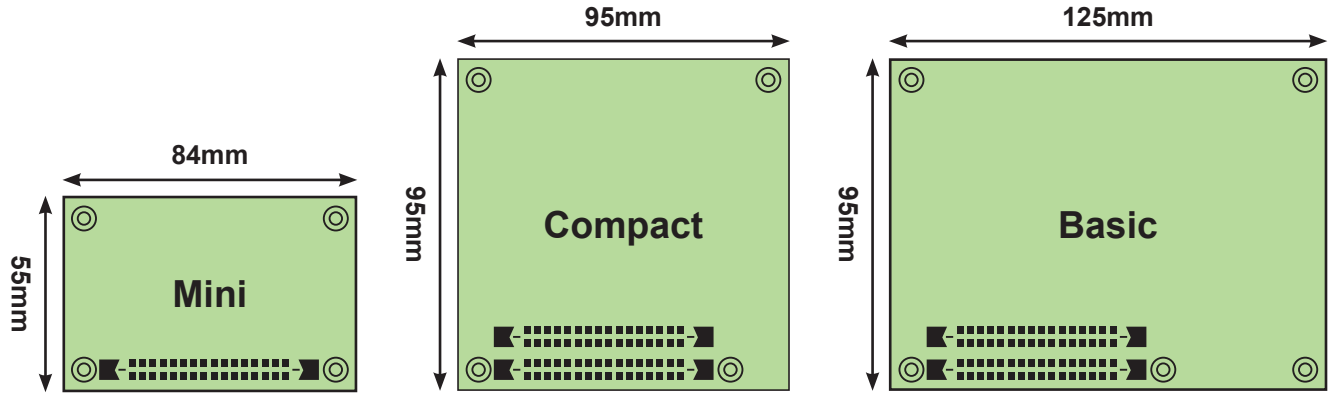
COM Express, a computer-on-module (COM) form factor, is a highly integrated and compact PC that can be used in a design application much like an integrated circuit component. Each COM Express Module COM integrates core CPU and memory functionality, the common I/O of a PC/AT, USB, audio, graphics (PEG), and Ethernet. All I/O signals are mapped to two high density, low profile connectors on the bottom side of the module.

Types

The COM Express specification is hosted by PICMG. There are seven different pinouts defined in the specification. The most common used pinouts are Type 6 and Type 10 in the revision 2.0 of the COM Express specification. The latest pinouts added in the revision 3.0 of the COM Express specification is Type 7.

Types	PCIe Lanes	PEG/SDVO	Display	SATA	1GbE/10GbE	PCI	IDE	USB 2.0	USB 3.2 Gen 1
Type 1	Up to 6	×	VGA, LVDS	4	1/0	×	×	8	×
Type 10	Up to 4	/1	DDI, LVDS	2	1/0	×	×	8	2
Type 2	Up to 22	1/2	VGA, LVDS, PEG, SDVO	4	1/0	✓	×	8	×
Type 6	Up to 24	1/	VGA, LVDS, PEG, 3 x DDI	4	1/0	×	×	8	4
Type 7	Up to 32	2	NA	2	1/4	×	×	4	4

The Specification Defines Three Module Sizes:



Mini: 84 x 55 mm
For Type 1 and Type 10 pinout

Compact: 95 x 95 mm
For Type 2 and Type 6 pinout

Basic: 125 x 95 mm
For Type 2, Type6 and Type 7 pinout

◆ Pinout Comparison of Type 10

Type 10 Pinout

B	LPC SMB I²C	2 ports SATA	2 ports USB 3.2 Gen 1	Audio	8 ports USB 2.0	4 lanes PCIe x1	Reserve Pin	DDI		5VSB	12V	
A	GBE							LVDS A	Others	SPI	2 ports serial	12V

◆ Pinout Comparison of Type 6 and Type 7

Type 6 Pinout

D	4 ports USB 3.2 Gen 1/2.0	2 lanes PCIe x 1	DDI 1	DDI 2	DDI 3	PCIe x16	12V
C							

B	LPC SMB I²C	4 ports SATA	Audio	8 ports USB 2.0	6 lanes PCIe x1	LVDS B	VGA	5VSB	12V	
A	GBE					LVDS A	Others	SPI	2 ports serial TPM	12V

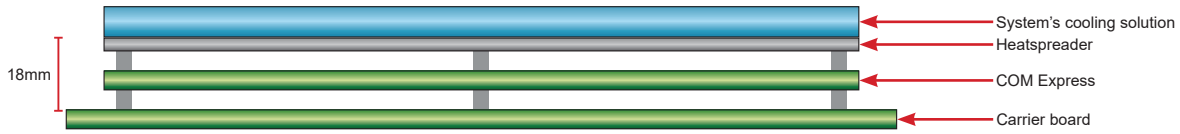
Type 7 Pinout

D	4 ports USB 3.2 Gen 1/2.0	2 lanes PCIe x 1	4 x 10GbE LAN			PCIe x16				12V	
C											
B	LPC/eSPI	2 ports SATA	2 lanes PCIe x1	Reserve Pin	4 ports USB 2.0	2 lanes PCIe x1	6 lanes PCIe x1	4 lanes PCIe x1	NCSI	5VSB	12V
A	GBE								Others	SPI	2 ports serial TPM	12V

■ Installing the COM Express

◆ Thermal Design of COM Express

COM Express definition includes a heatspreader that acts as a thermal interface between the COM Express module and the system's cooling solution. The height of a COM Express module, including the heatspreader, has been defined as 18 mm and covers the complete area of the COM Express. All heat generating components are thermally conducted to the heatspreader in order to avoid hot spots.

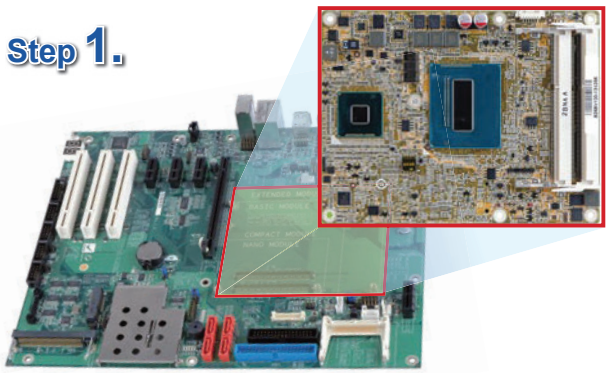


1. Installing the COM Express

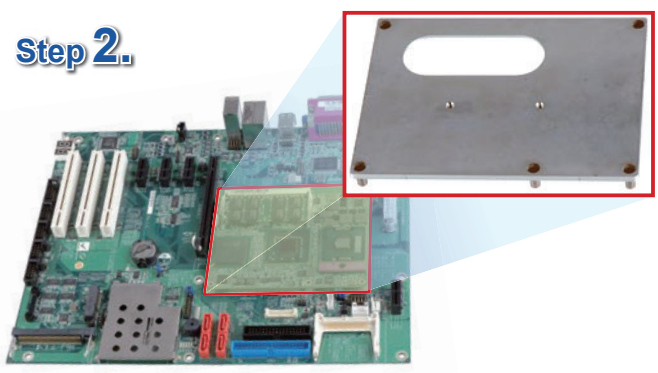
Firmly insert the COM Express into the COM Express socket.

2. Installing the heatspreader

A heatspreader must be installed on the COM Express. Thermal pads must be smeared on the lower side of the heatspreader before it is mounted on the COM Express. Heatspreaders are mounted on the CPU, Northbridge and Southbridge chipsets to ensure the operating temperature of these chips remain low.



▲ Installing the COM Express

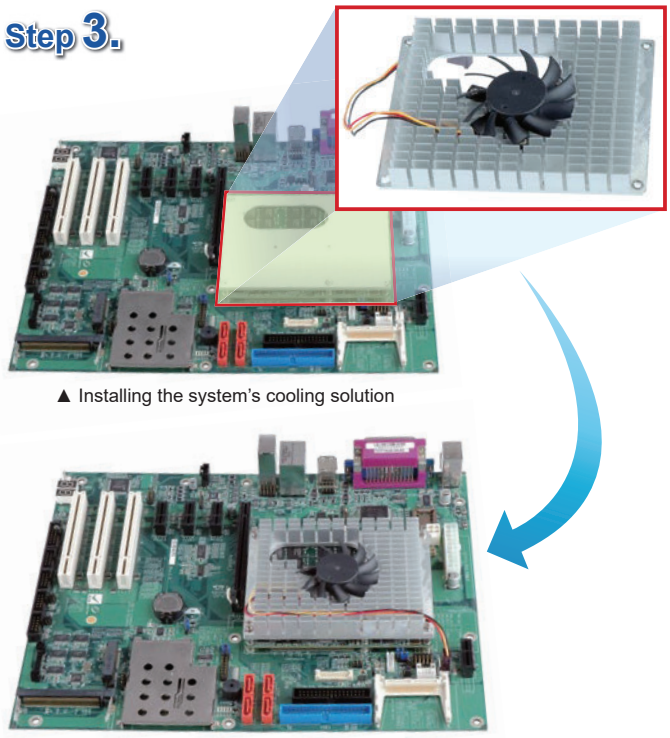


▲ Installing the heatspreader

3. Installing the system's cooling solution

In addition to the heatspreader, COM Express needs another heatsink or other thermal solution to cool down the COM Express.

Before iinstalling the system's cooling solution, make sure that you have properly applied thermal interface material to the heatspreader.



▲ Installing the system's cooling solution

Operating Temperature

The maximum and minimum operating temperatures for the standard COM Express are listed below.

- Minimum Operating Temperature: 0°C (32°F)
- Maximum Operating Temperature: 60°C (140°F)

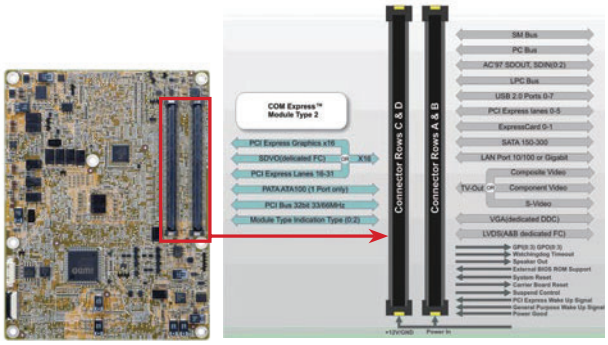
WARNING:

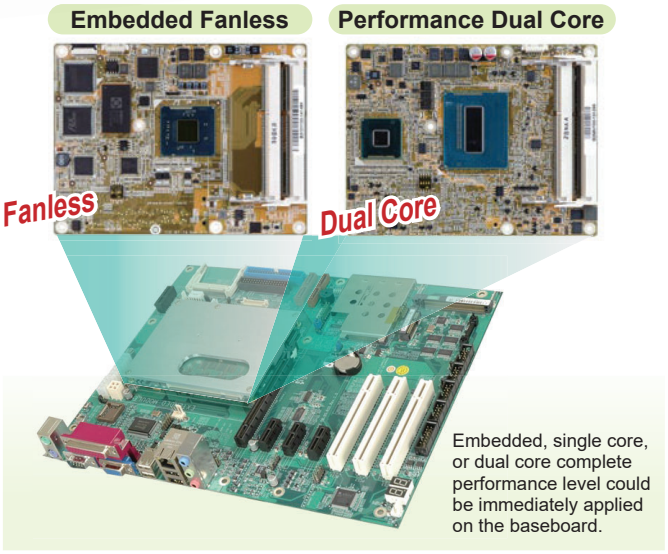
Never run the embedded module without the heat sink. The heatspreader plate shipped with the COM Express acts as a thermal interface between the module and the heat sink. The heat sink must be installed on the heatspreader plate to maintain proper operating temperatures. Make sure to maintain the heatspreader plate temperature under 60°C in operation.

Benefits

A: High Compatibility

- IEI ICE modules follow standard COM Express design guide and have high compatibility
- ICE modules are compatible with all baseboards compliant with COM Express specifications
- Complete performance level for customers' choice



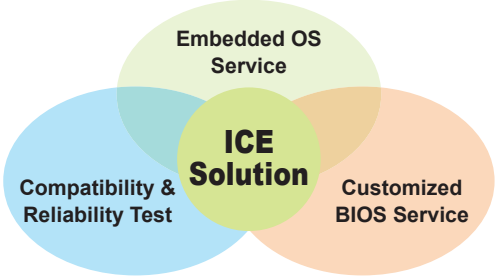


Embedded, single core, or dual core complete performance level could be immediately applied on the baseboard.

B: Strong Support

- With strong R&D resources, IEI provides customers innovative leading products and service to drive successful experience.
- IEI provides complete turnkey solutions from hardware, software and industrial BIOS design support.

R&D Support Service



R&D Support Team

ME & ID Team
- CNC, laser cutting
- Die-cast, punch-press
- Plastic hard-tooling
- Rapid prototyping
- NEMA4/IP65 enclosure
- Customization
- Accessories: VESA arm, rack mount, DIN-rail mount kit

SW Team
- BIOS: Phoenix/Award/AMI
- Windows® CE driver
- Digital Signage SW
- HMI SW

Intelligent Team
- Automobile devices SW, HW
- System integration
- Test and verification

Project Management Team

EE Team
- Schematic design
- Power circuit plan
- Layout design

Medical Team
- Medical products SW, HW
- IC design, test and verification

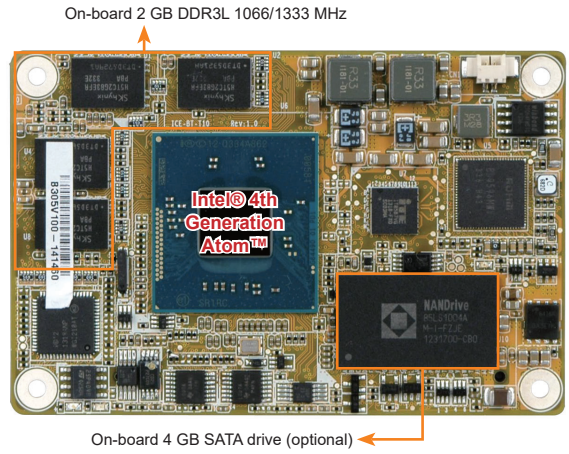
DQV Team
- Product validation
- Environmental testing
- Compatibility testing
- Reliability testing/prediction

Support Team
- EMC/Safety service (FCC, UL, CSA, CE..)
- Key parts/Component verification team

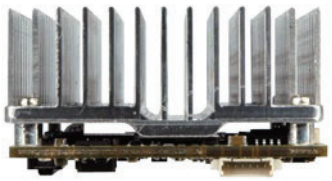
TYPE 10

ICE-BT-T10W2

COM Express Rev 2.1 Mini Size Type 10 Module, Intel® 4th Generation Atom™ Processor, VGA, DDI, GbE, SATA 3Gb/s, USB and Audio, -40°C to +85°C and RoHS



The one-piece heatsink for COM Express Type 10 provides better thermal solution





-40°C 85°C Extreme Environment

One Key Recovery

Memory Down | Dual Display | USB 3.2 | SATA 3Gb/s | GbE

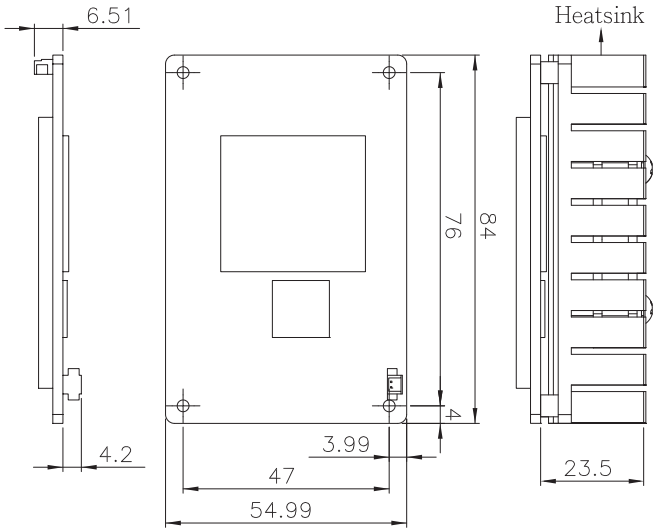
Specifications

- CPU
  Intel® Atom™ E3845 on-board SoC (1.91GHz, quad-core, 2MB cache, TDP=10W)
  Intel® Atom™ E3825 on-board SoC (1.33GHz, dual-core, 1MB cache, TDP=6W)
  Intel® Atom™ E3815 on-board SoC (1.46GHz, single-core, 512KB cache, TDP=5W)
- Memory
  2 GB soldered down 1066/1333 MHz DDR3L memory (up to 8 GB)
- BIOS
  UEFI BIOS
- Graphics Engine
  Intel® HD Graphics Gen 7 Engine with 4 execution units, supports DX11.1, OpenGL 4.2 and OpenCL1.2
- Display Output
  1 x VGA (up to 2560x1600@60Hz)
  1 x DDI: DisplayPort/HDMI/DVI (DP up to 2560x1600@60Hz / HDMI up to 1920x1080@60Hz)
  1 x DDI: Embedded DP (up to 2560x1600@60Hz)
- Ethernet
  Intel® I210-AT GbE controller (Intel® I210-IT GbE controller with W2 sku)
- Storage
  2 x SATA 3Gb/s signal to baseboard
  Optional soldered down SSD up to 64 GB (SATA port 1)
- I/O Interface
  4 x USB 2.0 signal to baseboard
  1 x USB 3.2 Gen 1 (5Gb/s) signal to baseboard
- Audio
  High-definition Audio interface to baseboard
- GPIO
  Yes, to baseboard
- SMBus
  Yes, to baseboard
- I²C
  Yes, to baseboard
- LPC
  Yes, to baseboard
- SPI
  Yes, to baseboard
- Internal Storage
  2-Kb serial I²C bus EEPROM supports EAPI Rev. 1.0
- Serial Port
  Two serial ports to baseboard (TX & RX from EC)
- Expansion
  3 x PCIe x1 signal to baseboard
- Watchdog Timer
  Software programmable, supports 1~255 sec. system reset (from EC)
- Power Consumption
  12V@0.43A, Vcore_12V@0.9 A (Intel® Atom™ E3845 CPU, 2 GB 1333 MHz DDR3L memory)
- Operating Temperature
  -40°C ~ 85°C
- Storage Temperature
  -40°C ~ 85°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions
  84 mm x 55 mm (mini size)
- Weight
  GW: 300g / NW: 150g
- CE/FCC compliant

Features

- Intel® 22nm Atom™ on-board SoC supported
- Type 10 connector pinout according to COM.0 R2.1
- Supports 2 GB 1066/1333 MHz DDR3L memory
- Optional soldered down 4 GB SSD
- Support wide range operating temperature: -40°C to +85°C

Dimensions (Unit: mm)



Packing List

1 x ICE-BT-T10 single board computer	
1 x Heatsink	1 x QIG

Ordering Information

Part No.	Description
ICE-BT-T10-E38451W2-R10	COM Express Basic Type 10 module supports Intel® Atom™ processor E3845 (quad core, 10W), on-board 2 GB DDR3L, VGA, DDI, GbE, USB 3.2 Gen 1 (5Gb/s) ,SATA and HD Audio, -40°C ~ 85°C and RoHS
ICE-BT-T10-E38251W2-R10	COM Express Basic Type 10 module supports Intel® Atom™ processor E3825 (dual core, 6W), on-board 2 GB DDR3L, VGA, DDI, GbE, SATA, USB 3.2 Gen 1 (5Gb/s) and HD Audio, -40°C ~ 85°C and RoHS
ICE-DB-T10-R10	Baseboard for COM Express Type 10 module COM.0 Rev. 2.1, supports PICMG EAPI R1.0

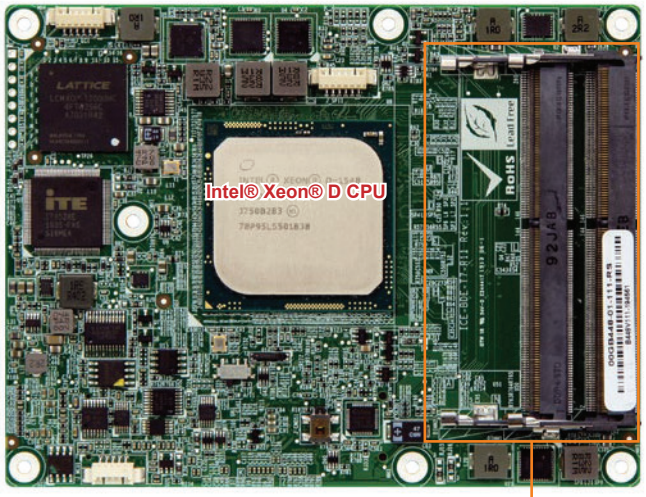
Note: Models with other CPUs not listed in the table are requested by MOQ - 100 pcs/lot.

TYPE 7

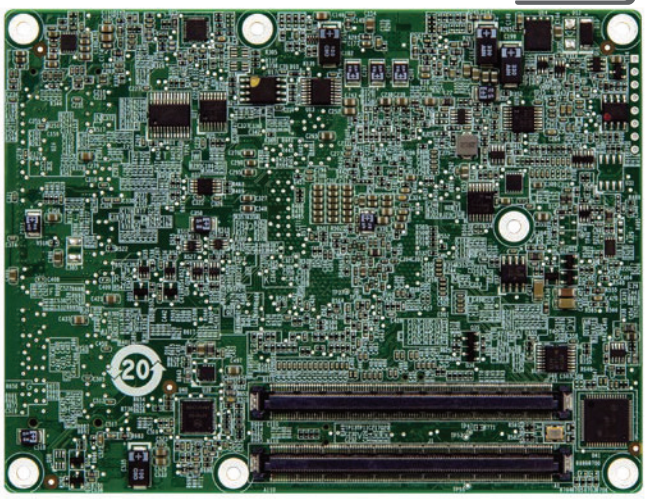
ICE-BDE-T7

COM Express Basic size Type 7 Module, Intel® Broadwell-DE D-1500 Processor, GbE, 10G KR, NCSI, SATA 6Gb/s, USB 3.2 Gen 1, PCIe Gen3, RoHS COM.0 Rev. 3.0

New



Dual-channel DDR4 2133/1600 MHz



DDR4 2133/1600 | USB 3.2 | SATA 6Gb/s

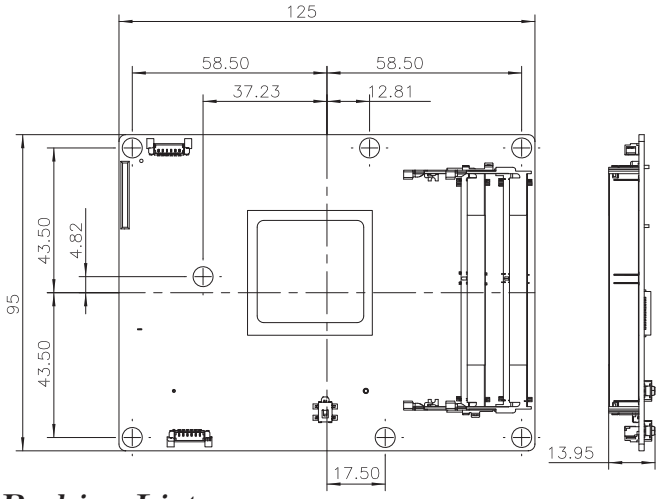
Specifications

- CPU
  Intel® Xeon® D processor D-1548 (12MB Cache, 2.00GHz)
  Intel® Xeon® D processor D-1518 (6MB Cache, 2.20GHz)
  Intel® Xeon® D processor D-1508 (3MB Cache, 2.20GHz)
- Memory
  Two 260-pin 1600/2133 MHz Dual-Channel DDR4 SDRAM supported Support ECC (system max. 32GB)
- BIOS
  UEFI BIOS
- Ethernet
  Intel® I210
  2 x 10G KR Interfaces
  10G Sideband Signals
  (10G_INT 10G_PHY_MDC/MDIO 10G_PHY_SEL 10G_PHY_RST 10G_LED_I2C 10G_SFP_I2C 10G_SDP)
- Embedded Controller
  IT8528EFX
- IO
  2 x RS-232 (2-Wire) to base board
  4 x USB 2.0 to base board
  4 x USB 3.2 Gen 1 to base board (with 4 x USB 2.0)
  2 x SATA 6GB/s signal to base board
- SMBus/JTAG
  Yes, to base board
- JTAG
  On board
- SPI
  Yes, to base board
- I²C
  Yes, to base board
- LPC
  Yes, to base board
- Expansion
  1 x PCIe x16 Gen 3 (Bifurcatable to 2 x8, 1 x8 & 2 x4, or 4 x4)
  1 x PCIe x8 Gen 3 (Bifurcatable to 1 x8 & 2 x4)
  8 x PCIe x1 (Gen2) signal to base board
  Bifurcatable to 1 x8 or 2 x4 or 4 x1 + 1 x4 or 8 x1
- Watchdog Timer
  Software programmable support 1~255 sec. system reset
- GPIO
  8 bit GPIO, to base board
- TPM
  On board SPI TPM 2.0
- Power Supply
  12V: 12V±5%, 5VSB: 5V±5%, RTC Battery: 2.0-3.3V
- Power Consumption
  12V@2.15A, 5VSB0.28A, 5V0.03A
- Operating Temperature
  -20°C ~ 60°C with air flow
- Operating Humidity
  5% ~95%, non-condensing
- Dimensions
  125 mm x 95 mm
- Weight
  GW: 600g / NW:300g
- CE/FCC compliant

Features

- COM Express Basic size Type 7 Module for COM.0 Rev. 3.0
- Intel® Xeon® D and Pentium® D SoC (up to 16 cores)
- Up to 32GB dual channel DDR4 at 1866/2133/2400MHz ECC (dependent on SoC SKU)
- Two 10G Ethernet and NC-SI support
- Up to 32 PCIe lanes (24x Gen3, 8x Gen2)
- GbE, two SATA 6Gb/s, four USB 3.2 Gen 1/2.0

Dimensions *(Unit: mm)*



Packing List

1 x ICE-BDE-T7 single board computer	
1 x Heatsink	1 x QIG

Ordering Information

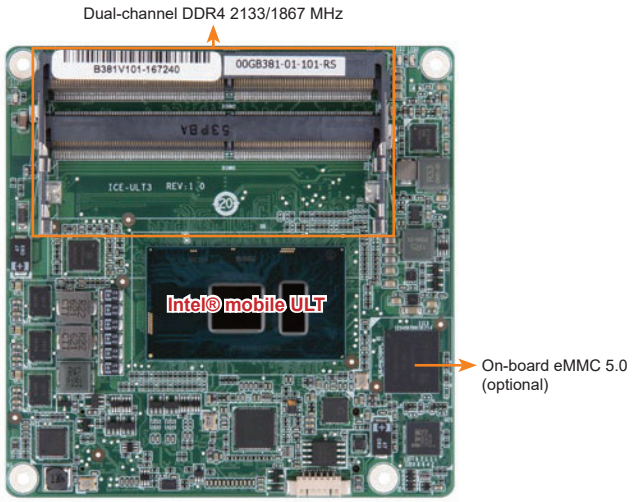
Part No.	Description
ICE-BDE-T7-1548-R11**	COM Express Basic size Type 7 Module support, Intel® Broadwell-DE Eight-Core processor D-1548 (45W), two ECC DDR4 SO-DIMM, GbE, 10G KR, NCSI, SATA 6Gb/s, USB 3.2 Gen 1, PCIe Gen3, RoHS
ICE-BDE-T7-1518-R11**	COM Express Basic size Type 7 Module support, Intel® Broadwell-DE Quad-Core processor D-1518 (35W), two ECC DDR4 SO-DIMM, GbE, 10G KR, NCSI, SATA 6Gb/s, USB 3.2 Gen 1, PCIe Gen3, RoHS
ICE-BDE-T7-1508-R11	COM Express Basic size Type 7 Module support, Intel® Broadwell-DE Dual-core Pentium® processor D1508 (25W), Two ECC DDR4 SO-DIMM, GbE, 10G KR, NCSI, SATA 6Gb/s, USB 3.2 Gen 1, PCIe Gen3, RoHS
ICE-DB-T7-i2-R10	Base Board for COM Express Type 7 Module

**By order production MOQ: 100

TYPE 6

ICE-ULT3

COM Express Compact size Type 6 Module, 6th Generation Intel® Core™ ULT Processor, DDR4, VGA, LVDS, DDI, GbE, SATA 6Gb/s, USB 3.2 Gen 1 (5Gb/s) and HD Audio, RoHS





One piece heat sink for COM Express Basic Size provides better thermal solution

DDR4 2133 | Triple Display | USB 3.2 | SATA 6Gb/s | GbE

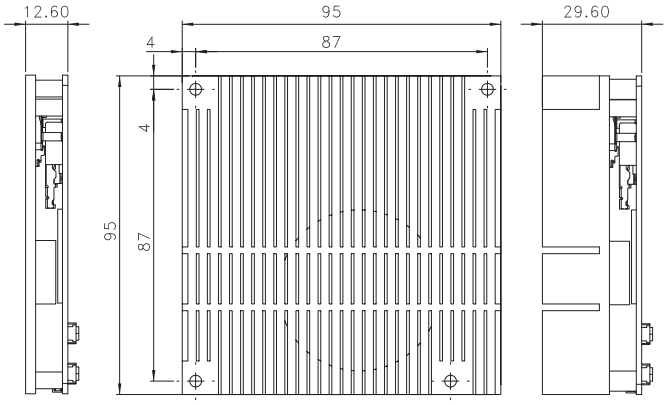
Specifications

- CPU
  6th generation Intel® mobile ULT on-board SoC
  Intel® Core™ i7-6600U (up to 3.4GHz, dual-core, 4MB cache, TDP=15W)
  Intel® Core™ i3-6100U (up to 2.3GHz, dual-core, 3MB cache, TDP=15W)
  Intel® Celeron® processor 3955U (up to 2.0GHz, dual-core, 2MB cache, TDP=15W)
  Intel® Celeron® processor 3855U (up to 1.6GHz, dual-core, 2MB cache, TDP=15W)
- Memory
  Two 260-pin 2133/1866 MHz dual-channel DDR4 non-ECC unbuffered SO-DIMMs support up to 32GB
- BIOS
  UEFI BIOS
- Graphic Engine
  Intel® HD Graphics Gen 9 support for DX11/12, OCL 2.x, OGL 4.3/4.4, ES 2.0
  Decode/Encode for HEVC, VP8, VP9 2 ,VDENC
- Display Output
  1 x DDI: DisplayPort/HDMI/DVI (up to 3840x2160@60Hz)
  1 x DDI: DP to VGA via CH7517
  (1 x Optional DisplayPort / HDMI/DVI up to 1920x1200@60Hz)
  1 x DDI: Embedded DP (up to 3840x2160@60Hz)
  (Option with 1 x Dual Channel LVDS 18/24 bit via CH7511B)
  (up to 1920x1200@60Hz)
- Ethernet
  Intel® Clarkville-V I219LM Support Intel® AMT 11.0
- I/O Interface
  2 x RS-232 (2-Wire) to base board
  4 x USB 2.0 to base board
  4 x USB 3.2 Gen 1 (5Gb/s) to base board (with 4 x USB 2.0)
  2 x SATA 6Gb/s signal to base board
- Audio
  High definition audio interface
- SMBus
  YES, to base board
- I²C
  YES, to base board
- LPC
  YES, to base board
- Expansion
  1 x PCIe x1 signal to base board (Via PCIe x16 channel)
  8 x PCIe x1 signal to base board
- Watchdog Timer
  Software programmable, supports 1~255 sec. system reset
- eMMC
  eMMC 5.0 (optional)
- GPIO
  8 bit GPIO, to base board
- TPM
  Through base board
- Power Supply
  12V: 12V±5%, 5VSB: 5V±5%, RTC Battery: 2.0-3.3V
- Power Consumption
  +12V@2.57A, 5VSB@0.04A, 5V@0.02A
  (Intel® Core™ i7-6600U with two 8GB 2400 MHz DDR4 memory)
- Operating Temperature
  -20°C ~ 65°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Diemension
  95 mm x 95 mm
- Weight
  GW: 600g / NW: 250g
- CE/FCC compliant

Features

- Intel® Skylake ULT Processors supported
- Intel® HD Graphics technology integrates high-performance graphics and media processing
- Two 260-pin 2133/1867 MHz Dual-Channel DDR4 SDRAM Unbuffered DIMM supported (system max. 32GB)
- 18/24-bit dual-channel LVDS, analog CRT, DDI supported
- Support Intel® AMT 11.0

Dimensions *(Unit: mm)*



Packing List

1 x ICE-ULT3 single board computer	
1 x Heatsink	1 x QIG

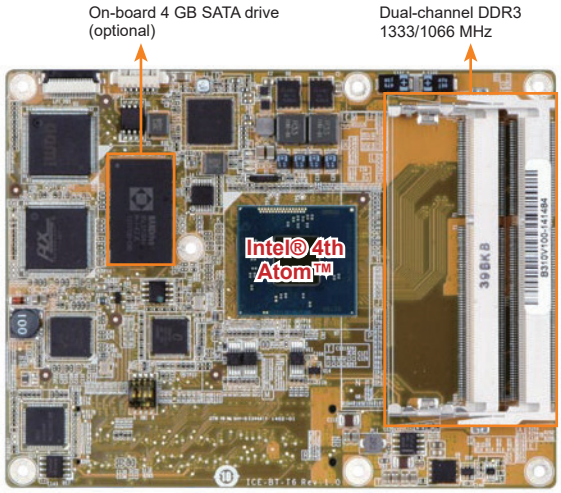
Ordering Information

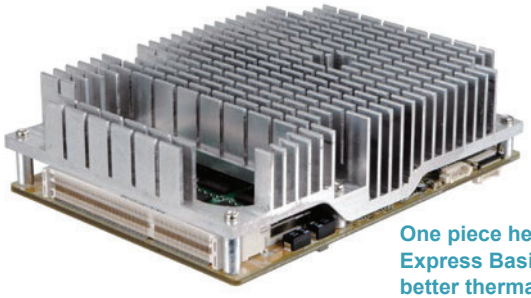
Part No.	Description
ICE-ULT3-i7-R10	COM Express Compact size Type 6 Module, 6th Generation Intel® Core™ i7-6600U (15W) on-board Processor (ULT), DDR4, VGA, LVDS, DDI, GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s and HD Audio, RoHS
ICE-ULT3-i3-R10	COM Express Compact size Type 6 Module, 6th Generation Intel® Core™ i3-6100U (15W) on-board Processor (ULT), DDR4, VGA, LVDS, DDI, GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s and HD Audio, RoHS
ICE-ULT3-C-R10	COM Express Compact size Type 6 Module, Intel® Celeron® 3955U (15W) on-board Processor (ULT), DDR4, VGA, LVDS, DDI, GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s and HD Audio, RoHS
ICE-ULT3-CE-R10	COM Express Compact size Type 6 Module, Intel® Celeron® 3855U (15W) on-board Processor (ULT), DDR4, VGA, LVDS, DDI, GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s and HD Audio, RoHS
ICE-DB-T6R-R11	Base Board for COM Express Type 6 Module COM.0 Rev. 2.1, support PICMG EAPI R1.0

TYPE 6

ICE-BT-T6

COM Express Rev 2.1 Basic Type 6 Module, Intel® 4th Generation Atom™ Processor, VGA, DDI, GbE, SATA 3Gb/s, USB and Audio, RoHS





One piece heat sink for COM Express Basic Size provides better thermal solution





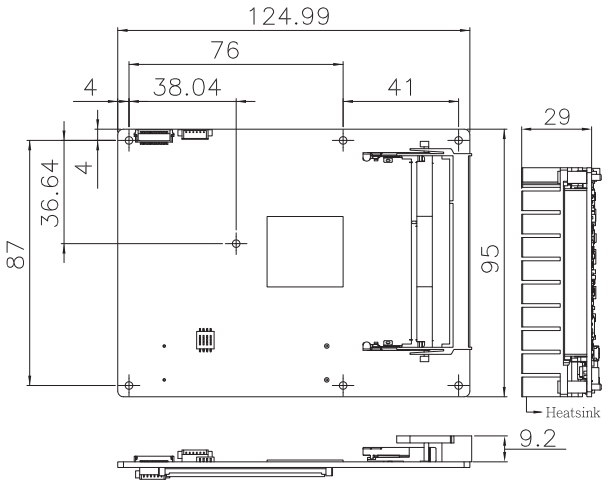
Specifications

- CPU
  Intel® Atom™ E3845 on-board SoC (1.91GHz, quad-core, 2MB cache, TDP=10W)
  Intel® Atom™ E3827 on-board SoC (1.75GHz, dual-core, 1MB cache, TDP=8W)
  Intel® Atom™ E3826 on-board SoC (1.46GHz, dual-core, 1MB cache, TDP=7W)
  Intel® Atom™ E3825 on-board SoC (1.33GHz, dual-core, 1MB cache, TDP=6W)
  Intel® Atom™ E3815 on-board SoC (1.46GHz, single-core, 512KB cache, TDP=5W)
  Intel® Celeron® J1900 on-board SoC (2GHz, quad-core, 2MB cache, TDP=10W)
- Memory
  Two 204-pin 1066/1333 MHz dual-channel DDR3L SDRAM unbuffered DIMMs support up to 8 GB
- BIOS
  UEFI BIOS
- Graphics Engine
  Intel® HD Graphics Gen 7 Engine with 4 execution units, supporting DX11.1, OpenGL 4.2 and OpenCL1.2
- Display Output
  1 x VGA (up to 2560x1600@60Hz)
  1 x DDI 1 (DP up to 2560x1600@60Hz / HDMI up to 1920x1080@60Hz)
  1 x LVDS: 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
- Ethernet
  Intel® I210 GbE Ethernet
- Storage
  2 x SATA 3Gb/s signal to baseboard
  Optional soldered down SSD up to 64 GB (SATA port 1)
- Embedded Controller
  ITE IT8528E/FX
- USB
  7 x USB 2.0 signal to baseboard
  4 x USB 3.2 Gen 1 (5Gb/s) signal to baseboard (via 1 to 4 USB 3.2 Gen 1 (5Gb/s) hub)
- Audio
  High Definition Audio interface to baseboard
- GPIO
  Yes, to baseboard
- SMBus
  Yes, to baseboard
- I²C
  Yes, to baseboard
- LPC
  Yes, to baseboard
- SPI
  Yes, to baseboard
- Internal Storage
  2-Kb serial I²C bus EEPROM supports EAPI Rev. 1.0
- Serial Port
  2 x Serial ports to baseboard (TX & RX from EC)
- Expansion
  5 x PCIe x1 signal to baseboard (2 from SoC, 3 from PLX PEX8605 switch IC)
- Watchdog Timer
  Software programmable, supports 1~255 sec. system reset (by EC)
- Power Consumption
  +12V@0.54A, Vcore_12V@0.95A
  (Intel® Celeron® J1900 CPU with two 8 GB 1333 MHz DDR3 memory)
- Operating Temperature
  -20°C ~ 60°C
- Storage Temperature
  -30°C ~ 70°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions
  125 mm x 95 mm
- Weight
  GW: 600g / NW: 200g
- CE/FCC compliant

Features

- Intel® 22nm Atom™ or Celeron® on-board SoC supported
- Intel® HD Graphics Gen7 integrates high-performance graphics and media processing
- Supports 1333/1066 MHz DDR3L (1.35V) memory, up to 8 GB
- Supports one analog CRT, one 24-bit dual-channel LVDS, and one DDI
- Optional soldered down 4 GB SSD

Dimensions *(Unit: mm)*



Packing List

1 x ICE-BT-T6 single board computer	
1 x Heatsink	1 x QIG

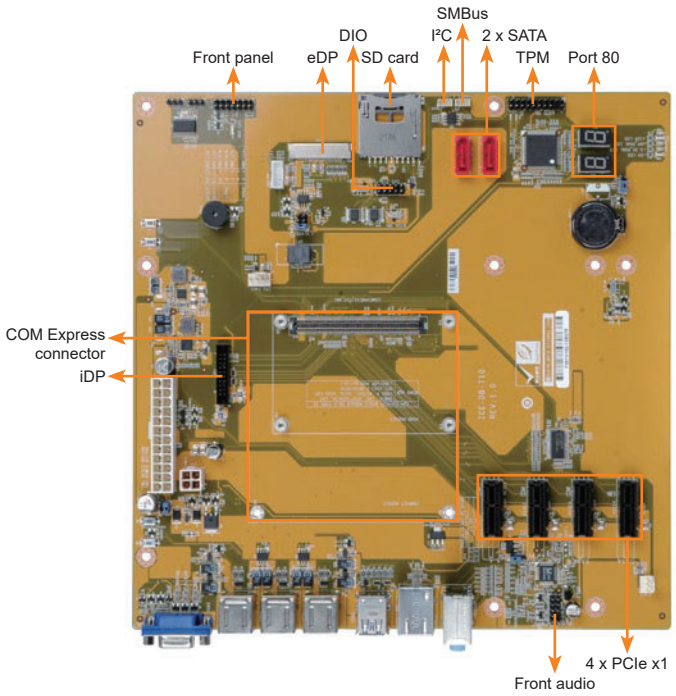
Ordering Information

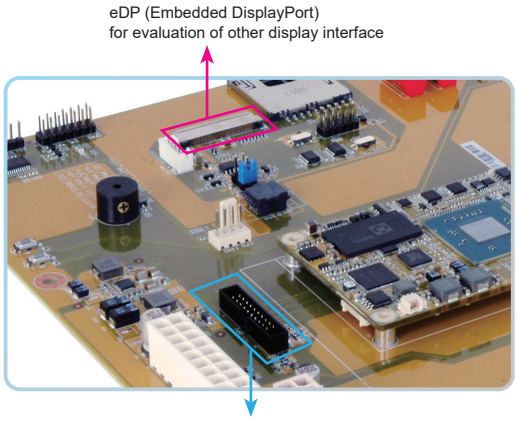
Part No.	Description
ICE-BT-T6-J19001-R10	COM Express Basic Type 6 module with Intel® Celeron® quad-core processor J1900 (10W), VGA, DDI, LVDS, GbE, SATA, USB 3.2 Gen 1 (5Gb/s) and HD Audio, RoHS
ICE-BT-T6-E38XX1-R10	COM Express Basic Type 6 module with Intel® Atom™ processor E38XX, VGA, DDI, LVDS, USB 3.2 Gen 1 (5Gb/s), GbE, SATA and HD Audio, RoHS (by request MOQ: 100pcs/lot)
ICE-DB-T6R-R11	Baseboard for COM Express Type 6 Module COM.0 Rev. 2.1, supports PICMG EAPI R1.0
19100-000186-00-RS	Heat spreader for ICE-BT-T6

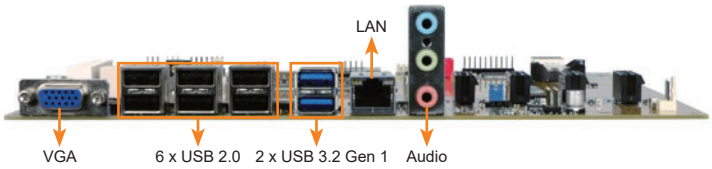
TYPE10

ICE-DB-T10

Baseboard for COM Express Type 10 Module COM.0 Rev. 2.1, support PICMG EAPI R1.0







Specifications

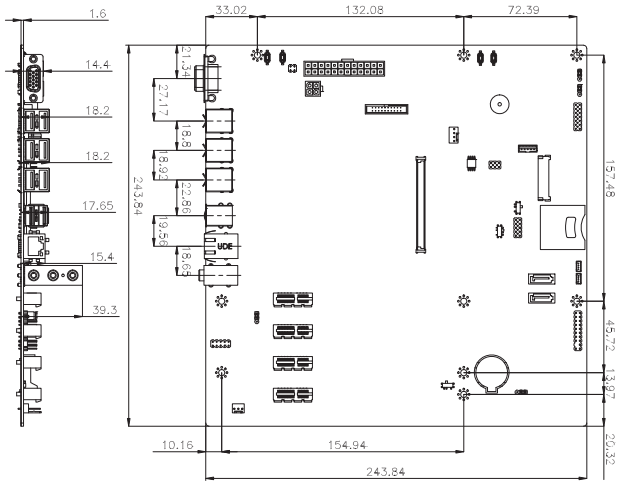
- Form Factor
  microATX form factor baseboard (244mm x 244mm)
- COM Express type
  Supports COM Express Compact/Mini module using connector pin out Type 10
- Display Interfaces
  1 x eDP
  1 x VGA
  1 x DisplayPort pin-header
- Audio
  Realtek ALC662 HD Audio codec (Line-in, Line-out, Mic)
- Internal I/O Interface
  4 x PCIe x1 — 1 x LPC
  2 x SATA port — 1 x SD card socket
  2 x RS-232 from COM Express (only TX, RX, GND)
- External I/O Interface
  1 x VGA — 1 x Audio jack (Line-in, Line-out, Mic)
  2 x USB 3.2 Gen 1 (5Gb/s) — 6 x USB 2.0
  1 x RJ-45
- Front Audio
  1 x Front audio (2x5 pin)
- TPM
  1 x TPM connector (2x10 pin)
- 80 Port
  1 x 80 port (2x7 segment display)
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker(Buzzer), power button, reset button)
- I²C
  1 x I²C (1x4 pin)
- SMBus
  1 x SMBus (1x4 pin)
- Internal Storage
  EEPROM (support EAPI R1.0)
- LPC
  1 x LPC
- Fan Connector
  1 x 4-pin / 1 x 3 pin CPU module fan connector
- Watchdog Timer
  Software programmable, support 1~255 sec. system reset
- Power Supply
  ATX / AT power supply
  24+4 pin
- Operating Temperature
  -20°C ~ 60°C
- Storage Temperature
  -30°C ~ 70°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions
  243.8 mm x 243.8 mm (9.6" x 9.6")
- Weight: GW:550g / NW:350g
- CE/FCC compliant



Features

- mATX form factor baseboard for COM.0 Rev. 2.1, Pin-out Type 10
- Support four PCIe x1
- Support eDP, VGA and iDP
- Support PICMG EAPI R1.0

Dimensions *(Unit: mm)*



Packing List

1 x COM Express Baseboard	1 x SATA cable
1 x Mini jumper pack	1 x QIG

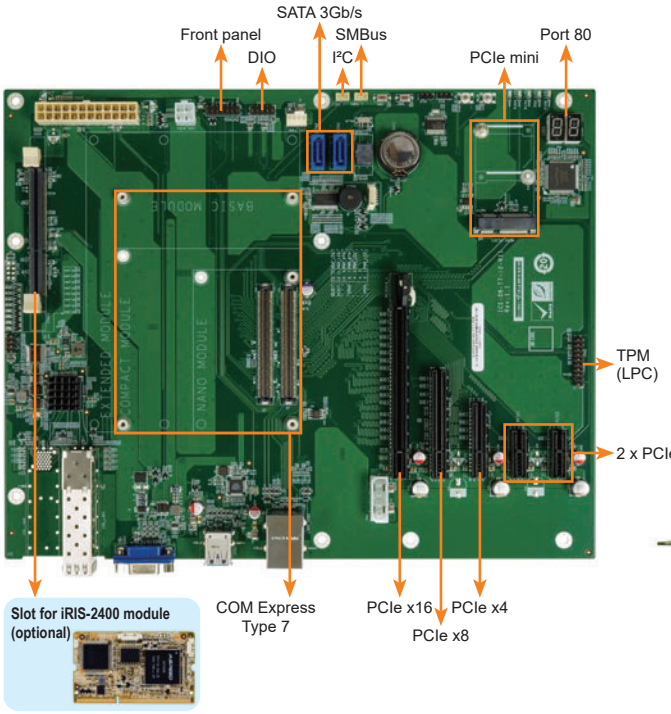
Ordering Information

Part No.	Description
ICE-DB-T10-R10	Baseboard for COM Express Type 10 Module COM.0 Rev. 2.1, support PICMG EAPI R1.0
19800-000082-RS	RS-232/422/485 cable, 14-pin to dual DB-9, 230mm, P=2.54
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P

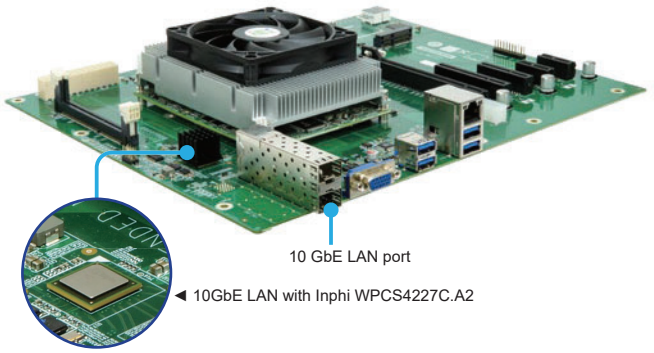
TYPE 7

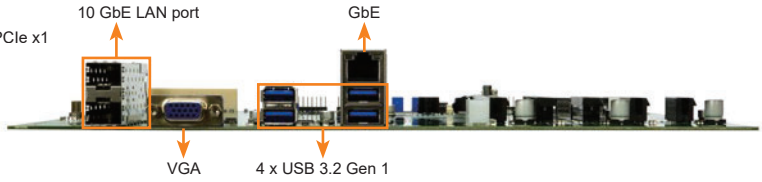
ICE-DB-T7-i2

Base Board for COM Express Type 7 Module COM.0 Rev. 3.0



New





IPMI 2.0 Compliant | Native PCIe Gen.3 | USB 3.2 | SATA 6Gb/s | TPM 1.2 Support

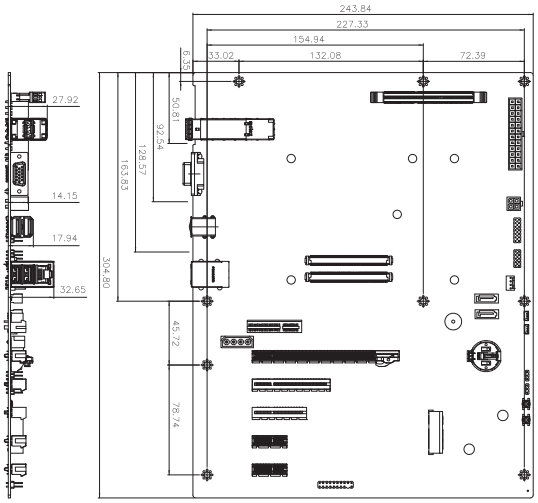
Specifications

- Form Factor
  ATX form factor base board
- CPU
  Supports COM Express Compact / Basic module using connector pin out Type 7
- Display Interfaces
  1 x VGA from iRIS-2400
- Expansion
  1 x PCIe x4 (x4 Gen 2 signal)
  1 x PCIe x16 (x16 Gen 3 signal)
  1 x PCIe x8 (x8 Gen 3 signal)
  1 x PCIe x4 (x1 Gen 2) (x4 signal option)
  2 x PCIe x1 (x1 Gen 2)
- Internal I/O Interface
  1 x Mini-PCIe
  2 x SATA port
  2 x RS-232 from COM Express (only TX, RX, GND)
  2 x RS-232 from SIO
- Rear I/O Interface
  4 x USB 3.2 Gen 1
  1 x RJ45 connector
  1 x VGA (Display output depends on CPU sku)
- TPM
  2 x 10-pin pin header support LPC interface
- 80 port
  2 x 7 segment display
- Front Panel
  1 x Front_Panel (Power LED, HDD LED, Speaker(Buzzer), Power Button, Reset Button)
- iRIS Remote Management Module
  1 x iRIS-2400 slot
- I²C
  1 x I²C (1 x 4-pin wafer)
- SMBus
  1 x SMBus (1 x 4 pin wafer)
- Internal storage
  EEPROM (support EAPI R1.0)
- Watchdog Timer
  Software Programmable support 1~255 sec system reset
- GPIO
  8-bit GPIO
- Power Supply
  ATX / AT Power Supply
  24+4 pin
- Fan Connector
  1 x 4-pin / 1x 3 pin CPU module fan connector
  1 x 3-pin system fan connector by SIO
- Temperature
  -40°C ~ 85°C
- Humidity
  5% ~ 95%, non-condensing
- Dimensions
  304.8 mm x 243.8 mm (12" x 9.6")
- CE/FCC compliant

Features

- ATX form factor base board for COM.0 Rev. 3.0 Pin-out Type 7
- Support 2 x 10GbE PHY (WPCS4227C.A2)
- Support 32 PCIe lanes
- Support PICMG EAPI R1.0
- Support IPMI 2.0 via iRIS-2400 module

Dimensions *(Unit: mm)*



Packing List

1 x COM Express Baseboard	1 x Mini jumper pack
1 x Dual ports RS-232 cable (P/N: 19800-000051-RS)	1 x QIG
2 x SATA cable (P/N: 32000-062800-RS)	

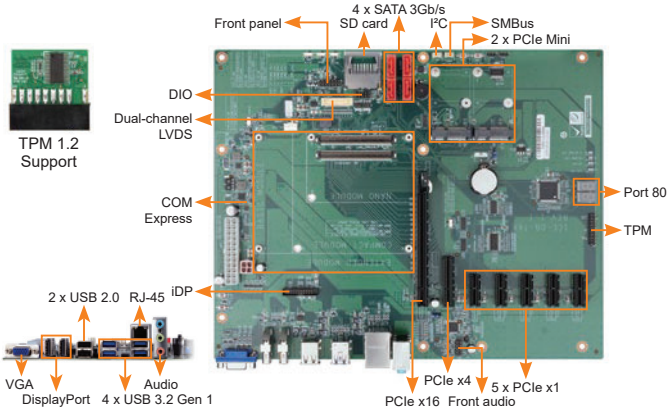
Ordering Information

Part No.	Description
ICE-DB-T7-i2-R11	Base Board for COM Express Type 7 Module COM.0 Rev. 3.0, support PICMG EAPI R1.0, iRIS-2400
iRIS-2400-R10	IPMI 2.0 adapter card with AST2400 BMC chip for DDR3 SO-DIMM socket interface

TYPE 6

ICE-DB-T6R

Baseboard for COM Express Type 6 Module COM.0 Rev. 2.1 (for ICE-ULT3, ICE-QM871 & ICE-BT-T6)



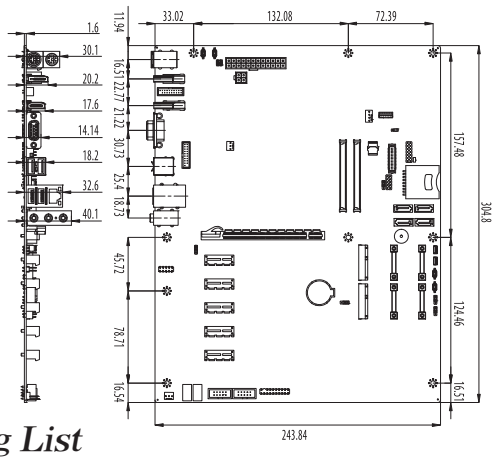
Features

- ATX form factor baseboard for COM.0 Rev. 2.1, pin-out Type 6
- Support one PCIe x16, one PCIe x4, five PCIe x1, two PCIe Mini
- Support PICMG EAPI R1.0

Specifications

- Form Factor
  ATX form factor baseboard
- CPU
  Supports COM Express Compact/Mini module using connector pin out Type 6
- Display Interfaces
  1 x DisplayPort connectors
  1 x LVDS 18/24-bit single or dual-channel (with PWM back light controller)
  1 x VGA
  2 x DisplayPort pin-header
- Audio
  Realtek ALC662 HD Audio codec (Line-in, Line-out, Mic)
- Expansion
  1 x LPC 1 x PCIe x4
  1 x PCIe x16 5 x PCIe x1
  2 x PCIe Mini (MINIPCIE1 with mSATA support, colay with SATA_4)
- Internal I/O Interface
  1 x PS2 KB/MS 4 x SATA port
  1 x SD card socket
- External I/OInterface
  1 x Audio jack (Line-in, Line-out, Mic)
  1 x DisplayPort connectors
  1 x HDMI 1 x VGA
  1 x PS2 KB/MS 2 x USB 2.0
  1 x RJ-45
  4 x USB 3.2 Gen 1 (5Gb/s)
- Front Audio: 2 x 5-pin pin header
- TPM: 1 x TPM (2x10 pin)
- 80 port: 2 x 7 segment display
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker/buzzer, power button, reset button)
- I²C: 1 x 4-pin wafer
- SMBus: 1 x 4-pin wafer
- Internal storage
  EEPROM (supports EAPI R1.0)
- Watchdog Timer
  Software programmable supports 1~255 sec system reset
- GPIO: 8-bit GPIO
- Power Supply
  ATX / AT Power Supply
  24+4 pins
- Fan Connector
  1 x 4-pin / 1 x 3-pin CPU module fan connector
  1 x 3-pin system fan connector by SIO
- Operating Temperature: -20°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity
  5% ~ 95 non-condensing
- Dimensions
  304.8 mm x 243.8 mm (12" x 9.6")
- Weight: GW:650g / NW:430g
- CE/FCC compliant

Dimensions *(Unit: mm)*



Packing List

1 x COM Express baseboard	1 x Mini jumper pack
2 x SATA cable	1 x QIG

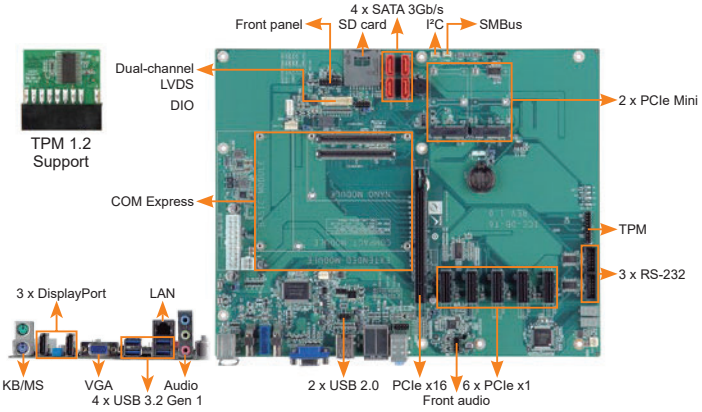
Ordering Information

Part No.	Description
ICE-DB-T6R-R11	Baseboard for COM Express Type 6 Module COM.0 Rev. 2.1, support PICMG EAPI R1.0
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P

TYPE 6

ICE-DB-T6

Baseboard for COM Express Type 6 Module (for ICE-QM770 & ICE-CV-D25501/N26001)



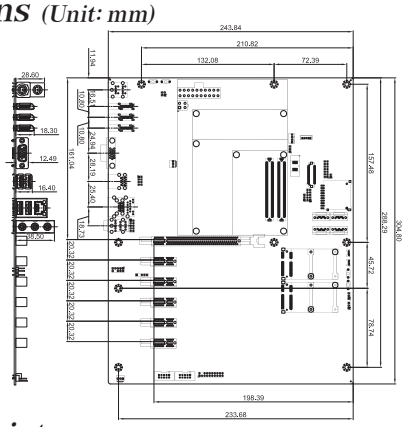
Features

- ATX form factor baseboard for COM Express Rev. 2, Pin-out Type 6
- Supports one PCIe x16, six PCIe x1 and two PCIe Mini
- Supports smart battery charger

Specifications

- Form Factor: ATX form factor baseboard
- CPU
  Supports COM Express Compact/Mini module using connector pin out Type 6
- Display Interfaces
  1 x 18/24-bit single/dual-channel LVDS
  1 x VGA
  3 x DisplayPort (2 x real connectors, 1 x pin header)
- Super I/O: W83627DHG
- Audio
  Realtek ALC892 HD Audio codec (Line-in, Line-out, Mic)
- Expansion
  1 x LPC 2 x PCIe Mini (with USB)
  1 x PCIe x16 6 x PCIe x1
- Internal I/O Interface
  1 x PS2 KB/MS 2 x RS-232 from SIO
  1 x SD 2 x USB 2.0
  4 x SATA port
  2 x RS-232 from COM Express (only TX, RX and GND)
- External I/O Interface
  1 x VGA 4 x USB 3.2 Gen 1 (5Gb/s)
  1 x RJ-45 3 x DisplayPort
  1 x Audio jack (Line-in, Line-out, Mic)
- Front Audio: 1 x Front audio (2x5 pin)
- TPM: 1 x TPM (2x10 pin)
- 80 port: 2 x 7 segment display
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, speaker/buzzer, power button, reset button)
- I²C: 1 x 4-pin wafer
- SMBus: 1 x 4-pin wafer
- Watchdog Timer
  Software programmable supports1~255 sec. system reset
- GPIO: 8-bit GPIO (GPIO from iWDD co-lay SDIO)
- Power Supply: ATX/AT power supply
- Battery: Supports smart battery charger connector
- Fan Connector
  1 x 4-pin / 1 x 3-pin CPU module fan connector
  1 x 3-pin system fan connector by SIO
- Operating Temperature: -10°C ~ 60°C
- Storage Temperature: -20°C ~ 70°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions
  304.8 mm x 243.8 mm (12" x 9.6")
- Weight: GW:660g / NW:450g
- CE/FCC compliant

Dimensions *(Unit: mm)*



Packing List

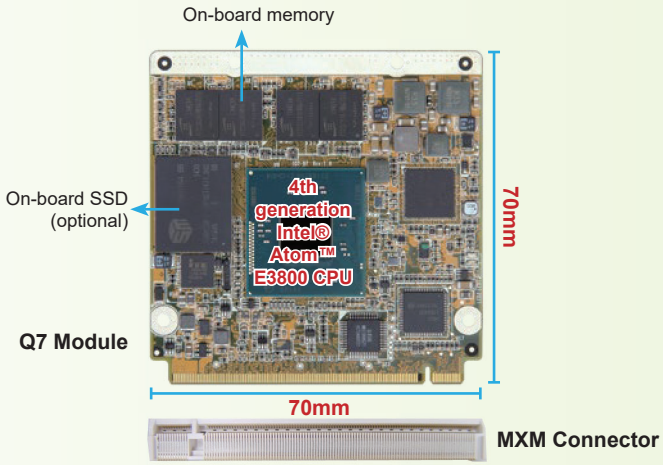
1 x COM Express baseboard	
1 x Dual-port RS-232 cable	1 x Mini jumper pack
2 x SATA cable	1 x QIG

Ordering Information

Part No.	Description
ICE-DB-T6-R10	Baseboard for COM Express Type 6 modules
19800-000082-RS	RS-232/422/485 cable, 14-pin to dual DB-9, 230mm, P=2.54
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P

Q7 Introduction

- The Qseven™ concept is an off-the-shelf, multi vendor, Single Board Computer that integrates all the core components of a common PC and is mounted onto an application specific carrier board.
- Qseven™ modules have a standardized form factor of 70mm x 70mm and have specified pinouts based on the high speed MXM system connector that has a standardized pinout regardless of the vendor.
- The Qseven™ module provides the functional requirements for an embedded application. These functions include, but are not limited to, graphics, sound, mass storage, network and multiple USB ports. A singleruggedized MXM connector provides the carrier board interface to carry all the I/O signals to and from the Qseven™ module.



The New Module Standard

Compact, Square & Cost Efficient
Module Concept for Ultra Mobile Applications

- Low Cost
- Low Power Consumption
- Legacy Free
- Fast Serial Interfaces

ETX, COM Express and Q7 Comparison Table

Platform	ETX 3.0	COM Express Type II Basic Module	Q7
Size	95 x 114 mm	95 x 125 mm	70 x 70 mm
Connector	4 x 100-pin	2 x 220-pin	1 x 230-pin
Memory	1 x SO-DIMM	1 x SO-DIMM	on board memory
VGA	Yes	Yes	N/A
LCD	TTL or LVDS	Up to two single LVDS or Dual-channel LVDS	SDVO/HDMI/DP (Shared)
Expansion	PCI & ISA	PCI & PCI Express	PCI Express
Ethernet	10/100 Mbps	10/100/1000 Mbps	10/100/1000Mbps
USB	4	8	8
SATA	2 (ETX 3.0 only)	Up to 4 SATA	Up to 2 SATA
IDE	2CH	1CH	N/A
Audio	Mic-In/Line-in/Line-Out	AC97/HD interface	HD interface
Power	5V	12V	5V

Defined Interfaces

- 4 x PCI Express x1 Lanes
- 2 x SATA
- 8 x USB 2.0
- 1 x 1000BaseT Ethernet
- 1 x SDIO 8 bit
- 2 x 24-bit LVDS
- SDVO / HDMI / DisplayPort (shared)
- HDA (High Definition Audio)
- I²C Bus
- LPC (Low Pin Count Bus)
- CAN Bus
- Fan Control
- Power Management Signals
- Battery Management
- 5V Power (TDP 12 Watt)
- Unique API for I²C Bus, Watchdog Timer and EPI (Embedded Panel Interface)
- Thermal Cooling Interface defined

Typical Applications

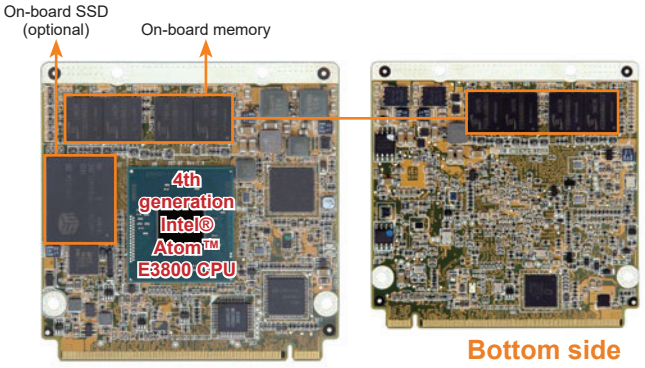

Automation Controllers


Mobile Devices


Measurement Systems

iQ7-BT

Qseven Rev. 2.0 Module Supports 4th generation Intel® Atom™ Processor, LVDS, DDI, GbE, SATA 3Gb/s, USB 3.2 Gen 1 (5Gb/s), SDIO, Audio, -20°C~60°C and RoHS



Memory Down | Dual Display | USB 3.2

Features

- 22nm Intel® Atom™ on-board SoC supported
- Qseven connector pinout according to Qseven Specification Revision 2.0
- Supports 2 GB 1066/1333 MHz DDR3L memory (4 GB optional)
- Optional soldered-down 2 GB~64 GB SSD

Specifications

- CPU
  Intel® Atom™ E3845 on-board SoC (1.91GHz, quad-core, 2MB cache, TDP=10W)
  Intel® Atom™ E3825 on-board SoC (1.33GHz, dual-core, 1MB cache, TDP=6W)
- Memory
  2 GB soldered-down 1066/1333 MHz DDR3L memory (up to 4 GB)
- BIOS
  UEFI BIOS
- Graphics Engine
  Intel® HD Graphics Gen 7 Engine with 4 execution units support DX11.1, OpenGL 4.2 and OpenCL1.2
- Display Output
  Dual independent display
  1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
  1 x DDI (DP up to 2560x1600@60Hz / HDMI up to 1920x1080@60Hz)
- Ethernet
  Intel® I210 GbE controller
- Embedded Controller
  ITE IT8528E/FX
- I/O Interface
  6 x USB 2.0 signal to baseboard
  1 x USB 3.2 Gen 1 (5Gb/s) signal to baseboard
- Storage
  2 x SATA 3Gb/s signal to baseboard
  Optional soldered-down 4 GB SSD (SATA port 2)
- Audio
  High-definition Audio interface to baseboard
- SMBus
  Yes, to baseboard
- I²C
  Yes, to baseboard
- LPC
  Yes, to baseboard
- SDIO
  One 8-bit SDIO 2.0, to baseboard
- SPI
  Yes, to baseboard
- Serial Port
  One serial port to baseboard (form EC)
- Expansion
  3 x PCIe x1 signal to baseboard
- Watchdog Timer
  Software programmable supports 1~255 sec. system reset (form EC)
- Power Consumption
  3.3V@0.13A, 5V@0.13A, 12V@1.35A, 5VSB@0.12A
  (Intel® Atom™ E3845 CPU with 2 GB on-board memory)
- Operating Temperature
  -20°C ~ 60°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions
  70 mm x 70 mm
- Weight
  GW: 300g / NW: 150g
- CE/FCC compliant

Packing List

1 x iQ7-BT single board computer	
1 x Heatsink	1 x QIG

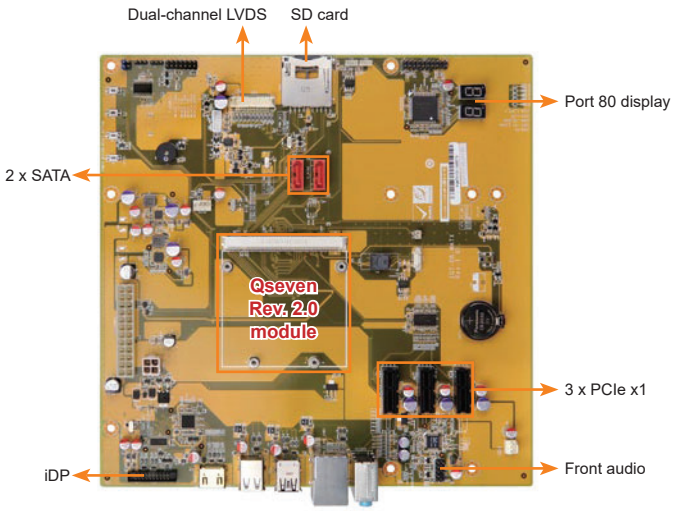
Ordering Information

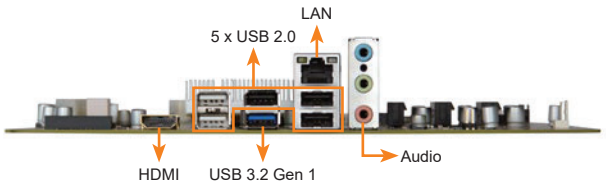
Part No.	Description
iQ7-BT-E38451-R10	Qseven Rev. 2.0 module supports Intel® Atom™ processor E3845 (quad core, 10W), on-board 2 GB DDR3L, LVDS, DDI, GbE, SATA 3Gb/s, SDIO, USB 3.2 Gen 1 (5Gb/s), Audio, and RoHS
iQ7-BT-E38251-R10	Qseven Rev. 2.0 module supports Intel® Atom™ processor E3825 (dual core, 6W), on-board 2 GB DDR3L, LVDS, DDI, GbE, SATA 3Gb/s, SDIO, USB 3.2 Gen 1 (5Gb/s), Audio, and RoHS
iQ7-DB-MATX-R10	Baseboard for Qseven Rev. 2.0 module

Note: Models with other CPUs not listed in the table are requested by MOQ - 100 pcs/lot.

iQ7-DB-MATX

Baseboard for Qseven Rev. 2.0 Module





Features

- mATX form factor baseboard for Qseven Rev. 2.0 module
- Supports three PCIe x1
- 18/24-bit dual-channel LVDS

Specifications

- COM Express Type
  mATX form factor baseboard for Qseven Rev. 2.0 module
- Display Interfaces
  1 x LVDS
  1 x HDMI
  1 x iDP
- Audio
  Realtek ALC662 HD Audio codec (Line-in, Line-out, Mic)
- Internal I/O Interface
  1 x LPC
  1 x SD card socket
  2 x SATA port
  3 x PCIe x1
- External I/O Interface
  1 x Audio jack (Line-in, Line-out, Mic)
  1 x HDMI
  1 x USB 3.2 Gen 1 (5Gb/s)
  5 x USB 2.0
  1 x RJ-45
- Front Audio
  1 x Front audio (2x5 pin)
- TPM
  1 x TPM (2x10 pin)
- Port 80 Display
  2 x 7-segment display
- Front Panel
  1 x Front panel (2x7 pin, power LED, HDD LED, buzzer speaker, power button, reset button)
- I²C
  3 x I²C (1x4 pin)
- SMBus
  1 x SMBus (1x4 pin)
- Watchdog Timer
  Software programmable, supports 1~255 sec. system reset
- Power Supply
  ATX power supply, ATX/AT mode support
- Fan Connector
  1 x CPU smart fan (1x4 pin)
  1 x System fan (1x3 pin)
- Temperature
  -40°C ~ 85°C
- Humidity
  5% ~ 95%, non-condensing
- Dimensions
  243.8 mm x 243.8 mm
- CE/FCC compliant

Packing List

1 x Qseven® baseboard
1 x QIG

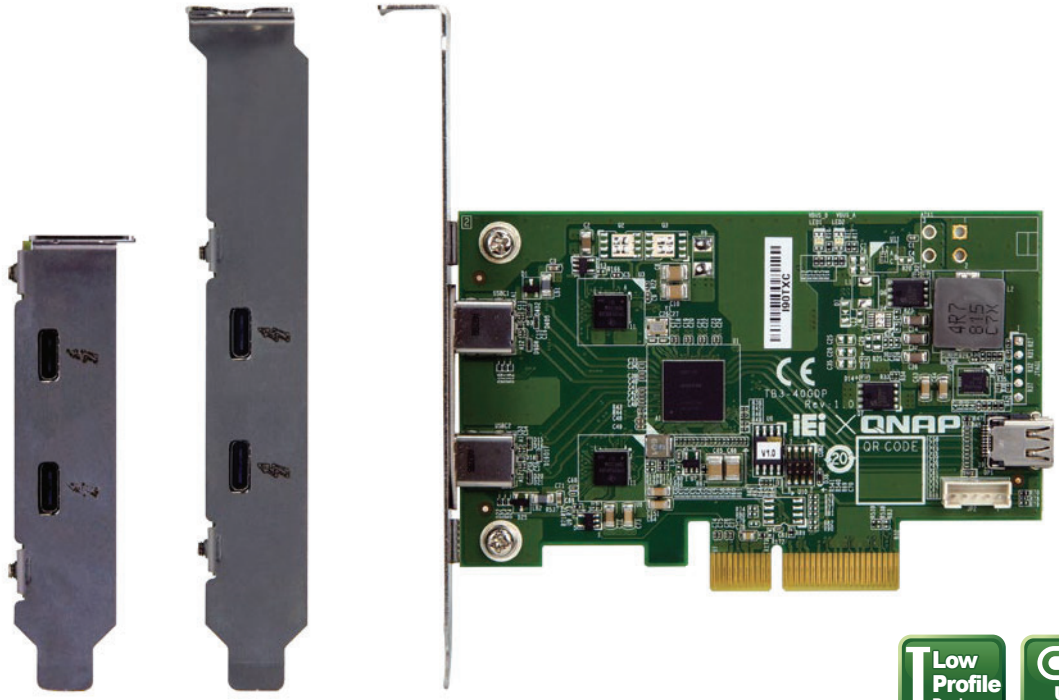
Ordering Information

Part No.	Description
iQ7-DB-MATX-R10	Baseboard for Qseven Rev. 2.0 module
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P

TB3-40GDP

PCI Express Thunderbolt expansion card with Intel® DSL6540, 2 port thunderbolt 3 port (USB Type-C), RoHS (Support Specified IEI Model Only)

New



Low Profile Design | USB TYPE C | mini DP (4K Support)

Specifications

- Chipset
  Intel® JHL6540 Thunderbolt™ 3 Controller IC
- Interface
  PCIe 3.0 x4 (compatible with PCI Express x16/x8/x4 slots)
- External IO
  2 x Thunderbolt 3 port (USB Type-C)
  1 x Display port
- Internal IO
  1 x 9 pin thunderbolt header
- Video
  Support DP1.2 (4096 x 2160 @60 Hz)
- Dimensions
  104.96 x 68.9 mm

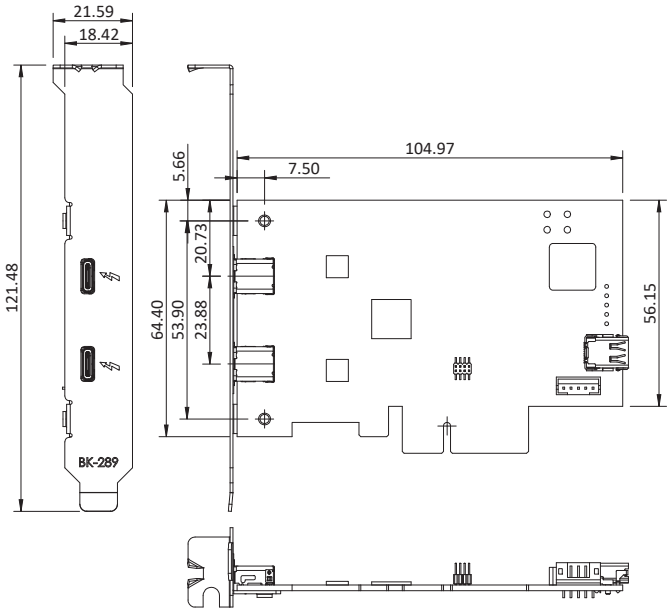
Features

- PCI Express® x4 Gen3.0 compliant
- 2 x Thunderbolt 3 port (USB Type-C)
- Internal mini-DP support up to 4K@60Hz high resolution display
- Full-height and low profile IO brackets design for any compact size system

Packing List

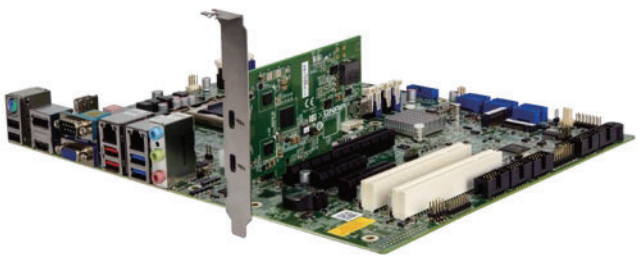
1 x TB3-40GDP Thunderbolt3 expansion card	
1 x Half-height bracket	1 x QIG

Dimensions



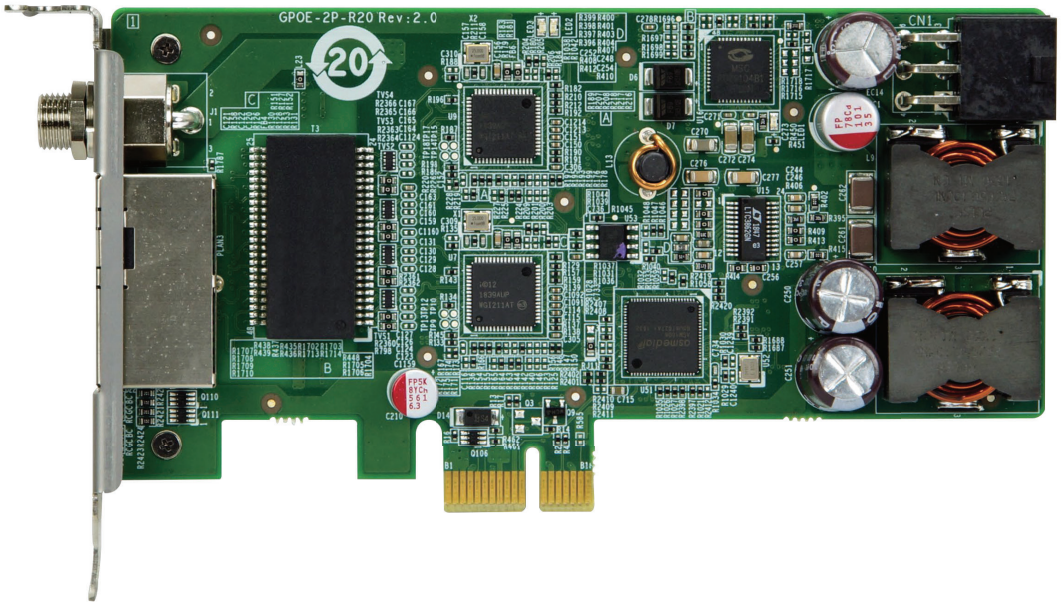
Ordering Information

Part No.	Description
TB3-40GDP-R10	PCI Express Thunderbolt expansion card with Intel® DSL6540, 2 port thunderbolt 3 port (USB Type-C), RoHS



GPOE-2P

PCI Express Power over Ethernet card, 2-port 1000 Base(T), 802.3at compliant, low profile, RoHS



Specifications

- Interface
  PCI Express® x1
- Ethernet
  Intel® I211AT controller
  9kB jumbo frame
  IEEE 802.3az, IEEE1588
- Power Input
  12~24V DC input
  1 x Internal DC input (1x4 pin)
  1 x External DC Jack (Φ2.1/Φ5.5)
  ***Caution! Choose one input only at a time*
- PoE Capability
  IEEE 802.3at
  30W / 52V DC per port
  (Support for total 60 watts under full load)
- Operating Temperature
  0°C ~ 60°C
- Storage Temperature
  -10°C ~ 70°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions
  130 mm x 65 mm
- Weight
  110g
- CE/FCC compliant

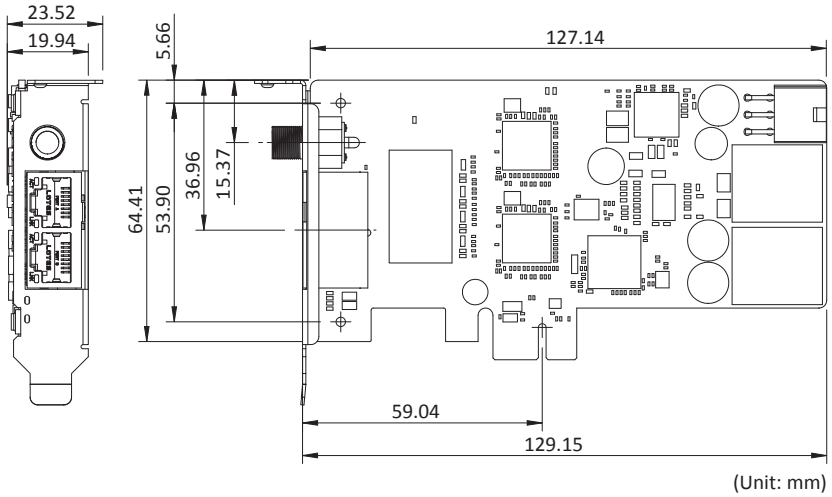
Features

- PCI Express® x1 compliant
- Support IEEE 802.3at for PoE (Power over Ethernet) with 30 watts per port
- Support link aggregation/jumbo frames (9 Kbyte)
- Supports 12V~24V DC input power

Packing List

1 x GPOE-2P card
1 x QIG

Dimensions

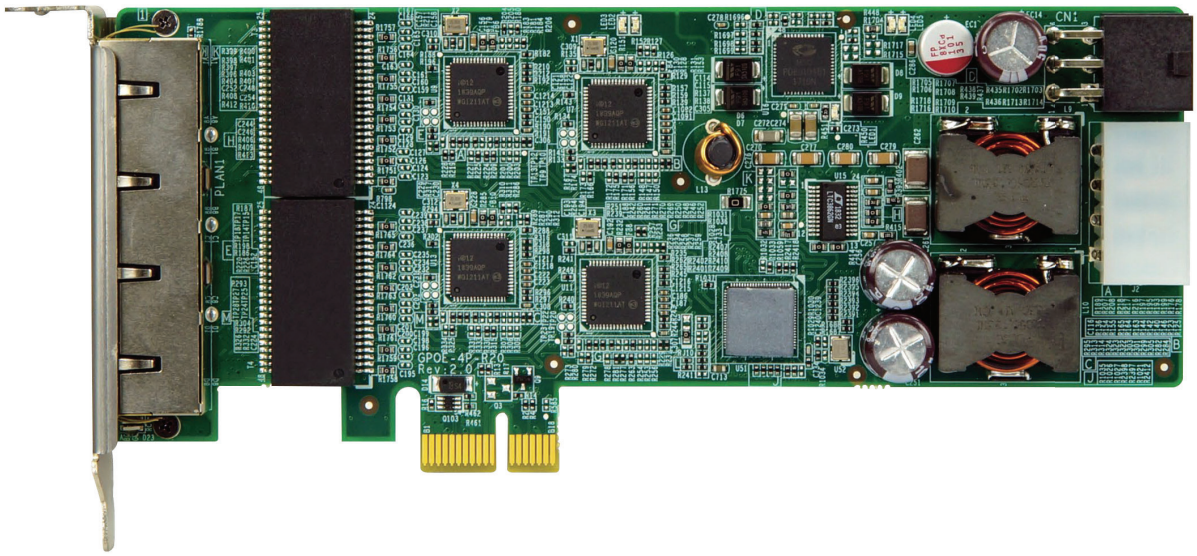


Ordering Information

Part No.	Description
GPOE-2P-R20	PCI Express Power over Ethernet card, 2-port 1000 Base(T), 802.3at compliant, low profile, RoHS
32102-044900-100-RS	WIRE cable, power cable, PCIe power cable, 3, 100MM, 0AWG, (A) MOLEX 8981-04M P=5.08*2, (B) TKP:H6657R1-06-B-03 P=4.2, Polywell, RoHS
63040-010090-120-RS	Power adapter, FSP, FSP090-DIEBN2, 9NA0904712, Vin:90~264VAC, 90W, Plug=7.5mm, Cable=1500mm, Erp (no load 0.5W), Vout:19VDC, Φ2.1/Φ5.5/lock, CCL, RoHS
63040-010065-200-RS	Power adapter, FSP, FSP065-REBN2, 9NA0654709, Vin:90~264VAC, 65W, Dim:46.3x108.3x30mm, Plug=7.5mm, Cable=1500mm, Erp (no load 0.1W), Vout:19VDC, Φ2.1/Φ5.5/lock, CCL, RoHS

GPOE-4P

PCI Express Power over Ethernet card, 4-port 1000 Base(T), 802.3at/af compliant, low profile, RoHS



Specifications

- Interface
  PCI Express® x1
- Ethernet
  Intel® I211-AT controller
  9kB jumbo frame
  IEEE 802.3az, IEEE1588
- Power Input
  12~24V DC input
  1 x Internal DC input (1x4 pin)
  1 x Internal DC input (2x3 pin)
  ***Caution! Choose one input only at a time*
- PoE Capability
  Standard mode: IEEE 802.3af with 15.4W / 52V per port
  Dual port mode: IEEE 802.3at with 30W / 52V per port
  (Support for total 90 watts under full load)
- Operating Temperature
  0°C ~ 60°C
- Storage Temperature
  -10°C ~ 70°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions
  160 mm x 65 mm
- Weight
  110g
- CE/FCC compliant

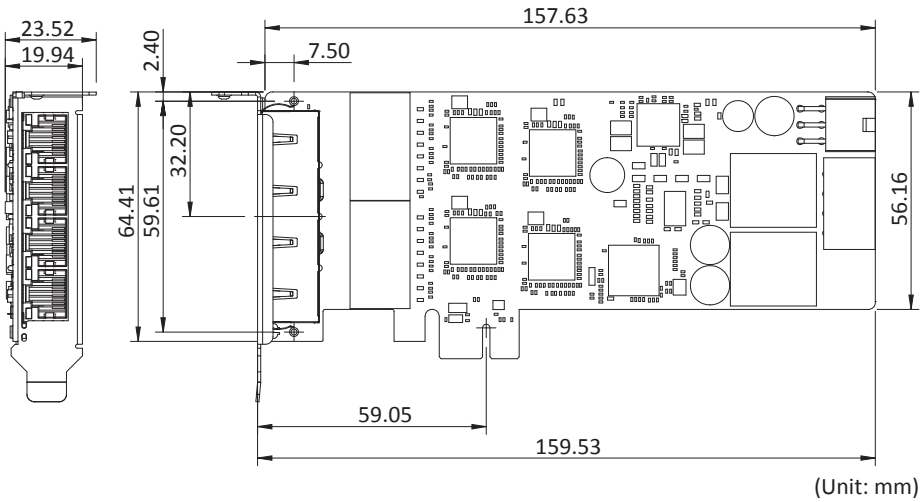
Features

- PCI Express® x1 compliant
- Support for total 90 watts under full load
- Support link aggregation/jumbo frames (9 Kbyte)
- Supports 12V~24V DC input power

Packing List

1 x GPOE-4P card
1 x QIG

Dimensions



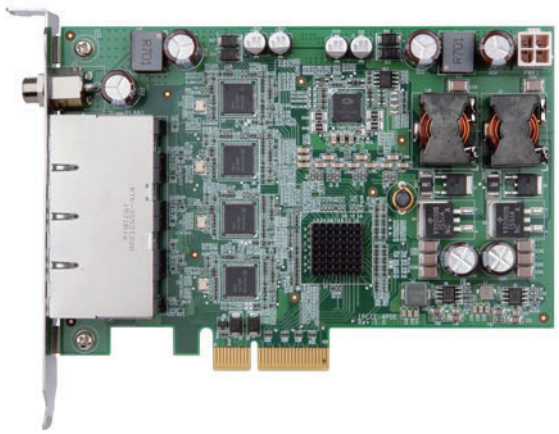
(Unit: mm)

Ordering Information

Part No.	Description
GPOE-4P-R20	PCI Express Power over Ethernet card, 4-port 1000 Base(T), 802.3af compliant, low profile, RoHS
32102-011500-100-RS	WIRE cable, power cable, 3, 150MM, 18AWG, MOLEX 8981-04P P=5.08 X2, MOLEX 8981-04M P=5.08, Wins Precision, RoHS
32102-044900-100-RS	WIRE cable, power cable, PCIe power cable, 3, 100MM, 0AWG, (A) MOLEX 8981-04M P=5.08*2, (B) TKP:H6657R1-06-B-03 P=4.2, Polywell, RoHS
32102-045800-100-RS	WIRE cable, power cable, 2, 300MM, 20AWG, (A) DC JACK 5.5*2.1+NUT+WASHER (Smcts:655-353), (B) TKP: H6657R1-06-B-03 P=4.2, Polywell, RoHS

IPCIE-4POE

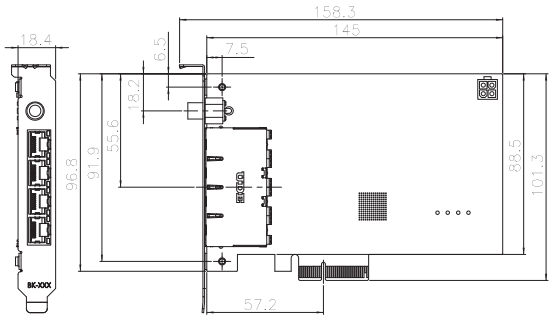
PCI Express Power over Ethernet card, 4-port 1000 Base(T), 802.3af compliant



Features

- PCI Express® x4 compliant
- Support for IEEE 802.3af for PoE (Power over Ethernet) with 15.4 watts per port
- Support link aggregation/jmbo frames (9 Kbyte)
- Supports 12~24 AT/ATX DC input power

Dimensions (mm)



Specifications

- Interface: PCI Express® x4
- Ethernet
  Intel® i210 AT controller
  9kB jumbo frame
  IEEE 802.3az, IEEE1588
- PoE Capability
  IEEE 802.3af
  15.4W / 48V DC per port
- PWR Input
  12~24V DC input
  Internal DC input (2x2 ATX)
  External DC input (Φ2.1/Φ5.5)
- Operating Temperature: 0°C ~ 60°C
- Storage Temperature: -10°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- CE/FCC compliant

Packing List

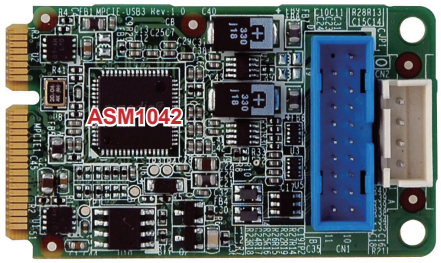
1 x IPCIE-4POE card
1 x QIG

Ordering Information

Part No.	Description
IPCIE-4POE-R10	PCI Express Power over Ethernet card, 4-port 1000 Base(T), 802.3af compliant
63040-010090-120-RS	Adapter power, FSP, FSP090-DIEBN2, 9NA0904712, Vin: 90~264VAC, 90W, Plug=7.5mm, Cable=1500mm, Erp (no load 0.5W), Vout: 19VDC, Φ2.1/Φ5.5/lock, CCL, RoHS
63040-010065-200-RS	Adapter power, FSP, FSP065-REBN2, 9NA0654709, Vin: 90~264VAC, 65W, Dim: 46.3x108.3x30mm, Plug=7.5mm, Cable=1500mm, Erp (no load 0.1W), Vout: 19VDC, Φ2.1/ Φ5.5/lock, CCL, RoHS

MPCIE-USB3

PCIe Mini USB 3.2 Gen 1 (5Gb/s) Adapter Card, RoHS





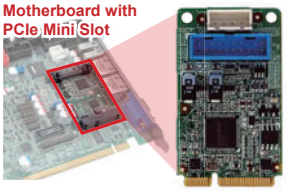
Power adapter cable

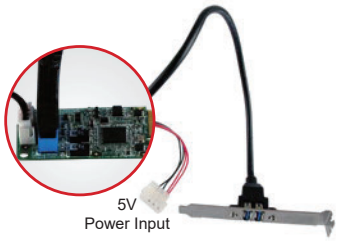


USB 3.2 Gen 1 (5Gb/s) cable

IEI USB 3.2 Gen 1 (5Gb/s) Expanded Solution

The MPCIE is applied to add additional super speed USB 3.2 Gen 1 (5Gb/s) ports for the motherboard with a PCIe Mini slot.





Specifications

- Form Factor
  PCI Express Mini card
- USB 3.2 Gen 1 (5Gb/s) Controller
  Asmedia ASM1042A
- Internal Connector
  1 x 20-pin (2x10) box header
- Power Jack
  1 x 4-pin box header
- Compatible OS
  Windows® XP/Server 2003/Server 2008/Vista/7/8.1/10
  Linux kernel version 2.6.32 above
- Operating Temperature
  -10°C ~ 60°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions (LxW)
  50 mm x 30 mm
- Weight
  70g
- CE/FCC compliant

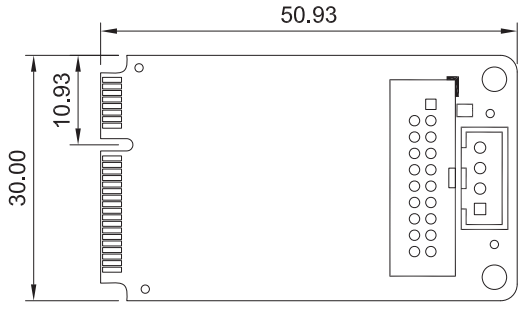
Features

- Supports two external USB 3.2 Gen 1 (5Gb/s) type A ports
- USB 3.2 Gen 1 (5Gb/s) provides up to 5Gbps of transferring rate
- Backward compatible with USB 2.0 and USB 1.0/1.1 devices
- Fully compliant with USB 3.2 Gen 1 (5Gb/s) rev 1.0 specifications and Intel® xHCI rev 0.96 specifications, with transfer rates up to 5Gbps
- Compliant with PCI Express Mini specification 1.2

Packing List

1 x MPCIE-USB3 PCIe Mini USB 3.2 Gen 1 (5Gb/s) adapter card	
1 x Dual USB 3.2 Gen 1 (5Gb/s) type A port cable with bracket	
1 x Power cable	1 x QIG

Dimensions (mm)

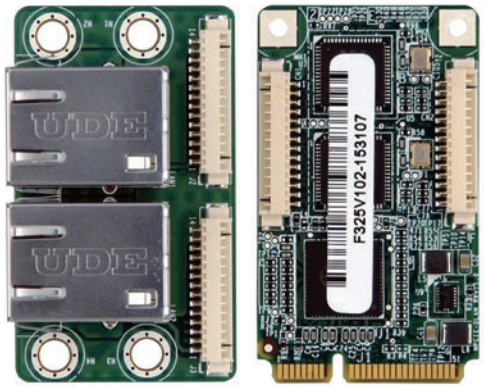


Ordering Information

Part No.	Description
MPCIE-USB3-R11	PCIe Mini USB 3.2 Gen 1 (5Gb/s) adapter card, RoHS
19800-010500-200-RS	Dual USB 3.2 Gen 1 (5Gb/s) type A port cable with bracket

MPCIE-DLAN-R10

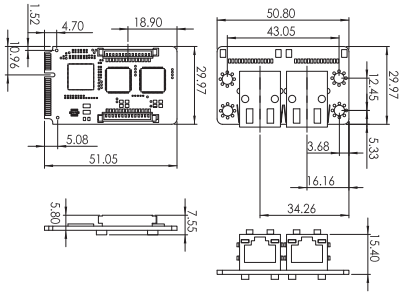
PCI Express Mini Dual Intel® GbE LAN Module, Full Size, RoHS



Specifications

- Form Factor: PCI Express Mini card
- BIOS: UEFI BIOS
- Ethernet Controller: Dual Intel® I210-IT
- Speed: 10/100/1000Mbps
- External Connector: 2 x 8-pin RJ-45
- Power Supply: On board 3.3V
- Compitable OS
  Windows XP/Server 2003/ Server 2008/ Vista/ 7 /8.1/10
  Linux kernel version 2.6.32 above
- Operating Temperature: -10°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions (LxW) : 51 mm x 30 mm
- Weight: 55g
- CE/FCC compliant

Dimensions (mm)



Packing List

1 x MPCIE-DLAN module	2 x Flat cable (pitch=1.25mm), 340mm length	1 x QIG

Features

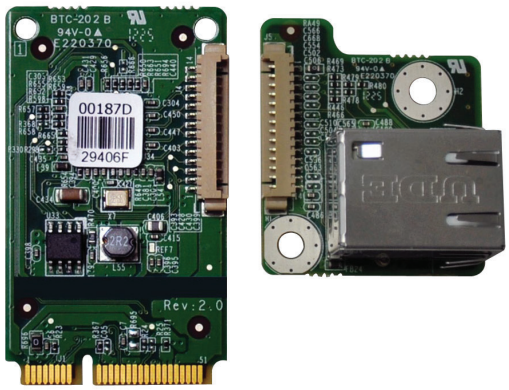
- Support dual GbE LAN by Intel® I210-IT
- Compliant with PCI Express Mini specification 1.2

Ordering Information

Part No.	Description
MPCIE-DLAN-R10	PCI Express Mini dual Intel® GbE LAN module, full size, RoHS

MPCIE-LAN-R10

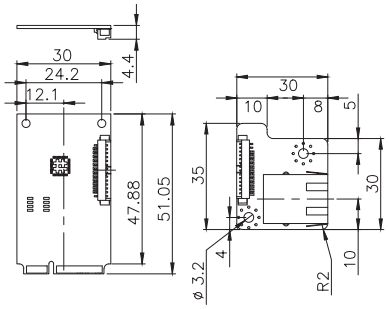
PCI Express Mini GbE LAN Module, Full Size, RoHS



Specifications

- Form Factor: PCI Express Mini card
- Ethernet Controller: Realtek RTL8111E
- Speed: 10/100/1000Mbps
- External Connector: 1 x 8-pin RJ-45
- Compitable OS
  Windows 2000/ XP/ Server 2003/ Server 2008/ Vista/ 7
  Linux kernel version 2.6.32 above
- Power Supply: On board 3.3V
- Operating Temperature: -10°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions (LxW): 51 mm x 30 mm
- Weight: 70g
- CE/FCC compliant

Dimensions (mm)



Packing List

1 x MPCIE-LAN module	1 x Flat cable (pitch=1.25mm), 340mm length	1 x QIG

Features

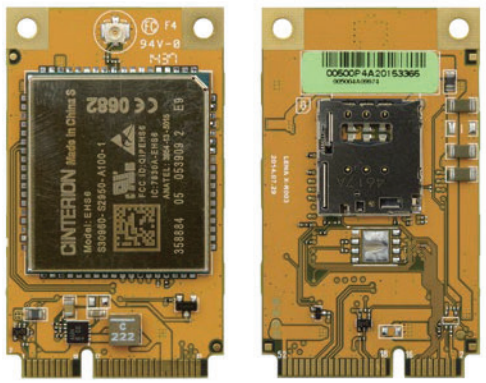
- Support one GbE LAN by RTL8111E
- Compliant with PCI Express Mini specification 1.2

Ordering Information

Part No.	Description
MPCIE-LAN-R10	PCI Express Mini GbE LAN module, full size, RoHS

MPCIE-3G-R20

PCI Express Mini 3G Adapter Card, RoHS



Specifications

- Form Factor
  PCI Express Mini card
  Antenna 50Ohms. Main GSM/UMTS antenna
- Frequency Bands
  GSM/GPRS/EDGE:
  850/900/1800/1900 GPRS/EDGE Class12
  UMTS/HSPA+:
  Dual band UMTS 800/850/900/1900/2100 MHz
- USB
  USB 2.0 High Speed (480Mbit/s) device interface
- Compatible OS
  Windows®8, Windows®7, Windows EC, Linux, Android
- Operating Temperature
  Normal operation: -30°C to +85°C
  Restricted operation: -40°C to +95°C
- Dimensions (W x D x H)
  51.0 mm × 30.0 mm × 4.75 mm

Packing List

1 x PCI Express Mini 3G adapter card

Features

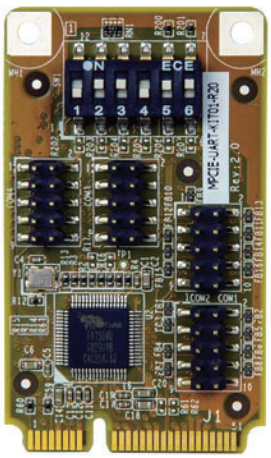
- Real time clock: Timer functions via AT commands
- Phonebook: SIM and phone
- TTY/CTM support: Integrated CTM modem

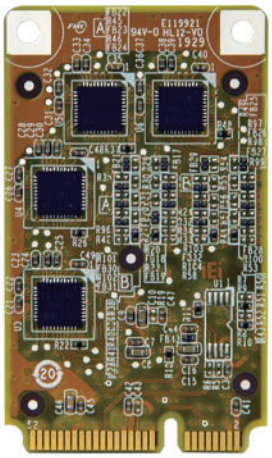
Ordering Information

Part No.	Description
MPCIE-3G-R20	PCI Express Mini 3G adapter card, RoHS
32501-000705-100-RS	RF antenna cable
32503-000100-100-RS	GSM antenna cable

MPCIE-UART-KIT01-R20

PCI Express Mini Card Supports Quad-port RS-232/422/485, Full Size, RoHS

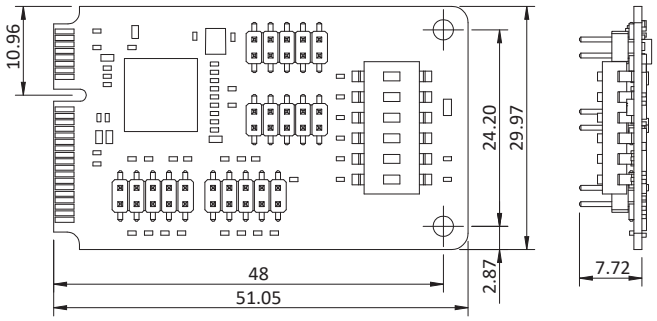




Features

- PCI Express Mini supports quad-port RS-232/422/485
- 128 bytes transmit/receive FIFO
- High-speed 16C550/16C650/16C750/16C850 compatible UARTs
- Baud rate supports 115.2K, max. up to 1.5M

Dimensions (mm)



Specifications

- Form Factor: PCI Express Mini card
- PCI Express Bridge to Quad Serial Port: Fintek F81504
- Buffer/Transceiver Series: F81439
- IO: 4 x RS-232/422/485 (2x5-pin header)
- Operating Temperature: 0°C ~ 60°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions (LxW): 51 mm x 30 mm
- Weight: GW: 100g / NW: 50g
- CE/FCC compliant

Packing List

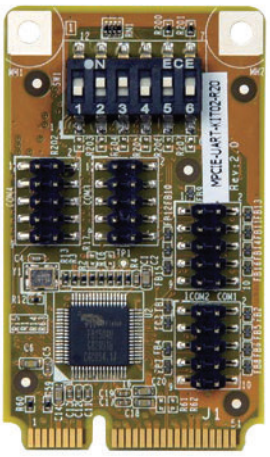
1 x MPCIE-UART-KIT01 module	
4 x D-SUB9 male cable	1 x QIG

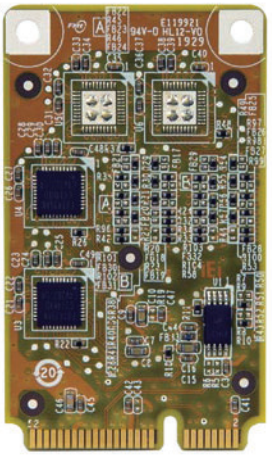
Ordering Information

Part No.	Description
MPCIE-UART-KIT01-R20	PCI Express Mini card supports quad-port RS-232/422/485, full size, RoHS
E-MPCIE-UART-KIT01-R20	PCI Express Mini supports quad RS-232/422/485 port module, full size, for E-Window, RoHs

MPCIE-UART-KIT02-R20

PCI Express Mini Card Supports Dual-port RS-232/422/485, 16-bit GPIO, Full Size, RoHS

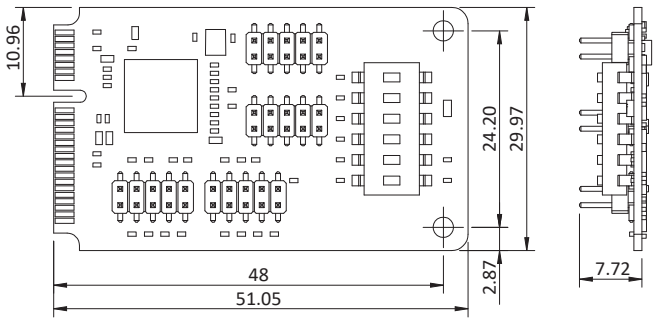




Features

- PCI Express Mini supports dual RS-232/422/485 and 16-bit GPIO ports
- 128 bytes transmit/receive FIFO
- High-speed 16C550/16C650/16C750/16C850 compatible UARTs
- Baud rate supports 115.2K, max. up to 1.5M
- All GPIO supports digit IO for input/output control, output data control, input status
- Support High/Low Level/Pulse, Open Drain/Push Pull function selection

Dimensions (mm)



Specifications

- Form Factor: PCI Express Mini card
- PCI Express Bridge to Quad Serial Port: Fintek F81504
- Buffer/Transceiver Series: F81439
- IO
  2 x RS-232/422/485 (2x5-pin header)
  2 x 8 bit GPIO (2x5-pin header)
- Operating Temperature: 0°C ~ 60°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions (LxW): 51 mm x 30 mm
- Weight: GW: 100g / NW: 50g
- CE/FCC compliant

Packing List

1 x MPCIE-UART-KIT02 module	
2 x D-SUB 9 male cable	1 x QIG

Ordering Information

Part No.	Description
MPCIE-UART-KIT02-R20	PCI Express Mini card supports dual-port RS-232/422/485, 16-bit GPIO, full size, RoHS
E-MPCIE-UART-KIT02-R20	PCI Express Mini supports dual RS-232/422/485, 16 bit GPIO module, full size, for E-Window, RoHs

Wireless LAN Module



EMB-WIFI-KIT

PCIe Mini card wireless LAN module kit

Features

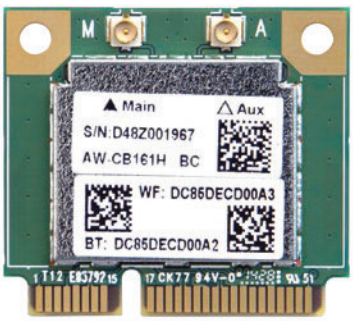
- Half size PCIe Mini card form factor
- High speed wireless connection up to 433.3Mbps transmit/receive PHY rate using 80MHz bandwidth
- Low power consumption and high performance
- Fully qualified Bluetooth 4.0
- Solid design with external antenna diversity

Ordering Information

Part No.	Description
EMB-WIFI-KIT01-R20	1T1R wifi module kit for embedded system, IEEE802.11a/b/g/n/ac WiFi with Bluetooth 4.0/3.0+HS, 1 x wifi module, 2 x 250mm RF cable, 2 x Antenna, RoHS
EMB-WIFI-KIT11-R20	1T1R wifi module kit for embedded system, IEEE802.11a/b/g/n/ac WiFi with Bluetooth 4.0/3.0+HS, 1 x wifi module, 2 x 400mm RF cable, 2 x Antenna, RoHS

Specifications

Model Name	EMB-WIFI-KIT New
Standard	IEEE 802.11a/b/g/n/ac, Wi-Fi compliant / Bluetooth4.0 Standard
Major chipset	Realtek RTL8821AE
Antenna	2x standard U.FL Connector
Frequency range	Wi-Fi: 2.4 GHz, BT: 2402MHz~2483MHz
Modulation	Wi-Fi: 802.11a/g/n/ac: OFDM 802.11b: CCK(11, 5.5Mbps), DQPSK(2Mbps), BPSK(1Mbps)
Receive Sensitivity	Wi-Fi: 802.11a: less than -65 dBm (54M) 802.11b: less than -76 dBm (11M) 802.11g: less than -65 dBm (54M) 802.11n @2.4GHz: less than -64 dBm (HT20 MCS7) 802.11n @2.4GHz: less than -61 dBm (HT40 MCS7) 802.11n @5GHz: less than -64 dBm (HT20 MCS7) 802.11n @5GHz: less than -61 dBm (HT40 MCS7) 802.11ac @5GHz: less than -51 dBm (VHT80 MCS9) BT: BER < 0.1% (Anritsu 8852B Tx -70 dBm)
Driver support	Windows 7/8, Linux kernel 3.18
Temperature	0O~70OC
Dimensions	29.85mm x 26.65mm x 1.5 mm
Weight	NW: 3.28g



WMPCIE-V02-R10

PCIe Mini card wireless LAN module

Features

- PCIe Mini card form factor
- High speed wireless connection up to 433.3Mbps transmit/receive PHY rate using 80 MHz bandwidth
- Solid design with external antenna diversity
- Low power consumption and high performance
- Enhanced wireless security
- Fully qualified Bluetooth 4.0 and 3.0 + High speed system

Ordering Information

Part No.	Description
WMPCIE-V02-R10	IEEE802.11a/b/g/n/ac wireless with Bluetooth 4.0/3.0 + HS PCIe Mini module with Realtek RTL8821AE, RoHS
32501-001000-200-RS	RF cable; 300MM; 28AWG; (A) SMA connector (B) MHF20278-11R-13; RoHS
32505-000100-100-RS	2 dBi 109mm antenna

Specifications

Model Name	WMPCIE-V02-R10
Standards	IEEE 802.11a/b/g/n/ac Wi-Fi with Bluetooth 4.0/3.0 + HS (Wi-Fi:PCI-E, BT:USB)
Inferface	PCIe Mini card
Connectors	2XU.FL(I-PEX) antenna connectors
Controller Chip	Realtek RTL8821AE
Frequency Range	Wi-Fi: 2.4/5GHz, BT: 2402 MHz~2483 MHz
Modulation Type	Wi-Fi: 802.11a/g/n/ac: OFDM 802.11b: CCK, DQPSK, BPSK BT: Header GFSK Payload 2M: 4-DQPSK Payload 3M: 8DPSK
Supported OS	Windows 7/8/10
Receiver Sensitivity	Wi-Fi: 802.11a: less than -65 dBm (54M) 802.11b: less than -76 dBm (11M) 802.11g: less than -65 dBm (54M) 802.11n@2.4GHz: less than -64 dBm (HT20 MCS7) 802.11n@5GHz: less than -64 dBm (HT20 MCS7) 802.11ac@5GHz: less than -51 dBm (VHT80 MCS9) BT: BER < 0.1% (Anritsu 8852B Tx -70 dBm)
Temperature	Operating: 0°C ~ 70°C Storage: -40°C ~ 85°C
Humidity	5% ~ 95%, non-condensing
Dimensions	29.85mm x 26.65mm
Weight	NW: 3.28g
Compliance Certifications	FCC, CE

IEI Trusted Platform Module (TPM)

Hardware-based security solution for data protection and reliable authentication via TPM that stores key, passwords and digital certificates.

H/W Features

Features \ Solution	Infineon SLB9660 TT1.2	Infineon SLB9665TT2.0
		
Secure Startup	Root of Trust Measurement of early boot devices	
Anti H/W Attack	Sensors and active shield	
TSS API Support	MS-CAPI/PKCS#11, #12	
H/W Certification	EAL 4	
Management Tool Function	1. TPM management 2. File & Folder En/De-cryption 3. Personal secure drive 4. Secure Email 5. Key transferring 6. Security policy configuration	
Market Segment	Complete TPM1.2/2.0 function	
TCG Specification	TCG 1.2/2.0 compliant trusted platform module	
Interface	Low pin count	
Software Structure	TCG software stack 1.2 complaint	
Cryptographic Accelerator	HAS-1/RSA algorithm	

IEI SBC with TPM support

Form factor	Model name	Form factor	Model name
PICMG1.3	PCIE-Q170-i2*	Micro-ATX	IMB-H110*
	SPCIE-C236-i2*		IMB-Q870-i2
	SPCIE-C2260-i2		IMB-H810-i2
	PCIE-H810		IMB-Q770
	PCIE-Q670		IMB-Q670
PICMG1.0	WSB-H810		IMB-H610A/H610B
	WSB-H610	Mini-ITX	KINO-DH310
Half-size PCIe	PICOe-B650		tKINO-BW
	PICOe-HM650		KINO-DBT
Half-size PCISA	PCISA-BT		KINO-SE/KBN-i2
ATX	IMBA-C2360-i2*		KINO-DH810
	IMBA-Q170-i2*		eKINO-BT
	IMBA-H110*		KINO-ABT-i2
	IMBA-BDE		KINO-AQ870
	IMBA-H810		KINO-DQM871-i1
	IMBA-C2260-i2		KINO-QM770
	IMBA-Q870-i2		KINO-DH610
	IMBA-H610		KINO-AH612
	IMBA-Q670		
EPIC SBC	NANO-QM871		
	NANO-QM770		
	NANO-HM650		

* TPM 2.0 is supported by these models.

Pin Assignment

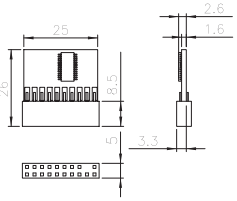


Pin	Singnal	Pin	Singnal	Pin	Singnal	Pin	Singnal
1	LCLK	6	VCC5	11	LAD0#	16	SERIRQ
2	GND	7	LAD3#	12	GND	17	GND
3	LFRAME#	8	LAD2#	13	SCL	18	CLKRUN#
4	KEYWAY	9	VCC3	14	SDA	19	LPCPD#
5	LRST#	10	LAD1#	15	SB3V	20	LDRQ#

Ordering Information

Model Name	Description
TPM-IN01-R20	20-pin Infineon TPM1.2 module, software management tool, firmware v4.4
TPM-IN02-R20	20-pin Infineon TPM2.0 module, software management tool, firmware v5.5

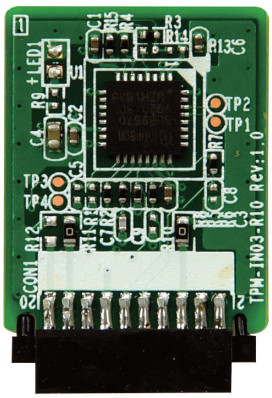
Dimensions (mm)



TPM-IN03

SPI TPM 2.0 module, software management tool, firmware v7.85

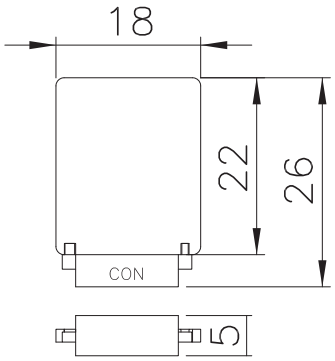
New



Specifications

- Interface
  SPI interface
- Solution
  Infineon SPI TPM 2.0 with SLB9670VQ2.0 FW7.85
- Management Tool Function
  1. TPM management
  2. File & Folder En/De-cryption
  3. Personal secure drive
  4. Secure email
  5. Key transferring
  6. Security policy configuration
  7. SPI interface
- Market Segment
  Complete TPM 2.0 function
- OS Support: Windows® & Linux
- Operating Temperature: 0°C ~ 60°C
- Storage Temperature: -20°C ~ 70°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions (LxW): 26mm x 18mm

Dimensions (Unit: mm)



SPI TPM Support List

Form factor	Model name
Medical Panel PC	POCi-W22C-ULT5
EPIC SBC	NANO-ULT5
DIN-Rail Embedded System	DRPC-230-ULT5
	DRPC-330-A7K

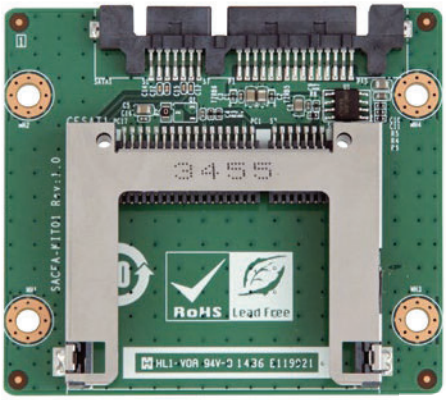
Packing List

1 x 20-pin TPM module

Ordering Information

Part No.	Description
TPM-IN03-R10	20-Pin Infineon SPI TPM 2.0 module with SLB9670VQ2.0, software management tool, firmware v7.85.

SATA to CFast™ Converter Board



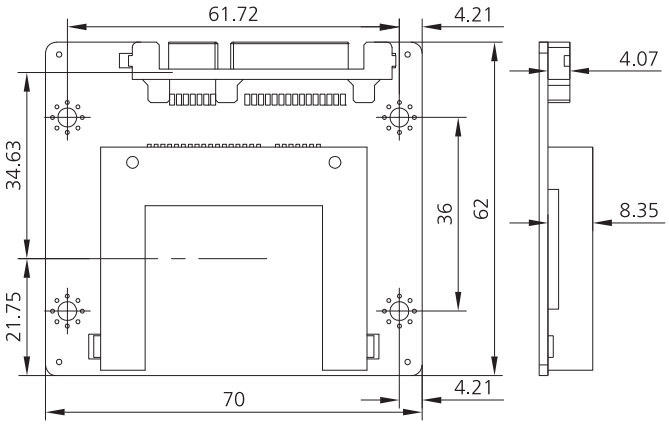
SACFA-KIT01-R10

SATA to CFast™ converter board



32801-000100-300-RS

Dimensions *(Unit: mm)*



Features

- CFast™ socket
- 7-pin SATA data connector, and a female 17-pin power CFast™ connector

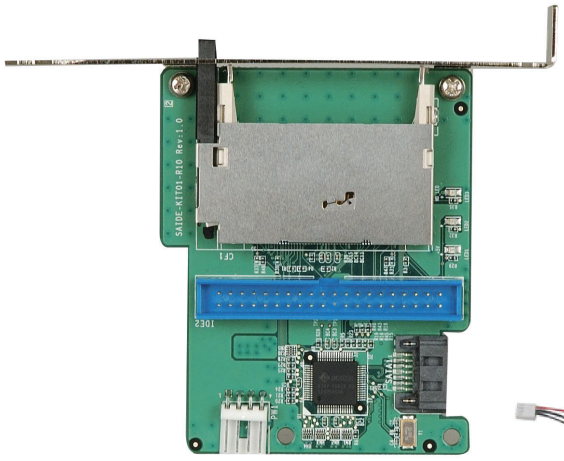
Packing List

1 x SACFA-KIT01-R10	1 x QIG

Ordering Information

Part No.	Description
SACFA-KIT01-R10	SATA to 24-pin CFast™ socket converter board
32000-080700-RS	SATA 7+15P female to SATA 7P / PH 5.08 4P cable, L=200mm/100mm
32801-000100-100-RS	SATA 7+15P female to SATA 7P / PH 2.5 4P cable, L=200mm/200mm
32801-000201-100-RS	SATA 7+15P female to SATA 7P / PH 2.0 2P cable, L=150mm/150mm

SATA to IDE/CF Type II Converter Board



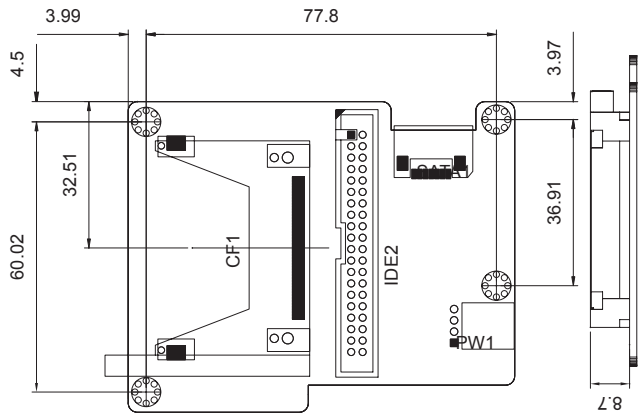
SAIDE-KIT01-R10

SATA to IDE/CF converter board



32100-064401-RS

Dimensions *(Unit: mm)*



Packing List

1 x SAIDE-KIT01-R10	
1 x Power cable	1 x QIG

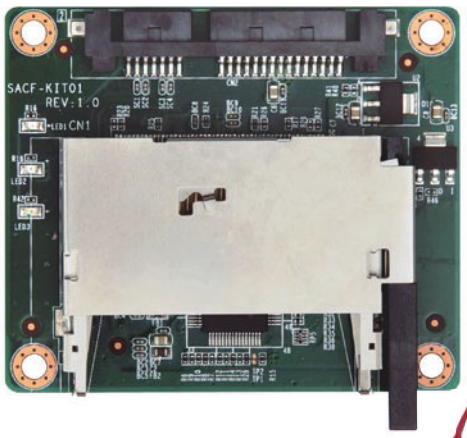
Features

- CF Type II socket
- 40-pin IDE connector (master mode)
- 4-pin 5V input connector
- Power/5V/HDD LED indicator
- Support one IDE device or one CF

Ordering Information

Part No.	Description
SAIDE-KIT01-R10	SATA to 40-pin IDE/CF socket converter board with bracket
32000-062800-RS	SATA cable
32100-064401-RS	Power cable
32102-000100-200-RS	SATA power cable

SATA to CF Type II Converter Board



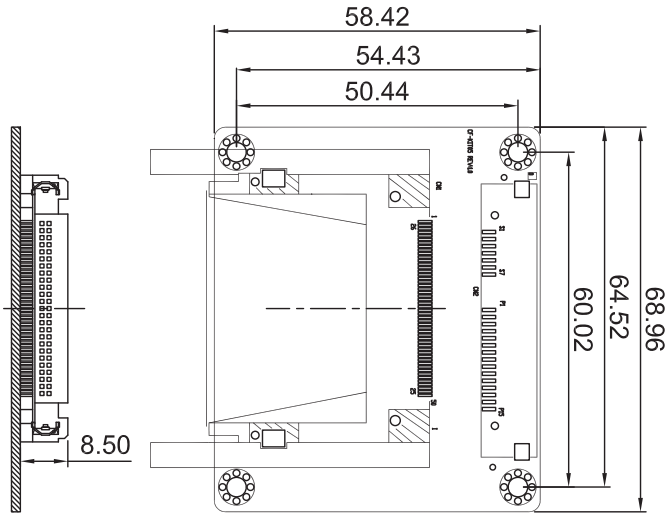


32801-000100-300-RS

SACF-KIT01-R10

SATA to CF converter board

Dimensions *(Unit: mm)*



Features

- CF Type II socket
- 50-pin CF Type II connector

Packing List

1 x SACF-KIT01-R10	
1 x SATA with power cable kit	1 x QIG

Ordering Information

Part No.	Description
SACF-KIT01-R10	SATA to 50-pin CF socket converter board

IDE/CF Type II Converter Board



CF-KIT04-R10

IDE to CF Type II converter board with master/slave mode selection

IEI CF Solution

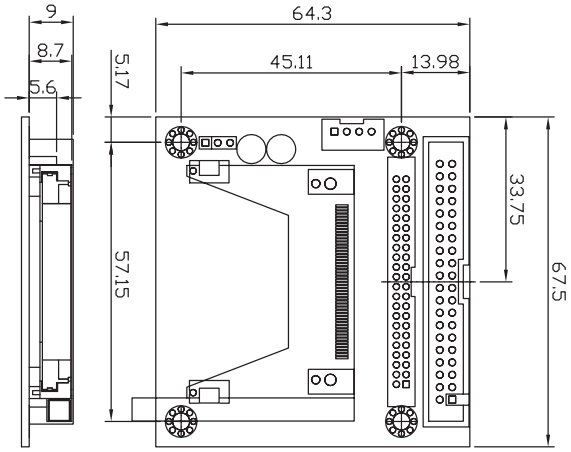


iCF1000 Industrial standard grade



iCF1000 Wide Temp. grade

Dimensions *(Unit: mm)*



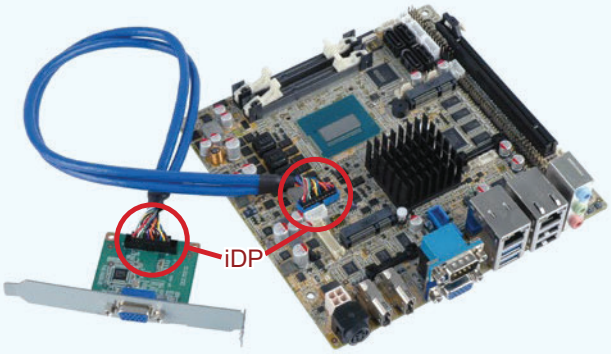
Features

- CF Type II socket with master/slave mode selection
- 4-pin power connector
- Power/HDD signal LED

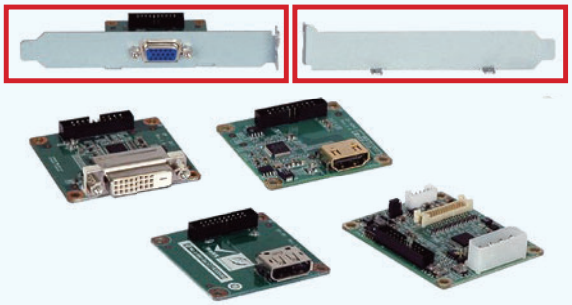
IEI iDP Introduction

iDP (IEI Internal DisplayPort)

The iDP connector is provided on the IEI products. Through the IEI iDP converter cards, the iDP connector can support different display specifications, such as VGA, HDMI, DVI-D and LVDS.



Flexible Display Output Options



iDP converter cards with brackets

Easy Installation on the Chassis

iDP Supported Models			
HPCIE-C236	IMBA-Q170-i2	KINO-DH110	WAFER-AL
HPCIE-Q710	IMBA-H110	KINO-AQ170	WAFER-ULT3/ULT4
SPCIE-C236	IMBA-Q870-i2	KINO-DH810	WAFER-BTW2
PCIE-Q170	IMBA-C2260-i2	KINO-DQM871-i1	WAFER-BT-i1
SPCIE-C2260-i2	IMB-H110	KINO-ABT-i2	WAFER-ULT/ULT2-i1
PCIE-Q870-i2	IMB-Q870-i2	NANO-AL/ALW2	WAFER-KBN-i1
IMBA-C2360-i2	IMB-H810-i2	NANO-ULT3	

DP-DP-R10

DisplayPort Expansion Board (for IEI iDP Connector), RoHS



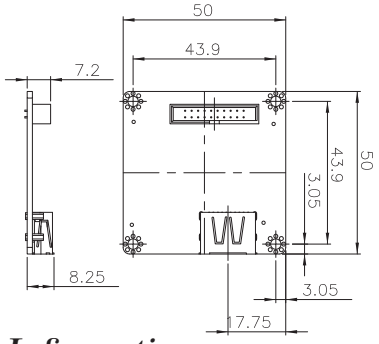
Features

- DisplayPort to DisplayPort output
- Resolution support up to 1920x1200

Specifications

- Display Input: 1 x IEI iDP connector
- Display Output: 1 x DisplayPort
- Temperature: -20°C ~ 60°C
- Humidity: 5 ~ 95% non-condensing
- Dimensions: 50 mm x 50 mm

Dimensions (mm)



Packing List

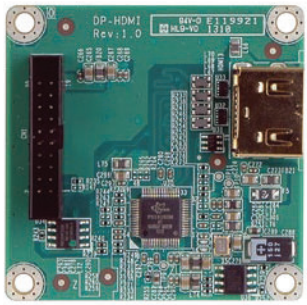
1 x DP-DP expansion board	1 x QIG
1 x IEI iDP connector cable, 450 mm length	

Ordering Information

Part No.	Description
DP-DP-R10	DisplayPort expansion board (for IEI iDP connector), RoHS
32034-000900-100-RS	Round cable, displayport cable, 2, 450mm, 28AWG, (A) USB 3.2 20P P=2.0*2, lintes, RoHS

DP-HDMI-R10

DisplayPort to HDMI 1.3a Converter Board (for IEI iDP connector), RoHS



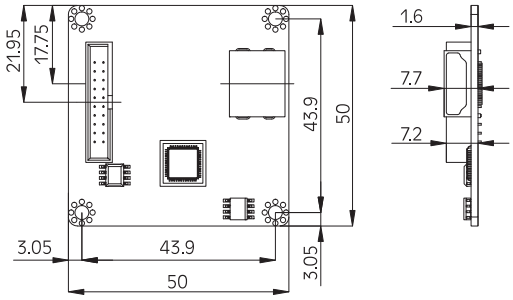
Features

- DisplayPort to HDMI 1.3a output
- Support up to 1920x1200 resolution

Specifications

- Display Input: IEI iDP connector
- Display Output: 1 x HDMI 1.3a
- Display IC: Parade - PS161 (DP to HDMI 1.3a)
- Temperature: -10°C ~ 60°C
- Humidity: 5 ~ 95% non-condensing
- Dimensions: 50 mm x 50 mm

Dimensions (mm)



Packing List

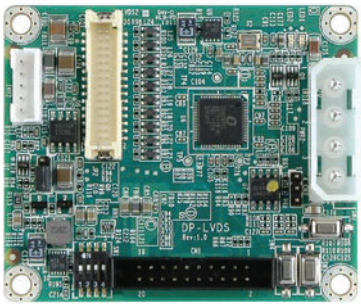
1 x DP-HDMI converter board	1 x QIG
1 x Internal DisplayPort cable, 450 mm length	

Ordering Information

Part No.	Description
DP-HDMI-R10	DisplayPort to HDMI 1.3a converter board (for IEI iDP connector), RoHS

DP-LVDS-R10

DisplayPort to 24-bit Dual-channel LVDS Converter Board (for IEI iDP Connector), RoHS



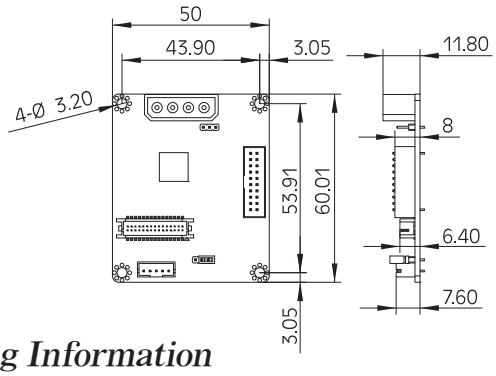
Features

- DisplayPort to LVDS output
- Supports 24-bit dual-channel up to 1920x1200

Specifications

- Display Input: 1 x IEI iDP connector
- Display Output: 1 x LVDS 24-bit dual-channel
- Display IC: Chrontel - CH7511B (DP to LVDS)
- Temperature: -10°C ~ 60°C
- Humidity: 5% ~ 95 non-condensing
- Dimensions: 60 mm x 50 mm

Dimensions (mm)



Packing List

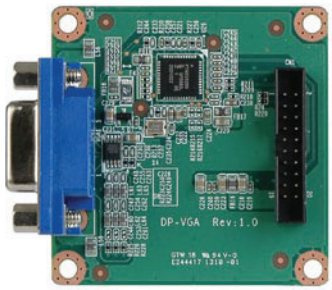
1 x DP-LVDS converter board	1 x QIG
1 x Internal DisplayPort cable, 450 mm length	

Ordering Information

Part No.	Description
DP-LVDS-R10	DisplayPort to 24-bit dual-channel LVDS converter board (for IEI iDP connector), RoHS

DP-VGA-R10

DisplayPort to VGA Converter Board (for IEI iDP Connector), RoHS



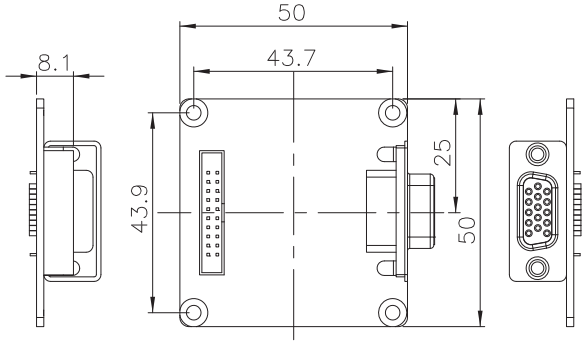
Features

- DisplayPort to VGA output
- Support up to 1920x1200 resolution

Specifications

- Display Input: 1 x IEI iDP connector
- Display Output: 1 x VGA
- Display IC: NXP - PTN3392 (DP to VGA)
- Temperature: -10°C ~ 60°C
- Humidity: 5% ~ 95 non-condensing
- Dimensions: 50 mm x 50 mm

Dimensions (mm)



Packing List

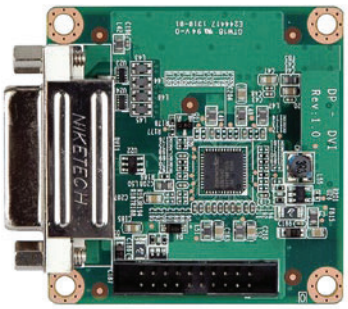
1 x DP-VGA converter board	1 x QIG
1 x Internal DisplayPort cable, 450 mm length	

Ordering Information

Part No.	Description
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector), RoHS

DP-DVI-R10

DisplayPort to DVI Converter Board (for IEI iDP Connector), RoHS



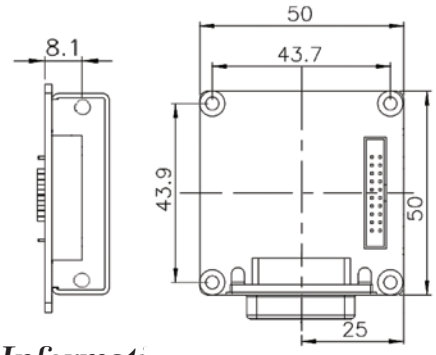
Features

- DisplayPort to DVI output
- Support up to 1920x1200 resolution

Specifications

- Display Input: 1 x IEI iDP connector
- Display Output: 1 x DVI
- Display IC: Parade - PS161 (DP to HDMI / DVI)
- Temperature: -10°C ~ 60°C
- Humidity: 5% ~ 95 non-condensing
- Dimensions: 50 mm x 50 mm

Dimensions (mm)



Packing List

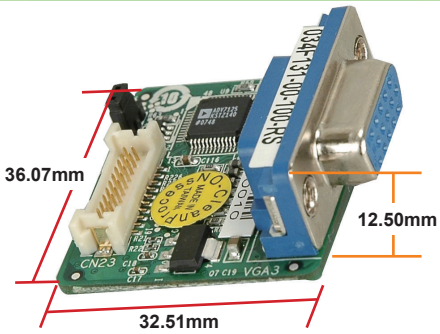
1 x DP-DVI converter board	1 x QIG
1 x Internal DisplayPort cable, 450 mm length	

Ordering Information

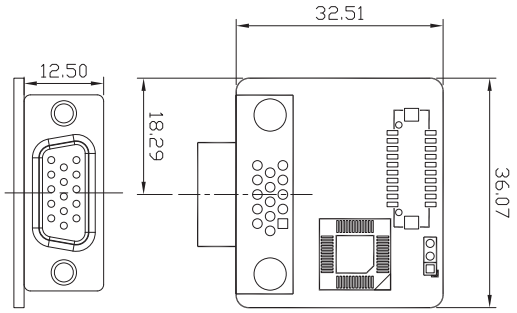
Part No.	Description
DP-DVI-R10	DisplayPort to DVI converter board (for IEI iDP connector), RoHS

LVDS-VGA-R10

Single-channel LVDS to VGA Converter Board (Support IEI Model Only)



Dimensions (mm)



Features

- Provide 2nd VGA option for dual VGA display
- Resolution adjusted by BIOS: Support 1024x768, 800x600, 640x480
- 18-bit LVDS to VGA converter board

Ordering Information

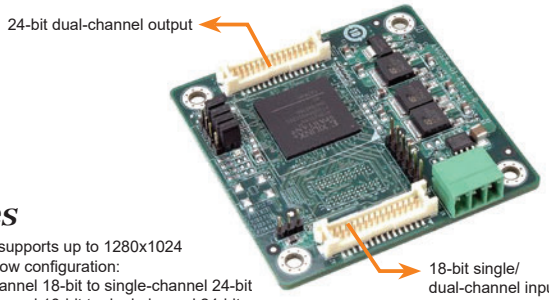
Part No.	Description
LVDS-VGA-R10	18-bit LVDS to VGA converter board
32600-112300-RS	30-pin LVDS connecting cable
32602-026400-100-RS	20-pin LVDS connecting cable

Packing List

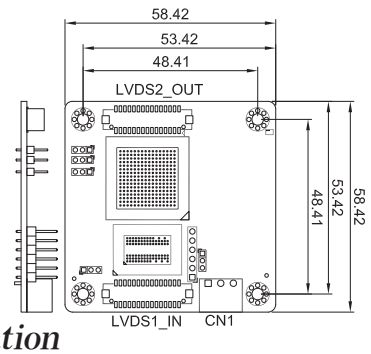
1 x LVDS to VGA converter board
1 x QIG

LVDS24-01

18-bit to 24-bit LVDS Converter Board



Dimensions (mm)



Features

- Resolution supports up to 1280x1024
- Support below configuration:
  - » Single-channel 18-bit to single-channel 24-bit
  - » Single-channel 18-bit to dual-channel 24-bit
  - » Dual-channel 18-bit to dual-channel 24-bit

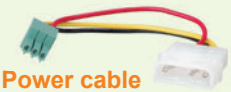
* Note: The module does not support dual-channel 18-bit to single-channel 24-bit conversion.

Ordering Information

Part No.	Description
LVDS24-01-R10	18-bit to 24-bit LVDS converter board
32602-007900-100-RS	Single-channel 18-bit 20-pin to 24-bit 30-pin LVDS connection cable
32602-008000-200-RS	Dual-channel 18-bit 30-pin to 24-bit 30-pin LVDS connection cable

Packing List

1 x 18-bit to 24-bit LVDS converter board
1 x Power cable
1 x QIG



Power cable
P/N: 32100-130300-RS

Embedded System Platform Solutions

As the leading Industrial System provider, IEI continues to extend the product footprint from component level to system integration service. Our strong knowledge of market and technology innovation offers reliability, flexibility and interoperability for all of our industrial products with choices of size, performance and features.

1. Transportation System

Model Name	Processor
IKARPC-07A	Intel® Atom™ E3826 1.46GHz
AFOKAR-08A	RockChip RK3399 (Dual-core Cortex-A72 up to 1.8GHz + Quad-core Cortex-A53 up to 1.5GHz)
IKARPC-W10A-BT	Intel® Atom™ E3826 1.46GHz
IVS-300-BT/ULT3	Intel® Core™ i5-6300U 2.4GHz, Intel® Celeron® J1900 2.0GHz
IVS-200-ULT2	Intel® Core™ i5-5350U 1.8GHz, Intel® Celeron® 3765U 1.9GHz
IVS-110-AL	Intel® Atom™ E3930 1.8GHz, Intel® Atom™ E3940 1.8GHz, Intel® Atom™ E3950 2.0GHz
IRS-100-ULT3	Intel® Core™ i5-6300U 2.4GHz
SBOX-100-QM87	Intel® Core™ i5-4400E 2.7GHz



2. Industrial Automation System

Model Name	Processor
TANK-880-Q370	Intel® Core™ i7-9700TE 1.8GHz (up to 3.8GHz) Intel® Core™ i5-9500TE 2.2GHz (up to 3.6GHz)
TANK-871-Q170	Intel® Core™ i7-6700TE 2.4GHz, Intel® Core™ i5-6500TE 2.3GHz
TANK-870-Q170	Intel® Core™ i7-6700TE 2.4GHz, Intel® Core™ i5-6500TE 2.3GHz
TANK-870e-H110	Intel® Core™ i7-6700TE 2.4GHz, Intel® Core™ i5-6500TE 2.3GHz
TANK-860-HM86	Intel® Core™ i5-4400E 2.7GHz, Intel® Celeron® 2000E 2.2GHz
TANK-801-BT	Intel® Celeron® J1900 2GHz
TANK-620-ULT3	Intel® Celeron® 3855U 1.6GHz
TANK-610-BW	Intel® Celeron® N3160 1.6GHz



3. DIN-Rail Embedded System

Model Name	Processor
DRPC-230-ULT5	Intel® Core™ i5-8265U 1.6GHz (up to 3.9GHz)
DRPC-130-AL	Intel® Atom™ x5-E3930 1.3GHz (up to 1.8GHz)
DRPC-120-BT	Intel® Atom™ E3845 1.91GHz



4. Compact Size Embedded System

Model Name	Processor
ITG-100AI	Intel® Atom™ x5-E3930 1.3GHz (up to 1.8GHz)
ITG-100-AL	Intel® Atom™ x5-E3930 1.3GHz (up to 1.8GHz)
uIBX-250-BW	Intel® Celeron® N3160 1.6GHz



5. Digital Signage Embedded System

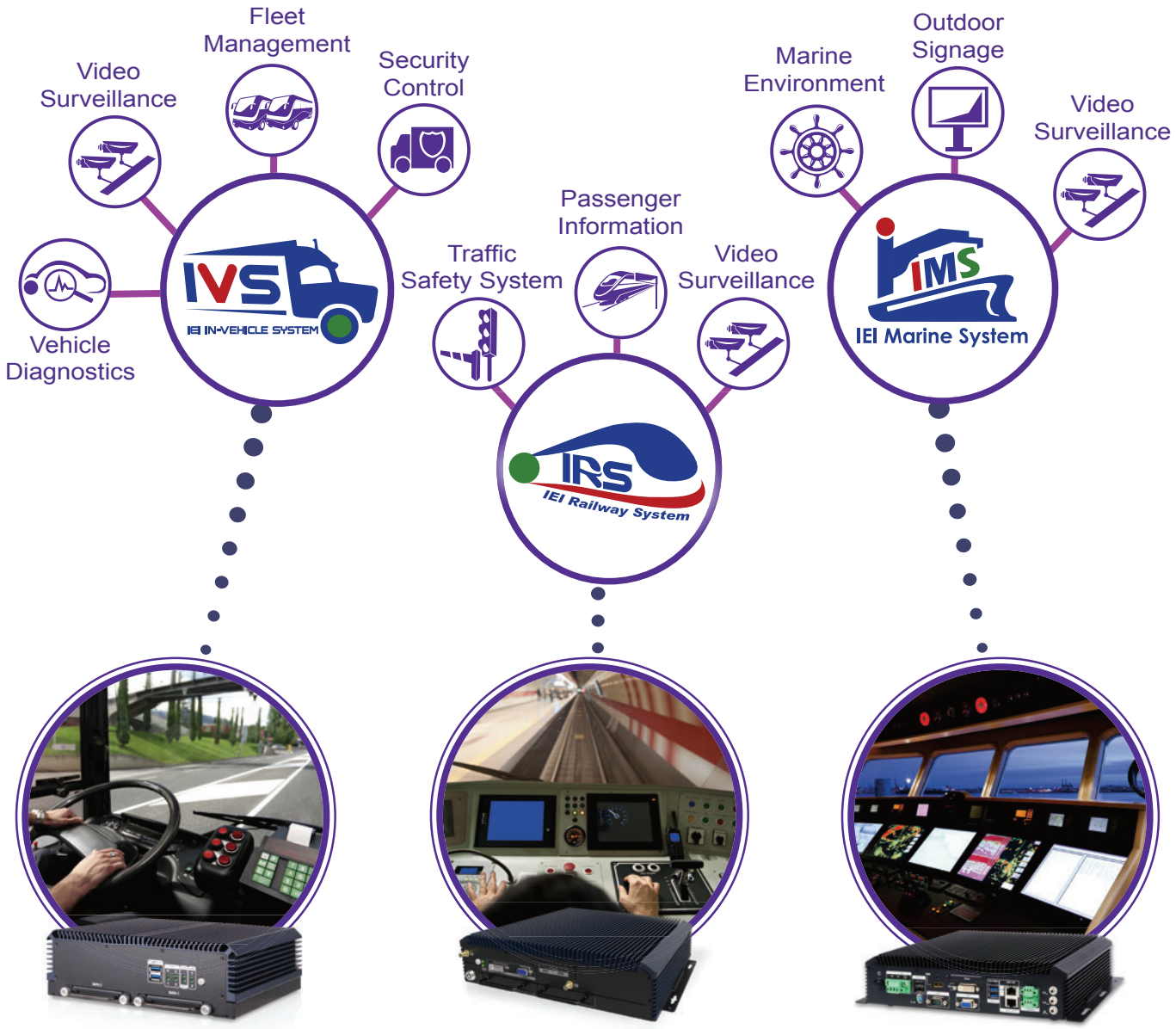
Model Name	Processor
IDS-310-AL	Intel® Celeron® J3455E up to 2.3GHz Intel® Celeron® N3350E up to 2.4GHz



Transportation Solution

IEI transportation series is divided into three categories for different markets: in-vehicle, railway and marine. All these products have passed harsh vibration and shock test and can withstand in extreme temperature. This series allows wide voltage input and features multiple communication options. In addition, our products are in fanless design suitable for various markets and with rich I/O for different applications.

Ruggedized Solution



■ IVS & In-Vehicle PPC Series

In-Vehicle Features

- Wide working temperature
- Wide DC input range
- E-mark certification
- OBD-II function
- Multi wireless communication
- IP 4X protection

■ IRS Series

Railway Features

- Wide working temperature
- Support DVI and VGA dual display
- EN-50155 certification
- Dual SIM slot
- M12 connector

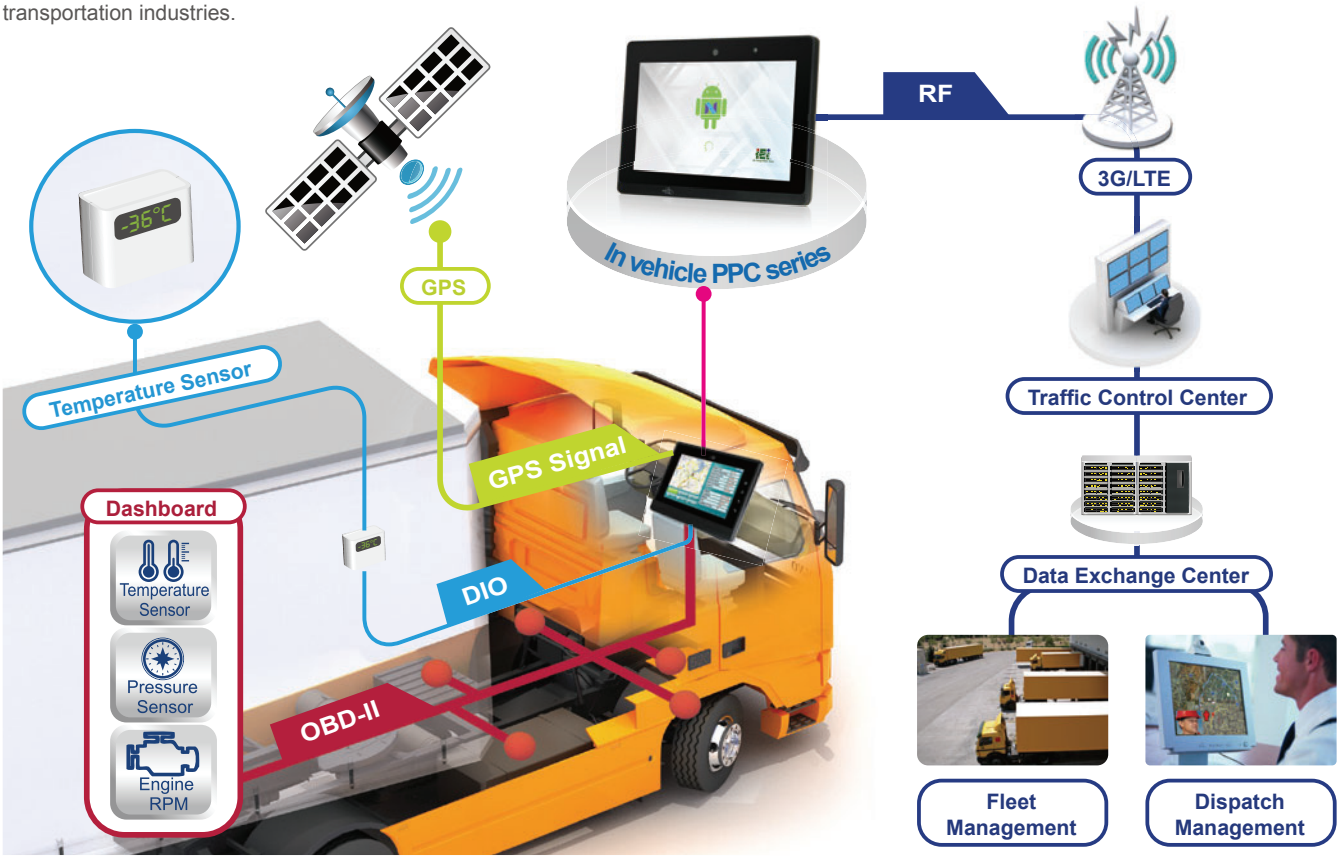
■ SBOX Series

Marine Features

- Isolation protection ports
- Three independent displays
- Full range dimming
- DNV, IEC 60945 4th, IACS-E10, IEC 61174 certification
- IP 4X protection

In-Vehicle PPC Series

Logistics industry's commonly used satellite positioning systems, electronic maps, Internet access, mobile communication systems with 3.75G/ LTE/Wi-Fi/Bluetooth/GPS/RFID are all combined together in our solutions for fleet management, logistics, manufacturing and passenger transportation industries.



Key Features

■ High Brightness Screen

The in-vehicle panel PC series is equipped with an ultra-high brightness LCD panel to help drivers avoid low visibility caused by direct sunlight.

■ CAN Bus/OBD-II (Optional)

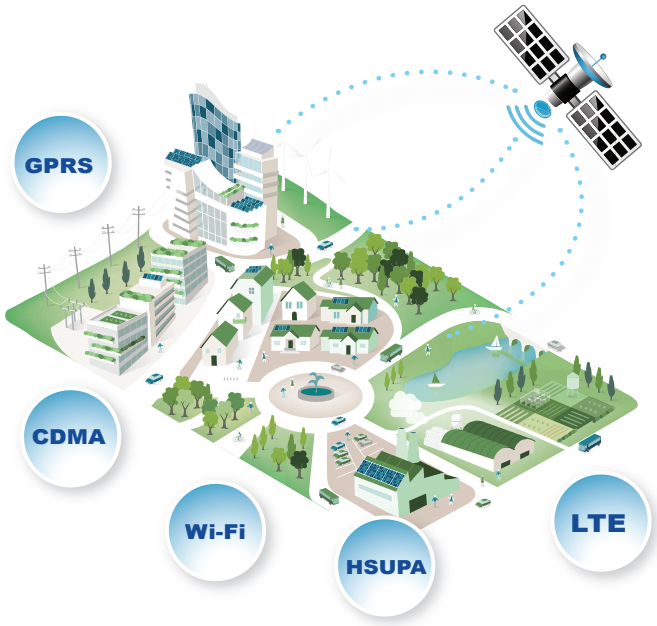
The in-vehicle panel PC series supports On-board Diagnostics (OBD) and Controller Area Network (CAN bus) and is built-in with OBD-II and CAN bus for real time vehicle diagnostic. CAN has a high degree of flexibility to adjust capacity which can be added in the existing network of nodes.

■ X86/ARM Solution

The in-vehicle panel PC series has two solutions, Intel and ARM architecture for customers. You can choose Intel solution which supports Windows OS, or you can choose ARM solution which supports Android OS.

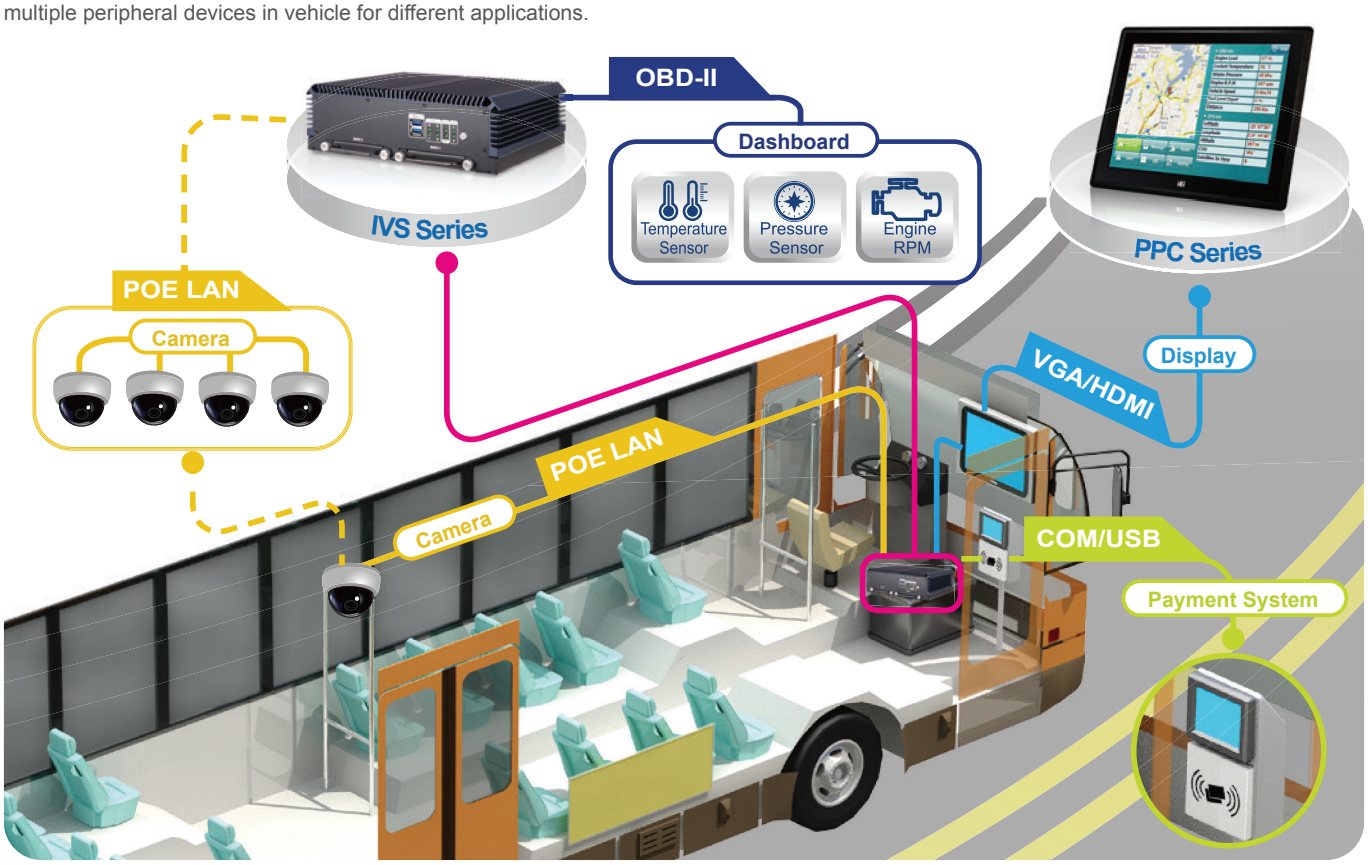
■ Communication

The transportation series reserves multiple PCIe Mini slots for different network communication. Users can use CDMA/GPRS/HSUPA+/LTE to transmit and receive real-time data, use Wi-Fi for data acquisition, or use GPS to get accurate location data.



In-Vehicle: IVS Series

The IVS series vehicle box PC is designed with reliable performance for harsh environments. Rich I/O ports are provided to connect with multiple peripheral devices in vehicle for different applications.



Key Features

■ Wide Range Temperature

Operating Temperature

IEI fanless product series has leading-edge thermal design and has been tested under extreme temperature conditions in order to ensure that IEI fanless products can work in any harsh environment.

■ E-mark Certification

E-Mark

All vehicles, vehicle parts, and electronic products for the car must be enforced EMC testing. All of IEI IVS and in-vehicle panel PC series products have passed E-Mark certification which are required for the European market.

■ Vibration and Shock Resistance

MIL-STD 810F COMPLIANT

In-vehicle systems must be able to withstand the shock and vibration that comes with driving a vehicle. IEI transportation series meets the requirement for different environments and has passed particular verification dependent on MIL-STD-810G 514.5 standard, EN61373 for railway market, EN60721 for in-vehicle market.



■ Particular Power Solution

Power Management

We design wide power input to prevent surge when starting engine. We develop power management for users. For in-vehicle market, we design wide DC input and ACC power to ensure users can operate the system well.



Railway: IRS Series

IEI's Railway System (IRS) is focused on the rolling stock market with a variety of advanced technologies designed. The IRS-100 series is compliant with EN 50155 standard. The IRS-100 provides multiple storage bays for data saving, lockable connectors, GPS function and Wi-Fi for wireless communication. Users can control passenger information system (PIS) and network video recorder (NVR) through the IRS-100. The popular IP cameras for surveillance application can also be implemented to provide real time video monitoring to ensure passengers' safety.



Key Features

■ Dual SIM Slot



The IRS-100 offers dual SIM slot with the ability to automatically switch between two different networks in order to maintain seamless connectivity in remote areas. The system supports GPRS/ UMTS/HSDPA/LTE technologies for transmission.

■ Lockable M12 Connectors



To against vibration and shock, the M12 connector is used for dual LAN communication which offers a reliable performance for high-quality data acquisition or transmission. The M12 connector can ensure that all cables can be tightly secured and improve anti-vibration capability.

■ Multiple Isolated Port Protection



The IRS-100 provides 1.5kV isolation on the RS-232/422/485, DIO and power in order to protect from any stray electrical signals from other devices and to ensure stable operation in harsh environments.

Front View



Rear View



■ Operating Temperature and EN 50155 Compliance

EN50155 is the standard for electronic equipment used on rolling stock. IEI's railway system (IRS-100) complies with EN50155 TX column 2 standard and passed tests for vibration, shock, and wide temperature. IRS-100 can run in an extremely hot or cold environment in -40°C ~ 70°C.

Standard	EN50155 T1	EN50155 T2	EN50155 T3	EN50155 TX
Internal Cabinet Temperature Range	-25°C - +55°C	-40°C - +55°C	-25°C - +70°C	-40°C - +70°C

■ Wide Range of DC/DC Converters

Railway rolling stock is required to meet the requirement of EN50155 for electronic equipment.
IRS-100 has wide range of input voltages of 24VDC~110VDC (±40%), therefore, uses are able to install various devices in different railway rolling stock applications.

Nominal Input	24V	37.5V	48V	72V	96V	110V
Input Range (0.7-1.25 Vin)	17-30V	26-47V	34-60V	50-90V	67-120V	77-137V
Brownout 100ms (0.6xVin)	14V	22V	29V	43V	58V	66V
Transient 1s (1.4xVin)	34V	61V	67V	101V	135V	154V

■ Compliant with Electromagnetic Interference Requirements

Railway electronic systems are subjected to different level of electromagnetic interference requirements.

Standard	Parameter		EN50155	
Rolling Equipment	Vibration	Category < 0.3 kg	Shock (half sine)	Long. / Trans. / Vert. axis
	Frequency range	5 - 150 Hz	Peak acceleration	5 g / 2 g / 1 g
	Acceleration	5 g	Duration	50 ms / 20 ms / 20 ms

■ Compliant with Mechanical Requirements

Railway electronic systems are subjected to high-level mechanical environmental constraints depending on their implementation.

	Generic Standards	EN 50121-3 and -4	EN 50155
Radio electrical conducted emission <30MHz 0,15 - 0,5 MHz (quasi peak) 0,5 - 5 MHz (quasi peak) 5 - 30 MHz (quasi peak)	EN55032 EN55011	EN55011 level +20 dB : 79 dB/µV/m+20dB (quasi peak) 73 dB/µV/m+20dB (quasi peak) 73 dB/µV/m+20dB (quasi peak)	Level: 70 dB/µV/ qp 70 dB/µV/ qp 70 dB/µV/ qp
Radio magnetic emission qp at 10m >30MHz 30 - 80 MHz 80 - 230 MHz 230 - 1,000 MHz	EN55032 EN55011	EN55011 level class B : 40 dB/µV/m (quasi peak) 40 dB/µV/m (quasi peak) 47 dB/µV/m (quasi peak)	Level: 70 dB/µV/m < 70 dB/µV/m < 70 dB/µV/m
Electrostatic discharge immunity (Internal)	EN61000-4-2 or IEC-801-2	Level: 6KV contact cond. B Level: 8KV air cond. B	
Radio frequency electromagnetic fields immunity (80 - 1,000 MHz)	EN61000-4-3 or IEC-801-3 EN50140	Level: 10V/m condition A Level: 20V/m condition A	Level: 10V/m Level: 20V/m
Fast transient/burst immunity (DC power port and I/O ports)	EN61000-4-4 or IEC-801-4	Level: 0.5KV condition A Level: 2KV condition A	Level: 2KV
Surge immunity	EN61000-4-5 or IEC-801-5	Level: 2KV condition B Impedance 42 Ohm	Level: 1.8 KV
Conducted distustances induced by radio frequency fields immunity (150KHz-80MHz) (DC power port and I/O port)	EN50141 or EN61000-4-6 or EN50121-4	Level: 3V condition A Modulation 80% AM Impedance 150 0hm Level: 10V condition A	
Damped oscillatcry magentic field immunity	EN61000-4-10	Level: 30A/m condition B	

Marine: SBOX Series

IEI Marine System

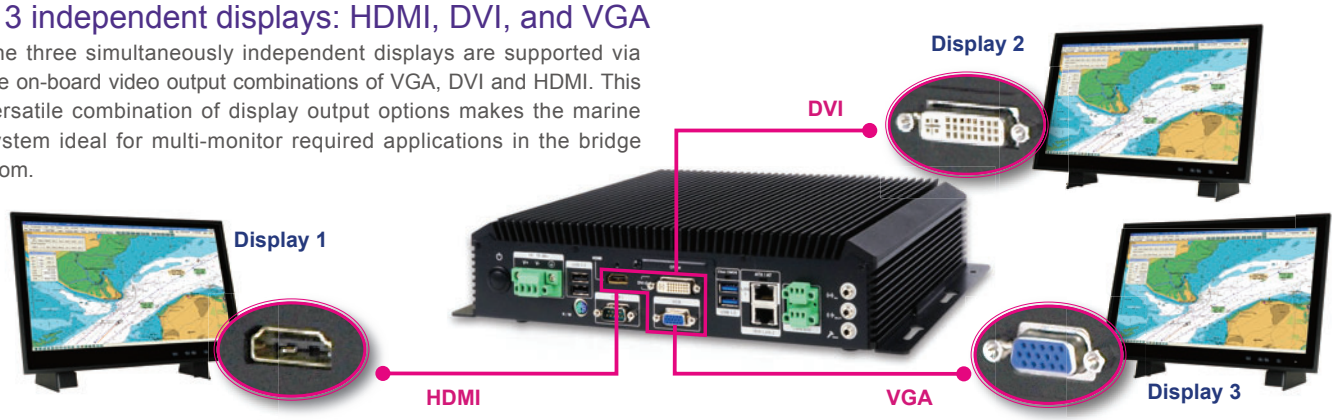
It is difficult to send out technical support for maritime field application due to the location limitation. The best way to solve the urgent issue is remote troubleshooting with IEI iRIS solution. IEI marine-grade solutions provide the most convinent method of real-time system alert notice and repair function through iRIS solution to make customer's equipment more reliable and durable in critical environment.



Key Features

■ 3 independent displays: HDMI, DVI, and VGA

The three simultaneously independent displays are supported via the on-board video output combinations of VGA, DVI and HDMI. This versatile combination of display output options makes the marine system ideal for multi-monitor required applications in the bridge room.

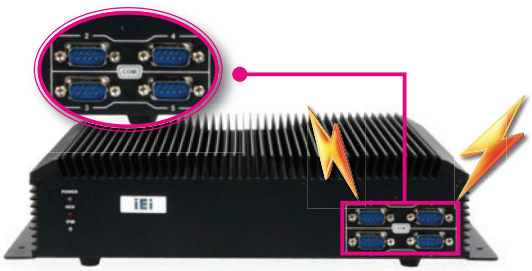


■ Multiple Isolated Ports for Comprehensive Protection against Electrical Surges

Ground loop and electric surges are common in the marine applications of electronic products due to the dense placement of devices. These stray electrical signals can cause equipment damage or malfunction.

■ 2.5 kV isolation protection on the RS-232/422/485

IEI marine computer is protected from any stray electrical signals from other devices on the ship. Electric surges that were generated from other electronic devices which often passed through serial lines to the marine computer can cause severe damage and malfunction to the computers.



■ Two independent CAN 2.0B channels with 2.5 kV isolation protection

CAN 2.0B is a kind of marine electronic data network for communication between marine electronic devices such as chart plotters, navigation instruments, GPS receivers, etc.

■ Isolated 18 V~24 V DC power 2250 V DC Input to Output Basic Insulation



DNV Compliance

The DNV regulation is one of the most stringent standards in the maritime industry. It sets the minimum requirements of devices based on where the device is located. IEI marine series complies with DNV regulations and has passed tests for temperature, humidity, vibration, EMC and water- and dust-proof levels.

■ Operating Temperature

The marine series can run in wide temperature environment from -15°C to 55°C.

Temperature	Class A	Class B	Class C	Class D
Location	Machinery spaces, control rooms, accommodation, bridge	Inside cubicles, desks, etc. with temperature rise of 5° C or more	Pump rooms, holds, rooms with no heating	Open deck, masts
Minimum equipment specification	Ambient temperatures: +5°C to +55°C	Ambient temperatures: +5° C to +70°C	Ambient temperatures: -25°C to +55°C	Ambient temperatures: -25°C to +70°C

■ Humidity

The marine series conforms to DNV class A of humidity.

Humidity	Class A	Class B
Location	Locations where special pre-cautions are taken to avoid condensation	All other locations
Minimum equipment specification	Relative humidity up to 96 % at all relevant temperatures.	Relative humidity up to 100 % at all relevant temperatures

■ Vibration

The marine series is subjected to DNV Class A vibration test and can be widely used on bulkheads, beams, deck and bridge.

Vibration	Class A	Class B	Class C
Location	On bulkheads, beams, deck, bridge	On machinery such as internal combustion engines, com-pressors, pumps, including piping on such machinery	Masts
Minimum equipment specification	Frequency range: 3-13.2 Hz, Amplitude: 1.0 mm (peak value) Frequency range: 13.2-100 Hz, Acceleration amplitude: 0.7 g	Frequency range: 3-25 Hz, Amplitude: 1.6 mm (peak value) Frequency range: 25-100 Hz, acceleration amplitude: 4.0 g	Frequency range: 3-13.2 Hz, Amplitude: 3.0 mm (peak value) Frequency range: 13.2-50 Hz, Acceleration amplitude: 2.1 g

■ EMC

Being different to CE and FCC standards, DNV regulations especially emphasize the importance of electromagnetic compatibility. IEI marine series is compliant with strict class B level and can provide a safe operating environment of sailing period.

Vibration	Class B			
Location	All locations including bridge and open deck			
Minimum equipment specification	**Immunity**			
	Conducted Low Frequency (Test 3.14.4)		Electrical Fast Transient/Burst (Test 3.14.5)	Electrical Slow Transient Surge (Test 3.14.6)
	AC 50/60 Hz Supply Voltage up to 15th harmonics: 10% of UN **15th to 100th harmonics:** decreasing from 10% to 1% of UN **100th to 200th:** harmonics 1% of UN	**DC Supply Voltage Frequency Sweep Range:** 50 Hz to 10 kHz **Signal Level:** 3 V r.m.s. max 2W	Amplitude : 2 kV line on power supply port/earth; 1 kV on I/O data control and communication ports(coupling clamp)	Amplitude: 0.5 kV, differential mode 1 kV, common mode
	Conducted Radio Frequency (Test 3.14.7 – Table 3.20/3.21)		Radiated Electromagnetic Field (Test 3.14.8)	Electrostatic Discharge (Test 3.14.9)
	Frequency range:150 kHz - 80 MHz Voltage level (e.m.f.): 3 V r.m.s. Spot frequencies: 2/3/4/6.2/8.2/12.6/16.5/18.8/22/25 MHz. Voltage level (e.m.f.) :10 V r.m.s.		Frequency range: 80 MHz to 2 GHz Electric field strength: 10 V/m	Output voltage Air: 8 kV Contact: 6 kV
	Emission			
	Radiated (Test 3.14.10 - 11)			
	Enclosure Port	Frequency range	Measuring bandwidth	Limits (quasi-peak)
	EMC B All locations including bridge and open deck	0.15-0.3 MHz	9 kHz	80 - 52 dBµV/m
		0.30-30 MHz	9 kHz	52 - 34 dBµV/m
		30-2000 MHz	120 kHz	54 dBµV/m
		Except: 156-165 MHz	9 kHz	24 dBµV/m
	Conducted (Test 3.14.10 - 12)			
	Power Port	Frequency range	Measuring bandwidth	Limits (quasi-peak)
	EMC B All locations including bridge and open deck	10-150 kHz	200 Hz	96 – 50 dBµV
		150-350 kHz	9 kHz	60 – 50 dBµV
		0.35 - 30 MHz	9 kHz	50 dBµV

■ Enclosure

The marine series is compliant with high waterproof and dustproof level. The front bezel complies with IP66 rating and the rear side complies with IP22.

Enclosure	Class A	Class B	Class C	Class D
Location	Control rooms, accommodation, bridge	Engine room	Open deck, masts, below floor plates in engine room	Submerged application, bilges
Minimum equipment specification	IP22	IP44	IP56	IP68

E-Window Tool Kit

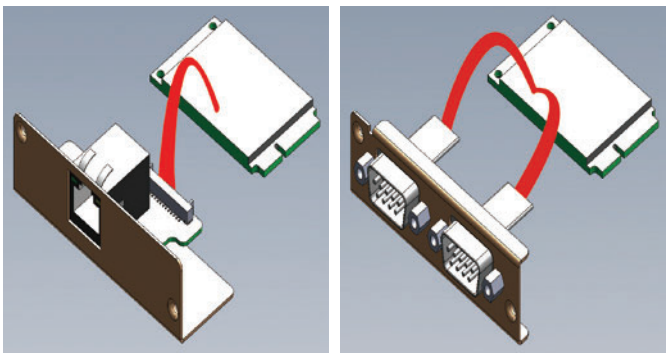


Innovative E-windows technology is a new modular way of adding flexible functionality to a wide range of device. Using standardized component helps system integrators easily add more features without any costly efforts.

E-Window

Features

- Easy maintenance
- Various module & I/O plate with flexible customization
- Integration of multiple functions
- Easy for replacement with different modules



E-Window I/O Plate with PCIe Mini Card
An E-Window module uses a PCIe Mini slot embedded on the motherboard.

Supported Model

Transportation System	
IVS-110-AL	
Industrial Automation System	
TANK-871-Q170	TANK-870e-H110



E-MPCIE-LAN-R10



E-MPCIE-DLAN-R10

Ordering Information

Part No.	Description
E-MPCIE-DLAN-R10	PCIe Mini card supports 2-port GbE with Intel I211 controller, with PMS 194C I/O bracket and 250mm cable
E-MPCIE-LAN-R10	PCIe Mini card supports 1-port GbE with Realtek RTL8111E controller, with PMS 194C I/O bracket and 250mm cable
E-MPCIE-UART-KIT01-R10	PCI Express Mini supports quad RS-232/422/485 port module

Transportation System





Model Name		IKARPC-07A-BT	AFOKAR-08A-RK39	IKARPC-W10A-BT
Chassis	Color	Black C + Silver	Black C + Silver	Blue C + Black C
	Dimensions (WxDxH) (mm)	210 x 154 x 28	210 x 154 x 33.9	277 x 186 x 27
	System Fan	Fanless		
	Chassis Construction	PC + ABS plastic	PC + ABS plastic front, metal rear	PC + ABS plastic
Display	Size	7"	8"	10.1"
	Resolution	1024 × 3 (RGB) × 600	800(RGB) × 1280	1280 x 800
	Brightness (cd/m²)	500	500	350
	Contrast Ratio	700:1	800 : 1	800:1
	Pixel Pitch (mm)	0.05 (W) × 0.15 (H)	0.13455(H) × 0.13455(V)	0.0565 (W) × 0.1695 (H)
	Viewing Angle (H/V)	130° (H) / 140° (V)	85/85/85/85 Deg.	150° (H)/145° (V)
	Touchscreen	Projected capacitive touch with USB interface	Projected capacitive with AG coating	Projected capacitive with AG coating
Motherboard	CPU	Intel® Atom™ processor E3826 (dual-core, 1.46 GHz, 7W)	Rockchip RK3399 (Dual-core Cortex-A72 up to 1.8GHz + Quad-core Cortex-A53 up to 1.5GHz)	Intel® Atom™ processor E3826 (dual-core, 1.46 GHz, 7W)
	Chipset	SoC		
	System Memory	On-board 2 GB SDRAM	On-board 2GB LPDDR3-1866	On-board 2 GB DDR3L
Storage	Hard Drive	N/A	N/A	1 x 2.5" SATA 3Gb/s HDD/SSD drive bay
	SD card	1 x microSD slot (supports SD 2.0, max. 32 GB)	1 x microSD slot	1 x SD slot (supports SD 2.0, max. 32 GB)
	Flash	N/A	On-board 16GB eMMC NAND FLASH	N/A
	mSATA	1 x mSATA (SATA 3Gb/s) optional	N/A	N/A
Communication	WLAN	PCIe Mini Wi-Fi 802.11a/b/g/n/ac (optional)	On-board 802.11 a/b/g/n/ac	PCIe Mini Wi-Fi 802.11a/b/g/n/ac (optional)
	Bluetooth	BT 4.0/3.0+HS (combo with Optional WLAN module)	Bluetooth V4.1	BT 4.0/3.0+HS (combo with Optional WLAN module)
	WWAN	PCIe Mini WCDMA/HSDPA/HSUPA (optional)	PCIe Mini LTE (optional)	PCIe Mini WCDMA/HSDPA/HSUPA (optional)
	RFID	N/A	13.56 MHz ISO4443 A/B, read-write capable, ISO 14443A (MIFARE), ISO 14443B (FeliCa)	N/A
	GPS	On-board GPS		
I/O Interfaces	20-pin Connector	1 x GbE LAN, 1 x OBD-II/J1939, 1 x USB 2.0	1 x OBD-II/J1939 1 x USB 2.0	N/A
	24-pin Connector	1 x Audio line-out(R+L) 1 x Audio line-in 1 x RS-232 4-bit digital I/O (2-bit input, 2-bit output)	1 x Audio out 1 x RS-232 1 x RS-485 4-bit digital I/O with isolation (2-bit input, 2-bit output)	N/A
	USB 3.2 Gen 1	1		
	USB 2.0	1	20-pin connector	1
	Ethernet	N/A	N/A	1 x RJ-45 PCIe GbE by Realtek 8111E
	COM Port	N/A	24-pin connector	2 x DB-9 RS-232
	Digital I/O	N/A	24-pin connector	8-bit digital I/O (4-bit input, 4-bit output)
	CAN-Bus/OBD-II	N/A	20-pin connector	1 x DB-9 OBD-II/J1939
	Display	1 x HDMI		
	SIM	2 x On-board SIM card slot	1 x On-board SIM card slot	2 x On-board SIM card slot
	Antenna	1 x GPS, 1 x WWAN		
Expansions	PCIe Mini	1 x Full-size (reserved for mSATA module), 1 x Full-size (reserved for WWAN module), 1 x Half-size (reserved for WLAN module)	1 x Full-size (reserved for WWAN)	1 x Full-size (reserved for WWAN module), 1 x Full-size (reserved for WLAN module)
Multimedia	Speaker	1 x Speaker (2 W)		
	Camera	2-megapixel CMOS	5-megapixel CMOS	2-megapixel CMOS
Power	Power Input	Cigarette lighter power cable, DC 9 V~30 V		
	Power Consumption	12V @ 1.25 A	12V @ 1.2A	12 V @ 1.73 A
Reliability	Mounting	VESA 75	VESA 75	VESA 100
	Operating Temperature	-10°C ~ 60°C with air flow	-10°C ~ 50°C with air flow	-10°C ~ 60°C with air flow
	Weight (Net/Gross)	0.9 kg/2.1 kg	0.77 kg	1.3 kg/2.8 kg
	Safety/EMC	CE/FCC/E-Mark/IP 54 compliant front panel	CE/FCC (Class A)/E-mark/IP54 front panel compliant	CE/FCC/E-Mark/IP 64 compliant front panel
OS	Supported OS	Microsoft® Windows Embedded 8, Microsoft® Windows Embedded Standard 7 E	Android 7.1	Microsoft® Windows Embedded 8, Microsoft® Windows Embedded Standard 7 E

Transportation System







New

Model Name		IVS-300	IVS-200-ULT2	IVS-110-AL
Chassis	Color	Blue C	Blue C	Black
	Dimensions (WxDxH) (mm)	255 x185 x80	255 x 150 x 63	261 x 60 x 170
	System Fan	Fanless	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloy	Extruded aluminum alloy	Extruded aliminum alloy
Motherboard	CPU	Intel® Celeron® J1900 processor (quad-core 2GHz, 10W TDP) or Intel® Core™ i5-6300U processor (dual-core, 2.4 GHz, 15W TDP)	Intel® Core™ i5-5350U processor (dual-core, 1.8 GHz, 15W TDP) or Intel® Celeron® 3765U processor (dual-core, 1.9 GHz, 15W TDP)	Intel® Atom™ x7 E3950 processor (quad-core, 2.0GHz, 12W TDP)
	Chipset	SoC	SoC	SoC
	System Memory	IVS-300-BT: 2 x 204-pin DDR3L SO-DIMM. 4GB pre-installed (system max. 8 GB) IVS-300-ULT3: 2 x 260-pin DDR4 SO-DIMM, 4GB pre-installed (system max. 32 GB)	2 x 204-pin DDR3L SO-DIMM slot 4 GB pre-installed (system max. 16 GB)	2 x 204-pin DDR3L SO-DIMM. 4GB pre-installed (system max. 8GB)
Storage	Hard Drive	2 x 2.5" SATA 6Gb/s HDD/SSD removable drive bay	1 x 2.5" SATA 6Gb/s HDD/SSD removable drive bay	1 x 2.5" SATA 6Gb/s HDD/SSD drive bay
	SD Card	N/A	N/A	N/A
	Flash	N/A	N/A	1 x eMMC 5.0 8GB (reserved)
	mSATA	N/A	1 x mSATA (SATA 6Gb/s)	1 x mSATA (PCIe Mini Slot) 1 x eMMC 5.0 8G (reserved)
Communication	WLAN	PCIe Mini Wi-Fi 802.11 a/b/g/n/ac (optional)	PCIe Mini Wi-Fi 802.11b/g/n (optional)	PCIe Mini Wi-Fi 802.11 a/b/g/n/ac (optional)
	Bluetooth	BT 4.0/3.0+HS (combo with Optional WLAN module)	Bluetooth 2.1 (combined with WWAN optional module)	BT 4.0/3.0+HS (combo with Optional WLAN module)
	WWAN	PCIe Mini WCDMA/HSDPA/HSUPA (optional)	PCIe Mini WCDMA/HSDPA/HSUPA (optional)	PCIe Mini WCDMA/HSDPA/HSUPA (optional)
	RFID	N/A	N/A	N/A
	GPS	On-board GPS	N/A	On-board GPS
I/O Interfaces	USB 3.2 Gen 1	2	2	4
	USB 2.0	N/A	2	N/A
	Ethernet	4 x RJ-45 PCIe GbE by Intel® i210-AT Support PoE IEEE802.3af (Each port max 15.4W)	4 x RJ-45 connector LAN1: PCIe GbE by Intel® I218 LAN2: PCIe GbE by Intel® I211 LAN3: PCIe GbE by Intel® I211 LAN4: PCIe GbE by Intel® I211	1 x RJ-45 PCIe GbE by Intel® I210-IT
	COM Port	2 x DB-9 RS-232 1 x DB-15 (with isolation) RS-422/485	2 x DB-9 RS-232/422/485 4 x DB-9 RS-232 (optional)	1 x DB-9 RS-232/422/485 (BIOS configuration)
	Digital I/O	(with isolation) 8-bit digital I/O (4-bit input / 4-bit output)	8-bit digital I/O (4-bit input / 4-bit output) (optional)	1 x Printer port 16-bit digital I/O (8-bit input / 8-bit output)
	CAN-bus/OBD-II	1 x DB9 OBD-II/J1939	N/A	1 x DB9 OBD-II/J1939
	Display	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI
	Resolution	VGA : Up to 1920 x 1080 @60 Hz HDMI : Up to 1920 x 1080 @60 Hz	VGA: Up to 2560 x 1600 @60 Hz HDMI: Up to 3840 x 2160 @60 Hz	VGA : Up to 1920 x 1600 @60 Hz HDMI : Up to 3840 x 2160 @30 Hz
	Audio	1 x Line out, 1 x Mic in	1 x Line out, 1 x Mic in	1 x Line out
	SIM	2 x On-board SIM card slot	1 x On-board SIM card slot	2 x On-board SIM card slot
	Antenna	1 x 3G, 1 x GPS, 1 x BT, 1 x Wi-Fi	1 x 3G, 1 x BT, 1 x Wi-Fi	1 x 3G, 1 x GPS, 1 x BT, 1 x Wi-Fi
Expansions	PCI	N/A	N/A	N/A
	PCIe Mini	1 x Half-size (reserved for WLAN) 1 x Full-size (reserved for WWAN) 1 x Full-size (USB signal)	1 x Full-size (reserved for WWAN or mSATA) 1 x Half-size (reserved for WLAN)	1 x Full/Half-size (reserved for WWAN) 1 x Full/Half-size (reserved for mSATA or E-window) 1 x Half-size (reserved for WLAN)
Power	Power Input	Cigarette lighter power cable : DC 9 V~30 V	DC jack : 9 V~36 V DC	Cigarette lighter power cable : 9 V~ 36 V DC
	Power Consumption	12 V @ 14A (Intel® i5-6300U with 4 GB DDR4 memory + 4 PoE)	12 V @ 2.1 A (Intel® i5-5350U with 4 GB DDR3 memory)	12V @ 5A (Intel® Atom™ x7 E3950 with 8 GB DDR3 memory)
Reliability	Mounting	Wall mount	VESA 100	Wall mount / VESA 100
	Operating Temperature	-20°C ~60°C with air flow	-20°C ~ 60°C with air flow (SSD)	-30°C ~ 70°C with air flow
	Weight (Net/Gross)	3 kg / 4.5 kg	2.2 kg / 3 kg	2.4kg / 3.8kg
	Safety/EMC	CE/FCC/E-Mark	CE/FCC/E-Mark	CE/FCC/E-Mark/ IP rating : IP 4X compliant
OS	Supported OS	Microsoft® Windows Embedded 8, Microsoft® Windows Embedded Standard 7 E	Microsoft® Windows Embedded 8, Microsoft® Windows Embedded Standard 7 E	Microsoft® Windows 10 IoT Enterprise

Transportation System

IRS IEI Railway System



IMS IEI Marine System

New



Model Name		IRS-100-ULT3	SBX-100-QM87
Chassis	Color	Blue C	Black
	Dimensions (WxDxH) (mm)	290 x 225 x 69	290 x 225 x 75
	System Fan	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloy	Extruded aluminum alloy
Motherboard	CPU	Intel® Core™ i5-6300U processor (dual-core, 2.4 GHz, 15W TDP)	Intel® mobile Core™ i5-4400E (2.7 GHz, 37W)
	Chipset	SoC	Intel® QM87
	System Memory	2 x 260-pin DDR4 SO-DIMM 4GB pre-installed (system max. 32 GB)	2 x 204-pin DDR3 SO-DIMM slot (system max. 16 GB) Pre-installed 4 GB DDR3 SO-DIMM
IPMI	iRIS Solution	N/A	1 x iRIS-2400
Storage	Hard Drive	2 x 2.5" SATA 6Gb/s HDD/SSD drive bay	2 x 2.5" SATA 6Gb/s SSD bay with RAID 0/1 function
	CFast/CF Card	1 x CFast	1 x CFast
	Flash	N/A	N/A
	mSATA	1 x mSATA	N/A
I/O Interfaces	PS/2 (KB/MS)	N/A	1
	USB 3.2 Gen 1	2	2
	USB 2.0	1 (M12 connector)	2
	Ethernet	2 x M12 connector PCIe GbE by Intel® I211	2 x RJ-45 with teaming support 1 x PCIe GbE by Intel® I217LM 1 x PCIe GbE by Intel® I210-AT (2 with 2 kV isolation)
	COM Port	2 x DB-9 RS-232/422/485 (with 1.5 kV isolation)	1 x DB-9 (non-isolated) 4 x RS-232/422/485 (with 2.5 kV isolation)
	Digital I/O	1 x Terminal block 8-bit digital I/O (4-bit input / 4-bit output, 1.5 kV isolation)	N/A
	CAN-bus/OBD-II	N/A	2 x CAN-bus (with 2.5 kV isolation)
	Display	1 x VGA, 1 x DVI-D	1 x VGA ,1 x DVI-D ,1 x HDMI
	Resolution	VGA : Up to 1920 x 1200 @60Hz DVI-D : Up to 1920 x 1200 @60Hz	VGA: Up to 1920 x 1200 @ 60 Hz HDMI: Up to 2500 x 1600 @ 60 Hz DVI-D: Up to 2500 x 1600 @ 60 Hz
	Audio	1 x Line-out, 1 x Mic-in	1 x Line-out, 1 x Line-in, 1 x Mic-in
	TPM	N/A	N/A
	SIM	2 x SIM card slot	N/A
	Antenna	1 x 3G, 1 x BT, 2 x Wi-Fi	2 x Antenna SMA hole (reserved)
Expansions	PCIe Mini	2 x Full-size (for WWAN / WLAN module)	2 x Full-size
Power	Power Input	M12 connector: Typical: 24V / 110V DC input	Terminal block: Isolated 24V DC (18~31.2 V DC)
	Power Consumption	24V @ 2A (Intel® i5-6300U with 4 GB DDR4 memory)	100 W (Intel® mobile Core™ i5-4400E with 4 GB DDR3 memory)
Reliability	Mounting	Wall mount	Wall mount
	Operating Temperature	-40°C ~ 70°C with air flow (with industrial SSD/CF), compliant with EN 50155	*-15°C ~ 55°C (5°F ~131°F) with air flow (SSD)
	Weight (Net/Gross)	3.9 kg / 5.1 kg	4.08 kg / 6.03 kg
	Safety/EMC	CE/FCC Compliance with EN50155, EN50121	EMC/CE/FCC/DNV, IEC 60945 4th, IACS-E10, IEC 61174 compliant IP rating: IP22 compliant rear cover
OS	Supported OS	Microsoft® Windows® Embedded 8, Microsoft® Windows® Embedded Standard 7 E	Microsoft® Windows® Embedded 8, Microsoft® Windows® Embedded Standard 7 E

IKARPC-07A

Vehicle Computer Series



Features

- 7” sunlight readable TFT LCD with projected capacitive touchscreen
- Optional HSUPA/GPRS/GSM, Wi-Fi and Bluetooth
- Built-in GPS receiver
- Built-in OBD-II/J1939



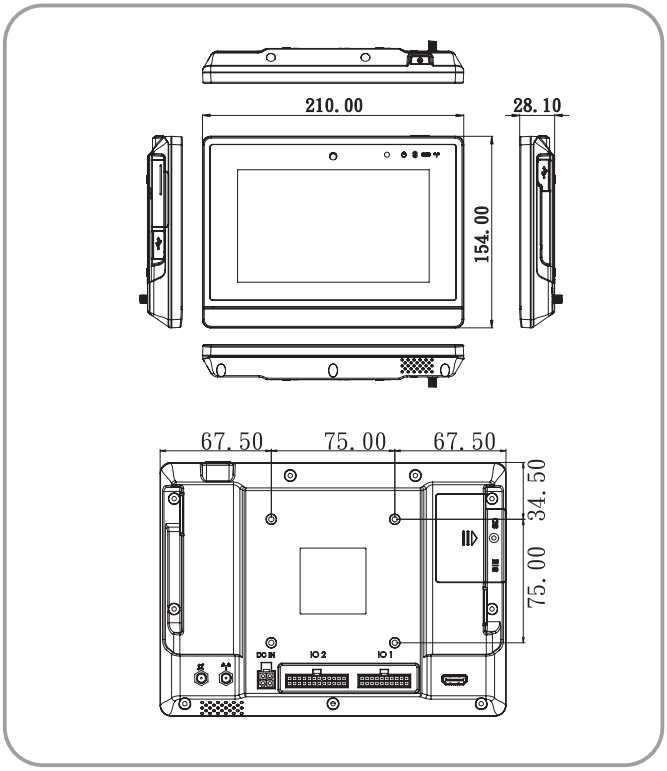
Specifications

Model Name		IKARPC-07A-BT
Chassis	Color	Black C + Silver
	Dimensions (WxHxD) (mm)	210 x 154 x 28
	System Fan	Fanless
	Chassis Construction	PC + ABS plastic
Display	Size	7"
	Resolution	1024 × 3 (RGB) × 600
	Brightness (cd/m²)	500
	Contrast Ratio	700:1
	Pixel Pitch (mm)	0.05 (W) × 0.15 (H)
	Viewing Angle (H/V)	130° (H) / 140° (V)
	Touchscreen	Projected capacitive touch with USB interface
Motherboard	CPU	Intel® Atom™ processor E3826 (dual-core, 1.46 GHz, 7W)
	Chipset	SoC
	System Memory	On-board 2 GB SDRAM
Storage	SD Card	1 x Micro SD slot (supports SD 2.0, max. 32 GB)
	Flash	N/A
	mSATA	1 x mSATA (SATA 3Gb/s) optional
Communication	WLAN	PCIe Mini Wi-Fi 802.11a/b/g/n/ac (optional)
	Bluetooth	BT 4.0/3.0+HS (combo with Optional WLAN module)
	WWAN	PCIe Mini WCDMA/HSDPA/HSUPA (optional)
	RFID	N/A
	GPS	On-board GPS
I/O Interfaces	20-pin Connector	1 x GbE LAN 1 x OBD-II/J1939 1 x USB 2.0
	24-pin Connector	1 x Audio line-out (R+L) 1 x Audio line-in 1 x RS-232 4-bit digital I/O (2-bit input, 2-bit output)
	8-pin Connector	N/A
	USB 3.2 Gen 1	1
	USB 2.0	1
	Display	1 x HDMI
	SIM	2 x On-board SIM card slot
	Antenna	1 x GPS, 1 x WWAN
Expansions	PCIe Mini	1 x Full-size (reserved for mSATA module), 1 x Full-size (reserved for WWAN module), 1 x Half-size (reserved for WLAN module)
Multimedia	Speaker	1 x Speaker (2 W)
	Camera	2-megapixel CMOS
LED Indicator & Button	Indicator	Power/HDD/Wi-Fi/3G
	Button	1 x Power botton
Power	Power Input	Cigarette lighter power cable, DC 9 V~30 V
	Consumption	12V @ 1.25 A
Reliability	Mounting	VESA 75
	Operating Temperature	-10°C ~ 60°C with air flow
	Storage Temperature	-20°C ~ 60°°C
	Humidity	10% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 3 shocks per axis
	Operating Vibration	MIL-STD-810F 514.5C-2 (with SSD)
	Weight (Net/Gross)	0.9 kg/2.1 kg
	Safety/EMC	CE/FCC/E-Mark/IP 54 compliant front panel
OS	Supported OS	Microsoft® Windows® Embedded 8, Microsoft® Windows® Embedded Standard 7 E

Fully Integrated I/O



Dimensions (Unit: mm)



Ordering Information

Part No.	Description
IKARPC-07A-BT-E3/2G-R11	7" 500 cd/m2 1024 x 600 In Vehicle Panel PC with Intel® Atom E3826 1.46GHz, 7W TDP, 2GB DDR3L On-board memory, OBDII, GPS On-board, 2M Camera, ROHS

Options

Item	Part No.	Description
Power adapter	IVIPOWER-4PIN-R10	Power adapter with 4-pin transfer cable, RoHS
Cigarette lighter power cable	32002-004000-100-RS	Round cable, power cable, car cigarette lighter cable, 2000 mm, 18 AWG, (A) cigarette lighter (5 A 250 V)+ ψ3 green LED, (B) MOLEX 5557-0400 P=4.2, SHANGHAI YING YU, RoHS
VESA mount stand	IVI-MK03-R10	138mm 75x75 VESA mount stand
OBD-II cable	32025-003400-100-RS	Round cable, OBD-II cable, 2000 mm, 24 AWG, (A) OBD-II 16P male, (B) D-sub 9P female, one piece package with label, NIAN YEONG, RoHS

IKARPC-07A-BT Series

Item	Part No.	Description
I/O connector 1 cable (20-pin)	32024-003000-100-RS	Round cable, integration cable, I/O cable, 300 mm, 24 AWG (A)terminal block 3P P=5.08, (B)USB A type female+2 NUT, (C)PCB jack: RJ-45 8P8C, (D)D-sub 9P male, (E)MOLEX 5557-2000 P=3.0, one piece package with label, RoHS
I/O connector 2 cable (24-pin)	32124-003700-100-RS	Round cable, integration cable, I/O cable, 300 mm, 22 AWG, (A)terminal block 8P P=5.08, (B)MOLEX 43025-2400 P=3.0, (C)D-sub 9P male, (D)phone jack 3.5_3P+NUT, (E)phone jack 3.5_5P+NUT, one piece package with label, RoHS
OS: Windows Embedded 7 (DVD-ROM)	IKARPC-07A-BT-WES7P-R10	OS image with Windows® Embedded Standard 7 E for IKARPC-07A-BT Series, DVD-ROM, RoHS
OS: Windows Embedded 8 (DVD-ROM)	IKARPC-07A-WE8S-R10	OS image with Windows® Embedded Standard 8 E for IKARPC-07A-BT Series, WE8S license label, DVD-ROM, RoHS
Wireless kit	IKARPC-WIFI-KIT01-R10	1T1R wifi module kit for embedded system, IEEE 802.11b/g/n, 1 x wifi module, RoHS
WWAN kit	IKARPC-3G-KIT02-R10	F260 3.75G module kit for embedded system, with BT V2.1, RoHs

Packing List

Product	Item	Part No.	Qty	Description
IKARPC-07A-BT	Power cable	32002-001900-100-RS	1	Round cable, power cable, 3000mm, RoHS
	Screw pack	44045-020031-RS	2	Screw pack
	GPS/GSM antenna	32506-000100-100-RS	1	Integration antenna, GPS/GSM, RG 174, 5000mm/5000mm, PPF-5423SA5X-999, Magnetic mount: φ55x22mm, 1575.42MHz/850MHz/900MHz/1800MHz/1900MHz, SMA plug x 2

AFOKAR-08A-RK39

Vehicle Computer Series

Features

- 8” sunlight readable TFT LCD with projected capacitive touchscreen
- Optional LTE module
- Built-in GPS receiver
- Built-in OBD-II/J1939
- OS: Android 7.1

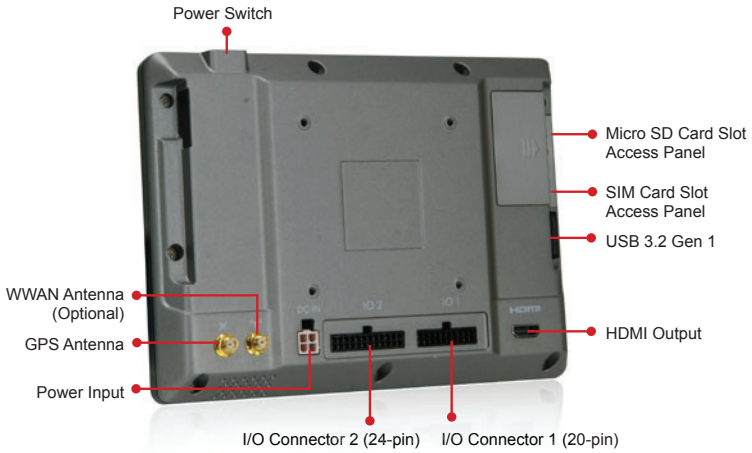




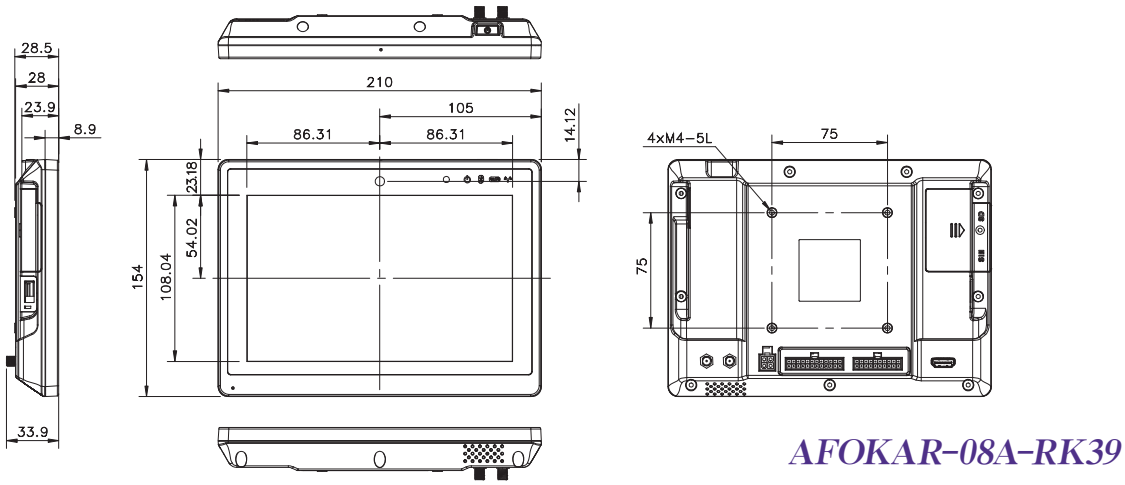
Specifications

Model Name		AFOKAR-08A-RK39
Chassis	Color	Black C + Silver
	Dimensions (WxHxD) (mm)	210 x 154 x 33.9
	System Fan	Fanless
	Chassis Construction	PC + ABS plastic front, Metal rear
Display	Size	8"
	Resolution	800 (RGB) × 1280
	Brightness (cd/m²)	500 cd/m² (typ.)
	Contrast Ratio	800 : 1 (typ.)
	Pixel Pitch (mm)	0.13455 (H) × 0.13455 (V)
	Viewing Angle (H/V)	85/85/85/85 Deg.
	Touchscreen	Projected capacitive with AG coating
Motherboard	CPU	Rockchip RK3399 (Dual-core Cortex-A72 up to 1.8GHz + Quad-core Cortex-A53 up to 1.5GHz)
	System Memory	2GB LPDDR3-1866
Storage	SD Card	1 x Micro SD slot
	Flash	16GB eMMC NAND flash
Communication	WLAN	802.11 a/b/g/n/ac
	Bluetooth	Bluetooth V4.1
	WWAN	PCIe Mini LTE (optional)
	RFID	13.56 MHz ISO4443 A/B, read-write capable, ISO 14443A (MIFARE), ISO 14443B (FeliCa)
	GPS	On-board GPS
I/O Interfaces	20-pin Connector	** 1 x OBD-II/J1939 ** 1 x USB 2.0
	24-pin Connector	** 1 x Audio out ** 1 x RS-232 ** 1 x RS-485 ** 4-bit digital I/O with isolation (2-bit input, 2-bit output)
	USB 3.2 Gen 1	1 x USB 3.2 Gen 1 Type A
	Display	1 x HDMI output
	SIM	1 x On-board SIM card slot
	Antenna	1 x GPS, 1 x WWAN
Expansions	PCIe Mini	1 x Full-size (reserved for WWAN)
Multimedia	Speaker	1 x Speaker (2 W)
	Camera	5-megapixel CMOS
LED Indicator & Button	Indicator	Power/BT/Wi-Fi/WWAN
	Button	1 x Power button
Power	Power Input	DC 9 V~30 V, 4-pin connector (with ACC ignition)
	Power Consumption	12V @ 1.2A
Reliability	Mounting	VESA mount 75mm x 75mm
	Operating Temperature	-10°C ~ 50°C with air flow
	Storage Temperature	-20°C ~ 60°C
	Humidity	10% ~ 90%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 3 shocks per axis
	Operating Vibration	MIL-STD-810F 514.5C-2
	Weight (Net)	0.77 kg
	Safety/EMC	CE/FCC (Class A)/E-mark/IP54 front panel compliant
OS	Supported OS	Android 7.1
	Watchdog timer	Yes





Dimensions *(Unit: mm)*



AFOKAR-08A-RK39

Ordering Information

Part No.	Description
AFOKAR-08A-RK39-R11-TW	8" 500 cd/m², Android 7.1 in- vehicle panel PC with Rockchip 3399 processor, 2GB LPDDR3, 16GB eMMC flash, GPS, Wi-Fi/ Bluetooth, OBD-II, 5-megapixel camera, RFID reader, TW reg, R11
AFOKAR-08A-RK39-R11-CN	8" 500 cd/m², Android 7.1 in- vehicle panel PC with Rockchip 3399 processor, 2GB LPDDR3, 16GB eMMC flash, GPS, Wi-Fi/ Bluetooth, OBD-II, 5-megapixel camera, RFID reader, CN reg, R11
AFOKAR-08A-RK39-R11-US	8" 500 cd/m², Android 7.1 in- vehicle panel PC with Rockchip 3399 processor, 2GB LPDDR3, 16GB eMMC flash, GPS, Wi-Fi/ Bluetooth, OBD-II, 5-megapixel camera, RFID reader, US reg, R11
AFOKAR-08A-RK39-R11-EU	8" 500 cd/m², Android 7.1 in- vehicle panel PC with Rockchip 3399 processor, 2GB LPDDR3, 16GB eMMC flash, GPS, Wi-Fi/ Bluetooth, OBD-II, 5-megapixel camera, RFID reader, EU reg, R11

Options

Item	Part No.	Description
Power Adapter	IVIPOWER-4PIN-R10	Adapter power with 4-pin transfer cable, RoHS
Cigarette Lighter Power Cable	32002-004000-100-RS	Car cigarette lighter cable
VESA Mount Stand	IVI-MK03-R10	138mm 75x75 VESA mount stand
VESA Mount Stand	IVI-MK04-R10	286mm 75x75 VESA mount stand
OBD-II Cable	32025-003400-100-RS	OBDII CABEL;2;2000MM;24AWG;(A)OBD2-16P MALE;(B)D-SUB 9PIN FEMALE
ACC Power Cable	32002-001900-100-RS	Vehicle battery to device power cable;3000MM;16AWG
GPS/LTE Antenna	32506-000500-100-RS	Magnetic Antenna Base_GPS+GLOANSS & 3G/LTE 2 In 1 Antenna;RG 174;5000MM
I/O Connector (20-pin)	32024-003800-100-RS	1 x DB-9 for OBD-II/J1939, 1 x USB 2.0 TYPE A
I/O Connector (24-pin)	32124-004400-100-RS	1 x Audio line-out (R+L), 1 x RS-232, 1 x RS-485,1 x terminal block 4 bit digital I/O
LTE Module	27552-000004-RS	WCDMA/HSPA+/LTE;SIM7500SA
	27552-000005-RS	GSM/LTE/WCDMA;SIM7500E
	27552-000006-RS	LTE/WCDMA;SIM7500A

Packing List

1 x AFOKAR Device

IKARPC-W10A

Vehicle Computer Series

Features

- 10.1" TFT LCD with projected capacitive touchscreen
- Intel® Atom™ E3826 1.46 GHz CPU
- Windows® Embedded Standard 7
- Optional HSUPA/GPRS/GSM, Wi-Fi and Bluetooth
- Built-in GPS function
- Built-in OBD-II/J1939



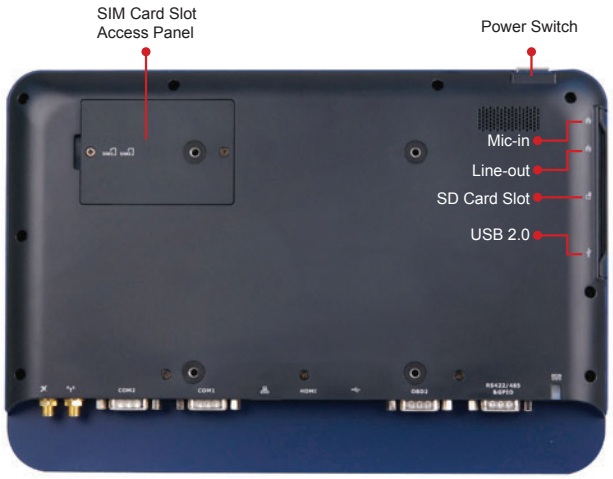


Specifications

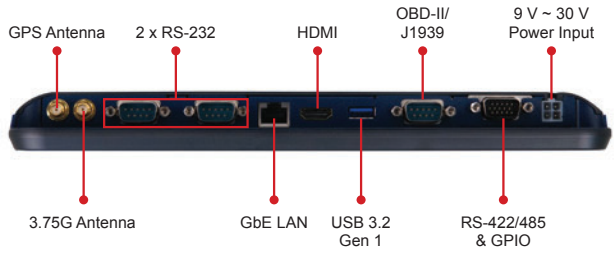
Model Name		IKARPC-W10A
Chassis	Color	Blue C + Black C
	Dimensions (WxHxD) (mm)	277 x 186 x 27
	System Fan	Fanless
	Chassis Construction	PC + ABS plastic
Display	Size	10.1"
	Resolution	1280 x 800
	Brightness (cd/m²)	350
	Contrast Ratio	800:1
	Pixel Pitch (mm)	0.0565 (W) × 0.1695 (H)
	Viewing Angle (H/V)	150° (H)/145° (V)
	Touchscreen	Projected capacitive touch with USB interface, AG coating, anti-UV protection
Motherboard	CPU	Intel® Atom™ processor E3826 (dual-core, 1.46 GHz, 7W)
	Chipset	SoC
	System Memory	1 x 204-pin DDR3L SO-DIMM (pre-installed 2GB DDR3L, system max. 4GB)
Storage	Hard Drive	1 x 2.5" SATA 3Gb/s HDD/SSD drive bay
	SD Card	1 x SD slot (supports SD 2.0, max. 32 GB)
Communication	WLAN	PCIe Mini Wi-Fi 802.11a/b/g/n/ac (optional)
	Bluetooth	BT 4.0/3.0+HS (combo with optional WLAN module)
	WWAN	PCIe Mini WCDMA/HSDPA/HSUPA (optional)
	GPS	On-board GPS
I/O Interfaces	USB 3.2 Gen 1	1
	USB 2.0	1
	Ethernet	1 x RJ-45 PCIe GbE by Realtek 8111E
	COM Port	2 x DB-9 RS-232
	Digital I/O	8-bit digital I/O (4-bit input / 4-bit output)
	CAN-bus/OBD-II	1 x DB9 OBD-II/J1939
	Display	1 x HDMI
	Resolution	HDMI: Up to 1920 x 1080 @ 60 Hz
	Audio	1 x Line out, 1 x Mic in
	SIM	2 x On-board SIM card slot
	Antenna	1 x GPS, 1 x WWAN
Expansions	PCIe Mini	1 x Full-size (reserved for WWAN module), 1 x Full-size (reserved for WLAN module)
Multimedia	Audio	1 x Speaker (2 W)
	Camera	2-megapixel CMOS
LED Indicator & Button	Indicator	Power/Wi-Fi/HDD/3.5G
	Button	1 x Power button
Power	Power Input	Cigarette lighter power cable, DC 9 V~30 V
	Consumption	12 V @ 1.73 A
Reliability	Mounting	VESA 100
	Operating Temperature	-10°C ~ 60°C with air flow
	Storage Temperature	-20°C ~ 70°C
	Humidity	10% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 3 shocks per axis
	Operating Vibration	MIL-STD-810F 514.5C-2 (with SSD)
	Weight (Net/Gross)	1.3 kg/2.8 kg
	Safety/EMC	CE/FCC/E-Mark/IP 64 compliant front panel
OS	Supported OS	Microsoft® Windows® Embedded 8, Microsoft® Windows® Embedded Standard 7 E

Fully Integrated I/O

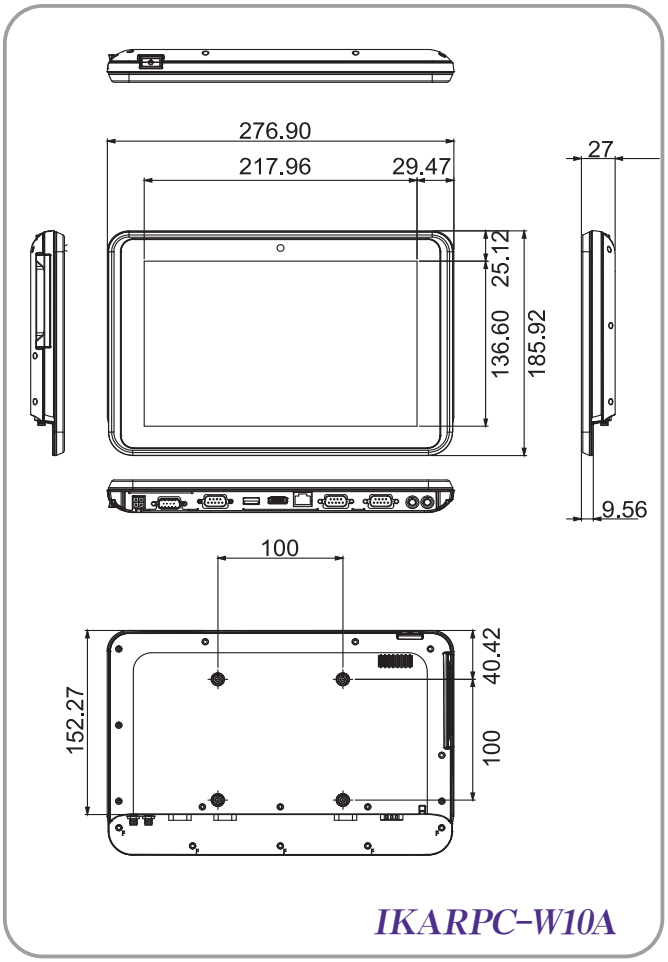
Rear view



Bottom view



Dimensions (Unit: mm)



Ordering Information

Part No.	Description
IKARPC-W10A-BT-E3/2G-R11	10.1" 350 cd/m2 1280 x 800, in-vehicle panel PC with Intel® Atom E3826 1.46GHz, 7W TDP, 2GB DDR3L on-board memory, OBD-II, on-board GPS, 2-megapixel camera, R11

Options

Item	Part No.	Description
Power adapter	IVIPOWER-4PIN-R10	Power adapter with 4-pin transfer cable, RoHS
Cigarette lighter power cable	32002-004000-100-RS	Round cable, power cable, car cigarette lighter cable, 2000 mm, 18 AWG, (A) cigarette lighter (5 A 250 V)+ ψ3 green LED, (B) MOLEX 5557-0400 P=4.2, RoHS
OBD-II cable	32025-003400-100-RS	Round cable, OBD-II cable, 2000 mm, 24 AWG, (A) OBD-II 16P male, (B) D-sub 9P female, one piece package with label, RoHS
OS: Windows Embedded 7 (DVD-ROM)	IKARPC-W10A-BT-WES7P-R10	OS image with Windows® Embedded Standard 7 E for IKARPC-W10A-BT Series, DVD-ROM, RoHS
OS: Windows Embedded 8 (DVD-ROM)	IKARPC-W10A-WE8S-R10	OS image with Windows® Embedded Standard 8 E for IKARPC-W10A Series, WE8S license label, DVD-ROM, RoHS
Wireless kit	IKARPC-WIFI-KIT02-R10	1T1R wifi module kit for embedded system, IEEE802.11a/b/g/n/ac WiFi with Bluetooth 4.0/3.0+HS, 1 x wifi module, RoHS
WWAN kit	IKARPC-3G-KIT02-R10	F260 3.75G module kit for embedded system, with BT V2.1, RoHs
VESA mount stand	IVI-MK02-R10	286mm 75x75 / 100x100 VESA mount stand

Packing List

Item	Part No.	Qty	Description
Power Cable w/ core	32002-001900-100-RS	1	Round cable, power cable, 3000mm, RoHS
	30600-000056-RS	1	Cable Core 13φ, 33x31.5x33mm, RoHS
GPS/GSM Antenna	32506-000100-100-RS	1	Integration antenna, GPS/GSM, RG 174, 5000mm/5000mm, PPF-5423SA5X-999, Magnetic mount: φ55x22mm, 1575.42MHz/850MHz/900MHz/1800MHz/1900MHz, SMA plug x 2

IVS-300 *Vehicle Surveillance System*

Features

- Intel® Skylake ULT /Bay Trail processor
- 4 x PoE IEEE802.3af
- Optional 3G/Wi-Fi
- 2 x RS-232, 1 x RS-422/485
- 4 x DI/DO
- 1 x HDMI (lockable), 1 x VGA



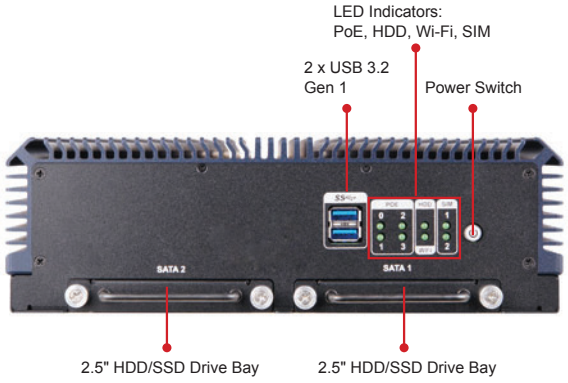
Fanless | PoE | 3.75G/HSUPA | GPS | Wi-Fi | OBD-II | E-Mark

Specifications

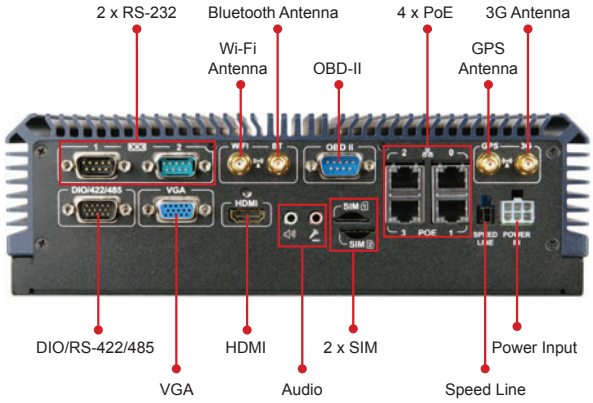
Model Name		IVS-300-BT	IVS-300-ULT3
Chassis	Color	Blue C	Blue C
	Dimensions (WxHxD) (mm)	255 x 80 x 185	255 x 80 x 185
	System Fan	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloy	Extruded aluminum alloy
Motherboard	CPU	Intel® Celeron® J1900 processor (quad-core 2GHz, 10W TDP)	Intel® Core™ i5-6300U processor (dual-core, 2.4 GHz, 15W TDP)
	Chipset	SoC	
	System Memory	2 x 204-pin DDR3L SO-DIMM. 4GB pre-installed (system max. 8 GB)	2 x 260-pin DDR4 SO-DIMM, 4GB pre-installed (system max. 32 GB)
Storage	Hard Drive	2 x 2.5" SATA 6Gb/s SSD removable drive bay	2 x 2.5" SATA 6Gb/s SSD removable drive bay
Communication	WLAN	PCIe Mini Wi-Fi 802.11 a/b/g/n/ac (optional)	PCIe Mini Wi-Fi 802.11 a/b/g/n/ac (optional)
	Bluetooth	BT 4.0/3.0+HS (combo with optional WLAN module)	BT 4.0/3.0+HS (combo with optional WLAN module)
	WWAN	PCIe Mini WCDMA/HSDPA/HSUPA (optional)	PCIe Mini WCDMA/HSDPA/HSUPA (optional)
	GPS	On-board GPS	On-board GPS
I/O Interfaces	USB 3.2 Gen 1	2	2
	Ethernet	4 x RJ-45 PCIe GbE by Intel® i210-AT Support PoE IEEE802.3af (each port max 15.4W)	4 x RJ-45 PCIe GbE by Intel® i210-AT Support PoE IEEE802.3af (each port max 15.4W)
	COM Port	2 x DB-9 RS-232 (with isolation) 1 x DB-15 RS-422/485	2 x DB-9 RS-232 (with isolation) 1 x DB-15 RS-422/485
	Digital I/O	8-bit digital I/O (4-bit input, 4-bit output)	8-bit digital I/O (4-bit input, 4-bit output)
	CAN-Bus/OBD-II	1 x DB9 OBD-II/J1939	1 x DB9 OBD-II/J1939
	Display	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI
	Resolution	VGA : Up to 1920 x 1080 @60Hz HDMI : Up to 1920 x 1080 @60Hz	VGA : Up to 1920 x 1080 @60Hz HDMI : Up to 1920 x 1080 @60Hz
	Audio	1 x Mic in, 1 x Line out	1 x Mic in, 1 x Line out
	SIM	2 x On-board SIM card slot	2 x On-board SIM card slot
	Antenna	1 x 3G, 1 x GPS, 1 x BT, 1 x Wi-Fi	1 x 3G, 1 x GPS, 1 x BT, 1 x Wi-Fi
Expansions	PCIe Mini	1 x Half-size (reserved for WLAN) 1 x Full-size (reserved for WWAN) 1 x Full-size (USB signal)	1 x Half-size (reserved for WLAN) 1 x Full-size (reserved for WWAN) 1 x Full-size (USB signal)
Led Indicator & Button	Indicator	8 x LED (4 PoE, 1 HDD, 1 Wi-Fi, 2 SIM)	8 x LED (4 PoE, 1 HDD, 1 Wi-Fi, 2 SIM)
	Button	1 x Power button	1 x Power button
Power	Power Input	Cigarette lighter power cable: DC 9 V~30 V	Cigarette lighter power cable: DC 9 V~30 V
	Consumption	12 V @ 12A (Intel® J1900 with 4 GB DDR3L memory + 4 PoE)	12 V @ 14A (Intel® i5-6300U with 4 GB DDR4 memory + 4 PoE)
Reliability	Mounting	Wall mount	Wall mount
	Operating Temperature	-20°C ~ 60°C with air flow	-20°C ~ 60°C with air flow
	Storage Temperature	-30°C ~ 70°C	-30°C ~ 70°C
	Humidity	10% ~ 95%, non-condensing	10% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 3 shocks per axis	Half-sine wave shock 5G, 11ms, 3 shocks per axis
	Operating Vibration	MIL-STD-810F 514.5C-2 (with SSD)	MIL-STD-810F 514.5C-2 (with SSD)
	Weight (Net/Gross)	3kg/4.5kg	3kg/4.5kg
	Safety/EM C	CE / FCC / E-Mark	CE / FCC / E-Mark
OS	Supported OS	Microsoft® Windows® Embedded 8, Microsoft® Windows® Embedded Standard 7 E	Microsoft® Windows® Embedded 8, Microsoft® Windows® Embedded Standard 7 E

Fully Integrated I/O

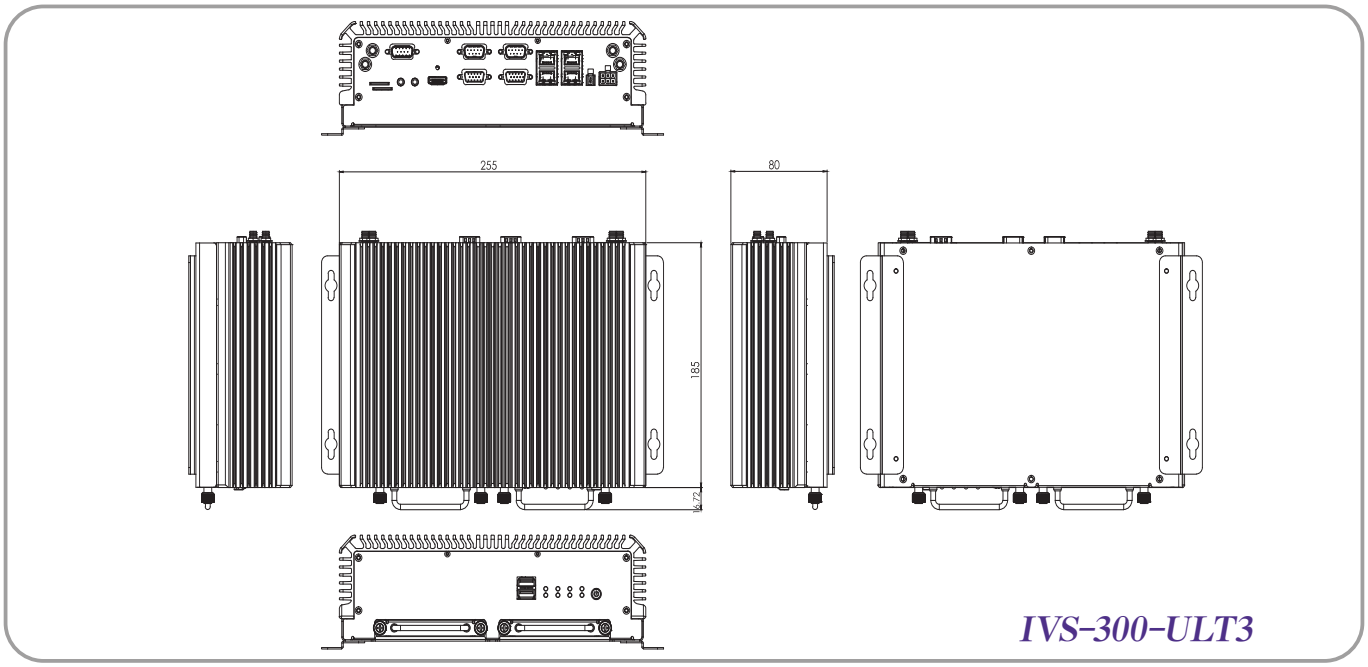
Front view



Rear view



Dimensions (Unit: mm)



Ordering Information

Part No.	Description
IVS-300-BT-J1/4G-R10	Fanless embedded system with Intel® Celeron® Processor J1900 (10W), 4GB DDR3L memory, PoE, on-board GPS, HDMI, VGA, two 2.5" removable SATA HDD bays, RoHS
IVS-300-ULT3-i5/4G-R10	Fanless embedded system with 6th generation 14nm Intel® Core™ i5-6300U (15W) mobile processor (ULT), 4GB DDR4 memory, PoE, on-board GPS, HDMI, VGA, two 2.5" removable SATA HDD bays, RoHS

Options

Part No.	Description
IVS-300-ULT3-WES7E64-R10	OS image with Windows® Embedded Standard 7 E 64-bit for IVS-300-ULT3, with DVD-ROM, RoHS
IVS-300-BT-WES7E64-R10	OS image with Windows® Embedded Standard 7 E 64-bit for IVS-300-BT, with DVD-ROM, RoHS
IVS-WIFI-KIT02-R10	1T1R Wi-Fi module kit for embedded system, IEEE802.11a/b/g/n/ac Wi-Fi with Bluetooth 4.0/3.0+HS, 1 x Wi-Fi module, 1 x Antenna, RoHS
IVS-3G-KIT02-R10	3G module kit for embedded system, F260, 1 x 3G module, RoHS
IVIPOWER-6PIN-R10	Power adapter with 6-pin transfer cable, RoHS

Packing List

Item	Part No.	Qty	Description
Wall Mount Kit	41020-0432C2-00-RS	2	Wall mount bracket
Power Cable	32002-007200-101-RS	1	Round cable, power cable, 1, 3000mm, 18AWG, (A) MOLEX 5557-0600 P=4.2, H.S.TUBE x 2, Label: GND x 3 + VIN x 2 + ACC, RoHS
GPS/GSM Antenna	32506-000100-100-RS	1	Integration antenna, GPS/GSM, RG 174, 5000mm/5000mm, PPF-5423SA5X-999, Magnetic mount: φ55x22mm, 1575.42MHz/850MHz/900MHz/1800MHz/1900MHz, SMA plug x 2
Screw Pack	44015-030053-RS	8	Screw pack
	44005-030061-RS	6	Screw pack

IVS-200-ULT2

Vehicle Surveillance System



Features

- Intel® i5-5350U dual-core 1.8 GHz CPU or Intel® Celeron® 3755U dual-core 1.7 GHz CPU
- Four Intel® GbE LAN ports
- 9 V ~ 36 V DC input
- Two RS-232/422/485
- E-Mark certification

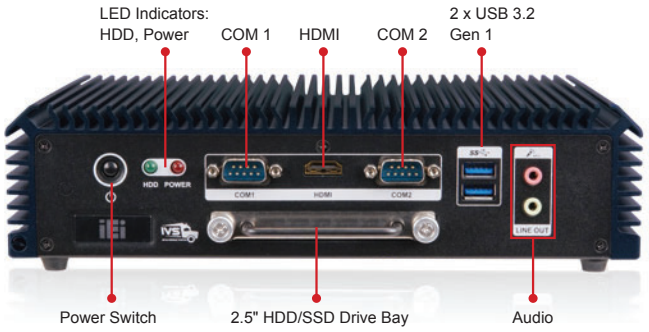


Specifications

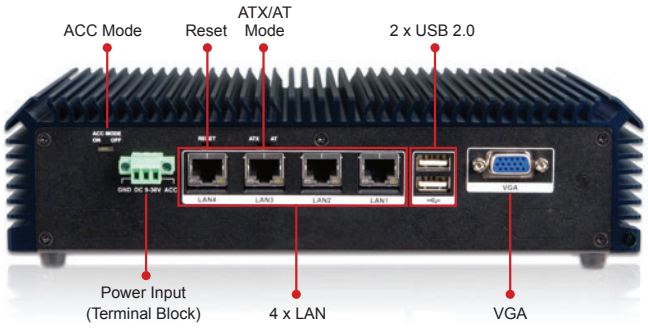
Model Name		IVS-200-ULT2
Chassis	Color	Blue C
	Dimensions (WxHxD) (mm)	255 x 63 x 150
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	Intel® Core™ i5-5350U Processor (dual-core, 1.8 GHz, 15W TDP) or Intel® Celeron® 3765U Processor (dual-core, 1.9 GHz, 15W TDP)
	Chipset	SoC
	System Memory	2 x 204-pin DDR3L SO-DIMM slot 4 GB pre-installed (system max. 16 GB)
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD removable drive bay
	mSATA	1 x mSATA (SATA 6Gb/s)
Communication	WLAN	PCIe Mini Wi-Fi 802.11b/g/n (optional)
	Bluetooth	Bluetooth 2.1 (combined with optional WWAN module)
	WWAN	PCIe Mini WCDMA/HSDPA/HSUPA (optional)
I/O Interfaces	USB 3.2 Gen 1	2
	USB 2.0	2
	Ethernet	4 x RJ-45 connector LAN1: PCIe GbE by Intel® I218 LAN2: PCIe GbE by Intel® I211 LAN3: PCIe GbE by Intel® I211 LAN4: PCIe GbE by Intel® I211
	COM Port	2 x DB-9 RS-232/422/485 4 x DB-9 RS-232 (optional)
	Display	1 x VGA, 1 x HDMI
	Resolution	VGA: up to 2560 x 1600 @ 60 Hz HDMI: up to 3840 x 2160 @ 60 Hz
	DIO	8-bit digital I/O (4-bit input, 4-bit output) (optional)
	SIM	1 x On-board SIM card slot
	Antenna	1 x 3G, 1 x BT, 1 x Wi-Fi
	Audio	1 x Line out, 1 x Mic in
Expansions	PCIe Mini	1 x Full-size (reserved for WWAN or mSATA) 1 x Full-size (reserved for WLAN)
Power	Power Input	DC jack : 9 V~36 V DC
	Consumption	12 V @ 2.1 A (Intel® i5-5350U with 4 GB DDR3 memory)
Reliability	Mounting	VESA 100
	Operating Temperature	-20°C ~ 60°C with air flow (SSD)
	Storage Temperature	-30°C ~ 70°C
	Humidity	10% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 3 shocks per axis
	Operating Vibration	MIL-STD-810F 514.5C-2 (with SSD)
	Weight (Net/Gross)	2.2 kg/3 kg
	Safety/EMC	CE/FCC/E-Mark
OS	Supported OS	Microsoft® Windows® Embedded 8, Microsoft® Windows® Embedded Standard 7 E

Fully Integrated I/O

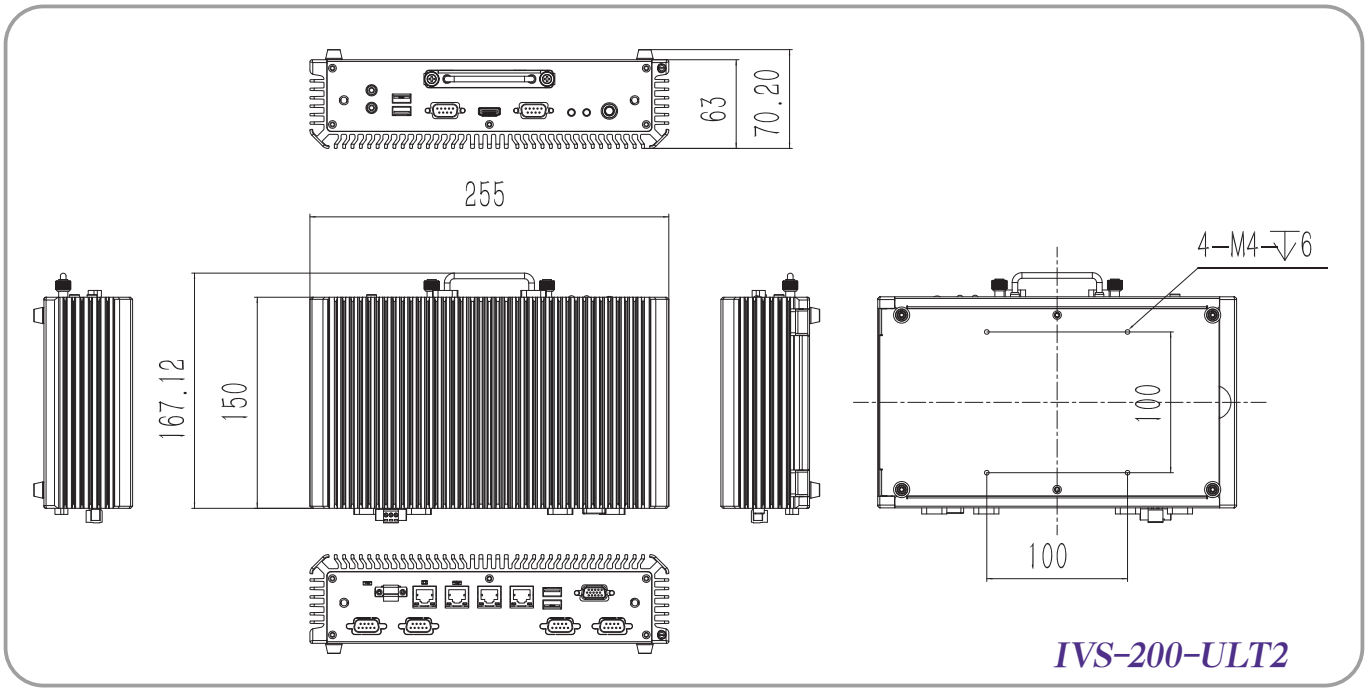
Front view



Rear view



Dimensions (Unit: mm)



Ordering Information

Part No.	Description
IVS-200-ULT2-i5/4G-R10	Fanless system with Intel® Core™ i5-5350U CPU, up to 2.9GHz, TDP 15W, four GbE LAN ports, one HDMI, one VGA, two RS-232/422/485, one 2.5" removable SATA HDD bay, 4 GB memory pre-installed, 9 V~36 V DC, R10, RoHS
IVS-200-ULT2-C/4G-R10	Fanless system with Intel® Celeron® 3765U 1.7GHz CPU, TDP 15W, four GbE LAN ports, one HDMI, one VGA, two RS-232/422/485, one 2.5" removable SATA HDD bay, 4 GB memory pre-installed, 9 V~36 V DC, R10, RoHS

Options

Item	Part No.	Description
OS	IVS-200-ULT2-WES7E64-R10	OS image with Windows® Embedded Standard 7 E 64-bit for IVS-200-ULT2, DVD-ROM, RoHS
Serial cable	32205-005400-100-RS	RS-232 cable, 150 mm, 2x5 pin
DIO cable	32231-000100-200-RS	DIO cable, 150 mm, 2x5 pin

Packing List

Item	Part No.	Qty	Description
Screw pack	44013-030041-RS	4	Screw pack
	44005-030083-RS	4	Screw pack
Wall mount kit	41020-0433C2-00-RS	2	Wall mount bracket

IVS-110-AL

Vehicle Fleet Management System

New

Features

- Intel® Apollo Lake processor
- Dual SIM slot
- Optional 3G/Wi-Fi
- 16 x DI/DO
- 1 x HDMI (lockable), 1 x VGA
- Built-in GPS function
- E-Mark certification
- Built-in OBD-II/J1939
- IP4X protection



Fanless | 3.75G/HSUPA | GPS | Wi-Fi | OBD-II | E-Mark | Dual SIM | -30°C~70°C

Specifications

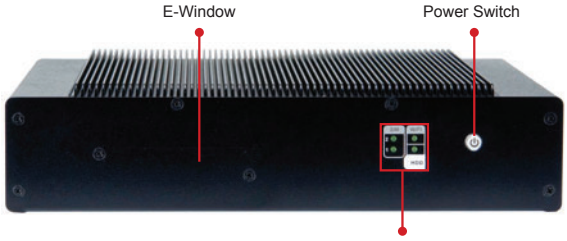
Model		IVS-110-AL
Chassis	Color	Black
	Dimensions (WxHxD) (mm)	261 x 170 x 60
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	Intel® Atom™ x7-E3950 Processor (quad-core 1.6GHz, 12W TDP)
	Chipset	SoC
	System Memory	1 x 204-pin DDR3L SO-DIMM, 4GB pre-installed
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD drive bay
	mSATA / eMMC	1 x mSATA (PCIe Mini Slot) 1 x eMMC 5.0 (reserved)
Communication	WLAN	PCIe Mini Wi-Fi 802.11 a/b/g/n/ac (optional)
	Bluetooth	BT 4.0/3.0+HS (combo with Optional WLAN module)
	WWAN	PCIe Mini WCDMA/HSDPA/HSUPA (optional)
	GPS	On-board GPS
I/O Interfaces	USB 3.2 Gen 1	4
	Ethernet	1 x RJ-45 PCIe GbE by Intel® I211
	COM Port	1 x RS-232/422/485 (BIOS configuration)
	Digital I/O	1 x 16-bit digital I/O (8-bit input / 8-bit output)
	OBD-II/J1939	1 x DB9 OBD-II/J1939
	Display	1 x VGA, 1 x HDMI
	Resolution	VGA : Up to 1920 x 1200 @ 60 Hz HDMI : Up to 3840 x 2160 @ 30 Hz
	Audio	1 x Line out
	SIM	2 x On-board SIM card slot
Expansions	Mini PCIe	1 x Full/Half-size (reserved for WWAN) 1 x Full/Half-size (reserved for mSATA or E-window) 1 x Half-size (reserved for WLAN)
Power	Power Input	Cigarette lighter power cable: 9 V~ 36 V DC
	Consumption	12V @ 5A (Intel® Atom™ x7-E3950 with 8GB DDR3 memory)
Reliability	Mounting	Wall mount / VESA 100
	Operating Temperature	-30°C ~ +70°C with air flow
	Storage Temperature	-40°C ~ 80°C
	Humidity	10% ~ 95%, non-condensing
	Operating Shock	50 Grms, Half-sine 11 ms duration (w/ SSD, according to IEC60068-2-27)
	Operating Vibration	5 Grms, 5-500 Hz, 3 Axes (with SSD, according to IEC60068-2-64) MIL-STD-810F 514.5C-2 (SSD)
	Weight (Net/Gross)	2.4 kg / 3.8 kg
	Safety/EMC	CE/FCC/E-Mark/IP rating : IP 4X compliant
OS	Supported OS	Microsoft® Windows 10 IoT Enterprise

Fleet Management Tracking System

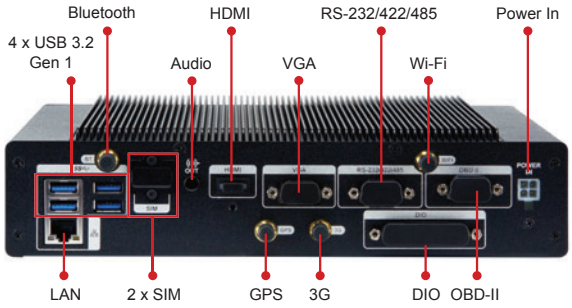


Fully Integrated I/O

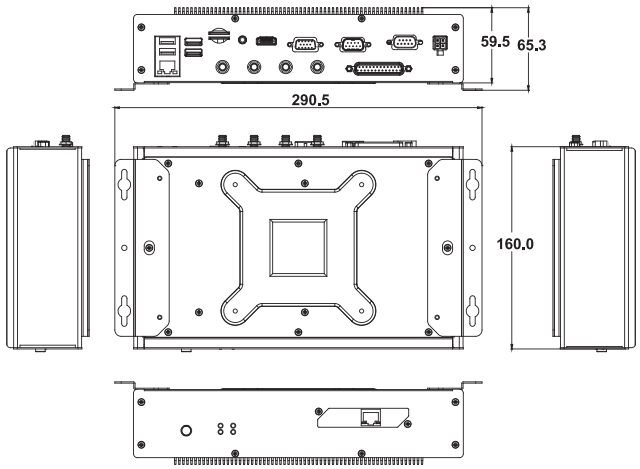
Front view



Side view



Dimensions (Unit: mm)



IVS-110-AL

Ordering Information

Part No.	Description
IVS-110-AL-E3/4G-R10	Fanless embedded system with Intel® Atom™ x7-E3950 (12W) Processor with 4GB DDR3L pre-installed memory, on-board GPS, HDMI, VGA, one GbE LAN, one 2.5" SATA HDD bay, two SIM slots, RoHs

Options

Item	Part No.	Description
GPS/LTE antenna	32506-000400-100-RS	Integration Antenna, Magnetic Antenna Base+GPS/4G LTE ANTENNA, RG 174, 5000MM, AU-4S-LTE, GPS Gain:27dB, LTE, Gain:0dBi, 50Ω, SANAV, 1575.42MHz/704-960MHz/1710-2766MHz, VSWR ≤ 2.0, SMA PLUG, REVERSE SMA PLUG, RoHS
Power adapter	IVIPOWER-4PIN-R10	Power adapter with 4-pin transfer cable, RoHS
OBD-II cable	32025-003400-100-RS	Round cable, OBD-II cable, 2000 mm, 24 AWG, (A) OBD-II 16P male, (B) D-sub 9P female, one piece package with label, RoHS
Cigarette lighter power cable	32002-004000-100-RS	Round cable, power cable, car cigarette lighter cable, 2000 mm, 18 AWG, (A) cigarette lighter (5 A 250 V)+ ψ3 green LED, (B) MOLEX 5557-0400 P=4.2, SHANGHAI YING YU, RoHS
Wireless kit	IVS-WIFI-KIT02-R10	1T1R Wi-Fi module kit for embedded system, IEEE802.11a/b/g/n/ac Wi-Fi with Bluetooth 4.0/3.0+HS, 1 x Wi-Fi module, 2 x Antenna, RoHS
WWAN kit	IVS-3G-KIT02-R10	3G module kit for embedded system, F260, 1 x 3G module, RoHs
ACC power cable	32002-001900-100-RS	Round cable, power cable, 3000 mm, 16 AWG, (A) MOLEX 5557-04P P=4.2, SHANGHAI YING YU, RoHS

Packing List

Item	Part No.	Qty	Description
Screw pack	44005-030083-RS	4	Screw pack
	42005-000603-RS	4	Screw pack
	44003-030052-RS	4	Screw pack
	44045-020031-RS	5	Screw pack
SATA cable	32801-003608-100-RS	1	Sata cable, 3, 150mm/150mm, 26AWG, SATA 7+15P female 180°, SATA 7P female 90°+lock, JST PHR-2 P=2.0, One pcs PKG W/ label, RoHS
Wall mount kit	41020-0482C2-00-RS	2	Wall mount bracket

E-Window (for ATO assembly)

Part No.	Description
E-MPCIE-LAN-R10	PCIe Mini card supports 1-port GbE with Realtek RTL8111E controller, with PMS 194C I/O bracket and 250mm cable, R10
E-MPCIE-DLAN-R10	PCIe Mini card supports 2-port GbE with Intel I211 controller, with PMS 194C I/O bracket and 250mm cable, R10
E-MPCIE-UART-KIT02-R10	PCI Express Mini supports Dual RS-232/422/485 , 16-bit GPIO module, full-size, RoHs

IRS-100-ULT3

Railway Surveillance System

Features

- Intel® Skylake ULT processor
- Dual M12 LAN port
- VGA / DVI dual display
- Dual SIM card design
- 24V and 110V DC input (±40%) DC input
- 2 x 2.5" hot-swappable SATA SSD drive bay
- EN 50155



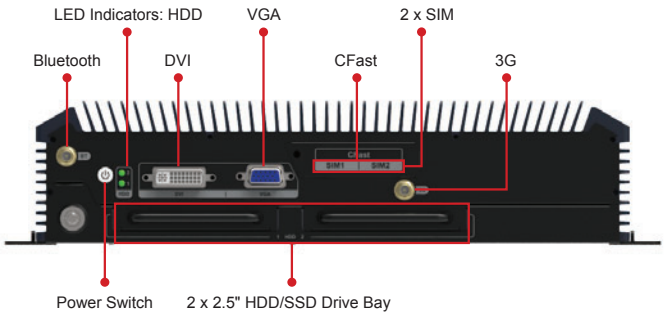


Specifications

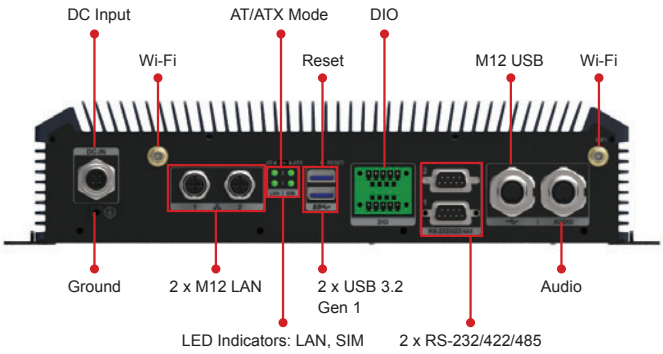
Model Name		IRS-100-ULT3
Chassis	Color	Blue C
	Dimensions (WxHxD) (mm)	290 x 69 x 225
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	Intel® Core™ i5-6300U processor (dual-core, 2.4 GHz, 15W TDP)
	Chipset	SoC
	System Memory	2 x 260-pin DDR4 SO-DIMM, 4GB pre-installed (system max. 32 GB)
Storage	Hard Drive	2 x 2.5" SATA 6Gb/s SSD drive bay
	CFast/CF Card	1 x CFast (SATA 6Gb/s)
	mSATA	1 x mSATA (SATA 6Gb/s)
Communication	WLAN	PCIe Mini Wi-Fi 802.11 a/b/g/n/ac (optional)
	Bluetooth	BT 4.0/3.0+HS (combo with Optional WLAN module)
	WWAN	PCIe Mini WCDMA/HSDPA/HSUPA (optional)
I/O Interfaces	USB 3.2 Gen 1	2
	USB 2.0	1 (M12 connector)
	Ethernet	2 x M12 connector PCIe GbE by Intel® I211
	COM Port	2 x DB-9 RS-232/422/485 (with 1.5 kV isolation)
	Digital I/O	1 x Terminal block for 8-bit digital I/O (4-bit input/4-bit output, 1.5 kV isolation)
	Display	1 x VGA, 1 x DVI-D
	Resolution	VGA : Up to 1920 x 1200 @60Hz DVI-D : Up to 1920 x 1200 @60Hz
	Audio	1 x Line-out, 1 x Mic-in
	SIM	2 x SIM card slot
Expansions	PCIe Mini	2 x Full-size (for WWAN / WLAN module)
Power	Power Input	M12 Connector: 24V and 110V DC input
	Consumption	24V @ 2A (Intel® i5-6300U with 4 GB DDR4 memory)
Reliability	Mounting	Wall mount
	Operating Temperature	-40°C ~ 70°C with air flow (with industrial SSD/CF), compliant with EN 50155
	Storage Temperature	-40°C ~ 85°C
	Humidity	10% ~ 95%, non-condensing
	Operating Shock	Compliant with EN 61373 Category 1 Class B
	Operating Vibration	Compliant with EN 61373 Category 1 Class B
	Weight (Net/Gross)	3.9 kg / 5.1 kg
	Safety/EMC	CE/FCC, compliant with EN 50155, EN 50121-3-2
OS	Supported OS	Microsoft® Windows® Embedded 8, Microsoft® Windows® Embedded Standard 7 E

Fully Integrated I/O

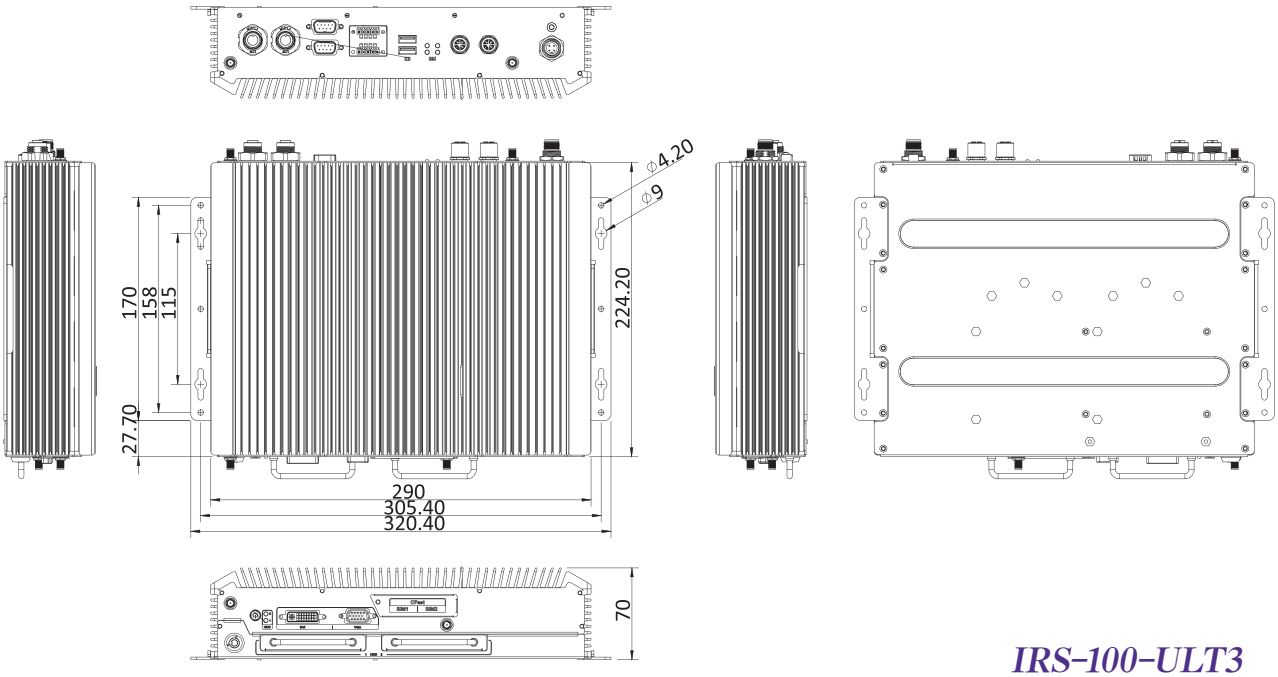
Front view



Rear view



Dimensions *(Unit: mm)*



IRS-100-ULT3

Ordering Information

Part No.	Description
IRS-100-ULT3-i5/4G-R10	Fanless railway system with Intel® Core™ i5-6300U processor (15W), 4GB DDR4 pre-installed memory, two 2.5" SATA SSD bays, VGA, DVI, two M12 GbE LAN

Options

Item	Part No.	Description
OS	IRS-100-ULT3-WES7E64-R10	OS image with Windows® Embedded Standard 7 E 64-bit for IRS-100-ULT3, DVD-ROM, RoHS
DC cable	32002-009000-100-RS	Power cable, 2000 mm, 16AWG, M12 5-pin female; label: V+, V-, GND; RoHS
USB cable	32001-022700-200-RS	USB cable, 2000 mm, 24AWG; (A) Amphenol LTW: M12 5-pin male IP68 (12-05BMMA-SL8001), (B) USB Type A 4-pin female; RoHS
LAN cable	32013-003400-100-RS	LAN cable, 1000 mm, 26AWG; (A) METZ: M12 plug 8-pin (MNF881A315-001), (B) RJ-45 8P8C plug; RoHS
Audio cable	32007-005400-100-RS	Audio cable, 1200 mm, 28AWG; A) Amphenol LTW: M12 5-pin male (12-05BMMA-SL8001), (B) DC stereo jack: 3.5mm*2; RoHS
Wireless kit	IRS-100-WIFI-KIT02-R10	1T1R Wi-Fi module kit for embedded system, IEEE802.11a/b/g/n/ac Wi-Fi with Bluetooth 4.0/3.0+HS, 1 x Wi-Fi module, 2 x antennas, 2 x cables RoHS
WWAN kit	IRS-100-3G-KIT02-R10	3G module kit for embedded system, F260, 1 x 3G module, 1 x antenna , 2 x cables, RoHs

Packing List

Item	Part No.	Qty	Description
Wall mount kit	41020-0474C2-00-RS	2	Wall mount bracket
Screw pack	44015-030061-RS	16	Screw pack

SBOX-100-QM87

Maritime Embedded System

Features

- Fanless marine computer with 4th generation Intel® Core™ i5 dual-core processor
- -15°C ~ +55°C wide temperature
- Isolation protection
  - » 4 x RS-232/422/485 isolated serial ports
  - » Isolated 24 VDC (with tolerance from 18V to 36V)
  - » 2 x Isolated CAN-bus 2.0B
- 2 x 2.5" SSD bay with RAID 0/1 function
- Supports IEI iRIS-2400 (IPMI 2.0 compliant)

IEI Marine System

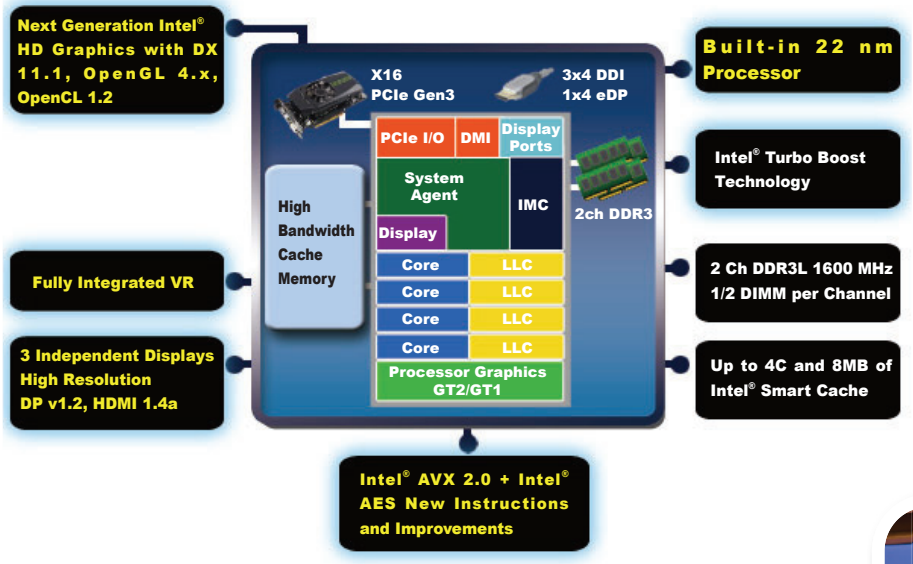


iRIS IPMI 2.0 Compliant | Fanless | CAN-Bus | Triple Display | Dual HDD | DNV

Intel® Core™ i5 High Performance Computing Power in a Fanless Design

IEI's high performance marine solutions are built with the powerful Intel® Core™ i5 CPU within a fanless system architecture. No matter your applications are general marine system management, monitoring or conning systems, radar systems, or ECDIS navigation, IEI's marine computers will give you the most stability than ever.

- Improved CPU performance with Intel® 22nm 4th Generation Mobile Core™ i5-4400E 2.7 GHz processor
- Two 204-pin 1600/1333MHz dual-channel DDR3 SDRAM support up to 16 GB





With IEI's fanless solutions, your vessels can avoid the bothersome of replacement of fan, increasing safety and efficiency for the crew and the entire ship.

Three independent aluminum heat sinks help the heat dissipate averagely, and help the system efficiently achieve wide operating temperature range between -15°C~55°C.

3 independent displays: HDMI, DVI, and VGA

The three simultaneously independent displays are supported via the on-board video output combinations of VGA, DVI and HDMI. This versatile combination of display output options make the marine system ideal for multi-monitor required applications in the bridge room.



Multiple Isolated Ports for Comprehensive Protection against Electrical Surges

Ground loop and electric surges are common in the marine applications of electronic products due to the dense placement of devices. These stray electrical signals can cause equipment damage or malfunction.



■ 2.5 kV isolation protection on the RS-232/422/485

IEI marine computer is protected from any stray electrical signals from other devices on the ship. Electric surges that were generated from other electronic devices which often passed through serial lines to the marine computer can cause severe damage and malfunction to the computers.





■ Isolated 24 VDC (with tolerance from 18 to 36V) power 2250 V DC Input to Output Basic Insulation



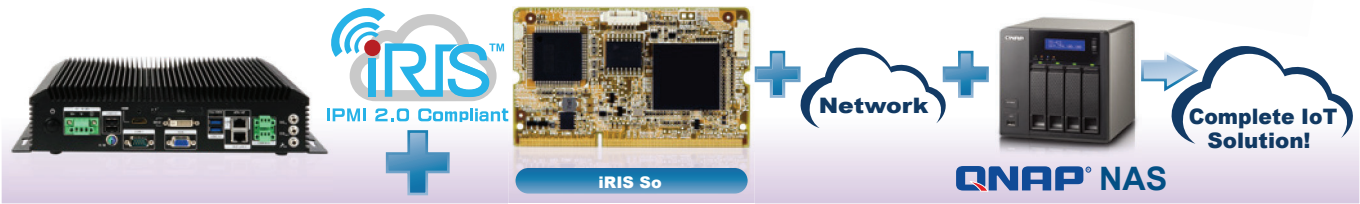
■ Two independent CAN 2.0B channels with 2.5 kV isolation protection

CAN 2.0B is a kind of marine electronic data network for communication between marine electronic devices such as chart plotters, navigation instruments, GPS receivers, etc.



IEI Remote Intelligent Management System

The marine computer supports IEI iRIS remote management solution which helps users to manage multiple devices through single management interface and elevates work efficiency. The iRIS solution only requires a module and Internet connection!

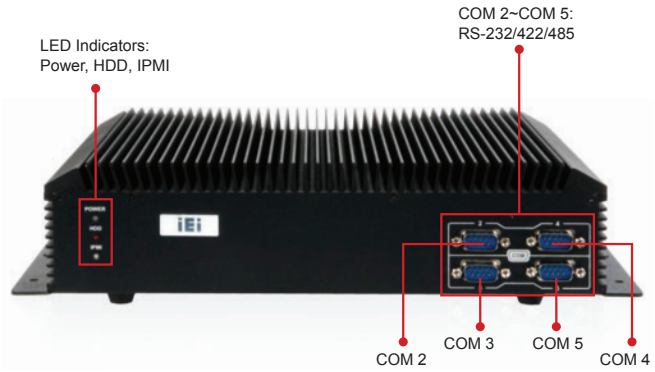


iRIS Key Feature	Detailed Functions
System health monitor	• Hardware monitor • Health log • Event log
Remote system maintenance	• Remote BIOS update • Remote OS recovery • Remote KVM + One Key Recovery • Remote out-off-band backup
Active alert & notice	• Send instant system alerts via e-mail • Send instant system alerts via SMS • Send instant system alerts to management server
Remote device control	• Fan control • Remote KVM • Remote setting BIOS

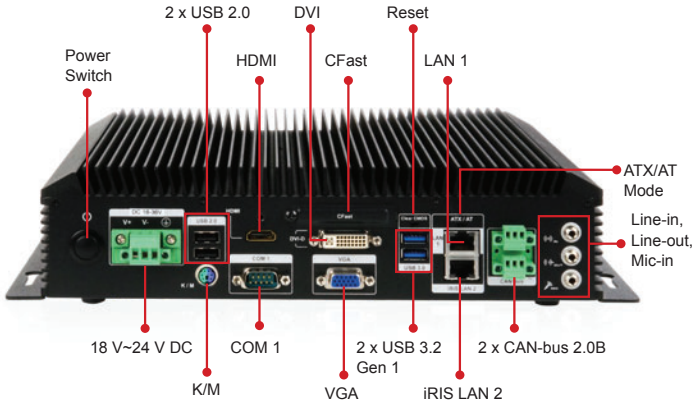
iRIS Key Feature	Detailed Functions
Screen record	• Remote video streaming record • Event Trigger Setting & video record
Remote power control	• Reset Power • Power Off Server – Immediately • Power Off Server – Orderly • Power On Server • Power Cycle Server
Remote troubleshooting	• Remote software update • Remote OS installation & recovery • Remote KVM • Post code display
Diagnose before dispatch	• Health log analysis • Event log analysis
Group control	• Group control

Fully Integrated I/O

Front view



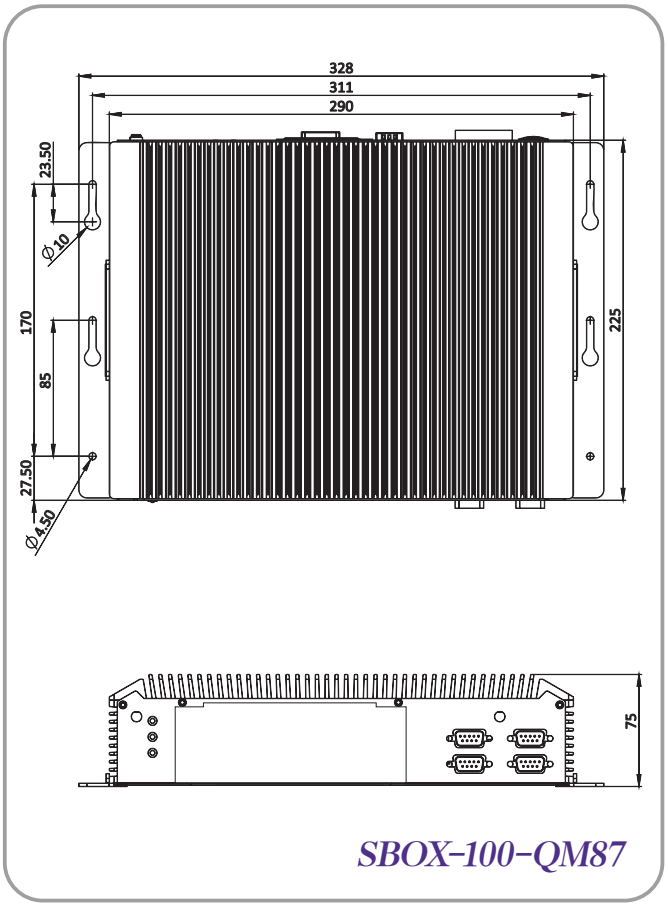
Rear view



Specifications

Model Name		SBOX-100-QM87
Chassis	Color	Black
	Dimensions (WxHxD) (mm)	290 x 75 x 225
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	Intel® mobile Core™ i5-4400E (2.7 GHz, 37W)
	Chipset	Intel® QM87
	System Memory	2 x 204-pin DDR3 SO-DIMM slot (system max. 16 GB) Pre-installed 4 GB DDR3 SO-DIMM
IPMI	iRIS Solution	iRIS-2400
Storage	Hard Drive	2 x 2.5" SATA 6Gb/s SSD bay with RAID 0/1 function
	CF Card/CFast	1 x CFast
I/O Interfaces	PS2 (KB/MS)	1
	USB 3.2 Gen 1	2
	USB 2.0	2
	Ethernet	2 x RJ-45 with teaming support 1 x PCIe GbE by Intel® I217LM 1 x PCIe GbE by Intel® I210-AT (2 with 2 kV isolation)
	COM Port	1 x DB-9 (non-isolated) 4 x RS-232/422/485 (with 2.5 kV isolation)
	CAN-bus/OBD-II	2 x CAN-bus (with 2.5 kV isolation)
	Display	1 x VGA, 1 x DVI-D, 1 x HDMI
	Resolution	VGA: Up to 1920 x 1200 @ 60 Hz HDMI: Up to 2500 x 1600 @ 60 Hz DVI-D: Up to 2500 x 1600 @ 60 Hz
	Audio	1 x Line-out, 1 x Line-in, 1 x Mic-in
	Wireless	2 x Antenna SMA hole (reserved)
Expansions	PCIe Mini	2 x Full size
LED Indicator & Button	Indicator	Power (power on: green, power off: orange), storage (red, blinking), IPMI (blue)
Power	Power Input	Terminal block: Isolated 24 VDC (with tolerance from 18 to 36V)
	Consumption	100 W (Intel® mobile Core™ i5-4400E with 4 GB DDR3 memory)
Reliability	Mounting	Wall mount
	Operating Temperature	-15°C ~ 55°C (5°F ~131°F) with air flow (SSD)
	Storage Temperature	-20°C ~ 60°C (-4°F ~140°F)
	Humidity	5% ~ 95%, non-condensing
	Operating Shock	IEC 60945 and DNV 2.4 IASC-E10 compliant
	Operating Vibration	
	Weight (Net/Gross)	4.08 kg / 6.03 kg
	Safety/EMC	EMC/CE/FCC/DNV, IEC 60945 4th, IACS-E10, IEC 61174 compliant IP rating: IP22 compliant rear cover
OS	Supported OS	Microsoft® Windows® Embedded 8, Microsoft® Windows® Embedded Standard 7 E

Dimensions (Unit: mm)



Ordering Information

Part No.	Description
SBOX-100-QM87i-i5/4G-R10	Fanless marine computer with Intel® Mobile Core™ i5-4400E 2.7 GHz processor, 4 GB DDR3 memory, iRIS-2400 supported, isolated 18 V~36 V DC, R10

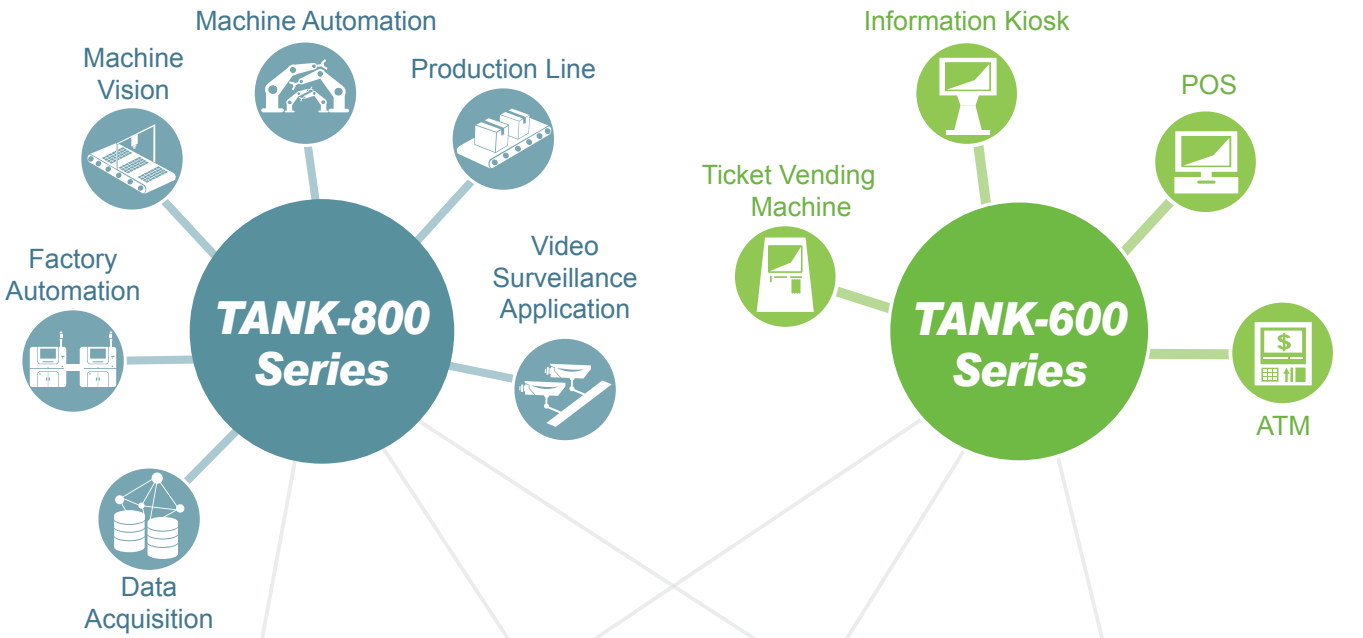
Packing List

Item	P/N	Qty	Description
PS/2 cable	32006-000300-100-RS	1	PS/2 cable
Rubber pad & screw pack		1	Rubber pad & screw pack

Industrial Automation Solution

IEI offers complete rugged fanless products with a wide range of I/O interfaces and multiple expansion, allowing users to connect to different devices for comprehensive automation solution. IEI's industrial automation solution provides a reliable platform to fulfill a wide variety of application demand, such as machine automation, surveillance application, and information kiosk. To fight the upcoming trend of IoT, IEI develops an IPMI 2.0 compliant technology - iRIS (IEI Remote Intelligent System). iRIS is a hardware-level remote management solution that can make your systems more efficient in system integration. "TANK" is a model name for a series of IEI ruggedize embedded box products.

Ruggedized Solution









■ TANK-800 Series

Multiple PCI/PCIe Expansion

- Great flexibility of expansion slots
- IPMI function for remote control management
- Design fulfills high storage demand
- Wide range temperature

Multiple PCIe Mini Expansion

- Support triple display
- Flexible expansion design

■ TANK-600 Series

Multiple Serial Port

- Support up to 14 COM ports
- mSATA and 2.5" SATA storage device
- Wide range temperature
- Low power consumption

TANK Series Selection Guide

The TANK series contains great coverage of the Intel® desktop, mobile and Atom™ solutions. From high performance to low power consumption, IEI provides a vast series of specifications to fulfill the diverse demands of our customers.

Platform		Multiple PCI/PCIe Expansion	Multiple PCIe Mini	Multiple COM Port
Desktop	Coffee Lake/ Coffee Lake-R	TANK-880-Q370	-	-
	Skylake/ Kaby Lake	TANK-870-Q170 TANK-870e-H110	TANK-871	-
Mobile	Skylake-U	-	-	TANK-620-ULT3
	Haswell	TANK-860-HM86	-	-
	Braswell	-	-	TANK-610-BW
Atom™	Bay Trial	TANK-801-BT	-	-

A Variety of Applications

IEI TANK ruggedized embedded box series is ideal for applications that require remote control or multiple video outputs. Furthermore, with the IEI iRIS technology, the users can achieve Internet of Things (IoT) among different devices, such as panel PCs and single board computers.



Key Features

■ Fanless design

The advantage of IEI fanless product series is to reduce the failure caused by fan and maintenance efforts. The functional heatsink is implemented to make sure the products can work in harsh environments.

■ Wide range temperature

IEI fanless product series has leading-edge thermal design, and has been tested under extreme temperature environments in order to ensure that IEI fanless products can be operated in any harsh environment.

■ Wide range power input

The 9 V ~ 36 V DC wide power input allows the TANK series to be used in different applications. IEI provides you safe and reliable operations under industrial conditions with a wide range of acceptable inputs.

■ EMC & safety certifications

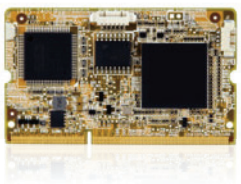
IEI TANK series has been CE and FCC certified, which proves that we give top priority to quality control and inspection of all our products.



■ Remote management

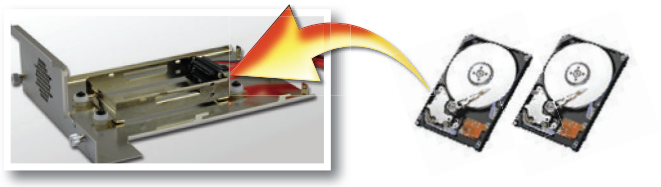
By installing the IEI iRIS module, IEI products are capable to complete your IoT application through the advanced remote control features, such as power management and control, remote KVM for device status monitoring, sending active alerts and warning messages by e-mail or SMS.

iRIS-2400



■ Easy maintenance and expansion

The internal components of the TANK-800, such as 2.5'' SATA HDD/ SSD, can be quickly installed and maintained by removing the HDD bracket.



The TANK Series is equipped with multiple PCIe Mini/M.2 card slots for expansions, such as Wi-Fi, 3G and GPS cards. These expansion slots can be accessed easily for adding extra functions to the system.



Industrial Automation System







	Model Name	TANK-880-Q370	TANK-871-Q170	TANK-870-Q170
Chassis	Color	Black C + Silver	Black C + Silver	Black C + Silver
	Dimensions (WxDxH) (mm)	169 x 255.2 x 225	82.2 x 255.2 x 204	2-slot: 121.5 x 255.2 x 205 4-slot: 154.8 x 255.2 x 205
	System Fan	Fanless	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloys	Extruded aluminum alloys	Extruded aluminum alloys
Motherboard	CPU	8th Gen Intel® Core™ CPU & Intel® Core™ i7-9700TE 1.8GHz (up to 3.8GHz, 8-core, TDP 35W) Intel® Core™ i5-9500TE 2.2GHz (up to 3.6GHz, 6-core, TDP 35W)	7th Gen Intel® Core™ CPU & Intel® Core™ i7-6700TE (2.4 GHz, quad-core, TDP=35) Intel® Core™ i5-6500TE (2.3 GHz, quad-core, TDP=35)	
	Chipset	Intel® Q370	Intel® Q170	Intel® Q170
	System Memory	2 x SO-DIMM DDR4 2666/ 2400 (8GB Pre-installed) (system max: 64GB)	2 x 260 pin DDR4 SO-DIMM, Pre-installed one 4GB (system max: 32GB)	2 x 260-pin DDR4 SO-DIMM, one 4 GB pre-installed (system max: 32GB)
IPMI	iRIS Solution	N/A	1 x iRIS-2400 (optional)	1 x iRIS-2400 (optional)
Storage	Hard Drive	4 x 2.5" SATA 6Gb/s HDD/SSD bay (RAID 0/1/5/10 support)	2 x 2.5" SATA 6Gb/s HDD/SSD bay (RAID 0/1 support)	2 x 2.5" SATA 6Gb/s HDD/SSD bay (RAID 0/1 support)
	mSATA	1 x mSATA	1 x mSATA	1 x mSATA
I/O Interfaces	USB 3.2 Gen 1	6	4	4
	USB 2.0	N/A	4	4
	Ethernet	3 x RJ45 1 x PCIe GbE by I219 controller 2 x PCIe GbE by I210 controller	2 x RJ-45 LAN1: Intel® I219LM PCIe controller LAN2 (iRIS): Intel® I210 PCIe controller	2 x RJ-45 LAN1: Intel® I219LM PCIe controller LAN2 (iRIS): Intel® I210 PCIe controller
	COM Port	3 x RS-232/422/485 DB-9 with 2.5kV isolation	4 x RS-232 (2 x RJ-45, 2 x DB-9 w/ isolation) 2 x RS-232/422/485 (DB-9)	4 x RS-232 (2 x RJ-45, 2 x DB-9 w/ isolation) 2 x RS-232/422/485 (DB-9)
	Digital I/O	8-bit digital I/O, 4-bit input / 4-bit output	8-bit digital I/O, 4-bit input / 4-bit output	8-bit digital I/O, 4-bit input / 4-bit output
	Display	1 x HDMI 1.4b/ 1 x DP	1 x VGA, 1 x HDMI/DP, 1 x iDP (optional)	1 x VGA, 1 x HDMI/DP, 1 x iDP (optional)
	Resolution	1 x HDMI (Up to 3840x2160@30Hz) 1 x DP (Up to 4096×2304@60Hz)	1 x VGA (Up to 1920 x 1200@60Hz) 1 x HDMI/DP (Up to 3840x2160@30Hz / 4096×2304@60Hz)	1 x VGA (Up to 1920 x 1200@60Hz) 1 x HDMI/DP (Up to 3840x2160@30Hz / 4096×2304@60Hz)
	Audio	1 x Line-out, 1 x Mic-in	1 x Line-out ; 1 x Mic-in	1 x Line-out, 1 x Mic-in
	Wireless	1 x 802.11a/b/g/n/ac (optional)	1 x 802.11 a/b/g/n/ac (optional)	1 x 802.11 a/b/g/n/ac (optional)
Expansions	Backplane	1 x PCIe x16 1 x PCIe x1 2 x PCIe x4	N/A	2-slot model: 1 x PCIe x16, 1 x PCI 2-slot model: 2 x PCIe x8 4-slot model: 2 x PCIe x8, 2 x PCI, 1 x Full-size PCIe Mini (PCIe/USB2.0) 4-slot model: 1 x PCIe x16, 3 x PCI, 1 x Full-size PCIe Mini (PCIe/ USB 2.0)
	PCIe Mini	1 x Full-size (PCIe/ USB 2.0/ SATA)	1 x Half-size (PCIe/ USB 2.0) 1 x Full-size (PCIe/ USB 2.0/ SATA)	1 x Half-size (PCIe/ USB 2.0) 1 x Full-size (PCIe/ USB 2.0/ SATA)
Power	Power Input	DC Jack: 9 V ~ 36 V DC Terminal Block: 9 V ~ 36 V DC	DC Jack: 9 V ~ 36 V DC Terminal Block: 9 V ~ 36 V DC	DC Jack: 9 V ~ 36 V DC Terminal Block: 9 V ~ 36 V DC
	Power Consumption	19V @ 3.6A (Intel® Core™ i7-8700T with 8GB memory)	19 V@3.68 A (Intel® Core™ i7-6700TE with 8 GB memory)	19 V@3.68 A (Intel® Core™ i7-6700TE with 8 GB memory)
	Internal Power Connector	12V@10A	5V@3A or 12V@3A	5V@3A or 12V@3A
Reliability	Mounting	Wall mount	Wall mount	Wall mount
	Operating Temperature	-20°C ~ 60°C with air flow (SSD), 10% ~ 95%, non-condensing	i7-6700TE: -20°C ~ 45°C with air flow (SSD), 10% ~ 95%, non-condensing i5-6500TE: -20°C ~ 60°C with air flow (SSD), 10% ~ 95%, non-condensing	i7-6700TE: -20°C ~ 45°C with air flow (SSD), 10% ~ 95%, non-condensing i5-6500TE: -20°C ~ 60°C with air flow (SSD), 10% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis	Half-sine wave shock 5G; 11ms; 100 shocks per axis	Half-sine wave shock 5G, 11ms, 100 shocks per axis
	Operating Vibration	MIL-STD-810G 514.6C-1 (with SSD)	MIL-STD-810G 514.6 C-1 (with SSD)	MIL-STD-810G 514.6 C-1 (with SSD)
	Weight (Net/Gross)	5.4 kg/8.45 kg	3.5 kg/4.5 kg	2-slot: 4.2 kg/6.3 kg 4-slot: 4.5 kg/6.5 kg
	Safety/EMC	CE/FCC	CE/FCC	CE/FCC
OS	Supported OS	Microsoft® Windows 10, Linux	Microsoft® Windows® 8 Embedded, Microsoft® Windows® Embedded Standard 7 E, Microsoft® Windows® 10 IoT Enterprise	

Industrial Automation System





Model Name		TANK-870e-H110	TANK-860-HM86	TANK-801-BT
Chassis	Color	Dark silver purple + Silver	Black C + Silver	Black C + Silver
	Dimensions (WxDxH) (mm)	132.6 x 255.2 x 190	2-slot: 121.5 x 255.2 x 205 4-slot: 154.8 x 255.2 x 205 6-slot: 195.4 x 255.2 x 205	136 x 219 x 188
	System Fan	Fanless	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloys	Extruded aluminum alloys	Extruded aluminum alloys
Motherboard	CPU	7th Gen Intel® Core™ CPU & Intel® Core™ i7-6700TE (2.4 GHz, quad-core, TDP=35) Intel® Core™ i5-6500TE (2.3 GHz, quad-core, TDP=35)	Intel® Core™ i5-4400E 2.7 GHz Intel® Celeron® 2000E 2.2 GHz	Intel® Celeron® J1900 2 GHz
	Chipset	Intel® H110	Intel® HM86	SoC
	System Memory	2 x 260-pin DDR4 SO-DIMM, one 4 GB pre-installed (system max: 32GB)	2 x 204-pin DDR3 SO-DIMM, one 4GB pre-installed (system max: 16 GB)	1 x 204-pin DDR3L SO-DIMM, 2GB pre-installed (system max: 8 GB)
IPMI	iRIS Solution	N/A	1 x iRIS-2400 (optional)	1 x iRIS-2400 (optional)
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD bay	2 x 2.5" SATA 6Gb/s HDD/SSD bay	1 x 2.5" SATA 3Gb/s HDD/SSD bay
	CF Card/CFast	N/A	1 x CFast	1 x CFast
I/O Interfaces	USB 3.2 Gen 1	4	4	2
	USB 2.0	N/A	2	2
	Ethernet	2 x RJ-45 PCIe GbE by RTL8111G controller	2 x RJ-45 1 x PCIe GbE by Intel® I210 1 x PCIe GbE by Intel® I217LM	2 x RJ-45 1 x PCIe GbE by Intel® I210 1 x PCIe GbE by Intel® I211
	COM Port	2 x RS-232/422/485 (DB-9, w/ isolation)	4 x RS-232 (DB-9, two with isolation) 2 x RS-422/485 (RJ-45)	2 x RS-232 (DB-9) 2 x RS-232/422/485 (DB-9, with isolation)
	Digital I/O	N/A	8-bit digital I/O, 4-bit input/4-bit output	16-bit digital I/O, 8-bit input/8-bit output
	Display	1 x VGA, 1 x HDMI 1.4	1 x VGA, 1 x DVI-I, 1 x DisplayPort	1 x DisplayPort, 1 x DVI-I
	Resolution	VGA: Up to 1920 X 1200@60Hz HDMI: Up to 3840x2160@30Hz	VGA: Up to 1920 x 1200@60Hz DVI-I: Up to 2500 x 1600@60Hz Displayport: Up to 2500 x 1600@60Hz	DisplayPort: Up to 2560 x 1600 MHz DVI-I: Up to 2560 x 1600 MHz
	Audio	1 x Line-out, 1 x Mic-in	1 x Line-out, 1 x Mic-in	1 x Line-out, 1 x Mic-in
	Wireless	1 x 802.11a/b/g/n/ac (optional)	1 x 802.11a/b/g/n/ac (optional)	1 x 802.11a/b/g/n/ac (optional)
Expansions	PCI/PCIe	3A: 1 x PCIe x16, 2 x PCI 3B: 1 x PCIe x16, 1 x PCIe x4, 1 x PCI 3C: 3 x PCI	2 A: Two PCIe x8 (physical PCIe x16 slot) 4 A: Two PCIe x8 (physical PCIe x16 slot) + 2 x PCI 6 A: One PCIe x8 (physical PCIe x16 slot) + two PCIe x4 + three PCI	3A: One PCIe x1 + Two x PCI 3B: Two PCIe x1 + One x PCI 3C: Three x PCI
	PCIe Mini	1 x Full-size (PCIe/ USB 2.0) 1 x Full-size (PCIe/ USB 2.0/ SATA)	2A: 1 x Full-size (PCIe/ USB 2.0/ SATA) 4A: 1 x Full-size (PCIe/ USB 2.0/ SATA) + 1 x Full-size (PCIe/ USB 2.0) (on backplane) 6A: 1 x Full-size (PCIe/ USB 2.0/ SATA) + 1 x Full-size (PCIe/ USB 2.0) (on backplane)	1 x Full-size (PCIe/ USB 2.0)
Power	Power Input	DC Jack: 9 V ~ 36 V DC Terminal Block: 9 V ~ 36 V DC	DC Jack: 9 V ~ 36 V DC Terminal Block: 9 V ~ 36 V DC	DC Jack: 9 V ~ 36 V DC Terminal Block: 9 V ~ 36 V DC
	Power Consumption	19 V@3.44 A (Intel® Core™ i7-6700TE with 8 GB memory)	19 V@3.34 A (Intel® Core™ i5-4400E with 4 GB memory)	19 V@1.8 A (Intel® Celeron® J1900 with 2 GB DDR3 memory)
Reliability	Mounting	Wall mount & Din Rail	Wall mount	Wall mount
	Operating Temperature	-20°C ~ 50°C with air flow (SSD), 10% ~ 95%, non-condensing	-20°C ~ 60°C with air flow (SSD), 5% ~ 95%, non-condensing	-20°C ~ 60°C with air flow (SSD), 5% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis	Half-sine wave shock 5G, 11ms, 3 shocks per axis	Half-sine wave shock 5G, 11ms, 3 shocks per axis
	Operating Vibration	MIL-STD-810G 514.6C-1 (with SSD)	MIL-STD-810F 514.5C-2 (with SSD)	MIL-STD-810F 514.5C-2 (with SSD)
	Weight (Net/Gross)	2.8 kg/4.3 kg	2-slot: 4.2 kg/6.3 kg 4-slot: 4.5 kg/6.5 kg 6-slot: 4.8 kg/6.9 kg	2.8 kg/4.3 kg
	Safety/EMC	CE/FCC	CE/FCC	CE/FCC
OS	Supported OS	Microsoft® Windows® 8 Embedded, Microsoft® Windows® Embedded Standard 7 E, Microsoft® Windows® 10 IoT Enterprise	Microsoft® Windows® 8 Embedded, Microsoft® WES7E, Microsoft® Windows® 10 IoT Enterprise	Microsoft® Windows® 8 Embedded, Microsoft® WES7E, Microsoft® Windows® 10 IoT Enterprise

Industrial Automation System

New





Model Name		TANK-620-ULT3	TANK-610-BW
Chassis	Color	Black C + Silver	Black C + Silver
	Dimensions (WxDxH) (mm)	260 x 200 x100	184 x 200.6 x 58.2
	System Fan	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloy	Extruded aluminum alloy
Motherboard	CPU	Intel® Celeron® 3855U (1.6GHz, TDP=15W)	Intel® Celeron® N3160 processor (up to 2.24GHz, quad-core, TDP=6W)
	Chipset	SoC	SoC
	System Memory	1 x 260-pin DDR4 SO-DIMM 1 x On-board DDR4 4GB pre-installed (system max: 32GB)	2 x 204-pin DDR3L SO-DIMM, one 2GB pre-installed (system max: 8 GB)
IPMI	iRIS Solution	N/A	N/A
Storage	Hard Drive	2 x 2.5'' SATA 6Gb/s HDD/SSD Bay	1 x 2.5" SATA 6Gb/s HDD/SSD bay
	CF Card/CFast	1 x CF card (optional)	N/A
out/IO Interfaces	USB 3.2 Gen 1	4	4
	USB 2.0	4	N/A
	Ethernet	2 x RJ-45 PCIe GbE by Intel® I211-AT controller	2 x RJ-45 PCIe GbE by Intel® I210-IT controller
	Fiber	N/A	N/A
	COM Port	6 x RS-232 (DB-9) 8 x RS-232/422/485 ports with automatic flow control (DB-9)	6 x RS-232 2 x RS-232/422/485
	Digital I/O	1 x 24-bit digital I/O	N/A
	CAN-bus	N/A	N/A
	Display	2 x VGA, (1 x LVDS or 1 x VGA optional)	1 x VGA, 1 x HDMI
	Resolution	VGA: Up to 1920 x 1200 @60Hz LVDS: Up to 1920 x 1200 @60Hz (optional)	VGA: Up to 1920 x 1200@60HZ HDMI: Up to 3840 x 2160@30Hz
	Audio	1 x Mic in, 1 x Speaker out, 1 x Line out	1 x Line-out, 1 x Mic-in
	Wireless	1 x 802.11a/b/g/n/ac (optional)	1 x 802.11a/b/g/n/ac (optional)
	Other	1 x Power button, 1 x System reset, 1 x AT/ATX switch	1 x Power button, 1 x System reset, 1 x AT/ATX switch
Expansions	PCI	N/A	N/A
	PCIe	N/A	N/A
	PCIe Mini	2 x Full-size (PCIe/ USB 2.0)	1 x Full-size (PCIe/ SATA), 1 x Half-size (PCIe/ USB 2.0)
Power	Power Input	9 ~ 36 V DC +/- 5%	DC Jack: 9 V ~ 36 V DC
	Power Consumption	12V@2.73A (Intel® Celeron® 3855U with 8GB memory)	12 V@1.49 A (Intel® Celeron® N3160 with 4 GB DDR3L memory)
Reliability	Mounting	Wall Mount	Wall mount, VESA 100
	Operating Temperature	-30 ~ 70 °C with air flow (SSD), 10% ~ 95%, non-condensing	-40°C ~ 60°C with air flow (SSD), 10% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis	Half-sine wave shock 5G, 11ms, 100 shocks per axis
	Operating Vibration	MIL-STD-810G 514.6C-1 (with SSD)	MIL-STD-810G 514.6C-1 (with SSD)
	Weight (Net/Gross)	4.4 kg/6.5 kg	2.2Kg/3Kg
	Safety/EMC	CE/FCC	CE/FCC
OS	Supported OS	Microsoft® Windows 8 Embedded, Microsoft® Windows® Embedded Standard 7 E, Microsoft® Windows® 10	Microsoft® Windows 8 Embedded, Microsoft® WES7E, Microsoft® Windows® 10 IoT Enterprise

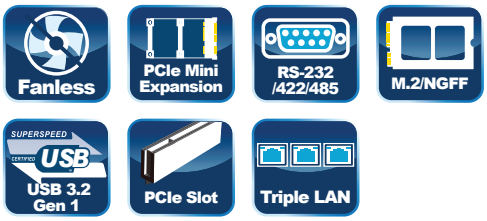
TANK-880-Q370

- *High-Performance 8th/9th Generation Intel® Core™ Processor*
- *Fanless Embedded Computer*

New

Features

- 8th/9th Gen Intel® Core™ processor platform with Intel® Q370 chipset and DDR4 memory
- Dual independent displays with high resolution support
- Rich high-speed I/O interfaces
- On-board internal power connector for providing power to add-on cards
- Four accessible 2.5" HDD/SSD SATA 6 Gb/s bay (with RAID 0/1/5/10 support)
- Great flexibility for hardware expansion

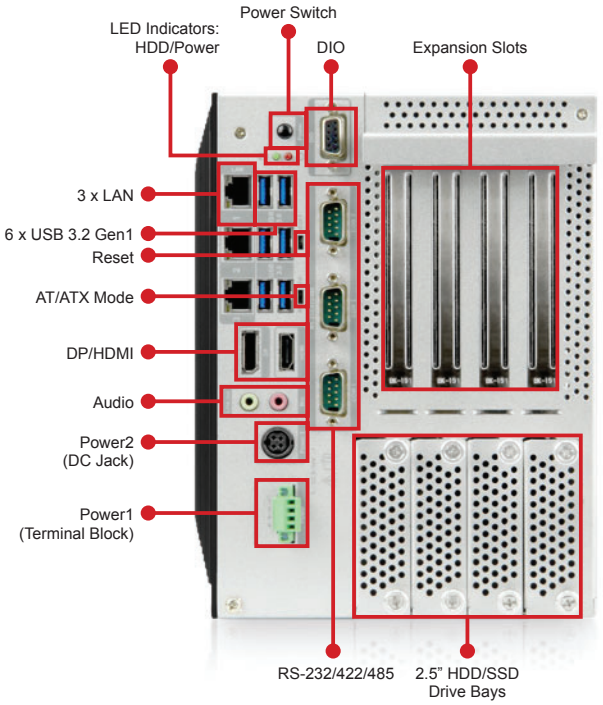




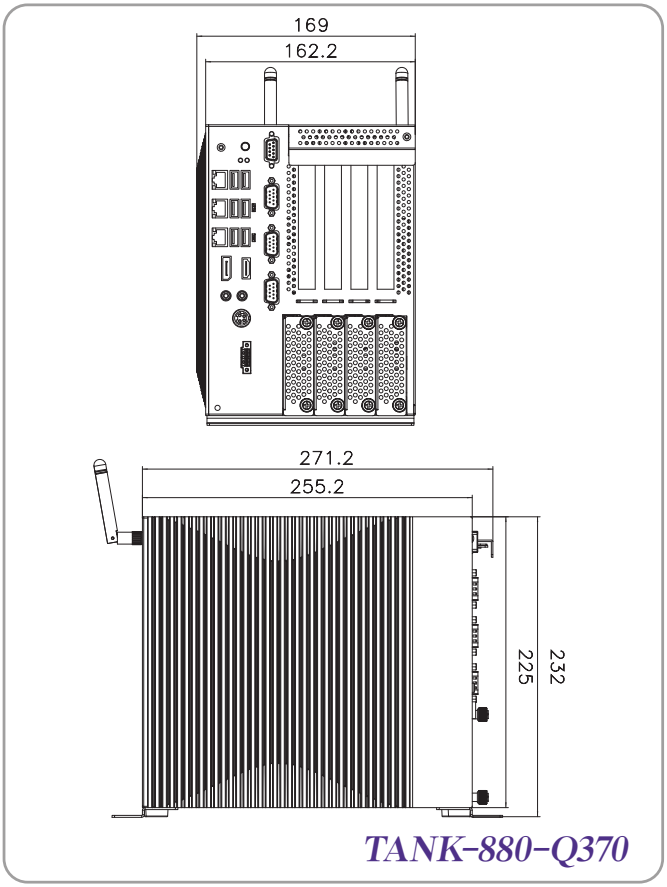
Specifications

Model Name		TANK-880-Q370
Chassis	Color	Black C + Silver
	Dimensions (WxDxH)	169 x 255.2 x 225 mm
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloys
Motherboard	CPU	8th Gen Intel® Core™ CPU & Intel® Core™ i7-9700TE 1.8GHz (up to 3.8GHz, 8-core, TDP 35W) Intel® Core™ i5-9500TE 2.2GHz (up to 3.6GHz, 6-core, TDP 35W)
	Chipset	Intel® Q370
	System Memory	2 x SO-DIMM DDR4 2666/ 2400 (8GB pre-installed) (up to 64GB)
Storage	Hard Drive	4 x 2.5" HDD/SSD SATA 6Gb/s bay (with RAID 0/1/5/10 support)
I/O Interfaces	Ethernet	3 x RJ-45 1 x PCIe GbE by I219 controller 2 x PCIe GbE by I210 controller
	USB 3.2 Gen 1 (5Gb/s)	6
	COM Port	3 x RS-232/422/485 with AFC (DB-9 w/2.5 kV isolation protection)
	Digital I/O	8-bit (4-in/4-out)
	Display	1 x HDMI 1.4b/, 1 x DP
	Audio	1 x Line-out, 1 x Mic-in
	TPM 2.0	1 x TPM 2.0 (2 x 10 pin) (optional)
Expansions	PCIe Mini	1 x Full-size (PCIe/ USB 2.0/ SATA)
	M.2	1 x 2230 A key (PCIe x2/ USB2.0) 2 x 2280 M key (PCIe x2)
	Backplane	1 x PCIe by 16, 1 x PCIe by 1, 2 x PCIe by 4
Power	Power Input	DC Jack: 9 V~36 V DC Terminal Block: 9 V~36 V DC
	Power Consumption	19V @ 3.6A (Intel® Core™ i7-8700T with 8GB memory)
	Internal Power Output	12V @ up to 10A
Reliability	Mounting	Wall mount
	Operating Temperature	-20°C ~ 60°C with air flow (SSD), 10% ~ 95%, non-condensing
	Storage Temperature	-40°C ~ 85°C with air flow (SSD), 10% ~ 90%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis
	Operation Vibration	MIL-STD-810G 514.6C-1 (with SSD)
	Weight (Net/Gross)	5.4 kg/8.45 kg
	Safety / EMC	CE/FCC
	Watchdog timer	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft® Windows® 10 IoT Enterprise/ Linux

Fully Integrated I/O



Dimensions (Unit: mm)



TANK-880-Q370

Ordering Information

Part No.	Description
TANK-880-Q370-i7R/8G/4A-R10	Ruggedized fanless embedded system with Intel® i7-9700TE 1.8GHz, (up to 3.8GHz, 8-core, TDP 35W), 8GB DDR4 pre-installed memory, 1 x PCIe by 16 & 2 x PCIe by 4 & 1 x PCIe by 1 expansion, HDMI/DP, 9 ~ 36V DC, RoHS
TANK-880-Q370-i5R/8G/4A-R10	Ruggedized fanless embedded system with Intel® i5-9500TE 2.2GHz, (up to 3.6Hz, 6-core, TDP 35W), 8GB DDR4 pre-installed memory, 1 x PCIe by 16 & 2 x PCIe by 4 & 1 x PCIe by 1 expansion, HDMI/DP, 9 ~ 36V DC, RoHS

Options

Part No.		Description
Wi-Fi Module	27319-000007-RS*	Wireless Lan Module; WiFi+Bluetooth; Sparklan; R970181001; IEEE802.11a/b/g/n/ac; 2.400GHz ~ 2.484GHz, 5.15GHz ~ 5.85GHz; M.2 2230; 3.3V; 22 x 30 x 2.0mm; Qualcomm Atheros QCA6174A-5; 2 x 2 MIMO; Dual Band; WNFQ-258ACN(BT) [W]; CCL; RoHS
Antenna	32505-000900-100-RS*	External Antenna; WLAN; RG 178; 108MM; TANK-700-QM67-R10; PEAK GAIN 2.0DBI; Exceltek; 2.4-2.5GHz/5.15-5.85GHz; REVERSE SMA PLUG; RoHS
RF Cable	32501-004000-100-RS*	RF; RF CABLE; LINE DIAMETER:0.81mm; 250MM;;; 50Ω; Sparklan; 0-6GHz; VSWR≤1.3; I-PEX MHF-4 Plug; REVERSE SMA JACK; NUT x 1; WASHER x 1;; RoHS
Adapter	63040-010150-700-RS	Adapter Power; FSP; FSP150-ABAN3; 9NA1504811; Active PFC; Vin:90 ~ 264VAC; 150W; Dim:75.6*151.3*25.4mm; Plug=6.5mm; Cable=1500mm; Erp(NO LOAD 0.15W); Vout:19VDC; Din 4Pin/lock; CCL; RoHS
Power Cord	32000-000002-RS	European power cord
TPM 2.0 Module	TPM-IN02-R20	20-pin Infineon TPM2.0 module, software mangement tool, firmware v5.5
System Fan	31100-000440-RS	FAN;+12V;4PIN;Everflow;92*92*25mm;3600RPM;TWO BALL BEARING;LINE LENGTH:180MM;4.4+/-0.3MM;F129025BU;F129025BUAFW30aR;AXIAL FAN;WITH FRAME;73.29CFM;11.4~12.6V;44dB;70000hur;TUV,UL,CE;CCL;RoHS

* Each Wi-Fi module needs two antennas and two RF cables to fully support Wi-Fi function.

Packing List

1 x Chassis Screw	1 x Wall Mount Bracket

TANK-871-Q170

- *High-Performance 6th/7th Generation Intel® Core™ Processor*
- *Fanless Embedded Computer*

Features

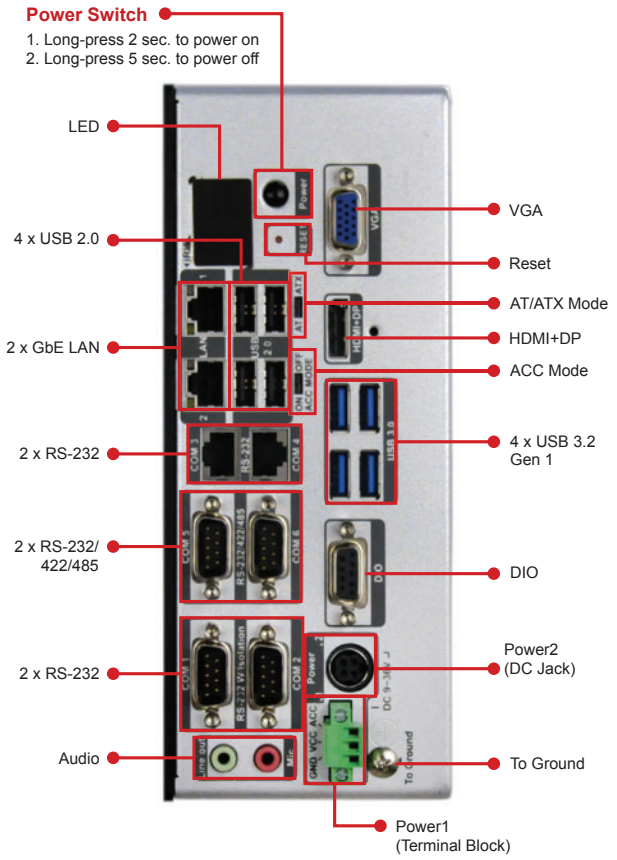
- 6th/7th Gen Intel® Core™ processor platform with Intel® Q170 chipset and DDR4 memory
- Triple independent display with high resolution support
- Rich high-speed I/O interfaces on one side for easy installation
- IEI iRIS-2400 solution



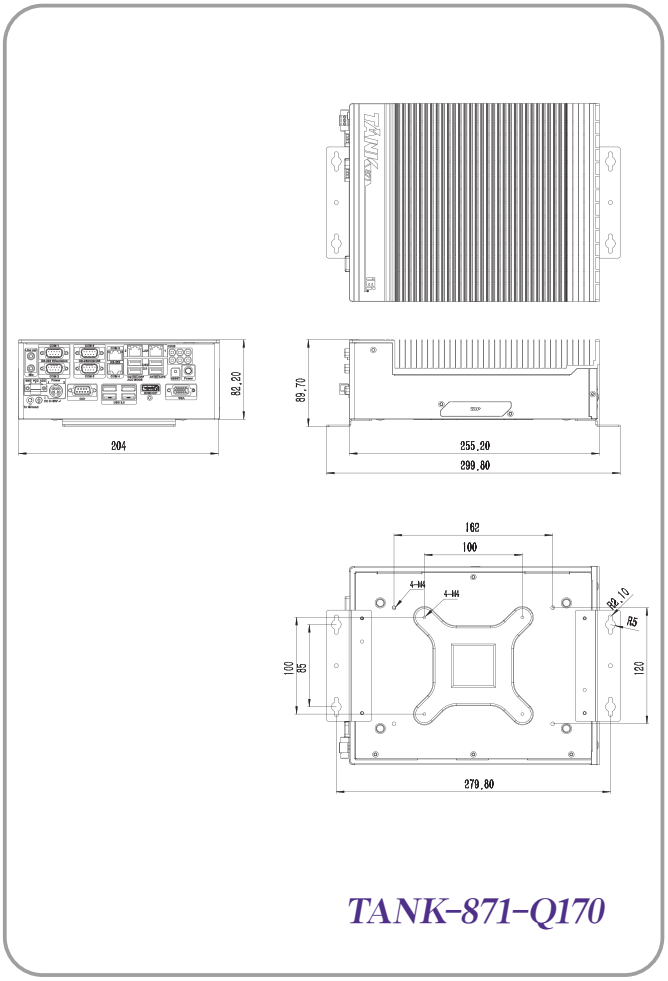
Specifications

Model Name		TANK-871-Q170
Chassis	Color	Black C + Silver
	Dimensions (WxDxH) (mm)	82.2 x 255.2 x 204
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	7th Gen Intel® Core™ CPU & Intel® Core™ i7-6700TE (2.4 GHz, quad-core, TDP=35W) Intel® Core™ i5-6500TE (2.3 GHz, quad-core, TDP=35W)
	Chipset	Intel® Q170
	System Memory	2 x 260-pin DDR4 SO-DIMM, pre-installed one 4GB (system max: 32GB)
IPMI	iRIS solution	1 x iRIS-2400 (optional)
Storage	Hard Drive	2 x 2.5'' SATA 6Gb/s HDD/SSD bay (RAID 0/1 support)
I/O Interfaces	USB 3.2 Gen 1 (5Gb/s)	4
	USB 2.0	4
	Ethernet	2 x RJ-45 LAN1 (iRIS): Intel® I210 PCIe controller LAN2: Intel® I219LM PCIe controller
	COM Port	4 x RS-232 (2 x RJ-45, 2 x DB-9 w/2.5kV isolation protection) 2 x RS-232/422/485 (DB-9)
	Digital I/O	8-bit digital I/O, 4-bit input / 4-bit output
	Display	1 x VGA, 1 x HDMI+DP, 1 x iDP (optional)
	Resolution	1 x VGA (up to 1920 x 1200@60Hz) 1 x HDMI/DP (up to 3840x2160@30Hz / 4096×2304@60Hz)
	Audio	1 x Line-out ; 1 x Mic-in
	Wireless	1 x 802.11a/b/g/n/ac (optional)
Expansions	PCIe Mini	1 x Half-size (PCIe/ USB 2.0) 1 x Full-size (PCIe/ USB 2.0/ SATA)
Power	Power Input	DC Jack: 9 V ~ 36 V DC Terminal Block: 9 V ~ 36 V DC
	Power Consumption	19 V@3.68 A (Intel® Core™ i7-6700TE with 8 GB memory)
Reliability	Mounting	Wall mount
	Operating Temperature/Humidity	i7-6700TE: -20°C ~ 45°C with air flow (SSD), 10% ~ 95%, non-condensing i5-6500TE: -20°C ~ 60°C with air flow (SSD), 10% ~ 95%, non-condensing
	Storage Temperature/Humidity	-40°C ~ 85°C with air flow (SSD), 10% ~ 90%, non-condensing
	Operating Shock	Half-sine wave shock 5G; 11ms; 100 shocks per axis
	Operating Vibration	MIL-STD-810G 514.6 C-1 (with SSD)
	Weight (Net/Gross)	3.5 kg/4.5 kg
	Safety/EMC	CE/FCC/KC
OS	Supported OS	Microsoft® Windows® 8 Embedded, Microsoft® Windows® Embedded Standard 7 E, Microsoft® Windows® 10 IoT Enterprise

Fully Integrated I/O



Dimensions (Unit: mm)



TANK-871-Q170

Ordering Information

Part No.	Description
TANK-871-Q170i-i7/4G-R10	Ruggedized fanless embedded system with Intel® Core™ i7-6700TE 2.4 GHz (up to 3.4 GHz, quad core, TDP 35W), 4GB DDR4 pre-installed memory, VGA/HDMI+DP/iDP, iRIS-2400 optional, 9 ~ 36V DC, RoHS
TANK-871-Q170i-i5/4G-R10	Ruggedized fanless embedded system with Intel® Core™ i5-6500TE 2.3 GHz (up to 3.3 GHz, quad core, TDP 35W), 4GB DDR4 pre-installed memory, VGA/HDMI+DP/iDP, iRIS-2400 optional, 9 ~ 36V DC, RoHS

Options

Part No.	Description
32000-000002-RS	European power cord
63040-010120-300-RS	Adapter Power;FSP;FSP120-AHAN3;9NA1206708;Active PFC;Vin:90 ~ 264VAC;120W;Dim:75.6*151.3*25.4mm;Plug=6.5mm;Cable=1500mm;Erp(NO LOAD 0.15W);Vout:12VDC;Din 4Pin/lock;CCL;RoHS
iRIS-2400-R10	IPMI 2.0 adapter card with AST2400 BMC chip for DDR3 SO-DIMM socket interface
EMB-WIFI-KIT01-R20	1T1R wifi module kit for embedded system, IEEE802.11a/b/g/n/ac WiFi with Bluetooth 4.0/3.0+HS, 1 x wifi module, 2 x 250mm RF cable, 2 xAntenna, RoHS
E-MPCIE-DLAN-R10	PCIe Mini card supports 2-port GbE with Intel I211 controller, with PMS 194C I/O bracket and 250mm cable
E-MPCIE-LAN-R10	PCIe Mini card supports 1-port GbE with Realtek RTL8111E controller, with PMS 194C I/O bracket and 250mm cable
E-MPCIE-UART-KIT01-R10	PCI Express Mini supports quad RS-232/422/485 port module
TANK-870-Q170-WES7E64-R10	OS Image with Windows® Embedded Standard 7 E 64-bit for TANK-870-Q170 Series, with DVD-ROM, RoHS
TANK-870-Q170-W10E64-H-R10	OS Image with Windows® Embedded Standard 10 E High End 64-bit for TANK-870-Q170-i7 Series, with DVD-ROM, RoHS
TANK-870-Q170-W10E64-V-R10	OS Image with Windows® Embedded Standard 10 E Value 64-bit for TANK-870-Q170-i5 Series, with DVD-ROM, RoHS

Packing List

1 x Chassis Screw	1 x Mounting Bracket

TANK-870-Q170

- *High-Performance 6th/7th Generation Intel® Core™ Processor*
- *Fanless Embedded Computer*

Features

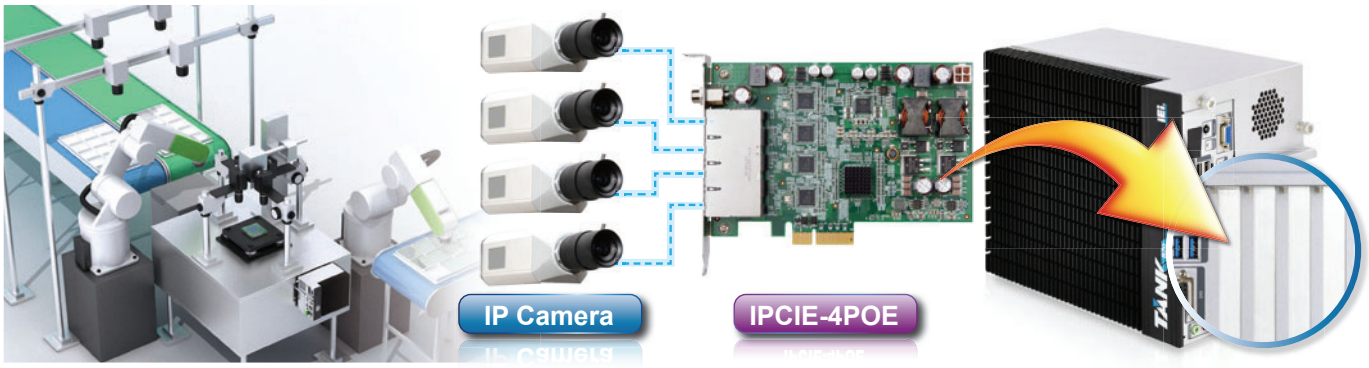
- 6th/7th Gen Intel® Core™ processor platform with Intel® Q170 chipset and DDR4 memory
- Triple independent display with high resolution support
- Rich high-speed I/O interfaces on one side for easy installation
- On-board internal power connector for providing power to add-on cards
- Great flexibility for hardware expansion





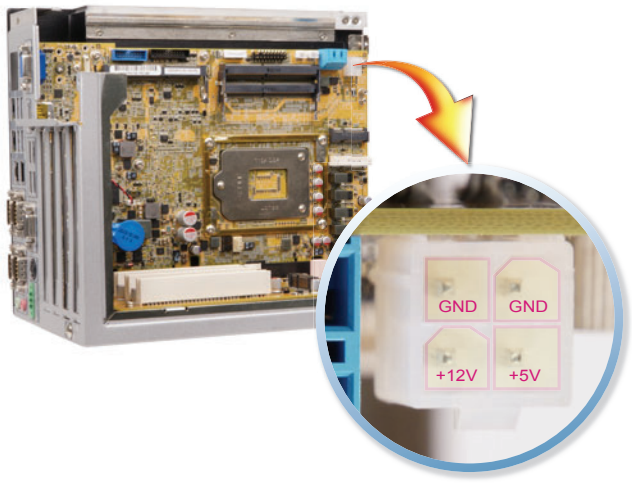
Smart Choice for Surveillance System

The TANK-870-Q170 integrated with IEI PoE Ethernet port expansion card can be used as a surveillance system for factory and public security. IEI PoE expansion card can support up to four PoE IEEE802.3af ports (max. 15.4 W per port) by PCIe x4.

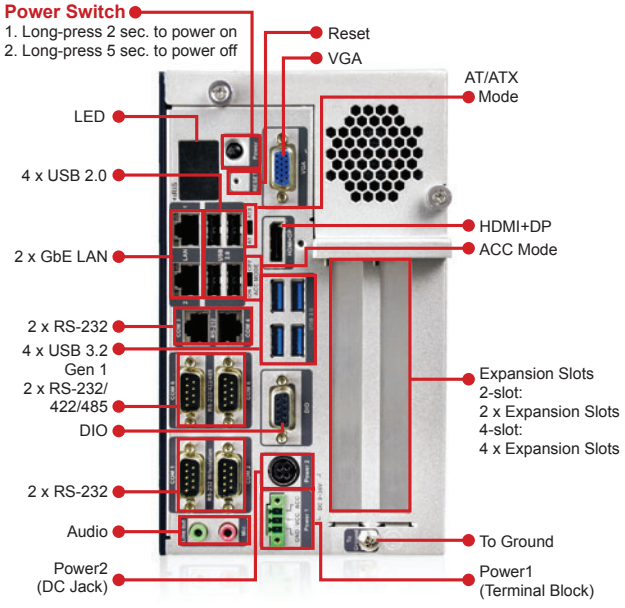


5V@3A or 12V@3A Internal Power Connector

The TANK-870-Q170 provides the most convenient 4-pin internal power connector for add-on card usage, adding more flexibility to the embedded system in industrial environment.



Fully Integrated I/O



Flexible Expansion Interface

Backplane	TANK-870-Q170i-2A	TANK-870-Q170i-2B	TANK-870-Q170i-4A		TANK-870-Q170i-4B	
Slot Type	PCIe x16	PCIe x16	PCIe x16	PCIe x16	PCIe x16	PCI
Signal	PCIe x8	PCIe x16	PCIe x8	PCIe x8	PCIe x16	PCI
Slot Type	PCIe x16	PCI	PCI	PCI	PCI	PCI
Signal	PCIe x8	PCI	PCI	PCI	PCI	PCI
PCIe Mini	N/A	N/A	1		1	

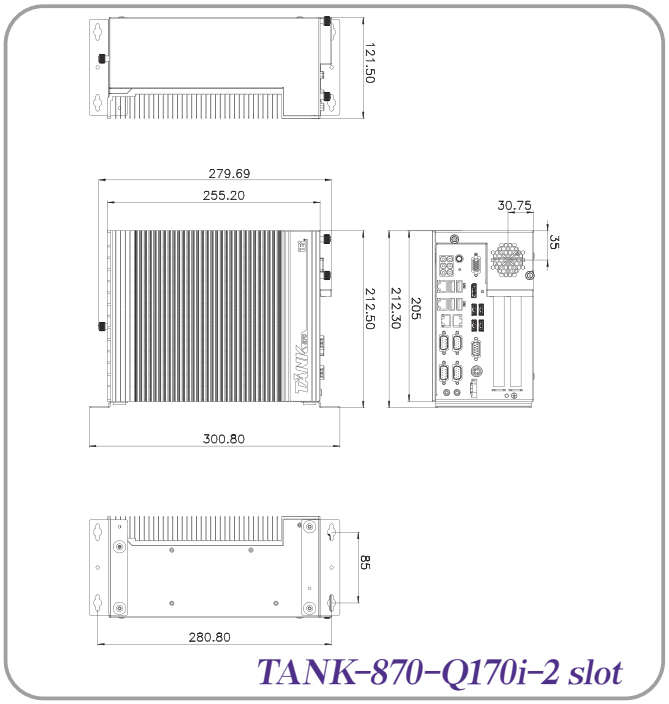
* The expansions described above are provided by the backplanes

Specifications

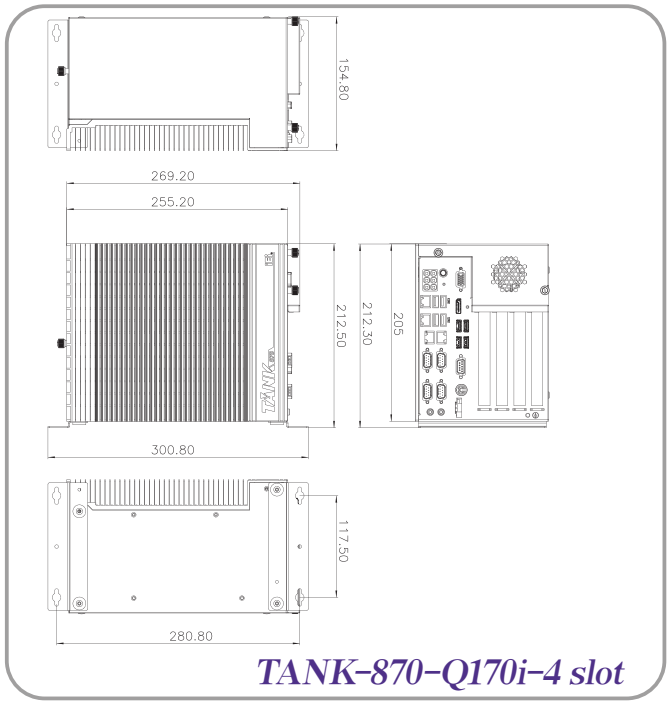
Model Name		TANK-870-Q170
Chassis	Color	Black C + Silver
	Dimensions (WxDxH) (mm)	2-slot: 121.5 x 255.2 x 205 4-slot: 154.8 x 255.2 x 205
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloys
Motherboard	CPU	7th Gen Intel® Core™ CPU & Intel® Core™ i7-6700TE (2.4 GHz, quad-core, TDP=35W) Intel® Core™ i5-6500TE (2.3 GHz, quad-core, TDP=35W)
	Chipset	Intel® Q170
	System Memory	2 x 260-pin DDR4 SO-DIMM, one 4 GB pre-installed (system max: 32GB)
IPMI	iRIS Solution	1 x iRIS-2400 (optional)
Storage	Hard Drive	2 x 2.5" SATA 6Gb/s HDD/SSD bay (RAID 0/1 support)
I/O Interfaces	USB 3.2 Gen 1 (5Gb/s)	4
	USB 2.0	4
	Ethernet	2 x RJ-45 LAN1: Intel® I219LM PCIe controller LAN2 (iRIS): Intel® I210 PCIe controller
	COM Port	4 x RS-232 (2 x RJ-45, 2 x DB-9 w/2.5kV isolation protection) 2 x RS-232/422/485 (DB-9)
	Digital I/O	8-bit digital I/O, 4-bit input / 4-bit output
	Display	1 x VGA 1 x HDMI/DP 1 x iDP (optional)
	Resolution	1 x VGA (Up to 1920 x 1200@60Hz) 1 x HDMI/DP (Up to 3840x2160@30Hz / 4096×2304@60Hz)
	Audio	1 x Line-out, 1 x Mic-in
	Wireless	1 x 802.11 a/b/g/n/ac (optional)
	TPM	1 x TPM 2.0 (2 x 10 pin) (optional)
Expansions	Backplane	2-slot model: 1 x PCIe x16, 1 x PCI 2-slot model: 2 x PCIe x8 4-slot model: 2 x PCIe x8, 2 x PCI, 1 x Full-size PCIe Mini (PCIe/ USB 2.0) 4-slot model: 1 x PCIe x16, 3 x PCI, 1 x Full-size PCIe Mini (PCIe/ USB 2.0)
	PCIe Mini	1 x Half-size (PCIe/ USB 2.0) 1 x Full-size (PCIe/ USB 2.0/ SATA)*
Power	Power Input	DC Jack: 9 V ~ 36 V DC Terminal Block: 9 V ~ 36 V DC
	Power Consumption	19 V@3.68 A (Intel® Core™ i7-6700TE with 8 GB memory)
	Internal Power output	5V@3A or 12V@3A
Reliability	Mounting	Wall mount
	Operating Temperature	i7-6700TE -20°C ~ 45°C with air flow (SSD), 10% ~ 95%, non-condensing i5-6500TE -20°C ~ 60°C with air flow (SSD), 10% ~ 95%, non-condensing
	Storage Temperature	-40°C ~ 85°C with air flow (SSD), 10% ~ 90%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis
	Operating Vibration	MIL-STD-810G 514.6 C-1 (with SSD)
	Weight (Net/Gross)	2-slot: 4.2 kg/6.3 kg 4-slot: 4.5 kg/6.5 kg
	Safety/EMC	CE/FCC/KC
OS	Supported OS	Microsoft® Windows® 8 Embedded, Microsoft® Windows® Embedded Standard 7 E, Microsoft® Windows® 10 IoT Enterprise

* TANK-870-Q170-QGW has no Full-size PCIe mini slot

Dimensions (Unit: mm)



TANK-870-Q170i-2 slot



TANK-870-Q170i-4 slot

Ordering Information

Part No.	Description
TANK-870-Q170i-i5/4G/2A-R11	Ruggedized fanless embedded system with Intel® Core™ i5-6500TE 2.3 GHz (up to 3.3 GHz, quad core, TDP 35W), 4GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, VGA/HDMI+DP/iDP, iRIS-2400 optional, 9 ~ 36V DC, RoHS
TANK-870-Q170i-i5/4G/2B-R11	Ruggedized fanless embedded system with Intel® Core™ i5-6500TE 2.3 GHz (up to 3.3 GHz, quad core, TDP 35W), 4GB DDR4 pre-installed memory, 1 x PCIe by 16 & 1 x PCI expansion, VGA/HDMI+DP/iDP, iRIS-2400 optional, 9 ~ 36V DC, RoHS
TANK-870-Q170i-i5/4G/4A-R11	Ruggedized fanless embedded system with Intel® Core™ i5-6500TE 2.3 GHz (up to 3.3 GHz, quad core, TDP 35W), 4GB DDR4 pre-installed memory, 2 x PCIe by 8 & 2 x PCI expansion, VGA/HDMI+DP/iDP, iRIS-2400 optional, 9 ~ 36V DC, RoHS
TANK-870-Q170i-i5/4G/4B-R11	Ruggedized fanless embedded system with Intel® Core™ i5-6500TE 2.3 GHz (up to 3.3 GHz, quad core, TDP 35W), 4GB DDR4 pre-installed memory, 1 x PCIe by 16 & 3 x PCI expansion, VGA/HDMI+DP/iDP, iRIS-2400 optional, 9 ~ 36V DC, RoHS
TANK-870-Q170i-i7/4G/2A-R11	Ruggedized fanless embedded system with Intel® Core™ i7-6700TE 2.4 GHz (up to 3.4 GHz, quad core, TDP 35W), 4GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, VGA/HDMI+DP/iDP, iRIS-2400 optional, 9 ~ 36V DC, RoHS
TANK-870-Q170i-i7/4G/2B-R11	Ruggedized fanless embedded system with Intel® Core™ i7-6700TE 2.4 GHz (up to 3.4 GHz, quad core, TDP 35W), 4GB DDR4 pre-installed memory, 1 x PCIe by 16 & 1 x PCI expansion, VGA/HDMI+DP/iDP, iRIS-2400 optional, 9 ~ 36V DC, RoHS
TANK-870-Q170i-i7/4G/4A-R11	Ruggedized fanless embedded system with Intel® Core™ i7-6700TE 2.4 GHz (up to 3.4 GHz, quad core, TDP 35W), 4GB DDR4 pre-installed memory, 2 x PCIe by 8 & 2 x PCI expansion, VGA/HDMI+DP/iDP, iRIS-2400 optional, 9 ~ 36V DC, RoHS
TANK-870-Q170i-i7/4G/4B-R11	Ruggedized fanless embedded system with Intel® Core™ i7-6700TE 2.4 GHz (up to 3.4 GHz, quad core TDP 35W), 4GB DDR4 pre-installed memory, 1 x PCIe by 16 & 3 x PCI expansion, VGA/HDMI+DP/iDP, iRIS-2400 optional, 9 ~ 36V DC, RoHS
TANK-870-Q170-QGW-2A-R11	Ruggedized Fanless embedded system with Intel® Core i5-6500TE 2.3GHz, (up to 3.3 GHz, quad core, TDP 35W), 8GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, VGA/HDMI+DP/iDP, iRIS-2400 optional, 9 ~ 36V DC, with QTS-Gateway, RoHS

Options

Part No.	Description
32000-000002-RS	European power cord
63040-010120-300-RS	Adapter Power;FSP;FSP120-AHAN3;9NA1206708;Active PFC;Vin:90 ~ 264VAC;120W;Dim:75.6*151.3*25.4mm;Plug=6.5mm;Cable=1500mm;Erp(NO LOAD 0.15W);Vout:12VDC;Din 4Pin/lock;CCL;RoHS
63040-010150-700-RS	Adapter Power;FSP;FSP150-ABAN3;9NA1504811;Active PFC;Vin:90 ~ 264VAC;150W;Dim:75.6*151.3*25.4mm;Plug=6.5mm;Cable=1500mm;Erp(NO LOAD 0.15W);Vout:19VDC;Din 4Pin/lock;CCL;RoHS
iRIS-2400-R10	IPMI 2.0 adapter card with AST2400 BMC chip for DDR3 SO-DIMM socket interface
EMB-FAN-KIT02-R10	Fan Module;MODIFY 31100-000272-RS;+12V DC;4PIN;40*40*15mm ;STANDARD;;FD124015LB2W3;; L= 400mm MOLEX 5051-04P P=2.54;CCL;RoHS
EMB-WIFI-KIT01-R20	1T1R wifi module kit for embedded system, IEEE802.11a/b/g/n/ac WiFi with Bluetooth 4.0/3.0+HS, 1 x wifi module, 2 x 250mm RF cable, 2 x Antenna, RoHS
DP-DP-R10	DisplayPort to DisplayPort converter board (for IEI IDP connector)
DP-HDMI-R10	DisplayPort to HDMI converter board (for IEI IDP connector)
DP-LVDS-R10	DisplayPort to 24-bit dual channel LVDS converter board (for IEI IDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI IDP connector)
DP-DVI-R10	DisplayPort to DVI-D converter board (for IEI IDP connector)
IPCIE-4POE-R10	PCI Express Power over Ethernet frame grabber card, 4-port 1000 Base(T), 802.3af compliant, RoHS
TANK-870-Q170-WES7E64-R10	OS Image with Windows® Embedded Standard 7 E 64-bit for TANK-870-Q170 Series, with DVD-ROM, RoHS
TANK-870-Q170-W10E64-H-R10	OS Image with Windows® Embedded Standard 10 E High End 64-bit for TANK-870-Q170-i7 Series, with DVD-ROM, RoHS
TANK-870-Q170-W10E64-V-R10	OS Image with Windows® Embedded Standard 10 E Value 64-bit for TANK-870-Q170-i5 Series, with DVD-ROM, RoHS
TPM-IN02-R20	20-pin Infineon TPM2.0 module, software mangement tool, firmware v5.5

* The TANK-870 can support up to 40°C operating temperature when installing with the IPCIE-4POE-R10.

Packing List

1 x Chassis Screw	1 x Mounting Bracket

TANK-870e-H110

- *High-Performance 6th/7th Generation Intel® Core™ Processor*
- *Fanless Embedded Computer*

Features

- 6th/7th Gen Intel® Core™ processor platform with Intel® H110 chipset and DDR4 memory
- Support dual display VGA+HDMI
- On-board internal power connector for providing power to add-on cards
- Great flexibility for hardware expansion





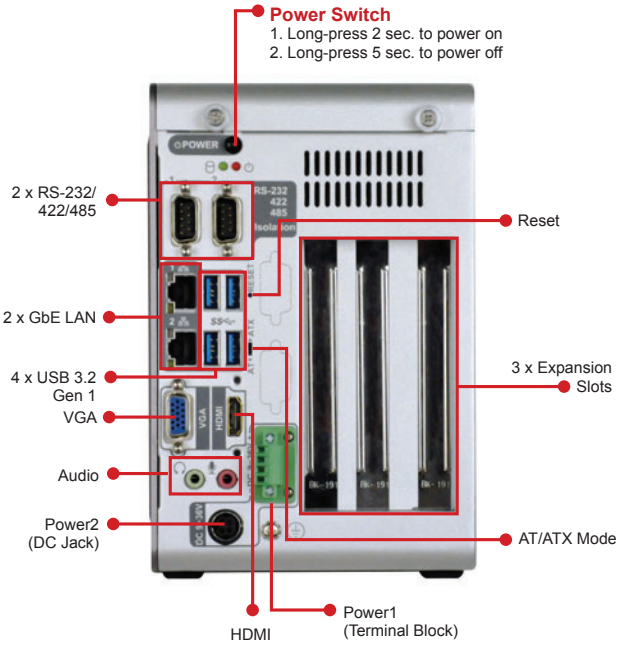
Specifications

Model Name		TANK-870e-H110
Chassis	Color	Dark silver purple + Silver
	Dimensions (WxDxH) (mm)	132.6 x 255.2 x 190
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloys
Motherboard	CPU	7th Gen Intel® Core™ CPU & Intel® Core™ i7-6700TE (2.4 GHz, quad-core, TDP=35W) Intel® Core™ i5-6500TE (2.3 GHz, quad-core, TDP=35W)
	Chipset	Intel® H110
	System Memory	2 x 260-pin DDR4 SO-DIMM, one 4 GB pre-installed (system max: 32GB)
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD bay
I/O Interfaces	USB 3.2 Gen 1 (5Gb/s)	4
	Ethernet	2 x RJ-45 PCIe GbE by RTL8111G controller
	COM Port	2 x RS-232/422/485 (DB-9, w/ 2.5kV isolation protection)
	Display	1 x VGA, 1 x HDMI 1.4
	Resolution	VGA: Up to 1920 x 1200@60Hz HDMI: up to 3840 x 2160@30Hz
	Audio	1 x Line-out ; 1 x Mic-in
	Wireless	1 x 802.11a/b/g/n/ac (optional)
Expansions	Backplane	3A: 1 x PCIe x16, 2 x PCI 3B: 1 x PCIe x16, 1 x PCIe x4, 1 x PCI 3C: 3 x PCI
	PCIe Mini	1 x Full-size (PCIe/ USB 2.0) 1 x Full-size (PCIe/ USB 2.0/ SATA)
Power	Power Input	DC Jack: 9 V ~ 36 V DC Terminal Block: 9 V ~ 36 V DC
	Power Consumption	19 V@3.44 A (Intel® Core™ i7-6700TE with 8 GB memory)
	Internal Power Connector	5V@3A or 12V@3A
Reliability	Mounting	Wall mount & DIN Rail
	Operating Temperature	i7-6700TE -20°C ~ 50°C with air flow (SSD), 10% ~ 95%, non-condensing i5-6500TE -20°C ~ 60°C with air flow (SSD), 10% ~ 95%, non-condensing
	Storage Temperature	-40°C ~ 85°C with air flow (SSD), 5% ~ 90%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis
	Non-Operating Shock	Half-sine wave shock 15G, 11ms, 100 shocks per axis
	Operating Vibration	MIL-STD-810G 514.6C-1 (with SSD)
	Non-Operation Vibration	Half-sind mode IEC-60068-2-06
	Weight (Net/Gross)	4.2 kg/6.3 kg
	Safety/EMC	CE/FCC/KC
OS	Supported OS	Microsoft® Windows® 8 Embedded, Microsoft® Windows® Embedded Standard 7 E, Microsoft® Windows® 10 IoT Enterprise

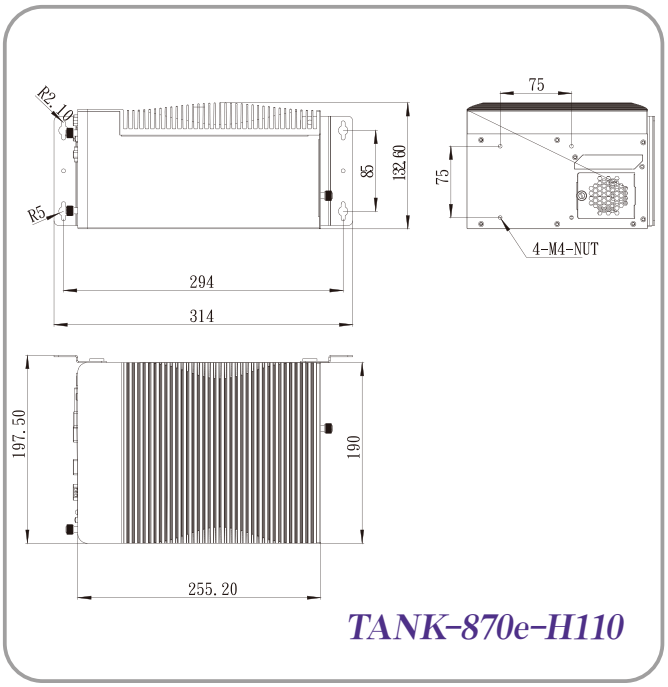
Versatile Expansion Interface

Backplane	3A HPE-3S6		3B HPE-3S7			3C HPE-3PCI
Slot	2 x PCI	1 x PCIe x16	1 x PCI	1 x PCIe x4	1 x PCIe x16	3 x PCI
Signal	PCI	PCIe x16	PCI	PCIe x1	PCIe x16	PCI

Fully Integrated I/O



Dimensions (Unit: mm)



Ordering Information

Part No.	Description
TANK-870e-H110-i5/4G/3A-R10	Ruggedized fanless embedded system with Intel® Core i5-6500TE 2.3GHz, (up to 3.3 GHz, quad core, TDP 35W), 4GB DDR4 pre-installed memory, 1 x PCIe by 16 & 2 x PCI expansion, VGA/HDMI, 9 ~ 36V DC, RoHS
TANK-870e-H110-i5/4G/3B-R10	Ruggedized fanless embedded system with Intel® Core i5-6500TE 2.3GHz, (up to 3.3 GHz, quad core, TDP 35W), 4GB DDR4 pre-installed memory, 1 x PCIe by 16 & 1 x PCIe by 1 & 1 x PCI expansion, VGA/HDMI, 9 ~ 36V DC, RoHS
TANK-870e-H110-i5/4G/3C-R10	Ruggedized fanless embedded system with Intel® Core™ i5-6500TE 2.3 GHz (up to 3.3 GHz, quad core, TDP 35W), 4GB DDR4 pre-installed memory, 3 x PCI expansion, VGA/HDMI, 9 ~ 36V DC, RoHS
TANK-870e-H110-i7/4G/3A-R10	Ruggedized fanless embedded system with Intel® Core i7-6700TE 2.4GHz, (up to 3.4 GHz, quad core, TDP 35W), 4GB DDR4 pre-installed memory, 1 x PCIe by 16 & 2 x PCI expansion, VGA/HDMI, 9 ~ 36V DC, RoHS
TANK-870e-H110-i7/4G/3B-R10	Ruggedized fanless embedded system with Intel® Core i7-6700TE 2.4GHz, (up to 3.4 GHz, quad core, TDP 35W), 4GB DDR4 pre-installed memory, 1 x PCIe by 16 & 1 x PCIe by 1 & 1 x PCI expansion, VGA/HDMI, 9 ~ 36V DC, RoHS
TANK-870e-H110-i7/4G/3C-R10	Ruggedized fanless embedded system with Intel® Core™ i7-6700TE 2.4 GHz (up to 3.4 GHz, quad core, TDP 35W), 4GB DDR4 pre-installed memory, 3 x PCI expansion, VGA/HDMI, 9 ~ 36V DC, RoHS

Options

Part No.	Description
32000-000002-RS	European power cord
63040-010120-300-RS	Adapter Power;FSP;FSP120-AHAN3;9NA1206708;Active PFC;Vin:90 ~ 264VAC;120W;Dim:75.6*151.3*25.4mm;Plug=6.5mm;Cable=1500mm;Erp(NO LOAD 0.15W);Vout:12VDC;Din 4Pin/lock;CCL;RoHS
EMB-FAN-KIT02-R10	Fan Module;MODIFY 31100-000272-RS;+12V DC;4PIN;40*40*15mm ;STANDARD;;FD124015LB2W3; L= 400mm MOLEX 5051-04P P=2.54;CCL;RoHS
EMB-WIFI-KIT11-R20	1T1R wifi module kit for embedded system, IEEE802.11a/b/g/n/ac WiFi with Bluetooth 4.0/3.0+HS, 1 x wifi module, 2 x 400mm RF cable, 2 x Antenna, RoHS
DK-75-R10	DIN mount kit adapter for VESA-75
E-MPCIE-DLAN-R10	PCIe Mini card supports 2-port GbE with Intel I211 controller, with PMS 194C I/O bracket and 250mm cable
E-MPCIE-LAN-R10	PCIe Mini card supports 1-port GbE with Realtek RTL8111E controller, with PMS 194C I/O bracket and 250mm cable
E-MPCIE-UART-KIT01-R10	PCI Express Mini supports quad RS-232/422/485 port module
TANK-870e-H110-WES7E64-R10	OS Image with Windows® Embedded Standard 7 E 64-bit for TANK-870e-H110 Series, with DVD-ROM, RoHS
TANK-870e-H110-W10E64-H-R10	OS Image with Windows® Embedded Standard 10 E High End 64-bit for TANK-870e-H110-i7 Series, with DVD-ROM, RoHS
TANK-870e-H110-W10E64-V-R10	OS Image with Windows® Embedded Standard 10 E Value 64-bit for TANK-870e-H110-i5 Series, with DVD-ROM, RoHS

Packing List

1 x Chassis Screw	1 x Mounting Bracket

TANK-860-HM86

- *Intel® HM86 mobile solution*
- *Three different expansion slot options*

Features

- Intel® HM86 chipset + 4th generation Intel® Core™ CPU
- Great flexibility of expansion slots
  - » 2-slot model: 2 x PCIe by 16, 1 x PCIe Mini slot
  - » 4-slot model: 2 x PCIe by 16, 2 x PCI, 2 x PCIe Mini slot
  - » 6-slot model: 1 x PCIe by 16, 2 x PCIe by 4, 3 x PCI, 2 x PCIe Mini slot
- IPMI function for remote control management
- Three independent video outputs support high resolution
- 2 x 2.5" SATA HDD bay design fulfills high storage demand

QTS-Gateway IPMI 2.0 Compliant

Fanless | Triple Display | PCIe Mini Expansion | Dual LAN | PCI/PCIe Expansion



5 YEARS 5-YEAR SUPPLY GUARANTEE

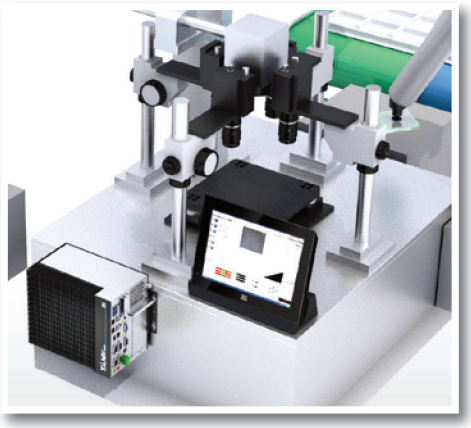
Automation Solution

The TANK-860 is a fanless expandable embedded system with PCIe and/or PCI slots. With rich I/O, customers can make it as a control center. Furthermore, the ruggedized design makes the TANK-860 more reliable even in harsh environments.

Rich I/O

PCI/PCIe Expansion

Ruggedized System



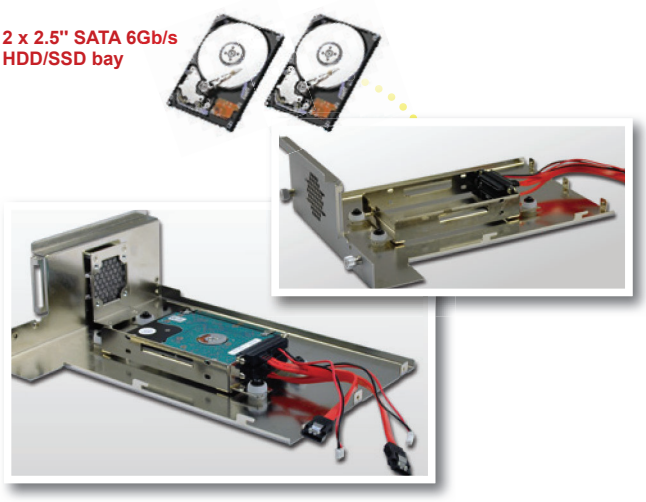
Automation

Machine Vision

Data Acquisition

Dual 2.5" SATA HDD/SSD Bay

With two 2.5" SATA HDD/SSD bays, users can fulfill large storage requirement and use it as a terminal for data acquisition. The easy-to-assemble design reduces user fatigue in system installation.



Swappable CFast Design

CFast is based on the Serial ATA bus and supports up to 300 MBps transfer rates, which is much higher than the CF card. With the hot-swappable design, users can replace the CFast even when the system is running.



Abundant Expansion Interface

The TANK-860 series has a great variety of different expansion interfaces. From basic 2-slot expansion model to advanced 6-slot expansion model, customers can choose the most suitable one to apply.

2-slot 4-slot 6-slot



Versatile Expansion Interface

	2-slot model	4-slot model		6-slot model		
Physical Slot	PCIe x16	PCIe x16	PCIe x16	PCIe x16	PCIe x4	PCIe x4
Signal	PCIe x8	PCIe x8	PCIe x8	PCIe x8	PCIe x4	PCIe x4
Slot type	PCIe x16	PCI	PCI	PCI	PCI	PCI
Signal	PCIe x8	PCI	PCI	PCI	PCI	PCI

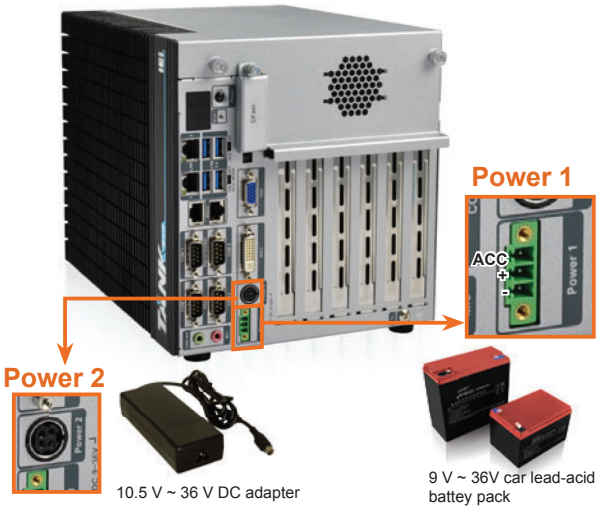
Wide Range Temperature

The TANK-860-HM86 series is designed to withstand wide range of temperatures. With this design, the TANK-860-HM86 series can even be installed in a high-temperature roadside cabinet.



Dual DC Power Input

The TANK-860-HM86 adopts dual DC power input design, which ensures uninterrupted power supply to the system and eliminates the risk of sudden shutdown and data loss, even if one power is unavailable or low voltage capacity is present.



iRIS Solution

IPMI 2.0 Compliant

By installing the IEI iRIS-2400 module, the TANK-860 is capable to complete your IoT application through the advanced remote control features, such as power management and control, remote KVM for device status monitoring, sending active alerts and warning messages by e-mail or SMS.

Triple Display

The TANK-860 contains VGA/DisplayPort/DVI video outputs, which can be applied to multi-display application and support high Full HD video quality.



Anti-Vibration and Anti-Shock Design

With the rugged design, the TANK-860-HM86 series is reliable in industrial environments to resist strong vibrations and can be used as a core computer required to be installed on moving objects.

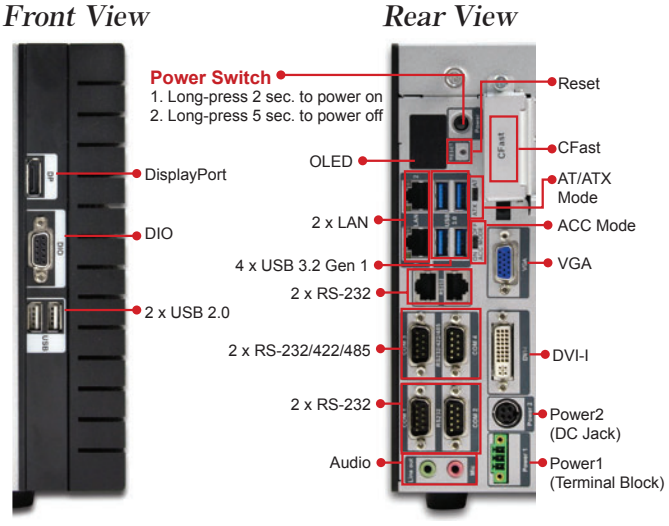


Wide Range DC Power Input

The TANK-860-HM86 series accepts wide range DC power input, allowing it to be powered anywhere, no matter if a 12 V/24 V DC source or a 19 V power adapter is available.



Fully Integrated I/O



Specifications

Model Name		TANK-860-HM86
Chassis	Color	Black C + Silver
	Dimensions (WxHxD) (mm)	2 slot: 121.5 x 255.2 x 205 4 slot: 154.8 x 255.2 x 205 6 slot: 195.4 x 255.2 x 205
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloys
Motherboard	CPU	Intel® Core™ i5-4400E 2.7 GHz
	Chipset	Intel® HM86
	System Memory	2 x 204-pin DDR3 SO-DIMM, one 4GB pre-installed (system max: 16 GB)
IPMI	iRIS Solution	1 x iRIS-2400 (optional)
Storage	Hard Drive	2 x 2.5" SATA 6Gb/s HDD/SSD bay
	CF Card/CFast	1 x CFast
I/O Interfaces	USB 3.2 Gen 1 (5Gb/s)	4
	USB 2.0	2
	Ethernet	2 x RJ-45 1 x PCIe GbE by Intel® I210 1 x PCIe GbE by Intel® I217LM
	COM Port	4 x RS-232 (2 DB-9 w/ isolation, 2 RJ-45) 2 x RS-232/422/485 (DB-9)
	Digital I/O	8-bit digital I/O, 4-bit input/4-bit output
	Display	1 x VGA, 1 x DVI-I, 1 x DisplayPort
	Resolution	VGA: Up to 1920 x 1200@60Hz DVI-I: Up to 2500 x 1600@60Hz DisplayPort: Up to 2500 x 1600@60Hz
	Audio	1 x Line-out, 1 x Mic-in
	Wireless	1 x 802.11a/b/g/n/ac (optional)
Expansions	PCI/PCIe	2 A: Two PCIe x8 (physical PCIe x16 slot) 4 A: Two PCIe x8 (physical PCIe x16 slot) + 2 x PCI 6 A: One PCIe x8 (physical PCIe x16 slot) + two PCIe x4 + three PCI
	PCIe Mini	2A: 1 x Full-size (PCIe/ USB 2.0/ SATA) 4A: 1 x Full-size (PCIe/ USB 2.0/ SATA) + 1 x Full-size (PCIe/ USB 2.0) (on backplane) 6A: 1 x Full-size (PCIe/ USB 2.0/ SATA) + 1 x Full-size (PCIe/ USB 2.0) (on backplane)
Power	Power Input	DC Jack: 9 V ~ 36 V DC Terminal Block: 9 V ~ 36 V DC
	Power Consumption	19 V@3.34 A (Intel® Core™ i5-4400E with 4 GB memory)
Reliability	Mounting	Wall mount
	Operating Temperature	-20°C ~ 60°C with air flow (SSD), 5% ~ 95%, non-condensing
	Storage Temperature	-30°C ~ 70°C with air flow (SSD), 5% ~ 90%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 3 shocks per axis
	Operating Vibration	MIL-STD-810F 514.5C-2 (with SSD)
	Weight (Net/Gross)	2-slot: 4.2 kg/6.3 kg 4-slot: 4.5 kg/6.5 kg 6-slot: 4.8 kg/6.9 kg
	Safety/EMC	CE/FCC
OS	Supported OS	Microsoft® Windows® 8 Embedded, Microsoft® Windows® Embedded Standard 7 E

Ordering Information

Part No.	Description
TANK-860-HM86i-i5/4G/2A-R10	Intel® Core™ i5-4400E 2.7 GHz dual-core, TDP 37W, 4GB DDR3 pre-installed memory, 2 x PCIe expansion, VGA/DVI-I/ DisplayPort, iRIS-2400 optional, 9 V ~ 36 V DC, R10, RoHS
TANK-860-HM86i-i5/4G/4A-R10	Intel® Core™ i5-4400E 2.7 GHz dual-core, TDP 37W, 4GB DDR3 pre-installed memory, 2 x PCIe and 2 x PCI expansion, VGA/ DVI-I/DisplayPort, iRIS-2400 optional, 9 V ~ 36 V DC, R10, RoHS
TANK-860-HM86i-i5/4G/6A-R10	Intel® Core™ i5-4400E 2.7 GHz dual-core, TDP 37W, 4GB DDR3 pre-installed memory, 3 x PCIe and 3 x PCI expansion, VGA/ DVI-I/DisplayPort, iRIS-2400 optional, 9 V ~ 36 V DC, R10, RoHS
TANK-860-QGW-i5/8G/2A-R10	Intel® Core™ i5-4400E CPU, 2 x 4GB DDR3 memory, 2 x PCIe expansion, Dual GbE, COM, DIO, VGA/DVI-I/DisplayPort, iRIS-2400 optional, with QTS-Gateway, 9 V ~ 36 V DC, RoHS
TANK-860-QGW-i5/8G/4A-R10	Intel® Core™ i5-4400E CPU, 2 x 4GB DDR3 memory, 2 x PCIe and 2 x PCI expansion, Dual GbE, COM, DIO, VGA/DVI-I/ DisplayPort, iRIS-2400 optional, with QTS-Gateway, 9 V ~ 36 V DC, RoHS
TANK-860-QGW-i5/8G/6A-R10	Intel® Core™ i5-4400E CPU, 2 x 4GB DDR3 memory, 3 x PCIe and 3 x PCI expansion, Dual GbE, COM, DIO, VGA/DVI-I/ DisplayPort, iRIS-2400 optional, with QTS-Gateway, 9 V ~ 36 V DC, RoHS

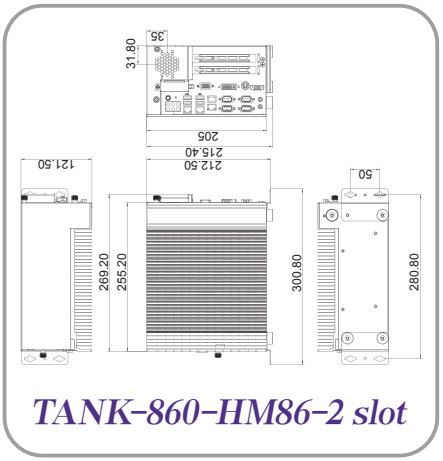
Options

Part No.	Description
32000-000002-RS	European power cord
63040-010120-300-RS	Adapter Power;FSP;FSP120-AHAN3;9NA1206708;Active PFC;Vin:90 ~ 264VAC;120W;Dim:75.6 x 151.3 x 25.4mm;Plug=6.5 mm;Cable=1500mm;Erp(NO LOAD 0.15W);Vout:12VDC;Din 4Pin/ lock;CCL;RoHS
EMB-FAN-KIT02-R10	Fan Module;MODIFY 31100-000272-RS;+12V DC;4PIN;40*40*15mm ;STANDARD;;FD124015LB2W3;; L= 400mm MOLEX 5051-04P P=2.54;CCL;RoHS
EMB-WIFI-KIT01-R20	1T1R wifi module kit for embedded system, IEEE802.11a/b/g/n/ac WiFi with Bluetooth 4.0/3.0+HS, 1 x wifi module, 2 x 250mm RF cable, 2 x Antenna, RoHS
iRIS-2400-R10	IPMI 2.0 adapter card with AST2400 BMC chip for DDR3 SO-DIMM socket interface
TANK-860-HM86 -WES7E-R10	OS Image with Windows® Embedded Standard 7 E for TANK-860 H Series, with CD-ROM, RoHS

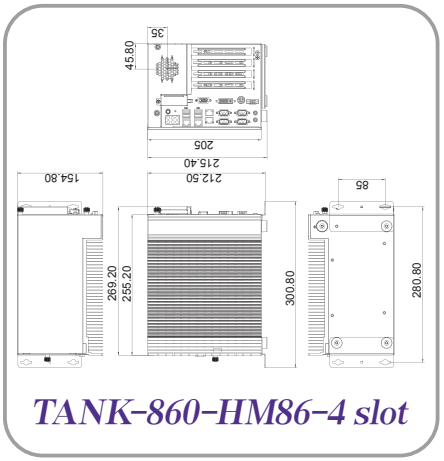
Packing List

- 1 x Chassis Screw
- 1 x Mounting Bracket

Dimensions *(Unit: mm)*



TANK-860-HM86-2 slot



TANK-860-HM86-4 slot



TANK-860-HM86-6 slot

TANK-801-BT

- *Intel® Celeron® J1900 2 GHz, 10W*
- *Versatile three different backplane types*

Features

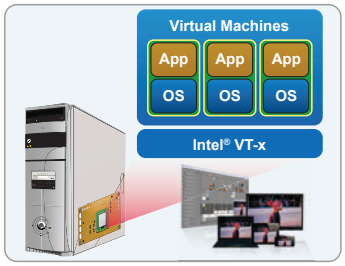
- **Intel® Celeron® J1900 2 GHz, 10W**
- **16-bit digital I/O, 8-bit input/8-bit output**
- **1 x DVI-I**
  1 x DisplayPort
- **Various expansion type:**
  - » 3A: One PCIe x1 + Two x PCI
  - » 3B: Two PCIe x1 + One x PCI
  - » 3C: Three x PCI
- **Dual DC power input**



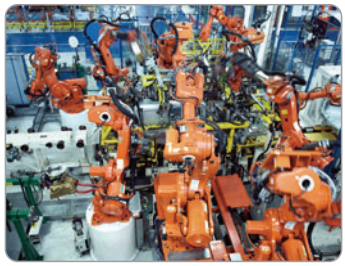


5 YEARS 5-YEAR SUPPLY GUARANTEE

Enhanced Visual Experience



Support Intel® Virtualization Technology



Automation

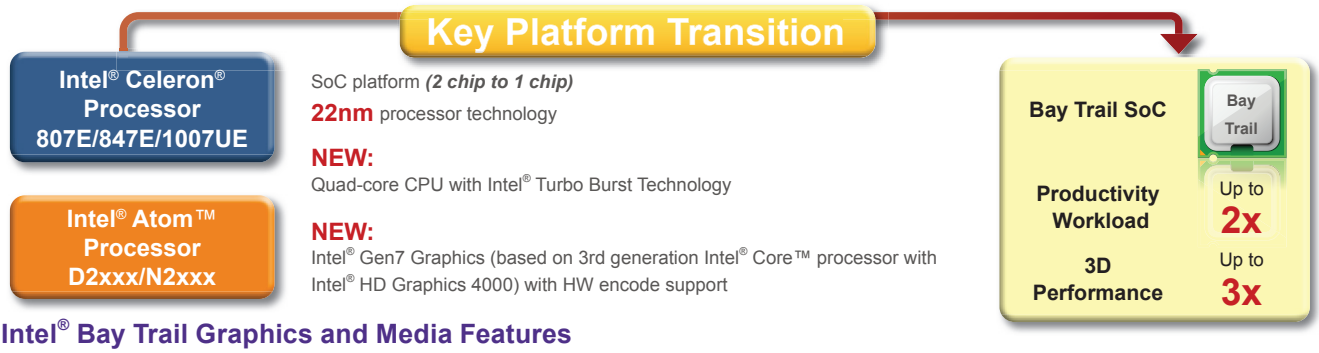


Video HD Technology
Spectacular HD Playback

Intel® Bay Trail Solution

Intel® Bay-Trail SoC (system on chip) integrates with CPU and graphics. With the Gen 7 graphics and the DX11 and full HD support, the TANK-801-BT is a good solution for visual application.

■ Intel® Bay Trail Platform Transition



■ Intel® Bay Trail Graphics and Media Features

3D Graphics	DX11.1, OGL 4.0, OGL ES 2.0, OVG 1.1
Video Decode	H.264, MPEG2, MPEG4, VC1/WMV9, VP8 up to 1080p decode
Video Encode	H.264, MPEG2

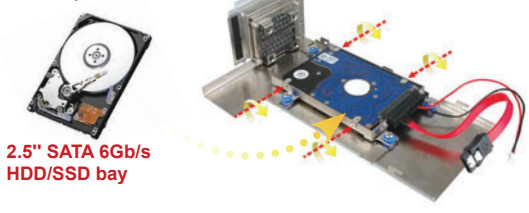
Diversified Expansion Interfaces

The TANK-801 series has three different expansion options on PCI and PCIe slot selection. Users can choose the suitable model for their application.

Backplane	TANK-801	
	Slot type	Signal
HPE-3S6 (2P1E)	PCI	PCI
	PCIe x16	PCIe x1
HPE-3S7 (1P2E)	PCI	PCI
	PCIe x4	PCIe x1
	PCIe x16	PCIe x1
HPE-3PCI	PCI	PCI

Easy of Installation

Users can easily install SO-DIMM, PCIe Mini cards and expansion cards by removing the TANK-801's top cover. A 2.5" SATA HDD/SSD bay is located on the top cover, which is very convenient for users to maintain the system.

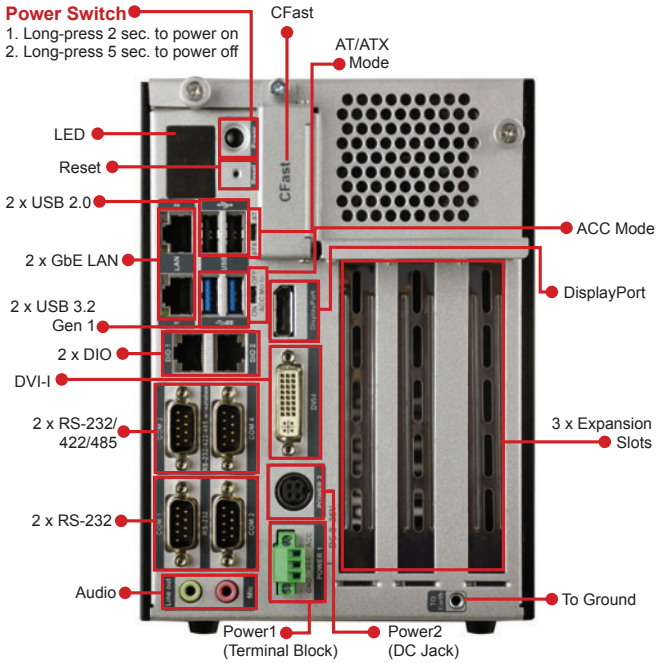


2.5" SATA 6Gb/s HDD/SSD bay

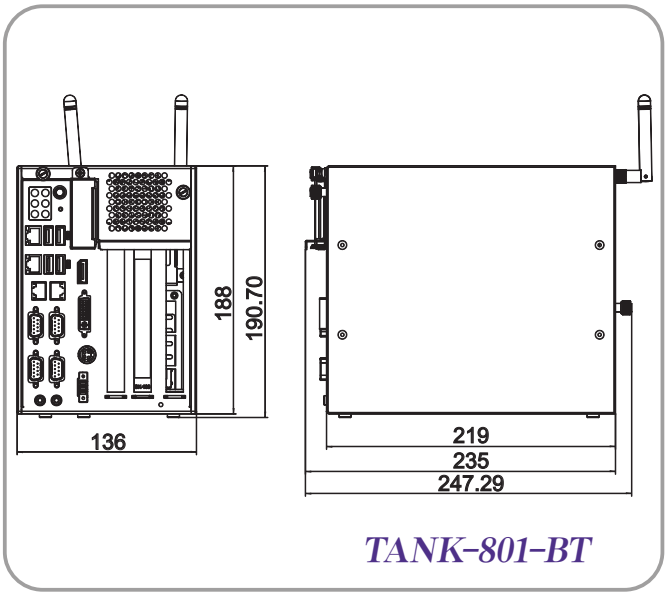
Specifications

Model Name		TANK-801-BT
Chassis	Color	Black C + Silver
	Dimensions (WxDxH) (mm)	136 x 219 x 188
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloys
Motherboard	CPU	Intel® Celeron® J1900 2GHz
	Chipset	SoC
	System Memory	1 x 204-pin DDR3L SO-DIMM, 2GB pre-installed (system max: 8 GB)
IPMI	iRIS Solution	1 x iRIS-2400 (optional)
Storage	Hard Drive	1 x 2.5" SATA 3Gb/s HDD/SSD bay
	CF Card/CFast	1 x CFast
I/O Interfaces	USB 3.2 Gen 1 (5Gb/s)	2
	USB 2.0	2
	Ethernet	2 x RJ-45 1 x PCIe GbE by Intel® I210 1 x PCIe GbE by Intel® I211
	COM Port	2 x RS-232 (DB-9) 2 x RS-232/422/485 (DB-9, with isolation)
	Digital I/O	16-bit digital I/O, 8-bit input/8-bit output
	Display	1 x DisplayPort, 1 x DVI-I
	Resolution	DisplayPort: Up to 2560 x 1600 DVI-I: Up to 2560 x 1600
	Audio	1 x Line-out, 1 x Mic-in
	Wireless	1 x 802.11a/b/g/n/ac (optional)
Expansions	PCI/PCIe	3A: One PCIe x1 + Two x PCI 3B: Two PCIe x1 + One x PCI 3C: Three x PCI
	PCIe Mini	1 x Full-size (PCIe/ USB 2.0)
Power	Power Input	DC Jack: 9 V ~ 36 V DC Terminal Block: 9 V ~ 36 V DC
	Power Consumption	19 V@1.8 A (Intel® Celeron® J1900 with 2 GB DDR3 memory)
Reliability	Mounting	Wall mount
	Operating Temperature	-20°C ~ 60°C with air flow (SSD), 5% ~ 95%, non-condensing
	Storage Temperature	-40°C ~ 85°C with air flow (SSD), 5% ~ 90%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 3 shocks per axis
	Operating Vibration	MIL-STD-810F 514.5C-2 (with SSD)
	Weight (Net/Gross)	2.8 kg/4.3 kg
	Safety/EMC	CE/FCC
OS	Supported OS	Microsoft® Windows® 8 Embedded, Microsoft® Windows® Embedded Standard 7 E

Fully Integrated I/O



Dimensions (Unit: mm)



Ordering Information

Part No.	Description
TANK-801-BTi-J1/2G/3A-R12	Fanless embedded system with two PCI and one PCIe x1 expansion, Intel® Bay-Trail J1900 2 GHz, TDP 10W, 2GB DDR3L pre-installed memory, 1 x DVI-I, 1 x DisplayPort, iRIS-2400 optional, 9 V ~ 36 V DC, RoHs
TANK-801-BTi-J1/2G/3B-R12	Fanless embedded system with one PCI and two PCIe x1 expansions, Intel® Bay-Trail J1900 2 GHz, TDP 10W, 2GB DDR3L pre-installed memory, 1 x DVI-I, 1 x DisplayPort, iRIS-2400 optional, 9 V ~ 36 V DC, RoHs
TANK-801-BTi-J1/2G/3C-R12	Fanless embedded system with three PCI expansion, Intel® Bay-Trail J1900 2 GHz, TDP 10W, 2 GB DDR3L pre-installed memory, 1 x DVI-I, 1 x DisplayPort, iRIS-2400 optional, 9 V ~ 36 V DC, RoHs

Options

Part No.	Description
iRIS-2400-R10	IPMI 2.0 adapter card with AST2400 BMC chip for DDR3 SO-DIMM socket interface
19FFD124010HBNBG-000002-RS	Fan Module;FAN;+12V DC;4PIN;31100-000377-RS;STANDARD;FD124010HB-NBG(2W7G);CABLE L:250mm;MOLEX 5051-04P P=2.54;CCL;RoHS
EMB-WIFI-KIT01-R20	1T1R wifi module kit for embedded system, IEEE802.11a/b/g/n/ac WiFi with Bluetooth 4.0/3.0+HS, 1 x wifi module, 2 x 250mm RF cable, 2 x Antenna, RoHS
TPM-IN01-R20	20-pin INFINEON TPM Module, S/W managementTool, Firmware V4.4
TANK-801-BT-WES7E-R10	OS Image with Windows® Embedded Standard 7 E for TANK-801 Series, CD-ROM, RoHS

Packing List

1 x Power Adapter (With PSE & ErP Certified)	1 x Chassis Screw
1 x Power Cord	1 x Mounting Bracket

TANK-620-ULT3

- *Intel Skylake ULT CPU*
- *Fanless Embedded Computer*

New

Features

- Intel® Celeron® 3855U (1.6GHz, TDP=15W)
- Triple display (via two VGA ports and optional module)
- Multiple COM ports (up to 14) with TX/RX signal LED indicator for data transmission indication
- Multiple USB & LAN
- 24-bit DIO control
- M.2 M-key slot and dual full-size PCIe Mini slot for expansion
- Easy accessible storage



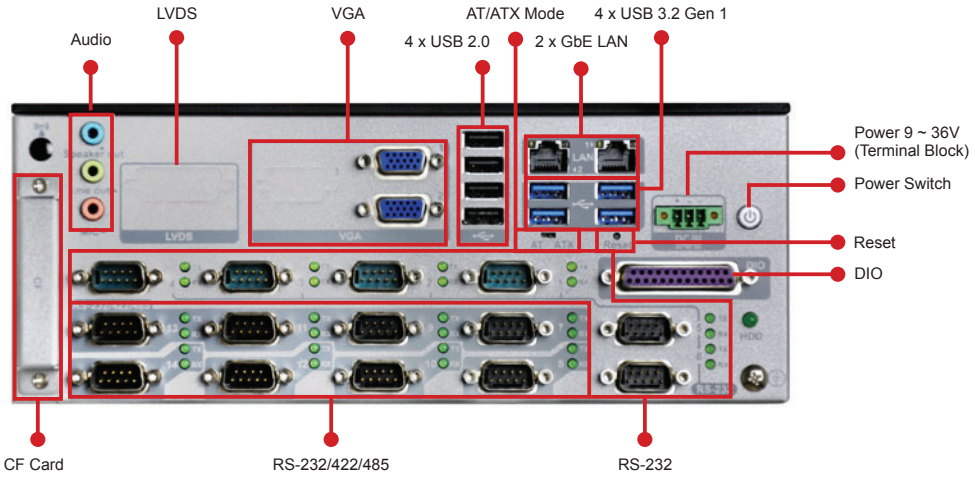


Specifications

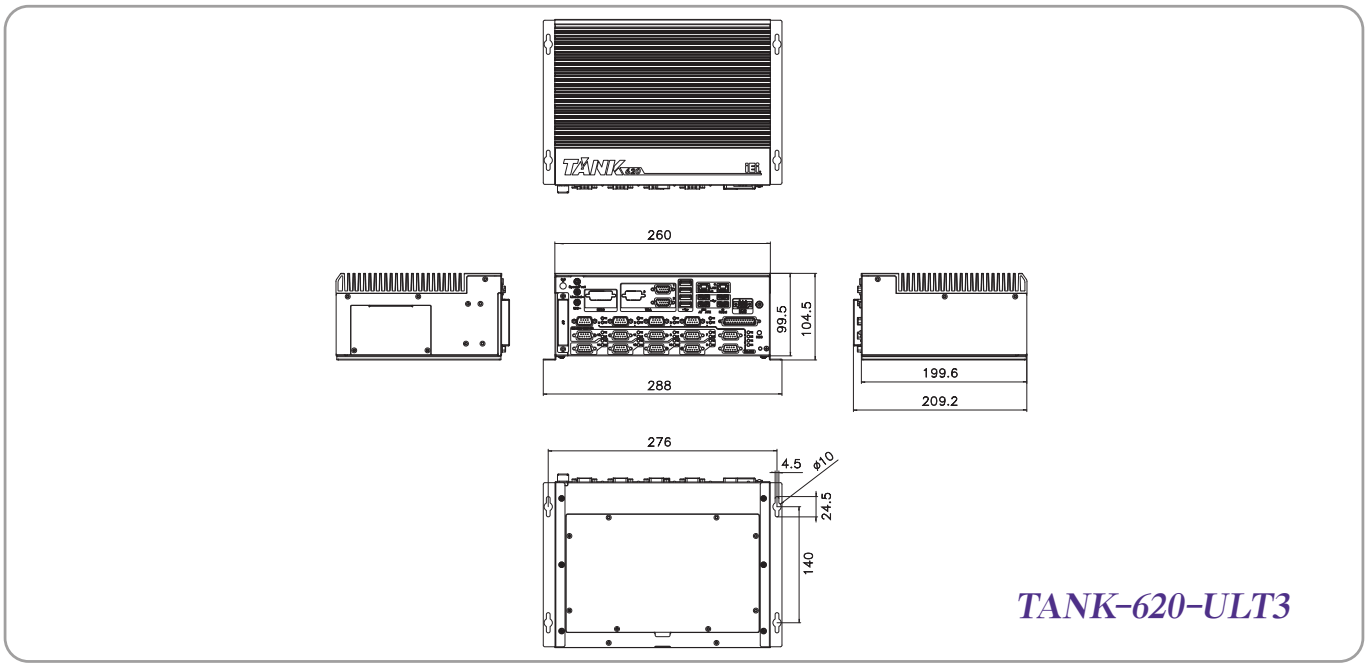
Model Name		TANK-620-ULT3
Chassis	Color	Black C + Silver
	Dimensions (WxDxH)(mm)	260 x 200 x100
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloys
Motherboard	CPU	Intel® Celeron® 3855U (1.6GHz, TDP=15W)
	Chipset	SoC
	System Memory	1 x 260-pin DDR4 SO-DIMM 1 x on-board DDR4 4GB pre-installed (system max: 32GB)
Storage	Hard Drive	2 x 2.5" SATA 6Gb/s HDD/SSD Bay
	CF	1 x CF card (optional*)
	NVRAM	1 Mb FRAM
I/O Interfaces	USB 3.2 Gen 1 (5Gb/s)	4
	USB 2.0	4
	Ethernet	2 x RJ-45 PCIe GbE by Intel® I211-AT controller
	RS-232/422/485	6 x RS-232 (DB-9) 8 x RS-232/422/485 ports with automatic flow control (DB-9)
	Digital I/O	1 x 24-bit digital I/O (12-bit input/12-bit output)
	Display	2 x VGA and (LVDS/VGA module optional)
	Resolution	VGA: Up to 1920 x 1200 @60Hz LVDS: Up to 1920 x 1200 @60Hz (optional)
	Audio	1 x Mic in, 1 x Speaker out, 1 x Line out
	Wireless	1 x 802.11a/b/g/n/ac (optional)
	LED	Power LED, HDD LED, COM ports
	Others	1 x Power Button, 1 x System Reset, 1 x AT/ATX Switch
Expansions	PCIe Mini	2 x Full-size (PCIe/ USB 2.0)
	M.2	1 x 2280 M key (PCIe x 4/ SATA co-lay SATA2)
Power	Power Input	9 ~ 36 V DC +/- 5%
	Power Consumption	12V@2.73A (Intel® Celeron® 3855U with 8GB memory)
Reliability	Mounting	Wall Mount
	Operating Temperature/Humidity	-30 ~ 70 °C with air flow (SSD), 10% ~ 95%, non-condensing
	Storage Temperature	-40 ~ 80 °C
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis
	Operation Vibration	MIL-STD-810G 514.6C-1 (with SSD)
	Weight (Net/Gross)	4.4 kg/6.5 kg
	Safety / EMC	CE/FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft® Windows 8 Embedded, Microsoft® Windows® Embedded Standard 7 E, Microsoft® Windows® 10

* only support with SATA converter card

Fully Integrated I/O



Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
TANK-620-ULT3-CE/4G-R10	Fanless wide temperature embedded system with Intel® Celeron® 3855U 1.6GHz (dual-core, TDP 15W), on-board 4GB DDR4 memory, 9 V ~ 36V DC, with USB, dual VGA, dual Intel® PCIe GbE, COM, DIO, RoHS

Options

Part No.	Description
034SBM2-00-100-RS	VGA Module for TANK-620 only
034SBM2-01-100-RS	LVDS Module for TANK-620 only
32102-047200-200-RS	WIRE CABLE;POWER CABLE;2;200mm;18AWG;(A)DC JACK 5.5*2.5mm;(B)TERMINAL BLOCK-3P P=3.5;RoHS
63040-010060-210-RS	Adapter Power;FSP;FSP060-DHAN3;9NA0608010;Vin:90 ~ 264VAC;60W;Dim:62.0*110*31.5mm;Plug=7.5mm;Cable=1200mm;Erp(NO LOAD 0.21W);Vout:12VDC;Φ2.5/Φ5.5/lock;CCL;RoHS
32702-000200-100-RS	European power cord
EMB-WIFI-KIT01-R20	1T1R wifi module kit for embedded system, IEEE802.11a/b/g/n/ac WiFi with Bluetooth 4.0/3.0+HS, 1 x wifi module, 2 x 250mm RF cable, 2 x Antenna, RoHS
TANK-620-ULT3-W10E64-E-R10	OS Image with Windows® 10 IoT Enterprise Entry 64-bit for TANK-620-ULT3 Series, with DVD-ROM, RoHS

Packing List

1 x Wall mount bracket	1 x Screw set

TANK-610-BW

Fanlesss Embedded System

Features

- Intel® Celeron® N3160 processor
- Multiple COM ports: six RS-232 and two RS-232/422/485
- VGA and HDMI dual independent display
- mSATA and one 2.5" SATA storage device
- Wide range temperature





Specifications

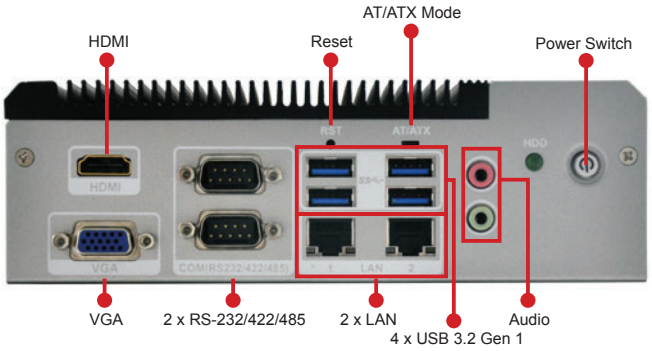
Model Name		TANK-610-BW
Chassis	Color	Black C + Silver
	Dimensions (WxDxH) (mm)	184 x 200.6 x 58.2
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	Intel® Celeron® N3160 processor (up to 2.24GHz, quad-core, 2MB cache, TDP=6W)
	Chipset	SoC
	System Memory	2 x 204-pin DDR3L SO-DIMM, one 2GB pre-installed (system max: 8 GB)
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD Bay
I/O Interfaces	USB 3.2 Gen 1 (5Gb/s)	4
	Ethernet	2 x RJ-45 PCIe GbE by Intel® I210-IT controller
	COM Port	6 x RS-232, 2 x RS-232/422/485
	Display	1 x VGA, 1 x HDMI
	Resolution	VGA: Up to 1920 x 1200@60HZ, HDMI: Up to 3840 x 2160@30Hz
	Audio	1 x Line-out, 1 x Mic-in
	Wireless	1 x 802.11a/b/g/n/ac (optional)
Expansions	PCIe Mini	1 x Full-size (PCIe/ SATA) 1 x Half-size (PCIe/ USB 2.0)
Power	Power Input	DC Jack: 9 V~36 V DC Terminal Block: 9 V~36 V DC
	Power Consumption	12 V@1.49 A (Intel® Celeron® N3160 with 4 GB DDR3L memory)
Reliability	Mounting	Wall mount, VESA 100
	Operating Temperature	-40°C ~ 60°C with air flow (SSD), 10% ~ 95%, non-condensing
	Storage Temperature	-40°C ~ 80°C
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis
	Operating Vibration	MIL-STD-810G 514.6C-1 (with SSD)
	Weight (Net/Gross)	2.2 kg/3 kg
	Safety/EMC	CE/FCC
OS	Supported OS	Microsoft® Windows 8 Embedded, Microsoft® Windows® Embedded Standard 7 E

Various Applications

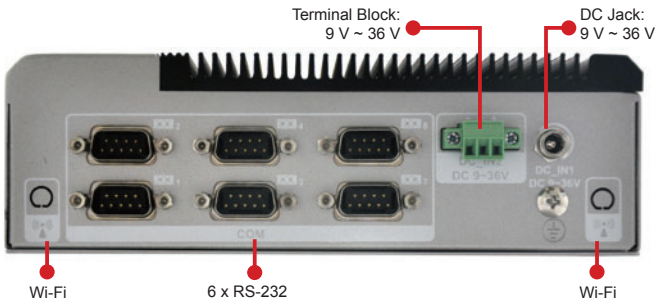


Fully Integrated I/O

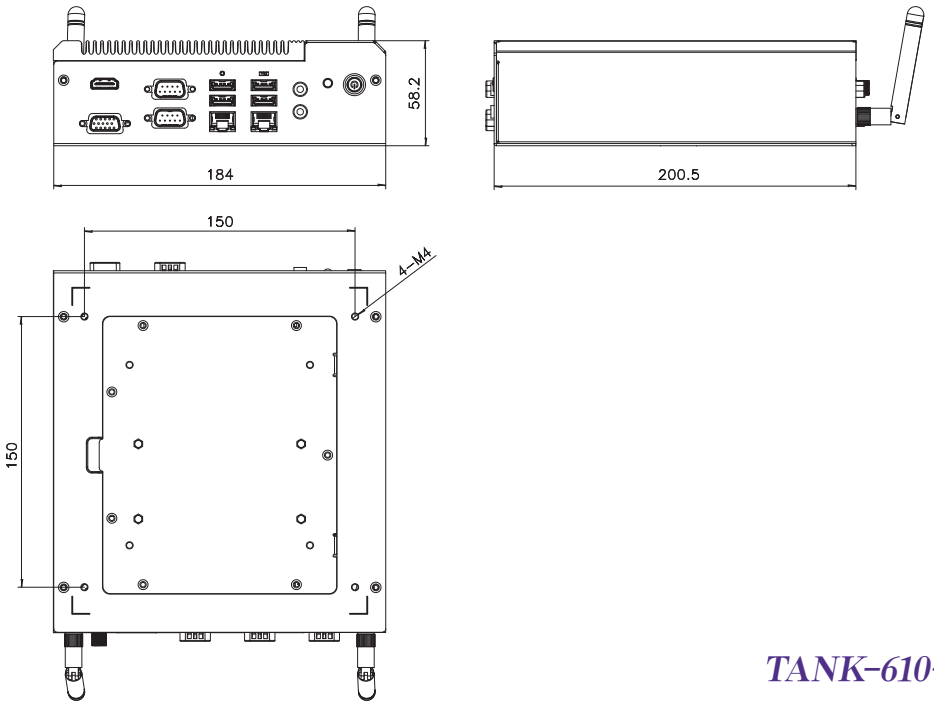
Front View



Rear View



Dimensions *(Unit: mm)*



TANK-610-BW

Ordering Information

Part No.	Description
TANK-610-BW-N3/2G-R10	Fanless wide temperature embedded system with Intel® Celeron® N3160 1.6GHz, (up to 2.24 GHz, quad-core, TDP 6W), 2GB DDR3L pre-installed memory, 9 V ~ 36 V DC, with RS-232/422/485, USB 3.2 Gen 1 (5Gb/s), VGA/HDMI, dual Intel® PCIe GbE, RoHS

Options

Part No.	Description
AFLWK-19	VESA 100 mount kit
EMB-WIFI-KIT11-R20	1T1R wifi module kit for embedded system, IEEE802.11a/b/g/n/ac WiFi with Bluetooth 4.0/3.0+HS, 1 x wifi module, 2 x 350mm RF cable, 2 x Antenna, RoHS
TANK-610-BW-WES7E64-R10	OS Image with Windows® Embedded Standard 7 E 64-bit for TANK-610 BW Series, with DVD-ROM, RoHS, R10
DK-100-R10	VESA 100 to DIN-Rail mounting kit

Packing List

Item	Qty	Description
Power cord	1	1500 mm, European Standard
Power adapter (Meet PSE & ErP)	1	FSP065-REBN2, 90 V ~ 264 V AC input, 65 W, 19 V DC output, ErP
Wall mount bracket	1	Wall mount bracket/holder
Screw set	1	

DIN-Rail Embedded System







	Model Name	DRPC-230-ULT5	DRPC-130-AL	DRPC-120-BT
Chassis	Color	Black and Silver	Black	Black
	Dimensions (WxDxH) (mm)	190 x 150 x 81	58.75 x 130 x 174	74.08 x 140 x 171.5
	System Fan	Fanless	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloys	Extruded aluminum alloys	Extruded aluminum alloys
Motherboard	CPU	Intel® Core™ i5-8365UE Processor (Whiskeylake-U)	Intel® Atom™ x5-E3930 1.3GHz (up to 1.8 GHz, dual core, TDP=6.5W)	Intel® Atom™ E3845 1.91GHz
	Chipset	SoC	SoC	SoC
	System Memory	2 x DDR4 2400Hz SO-DIMM (system max. 32GB)	1 x 204-pin DDR3L SO-DIMM slot (system max. 8 GB) (DRPC-130-AL-E1/4GB SKU is pre-installed with 4 GB memory)	1 x 204-pin DDR3L SO-DIMM, 2 GB pre-installed (system max: 8GB)
IPMI	iRIS Solution	N/A	N/A	1 x iRIS-2400 (optional)
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD bay	1 x 2.5'' SATA 6Gb/s HDD/SSD bay	1 x 2.5" SATA 3Gb/s HDD/SSD bay
	eMMC	N/A	1 x eMMC 5.0 support (up to 32GB, optional)	N/A
I/O Interfaces	USB 3.2 Gen 1	6	4	2
	USB 2.0	1 by pin header	1 by pin header	2
	Ethernet	3 x RJ45 1 x PCIe GbE by Intel® I219 controller 2 x PCIe GbE by Intel® I210 controller	2 x RJ-45 PCIe GbE by Intel® I211 controller	2 x RJ-45 1 x PCIe GbE by Intel® I210 controller 1 x PCIe GbE by Intel® I211 controller
	COM Port	4 x RS-232/422/485 (DB9) 2 x RS232 (RJ45)	4 x RS-232/422/485 (DB-9)	2 x RS-232 (DB-9 w/ 3kV isol ation protection*) 2 x RS-422/485 (DB-9 w/ 3kV isolation protection*)
	Digital I/O	8-bit digital I/O, 4-bit input/ 4-bit output (DB-9)	8-bit digital I/O, 4-bit input/4-bit output (DB-9)	8-bit digital I/O, 4-bit input/4-bit output
	CAN-bus	N/A	1 x DB-9 w/ 2.5kV isolation protection, supporting 2-port CAN-bus	N/A
	Display	1 x Lockable HDMI, 1 x DP	2 x HDMI 1.4b	1 x VGA, 1 x HDMI
	Resolution	1 x HDMI (up to 3840 x 2160@30Hz) 1 x DP (up to 4096 x 2304@60Hz)	Up to 3840 x 2160@30Hz	Up to 1920 x 1200 @ 60Hz
	SIM	1x On-board SIM slot	1 x Internal on-board SIM slot (optional)	N/A
	Audio	N/A	N/A	N/A
	Wireless	1 x 802.11a/b/g/n/ac (optional)	1 x 802.11a/b/g/n/ac (optional)	1 x 802.11a/b/g/n/ac (optional)
	TPM	1 x TPM 2.0 (2 x 10 pin) (optional)	1 x TPM 2.0 (2 x 10 pin) (optional)	N/A
	Other	1 x Power button 1 x LED for HDD (yellow) 1 x Reset button 1 x LED for power (green) 1 x AT/ATX switch	1 x Power button 1 x LED for HDD (yellow) 1 x Reset button 1 x LED for power (green) 1 x AT/ATX switch	N/A
Expansions	PCIe Mini	1 x Full-size (PCIe/USB 2.0/SATA) 1 x Full-size (PCIe x4)	1 x Half-size (PCIe/ USB 2.0) 1 x Full-size (PCIe/ USB 2.0/ SATA)	1 x Half-size (PCIe) 1 x Full-size (PCIe/ USB 2.0/ SATA)
	M.2	1 x 2230 A-Key (PCIe/USB2.0) 1 x 2280 B-key (PCIe x4) (on backplane)	N/A	N/A
Power	Power Input	3-pin terminal block: 12 ~ 24V DC	3-pin terminal block: 12 V ~ 24 V DC	3-pin terminal block: 9 V ~ 30 V DC
	Power Consumption	12V @ 4.98A	12V @ 2.88 A (Intel® Atom™ x5-E3930 CPU with 4GB 1600 MHz DDR3L memory)	12 V@ 2.1 A (Intel® Atom™ E3845 with 2 GB memory)
	Remote PWR	N/A	PSON 2-pin terminal block	N/A
Reliability	Mounting	DIN-Rail	DIN-rail / Wall mounting	DIN-rail
	Operating Temperature	-20°C ~ 60°C with air flow (SSD), 10% ~ 95%, non-condensing	-20°C ~ 60°C with air flow (SSD), 10% ~ 95%, non-condensing	-20ºC ~ 60ºC with air flow (mSATA), 5% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis, IEC68-2-27	Half-sine wave shock 5G, 11ms, 100 shocks per axis, IEC68-2-27	Half-sine wave shock 5G, 11ms, 3 shocks per axis
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)	MIL-STD-810G 514.6C-1 (SSD)	MIL-STD-810F 514.5C-2 (with SSD)
	Weight (Net/Gross)	2.9kg	1.4kg/2.5kg	1.4 kg/2.5 kg
	Safety/EMC	CE/FCC	CE/FCC	CE/FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min	Programmable 1 ~ 255 sec/min	N/A
OS	Supported OS	Microsoft® Windows 10, Linux	Microsoft® Windows 10 / Linux	Microsoft® 8, Microsoft® Windows® Embedded Standard 7 E

DRPC-230-ULT5

■ *Fanless DIN-Rail Embedded System*

■ *Intel® Core™ i5-8365UE 1.6GHz (quad core) Solution*

Preliminary



Features

- Whiskey Lake Core™ i5-8265U
- Triple GbE LAN Ports
- Multiple USB 3.2 Gen 2 (10Gb/s)
- Multiple COM Ports
- Modulized Flexible Expansion



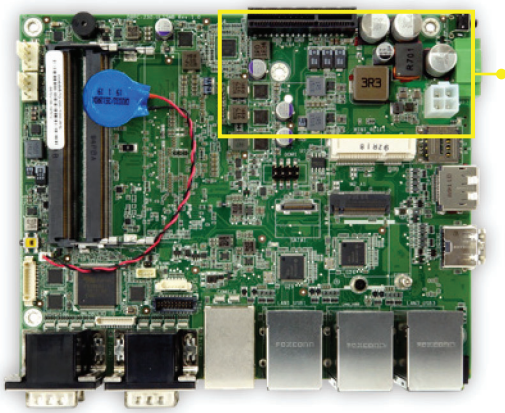
Specifications

Model Name		DRPC-230-ULT5/S	DRPC-230-ULT5
Chassis	Color	Black and Silver	
	Dimensions (WxDxH)	190 x 150 x 81 mm	190 x 150 x 127 mm
	System Fan	Fanless	
	Chassis Construction	Extruded aluminum alloy	
Motherboard	CPU	Intel® Core™ i5-8365UE Processor (Whiskeylake-U)	
	Chipset	SoC	
	System Memory	2 x DDR4 2400MHz SO-DIMM	
Storage	SATA	1 x 2.5" SATA 6Gb/s HDD/SSD bay	
I/O Interfaces	USB 3.2 Gen 2	6	
	USB 2.0	1 by pin header (for QTS gateway)	
	Ethernet	2 x Intel® I210 GbE LAN (colay Intel® I211) 1 x Intel® I219 GbE LAN	
	COM Port	4 x RS-232/422/485 with AFC (DB9) 2 x RS-232 (RJ-45)	
	Digital I/O	8-bit by pin header	
	Display	1 x Lockable HDMI, 1 x DP	
	TPM 2.0	Pin header	
	Others	1 x Power button 1 x Reset button 1 x AT/ATX switch	1 x LED for power (green) 1 x LED for HDD (yellow)
Expansions	PCIe Mini	1 x Full-size (PCIe/USB 3.0/SATA) 1 x Full-size (USB 2.0) (on backplane)	
	M.2	1 x 2230 A-Key (PCIe/USB 2.0) 1 x 2280 M-Key (PCIe x4)(on backplane)	
	SIM	1x On-board SIM slot	
Power	Power Input	3-pin terminal block: 12~24V DC *Reserved internal power (60W)	
	Power Consumption	12V @ 4.98A	
Reliability	Mounting	DIN-Rail	
	Operating Temperature	-20 ~ 60°C	
	Storage Temperature	-40 ~ 85°C	
	Humidity	10 ~ 95% non condensing	
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis, IEC68-2-27	
	Operation Vibration	MIL-STD-810G 514.6C-1 (SSD)	
	Weight (Net/ Gross)	2.9kg	3.2 kg/ 3.5kg
	Safety / EMC	CE, FCC	
	Watchdog timer	Programmable 1~255 sec/min	
OS	Supported OS	Microsoft® Windows 10, Linux	

Expandable Layer

DRPC-230 is designed to achieve AI inference and PoE applications through its expansion feature. The system is compatible with IEI's own accelerator cards (Mustang-V100-MX8, Mustang-V100-MX4) and PoE cards (GPOE-4P, GPOE-2P).

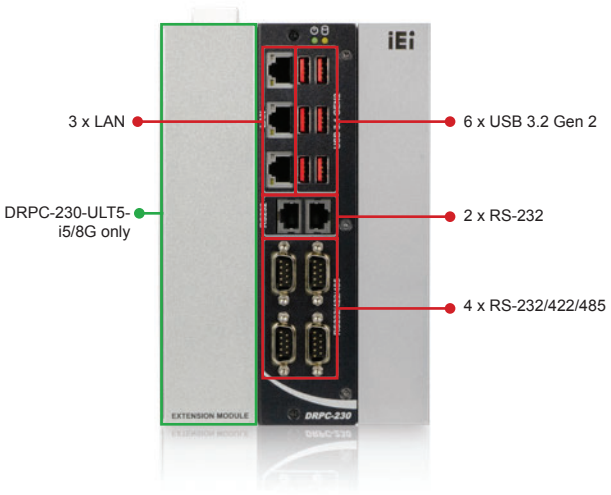
For PoE cards, DRPC-230 has reserved a 60W internal power to provide. DRPC-230 is also possible to expand I/O through the second layer; its modularized flexibility could best fit users' preferences.



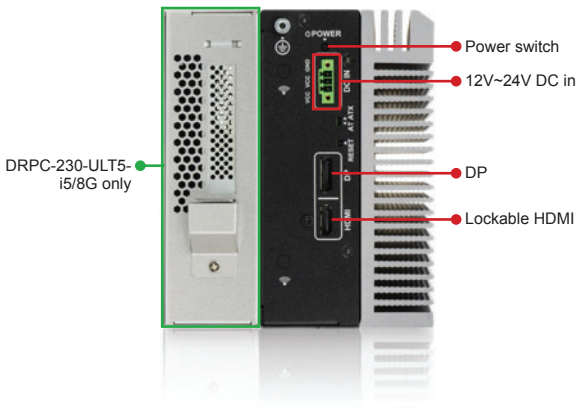


Fully Integrated I/O

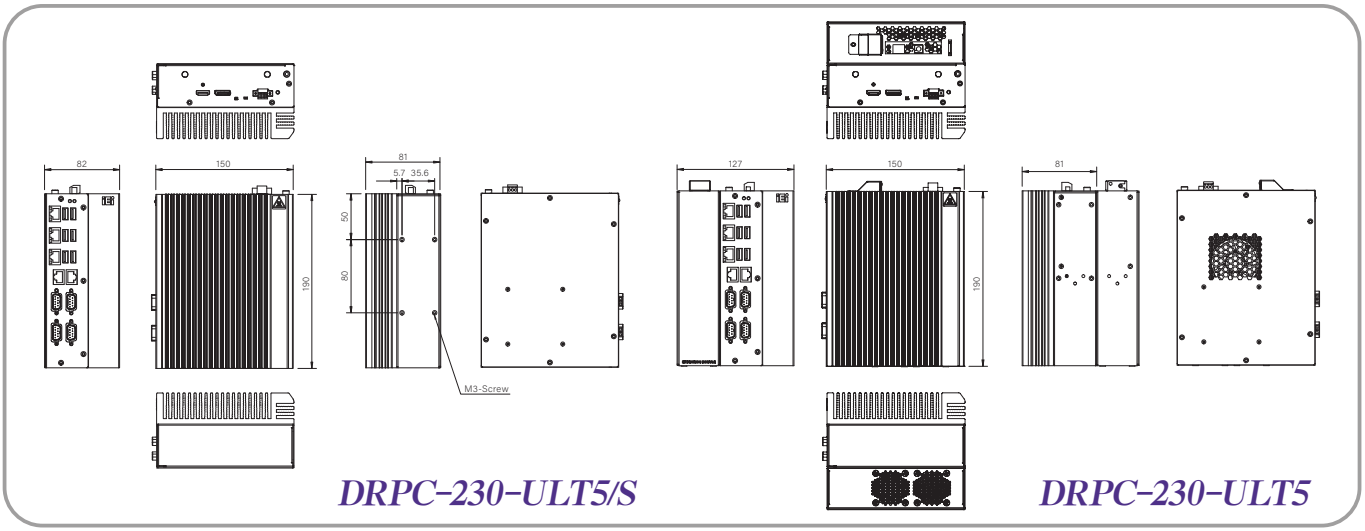
Front View



Top View



Dimensions (Unit: mm)



Ordering Information

Part No.	Description
DRPC-230-ULT5-i5/8G/S-R10	Fanless embedded system, Intel® Whiskey Lake i5-8365UE 1.6GHz (quad core, TDP 15W), 8GB DDR4 pre-installed memory, HDMI/DP, 3 PCIe GbE, 6 COM, 12~24V DC and RoHS
DRPC-230-ULT5-i5/8G-R10	Fanless embedded system, Intel® Whiskey Lake i5-8365UE 1.6GHz (quad core, TDP 15W), 8GB DDR4 pre-installed memory, HDMI/DP, 3 PCIe GbE, 6 COM, 12~24V DC, PCIe x4 expansion layer and RoHS

Options

Item	Part No.	Description
Adapter*	63040-010096-230-RS	Adapter Power;FSP;FSP096-AHAN3;9NA0961412 ;Active PFC;Vin:90~264VAC;96W;Dim:75.6*151.3*25.4mm;Plug=7.5mm;Cable=1500mm;Erp(NO LOAD 0.15W);Vout:12VDC;Φ2.5/Φ5.5/lock;CCL;RoHS
Power cable*	32102-026500-100-RS	WIRE CABLE;POWER CABLE;;2;200MM;18AWG;(A)DC JACK 5.5X2.5, NUT+WASHER ;(B)TERMINAL BLOCK:3P P=3.5;;;;;;;;;;;;;SHANGHAI YING YU;RoHS
Wireless kit	EMB-WIFI-KIT01-R11	1T1R Wi-Fi module kit for embedded system, IEEE802.11a/b/g/n/ac Wi-Fi with Bluetooth 4.0/3.0+HS, 1 x Wi-Fi module, 2 x 250mm RF cable, 2 x Antenna, RoHS
TPM module	TPM-IN02-R20	20-pin Infineon TPM 2.0 module, software mangement tool, firmware v5.5
Accelerator cards**	Mustang-V100-MX8	Computing Accelerator Card with 8 x Movidius Myriad X MA2485 VPU, PCIe gen2 x4 interface, RoHS
	Mustang-V100-MX4	Computing Accelerator Card with 4 x Intel® Movidius™ Myriad™ X MA2485 VPU, PCIe Gen2 x2 interface, RoHS
PoE cards**	GPOE-4P-R20	PCI Express Power over Ethernet card, 4-port 1000 Base(T), 802.3at/af compliant, low profile, RoHS
	GPOE-2P-R20	PCI Express Power over Ethernet card, 2-port 1000 Base(T), 802.3at compliant, low profile, RoHS

* It is required to order Power Cable together with Adapter for power usage
** Only applicable for DRPC-230-ULT5-i5/4G-R10

Packing List

1x Din-rail mounting kit	1 x Screw kit	1 x SATA cable

DRPC-130-AL

■ *Fanless DIN-Rail Embedded System*

■ *Intel® Atom™ x5-E3930 1.3GHz (up to 1.8 GHz) Solution*

New



Features

- Intel® Atom™ x5-E3930 1.3GHz (up to 1.8 GHz)
- DDR3L 1.35V SO-DIMM supported
- Serial, CAN bus and digital I/O interface

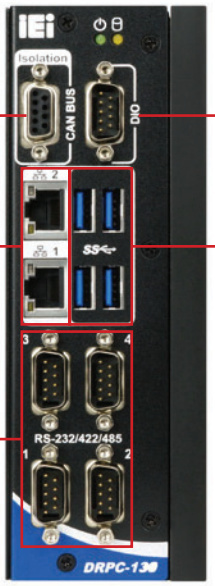


Specifications

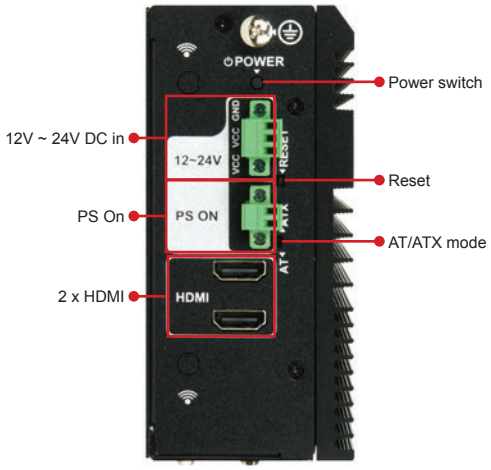
Model Name		DRPC-130-AL
Chassis	Color	Black
	Dimensions (WxDxH)	58.75 x 130 x 174
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	Intel® Atom™ x5-E3930 1.3GHz (up to 1.8 GHz, dual core, TDP=6.5W)
	Chipset	SoC
	System Memory	1 x 204-pin DDR3L SO-DIMM slot (system max. 8 GB) (DRPC-130-AL-E1/4GB SKU is pre-installed with 4 GB memory)
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD bay
	eMMC	1 x eMMC 5.0 support (up to 32GB, optional)
I/O Interfaces	USB 3.2 Gen 1 (5Gb/s)	4
	USB 2.0	1 by pin header
	Ethernet	2 x RJ-45 PCIe GbE by Intel® I211 controller
	COM Port	4 x RS-232/422/485 (DB-9)
	Digital I/O	8-bit digital I/O, 4-bit input/4-bit output (DB-9)
	CAN Bus	1 x DB-9 w/ 2.5kV isolation protection, supporting 2-port CAN-bus
	Display	2 x HDMI 1.4b
	Resolution	Up to 3840 x 2160@30Hz
	SIM	1 x Internal on-board SIM slot (optional)
	Wireless	1 x 802.11a/b/g/n/ac (optional)
	TPM	1 x TPM 2.0 (2x10 pin) (optional)
	Others	1 x Power button 1 x Reset button 1 x AT/ATX switch 1 x LED for HDD (yellow) 1 x LED for power (green)
Expansions	PCIe Mini	1 x Half-size (PCIe/ USB 2.0) 1 x Full-size (PCIe/ USB 2.0/ SATA)
Power	Power Input	3-pin terminal block: 12 V ~ 24 V DC
	Remote Power	PSON 2-pin terminal block
	Power Consumption	12V @ 2.88 A (Intel® Atom™ x5-E3930 CPU with 4GB 1600 MHz DDR3L memory)
Reliability	Mounting	DIN-rail / Wall mounting
	Operating Temperature	-20°C ~ 60°C with air flow (SSD), 10% ~ 95%, non-condensing
	Storage Temperature	-40°C ~ 85°C with air flow (SSD), 10% ~ 90%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis, IEC68-2-27
	Operation Vibration	MIL-STD-810G 514.6C-1 (SSD)
	Weight (Net/Gross)	1.4Kg/2.5Kg
	Safety / EMC	CE/FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft® Windows 10 / Linux

Fully Integrated I/O

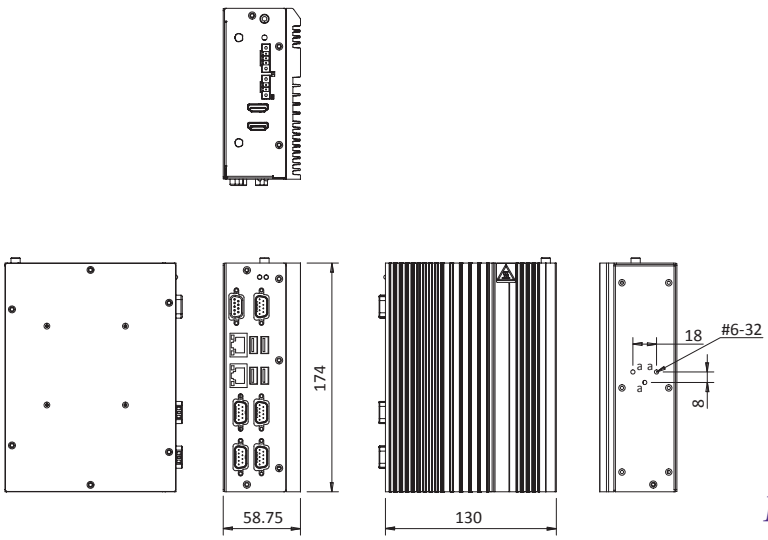
Front View



Top View



Dimensions (Unit: mm)



DRPC-130-AL

Ordering Information

Part No.	Description
DRPC-130-AL-E1-R11	Fanless embedded system, Intel® Apollo Lake x5-E3930 1.3GHz (up to 1.8GHz, dual core), two HDMI, 8 CH DIO, CAN-Bus, COM, 12 ~ 24V DC and RoHS
DRPC-130-AL-E1/4GB-R11	Fanless embedded system, Intel® Apollo Lake x5-E3930 1.3GHz (up to 1.8GHz, dual core), 4GB DDR3L pre-installed memory, two HDMI, 8 CH DIO, 12V ~ 24V DC and RoHS

Options

Item	Part No.	Description
Adapter*	63040-010036-210-RS	Adapter Power;FSP;FSP036-RHBN3;9NA0362707;;Vin:90 ~ 264VAC;36W;Dim:37.8*89.8*27.0mm;Plug=7.5mm;Cable=1500mm;Erp(NO LOAD 0.075W);Vout:12VDC;Φ2.5/Φ5.5/lock;CCL;RoHS
Power Cable*	32102-026500-100-RS	Power cable 200mm, (A) DC jack to (B) 3-pin terminal block P=3.5
Power Cord	32702-000400-200-RS	POWER CORD;EUROPEAN CODE(VDE);2;1800MM;(A)PLUG:SH-025(16A/250V);(B)CONNECTOR:C5(SM112,2.5A/250V);Self-Man;CCL;RoHS
Wireless Kit	EMB-WIFI-KIT01-R20	1T1R Wi-Fi module kit for embedded system, IEEE802.11a/b/g/n/ac Wi-Fi with Bluetooth 4.0/3.0+HS, 1 x Wi-Fi module, 2 x 250mm RF cable, 2 x Antenna, RoHS
TPM Module	TPM-IN02-R20	20-pin Infineon TPM2.0 module, software mangement tool, firmware v5.5
DIN-Rail Mounting Kit	DK-DRPC-R10	Rugged DIN-rail mounting kit for DPRC series only
OS:Windows Embedded 10	DRPC-130-W10E64-E-R10	OS Image with Windows® 10 IoT Enterprise Entry 64-bit for DRPC-130-AL Series, with DVD-ROM, RoHS

*It is required to order Power Cable together with Adapter for power usage.

Packing List

1x Din-rail mounting kit	1 x Screw kit

DRPC-120-BT

- *Fanless DIN-Rail Embedded System*
- *Intel® E3845 1.91GHz Solution*



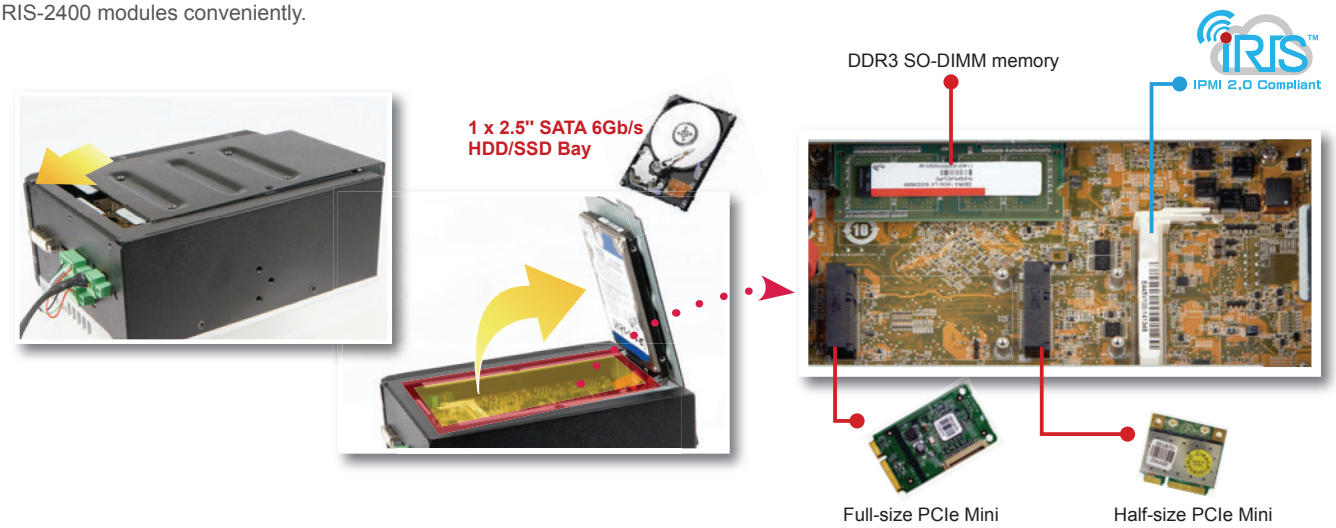
Features

- Intel® Atom™ E3845 1.91GHz
- 1 x 2.5" SATA HDD/SSD drive bay
- DDR3L 1.35V SO-DIMM support
- Programmable OLED display
- 8-bit digital I/O (4-bit inputs/outputs)
- IEI iRIS-2400 solution



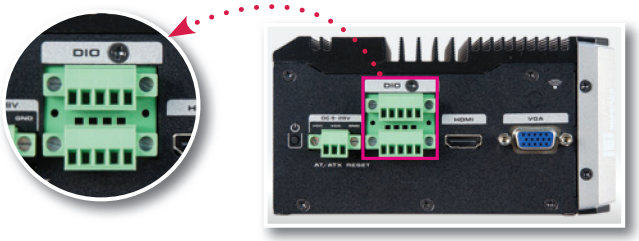
User Friendly Installation

The DRPC-120 is designed with an easy removable back cover for users to install SATA HDD, PCIe Mini cards, DDR3 memory modules or iRIS-2400 modules conveniently.



8-Channel Digital I/O

The DRPC-120 is outfitted with 8-channel (4-bit input and 4-bit output) digital I/O to provide digital input and output signals for control of industrial devices.



Fanless

The DRPC-120 series provides the best components for generating less heat, while maintaining high system performance. With the fanless design, the DRPC-120 reduces system failure caused by fans and extends the lifetime of the device.



iRIS Solution

IPMI 2.0 Compliant

By installing the IEI iRIS-2400 module, the DRPC-120 is capable to complete your IoT application through the advanced remote control features, such as power management and control, remote KVM for device status monitoring, sending active alerts and warning messages by e-mail or SMS.

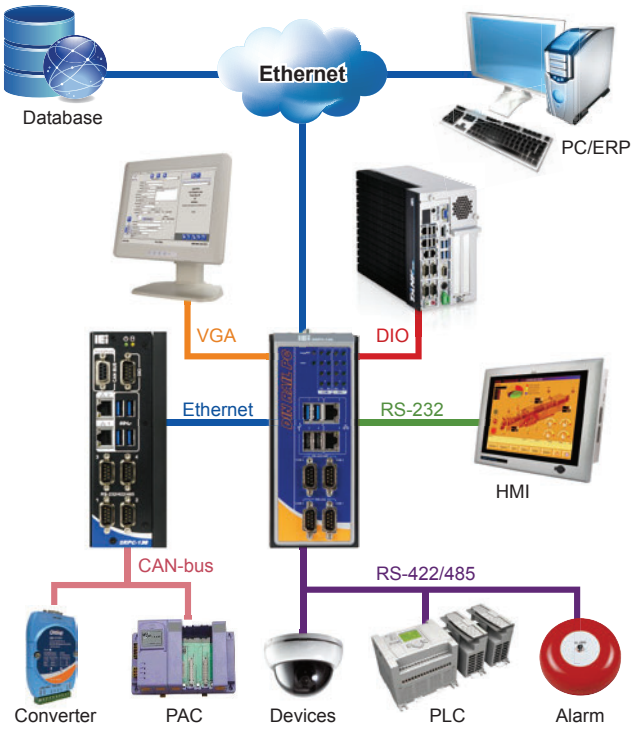
DIN Rail Standard

A DIN rail is a metal rail of a standard type widely used for mounting circuit breakers and industrial control equipment inside equipment racks. These products are typically made from cold rolled carbon steel sheet with a zinc-plated and chromated bright surface finish. The term derives from the original specifications having been published by Deutsches Institut für Normung (DIN) in Germany, which have since been adopted as European (EN) and international (ISO) standards.



Communication Gateway

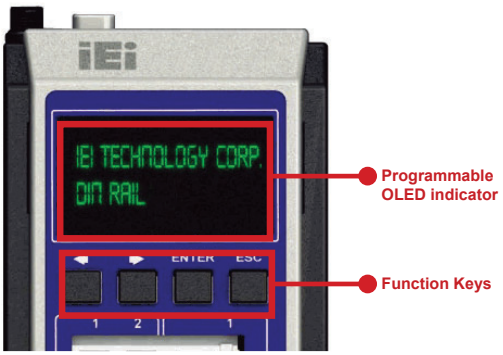
For high surge ESD automation environments, the DRPC series provides isolated digital IO, CAN-bus and serial communication ports.



OLED Indicator Function

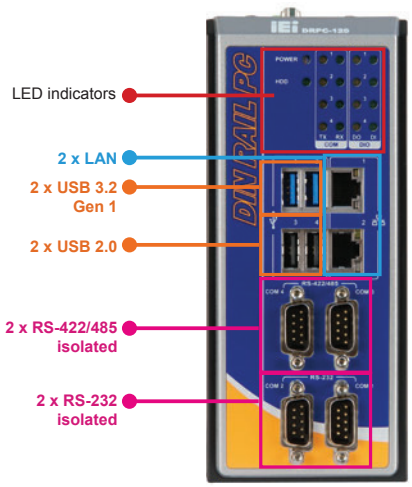
- **Programmable OLED Display**
  Users can program their own APIs to show any information by the OLED display.
- **Programmable Function Keys**
  Users can program the four keys to control OLED display.
- **Terminal Screen & Status Display**
  It supports both text format and graphic format.
- **Protocol & Demo Source Code Open**
  IEI provides the protocol & demo source code for users to program their own usage.

DRPC-120 OLED indicator

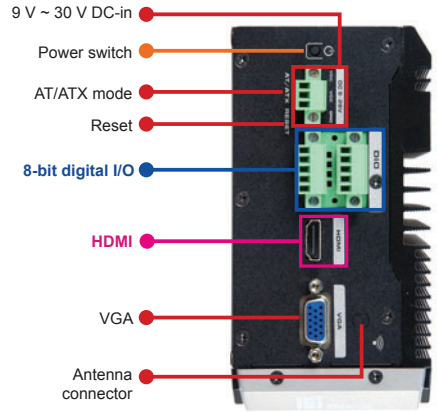


Fully Integrated I/O

Front View



Top Side View

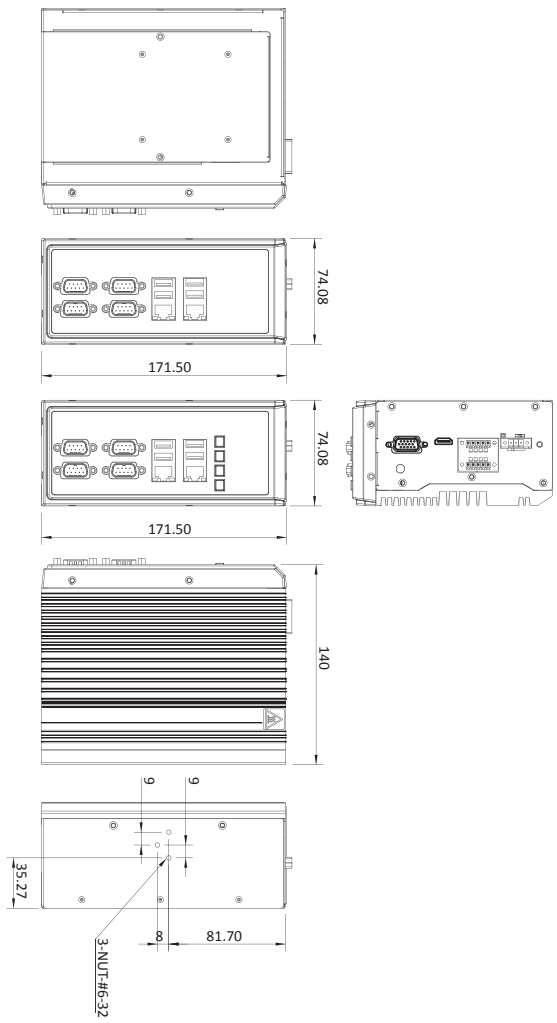


Specifications

Model Name		DRPC-120-BT
Chassis	Color	Black
	Dimensions (WxDxH) (mm)	74.08 x 140 x 171.5
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloys
Motherboard	CPU	Intel® Atom™ E3845 1.91 GHz
	Chipset	SoC
	System Memory	1 x 204-pin DDR3L SO-DIMM 2 GB pre-installed (system max: 8GB)
IPMI	iRIS Solution	1 x iRIS-2400 (optional)
Storage	Hard Drive	1 x 2.5" SATA 3Gb/s HDD/SSD bay
	CF card	N/A
I/O Interfaces	USB 3.2 Gen 1 (5Gb/s)	2
	USB 2.0	2
	Ethernet	2 x RJ-45 1 x PCIe GbE by Intel® I210 controller 1 x PCIe GbE by Intel® I211 controller
	COM Port	2 x RS-232 (DB-9 w/3kV isolation protection*) 2 x RS-422/485 (DB-9 w/3kV isolation protection*)
	Digital I/O	8-bit digital I/O, 4-bit input/4-bit output
	Display	1 x VGA, 1 x HDMI
	Resolution	Up to 1920 x 1200 @ 60Hz
	Wireless	1 x 802.11a/b/g/n/ac (optional)
	Other	1 x Power button 1 x Reset button 1 x AT/ATX switch
Expansions	PCIe Mini	1 x Half-size (PCIe) 1 x Full-size (PCIe/ USB 2.0/ SATA)
Power	Power Input	3-pin terminal block: 9 V ~ 28 V DC
	Power Consumption	12 V@ 2.1 A (Intel® Atom™ E3845 with 2 GB memory)
Reliability	Mounting	DIN-rail
	Operating Temperature	-20ºC ~ 60ºC with air flow (mSATA), 5% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 3 shocks per axis
	Operating Vibration	MIL-STD-810F 514.5C-2 (with SSD)
	Weight (Net/Gross)	1.4 kg/2.5 kg
	Safety/EMC	CE/FCC
OS	Supported OS	Microsoft® 8, Microsoft® Windows® Embedded Standard 7 E

* COM port isolation: 3 kV for 1 sec, 2.5 kV for 1 minute

Dimensions (Unit: mm)



DRPC-120-BT

Options

Item	Part No.	Description
OS: Windows Embedded 7	DRPC-120-WES7E-R10 (CD-ROM)	OS Image with Windows® Embedded Standard 7 E for DRPC-120 Series, CD-ROM, RoHS
Wireless kit	EMB-WIFI-KIT01-R20	1T1R wifi module kit for embedded system, IEEE802.11a/b/g/n/ac WiFi with Bluetooth 4.0/3.0+HS, 1 x wifi module, 2 x 250mm RF cable, 2 x Antenna, RoHS
Adapter	63040-010036-210-RS	Adapter Power;FSP;FSP036-RHBN3;9NA0362707;;Vin:90 ~ 264VAC;36W;Dim:37.8*89.8*27.0mm;Plug=7.5mm;Cable=1500mm;Erp(NO LOAD 0.075W);Vout:12VDC;Φ2.5/Φ5.5/lock;CCL;RoHS
Power cable	32102-026500-100-RS	Power cable 200mm, (A) DC jack to (B) 3-pin terminal block P=3.5
Power cord	32702-000400-200-RS	European power cord
DIN-Rail mounting kit	DK-DRPC-R10	Rugged DIN-Rail mounting kit only for DRPC series

Ordering Information

Part No.	Description
DRPC-120-BTi-E5-OLED/2G-R10	Fanless embedded system, Intel® Bay-Trail E3845 1.91 GHz, TDP 10W, 2GB DDR3L pre-installed memory, one VGA, one HDMI, 8 CH DIO, iRIS-2400 optional, 9 V ~ 28 V DC, OLED indicators, R10, RoHs
DRPC-120-BTi-E5-LED/2G-R10	Fanless embedded system, Intel® Bay-Trail E3845 1.91 GHz, TDP 10W, 2GB DDR3L pre-installed memory, one VGA, one HDMI, 8 CH DIO, iRIS-2400 optional, 9 V ~ 28 V DC, LED indicators, R10, RoHs

Packing List

1 x Screw kit	1 x Mounting bracket
1 x SATA cable & SATA power cable	

Compact Size Embedded System

Fanless



New



New



	Model Name	ITG-100AI	ITG-100-AL	uIBX-250-BW
Chassis	Color	Blue & Silver	Blue & Silver	Black
	Dimensions (WxDxH) (mm)	137 x 102.8 x 49.4	ITG-100-AL-E1/S: 137 x 102.8 x 36.2 ITG-100-AL-E1: 137 x 102.8 x 56.2	136.6 x 102.4 x 52
	System Fan	Fanless	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloy	Extruded aluminum alloy	Extruded aluminum alloy
Motherboard	CPU	Intel® Atom™ x5-E3930 1.3GHz (up to 1.8GHz, dual-core, TDP=6.5W)	Intel® Atom™ x5-E3930 1.3GHz (up to 1.8GHz, dual-core, TDP=6.5W)	Intel® Celeron® N3160 (up to 2.24GHz, quad-core, 2 MB cache, TDP=6W)
	Chipset	SoC	SoC	SoC
	System Memory	1x 204-pin DDR3L SO-DIMM slot pre-installed with 8 GB memory	1 x 204-pin DDR3L SO-DIMM, 2 GB pre-installed (system max: 8GB)	1 x 204-pin DDR3L SO-DIMM, 2 GB pre-installed (system max: 8GB)
Storage	Hard Drive	Pre-installed 128GB SATADOM	1 x 2.5'' SATA 6Gb/s HDD/SSD bay (for ITG-100-AL-E1 SKU only)	1 x 2.5" SATA 6Gb/s HDD/SSD bay
	CF Card/CFast	N/A	N/A	N/A
I/O Interfaces	USB 3.2 Gen 1	2	2	4
	USB 2.0	N/A	2 by pin-header (optional)	N/A
	Ethernet	2 x RJ-45 PCIe GbE by Intel® I211-AT controller	2 x RJ-45 PCIe GbE by Intel® I211-AT controller	2 x RJ-45 PCIe GbE by Intel® I211 controller
	COM Port	2 x RS-232/422/485 (DB-9/RJ-45)	2 x RS-232/422/485 (DB-9/RJ-45) 2 x RS-232 by pin-header (optional)	2 x RS-232/422/485 (RJ-45)
	Button	1 x Power button 1 x AT/ATX switch 1 x Reset button	1 x Power button 1 x AT/ATX switch 1 x Reset button	1 x Power button 1 x AT/ATX switch 1 x Reset button
	Display	1 x VGA	1 x VGA	1 x HDMI, 1 x VGA
	Resolution	Up to 1920x1080@60Hz	Up to 1920x1080@60Hz	HDMI: 3840 x 2160@30MHz VGA: 1920 x1200@60Hz
	Audio	N/A	N/A	1 x Line-out, 1 x Mic-in
	Wireless	1 x 802.11a/b/g/n/ac (optional)	1 x 802.11a/b/g/n/ac (optional)	1x 802.11a/b/g/n/ac (optional)
Expansions	PCIe Mini	Pre-installed Mustang-MPCIE-MX2 AI accelerator card	1 x Full-size (PCIe/ USB 2.0/ SATA)	1 x Full-size (PCIe/ USB 2.0/ SATA)
	M.2	1 x 2230 A key (PCIe x1/ USB 2.0)	1 x 2230 A key (PCIe x1/USB 2.0)	N/A
Power	Power Input	2-pin terminal block: 9 ~ 36V DC-in	2-pin terminal block: 12 V DC	DC jack: 12 V DC
	Power Consumption	12V @ 1.2A (Intel® Atom™ E3930 with 8GB memory)	12V @ 1A (Intel® Atom™ E3930 with 2GB memory)	12V @ 2A (Intel® Celeron® N3160 with 2 GB memory)
Reliability	Mounting	DIN-rail	DIN-rail / Wall mount	Wall mount, VESA 75
	Operating Temperature	-20°C ~ 50°C with air flow, 10% ~ 95%, non-condensing	-20°C ~ 60°C with air flow (SSD), 10% ~ 95%, non-condensing	-20°C ~ 60°C with air flow (SSD), 10% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis, IEC68-2-27	Half-sine wave shock 5G, 11ms, 100 shocks per axis, IEC68-2-27	Half-sine wave shock 5G, 11ms, 3 shocks per axis
	Operating Vibration	MIL-STD-810G 514.6C-1	MIL-STD-810G 514.6C-1 (SSD)	MIL-STD-810F 514.5 C-1(HDD), MIL-STD-810F 514.5 C-2(SSD)
	Weight (Net/Gross)	895 g/1.7 kg	ITG-100-AL-E1/S: 0.67 kg/1.03 kg ITG-100-AL-E1: 0.86 kg/1.22 kg	470 g/1.4 kg
	Safety/EMC	CE/FCC	CE/FCC	CE/FCC
OS	Supported OS	Microsoft® Windows 10 / Linux, Ubuntu 16.04 LTS	Microsoft® Windows 10 / Linux	Microsoft® Windows 8, Microsoft® Embedded Standard 7 E

ITG-100AI

- *Ultra Compact Size*
- *Fanless DIN-Rail Embedded System*
- *Intel Vision Accelerator Design for AI Deep Learning*

New



Features

- Intel® Atom™ x5-E3930 1.3GHz (up to 1.8 GHz)
- Two GbE LAN ports
- Two RS-232/422/485
- M.2 A-key slot for expansion
- Pre-installed a Mustang-MPCIE-MX2 that has two Intel Myriad X VPUs for AI deep learning workload consolidation



Application

The ITG-100AI is pre-installed with a Mustang-MPCIE-MX2 AI accelerator card, which includes two Intel® Movidius™ Myriad™ X VPU, to provide a flexible AI inference solution.

VPU is short for vision processing unit. It can run AI faster, and is well suited for low power consumption applications such as surveillance, retail and transportation. With the advantage of power efficiency and high performance to dedicate Deep Neural Networks (DNN) topologies, it is perfect to be implemented in AI edge computing device to reduce total power usage, providing longer duty time for the rechargeable edge computing equipment.



Surveillance



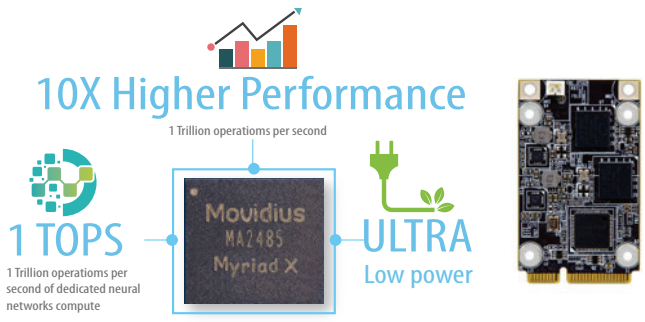
Retail



Transportation

Key Features of Intel® Movidius™ Myriad™ X VPU

- Native FP16 support
- Rapidly port and deploy neural networks in Caffe and Tensorflow formats
- End-to-End acceleration for many common deep neural networks
- Industry-leading Inferences/S/Watt performance



Ultra-compact Size

Space limitation is one of the constraints commonly seen in today's industrial environment. Under tight restrictions, the ITG-100AI-AL not only provides palm-sized design to meet the space requirement, but also comes with adequate basic I/O interfaces for various applications.



Specifications

Model Name		ITG-100AI
AI Accelerator Card	Model Name	Mustang-MPCIE-MX2
	Main Chip	2 x Intel® Movidius™ Myriad™ X MA2485 VPU
	Supported Topology	AlexNet, GoogleNetV1/V2, Mobile_SSD, MobileNetV1/V2, MTCNN, Squeezenet1.0/1.1, Tiny Yolo V1 & V2, Yolo V2, ResNet-18/50/101
Chassis	Color	Blue & Silver
	Dimensions (WxDxH)(mm)	137 x 102.8 x 49.4
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	Intel® Atom™ x5-E3930 1.3 GHz (up to 1.8GHz, dual-core, TDP=6.5W)
	Chipset	SoC
	System Memory	1 x 204-pin DDR3L SO-DIMM slot, pre-installed with 8 GB memory
Storage	SATADOM	Pre-installed 128GB
	eMMC	1 x eMMC 5.0 support (up to 32GB optional)
	Micro SD	1 x Micro SD Slot
I/O Interfaces	USB 3.2 Gen 1 (5Gb/s)	2
	Ethernet	2 x RJ-45 PCIe GbE by Intel® I211-AT controller
	COM Port	2 x RS-232/422/485 (DB-9/RJ-45)
	Display	1 x VGA
	Resolution	Up to 1920x1080@60Hz
	Wireless	1 x 802.11a/b/g/n/ac (optional)
	Others	1 x Power button, 1 x Reset button, 1 x AT/ATX switch, 1 x LED for HDD (yellow), 1 x LED for power (green)
Expansions	M.2	1 x 2230 A key (PCIe x1/ USB 2.0)
Power	Power Input	2-pin terminal block: 9 ~ 36V DC-in
	Power Consumption	12V @ 1.2A (Intel® Atom™ E3930 with 8GB memory)
Reliability	Mounting	DIN-rail
	Operating Temperature	-20°C ~ 50°C with air flow, 10% ~ 95%, non-condensing
	Storage Temperature	-20°C ~ 70°C with air flow, 10% ~ 90%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis, IEC68-2-27
	Operation Vibration	MIL-STD-810G 514.6C-1
	Weight (Net/Gross)	895 g/ 1.7 kg
	Safety / EMC	CE/FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min
OS	Supported OS	Win10/Linux Ubuntu 16.04 LTS

Ordering Information

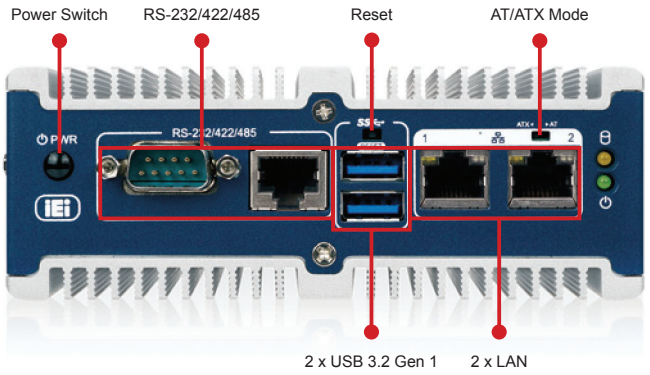
Part No.	Description
ITG-100AI-E1/8GB/S-R10	Fanless embedded system, Intel® Apollo Lake x5-E3930 1.3GHz (up to 1.8GHz, dual core), 8GB DDR3L pre-installed memory, VGA, M.2, COM, 9-36V DC, Mustang-MPCIE-MX2 and RoHS

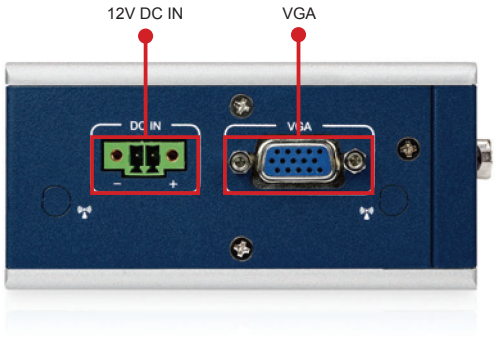
Options

Item	Part No.	Description
Wi-Fi Module	27319-000007-RS*	Wireless LAN Module;WiFi+Bluetooth;Sparklan ;R970181001;IEEE802.11a/b/g/n/ac;2.400GHz ~ 2.484GHz, 5.15GHz ~ 5.85GHz;M.2 2230;3.3V;22x30x2.0mm;Qualcomm Atheros QCA6174A-5;2x2 MIMO;Dual Band;WNFQ-258ACN(BT) [W];CCL;RoHS
Antenna	32505-000900-100-RS*	External Antenna;WLAN;RG 178;108MM;TANK-700-QM67-R10;PEAK GAIN 2.0DBI;Exceltek;2.4-2.5GHz/5.15-5.85GHz;REVERSE SMA PLUG;RoHS
RF Cable	32501-004000-100-RS*	RF;RF CABLE;LINE DIAMETER:0.81mm;250MM ;;;50Ω;Sparklan;0-6GHz;VSWR≤1.3;I-PEX MHF-4 Plug;REVERSE SMA JACK;NUT*1;WASHER*1;;RoHS

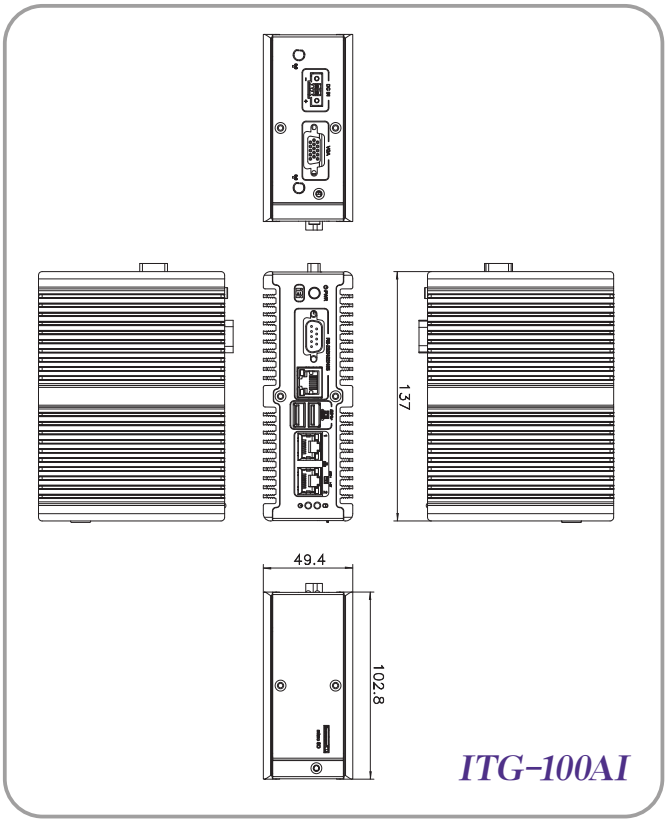
* Each Wi-Fi module needs two antennas and two RF cables to fully support Wi-Fi function.

Fully Integrated I/O





Dimensions (Unit: mm)



Packing List

1 x Screw kit	1 x 36W power adapter
1 x Din-rail mounting bracket	1 x Power cable
1 x RJ-45 to DB-9 COM port cable	1 x Power Cord

ITG-100-AL

- *Ultra Compact Size*
- *Fanless DIN-Rail Embedded System*
- *Intel® Atom™ x5-E3930 1.3GHz (up to 1.8GHz) Solution*

15 YEARS 15-YEAR SUPPLY GUARANTEE

New



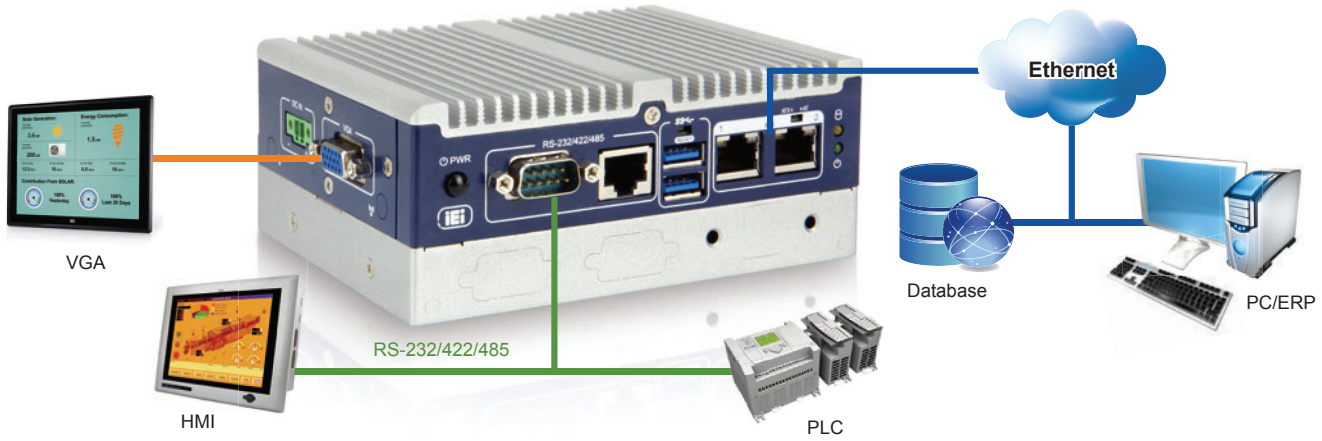
Features

- Intel® Atom™ x5-E3930 1.3GHz (up to 1.8 GHz)
- Two GbE LAN ports
- Two RS-232/422/485
- Full-size PCIe Mini slot and M.2 A-key slot for expansion

Fanless | SUPERSPEED USB 3.2 Gen 1 | Dual LAN | RS-232 /422/485 | M.2 | PCIe Mini Expansion

Intelligent Gateway

The ITG-100-AL equips with basic I/O ports and supports a wide range of operating temperature, making it suitable for acting the role as a data collection gateway in smart factory environments.



A Wide Range of Applications

Given its practical features, the ITG-100-AL can be applied to a variety of application fields, such as military, industrial automation, and traffic control.

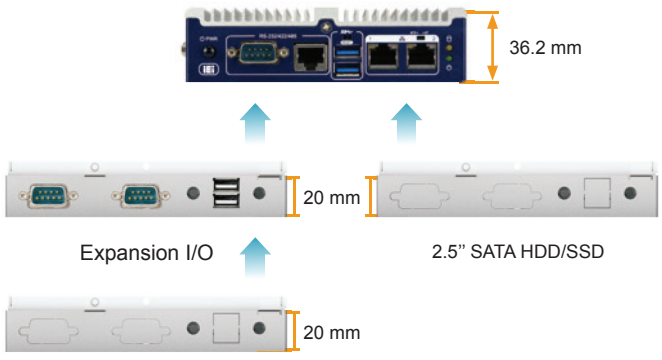
Military | Industrial Automation | Traffic control





Multi-layer Feature

Additional block layers can be assembled to achieve I/O interface expansion and data storage requirement. With choices of adding a 2.5" SATA HDD/SSD bay, a knockout-hole layer with selectable I/O interface, or both of above-mentioned options, the ITG-100-AL could be modularized to what best fit users' preferences and still remaining its compact size.



Functionality Expansions

In order to respond the demand of adding more functions to the system, the ITG-100-AL is designed with a full-size PCIe Mini slot reserved for 3G/4G and a M.2 A-key slot reserved for Wi-Fi to provide function expansions with easy access.



Full-size PCIe Mini



M.2 A key



Ultra-compact Size

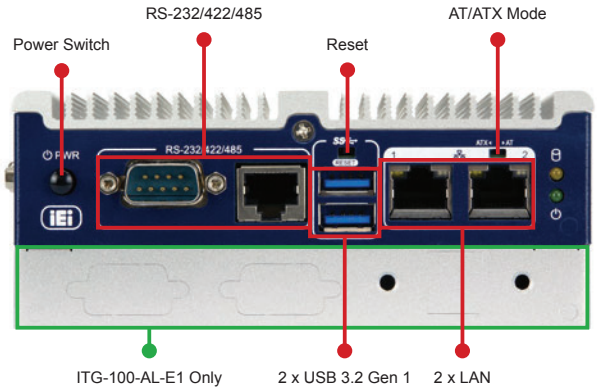
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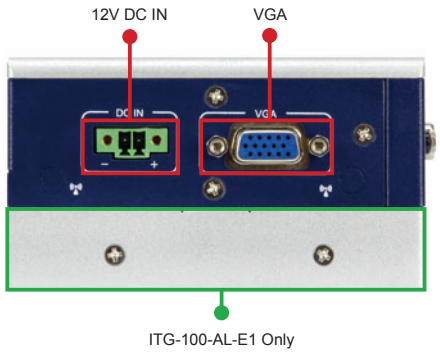


Specifications

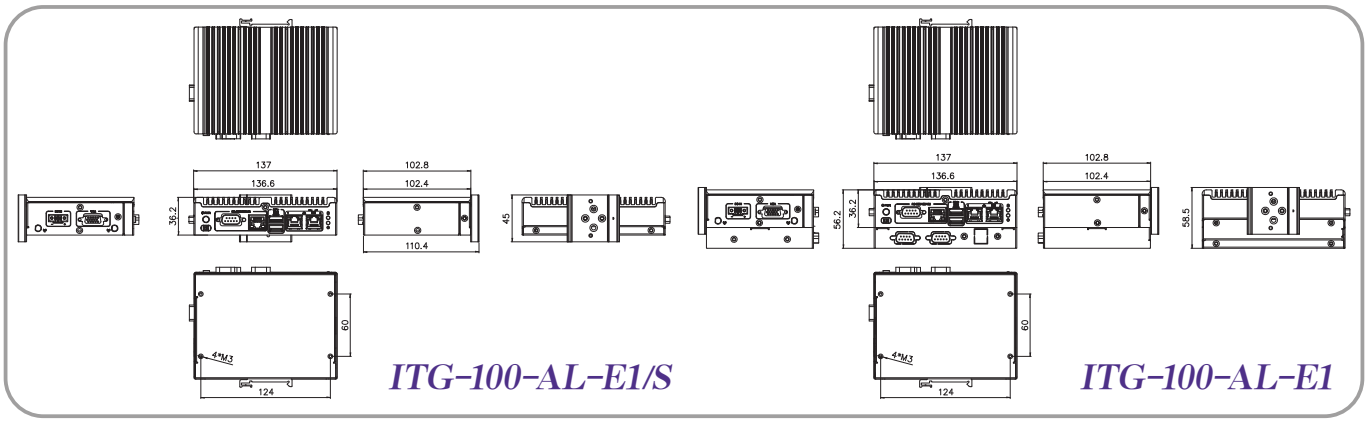
Model Name		ITG-100-AL-E1/S	ITG-100-AL-E1
Chassis	Color	Blue & Silver	
	Dimensions (WxDxH)(mm)	137 x 102.8 x 36.2	137 x 102.8 x 56.2
	System Fan	Fanless	
	Chassis Construction	Extruded aluminum alloy	
Motherboard	CPU	Intel® Atom™ x5-E3930 1.3 GHz (up to 1.8GHz, dual-core, TDP=6.5W)	
	Chipset	SoC	
	System Memory	1x 204-pin DDR3L SO-DIMM slot (system max. 8 GB) (ITG-100-AL-E1/2GB/S-R10 SKU is pre-installed with 2 GB memory)	1x 204-pin DDR3L SO-DIMM slot (system max. 8 GB) (ITG-100-AL-E1/2GB-R10 SKU is pre-installed with 2 GB memory)
Storage	Hard Drive	N/A	1 x 2.5" SATA 6Gb/s HDD/SSD bay
	eMMC	1 x eMMC 5.0 support (up to 32GB, optional)	
	Micro SD	1 x Micro SD slot (optional)	
I/O Interfaces	USB 3.2 Gen 1 (5Gb/s)	2	
	USB 2.0	2 by pin-header (optional)	
	Ethernet	2 x RJ-45 PCIe GbE by Intel® I211-AT controller	
	COM Port	2 x RS-232/422/485 (DB-9/RJ-45) 2 x RS-232 by pin-header (optional)	
	Digital I/O	8-bit digital I/O, 4-bit input/4-bit output by pin-header (optional)	
	Display	1 x VGA	
	Resolution	Up to 1920x1080@60Hz	
	Wireless	1 x 802.11a/b/g/n/ac (optional)	
	Others	1 x Power button, 1 x Reset button, 1 x AT/ATX switch, 1 x LED for HDD (yellow), 1 x LED for power (green)	
Expansions	M.2	1 x 2230 A key (PCIe x1/ USB 2.0)	
	PCIe Mini	1 x Full-size (PCIe/ USB 2.0/ SATA)	
Power	Power Input	2-pin terminal block: 12 V DC	
	Power Consumption	12V @ 1A (Intel® Atom™ E3930 with 2GB memory)	
Reliability	Mounting	DIN-rail / Wall mounting	
	Operating Temperature	-20°C ~ 60°C with air flow (SSD), 10% ~ 95%, non-condensing	
	Storage Temperature	-30°C ~ 70°C with air flow (SSD), 10% ~ 90%, non-condensing	
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis, IEC68-2-27	
	Operation Vibration	MIL-STD-810G 514.6C-1 (SSD)	
	Weight (Net/Gross)	0.67 kg/1.03 kg	0.86 kg/1.22 kg
	Safety / EMC	CE/FCC	
	Watchdog Timer	Programmable 1 ~ 255 sec/min	
OS	Supported OS	Microsoft® Windows 10 / Linux	

Fully Integrated I/O





Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
ITG-100-AL-E1/S-R10	Fanless embedded system, Intel® Apollo Lake x5-E3930 1.3GHz (up to 1.8GHz, dual core), VGA, M.2, COM, 12V DC and RoHS
ITG-100-AL-E1/2GB/S-R10	Fanless embedded system, Intel® Apollo Lake x5-E3930 1.3GHz (up to 1.8GHz, dual core), 2GB DDR3L pre-installed memory, VGA, M.2, COM, 12V DC and RoHS
ITG-100-AL-E1-R10	Fanless embedded system, Intel® Apollo Lake x5-E3930 1.3GHz (up to 1.8GHz, dual core), VGA, M.2, COM, 12V DC, flexible I/O expansion and RoHS
ITG-100-AL-E1/2GB-R10	Fanless embedded system, Intel® Apollo Lake x5-E3930 1.3GHz (up to 1.8GHz, dual core), 2GB DDR3L pre-installed memory, VGA, M.2, COM, 12V DC, flexible I/O expansion and RoHS

Options

Item	Part No.	Description
4GB Memory	79B00-G004-XXX-RS*	DDR3L (204 PIN);4GB;1.35V;0º ~ 85º;RoHS
8GB Memory	79B00-G008-XXX-RS*	DDR3L (204 PIN);8GB;1.35V;0º ~ 85º;RoHS
Wi-Fi Module	27319-000007-RS**	Wireless LAN Module;WiFi+Bluetooth;Sparklan;R970181001;IEEE802.11a/b/g/n/ac;2.400GHz ~ 2.484GHz, 5.15GHz ~ 5.85GHz;M.2 2230;3.3V;22*30*2.0mm;Qualcomm Atheros QCA6174A-5;2x2 MIMO;Dual Band;WNFQ-258ACN(BT) [W];CCL;RoHS
Antenna	32505-000900-100-RS**	External Antenna;WLAN;RG 178;108MM;TANK-700-QM67-R10;PEAK GAIN 2.0DBI;Exceltek;2.4-2.5GHz/5.15-5.85GHz;REVERSE SMA PLUG;RoHS
RF Cable	32501-004000-100-RS**	RF;RF CABLE;LINE DIAMETER:0.81mm;250MM;;;50Ω;Sparklan;0-6GHz;VSWR≤1.3;I-PEX MHF-4 Plug;REVERSE SMA JACK;NUT*1;WASHER*1;;RoHS
DIO Cable	32231-000300-100-RS	FLAT CABLE;DIO CABLE;;2;50MM;28AWG;(A)D-SUB 9P FEMALE;(B)DU PONT 2*5P P=2.0 FEMALE, RoHS
COM Cable	32205-007500-200-RS	FLAT CABLE;RS-232/422/485;COM CABLE;2;50mm;28AWG;(A)D-SUB 9P MALE;(B)DU PONT 2*5P P=2.0 FEMALE, RoHS
USB Cable	32001-000800-300-RS***	ROUND CABLE;USB CABLE;;2;150MM;28AWG;(A)DOUBLE LAYER USB A TYPE FEMALE(WITH EAR);(B)DU PONT 2*4P P=2.0 FEMALE, RoHS
HDD Drive Bay	ITG-HB-R10***	HDD Bay for ITG-100 only
Exp. Chassis	ITG-EXP-R10	Expansion Chassis for ITG-100 only
Adapter	63040-010036-210-RS****	Adapter Power;FSP;FSP036-RHBN3;9NA0362707;;Vin:90 ~ 264VAC;36W;Dim:37.8*89.8*27.0mm;Plug=7.5mm;Cable=1500mm;Erp(NO LOAD 0.075W);Vout:12VDC;Φ2.5/Φ5.5/lock;CCL;RoHS
Power Cable	32102-045700-100-RS ****	WIRE CABLE;POWER CABLE;;2;200mm;18AWG;(A)DC JACK 5.5*2.5;(B)TERMINAL BLOCK 2P P=3.5 180°, RoHS
Power Cord	32702-000400-200-RS	European power cord
OS:Windows Embedded 10	ITG-100-W10E64-E-R10	OS Image with Windows® 10 IoT Enterprise Entry 64-bit for ITG-100-AL Series, with DVD-ROM, RoHS

* It is just a general P/N. Please contact your sales representatives to assist you in ordering.
** Each Wi-Fi module needs two antennas and two RF cables to fully support Wi-Fi function.
*** This USB cable cannot be used at the layer where the HDD drive bay is located.
**** It is required to order Power Cable together with Adapter for power usage.

Packing List

1 x SATA cable & SATA power cable (for ITG-100-AL-E1 only)	1 x Screw kit	1 x Mounting bracket	1 x RJ-45 to DB-9 COM port cable

uIBX-250-BW

Ultra Compact Size

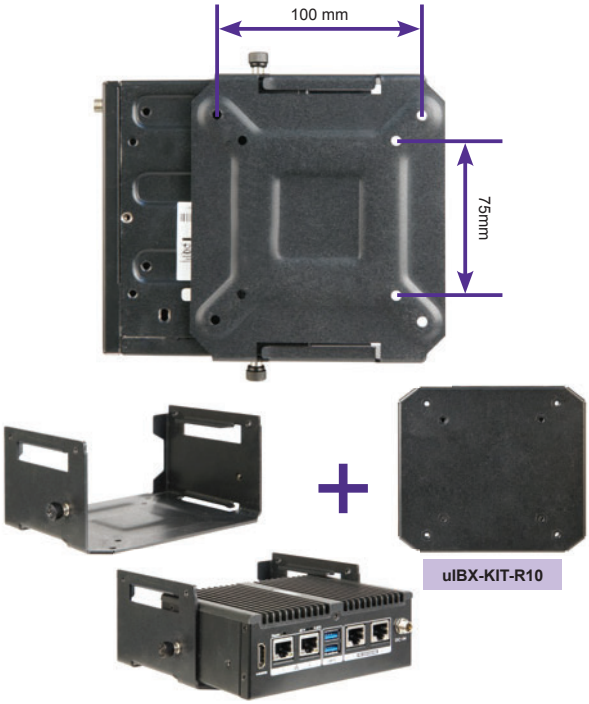
Features

- Fanless system with Intel® Celeron® N3160 processor
- Dual display
- Two RS-232/422/485
- Full-size PCIe Mini slot for expansion
- Four USB 3.2 Gen 1 (5Gb/s) ports
- Two GbE LAN ports





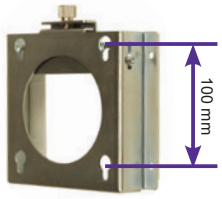
Smart Mounting Design



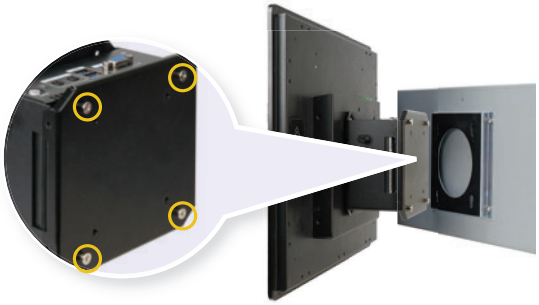
A. Wall mount



Assemble the uIBX-250 with the uIBX-KIT-R10 on the back of monitor.



AFLWK-12/AFLWK-19



The monitor with the uIBX-250 can be mounted on the wall easily and support VESA 75/100.

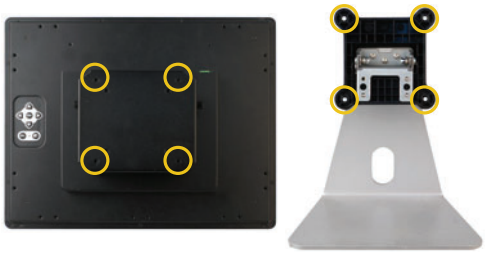
B. VESA mount 75/100

Step.1



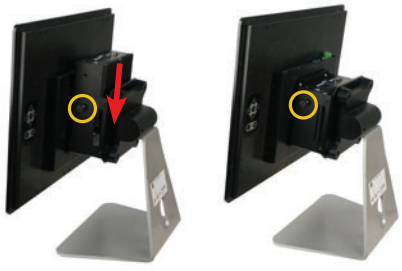
Install the uIBX-KIT-R10 which supports VESA 75/100 on the back of the monitor.

Step.2



Assemble the uIBX-250, the stand and the monitor.

Step.3 Fasten screws to secure the uIBX-250

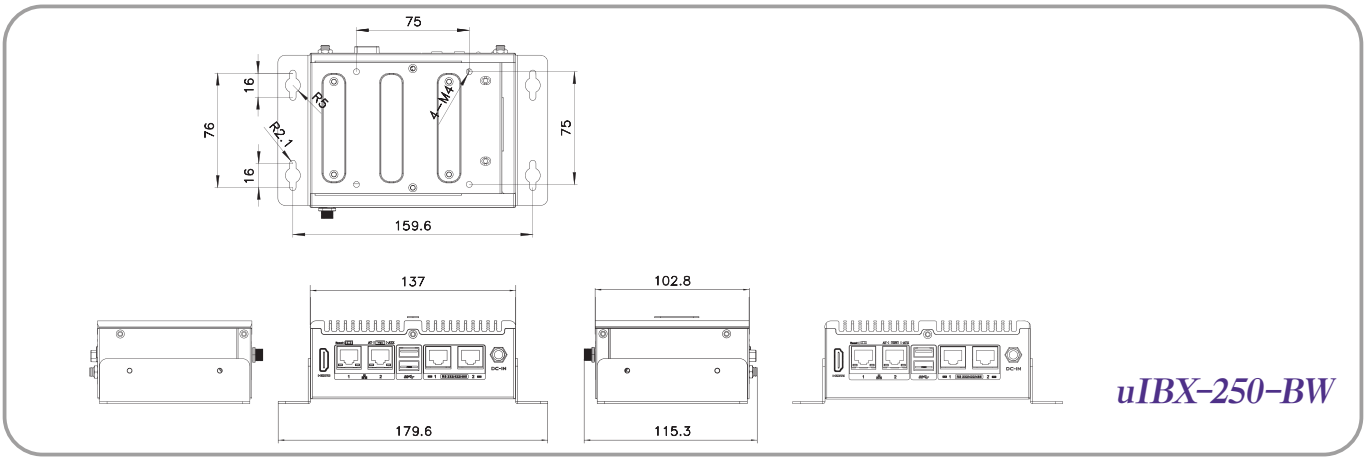


Mount it on the back of monitor to save more space; the location of the uIBX-250 could be adjusted by user for different applications.

Specifications

Model Name		uIBX-250-BW
Chassis	Color	Black
	Dimensions (WxDxH) (mm)	137 x 102.8 x 52
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	Intel® Celeron® N3160 (up to 2.24 GHz, quad-core, 2 MB cache, TDP=6W)
	Chipset	SoC
	System Memory	1 x 204-pin DDR3L SO-DIMM slot (2 GB pre-installed, system max: 8GB)
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD bay
I/O Interfaces	USB 3.2 Gen 1 (5Gb/s)	4
	Ethernet	2 x RJ-45 PCIe GbE by Intel® I211 controller
	COM Port	2 x RS-232/422/485 (RJ-45)
	Button	1 x Power button, 1 x AT/ATX switch, 1 x Reset button
	Display	1 x HDMI, 1 x VGA
	Resolution	HDMI: 3840 x 2160@30MHz, VGA: 1920 x1200@60Hz
	Audio	1 x Line-out, 1 x Line-in
	Wireless	1x 802.11a/b/g/n/ac (optional)
Expansions	PCIe Mini	1 x Full-size (PCIe/ USB 2.0/ SATA)
Power	Power Input	DC jack: 12 V DC
	Power Consumption	12V @ 2A (Intel® Celeron® N3160 with 2 GB memory)
Reliability	Mounting	Wall mount, VESA 75
	Operating Temperature	-20°C ~ 60°C with air flow (SSD), 10% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 3 shocks per axis
	Operating Vibration	MIL-STD-810F 514.5 C-1 (HDD), MIL-STD-810F 514.5 C-2 (SSD)
	Weight (Net/Gross)	470 g/1.4 kg
	Safety/EMC	CE/FCC
OS	Supported OS	Microsoft® Windows 8, Microsoft® Embedded Standard 7 E

Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
uIBX-250-BW-N3/2G-R20	Fanless embedded system with Intel® Celeron® N3160 1.6 GHz (up to 2.24 GHz, quad core, TDP 6 W), 2 GB DDR3L pre-installed memory, 12V DC, with RS-232/422/485, USB 3.2 Gen 1 (5Gb/s), VGA/HDMI, dual Intel® PCIe GbE, RoHS

Options

Part No.	Description
EMB-WIFI-KIT01-R20	1T1R Wi-Fi module kit for embedded system, IEEE802.11a/b/g/n/ac WiFi with Bluetooth 4.0/3.0+HS, 1 x Wi-Fi module, 2 x 250mm RF cable, 2 x Antenna, RoHS
DK-75-R10	VESA 75 to DIN-Rail mounting kit
uIBX-KIT-R10	uIBX smart mounting kit for monitor and stand
uIBX-250-BW-WES7E64-R10	OS image with Windows® Embedded Standard 7 E 64-bit for uIBX-250, DVD-ROM, RoHS

Packing List

1 x Power Adapter	1 x Mounting Bracket	2 x RS-232/422/485 Round Cable

Digital Signage Solution



IDS-310-AL

Multiple screens can be connected to IEI digital signage series to display information like flight information at airports, in-store advertising, restaurant menu or movie showtimes. These digital signage players are in compact size with high resolution, stable and easy to install. They are equipped with multiple HDMI ports for a variety of video display monitors. It's the best choice for you to implement it in digital signage and video wall applications.

IDS-310 Key Features

■ Ultra HD

Display approaching 4K2K resolution. Best for high-definition screen.
Triple display port:
- 3 x HDMI 3840 x 2160 @30Hz



■ Thin Appearance

The minimum dimension of IDS-310 is 137 x 102.8 x 38.1 (mm) which can be installed in a limited space and saves more space.



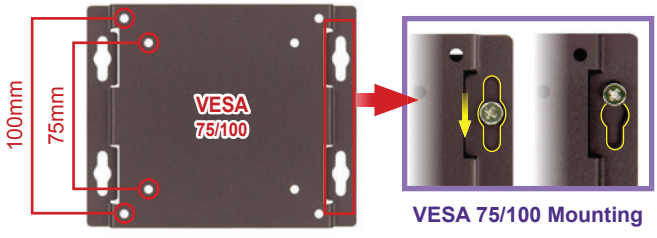
■ Hardware Expansion

The M.2 A-key & PCIe Mini slots are reserved for Wi-Fi, 3G/4G or mSATA modules, and also support SATADOM for storage to achieve flexible application. Users can quickly replace the modules inside by simply opening the bottom panel of the chassis. Such a design can produce huge benefits for those who need quick response and efficient services.



■ Mounting Method

The IDS series has different mounting ways to choose. The series has passed shock and vibration test based on the MIL-STD-810G standard.



VESA 75/100 Mounting

IDS-310-AL

- *Digital Signage System*
- *Ultra Compact Size*

New

Features

- Triple HDMI displays
- Two GbE LAN ports
- Full-size PCIe Mini slot and M.2 A-key slot for expansion





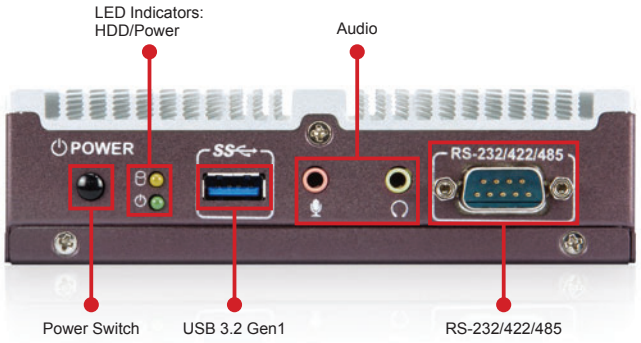
Specifications

Model Name		IDS-310-AL-N1	IDS-310-AL-J1
Chassis	Color	Brown & Silver	
	Dimensions (WxDxH)	137 x 102.8 x 38.1 mm	137 x 102.8 x 52.1 mm
	System Fan	Fanless	
	Chassis Construction	Extruded aluminum alloys	
Motherboard	CPU	Intel® Celeron® N3350E (up to 2.4GHz, dual-core, TDP 6W)	Intel® Celeron® J3455E (up to 2.3GHz, quad-core, TDP 10W)
	Chipset	SOC	
	System Memory	1 x 204-pin DDR3L SO-DIMM, 4 GB pre-installed (system max: 8GB)	
Storage	Hard Drive	1 x SATA 6Gb/s connector	
	Micro SD	1 x Micro SD (optional)	
I/O Interfaces	Ethernet	2 x RJ-45 PCIe GbE by RTL8111 controller	
	USB 3.2 Gen1 (5Gb/s)	3	
	COM Port	1 x RS-232/422/485	
	Display	3 x HDMI 1.4b (3840x2160@30Hz)*	
	Audio	1 x Line-out, 1 x Mic-in	
	Wireless	1 x 802.11 a/b/g/n/ac (optional)	
	TPM 2.0	Optional	
Expansions	PCIe Mini	1 x Full-size (PCIe/ USB 2.0/ SATA) with SIM card slot	
	M.2	1 x 2230 A key (PCIe x1/ USB 2.0)	
Power	Power Input	12V DC-in	
	Power Consumption	12V @ 1.9A (Intel® Celeron® N3350E with 4GB memory)	12V @ 2.2A (Intel® Celeron® J3455E with 4GB memory)
Reliability	Mounting	VESA 75/100/Wall mount	
	Operating Temperature	-20°C ~ 60°C with air flow (mSATA), 10% ~ 95%, non-condensing	
	Storage Temperature	-30°C ~ +80°C	
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis	
	Operation Vibration	MIL-STD-810G 514.6C-1 (mSATA)	
	Weight (Net/Gross)	680g/1.4kg	950g/1.7kg
	Safety / EMC	CE, FCC Class A, BSMI	
	Watchdog Timer	Programmable 1 ~ 255 sec/min	
OS	Supported OS	Microsoft® Windows® 10, Linux	

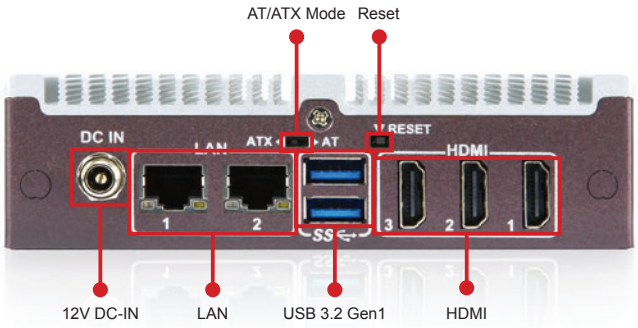
* The source of HDMI 3 is eDP, which does not support audio.

Fully Integrated I/O

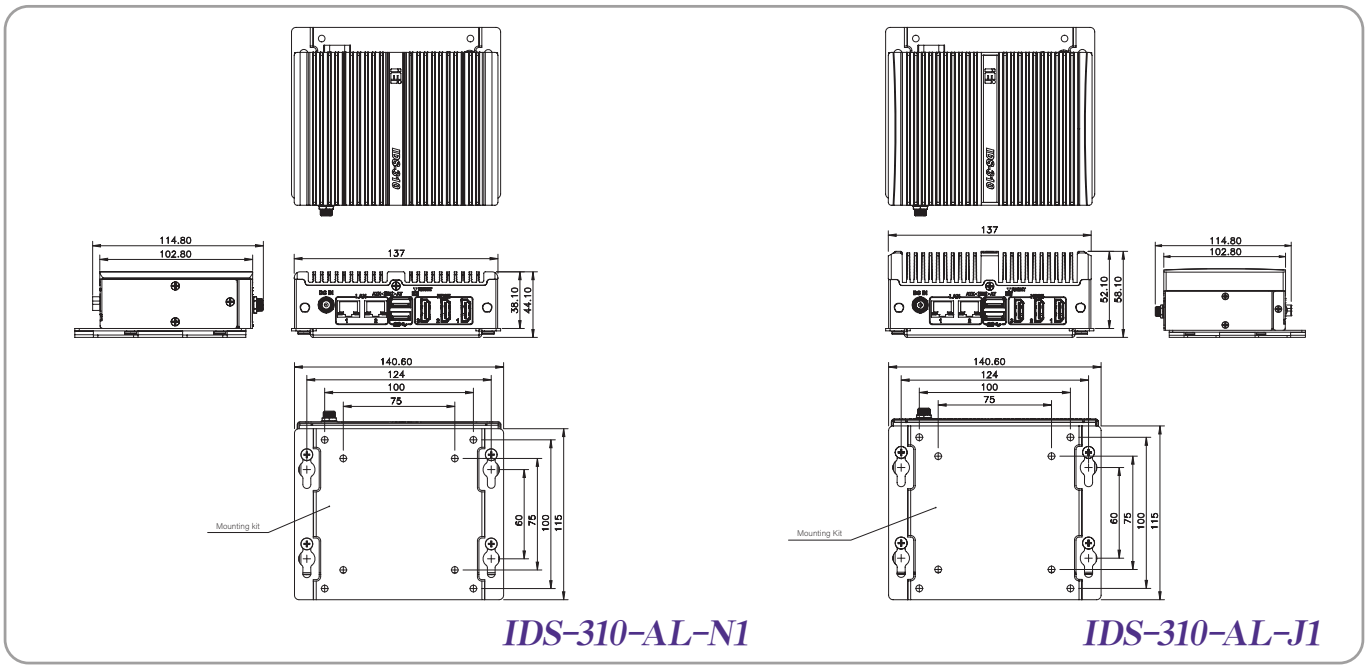
Front View



Rear View



Dimensions (Unit: mm)



IDS-310-AL-N1 IDS-310-AL-J1

Ordering Information

Part No.	Description
IDS-310-AL-J1/4GB-R10	Fanless embedded system with Intel® Celeron® J3455E 1.5GHz (up to 2.3GHz, quad dore, TDP 10W), pre-installed 4GB DDR3L memory, triple HDMI display, 12V DC and RoHS
IDS-310-AL-N1/4GB-R10	Fanless embedded system with Intel® Celeron® N3350E 1.1GHz (up to 2.4GHz, dual dore, TDP 6W), pre-installed 4GB DDR3L memory, triple HDMI display, 12V DC and RoHS

Options

Part No.		Description
Wi-Fi Module	27319-000007-RS*	Wireless LAN Module;WiFi+Bluetooth;Sparklan;R970181001;IEEE802.11a/b/g/n/ac;2.400GHz ~ 2.484GHz, 5.15GHz ~ 5.85GHz;M.2 2230;3.3V;22 x 30 x 2.0mm;Qualcomm Atheros QCA6174A-5;2x2 MIMO;Dual Band;WNFQ-258ACN(BT) [W];CCL;RoHS
Antenna	32505-000900-100-RS*	External Antenna;WLAN;RG 178;108MM;TANK-700-QM67-R10;PEAK GAIN 2.0DBI;Exceltek;2.4-2.5GHz/5.15-5.85GHz;REVERSE SMA PLUG;RoHS
RF Cable	32501-004000-100-RS*	RF;RF CABLE;LINE DIAMETER:0.81mm;250MM;;;50Ω;Sparklan;0-6GHz;VSWR≤1.3;I-PEX MHF-4 Plug;REVERSE SMA JACK;NUT x 1;WASHER x 1;;RoHS

* Each Wi-Fi module needs two antennas and two RF cables to fully support Wi-Fi function.

Packing List

1 x VESA 75/100 Mounting Kit	1 x Power Adapter	1x Power Cord

Industrial Computer Chassis

As a leading hardware provider in embedded SBC, IEI offers complete industrial computer chassis from ATX/microATX/Mini-ITX support chassis to 1U~7U chassis to support different embedded single board computers, and provides flexibility and scalability for industrial applications. Customers can choose different platform to integrate and fulfil different demanding application and vertical application.

1. SBC Embedded System





Model Name	ECN-380A Series	ECN-360A Series	ECW-281B Series
MB Model No.	NANO Series (EPIC SBC)*	NANO Series (EPIC SBC)*	WAFER Series (3.5” SBC)*

*Please refer to the ECN & ECW datasheets for the NANO & WAFER support list.

2. Embedded Chassis Series

New




Model Name	BRICK-KINO BRICK-WAFER/NANO	EBC-3220	EBC-3100 / EBC-3000
MB Model No.	KINO Series (Mini-ITX)* WAFER Series (3.5” SBC)* NANO Series (EPIC SBC)*	KINO Series (Mini-ITX)*	KINO Series (Mini-ITX)*






Model Name	EBC-3300	EBC-2200	EBC-2100	EBC-1100
MB Model No.	tKINO Series (Mini-ITX)	NANO Series (EPIC SBC)*	NANO Series (EPIC SBC)*	WAFER Series (3.5” SBC)

*Please refer to the EBC datasheets for the support list.

3. Industrial Computer Chassis





Model Name	RACK-1150G 1U	RACK-220G 2U 6-slot	RACK-360 4U 14-slot
MB Model No.	Full-size CPU card	Full-size CPU card microATX, Mini-ITX	Full-size CPU card ATX, microATX, Mini-ITX





Model Name	ECA-300	ECA-200	ECA-100
MB Model No.	ATX/mATX	mATX	ATX/mATX





Model Name	PAC-125G 10-slot	PAC-700G 7-slot	PAC-53GH 3-slot
MB Model No.	Full-size CPU card	Half-size CPU card	Half-size CPU card

SBC Embedded System





	Model Name	ECN-380-QM87	ECN-360A-ULT3	ECW-281B-BT
Chassis	Color	Silver	Black	Black
	Dimensions (WxDxH) (mm)	265 x 134 x 56.7	255 x 130 x 75	229 x 132 x 64
	System Fan	Fanless	Fanless	Fanless
	Chassis Construction	Aluminum alloy with heavy duty metal	SECC	Aluminum alloy with heavy duty metal
Motherboard	Motherboard Model	NANO-QM871-i1	NANO-ULT3	WAFER-BT-i1
	SBC Size (mm)	EPIC (165 x 115)	EPIC, 165 x 115	3.5", 146 x 102
	CPU	Intel® Core™ i5-4400E 2.7 GHz Intel® Celeron® 2000E 2.2 GHz	Intel® Core™ i5-6300U Intel® Celeron® 3855U	Intel® Celeron® J1900 quad-core 2.42GHz
	Chipset	Intel® QM87	N/A	SoC
	System Memory	One 204-pin DDR3 4GB SO-DIMM pre-installed (system max: 8GB)	2 x 260-pin 2133/1866 MHz dual-channel DDR4 SO-DIMMs support up to 32GB Pre-install 4GB DDR4	1 x 204-pin 2 GB 1066/1333 MHz single-channel DDR3L SO-DIMM (system max. 4 GB)
IPMI	iRIS Solution	1 x iRIS-1010	N/A	1 x iRIS-1010-R10
Storage	Hard Drive	2 x 2.5" SATA 6Gb/s HDD/SSD bay	2 x 2.5" SATA HDD bay (No RAID support)	1 x 2.5" SATA 3Gb/s HDD bay
	CF Card/CFast	N/A	N/A	N/A
I/O Interfaces	USB 3.2 Gen 1	2	4	1
	USB 2.0	4	N/A	3
	Ethernet	2 x RJ-45 LAN1: Intel® I217LM PHY with Intel® AMT 9.0 support LAN2: Intel® I210-AT PCIe controller	LAN1: Intel® I219-LM LAN2: Intel® I211-AT	LAN 1: PCIe GbE by Intel® I210 controller LAN 2: PCIe GbE by Intel® I211 controller
	COM Port	2 x RS-232	1 x RS-232/422/485 2 x RS-232	3 x RS-232 1 x RS-422/485
	Digital I/O	N/A	8-bit digital I/O	8-bit digital I/O (4-bit input, 4-bit output)
	Display	2 x HDMI, 1 x VGA	2 x HDMI	1 x VGA
	Resolution	VGA: Up to 1920x1200@60Hz HDMI: Up to 2500x1600@60Hz	HDMI: up to 4096x2160@24Hz	VGA: 2560x1600@60Hz
	Audio	1 x Line-out, 1 x Mic-in	1 x Line-out	1 x Line out
	Wireless	1 x 802.11b/g/n	2 x 802.11b/g/n (optional)	1 x 802.11b/g/n
Expansions	PCIe Mini	1 x Full-size PCIe Mini (supports mSATA, SATA 6Gb/s signal only) 1 x Half-size PCIe Mini (only for iRIS-1010)	1 x Full-size PCIe Mini card slot (with SIM holder & mSATA support) 1 x Half-size PCIe Mini card slot	1 x Full-size PCIe Mini card slot (supports mSATA) 1 x Half-size PCIe Mini card (only for iRIS)
Power	Power Input	DC Jack: 12 V DC 3-pin terminal: 9 V~36 V DC	DC 12V (Optional 9~36V) Power 1: DC jack Power 2: Terminal block(for optional 9~36V only)	DC jack: 12 V DC 3-pin terminal: 9 V~36 V DC
	Power Consumption	12 V@4.6 A (Intel® mobile Core™ i5-4400E CPU with 4GB 1333MHz DDR3 memory)	12 V@2.4 A (Intel® i5-6300U with 4GB DDR4 memory)	12V@1.45A (Intel® Celeron® J1900 CPU and one 8 GB 1333 MHz DDR3 memory)
Reliability	Mounting	Wall mount, VESA 100	Wall mount, VESA 100	Wall mount, VESA 100
	Operating Temperature	-20°C ~60°C with air flow (SSD), 10% ~ 95%, non-condensing	-20°C~60°C with air flow (SSD), 5% ~ 95%, non-condensing	-20°C~60°C with air flow (SSD), 10% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 3 shocks per axis		Half sine wave 5G, 11ms 3-axis (non-operational)
	Operating Vibration	MIL-STD-810F 514.5C-2 (with SSD)	MIL-STD-810F 514.5C-2 (with SSD)	MIL-STD-810F 514.5C-1 (HDD)
	Weight (Net/ Gross)	2.4 kg/4.2 kg	2.2 kg/3 kg	2.1 kg / 3.9 kg

*Systems with hard drive meet MIL-STD-810F 514.5C-1 specifications. SSD/CF systems meet MIL-STD-810F 514.5C-2 specifications.

ECN-380-QM87

- *Intel® Core™ i5/Celeron® CPU*
- *Triple Video Outputs*



Features

- **Intel® Core™ i5/Celeron® CPU**
  - » Intel® Core™ i5-4400E 2.7 GHz/Celeron® 2000E 2.2 GHz
- **Triple video outputs**
  - » 2 x HDMI + VGA
- **Two 2.5" SATA 6Gb/s HDD/SSD drive bays**

QTS-Gateway IPMI 2.0 Compliant

Fanless Dual LAN Dual HDD Triple Display

Specifications

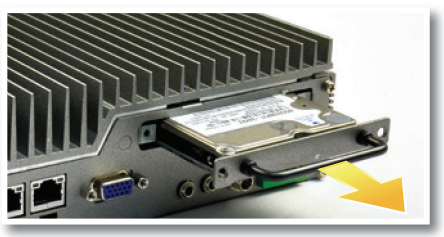
Model Name		ECN-380-QM87
Chassis	Color	Silver
	Dimensions (WxDxH) (mm)	265 x 134 x 56.7
	System Fan	Fanless
	Chassis Construction	Aluminum alloy with heavy duty metal
Motherboard	Motherboard Model	NANO-QM871-i1
	SBC Size (mm)	EPIC, 165 x 115
	CPU	Intel® mobile Core™ i5-4400E with AMT 9.0 support (up to 2.7GHz, dual-core, 3MB cache, TDP=37W) Intel® mobile Celeron® 2000E (up to 2.2GHz, dual-core, 2MB cache, TDP=37W)
	Chipset	Intel® QM87
	System Memory	One 204-pin 4GB DDR3 SO-DIMM pre-installed (system max: 8GB)
IPMI	iRIS Solution	1 x iRIS-1010 (optional)
Storage	Hard Drive	2 x 2.5" SATA 6Gb/s HDD/SSD drive bay
I/O Interfaces	USB 3.2 Gen 1	2
	USB 2.0	4
	Ethernet	2 x RJ-45 LAN1: Intel® I217LM PHY with Intel® AMT 9.0 support LAN2: Intel® I210-AT PCIe controller
	COM Port	2 x RS-232
	Display	2 x HDMI, 1 x VGA
	Resolution	VGA: Up to 1920 x 1200@60Hz HDMI: Up to 2500 x 1600@60Hz
	Audio	1 x Line-out, 1 x Mic-in
	Wireless	1 x 802.11b/g/n (optional)
Expansions	PCIe Mini	1 x Full-size PCIe Mini (supports mSATA, SATA 6Gb/s signal only)* 1 x Half-size PCIe Mini (only for iRIS-1010)
Power	Power Input	DC jack: 12 V DC 3-pin terminal: 9 V~36 V DC
	Power Consumption	12 V@4.6 A (Intel® mobile Core™ i5-4400E with 4GB 1333MHz DDR3 memory)
Reliability	Mounting	Wall mount, VESA 100
	Operating Temperature	-20°C ~60°C with air flow (SSD), 10% ~ 95%, non-condensing
	Storage Temperature	-30°C ~70°C with air flow (SSD), 10% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 3 shocks per axis
	Operating Vibration	MIL-STD-810F 514.5C-2 (with SSD)
	Weight (Net/Gross)	2.4 kg/4.2 kg

* ECN-380-QM87i-WD-QGW without Full-size PCIe Mini Card slot expansion

Removable 2.5" SATA HDD/SSD Bay

Dual HDD

The ECN-380 series is equipped with two 2.5" SATA HDD bays. One of the HDD bays is removable for easy installation.



Triple Display Outputs

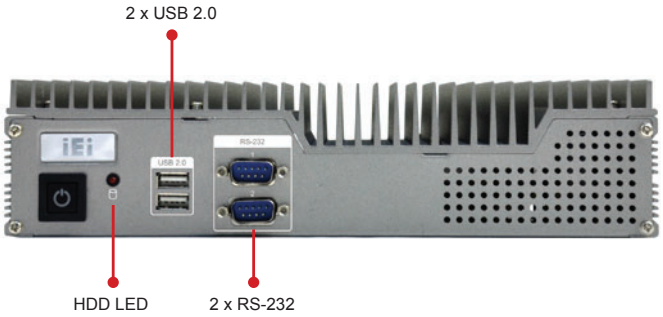
Triple Display

The ECN-380-QM87 contains two HDMI and one VGA. All of the display outputs support high resolution video, which can be applied widely in multi-monitor applications.

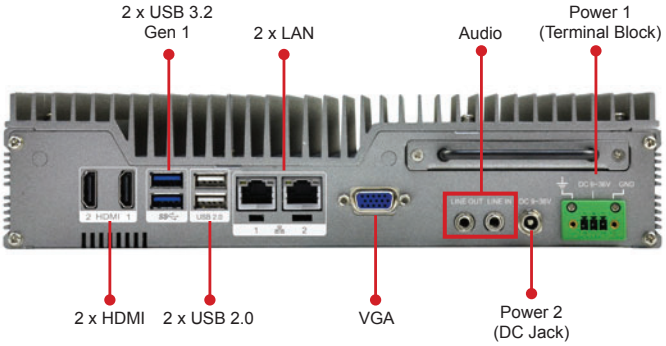


Fully Integrated I/O

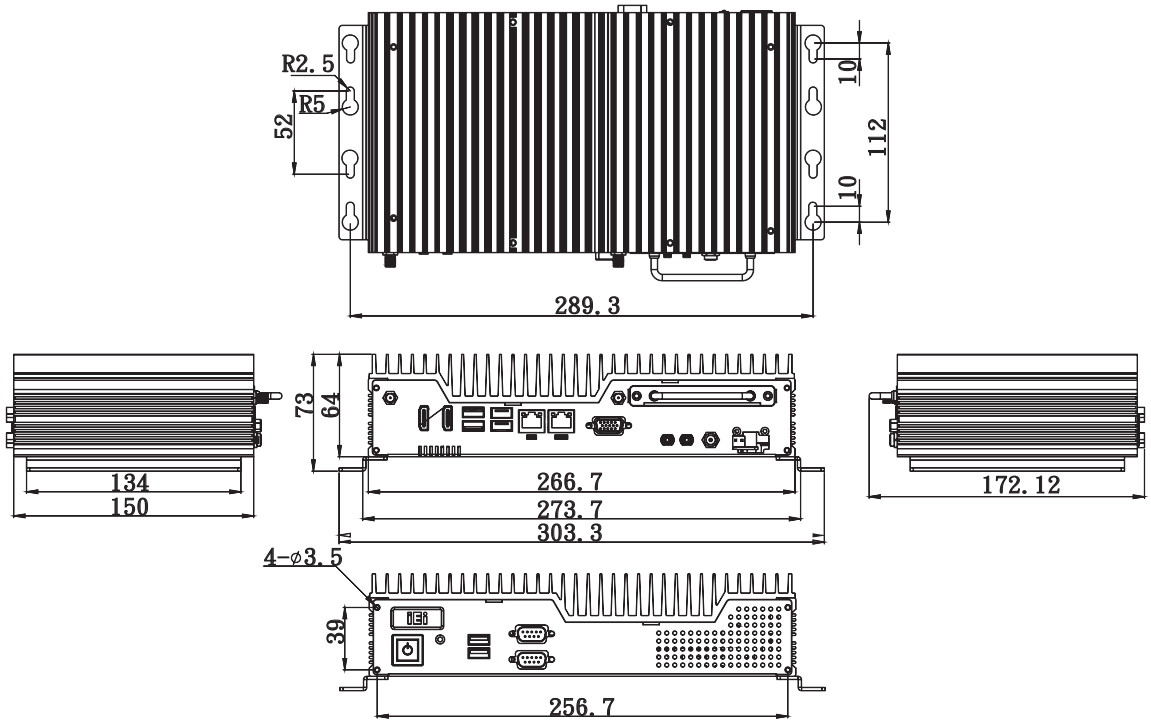
•ECN-380-QM87 Front I/O



•ECN-380-QM87 Rear I/O



Dimensions (Unit: mm)



Ordering Information

Part No.	Description
ECN-380-QM87i-C/4G-R11	Fanless embedded system with Intel® Celeron® 2000E 2.2 GHz CPU, TDP 37W, 2 x HDMI, 1 x VGA, 2 x 2.5" SATA HDD bay, 4GB memory pre-installed, iRIS-1010, 12 V DC, RoHS
ECN-380-QM87i-i5/WD/4G-R11	Fanless embedded system with Intel® Core™ i5-4400E 2.7 GHz CPU, TDP 37W, 2 x HDMI, 1 x VGA, 2 x 2.5" SATA HDD bay, 4GB memory pre-installed, iRIS-1010, 9 V~36V DC, RoHS
ECN-380-QM87i-C/WD/4G-R11	Fanless embedded system with Intel® Celeron® 2000E 2.2 GHz CPU, TDP 37W, 2 x HDMI, 1 x VGA, 2 x 2.5" SATA HDD bay, 4GB memory pre-installed, iRIS-1010, 9 V~36 V DC, RoHS

Options

Part No.	Description
iRIS-1010-R10	IPMI 2.0 adapter card with AST1010 BMC chip (W/O KVM over IP function) for PCIe Mini socket interface
ECN380VK-100-R10	VESA 100 mount kit for ECN-380
ECN-380-QM87i-WES7E-R10	OS image with Windows Embedded Standard 7 E for ECN-380-QM87i Series, WES7E license label, with DVD ROM

Packing List

1 x Power cord	1 x Chassis screw set
1 x Power adapter (with PSE/ErP certified)	1 x Wall mount bracket

ECN-360A-ULT3

Fanless Embedded System with Intel® Solution



Features

- **On-board CPU**
  - » i5-6300U dual-core up to 3.0GHz
  - » 3855U dual-core up to 1.6GHz
- **Two 2.5" SATA 6Gb/s HDD/SSD drive bay**
- **Operating temperature: -20°C ~ 60 °C**
- **Two flexible E-Window for modularized expansion I/O**



Specifications

Model Name		ECN-360A-ULT3
Chassis	Color	Black
	Dimensions (WxDxH) (mm)	255 x 130 x 75
	System Fan	Fanless
	Chassis Construction	SECC
Motherboard	Motherboard Model	NANO-ULT3
	SBC Size (mm)	EPIC, 165 x 115
	Processor	Intel® Core™ i5-6300U Intel® Celeron® 3855U
	System Memory	2 x 260-pin 2133/1866 MHz dual-channel DDR4 SO-DIMMs support up to 32GB Pre-install 4GB DDR4
Storage	Hard Drive	2 x 2.5" SATA HDD bay(No RAID support)
I/O Interfaces	USB 3.2 Gen 1	4
	Ethernet	LAN1: Intel® I219-LM LAN2: Intel® I211-AT
	COM Port	1 x RS-232/422/485 2 x RS-232
	Digital I/O	8-bit digital I/O
	Display	2 x HDMI
	Resolution	HDMI: up to 4096x2160@24Hz
	Audio	1 x Line-out
	Wireless	2 x 802.11b/g/n (optional)
Expansions	PCIe Mini	1 x Full-size PCIe Mini card slot (with SIM holder & mSATA support) 1 x Half-size PCIe Mini card slot
Power	Power Input	DC 12V (Optional 9~36V) Power 1: DC jack Power 2: Terminal block(for optional 9~36V only)
	Power Consumption	12 V@2.4 A (Intel® i5-6300U with 4GB DDR4 memory)
Reliability	Mounting	Wall mount, VESA 100
	Operating Temperature	-20°C~60°C with air flow (SSD), 5% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 3 shocks per axis
	Operating Vibration	MIL-STD-810F 514.5C-2 (SSD)
	Weight (Net/Gross)	2.2 kg/3 kg

*3855U belongs to Skylake ULT Base series CPU, PCIe signal support only PCIe Gen 2

Friendly to Use

Easy for installation

- Flexible I/O function for expansion requirement
- Easy assembly and integration changing with IEI E-winodw tool kit

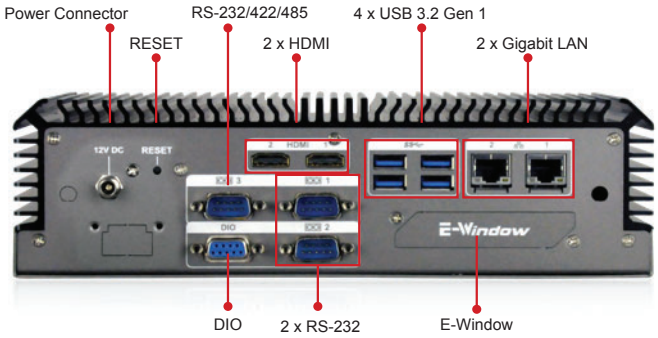


Fully Integrated I/O

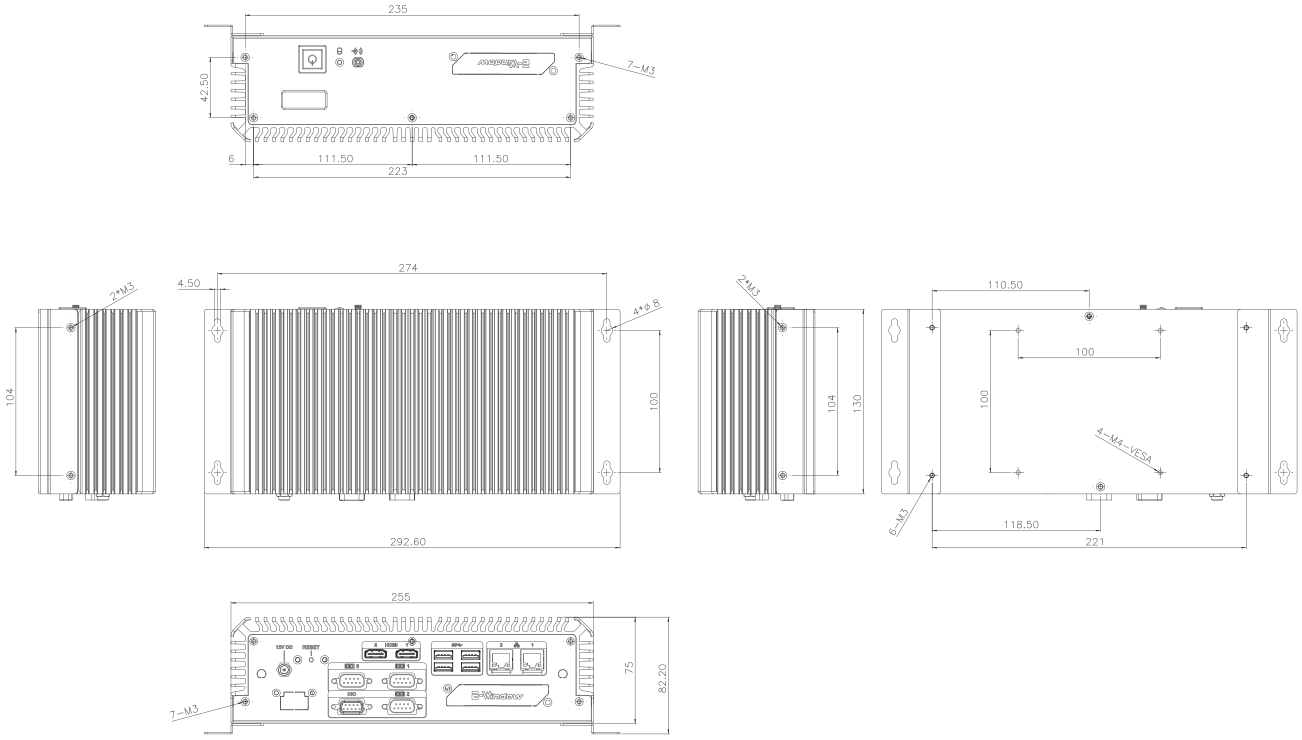
Front view



Rear view



Dimensions (Unit: mm)



Ordering Information

Part No.	Description
ECN-360A-ULT3-CE/4G-R10	Fanless System with Intel® Celeron® 3855U up to 3.0GHz/1.6GHz, TDP 15W, 2 x GbE LAN port, 2 x HDMI, 2 x 2.5" SATA HDD bay, 4GB memory pre-installed, 12V DC, RoHS
ECN-360A-ULT3-i5/WD/4G-R10**	Fanless System with Intel® Core™ i5-6300U up to 3.0GHz, TDP 15W, 2 x GbE LAN port, 2 x HDMI, 2 x 2.5" SATA HDD bay, 4GB memory pre-installed, 9~36V DC, RoHS
ECN-360A-ULT3-CE/WD/4G-R10**	Fanless System with Intel® Celeron® 3855U up to 1.6GHz, TDP 15W, 2 x GbE LAN port, 2 x HDMI, 2 x 2.5" SATA HDD bay, 4GB memory pre-installed, 9~36V DC, RoHS
63040-010060-120-RS	FSP060-DIBAN2, 12V 60W AC/DC Adapter
E-MPCIE-LAN03-R10	PCIe mini card supports 1-port GbE with REALTEK RTL8111E controller, with PMS 194C I/O bracket and 150 mm cable
E-MPCIE-DLAN03-R10	PCIe mini card supports PCIe mini card supports 2-port GbE with Intel® I211 controller, with PMS 194C I/O bracket and 150mm cable

**By order production, MOQ: 50

Packing List

1 x Screw set	1 x Wall mount bracket

ECW-281B-BT

Fanless Embedded System with Intel® Celeron® J1900 Processor



Features

- Fanless system with Intel® Celeron® J1900 Processor
- Supports four COM ports (three RS-232, one RS-422/485)
- 12V DC and 9 V~36 V DC models available
- Wide operating temperature: -20°C ~ 60°C with SSD

QTS-Gateway IPMI 2.0 Compliant

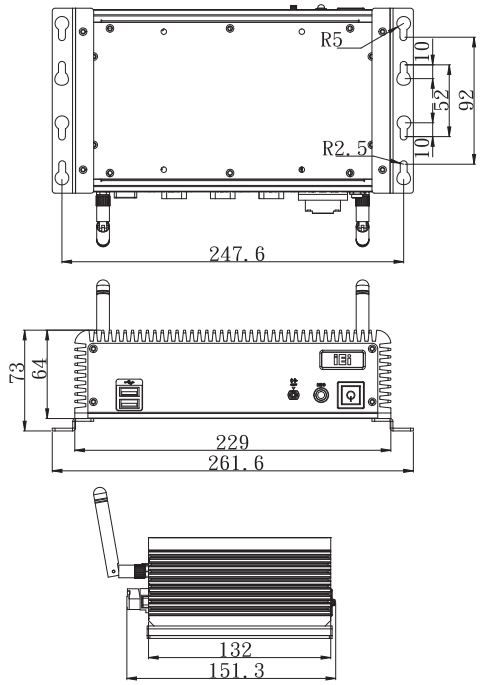
Fanless | PCIe Mini Expansion | USB 3.2 Gen 1 | Dual GbE | mSATA

Specifications

Model Name		ECW-281B-BT
Chassis	Color	Black
	Dimensions (WxHxD) (mm)	229 x 132 x 64
	System Fan	Fanless
	Chassis Construction	Aluminum alloy with heavy duty metal
Motherboard	Motherboard Model	WAFER-BT-i1
	SBC Size (mm)	3.5", 146 x 102
	CPU	Intel® Celeron® J1900 processor (quad-core, 2 MB cache, TDP=10W, up to 2.42GHz)
	Chipset	SoC
	System Memory	1 x 204-pin 1066/1333 MHz single-channel DDR3L SO-DIMM (system max. 8 GB)
IPMI	iRIS Solution	1 x iRIS-1010-R10 (optional)
Storage	Hard Drive	1 x 2.5" SATA 3Gb/s HDD bay
I/O Interfaces	USB 3.2 Gen 1	1
	USB 2.0	3
	Ethernet	LAN 1: PCIe GbE by Intel® I210 controller LAN 2: PCIe GbE by Intel® I211 controller
	COM Port	3 x RS-232 1 x RS-422/485
	Digital I/O	8-bit digital I/O
	Display	1 x VGA
	Resolution	VGA: Up to 2560x1600@60Hz
	Audio	1 x Line out
	Wireless	1 x 802.11b/g/n (optional)
Expansion	PCIe Mini	1 x Full-size PCIe Mini card slot (supports mSATA)* 1 x Half-size PCIe Mini card (only for iRIS)
Power	Power Input	DC jack: 12 V DC 3-pin terminal: 9 V~36 V DC
	Consumption	12V@1.45A (with Intel® Celeron® J1900 CPU and one 8 GB 1333 MHz DDR3 memory)
Reliability	Mounting	Wall mount, VESA 100
	Operating Temperature	-20°C~60°C with air flow (SSD), 10% ~ 95%, non-condensing
	Storage Temperature	-20°C ~ 60°C
	Operating Shock	Half sine wave 5G, 11ms 3-axis (non-operational)
	Operating Vibration	MIL-STD-810F 514.5C-1 (HDD)
	Weight (Net/Gross)	2.1 kg / 3.9 kg

*ECW-281BWD-BTi-QGW without Full-size PCIe Mini Card slot expansion

Dimensions (Unit: mm)



Options

Part No.	Description
iRIS-1010-R10	IPMI 2.0 adapter card with AST1010 BMC chip (W/O KVM over IP function) for PCIe Mini socket interface
ECW-281B-BTi-WES7E64-R10	OS Image with Windows® Embedded Standard 7 E 64Bit for ECW-281BTi Series, with DVD-ROM, RoHS, R10
DK-100-R10	VESA 100 to DIN-Rail mounting kit

Packing List

1 x Power cord only for 12V	1 x Wall mount bracket
1 x 12V 60W power adapter only for 12V	1 x Screw set

Ordering Information

Part No.		Description
12V DC Input	ECW-281B-BTi-J1/2GB-R10	Fanless embedded system with WAFER-BTi, Intel® Celeron® J1900 2.42 GHz processor, four serial ports, pre-installed 2GB DDR3L SO-DIMM, 12 V DC-in, 60 W power adapter, black, RoHS
9 V~36 V DC Input	ECW-281BWD-BTi-J1/2GB-R10	Fanless embedded system with WAFER-BTi, Intel® Celeron® J1900 2.42 GHz processor, four serial ports, pre-installed 2GB DDR3L SO-DIMM, 9 V ~ 36 V DC-in, black, RoHS

Embedded Chassis Series

New 

New 

Model Name		BRICK-KINO	BRICK-WAFER	BRICK-NANO
Platform		Case only		
Chassis	Color	Black		
	Dimensions (WxDxH) (mm)	203 x 178 x 64	220 x 143 x 55	
	System Fan	N/A	N/A	N/A
	Chassis Construction	N/A	N/A	N/A
Motherboard	Motherboard Model	tKINO-ULT3 KINO-DAL KINO-DBT tKINO-AL tKINO-BW eKINO-BT	WAFER-AL WAFER-BT-E38001W2	NANO-AL NANO-BT
	SBC Size (mm)	Mini-ITX (170 x 170)	3.5" (146 x 102)	3.5" (165 x 115)
Button		Power switch		
Reliability	Operating Temperature	0°C ~ 40°C		
	Operating Shock	Half-sine wave 3G, 11ms 3 shocks per axis		
	Operating Vibration	MIL-STD-810F 514.5C-1		
	Weight (Net/ Gross)	1.25kg/1.5kg	1.2kg/1.5kg	

BRICK Series

Embedded Chassis for IEI DC Input Mini-ITX/EPIC/3.5" SBC

New



▼ BRICK Chassis with WAFER-AL (SBC not included)

▲ BRICK Chassis with eKINO-BT (SBC not included)

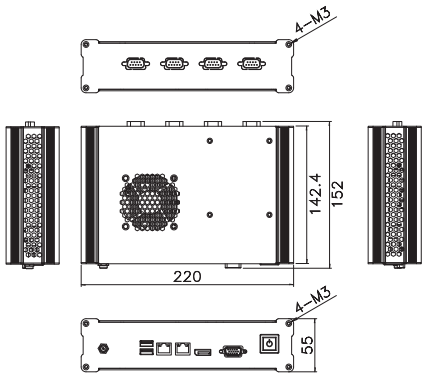
Features

- Designed for Mini-ITX / EPIC / 3.5" SBC with DC input
- Flexible SBC compatibility
- One 2.5" hard drive capacity
- Cost-effective, RoHS compliant design

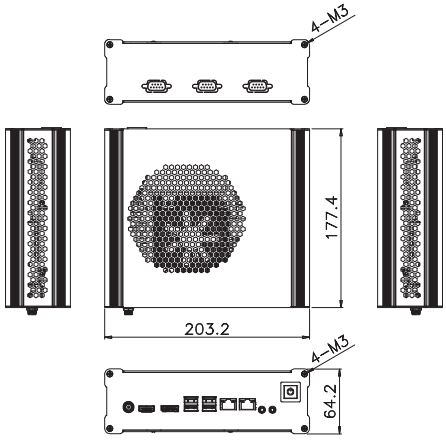
Specifications

Model Name		BRICK-KINO	BRICK-WAFER	BRICK-NANO
Platform		Case only		
Chassis	Color	Black		
	Dimensions (WxDxH) (mm)	203 x 178 x 64	220 x 143 x 55	220 x 143 x 55
Motherboard	Motherboard Model	tKINO-ULT3 KINO-DAL KINO-DBT tKINO-AL tKINO-BW eKINO-BT	WAFER-AL WAFER-BT-E38001W2	NANO-AL NANO-BT
	SBC Size (mm)	Mini-ITX (170 x 170)	3.5" (146 x 102)	3.5" (165 x 115)
Button		Power switch		
Reliability	Operating Temperature	0°C ~ 40°C	0°C ~ 40°C	0°C ~ 40°C
	Weight (Net/Gross)	1.25kg/1.5kg	1.2kg/1.5kg	1.2kg/1.5kg

BRICK-NANO/WAFER Dimensions *(Unit: mm)*



BRICK-KINO Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
BRICK-KINO-DAL-R10	Embedded chassis for KINO-DAL SBC, with IO bracket, power switch, mat black and RoHS
BRICK-KINO-DBT-R10	Embedded chassis for KINO-DBT SBC, with IO bracket, power switch, mat black and RoHS
BRICK-eKINO-BT-R10	Embedded chassis for eKINO-BT SBC, with IO bracket, power switch, mat black and RoHS
BRICK-tKINO-AL-R10	Embedded chassis for tKINO-AL SBC, with IO bracket, power switch, mat black and RoHS
BRICK-tKINO-BW-R10	Embedded chassis for tKINO-BW SBC, with IO bracket, power switch, mat black and RoHS
BRICK-tKINO-ULT3-R10	Embedded chassis for tKINO-ULT3 SBC, with IO bracket, power switch, mat black and RoHS
BRICK-WAFER-AL-R10	Embedded chassis for WAFER-AL SBC, with SATA cable, IO bracket, power switch, DC input cable, mat black and RoHS
BRICK-WAFER-BT-E38001W2-R10	Embedded chassis for WAFER-BT-E38001W2 series SBC, with SATA cable, IO bracket, power switch, DC input cable, mat black and RoHS
BRICK-NANO-AL-R10	Embedded chassis for NANO-AL SBC, with SATA cable, IO bracket, power switch, DC input cable, mat black and RoHS
BRICK-NANO-BT-R10	Embedded chassis for NANO-BT SBC, with SATA cable, IO bracket, power switch, DC input cable, mat black and RoHS

Packing List

BRICK-KINO	1 x BRICK chassis	1 x Power switch cable	1 x Screw set	1 x QIG	
BRICK-WAFER/NANO	1 x BRICK chassis	1 x Power switch cable	1 x Screw set	1 x QIG	1 x SATA cable

Embedded Chassis Series





	Model Name	EBC-3300	EBC-3220	EBC-3100
	Platform	Case only	Case only	Case only
Chassis	Color	Black	Black	Black
	Dimensions (WxDxH) (mm)	190 x 190 x 43	190 x 180 x 55	260 x 250 x 156
	System Fan	--	1 x 4 cm	1 x 8 cm
	Chassis Construction	Heavy duty metal	Heavy duty metal	Heavy duty metal with plastic front panel
Motherboard	Motherboard Model	EBC-3300-AL-R10 :tKINO-AL EBC-3300-BW-R10: tKINO-BW	tKINO-BW KINO-DQM170 KINO-DH810 KINO-DBT eKINO-BT KINO-DA750-i2 KINO-V1000/R1000 KINO-DH310 KINO-DH110 KINO-DAL tKINO-AL tKINO-ULT3 KINO-KBN/SE-i2 KINO-DQM871-i1 KINO-DH610 KINO-QM770 KINO-QM670 KINO-QM57A KINO-HM551	KINO-AQ170 KINO-ABT KINO-AA750-i2 KINO-AQ870 KINO-AQ670 KINO-AH611 KINO-AH612
	SBC Size (mm)	Mini-ITX (170 x 170)	Mini-ITX (170 x 170)	Mini-ITX (170 x 170)
Storage	Hard Drive	1 x 2.5'' SATA HDD drive bay	1 x 2.5" SATA HDD drive bay	1 x 3.5" SATA HDD space
	CF Card/CFast	N/A	N/A	Refer to SBC
	SD Card	Refer to SBC	Refer to SBC	Refer to SBC
I/O Interfaces	PS2 (KB/MS)	N/A	N/A	Refer to SBC
	USB 3.2 Gen 1	Refer to SBC	Refer to SBC	Refer to SBC
	USB 2.0	Refer to SBC	Refer to SBC	Refer to SBC
	Ethernet	2	2	2
	COM Port	Refer to SBC	Refer to SBC	Refer to SBC
	LPT	Refer to SBC	Refer to SBC	Refer to SBC
	Display	Refer to SBC	Refer to SBC	Refer to SBC
	Resolution	Refer to SBC	Refer to SBC	Refer to SBC
	Audio	Refer to SBC	Refer to SBC	Refer to SBC
	Wireless	Refer to SBC	Refer to SBC	Refer to SBC
Expansions	PCI	N/A	N/A	N/A
	PCIe	N/A	N/A	1 x Full-height expansion slot
	PCIe Mini	Refer to SBC	Refer to SBC	Refer to SBC
	Others	1 x E-Window	N/A	N/A
Power	Power Input	12V DC	12V DC	90~264V AC
	Power Supply	12V DC	12V DC	ACE-A618C 180W ACE-A627A 270W
Reliability	Mounting	VESA 100, wall mount	VESA 100, wall mount	Desktop, wall mount
	Operating Temperature	-10°C~50°C	-10°C~50°C	0°C ~ 50°C
	Operating Shock	Half-sine wave 3G, 11ms 3 shocks per axis		
	Operating Vibration	MIL-STD-810F 514.5C-1		
	Weight (Net/ Gross)	1 kg/2 kg	1 kg/2 kg	2.5 kg/3.9 kg

* Optional items
** Systems with hard drive meet MIL-STD-810F 514.5C-1 specifications. SSD/CF systems meet MIL-STD-810F 514.5C-1 specifications.

Embedded Chassis Series






	Model Name	EBC-3000	EBC-2200	EBC-2100	EBC-1100
	Platform	Case only	Case only	Case only	Case only
Chassis	Color	Black	Black	Cool gray	Black
	Dimensions (WxDxH) (mm)	280 x 230 x 88	215 x 150 x 55	262 x 134 x 56	190 x 140 x 46
	System Fan	1 x 6 cm	1 x 4 cm	1 x 4 cm*	Refer to MB
	Chassis Construction	Heavy duty metal with plastic front panel		Aluminum alloy with heavy duty metal	
Motherboard	Motherboard Model	KINO-AQ170 KINO-ABT KINO-AA750-i2 KINO-AQ870 KINO-AQ670 KINO-AH611 KINO-AH612	NANO-BT-i1 NANO-BTW2 NANO-QM871	NANO-LX	WAFER-BT-E38001W2
	SBC Size (mm)	Mini-ITX (170 x 170)	EPIC (165 x 115)	EPIC (165 x 115)	3.5" SBC (146x102)
Storage	Hard Drive	1 x 3.5" SATA HDD space	1 x 2.5" SATA 6Gb/s HDD/SSD drive bay	1 x 2.5" SATA HDD space	1 x 2.5" SATA HDD space
	CF Card/CFast	Refer to SBC	N/A	1	N/A
	SD Card	Refer to SBC	N/A	N/A	N/A
I/O Interfaces	PS2 (KB/MS)	Refer to SBC	Refer to SBC	1	Refer to SBC
	USB 3.2 Gen 1	Refer to SBC	Refer to SBC	N/A	1
	USB 2.0	Refer to SBC	Refer to SBC	4	3
	Ethernet	2	2	1	2
	COM Port	Refer to SBC	Refer to SBC	1+2 RS-232*	1x RS232, 1 x RS-232 & 1 x RS-422/485*
	LPT	Refer to SBC	N/A	*1	N/A
	Display	Refer to SBC	Refer to SBC	1 x VGA	1 x VGA
	Resolution	Refer to SBC	Refer to SBC	N/A	VGA (up to 2560x1600@60Hz)
	Audio	Refer to SBC	1 x Line out, 1 x Mic-in	3 x Audio jack*	1 x Line out, 1 x Mic-in
	Wireless	Refer to SBC	1 x 802.11b/g/n	N/A	802.1b/g/n *
Expansions	PCI	N/A	N/A	N/A	N/A
	PCIe	N/A	N/A	N/A	N/A
	PCIe Mini	Refer to SBC	1 x Full-size PCIe Mini card slot	N/A	3
	Others	N/A	N/A	1 x PCI-104	N/A
Power	Power Input	90~264V AC	12V DC	12V DC in	12V DC in
	Power Supply	ACE-A618C 180W ACE-A627A 270W	12V, 5A	12 V DC in, AT mode only, with 60W power adapter	12V DC in
Reliability	Mounting	Desktop, wall mount	Wall mount, VESA 100	Desktop, wall mount	Wall mount, VESA 75
	Operating Temperature	0°C ~ 50°C	-20°C ~ 60°C	0°C ~ 50°C	-40°C ~ 75°C (refer to MB)
	Operating Shock	Half-sine wave 3G, 11ms 3 shocks per axis	Half-sine wave shock 5G, 11ms, 3 shocks per axis	Half-sine wave 3G, 11ms 3 shocks per axis	Half-sine wave shock 5G, 11ms, 3 shocks per axis
	Operating Vibration		MIL-STD-810F 514.5C-1		MIL-STD-810F 514.5C-1 (with SSD)
	Weight (Net/ Gross)	2.5 kg/3.9 kg	1.1kg/2kg	1 kg/3 kg	1.2Kg/2.2Kg

* Optional items
** Systems with hard drive meet MIL-STD-810F 514.5C-1 specifications. SSD/CF systems meet MIL-STD-810F 514.5C-1 specifications.

EBC-3300

Embedded Chassis for IEI thin Mini-ITX SBC



Features

- Designs for thin type Mini-ITX SBC with single voltage input
- Total height 42mm for space critical application
- One 2.5” hard drive capacity
- Flexible E-Window tool kit support

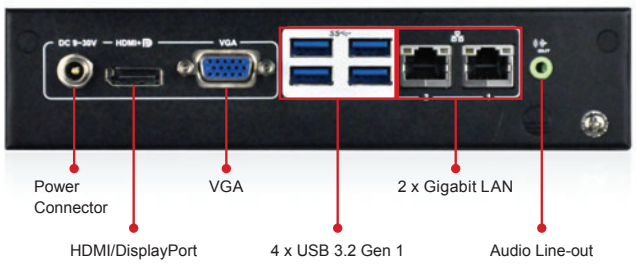


Specifications

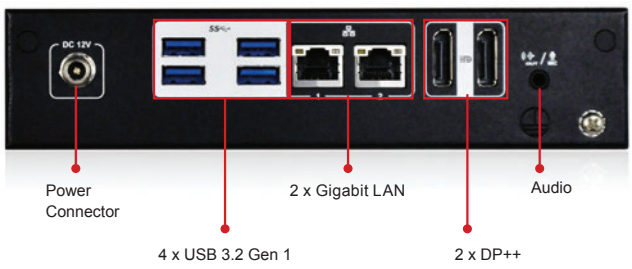
Model Name		EBC-3300	
		EBC-3300-AL-R10	EBC-3300-BW-R10
Platform		Case only	Case only
Chassis	Color	Black	Black
	Dimension(WxDxH)	190 x 190 x 43	190 x 190 x 43
	System Fan	--	--
	Chassis Construction	Heavy duty metal	Heavy duty metal
Motherboard	Motherboard	tKINO-AL	tKINO-BW
	SBC Size (mm)	Mini-ITX (170 x 170)	Mini-ITX (170 x 170)
	CPU	Refer to SBC	Refer to SBC
	System Memory	2 x DDR3L 1333/1066 SO-DIMM (system Max : 8GB)	1 x DDR3L 1333/1066 SO-DIMM (system Max : 8GB)
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD Bay	
	SD Card	1	1
	mSATA / M.2	1 (M.2 B-key)	1
I/O interfaces	PS2 (KB/MS)	pin header	pin header
	USB 3.2 Gen 1	4	4
	USB 2.0	pin header	pin header
	Ethernet	2	2
	RS-232/422/485	2 (pin header)	2 (pin header)
	RS-232	4 (pin header)	4 (pin header)
	DIO	8-bit (pin header)	8-bit (pin header)
	Display	2 x DP++	1 x VGA 1 x DP/HDMI
	Resolution	2 x DP++ (up to 4096x2160@60Hz)	1 x VGA (up to 1920x1200@60Hz) 1 x HDMI/DP (up to 3840x2160@30Hz)
	Audio	Realtek ALC269 1 x Audio jacks (line-out, mic-in)	Realtek ALC662 1 x Audio jacks (line-out)
	Wireless	Refer to SBC	Refer to SBC
Expansions	PCIe Mini	1 x Full-size PCIe Mini	1 x Full-size PCIe Mini
	Others	1 x M.2 B key 2242 (SATA/USB2)	N/A
Power	Power Input	12V	9~30V
	Power Consumption	12V@2.58A	12V@1.61A
	Others	1 x Power swtich	1 x Power swtich
Reliability	Mounting	VESA 100, wall mount	
	Operating Temperature	-10 ~ 50 °C with air flow (SSD), 10% ~ 95%, non-condensing	
	Storage Temperature	-20°C ~ 60°C	
	Operating Shock	Half-sine wave shock 3G, 11ms, 3 shocks per axis	
	Operation Vibration	MIL-STD-810G 514.5C-1 (with SSD)	
	Weight (Net/Gross)	1 kg/ 2kg	

Fully Integrated I/O

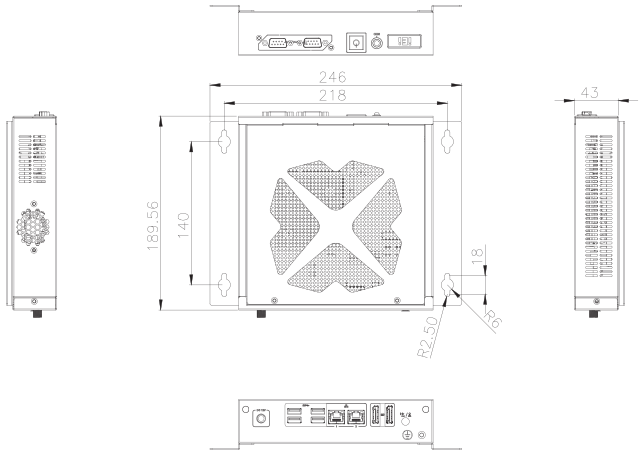
•EBC-3300-BW-R10 Rear I/O



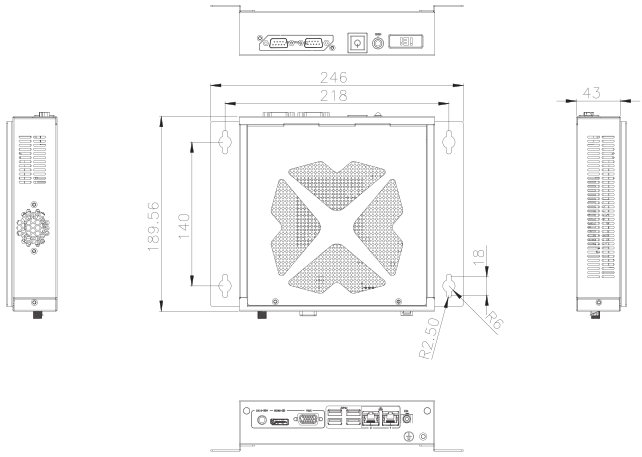
•EBC-3300-AL-R10 Rear I/O



EBC-3300-AL-R10 Dimensions (Unit: mm)



EBC-3300-BW-R10 Dimensions (Unit: mm)



Ordering Information

Part No.	Description
EBC-3300-AL-R10	Embedded chassis for tKINO-AL with one 2.5" SATA hard drive bay, IO bracket, one LED cable, one power switch cable and RoHS
EBC-3300-BW-R10	Embedded chassis for tKINO-BW with one 2.5" SATA hard drive bay, IO bracket, one LED cable, one power switch cable and RoHS

Options

Part No.	Description
E-MPCIE-3G-R10	PCIe mini card supports 3G WWAN Module, with PMS 130C I/O bracket, RF antenna 300mm cable and GSM antenna cable, R10
19FR123510BH-000001-RS	Fan Module, FAN, +12V, 3PIN, 31100-000409-RS, STANDARD, R123510BHAC6M5AR, CABLE L:300mm, MOLEX 5051-03P P=2.54 (For EBC-3300-ULT3-R10)
19FR123510BH-000002-RS	Fan Module, FAN, +12V, 4PIN, 31100-000410-RS, STANDARD, R123510BHAF6M6AR, CABLE L:300mm, MOLEX 5051-04P P=2.54 (For EBC-3300-AL-R10 & EBC-3300-BW-R10)
63040-010060-120-RS	FSP060-DIBAN2, 12V 60W AC/DC Adapter

Packing List

1 x QIG	1 x Wall mount bracket kit	1 x Screw set

EBC-3220

Compact Embedded Chassis for IEI Single Voltage Mini-ITX SBC



Mini-ITX

Features

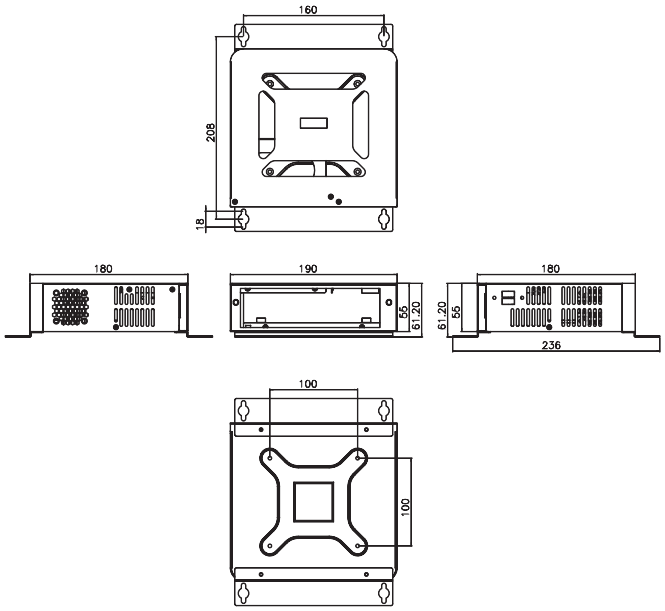
- Designed for Mini-ITX SBC with single voltage input
- Space critical application
- One 2.5" hard drive capacity
- Cost-effective, RoHS compliant design

Specifications

Model Name		EBC-3220
Platform		Case only
Chassis	Color	Black
	Dimensions (WxDxH) (mm)	190 x 180 x 55
	System Fan (WxDxH) (mm)	40 x 40 x 10 (optional)
Motherboard	Motherboard Model	Refer to KINO Series
	SBC Size (mm)	Mini-ITX (170 x 170)
Storage	Hard Drive	1 x 2.5" HDD bracket
Button		Power switch
Reliability	Mounting	Desktop, wall mount, VESA mount
	Operating Temperature	-10°C ~ 50°C with air flow*
	Weight (Net/Gross)	1 kg/2 kg

*Ambient air speed follows IEC-68-2-2 standard

Dimensions *(Unit: mm)*



Compatible Mini-ITX SBC

Part No.	Recommended CPU Cooler
tKINO-BW	Fanless
KINO-DQM170	19100-000203-00-RS (suitable for 25W CPU)
KINO-DH810	CF-115XA-R10, CF-115XC-R10, CF-115XD-R10
KINO-DBT	Fanless
eKINO-BT	Fanless
KINO-DA750-i2	CF-989B-RS
KINO-KBN/SE-i2	GX-424CC & GX415GA with fan
KINO-DQM871-i1	19100-000203-00-RS
KINO-DH610	CF-115XA-R10, CF-115XC-R10, CF-115XD-R10
KINO-QM770	CF-989A-RS
KINO-QM670	CF-989A-RS
KINO-QM57A	CF-989A-RS, CF-989B-RS
KINO-HM551	CF-989A-RS
KINO-DH310	CF-115XA-R10, CF-115XC-R10, CF-115XD-R10
KINO-DH110	CF-115XA-R10, CF-115XC-R10, CF-115XD-R10
tKINO-ULT3	19100-000224-00-RS, 34000-000645-RS
tKINO-AL	Fanless
KINO-DAL	Fanless
KINO-V1000/R1000	19100-000232-00-RS, 19100-000225-00-RS

Ordering Information

Part No.	Description
EBC-3220-R11	Mini-ITX embedded chassis, for DC input model only, with one 2.5" HDD bracket, w/o power adapter, black, RoHS

Packing List

1 x QIG	1 x Wall mount bracket kit	1 x Screw set

Options

Part No.	Description
32001-010800-100-RS	Dual port USB cable, 200mm, w/o bracket
63040-010060-110-RS	Power adapter, FSP060-DIBAN2, 90 V~264 V AC, 60W, 1500mm, 12 V DC, Din 4-pin/lock, CCL, ErP, PSE, RoHS
63040-010084-010-RS	Power adapter, FSP084-DIBAN2, 90 V~264 V AC, 84W, 1800mm, 12 V DC, Din 4-pin/lock, CCL, ErP, RoHS
19FR124010BL-000003-RS	Fan module, L=200mm, 4cm, 3-pin, CCL, RoHS

EBC-3100

Mini-ITX Chassis for High Power Consumption Applications





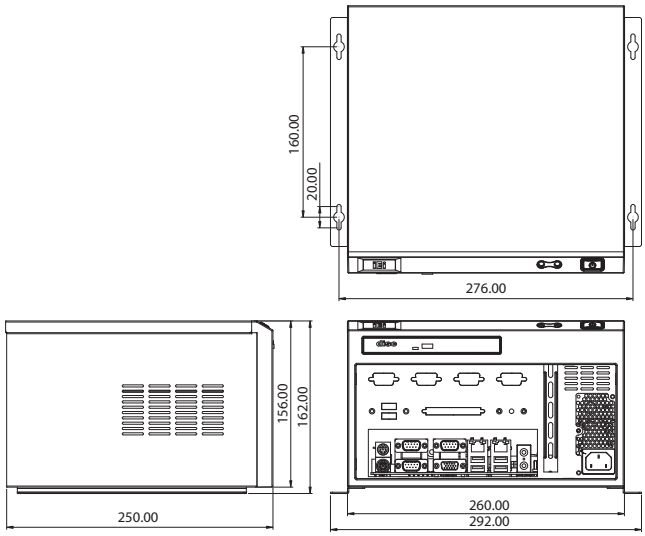
Features

- Designed for high performance applications, bundled with 270W high efficiency ATX power supply
- Front accessible I/O design
- Supports one expansion slot
- One 3.5” hard drive, one slim type optical drive capacity

Specifications

Model Name		EBC-3100
Platform		Case only
Chassis	Color	Black
	Dimensions (WxDxH) (mm)	260 x 250 x 156
	System Fan (WxDxH) (mm)	80 x 80 x 25
	Chassis Construction	Heavy duty metal with plastic front panel
Motherboard	Motherboard Model	Refer to KINO Series
	SBC Size (mm)	Mini-ITX (170 x 170)
Storage	Hard Drive	1 x 3.5" SATA HDD space
	ODD	1 x 5.25" slim type
Expansions		1 x Full-height expansion slot Max. dimensions: 220 mm (L) x 27 mm (D)
Power	Power Input	90 V~264 V AC
	Power Model	ACE-A618C 180W, ACE-A627A 270W
Reliability	Mounting	Desktop, wall mount
	Operating Temperature	0°C ~ 50°C
	Weight (Net/Gross)	2.5 kg/3.9 kg

Dimensions *(Unit: mm)*



Compatible SBC

Part No.	Expansion Type	Recommended CPU Cooler
KINO-AQ170	1 x PCIe x16	CF-115XA-R10, CF-115XC-R10, CF-115XD-R10
KINO-ABT	1 x PCIe x4	Fanless
KINO-AA750-i2	1 x PCIe x8	CF-989B-RS
KINO-AQ870	1 x PCIex4	CF-1150SC-RS
KINO-AQ670	1 x PCIe x16	CF-115XA-R10, CF-115XC-R10, CF-115XD-R10
KINO-AH611	1 x PCIe x16	CF-115XA-R10, CF-115XC-R10, CF-115XD-R10
KINO-AH612	1 x PCIe x4	CF-115XA-R10, CF-115XC-R10, CF-115XD-R10

1U AC Input									
Products	Model No.	Watt AT/ ATX PFC	Input Voltage	Output Current Range					Efficiency
				+3.3 V	+5 V	+12 V	-12 V	+5 Vsb	
	ACE-A630C	300W ATX	90~265 VAC	16A (0.5A min.)	18A (0.5A min.)	15A (0.5A min)	0.5A	3A	82%
	ACE-A618C	180W ATX	90~264 VAC	10A (0.1A min)	14A (0.2A min.)	10A (0.6A min.)	0.3A	2.5A	85%

Ordering Information

Part No.	Description
EBC-3100-R12/ACE-A618C	Mini-ITX embedded chassis, one 3.5” hard drive bay, with ACE-A618C-RS 180W ATX power supply, black
EBC-3100-R12/ACE-A630C	Mini-ITX embedded chassis, one 3.5” hard drive bay, with ACE-A630C-RS 300W ATX power supply, black

Packing List

1 x System Fan	1 x Screw set	1 x QIG
1 x Power cord	1 x Wall mount kit	1 x SATA slim ODD cable

EBC-3000 *Mini-ITX Chassis for High Power Consumption Applications*





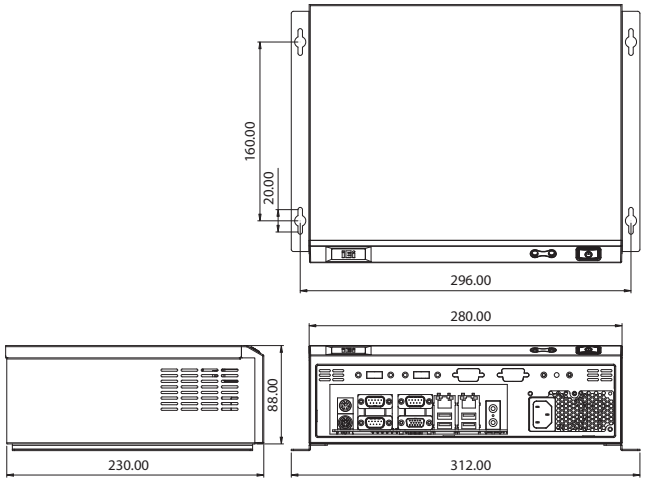
Features

- Designed for high performance applications, bundled with 270W high efficiency ATX power supply
- Front accessible I/O design
- One 3.5" hard drive capacity

Specifications

Model Name		EBC-3000
Platform		Case only
Chassis	Color	Black
	Dimensions (WxDxH) (mm)	280 x 230 x 88
	System Fan (WxDxH) (mm)	60 x 60 x 25
	Chassis Construction	Heavy duty metal with plastic front panel
Motherboard	Motherboard Model	Refer to KINO Series
	SBC Size (mm)	Mini-ITX (170 x 170)
Storage	Hard Drive	1 x 3.5" SATA HDD space
Power	Power Input	90 V~264 V AC
	Power Model	ACE-A618C 180W, ACE-A627A 270W
Reliability	Mounting	Desktop, wall mount
	Operating Temperature	0°C ~ 50°C
	Weight (Net/Gross)	2.5 kg/3.9 kg

Dimensions *(Unit: mm)*



Compatible SBC

Part No.	Recommended CPU Cooler
KINO-AQ170	CF-115XA-R10, CF-115XC-R10, CF-115XD-R10
KINO-ABT	Fanless
KINO-AA750-i2	CF-989B-RS
KINO-AQ870	CF-1150SC-RS
KINO-AQ670	CF-115XA-R10, CF-115XC-R10, CF-115XD-R10
KINO-AH611	CF-115XA-R10, CF-115XC-R10, CF-115XD-R10
KINO-AH612	CF-115XA-R10, CF-115XC-R10, CF-115XD-R10

1U AC Input									
Products	Model No.	Watt AT/ATX PFC	Input Voltage	Output Current Range					Efficiency
				+3.3 V	+5 V	+12 V	-12 V	+5 Vsb	
	ACE-A630C	300W ATX	90~265 VAC	16A (0.5A min.)	15A (0.5A min)	0.5A	0.8A	3A	82%
	ACE-A618C	180W ATX	90~264 VAC	10A (0.1A min)	14A (0.2A min.)	10A (0.6A min.)	0.3A	2.5A	85%

Ordering Information

Part No.	Description
EBC-3000-R12/ACE-A618C	Mini-ITX embedded chassis, one 3.5" hard drive bay, with ACE-A618C-RS 180W ATX power supply, black
EBC-3000-R12/ACE-A630C	Mini-ITX embedded chassis, one 3.5" hard drive bay, with ACE-A630C-RS 300W ATX power supply, black

Packing List

1 x System fan	1 x Screw set	1 x QIG
1 x Power cord	1 x Wall mount kit	

EBC-2200 *Embedded Chassis for EPIC SBC*



Features

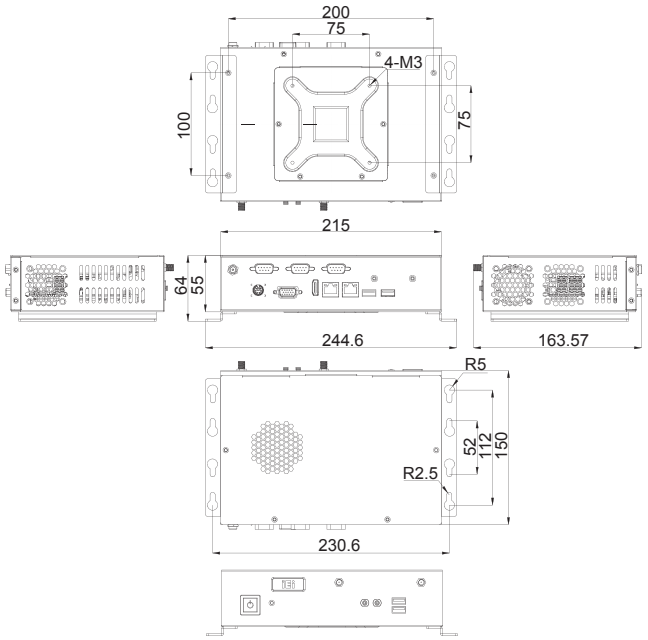
- Designed for EPIC SBC with single voltage input
- One 2.5" hard drive capacity
- Support one PCIe Mini expansion slot
- Complete I/O interface, including dual GbE, dual display port



Specifications

Model Name		EBC-2200-BT
Platform		Case only
Chassis	Color	Black
	Dimensions (WxDxH) (mm)	215 x 150 x 55
	System Fan (WxDxH) (mm)	40 x 40 x 10 (optional)
	Chassis Construction	Aluminum alloy with heavy duty metal
Motherboard	Motherboard Model	NANO-BT-i1 NANO-BTW2
	SBC Size	EPIC SBC (165 mm x 115 mm)
	Processor	Refer to SBC
	Chipset	SoC
	System Memory	1 x 204-pin 1066/1333 MHz DDR3L SO-DIMM (system max. 8GB)
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD drive bay
System Function	PS2 (KB/MS)	1
	USB 3.2 Gen 1	1
	USB 2.0	3
	Ethernet	LAN1: Intel® I210-AT PCIe controller with NCSI support LAN2: Intel® I211-AT PCIe controller
	COM Port	2 x RS-232 1 x RS-232/422/485
	Digital I/O	N/A
	Display	1 x HDMI, 1 x VGA
	Audio	1 x Line out, 1 x Mic-in
	Wireless	1 x 802.11b/g/n (optional)
Expansion	PCIe Mini	1 x Full-size PCIe Mini card slot
Power	Power Input	12 V DC
	Power Consumption	12V@1.52A (Intel® Atom™ J1900 CPU with 8GB 1333MHz DDR3 memory)
Reliability	Mounting	Wall mount, VESA 75
	Operating Temperature	-20°C ~60°C
	Operating Shock	Half-sine wave shock 5G, 11ms, 3 shocks per axis
	Operating Vibration	MIL-STD-810F 514.5C-1 (with SSD)
	Weight (Net/Gross)	1.1 kg/2 kg

Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
EBC-2200-BT-R10	Embedded chassis for NANO-BT Series SBC with one 2.5" SATA hard drive bay, IO bracket, one LED cable, one power switch cable, one USB cable, RoHS, R10

Options

Part No.	Description
32231-000100-200-RS	DIO cable, 150 mm, 2x5 pin
32205-001400-200-RS	RS-232 cable, 200 mm, 2x5 pin
32107-004000-100-RS	Audio cable, 250 mm, two 3.5 mm phone jacks with nut
63040-010060-120-RS	Power adapter, FSP060-DIBAN2, 90 V~264 V AC, 60 W, 12 V DC, ErP
31100-000272-RS	Fan, +12 V DC, 4-pin, YEN SUN, 40 mm x 40 mm x 15 mm, 6000 RPM

Packing List

1 x QIG	2 x Wall mount bracket	1 x Screw set

EBC-2100

Embedded Chassis for EPIC NANO Series



Features

- Fanless system with AMD LX-800
- Complete I/O interfaces, including LAN, COM, four USB
- Single 12V DC power input, AT mode only
- DDR support up to 1GB

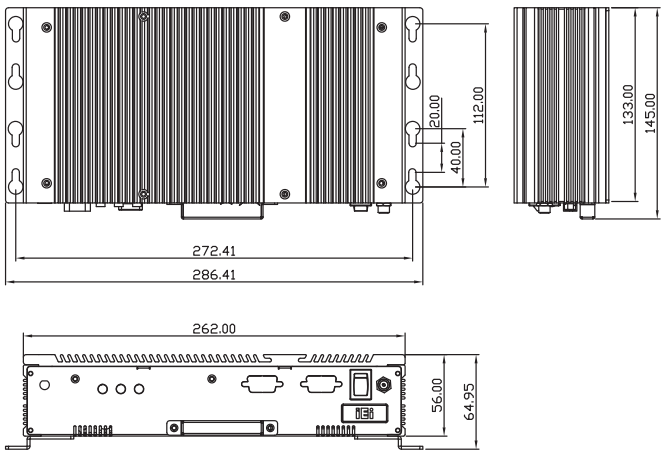
Specifications

Model Name		EBC-2100
Platform		Case only
Chassis	Color	Cool gray
	Dimensions (WxDxH) (mm)	262 x 134 x 56
	System FAN (WxDxH) (mm)	40 x 40 x 10 (optional)
	Chassis Construction	Aluminum alloy with heavy duty metal
Motherboard	Motherboard Model	NANO-LX
	SBC Size (mm)	EPIC (165 x 115)
	Processor	Refer to SBC
	Chipset	Refer to SBC
	System Memory	Refer to SBC
Storage	Hard Drive	1 x 2.5" SATA HDD drive bay
	CF Card/CFast	1
I/O Interfaces	PS2 (KB/MS)	1
	USB 2.0	4
	Ethernet	1 x Realtek 8100C
	COM Port	1+2 RS-232*
	LPT	1*
	Display	1 x VGA
	Audio	3 x Audio jack*
	Wireless	N/A
Expansions	PCIe Mini	N/A
	Others	1 x PCI-104
Power	Power Input	12 V DC in, AT mode only
	Power Consumption	12V@0.92A (AMD LX800 CPU with 400MHz 256MB DDR RAM)
Reliability	Mounting	Desktop, wall mount
	Operating Temperature	0°C ~ 50°C
	Operating Shock	Half-sine wave 3G, 11ms 3 shocks per axis
	Operating Vibration	MIL-STD-810F 514.5C-1
	Weight (Net/Gross)	1 kg/3 kg

*Optional items

**The system with hard drive can meet the standard testing MIL-STD-810F 514.5C-1; the system with SSD/CF can pass MIL-STD-810F 514.5C-2.

Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
EBC-2100-R41	Embedded chassis for NANO-8522/LX, compatible with 2.5" SATA hard drive, 60W power adapter with ERP and PSE certificates, sliver, RoHS

Options

Part No.	Description
32221-001000-101-RS	44-pin IDE cable for 2.5" hard drive
32801-000205-100-RS	2.5" SATA HDD cable with 2-pin WAFER 2.0mm power cable, for NANO-945GSE-N270 in EBC-2101, 20cm
CF-PV4010-R10	4010 system fan, +12V ball bearing

Packing List

- 1 x 12V 60W power adapter
- 1 x Power cord
- 1 x Screw set
- 1 x Wall mount kit
- 1 x QIG



Wall mount bracket

EBC-1100

Embedded Chassis for 3.5" SBC



Features

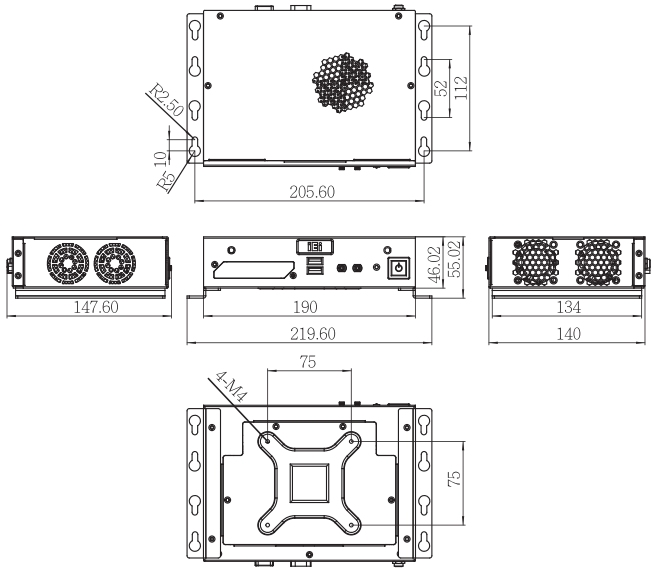
- Designed for WAFER-BT-E38001W2 SBC with single voltage input
- One 2.5" hard drive capacity and two PCIe Mini expansion slots
- On-board memory and on-board SSD for choice
- Flexible E-Window tool kit support
- -40°C ~ 75°C wide temperature support



Specifications

Model Name		EBC-1100
Platform		Chassis only
Chassis	Color	Black
	Dimensions (WxDxH) (mm)	190 x 140 x 46
	System Fan (WxDxH) (mm)	Refer to MB
	Chassis Construction	Aluminum alloy with heavy duty metal
Motherboard	Motherboard Model	WAFER-BT-E38001W2
	Processor	Intel® Atom™ E3800 series on-board SoC
	Chipset	SoC
	System Memory	4GB solder-down 1066/1333 MHz DDR3L memory for E3845 2GB solder-down 1066/1333 MHz DDR3L memory for other SKUs
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD drive bay
	Storage	On-board SSD colay SATA1 (optional) 1 x mSATA colay SATA2 1 x microSD socket
System Function	USB 3.2 Gen 1	1
	USB 2.0	3
	Ethernet	2 x RJ-45 LAN1: Intel® I210-IT PCIe controller LAN2: Intel® I210-IT PCIe controller
	COM Port	2 x RS-232 (RS-232 pin header is optional) 1 x RS-422/485 (pin header, optional)
	Display	1 x VGA
	Resolution	VGA (up to 2560x1600@60Hz)
	Audio	1 x Line-out, 1 x Mic-in
	LED Indicator	Power, HDD
	Wireless	802.1b/g/n 2T2R (optional)
Expansions	PCIe Mini	2 x Full-size PCIe Mini slot
	E-Window	1
Power	Power Input	DC jack: 12 V DC
	Power Consumption	12 V @ 1.32 A (Intel® Atom™ E3845 processor)
Reliability	Mounting	Wall mount, VESA 75
	Operating Temperature	E3845 (10W): -40°C ~ 50°C without fan module/ -40°C ~ 75°C with fan module E3825 (6W): -40°C ~ 65°C without fan module
	Operating Shock	Half-sine wave shock 5G, 11ms, 3 shocks per axis
	Operating Vibration	MIL-STD-810F 514.5C-1 (with SSD)
	Weight (Net/Gross)	1.2 kg/2.2 kg

Dimensions *(Unit: mm)*



Options

Part No.	Description
63040-010060-120-RS	FSP060-DIBAN2, 90 V ~ 264 V AC, 60 W, 12 V DC, ErP
19FR124010BL-000001-RS	Fan module, +12 V DC, 3-pin, 40 mm x 40 mm x 10 mm, EVERFLOW, 5000 RPM, two ball bearing, L=250 mm
32205-004700-100-RS	RS-422/485 cable, 100 mm, P=2.0
32200-074500-RS	RS-232 cable, 150 mm, P=2.0
32801-003608-100-RS	SATA power cable kit, 150 mm
DK-75-R10	VESA 75 to DIN-rail mounting kit

Packing List

1 x QIG	1 x Wall mount bracket	1 x Screw set

Chassis Selection Guide

	Model No.	Type	Board Type		Max. Slots	Drive Capacity				Fan Spec.			
			SBC Slot	Motherboard		5.25" F.P.	3.5" F.P	2.5" Int	3.5" Int	4 cm	6 cm	8 cm	12 cm
	RACK-1150G	1U	PICMG 1.0 full-size/ PICMG 1.3 full-size		3	1			1	3			
	RACK-220G	2U	PICMG 1.0 full-size	*microATX, Mini-ITX	6	1	1		1			2	
	RACK-305G	4U	Full-size	*ATX, microATX, Mini-ITX	14	2	1		1		***2	2	
	RACK-360G	4U	Full-size	*ATX, microATX, Mini-ITX	14	2	1		1		***2		1
	RACK-3000G	4U	Full-size	*ATX, microATX, Mini-ITX	14	3	2		1		***2	2	
	NEW! RACK-500AI	5U	Full-size		5		1		1			1	
	ECA-300			ATX, microATX	7	2		1	1				
	ECA-200			microATX	4			1	1				
	ECA-100			ATX, microATX	7			1	1				
	PAC-1000G		Full-size		6	1	1		1			1	
	PAC-106G		Full-size		6		1		1			1	
	PAC-1700G		Full-size		7	1	1		2			1	
	PAC-125G		Full-size		10	2	1		1			1	
	PAC-53GH		Half-size		3			1					
	PAC-42GH		Half-size		4		△1		△1			1	
	PR-1500G		Half-size		5	◇1	1		1			1	
	PAC-400G		Half-size		5				△1			1	
	NEW! PAC-400AI		Half-size		5				△1			1	
	PAC-700G		Half-size		7	1	△1		1			1	

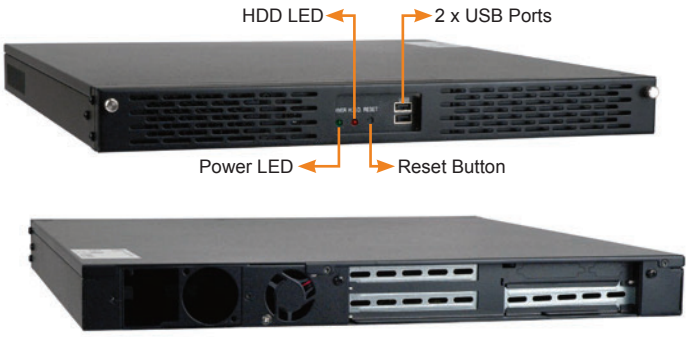
	Model No.	Indicators		Front Panel Control						Back Panel Control		PSU	Dimensions (mm)			Color	
		Power	HDD	Power	Reset	KB	USB	Keylock	COM	USB	COM		Depth	Height	Width	Black	White
	RACK-1150G	O	O	O	O		2					1U	449	44	431	O	
	RACK-220G	O	O	O	O		2	O				PS/2	487.5	88	431	O	O
	RACK-305G	O	O	O	O	O	2	O				PS/2 or mini redundant	413	176	431	O	O
	RACK-360G	O	O	O	O	O	2	O				PS/2 or mini redundant	435.5	176	431	O	O
	RACK-3000G	O	O	O	O			O				PS/2 or mini redundant	520	176	431	O	O
	NEW! RACK-500AI	O	O	O	O		2					1U	440.2	221.3	110.6	(Navy Blue & Black)	
	ECA-300	O	O	O	O		2		6			1U	291	162	365	O	
	ECA-200	O	O	O	O		2		6			1U	310	162	310	O	
	ECA-100	O	O	O	O		2			4	2	PS/2	320	480.5	210		O
	PAC-1000G	O	O	O	O							PS/2	421	176	232	O	
	PAC-106G	O	O	O	O		2					1U	400	175.5	166		O
	PAC-1700G	O	O	O	O							PS/2	433	253.7	192.4	O	
	PAC-125G	O	O	O	O		2	O				PS/2	420	176	321		O
	PAC-53GH	O	O	O	O		2					1U	218	200	95		O
	PAC-42GH	O	O	O	O		2					1U	269	230	140		O
	PR-1500G	O	O	O	O		2					1U	254	132	286		O
	PAC-400G	O	O	O	O		2					1U	269	230.5	140		O
	NEW! PAC-400AI	O	O	O	O		2					1U	269	230.5	140	(Navy Blue & Black)	
	PAC-700G	O	O	O	O		2	O				1U	279	176	321	O	

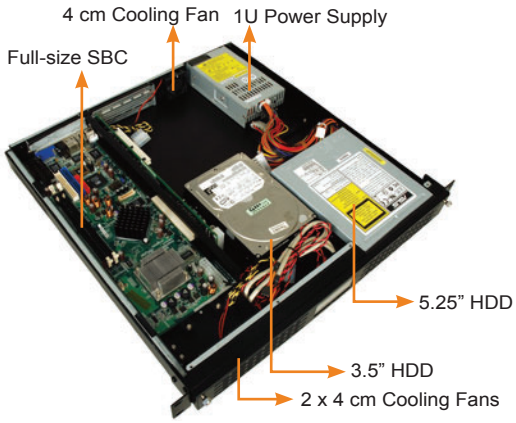
Rackmount chassis
Full-size wall mount chassis
Half-size wall mount chassis

* For ATX model
*** Optional fans for ATX model

◇ Slim-type CD-ROM
△ Please refer to datasheet for detail information

RACK-1150G/1150G-PE *1U Full-size Rackmount Chassis*





CD-ROM, and HDD are not included in package

Features

- RoHS compliant design
- Two front-accessible USB ports
- One 5.25" drive bay
- One 3.5" internal hard drive bay
- Three 4 cm cooling fans

Specifications

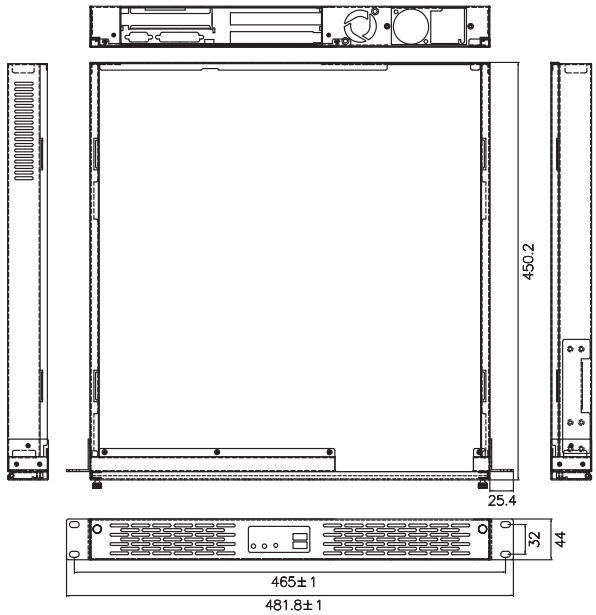
◆ **Construction**	Heavy duty metal
◆ **SBC Form Factor**	Full-size CPU card
◆ **Drive Bays**	1 x 5.25" 1 x 3.5" HDD (internal)
◆ **Cooling Fans**	3 x 4 cm
◆ **I/O Ports**	2 x USB
◆ **I/O Openings**	1 x COM, 1 x LPT
◆ **Expansion Slots**	3 slots/2 slots (PE)
◆ **Indicators**	Power, HDD
◆ **Button**	Power switch, reset button
◆ **Operating Temperature**	0°C ~ 50°C
◆ **Operating Humidity**	10% ~ 90%
◆ **Color**	B: Black
◆ **Weight (Net/Gross)**	7.5 kg/9.5 kg
◆ **Dimensions (DxWxH)**	449 mm x 431 mm x 44 mm

RACK-1150G and RACK-1151G support processors with a maximum TDP of 31 W only.

Ordering Information

Part No.	Description
RACK-1150GB-PE-R11/A618C	1U 2-slot full size rackmount chassis for PICMG 1.3 backplane, Black, 3x 4cm fan, with ACE-A618C-RS-R10(180W), RoHS
RACK-1150GB-R11/A618C	1U 3-slot full size rackmount chassis for PICMG 1.0 backplane, Black, 3x 4cm fan, with ACE-A618C-RS-R10(180W), RoHS

Dimensions *(Unit: mm)*



Backplane Options

Model No.	SBC Type	PCI	ISA	PCIe			PSU Connector
				x1	x4	x16	
PCI-2SD2-RS	PICMG 1.0	2	0	0	0	0	ATX
PE-2SD1*	PICMG 1.3	0	0	0	0	1	ATX
PE-2SD2*	PICMG 1.3	1	0	0	0	0	ATX

Adapter cable 32100-040600-RS is required when connecting PCI-2SD2-RS to a standard ATX supply.

* For RACK-1150G-PE

Power Supply Options

Type	Model No.	Watt
ATX	ACE-A618C-RS-R10	180W
	ACE-A225A-R11	250W
	ACE-4520C-RS	200W

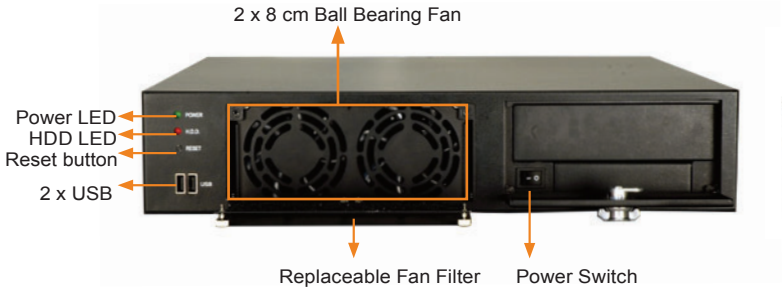
RACK-1150G supports single 1U height PSU. For more IEI PSU models, please refer to section 5 or visit www.ieiworld.com.

Cable Options

Part No.	Description
32102-033200-100-RS	WIRE CABLE; POWER CABLE; 2; 100MM; 18AWG; (A)MOLEX 5557-0400 P=4.2; (B)MOLEX 5559-0400 P=4.2; Wins Precision; RoHS
32100-040600-RS	WIRE CABLE; POWER CABLE; 2; 300MM; 18AWG; (A)MOLEX 5559-20P P=4.2; (B)MOLEX 5557-16P P=4.2; ONE PCS PKG W/ LABEL; RoHS

RACK-220G

2U 6-slot Full-size Rackmount Chassis



CD-ROM, and HDD are not included in package



RACK-220GBATX



RACK-220GB

B-Black

Features

- RoHS compliant design
- Two USB ports on the front panel
- Two 8 cm cooling fans with replaceable fan filter
- One 5.25" and one 3.5" drive bays
- One 3.5" internal hard drive bay
- Lockable door prevents unauthorized access

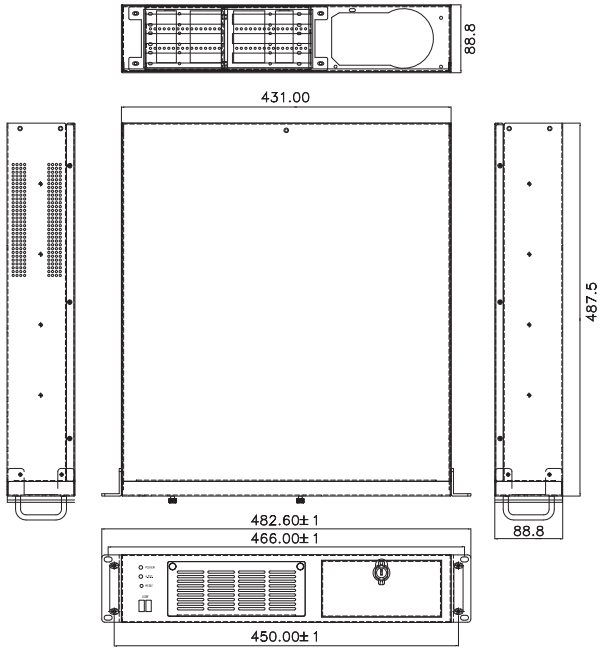
Specifications

◆ **Construction**	Heavy duty metal
◆ **SBC Form Factor**	Full-size, slot CPU card
◆ **Drive Bays**	1 x 5.25” 1 x 3.5” 1 x 3.5” HDD (internal)
◆ **Cooling Fans**	2 x 8 cm
◆ **I/O Ports**	2 x USB
◆ **Expansion Slots**	6 slots
◆ **Indicators**	Power, HDD
◆ **Button**	Power switch, reset button
◆ **Operating Temperature**	0°C ~ 50°C
◆ **Operating Humidity**	10% ~ 90%
◆ **Color**	Black
◆ **Weight (Net/Gross)**	8.2 kg/12.4 kg
◆ **Dimensions (DxWxH)**	488 mm x 431 mm x 89 mm

Ordering Information

Part No.	Description
RACK-220G B/A130C	2U 6-slot full-size rackmount chassis for PICMG 1.0 SBC, (black), 2 x 8 cm fan, with ACE-A130C-R10 (300W ATX model), RoHS
RACK-220G B ATX/A130C	2U microATX motherboard rackmount chassis, (black), 2 x 8 cm fan, with ACE-A130C-R10 (300W ATX model), RoHS

Dimensions *(Unit: mm)*



Selection Guide

Model No.	SBC Type	PSU Type	Color
RACK-220G B	PICMG 1.0	PS/2	Black
RACK-220G B ATX	microATX MB	PS/2	Black

Backplane Options

Model No.	SBC Type	PCI	ISA	PCIe			PSU Connector
				x1	x4	x16	
PCI-5SDA-RS	PICMG 1.0	L2+R2	0	0	0	0	AT/ATX
PCI-5SD6-RS	PICMG 1.0	L2+R2	0	0	0	0	ATX
PCI-6SD-RS	PICMG 1.0	L1+R1	L1+R1	0	0	0	ATX

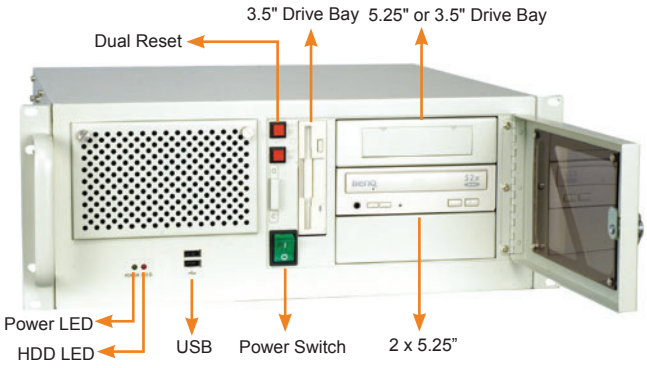
Power Supply Options

Type	Model No.	Watt
AT	ACE-925AP-U-RS	250W
	ACE-935AL-RS	300W
ATX	ACE-A130C-R10	300W
	ACE-A140A-S-R11	400W

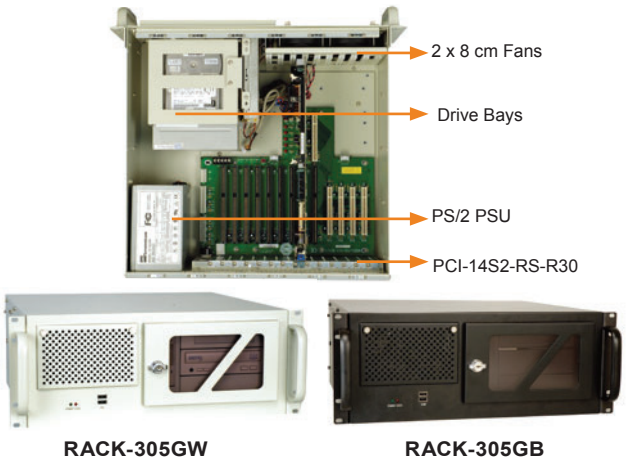
RACK-220G supports single PS/2 PSU. For more IEI PSU models, please refer to section 5 or visit www.ieiworld.com.

RACK-305G

4U 14-slot Full-size Rackmount Chassis



CD-ROM, and HDD are not included in package

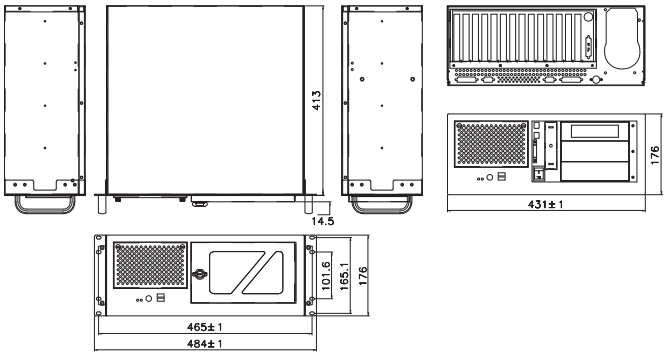


RACK-305GW **RACK-305GB**

Features

- RoHS compliant design
- Two USB ports on the front panel
- Dual reset buttons for dual systems
- Two 8 cm cooling fans with replaceable fan filters
- Lockable door prevents unauthorized access

Dimensions *(Unit: mm)*



Specifications

◆ **Construction**	Heavy duty metal
◆ **SBC Form Factor**	Full-size, slot CPU card
◆ **Drive Combinations**	3 x 5.25" + 1 x 3.5" HDD or 2 x 5.25" + 2 x 3.5" HDD or 2 x 5.25" + 1 x 3.5" HDD + 1 x front accessible 3.5" or 2 x 5.25" + 2 x front accessible 3.5"
◆ **Cooling Fans**	2 x 8 cm
◆ **I/O Ports**	2 x USB
◆ **Expansion Slots**	14 slots for RACK-305G 7 slots for RACK-305GATX
◆ **Indicators**	Power, HDD
◆ **Button**	1 x Power switch, 2 x reset buttons
◆ **Operating Temperature**	0°C ~ 50°C
◆ **Operating Humidity**	10% ~ 90%
◆ **Color**	W: White/B: Black
◆ **Weight (Net/Gross)**	10.4 kg/15 kg
◆ **Dimensions (DxWxH)**	413 mm x 431 mm x 176 mm

Backplane Options

Model No.	SBC Type	PCI	ISA	PCIX	PCIe			PSU Connector
					x1	x4	x16	
PCI-13SD-RS	PICMG 1.0	3+4	3+3	0	0	0	0	AT/ATX
PCI-14S2-RS	PICMG 1.0	4	8	0	0	0	0	AT/ATX
PCI-14S3-RS	PICMG 1.0	4	9	0	0	0	0	AT/ATX
PX-14S3-RS	PICMG 1.0	12	2	0	0	0	0	AT/ATX
PX-14S5-RS	PICMG 1.0	7	6	0	0	0	0	AT/ATX
PE-6S	PICMG 1.3	2	0	0	2	0	1	ATX
PE-10S	PICMG 1.3	4	0	0	4	0	1	ATX
PE-10S2	PICMG 1.3	4	0	0	4	0	1	ATX
PXE-12S	PICMG 1.3	4	0	6	0	0	1	ATX
PE-13SD	PICMG 1.3	4	0	0	4	1	2	ATX
PXE-13S	PICMG 1.3	8	0	0	3	0	1	ATX
SPXE-14S	PICMG 1.3	0	0	0	12	0	0	ATX

Ordering Information

Part No.	Description
RACK-305G C -R22/ACE-935AL	4U 14-slot rackmount chassis, USB, (black/white), with ACE-935AL-RS PSU (300W), RoHS
RACK-305G C -R22/A130C	4U 14-slot rackmount chassis, (black/white), 2 x 8 cm fan, with ACE-A130C-R10 (300W ATX model), RoHS
RACK-305G C ATX-R22/A130C	4U ATX motherboard rackmount chassis, (black/white), 2 x 8 cm fan, with ACE-A130C-R10 (300W ATX model), RoHS

C Color Code: B-Black W-White

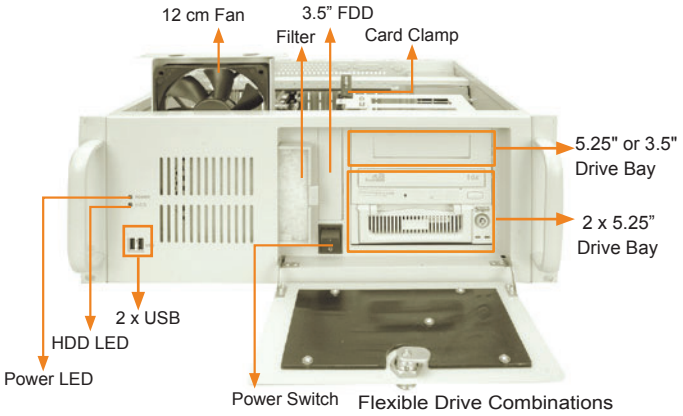
Power Supply Options

Type	Model No.	Watt
AT	ACE-935AL-RS	300W
	ACE-T140A-RS	400W
ATX	ACE-A130C-R10	300W
	ACE-A140A-S-R11	400W
	ACE-A160A-R11	600W
ATX Redundant	ACE-R4130AP-RS	300W
	ACE-R4140AP-RS	400W

RACK-305G supports single PS/2 PSU. For more IEI PSU models, please refer to section 5 or visit www.ieiworld.com.

RACK-360G

4U 14-slot Full-size Rackmount Chassis



Flexible Drive Combinations



RACK-360GW RACK-360GB

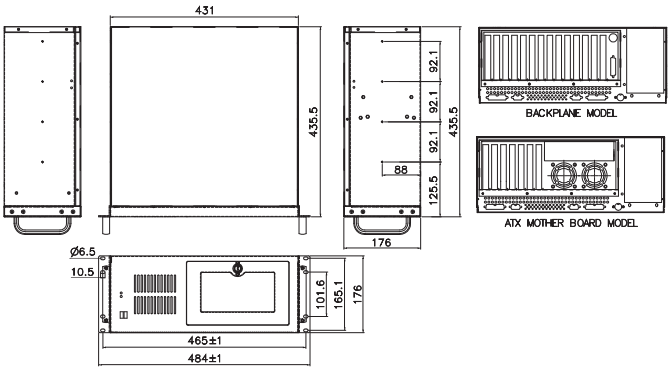


Replaceable fan filter | Front accessible I/O | Anti-vibration card clamp

Features

- Cost-effective, RoHS compatible design
- Flexible drive combinations
- Two USB ports on the front panel
- 12 cm cooling fan with replaceable fan filter
- Lockable door prevents unauthorized access

Dimensions *(Unit: mm)*



Specifications

◆ **Construction**	Heavy duty metal
◆ **SBC Form Factor**	Full-size, slot CPU card
◆ **Drive Combinations**	3 x 5.25" + 1 x 3.5" HDD or 2 x 5.25" + 2 x 3.5" HDD or 2 x 5.25" + 1 x 3.5" HDD + 1 x front accessible 3.5" or 2 x 5.25" + 2 x front accessible 3.5"
◆ **Cooling Fans**	1 x 12 cm
◆ **I/O Ports**	2 x USB
◆ **I/O Openings**	2 x COM, 2 x LPT
◆ **Expansion Slots**	14 slots for RACK-360G 7 slots for RACK-360GATX
◆ **Indicators**	Power, HDD
◆ **Button**	Power switch, reset button
◆ **Operating Temperature**	0°C ~ 50°C
◆ **Operating Humidity**	10% ~ 90%
◆ **Color**	B: Black/W: White
◆ **Weight (Net/Gross)**	11 kg/15.4 kg
◆ **Dimensions (DxWxH)**	435.5 mm x 431 mm x 176 mm

Backplane Options

Model No.	SBC Type	PCI	ISA	PCIX	PCIe			PSU Connector
					x1	x4	x16	
PCI-13SD-RS	PICMG 1.0	3+4	3+3	0	0	0	0	AT/ATX
PCI-14S2-RS	PICMG 1.0	4	8	0	0	0	0	AT/ATX
PCI-14S3-RS	PICMG 1.0	4	9	0	0	0	0	AT/ATX
PX-14S3-RS	PICMG 1.0	12	2	0	0	0	0	AT/ATX
PX-14S5-RS	PICMG 1.0	7	6	0	0	0	0	AT/ATX
PE-6S	PICMG 1.3	2	0	0	2	0	1	ATX
PE-10S	PICMG 1.3	4	0	0	4	0	1	ATX
PE-10S2	PICMG 1.3	4	0	0	4	0	1	ATX
PXE-12S	PICMG 1.3	4	0	6	0	0	1	ATX
PE-13SD	PICMG 1.3	4	0	0	4	1	2	ATX
PXE-13S	PICMG 1.3	8	0	0	3	0	1	ATX
SPXE-14S	PICMG 1.3	0	0	0	12	0	0	ATX

Ordering Information

Part No.	Description
RACK-360G C -R23/ACE-935AL	4U 14-slot rackmount chassis, USB, (black/white), with ACE-935AL-RS PSU (300W), RoHS
RACK-360G C -R23/A130C	4U 14-slot rackmount chassis, (black/white), 1 x 12 cm fan, with ACE-A130C-R10 (300W ATX model), RoHS
RACK-360G C ATX-R23/A130C	4U ATX motherboard rackmount chassis, (black/white), 1 x 12 cm fan, with ACE-A130C-R10 (300W ATX model), RoHS

C Color Code: B-Black W-White

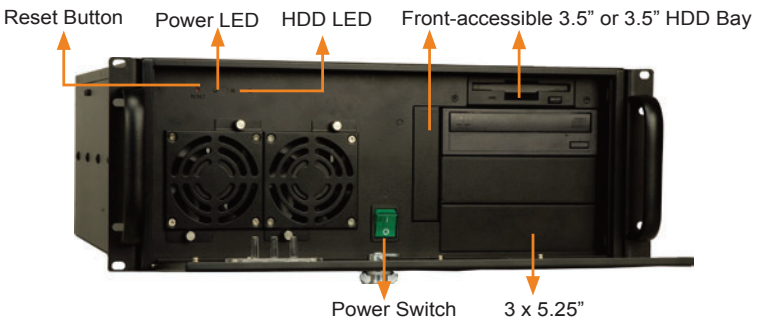
Power Supply Options

Type	Model No.	Watt
AT	ACE-935AL-RS	300W
	ACE-T140A-RS	400W
ATX	ACE-A130C-R10	300W
	ACE-A140A-S-R11	400W
	ACE-A160A-R11	600W
	ACE-A210A-R10	1000W
ATX Redundant	ACE-R4130AP-RS	300W
	ACE-R4140AP-RS	400W

RACK-360G supports single PS/2 PSU. For more IEI PSU models, please refer to section 5 or visit www.ieiworld.com.

RACK-3000G

4U 14-slot Full-size Rackmount Chassis





RACK-3000GBATX



RACK-3000GB

CD-ROM and HDD are not included in package

Features

- RoHS compliant design
- Compatible with ATX and microATX form factor motherboards
- Three 5.25" and three 3.5" drive bays
- Two 8 cm cooling fans
- Lockable door prevents unauthorized access

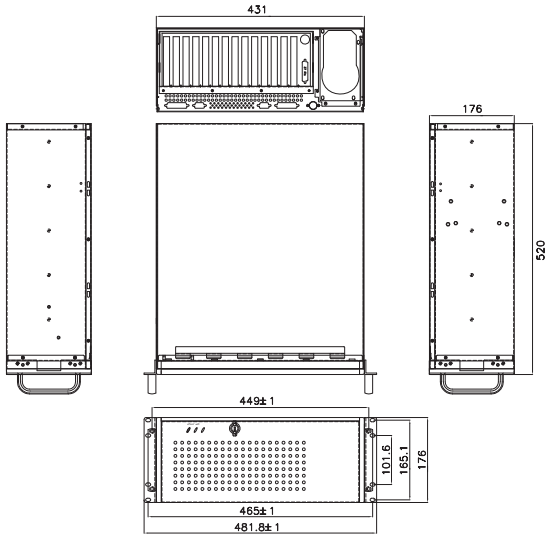
Specifications

◆ **Construction**	Heavy duty metal
◆ **SBC Form Factor**	Full-size, slot CPU card
◆ **Drive Bays**	3 x 5.25" + 1 x front-accessible 3.5" + 2 x 3.5" HDD or 3 x 5.25" + 2 x front-accessible 3.5" + 1 x 3.5" HDD or 3 x 5.25" + 3 x 3.5" HDD
◆ **Cooling Fans**	2 x 8 cm
◆ **I/O Openings**	2 x COM, 2 x LPT, 1 x PS2
◆ **Expansion Slots**	14 slots for RACK-3000G 7 slots for RACK-3000GATX
◆ **Indicators**	Power, HDD
◆ **Button**	Power switch, reset button
◆ **Operating Temperature**	0°C ~ 50°C
◆ **Operating Humidity**	10% ~ 90%
◆ **Color**	Black
◆ **Weight (Net/Gross)**	13 kg/18 kg
◆ **Dimensions (DxWxH)**	520 mm x 431 mm x 176 mm

Ordering Information

Part No.	Description
RACK-3000G[B]-R21/A130C	4U 14-slot rackmount chassis, (black), 2 x 8 cm fan, with ACE-A130C-R10 (300W ATX model), RoHS
RACK-3000G[B]ATX-R21/A130C	4U ATX motherboard rackmount chassis, (black), 2 x 8 cm fan, with ACE-A130C-R10 (300W ATX model), RoHS

Dimensions *(Unit: mm)*



Backplane Options

Model No.	SBC Type	PCI	ISA	PCIX	PCIe			PSU Connector
					x1	x4	x16	
PCI-13SD-RS	PICMG 1.0	3+4	3+3	0	0	0	0	AT/ATX
PCI-14S2-RS	PICMG 1.0	4	8	0	0	0	0	AT/ATX
PCI-14S3-RS	PICMG 1.0	4	9	0	0	0	0	AT/ATX
PX-14S3-RS	PICMG 1.0	12	2	0	0	0	0	AT/ATX
PX-14S5-RS	PICMG 1.0	7	6	0	0	0	0	AT/ATX
PE-6S	PICMG 1.3	2	0	0	2	0	1	ATX
PE-10S	PICMG 1.3	4	0	0	4	0	1	ATX
PE-10S2	PICMG 1.3	4	0	0	4	0	1	ATX
PXE-12S	PICMG 1.3	4	0	6	0	0	1	ATX
PE-13SD	PICMG 1.3	4	0	0	4	1	2	ATX
PXE-13S	PICMG 1.3	8	0	0	3	0	1	ATX
SPXE-14S	PICMG 1.3	0	0	0	12	0	0	ATX

Power Supply Options

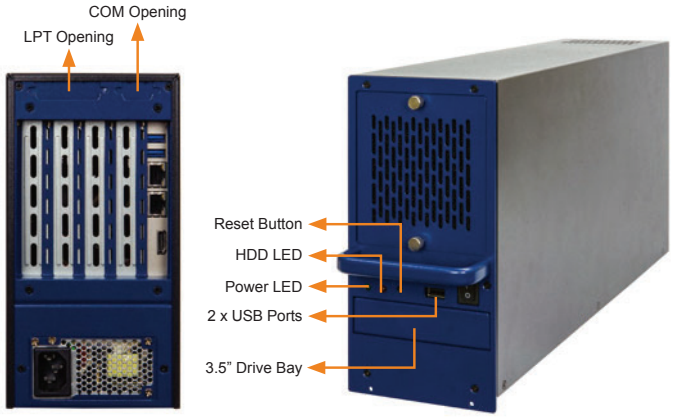
Type	Model No.	Watt
AT	ACE-935AL-RS	300W
	ACE-T140A-RS	400W
ATX	ACE-A130C-R10	300W
	ACE-A140A-S-R11	400W
	ACE-A160A-R11	600W
	ACE-A210A-R10	1000W
ATX Redundant	ACE-R4130AP-RS	300W
	ACE-R4140AP-RS	400W

RACK-3000G supports single PS/2 PSU. For more IEI PSU models, please refer to section 5 or visit www.ieiworld.com.

RACK-500AI

5U 5-slot Full-size Rackmount Chassis

New



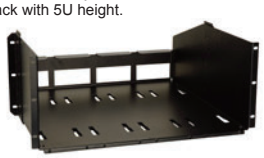
FDD and HDD are not included in the package

CA-950GB-R10



CA-950GB-R10

19" rack carrier can carry four RACK-500AI and fit into standard 19"-width rack with 5U height.



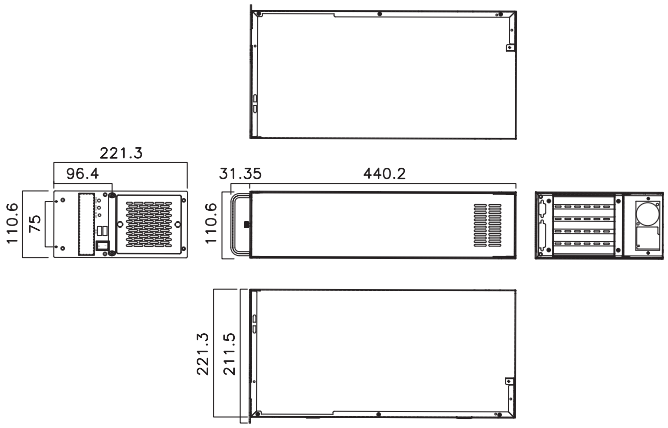
Features

- RoHS compliant design
- 2 x USB ports on front panel
- One front-accessible 3.5" and one internal 3.5" HDD drive bays
- Hot-swappable 8 cm cooling fan
- 19" rack-mountable carrier (optional)

Specifications

◆ **Construction**	Heavy duty metal
◆ **SBC Form Factor**	Full-size CPU cards
◆ **Drive Bays**	1 x Front-accessible 3.5" 1 x 3.5" HDD
◆ **Cooling Fans**	1 x 8 cm
◆ **I/O Ports**	2 x USB
◆ **I/O Openings**	1 x LPT, 1 x COM
◆ **Expansion Slots**	5 slots
◆ **Indicators**	Power, HDD
◆ **Button**	Power switch, reset button
◆ **Operating Temperature**	0°C ~ 50°C
◆ **Operating Humidity**	10% ~ 90%
◆ **Color**	Navy blue and black
◆ **Weight (Net/Gross)**	6 kg/9 kg
◆ **Dimensions (DxWxH)**	440.2 mm x 110.6 mm x 221.3 mm

Dimensions *(Unit: mm)*



Backplane Options

Model No.	SBC Type	PCI	ISA	PCIe			PSU Connector
				x1	x4	x16	
PCI-5S2-RS	PICMG 1.0	4	1	0	0	0	AT
PCI-5S2A-RS	PICMG 1.0	4	1	0	0	0	ATX
PE-3S1	PICMG 1.3	0	0	0	1	1	ATX
PE-5S2	PICMG 1.3	0	0	3	0	1	ATX
PE-5S	PICMG 1.3	2	0	0	1	1	ATX
HPE-5S1	PCI/PICOe	4	0	0	0	0	ATX
HPE-5S2	PCI/PICOe	4	0	0	0	0	ATX
HPXE2-5S1	HPCIE	2	0	0	0	1	ATX

*Only R20 or later versions support PICMG 1.3 backplane.

Ordering Information

Part No.	Description
RACK-500AI-R10/A618C	5U Height 5 Slots Full size Chassis, Navy Blue and Black, 1x 8cm fan, with ACE-A618C-RS-R10(180W), RoHS
RACK-500AI-R10/FSP350	5U Height 5 Slots Full size Chassis, Navy Blue and Black, 1x 8cm fan, with FSP350-50FCB(350W), RoHS
CA-950GB-R10	19" Rackmount Carrier for RACK-500G/RACK-900G/ RACK-500AI

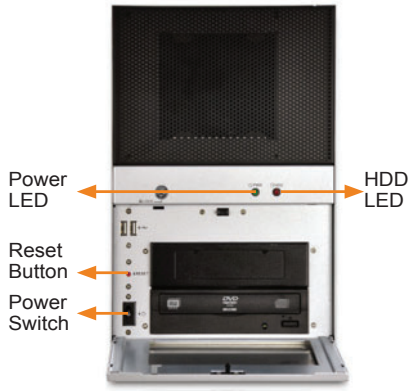
Power Supply Options

Type	Model No.	Watt
ATX	ACE-A618C-RS-R10	180W
	ACE-A225A-R11	250W
	63030-010350-000-RS	350W

RACK-500AI-R10 supports single 1U height AT type PSU. For more IEI PSU models, please refer to section 5 or visit www.ieiworld.com.

ECA-300

Tower Industrial Chassis





Features

- RoHS compliant design
- Supports ATX/microATX motherboard
- Two 5.25” drive bays and one 3.5”/2.5” HDD/SSD bay
- Seven expansion slots

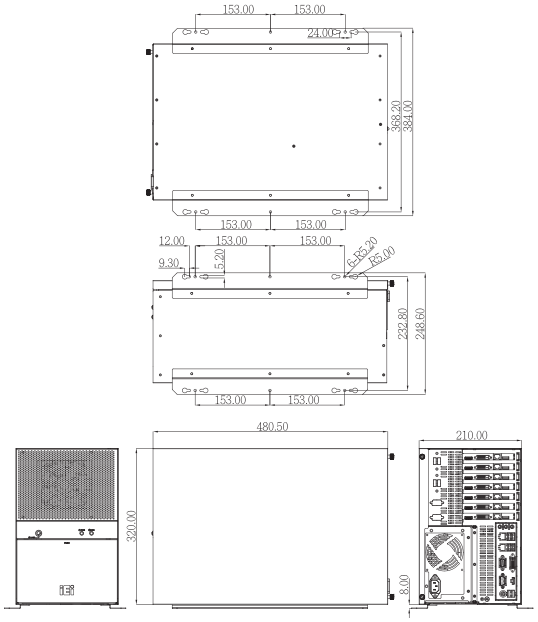
Specifications

◆ **Construction**	Heavy duty metal
◆ **SBC Form Factor**	ATX/microATX
◆ **PSU**	PS/2 ATX power supply
◆ **Drive Bays**	2 x 5.25” 1 x 3.5”/2.5" HDD/SSD
◆ **Cooling Fans**	1
◆ **I/O Openings**	2 x USB 4 x USB 2 x COM
◆ **Expansion Slots**	7
◆ **Indicators**	1 x Power LED, 1 x HDD LED
◆ **Button**	1 x Reset button, 1 x Power switch
◆ **Installation**	Desktop, wall mount
◆ **Operating Temperature**	-10°C ~ 50°C
◆ **Operating Humidity**	5% ~ 95%
◆ **Color**	Silver
◆ **Dimensions (DxWxH)**	210 mm x 320 mm x 480.5 mm
◆ **Operating Vibration**	MIL-STD-810F 514.5C-1
◆ **Operating Shock**	Half-sine wave 3G, 11ms, 100 shocks per axis
◆ **Weight (Net/Gross)**	TBD

Ordering Information

Part No.	Description
ECA-300-R10	Mini-tower chassis, supports microATX or ATX motherboard, one 3.5” HDD/2.5” SSD bay, two 5.25” CD-ROM bays, supports PS/2 ATX power supply, RoHS

Dimensions *(Unit: mm)*



Compatible SBC

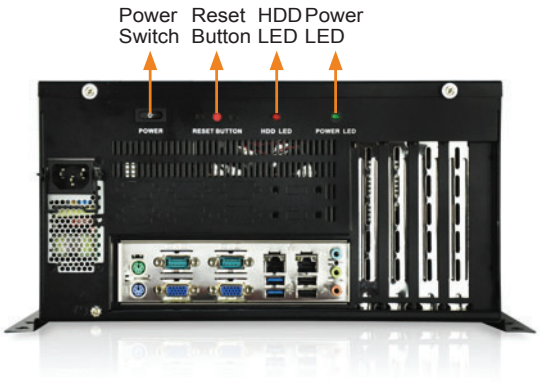
Model No.	SBC Type	PCI	PCIe			
			x1	x4	x8	x16
IMBA-Q370	ATX	2	0	3	2	0
IMBA-H310	ATX	4	0	1	0	1
IMBA-H112	ATX	4	0	1	0	1
IMBA-Q170-i2-R10	ATX	2	0	3	2	0
IMBA-H110-R10	ATX	6	0	0	0	1
IMBA-H810-R10	ATX	4	2	0	0	1
IMBA-Q870-i2-R10	ATX	4	1	1	0	1
IMB-Q870-i2-R10	microATX	1	1	1	0	1
IMB-Q770-R10	microATX	1	1	1	0	1
IMB-H810-i2-R10	microATX	2	1	0	0	1
IMB-H610A-R10	microATX	0	3	0	0	1

Power Supply Options

Type	Model No.	Watt
ATX	ACE-A160A-R11	600W
	ACE-4840APM-RS	400W
	ACE-A140A-R11	400W
	ACE-A130C-R10	300W

ECA-200

Industrial Chassis



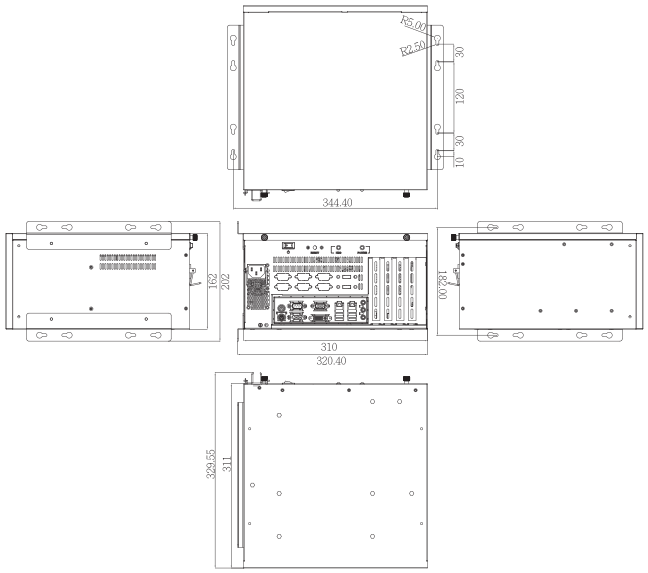




Features

- RoHS compliant design
- Supports microATX motherboard
- One 3.5” HDD or one 2.5” HDD/SSD bay
- Four expansion slots

Dimensions *(Unit: mm)*



Specifications

◆ **Construction**	Heavy duty metal
◆ **SBC Form Factor**	microATX
◆ **PSU**	1U flex power supply
◆ **Drive Bays**	1 x 3.5"/2.5" HDD/SSD Expansion: 1 x 3.5”/2.5” HDD/SSD by the optional ECA-HDD-KIT-R10
◆ **Cooling Fans**	1
◆ **I/O Openings**	2 x USB 6 x COM
◆ **Expansion Slots**	4
◆ **Indicators**	1 x Power LED, 1 x HDD LED
◆ **Button**	1 x Reset button, 1 x Power switch
◆ **Installation**	Desktop, wall mount
◆ **Operating Temperature**	-10°C ~ 50°C
◆ **Operating Humidity**	5% ~ 95%
◆ **Color**	Black
◆ **Dimensions (DxWxH)**	310 mm x 310 mm x 162 mm
◆ **Operating Vibration**	MIL-STD-810F 514.5C-1
◆ **Operating Shock**	Half-sine wave 3G, 11ms, 100 shocks per axis
◆ **Weight (Net/Gross)**	TBD

Compatible SBC

Model No.	SBC Type	PCI	PCIe			
			x1	x4	x8	x16
IMB-Q870-i2	microATX	1	1	1	0	1
IMB-H810-i2	microATX	2	1	0	0	1
IMB-Q770	microATX	1	1	1	0	1
IMB-H810-i2	microATX	2	1	0	0	1
IMB-H610A	microATX	0	3	0	0	1
IMB-H110	microATX	2	1	0	0	1

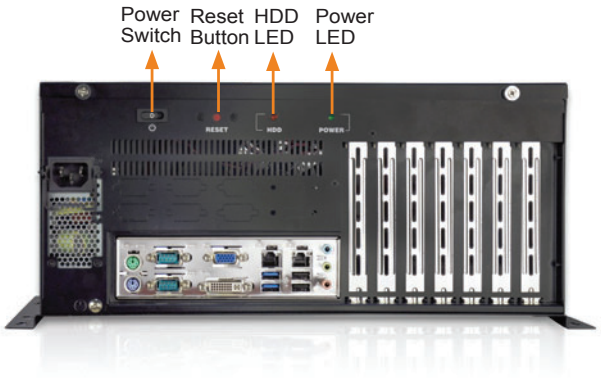
Ordering Information

Part No.	Description
ECA-200-R20	Desktop/wall-mount industrial chassis, supports microATX motherboard and 1U ATX power supply, black, RoHS
ECA-HDD-KIT-R10	Additional 2.5”/3.5” HDD kit for ECA-100/ECA-200, R10

Power Supply Options

Type	Model No.	Watt
ATX	ACE-A615A-RS-R11	150W
	ACE-A618C-RS-R10	180W
	ACE-A622A-RS-R11	220W
	ACE-A627A-RS-R11	270W
	ACE-A630C-RS-R10	300W

ECA-100 *Industrial Chassis*



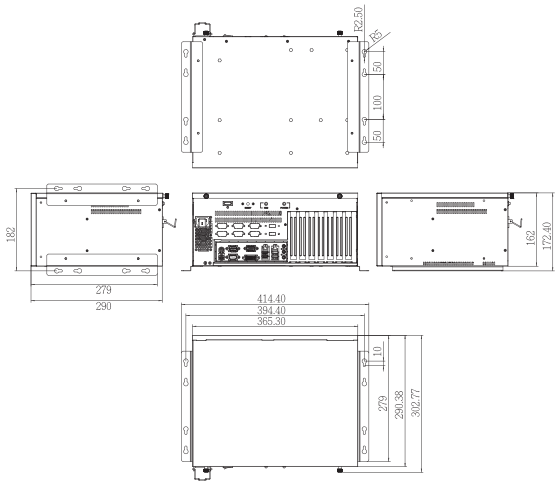




Features

- RoHS compliant design
- Supports ATX/microATX motherboard
- One 3.5” HDD or one 2.5” HDD/SSD bay
- Seven expansion slots

Dimensions *(Unit: mm)*



Specifications

◆ **Construction**	Heavy duty metal
◆ **SBC Form Factor**	ATX/microATX
◆ **PSU**	1U flex power supply
◆ **Drive Bays**	1 x 3.5”/2.5” HDD/SSD Expansion: 1 x 3.5”/2.5” HDD/SSD by the optional ECA-HDD-KIT-R10
◆ **Cooling Fans**	1
◆ **I/O Openings**	2 x USB 6 x COM
◆ **Expansion Slots**	7
◆ **Indicators**	Power LED, HDD LED
◆ **Button**	Power switch, reset button
◆ **Installation**	Desktop, wall mount
◆ **Operating Temperature**	-10°C ~ 50°C
◆ **Operating Humidity**	5% ~ 95%
◆ **Storage Temperature**	-20°C ~ 60°C
◆ **Color**	Black
◆ **Dimensions (DxWxH)**	365 mm x 291 mm x 162 mm
◆ **Operating Vibration**	MIL-STD-810F 514.5C-1
◆ **Operating Shock**	Half-sine wave 3G, 11ms, 100 shocks per axis
◆ **Weight (Net/Gross)**	TBD

Compatible SBC

Model No.	SBC Type	PCI	PCIe			
			x1	x4	x8	x16
IMBA-Q370	ATX	2	0	3	2	0
IMBA-H310	ATX	4	0	1	0	1
IMBA-H112	ATX	4	0	1	0	1
IMBA-Q170-i2-R10	ATX	2	0	3	2	0
IMBA-H110-R10	ATX	6	0	0	0	1
IMBA-H810-R10	ATX	4	2	0	0	1
IMBA-Q870-i2-R10	ATX	4	1	1	0	1
IMBA-Q770-R10	ATX	3	2	1	0	1
IMBA-Q670-R30	ATX	4	1	1	0	1
IMBA-H610-R10	ATX	4	2	0	0	1
IMB-H110	microATX	2	1	0	0	1
IMB-Q870-i2-R10	microATX	1	1	1	0	1
IMB-H810-i2-R11	microATX	2	1	0	0	1
IMB-Q770-R10	microATX	1	1	1	0	1
IMB-H810-i2-R10	microATX	2	1	0	0	1
IMB-H610A-R10	microATX	0	3	0	0	1

Ordering Information

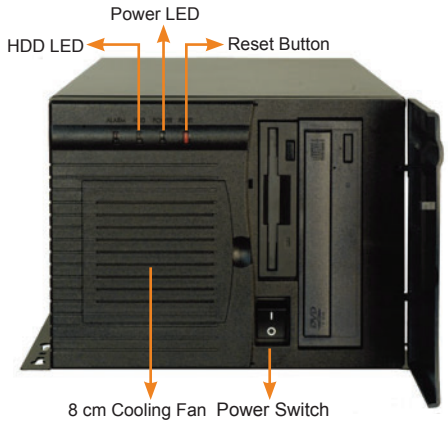
Part No.	Description
ECA-100-R20	Desktop/wall-mount industrial chassis, supports ATX/microATX motherboard and 1U ATX power supply, black, RoHS
ECA-HDD-KIT-R10	Additional 2.5”/3.5” HDD kit for ECA-100/ECA-200, R10

Power Supply Options

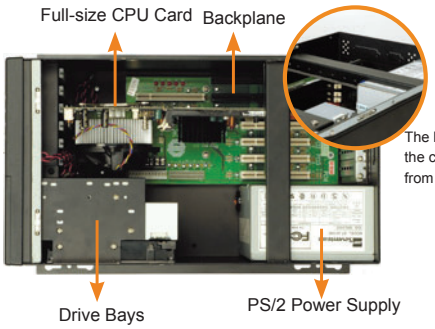
Type	Model No.	Watt
ATX	ACE-A615A-RS-R11	150W
	ACE-A618C-RS-R10	180W
	ACE-A622A-RS-R11	220W
	ACE-A627A-RS-R11	270W
	ACE-A630C-RS-R10	300W

PAC-1000G

6-slot Full-size Compact Chassis

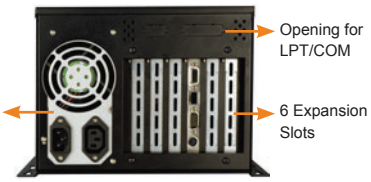


CD-ROM and HDD are not included in package



The hold-down clamp is designed to secure the cards within the chassis, protecting them from vibration.





Features

- RoHS compliant design
- One, 8 cm cooling fan with replaceable fan filter
- Plastic front panel with cover door

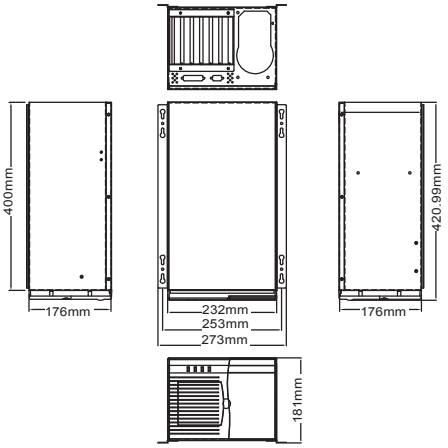
Specifications

◆ **Construction**	Metal with plastic front panel
◆ **SBC Form Factor**	Full-size, slot CPU card
◆ **Drive Bays**	1 x Front- accessible 3.5" 1 x 5.25" 1 x 3.5" HDD
◆ **Cooling Fans**	1 x 8 cm
◆ **I/O Openings**	1 x LPT, 1 x COM
◆ **Expansion Slots**	6 slots
◆ **Indicators**	Power, HDD
◆ **Button**	Power switch, reset
◆ **Operating Temperature**	0°C ~ 50°C
◆ **Operating Humidity**	10% ~ 90%
◆ **Color**	B: Black
◆ **Weight (Net/Gross)**	5.6 kg/8.8 kg
◆ **Dimensions (DxWxH)**	421 mm x 232 mm x 176 mm

Ordering Information

Part No.	Description
PAC-1000GB-R20/A130C	6-slot full-size compact chassis, white, 1 x 8 cm fan, with ACE-A130C-R10 (300W ATX model), RoHS

Dimensions *(Unit: mm)*



Backplane Options

Model No.	SBC Type	PCI	ISA	PCIe				PSU Connector
				x1	x4	x8	x16	
BP-6S-RS	ISA	0	6	0	0	0	0	AT
IP-6S-RS	PCISA	3	2	0	0	0	0	AT
IP-6SA-RS	PCISA	3	2	0	0	0	0	ATX
PCI-6S-RS	PICMG 1.0	4	2	0	0	0	0	AT/ATX
PCI-5S-RS	PICMG 1.0	3	1	0	0	0	0	AT/ATX
PE-6S2*	PICMG 1.3	3	0	0	1	0	1	ATX
SPE-4S	PICMG 1.3	0	0	0	1	2	0	ATX
SPE-6S	PICMG 1.3	0	0	0	5	0	0	ATX

*Only R20 or later versions support PICMG 1.3 backplane

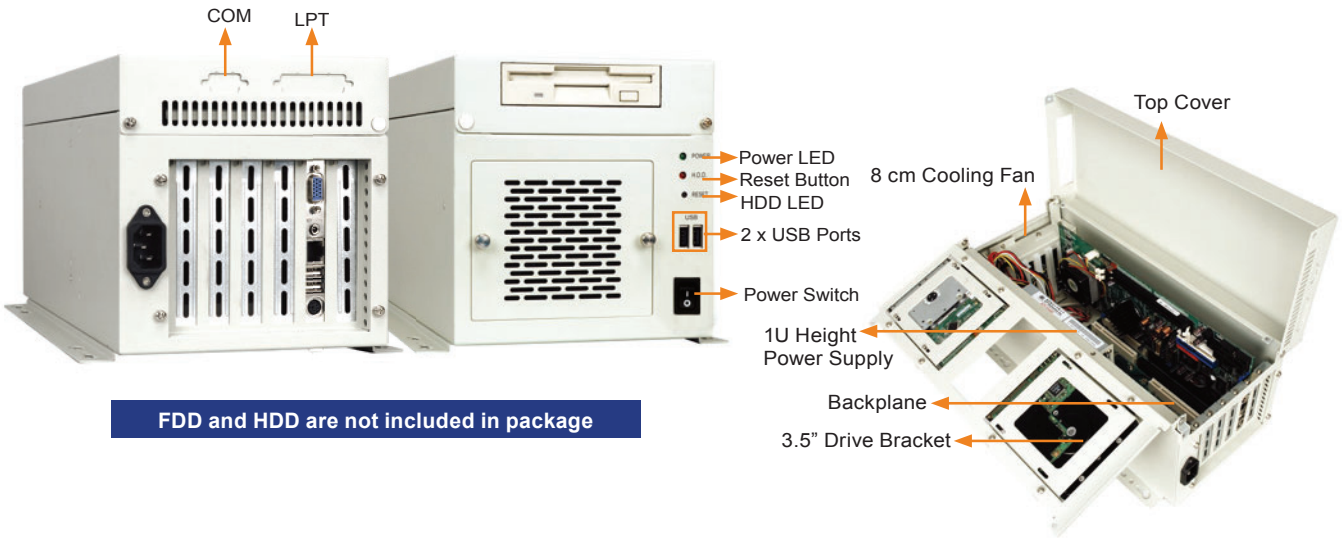
Power Supply Options

Type	Model No.	Watt
AT	ACE-925AP-U-RS	250W
	ACE-T140A-RS	400W
ATX	ACE-A130C-R10	300W
	ACE-A140A-S-R11	400W
	ACE-828V-RS	250W

PAC-1000G supports single PS/2 PSU. For more IEI PSU models, please refer to section 5 or visit www.ieiworld.com.

PAC-106G

6-slot Full-size Compact Chassis



FDD and HDD are not included in package

Features

- RoHS compliant design
- Two USB ports on the front panel
- One 3.5" drive bay and one internal 3.5" HDD bay
- One 8 cm cooling fan

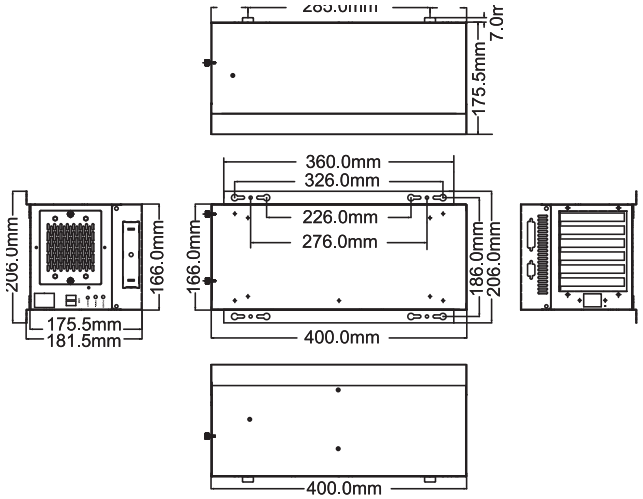
Specifications

◆ **Construction**	Heavy duty metal
◆ **SBC Form Factor**	Full-size, slot CPU card
◆ **Drive Bays**	1 x Front-accessible 3.5”
	1 x 3.5" HDD
◆ **Cooling Fans**	1 x 8 cm
◆ **I/O Ports**	2 x USB
◆ **I/O Openings**	1 x COM, 1 x LPT
◆ **Expansion Slots**	6 slots
◆ **Indicators**	Power, HDD
◆ **Button**	Power switch, reset
◆ **Operating Temperature**	0°C ~ 50°C
◆ **Operating Humidity**	10% ~ 90%
◆ **Color**	W: White
◆ **Weight (Net/Gross)**	5.2 kg/7.8 kg
◆ **Dimensions (DxWxH)**	400 mm x 166 mm x 175.5 mm

Ordering Information

Part No.	Description
PAC-106GW-R21/A618C	6-Slot Full size Chassis, White, 1x 8cm fan, with ACE-A618C-RS-R10(180W), RoHS

Dimensions *(Unit: mm)*



Backplane Options

Model No.	SBC Type	PCI	ISA	PCIe				PSU Connector
				x1	x4	x8	x16	
BP-6S-RS	ISA	0	6	0	0	0	0	AT
IP-6S-RS	PCISA	3	2	0	0	0	0	AT
IP-6SA-RS	PCISA	3	2	0	0	0	0	ATX
PCI-6S-RS	PICMG 1.0	4	2	0	0	0	0	AT/ATX
PE-6S2*	PICMG 1.3	3	0	0	1	0	1	ATX
SPE-4S	PICMG 1.3	0	0	0	1	2	0	ATX
SPE-6S	PICMG 1.3	0	0	0	5	0	0	ATX

*Only R20 or later versions support PICMG 1.3 backplane

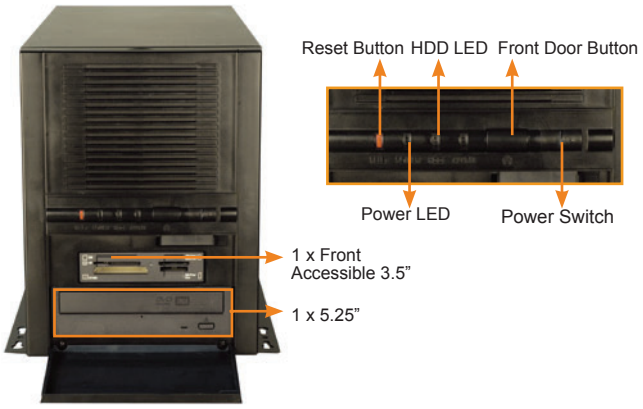
Power Supply Options

Type	Model No.	Watt
ATX	ACE-A618C-RS-R10	180W

PAC-106G supports single 1U height PSU. For more IEI PSU models, please refer to section 5 or visit www.ieiworld.com.

PAC-1700G

7-slot Full-size Compact Chassis



CD-ROM and HDD are not included in package.



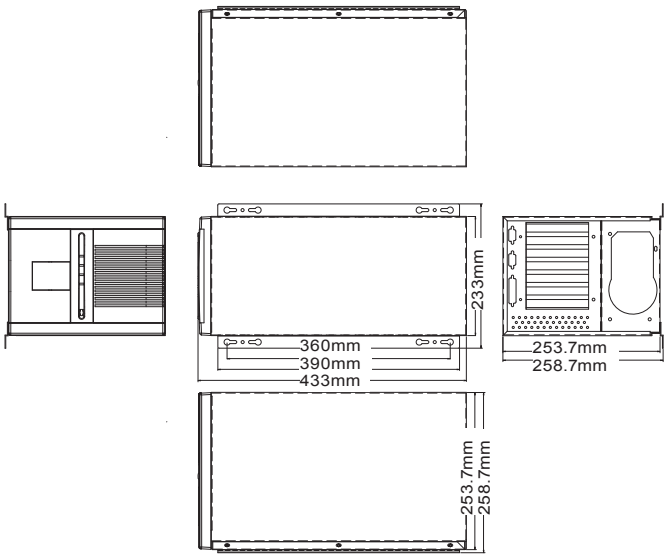
Replaceable fan filter

8 cm cooling fan

Features

- RoHS compliant design
- One 5.25" and one 3.5" drive bay
- Two 3.5" internal HDD bays
- Seven expansion slots, compatible with full-size SBC
- 7 expansion slots, compatible with full-size SBC

Dimensions *(Unit: mm)*



Specifications

◆ **Construction**	Metal with plastic front panel
◆ **SBC Form Factor**	Full-size, slot CPU card
◆ **Drive Bays**	1 x front-accessible 3.5"
	1 x 5.25"
	2 x 3.5" HDD
◆ **Cooling Fans**	1 x 8 cm
◆ **I/O Openings**	1 x LPT, 2 x COM
◆ **Expansion Slots**	7 slots
◆ **Indicators**	Power, HDD
◆ **Button**	Power switch, reset
◆ **Operating Temperature**	0°C ~ 50°C
◆ **Operating Humidity**	10% ~ 90%
◆ **Color**	B: Black
◆ **Weight (Net/Gross)**	6 kg/8.4 kg
◆ **Dimensions (DxWxH)**	433 mm x 233 mm x 253.7 mm

Backplane Options

Model No.	SBC Type	PCI	ISA	PCIe				PSU Connector
				x1	x4	x8	x16	
PCI-7S-RS	PICMG 1.0	4	3	0	0	0	0	AT/ATX
PE-7S*	PICMG 1.3	3	0	2	0	0	1	ATX
PE-7S2*	PICMG 1.3	1	0	4	0	0	1	ATX
HPXE2-7S1	HPCIE	3	0	0	0	2	0	ATX

*Only R20 or later versions support PICMG 1.3 backplane

Ordering Information

Part No.	Description
PAC-1700GB-R20/A130C	7-slot full-size compact chassis, black, 1 x 8 cm fan, with ACE-A130C-R10 (300W ATX model), RoHS

Power Supply Options

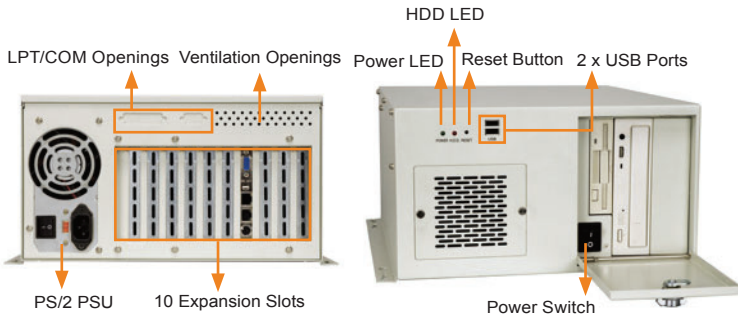
Type	Model No.	Watt
ATX	ACE-A130C-R10	300W
	ACE-A140A-S-R11	400W

PAC-1700G supports single PS/2 PSU. For more IEI PSU models, please refer to section 5 or visit www.ieiworld.com.

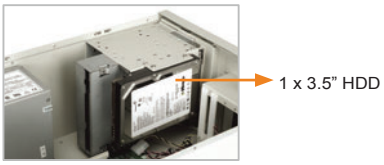
PAC-125G

10-slot Full-size Compact Chassis





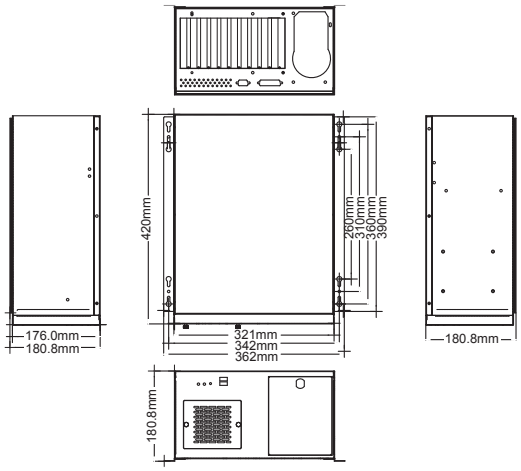
CD-ROM and HDD are not included in package



Features

- RoHS compliant design
- Two USB ports on the front panel
- One 80mm x 80mm x 25mm hot swappable cooling fan with fan filter
- 2 x 5.25", 1 x 3.5" HDD, 1 x front-accessible 3.5" drive bays
- Lockable door prevents unauthorized access

Dimensions *(Unit: mm)*



Specifications

◆ **Construction**	Heavy duty metal
◆ **SBC Form Factor**	Full-size, slot CPU card
◆ **Drive Bays**	2 x 5.25"
	1 x Front accessible 3.5"
	1 x 3.5" HDD
◆ **Cooling Fans**	80mm x 80mm x 25mm
◆ **I/O Ports**	2 x USB
◆ **I/O Openings**	1 x LPT, 1 x COM
◆ **Expansion Slots**	10 slots
◆ **Indicators**	Power, HDD
◆ **Button**	Power switch, reset
◆ **Operating Temperature**	0°C ~ 50°C
◆ **Operating Humidity**	10% ~ 90%
◆ **Color**	W: White
◆ **Weight (Net/Gross)**	7.2 kg/10.4 kg
◆ **Dimensions (DxWxH)**	420 mm x 321 mm x 176 mm

Backplane Options

Model No.	SBC Type	PCI	ISA	PCIX	PCIe				PSU Connector
					x1	x4	x8	x16	
BP-10S-RS	ISA	0	10	0	0	0	0	0	AT
PCI-10S-RS	PICMG 1.0	4	5	0	0	0	0	0	AT/ATX
PX-10S-RS	PICMG 1.0	7	3	0	0	0	0	0	AT/ATX
IP-10S-RS	PCISA	4	5	0	0	0	0	0	AT/ATX
IPX-9S-RS	PCISA	8	0	0	0	0	0	0	AT/ATX
HPE-8S	PCI/PICOe	4	0	0	2	0	0	0	ATX
PE-6S	PICMG 1.3	2	0	0	2	0	0	1	ATX
PE-8S*	PICMG 1.3	3	0	0	3	0	0	1	ATX
SPE-9S	PICMG 1.3	3	0	0	0	3	1	0	ATX

*Only R20 or later versions support PICMG 1.3 backplane

Ordering Information

Part No.	Description
PAC-125GW-R22/A130C	10-slot full-size compact chassis, white, 1 x 8cm fan, with ACE-A130C-R10 (300W ATX model), RoHS
PAC-125GW-R22/ACE-925AP	10-slot full-size chassis, white, with ACE-925AP PSU (200W), RoHS

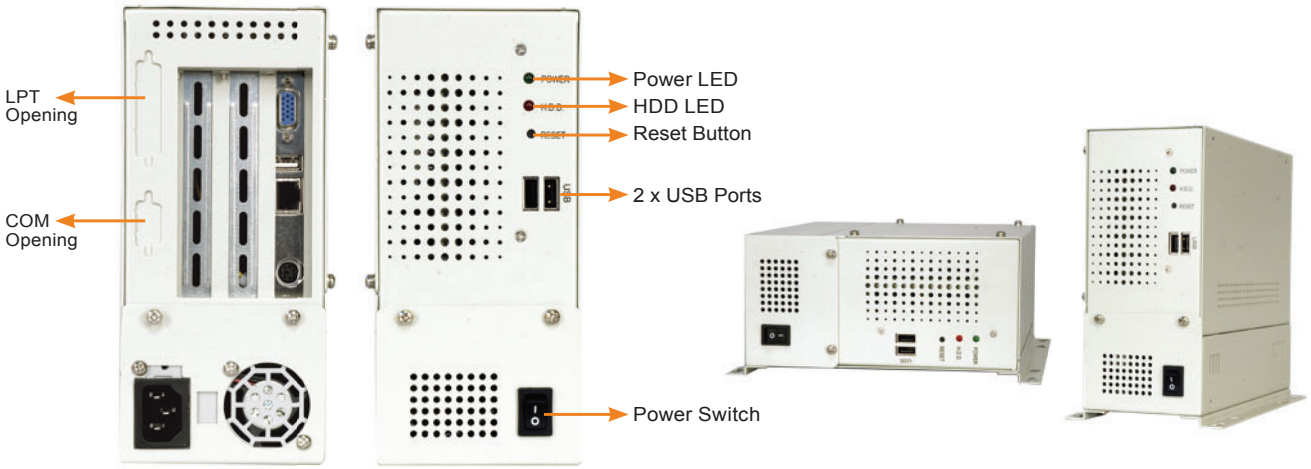
Power Supply Options

Type	Model No.	Watt
AT	ACE-925AP-U-RS	250W
	ACE-935AL-RS	300W
ATX	ACE-A130C-R10	300W
	ACE-A140A-S-R11	400W
	ACE-A160A-R11	600W

PAC-125G supports single PS/2 PSU. For more IEI PSU models, please refer to section 5 or visit www.ieiworld.com.

PAC-53GH

3-slot Half-size Compact Chassis



HDD is not included in package

Features

- RoHS compliant design
- Two USB ports on the front panel
- One 2.5” internal HDD bay

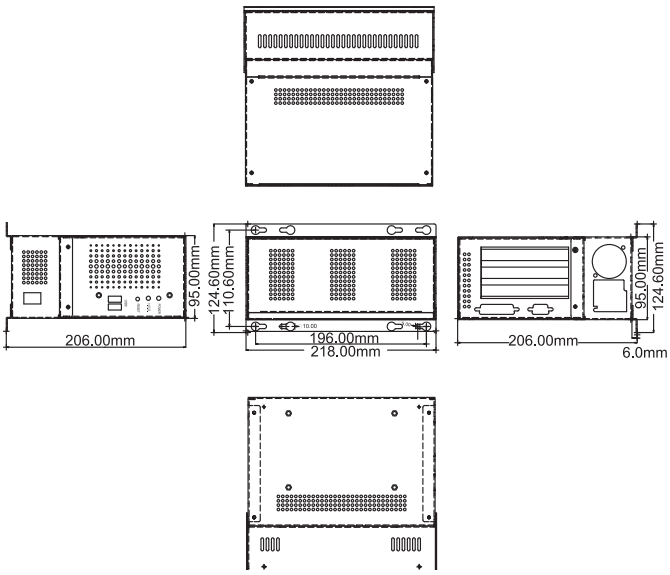
Specifications

◆ **Construction**	Heavy duty metal
◆ **SBC Form Factor**	Half-size, slot CPU cards
◆ **Drive Bays**	1 x 2.5" HDD
◆ **I/O Ports**	2 x USB
◆ **I/O Openings**	1 x LPT, 1 x COM
◆ **Expansion Slots**	3 slots
◆ **Indicators**	Power, HDD
◆ **Button**	Power switch, reset
◆ **Operating Temperature**	0°C ~ 50°C
◆ **Operating Humidity**	10% ~ 90%
◆ **Color**	W: White
◆ **Weight (Net/Gross)**	2 kg/3.8 kg
◆ **Dimensions (DxWxH)**	218 mm x 95 mm x 200 mm

Ordering Information

Part No.	Description
PAC-53GHW-R11/A618C	3-Slot Half-size Chassis, White, with ACE-A618C-RS-R10(180W), RoHS

Dimensions *(Unit: mm)*



Backplane Options

Model No.	SBC Type	PCI	ISA	PCIe			PSU Connector
				x1	x4	x16	
BP-3S-RS	ISA	0	3	0	0	0	AT
IP-3S-RS	PCISA	2	0	0	0	0	AT

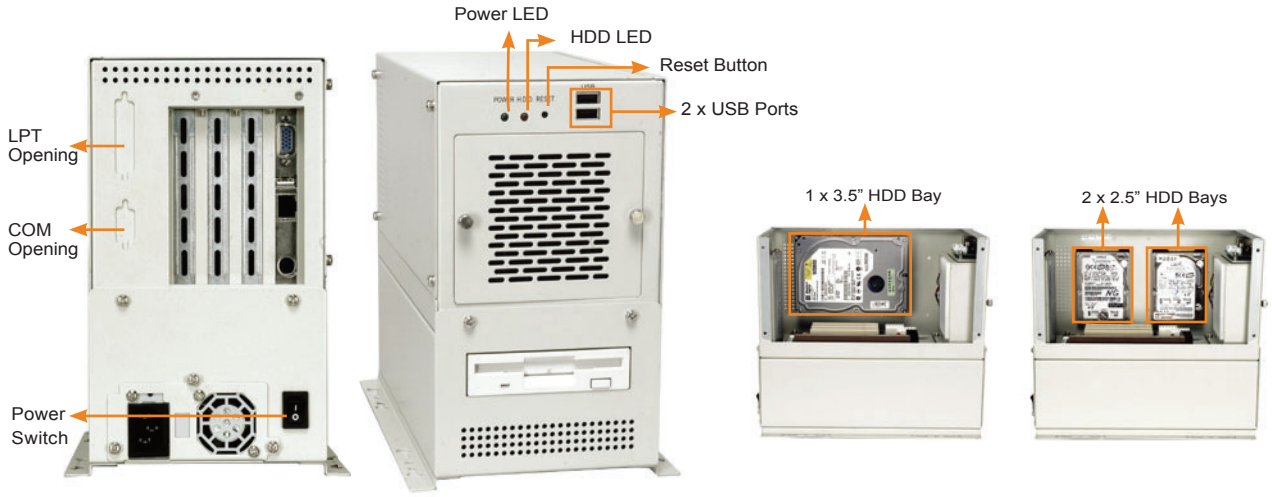
Power Supply Options

Type	Model No.	Watt
ATX	ACE-A618C-RS-R10	180W
	ACE-4520C-RS	200W

PAC-53GH supports single 1U height PSU. For more IEI PSU models, please refer to section 5 or visit www.ieiworld.com.

PAC-42GH

4-slot Half-size Compact Chassis



FDD and HDD are not included in package

Features

- Two USB ports on the front panel
- One 8 cm cooling fan with replaceable filter
- Supports one 3.5" HDD or two 2.5" HDDs

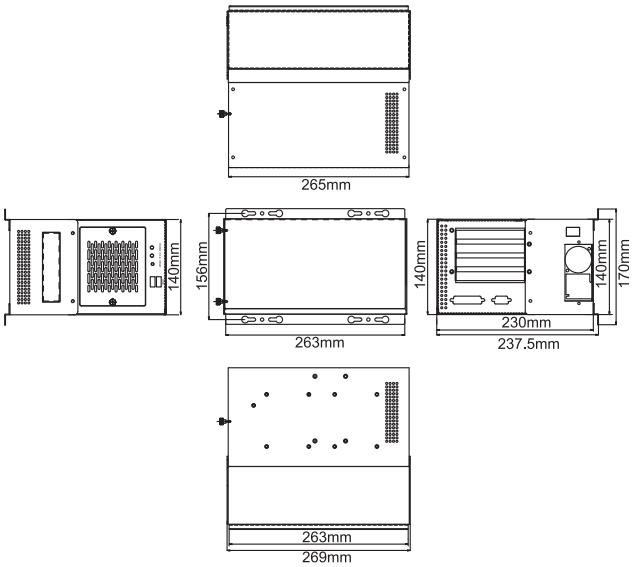
Specifications

◆ **Construction**	Heavy duty metal
◆ **SBC Form Factor**	Half-size, slot CPU cards
◆ **Drive Combinatons**	1 x Front-accessible 3.5" and 1 x 3.5" HDD or 1 x Front-accessible 3.5" and 2 x 2.5" HDD
◆ **Cooling Fans**	1 x 8 cm
◆ **I/O Ports**	2 x USB
◆ **I/O Openings**	1 x LPT, 1 x COM
◆ **Expansion Slots**	4 slots
◆ **Indicators**	Power, HDD
◆ **Button**	Power switch, reset
◆ **Operating Temperature**	0°C ~ 50°C
◆ **Operating Humidity**	10% ~ 90%
◆ **Color**	W: White
◆ **Weight (Net/Gross)**	3.9 kg/6.1 kg
◆ **Dimensions (DxWxH)**	269 mm x 140 mm x 230 mm

Ordering Information

Part No.	Description
PAC-42GHWPX-R11/A618C	4-Slot Half-size Chassis, White, 1x 8cm fan, with ACE-A618C-RS-R10(180W), RoHS

Dimensions *(Unit: mm)*



Backplane Options

Model No.	SBC Type	PCI	ISA	PCIe			PSU Connector
				x1	x4	x16	
BP-4S-RS	ISA	0	4	0	0	0	AT
IP-4S-RS	PCISA	3	0	0	0	0	AT
IP-4S2-RS	PCISA	2	1	0	0	0	AT
HPE-4S1	PCI/PICOe	3	0	0	0	0	ATX
HPE-4S2	PCI/PICOe	2	0	0	1	0	ATX

Power Supply Options

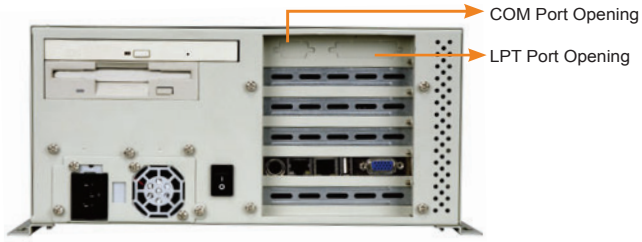
Type	Model No.	Watt
ATX	ACE-A618C-RS-R10	180W

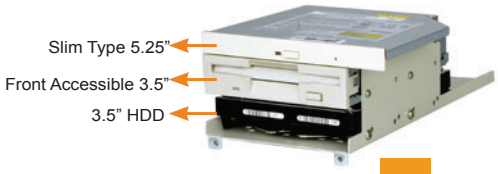
PAC-42GH supports single 1U height PSU. For more IEI PSU models, please refer to section 5 or visit www.ieiworld.com.

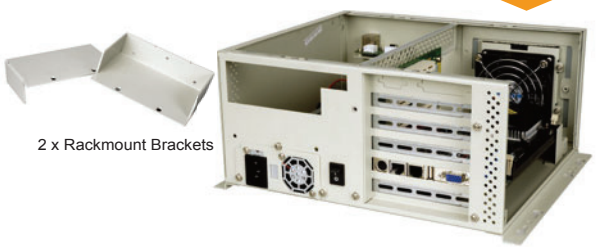
PR-1500G

5-slot Half-size Compact Chassis









CD-ROM and HDD are not included in package.

Features

- RoHS compliant design
- One slim type 5.25" drive bay
- One 3.5" drive bay and one internal 3.5" HDD bay
- Two USB ports on the front panel
- One 8 cm cooling fan

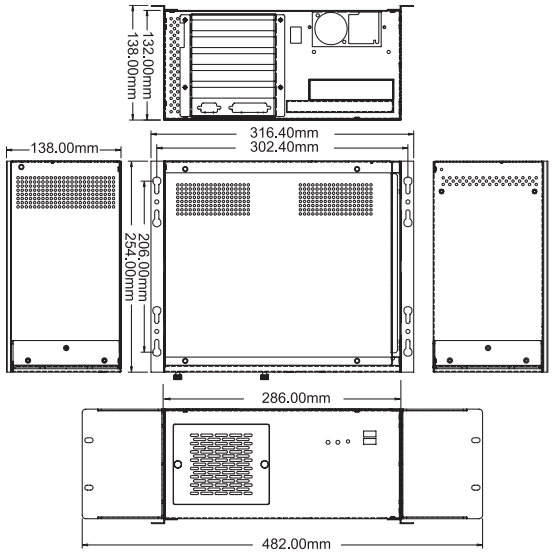
Specifications

◆ **Construction**	Heavy duty metal
◆ **SBC Form Factor**	Half-size, slot SBC
◆ **Drive Bays**	1 x 3.5" HDD 1 x Front accessible 3.5” 1 x Slim 5.25”
◆ **Cooling Fans**	1 x 8 cm
◆ **I/O Ports**	2 x USB
◆ **I/O Openings**	1 x LPT, 1 x COM
◆ **Expansion Slots**	5 slots
◆ **Indicators**	Power, HDD
◆ **Button**	Power switch, reset
◆ **Operating Temperature**	0°C ~ 50°C
◆ **Operating Humidity**	10% ~ 90%
◆ **Color**	W: White
◆ **Weight (Net/Gross)**	3.6 kg/6.2 kg
◆ **Dimensions (DxWxH)**	254 mm x 286 mm x 132 mm

Ordering Information

Part No.	Description
PR-1500GW-R12/A618C	5-Slot Half-size Chassis, White, 1x 8cm fan, with ACE-A618C-RS-R10(180W), RoHS

Dimensions *(Unit: mm)*



Backplane Options

Model No.	SBC Type	PCI	ISA	PCIe			PSU Connector
				x1	x4	x16	
BP-5S-RS	ISA	0	5	0	0	0	AT
IP-5SA2-RS	PCISA	4	1	0	0	0	ATX
HPE-5S1	PICO/PICOe	4	0	0	0	0	ATX
HPE-5S2	PICO/PICOe	3	0	0	1	0	ATX
HPXE2-5S1	HPCIE	2	0	0	0	1	ATX

Power Supply Options

Type	Model No.	Watt
ATX	ACE-A618C-RS-R10	180W
	ACE-A225A-R11	250W

PR-1500G supports single 1U height PSU. For more IEI PSU models, please refer to section 5 or visit www.ieiworld.com.

PAC-400G

5-slot Half-size Compact Chassis





3.5" SATA removable drive bay compatible

FDD and HDD are not included in package

Features

- RoHS compliant design
- Two USB ports on the front panel
- One 8 cm hot swappable fan
- One 3.5" internal HDD bay
- One 3.5" drive bay, for optional removable drive
- Supports Pentium® 4 half-size CPU card

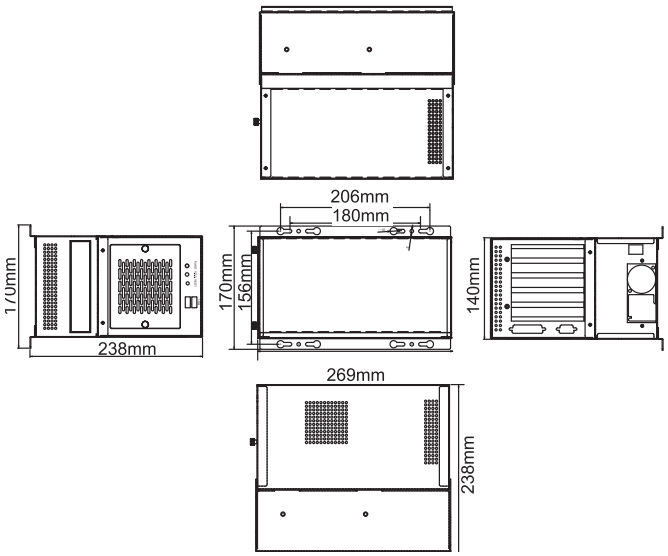
Specifications

◆ **Construction**	Heavy duty metal
◆ **SBC Form Factor**	Half-size, slot SBC
◆ **Drive Bays**	1 x 3.5" HDD
◆ **Cooling Fans**	1 x 8 cm
◆ **I/O Ports**	2 x USB
◆ **I/O Openings**	1 x LPT, 1 x COM
◆ **Expansion Slots**	5 slots
◆ **Indicators**	Power, HDD
◆ **Button**	Power switch, reset
◆ **Operating Temperature**	0°C ~ 50°C
◆ **Operating Humidity**	10% ~ 90%
◆ **Color**	W: White
◆ **Weight (Net/Gross)**	3.8 kg/5.6 kg
◆ **Dimensions (DxWxH)**	269 mm x 140 mm x 230.5mm

Ordering Information

Part No.	Description
PAC-400GW-R11/A618C	5-Slot Half-size Industrial Chassis, WHite, 1x 8cm fan, witH ACE-A618C-RS-R10(180W), RoHS
7G000-ST1110L-RS	3.5" SATA removable drive bay with keylock, white, RoHS

Dimensions *(Unit: mm)*



Backplane Options

Model No.	SBC Type	PCI	ISA	PCIe			PSU Connector
				x1	x4	x16	
BP-4S-RS	ISA	0	4	0	0	0	AT
IP-4S-RS	PCISA	3	0	0	0	0	AT
IP-4S2-RS	PCISA	2	1	0	0	0	AT
IP-4S2A-RS	PCISA	3	0	0	0	0	ATX
HPE-4S1	PCI/PICOe	3	0	0	0	0	ATX
HPE-4S2	PCI/PICOe	2	0	0	1	0	ATX

Power Supply Options

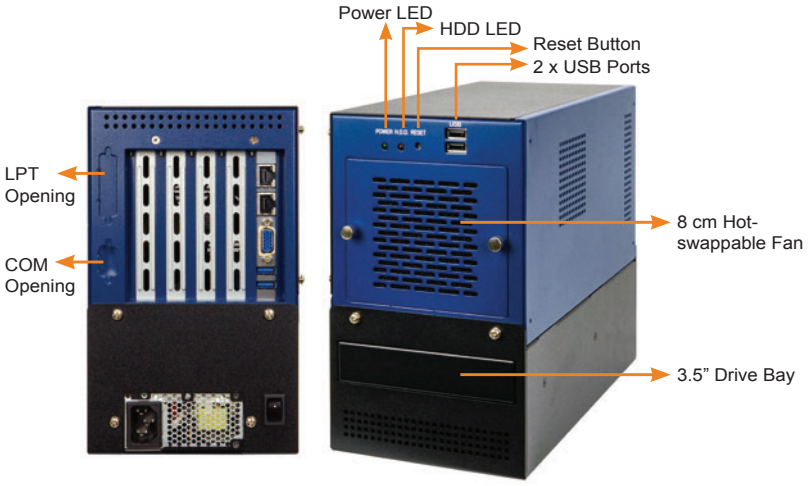
Type	Model No.	Watt
ATX	ACE-A618C-RS-R10	180W

PAC-400G supports single 1U height PSU. For more IEI PSU models, please refer to section 5 or visit www.ieiworld.com.

PAC-400AI

5-slot Half-size Compact Chassis

New



Features

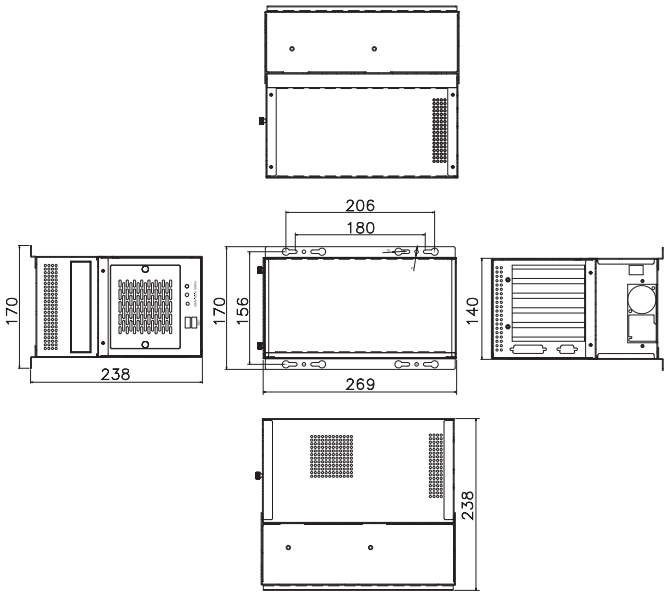
- RoHS compliant design
- Two USB ports on the front panel
- One 8 cm hot-swappable fan
- One 3.5" internal HDD bay
- One 3.5" drive bay, for optional removable drive
- Supports half-size CPU card

FDD and HDD are not included in the package

Specifications

◆ **Construction**	Heavy duty metal
◆ **SBC Form Factor**	Half-size CPU card
◆ **Drive Bay**	1 x 3.5" HDD
◆ **Cooling Fan**	1 x 8 cm
◆ **I/O Ports**	2 x USB
◆ **I/O Openings**	1 x LPT, 1 x COM
◆ **Expansion Slots**	5 slots
◆ **Indicators**	Power, HDD
◆ **Button**	Power switch, reset button
◆ **Operating Temperature**	0°C ~ 50°C
◆ **Operating Humidity**	10% ~ 90%
◆ **Color**	Navy blue and black
◆ **Weight (Net/Gross)**	3.8 kg/5.6 kg
◆ **Dimensions (DxWxH)**	269 mm x 140 mm x 230.5 mm

Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
PAC-400AI-R10/A618C	5-Slot Half-size Industrial Chassis, navy blue and black, 1x 8cm fan, with ACE-A618C-RS-R10 (180W), RoHS
PAC-400AI-R10/FSP250	5-Slot Half-size Industrial Chassis, navy blue and black, 1x 8cm fan, with FSP250 (250W), RoHS
7G000-ST1110L-RS	3.5" SATA removable drive bay with keylock, white, RoHS

Backplane Options

Model No.	SBC Type	PCI	ISA	PCIe			PSU Connector
				x1	x4	x16	
HPE2-3S1	HPCIE	0	0	0	1	1	ATX
HPXE2-5S1	HPCIE	2	0	0	0	1	ATX
HPE-5S1	PCI/PICOe	4	0	0	0	0	ATX
HPE-5S2	PCI/PICOe	3	0	0	1	0	ATX
BP-5S-RS	ISA	0	5	0	0	0	AT
IP-5SA2-RS	PCISA	4	1	0	0	0	ATX

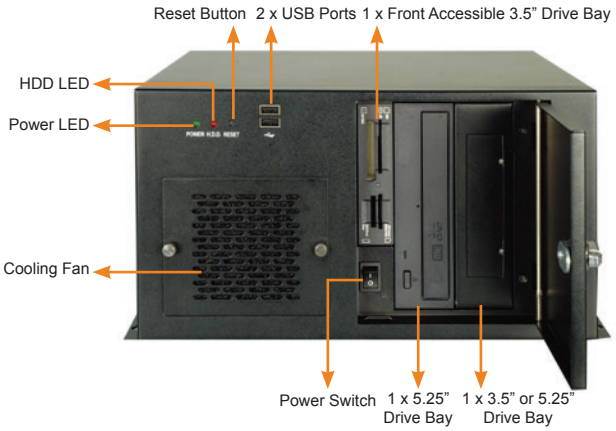
* PAC-400AI Chassis supported backplanes are different with PAC-400G

Power Supply Options

Type	Model No.	Watt
ATX	ACE-A618C-RS-R10	180W
	63030-010250-300-RS	250W
	63030-010250-000-RS	350W

PAC-400AI-R10 supports single 1U height PSU. For more IEI PSU models, please refer to section 5 or visit www.ieiworld.com.

PAC-700G *7-slot Half-size Compact Chassis*



CD-ROM, and HDD are not included in package.



Easy hot-swappable fan



Step 1:
Loosen the thumb screws

Step 2:
Pull the fan out gently

Step 3:
Unplug the power connector

Features

- RoHS compliant design
- Two USB ports on the front panel
- One, 8 cm cooling fan with fan filter
- Easy access design for quick fan replacement
- Lockable door prevents unauthorized access

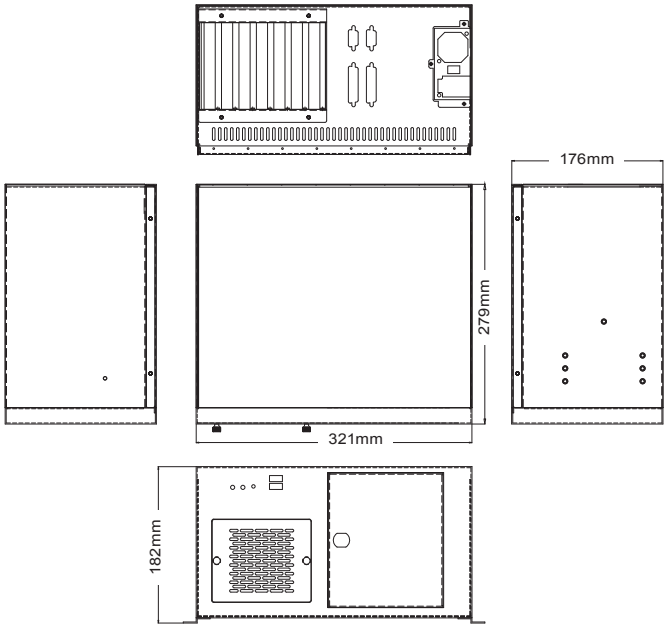
Specifications

◆ **Construction**	Heavy duty metal
◆ **SBC Form Factor**	Half-size, slot CPU card
◆ **Drive Combinations**	2 x 5.25" + 1 x Front accessible 3.5" or 1 x 5.25" + 2 x Front accessible 3.5" or 1 x 5.25" + 1 x Front accessible 3.5" + 1 x 3.5" HDD
◆ **Cooling Fans**	1 x 8 cm
◆ **I/O Ports**	2 x USB on front panel
◆ **I/O Openings**	2 x LPT, 2 x COM
◆ **Expansion Slots**	7 slots
◆ **Indicators**	Power, HDD
◆ **Button**	Power switch, reset
◆ **Operating Temperature**	0°C ~ 50°C
◆ **Operating Humidity**	10% ~ 90%
◆ **Color**	B: Black
◆ **Weight (Net/Gross)**	6.2 kg/9 kg
◆ **Dimensions (DxWxH)**	279 mm x 321 mm x 176 mm

Ordering Information

Part No.	Description
PAC-700GB-R11/A618C	7-Slot Half-size chassis, Black, with ACE-A618C-RS-R10(180W), RoHS

Dimensions *(Unit: mm)*



Backplane Options

Model No.	SBC Type	PCI	ISA	PCIe				PSU Connector
				x1	x4	x8	x16	
BP-7S-RS	ISA	0	7	0	0	0	0	AT
HPXE2-7S1	HPCIE	3	0	0	0	2	0	ATX

Power Supply Options

Type	Model No.	Watt
ATX	ACE-A618C-RS-R10	180W
	ACE-A225A-R11	250W

PAC-700G supports single 1U height PSU. For more IEI PSU models, please refer to section 5 or visit www.ieiworld.com.

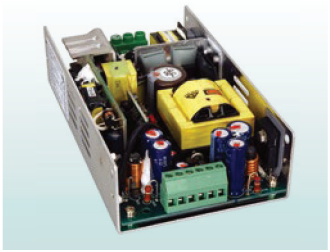
Power Supply

IEI power supply solutions are complete and flexible. Normal (PS2, 1U, 2U) or redundant form, close or open frame, DC or AC input, AT or ATX model, 10 to 600 watts or higher, all of these features are available within a reliable and highly efficient power solution.

IEI's embedded system power supply solution is efficient and stable. IEI also provides customized power supply services to meet your demands.

Selection

■ Open Frame
- Fanless Chassis



■ 1U Series
- 1U Chassis



■ 2U Series
- 1U ~ 2U Chassis



■ PS2 Series
- 2U ~ 4U Chassis



■ Redundant
- 2U ~ 4U Chassis



■ Adapter
- LCD Monitor
- AFL Series
- Embedded System

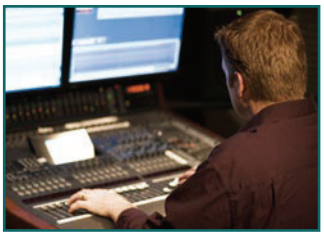


■ DC to DC Module
- Battery Backup System
- Embedded System
- Mobile Auto Solution

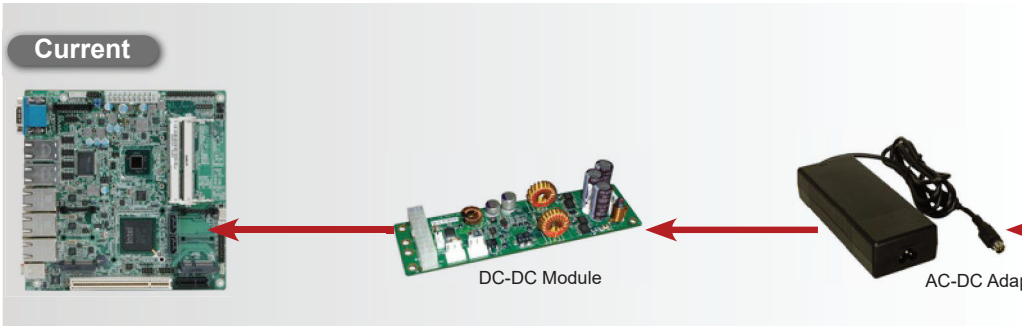




AC-DC Adapter



Type	Temperature
AC-DC Adapter	0°C ~ 40°C



Wide Temperature

0°C ~ 70°C

Item	Model	Watt	AC/DC
1U	ACE-717CX	170W	24 DC

Medical

Item	Model	Watt	AC/DC
PS/2	ACE-4840APM	400W	AC

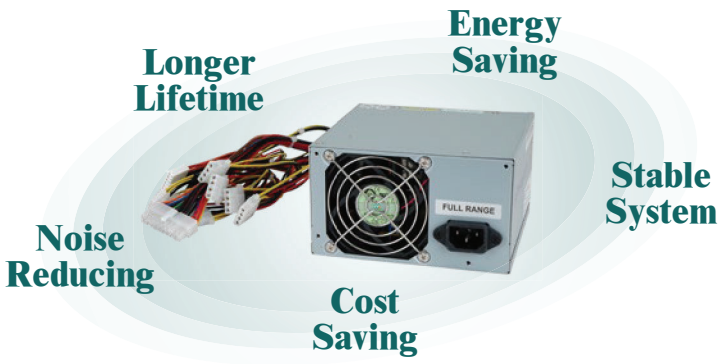
-20°C ~ 70°C

Item	Model	Watt	AC/DC
PS/2	ACE-A160A	600W	AC
	ACE-A140A	400W	AC
	ACE-828A	280W	AC
	ACE-828M	280W	AC
	ACE-932T	300W	48 DC
1U	ACE-716AP	150W	AC
	ACE-716C	150W	24 DC

80 PLUS & ErP

■ 80 PLUS

The 80 PLUS power supply saves energy and money to keep up with the latest market trends.



Efficiency Trend

Multiple output for computers and servers Eff. ≥ 80% at 20%, 50% and 100% of rated load PFC ≥ 0.9

	80 PLUS	80 PLUS BRONZE	80 PLUS SILVER	80 PLUS GOLD
20% (loading)	80%	82%	85%	87%
50% (loading)	80%	85%	88%	87%
100% (loading)	80%	82%	85%	87%

■ **Energy Saving**
A high efficiency power supply saves energy by reducing the amount of energy used during the current transferring process.

■ **System Reliability**
Reducing the heat output helps to lower the system temperature and increase system reliability.

■ **Cost Saving**
A high efficiency power supply reduces energy consumption, which means savings on your electric bills.

■ **Noise Reducing**
A high efficiency power supply can achieve a lower operating temperature. When the fan operates at a lower speed, it produces less noise.

■ **Longer Lifetime**
A high efficiency power supply can reduce heat generated inside the power supply and increase its operating hours.

■ ErP

ErP ➔ Energy-Related Products

These products are aimed at improving energy efficiency and reducing energy consumption.
Scope: Anything that is Class B EMC (Class A out of scope)



Power Supply
Off mode & Standby mode

Off mode	≤ 1.0 W
Standby mode	≤ 1.0 W

Adapter
Maximum Energy Consumption in No-Load Mode

Output power	AC-DC external power supplies, except low voltage external power supplies	Low voltage external power supplies
≤ 51W	0.30W	0.30W
Po > 51W	0.50W	N/A

Open Frame Selection Guide

Safety (ITE Stardard) - CB IEC 60950, UL 60950, CSA C 22.2 No. 60950, TUV EN 60950
Safety (Medical Stardard) - CB IEC 60601, UL 60601, CSA C 22.2 No. 60601, TUV EN 60601
EMI - Meets EN 55022, FCC Part 15, CISPR 22
Meets EN 61000-3-2, EN 61000-3-3 (PFC function)
EMS - Meets EN 55024, EN 61000-4-2/3/4/5/6/8/11

** For detailed specs, please refer to official certification*

AC Input

Product	Model No.	Watt AT/ATX PFC	Input Range	Output Current Range					Efficiency	Operating Temperature	Safety	Dimensions (mm)
			Voltage	+5 V	+12 V	-5 V	-12 V	+5 Vsb				
	ACE-890A	86W AT -	85 ~ 264 VAC	10 A	2.5 A		0.5 A		70%	0°C ~ 50°C	CSA CE	152.4 x 89 x 39

Open Frame AC Input AT Type

ACE-890A

86 W AC-DC Open Frame AT Power Supply

86W

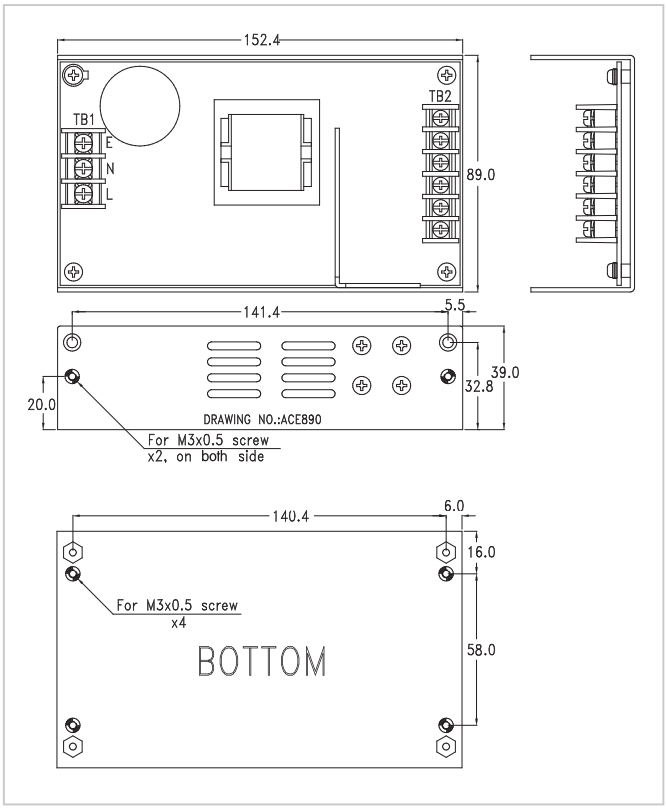


CB cULus PFC CE

Specifications

Input Type	85 ~ 264 VAC Full Range				
Input Frequency	47 Hz ~ 63 Hz				
Input Current	2A (RMS)@115VAC, 1A (RMS)@230VAC				
Inrush Current	25A max. for 115VAC, 50A max. for 230VA				
Output Voltage	+5 V	+12 V	-5 V	-12 V	+24 V
ACE-890A	10 A	2.5 A		0.5 A	
Efficiency	70%				
Temperature	0°C ~ 50°C (Operating), -20°C ~ 85°C (Storage)				
MTBF (hrs)	268,000				
Output Connector	Optional cable				
Dimensions (mm)	152.4 x 89 x 39				

Dimensions (Unit: mm)



Ordering Information

Part No.	Description
ACE-A630C-R10	1U Flex ATX 300W Power Supply, 90~264 VAC, ErP, CCL, RoHS

1U/2U Type Selection Guide

Safety (ITE Standard) - CB IEC 60950, UL 60950, CSA C 22.2 No. 60950, TUV EN 60950
Safety (Medical Standard) - CB IEC 60601, UL 60601, CSA C 22.2 No. 60601, TUV EN 60601
EMI - Meets EN 55022, FCC Part 15, CISPR 22
Meets EN 61000-3-2, EN 61000-3-3 (PFC function)
EMS - Meets EN 55024, EN 61000-4-2/3/4/5/6/8/11

** For detailed specs, please refer to official certification*

1U AC Input

Products	Model No.	Watt AT/ ATX PFC	Input Range	Output Current Range							Efficiency	ErP	Operating Temperature	Safety	Dimensions (mm)
			Voltage	+3.3 V	+5 V	+12 V	-5 V	-12 V	+5 Vsb	+24 V					
	ACE-A630C	300W ATX -	90 ~ 265 VAC	12 A (0 A)	14 A (0 A)	25 A (0.1 A)		0.5 A	3 A		80 PLUS BRONZE 87%	V	0°C ~ 50°C	CB/UL/ TUV/ CCC/ CE/FCC	150 x 81.5 x 40.5
	ACE-A622C	220W ATX -	90 ~ 264 VAC	10 A (0.1 A min.)	14 A (0.2 A min.)	14 A (0.6 A min.)		0.3 A	2.5 A		80 PLUS SILVER 85%	V	0°C ~ 50°C	CB/UL/ TUV/ CCC/ CE/FCC	150 x 81.5 x 40.5
	ACE-A618C	180W ATX -	90 ~ 264 VAC	10 A (0.1 A min.)	14 A (0.2 A min.)	10 A (0.6 A min.)		0.3 A	2.5 A		80 PLUS 85%	V	0°C ~ 50°C	CB/UL/ TUV/ CCC/ CE/FCC	150 x 81.5 x 40.5
	ACE-A615C	150W ATX -	90 ~ 264 VAC	10 A (0.1 A min.)	14 A (0.2 A min.)	10 A (0.6 A min.)		0.3 A	2.5 A		80 PLUS SILVER 85%	V	0°C ~ 50°C	CB/UL/ TUV/ CCC/ CE/FCC	150 x 81.5 x 40.5
	ACE-716AP	150W AT PFC	85 ~ 265 VAC		18 A (1 A min.)	4 A	0.5 A	1 A			75%		-20°C ~ 70°C	UL TUV CE	198 x 97 x 40.5

1U DC Input

Products	Model No.	Watt AT/ ATX PFC	Input Range	Output Current Range							Efficiency	Operating Temperature	Safety	Dimensions (mm)
			Voltage	+3.3 V	+5 V	+12 V	-5 V	-12 V	+5 Vsb	+24V				
	ACE-717CX	170W ATX -	24 VDC (19 ~ 32 VDC)	6 A	8 A (1 A min.)	8 A (1 A min.)		0.5 A	1 A		75%	0°C ~ 70°C	CB UL TUV CCC CE	198 x 97 x 39
	ACE-4520C	200W ATX -	24 VDC (18 ~ 36 VDC)	12 A	12 A (1 A min.)	15.4 A (0.5 A min.)		0.5 A	2 A		78%	0°C ~ 50°C	CB UL TUV CCC NEMKO CE FCC	150 x 81.5 x 40.5
	ACE-716C	150W AT -	24 VDC (19 ~ 30 VDC)		18 A (2 A min.)	4 A	0.5 A	1 A			70%	-20°C ~ 70°C	UL TUV CE	198 x 97 x 40.5

1U AC Input ATX Type

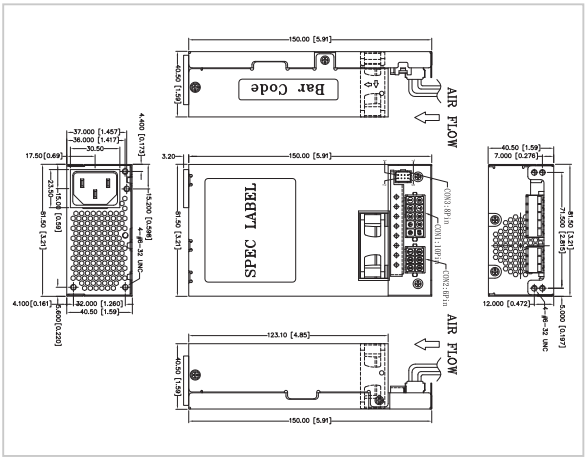
ACE-A630C

1U Flex ATX 300 W Power Supply

300W



Dimensions (Unit: mm)



Specifications

Input Type	90~264VAC Full Range				
Output Voltage	+3.3 V	+5 V	+12 V	-12 V	+5 Vsb
	12 A (0 A)	14 A (0 A)	25 A (0.1 A)	0.3 A	3 A
Efficiency	87%				
Temperature	Operating: 0°C ~ 50°C, Storage: -40°C ~ 80°C				
MTBF (hrs)	100,000				
Output Connector	20+4-pin ATX, 4-pin 12V CPU, 1 x FDD, 1 x HDD, 2 x SATA, 2 x Graphics card power				
Dimensions (mm)	150 x 81.5 x 40.5				

Ordering Information

Part No.	Description
ACE-A630C-R10	1U Flex ATX 300W Power Supply, 90~264 VAC, ErP, CCL, RoHS

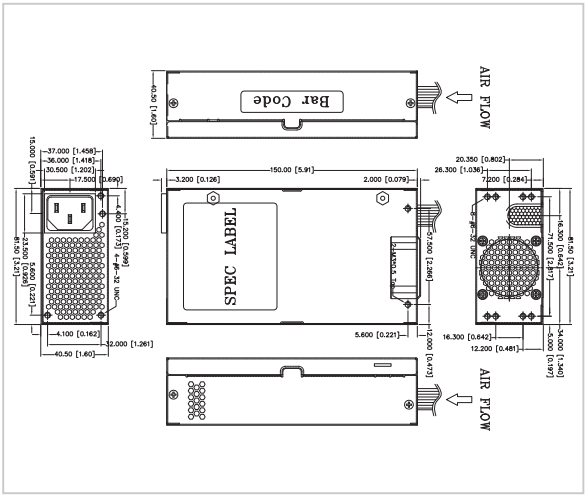
ACE-A622C

220 W 1U Type ATX Power Supply

220W



Dimensions (Unit: mm)



Specifications

Input Type	90~264 VAC Full Range						
Output Voltage	+3.3 V	+5 V	+12 V	+12 V 2	-12 V	+5 Vsb	+5 Vsb
	10 A (0.1 A min.)	14 A (0.2 A min.)	14 A (0.6 A min.)		0.3 A	2.5 A	2.5 A
Efficiency	85%						
Temperature	Operating: 0°C ~ 50°C, Storage: -20°C ~ 80°C						
MTBF (hrs)	100,000						
Output Connector	20+4-pin ATX, 4-pin 12V CPU, 2 x HDD, 2 x SATA, 1 x Graphics card power						
Dimensions (mm)	150 x 81.5 x 40.5						

Ordering Information

Part No.	Description
ACE-A622C-R10	1U Flex ATX 220W Power Supply, 90~264VAC, ErP, CCL, RoHS

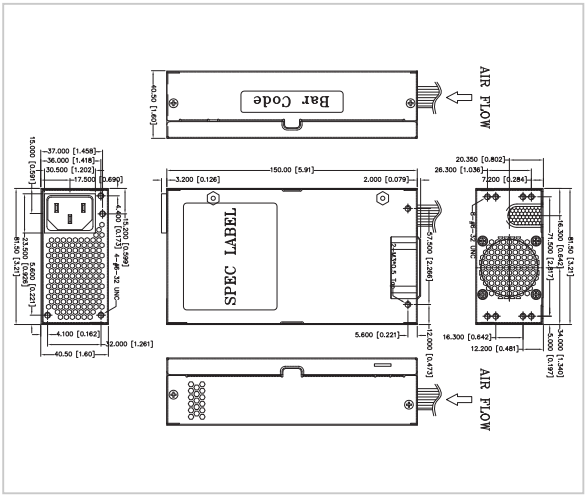
ACE-A618C

180 W 1U Type ATX Power Supply

180W



Dimensions (Unit: mm)



Specifications

Input Type	90~264 VAC Full Range				
Output Voltage	+3.3 V	+5 V	+12 V	-12 V	+5 Vsb
	10 A (0.1 A min.)	14 A (0.2 A min.)	10 A (0.6 A min.)	0.3 A	2.5 A
Efficiency	85%				
Temperature	Operating: 0°C ~ 50°C, Storage: -20°C ~ 80°C				
MTBF (hrs)	100,000				
Output Connector	20+4-pin ATX, 4-pin 12V CPU, 1 x FDD, 1 x HDD, 2 x SATA				
Dimensions (mm)	150 x 81.5 x 40.5				

Ordering Information

Part No.	Description
ACE-A618C-R10	1U Flex ATX 180W Power Supply, 90~264VAC, ErP, CCL, RoHS

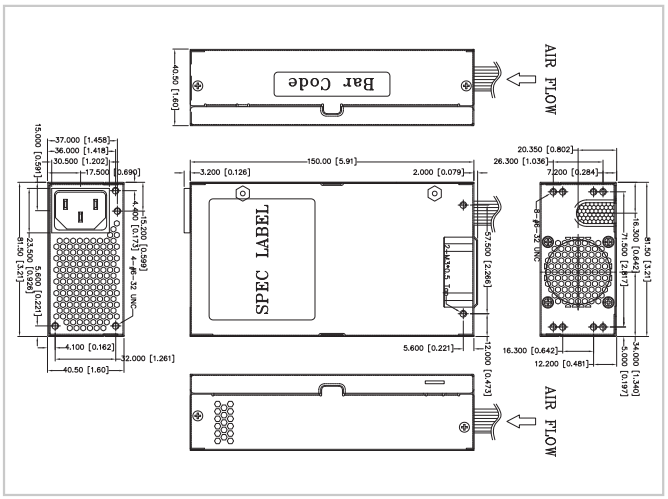
ACE-A615C

150 W 1U Type ATX Power Supply

150W



Dimensions (Unit: mm)



Specifications

Input Type	90~264 VAC Full Range				
Output Voltage	+3.3 V	+5 V	+12 V	-12 V	+5 Vsb
	10 A (0.1 A min.)	14 A (0.2 A min.)	10 A (0.6 A min.)	0.3 A	2.5 A
Efficiency	85%				
Temperature	Operating: 0°C ~ 50°C, Storage: -20°C ~ 80°C				
MTBF (hrs)	100,000				
Output Connector	20+4-pin ATX, 4-pin 12V CPU, 1 x FDD, 2 x HDD, 2 x SATA				
Dimensions (mm)	150 x 81.5 x 40.5				

Ordering Information

Part No.	Description
ACE-A615C-R10	1U Flex ATX 150W Power Supply, 90~264VAC, ErP, CCL, RoHS

1U AC Input AT Type

ACE-716AP

150 W 1U Type AT Power Supply

150W

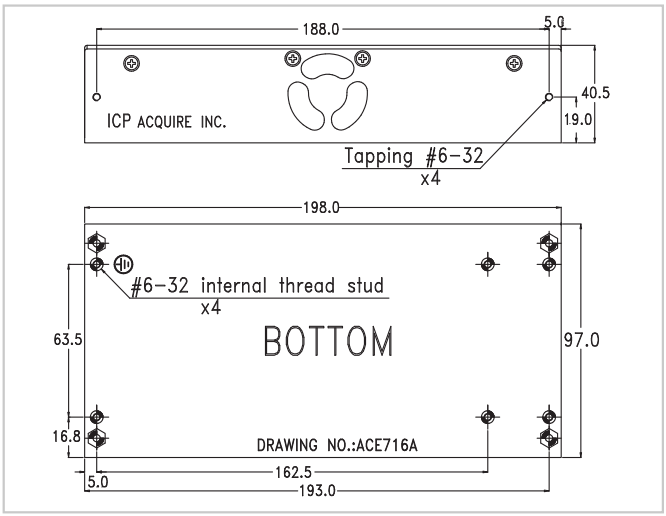


PFC

Specifications

Input Type	85 ~ 265 VAC Full Range (ACE-716AP)			
Output Voltage	+5V	+12V	-5V	-12V
	18 A (1 A min.)	4 A	0.5 A	1 A
Efficiency	75%			
Temperature	Operating: -20°C ~ 70°C (50°C ~ 70°C derating curve) Storage: -20°C ~ 85°C			
MTBF (hrs)	149,000			
Output Connector	Optional cable			
Dimensions (mm)	198 x 97 x 40.5			

Dimensions (Unit: mm)



Ordering Information

Part No.	Description
ACE-716AP-RS	150W AC-DC AT Power Supply, with PFC

1U DC Input ATX Type

ACE-717CX

1U 24V DC Input ATX Power Supply

170W





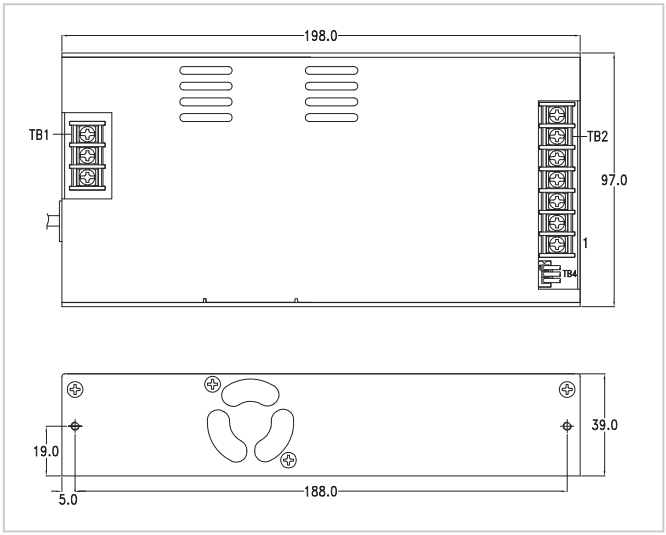
+5Vsb & PS On cable

CB

Specifications

Input Type	19 ~ -32 VDC					
Output Voltage	+3.3V	+5V	+12V	-5V	-12V	+5Vsb
	6 A	8 A (1 A min.)	8 A (1 A min.)		0.5 A	1 A
Efficiency	75%					
Temperature	Operating: 0°C ~ 70°C (can be started up at -20°C) Storage: -40°C ~ 75°C					
MTBF (hrs)	100,000					
Output Connector	5VSB & PS_ON cable					
Dimensions (mm)	198 x 97 x 39					

Dimensions (Unit: mm)



Ordering Information

Part No.	Description
ACE-717CX-RS	170W 24V DC input ATX Power Supply

ACE-716C

150 W 24V DC Input AT Power Supply

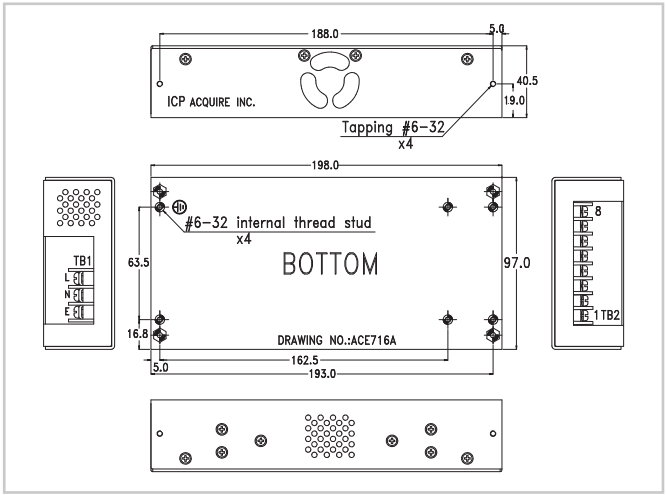
150W



Specifications

Input Type	19 ~ 30 VDC				
Output Voltage	+5 V	+12 V	-5 V	-12 V	+24 V
	18 A (2 A min.)	4 A	0.5 A	1 A	
Efficiency	70%				
Temperature	Operating: -20°C ~ 70°C (50°C ~ 70°C derating curve) Storage: -20°C ~ 85°C				
MTBF (hrs)	210,000				
Output Connector	Optional cable				
Dimensions (mm)	198 x 97 x 40.5				

Dimensions *(Unit: mm)*



Output terminal block connectors

Pin 1, 2	Pin 3, 4	Pin 5	Pin 6	Pin 7	Pin 8
5 V	GND	-5 V	-12 V	GND	+12 V

Ordering Information

Part No.	Description
ACE-716C-RS	150 W 24 V DC Input AT Power Supply

ACE-4520C

200 W 24V DC input 1U ATX Power Supply

200W



High power capacity 200W in 1U size!!

Meets ATX revision 2.0 with 20+4-pin ATX power and SATA

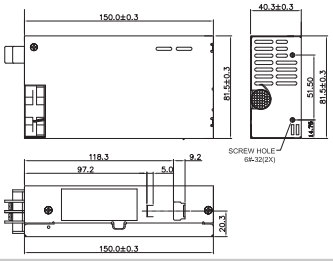
Features

1. High efficiency
2. Low ripple & noise
3. Output overvoltage protection
4. Short circuit protection on all output
5. 100% burn-in under high ambient temperature (50°C)
6. Vacuum-impregnated transformer
7. MTBF: 100K hours at 25°C
8. 100% hi-pot tested
9. Line input fuse protection

Specifications

Input	Voltage	18 ~ 36 VDC input		
	Input Current	15 A (RMS) @ -24 VDC		
	Inrush Current	100 A max. for -24 VDC		
Output	Voltage	Min. Load	Max. Load	Ripple & Noise
	+5 V	1 A	12 A	50 mV P-P
	+12 V	0.5 A	15.4 A	120 mV P-P
	-12 V	0 A	0.5 A	120 mV P-P
	+3.3 V	0 A	12 A	50 mV P-P
	+5 Vsb	0 A	2 A	50 mV P-P
	+3.3V, +5V, +12V total current not exceed 184W			
	Overvoltage Protection	+5 V output: 5.7 V ~ 6.5 V +12 V output: 13.1 V ~ 14.5 V +3.3 V output: 3.7 V ~ 4.1 V		
	Over Circuit Protection	+5 V output: 13.2 V ~ 18 V +12 V output: 17.6 V ~ 24 V +3.3 V output: 13.2 V ~ 18 V		
	Short Circuit Protection	+3.3 V, +5 V, +12 V shut down and latch off		
General Specifications	Output Rise Time	20 ms max.		
	Efficiency	78%		
	MTBF	100,000 hours on max. load at +25°C		
	Temperature	Operating: 0°C ~ 50°C Storage: -20°C ~ 80°C		
	Relative Humidity	5% ~ 95% RH non-condensing		
	Output Connector	20+4-pin ATX, 4-pin 12 V CPU, FDD, SATA, 2 x HDD		

Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
ACE-4520C-RS	200W 24 V DC Input 1U ATX Power Supply

PS/2 Selection Guide

Safety (ITE Standard) - CB IEC 60950, UL 60950, CSA C 22.2 No. 60950, TUV EN 60950
Safety (Medical Standard) - CB IEC 60601, UL 60601, CSA C 22.2 No. 60601, TUV EN 60601
EMI - Meets EN 55022, FCC Part 15, CISPR 22
Meets EN 61000-3-2, EN 61000-3-3 (PFC function)
EMS - Meets EN 55024, EN 61000-4-2/3/4/5/6/8/11

** For detailed specs, please refer to official certification*

AC Input

Product	Model No.	Watt AT/ATX PFC	Input Range	Output Current Range						Efficiency	ErP	Operating Temperature	Safety
			Voltage	+3.3 V	+5 V	+12 V	-5 V	-12 V	+5 Vsb				
	ACE-A160B	600W ATX PFC	90~264 VAC	25 A (0 A)	25 A (0.2 A)	V1: 16 A (0.05 A) V2: 16 A (0 A) V3: 16 A (0 A) V4: 16 A (0 A)	0.5 A (0 A)	0.5 A	4 A	80 PLUS BRONZE 82%	v	0°C ~ 50°C	CB / UL / TUV CCC / CE / FCC
	Medical ACE-4840APM	400W ATX PFC	90 ~ 265 VAC	30 A (0.5 A min.)	30 A (0.3 A min.)	V1: 17 A (1 A min.) V2: 17 A (1 A min.)	0.3 A	0.8 A	2 A	68%		0°C ~ 50°C	CB / UL CCC / VDE
	ACE-A140B	400W ATX PFC	90 ~ 264 VAC	21 A (0 A)	16 A (0.2 A)	V1: 17 A (0.05 A) V2: 17 A (0 A)	0.1 A (0 A)	0.5 A	3 A	80 PLUS GOLD 87%	v	-5°C ~ 50°C	CB / UL / TUV CCC / CE / FCC
	ACE-A140B-S	400W ATX PFC	90 ~ 264 VAC	21 A (0 A)	16 A (0.2 A)	V1: 17 A (0.05 A) V2: 17 A (0 A)	0.1 A (0 A)	0.5 A	3 A	80 PLUS GOLD 87%	v	-5°C ~ 50°C	CB / UL / TUV CCC / CE / FCC
	ACE-A130C	300W ATX PFC	90 ~ 264 VAC	19 A (0 A)	16 A (0.2 A)	V1: 17 A (0.05 A) V2: 17 A (0 A)	0.1 A (0 A)	0.5 A (0 A)	3 A (0 A)	80 PLUS GOLD 87%	v	0°C ~ 50°C	CB / UL / TUV CCC / CE / FCC
	ACE-A130C-S	300W ATX PFC	90 ~ 264 VAC	19 A (0 A)	16 A (0.2 A)	V1: 17 A (0.05 A) V2: 17 A (0 A)	0.1 A (0 A)	0.5 A (0 A)	3 A (0 A)	80 PLUS GOLD 87%	v	0°C ~ 50°C	CB / UL / TUV CCC / CE / FCC
	ACE-925A	200W AT -	85 ~ 265 VAC		22 A (1 A min.)	7 A (0.1 A min.)	0.5 A	0.7 A		68%		0°C ~ 50°C	UL
	ACE-935AL	300W AT -	85 ~ 140 VAC 170 ~ 270 VAC		40 A (3 A min.)	8 A (0.1 A min.)	0.3 A	0.7 A		68%		0°C ~ 50°C	UL / CE

DC Input

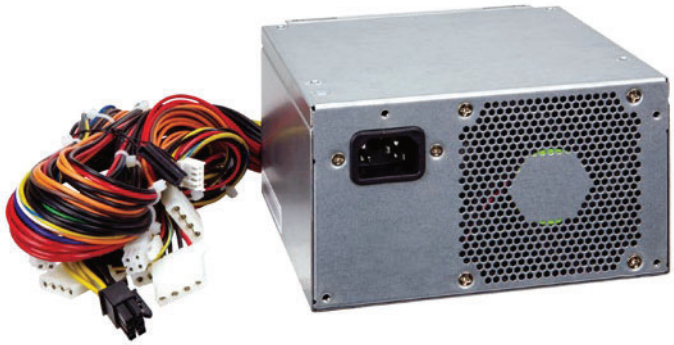
	ACE-828C	250W ATX -	24 VDC (18 ~ 32 VDC)	8 A	25 A (2 A min.)	7 A (0.1 A min.)	0.5 A	1 A	0.72 A	65%		0°C ~ 50°C	CB / CSA TUV / CCC CE

PS/2 AC Input ATX Type

ACE-A160B

600W PS/2 ATX Power Supply with ErP

600W



80 PLUS BRONZE

PFC

c UL us CE FC

BAUART GEPRÜFT TÜV Rheinland Product Safety TYPE APPROVED

ErP 5Vsb < 0.5W Input

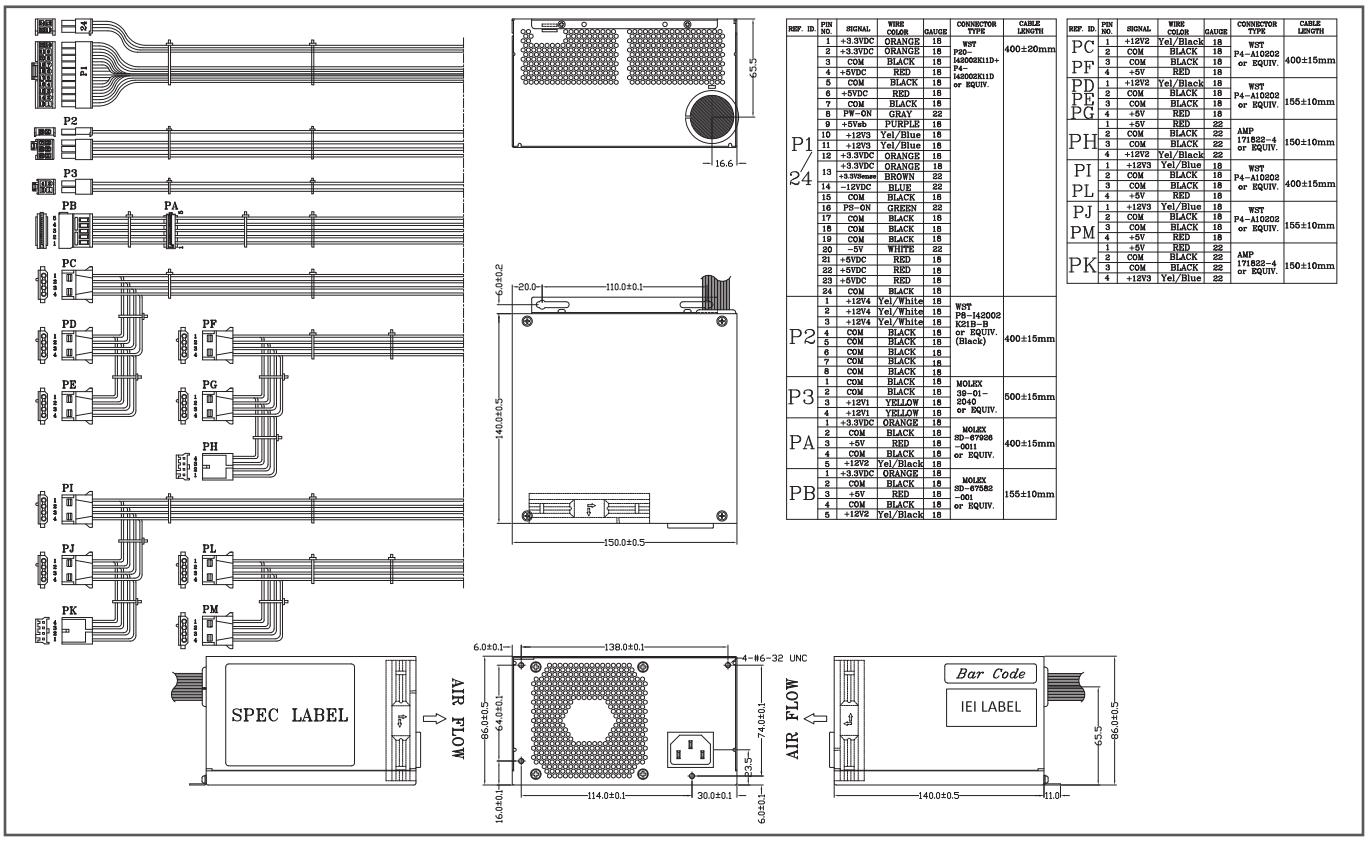
Specifications

Input	**Voltage**	90~265 VAC Full Range		
	Frequency	47 Hz ~ 63 Hz		
	Input Current	10A (RMS)@115VAC, 5A (RMS)@230VAC		
	Inrush Current	40A max. for 115VAC, 80A max. for 230VAC		
Output	**Voltage**	**Min. load**	**Max. load**	**Ripple & Noise**
	+3.3V	0 A	25 A	50mV
	+5V	0.2 A	25 A	50mV
	+12V1	0.05 A	16 A	120mV
	+12V2	0 A	16 A	120mV
	+12V3	0 A	16 A	120mV
	+12V4	0 A	16 A	120mV
	-12V	0 A	0.5 A	120mV
	+5VSB	0 A	4.0 A	50mV
	-5V	0A	0.5A	50mV
	Maximum continuous combined load on +3.3VDC and +5VDC outputs shall not exceed 150W.			
	Maximum continuous total DC output power should not exceed 600W			
	Over Voltage Protection	5V: 5.7V-6.5V 12V1 ~ 12V4: 13.3V-16.7V 3.3V: 3.9V-4.5V		
	Short Circuit Protection	3.3V, 5V, +12V1, +12V2, +12V3, +12V4, -12V, -5V shutdown and latch off		
General Specifications	**Watt**	600W		
	PFC	Active		
	Hold-up Time	16 ms min.		
	Efficiency	82%		
	MTBF	100,000 hours		
	Temperature	Operating: 0°C ~ 50°C, Storage: -20°C ~ 80°C		
	Dimensions (mm)	140 x 150 x 86		
	Output Connector	1 x 20+4-pin ATX, 1 x 4-pin 12V CPU, 9 x HDD/ CDROM, 1 x Graphics card power, 2 x FDD, 2 x SATA		

Ordering Information

Part No.	Description
ACE-A160B-R10	600W PS/2 ATX Power Supply with ERP, RoHS

Dimensions *(Unit: mm)*



REF. ID.	PIN NO.	SIGNAL	WIRE COLOR	GAUGE	CONNECTOR TYPE	CABLE LENGTH
P1 / 24	1	+3.3VDC	ORANGE	18	WST P25-142002K1D+ P4-142002K1D or EQUIV.	400±20mm
	2	+3.3VDC	ORANGE	18		
	3	COM	BLACK	18		
	4	+5VDC	RED	18		
	5	COM	BLACK	18		
	6	+5VDC	RED	18		
	7	COM	BLACK	18		
	8	PW-ON	GRAY	22		
	9	+5Vsb	PURPLE	18		
	10	+12V3	Yel/Blue	18		
	11	+12V3	Yel/Blue	18		
	12	+3.3VDC	ORANGE	18		
	13	+3.3VDC	ORANGE	18		
		+3.3Vsense	BROWN	22		
	14	-12VDC	BLUE	22		
	15	COM	BLACK	18		
	16	PS-ON	GREEN	22		
	17	COM	BLACK	18		
	18	COM	BLACK	18		
	19	COM	BLACK	18		
	20	-5V	WHITE	22		
	21	+5VDC	RED	18		
	22	+5VDC	RED	18		
	23	+5VDC	RED	18		
	24	COM	BLACK	18		
P2	1	+12V4	Yel/White	18	WST P8-142002 K21B-B or EQUIV. (Black)	400±15mm
	2	+12V4	Yel/White	18		
	3	+12V4	Yel/White	18		
	4	COM	BLACK	18		
	5	COM	BLACK	18		
	6	COM	BLACK	18		
	7	COM	BLACK	18		
	8	COM	BLACK	18		
P3	1	COM	BLACK	18	MOLEX 39-01-2040 or EQUIV.	500±15mm
	2	COM	BLACK	18		
	3	+12V1	YELLOW	18		
	4	+12V1	YELLOW	18		
PA	1	+3.3VDC	ORANGE	18	MOLEX SD-67926-0011 or EQUIV.	400±15mm
	2	COM	BLACK	18		
	3	+5V	RED	18		
	4	COM	BLACK	18		
	5	+12V2	Yel/Black	18		
PB	1	+3.3VDC	ORANGE	18	MOLEX SD-67582-001 or EQUIV.	155±10mm
	2	COM	BLACK	18		
	3	+5V	RED	18		
	4	COM	BLACK	18		
	5	+12V2	Yel/Black	18		

REF. ID.	PIN NO.	SIGNAL	WIRE COLOR	GAUGE	CONNECTOR TYPE	CABLE LENGTH
PC	1	+12V2	Yel/Black	18	WST P4-A10202 or EQUIV.	400±15mm
PF	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	+5V	RED	18		
PD	1	+12V2	Yel/Black	18	WST P4-A10202 or EQUIV.	155±10mm
PE	2	COM	BLACK	18		
PG	3	COM	BLACK	18		
	4	+5V	RED	18		
PH	1	+5V	RED	22	AMP 171822-4 or EQUIV.	150±10mm
	2	COM	BLACK	22		
	3	COM	BLACK	22		
	4	+12V2	Yel/Black	22		
PI	1	+12V3	Yel/Blue	18	WST P4-A10202 or EQUIV.	400±15mm
PL	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	+5V	RED	18		
PJ	1	+12V3	Yel/Blue	18	WST P4-A10202 or EQUIV.	155±10mm
PM	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	+5V	RED	18		
PK	1	+5V	RED	22	AMP 171822-4 or EQUIV.	150±10mm
	2	COM	BLACK	22		
	3	COM	BLACK	22		
	4	+12V3	Yel/Blue	22		

ACE-4840APM

400 W PS/2 Medical Type ATX Power Supply

400W

Medical



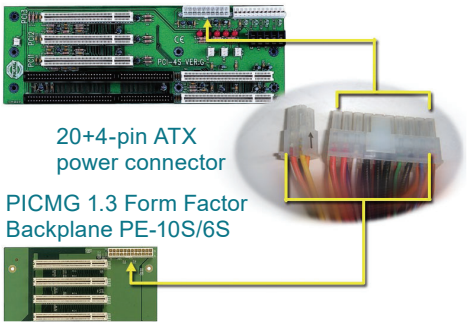
New Version 20+4 Pins Power Supply

PFC

Features

1. Internal 8 cm fan
2. Meets medical safety standards
3. Line input fuse protection
4. Output overvoltage protection
5. Short circuit protection on all outputs
6. Total +12 V output up to 34 A

PICMG 1.0 Form Factor Backplane



20+4-pin ATX power connector

PICMG 1.3 Form Factor Backplane PE-10S/6S

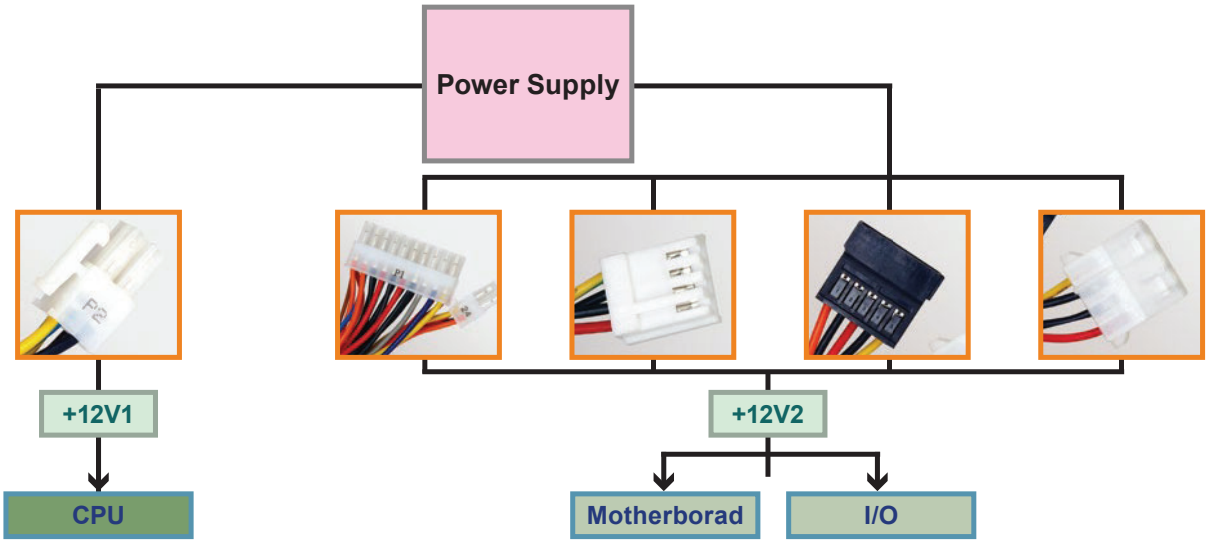
Specifications

Input Voltage	90 ~ 265 VAC Full Range			
Input Frequency	47 Hz ~ 63 Hz			
Input Current	8 A (RMS) for 115 VAC, 4 A (RMS) for 230 VAC			
Inrush Current	60 A max. for 115 VAC, 100 A max. for 230 VAC			
Output Voltage	**Voltage**	**Min. load**	**Max. load**	**Ripple & Noise**
	+3.3 V	0.5 A min	30 A	50 mV
	+5 V	0.3 A min	30 A	50 mV
	+12 V1	1 A min	17 A	120 mV
	+12 V2	1 A min	17 A	120 mV
	-5 V		0.3 A	100 mV
	-12 V		0.8 A	120 mV
	+5 V sb		2 A	50 mV
	+3.3 V & +5 V total output not exceed 180 W +3.3 V & +5 V & +12 V total output not exceed 380 W			
Overvoltage Protection	+5 V +3.3 V +12 V	5.7 V ~ 6.5 V 3.7 V ~ 4.5 V 13.3 V ~ 15.6 V		
Hold Up Time	20 ms min.			
MTBF	100,000 hours			
Operating Temperature	0°C ~ 50°C			
Storage Temperature	-20°C ~ 80°C			
Efficiency	68%			
Dimensions (mm)	140 x 150 x 86			
Output Connector	1 x 20+4-pin ATX, 1 x 4-pin 12V CPU, 5 x HDD/CDROM, 2 x FDD, 2 x SATA, 1 x Extra +5V (P10)			

Ordering Information

Part No.	Description
ACE-4840APM-RS	400 W AC-DC PS/2 ATX Power Supply, meets medical standard, with PFC

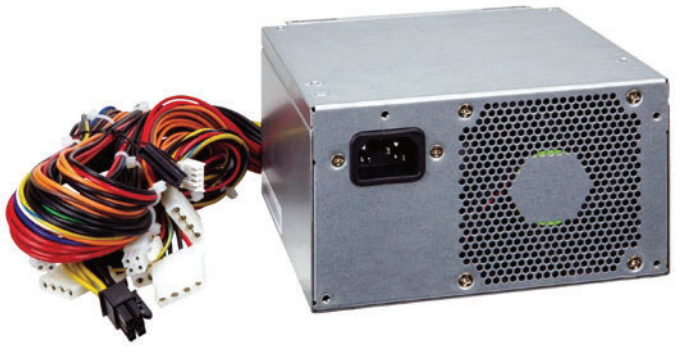
■ Power Connector +12 V



ACE-A140B

400 W PS/2 ATX Power Supply with ErP

400W



80 PLUS GOLD

PFC

ErP
5Vsb < 0.5W
Input

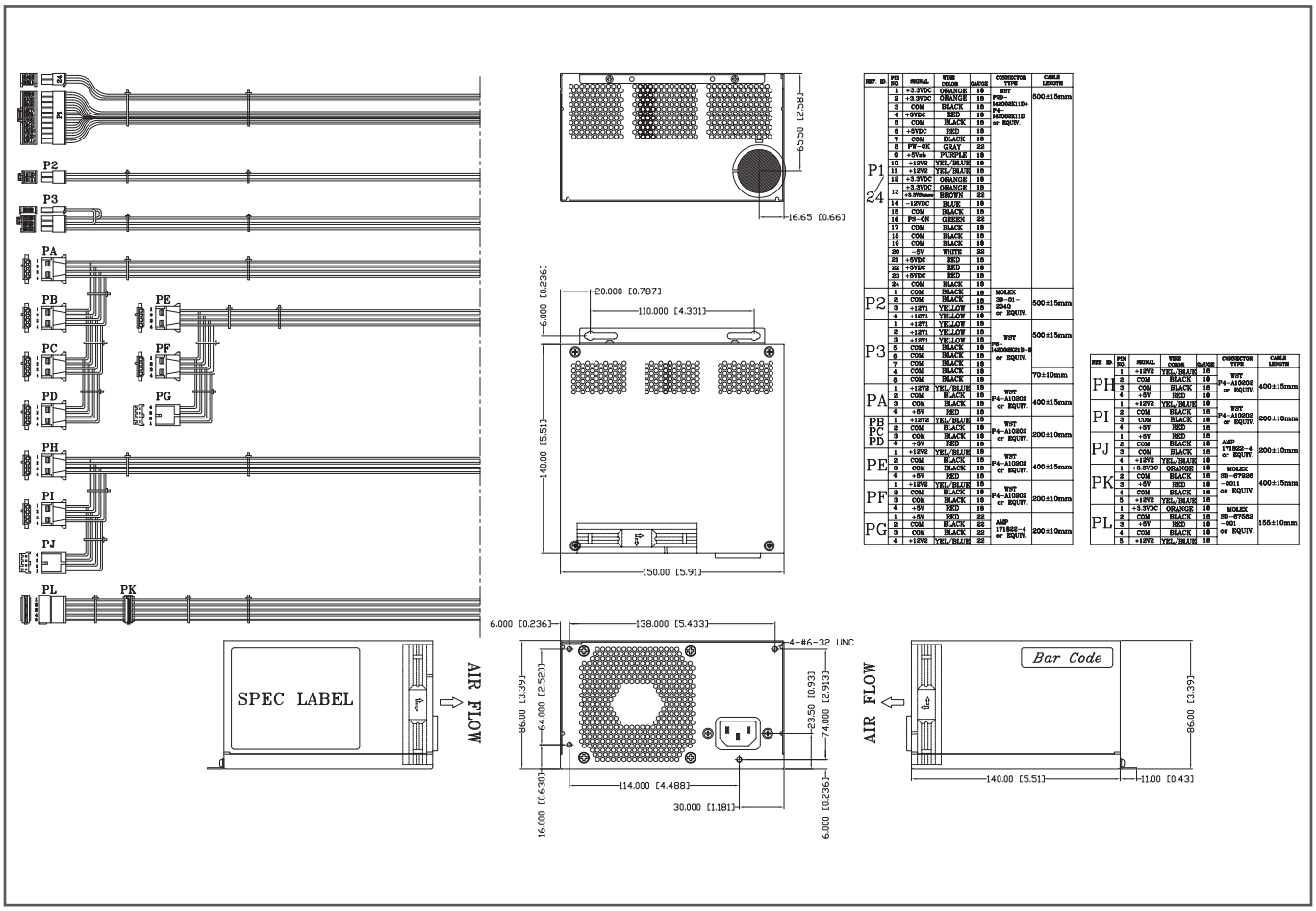
Specifications

Input	**Voltage**	90~264 VAC Full Range		
	Frequency	47 Hz ~ 63 Hz		
	Input Current	5A (RMS)@115VAC, 2.5A (RMS)@230VAC		
	Inrush Current	80A max. for 115VAC 160A max. for 230VAC		
Output	**Voltage**	**Min. load**	**Max. load**	**Ripple & Noise**
	+3.3V	0 A	21 A	50mV
	+5V	0.2 A	16 A	50mV
	+12V1	0.05A	17 A	120mV
	+12V2	0 A	17 A	120mV
	-12V	0 A	0.5 A	120mV
	-5V	0 A	0.1 A	100mV
	+5VSB	0 A	3 A	50mV
	The +3.3V and +5V total output shall not exceed 103W.			
	Total output for this power supply is 400 watts.			
	Over Voltage Protection	+3.3V: 3.76V-4.3V +5V: 5.74V-7.0V +12V1 and +12V2: 13.4V-15.6V		
	Short Circuit Protection	+3.3V, +5V, +12V or -12V shutdown and latch off		
General Specifications	**Watt**	400W		
	PFC	Active		
	Hold-up Time	16 ms min.		
	Efficiency	87%		
	MTBF	100000 hours		
	Temperature	Operating: 0°C ~ 50°C Storage: -20°C ~ 80°C		
	Dimensions (mm)	140 x 150 x 86		
	Output Connector	1 x 20+4-PIN ATX, 1 x 4-pin 12V CPU, 8 x HDD/CDROM, 1 x Graphics card power, 2 x FDD, 2 x SATA		

Ordering Information

Part No.	Description
ACE-A140B-R10	400W AC-DC PS/2 ATX Power Supply with ErP, meets 80 PLUS (Bronze)

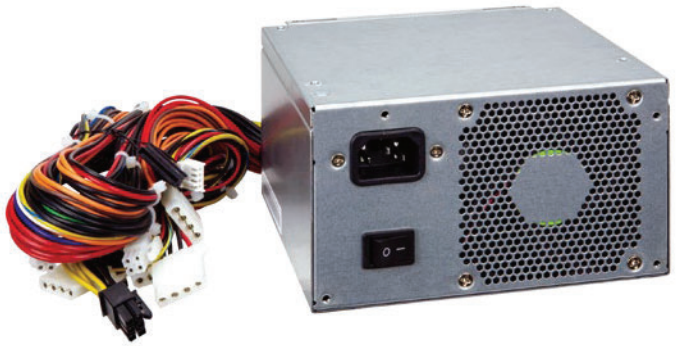
Dimensions *(Unit: mm)*



ACE-A140B-S

400 W PS/2 ATX Power Supply with ErP

400W



80 PLUS GOLD PFC

c UL us CE FC RoHS BAUART GEPRÜFT TÜV Rheinland Product Safety TYPE APPROVED ErP 5Vsb < 0.5W Input

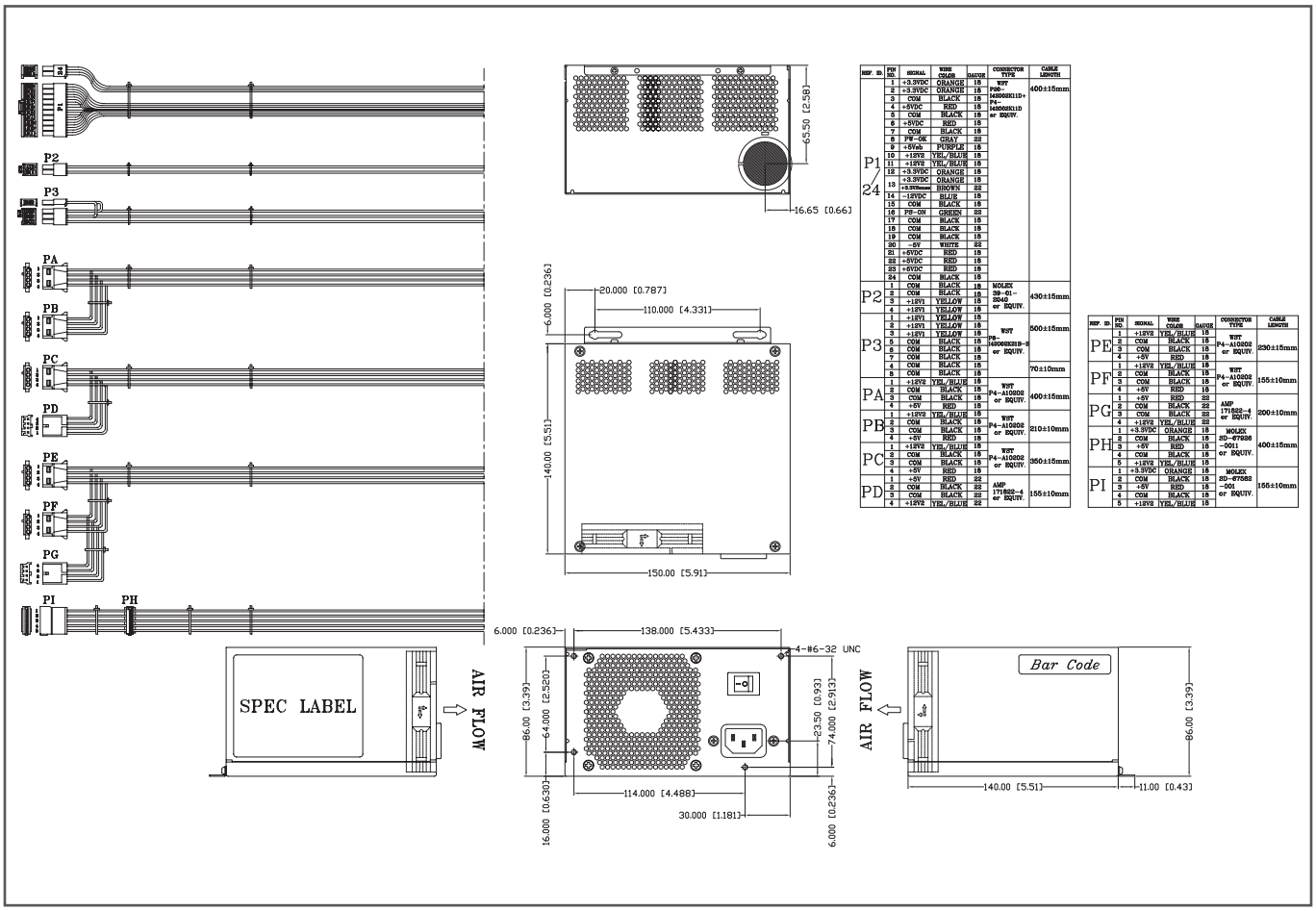
Specifications

Input	**Voltage**	90~264 VAC Full Range		
	Frequency	47 Hz ~ 63 Hz		
	Input Current	5A (RMS)@115VAC, 2.5A (RMS)@230VAC		
	Inrush Current	80A max. for 115VAC 160A max. for 230VAC		
Output	**Voltage**	**Min. load**	**Max. load**	**Ripple & Noise**
	+3.3V	0 A	21 A	50mV
	+5V	0.2 A	16 A	50mV
	+12V1	0.05 A	16 A	120mV
	+12V2	0 A	17 A	120mV
	-12V	0 A	17 A	120mV
	-5V	0 A	0.1 A	100mV
	+5VSB	0 A	3 A	50mV
	The +3.3V and +5V total output shall not exceed 103W			
	Total output for this power supply is 400 watts.			
	Over Voltage Protection	+3.3V: 3.76V-4.3V +5V: 5.74V-7.0V +12V1 and +12V2: 13.4V-15.6V		
	Short Circuit Protection	+3.3V, +5V, +12V or -12V shutdown and latch off		
General Specifications	**Watt**	400W		
	PFC	Active		
	Hold-up Time	16ms min.		
	Efficiency	87%		
	MTBF	100000 hours		
	Temperature	Operating: 0°C ~ 50°C Storage: -20°C ~ 80°C		
	Dimensions (mm)	140 x 150 x 86		
	Output Connector	1 x 20+4-PIN ATX, 1 x 4-pin 12V CPU, 8 x HDD/CDROM,1 x Graphics card power, 2 x FDD, 2 x SATA		

Ordering Information

Part No.	Description
ACE-A140B-S-R10	400W PS/2 ATX Power Supply with ERP & on/off switch, meets 80 plus(Gold), RoHS

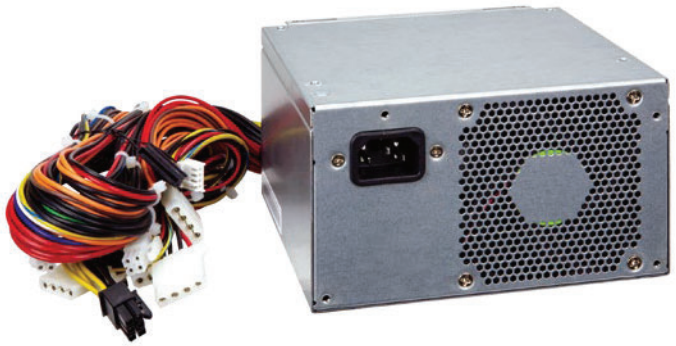
Dimensions *(Unit: mm)*



ACE-A130C

300 W PS/2 ATX Power Supply with ErP

300W



80 PLUS GOLD PFC

c UL us CE FC CCC BAUART GEPRÜFT TÜV Rheinland Product Safety TYPE APPROVED ErP 5Vsb < 0.5W Input

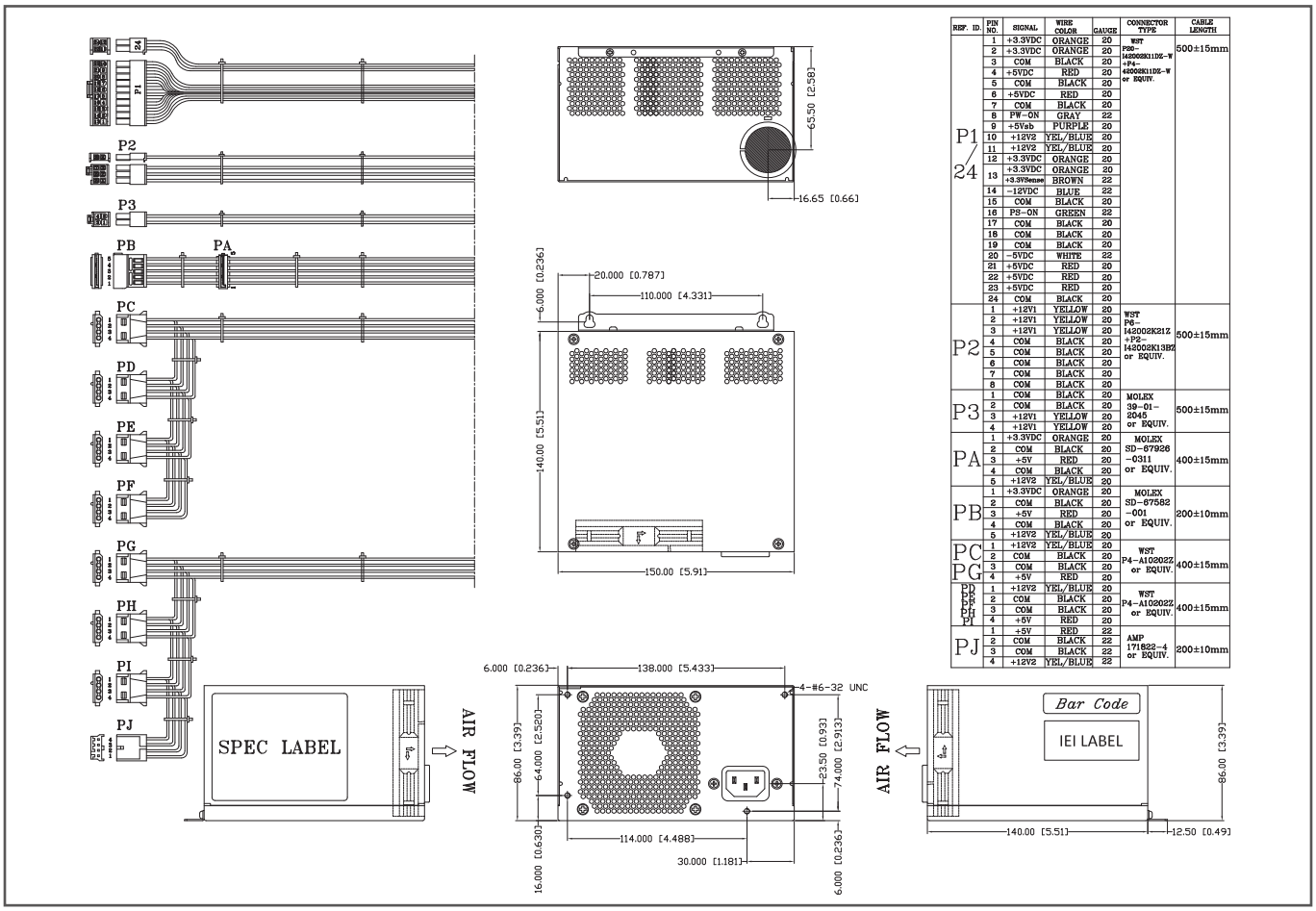
Specifications

Input	**Voltage**	90~264 VAC Full Range		
	Frequency	47 Hz ~ 63 Hz		
	Input Current	4A (RMS)@115VAC, 2A (RMS)@230VAC		
	Inrush Current	80A max. for 115VAC, 160A max. for 230VAC		
Output	**Voltage**	**Min. load**	**Max. load**	**Ripple & Noise**
	+3.3V	0 A	19 A	50mV
	+5V	0.2 A	16 A	50mV
	+12V1	0.05 A	17 A	120mV
	+12V2	0 A	17 A	120mV
	-12V	0 A	0.5A	120mV
	+5VSB	0 A	3 A	50mV
	-5V	0 A	0.1 A	100mV
	Total combined output of +3.3V and +5V is ≤103W			
	Total output for this power supply is 300 watts			
	Over Voltage Protection	+3.3V: 3.76V-4.3V +5V: 5.74V-7.0V +12V1 and +12V2: 13.4V-15.6V		
	Short Circuit Protection	+3.3V, +5V, +12V shutdown and latch off		
General Specifications	**Watt**	300W		
	PFC	Active		
	Hold-up Time	16 ms min.		
	Efficiency	87%		
	MTBF	100,000 hours		
	Temperature	Operating: 0°C ~ 50°C Storage: -40°C ~ 70°C		
	Dimensions (mm)	140 x 150 x 86		
	Output Conntrctor	1 x 20+4-PIN ATX, 1 x 4-pin 12V CPU, 7 x HDD/ CDROM, 1 x Graphics card power, 1 x FDD, 2 x SATA		

Ordering Information

Part No.	Description
ACE-A130C-R10	300W PS/2 ATX Power Supply with ERP&PFC, meets 80 plus (Gold), RoHS

Dimensions *(Unit: mm)*

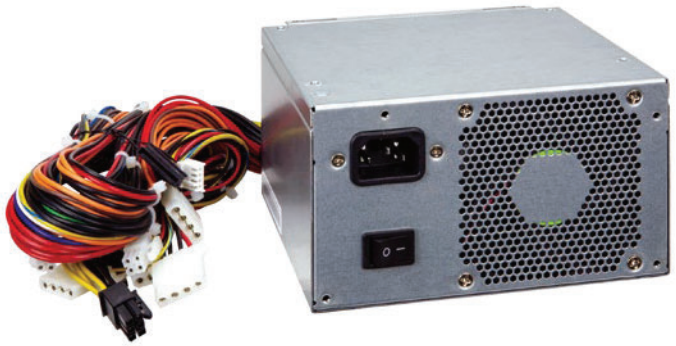


REF. ID	PIN NO.	SIGNAL	WIRE COLOR	GAUGE	CONNECTOR TYPE	CABLE LENGTH
P1 / 24	1	+3.3VDC	ORANGE	20	WST P20-14200K31DZ-W +P4-42002K31DZ-W or EQUIV.	600±15mm
	2	+3.3VDC	ORANGE	20		
	3	COM	BLACK	20		
	4	+5VDC	RED	20		
	5	COM	BLACK	20		
	6	+5VDC	RED	20		
	7	COM	BLACK	20		
	8	PW-ON	GRAY	22		
	9	+5Vsb	PURPLE	20		
	10	+12V2	YEL/BLUE	20		
	11	+12V2	YEL/BLUE	20		
	12	+3.3VDC	ORANGE	20		
	13	+3.3VSense	BROWN	22		
	14	-12VDC	BLUE	22		
	15	COM	BLACK	20		
	16	PS-ON	GREEN	22		
	17	COM	BLACK	20		
	18	COM	BLACK	20		
	19	COM	BLACK	20		
	20	-5VDC	WHITE	22		
	21	+5VDC	RED	20		
	22	+5VDC	RED	20		
	23	+5VDC	RED	20		
	24	COM	BLACK	20		
P2	1	+12V1	YELLOW	20	WST P6-142002K21Z +P2-142002K13BZ or EQUIV.	500±15mm
	2	+12V1	YELLOW	20		
	3	+12V1	YELLOW	20		
	4	COM	BLACK	20		
	5	COM	BLACK	20		
	6	COM	BLACK	20		
	7	COM	BLACK	20		
	8	COM	BLACK	20		
P3	1	COM	BLACK	20	MOLEX 39-01-2045 or EQUIV.	500±15mm
	2	COM	BLACK	20		
	3	+12V1	YELLOW	20		
	4	+12V1	YELLOW	20		
PA	1	+3.3VDC	ORANGE	20	MOLEX SD-87926-0311 or EQUIV.	400±15mm
	2	COM	BLACK	20		
	3	+5V	RED	20		
	4	COM	BLACK	20		
	5	+12V2	YEL/BLUE	20		
PB	1	+3.3VDC	ORANGE	20	MOLEX SD-87582-001 or EQUIV.	200±10mm
	2	COM	BLACK	20		
	3	+5V	RED	20		
	4	COM	BLACK	20		
	5	+12V2	YEL/BLUE	20		
PC PG	1	+12V2	YEL/BLUE	20	WST P4-A10202Z or EQUIV.	400±15mm
	2	COM	BLACK	20		
	3	COM	BLACK	20		
	4	+5V	RED	20		
PD PE PF PI	1	+12V2	YEL/BLUE	20	WST P4-A10202Z or EQUIV.	400±15mm
	2	COM	BLACK	20		
	3	COM	BLACK	20		
	4	+5V	RED	20		
PJ	1	+5V	RED	22	AMP 171822-4 or EQUIV.	200±10mm
	2	COM	BLACK	22		
	3	COM	BLACK	22		
	4	+12V2	YEL/BLUE	22		

ACE-A130C-S

300 W PS/2 ATX Power Supply with ErP

300W



80 PLUS GOLD PFC

c UL us CE FC CCC BAUART GEPRÜFT TÜV Rheinland Product Safety TYPE APPROVED ErP 5Vsb < 0.5W Input

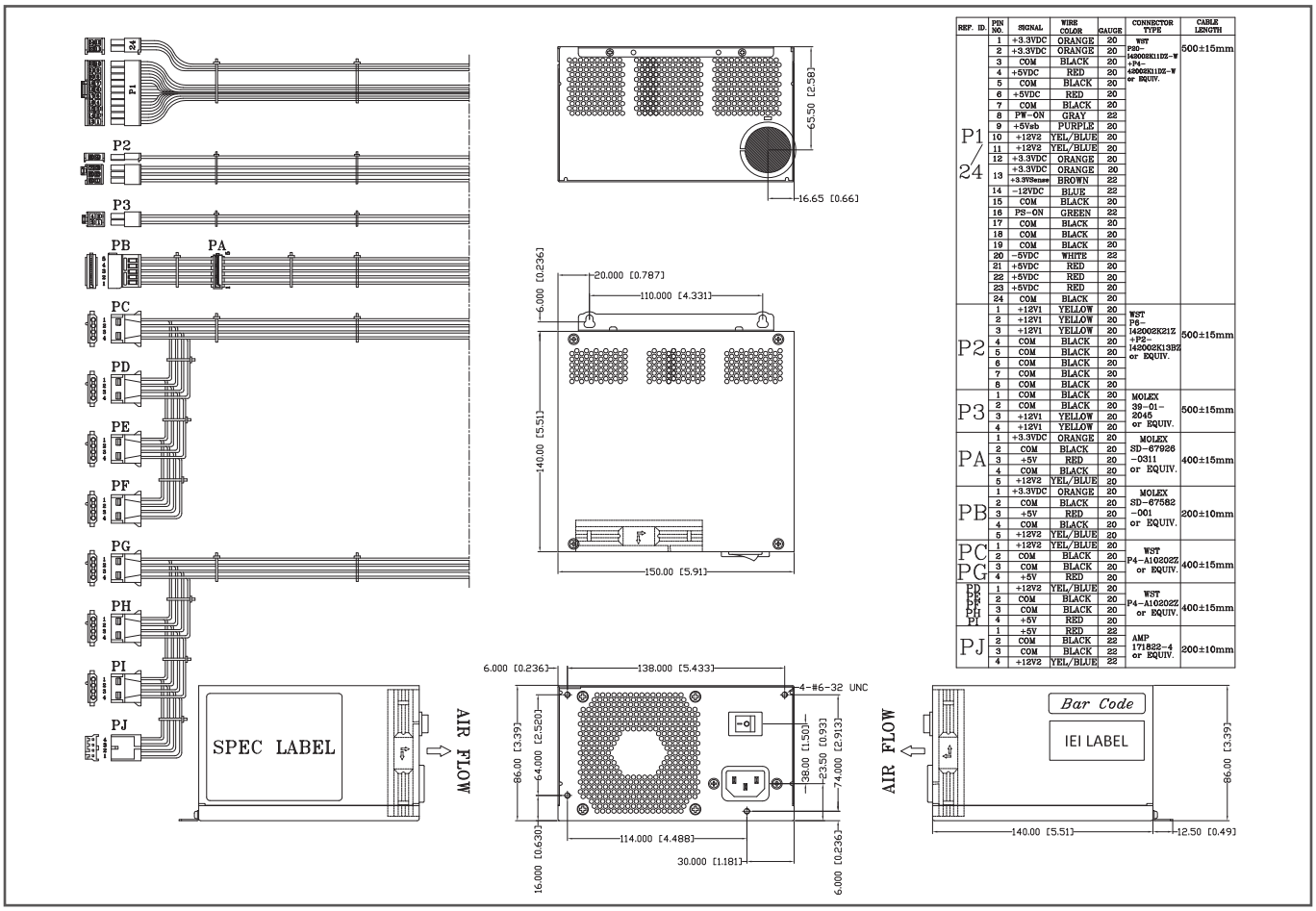
Specifications

Input	**Voltage**	90~264 VAC Full Range		
	Frequency	47 Hz ~ 63 Hz		
	Input Current	4A (RMS)@115VAC, 2A (RMS)@230VAC		
	Inrush Current	80A max. for 115VAC, 160A max. for 230VAC		
Output	**Voltage**	**Min. load**	**Max. load**	**Ripple & Noise**
	+3.3V	0 A	19 A	50mV
	+5V	0.2 A	16 A	50mV
	+12V1	0.05 A	17 A	120mV
	+12V2	0 A	17 A	120mV
	-12V	0 A	0.5A	120mV
	+5VSB	0 A	3 A	50mV
	-5V	0 A	0.1 A	100mV
	Total combined output of +3.3V and +5V is ≤103W			
	Total output for this power supply is 300 watts			
	Over Voltage Protection	+3.3V: 3.76V-4.3V +5V: 5.74V-7.0V +12V1 and +12V2: 13.4V-15.6V		
	Short Circuit Protection	+3.3V, +5V, +12V shutdown and latch off		
General Specifications	**Watt**	300W		
	PFC	Active		
	Hold-up Time	16 ms min.		
	Efficiency	87%		
	MTBF	100,000 hours		
	Temperature	Operating: 0°C ~ 50°C Storage: -40°C ~ 70°C		
	Dimensions (mm)	140 x 150 x 86		
	Output Conntrctor	1 x 20+4-PIN ATX, 1 x 4-pin 12V CPU, 7 x HDD/ CDROM, 1 x Graphics card power, 1 x FDD, 2 x SATA		

Ordering Information

Part No.	Description
ACE-A130C-S-R10	300W PS/2 ATX Power Supply with ERP/PFC & on/off switch, meets 80 plus (Gold), RoHS

Dimensions *(Unit: mm)*



REF. ID.	PIN NO.	SIGNAL	WIRE COLOR	GAUGE	CONNECTOR TYPE	CABLE LENGTH
P1 / 24	1	+3.3VDC	ORANGE	20	WST PSC-14200BK11DZ-W +P4-42002K11DZ-W or EQUIV.	500±15mm
	2	+3.3VDC	ORANGE	20		
	3	COM	BLACK	20		
	4	+5VDC	RED	20		
	5	COM	BLACK	20		
	6	+5VDC	RED	20		
	7	COM	BLACK	20		
	8	PW-ON	GRAY	22		
	9	+5Vsb	PURPLE	20		
	10	+12V2	YEL/BLUE	20		
	11	+12V2	YEL/BLUE	20		
	12	+3.3VDC	ORANGE	20		
	13	+3.3VDC	ORANGE	20		
		+3.3VSense	BROWN	22		
	14	-12VDC	BLUE	22		
	15	COM	BLACK	20		
	16	PS-ON	GREEN	22		
	17	COM	BLACK	20		
	18	COM	BLACK	20		
	19	COM	BLACK	20		
	20	-5VDC	WHITE	22		
	21	+5VDC	RED	20		
	22	+5VDC	RED	20		
	23	+5VDC	RED	20		
	24	COM	BLACK	20		
P2	1	+12V1	YELLOW	20	WST P6-142002K21Z +P2-142002K13BZ or EQUIV.	500±15mm
	2	+12V1	YELLOW	20		
	3	+12V1	YELLOW	20		
	4	COM	BLACK	20		
	5	COM	BLACK	20		
	6	COM	BLACK	20		
	7	COM	BLACK	20		
	8	COM	BLACK	20		
P3	1	COM	BLACK	20	MOLEX 39-01-2045 or EQUIV.	500±15mm
	2	COM	BLACK	20		
	3	+12V1	YELLOW	20		
	4	+12V1	YELLOW	20		
PA	1	+3.3VDC	ORANGE	20	MOLEX SD-67926-0311 or EQUIV.	400±15mm
	2	COM	BLACK	20		
	3	+5V	RED	20		
	4	COM	BLACK	20		
	5	+12V2	YEL/BLUE	20		
PB	1	+3.3VDC	ORANGE	20	MOLEX SD-67582-001 or EQUIV.	200±10mm
	2	COM	BLACK	20		
	3	+5V	RED	20		
	4	COM	BLACK	20		
	5	+12V2	YEL/BLUE	20		
PC / PG	1	+12V2	YEL/BLUE	20	WST P4-A1020ZZ or EQUIV.	400±15mm
	2	COM	BLACK	20		
	3	COM	BLACK	20		
	4	+5V	RED	20		
PD / PE / PF / PH / PI	1	+12V2	YEL/BLUE	20	WST P4-A1020ZZ or EQUIV.	400±15mm
	2	COM	BLACK	20		
	3	COM	BLACK	20		
	4	+5V	RED	20		
PJ	1	+5V	RED	22	AMP 171822-4 or EQUIV.	200±10mm
	2	COM	BLACK	22		
	3	COM	BLACK	22		
	4	+12V2	YEL/BLUE	22		

PS/2 AC Input AT Type

ACE-935AL

300 W PS/2 Type AT Power Supply, AC Select Swithch

300W



PFC

Specifications

Input Type	**85 ~ 140 VAC, 170 ~ 270 VAC Auto Range**					
Output Voltage	**+3.3 V**	**+5 V**	**+12 V**	**-5 V**	**-12 V**	**+5 Vsb**
		40 A (3A min.)	8 A (0.1A min.)	0.3 A	0.7 A	
Efficiency	68%					
Temperature	0°C ~ 50°C (Operating), -40°C ~ 75°C (Storage)					
MTBF (hrs)	100,000					
Output Connector	1 x P8+P9, 1 x Extra +5V (P10), 5 x HDD/CDROM, 2 x FDD					

Ordering Information

Part No.	Description
ACE-935AL-RS	300 W AC-DC PS/2 AT Power Supply, AC select switch

ACE-925A

200 W PS/2 Type AT Power Supply

200W



PFC

Specifications

Input Type	**85 ~ 265 VAC Full Range**					
Output Voltage	**+3.3 V**	**+5 V**	**+12 V**	**-5 V**	**-12 V**	**+5 Vsb**
		22 A (1A min.)	7 A (0.1A min.)	0.5 A	0.7 A	
Efficiency	68%					
Temperature	0°C ~ 50°C (Operating), -40°C ~ 75°C (Storage)					
MTBF (hrs)	130,000					
Output Connector	1 x P8+P9, 5 x HDD/CDROM, 2 x FDD					

Ordering Information

Part No.	Description
ACE-925A-RS	200 W AC-DC PS/2 AT Power Supply

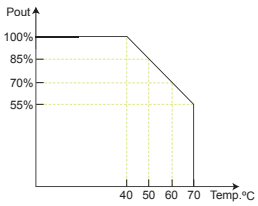
PS/2 DC Input ATX Type

ACE-828C

250 W PS/2 24 V DC Input ATX Type

250W





Specifications

Input Type	**18 ~ 32 VDC**					
Input Current	20 A (RMS)@24VDC		**Inrush Current**		5A Max for 24VDC	
Output Voltage	**+3.3 V**	**+5 V**	**+12 V**	**-5 V**	**-12 V**	**+5 Vsb**
	8 A	25 A (2 A min.)	7 A (0.1 min.)	0.5 A	1 A	0.72 A
Ripple & Noise	+5 V, +3.3 V output are less than 50mV +12 V, -5 V, -12 V, +5 Vsb output are less than 100mV					
Overvoltage Protection	+5 V: 5.7 V ~ 7.0 V					
Short Circuit Protection	Yes		**Overload Protection**		Yes	
Efficiency	65%					
Temperature	-20°C ~ 70°C (Operating), -40°C ~ 75°C (Storage)					
MTBF (hrs)	120,000					
Power Good Signal	Turn on delay time: 100 ms to 500 ms					
Output Connector	1 x 20-pin ATX, 5 x HDD/CDROM, 2 x FDD					

Ordering Information

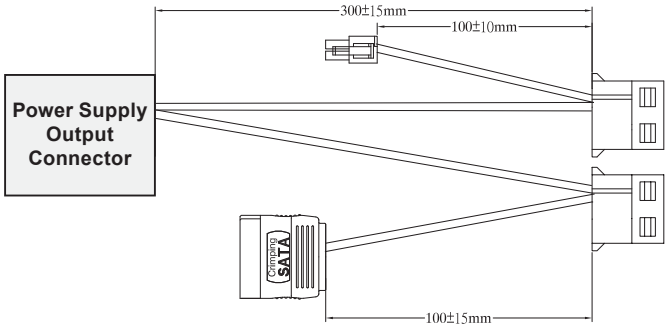
Part No.	Description
ACE-828C-RS	250 W 24V DC Input PS/2 Type ATX Power Supply

Optional Power Supply Cables

AC Input Solution

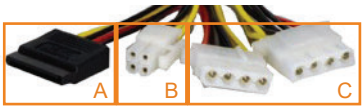
20 cm AC input cable with I/O connector and fuse



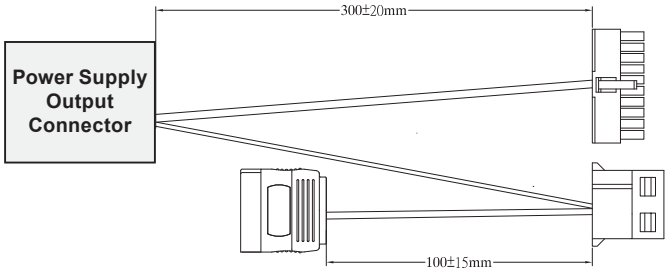


Embedded Solution

30 cm cable with SATA, 12 V and IDE device connectors

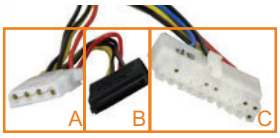


A. SATA device connector
B. 12V only connector
C. IDE device connector

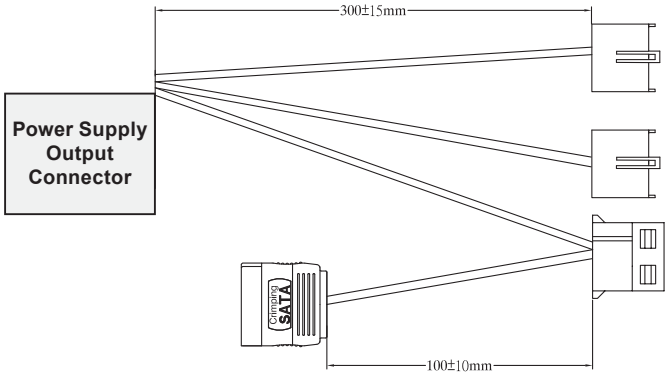


ATX Backplane Solution

30 cm cable with IDE, ATX and SATA device connectors

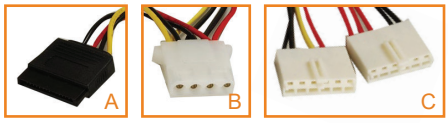


A. IDE device connector
B. SATA device connector
C. ATX backplane connector



AT P8P9 Backplane Solution

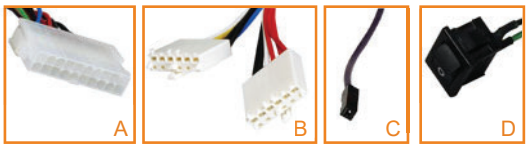
30 cm cable with SATA, IDE and P8P9 AT device connectors



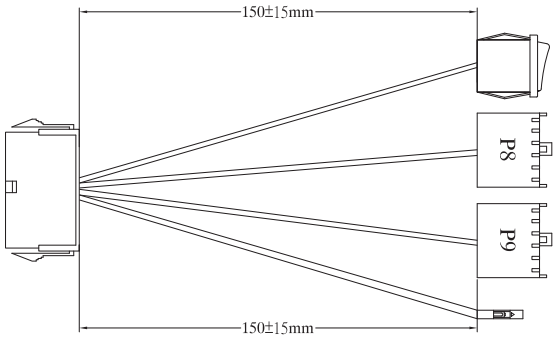
A. SATA device connector
B. IDE device connector
C. P8P9 AT connector

AT Backplane with ATX Power Supply Solution

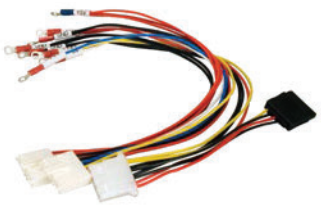
15 cm cable with ATX, P8P9 and 5VSB connectors, and on/off switch

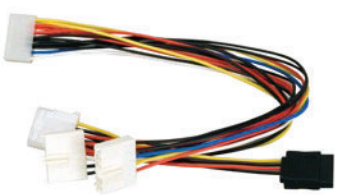


A. ATX backplane connector
B. P8P9 AT connector
C. 5Vsb connector
D. On/off switch



CB-716P8P9	CB-870P8P9	CB-890P8P9







Redundant Type Selection Guide

AC Input

Product	Model No.	Watt AT/ATX PFC	Input Range Voltage	Output Current Range +3.3 V	+5 V	+12 V	-5 V	-12 V	+5 Vsb	24V	Efficiency	Operating Temperature	Safety	Dimensions (mm)
	ACE-R4140AP	400W ATX PFC	90 ~ 264 VAC	25 A (2 A min.)	25 A (2 A min.)	30 A (2.5 A min.)		0.8 A (0.1 A min.)	2 A (0.1 A min.)		65%	0°C ~ 40°C	UL, TUV, CCC, BSMI, CE, FCC	150 x 85 x 190
	ACE-R4130AP	300W ATX PFC	90 ~ 264 VAC	18 A (1 A min.)	25 A (3 A min.)	16 A (2 A min.)	0.5A	0.5 A	2 A (0.1 A min.)		65%	0°C ~ 50°C	CB, UL, TUV, CCC, CE, FCC	185 x 150 x 86

ACE-R4140AP

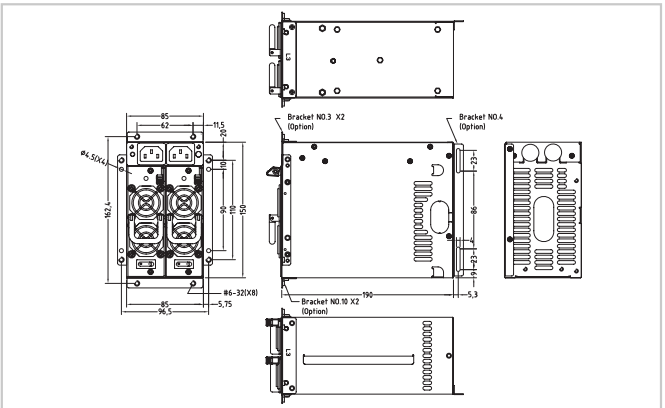
400 W ATX Mini Redundant Power Supply

400W



PFC CB cULus CCC

Dimensions (Unit: mm)



Specifications

Input	Voltage	90 ~ 264 VAC Full Range		
	Frequency	47 Hz ~ 63 Hz		
	Input Current	8 A (RMS)@ 100 VAC, 4 A (RMS)@ 240 VAC		
	Inrush Current	34.4A Max for 100 VAC,68A Max for 264VAC		
Output	Voltage	Min. load	Max. load	Ripple & Noise
	+5 V	2 A	25 A	50 mV P-P
	+12 V	2.5 A	30 A	120 mV P-P
	-12 V	0.1 A	0.8 A	120 mV P-P
	+3.3 V	2 A	25 A	50 mV P-P
	+5 Vsb	0.1 A	2 A	50 mV P-P
	+5 V, +12 V total current not exceed 150 W +3.3 V, +5 V, +12V total current not exceed 440 W			
General Specification	Hold up Time	17 ms min.		
	Efficiency	65% min		
	MTBF	100,000 hours on max. load at +25°C		
	Temperature	Operating: 0°C ~ 50°C, Storage: -40°C ~ 70°C		
	Dimensions	150 x 85 x 190 (mm)		
	Output Connector	1 x 20+4-pin ATX, 1 x 4-pin 12V CPU, 8 x HDD/ CDROM, 2 x FDD, 2 x SATA, 1 x Buzzer reset, 1 x T.T.L signal, 1 x LED power		

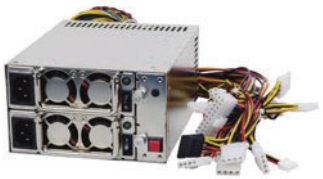
Ordering Information

Part No.	Description
ACE-R4140AP-RS	400W Mini Redundant ATX Power Supply, with PFC
ACE-R4140AP1-RS	400W AC-DC ATX Redundant Module, for ACE-R4140AP, with PFC

ACE-R4130AP

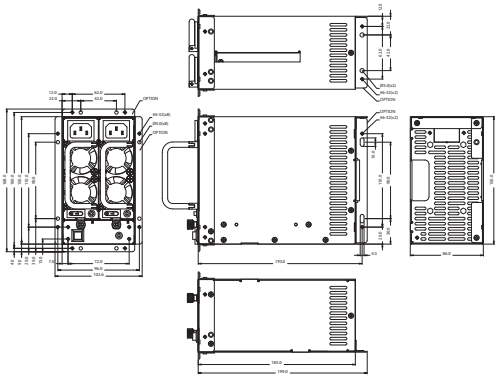
300 W ATX Mini Redundant Power Supply

300W



PFC CB cULus CCC

Dimensions (Unit: mm)



Specifications

Input	Voltage	90 ~ 264 VAC Full Range		
	Frequency	47 Hz ~ 63 Hz		
	Input Current	6 A (RMS) @110 VAC, 3 A (RMS) @220 VAC		
	Inrush Current	60 A max. for 110 VAC, 80 A max. for 220 VAC		
Output	Voltage	Min. load	Max. load	Ripple & Noise
	+5 V	3 A	25 A	50mV P-P
	+12 V	2 A	16 A	120mV P-P
	-5 V	0 A	0.5 A	150mV P-P
	-12 V	0 A	0.5 A	150mV P-P
	+3.3 V	1 A	18 A	50mV P-P
	+5 Vsb	0.1 A	2 A	60mV P-P
	*Total current of +5 V and + 3.3 V not exceed 35 A *Total current of +5 V, +3.3 V and +12 V not exceed 282 W			
General Specifications	Watt	300 W		
	Hold-up Time	16 ms min.		
	Efficiency	65% min.		
	MTBF	160,000 hours		
	Temperature	Operating: 0ºC ~ 50ºC, Storage: -20ºC ~ 80ºC		
	Dimensions	185 x 150 x 86 (mm), 7.28 x 5.91 x 3.39 (inch)		
	Output Connector	1 x 20+4-pin ATX, 1 x 4-pin 12V CPU, 8 x HDD/ CDROM, 2 x FDD, 2 x SATA, 1 x Buzzer reset, 1 x T.T.L signal, 1 x LED power		

Ordering Information

Part No.	Description
ACE-R4130AP-RS	300 W Mini Redundant ATX Power Supply, with PFC
ACE-R4130AP1-RS	300 W AC-DC ATX Redundant Module, for ACE-R4130AP, with PFC

Adapter Type Selection Guide

Safety (ITE Stardard) - CB IEC 60950, UL 60950, CSA C 22.2 No. 60950, TUV EN 60950
Safety (Medical Stardard) - CB IEC 60601, UL 60601, CSA C 22.2 No. 60601, TUV EN 60601
EMI - Meets EN 55022, FCC Part 15, CISPR 22
Meets EN 61000-3-2, EN 61000-3-3 (PFC function)
EMS - Meets EN 55024, EN 61000-4-2/3/4/5/6/8/11

** For detailed specs, please refer to official certification*

AC Input

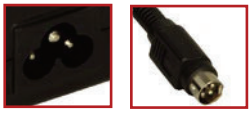
Product	Model No.	Watt	Input Range	Output Current Range			Plug Type	Efficiency	Operating Temperature	Safety	Dimensions (mm)
			Voltage	+5V	+12 V	+19 V					
	**FSP120-ABBN2**	120W	90~264 VAC			6.32 A		91.57%	0°C ~ 40°C	UL/TUV CCC/CE/ GS/PSE/KC/ BSMI	75.6 x 15.3 x 25.4
	**FSP096-AHAN3**	96W	90~264 VAC		8 A			88%	0°C ~ 40°C	UL/TUV/CCC/ CE/GS/PSE/ KC/BSMI/ RCM	75.6 x 151.3 x 25.4
	**FSP090-DIEBN2**	90W	90~264 VAC			4.74 A		87%	0°C ~ 40°C	UL/TUV/CCC/ CE/GS/PSE/ KC/BSMI/ RCM/EAC/ PSB	51 x 129 x 30.9
	**FSP065-REBN2**	65W	90~264 VAC			3.42 A		89.54%	0°C ~ 40°C	UL/TUV/CCC/ CE/BSMI/ PSE/PSB/GS/ EAC/NOM/ RCM/IRAM/ Nrcan/Nemko	46.3 x 108.3 x 30
	*Medical* **63040-010060-020**	60W	90~264 VAC		5V			85%	0°C ~ 60°C	CB/UL/ TUV/CCC/ BSMI/CE/ FCC	147 x 75 x 49
	**FSP060-DHAN3**	60W	90 ~ 264 VAC		5V			85%	0°C ~ 40°C	UL/TUV/CCC/ GS/PSE/RCM/ CE/KC /BSMI	62 x 110 x 31.5
	**FSP036-RHBN3**	36W	90 ~ 264 VAC		3 A			88.3%	0°C ~ 40°C	UL/TUV/CCC/ GS/CE/BSMI/ PSE/RCM/KC	37.8 x 89.8 x 27

FSP120-ABBN2

120 W AC/DC Adapter

120W





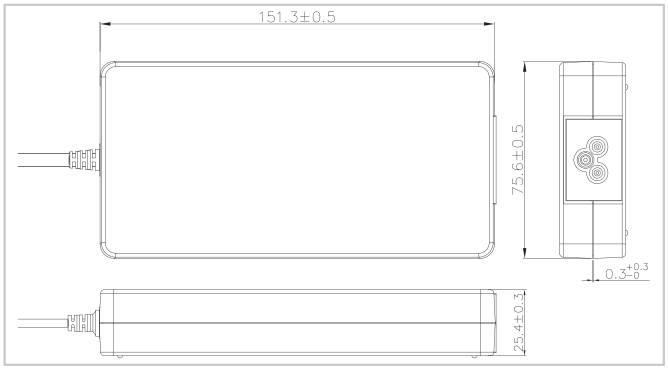
Plug Type: Power mini-DIN (4P)

**Meet ErP & PSE

Specifications

- Input Voltage Range: 90-264 VAC
- Input Frequency: 47-63 Hz
- Output Voltage: 19 V
- Output Current: 6.32 A
- Output Watts: 120 W
- Efficiency: 91.57%
- Operating Temperature: 0°C ~ 40°C
- Storage Temperature: -20°C ~ 80°C

Dimensions (Unit: mm)



Ordering Information

Part No.	Description
63040-010120-210-RS	19 V 120W power adapter, 90~264 VAC input, ErP, PSE

FSP096-AHAN3

96 W AC/DC Adapter

96W





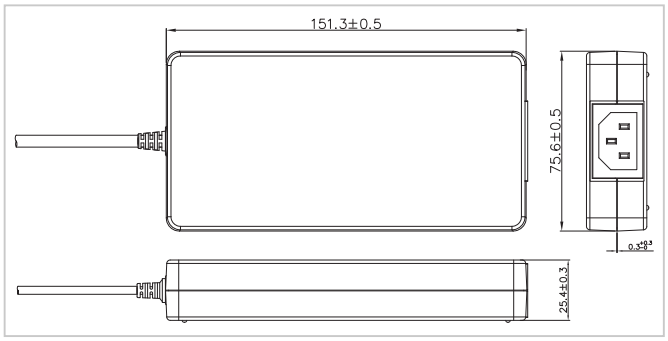
Plug Type: Power mini-DIN (4P)

**Meet ErP & PSE

Specifications

- Input Voltage Range: 90-264 VAC
- Input Frequency: 47-63 Hz
- Output Voltage: 12 V
- Output Current: 8 A
- Output Watts: 96 W
- Efficiency: 88%
- Operating Temperature: 0°C ~ 40°C
- Storage Temperature: -20°C ~ 80°C

Dimensions (Unit: mm)



Ordering Information

Part No.	Description
63040-010096-200-RS	12V 96W power adapter with DIN 4-pin/lock 90~264 VAC input, ErP, PSE, KC, BSMI

FSP090-DIEBN2

87 W AC/DC Adapter

87W





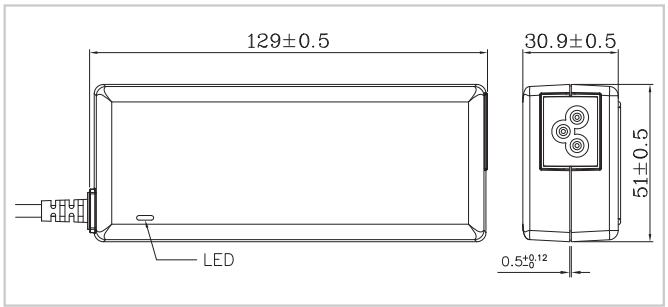
Plug Type: Power mini-DIN (4P)

**Meet ErP & PSE

Specifications

- Input Voltage Range: 90-264 VAC
- Input Frequency: 47-63 Hz
- Output Voltage: 19 V
- Output Current: 4.74 A
- Output Watts: 87 W
- Efficiency: 86%
- Operating Temperature: 0°C ~ 40°C
- Storage Temperature: -30°C ~ 60°C

Dimensions (Unit: mm)



Ordering Information

Part No.	Description
63040-010090-101-RS	19V 90W power adapter with DIN 4-pin/lock 90~264 VAC input, ErP

FSP065-REBN2

65 W AC/DC Adapter 65W





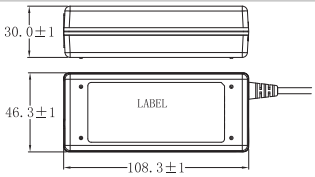
Plug Type: øin 2.1 mm / øout 5.5 mm

**Meet ErP & PSE

Specifications

- Input Voltage Range: 90-264 VAC
- Input Frequency: 47-63 Hz
- Output Voltage: 19 V
- Output Current: 3.42 A
- Output Watts: 65 W
- Efficiency: 89.54%
- Operating Temperature: 0°C ~ 40°C
- Storage Temperature: -20°C ~ 75°C
- Storage Temperature: -20°C ~ 75°C

Dimensions (Unit: mm)



Ordering Information

Part No.	Description
63040-010065-200-RS	19V 65W power adapter with Φ2.1/Φ5.5/lock 90~264 VAC input, ErP, PSE

63040-010060-020

60 W AC/DC Adapter 60W

Medical





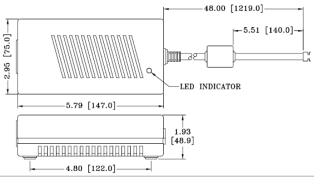
Plug Type: øin 2.5 mm / øout 5.5 mm

**Meet ErP

Specifications

- Input Voltage Range: 90-264 VAC
- Input Frequency: 47-63 Hz
- Output Voltage: 12 V
- Output Current: 5 A
- Output Watts: 60 W
- Efficiency: 85%
- Operating Temperature: 0°C ~ 60°C
- Storage Temperature: -40°C ~ 85°C

Dimensions (Unit: mm)



Ordering Information

Part No.	Description
63040-010060-020-RS	12V 60W medical power adapter with Φ2.5/Φ5.5 90~264 VAC input, ErP

FSP060-DHAN3

60 W AC/DC Adapter 60W





Plug Type: øin 2.5 mm / øout 5.5 mm

**Meet ErP & PSE

Specifications

- Input Voltage Range: 90-264 VAC
- Input Frequency: 47-63 Hz
- Output Voltage: 12 V
- Output Current: 5 A
- Output Watts: 60 W
- Efficiency: 85%
- Operating Temperature: 0°C ~ 40°C
- Storage Temperature: -20°C ~ 65°C

Dimensions (Unit: mm)



Ordering Information

Part No.	Description
63040-010060-210-RS	12 V 60W power adapter with lock screw 90~264 VAC input, ErP, PSE
63040-010060-200-RS	12V 60W power adapter with none lock 90~264 VAC input, ErP, PSE

FSP036-RHBN3

36 W AC/DC Adapter 36W





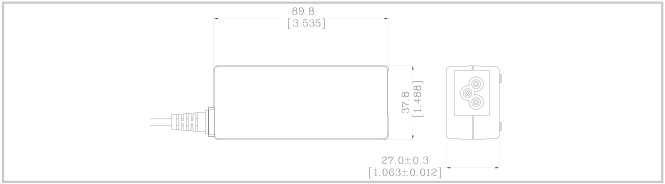
Plug Type: øin 2.5 mm / øout 5.5 mm

**Meet ErP & PSE

Specifications

- Input Voltage Range: 90-264 VAC
- Input Frequency: 47-63 Hz
- Output Voltage: 12 V
- Output Current: 3 A
- Output Watts: 36 W
- Efficiency: 88.3%
- Operating Temperature: 0°C ~ 40°C
- Storage Temperature: -20°C ~ 80°C

Dimensions (Unit: mm)



Ordering Information

Part No.	Description
63040-010036-210-RS	12V 36W Power adapter with lock screw, 90~264VAC input, ErP, PSE
63040-010036-220-RS	12V 36W Power adapter without lock, 90~264VAC input, ErP, PSE

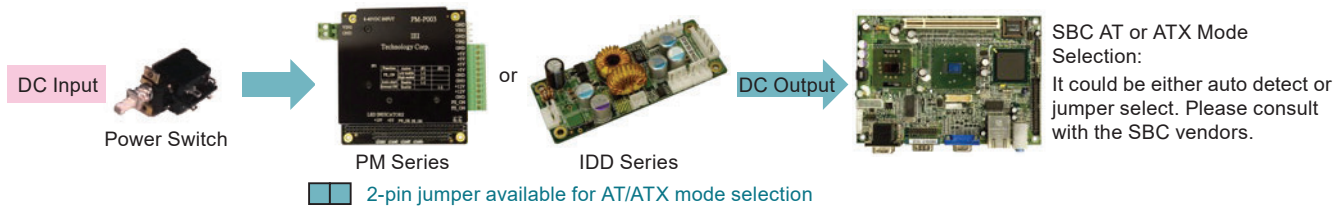
How to Configure the IDD & PM_P Series

AT Mode

1. Power supply without any control signal
2. Power is controlled directly by the power supply's on/off switch.

■ Installation

Step 1. Set the jumper on the power modules and SBC to AT mode (if available)



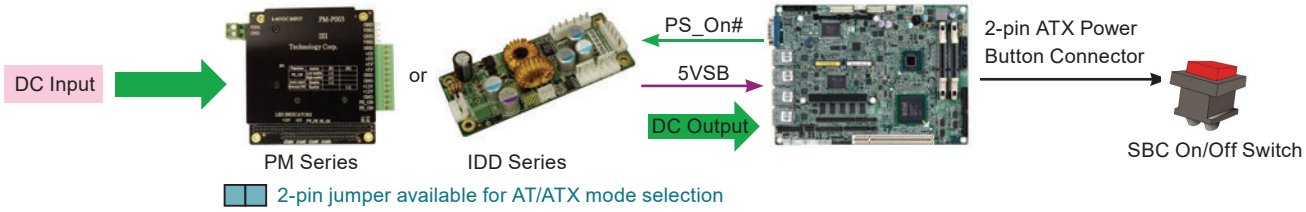
Step 2. Connect all input and output power cables **Step 3.** Wire/Isolate DC input by power switch **Step 4.** Power up by switch

ATX Mode (supports normal Windows® OS power down)

1. Required 5VSB (5V standby power) to SBC.
2. Power supply on/off control by “PS_On#” signal.
3. PS_On# is an active low signal that turns on all power rails.

■ Installation

Step 1. Set the jumper on the power modules and SBC to ATX mode (if available)



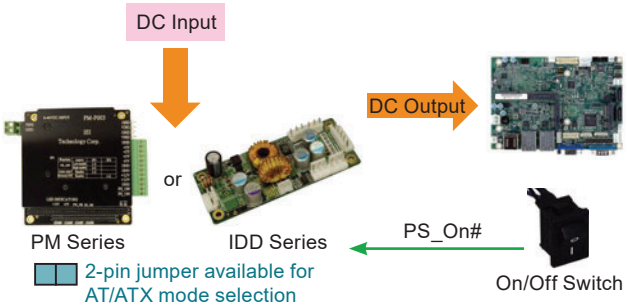
Step 2. Wire 5VSB and PS_ON# from power module to SBC **Step 3.** Wire all input, output power cables **Step 4.** Power up system by SBC on/off switch

Simulated AT Mode

1. The 5 V standby power is not provided to the SBC.
2. Power supply power is controlled by the "PS_On#" signal.
3. The power switch is connected to the power supply.

■ Installation

Step 1. Set the jumper on the power modules to ATX mode and set the jumper on the SBC to AT mode (if available)



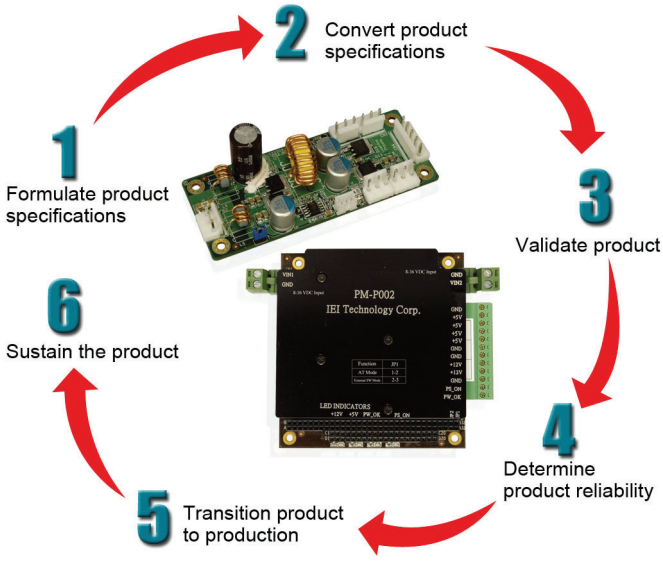
Step 2. Connect 5VSB & PS_ON# from the power module to the SBC.

Step 3. Connect all input and output power cables.

Step 4. Power up the system using the power switch connected to the SBC.

From Scratch to Sustain - Commitment

A partnership with IEI does not end at product shipment. We’re beside you with ongoing product support as your products evolve and change to meet emerging market requirements.



Product List

Model No.	Dimensions	Maximum Output Power	Input Voltage	Maximum Output Current						
				12V	5V	3.3V	-12V	5VSB	16V	20V
IDDV-6304140A	45 mm x 160 mm	140 W	6 ~ 30 V	4 A	10 A	10 A	0.15 A	1.5 A	-	-
IDD-9364120A	45 mm x 160 mm	120 W	9 ~ 36 V	4 A	10 A	8 A	0.3 A	2 A	-	-
IDD-241100	40 mm x 100 mm	100 W	24 V	8.3 A	-	-	-	-	-	-
IDD-936160	25 mm x 82 mm	60 W	9 ~ 36 V	5 A	-	-	-	-	-	-
PM-P006UPS	3.775" x 3.55"	65 W	6 ~ 36 V	4 A	10 A	8 A	-	1 A	-	-
IDD-936260A	40 mm x 100 mm	60 W	9 ~ 36 V	3 A	10 A	-	-	0.5 A	-	-
IDD-12250A	40 mm x 100 mm	50 W + 60 W	12 V	5 A	10 A	-	-	0.5 A	-	-

Naming Conventions:

PM-P xxx yy

- yy — Extra Features
- xxx — Model Number
- P — Power Modules
- PM — PC/104 Form Factor

IDD xx - 630 4 120 A

- A — ATX On/Off Support
- 120 — Output Wattage
- 4 — Output Voltage Number
- 630 — Input Voltage Range
- xx — Extra Features
- IDD — Industry DC to DC Converter

Output Power Calculation

P (Wattage) = V (Voltage) x I (Current)
Pt = Total Output Power
I1 = Current of Output Voltage1
In = Current of Output Voltagen
V1 = Output Voltage1
Vn = Output Voltagen
Pt = V1 x I1 + V2 x I2 + ... + Vn x In
Pt must be less than max. output power and individual output current must not exceed max. output current.

Dedicated Engineering Team - Professional

Our dedicated team offers application-specific integrated solutions and will design a customized product that will put you out in front of the competition.

Our solutions include standard/non-standard voltages, isolated/non-isolated, any form factor, power sequencing, battery chargers, electromechanical interference protection, thermal management, remote on/off and I/O interface.



Advanced Test Equipment – Precision & Reliability



Timing/Noise Analyzer Chroma 6011



Electronic Load Chroma 6312 Series

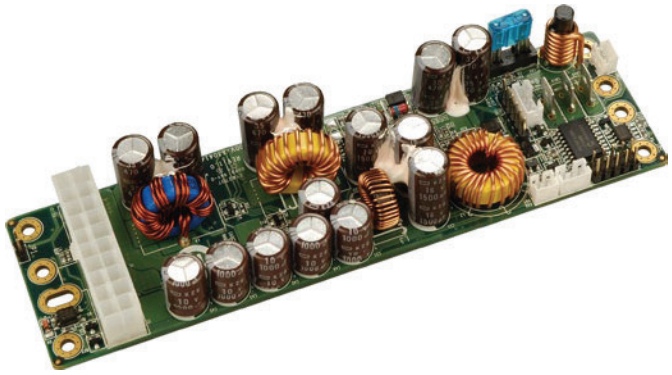


Power Analyzer Chroma 6632

IDDV-6304140A

140 W DC/DC Smart ATX Converter Module for Vehicle

140W



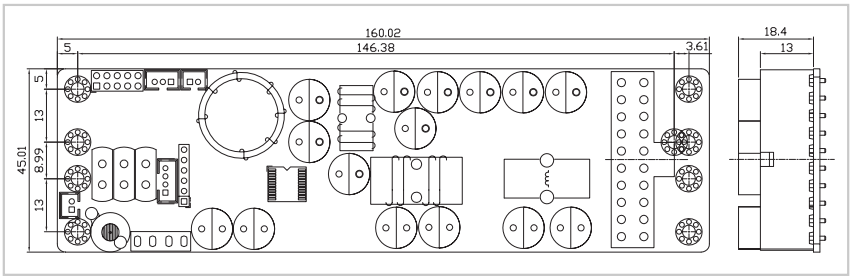
Dedicated ATX power for car PC and battery powered applications

Designed to provide power and to control power on/off switch of a motherboard based on the ignition status.

Features

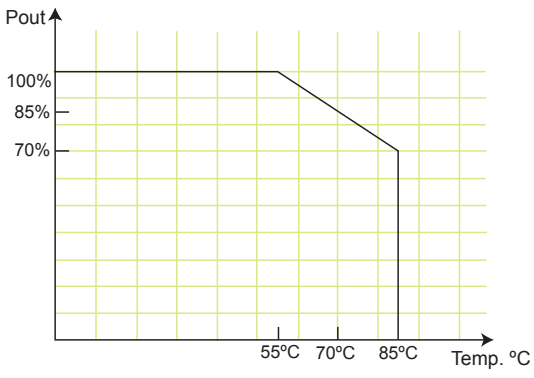
1. Wide input range: 6-30 VDC
2. Smart system on/off control
3. Six selectable power on/off timing modes
4. Load down protection
5. Over voltage protection
6. Short circuit protection
7. Over current protection
8. Battery voltage monitor
9. Amplifier on-delay control
10. RoHS compliant
11. Compact size
12. Infrared remote off (optional)

Dimensions *(Unit: mm)*



Specifications

- Output (max.): 5 V@10 A, 3.3 V@10 A, 12 V@4 A, -12 V@0.15 A & 5VSB@1.5 A
- Max. total output: 140 W
- Input: 6 VDC to 30 VDC
  Min. input operating voltage: 5.7 V
  Max. input operating voltage: 30 V
- Deep-discharge shut down voltage: 10.6 V
- Startup voltage: 8 V
- Efficiency: up to 90%
- Dimensions (mm): 45 x 160
- Weight (NW): 118 g
- Operating temperature: -20°C ~ 85°C
- Storage temperature: -25°C ~ 90°C



Pin Assignments

Input Power Connector

CN15	Batt (+)
CN16	ACC ON
CN17	Batt (-)

Output Power Connector

J1	Standard 20-pin ATX

Packing Information

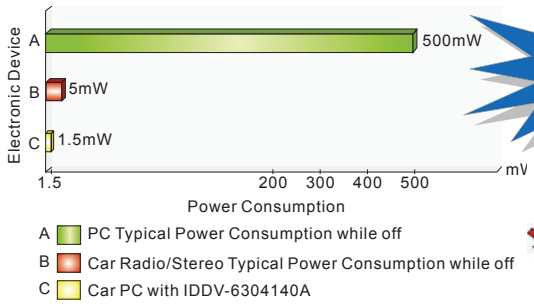
1 x IDDV-6304140A
1 x QIG
1 x Wire cable for PWR/SW and MB/SW (P/N: 32100-153400-RS)
1 x Wire cable for LED/AMP (P/N: 32100-153500-RS)

Ordering Information

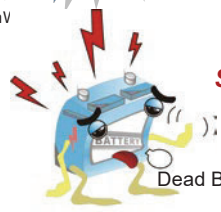
Part No.	Description
IDDV-6304140A-R10	140 W DC/DC 6-30 VDC input, vehicle converter module

PCs Still Consume Power While Off

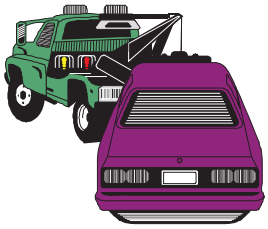
A typical PC consumes 500mW of power when the system is powered off. The current computer market trend demands more and more standby power.







Standard ATX Power Supply will Drain the Car Battery!



How the IDDV-6304140A works to keep your battery alive

Step1. Ignition=Off
The IDDV-6304140A cuts off all the power rails including 5VSB. The internal µP power consumption keeps less than 1.5mW.

Step2. Ignition=On (ACC On)
The IDDV-6304140A waits for 10 seconds then turns on the 5VSB rail.
Auto On (jumper selectable) - After 1 second, the µP sends an "ON" signal to the motherboard via the two wires connected to the motherboard's on/off pins.
Manual On (jumper selectable) - Nothing happens until the power button on the IDDV-6304140A is pushed.

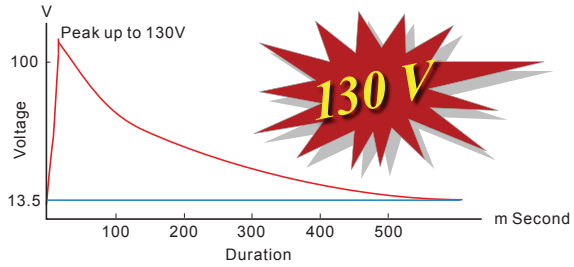
Step3. Ignition=On
During driving: acts like a regular PC, turns on/off anytime by pushing the on/off button.

Step4. Ignition=Soft Off
The IDDV-6304140A waits for "10~40" seconds (jumper selectable), and then µP sends a signal to turn off the motherboard. The computer should turn off gracefully during the shutdown procedure. During this period, normal power will be available for the system to perform normal shutdown.

Step5. Ignition=Hard Off
5VSB is still available for 0 seconds, 45 seconds, 1 hour, or never (jumper selectable) before being cut off by µP. At this stage, the system will keep minimum power consumption so that the system won't drain the car battery.

12V Battery Vehicle Load Dump Transients

'Load dump' transients occur when a battery are disconnected from the charging system during charge. The alternator, with a finite response time of 40ms to 400ms, generates power with nowhere to go. This damages electronic devices.

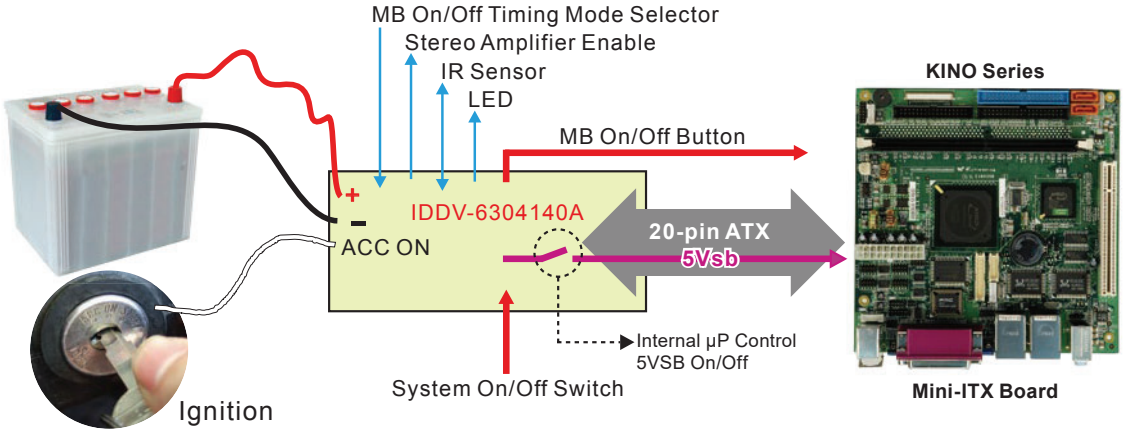


12V System
Load Dump Transients

Load dump transients typically reach peak voltages of 130 volts in 12 volt systems with relatively slow rise times.

EMI sprays and RFI sparking is everywhere. Electrical transients run zapping embedded electronic components. The electronic components located in a vehicle must withstand 600V transients and "load dump" situations.

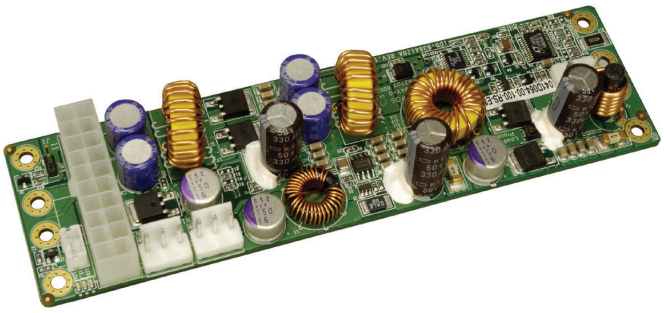
IDDV-6304140A Wiring Diagram



IDD-9364120A

120 W DC/DC Converter Module

120W

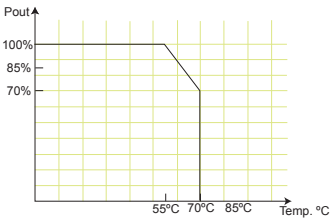


Features

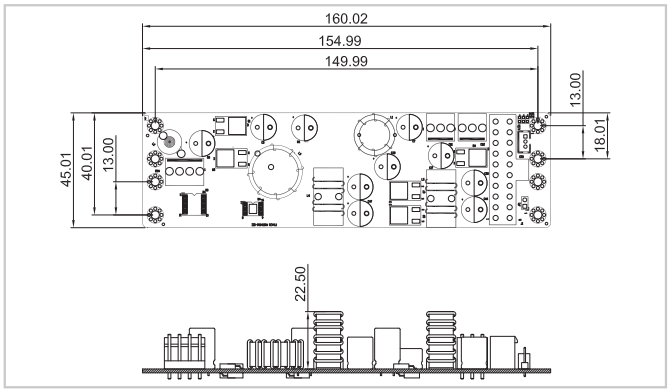
1. Wide input range: 9-36 VDC
2. AT or ATX mode on/off
3. Output voltage protection
4. Up to 90% efficiency
5. RoHS compliant
6. Compact size

Specifications

- Output (max.): 12 V@4 A, 5 V@10 A, 3.3 V@8 A, -12 V@0.3 A & 5VSB@2 A
- Max. total output: 120 W
- Input: 9 VDC to 36 VDC
- Performance characteristics
  - Noise & ripple: <240 mV
  - Line regulation: <50 mV
  - Load regulation: <100 mV
  - Efficiency: Up to 90%
- Dimensions (mm): 45 x 160
- Weight (NW): 104 g
- Operating temperature: -20°C ~ 70°C
- Storage temperature: -25°C ~ 75°C



Dimensions *(Unit: mm)*



Packing Information

1 x IDD-9364120A
1 x QIG

Ordering Information

Part No.	Description
IDD-9364120A-R11	120 W DC/DC 9~36 V input, 12 V, 5 V, 3.3 V, -12 V & 5VSB output
CB-3PSATA-RS	10 cm cable for SATA power
CB-3PIDE-RS	10 cm cable for IDE HDD power
CB-NOLP4-RS	20 cm cable for terminal block DC input
32102-021500-200-RS	30 cm 20-pin ATX to 20-pin ATX cable

Pin Assignments

Input Power Connector

CN4	Pin 1	Pin 2	Pin 3	Pin 4
	VIN	VIN	GND	GND

Output Power Connector

CN1, CN2	Pin 1	Pin 2	Pin 3
	+5 V	GND	+12 V
J1	Standard 2-pin ATX		

ATX Mode Connector

CN3	Pin 1	Pin 2	Pin 3
	5VSB	GND	PS_ON

Wire Harness Selection Guide

DC Input (CN4)



Option 1.
PN: CB-NOLP4-RS
Cable for terminal block

I/O Power (CN1 & CN2)



Option 1.
PN: CB-3PSATA-RS
Cable for SATA

SBC Main Power (J1)



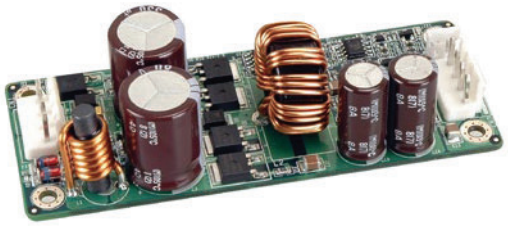
Option 1.
PN: 32102-021500-200-RS
20-pin ATX to 20-pin ATX cable



Option 2.
PN: CB-3PIDE-RS
Cable for IDE HDD or any STD 4-pin I/O devices

IDD-241100

100 W DC/DC Converter Module

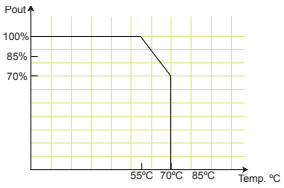


Features

1. 100W total power
2. AT mode on/off
3. Up to 90% efficiency
4. RoHS compliant
5. Compact size

Specifications

- Output (max.): 12 V@8.33 A
- Max. total output: 100 W
- Input: 24 VDC
- Performance characteristics
  Noise & ripple: <240 mV
  Load regulation: <240 mV
  Efficiency: Up to 90%
- Dimensions (mm): 40 x 100
- Weight (NW): 60 g
- Operating temperature: -20°C ~ 70°C



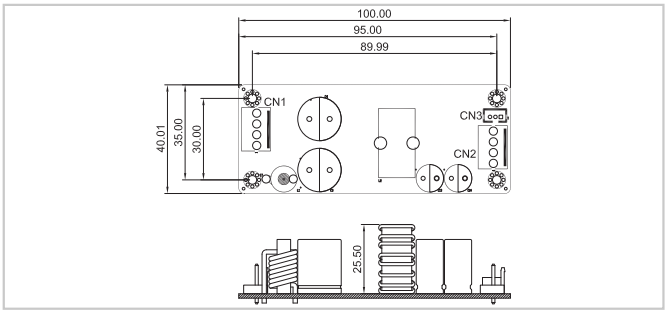
Wire Harness Selection Guide

DC Input (CN1)



PN: CB-NOLP4-RS
Cable for terminal block

Dimensions *(Unit: mm)*



Packing Information

1 x IDD-241100	1 x QIG

Ordering Information

Part No.	Description
IDD-241100-R10	100 W DC/DC 24 V input, 12 V output with 100W total power
CB-NOLP4-RS	20 cm cable for terminal block DC input

Pin Assignments

Input Power Connector

	Pin 1	Pin 2	Pin 3	Pin 4
CN1	VIN	VIN	GND	GND

Output Power Connector

	Pin 1	Pin 2	Pin 3	Pin 4
CN2	+12 V	+12V	GND	GND

Power on/off, LED Connector

	Pin 1	Pin 2	Pin 3
CN3	SHDN# (Shut down output power function, short Pin1 & Pin2)	GND	LEDA (Disable LED function, short Pin2 & Pin3)

IDD-936160

60 W DC/DC Converter Module



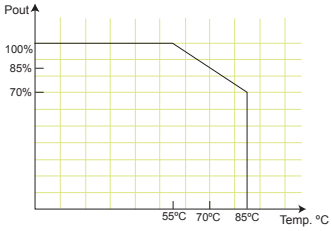
IDD-936160 60W DC/DC Converter Module is a high performance buck-boost switching regulator power module. The constant frequency current mode architecture allows a phaselockable frequency of up to 400 kHz. With a wide 9V to 36V input and 12V output and seamless transfers between operating modes, the IDD-936160 is ideal for embedded systems with limited space.

Features

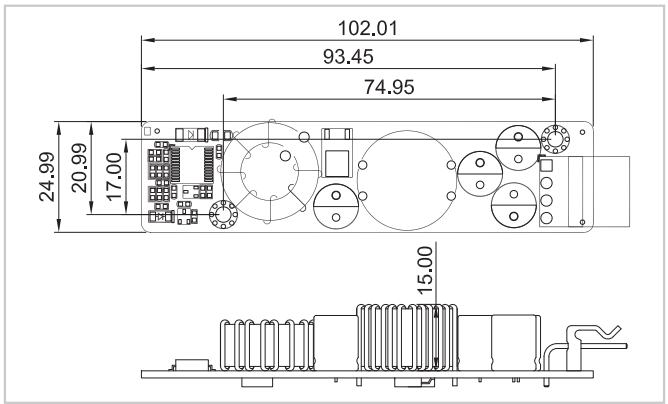
1. Wide input range: 9-36 VDC
2. 12 VDC output up to 5 Amp
3. Compact size
4. Efficiency up to 95%
5. RoHS compliant

Specifications

- Output (max.): 12 V@5 A
  Max. total output: 60 W
- Input: 9 VDC to 36 VDC
- Performance characteristics
  Noise & ripple: <300 mV
  Line regulation: <300 mV
  Load regulation: <85 mV
  Efficiency up to 95%
- Dimensions (mm): 82 x 25
- Weight (NW): 28 g
- Operating temperature: -40°C ~ 85°C



Dimensions *(Unit: mm)*



Pin Assignments

Input/Output Connector

	Pin1	Pin2	Pin3
VOUT1	+12 V Output	GND	Vin



Cable
P/N: 32102-015700-100-RS

Packing Information

1 x IDD-936160	1 x QIG
1 x 300 mm wire cable (P/N: 32102-015700-100-RS)	

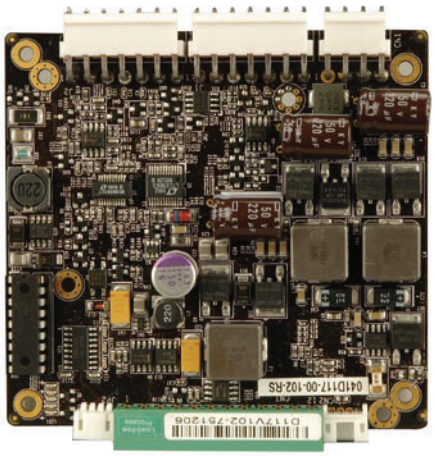
Ordering Information

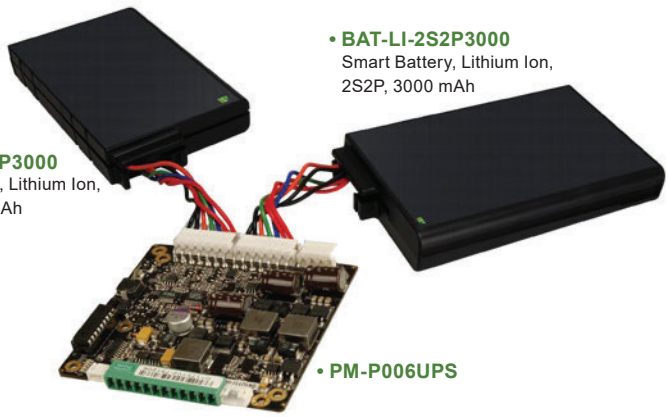
Part No.	Description
IDD-936160-R20	60 W DC/DC 9~36 V input, 12 V output

PM-P006UPS

65 W DC/DC Converter Module, with UPS

65W





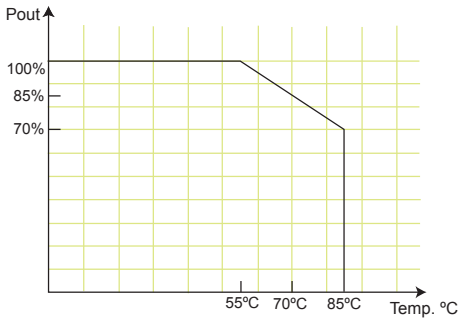
- **BAT-LI-2S2P3000**
  Smart Battery, Lithium Ion, 2S2P, 3000 mAh
- **BAT-LI-2S2P3000**
  Smart Battery, Lithium Ion, 2S2P, 3000 mAh
- **PM-P006UPS**

Features

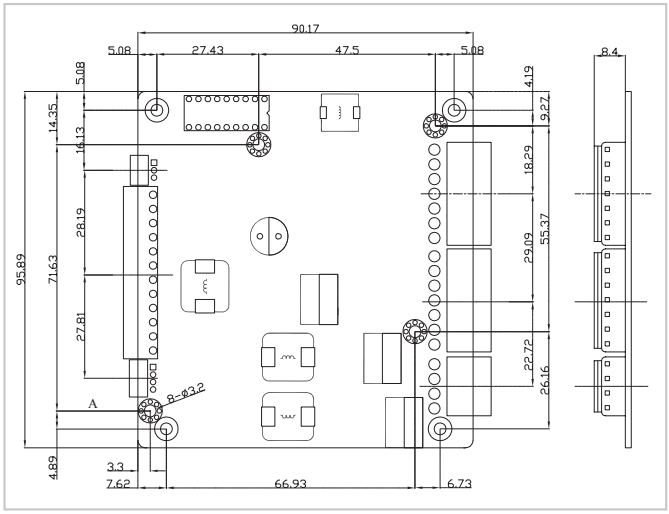
1. Load down protection
2. Over voltage protection
3. Short circuit protection
4. Over current protection
5. Smart battery charger for lithium ion
6. I/O interface: SMBus/I^{2}C & RS-232
7. Support up to two battery packs
8. AT/ATX modes
9. Utility program: pull data out through RS-232 to a system

Specifications

- Output (max.): 12 V@4 A, 5 V@10 A, 3.3 V@8 A, 5VSB@1 A, & -12 V @0.1 A
- Max. total output: 65 W
- Input: 6 VDC to 36 VDC
- Battery charge voltage: 12 V ~ 36 V
- Efficiency: up to 90%
- Dimensions (mm): 90 x 96
- Weight (NW): 178 g
- Operating temperature: -20°C ~ 85°C (without smart battery)
  Operating temperature: -10°C ~ 60°C (with smart battery)
- Storage temperature: -35ºC ~ 95ºC



Dimensions *(Unit: mm)*



Packing Information

1 x PM-P006UPS
1 x QIG
1 x DB-9 pin connector cable (32100-157200-RS)

Applications


Battery backup system


Portable equipment


Power sensitive equipment

Ordering Information

Part No.	Description
PM-P006UPS-R10	65 W ATX DC/DC 6-36 VDC input, 12 V, 5 V, 3.3 V, -12 V and 5VSB PC/104 power module with UPS
BAT-LI-2S2P3000-R10	Smart Battery, lithium ion, 2S2P, 3000 mAh
CB-NOLP4-RS	20 cm cable for terminal block DC input

■ High Energy Density, Light Weight and Compact DC/DC UPS & Power Module

- Protects your precious equipment from damage
- Reduces the risk of losing your valuable data

An uninterruptible power supply provides emergency backup power when the main power is lost.

Benefits:

- Provides power for a certain amount of time after a power failure has occurred
- Provides stable power to equipment during line sags and spikes
- Absorbs power surges and transients
- Smooths out noisy power sources

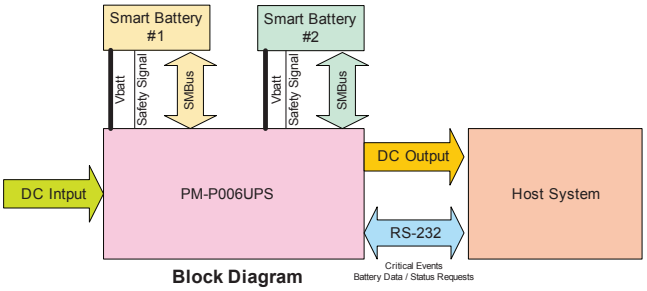
The utility software displays the following information:

- Current power source
- Battery status
- Charging status
- Remaining battery percentage

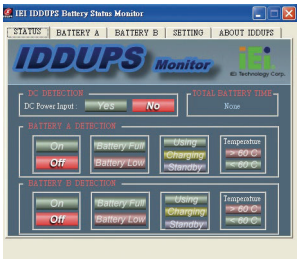


Battery Capacity Status

■ Level 2 Smart Battery Charger & Power Modules



Block Diagram



Battery Monitoring Utility



Battery Monitoring Connection Cable (PN: 32100-157200-RS)

■ Battery Pack (P/N: BAT-LI-2S2P3000)



Battery Type	Lithium Ion			
Pout (W)	100	80	60	40
Time (min.)	8	14	18	27
Dimensions (mm)	148 x 89 x 20			
Capacity	3000 mAh			

■ Pin Assignments

Input Power Connector

CN1	Pin 1	Pin 2	Pin 3	Pin 4
	VIN	VIN	Gnd	Gnd

I/O Interface RS-232 Connector

JP2	Pin 1	Pin 2	Pin 3
	Gnd	TX	RX

Output Power Connector

CN7	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9	Pin 10	Pin 11	Pin 12
	N12V	Gnd	12 V	Gnd	3 V	3 V	Gnd	5 V	5 V	Gnd	5 VSB	Gnd

ATX Mode Connector

CN2	Pin 1	Pin 2	Pin 3	Pin 4
	PWROK	5 VSB	Gnd	PS_ON

Battery Connector

J1, J2	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
	BAT+	BAT+	Clock	Data	Temp	Gnd	Gnd

■ Wire Harness Selection Guide

DC Input

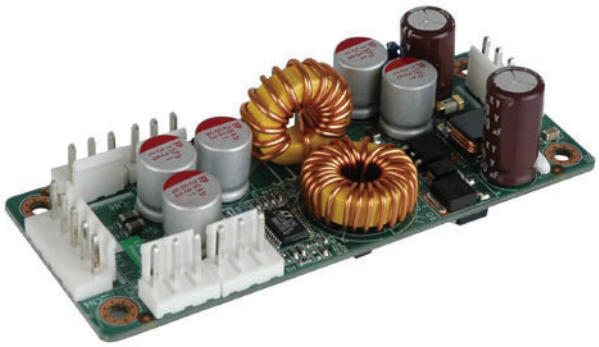


Option 1.
PN: CB-NOLP4-RS
Cable for terminal block

IDD-936260A

60 W DC/DC Converter Module

60W

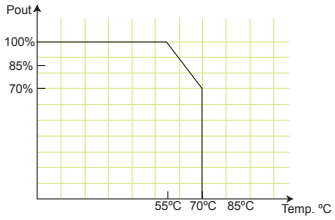


Features

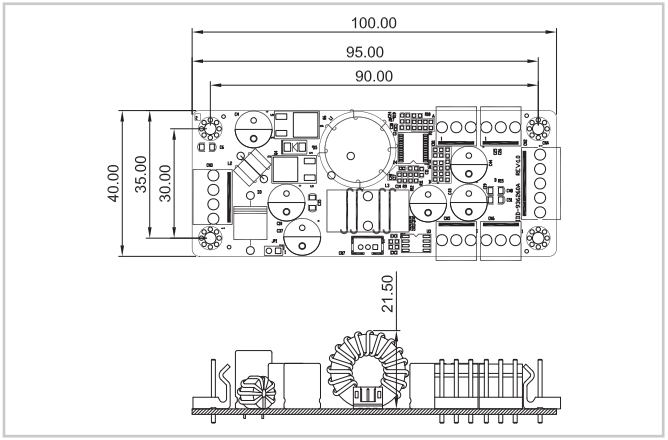
1. Wide input range: 9-36 VDC
2. AT or ATX mode on/off
3. Up to 90% efficiency
4. RoHS compliant
5. Compact size

Specifications

- Output (max.): 12 V@3 A, 5 V@10 A & 5VSB@0.5 A
- Max. total output: 60 W
- Input: 9 VDC to 36 VDC
- Performance characteristics
  Noise & ripple: <240 mV
  Line regulation: <50 mV
  Load regulation: <100 mV
  Efficiency: Up to 90%
- Dimensions (mm): 40 x 100
- Weight (NW): 58 g
- Operating temperature: -20°C ~ 70°C



Dimensions *(Unit: mm)*



■ Pin Assignments

Input Power Connector

CN3	Pin 1	Pin 2	Pin 3	Pin 4
	VIN	VIN	GND	GND

Output Power Connector

CN4	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5
	+5 V	+5 V	GND	GND	+12 V

CN1 CN2 CN5 CN6	Pin 1	Pin 2	Pin 3
	+5 V	GND	+12 V

ATX Mode Connector

CN7	Pin 1	Pin 2	Pin 3
	5VSB	GND	PS_ON

Packing Information

1 x IDD-936260A
1 x QIG

Ordering Information

Part No.	Description
IDD-936260A-R11	60 W DC/DC 9~36 V input, 12 V, 5 V & 5VSB output
CB-3PSATA-RS	10 cm cable for SATA power
CB-3PIDE-RS	10 cm cable for IDE HDD power
CB-NOLP4-RS	20 cm cable for terminal block DC input

■ Wire Harness Selection Guide

DC Input (CN3)



Option 1.
PN: CB-NOLP4-RS
Cable for terminal block

I/O Power (CN1, CN2, CN5 & CN6)



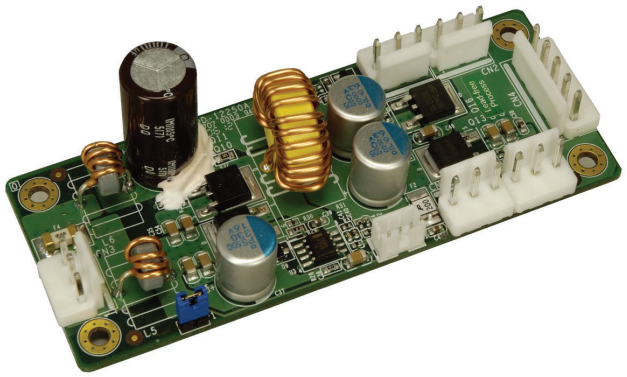
Option 1.
PN: CB-3PSATA-RS
Cable for SATA



Option 2.
PN: CB-3PIDE-RS
Cable for IDE HDD or any STD 4 pins I/O devices

IDD-12250A

50 W+60 W DC/DC Converter Module

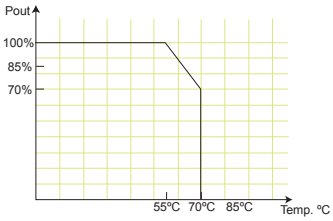


Features

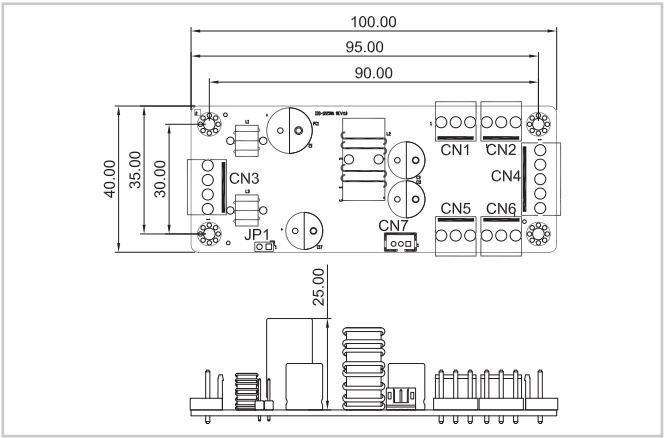
1. 50 W + 60 W (12 V pass thru), total power 110 W
2. AT or ATX mode on/off
3. Up to 90% efficiency
4. RoHS compliant
5. Compact size

Specifications

- Output (max.): 12 V@5 A (pass thru), 5 V@10 A & 5VSB@0.5 A
  Max. total output: 50 W plus 60 W (12 V pass through)
- Input: 12 VDC
- Performance characteristics
  Noise & ripple: <25 mV
  Load regulation: <120 mV
  Efficiency: Up to 90%
- Dimensions (mm): 40 x 100
- Weight (NW): 46 g
- Operating temperature: 0°C ~ 70°C



Dimensions *(Unit: mm)*



Pin Assignments

Input Power Connector

CN3	Pin 1	Pin 2	Pin 3	Pin 4
	VIN	VIN	GND	GND

Output Power Connector

CN4	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5
	+5 V	+5 V	GND	GND	+12V

CN1 CN2 CN5 CN6	Pin 1	Pin 2	Pin 3
	+5V	GND	+12V

ATX Mode Connector

CN7	Pin 1	Pin 2	Pin 3
	5VSB	GND	PS_ON

Packing Information

1 x IDD-12250A
1 x QIG

Ordering Information

Part No.	Description
IDD-12250A-R11	50 W+60 W DC/DC 12 V input, 12 V, 5 V & 5VSB output
CB-3PSATA-RS	10 cm cable for SATA power
CB-3PIDE-RS	10 cm cable for IDE HDD power
CB-NOLP4-RS	20 cm cable for terminal block DC input

Wire Harness Selection Guide

DC Input (CN3)



Option 1.
PN: CB-NOLP4-RS
Cable for terminal block

I/O Power (CN1, CN2, CN5 & CN6)



Option 1.
PN: CB-3PSATA-RS
Cable for SATA



Option 2.
PN: CB-3PIDE-RS
Cable for IDE HDD or any STD
4 pins I/O devices

CPU Cooler *High performance thermal solutions*

Choosing the wrong CPU cooler for a system can lead to serious overheating, resulting in system shutdown and potential damage to CPUs.
For industrial applications, the following CPU coolers fit the needs of various operating environments, where different levels of cooling are required.

	IEI Special Desktop Core™ CPU Cooler				
					
Where Used	For spacial models: SPCIE-C2260, PCIE-Q870, PCIE-H810, WSB-H810, KINO-AQ870				
Model Name	**CF-1150SA-R10**	**CF-1150SB-R11**	**CF-1150SC-R20**	**CF-1150SE-R11**	**CF-1150SF-R10**
Description	IEI customized cooler for LGA1150 Intel® CPU, RoHS		IEI customized cooler for LGA1150 Intel® CPU, 1U chassis compatible, RoHS	IEI customized cooler for LGA1150 Intel® CPU, RoHS	IEI customized cooler for LGA1150 Intel® CPU, RoHS
CPU Solution	Intel® Core™ i7/i5	Intel® Core™ i7/i5	Intel® Core™ i7/i5	Intel® Core™ i7/i5	Intel® Core™ i7/i5
Socket Solution	LGA1150/LGA1151	LGA1150/LGA1151	LGA1150/LGA1151	LGA1150/LGA1151	LGA1150/LGA1151
Dimensions (mm)	83 x 83 x 57	96 x 82 x 60	105 x 80 x 23.7	107 x 70 x 60	107 x 70 x 35
Material	Al	Al	Cu	Cu	Al
Bearing Type	Ball And sleeve	Two-ball	Two-ball	Two-ball	Two-ball
Capability (Watt)	**95 W**	**65 W**	**65 W**	**95 W**	**54 W**
Fan Speed (RPM)	4200	3500	5500	4200	4500
Noise Level (dBA)	40	41	55	36	39
Life Expectancy (hrs)	40,000	50,000	50,000	50,000	50,000
Weight	330 g	286 g	406 g	812 g	220 g

	Intel® Standard Desktop Core™ CPU Cooler				
	New 	New 	New 	New 	
	LGA115X (LGA1150/LGA1151/LGA1155/LGA1156)				
Model Name	**CF-115XA-R10**	**CF-115XC-R10**	**CF-115XD-R10**	**CF-115XE-R10**	**CF-115XF-R10**
Description	High performance LGA1155/ LGA1156 cooler kit, 1U chassis compatible	Low power LGA1155/LGA1156 cooler Kit, RoHS		High performance LGA1155/ LGA1156 CPU cooler, RoHS	High performance LGA1155/ LGA1156 CPU cooler, RoHS
CPU Solution	Intel® Core™ i5/i3	Intel® Core™ i5/i3	Intel® Core™ i7/i5/i3	Intel® Xeon®/Core™ i7/i5/i3	Intel® Xeon®/Core™ i7/i5/i3
Socket Solution	LGA115X (LGA1150/LGA1151/LGA1155/LGA1156)				
Dimensions (mm)	89 x 92.6 x 27.4	94.34*94.34*43.4	94.34*94.34*43.4	91 x 91 x 84	90 x 90 x 69.3
Material	Cu	Al	Cu+Al	Al	Al
Bearing Type	Two-ball	Two Ball	Two Ball	Ball and Sleeve	Two Ball
Capability (Watt)	**73 W**	**45W**	**65W**	**95 W**	**95 W**
Fan Speed (RPM)	5500	3600	3600	4200	4200
Noise Level (dBA)	51	40	40	40	48
Life Expectancy (hrs)	50,000	70000	70000	40,000	50,000
Weight	422 g	226g	260g	301 g	432

CPU Cooler *High performance thermal solutions*

Choosing the wrong CPU cooler for a system can lead to serious overheating, resulting in system shutdown and potential damage to CPUs.
For industrial applications, the following CPU coolers fit the needs of various operating environments, where different levels of cooling are required.

	Desktop CPU Cooler	
		
	LGA775 Cooler	
Model Name	**CF-775B-RS-R11**	**CF-520-RS-R11**
Description	High performance 1U LGA 775 CPU cooler, with 7010 fan, RoHS	High performance LGA 775 CPU cooler, RoHS
CPU Solution	Intel® Core™2 Duo	Intel® Core™2 Duo
Socket Solution	LGA 775	LGA 775
Dimensions (mm)	80.5 x 81 x 28.2	115 x 115 x 67
Material	Cu	Aluminum alloy
Bearing Type	Two-ball	Two-ball
Capability (Watt)	**90 W**	**115 W**
Fan Speed (RPM)	4250	4500
Noise Level (dBA)	40	47.5~51.5
Life Expectancy (hrs)	50,000	70,000
Weight	600 g	635 g

	CPU Cooler	Mobile Core™ i7 CPU Cooler	
			
	Blower	PGA989	
Model Name	**BF-02-RS**	**CF-989A-RS-R12**	**CF-989B-RS-R11**
Description	Bracket cooling fan, RoHS	High performance Socket-G (PGA989) smart fan CPU cooler, RoHS	High performance Socket-G (PGA989) CPU cooler, aluminum, RoHS
CPU Solution	Breaket cooling fan	Intel® Core™ i7/i5/i3	Intel® Core™ i7/i5/i3
Socket Solution		PGA989	PGA989
Dimensions (mm)	112 x 90 x 21	60 x 60 x 27.5	60 x 60 x 27.5
Material	Plastic	Cu	Al
Bearing Type	One-ball	Two-ball	Two-ball
Capability (Watt)		**55 W**	**50 W**
Fan Speed (RPM)	2800	4800	4800
Noise Level (dBA)	28	40	40
Life Expectancy (hrs)	45,000	50,000	50,000
Weight	107.5 g	255 g	26 g

Industrial SATADOM Series

The world's smallest high-speed SATADOM

The revolutionary form factor of SATADOM has been widely adopted by industrial and embedded system makers across the globe. With in-house designed SATA 6Gb/s controller, the SATADOM provides you not only the fastest read/write speed but also stable data transfer. Moreover, to address customer's challenging requirements, we have released a series of the smallest SATADOM which fits various kinds of compact systems. Here, we recommend five models by different heights. For the low-profile 1U system use, you can choose SL 3SE, SH 3SE, and SH 3ME.

SATA 6Gb/s Solutions

Powerful Performance

SATA 6Gb/s devices have 191% higher performance than SATA 3Gb/s devices.

Less Power Consumption

The advanced idle mode helps to save up to 35% of energy when system stays in idle, therefore the battery runtime increases and the system requests less power consumption than SATA 3Gb/s.

Greater Reliability

The in-house designed SATA 6Gb/s controller offers an excellent signal quality during data transfer, enhancing the system compatibility and stability.

Easier Use

Along with upgrading to SATA 6Gb/s, the one-touch activation mode of iSMART 3.2 can save hours of setup and maintenance time.

Model Name		IFM-3010V	IFM-3320M	IFM-3010L	IFM-3010H	IFM-3020-HM
Picture						
Key Features		1. Vertical version 2. Anti-vibration mechanical design	1. Vertical version 2. Writing protection 3. Anti-vibration mechanical design	1. SATA 6Gb/s interface 2. iSMART disk health monitoring 3. Intelligent error recovery system 4. Excellent data transfer speed 5. Zero mechanical interference 6. Anti-vibration mechanical design	1. Horizontal version 2. Only exposes 12mm height on the motherboard after installation	1. Low profile horizontal design 2. High IOPS
Interface		SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Flash Type		SLC	MLC	SLC	SLC	MLC
Capacity (GB)		1GB~32GB	8GB~128GB	1GB~32GB	1GB~32GB	8GB~128GB
Sequential R/W		300/130	355/135	300/130	300/130	200/75
Max. Power Consumption		0.65W (5V x 130mA)	1W (5V x 200mA)	0.65A (5V x 130mA)	0.65W (5V x 130mA)	1.8W (5V x 370mA)
Thermal Sensor		Wide temperature model only	Wide temperature model only	Wide temperature model only	Wide temperature model only	Wide temperature model only
ATA Security		Yes	Yes	Yes	Yes	Yes
S.M.A.R.T		Yes	Yes	Yes	Yes	Yes
Dimensions (mm)		20.9 x 39.5 x 7.9	25.3 x 41.5 x 6.8	32.5 x 29.5 x 8.0	18.1 x 30.5 x 12	18.0 x 30.3 x12.5
Environment		Vibration: 20G@7~2000Hz, Shock: 1500G@0.5ms, Storage Temperature: -55°C ~ +95°C, MTBF: >3 million hours				
P/N	Standard (0°C~+70°C)	IFM-3010IS-1GB IFM-3010IS-2GB IFM-3010IS-4GB IFM-3010IS-8GB IFM-3010IS-16GB IFM-3010IS-32GB	IFM-3320IM-8GB-R21 IFM-3320IM-16GB-R21 IFM-3320IM-32GB-R21 IFM-3320IM-64GB-R21 IFM-3320IM-128GB-R21	IFM-3010IL-1GB IFM-3010IL-2GB IFM-3010IL-4GB IFM-3010IL-8GB IFM-3010IL-16GB IFM-3010IL-32GB	IFM-3010IPS-1GB IFM-3010IPS-2GB IFM-3010IPS-4GB IFM-3010IPS-8GB IFM-3010IPS-16GB IFM-3010IPS-32GB	IFM-3020IPSM-8GB-R21 IFM-3020IPSM-16GB-R21 IFM-3020IPSM-32GB-R21 IFM-3020IPSM-64GB-R21 IFM-3020IPSM-128GB-R21
	Wide Temperature (-40°C~+85°C)	IFM-3010WS-1GB IFM-3010WS-2GB IFM-3010WS-4GB IFM-3010WS-8GB IFM-3010WS-16GB IFM-3010WS-32GB	IFM-3320WM-8GB-R21 IFM-3320WM-16GB-R21 IFM-3320WM-32GB-R21 IFM-3320WM-64GB-R21 IFM-3320WM-128GB-R21	IFM-3010WL-1GB IFM-3010WL-2GB IFM-3010WL-4GB IFM-3010WL-8GB IFM-3010WL-16GB IFM-3010WL-32GB	IFM-3010WPS-1GB IFM-3010WPS-2GB IFM-3010WPS-4GB IFM-3010WPS-8GB IFM-3010WPS-16GB IFM-3010WPS-32GB	IFM-3020WPSM-8GB-R21 IFM-3020WPSM-16GB-R21 IFM-3020WPSM-32GB-R21 IFM-3020WPSM-64GB-R21 IFM-3020WPSM-128GB-R21

Industrial SSD Series

■ Breakthrough Technology of IFD-2530ISM & IFD-2530ISMD

With the release of the brand-new designed firmware algorithm, IFD-2530ISM and IFD-2530ISMD offer outstanding read and write performance and extended lifespan, and are compliant with the JEDEC 219 specifications. In addition, with the iData Guard Technology, IFD-2530ISM and IFD-2530ISMD support data integrity in the event of abnormal power failure. The wide operating temperature ranges from -40 °C to 85 °C.



Features of IFD-2530ISM & IFD-2530ISMD

IFD-2530ISM and IFD-2530ISMS provide a wide range demand of capacity. IFD-2530ISMD even supports large capacity up to 2TB.

	IFD-2530ISM	IFD-2530ISMD
DRAM-less Design	●	
Price	●	
Random Transfer Performance	● R: 31,000 IOPS/W: 40,000 IOPS (128GB)	● R: 70,000 IOPS/W: 64,000 IOPS (128GB)
Easy to Design in Small Form Factors	●	
Low Power Consumption	●	●
TRIM	●	●

Model Name		2.5” SATA 6Gb/s IFD-2520IS	2.5” SATA 6Gb/s IFD-2530ISMD	2.5” SATA 6Gb/s IFD-2540A2M
Picture				
Key Features		1. Intelligent error recovery system 2. Excellent data transfer speed 3. Enhanced power cycling management	1. EverGreen L² architecture 2. 7mm height mechanical design 3. Excellent random performance	1. 7mm height mechanical design 2. Low power consumption 3. Budget-friendly MLC-based solution
Interface		SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Flash Type		SLC	MLC	MLC
Capacity (GB)		8GB~128GB	8GB~1TB	32GB~1TB
Sequential R/W		510/340	520/450	560/510
Max. Power Consumption		2.2W (5V x 450mA)	5W (5V x 1A)	0.5W (5V x 100 mA)
Thermal Sensor		Wide temperature model only	Wide temperature model only	Wide temperature model only
ATA Security		Yes	Yes	Yes
S.M.A.R.T		Yes	Yes	Yes
Dimensions (mm)		69.8 x 100.1 x 9.3	70.0 x 100.0 x 6.8	69.85 x 100 x 6.9
Environment		Vibration: 20G@7~2000Hz, Shock: 1500G@0.5ms, Storage Temperature: -55°C ~ +95°C, MTBF: >3 million hours		
P/N	Standard (0°C~+70°C)	IFD-2520IS-8GB IFD-2520IS-16GB IFD-2520IS-32GB IFD-2520IS-64GB IFD-2520IS-128GB	IFD-2530ISMD-8GB-R20 IFD-2530ISMD-16GB-R20 IFD-2530ISMD-32GB-R20 IFD-2530ISMD-64GB-R20 IFD-2530ISMD-128GB-R20 IFD-2530ISMD-256GB-R20 IFD-2530ISMD-512GB-R20 IFD-2530ISMD-1TB-R20	IFD-2540A2M-32GB-R10 IFD-2540A2M-64GB-R10 IFD-2540A2M-128GB-R10 IFD-2540A2M-256GB-R10 IFD-2540A2M-512GB-R10 IFD-2540A2M-1TB-R10
	Wide Temperature (-40°C~+85°C)	IFD-2520WT-8GB IFD-2520WT-16GB IFD-2520WT-32GB IFD-2520WT-64GB IFD-2520WT-128GB	IFD-2530WTMD-8GB-R20 IFD-2530WTMD-16GB-R20 IFD-2530WTMD-32GB-R20 IFD-2530WTMD-64GB-R20 IFD-2530WTMD-128GB-R20 IFD-2530WTMD-256GB-R20 IFD-2530WTMD-512GB-R20 IFD-2530WTMD-1TB-R20	IFD-2540AW2M-32GB-R10 IFD-2540AW2M-64GB-R10 IFD-2540AW2M-128GB-R10 IFD-2540AW2M-256GB-R10 IFD-2540AW2M-512GB-R10 IFD-2540AW2M-1TB-R10

Industrial CFast & CF Card Series

Similar size, different read and write speeds

With a similar size, CFast is mainly different from CF card in its interface, connector, and most importantly, faster read and write speeds. CFast, with SATA 6Gb/s interface and 7-pin plus 17-pin connector, offers data transfer rates of sequential reads up to 470 MB/sec and of sequential writes up to 250 MB/sec. CF card, with PATA interface and 50-pin CF connector, offers data transfer rates of sequential reads up to 100 MB/sec and of sequential writes up to 95 MB/sec.

ATA security for CF card

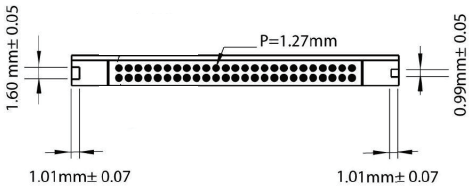
The optional ATA Security Mode feature set is a password system that restricts access to user data stored on a device. The purpose is to prevent unauthorized access or a virus.



CFast 3SE: Pin Directions

Pin S6: Tx+ Pin S3: Rx-

Pin S5: Tx- Pin S2: Rx+



iCF9000: IDE Pin

Model Name		ICT-2000 AS	ICT-2000 AM	ICF-9000	ICF-2000	ICF-1000	
Picture							
Capacity		2GB~64GB	8GB~128GB	4GB~32GB	512MB~8GB	128MB~8GB	128MB~16GB
Sequential R/W (Max.)		285/260 MB/sec	310/240 MB/sec	110/100 MB/sec	40/30 MB/sec	40/28 MB/sec	30/15 MB/sec
Flash Type		SLC	MLC	SLC	SLC	SLC	SLC
IDE Transfer Mode		Yes	Yes	PIO mode 0-6 MwDMA mode 0-4 UltraDMA mode 0-7	PIO mode 0-4 MwDMA mode 0-4 UltraDMA mode 0-4	PIO mode 0-4 MwDMA mode 0-4 UltraDMA mode 0-4	PIO mode 0-6 MwDMA mode 0-4 UltraDMA mode 0-4
Operating Temp.		0°C~+70°C (Standard)/-40°C~+85°C (Industrial)					
Storage Temp.		-40°C~+100°C		-55°C~+95°C			-40°C~+100°C
Vibration/Shock (7/2000Hz)/(0.5ms)		Vibration: 15 (G), 10~2000 (Hz) Shock: 1,500 G, 0.5 ms		1500G/0.5ms			1500G/0.5ms
DC Power Input		Supply voltage: 3.3V		ICF: +3.3V-+5V single power supply operation			Supply voltage: 3.3V & 5V
Power Consumption (Max.)		390mA	525mA	0.75W (5V x 125mA@210mA)			95 mA
Dimensions (mm)		42.8 x 36.4 x 3.6		42.8 x 36.4 x 3.3			42.8 x 36.4 x 3.3
ATA Security		Yes	Yes	Yes	Yes	Yes	Yes
S.M.A.R.T		Yes	Yes	Yes	Yes	Yes	No
P/N	STD (0°C~+70°C)	ICT-2000IA-2GB ICT-2000IA-4GB ICT-2000IA-8GB ICT-2000IA-16GB ICT-2000IA-32GB ICT-2000IA-64GB	ICT-2000IAM-8GB ICT-2000IAM-16GB ICT-2000IAM-32GB ICT-2000IAM-64GB ICT-2000IAM-128GB	ICF-9000CD-4GB ICF-9000CD-8GB ICF-9000CD-16GB ICF-9000CD-32GB	ICF-2000IPS-512MB ICF-2000IPD-1GB ICF-2000IPD-2GB ICF-2000IPD-4GB ICF-2000IPD-8GB	ICF-1000IPD-1GB-R20 ICF-1000IPD-2GB-R20 ICF-1000IPD-4GB-R20 ICF-1000IPD-8GB-R20	ICF-1000IA-128MB-R20 ICF-1000IA-256MB-R20 ICF-1000IA-512MB-R20 ICF-1000IA-1GB-R20 ICF-1000IA-2GB-R20 ICF-1000IA-4GB-R20 ICF-1000IA-8GB-R20
	WT (-40°C~+85°C)	ICT-2000WA-2GB ICT-2000WA-4GB ICT-2000WA-8GB ICT-2000WA-16GB ICT-2000WA-32GB ICT-2000WA-64GB	ICT-2000WAM-8GB ICT-2000WAM-16GB ICT-2000WAM-32GB ICT-2000WAM-64GB ICT-2000WAM-128GB	ICF-9000WD-4GB ICF-9000WD-8GB ICF-9000WD-16GB ICF-9000WD-32GB	ICF-2000WPS-512MB ICF-2000WPD-1GB ICF-2000WPD-2GB ICF-2000WPD-4GB ICF-2000WPD-8GB	ICF-1000WPD-1GB-R20 ICF-1000WPD-2GB-R20 ICF-1000WPD-4GB-R20 ICF-1000WPD-8GB-R20	ICF-1000WA-128MB-R20 ICF-1000WA-256MB-R20 ICF-1000WA-512MB-R20 ICF-1000WA-1GB-R20 ICF-1000WA-2GB-R20 ICF-1000WA-4GB-R20 ICF-1000WA-8GB-R20

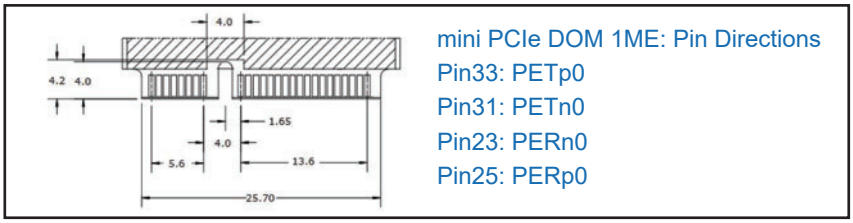
Industrial Mini PCIe DOM & mSATA Series

Co-layout design of Mini PCIe DOM and mSATA

For manufacturers or system integrators, the exciting benefit is they can have a circuit board with co-layout design of Mini PCIe DOM and mSATA. This feature allows users to enjoy wider applications by installing optional Mini PCIe DOM or mSATA in the same placement site.

Mini PCIe DOM: For conventional main board, better performance than CF card

We have realized IPC customers need a steady supply for their design-in cases by using Mini PCIe DOM or CF card as boot drive or storage. However, Mini PCIe DOM obviously has better performance in read/write over 4 times than CF card. Boasting its easy use in plug-and-play and driverless (Windows XP and above) capabilities, the Mini PCIe DOM is no doubt the best choice for the conventional motherboard. In the following table, we recommend one cost-effective MLC model and one reliable SLC model.

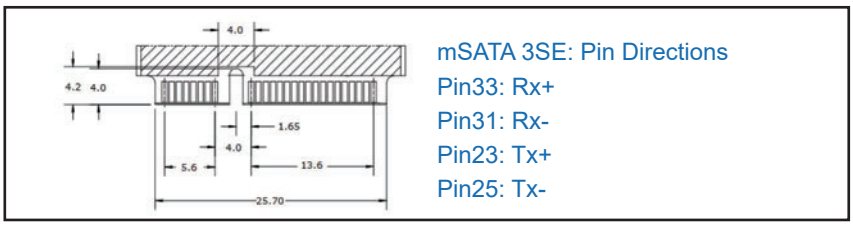


mini PCIe DOM 1ME: Pin Directions
Pin33: PETp0
Pin31: PETn0
Pin23: PERn0
Pin25: PERp0

mSATA: For space-limited main board, up to read/write speed of 470/220 MB/sec

Nowadays, more and more compact gadgets are designed to satisfy eager users. Smaller than a business card, the mSATA has become the must-have storage to deliver instant data transfer.

In the following table, we recommend five models categorized by the flash type and size.



mSATA 3SE: Pin Directions
Pin33: Rx+
Pin31: Rx-
Pin23: Tx+
Pin25: Tx-

Model Name		IPE-5300IM/WM	IPE-5320IM/WM	IPE-5320AM/AWM	IPE-5200IP/WP	IPE-5210IPM/WPM
Picture						
Key Features		1. Excellent data transfer speed 2. High quality SLC-based solution	1. Excellent data transfer speed and IOPS 2. Budget- friendly MLC-based solution	1. Excellent data transfer speed and IOPS 2. Budget- friendly MLC-based solution	1. PCI Express interface 2. Driverless 3. Multi OS supported	1. PCI Express interface 2. Driverless 3. Multi OS supported
Interface		SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	PCI Express Gen 1 x1	PCI Express Gen 1 x1
Flash Type		SLC	MLC	MLC	SLC	MLC
Capacity (GB)		2GB~32GB	8GB~512GB	8GB~256GB	4GB~64GB	8GB~256GB
Sequential R/W		470/250	340/200	430/170	170/120	130/100
Max.Power Consumption		1.2 W (3.3V x 360 mA)	1.3W (3.3V x 390 mA)	1.3W (3.3V x 390 mA)	1.2W (3.3V x 370mA)	1.2W (3.3V x 370mA)
Thermal Sensor		Wide temperature model only	Wide temperature model only	Wide temperature model only	Wide temperature model only	Wide temperature model only
ATA Security		Yes	Yes	Yes	Yes	Yes
S.M.A.R.T		Yes	Yes	Yes	Yes	Yes
Dimensions (mm)		29.8 x 50.8 x 4.4	29.8 x 50.8 x 4.4	29.8 x 50.8 x 4.4	30 x 50.95 x 4.4	30 x 50.95 x 4.4
Environment		Vibration: 20G@7~2000Hz, Shock: 1500G@0.5ms, Storage Temperature: -55°C ~ +95°C, MTBF: >3 million hours				
P/N	Standard (0°C~+70°C)	IPE-5300IM-1GB IPE-5300IM-2GB IPE-5300IM-4GB IPE-5300IM-8GB IPE-5300IM-16GB IPE-5300IM-32GB	IPE-5320IM-8GB-R21 IPE-5320IM-16GB-R21 IPE-5320IM-32GB-R21 IPE-5320IM-64GB-R21 IPE-5320IM-128GB-R21 IPE-5320IM-256GB-R21 IPE-5320IM-512GB-R21	IPE-5320AM-8GB-R20 IPE-5320AM-16GB-R20 IPE-5320AM-32GB-R20 IPE-5320AM-64GB-R20 IPE-5320AM-128GB-R20 IPE-5320AM-256GB-R20	IPE-5200IP-4G-R21 IPE-5200IP-8G-R21 IPE-5200IP-16G-R21 IPE-5200IP-32G-R21 IPE-5200IP-64G-R21	IPE-5210IPM-8GB-R10 IPE-5210IPM-16GB-R10 IPE-5210IPM-32GB-R10 IPE-5210IPM-64GB-R10 IPE-5210IPM-128GB-R10 IPE-5210IPM-256GB-R10
	Wide Temperature (-40°C~+85°C)	IPE-5300WM-1GB IPE-5300WM-2GB IPE-5300WM-4GB IPE-5300WM-8GB IPE-5300WM-16GB IPE-5300WM-32GB	IPE-5320WM-8GB-R21 IPE-5320WM-16GB-R21 IPE-5320WM-32GB-R21 IPE-5320WM-64GB-R21 IPE-5320WM-128GB-R21 IPE-5320WM-256GB-R21 IPE-5320WM-512GB-R21	IPE-5320AWM-8GB-R20 IPE-5320AWM-16GB-R20 IPE-5320AWM-32GB-R20 IPE-5320AWM-64GB-R20 IPE-5320AWM-128GB-R20 IPE-5320AWM-256GB-R20	WPE-5200WP-4G-R21 WPE-5200WP-8G-R21 WPE-5200WP-16G-R21 WPE-5200WP-32G-R21 WPE-5200WP-64G-R21	IPE-5210WPM-8GB-R10 IPE-5210WPM-16GB-R10 IPE-5210WPM-32GB-R10 IPE-5210WPM-64GB-R10 IPE-5210WPM-128GB-R10 IPE-5210WPM-256GB-R10

M.2-SATA (NGFF)

M.2-SATA (NGFF) stands for Next Generation Form Factor, which is comprised of several interfaces, and interconnects with the corresponding systems basing on the 67-pin edge card connectors. The Innodisk M.2-SATA (NGFF) offers wide range of capacities in several standard form factors to fulfill different applications, including type 2242, type 2260, type 2280, and 22110.

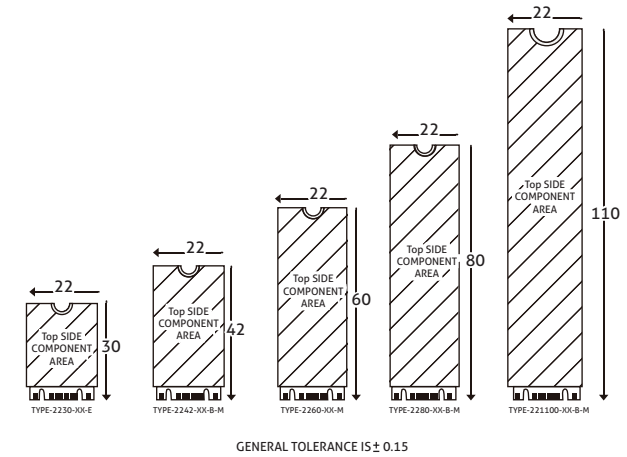
Features

- Adopted SATA 6Gb/s interface, complaint with M.2 (NGFF) type 2242 and 2280
- Excellent data transfer speed in small form factor
- iCell technology for data protection
- Supports iSMART disk health monitoring

Benefits

- The small form factor of M.2 (S42) saves about 40% of PCB dimension, comparing to the Mini PCIe form factor
- Innodisk's exclusive iData Guard ensures reliable data transfer in the event of an abnormal power failure
- Fully compliant with industrial standard
- Suitable for ultra-thin or compact system

M.2 form factor used on SSD



GENERAL TOLERANCE IS± 0.15



- Key A version is intended to support Wi-Fi+BT+NFC and/or WiGig Combo solution
- Key B is intended to support WWAN+GNSS, SSD and other add-in solutions
- Key E is intended to support Wi-Fi+BT+NFC or GNSS solution
- Key M is intended for SSD devices only

Model Name		IM2SE-2242
Picture		
Key Features		1. Type 2242-D1-B-M 2. High IOPS with DRAM-less design 3. Budget-friendly MLC-based solution
Interface		SATA 6Gb/s
Flash Type		MLC
Capacity (GB)		16GB~256GB
Sequential R/W		500/80
Max. Power Consumption		1.09W (3.3V x 330 mA)
Thermal Sensor		Standard: Yes, Wide Temperature: Yes
ATA Security		Yes
S.M.A.R.T		Yes
Dimensions (mm)		22 x .42 x 3.2
Environment		Vibration: 20G@7~2000Hz, Shock: 1500G@0.5ms, Storeage Temperature: -55°C ~ +95°C, MTBF: >3 million hours
P/N	Standard (0°C~+70°C)	IM2SE-2242IM-16GB-R10 IM2SE-2242IM-32GB-R10 IM2SE-2242IM-64GB-R10 IM2SE-2242IM-128GB-R10 IM2SE-2242IM-256GB-R10
	Wide Temperature (-40°C~+85°C)	IM2SE-2242WM-16GB-R10 IM2SE-2242WM-32GB-R10 IM2SE-2242WM-64GB-R10 IM2SE-2242WM-128GB-R10 IM2SE-2242WM-256GB-R10

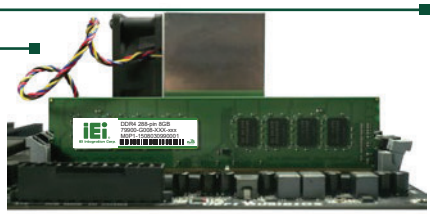
Intel® 2.5" SSD Solution



Key Features	1. 7mm height mechanical design 2. Low power consumption	Max. Power Consumption	165mw(5V*33mA)
Interface	SATA 6Gb/s	Thermal Sensor	0° C~70° C
Flash Type	MLC	ATA Security	Yes
Capacity (GB)	60GB~480GB	S.M.A.R.T	Yes
Sequential R/W	540/490	Dimensions (mm)	70 x 100 x 7
Environment	Vibration: 2.17 G@5-700 Hz, Shock: 1500G@0.5ms, Storeage Temperature: 0° C~70° C, MTBF: ≥1.2 million hours		

Ensuring the Best System Performance

IEI provide complete product line of industrial



Features

- Refresh ➔ TREFI=7.8ms from -40°C~+85°C
- 30μ" Gold Finger
- Stern Test of Parameter
- High Reliability

DDR4 DIMM

Features

- Low Power
- Major on Third
- Thermal Sensor Design Ready
- 100% System Level Test

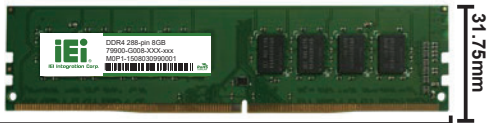
DDR4 DIMM

Module Speed	DIMM	SO-DIMM	CAS Latency
2133 MHz	288-pin	260-pin	CL13

■ SO-DIMM



■ Long-DIMM



Ordering Information

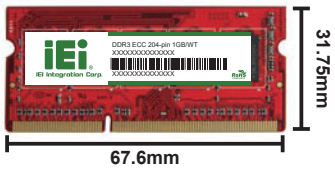
	Description
DDR4 SO-DIMM	DDR4 2400 4GB SO-DIMM CL17 512M*8
	DDR4 2400 8GB SO-DIMM CL17 512M*8
	DDR4 2400 8GB SO-DIMM CL17 1G*8
	DDR4 2400 16GB SO-DIMM CL17 1G*8
	DDR4 2666 4GB SO-DIMM CL17 512M*8
	DDR4 2666 8GB SO-DIMM CL17 512M*8
	DDR4 2666 8GB SO-DIMM CL17 1G*8
	DDR4 2666 16GB SO-DIMM CL17 1G*8

	Description
DDR4 Long-DIMM	DDR4 2400 4GB Long-DIMM CL17 512M*8
	DDR4 2400 8GB Long-DIMM CL17 512M*8
	DDR4 2400 8GB Long-DIMM CL17 1G*8
	DDR4 2400 16GB Long-DIMM CL17 1G*8
	DDR4 2666 4GB Long-DIMM CL17 512M*8
	DDR4 2666 8GB Long-DIMM CL17 512M*8
	DDR4 2666 8GB Long-DIMM CL17 512M*8
	DDR4 2666 16GB Long-DIMM CL17 1G*8

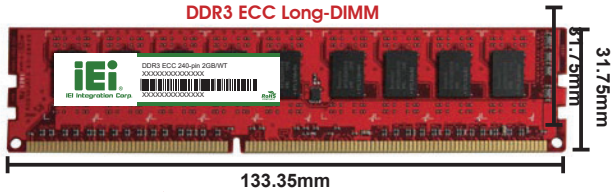
DDR3 W/T & Commercial ECC Thermal Sensor Solution

Module Speed	1600 MHz
DIMM	240-pin
SO-DIMM	204-pin
CAS Latency	CL11

DDR3 ECC SO-DIMM



DDR3 ECC Long-DIMM



Ordering Informtion

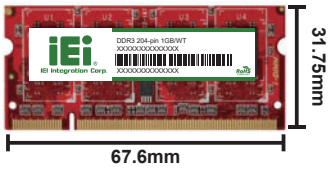
	Description
DDR3 SO-DIMM W/T	DDR3 1600 1GB ECC SO-DIMM CL11 128M*8
	DDR3 1600 2GB ECC SO-DIMM CL11 256M*8
	DDR3 1600 4GB ECC SO-DIMM CL11 256M*8
	DDR3 1600 8GB ECC SO-DIMM CL11 256M*8

	Description
DDR3 DIMM W/T	DDR3 1600 2GB DIMM CL11 256M*8
	DDR3 1600 4GB DIMM CL11 256M*8
	DDR3 1600 8GB DIMM CL11 256M*8
	DDR3 1600 16GB DIMM CL11 256M*8

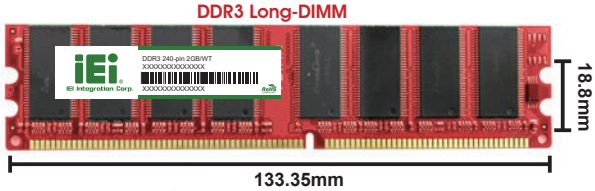
DDR3 W/T Solution

Module Speed	1600 MHz
DIMM	240-pin
SO-DIMM	204-pin
CAS Latency	CL11

DDR3 SO-DIMM



DDR3 Long-DIMM



Ordering Information

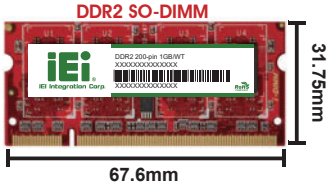
	Description
DDR3 SO-DIMM W/T	DDR3 1600 1GB SO-DIMM, ProMOS, 128M*8
	DDR3 1600 2GB SO-DIMM, ProMOS, 128M*8
	DDR3 1600 2GB SO-DIMM, Micron, 256M*8
	DDR3 1600 4GB SO-DIMM, Micron, 256M*8
	DDR3 1600 4GB SO-DIMM, ProMOS, 512M*8
	DDR3 1600 8GB SO-DIMM, ProMOS, 512M*8

	Description
DDR3 DIMM W/T	DDR3 1600 2GB DIMM, ProMOS, 128M*8
	DDR3 1600 2GB DIMM, Micron, 256M*8
	DDR3 1600 4GB DIMM, Micron, 256M*8
	DDR3 1600 4GB DIMM, ProMOS, 512M*8
	DDR3 1600 8GB DIMM, ProMOS, 512M*8

DDR2 W/T Solution

Module Speed	800 MHz
DIMM	240-pin
SO-DIMM	200-pin
CAS Latency	CL6

DDR2 SO-DIMM



DDR2 DIMM (Low Profile)



Ordering Information

	Description
DDR2 SO-DIMM W/T	DDR2 667 1GB SO-DIMM, ProMOS, 128M*8
	DDR2 800 1GB SO-DIMM, ProMOS, 128M*8
	DDR2 800 2GB SO-DIMM, ProMOS, 128M*8

	Description
DDR2 DIMM W/T	DDR2 800 1GB DIMM, ProMOS, 128M*8
	DDR2 800 2GB DIMM, ProMOS, 128M*8

	Description
DDR SO-DIMM W/T	DDR400 1GB SO-DIMM, ProMOS, 64M*8

Lifespan Evaluation of Flash Products From Endurance to iSMART

Endurance of different flash types - SLC and MLC

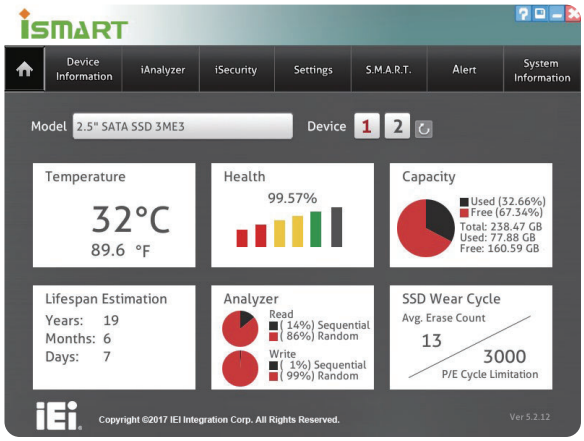
SLC is more reliable and has longer endurance than MLC.

MLC is cost-saving alternative to SLC to replace the traditional HDD.

iSMART, the proprietary disk health monitoring tool, provides easy access, in-depth information for embedded applications

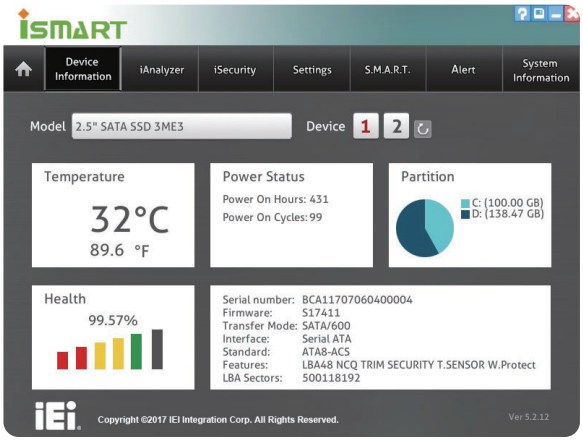
iSMART can monitor all our flash products in a system. It provides clear and easy to understand warnings, numbers, charts and graphics to enable system integrators and users to check storage device health, performance, temperature, free space, and status at a glance. Also, it can alert users with the remaining service lifetime of Innodisk drives, so that they can replace a device in plenty of time to avoid any potential issues.

Besides providing critical disk information, iSMART also offers convenience through e-mail alerts and one-touch feature. Additionally, iSMART provides dynamic power management, advancing green design goals for lower power consumption, such as with a 35% of power saving in idle mode.



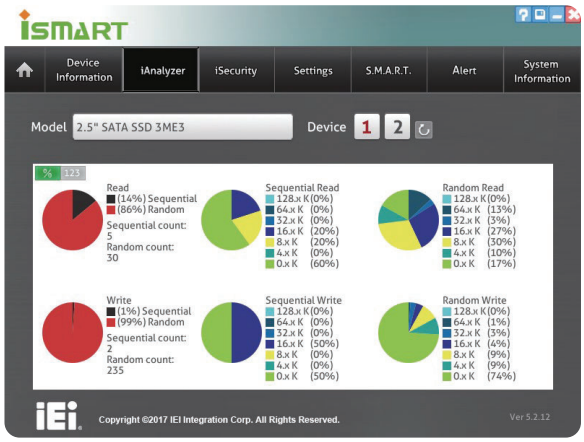
Dashbord

The Dashboard's home tab aims to provide a summary or quick snapshot of each installed disks in the system. This page offers accurate data information regarding Temperature, Health, Capacity, Lifespan, iAnalyzer, and Notifications.



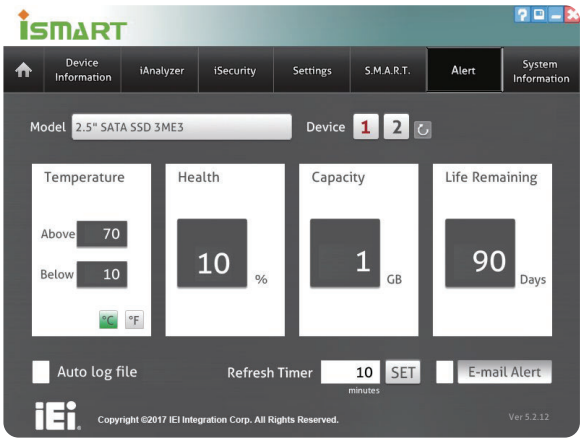
Device Information

The Device Information page provides additional functions, such as Power Status, Partitions, and detailed information of the device such as Serial Number, Firmware Vision, Interface, and Features. To learn more about SMART information, go to SMART values and refer to the SMART tab.



iAnalyer

When activated, the iAnalyzer tab displays the read/write behaviors of the SSD in real time. This allows the user to understand their application usage of the SSD. Sequential and Random I/Os are easily broken down into percentages making them easy to read.



Alert

The Alert tab helps the user set trigger points with Temperature, Health percentage, Remaining Capacity or Life Remaining. If these trigger points exceed their boundaries, the iSMART utility can send a warning and email to the user notifying them that something may fail.

Drive Cage

Standard 3.5" Device in 5.25" Drive Bay Solutions

Following the traditional industrial system needs for stability, durability and toughness for storage drive operating condition, IEI provides various kinds of standard 3.5" device in 5.25" removable drive bay and modules for different demands.

	SATA / IDE / SSD Solution		SATA Solution	
				
Model Name	**XWC-410030507220-RS**	**XWC-410030507230-RS**	**RD-03A-R20**	**RHD-302SATA-R20**
Dimensions (L x W x H) (mm)	150 x 146 x 42	150 x 146 x 42	186 x 146 x 42	202 x 146 x 86
Material	Aluminum	Aluminum	Aluminum alloy	Aluminum alloy
Interface	SATA / IDE / SSD	SATA / IDE / SSD	SATA III / SAS 2.0	SATA III / SAS 2.0
Data Transfer Rate			SAS 2.0 / SATA III 6Gbps	SAS 2.0 / SATA III 6Gbps
Drive Bay Space	One 5.25" drive bay	One 5.25" drive bay	1 x 5.25" Device Bay for 1 x 2.5" or 3.5" Hard Drive	2 x 5.25" Device Bay for 3 x 2.5" or 3.5" Hard Drive
HDD Type	Internal 3.5" device bay	Internal 3.5" device bay	2.5" or 3.5" Hard Drive	2.5" or 3.5" Hard Drive
Cooling Fan			8CM	8 cm
Hot Swap	No	No	Yes	Yes
Keylock	No	No	No	No
Signal Out	No	No	SATA III 7-Pin	SATA III 7-Pin
Color	Black	White	Black	Black
Gross Weight	0.2 kg	0.2 kg	0.85kg	1.3kg

	SATA Solution			
				
Model Name	**RHD-102SATA-R20**	**RHD-102DW-R20**	**RHD-101SATA-R20**	**RHD-104SATA-R20**
Dimensions (L x W x H) (mm)	140 x 101.6 x 25	153 x 146 x 42	140 x 101.6 x 25	149.6 x 146 x 42.1
Material	Aluminum & SPCC	Aluminum	Aluminum & SPCC	Full Metal
Interface	SATA 7 + 15 Pin	SATA	SATA 7 + 15 Pin	SATA III
Data Transfer Rate	up to 6Gb/Sec	up to 6Gb/Sec	Up to 6Gb/Sec	SATA III 6Gbps
Drive Bay Space	One 3.5" drive bay	One 5.25" drive bay	One 3.5" drive bay	1 x 5.25" Device Bay for 4 x 2.5" Hard Drive
HDD Type	2.5" SATA/SAS 2 x HDD/SSD	2.5" SATA 2 x HDD/SSD	2.5" SATA/SAS 1 x HDD/SSD	2.5" Hard Drive
Cooling Fan	No	Yes	No	4CM
Hot Swap	Yes	Yes	Yes	Yes
Keylock	Yes	Yes	Yes	Yes
Signal Out	SATA 7 Pin	SATA 7 Pin	SATA 7 Pin	SATA III 7-Pin
Color	Black	Black	Black	Black
Gross Weight	0.304 Kg	0.534 Kg	0.236 Kg	0.56kg

FCD-301



Pin 1	Pin 2	Pin 3	Pin 4
+5V	Data-	Data+	GND

3.5" compact drive bay with USB port

- The most suitable USB cable for IEI's CPU boards
- Support standard 3.5" drive bay, 4-pin female connector to CPU boards' pin header, length: 60cm
- RoHS compliant
- Pin definition

Ordering Information

Part No.	Description
FCD-301[C]-RS	3.5" compact drive bay with USB port, RoHS Color Code: B=Black, W=White

AS-35A / AS-25A / AS-25C



AS-35A AS-25A

Anti-vibration Drive Kit



AS-25C

- Resistant to shocks and vibrations from all directions
- Support 2.5" HDD into 3.5" drive bay (AS-25A/ 25C)
  Support 3.5" HDD into 5.25" drive bay (AS-35A)
- Meets the following standards:
  - MIL-SLD-810F 514.5C-1 standard
  - 5-20Hz, 1G peak to peak
  - 60-200Hz, 3G peak to peak
- RoHS compliant

Ordering Information

Part No.	Description
AS-35A-RS	3.5" drive anti-vibration kit, RoHS
AS-25A-RS	2.5" drive anti-vibration kit, RoHS
AS-25C-RS	Enhanced 2.5" drive anti-vibration kit, RoHS

Industrial Keyboard Series

MK-KTP5A



Model Name	MK-KTP5AW-R20		
Key Number	105-key	Color	White
Mouse	Touchpad	Waterproof	NA
Connector	2 x PS/2 for KB/MS	Dimensions (mm)	482 (D) x 380 (W) x 44 (H)

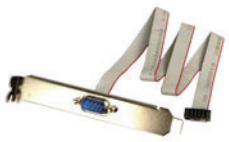
Ordering Information

Part No.	Description
MK-KTP5AW-R20	1U rackmount keyboard/touchpad drawer, RoHS

Cables and Connectors *FDD / HDD Cable*

	SATA HDD Cable		
			
Model Name	**32801-000703-400-RS**	**32102-000100-100-RS**	**32000-080700-RS**
Cable Type	SATA HDD cable	SATA power cable	SATA + Power cable
Connector	SATA 7-pin	4-pin + 2 x SATA 15-pin	SATA 7-pin + 4-pin
Connector Type	Lockable	SATA power connector	
Length	50 cm	15 cm	SATA cable 20 cm Power cable 10 cm

	SATA HDD Cable		IDE HDD Cable	
				
Model Name	**32801-000201-300-RS**	**32801-000100-300-RS**	**CB-HD32-RS**	**32200-000009-RS**
Cable Type	SATA + Power cable	SATA + Power cable	IDE HDD flat cable	IDE HDD flat cable
Connector	SATA 7-pin + 2-pin wafer (P=2 mm)	SATA 7-pin + 4-pin wafer (P=2.54 mm)	40p-44p	44p-44p
Connector Type	2-pin PH 2.0	4-pin PH 2.54 mm	2.54mm-2.0mm	2.0mm -2.0mm
Length	SATA cable 15 cm Power cable 15 cm	SATA cable 20 cm Power cable 20 cm	IDE cable: 39 cm Power cable: 20 cm	40 cm

	Serial cable			
				
Model Name	**45002-008103-RS**	**19800-000300-100-RS**	**19800-010900-200-RS**	**19800-000051-RS**
Cable Type	Serial port	Serial port cable	Serial port cable	Serial port cable
Board Side	N/A	10-pin (2x5) connector (2.0 mm)	10-pin (2x5) connector (2.54 mm)	2 x 10-pin (2x5) connector (2.54 mm)
Board Side Pitch	2.54 mm	2.0 mm	2.54 mm	2.54 mm
Device Side	2 x DE9M	DE9M	DE9M	2 x DE9M
Bracket	Yes	Yes	Yes	Yes
Length	9 cm	30 cm	50 cm	23 cm

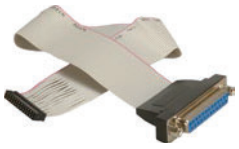
Part numbers listed in the product catalog are for reference purposes. IEI reserves the right to implement substitution parts when the function is not affected.

Cables and Connectors *Paralle / Serial Cable*

	Serial cable			
				
Model Name	**19800-003600-100-RS**	**19800-000112-RS**	**32205-000702-100-RS**	**32200-000049-RS**
Cable Type	Serial port cable	Serial port cable	Serial port cable	Serial port cable
Board Side	2 x 10-pin (2x5) connector (2.54mm)	2 x 10-pin (2x5) connector (2.0 mm)	10-pin (2x5) connector (2.54 mm)	10-pin (2x5) connector (2.0 mm)
Board Side Pitch	2.54 mm	2.0 mm	2.54 mm	2.0 mm
Device Side	2 x DE9M	2 x DE9M	DE9M	DE9M
Bracket	Yes	Yes	No	No
Length	40 cm	30 cm	23 cm	20 cm

	Serial cable		
			
Model Name	**32205-001203-200-RS**	**32200-025401-RS**	**19800-004400-200-RS**
Cable Type	Serial port cable	Serial port cable	RS-232 & RS-422/485 cable
Board Side	40-pin (2x20) connector (2.54 mm)	40-pin (2x20) connector (2.0 mm)	14-pin (2x7) connector (2.54 mm)
Board Side Pitch	2.54 mm	2.0 mm	2.54 mm
Device Side	4 x DE9M	4 x DE9M	2 x DE9M
Bracket	No	No	Yes
Length	40/40/40/40 cm	30 cm	25.5 cm

	Serial cable		
			
Model Name	**19800-004300-100-RS**	**32200-026500-RS**	**32205-003800-300-RS**
Cable Type	RS-232 & RS-422/485 cable	RS-232 & RS-422/485 cable	RS-422/485 cable
Board Side	14-pin (2x7) connector (2.0 mm)	14-pin (2x7) connector (2.0 mm)	4-pin (1x4) connector (2.0 mm)
Board Side Pitch	2.0 mm	2.0 mm	2.0 mm
Device Side	2 x DE9M	2 x DE9M	DE9M
Bracket	Yes	No	No
Length	25 cm	29 cm	20 cm

	Paralle cable		
			
Model Name	**19800-000049-RS**	**19800-003500-100-RS**	**32223-000700-100-RS**
Cable Type	Parallel port cable	Parallel and serial port cable	Parallel port cable
Board Side	26-pin (2x13) connector (2.54 mm)	26-pin (2x13) connector (2.0 mm) 10-pin (2x5) connector (2.0 mm)	26-pin (2x13) connector (2.0 mm)
Board Side Pitch	2.54 mm	2.0 mm	2.0 mm
Device Side	DB25F	DB25F + DE9M	DB25F
Bracket	Yes	Yes	No
Length	24 cm	24 cm	28 cm

Part numbers listed in the product catalog are for reference purposes. IEI reserves the right to implement substitution parts when the function is not affected.

Cables and Connectors *USB / Keyboard / Mouse / Power Cable*

	USB cable			
				
Model Name	**32001-010800-100-RS**	**32001-006404-100-RS**	**19800-000100-200-RS**	**19800-003100-300-RS**
Cable type	USB able	USB cable	USB cable	USB cable
Board side	2 x 4-pin connector (2.54 mm)	2 x 4-pin connector (2.0 mm)	2 x 8-pin (2x4) connector (2.54 mm)	2 x 4-pin (1x4) connector (2.54 mm)
Board side pitch	2.54 mm	2.00 mm	2.54 mm	2.54 mm
Device side	2 x USB	2 x USB	4 x USB	2 x USB
Bracket	No	No	Yes	Yes
Length	20 cm	22 cm	30 cm	30 cm

	USB cable			Power cable
				
Model Name	**CB-USB02A-RS**	**32000-044300-RS**	**32001-008600-200-RS**	**32100-087100-RS**
Cable type	USB cable	USB cable	USB cable	12V power cable
Board side	1 x 8-pin (2x4) connector (2.0 mm)	1 x 8-pin (2x4) connector (2.54 mm)	1 x 8-pin (2x4) connector (2.0 mm)	1 x 4-pin (2x2) connector
Board side pitch	2.0 mm	2.54 mm	2.0 mm	
Device side	2 x USB	2 x USB	2 x USB	2 x 4-pin (1x4) molex
Bracket	Yes	No	No	No
Length	30 cm	21 cm	21 cm	13 cm

	Keyboard / Mouse cable			
				
Model Name	**19800-000066-RS**	**19800-000075-RS**	**32006-000300-100-RS**	**32006-001100-201-RS**
Cable type	Keyboard and mouse cable	Y-Cable	Y-Cable	Y-Cable
Board side	2 x 5-pin (1x5) connector (2.54 mm)	1 x 6-pin (1x6) connector (2.0 mm)	1 x male PS/2	1 x 6-pin (1x6) connector (2.0 mm)
Board side pitch	2.54 mm	2.0 mm		2.0 mm
Device side	2 x Female PS/2	2 x Female PS/2	2 x Female PS/2	2 x Female PS/2
Bracket	Yes	Yes	No	No
Length	30 cm	22 cm	12 cm (KB) + 14 (MS)	13 cm

Part numbers listed in the product catalog are for reference purposes. IEI reserves the right to implement substitution parts when the function is not affected.

Cables and Connectors *Audio / LAN / VGA / Adapter Cable*

	Audio cable			Bracket
				New 
Model Name	**19800-000111-RS**	**32007-002600-100-RS**	**32000-028800-RS**	**45002-0081C0-00-RS**
Cable type	Audio cable	Audio cable	Audio cable	COM port bracket
Board side	10-pin (2x5) connector (2.0 mm)	10-pin (2x5) connector (2.0 mm)	12-pin (2x6) connector (2.54 mm)	-
Board side pitch	2.0 mm	2.0 mm	2.54 mm	-
Device side	3 x Audio jacks	3 x Audio jacks	4 x Audio jacks	-
Bracket	Yes	No	No	Yes
Length	30 cm	30 cm	25 cm	-

Part numbers listed in the product catalog are for reference purposes. IEI reserves the right to implement substitution parts when the function is not affected.

Rackmount Slide *Optional Chassis Accessories*

	SLIDE
	
Model Name	**SLIDE-18**
Specification	18" rackmount slide
Description	For rackmount chassis w/ depth up to 500

DIN Rail Kit

	KIT		
	New 		
Model Name	**DK-75-R10**	**DK-100-R10**	**DK-84MB**
Specification	850 mm (W) x 75mm (D)	110 mm (W) x 100 mm (D)	168 mm (W) x 96 mm (D)
Description	VESA 75 to DIN-rail kit	VESA 100 to DIN-rail kit	DIN mount kit for ECW-281 series, black, RoHS

V-STAND

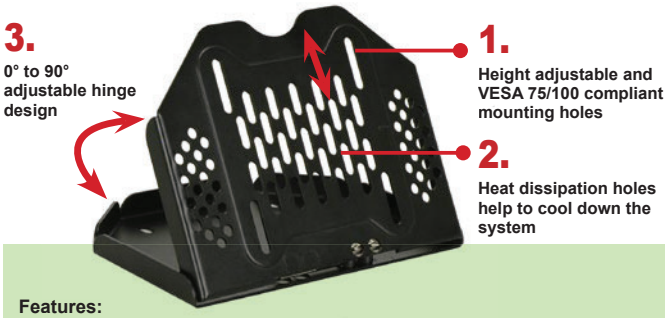
■ VESA Multi-Mounting Stand

IEI patented multi-mounting V-Stand allows wall, ceiling, desk, rear and side mounting to meet diverse applications. Its 0° to 90° adjustable hinge design provides optimal viewing in various environment, such as kitchen, room or shelf.

VESA	Model
75 mm x 75 mm	VSTAND-A07-R11
75 mm x 75 mm/100 mm x 100 mm	VSTAND-A10-R11
	VSTAND-A12-R11



VSTAND-A07 VSTAND-A10 VSTAND-A12



Features:
- 0º to 90º adjustable hinge design allows comfortable viewing
- Standard VESA 75/100 compliant
- Heat dissipation holes
- Compact size, easy to use in any places

■ Space saving and easy installation



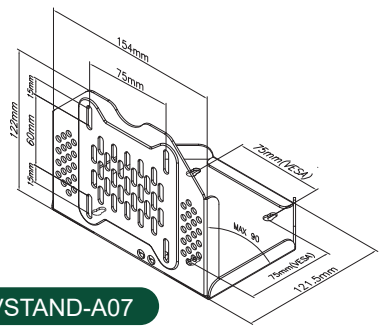
1: Tighten the screws in the rear of the system's VESA mounting holes

2: Select the position to mount the stand kit

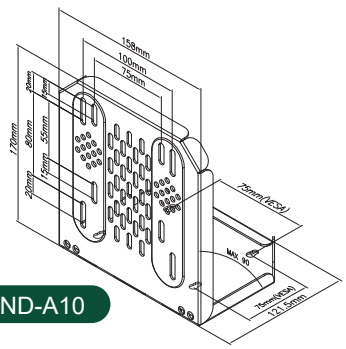
3: Power up the system to operate

Compact size provides mobility

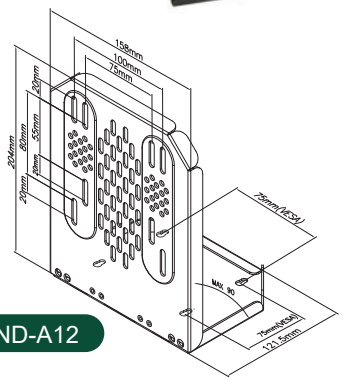




VSTAND-A07



VSTAND-A10



VSTAND-A12

Ordering Information

Part No.	Description
VSTAND-A07-R11	LCD monitor / PPC stand V type, for AFL series, VESA 75, 0~90 degree adjustable hinge, support up to 2.5 kg, RoHS
VSTAND-A10-R11	LCD monitor / PPC stand V type, for AFL series, VESA 75/100, 0~90 degree adjustable hinge, support up to 3 kg, RoHS
VSTAND-A12-R11	LCD monitor / PPC stand V type, for AFL series, VESA 75/100, 0~90 degree adjustable hinge, support up to 3.5 kg, RoHS

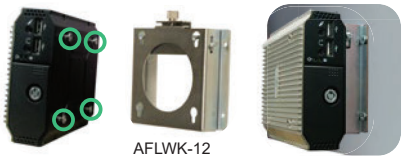
Wall Mounting

■ VESA 75/100 Wall Mounting

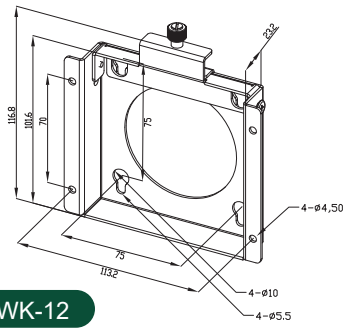
Secure the panel by fastening the retention screw of the bracket.



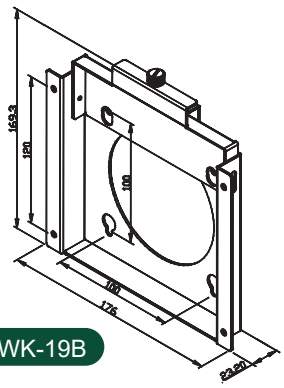
VESA	Model
75 mm x 75 mm	AFLWK-12
100 mm x 100 mm	AFLWK-19
	AFLWK-19B



AFLWK-12



AFLWK-12



AFLWK-19B

Ordering Information

Part No.	Description
AFLWK-12	5.6"~12" VESA 75 PPC/monitor wall mount kit with retention screw, silver color, RoHS
AFLWK-19B	15"~19" VESA 100 PPC/monitor wall mount kit with retention screw, silver color, RoHS