iEi GROUP

威強電集團

Pursuing Great Technology to Create Intelligent Life

IEI Integration Corp.
Industrial Integrated IoT Solution Provider

QNAP Systems, Inc.
Leading Edge Computing Storage Provider

ArmorLink SH Corp.
Unique Electronic Manufacturing Service

XINGWEI COMPUTER CO., LTD.
Professional Chassis Manufacturer

IEI Halza HealthIntelligence Co
Store, Track & Share Medical Data Service

Genevisio Ltd.
Telecom Network Pioneer Generating Innovation in 5G

BriteMED Technology Inc.
Intelligent Medical System Provider

IEI Group has 15 sales offices, 4 logistics centers, and 2 manufacturing sites in 29 countries around the world. IEI Group adopts and develops different know-how and technologies to produce 600+ branded products and a broad range of solutions for AIoT, 5G network, digital healthcare and intelligent storage.
IEI Group is also in alliance with various 3rd parties, such as Intel, Microsoft, Google, Wind River, SAP and Amazon to build professional products, software and manufacturing service for people to create intelligent life using advanced technologies.

Founded in 1997	25 years	Up to 3,000	Over 600
A Leading Industrial Computer Provider	Vertical Domain Knowledge	Employees	Different products & solutions

IEI Integration Corp.

Challenge Everything, Make the Impossible Possible

IEI Integration Corp. was found with innovation, creation and intelligent. Edge AI, 5G Network, and Smart Healthcare are IEI's development focus. Based on more thea 20 years knowledge and experience, IEI goes the extra mile on technology and new ideas to build well solutions and keeps innovating and changing things to support the society and customers to make the impossible possible.

VISION » Intelligent Innovation, Unlimited Creation

MISSION » Pursuing Great Technology to Create Intelligent Life Experience

VALUE » Innovation, Enthusiasm, Integrity

» Award

reddot award winner

TAIWAN EXCELLENCE

GOLD AWARD 2019

ICT Month Innovative Elite 2015 Top 100 Awards

DESIGN AWARD

Our Core

Innovative Every Idea

IEI is committed to AIoT industry. In collaboration with our regional branches around the world, IEI aims at developing a complete AIoT ecosphere and leading the industry by integrating our diversified hardware products with strong, flexible software.

5G / Networking

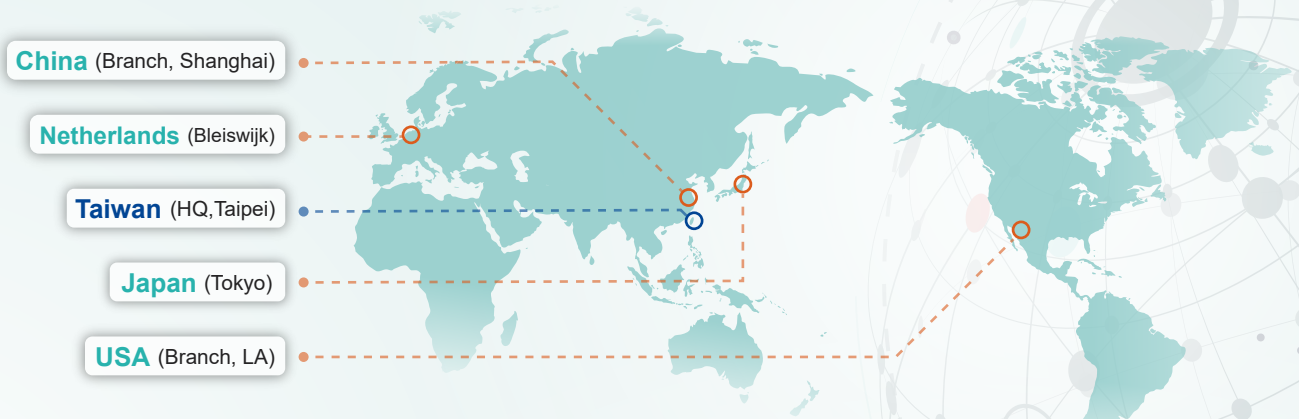
Edge AI

Smart Healthcare

Our Service

Reliable and Responsive to Any Requests

- Deployment with 20 offices in 14 countries for worldwide logistic service
- B2B/B2C E-commerce and RMA service are open 24 hours a day
- Complete support and professional know-how to offer unique ODM/OEM service



Our Production

100% Own Manufacture

- 100% own manufacturing facilities and more than 1,000+ experienced R&D
- Stable global supply chain management to ensure longer product sustainability
- Offer the outstanding product quality control

Chi-Du Site in New Taipei, Taiwan

Armolink Site in Shanghai, China

Xing-Wei Site in Kunsan, China

Our Certificates

Promise the Best Performance and Quality

ISO 45001:2018 | ISO 28000:2007 | ISO 27001:2013 | ISO 14001:2015 | ISO 13485:2016 | ISO 9001:2015 | IECQ QC 080000-2017

IEI AI Ready Systems

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. So IEI develop series of inference system for AI edge computing in different using environment.

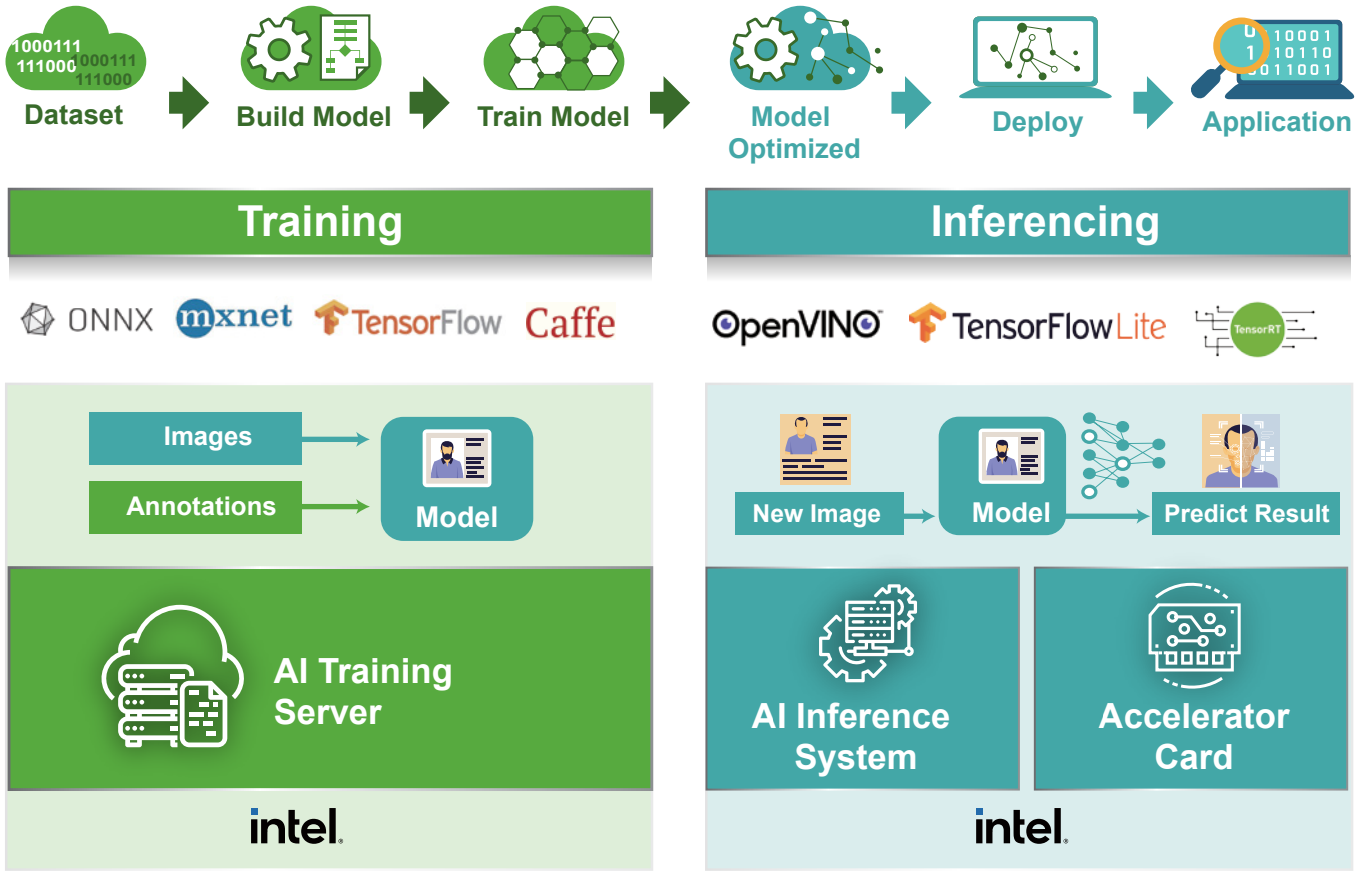
Traffic Monitoring

Retail Store Monitoring

Medical AI

Attendance System

AI Deep Learning Work Flow



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IEI AI Inference System

Note :
Expansion support

PCIe card

MPCIE card

TANK-XM811
AIoT Dev. kit
Intel® ADL-S AI Dev. Kit

TANK-870
AIoT Dev. kit
Intel® SkyLake AI Dev. Kit

FLEX-BX200
AIoT Dev. kit
Intel® Coffee Lake Developer Kit

FLEX-BX210AI-Q470
Intel® Comet Lake AI Box PC

DRPC-230
Intel® Whisky Lake AI Embedded System

DRPC-240AI
Intel® Tiger Lake AI Embedded System

RACK-500AI
Intel® Coffee Lake AI Box PC

HTB-210-Q470
Intel® Comet Lake Medical AI Box PC

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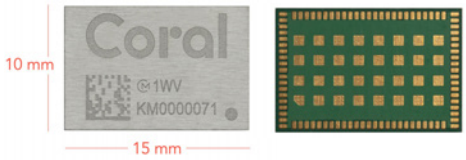
AI Google Coral TPU Overview & Products

As an industrial PC / AI accelerator manufacturer, IEI provides excellent-performance AI accelerators to fulfill different AI tasks. Google Coral edge TPU provides up to 4TOPS, and its power consumption is only 2 watt per TPU module.

Google edge TPU leveraging well-developed Tensorflow Lite community can help you fast implement the existing model zoo to your edge inference project, from image classification, object detection to image segmentation.

Edge TPU Coral

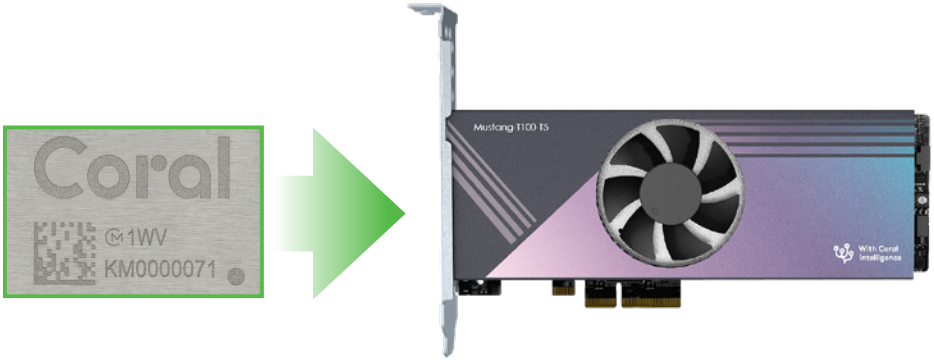
- Google Edge TPU ML accelerator: 4 TOPS peak performance (int8) / 2 TOPS per watt
- Integrated power management
- PCIe Gen2 x1 or USB 2.0 interface
- Surface-mounted (LGA) module
- Size: 15.0 x 10.0 x 1.5 mm
- Weight: 0.67 g
- Operating temp: -40°C~85°C
- RoHS compliant



Source: https://coral.ai/docs/module/datasheet/

Mustang-T100-T5

IEI Mustang-T100-T5 leverages the power of Google Coral edge TPU. It integrates five Coral TPU modules into one half-height, half-length, single slot PCIe card, and can provide up to 20 TOPS. It is an ideal compact PCIe accelerator for multiple AI applications.



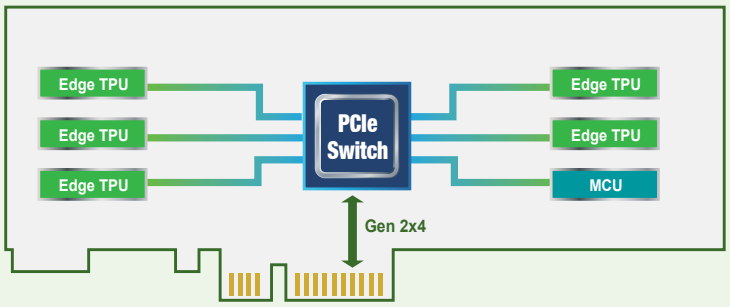
Feature

- 5 x Google Edge TPU ML accelerator
- 20 TOPS peak performance (int8)
- Host interface PCIe Gen2 x4
- Low-profile PCIe form factor
- Approximate 15W
- RoHS compliants

System Requirements

- Linux:
  64-bit version of Debian 10 or Ubuntu 16.04 (or newer)
  x86-64 or ARMv8 system architecture
- Windows:
  64-bit version of Windows 10
  x86-64 system architecture

Mustang-T100-T5 Block Diagram



IEI provides series of system to support Mustang-T100-T5 accelerator such as TANK-870AI & FLEX-BX200AI.

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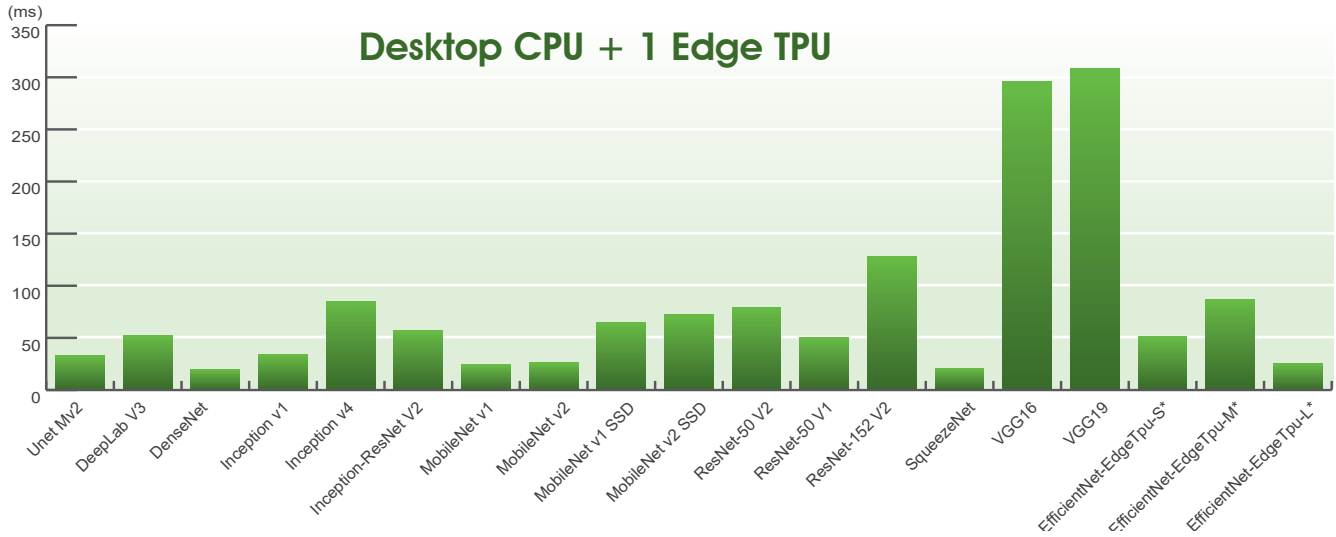
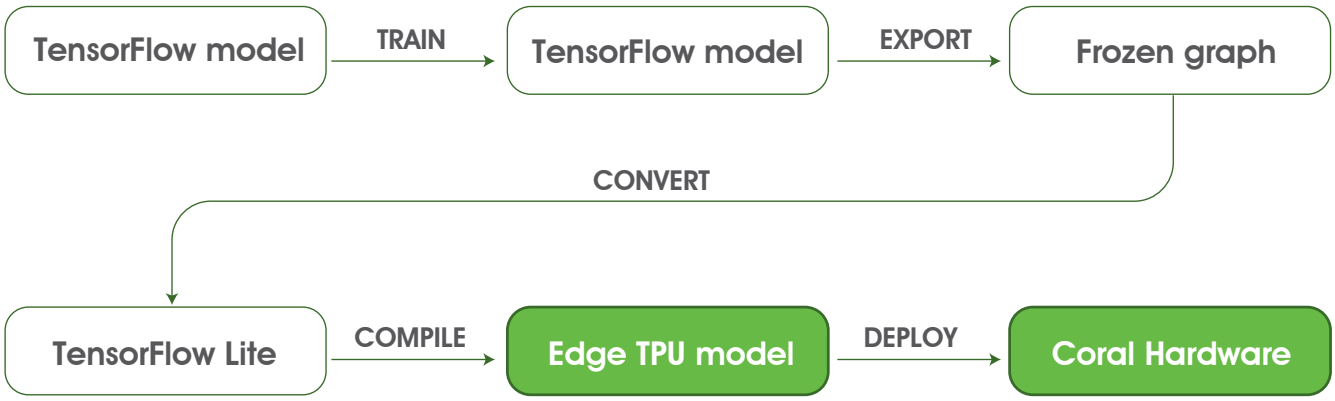
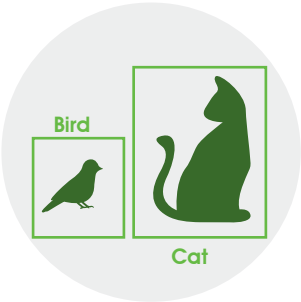


TensorFlow models on the Edge TPU - Coral



Solutions for on-device intelligence



Object detection

Draw a square around the location of various recognized objects in an image

Pose estimation

Estimate the poses of people in an image by identifying various body joints.

Image segmentation

Identify various objects in an image and their location on a pixel-by-pixel basis.

Key phrase detection

Listen to audio samples and quickly recognize known words and phrases.

Source: https://coral.ai/

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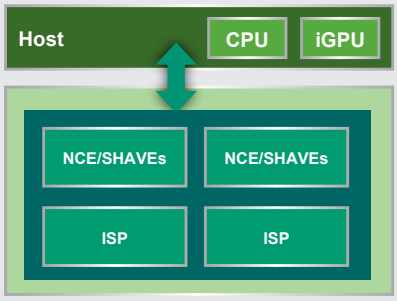
IEI Accelerators with Intel® Solution

Interface	MX VPU x8	MX VPU x4	MX VPU x2	MX VPU x1
PCIe	Mustang-V100-MX8 Myriad X	Mustang-V100-MX4 Myriad X		
MPCIE			Mustang-MPCIE -MX2	
M.2			Mustang-M2BM -MX2, BM Key	Mustang-M2AE -MX1, AE Key

Intel VPU

Intel® Movidius™ VPUs enable demanding computer vision and edge AI workloads with efficiency. By coupling highly parallel programmable compute with workload-specific hardware acceleration in a unique architecture that minimizes data movement, Movidius VPUs achieve a balance of power efficiency and compute performance. VPU technology enables intelligent cameras, edge servers and AI appliances with deep neural network and computer vision based applications in areas such as visual retail, security and safety, and industrial automation.

SoC Code Name	Gen2 VPU Myriad X
Embedded CPU	NA
Functions	Inference
Precision	FP16
Performance	1 TOPS per chip
Structure	

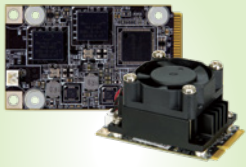
Mustang Accelerator Card Family

Mustang-V100-MX8
Eight Intel® Movidius™ Myriad™ X MA2485 VPU

Mustang-V100-MX4
Four Intel® Movidius™ Myriad™ X MA2485 VPU

Mustang-M2AE-MX1
Intel® Movidius™ Myriad™ X MA2485 VPU

Mustang-M2BM-MX2
Two Intel® Movidius™ Myriad™ X MA2485 VPU



Mustang-MPCIE-MX2
Two Intel® Movidius™ Myriad™ X MA2485 VPU

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Networking Solution

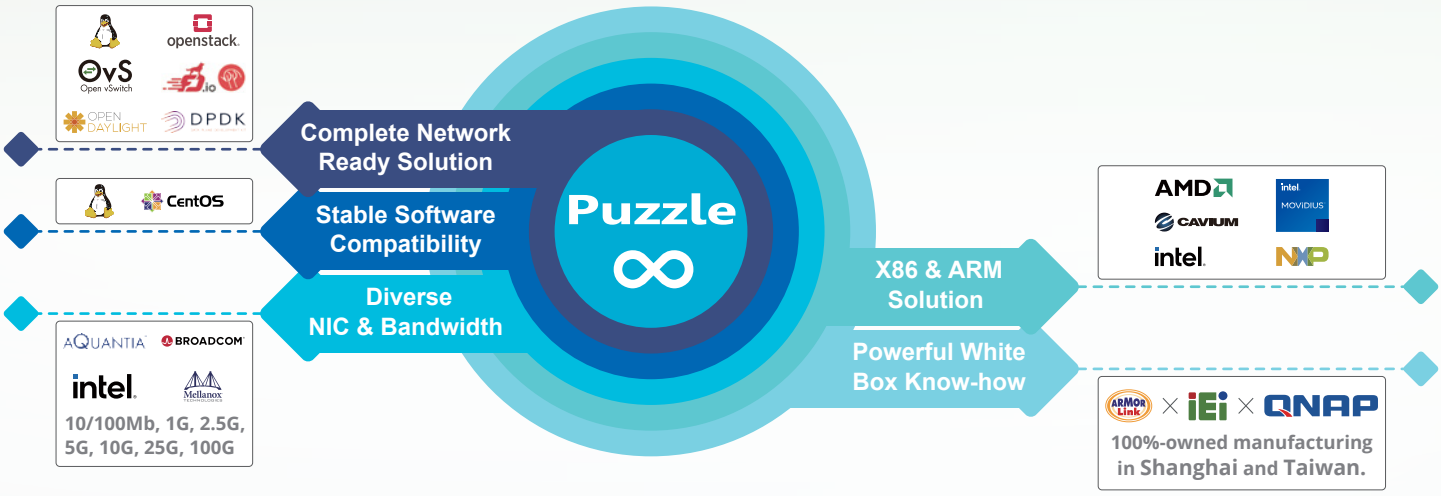
Why PUZZLE Series?

Redefining and Maximizing Network Scalability

The next gen. network appliance, the PUZZLE series, is an uCPE solution consisting of software virtual network functions running on a standard operating system hosted on an open server.

Universal CPE (uCPE) is one of the most compelling use cases of Network Function Virtualization (NFV). 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.

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



5G Solution

IEI's PUZZLE series network appliance is developed to meet the low latency and quality of service (QoS) requirements in 5G network. The PUZZLE series allows private companies/organizations to utilize the Virtual Evolved Packet Core (vEPC) framework by deploying Mobile Edge Computing (MEC) and Open Radio Access Network (O-RAN) architecture with network function virtualization (NFV) to replace traditional proprietary hardware equipment.

In order to meet 5G speed, point-to-point latency and service quality, network operators need to upgrade the entire front-end to back-end process. IEI's PUZZLE series can provide solutions for today's IoT that expands massively; it can boost cellular operations, IoT security and network challenges, and drive the Internet future to the edge.

IEI's Network Appliance Series for 5G Solution

- Network maintainability
- Coverage of wireless communication
- Reducing capital expenditure
- Throughput, and high scalability
- Trustworthy
- Security

Full Spectrum of Network Solutions

Wireless Gateway

Wireless gateway routes packets to wired or wireless WAN.

It combines the functions of a wireless access point, a router, and often provides firewall function as well.

WAN Optimization or 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.

NGFW Firewalls

With the purpose of protecting an organization's network and data assets, the next-generation firewalls offer a deep packet inspection function that goes beyond simple port and protocol inspection by inspecting the data carried in network packets.

5G MEC

5G MEC is a network solution to provide IT service and telecommunication network at the edge. It brings services closer to the users and provides ultra-low latency, high bandwidth, virtualization application and reliable network solution.

Cybersecurity

- Business protection against cyberattacks and data breaches
- Protection for data and networks, end users and endpoint devices
- Business continuity and Regulatory compliance
- Improved recovery time after a breach

Unified Threat Management (UTM)

- Network firewall
- Intrusion detection
- Prevention system (IDS/IPS)
- Gateway, VPN
- Offer cost-effective all-in-one security ideal

Application Delivery Controller (ADC)

- Improve the performance of web applications in a data center
- A part of an application delivery network (ADN)
- Support multi-tenancy for deployment in data centers
- Support large number of sessions with a fast transaction rate

Complete Range of PUZZLE Series

- Small Business & SOHO
- Medium Business
- Multi-site
- Metro Network
- Datacenter

PUZZLE-M901
PUZZLE-M902
PUZZLE-IN003A/B
PUZZLE-IN001/PUZZLE-IN001A
PUZZLE-IN002
PUZZLE-IN004
PUZZLE-IN005
PUZZLE-M801
PUZZLE-9030

Diverse PulM Network Modules

100GbE

- Mellanox — PulM-100G2SF-CX6 — Coming Soon ▲
- Intel — PulM-100G2SF-E810

40GbE

- Intel — PulM-40G2SF-XL710 — ▲ Coming Soon

10GbE

- Intel — PulM-10G4SF-XL710, PulM-10G4SF-XL710-BP
- AQUANTIA — PulM-10G4T-AQC107
- BROADCOM — PulM-1G8T-BCM5720

1GbE

- Intel — PulM-1G4T-I350, PulM-1G4T-I350-BP, PulM-1G8T-I350, PulM-1G8T-I350-BP, PulM-1G4SF-I350, PulM-1G8SF-I350, PulM-1G4SF-I350-BP — Coming Soon ►

OTHER

- PulM-2P1M, PulM-M2-2S

*Please visit website for more 2U PulM network modules.

Medical Solution

IEI Medical Scenario by Product Series

Pathology

- Precision Medicine
- Medical AI computing

HTB-210

TS-2888X

Outpatient Dept.

- EMR
- Vital Sign Measurement

MPOCm Series

POCi Series

POC Series

IASO-W10B-N6210

Operating Room

- Medical Image
- Vital sign collection

POCi Series

HTB-210

Medical Certifications

FCC Class B

CE 60601-1-2

UL 60601-1

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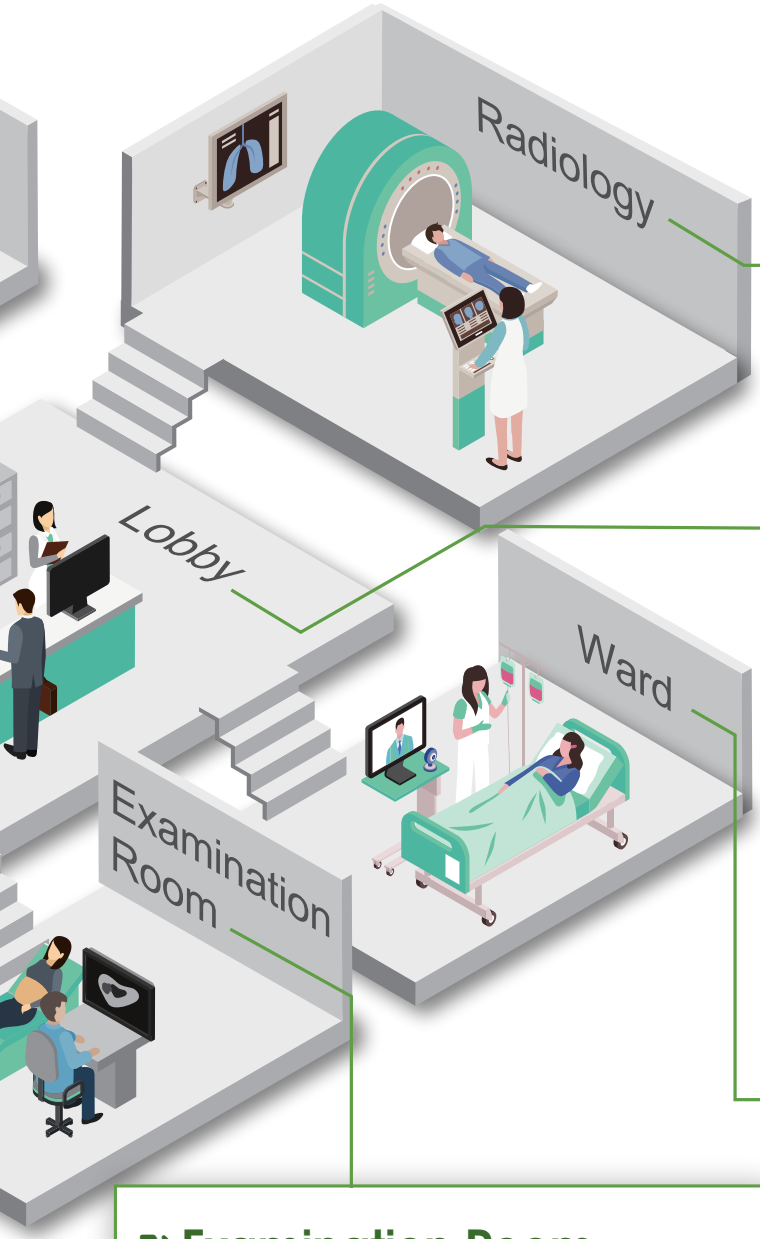
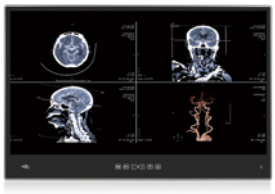
IEI is deeply involved in the medical industry. We continuously integrate the latest technologies to develop high-quality and reliable nursing cart computers, all-in-one panel PCs, AI box PCs and other innovative products to provide high-quality medical solutions to you, create a good working environment for medical personnel, and ensure better medical services for patients.



Radiology

- Medical Image
- Telemedicine
- RIS/LIS



POCi Series

HTB-210

Lobby

- Queue management
- Self Service Kiosk

POC Series

uIBX Series

Ward

- Medical HMI
- Nursing Call System
- Patient Engagement
- Mobile Nursing Station
- HIS/NIS

POCm2 Series POCm Series IASO-W10B-N6210

Examination Room

- Endoscopy
- Sonography

POCi Series

HTB-210

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All-in-One Medical Panel PCs

IASO Series
10"

POCi Series
22”/24”

POCm Series
22”/24”

POC Series
17”/22”

POCm2 Series
22”

Medical Monitor

MPOCm-W24
24”

Medical AI Box PC

HTB-210

Medical Embedded System

HTB-100

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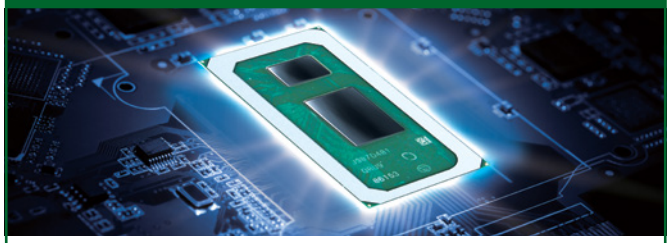
Intel® Tiger Lake-UP3 Solution

Intel® Tiger Lake-UP3 Platform Overview

Graphics Media, and Display

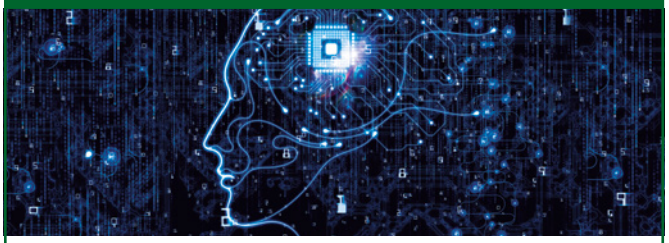
- New Xe (Gen12) Gfx Engine with up to 96 Eus
- 4 independent display units (4 x 4K or 2 x 8K)
- Image processing unit IPU6
* Up to 27MP image capture
* Up to 4K@60fps video performance
* Support for 4 concurrent streams
* VTIO and RGB-IR for facial recognitionn

Security and Manageability



- Intel® Total Memory Encryption (Intel® TME)
* Hardware based encryption to protect entire memory contents from physical attacks
- Intel® AES-NI
* A new, hardware based AES-NI instruction set to protect private keys from malware
* Keys are no longer exposed and handlers are utilized to perform encrypt/decrypt operations
- Control-Flow Enforcement Technology

AI Experience

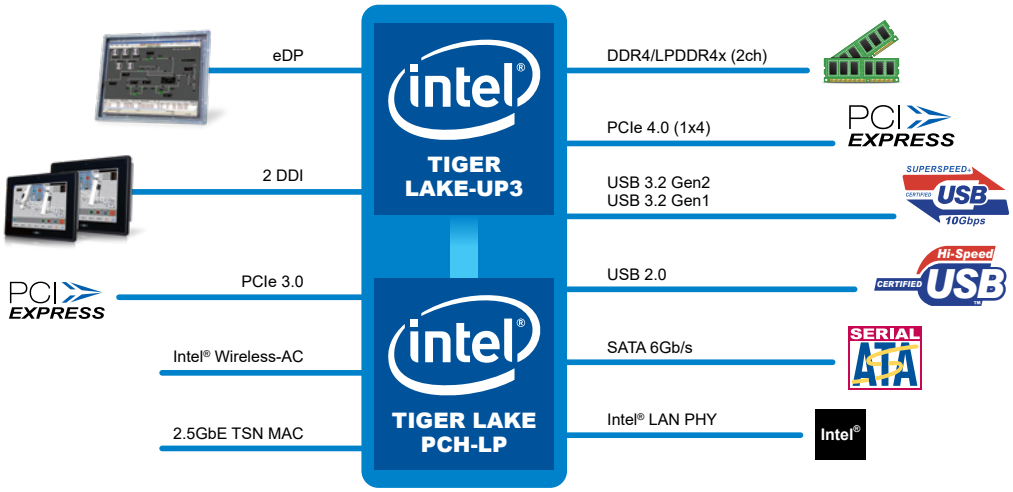


- Vector Neural Network Instruction (VNNI) improves inferencing workload performance
- Common industry wide AI frameworks optimized on Tiger Lake architecture (via OpenVINO™)
- Intel® Deep Learning Boost
- AI/DL Instruction Sets including VNNI and CV/AI applications

Enhanced Features

- Up to 4 cores
- In-Band ECC available
- PCIe 4.0 (off CPU complex), 12 HSIO lanes (off PCH complex)
- Improved Thunderbolt™ data performance
- Integrated Type C subsystem with for USB4 compliance

Intel® Tiger Lake-UP3 Platform Block Diagram



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Intel® Core™ Processor Generational Comparison

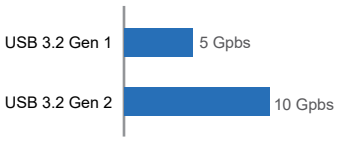
Brand	Kaby lake-U	Whiskey lake-U	Tiger lake-UP3
Launch	2017	2019	2020
Process	14nm	14nm	10nm
Core	2	4	4
Processor TDP	15W	12.5/15/25W	12/15/28W
Memory	LPDDR3-1866 DDR4-2133 DDR3L-1600	LPDDR3-1866/2133 DDR4-2400 DDR3L-1600	LPDDR4x 4267 DDR4 3200 In-Band ECC
PCI Express Lanes	Up to 12 PCIe 3.0 lanes (PCH)	Up to 16 PCIe 3.0 lanes (PCH)	Up to 12 PCIe 3.0 lanes (PCH) Up to 4 PCIe 4.0 lanes (CPU)
Storage	Intel® Optane™ Memory, PCIe 3.0, SATA 6Gb/s, SD 3.0, eMMC 5.0	Intel® Optane™ Memory, PCIe 3.0, SATA 6Gb/s, SD 3.0, eMMC5.1	Intel® Optane™ Memory, PCIe 3.0, PCIe 4.0, SATA 6Gb/s, SD 3.0

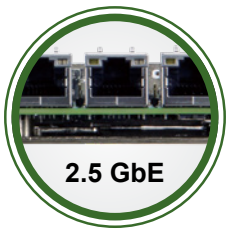
Intel® Tiger Lake-UP3 Platform OS Support

Licensing Model	Operating System and Hypervisor	Distributor and Scalability Partnership
Commercial	Windows 10 IOT Enterprise (64-bit) LTSC RS5	Microsoft
	Ubuntu Linux	Canonical
	Redhat Linux	Redhat
	Wind River VxWorks RTOS	Wind River
	Real-Time System (Type 1 Hypervisor)	Real TIme Systems
Open Source	Linux LTS Kernel with Prempt RT Patch	Open Source Community: http://kernel.org Intel Open Source Community: http://01.org http://projectacrn.org http://1.org/projectceladon
	Virtualization: KVM (Type 2 Hypervisor), ACRN	
	Android Celadon	

Features of IEI Intel® Tiger Lake-UP3 Products

USB 3.2 Gen2	2.5GbE LAN	PCI Express® 4.0
USB 3.2 Gen2 Supporting four USB 3.2 Gen2 with Type A interface,transfer rate up to 10Gb/s	Supporting TSN (Time Sensitive Networking), providing time synchronization with IT network and timeliness between systems.	Interconnect performance bandwidth double of the PCIe 3.0 specification achieving 16GT/s and compatibility with software and mechanical interfaces is preserved.



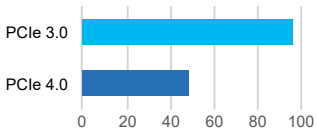


TSN

Controller IC:
Intel® I225LM / Intel® I225V

PCIe 3.0 and 4.0 Data Transfer Time

Faster and time-saving!



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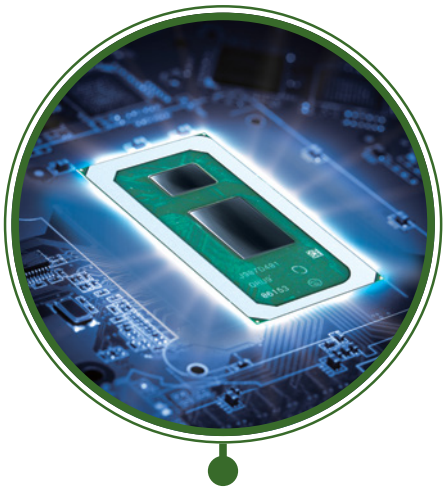
Intel® Elkhart Lake Platform

Intel® Elkhart Lake Platform Overview



Real-Time/Time Determinis

- Intel® Time Coordinated Computing, Time Sensitive Networking features
- Scalability and consolidation of temporally deterministic workloads

Safety, Security, Manageability

- First Intel product designed with functional safety capabilities. SIL2/Cat.3 PL d certified, SIL3/Cat.4 PLe capable
- In-Band and OOB manageability
- Intel® PTT, Intel® DAL technologies
- Intel® Boot Guard

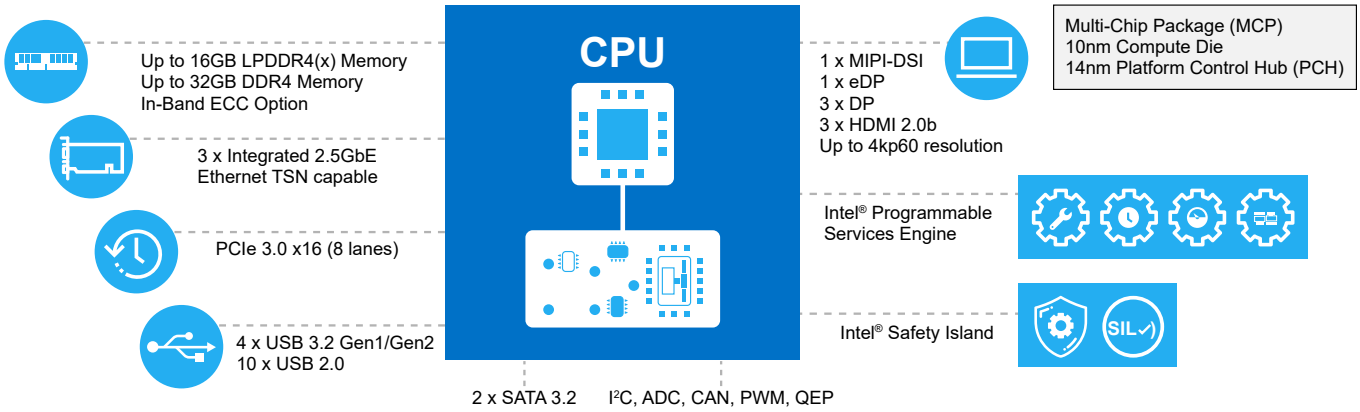
Function+

- Intel® Programmable Services Engine
- Intel® UHD Graphics, media, and display supporting video encode/decode requirements
- Integrated Gigabit Ethernet (2.5GbE)
- Fully Integrated Voltage Regulator (FIVR)

Generational Comparison

	Apollo Lake-I	Elkhart Lake
Memory / ECC	1867 MHz DDR3L (max. 8 GB) 2400 MHz LPDDR4 (max. 8 GB)	LPDDR4 4267MT/s (max. 8GB/16GB @3200MT/s), DDR4 3200MT/s (max. 32GB with IBECC)
TDPs	6W-12W	4.5W-12W
Ethernet	-	3 x 2.5GbE TSN MACs
Storage and IO	2 SATA 6Gb/s, 6 USB 3.2 Gen 1 (1 dual role), eMMC 5.0	2 SATA 6Gb/s, 4 USB 3.2, 3 2.5GbE TSN MACs, 2 UFS 2.0, eMMC 5.1, 10 USB 2.0 (1 dual role), PWM, QEP, ADC, CAN, up to 60 GPIOs via Intel® Programmable Services Engine (40 timed GPIOs)
Max. Display Resolutions	4Kp60 on one display	Intel® UHD Graphics, 4Kp60 on three simultaneous displays
Power Mgmt	PMIC or Multiple Discrete Voltage Regulators (DVR)	Fully Integrated Voltage Regulators (FIVR)

Block Diagram



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Intel® Elkhart Lake CPU Matrix

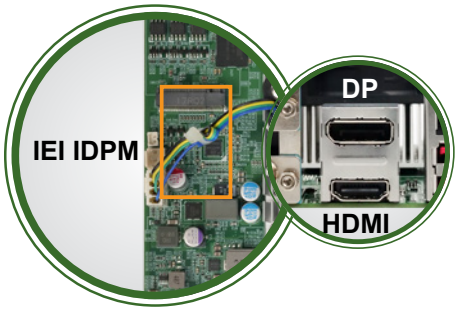
Brand	Processor No.	CPU Core Count	CPU HFM Freq (GHz)	CPU Burst Freq (GHz)	Memory Max Bandwidth/ Channel	Gfx Freq (MHz) Nominal/Turbo	Max. TDP (W)	Junction Temperature Range
Pentium®	N6415	4	1.2	3.0	51.2 (GB/s) / 4	350/800	6.5	0°C ~ 105°C
Pentium®	J6425	4	1.8	3.0	59.7 (GB/s) / 4	400/800	10	0°C ~ 105°C
Celeron®	N6211	2	1.2	3.0	51.2 (GB/s) / 4	250/750	6.5	0°C ~ 105°C
Celeron®	J6413	4	1.8	3.0	59.7 (GB/s) / 4	400/800	10	0°C ~ 105°C
ATom®	X6425E	4	1.8	3.0	59.7 (GB/s) / 4	500/750	12	-40°C ~ 105°C
ATom®	X6413E	4	1.5	3.0	51.2 (GB/s) / 4	500/750	9	-40°C ~ 105°C
ATom®	X6211E	2	1.2	3.0	51.2 (GB/s) / 4	350/750	6	-40°C ~ 105°C
ATom®	X6425RE	4	1.9	N/A	68.2 (GB/s) / 4	400/(N/A)	12	-40°C ~ 105°C
ATom®	X6414RE	4	1.5	N/A	51.2 (GB/s) / 4	400/(N/A)	9	-40°C ~ 105°C
ATom®	X6212RE	2	1.2	N/A	51.2 (GB/s) / 4	350/(N/A)	6	-40°C ~ 105°C
ATom®	X6427FE	4	1.9	N/A	68.2 (GB/s) / 4	400/(N/A)	12	-40°C ~ 105°C
ATom®	X6200FE	2	1.0	N/A	38.4 (GB/s) / 4	N/A	4.5	-40°C ~ 105°C

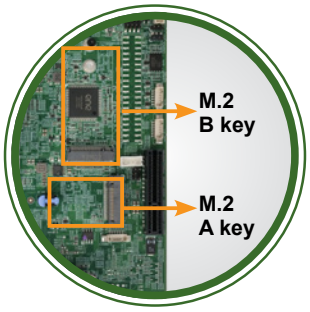
Intel® Elkhart Lake Platform OS Support

Category	Operating System (Targeted for Support)	Implementation	Distribution and Support
Microsoft	Windows 10 IoT Enterprise (64-bit)	Intel	Intel, Microsoft
Linux	Yocto Project BSP tool-based embedded Linux distribution (64-bit)	Intel	Yocto Project and ISV Partners
	Linux Distribution: Ubuntu (64-bit)	Canonical	Canonical
	Wind River Linux LTS distribution (64-bit)	Wind River	Wind River
Android	Android 10 (64-bit)	Intel	ISV Partners
RTOS	Wind River VxWorks 7	Wind River	Wind River

Features of IEI Elkhart Lake Products

Display Port	2.5GbE LAN	M.2
IEI provides products supporting Triple-mode DisplayPort output which can auto detect the plugged-in cable type and provide multiple options of display output through one single port.	IEI provides new products supporting TSN (Time Sensitive Networking), which delivers time synchronization with IT network and timeliness between systems.	IEI provides new products supporting Next Generation Form Factor (NGFF) expansion cards with different functions, such as SSD, WWAN and WLAN cards suitable for small devices.





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Intel® Jasper Lake Platform

Improved Performance

- New Tremont core, 6W/10W TDP, 10nm CPU/14nm PCH MCP, 1.5M L2 + 4M L3 cache, FIVR, 35x24 package
- Up to 4 Cores

Faster Connections

- Integrated WiFi/BT with 802.11ax/ac support w/ Discrete option
- Integrated USB 3.1 Gen 2 for 2x the speed vs. Gen 1
- Up to 8 PCIe 3.0 lanes

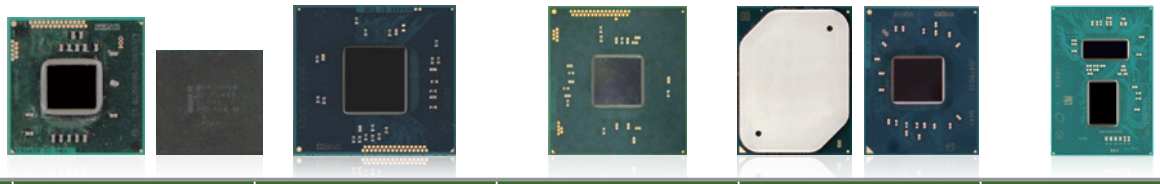
Gen 11 Graphics

- Next Gen Graphics and Display with significantly better Graphics up to 32 EUs improved Perf and new features
- Integrated IPU, MIPI-CSI

Security & Manageability

- Integral Intel Security Engine HDCP2.2, Playready 3, Widevine, Microsoft VSM.

Intel® Atom™ Comparison



	Cedar Trail	Bay Trail	Braswell	Apollo Lake	Jasper Lake
Launch	Q1'12	Q4'13	Q1'15	Q4'16	Q4'20
Process	32nm	22nm	14nm	14nm	10nm
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	N6005: 4C up to 3.30GHz/10W N5105: 4C up to 2.90GHz/10W N4505: 2C up to 2.90GHz/10W N6000: 4C up to 3.30GHz/6W N5100: 4C up to 2.80GHz/6W N4500: 2C up to 2.80GHz/6W
Chipset TDP	Intel® NM10: 1.5W	N/A	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)	DDR4 2933Mhz (Max. 16GB)
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)	Gen11 Graphics, 3 Independent Diplats Gen11 32 EUs OpenGL* ES 3.2/4.5, OpenCL* 1.2
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	4K Codec Decode & Encode for HEVC, H.264, VP9
Storage & IO	SATA 3Gb/s, 8 USB 2.0	SATA 3Gb/s, 1 USB 3.2 Gen 1, 3 USB 2.0, eMMC 4.51	SATA 6Gb/s, 4 USB 3.2 Gen 1, 1 USB 2.0, eMMC 4.51	SATA 6Gb/s, 5 USB 3.2 Gen 1, 2 USB 2.0, eMMC 5.0	SATA 6Gb/s, 3 USB 3.2 Gen 1, 2 USB 3.2 Gen 2, 4 USB 2.0, eMMC 5.1

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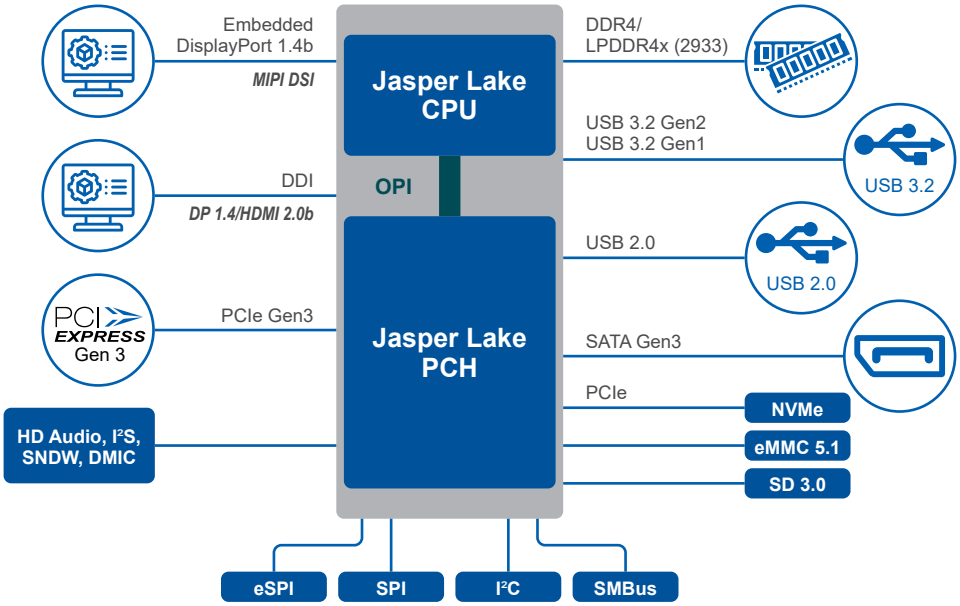
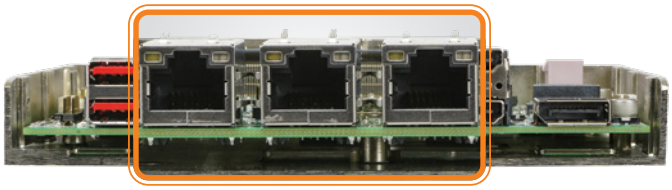
Block Diagram



Features of IEI Jasper Lake Product

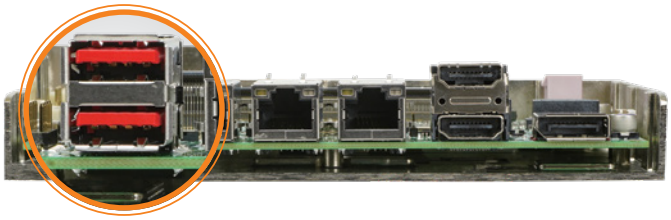
2.5GbE LANs

IEI provides products support triple 2.5 GbE LANs with i225V/LM which can provide a high-speed networks option for communication demand.



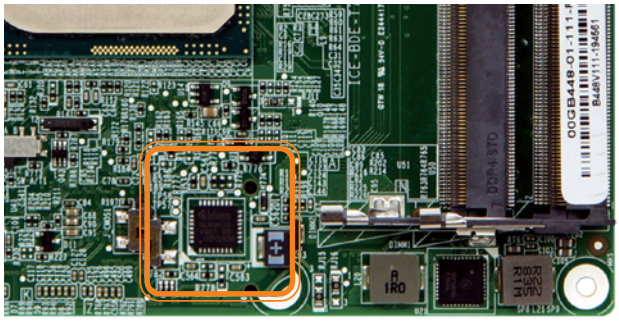
USB 3.2 Gen 2

IEI provides products support integrated USB 3.2 Gen 2 which is twice the speed more than USB 3.2 Gen 1.



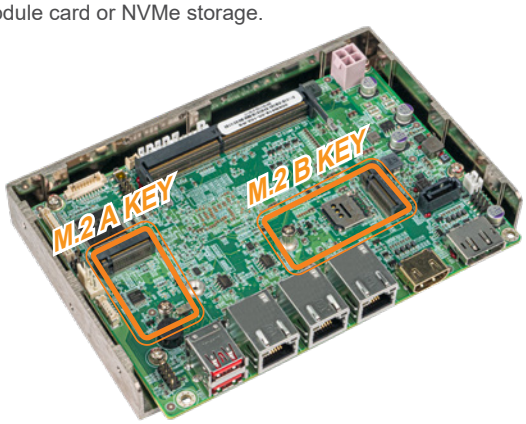
SPI TPM

IEI provides products support
Onboard TPM 2.0 a software management security solution for data protection and reliable passwords and digital certificates.



M.2

IEI provides new products supporting M.2 expansion cards in different types, such as A key for WWAN ,WLAN,Bluetooth cards,and B key for 5G module card or NVMe storage.



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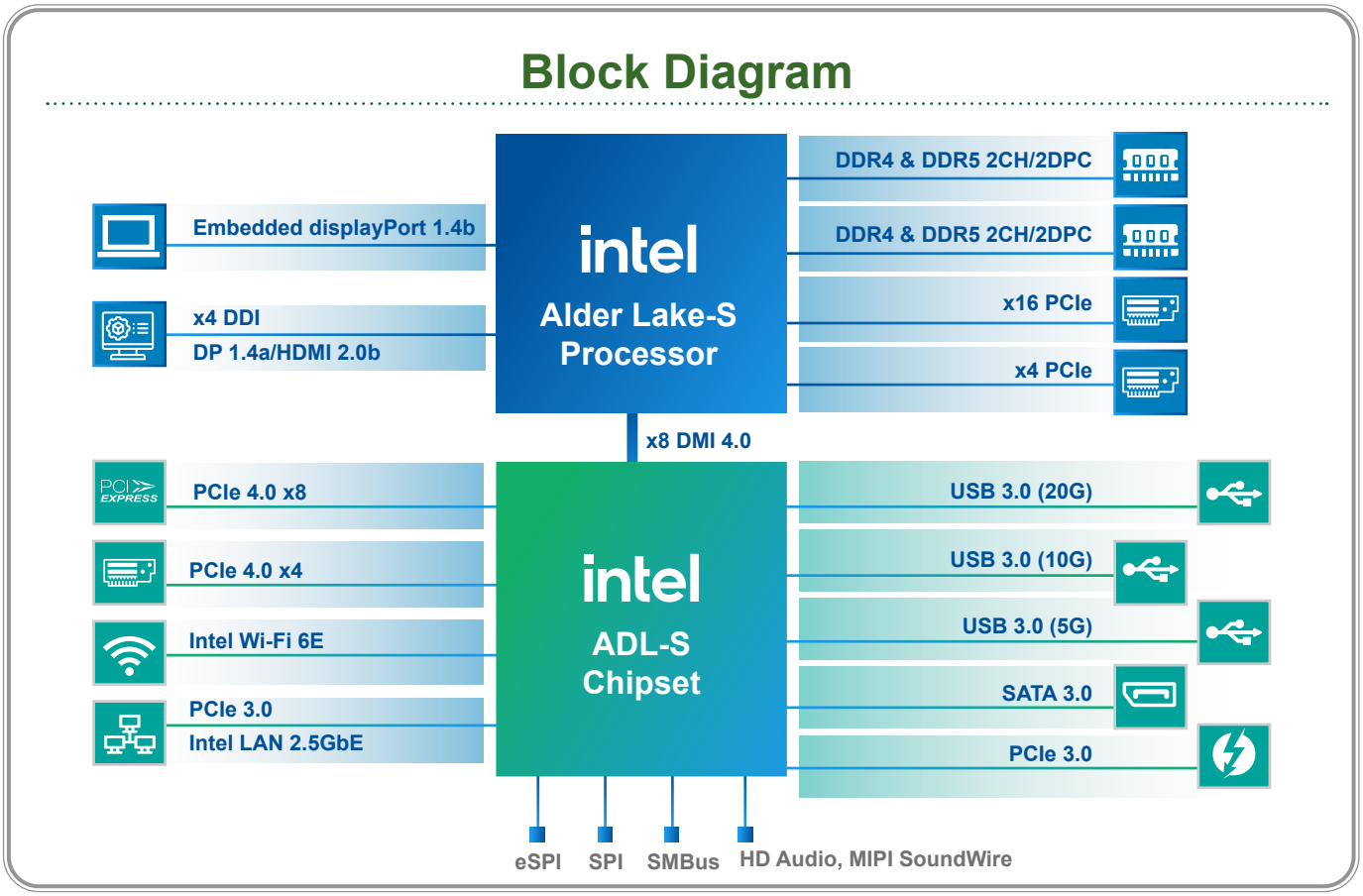
12th Gen Intel® Alder Lake-S Platform

IOTG Alder Lake-S is the latest plateform follow on to Comet Lake.Alder Lake-S Plateform is the fist desktop with Intel® Hybrid Technology. And it also the fist IOTG 10nm Intel® Core™ S Processor Platform, new socket for LGA1700. It supports PCIe Gen 5, PCIe Gen 4. Intel® Core platform with up to 16 Cores and improved performance over CML-S. Alder Lake-S plateform supports up to DDR5-4800 or DDR4-3200 , 16x PCIe Gen5 & 4x PCIe Gen4 from CPU performance, and up to 12x PCIe Gen 4 & Up to 16x PCIe Gen 3 from PCH oerformance, which procides high performance on various applications.

Block Diagram



Intel® Alder Lake-S Platform OS Support

Category	Operating Systems / SDKs / Bootloaders	Implementation	Distribution and Support
Operating Systems[1]	Windows* 10 IoT Enterprise 2021 LTSC	Intel	Intel, Microsoft
	Windows* Server	Intel	Intel, Microsoft
	Ubuntu, SuSe, Redhat Enterprise, WR Linux [3]	Canonical Ltd., Attachmate Grp, Red Hat & Wind River Systems	Canonical Ltd., Attachmate Grp, Red Hat & Wind River Systems
	Yocto Project* BSP tool-based embedded Linux distribution	Intel	Intel, Yocto Project* community
	Celadon (Android) in VM	Intel	Intel, Celadon community
	Wind River VxWorks* 7	Wind River	Wind River

- [1] Not all features are supported in all Operating Systems
- [2] Legacy boot is not supported for Windows, Linux. Customers should work with their BIOS vendors for enabling/validating legacy BIOS features.
- [3] Supported by Intel via the upstreaming to Open Source Community. Adoption into individual Linux distributions/hypervisors is dependent upon the OS/HV vendors.

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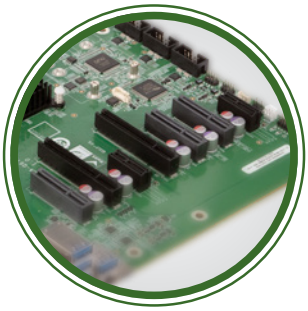
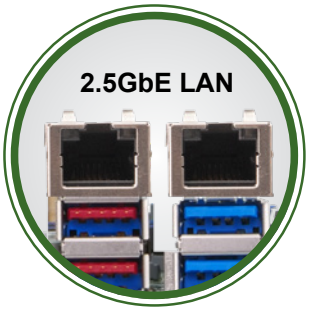
IOTG S Series Gen over Gen Improvements (CML-S to ADL-S)

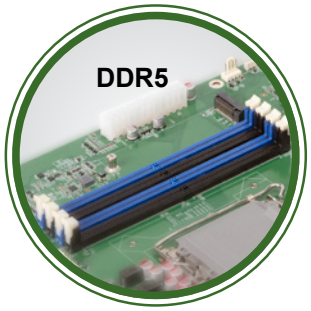
IOTG Comet Lake-S		IOTG Alder Lake-S
14nm Up to 10C Up to 20 Threads		New processor architecture supporting up to 16 cores and 24 threads1 with Intel® Hybrid technology for outstanding Multi Threaded performance. Up to 30MB Intel® Smart cache
Up to Intel UHD Graphics 630 3 Independent Displays HDCP2.3, HDMI 1.4, HDMI 2.0 (via LSPCON), DP 1.2, 3 display pipes, 1VDbox, 4k60 10b decode		New Intel® Xe Graphics architecture with up to 4 Independent Displays and up to 2 VD boxes, HDMI 2.0b integrated, HDMI 2.1 supported with LSPCON, AV1 Codec, 8k60 12b decode, E2E Compression. SRIOV, Genlock
Up to DDR4 2933 OOB ECC available		Up to DDR5 – 4800, Up to DDR4- 3200 OOB ECC available
Embedded Use Condition 1GbE		Embedded Use Condition 1GbE + 2x 2.5GbE with TSN Targeted as 1st Real-Time in Core S Series
Up to 40 PCIe 3.0 Lanes (16x CPU, up to 24x PCH) DMI x4 Gen 3, Intel® Wi-Fi 5 Integrated + Discrete Intel® Wireless-AC (Wi-Fi/BT CNVi) Quad Core aDSP		New socket for LGA1700 16x PCIe Gen5 + 4x PCIe Gen4 (CPU) Up to 12x PCIe Gen 4 + Up to 16x PCIe Gen 3 (PCH) Up to DMI x8 Gen 4, Discrete TBT Integrated WiFi 5 (802.11ac) – WiFi6E Discrete
Intel® vPro™ Platform eligible with Intel® Active Management Technology Intel® Management Engine Firmware		Intel® vPro™ Platform eligible with Intel® Active Management Technology Intel® Converged Security and Management Engine Version 16 Intel Multi-Key Total Memory Encryption (MK-TME) (Windows only) One Click Recovery

Features of IEI Aler Lake-S Products

PCIe Gen 5	2.5GbE LAN	DDR5
IEI provides new products supporting pure PCIe expansion slots, total 7.Two of them support PCIE Gen 5 x16 (with x8 signal)	IEI provides new products supporting TSN (Time Sensitive Networking), which delivers time synchronization with IT network and imeliness between systems.	IEI provides new product supports DDR5-4800 memory. System max supports 128G. (ECC&non-ECC supported)







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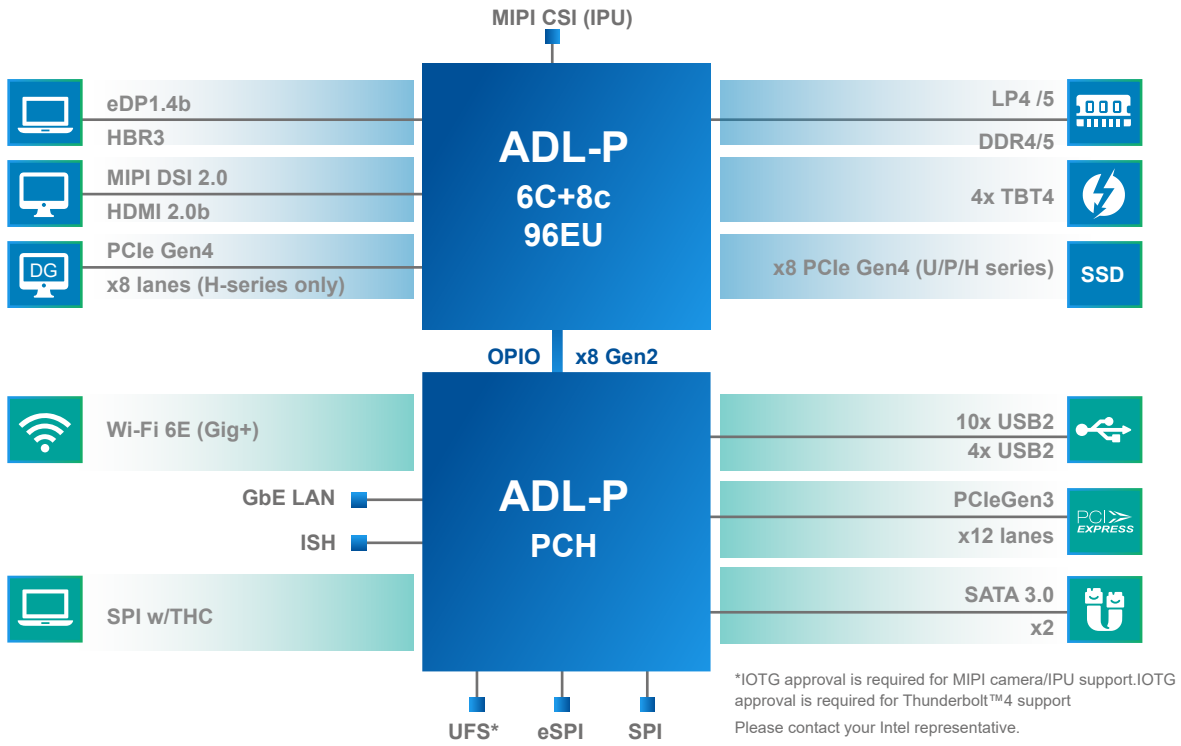
12th Gen Intel® Alder Lake-P Platform

- New processor architecture supporting up to 14 cores and 20 threads with Intel® Hybrid technology
- Up to DDR5 – 4800 & LP5-5200
- CPU PCIe Gen 4
- Intel® Xe Graphics architecture, 4 Independent Displays, Up to 8K Display
- AI Acceleration with Intel® Deep Learning Boost (VNNI)
- Discrete Wi-Fi 6E
- Embedded Use Condition

Block Diagram



*IOTG approval is required for MIPI camera/IPU support.IOTG approval is required for Thunderbolt™4 support

Please contact your Intel representative.

Intel® Alder Lake-P Platform OS Support

Category	Operating Systems / SDKs / Bootloaders/ Hypervisors	Implementation	Distribution and Support
Operating Systems[1]	Windows* 10 IoT Enterprise 2021 LTSC	Intel	Intel, Microsoft
	Ubuntu*, SuSe*, Red Hat Enterprise*, WR Linux*[3]	Canonical Ltd.*, Attachmate Grp*, Red Hat* & Wind River* Systems	Canonical* Ltd., Attachmate Grp*, Red Hat* & Wind River* Systems
	Yocto Project* BSP tool-based embedded Linux distribution	Intel	Intel, Yocto Project* community
	Celadon (Android) in VM	Intel	Intel, Celadon community
	Wind River VxWorks* 7	Wind River	Wind River

- [1] Not all features are supported in all Operating Systems
- [2] Legacy boot is not supported for Windows, Linux. Customers should work with their BIOS vendors for enabling/validating legacy BIOS features.
- [3] Supported by Intel via the upstreaming to Open Source Community. Adoption into individual Linux distributions/hypervisors is dependent upon the OS/HV vendors.
- * Other names and brands may be claimed as property

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Generational Comparison (TGL-U to ADL-P)

Tiger Lake -UP3		Alder Lake -U/P
Up to 4C/8T WLC Core 10nm Superfin 12MB LLC14nm PCH Embedded and Industrial Use Conditions		Up to 4C/8T P-cores + 8c/8T E-cores Enhanced 10nm Superfin Up to18MB LLC 14nm PCHEmbedded Use Conditions
Up to Xe96EU 4x display, Dual eDP1.4 8K HDR, 12b, AV1 Dec IPU6SE, GNA 2.0		Up to Intel® Iris® Xe96EU IPU6EP*, GNA 3.0
DDR4 3200 LP4x 4267		DDR5 4800, DDR4 3200 LP5 5200, LP4x 4267
ROP CET, Keylocker, Total Memory Encryption		HLAT MK-TME
4x TBT4 Discrete Intel® Wi-Fi 6E (Gig+)		4x TBT4* Discrete Intel® Wi-Fi 6E (Gig+)
x4 Gen4 (CPU) x12 Gen3 (PCH)		2 x4 Gen4 (CPU) x12 Gen3 (PCH)

Features of IEI Aler Lake-P Products

Rich Expansion	2.5GbE LAN	Quadra Independent Display
IEI provides new products supporting 1 x PCIe Gen4 x4 slot, 1 x M.2 A Key for WiFi or Bluetooth module, 1 x M.2 M Key (with PCIe Gen3 x4 signal) for NVME storage and 1 x M.2 B Key for 5G module.	IEI provides new products designed triple 2.5GbE LAN supporting TSN (Time Sensitive Networking), which delivers time synchronization with IT network and imeliness between systems.	IEI provides products supporting Quadra-mode DisplayPort output which can auto detect the plugged-in cable type and provide multiple options of display output through one single port.

Consumer Application Processor RK3566

Sensory ability
- 800 million ISP
- 2 CSI inputs
- More MIC arry

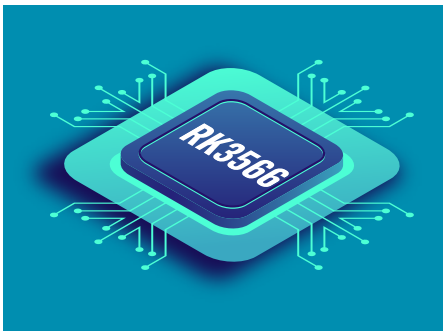
Peripheral interface
- 4 x USB
- SATA3.0/PCIE2.0
- 10 x UART/ 16 x PWM/6 x I2C/ 4 x SPI

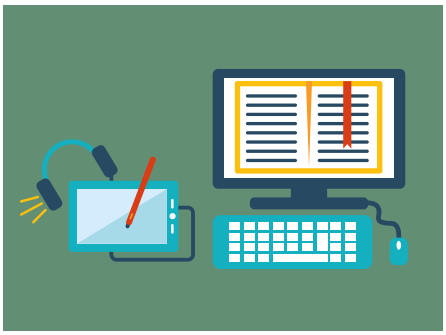
Multimedia capability
- 4K 60 video decoding
- 1080P 60 video coding

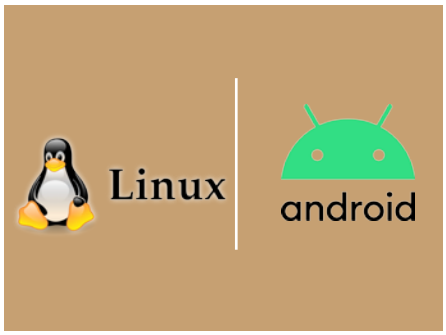
Medium to calculate force
- 22 process
- 4 x A55 CPU
- G52 GPU
- 0.8T NPU

According to ability
- Individual statistics/Same display on two
- HDMI2.0/eDP/MIPI/LVDS/E-ink

RK3566 application scheme







Features and Positioning
- Intermediate performance processor
- Small and medium size screen consumer applications
- Lightweight AI computing

line of production
- Consumer: Tablet PC,With screen speakers,OTT BOX
- New retail: With screen POS
- Education/Office:E-Book,Cloud terminal,Video phone,NAS

Support OS
- Android 11
- Linux

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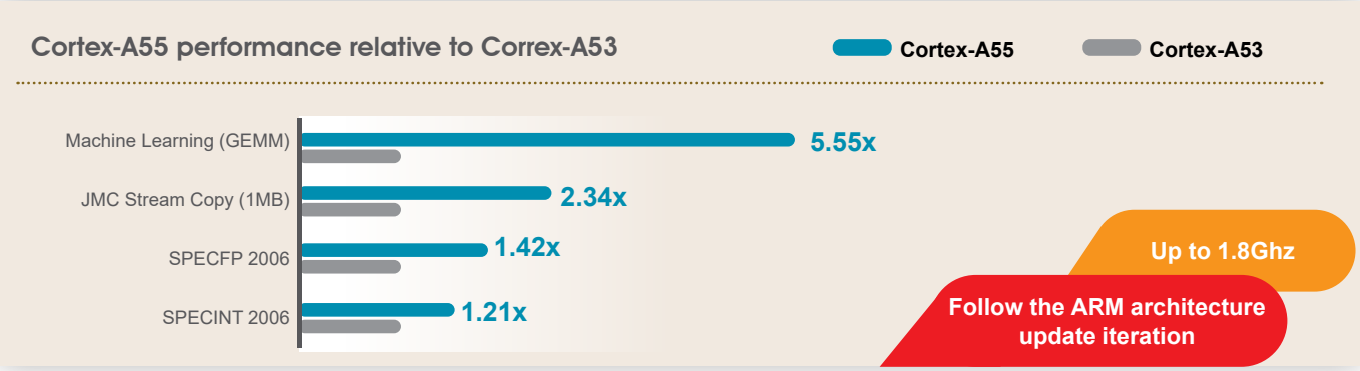
RK3566 CPU And GPU

Mali-G52:
Premium experiences on mainstream devices

Efficiently supportion growing graphics & ML complexity

30%	15%	3.6x
More performance density	Better energy efficiency	ML improvements



RK3566 high efficiency NPU

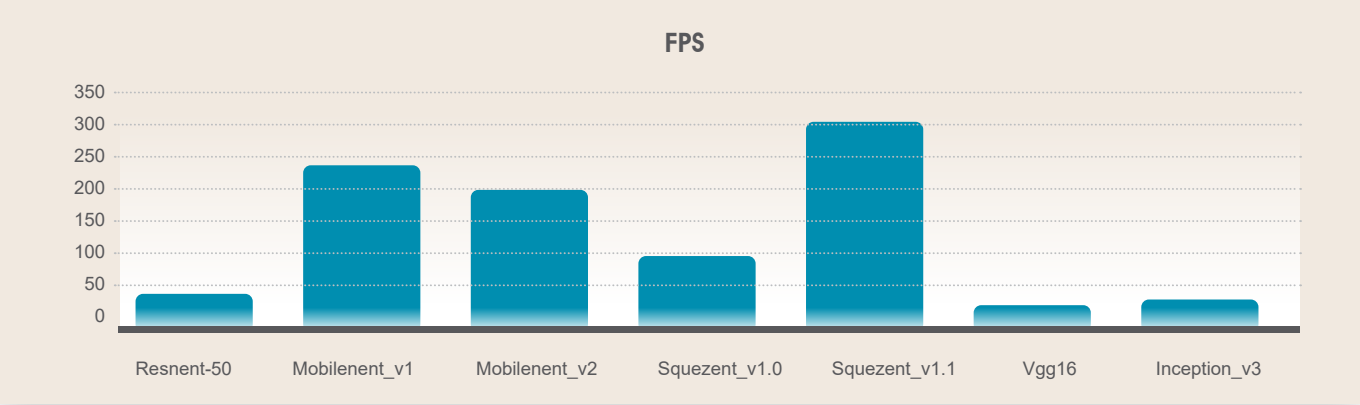
RK self-innovate NPU, 0.8Tops

- 512 INT8 MAC
- 128 INT16/FP16/BFP16 MAC
- Up to 800MHz

Easy to use model transformation tool

- Support Caff/TensroFlow/TF-Lite/ONNX/PyTorch/ Keras/Darknet One-click transformation of mainstream architectural models

Continue to update and improve the OP



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AIO Processor, RK3568

Multimedia
- 1080P60 Encoding
- 4K60 decoding

Computer
Intermediate performance processor
Lightweight AI computing

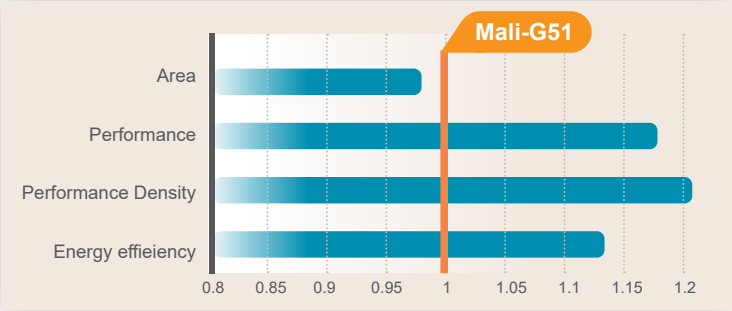
Display
4KP60 output

Perception
- 800 million ISP
- More MIC arry

Link
- PCIE3.0/SATA/USB3.0
- WIFI 6
- 5G/4G
- More LAN Port

OS
- Android
- Linux

RK3568 CPU&GPU

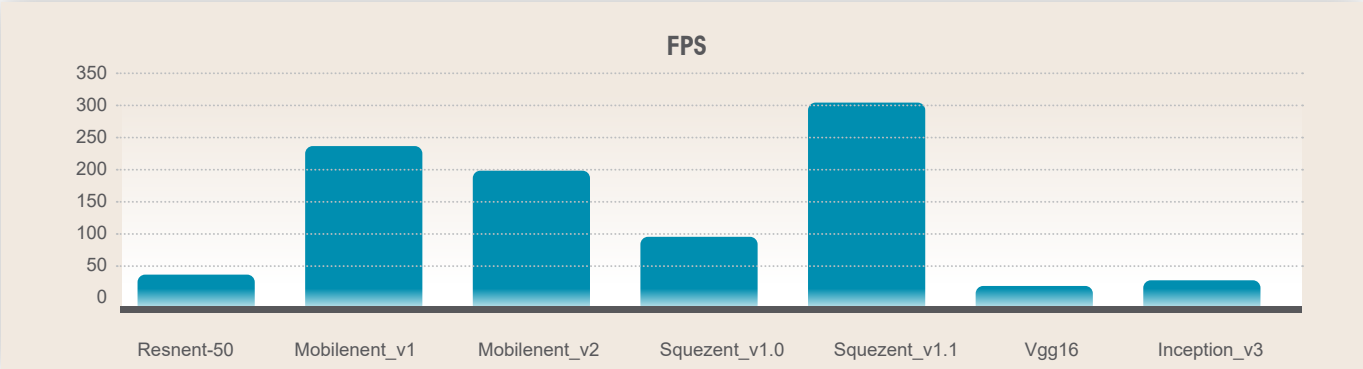


RK3568 NPU

RK self-innovate NPU, 0.8Tops
- 512 INT8 MAC
- 128 INT16/FP16/BFP16 MAC
- Up to 800MHz

Easy to use model transformation tool
- Support Caff/TensroFlow/TF-Lite/ONNX/PyTorch/ Keras/Darknet One-click transformation of mainstream architectural models

Continue to update and improve the OP



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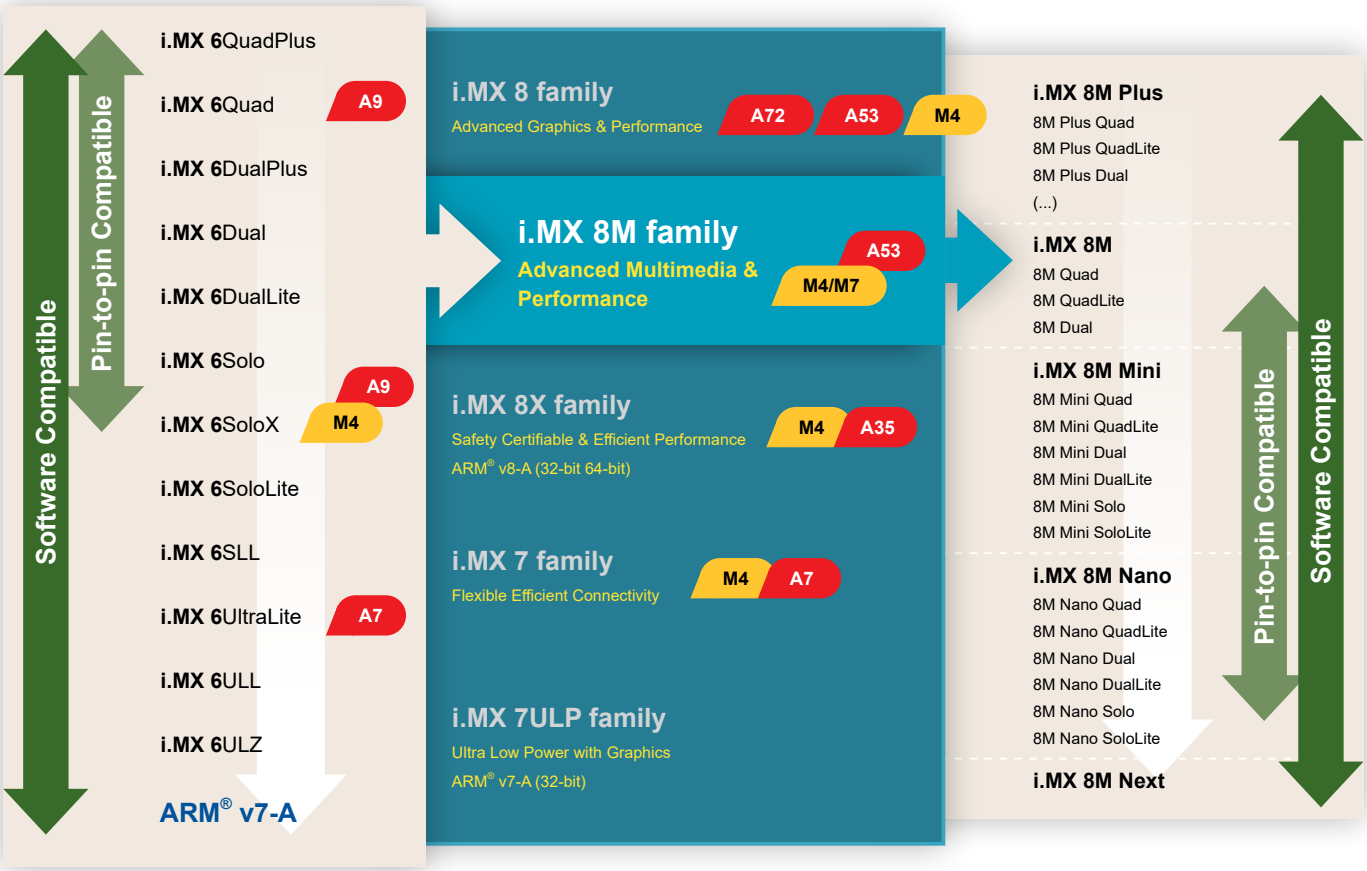
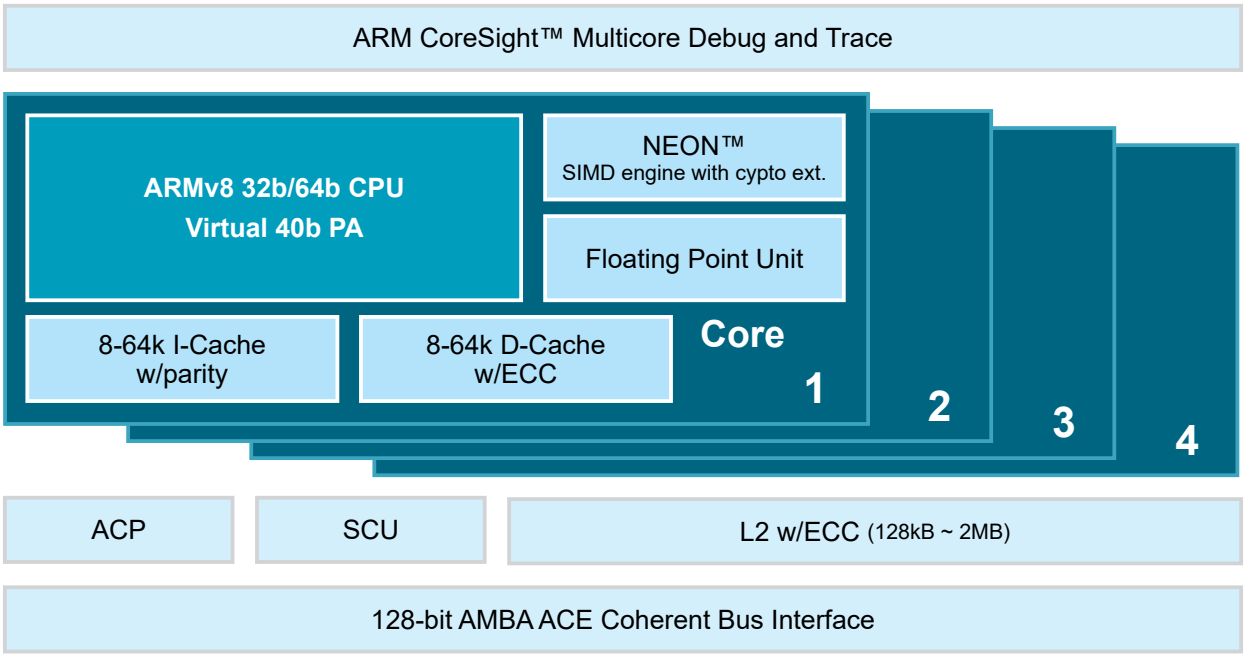
Cortex™-A53 on Freescale™ i.MX 8M Series

i.MX 8M Family of Applications Processors



Cortex™-A53 MPCore



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i.MX 8M Series: Scalable Solutions for the Broad Market

i.MX 8M Quad Family	i.MX 8M Mini Family	i.MX 8M Nano Family	i.MX 8M Plus Family
A53, M4, GPU	A53, M4, GPU	A53, M7, GPU	A53, M4, NPU, DSP, GPU
Available NOW	Available NOW	Available NOW	4Q 2020
i.MX 8M Quad i.MX 8M Dual	i.MX 8M Mini Quad/Dual/Solo	i.MX 8M Nano Quad/Dual/Solo	i.MX 8M Plus Quad/Dual
i.MX 8M QuadLite	i.MX 8M Mini QuadLite/DualLite/ SoloLite		i.MX 8M Plus Quad/Lite
Pin Compatible	Pin Compatible 14x14 Package		Pin Compatible
Advanced Audio, Voice, 4K Video, HDR, 3D GPU w/ OpenCL, Broad Connectivity	Advanced Audio, Voice, HD Video (2-way), 3D GPU, Power Efficient 14FF, 2 Package Options	Low Cost Audio, Voice, 3D GPU w/ OpenCL, Power Efficient 14FF, 2 Package Options	ML, Vision, Industrial IoT, Advanced Multimedia, Voice, HD Video (2-way), 3D GPU, Power Efficient 14FF, 2 Package Options

Software Compatible (including GPU Tools)

Scalable series of FOUR Arm V8 64-bit (/32-bit) based SoC Families

Machine Learning Acceleration at the Edge

AIOM-X8MM

- Computer on Module (32mm x 50 mm)
- i.MX8M Mini SoC

AIOM-X8MN

- Computer on Module (32mm x 50 mm)
- i.MX8M Nano SoC

AIOM-X8MP

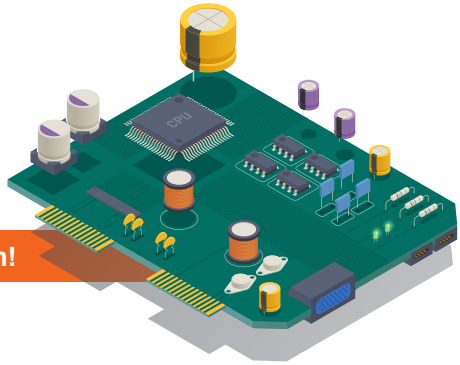
- Computer on Module (32mm x 50 mm)
- i.MX8M Plus SoC

IEI's i.MX 8M computer on module series integrates with i.MX 8M mini, i.MX8M and i.MX8M plus SoCs.
The i.MX 8M Plus family of processors is based on ARM® Cortex®-A53 and Cortex-M7 cores and delivers a new level of:

- Machine Learning and Vision System
- Advanced Multimedia
- Industrial Networking and High Reliability.

It is well suited for applications as:

- Smart Home, Building, Retail and City
- Smart Factory and Industry IoT



Coming Soon!

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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	11	Server 2003	Server 2008	Server 2012	Server 2016	Server 2019	Linux Kernel
Alder Lake S	Intel® R680									V	V					V	Linux Kernel 5.4
Alder Lake S	Intel® H610									V	V						Linux Kernel 5.4
Intel® Alder Lake P										V	V						Linux Kernel 5.4
Comet Lake	Intel® Q470									V	V						Linux Kernel 5.4
Comet Lake	Intel® H420E									V	V						Linux Kernel 5.4
Comet Lake	Intel® H410									V	V						Linux Kernel 5.4
Intel® Elkhart Lake										V	V						Linux Kernel 5.4
Intel® Jasper Lake										V	V						Linux Kernel 5.4
Intel® Atom® C3000 R										V				V	V		Linux Kernel 4.4
Intel® Atom® C3000								V		V				V	V		Linux Kernel 4.4
Intel® Tiger Lake UP3										V	V						Linux Kernel 5.4
Coffee lake R	Intel® C246									V	V			V	V	V	Linux Kernel 4.19
Coffee lake R	Intel® Q370									V	V						Linux Kernel 4.19
Coffee lake R	Intel® H310									V	V						Linux Kernel 4.19
Coffee lake R	Intel® CM246									V	V						Linux Kernel 4.19
Coffee lake R	Intel® QM370									V	V						Linux Kernel 4.19
Coffee lake R	Intel® HM370									V	V						Linux Kernel 4.19
Intel® Whiskey Lake ULT								V		V	V		V	V	V	V	Linux Kernel 4.19
Coffee Lake	Intel® C246									V	V			V	V	V	Linux Kernel 4.14
Coffee Lake	Intel® Q370									V	V						Linux Kernel 4.14
Coffee Lake	Intel® H310									V	V						Linux Kernel 4.14
Coffee Lake	Intel® CM246									V	V						Linux Kernel 4.14
Coffee Lake	Intel® QM370									V	V						Linux Kernel 4.14
Coffee Lake	Intel® HM370									V	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
Kaby Lake	Intel® Q170									V							Linux Kernel 4.14
Kaby Lake	Intel® H110									V							Linux Kernel 4.14
Kaby Lake	Intel® CM238									V							Linux Kernel 4.14
Kaby Lake	Intel® QM175									V							Linux Kernel 4.14
Kaby Lake	Intel® HM175									V							Linux Kernel 4.14
Kaby Lake	Intel® Kaby Lake ULT									V							Linux Kernel 4.14
Skylake	Intel® C236						V	V		V			V	V	V		Linux Kernel 4.0 (3.2)
Skylake	Intel® Q170						V	V		V							Linux Kernel 4.0 (3.2)
Skylake	Intel® H110						V	V		V							Linux Kernel 4.0 (3.2)
Skylake	Intel® CM236						V	V		V							Linux Kernel 4.0 (3.2)
Skylake	Intel® QM170						V	V		V							Linux Kernel 4.0 (3.2)
Skylake	Intel® HM170						V	V		V							Linux Kernel 4.0 (3.2)
Skylake	Intel® Skylake ULT						V	V		V							Linux Kernel 4.0 (3.2)
Skylake	Intel® Broadwell ULT						V	V		V							Linux Kernel 3.19

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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	11	Server 2003	Server 2008	Server 2012	Server 2016	Server 2019	Linux Kernel
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
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® V1000-series (Ryzen Embedded) SoC									V							Linux Kernel 4.14
	AMD® R1000-series (Ryzen Embedded) SoC									V							Linux Kernel 4.14
	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				

Denverton Atom® C3000 Family CPU List

Supported Sockets	Brand	Process	Cores/ Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCBGA1310	Atom®	14nm Denverton	16/16	C3958	2.0GHz	16MB	31W	None	None	DDR4 2400	None
			12/12	C3858	2.0GHz	12MB	25W	None	None		
			8/8	C3758	2.2GHz	16MB	25W	None	None		
			4/4	C3558	2.2GHz	8MB	16W	None	None	DDR4 2133	
			4/4	C3538	2.1GHz	8MB	15W	None	None		
			2/2	C3338	1.5GHz	4MB	8.5W	None	None	DDR4 1866	
			2/2	C3336	1.5GHz	4MB	11W	None	None		
			8/8	C3758R	2.4GHz	16MB	26W	None	None	DDR4 2400	
			4/4	C3558R	2.4GHz	8MB	17W	None	None		
			4/4	C3436L	1.3GHz	8MB	10.75W	None	None	DDR4 1866	
			2/2	C3338R	1.8GHz	4MB	10.5W	None	None		

Workstation Xeon® E3/E/W Series 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	

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Workstation Xeon® E3/E/W Series CPU List

Supported Sockets	Brand	Process	Cores/ Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCLGA3647	Xeon® W	14nm Cascade Lake	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		
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				

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Workstation Xeon® E3/E/W Series 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 Skylake	4/8	E3-1280V5	3.70 GHz	8 MB	80 W	None	None	DDR4-1866/2133, DDR3L-1333/1600@1.35V	C236
			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				
LGA1155	Xeon® E3	22nm Ivy Bridge	4/8	E3-1290V2	3.7 GHz	8 MB	87 W	-	-	DDR3-1333/1600	C206/ C21
			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	-	-		

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Workstation Xeon® E3/E/W Series 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	32nm Sandy Bridge	4/8	E3-1290	3.6 GHz	8 MB	95 W	-	-	DDR3-1066/1333	C206/ C216
			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™ i9/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
FCLGA1700	Core™ i9	14nm Alder Lake-S	16/24	i9-12900E	2.30 GHz (Performance-core) 1.70 GHz (Efficient-core)	30 MB	65W	Intel® UHD Graphics 710	300 MHz	DDR5 4800 DDR4 3200	R680/H610
				i9-12900TE	1.10 GHz (Performance-core) 1.00 GHz (Efficient-core)	30 MB	35W			DDR5 4800 DDR4 3200	
	Core™ i7		12/20	i7-12700E	2.10 GHz (Performance-core) 1.60 GHz (Efficient-core)	25 MB	65W	Intel® UHD Graphics 710		DDR5 4800 DDR4 3200	
				i7-12700TE	1.40 GHz (Performance-core) 1.00 GHz (Efficient-core)	25 MB	35W			DDR5 4800 DDR4 3200	
	Core™ i5		6/12	i5-12500E	2.90 GHz	18 MB	65W	Intel® UHD Graphics 710		DDR5 4800 DDR4 3200	
				i5-12500TE	1.90 GHz	18 MB	35W			DDR5 4800 DDR4 3200	
	Core™ i3		4/8	i3-12100E	3.20 GHz	12 MB	60W	Intel® UHD Graphics 710		DDR5 4800 DDR4 3200	
				i3-12100TE	2.10 GHz	12 MB	35W			DDR5 4800 DDR4 3200	
	Pentium®		2/4	G7400E	3.60 GHz	6 MB	46W	Intel® UHD Graphics 710		DDR5 4800 DDR4 3200	
				G7400TE	3.00 GHz	6 MB	35W			DDR5 4800 DDR4 3200	
	Celeron®		2/2	G6900E	3.00 GHz	4 MB	46W	Intel® UHD Graphics 710		DDR5 4800 DDR4 3200	
				G6900TE	2.40 GHz	4 MB	35W			DDR5 4800 DDR4 3200	

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Desktop Core™ i9/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
FCLGA1200	Core™ i9	14nm Comet Lake-S	10/20	i9-10900E	2.8 GHz	20MB	65W	Intel® UHD Graphics 630	350 MHz	DDR4-2933	W480E/ W480/ Q470E/ Q470/ H420E/ H410
				i9-10900TE	1.8 GHz	20MB	35W				
	Core™ i7		8/16	i7-10700E	2.9 GHz	16MB	65W			DDR4-2933	
				i7-10700TE	2.0 GHz	16MB	35W				
	Core™ i5		6/12	i5-10500E	3.1 GHz	8MB	65W	Intel® UHD Graphics 630		DDR4-2666	
				i5-10500TE	2.3 GHz	8MB	35W				
	Core™ i3		4/8	i3-10100E	3.2 GHz	9MB	65W	Intel® UHD Graphics 630		DDR4-2666	
				i3-10100TE	2.3 GHz	9MB	35W				
	Pentium®		2/4	G6400E	3.8 GHz	4MB	58W	Intel® UHD Graphics 630		DDR4-2400	
			2/4	G6400TE	3.2 GHz	4MB	35W				
	Celeron®		2/2	G5900E	3.2 GHz	2MB	58W	Intel® UHD Graphics 630		DDR4-2400	
			2/2	G5900TE	3.0 GHz	2MB	35W				
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				Q370/C246
		14nm Coffee Lake	4/4	i3-9100	3.60 GHz	6MB	65W				
			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				

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Desktop Core™ i9/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	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				
	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	
			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				

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Desktop Core™ i9/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	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				
	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		

Yellow means long-term support

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Desktop Core™ i9/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		

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

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ULT/UP3 CPU List

Supported Sockets	Brand	Process	Cores/ Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCBGA1449	Core™ i7	10nm Tiger Lake-UP3	4/8	i7-1185G7E	2.8GHz/ 1.8GHz/ 1.2GHz	12MB	28W/ 15W/ 12W	Intel® Iris® Xegraphics 96 EU 4x4k or 2x8k Displays 2 VDBOX	1.35 GHz	DDR4-3200, LPDDR4x-4267	-
				i7-1185GRE						DDR4-3200, LPDDR4x-4267, In-Band ECC	-
	Core™ i5		4/8	i5-1145G7E	2.6GHz/ 1.5GHz/ 1.1GHz	8MB	28W/ 15W/ 12W	Intel® Iris® Xegraphics 80 EU 4x4k or 2x8k Displays 2 VDBOX	1.30 GHz	DDR4-3200, LPDDR4x-4267	-
				i5-1145GRE				Intel® Iris® Xegraphics 80 EU 4x4k or 1x8k Displays 2 VDBOX		DDR4-3200, LPDDR4x-4267, In-Band ECC	-
	Core™ i3		2/4	i3-1115G4E	3.0GHz/ 2.2GHz/ 1.7 GHz	6MB	28W/ 15W/ 12W	Intel® UHD Graphics 48EU 4x4k or 1x8k Displays 1 VDBOX	1.25 GHz	DDR4-3200, LPDDR4x-3733	-
				i3-1115GRE						DDR4-3200, LPDDR4x-3733, In -Band ECC	-
	Celeron®		2/2	6305E	1.8 GHz	4MB	15W	Intel® UHD Graphics 48EU 4x4k or 1x8k Displays 1 VDBOX	1.25 GHz	DDR4-3200, LPDDR4x-3733	-
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				-

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

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ULT/UP3 CPU List

Supported Sockets	Brand	Process	Cores/ Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCBGA1356	Core™ i5	14nm Skylake	2/4	i5-6287U	3.10 GHz	4 MB	28 W	Intel® Iris™ Graphics 550	300 MHz	DDR4-2133, LPDDR3-1866, DDR3L-1600	-
			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		-

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			

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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
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			
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		

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™ 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		
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
					i7-920XM	2.0G	8M	55W	-	-		
	Core™ i7				i7-840QM	1.86G	8M	45W	-	-		
					i7-820QM	1.73G	8M	45W	-	-		
					i7-740QM	1.73G	6M	45W	-	-		
					i7-720QM	1.6G	6M	45W	-	-		
			Dual		i7-640M	2.8G	4M	35W	-	500MHz	1066 MHz 800 MHz	
					i7-620M	2.66G	4M	35W	-			
	Core™ i5				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	-			

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

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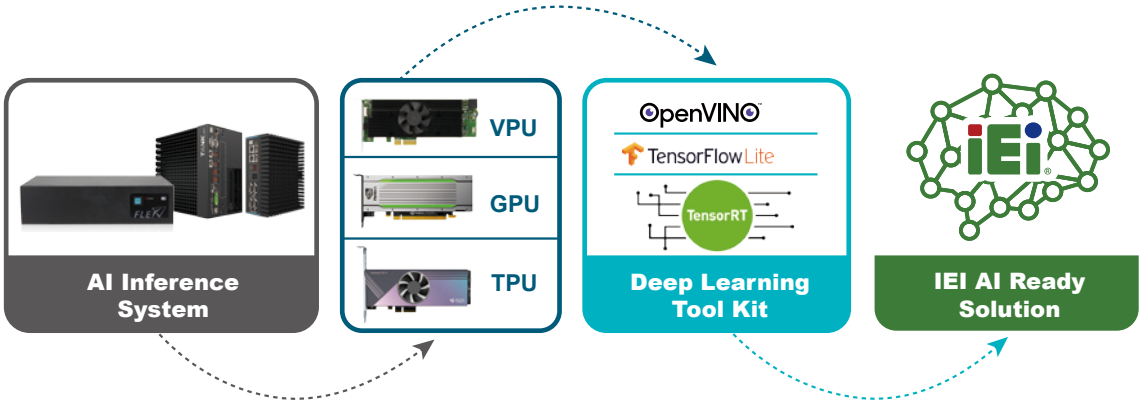
IEI Edge AI Solution Accelerates Your AI Initiative

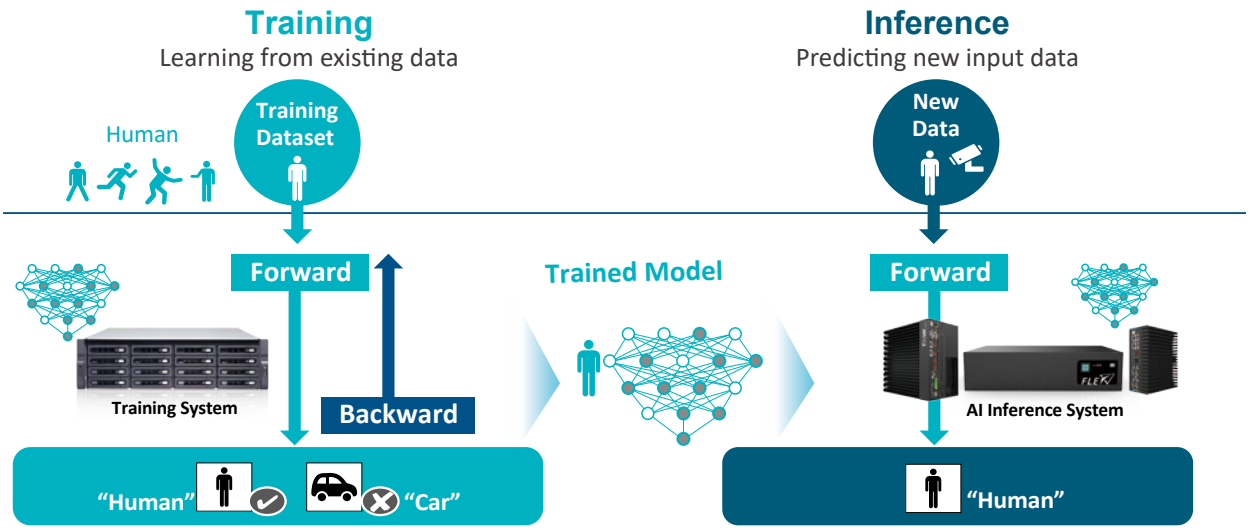
IEI's AI hardware ready system is ideal for deep learning inference computing and can help you get faster, deeper insights into your customers and your business. IEI's AI inference systems support Intel® VPU accelerator cards, NVIDIA graphics cards, and Google TPU. Additional computational power plus end-to-end solution are provided to run your tasks more efficiently. With the Intel® OpenVINO toolkit, NVIDIA TensorRT and Google Tensorflow Lite, IEI's AI-ready systems can help you deploy your solutions faster than ever.



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.

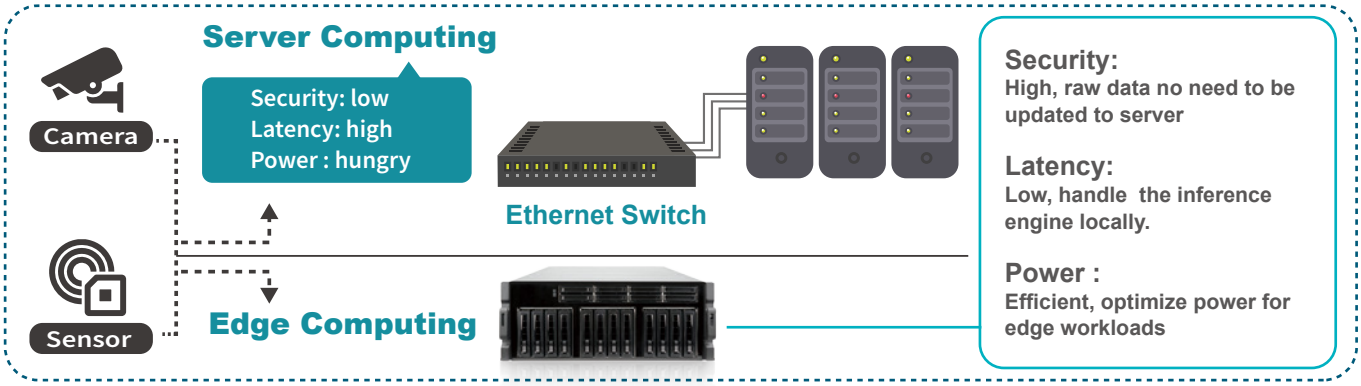
In the past, machine learning required researchers and domain experts knowledge to design filters that extracted the raw data into feature vectors. However, with the contributions of deep learning accelerators and algorithms, trained models can be applied to the raw data, which could be utilized to recognize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

Sorting by human bare-eyes, the standard can not fix due to different person. Low accuracy, low productivity

Machine Vision

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.

Deep Learning Server

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

Deep Learning Edge

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

Deployment Workflow

Training

TensorFlow

Caffe

mxnet

ONNX

Trained Model
.caffemodel
.pb
.params

Train your own Deep Learning model using major popular open frameworks and platforms

Model Optimizer

FLEX

TANK

DRPC

intel
Intermediate Representation(IR)

NVIDIA
Model file

Google
Tensorflow lite model file

Run the Model Optimizer to produce an optimized Intermediate Representation (IR) of model

Development & Deployment

Applications

- Surveillance
- Traffic monitoring
- Attendance system
- People counting

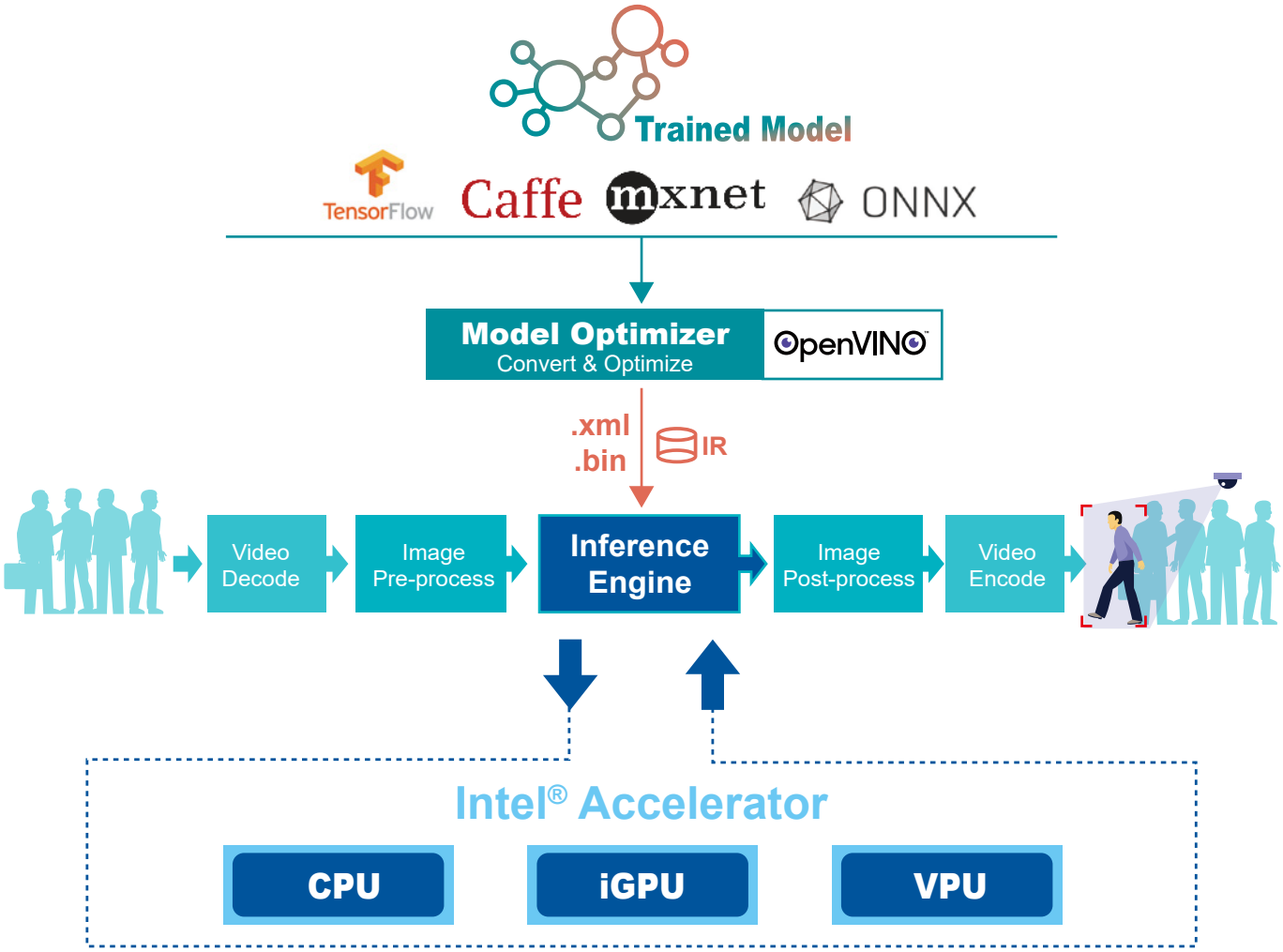
Integrate the Inference Engine in your application to deploy the model in the target environment

Edge AI Software SDK

• 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.

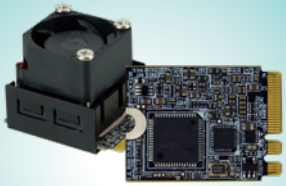
It can optimize pre-trained deep learning models such as Caffe, MXNET, and ONNX Tensorflow. The tool suite includes more than 20 pre-trained models, and supports 100+ public and custom models (includes Caffe*, MXNet, TensorFlow*, ONNX*, Kaldi*) for easier deployments across Intel® silicon products (CPU,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



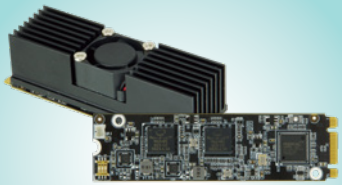
• Intel® Vision Accelerator Design

Mustang-V100-MX8
Eight Intel® Movidius™ Myriad™ X MA2485 VPU

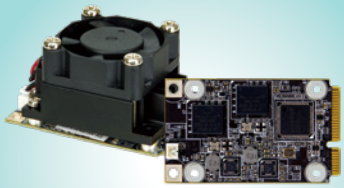
Mustang-V100-MX4
Intel® Movidius™ Myriad™ X MA2485 VPU



Mustang-M2AE-MX1
Intel® Movidius™ Myriad™ X MA2485 VPU



Mustang-M2BM-MX2
Intel® Movidius™ Myriad™ X MA2485 VPU



Mustang-MPCIE-MX2
Intel® Movidius™ Myriad™ X MA2485 VPU

• Intel® Certified Developer Kit

FLEX

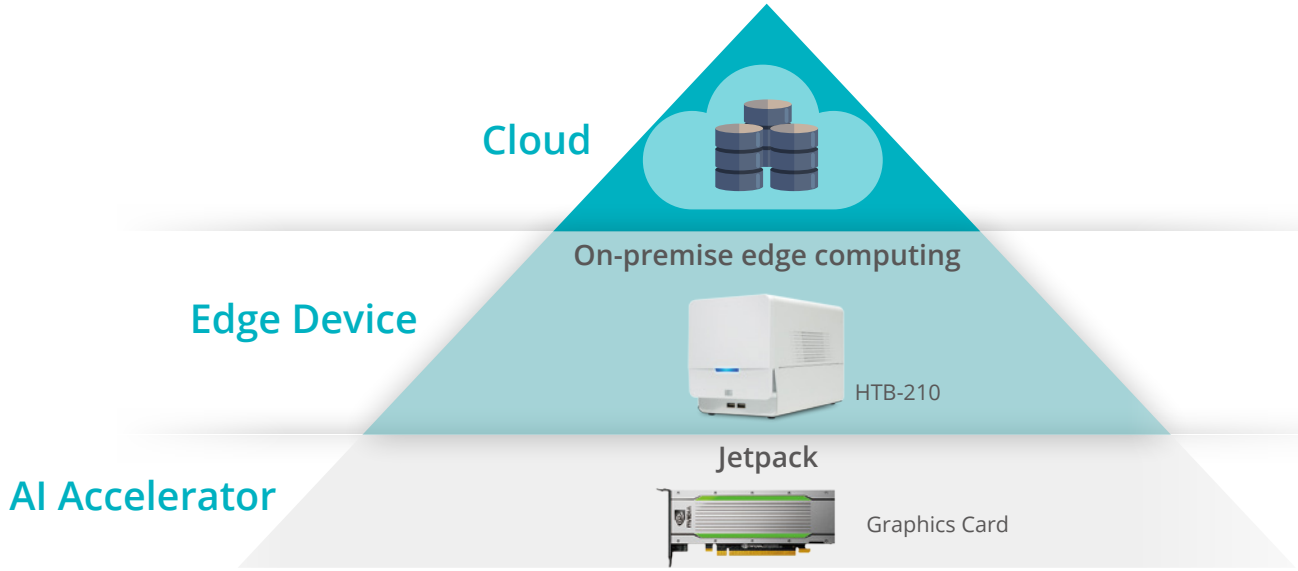
TANK

DRPC

NVIDIA TensorRT

ISV Application	Object Detection	ALPR	Video Search	Face Recognition	Heat Mapping
Ecosystem	Sensors	AI/System Software	Design Services		
Accelerated Modules	Medical AI Inference	Artificial Intelligence	Computer Vision	Accelerated Computing	
IEI Products	HTB-210				
SDK/OS	Windows®10, Linux®				
AI Accelerator	Tesla T4				

- **IEI AI Edge Computing - Faster and Less Power**



Coral Edge TPU

• Mustang-T100-T5

IEI Mustang-T100-T5 leverages the power of Google Coral edge TPU. It integrates five Coral TPU modules into one half-height, half-length, single slot PCIe card, and can provide up to 20 TOPS. It is an ideal compact PCIe accelerator for multiple AI applications.

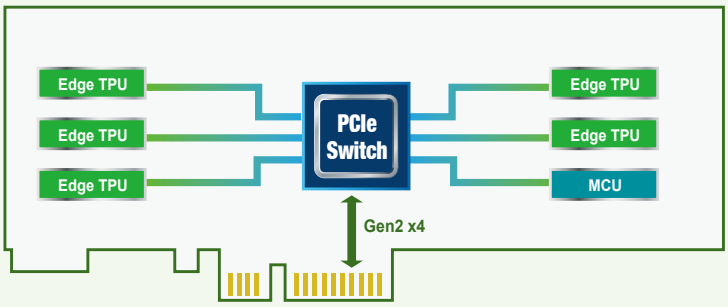
Feature

- 5 x Google Edge TPU ML accelerator
- 20 TOPS peak performance (int8)
- Host interface PCIe Gen2 x4
- Low-profile PCIe form factor
- Approximate 15W
- RoHS compliants
- Support Multiple card

System Requirements

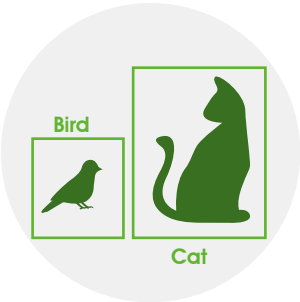
- Linux:
  64-bit version of Debian 10 or Ubuntu 16.04 (or newer)
- Windows:
  64-bit version of Windows 10

Mustang-T100-T5 Block Diagram



IEI provides series of system to support Mustang-T100-T5 accelerator such as TANK-870AI & FLEX-BX200AI.

• Solutions for on-device intelligence



Object detection

Draw a square around the location of various recognized objects in an image

Pose estimation

Estimate the poses of people in an image by identifying various body joints.

Image segmentation

Identify various objects in an image and their location on a pixel-by-pixel basis.

Key phrase detection

Listen to audio samples and quickly recognize known words and phrases.

Source: https://coral.ai/

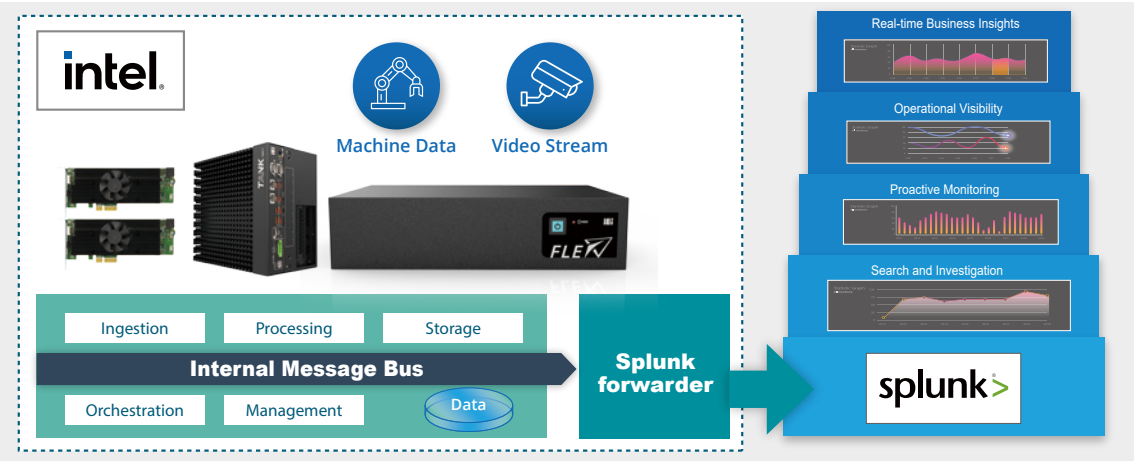
AI Use Cases

• Industrial

• Intel® AIoT Edge Insights Solution with Splunk

Intel® Edge Insights for industrial and Splunk cloud data collection and analysis services: Edge Insights for Industrial helps to address various industrial and manufacturing usages, which include data collection, storage, and analytics on a variety of hardware nodes across the factory floor. Splunk is a software platform to search, analyze and visualize the machine-generated data gathered from the websites, applications, sensors, devices, etc., which make up your IT infrastructure and business.

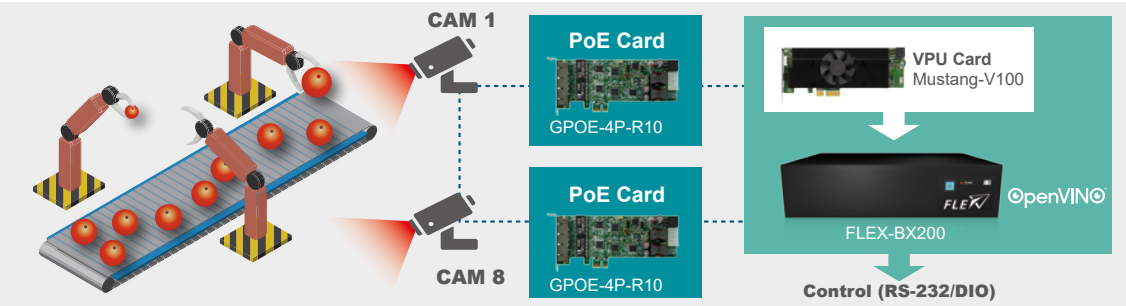
This solution can provide complete and convenient from data collection, storage, computing, etc. Simplify the data processing time and developing period effectively.



• 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.

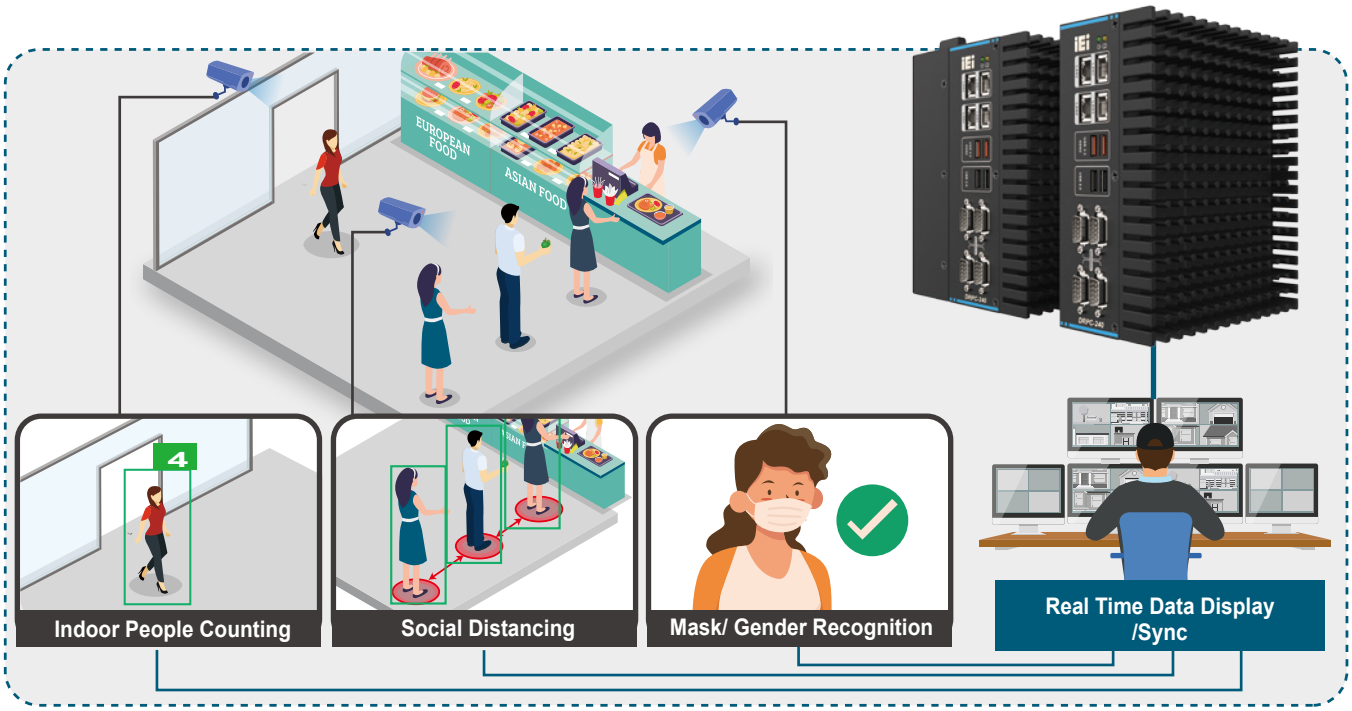
The FLEX series designed for machine vision market has four PCIe 3.0 expansion slots for installing motion controller cards, GP GPU/FPGA/VPU cards and the PoE Ethernet card which is developed by IEI and has four GbE Power over Ethernet (PoE) ports compliant with IEEE 802.3af for direct connection to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



• Retail

• Social Distance Monitoring

Use the DRPC-240AI to detect crowd congestion in indoor environment for COVID-19 prevention. It can be deployed in retail hotel office and restaurant. Also, data can be sync to your remote devices.

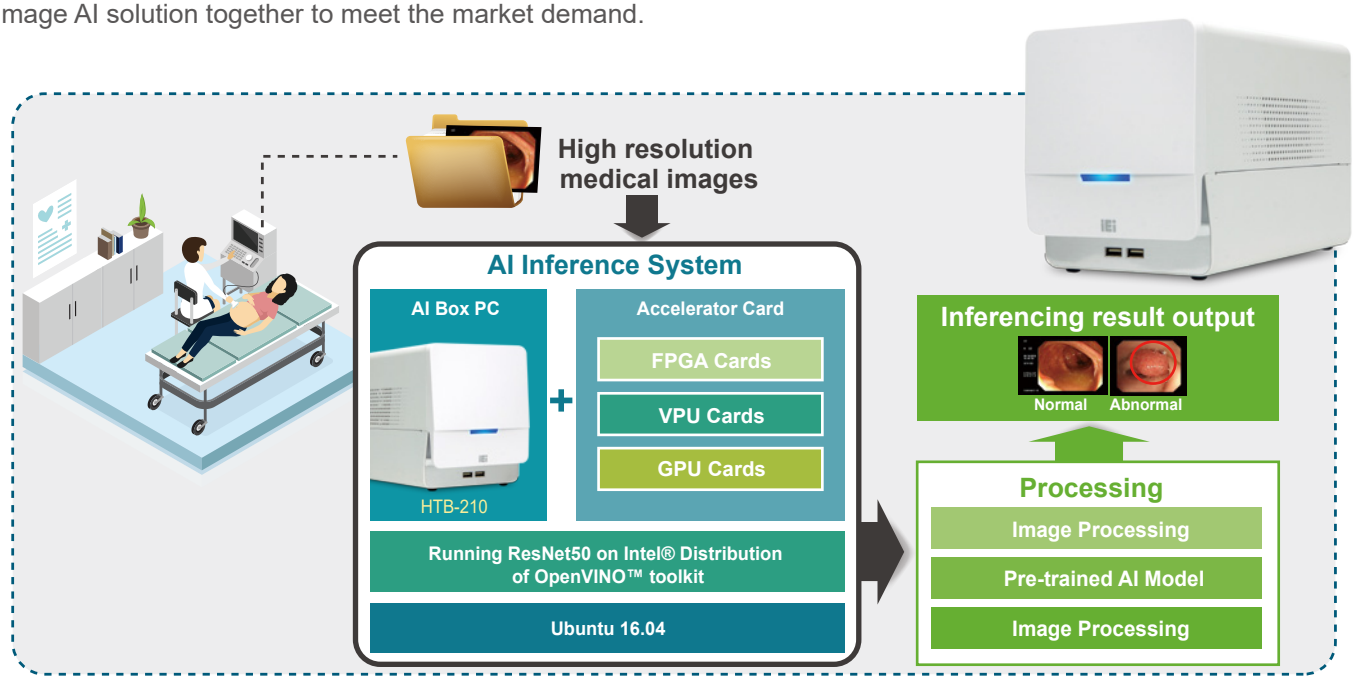


• Shopping Mall Surveillance

AI surveillance systems can be installed in shopping malls for monitoring numbers of visitor and detecting suspicious person inside the mall. With TANK-870 AIoT dev. Kit and Mustang-V10-MX8, you can expand more camera channels in shopping malls.

• Medical

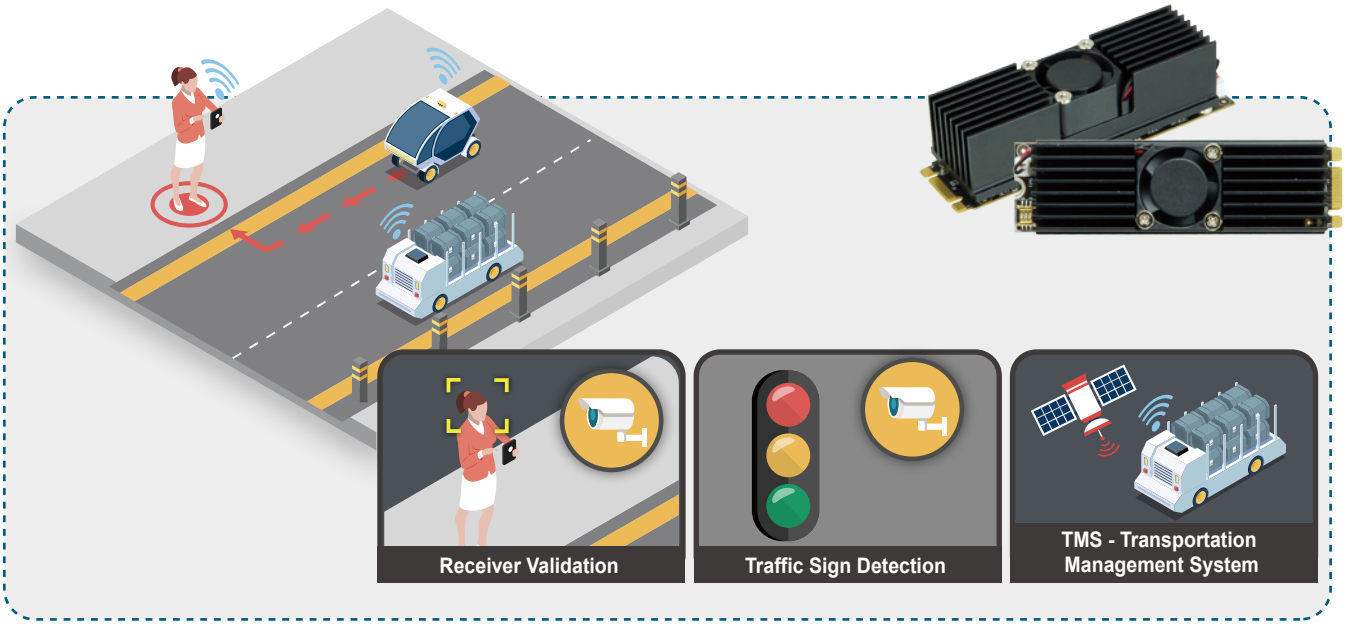
The colon cancer could occur everywhere in the large intestine, the medical personnel need to be very cautious when doing colonoscopy. This application assists the doctor to pay more attention when inflammation, infections, ulcers, polyps or any other abnormal tissues are detected in a gastrointestinal tract inspection. We try to reduce the human error resulting from fatigue or distraction in the daily clinical work. IEI and aetherAI roll out the medical image AI solution together to meet the market demand.



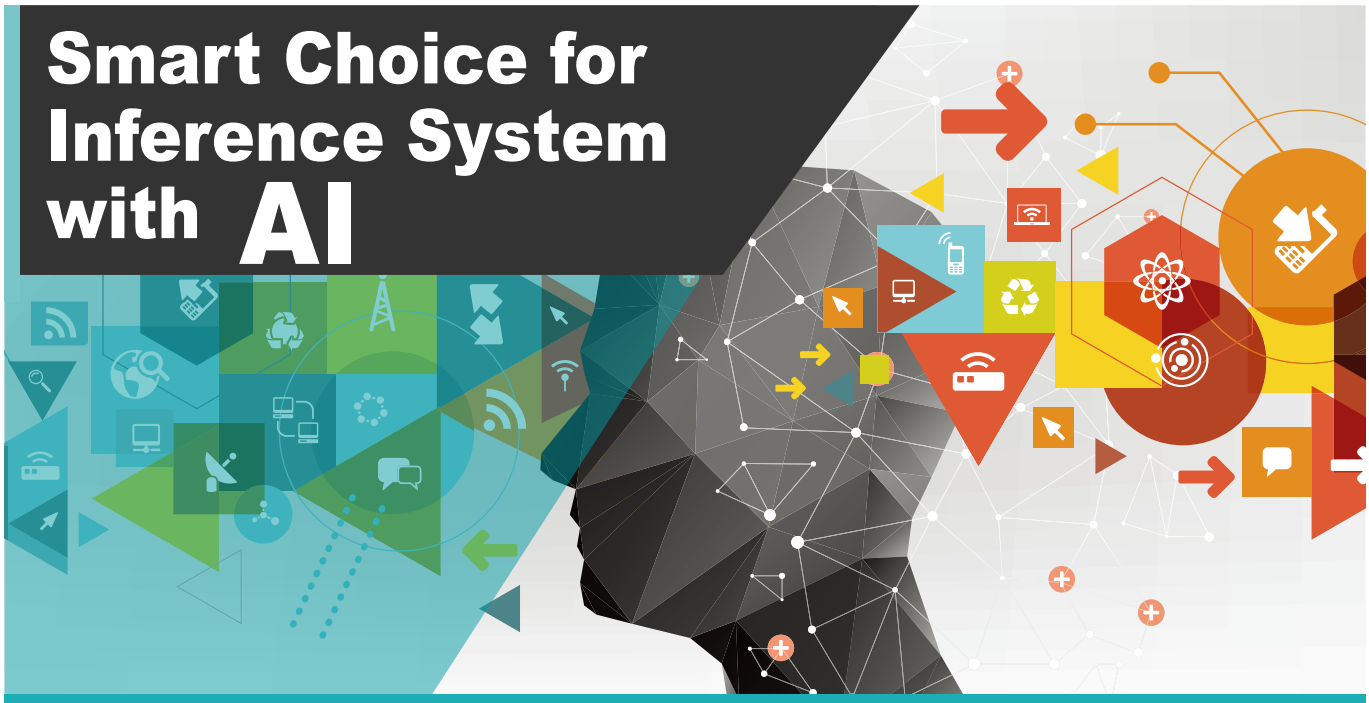
• Transportation

AI Computer Vision for Electric Unmanned Delivery Vehicle

The AI computer vision can help detect and analyze image data with color information, such as traffic light or sign. And in the delivery vehicle, AI computer vision technology helps to detect receiver information to identify ID when customers are picking up their goods. Thus, computer vision AI is one of the key components in unmanned vehicle.



Smart Choice for Inference System with AI

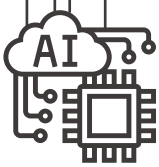


Intel® certified developer ready kit

IEI edge AI ready system

IEI AI accelerator products

Google edge TPU Product



TANK-XM811 AIoT Dev. Kit

NEW

Feature

- 12th Gen Intel® Core™ i5-12500TE
- Dual 2.5 GbE LAN ports
- Multiple USB 3.2 Gen 2 (10Gb/s) & COM ports
- Modulized flexible expansion chassis and backplane
- Support Mustang AI accelerator card

intel. partner Titanium

Specifications

Model		TANK-XM811 AIoT Dev. Kit
Form Factor	Color	Black C
	Dimensions (W x D x H)	137.9 x 255.4 x 230.6 mm
	System Fan	Yes
	Chassis Construction	Extruded aluminum alloys
Motherboard	CPU	Intel® Core™ i5-12500TE 1.9GHz (up to 4.3GHz, 6-Core, TDP 35W)
	Chipset	Intel® R680E
	System Memory	2 x SO-DIMM DDR4 3200MHz (2 x 8GB non-ECC pre-installed, up to 64GB, support ECC SKU)
Storage	Hard Drive	1 x 2.5" SSD bay (256GB SSD pre-installed)
I/O Interfaces	Ethernet	2 x RJ-45: 1 x Intel® I225LM 2.5GbE 1 x Intel® I225V 2.5GbE
	USB 3.2 Gen2(10Gb/s)	8
	COM	2 x RS-232/422/485 4 x RS-232
	Digital I/O	12-bit (6-in/6-out)
	Display	1 x DP++ (up to 4096 x 2160@60Hz) 1 x HDMI (up to 4096 x 2160@30Hz)
Expansion Slots	M.2	1 x 2230 A-key (PCIe x1/ USB 2.0, support Intel® vPro) 1 x 2280 M-key (PCIe x4)
	Backplane	2 x PCIe x8 slot (total power up to 75W, support FHHL card)
Power	Power Input	DC Jack: 12V ~ 28V DC Terminal Block: 12V ~ 28V DC
	Remote Power	Terminal Block: 2-pin
Reliability	Mounting	Wall mount
	Operating Temperature	-20°C ~ 60°C with air flow (SSD), 10% ~ 95% non-condensing
	Storage Temperature	-40°C ~ 80°C, 10% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operation Vibration	MIL-STD-810G 514.6C-1 (with SSD)
	Weight (Net/Gross)	4.6 kg/5.6 kg
	Safety / EMC	CE/FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min
OS	Supported OS	Windows® 10 IoT Enterprise/ Linux

Ordering Information

Part No.	Description
TANK-XM811AI-i5AD/2A-R10	Ruggedized embedded system with Intel® Core™ i5-12500TE 1.9GHz (up to 4.3 GHz, 6-Core, TDP 35W), 2 x 8GB DDR4 pre-installed, 2 x PCIe x8 expansion, 2.5" 256MB SSD, 12~28V DC, 180W AC DC power adapter, RoHS

AI Accelerator Card Options

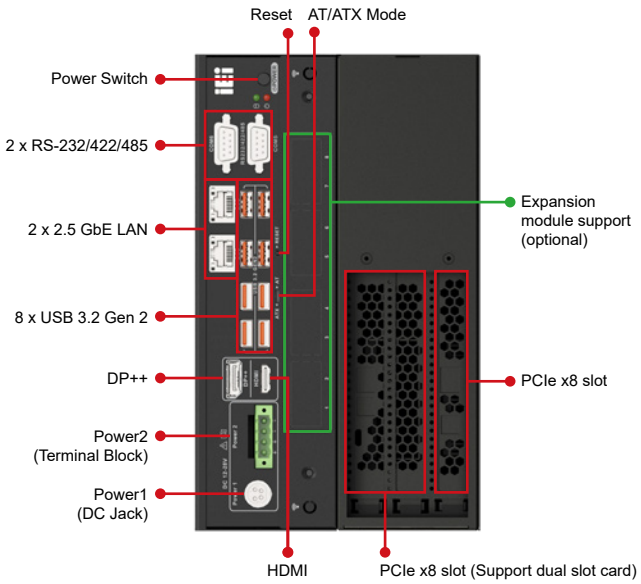
Part No.	Description
Mustang-V100-MX8-R20	Computing Accelerator Card with 8 x Intel® Movidius™ Myriad™ X MA2485 VPU, PCIe Gen2 x4 interface, RoHS

Packing List

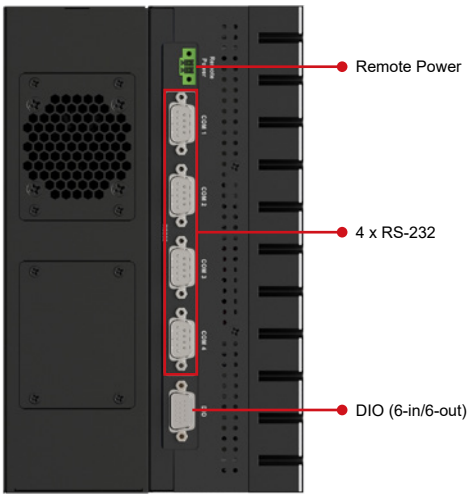
1 x Mounting Screw	1 x Wall Mounting Kit	1 x QSG
1 x 180W Adapter	1 x Power Cord	

Fully Integrated I/O

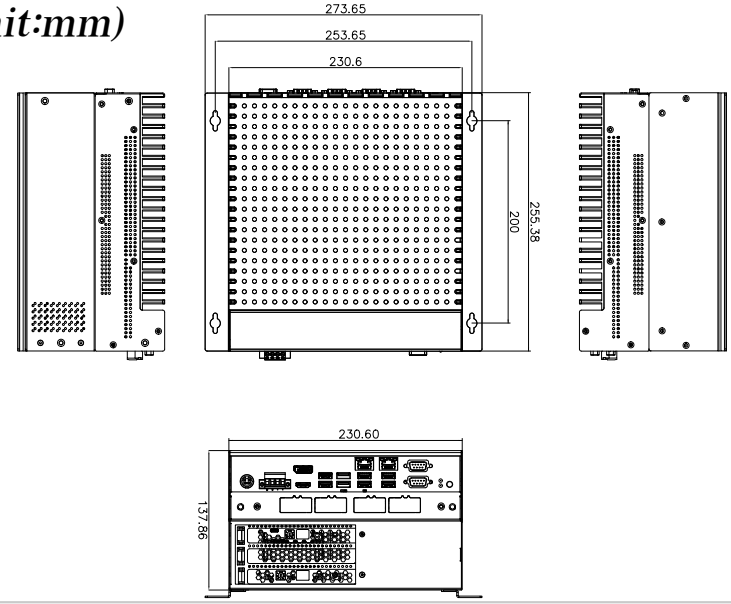
Top View



Front View



Dimensions (Unit:mm)



TANK AIoT Developer Kit

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

intel partner Titanium

Specifications

Model	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	Yes
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	E3-1268LV5 -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-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/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-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

AI Accelerator Card Options

Part No.	Description
Mustang-V100-MX8-R20	Computing Accelerator Card with 8 x Movidius Myriad X MA2485 VPU, PCIe Gen2 x4 interface, RoHS

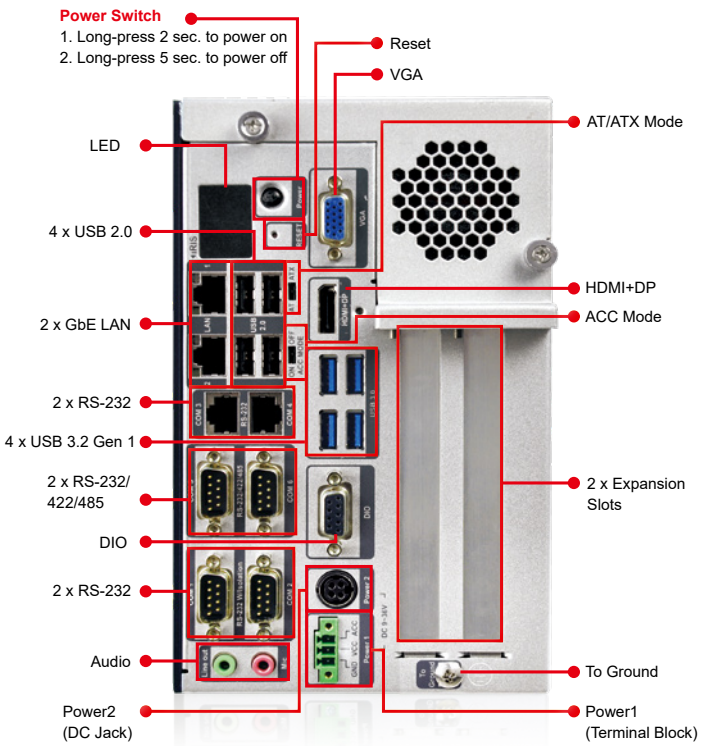
Peripheral Options

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

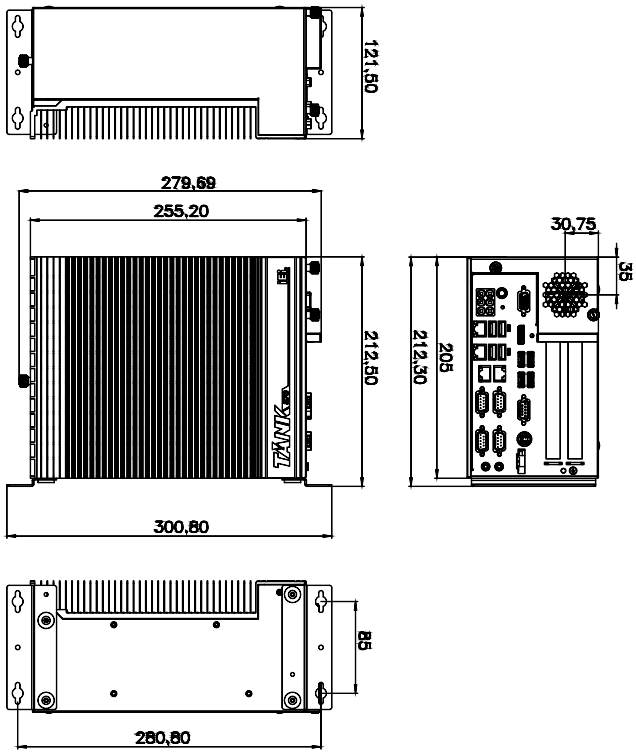
Packing List

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)



FLEX-BX200AI

2U AI Modular PC with 8th/9th Generation LGA 1151 Intel® Core™ i and Xeon® Processor

Feature

- 2U AI Modular PC with 8th/9th Generation LGA 1151 Intel® Core™/Xeon® processor with Intel® Q370/C246 chipset and DDR4 memory
- Four hot-swappable and accessible HDD drive bays, support RAID 0/1/5/10
- Support PCIe 3.0 by 4 and PCIe 3.0 by 8 slots
- M.2 2280 PCIe Gen 3.0 x4 NVMe™ SSD support
- Dual independent display with high resolution support
- Rich high-speed I/O interfaces on one side for easy installation
- Support for optional Mustang-V100-MX8 PCIe Accelerator Card for offloading AI/DL workloads
- Support Wi-FI 802.11 AC dual and Bluetooth V5.1 (pre-installed)

intel partner Titanium

Specifications

Model		FLEX-BX200AI Series
System	CPU	Intel® Xeon® E-2278GEL 2.0GHz (up to 3.9GHz, 8-core, TDP 35W) 9th Generation Intel® Core™ i7-9700TE 1.8GHz (up to 3.8GHz, 8-core, TDP 35W) 9th Generation Intel® Core™ i5-9500TE 2.2GHz (up to 3.6GHz, 6-core, TDP 35W) 8th Generation Intel® Core™ i5-8500 3.0GHz (up to 4.1GHz, 6-core, TDP 65W)
	Chipset	Intel® C240 Series Chipsets C246 (Coffee Lake) Intel® 300 Series Chipsets Q370 (Coffee Lake)
	Memory	2 x 288-pin 2666/2400 MHz dual-channel DDR4 unbuffered DIMM supporting up to 64GB
	Graphics Engine	Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, supporting DX2015, OpenGL 5.X and OpenCL2.x, ES 2.0
	Ethernet	LAN1: Intel® I219LM with Intel® AMT 11.0 supported LAN2: Intel® I210 PCIe controller
Storage		4 x Accessible 2.5" SATA 6Gb/s HDD/SSD bay (with RAID 0/1/5/10 support, LED indicator, pre-installed 1TB HDD) 1 x NGFF M.2 (2280) M-Key socket (supports NVMe SSD)
Wireless Communication	WLAN	Intel® Wireless-AC 9260 802.11ac, 2.4/5GHz (by M.2 2230)
	Bluetooth	Bluetooth V5.1
	WWAN and GNSS	M.2 3042 LTE (optional)
I/O Ports and Switches		2 x HDMI output 2 x GbE LAN (1x I219 support vPro, 1x I210) 6 x USB 3.2 Gen1 Type-A 2 x RS-232 DB-9 1 x Mic in 1 x Line out 1 x AC inlet 4 x SMA Power button with power LED (power on=Blue) AT/ATX mode switch Reset button
TPM		TPM 2.0
Expansion Slots		2 x PCIe 3.0 x8 1 x PCIe 3.0 x4 1 x M.2 B-Key 2242 socket (with SIM slot for 3G/LTE, supports PCIe 3.0 x1 & USB 3.2 Gen1) 1 x M.2 M-Key 2280 socket (supports PCIe 3.0 x4)
Thermal Solution		3 x System fan, 1 x CPU cooler
Power Supply		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
Watchdog Timer		Software programmable support 1~255 sec. system reset
Construction	Chassis Construction	Metal housing
	Mounting	Wall/Rack mount
	Color	Black
	Dimensions (LxDxH) (mm)	357 x 230 x 88
	Net Weight	4 kg
Environmental	Operating Temperature	-10°C ~ 50°C
	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)
	Safety/EMC	CE/FCC/RoHS

Ordering Information

Part No.	Description
FLEX-BX200AI-XER/32G-R10	2U AI Modular Box PC, 9th Gen Intel® Xeon® E-2278GEL 2.0GHz (Up to 3.9GHz, 8-core, TDP 35W), 32GB DDR4, 2.5" 1TB HDD , TPM 2.0, 350W PSU, R10
FLEX-BX200AI-XER/32G/V-R10	2U AI Modular Box PC, 9th Gen Intel® Xeon® E-2278GEL 2.0GHz (Up to 3.9GHz, 8-core, TDP 35W), 32GB DDR4, 2.5" 1TB HDD , TPM 2.0, 350W PSU, with Mustang-V100-MX8, R10
FLEX-BX200AI-i7R/16G-R10	2U AI Modular Box PC, 9th Gen Intel® Core™ i7-9700TE 1.8GHz (Up to 3.8GHz, 8-core, TDP 35W), 16GB DDR4, 2.5" 1TB HDD , TPM 2.0, 350W PSU, R10
FLEX-BX200AI-i7R/16G/V-R10	2U AI Modular Box PC, 9th Gen Intel® Core™ i7-9700TE 1.8GHz (Up to 3.8GHz, 8-core, TDP 35W), 16GB DDR4, 2.5" 1TB HDD , TPM 2.0, 350W PSU, with Mustang-V100-MX8, R10
FLEX-BX200AI-i5R/8G-R10	2U AI Modular Box PC, 9th Gen Intel® Core™ i5-9500TE 2.2GHz (Up to 3.6GHz, 6-core, TDP 35W), 8GB DDR4, 2.5" 1TB HDD , TPM 2.0, 350W PSU, R10
FLEX-BX200AI-i5R/8G/V-R10	2U AI Modular Box PC, 9th Gen Intel® Core™ i5-9500TE 2.2GHz (Up to 3.6GHz, 6-core, TDP 35W), 8GB DDR4, 2.5" 1TB HDD , TPM 2.0, 350W PSU, with Mustang-V100-MX8, R10
FLEX-BX200AI-i5/8G-R10	2U AI Modular Box PC, 8th Gen Intel® Core™ i5-8500 3.0GHz (Up to 4.1GHz, 6-core, TDP 65W), 8GB DDR4, 2.5" 1TB HDD , TPM 2.0, 350W PSU, R10
FLEX-BX200AI-i5/8G/V-R10	2U AI Modular Box PC, 8th Gen Intel® Core™ i5-8500 3.0GHz (Up to 4.1GHz, 6-core, TDP 65W), 8GB DDR4, 2.5" 1TB HDD , TPM 2.0, 350W PSU, with Mustang-V100-MX8, R10

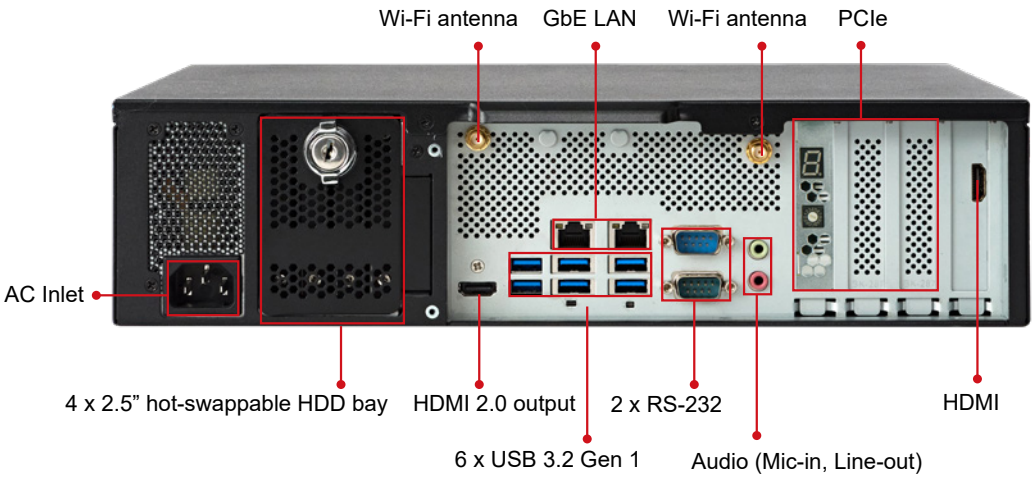
Packing List

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
	2	Wi-Fi antenna

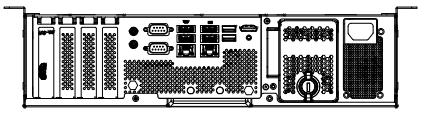
Options

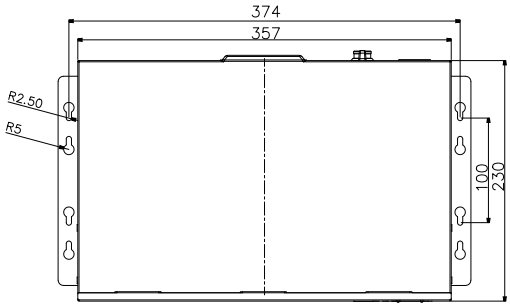
Part No.	Description
FLEX-BXRK-R10	Rack mount kit

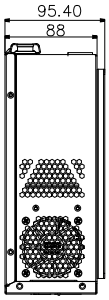
I/O Interface

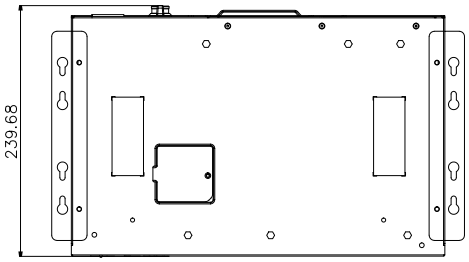


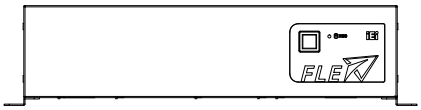
FLEX-BX200AI
Dimensions *(Unit: mm)*











FLEX-BX210-Q470

Feature

- 2U AI PC with 10th Generation LGA 1200 Intel® Core™/Xeon® processor with Intel® Q470 chipset and DDR4 memory
- Four hot-swappable and accessible HDD drive bays support RAID 0/1/5/10
- Support PCIe 3.0 by 4 and PCIe 3.0 by 8 slots
- M.2 2280 PCIe 3.0 x4 NVMe™ SSD support
- Dual independent display with high resolution support
- TPM data protection and reliable authentication
- Support for optional Mustang series PCIe accelerator card for offloading AI/DL workloads

intel partner Titanium

Specifications

Model		FLEX-BX210-Q470
System	CPU	10th Generation Intel®Core™ i9-10900TE 1.8GHz (up to 4.5GHz, 10-core, TDP 35W) 10th Generation Intel®Core™ i5-10500TE 2.3GHz (up to 3.7GHz, 6-core, TDP 35W)
	Chipset	Intel® 400 Series Chipsets (Comet Lake)
	Memory	2 x 288-pin 2933/2666 MHz dual-channel DDR4 unbuffered DIMM supporting up to 64GB Xeon W with 32GB RAM Pre-installed Core i9 with 16GB RAM Pre-installed Core i5 with 8GB RAM Pre-installed
	Graphics Engine	Intel® HD Graphics Gen 9.5 Engines with low power 16 execution unit, supports DX2015, OpenGL 5.X and OpenCL2.x, ES 2.0
	Ethernet	LAN1: Intel® I219LM with Intel® AMT 11.0 supported LAN2/LAN3: Intel® I210 PCIe controller
	Storage	4 x Accessible 2.5" HDD/SSD SATA 6Gb/s bay (RAID 0/1/5/10 supported) with LED indicator 1 x NGFF M.2 (2280) M key socket (NVMe SSD supported), pre-installed one 2.5" 1TB HDD
Wireless Communication	WLAN	Intel® AC 9260 802.11ac, 2.5/5GHz, 2T/2R (by M.2 2230)
	Bluetooth	Bluetooth V5.1
	WWAN and GNSS	M.2 3042 LTE (optional)
I/O Ports and Switches	I/O Ports and Switches	1 x Display port output 1 x HDMI output 1 x Line out 1 x AC inlet 2 x RS-232 DB-9 1 x Mic in 4 x SMA 6 x USB 3.2 Gen1 Type-A 3 x GbE LAN (1 x I219 support vPro, 2 x I210) Power button with power LED (power on=Blue) AT/ATX mode switch Reset button
	TPM	TPM 2.0 (pre-installed)
Expansion Slots		2 x PCIe 3.0 x8 2 x PCIe 3.0 x4 1 x M.2 B-Key 2242 socket (with SIM slot for 3G/LTE, supports PCIe 3.0 x1 & USB 3.2 Gen1) 1 x M.2 M-Key 2280 socket (supports PCIe 3.0 x4)
Thermal Solution		3 x System fan, 1 x CPU cooler
Power Supply		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
Watchdog Timer		Software programmable support 1~255 sec. system reset
Construction	Chassis Construction	Metal housing
	Mounting	Wall/Rack mount
	Color	Black
	Dimensions (LxDxH) (mm)	357 x 230 x 88
	Net Weight	4 kgs
Environmental	Operating Temperature	-10°C ~ 50°C
	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)
	Safety/EMC	CE/FCC/RoHS

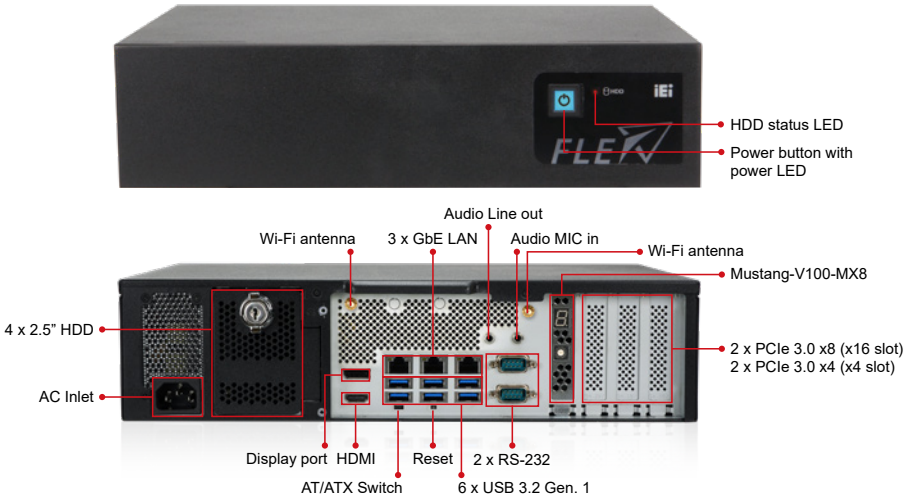
Ordering Information

Part No.	Description
With Mustang-V100-MX8	
FLEX-BX210AI-i9/16G/V-R10	2U AI Modular box PC, Intel® 10th Generation Core™ i9-10900TE 1.8GHz (up to 4.5GHz, 10-core, TDP 35W), 16GB DDR4, 2.5" 1TB HDD, TPM 2.0, 350W PSU, with Mustang-V100-MX8, Wi-Fi 802.11ac, R10
FLEX-BX210AI-i5/8G/V-R10	2U AI Modular box PC, Intel® 10th Generation Core™ i5-10500TE 2.3GHz (up to 3.7GHz, 6-core, TDP 35W), 8GB DDR4, 2.5" 1TB HDD, TPM 2.0, 350W PSU, with Mustang-V100-MX8, Wi-Fi 802.11ac, R10
Without Mustang-V100-MX8	
FLEX-BX210-Q470/35-R10	Barebone, 2U AI Modular BOX PC, Intel® COMET Lake, Q470 chipset, 2xPCIex4 and 2xPCIex8 slots, 4x HDD bay, w/o CPU, 350W PSU, R10
FLEX-BX210AI-i9/16G-R10	2U AI Modular box PC, Intel® 10th Generation Core™ i9-10900TE 1.8GHz (up to 4.5GHz, 10-core, TDP 35W), 16GB DDR4, 2.5" 1TB HDD, TPM 2.0, 350W PSU, Wi-Fi 802.11ac, R10
FLEX-BX210AI-i5/8G-R10	2U AI Modular box PC, Intel® 10th Generation Core™ i5-10500TE 2.3GHz (up to 3.7GHz, 6-core, TDP 35W), 8GB DDR4, 2.5" 1TB HDD, TPM 2.0, 350W PSU, Wi-Fi 802.11ac, R10

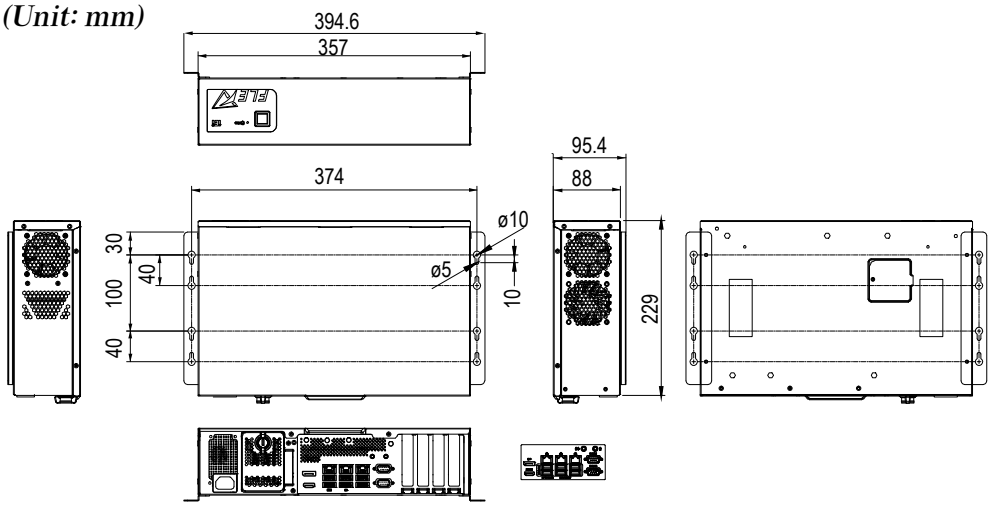
Packing List

1 x Mounting Bracket	2 x Wi-Fi Antennas
1 x Power Cord	1 x QSG

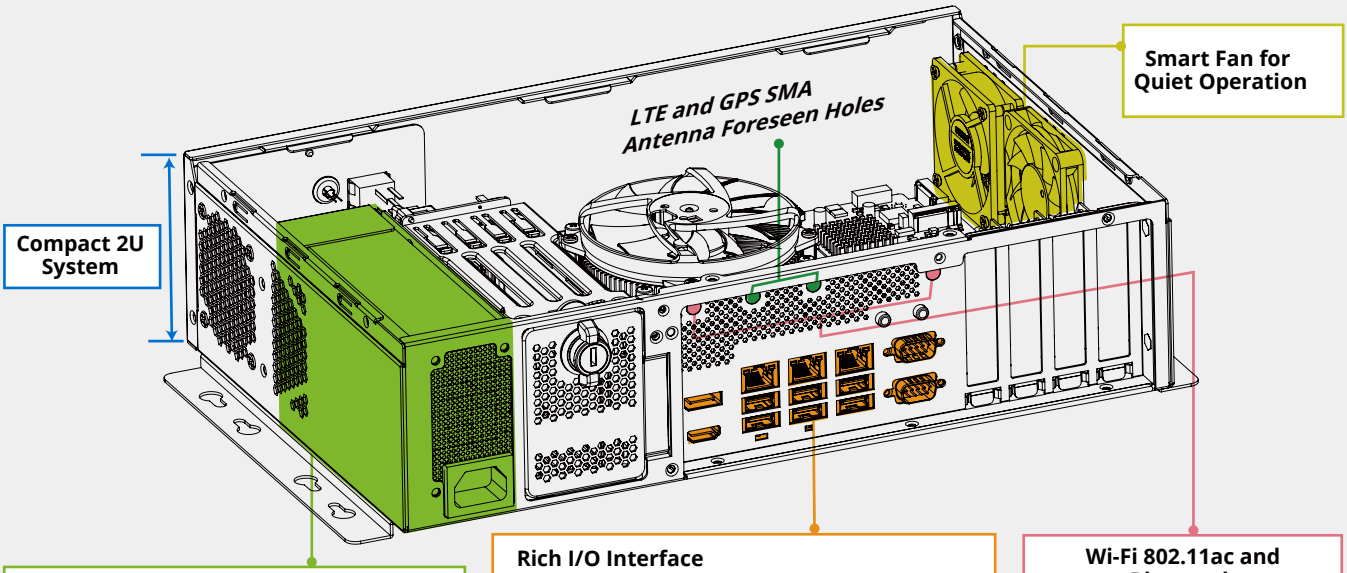
I/O Interface



FLEX-BX210-Q470 Dimensions (Unit: mm)



Hardware Features



350W ATX Power Supply
- Active PFC (Power Factor Correction) circuit protection
- 80-Plus Gold high efficiency
- 350W PSU models is built to order

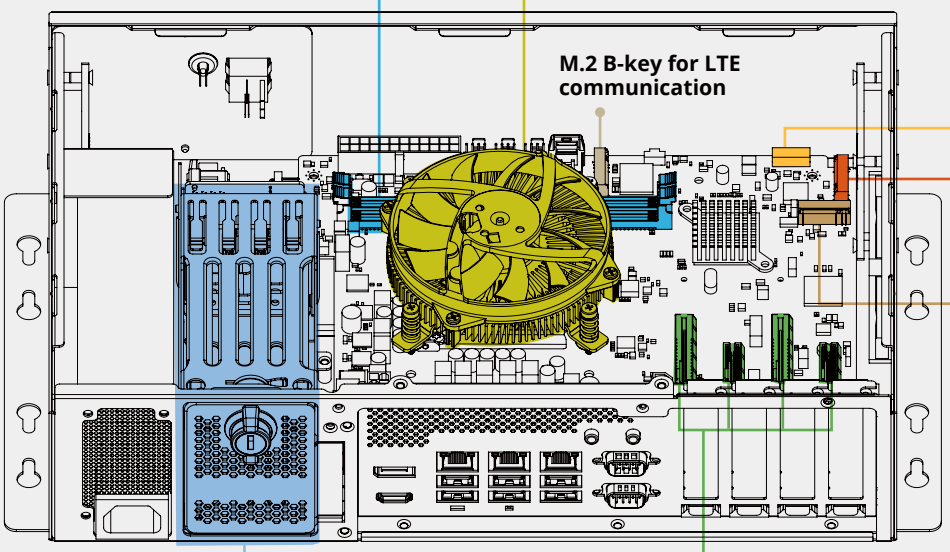
Rich I/O Interface
- 1 x Display port output
- 1 x HDMI output
- 6 x USB 3.2 Gen1 Type-A
- 2 x RS-232 DB-9
- AT/ATX mode switch
- 3 x GbE LAN (1x I219 support vPro, 2x I210)
- 1 x Mic in
- 1 x Line out
- 1 x AC inlet
- 4 x SMA
- Reset button

Wi-Fi 802.11ac and Bluetooth V5.1 SMA Antenna Connectors

Up to 64GB DDR4 2933/2666 MHz Memory

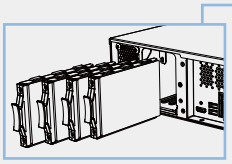
10th Generation Intel® Core™ Desktop Processors

TPM 2.0

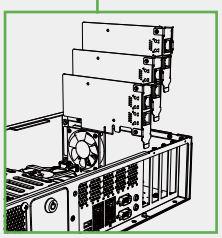


M.2 A-key 2230 for Wi-Fi 802.11ac and Bluetooth V5.1 (pre-installed)

M.2 M-key



Four Hot-swappable HDD Bays (pre-installed with 1TB HDD)
- With security key lock
- Support RAID 0/1/5/10
- LEDs for drive activity



Four PCIe 3.0 Low Profile Expansion Slots
- Two PCIe by 4 and two PCIe by 8 with vertical heat dissipation, and the two PCIe by 8 provide zero latency
- Support AI accelerator cards, such as FPGA card, vision process card (VPU), etc

DRPC AIoT Dev. Kit

NEW

Features

- 11th Gen Intel® Core™ i5-1145G7E
- Four 2.5 GbE LAN ports
- Multiple USB 3.2 Gen 2 (10Gb/s)
- Multiple isolated COM ports
- Modulized flexible expansion
- Support Mustang AI accelerator card

Specifications

Model		DRPC AIoT Dev. Kit
Form Factor	Dimensions	190x150x81 mm (DRPC-240AI-i5CS) 190x150x126 mm (DRPC-240AI-i5C)
	System Fan	DRPC-240AI-i5CS: fanless DRPC-240AI-i5C: with fan
Motherboard	CPU	Intel® Core™ i5-1145G7E 1.5 GHz (up to 4.1 GHz, quad core, TDP 12 ~ 28W)
	Chipset	SoC
	System Memory	2 x SO-DIMM DDR4 3200MHz (8GB pre-installed)
Storage	Hard Drive	1 x 2.5'' SATA 6Gb/s HDD/SSD bay (256GB SSD pre-installed)
I/O Interfaces	USB	2 x USB 3.2 Gen 2 2 x USB 2.0
	Ethernet	1 x RJ-45 PCIe 2.5 GbE by Intel® I225LM 3 x RJ-45 PCIe 2.5 GbE by Intel® I225V (colay i225LM) (Optional PoE at power board)
	COM	2 x RS-232 (DB9 with 2.5KV isolation) 2 x DB9 RS-422/485 with AFC (DB9 with 2.5KV isolation)
	DIO	1 x 12-bit digital I/O (6-in/6-out) (pin header)
	Display	1 x Lockable HDMI (up to 3840 x 2160 @ 30Hz) 1 x DP++ (up to 4096 x 2160 @ 60Hz)
	TPM 2.0	Support Intel PTT
Expansion Slots	M.2	1 x 2230 A-key (PCIex1/USB 2.0) 1 x 3042/52/80 B-key (PCIex2/USB 3.2 Gen1/USB 2.0) with sim slot
	Backplane	1 x PCIe Gen3 x4 (DRPC-240AI-i5C only)
Others	Indicator	2 x LED (HDD, Power)
	Button	1 x Power button 1 x Reset button 1 x AT/ATX switch 1 x Remote power connector
Power	Power Input	3-pin terminal block: 12 ~ 28 VDC
	Remote Power	2-pin terminal block
Reliability	Mounting	DIN-Rail
	Operating Temperature	-20°C ~ 70°C with air flow (SSD)
	Storage Temperature	-40°C ~ 85°C
	Humidity	10% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis
	Operating Vibration	MIL-STD-810G 514.6C-1 (with SSD)
	Weight	1.5 kg/ 2.9 kg (DRPC-240AI-i5CS) 1.9 kg/ 3.3 kg (DRPC-240AI-i5C)
	Safety/EMC	CE/ FCC
OS	Supported OS	Windows 10, Linux

Ordering Information

Part No.	Description
DRPC-240AI-i5C-R10	Fanless embedded system, Intel® Tiger Lake-U i5-1145G7E 1.5GHz (quad core), 8GB DDR4 pre-installed, HDMI/DP, 4 x 2.5GbE LAN, 4 x COM, DIO, 12~24VDC, 256GB SSD, 120W power adapter, PCIe x4 expansion layer, RoHS
DRPC-240AI-i5CS-R10	Fanless embedded system, Intel® Tiger Lake-U i5-1145G7E 1.5GHz (quad core), 8GB DDR4 pre-installed, HDMI/DP, 4 x 2.5GbE LAN, 4 x COM, DIO, 12~24VDC, 256GB SSD, 120W power adapter, RoHS

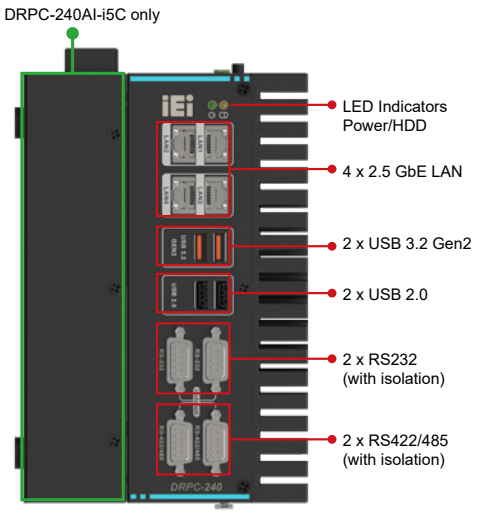
AI Accelerator Card Options

Part No.	Description
Mustang-V100-MX8-R10	Computing Accelerator Card with 8 x Movidius Myriad X MA2485 VPU, PCIe Gen2 x4 interface, RoHS

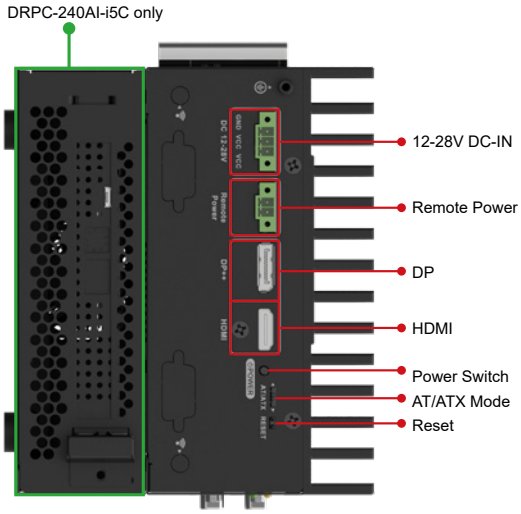
Packing List

1 x Chassis Screw	1 x DIN-rail Mounting Kit	1 x QSG
1 x 120W Adapter	1 x Power Cord	

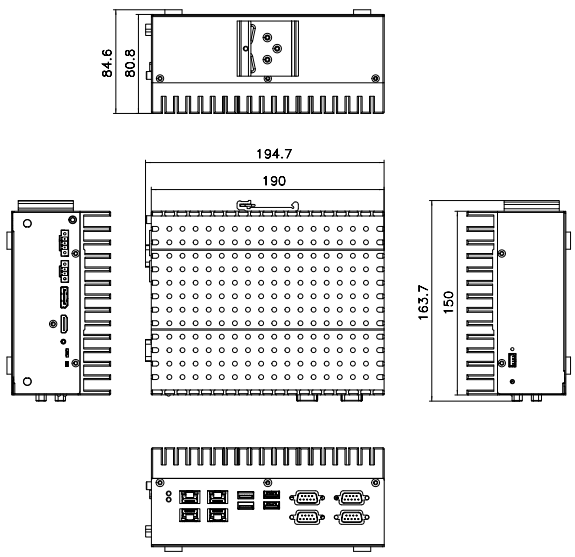
Front View



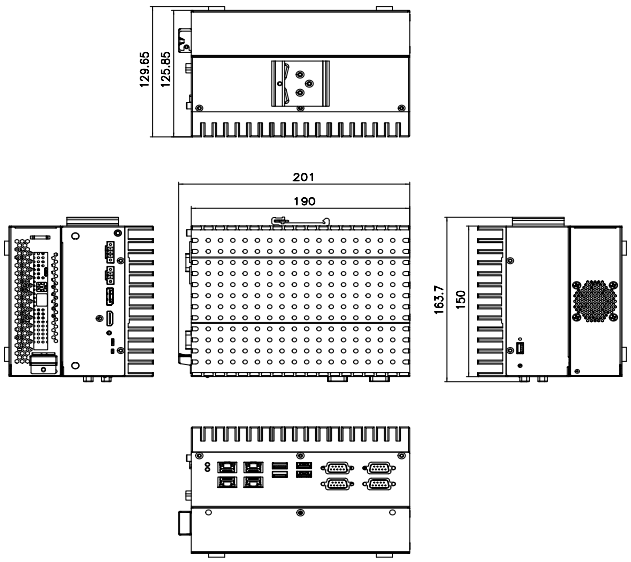
Rear View



DRPC-240AI-i5CS-R10 Dimensions (Unit: mm)



DRPC-240AI-i5C-R10 Dimensions (Unit: mm)



DRPC-230-ULT5

- Fanless DIN-Rail Embedded System
- Whiskey Lake 8th Intel® CoreTM Solution (up to 4 cores)

Features

- Intel® Core™ i5-8365UE/ Celeron™4205U
- Triple GbE LAN Ports
- Multiple USB 3.2 Gen 2 (10Gb/s)
- Multiple COM Ports
- Modulized Flexible Expansion

Specifications

Model		DRPC-230-ULT5-i5/S	DRPC-230-ULT5-i5	DRPC-230-ULT5-CS
Chassis	Color	Black & Silver		
	Dimensions (WxDxH)	81 x 150 x 190	127 x 150 x 190	81 x 150 x 190
	System Fan	Fanless		
	Chassis Construction	Extruded aluminum alloy		
Motherboard	CPU	Intel® Core™ i5-8365UE 1.6 GHz (up to 4.1 GHz, quad-core, TDP 15W)		Intel® Celeron™ 4205U 1.8 GHz (dual-core, TDP 15W)
	Chipset	SoC		
	System Memory	2 x SO-DIMM DDR4 2400 (8GB pre-installed)		
Storage	Hard Drive	1 x 2.5'' SATA 6Gb/s HDD/SSD bay		
I/O Interfaces	USB	6 x USB 3.2 Gen2		4 x USB 3.2 Gen2 / 2 x USB 2.0
	Ethernet	3 x RJ-45: 1 x GbE by Intel® I219 / 2 x GbE by Intel® I210		
	COM Port	4 x RS232/422/485 with AFC (DB9) 2 x RS232 (RJ-45)		
	Digital I/O	8-bit Digital I/O (4-in/ 4-out) (pin header)		
	Display	1 x HDMI (up to 3840 x 2160@30Hz) 1 x DP (up to 4096 x 2304@60Hz)		
	Wireless	1 x 802.11a/b/g/n/ac (optional)		
	TPM	1 x TPM 2.0 (2 x 10 pin)(optional)		
	Other	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 with SIM card slot (PCIe/USB 3.0/SATA)		
	M.2	1 x 2230 A-key (PCIe x 1/USB 2.0)		1 x 2230 A-key (PCIe x 1)
	Backplane	-	1 x PCIe Gen3 x 4, 1 x USB 2.0	-
Power	Power Input	Terminal block: 12 ~ 24V DC (Reserved internal 40W power with 12V DC output)		
	Power Consumption	12V @ 4.98A (Intel® CoreTM i5-8365UE with 8GB memory)		
Reliability	Mounting	DIN-Rail		
	Operating Temperature	-20°C ~ 70°C with air flow (SSD), 10% ~ 95% non-condensing*		
	Storage Temperature	-40°C ~ 85°C with air flow (SSD), 10% ~ 95% non-condensing		
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)		
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)		
	Weight (Net/Gross)	2.9KG/ 3.2KG	3.2KG/ 3.5KG	2.9KG/ 3.2KG
	Safety/EMC	CE/ FCC		
	Watchdog Timer	Programmable 1 ~ 255 sec/min		
OS	Supported OS	Microsoft® Windows 10, Linux		

*CPU does not throttle under 60°C

Ordering Information

Part No.	Description
DRPC-230-ULT5-i5/8G/S-R11	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-R11	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
DRPC-230-ULT5-C/8G/S-R11	Fanless embedded system, Intel® Whiskey Lake Celeron™ 4205U 1.8GHz (dual core, TDP 15W), 8GB DDR4 pre-installed memory, HDMI/DP, 3 PCIe GbE LAN, 6 COM, 12~24V DC and RoHS

Packing List

1 x Din-rail mounting kit
1 x Screw kit

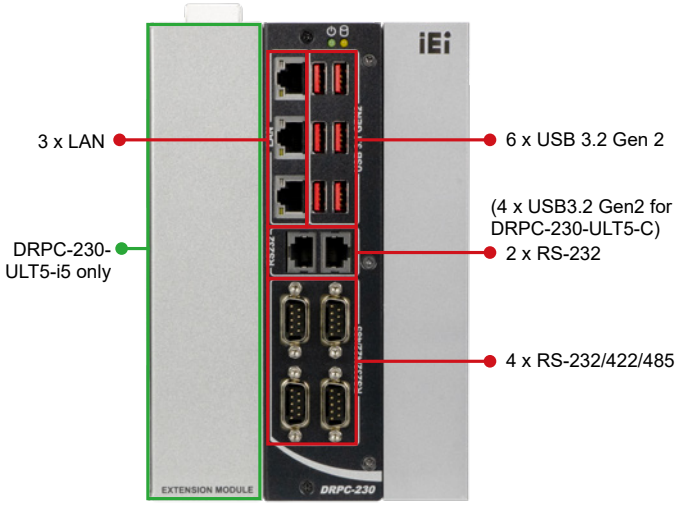
Options

Item	Part No.	Description
Adapter[1]	63040-010060-211-RS	Adapter Power;FSP;FSP060-DHAN3;9NA0608097;;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
Adapter[1/2]	63040-010096-230-RS	Adapter Power;FSP;FSP096-AHAN3;9NA0961412 ;Active PFC;Vin:90~264VAC;96W;Dim:75.6 x 151.3 x 25.4mm;Plug=7.5mm;Cable=1500mm;Erp(NO LOAD 0.15W);Vout:12VDC;Φ2.5/Φ5.5/lock;CCL;RoHS
Power cable[1]	32102-026500-100-RS	WIRE CABLE;POWER CABLE;;2;200MM;18AWG;(A)DC JACK 5.5 x 2.5, NUT+WASHER;(B)TERMINAL BLOCK:3P P=3.5;SHANGHAI YING YU;RoHS
Power cord	32000-000002-RS	European power cord
RJ-45 to D-SUB cable	32005-004600-200-RS	ROUND CABLE;RS-232/422/485;RS-232 CABLE;2;300MM;26AWG;(A) D-SUB 9P MALE+4#40 Screw;(B)RJ-45 8P8C PLUG, Iron+Sheathed;Wins Precision;RoHS
Wifi module[3]	27319-000009-RS	Wireless Lan Module;Wireless LAN & Bluetooth M.2 Module;Sparklan;R9701810011;IEEE802.11a/b/g/n/ac;2.412GHz~2.4835GHz, 5.15GHz~5.85GHz;M.2 2230;.;3.3V;22 x 30 x 2.15mm;QCNFA364A;QCA6174A-5;2x2 MIMO;Dual Band;WCBN808A-Q2;CCL;CCL;RoHS
Antenna[3]	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[3]	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
TPM Module	TPM-IN03-R10	20-pin Infineon SPI TPM 2.0 module, software mangement tool, firmware V7.63
System fan[4]	31100-000365-RS	FAN;+12V;4PIN;YEN SUN;40 x 40 x 10mm;6500RPM;TWO BALL BEARING;LINE LENGTH:150MM;3.4+/-0.1MM;FD124010HB;FD124010HB-NBG(2W7T);AXIAL FAN;WITH FRAME;6.599CFM;7~13.2V;29dB;75000hur; UL, CUL, TUV;CCL;RoHS
Accelerator cards[4]	Mustang-V100-MX8	Computing Accelerator Card with 8 x Movidius Myriad X MA2485 VPU, PCIe Gen2 x 4 interface, RoHS
	Mustang-V100-MX4	Computing Accelerator Card with 4 x Intel® Movidius™ Myriad™ X MA2485 VPU, PCIe Gen2 x 2 interface, RoHS
OS: Windows Embedded 10	DRPC-230-ULT5-W10E64-V-R10	OS Image with Windows® Embedded Standard 10 E Value 64-bit 2019 for DRPC-230-ULT5 Series, with DVD-ROM, RoHS

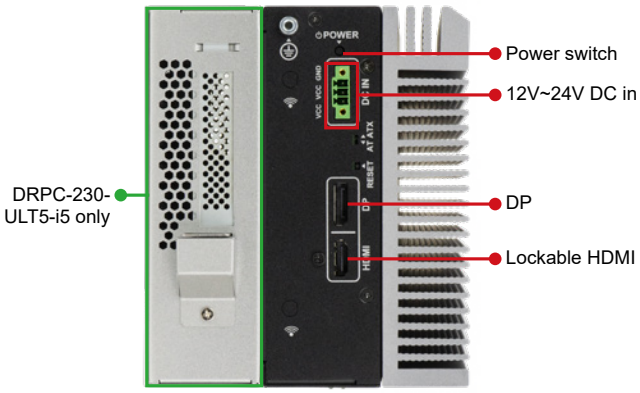
[1] It is required to order Power Cable together with Adapter for power usage
[2] Please select 96W adapter if intend to add accelerator cards
[3] Each Wi-Fi module needs two antennas and two RF cables to fully support Wi-Fi function
[4] Only applicable for DRPC-230-ULT5-i5/8G-R10

Fully Integrated I/O

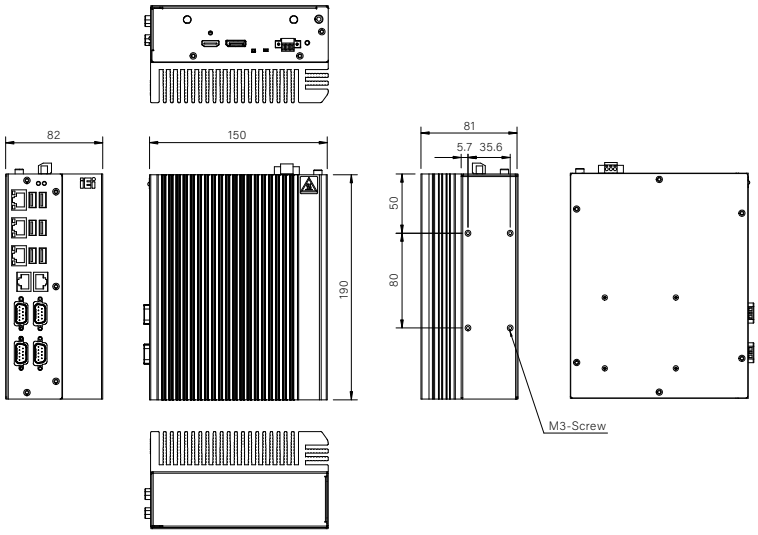
Front View



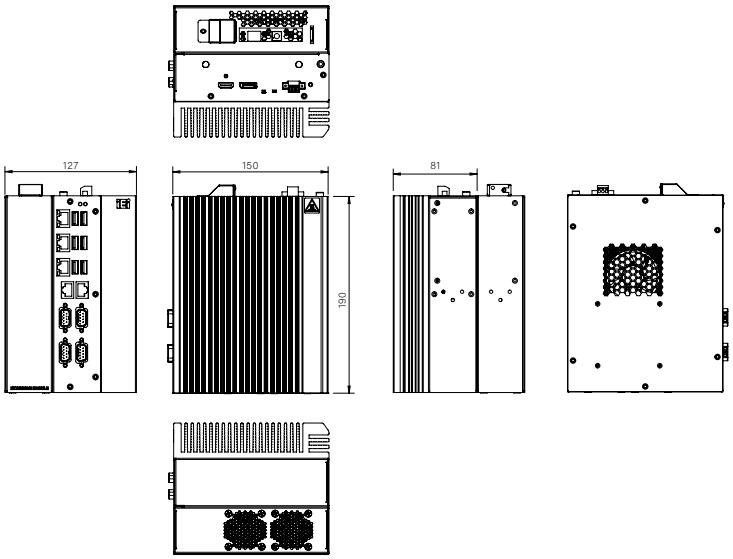
Top View



DRPC-230-ULT5-i5/S
DRPC-230-ULT5-C/S
Dimensions (Unit: mm)



DRPC-230-ULT5-i5
Dimensions (Unit: mm)



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

Intel® 8th/9th Xeon | 4K HDMI | ECC DDR4 | Native PCIe Gen. 3 | Gigabit Ethernet DUAL GBE | USB 3.2 Gen1

intel.

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, 6-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 8GB 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	1 x Removable 3.5” SATA 6Gb/s drive bay (hot-swappable)
	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)
	Expansion	1 x PCIe Gen3 x16 slot 1 x PCIe Gen3 x4 slot *To install dual-slot PCIe add-on cards (max. length 338mm), the CPU cooler must be changed (P/N: 19100-000238-00-RS).
Power	Power Input	ATX power (350W)
	PCIe Expansion Card (GPU/Add-on Cards) Recommendation	Total maximum up to 150W (80W CPU with 16GB memory, 350W ATX power) Total maximum up to 180W (35W CPU with 16GB memory, 350W ATX power)
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 / Windows 11, Linux

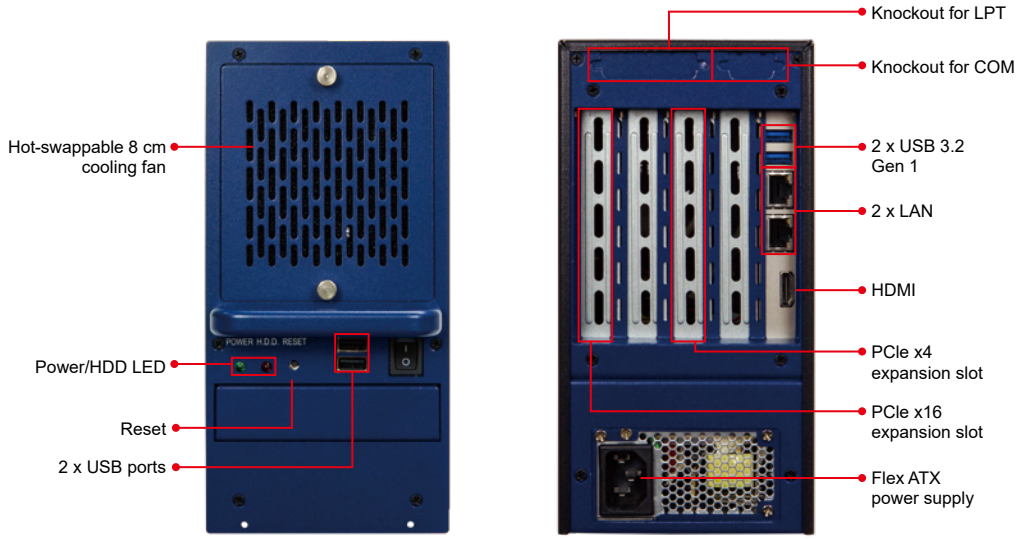
Ordering Information

Part No.	Description
RACK-500AI-C246-XE/16G/35-R10	5U AI System with Intel® Xeon® E-2176G CPU (3.70 GHz, 6-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-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	SATA power cable, 150mm; (A) MOLEX 8981-4M p=5.08; (B) two SATA 15P 180°; RoHS
32102-044900-100-RS	PCIe power cable, 100mm; (A) two MOLEX 8981-04M p=5.08; (B) TKP:H6657R1-06-B-03 p=4.2; RoHS
32102-011500-100-RS	CPU cooler kit, 105 x 67 x 12.1 mm; fan: 77 x 75 x 15.4 mm; 12V, 4P, 5500RPM; RoHS
19100-000238-00-RS	Power cable, 150mm; (A) two MOLEX 8981-04P p=5.08; (B) MOLEX 8981-04M p=5.08; RoHS
CA-950GB-R10	19” Rackmount Carrier for Rack-500G/RACK-900G/RACK-500AI

Fully Integrated I/O

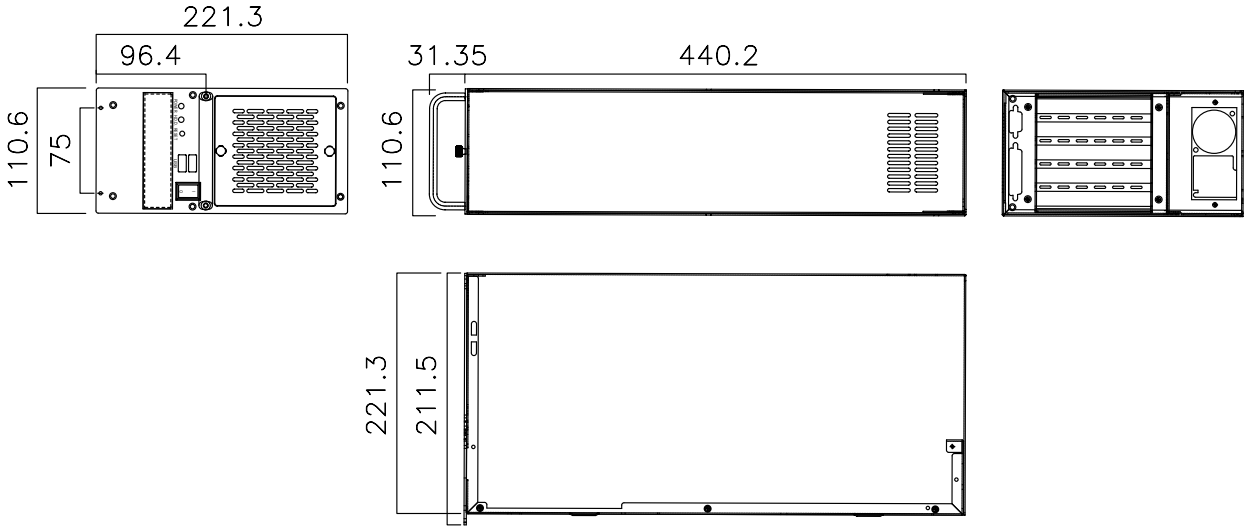


FDD and HDD are not included in package

CA-950GB-R10

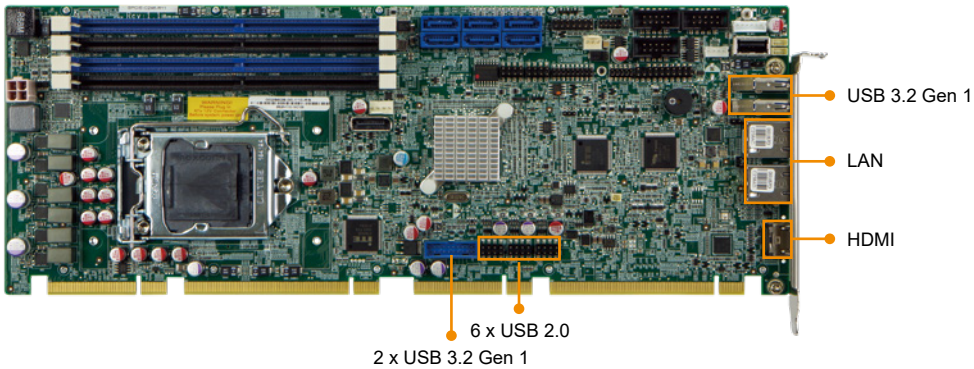
CA-950GB-R10
19" rack carrier can carry four RACK-500AI and fit into standard 19" width rack with 5U height.

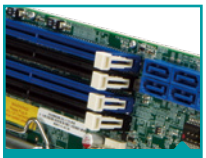
RACK-500AI-C246
Dimensions (Unit: mm)



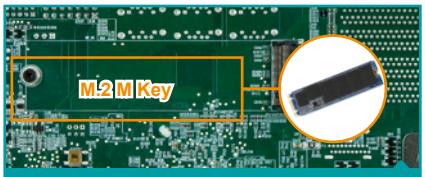
Single board computer in RACK-500AI (SPCIE-C246)

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

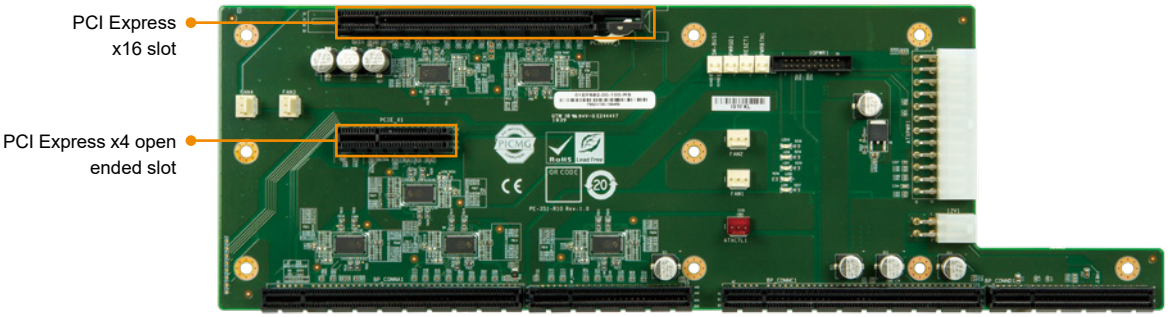
RAID 0, 1, 5, 10 function compatible with six ports of SATA 6Gb/s



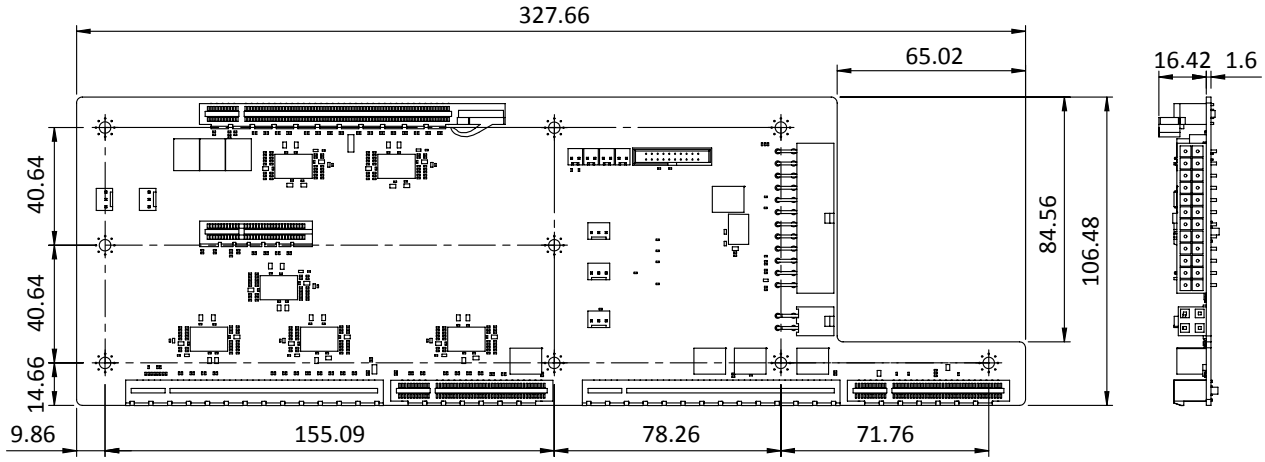
M.2 M key 2280 (PCIe x4)

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)



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

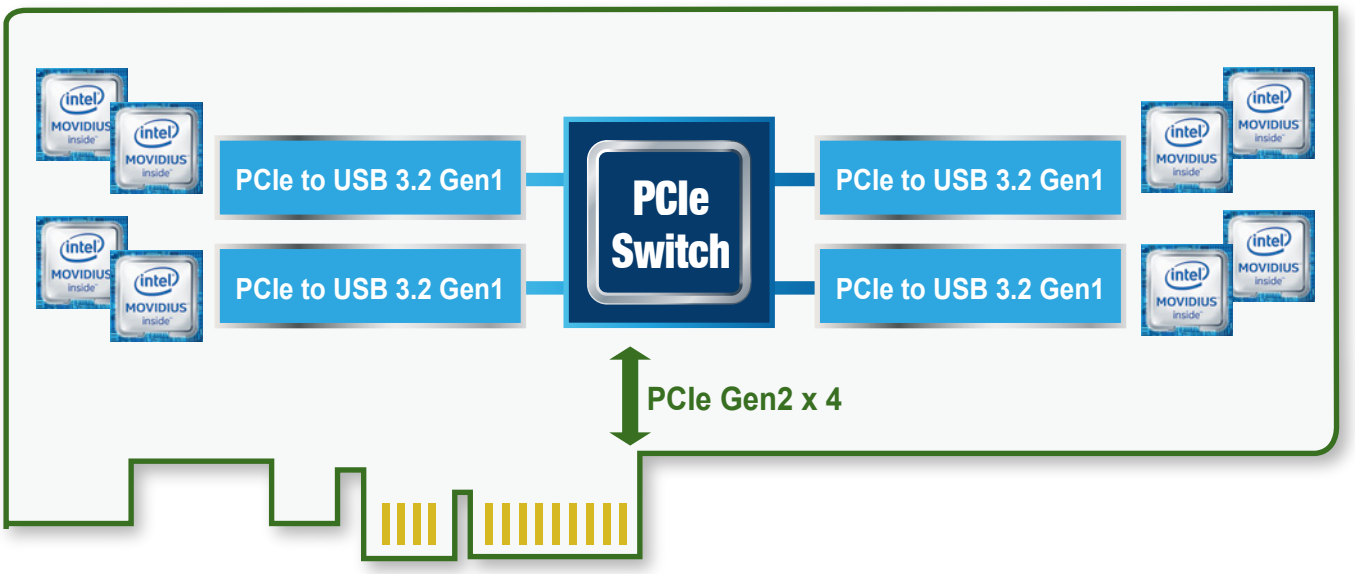
*TANK AIoT dev. kit PCIe slot provides 75W power, this feature is preserved for user in case of different system configuration.
Warning: DO NOT install the Mustang-V100-MX8 into the TANK AIoT Dev. Kit before shipment. It is recommended to ship them with their original boxes to prevent the Mustang-V100-MX8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

Ordering Information

Part No.	Description
Mustang-V100-MX8-R20	Computing Accelerator Card with 8 x Movidius Myriad X MA2485 VPU, PCIe Gen2 x4 interface, RoHS

Packing List

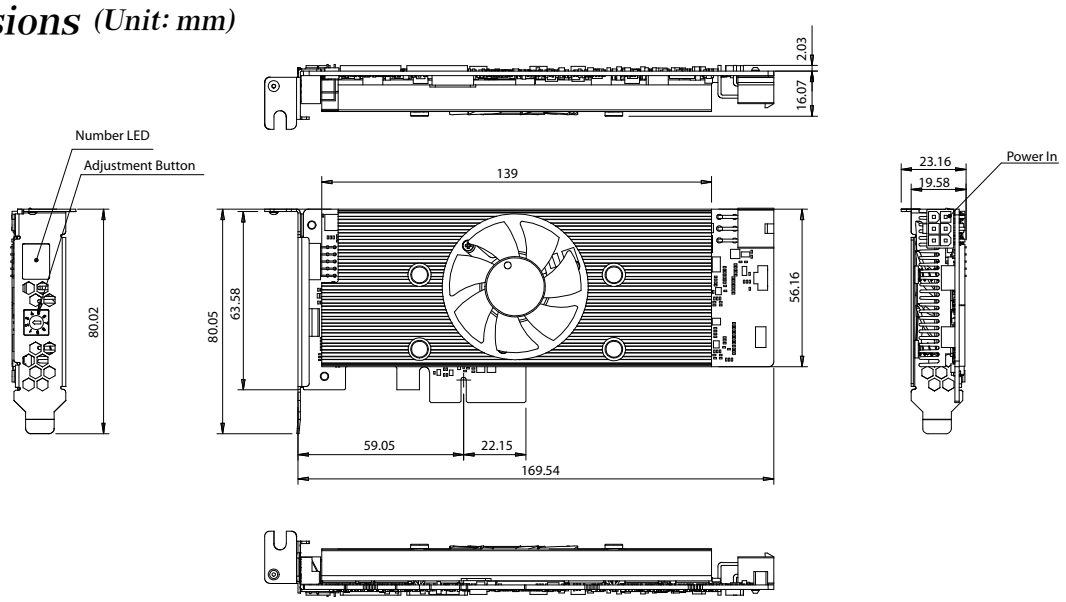
1 X Full height bracket
1 x External power cable
1 x QIG



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

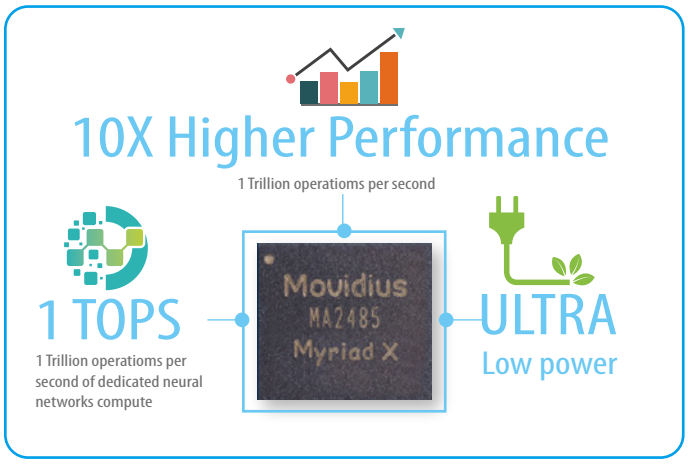
Part No.	Description
Mustang-V100-MX4-R10	Computing Accelerator Card with 4x Intel® Movidius™ Myriad™ X MA2485 VPU, PCIe Gen 2 x 2 interface, RoHS

Packing List

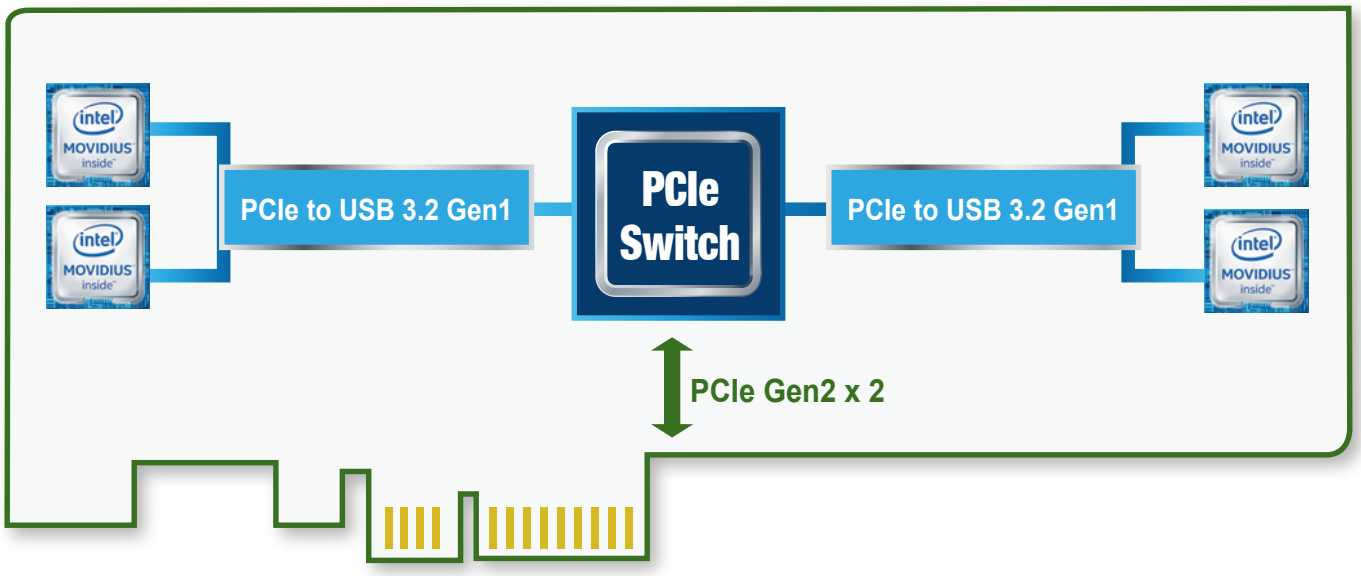
1 x Full height bracket

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

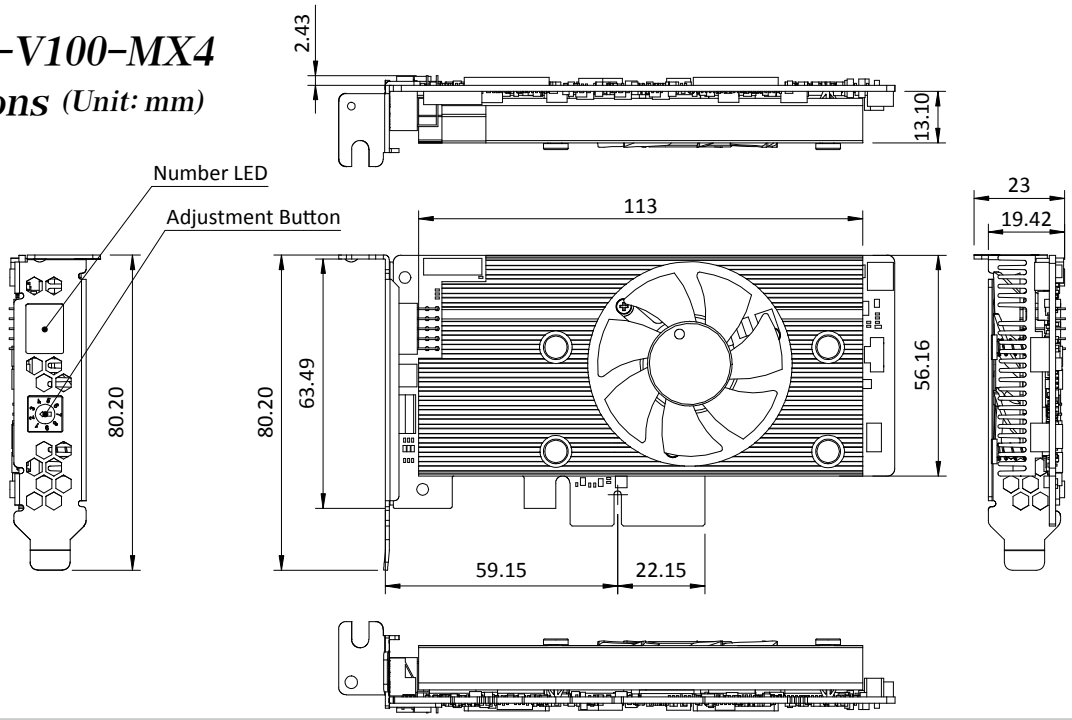
- Native FP16 support
- Rapidly port and deploy neural networks in Caffe and Tensorflow formats
- End-to-End acceleration for many common deep neural networks
- Industry-leading Inferences/S/Watt performance



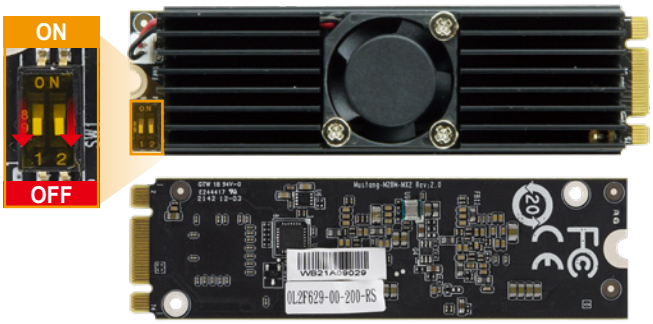
Mustang-V100-MX4 Block Diagram



Mustang-V100-MX4 Dimensions (Unit: mm)



Mustang-M2BM-MX2



Feature

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

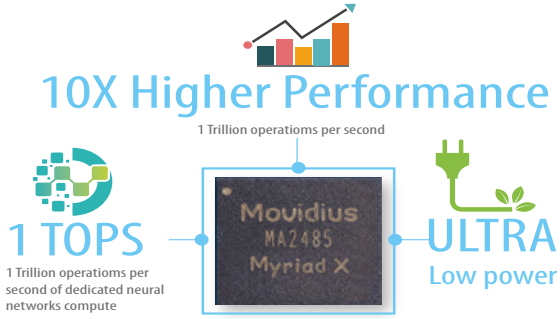
Introduction

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:

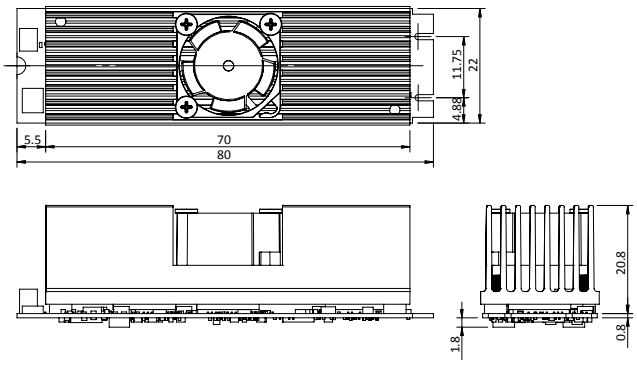
- Native FP16 support
- Rapidly port and deploy neural networks in Caffe and Tensorflow formats
- End-to-End acceleration for many common deep neural networks
- Industry-leading Inferences/S/Watt performance



Specifications

Model Name	Mustang-M2BM-MX2
Main Chip	2x Intel® Movidius™ Myriad™ X MA2485 VPU
Operating Systems	Ubuntu 18.04 LTS 64bit, CentOS 7.4 64bit, Windows® 10 64bit
Dataplane Interface	M.2 BM Key
Power Consumption	Approximate 7W
Operating Temperature	-20°C ~ 50°C (Tested in IEI FLEX-BX200)
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

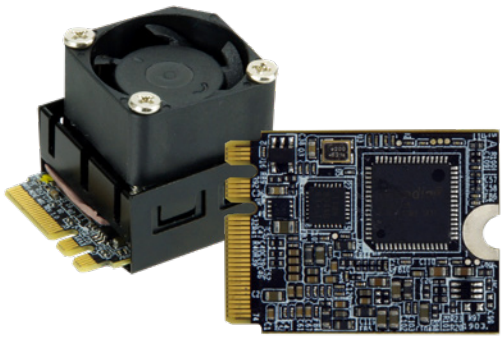
Dimensions (Unit: mm)



Ordering Information

Part No.	Description
Mustang-M2BM-MX2-R20	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-M2BM-MX2-NC-R20	Deep learning inference accelerating M.2 BM key card with 2 x Intel® Movidius™ Myriad™ X MA2485 VPU, M.2 interface 22mmx80mm, RoHS, with no cooling module

Mustang-M2AE-MX1



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

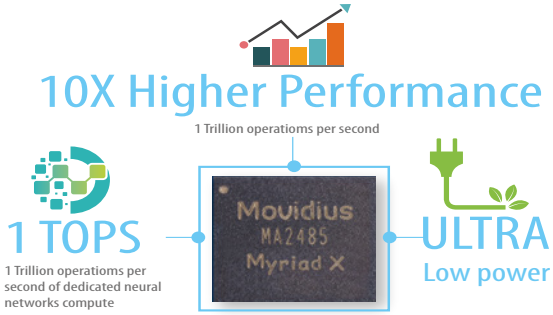
Introduction

The Mustang-M2AE-MX1M.2 AE-key card includes 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:

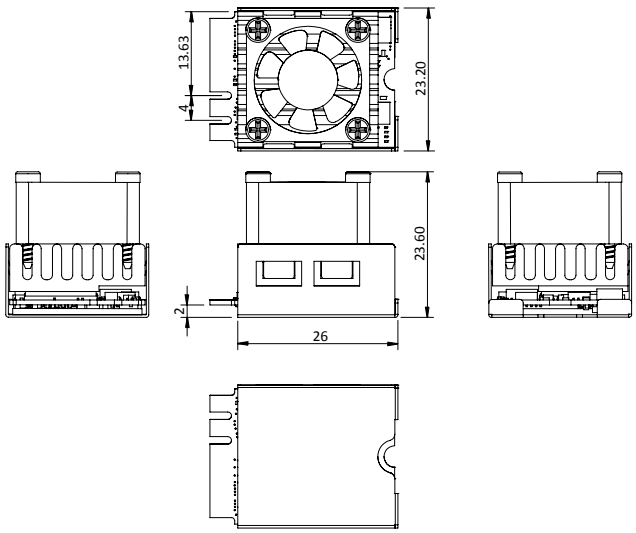
- Native FP16 support
- Rapidly port and deploy neural networks in Caffe and Tensorflow formats
- End-to-End acceleration for many common deep neural networks
- Industry-leading Inferences/S/Watt performance



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

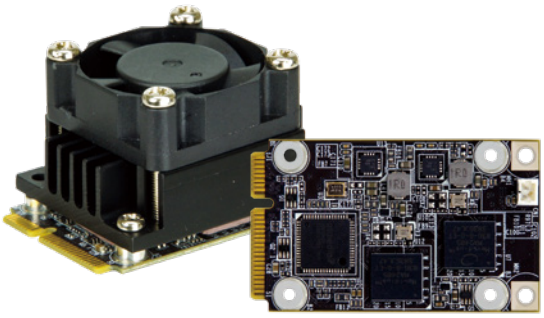
Dimensions (Unit: mm)



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-MPCIE-MX2



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

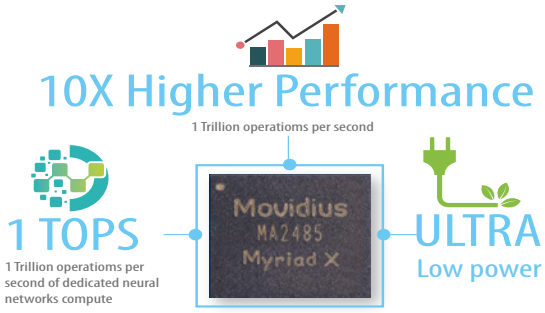
Introduction

The Mustang-MPCIE-MX2 card includes 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:

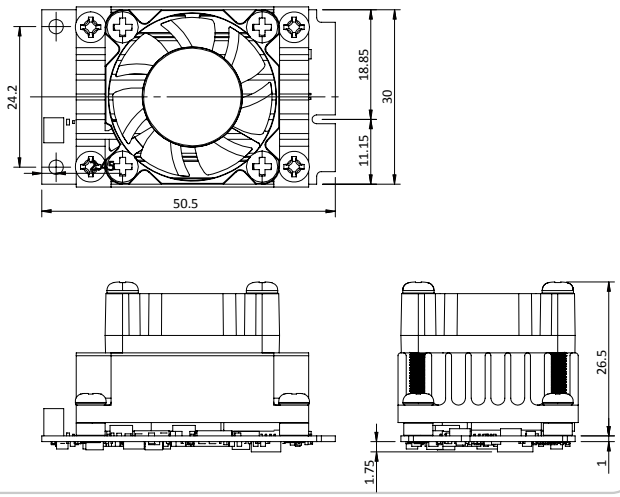
- Native FP16 support
- Rapidly port and deploy neural networks in Caffe and Tensorflow formats
- End-to-End acceleration for many common deep neural networks
- Industry-leading Inferences/S/Watt performance



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

Mustang-T100-T5

Feature

- 5 x Coral Edge TPU™ ML accelerator
- 20 TOPS peak performance (int8)
- Host interface PCIe Gen2 x4
- Low-profile PCIe form factor
- Support Multiple card
- Approximate 15W
- RoHS compliants

Specifications

Model Name	Mustang-T100-T5
Main Chip	Five Coral Edge TPU™ Accelerator Module
Operating Systems	Linux: 64-bit version of Debian 10 or Ubuntu 16.04 (or newer)
	Windows: 64-bit version of Windows 10
Dataplane Interface	PCI Express Gen2 x4
Power Consumption	Approximate 15W
Operating Temperature	-20°C~55°C
Cooling Solution	Active
Dimensions	Standard half-height, half-length, single-slot PCIe card
Dip Switch/LED indicator	Identify card number
Support Framwork	Tensorflow Lite
Precision	INT8

Ordering Information

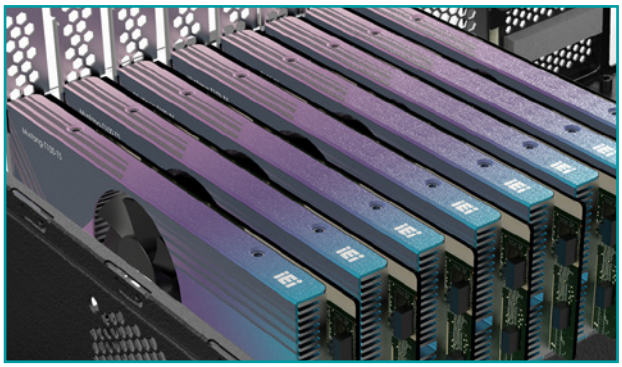
Part No.	Description
Mustang-T100-T5-R10	TPU Accelerator Card with 5 x Coral edge TPU, PCIe Gen2 x4 interface, RoHS

Packing List

1 x Full height bracket
1 x QIG

Scalable Infrastructure, Support Multiple Cards

You can install up to eight Mustang-T100 AI accelerator cards in one system to support additional AI workload and expand the AI computing capabilities in any requirement.

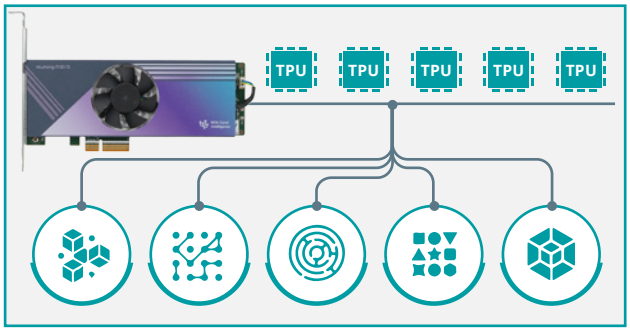


Multitasking or Pipelining, Select Your Inferencing Mode

For numerous AI applications at the edge, clients can select from two different modes to run your inferencing project depending on their needs.

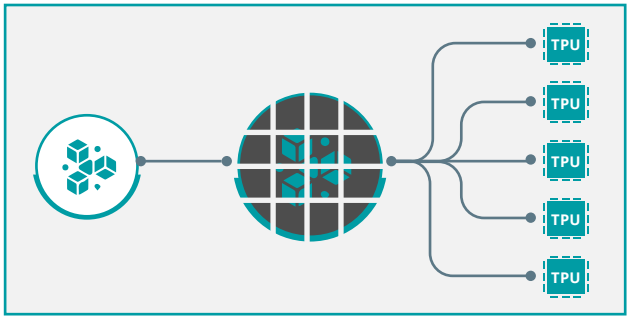
Multitasking function to run each model in parallel

If you need to run multiple models, you can assign each model to a specific Edge TPU and run them in parallel at the same time for extreme computing performance.



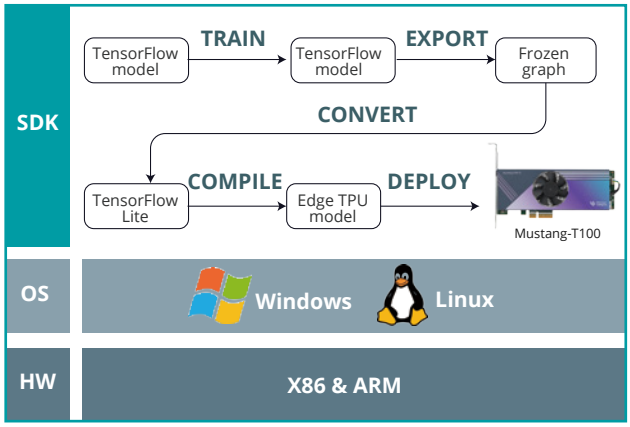
Model pipelining to get faster throughput and low latency

For other scenarios that require very fast throughput or large models, pipelining your model allows you to execute different segments of the same model on different Edge TPUs. This can improve throughput for high-speed applications and can reduce total latency for large models.



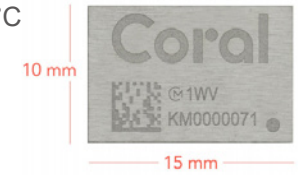
High Compatibility From The Start

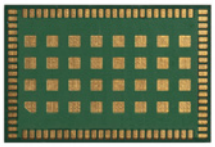
To support diverse needs from IT or AI developers, the Mustang-T100 can be implemented in various operating systems, such as Linux, X86, ARM, or small FF to accelerate and maximum edge AI performance. More, combined with TensorFlow Lite, no need to build ML training models from the ground up. TensorFlow Lite models can be compiled models to run on the Edge TPU completely.



Accelerator Module datasheet

- Coral Edge TPU™ ML accelerator: 4 TOPS peak performance (int8) / 2 TOPS per watt
- Integrated power management
- PCIe Gen2 x1 or USB 2.0 interface
- Surface-mounted (LGA) module
- Size: 15.0 x 10.0 x 1.5 mm
- **Support ARM (Linux) & X86(Windows & Linux)**
- Weight: 0.67 g
- Operating temp: -20°C~55°C
- RoHS compliant



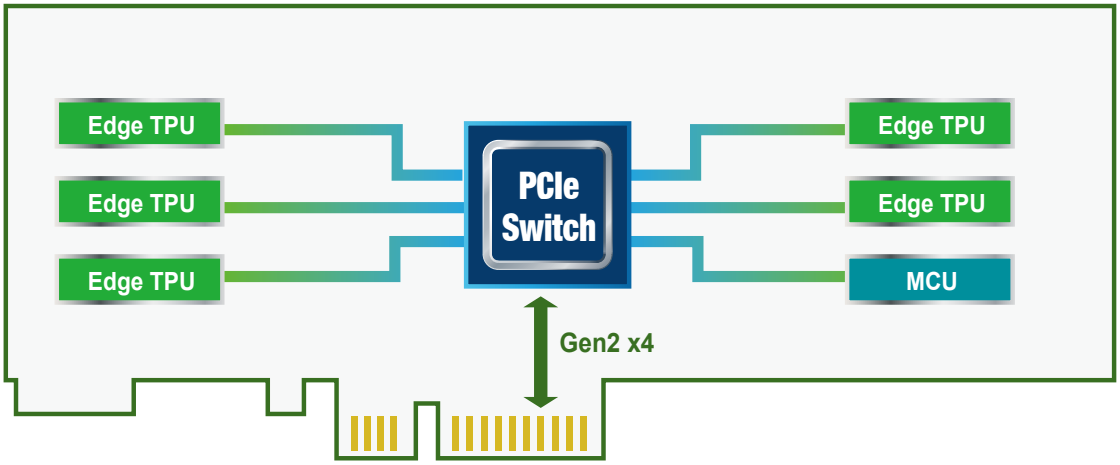


Introduction

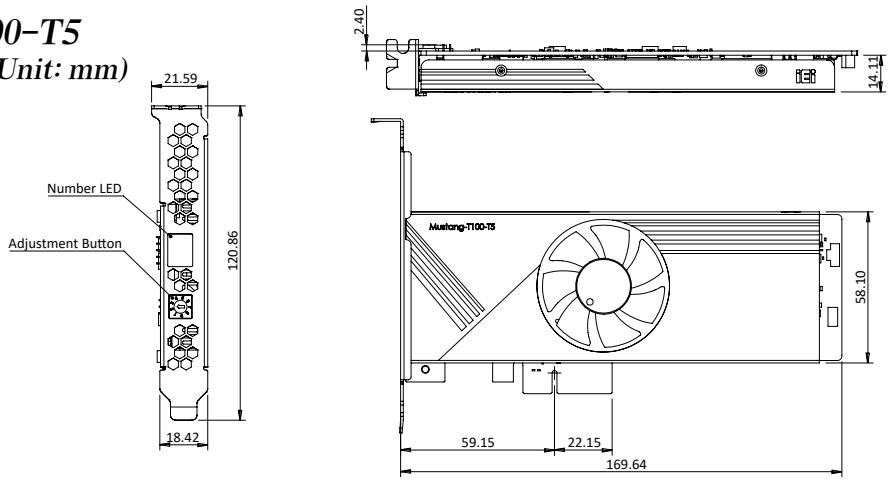
Coral is a hardware and software platform for building intelligent devices with fast neural network inferencing.
At the heart of our devices is the Edge TPU coprocessor. This is a small ASIC built by Google that's specially-designed to execute state-of-the-art neural networks at high speed, with a low power cost.

The Edge TPU is capable of performing 4 trillion operations (tera-operations) per second (TOPS), using 0.5 watts for each TOPS (2 TOPS per watt).

Mustang-T100-T5 Block Diagram



Mustang-T100-T5 Dimensions (Unit: mm)



PUZZLE Series Technology

4-Speed Multi-Gigabit

The PUZZLE solution is equipped with a high-performance Multi-Gig Ethernet controller, Marvell AQtion AQC111C 5GbE, to offer a seamless Multi-Gig upgrade path for network applications. The industry proven Marvell AQrate PHY technology delivers 5GbE network connectivity speed through 100 meters of the Cat 5e cabling. Therefore, end-users can easily maximize the benefit of the existing Cat 5e cabling.

Standard Cat 5e at 5 Gbps, 2.5 Gbps, 1 Gbps, 100 Mbps
Require no change to the existing infrastructure or cabling

	1 Gbps	2.5 Gbps	5 Gbps	10 Gbps
CAT 5e	✔	✔	✔	✘
CAT 6	✔	✔	✔	55m
CAT 6A	✔	✔	✔	✔

Up to 5X faster transfer speeds

up to **5X** FASTER than Gigabit port

1 Gbps

5 Gbps

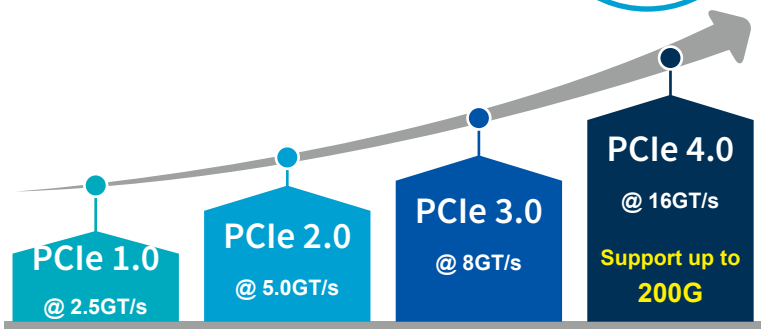
Backward compatible with 5GBASE-T / 2.5GBASE-T / 1000BASE-T / 100BASE-TX

- ✔ 5 Gbps
- ✔ 1 Gbps
- ✔ 2.5 Gbps
- ✔ 100 Mbps

PCI Express 4.0

PCI EXPRESS 4.0

- Higher performance storage (next generation NVME) with double the speed of PCIe 3.0
- Faster Ethernet capability to eliminate throughput bottlenecks for data intensive applications (100/200G NIC cards)
- FPGA/GPU accelerators to support emerging machine learning and deep learning workloads with uncompromised PCIe 4.0 bandwidth and lowest latency



Intel® Select Solutions for uCPE for CentOS/ADVA

CentOS

- NFV-based edge computing
- Optimized software
- Virtualized and non- virtualized services

NFVI Solution
ADVA Ensemble Connector

- Manageability and Operability
- Reducing costs
- Accelerating service provision

» PUZZLE-IN004

To support uCPE platforms, Intel® Select Solutions for uCPE provide a foundation for the development of uCPE products with a solution reference design and verification of performance.

Faster Evaluation

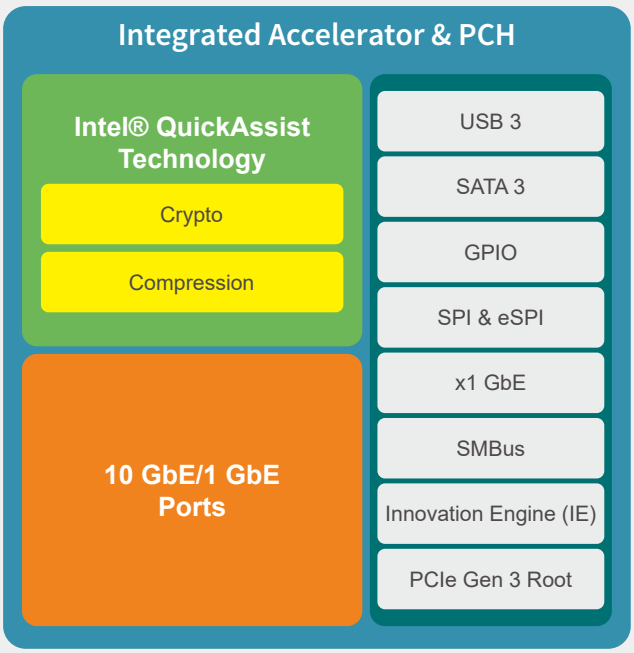
Fast and Easy Deployment

Workload-optimized Performance

Intel® QuickAssist Technology

Intel QuickAssist Technology (Intel® QAT) integrates hardware acceleration of compute intensive workloads, such as Bulk Cryptography, Public Key Exchange & Compression on Intel® Architecture Platforms.

- Intel's 3rd Generation Technology
- Sub Gb/s to 100 Gb/s Rates
- Networking, Storage, Big Data, Cloud, Datacenter, and HPC Applications Receive High Performance Execution of:
  - » Cryptographic Ciphers
  - » Authentication
  - » Public Key Exchange & Key Protection
  - » Compression/Decompression
- Enables Standard Server & Cloud Platforms to Offer Ubiquitous Security and Compression/ Decompression
- Provides a Converged Platform Architecture for Cloud, Networking, Storage & Big Data



Hot-swappable SSD & Redundant Power Supply

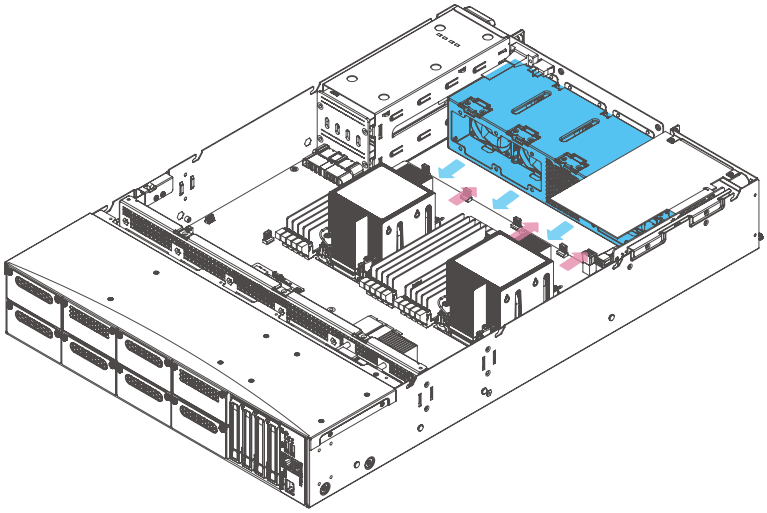
Hot-swappable SSD

High reliability design is a very important factor for network service. The hot-swap is desirable to change the configuration or repair a working system without interrupting its operation. The hot-swappable SSD and redundant power supply can provide infinitive service to avoid shutting down and restarting complex equipment, because it is essential for equipment to be continuously active.

Redundant Power Supply

The PUZZLE series contains two 300W power supply units for redundant power supply. Each power supply unit is capable of powering the entire computer so the computer runs with only one unit. If one fails, the other power supply starts running to maintain continuous operation.

Smart Fan Operation



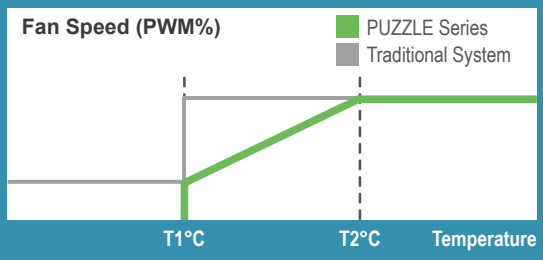
Users can define CPU fan and system fan speed and temperature profile in the BIOS menu. When the system is in idle or running less demanding tasks, smart fan is able to bring down the level of noise produced by rotating fans. The adjustable settings allow the PUZZLE series run with less noise while extending the fan's lifespan, enhancing system stability and durability.

PUZZLE Series

With fan speed and temperature trigger settings set, the fan speed can change seamlessly according to temperature readings.

Traditional System

Traditional system fan operation is detected by system's ON (fan at full speed) and OFF statuses.

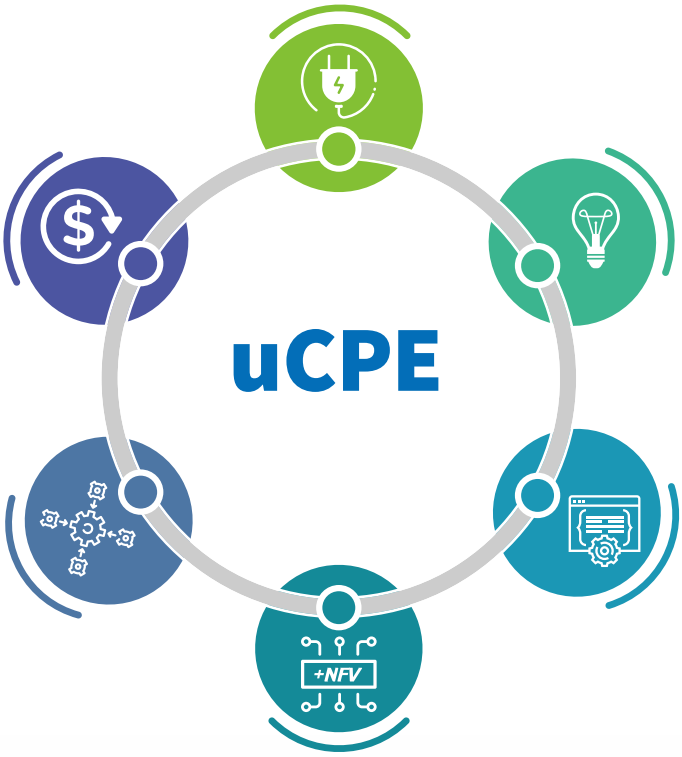


uCPE Solution (Universal Customer Premise Equipment)

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. Besides, with NFV orchestration, uCPE could serve as an edge computing system or an AI inference computing system.

Lower Power Consumption

uCPE can run several VNFs to build up a network enviroment instead of running several phycial network appliances. Running an uCPE can save engergy.



Lower CapEx & OpEx

Reduce the Consumption of CapEx and OpEx including for management time and effort, maintenance and contracts or software licensing etc.

Various Solutions

The true value of openness comes from being able to combine a mix of open source and proprietary software components to deliver an innovative service.

Standard Hardware

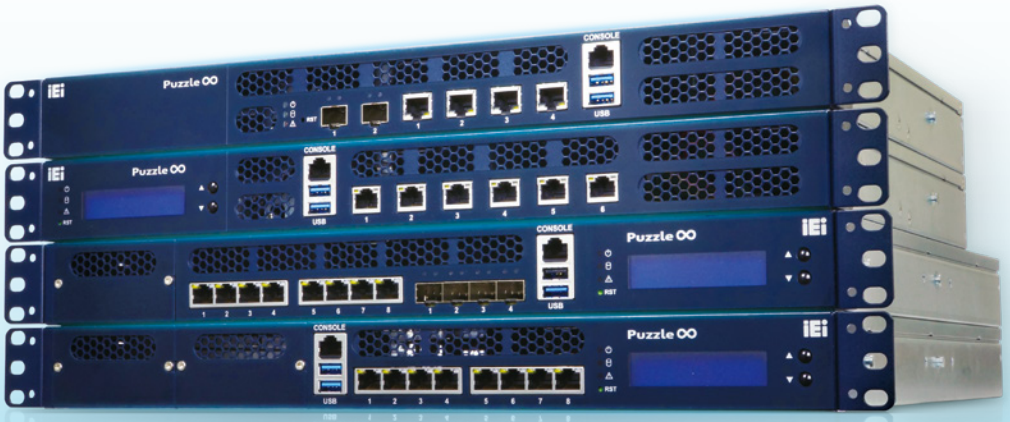
Service providers simplify customer site deployments by using a panoply of dedicated appliances with VNFs running on a single universal platform.

Open Source Software

Open source software reduces time to market and the risk of vendor lock-in.

Flexible

The uCPE helps service providers and their customers from suffering hardware vendor lock-in. It creates the flexibility of manageability through NFV.



Unmanned Parking Management System

Flexible Design with Slim Form Factor

Multiple Upgrade Options

Highly Compatible with Major Operating Systems

As a smart integrated parking service provider, the optimal system should solve the challenges, such as space limitation, multiple tasks and hard compatibility of software and hardware.

The PUZZLE can be used as a central parking management server with all the components connected to it for feeding their data back to the central server. With the space limitation of modulized parking system, it is an ideal networking appliance for this application because it has a height of only 1.75 inches, supports 1U rack mount and is equipped with powerful Intel® processor. It has high flexibility, capable of integrating server functions in one device through add-on cards or VPU cards. Moreover, it supports Linux and Windows operating system, so no matter what operating system you decide to use, the software applications are fully compatible with the hardware. That means fewer headaches, quicker development times, and more options.

Security and Surveillance

Easily Upgrade with PuIM Module

High Flexibility of PCIe Expansion

Uninterrupted 24-7 Service

Current video surveillance systems are generally too slow, provide inadequate video quality, and have limited expansion capabilities, impeding future expansion and upgrades.

The PUZZLE series is a high-speed, high-definition, and highly scalable hardware-integrated product that provides NVR, VMS, IPWALL and intelligent CCTV. It offers several easy add-ons, expansion options, and PuIM networking module slots that allow for the simple addition of an LCM display, or other bandwidth from 1GbE to 100GbE. By adding a PCIe expansion card, it could feature a graphics card or VPU for powerful AI video analysis. It also supports Intel® vPro® to provide powerful centralized management of networked computers and this reduces the number of times a technician has to physically go to the hardware, resulting in a 27% reduction in TCO. Beside, designed with redundant power supply and automated backup functions, it gives users uninterrupted 24-7 surveillance service. Hence, based on its slim form factor, it can be deigned as an pocket surveillance station to increase mobility, and easily deployed in anywhere anytime.

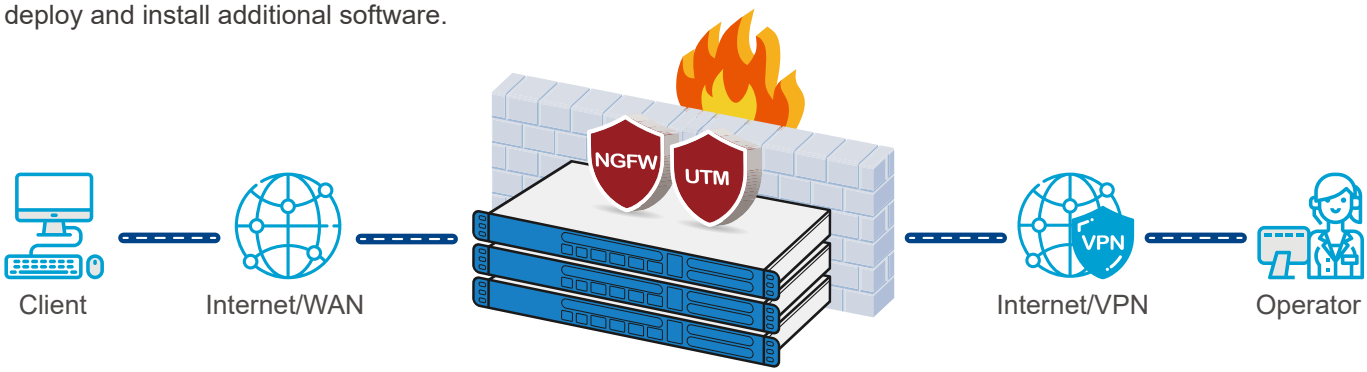
Next Generation Firewall

Easily Upgrade with PuIM Module

Higher Efficiency of Virtualization

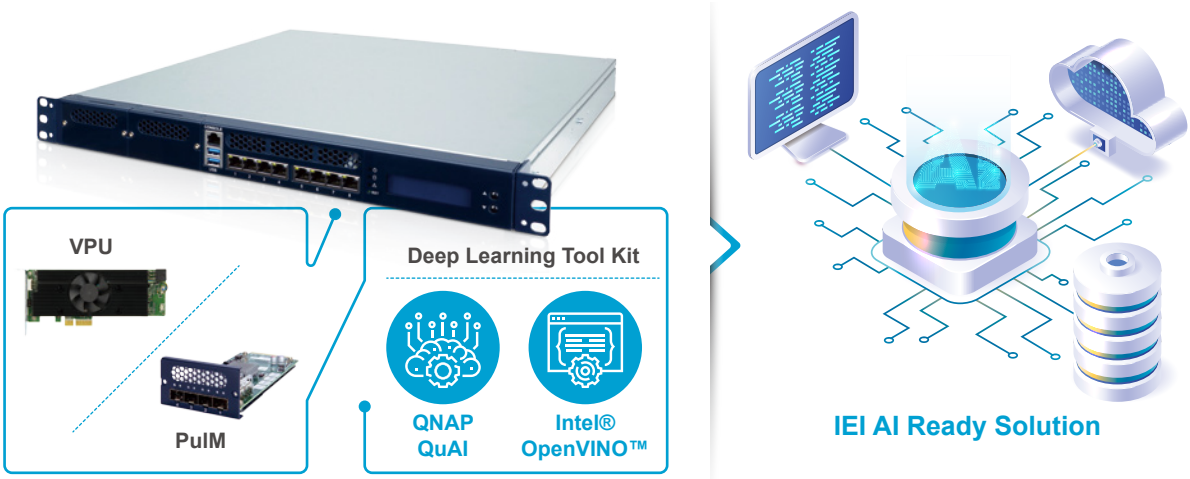
Linux-tested Software Compatibility

The traditional route of a dedicated firewall hardware appliance is too bulky and costly. The PUZZLE series is built with powerful Off-The-Shelf (OTS) networking computer parts, and customizable with PuIM network modules to provide a powerful hardware base for network appliance design. It features eight GbE ports as standard, with expansion options that include 1 Gb/s, 10 Gb/s, and 25 Gb/s network connections. It is designed and tested to support applications for virtual machines, virtualization, and containers such as Docker. Multiple isolated applications can be installed on a single hardware appliance. In addition, all hardware in the PUZZLE is verified to work with Linux (specifically Ubuntu), so users can leverage all the goodness of open-source software to quickly deploy and install additional software.



Network AI Solution - PUZZLE Dev. Kit

Puzzle Dev. Kit is an AI hardware ready system ideal for deep learning inference computing to enable faster, deeper insights for your customers and your business. It supports graphics cards, and Intel® FPGA and VPU acceleration cards to provide additional computational power and end-to-end solutions. Built-in with NVIDIA TensorRT, QNAP QuAI, or Intel® OpenVINO AI development toolkit, it is able to deploy your solutions faster than ever.



PUZZLE Series Selection Guide

		PUZZLE-IN005	PUZZLE-IN001	
			PUZZLE-IN001-XE	PUZZLE-IN001-i3T
Platform	Form Factor	2U	1U	
	CPU	Intel® Ice-Lake LGA-4189 Xeon® Scalable Processor	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® C627A	Intel® C246	
Memory	Memory Technology	DDR4 3200 MHz ECC RDIMM / LRDIMM	2 x DDR4 2400 MHz ECC/Non-ECC UDIMM	
	Memory Capacity	Up to 1280GB (20 x 64GB)	Up to 32GB	
	Memory Socket	20 x 288-pin DIMM	2 x 288-pin DIMM	
Network and Security	Network Acceleration and Security Function	• Intel® AES New Instructions • Intel® QuickAssist Technology (Intel® QAT) • Intel® Virtualization Technology (Intel® VT) • Intel® Trusted Execution Technology (Intel® TXT)	• 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	
IPMI	IPMI Solution	1 x iRIS-2400 module	N/A	
Networking	Ethernet IC	1 GbE NIC: Intel® i210-AT with NCSI support 1 GbE NIC: Intel® i219	1 GbE NIC: Intel® i211-AT	
	Ethernet Port	2 x 1GbE RJ-45 ports (1 x IPMI LAN)	8 x 1GbE RJ-45 LAN ports	
	Bypass	N/A	N/A	
	Network Module Slot	8 x Networking module slots	2 x PulM module slots	
Expansion Slot	PCIe Slot	1 x PCIe Gen 4 x8 (FHHL) slot (single width)	1 x PCIe 3.0 x8 (FHHL) slot, 1 x PCIe 3.0 x4 (FHHL) slots	
	PCIe Mini Card Slot	N/A	1 x PCIe Mini card (PCIe 3.0 & SATA 3.0, USB 2.0)	
	M.2	2 x M.2 M key 2280 Support PCIe Gen 3 x4 NVMe	1 x 3042/2260 M.2 B key (SATA 3.0 / USB 3.2 Gen 1) Support SATA SSD and 4G LTE module	
Storage	Storage	4 x U.2 SSD drive bay compatible to SATA	2 x 2.5" SATA HDD/SSD bay support SATA 3.0 (6 Gbps)	
	eMMC	N/A	N/A	
	SD Card	N/A	N/A	
External I/O	VGA	1 x VGA port	N/A	
	USB	2 x USB 3.2 Gen 1 (5Gb/s) Type-A ports	2 x USB 3.2 Gen 1	
	Console	1 x RJ-45 1 x USB Type-C	1 x RJ-45	
Internal I/O	HDMI	N/A	1 x HDMI connecter (optional)	
	USB	1 x USB 2.0 pin header	4 x USB 2.0 (pin header)	
Power and Mechanical	Power Switch	1 x Power Switch	1 x Power Switch	
	Reset Button	1 x Reset Button	1 x Reset Button	
	Power Input	100 V ~ 240 V	100 V ~ 240 V	
	Type/Watt	Redundant Power 1200W, 90V~264V AC	Redundant Power 300W, 90V~264V AC	
	Processor Cooling	2 x Active CPU Cooler	1 x Passive CPU Heatsink	
	System Cooling	5 x Cooling Fans with Smart Fan	4 x Cooling Fans with Smart Fan	
	Antenna Hole	N/A	1 x Antenna hole	
Physical and Environmental	Storage Temperature	-10°C ~ 50°C	-20°C ~ 75°C (-4°F ~ 167°F)	
	Operating Temperature	-20°C ~ 75°C (-4°F ~ 167°F)	0°C ~ 40°C (32°F ~ 104°F)	
	Operating Humidity	Relative humidity: 5% ~ 90% non-condensing	Relative humidity: 5% ~ 90% non-condensing	
	Dimensions (W x L x H) (mm)	438 x 650 x 88	430 x 426 x 44.2	
	Weight	23 kg	7 kg	
OS and Certifications	Certification	CE / FCC / RoHS	CE / FCC / RoHS	
	Operating System	Linux 18.04 (CentOS, Red Hat, Ubuntu, etc.) Windows Server 2019	Linux Ubuntu 18.04.04 CentOS 7 / Red Hat / Fedora EPEL Microsoft Windows 10	
Indicators	LCM	N/A	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	

PUZZLE Series Selection Guide

		PUZZLE-IN001A		PUZZLE-IN002	
		PUZZLE-IN001A-XE	PUZZLE-IN001A-i3T	PUZZLE-IN002-i3T	PUZZLE-IN002-PGT
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	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® C246		Intel® H310	
Memory	Memory Technology	4 x DDR4 2400 MHz ECC/Non-ECC UDIMM		DDR4 2400 MHz Non-ECC UDIMM	
	Memory Capacity	Up to 64GB		Up to 32GB	
	Memory Socket	4 x 288-pin DIMM		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		• 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	
IPMI	IPMI Solution	N/A		N/A	
Networking	Ethernet IC	5GbE NIC: AQC 111C		1 GbE NIC: Intel® i211-AT	
	Ethernet Port	8 x 5GbE RJ-45 LAN ports		6 x 1GbE RJ-45 LAN ports	
	Bypass	N/A		N/A	
	Network Module Slot	2 x PulM module slots		N/A	
Expansion Slot	PCIe Slot	1 x PCIe 3.0 x8 (FHHL) slot 1 x PCIe 3.0 x4 (FHHL) slots		1 x PCIe 3.0 x16 (FHHL) slot (double width)	
	PCIe Mini Card Slot	1 x PCIe Mini card (PCIe 3.0 & SATA 3.0, USB 2.0)		1 x PCIe Mini card (SATA 3.0, USB 2.0) with SIM slot	
	M.2	1 x 3042/2260 M.2 B key (SATA 3.0 / USB 3.2 Gen 1) Support SATA SSD and 4G LTE module		1 x M.2 A key (PCIe 2.0 & USB 2.0)	
Storage	Storage	2 x 2.5" SATA HDD/SSD bay support SATA 3.0 (6 Gbps)		2 x 2.5" SATA HDD/SSD bay support SATA 3.0 (6 Gbps)	
	eMMC	N/A		N/A	
	SD Card	N/A		N/A	
External I/O	VGA	N/A		N/A	
	USB	2 x USB 3.2 Gen 1		2 x USB 3.2 Gen 1	
	Console	1 x RJ-45		1 x RJ-45	
Internal I/O	HDMI	1 x HDMI connecter (optional)		1 x HDMI connecter (optional)	
	USB	4 x USB 2.0 (pin header)		2 x USB 2.0 (pin header)	
Power and Mechanical	Power Switch	1 x Power Switch		1 x Power Switch	
	Reset Button	1 x Reset Button		1 x Reset Button	
	Power Input	100 V ~ 240 V		100 V ~ 240 V	
	Type/Watt	Redundant Power 300W, 90V ~ 264V AC		ATX Power 250W, 90V ~ 264V AC	
	Processor Cooling	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	
	Antenna Hole	1 x Antenna hole		1 x Antenna hole	
Physical and Environmental	Storage Temperature	-20°C ~ 75°C (-4°F ~ 167°F)		-20°C ~ 75°C (-4°F ~ 167°F)	
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)		0°C ~ 40°C (32°F ~ 104°F)	
	Operating Humidity	Relative humidity: 5% ~ 90% non-condensing		Relative humidity: 5% ~ 90% non-condensing	
	Dimensions (W x L x H) (mm)	430 x 426 x 44.2		430 x 320 x 44.2	
	Weight	7 kg		5 kg	
OS and Certifications	Certification	CE / FCC / RoHS		CE / FCC / RoHS	
	Operating System	Linux Ubuntu 18.04.04 CentOS 7 / Red Hat / Fedora EPEL Microsoft Windows 10		Linux Ubuntu 18.04.04 CentOS 7 / Red Hat / Fedora EPEL Microsoft Windows 10	
Indicators	LCM	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	

PUZZLE Series Selection Guide

		PUZZLE-IN003A		PUZZLE-IN003B	
		PUZZLE-IN003A-C1	PUZZLE-IN003A-C3	PUZZLE-IN003B-C0	PUZZLE-IN003B-C1
Platform	Form Factor	Desktop			
	CPU	Intel® Atom® processor C3558 8M cache, up to 2.20 GHz	Intel® Atom® Processor C3336 4M Cache, 1.50 GHz	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		Integrated in CPU	
Memory	Memory Technology	DDR4 2133 MHz ECC (By CPU) or non-ECC UDIMM, Support DDR4 RDIMM		DDR4 2133 MHz ECC (By CPU) or non-ECC UDIMM, Support DDR4 RDIMM	
	Memory Capacity	UDIMM up to 64GB RDIMM up to 128GB		UDIMM up to 64GB RDIMM up to 128GB	
	Memory Socket	2 x 288-pin DIMM	1 x 288-pin DIMM	4 x 288-pin DIMM	
Network and Security	Network Acceleration and Security Function	• 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® Virtualization Technology for Directed I/O (VT-d) • Intel® Virtualization Technology (VT-x) • Intel® QuickAssist Technology (Intel® QAT)	• 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		1 x TPM 2.0 pin header	
IPMI	IPMI Solution	N/A		N/A	
Networking	Ethernet IC	1 GbE NIC: Intel® i211-AT 1 GbE PHY: Marvell 88E1543		1 GbE NIC: Intel® i211-AT 1 GbE PHY: Marvell 88E1512 10 GbE: Intel® X553 integrated in CPU	
	Ethernet Port	4 x GbE from Intel® i211-AT 4 x GbE from Marvell 88E1543	4 x GbE from Intel® i211-AT 2 x GbE from Marvell 88E1543	4 x 1GbE from Intel® i211-AT 2 x 1GbE from Marvell 88E1512 2 x 10 GbE SFP+	
	Bypass	Yes, 2 bypass segments	Yes, 1 bypass segments	N/A	
	Network Module Slot	N/A		N/A	
Expansion Slot	PCIe Slot	N/A		N/A	
	PCIe Mini Card Slot	1 x PCIe Mini card (PCIe 3.0, USB 2.0) with SIM slot		1 x PCIe Mini card (PCIe 3.0, USB 2.0) with SIM slot	
	M.2	1 x M.2 A key (PCIe 3.0 & USB 2.0)		1 x M.2 A key (PCIe 3.0 & USB 2.0)	
Storage	Storage	1 x SATA 3.0 + 1 x 5V power connector (for SATA DOM) 1 x M.2 M key 2260/2280 Support PCIe 3.0 x4 nVME		1 x SATA 3.0 + 1 x 5V power connector (for SATA DOM) 1 x M.2 M key 2260/2280 Support PCIe 3.0 x4 nVME	
	eMMC	1 x eMMC 32GB		1 x eMMC 32GB	
	SD Card	N/A		N/A	
External I/O	VGA	N/A		N/A	
	USB	1 x USB 2.0 1 x USB 3.2 Gen 1		1 x USB 2.0 1 x USB 3.2 Gen 1	
	Console	1 x RJ-45		1 x RJ-45	
Internal I/O	HDMI	N/A		N/A	
	USB	N/A		N/A	
Power and Mechanical	Power Switch	1 x Power Switch		1 x Power Switch	
	Reset Button	1 x Reset Button		1 x Reset Button	
	Power Input	1 x DC jack		1 x DC jack	
	Type/Watt	12 V DC-in, 60W		12 V DC-in, 60W	
	Processor Cooling	Passive CPU heatsink		Passive CPU heatsink	
	System Cooling	Fanless		Two system fans Fanless	
	Antenna Hole	2 x Antenna hole		2 x Antenna hole	
Physical and Environmental	Storage Temperature	-20°C ~ 75°C (-4°F ~ 167°F)		-20°C ~ 75°C (-4°F ~ 167°F)	
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)		0°C ~ 40°C (32°F ~ 104°F)	
	Operating Humidity	Relative humidity: 5%~90% non-condensing		Relative humidity: 5%~90% non-condensing	
	Dimensions (W x L x H) (mm)	225 x 206 x 44.2		225 x 206 x 44.2	
	Weight	2 kg		2 kg	
OS and Certifications	Certification	CE / FCC / RoHS		CE / FCC / RoHS	
	Operating System	Linux Ubuntu 18.04.04 CentOS 7 / Red Hat / Fedora EPEL Microsoft Windows 10		Linux Ubuntu 18.04.04 CentOS 7 / Red Hat / Fedora EPEL Microsoft Windows 10	
Indicators	LCM	N/A		N/A	
	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-IN004				
		PUZZLE-IN004-XD1	PUZZLE-IN004-XD2	PUZZLE-IN004-XD3	PUZZLE-IN004-XD4	PUZZLE-IN004-XD5
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-2177NT Processor 14-core, 19.25M Cache, 1.90 GHz	Intel® Xeon® D-2187NT processor 16-core, 22M cache, 2.00 GHz
	Chipset	Integrated in CPU				
Memory	Memory Technology	DDR4 2133/2400 MHz ECC DDR4 RDIMM/LRDIMM				
	Memory Capacity	RDIMM up to 256 GB LRDIMM up to 512 GB				
	Memory Socket	8 x 288-pin DIMM				
Network and Security	Network Acceleration and Security Function	• Intel® AES New Instructions • Intel® QuickAssist Technology (Intel® QAT) • Intel® Virtualization Technology (Intel® VT) • Intel® Trusted Execution Technology (Intel® TXT)				
	TPM	1 x TPM 2.0 pin header				
IPMI	IPMI Solution	N/A				
Networking	Ethernet IC	1 GbE NIC: Intel® i211-AT 10 GbE: Intel® X722 integrated in CPU				
	Ethernet Port	8 x 1GbE RJ-45 LAN ports 4 x 10 GbE SFP+				
	Bypass	N/A				
	Network Module Slot	1 x PulM module slot				
Expansion Slot	PCIe Slot	1 x PCIe 3.0 x8 (FHHL) slot (double width)				
	PCIe Mini Card Slot	1 x PCIe Mini (PCIe +USB 2.0) with SIM card				
	M.2	1 x M.2 M key 2260/2280 Support PCIe 3.0 x4 nVME				
Storage	Storage	2 x 2.5" SATA HDD/SSD bay support SATA 3.0 (6 Gbps)				
	eMMC	N/A				
	SD Card	N/A				
External I/O	VGA	N/A				
	USB	1 x USB 2.0 1 x USB 3.2 Gen 1				
	Console	1 x RJ-45				
Internal I/O	HDMI	N/A				
	USB	N/A				
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 Hole	1 x Antenna hole				
Physical and Environmental	Storage Temperature	-20°C ~ 75°C (-4°F ~ 167°F)				
	Operating Temperature	0°C ~ 40°C (32°F ~ 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 / RoHS				
	Operating System	Linux Ubuntu 18.04.04 CentOS 7 / Red Hat / Fedora EPEL Microsoft Windows 10				
Indicators	LCM	LCM, 2 buttons				
	LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED				

PUZZLE Series Selection Guide

		PUZZLE-M801	PUZZLE-M901	PUZZLE-M902
Platform	Form Factor	1U	N/A	N/A
	CPU	Marvell® ARMADA® 88F8040 High-Performance CPU System on Chip, 4C, 2.0GHz	Marvell® CN9130 quad-core ARMv8 Cortex-A72 @ up to 2200 MHz	
	Chipset	Integrated in CPU	Integrated in CPU	Integrated in CPU
Memory	Memory Technology	DDR4 2400 MHz ECC/Non-ECC/RDIMM	N/A	N/A
	Memory Capacity	Up to 16 GB	4GB	4GB
	Memory Socket	1 x 288-pin DIMM	N/A	N/A
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	N/A	N/A
	TPM	N/A	N/A	N/A
IPMI	IPMI Solution	N/A	N/A	N/A
Networking	Ethernet IC	10 GbE PHY: SoC Marvell 88F8040 1 GbE PHY: Marvell 88E1512P	Aquantia AQR112R Aquantia AQR112C Aquantia AQR112	Aquantia AQR112R Aquantia AQR113
	Ethernet Port	4 x 1GbE RJ-45 LAN ports 2 x 10 GbE SFP+	1 x 2.5GbE LAN integrated in CPU via PHY Aquantia AQR112R 1 x 2.5GbE LAN integrated in CPU via PHY Aquantia AQR112C 1 x 2.5GbE LAN integrated in CPU via PHY Aquantia AQR112 1 x 2.5GbE LAN via Marvell 88F8215 (PHY: Aquantia AQR112R) 1 x 2.5GbE LAN via Marvell 88F8215 (PHY: Aquantia AQR112C) 1 x 2.5GbE LAN via Marvell 88F8215 (PHY: Aquantia AQR112)	2 x 2.5GbE LAN integrated in CPU via PHY Aquantia AQR112R 4 x 2.5GbE LAN via Marvell 88F8215 (PHY: Aquantia AQR112R) 1 x 10GbE LAN integrated in CPU via PHY Aquantia AQR113 2 x 10GbE LAN via Marvell 88F8215 (PHY: Aquantia AQR113)
	Bypass	N/A	N/A	N/A
	Network Module Slot	N/A	N/A	N/A
Expansion Slot	PCIe Slot	1 x PCIe x16 (FHHL) slot PCIe 3.0 x2 signal	N/A	N/A
	PCIe Mini Card Slot	N/A	N/A	N/A
	M.2	1 x M.2 B Key (3042/2260) (SATA 3.0 and USB 3.2 Gen 1) Support SATA SSD or 4G LTE module (USB signal)	1 x 2242 M key M.2 PCIe Gen. 3 x2	1 x 2242/2280 M Key M.2 PCIe Gen. 3 x1
Storage	Storage	1 x 2.5" SATA HDD/SSD bay support SATA 3.0 (6 Gbps)	N/A	N/A
	eMMC	32GB	1 x 4GB eMMC	1 x 4GB eMMC
	SD Card	N/A	N/A	N/A
External I/O	VGA	N/A	N/A	N/A
	USB	2 x USB 3.2 Gen 1	N/A	USB 3.2 Gen 1 (5Gb/s)
	Console	1 x RJ-45	N/A	N/A
Internal I/O	HDMI	N/A	N/A	N/A
	USB	1 x USB 2.0	USB 3.2 Gen 1 (5Gb/s)	N/A
Power and Mechanical	Power Switch	1 x Power Switch	N/A	N/A
	Reset Button	1 x Reset Button	1 x Reset Factory Button	1 x Reset Factory Button
	Power Input	100 V ~ 240 V	1 x DC jack	1 x DC jack
	Type/Watt	ATX Power 250W, 90V ~ 264V AC	12 V DC-in, 36W	12 V DC-in, 36W
	Processor Cooling	1 x Active CPU Heatsink with fan	Passive CPU Heatsink	Passive CPU Heatsink
	System Cooling	2 x Cooling Fans with Smart Fan	Active Fan	1 system fan
	Antenna Hole	1 x Antenna hole	N/A	N/A
Physical and Environmental	Storage Temperature	-20°C ~ 75°C (-4°F ~ 167°F)	-20°C ~ 75°C (-4°F ~ 167°F)	
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	
	Operating Humidity	Relative humidity: 5% ~ 90% non-condensing	Relative humidity: 5% ~ 90% noncondensing	
	Dimensions (W x L x H) (mm)	430 x 320 x 44.2	166.4 x 145.7 x 34	226 x 140 x 50.5
	Weight	5 kg		
OS and Certifications	Certification	CE / FCC / RoHS	CE/FCC/BSMI (BSMI safety)/VCCI, LVD	
	Operating System	Linux Ubuntu 16.04.04	OpenWrt	
Indicators	LCM	N/A	N/A	N/A
	LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED	Status/Power, WAN/LAN interface indicator	

PUZZLE Series Selection Guide

		PUZZLE-9030	PUZZLE-3034	PUZZLE-3032
Platform	Form Factor	1U	Desktop	Desktop
	CPU	2 x AMD® EPYC™ Milan 7543	Intel® Atom® C3758R 8C/8T (16M Cache, 2.4 GHz)	Intel® Atom® C3558R 4C/4T (8M Cache, 2.4 GHz)
	Chipset	Integrated in CPU	Intel® Denverton-R	Intel® Denverton-R
Memory	Memory Technology	ECC & Register DDR4 3200 MHz memory, up to 256GB per DIMM	2 x DDR4 2400 MHz Non-ECC UDIMM Default: 2 x UDIMM 8GB	2 x DDR4 2400 MHz Non-ECC UDIMM Default: 1 x UDIMM 8GB
	Memory Capacity	RDIMM/LRDIMM: up to 4TB	Up to 64GB (based on DIMM capacity)	Up to 64GB (based on DIMM capacity)
	Memory Socket	16 x 288-pin DIMM (8 DIMM/CPU) (eight channel)	2 x 288-pin DIMM	2 x 288-pin DIMM
IPMI	IPMI Solution	1 x AST2620 (RTL8211E)	N/A	N/A
Network and Security	Network Acceleration and Security Function	N/A	• Intel® AES New Instructions • Intel® Memory Protection Extensions (Intel® MPX) • Intel® Trusted Execution Technology • Intel® QuickAssist Technology (Intel® QAT)	• Intel® AES New Instructions • Intel® Memory Protection Extensions (Intel® MPX) • Intel® Trusted Execution Technology • Intel® QuickAssist Technology (Intel® QAT)
Networking	Ethernet IC	Intel i211	Intel 2.5GbE KTI225V SLNMH	Intel 2.5GbE KTI225V SLNMH
	Ethernet Port	1 x GbE RJ-45	8 x 2.5 GbE RJ-45 LAN ports 4 x 10 GbE, SFP+	8 x 2.5GbE RJ-45 LAN ports 2 x 10 GbE, SFP+
Expansion Slot	PCIe Slot	2 x PCIe x16 FHHL	N/A	N/A
	M.2	2 x M.2 M key 2280 (PCIe 4.0 x4)	• 1 x 2242 B-Key M.2 slot for M2 SATA • 1 x 3052 B-Key M.2 slot + SIM Card Socket for 5G/LTE Card • 2 x 2280 M-Key M.2 slots for NVMe	• 1 x 2242 B-Key M.2 slot for M2 SATA • 1 x 3052 B-Key M.2 slot + SIM Card Socket for 5G/LTE Card • 2 x 2280 M-Key M.2 slots for NVMe
Storage	eMMC	N/A	64GB eMMC	64GB eMMC
	U.2/SATA	2 x U.2 (PCIe 4.0 x4) or 2 x SATA 6Gb/s - (colay design)	N/A	N/A
External I/O	USB	2 x USB 3.1	2 x USB 3.0	2 x USB 3.0
	Console	1 x RJ-45	1 x RJ-45	1 x RJ-45
Power and Mechanical	Power Switch	N/A	1 x Power Button	1 x Power Button
	Reset Button	1 x Reset Button	1 x Reset Button	1 x Reset Button
	Power Input	AC Power Inlet on PSU AC 100V ~ 240V @47~63Hz	100 V ~ 240 V	100 V ~ 240 V
	Type/Watt	YM-2132EAR 90 ~ 132VAC @900W 100 ~ 132VAC @1000W 110 ~ 132VAC @1100W 180 ~ 264VAC @1300W	Open Frame DPS-60AP-5 D; Vin: 90 ~ 264VAC;70W	Open Frame DPS-60AP-5 D; Vin:90 ~ 264VAC;70W
	Processor Cooling	2 x CPU Heatsink	1 x Passive CPU Heatsink	1 x Passive CPU Heatsink
	System Cooling	6 x Individual Hot-swappable Cooling Fans	2 x Cooling Fans	2 x Cooling Fans
	Antenna Port	N/A	3 x Antenna hole (reserved)	3 x Antenna hole (reserved)
Physical and Environmental	Storage Temperature	-10°C ~ 50°C	-10°C ~ 50°C	-10°C ~ 50°C
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)
	Operating Humidity	5% ~ 90% non-condensing	5% ~ 90% non-condensing	5% ~ 90% non-condensing
	Dimensions (W x H x D) (mm)	670 x 438 x 44.2	46.65 x 285 x 236.6	46.65 x 285 x 236.6
Supported OS and Certifications	Certification	RoHS, CE/FCC, UL	CE, FCC, VCCI, RCM	CE, FCC, VCCI, RCM
	Supported OS	Linux (CentOS, Red Hat, Ubuntu, etc.)	Linux Ubuntu 18.04	Linux Ubuntu 18.04
Indicators	LCM	N/A	16 x 2 character with control keys	16 x 2 character with control keys
	LED	1 x Power / 1 x Status / 1 x Alert	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-IN005

2U Rackmount Network Appliance support dual Intel® Ice Lake CPU

Features

- Dual Intel® Ice Lake Xeon® scalable processors (up to 185W)
- 20 x DDR4 R-DIMM / LR-DIMM memory
- 8 network modules with PCIe Gen 4 x8 signal
- Intel® QuickAssist Technology
- 4 x 2.5" U.2 (PCIe x4) SSD compatible with SATA
- 1+1 1200W CRPS redundant power supply
- 4+1 hot-swappable system fans

Specifications

		PUZZLE-IN005
Platform	Form Factor	2U
	CPU	Intel® Ice-Lake LGA-4189 Xeon® Scalable Processor
	Chipset	C627A
Memory	Memory Technology	DDR4 3200 MHz ECC RDIMM / LRDIMM
	Memory Capacity	Memory up to:1280GB (20 x 64GB)
	Memory Socket	20 x 288-pin DIMM
Network and Security	Network Acceleration and Security Function	• Intel® AES New Instructions • Intel® QuickAssist Technology (Intel® QAT) • Intel® Virtualization Technology (Intel® VT) • Intel® Trusted Execution Technology (Intel® TXT)
	TPM	1 x TPM 2.0 pin header
IPMI	IPMI Sulotion	1 x iRIS-2400 module
Networking	Ethernet IC	1 GbE NIC: Intel® i210-AT with NCSI support 1 GbE NIC: Intel® i219
	Ethernet Port	2 x 1GbE RJ-45 ports (1 x IPMI LAN)
	Network Module Slot	8 x Networking Module Slot
Expansion Slot	PCIe Slot	1 x PCIe Gen 4 x8 (FHHL) slot (single width)
	PCIe Mini Card Slot	N/A
	M.2	2 x M.2 2280 M key supporting PCIe Gen 3 x4 NVMe
Storage	Storage	4 x U.2 SSD drive bay compatible with SATA
	eMMC	N/A
	SD Card	N/A
External I/O	VGA	1 x VGA port
	USB	2 x USB 3.2 Gen 1 (5Gb/s) Type-A ports
	Console	1 x RJ-45 1 x USB Type-C
Internal I/O	HDMI	N/A
	USB	1 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 1200W, 90V ~ 264V AC
	Processor Cooling	2 x Active CPU cooler
	System Cooling	5 x Cooling fans with smart fan
	Antenna Hole	N/A
Physical and Environmental	Storage Temperature	-20°C ~ 75°C (-4°F ~ 167°F)
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)
	Operating Humidity	Relative humidity: 5% ~ 90% non-condensing
	Dimensions (W x L x H) (mm)	438 x 650 x 88
	Weight	23 kg
OS and Certifications	Certification	CE / FCC / RoHS
	Operating System	Linux 18.04 (CentOS, Red Hat, Ubuntu, etc.) Windows server 2019
Indicators	LCM	N/A
	LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED

Ordering Information

Part No.	Description
PUZZLE-IN005-R-R10*	2U Rackmount Network Appliance supports dual Intel® Ice-Lake-SP CPU, twenty DDR4 R-DIMM/LR-DIMM slots, two 1GbE (one supports BMC control), eight PulM, one PCIe expansion, redundant power, without cooler, RoHS

* A CPU heatsink must be purchased separately

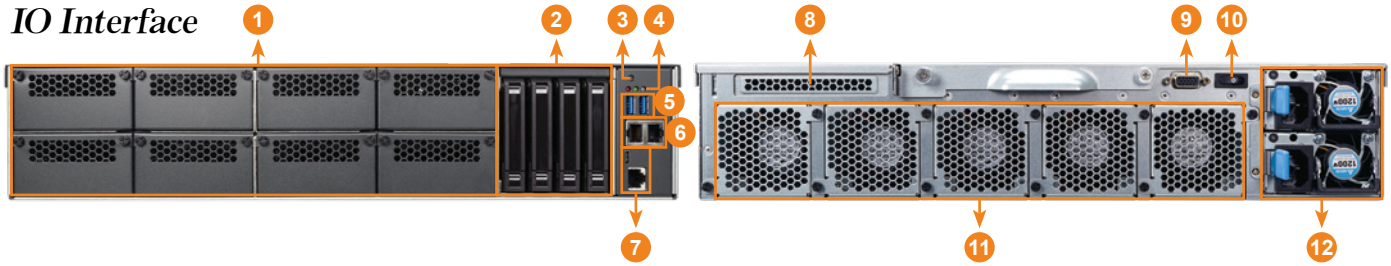
Packing List

1 x USB to RJ-45 console cable	Rack mounting ears
2 x Power cord	Screws for rack mounting ears
Flat head screws (for 2.5" HDD)	

Options

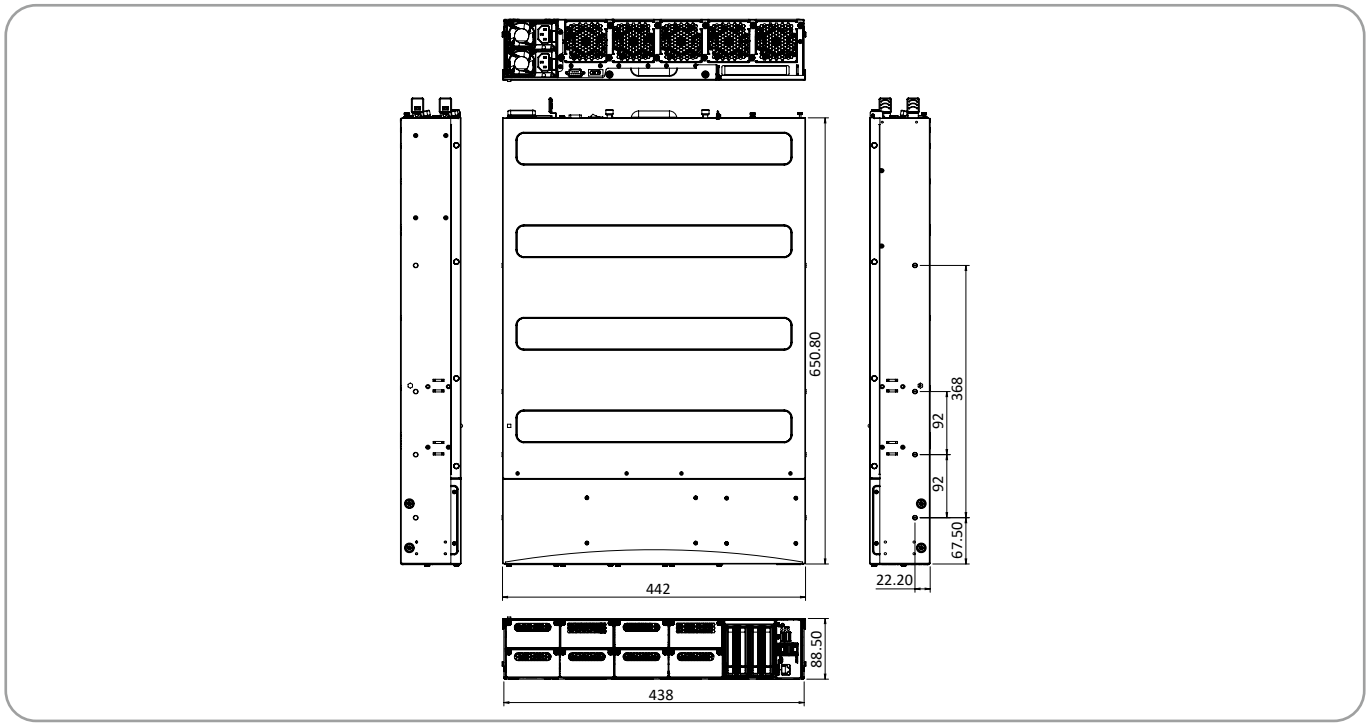
Item	Part No.	Description
Slide rail	45009-0018C0-00-RS	Sliding track, sliding track, AA68-5080PZZ1CV, Raw Material, 45009-0018XX, VER:00, RoHS
USB to console cable	32013-004000-100-RS	Round cable; LAN CABLE; FTDI console cable; 2; 1800MM; (A)USB A TYPE 4P MALE+PCB:FTDI_FT232RL; (B)RJ-45 8P8C; RoHS
CPU cooler	19100-000287-00-RS	Cooler module/Heat Pipe; HEATSINK:113*78*64mm, FAN:60*60*15mm; Standard; 00; TSM-002007-HS3; Aluminum plate+FIN Buckle+Heat Pipe*5; +Grease:TC5888+6025FAN+FAN cover+LGA4189*4; Nidec; H60T12BHA7-57T07; CCL; RoHS

IO Interface



1. 8 x IEI Networking Module slot
2. 4 x 2.5" drive bay
3. Reset button
4. Power status
   HDD status
   Alert LED
5. 2 x USB 3.2 Gen 1
6. 1 x MGMT LAN
   1 x IPMI LAN
7. Console port
   1 x USB type C
   1 x RJ-45
8. PCIe expansion slot
9. VGA port
10. Power switch
11. 5 x hot-swappable fan
12. Power inlet

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

Microsoft Azure Certified

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 2666 MHz, 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 PulM module slot
- Redundant PSUs

Specifications

		PUZZLE-IN004-XD1	PUZZLE-IN004-XD2	PUZZLE-IN004-XD3	PUZZLE-IN004-XD4	PUZZLE-IN004-XD5
Platform	Form Factor	1U				
	CPU	Intel® Xeon® D-2145NT processor 8C16T, 1.90 GHz	Intel® Xeon® D-2146NT processor 8C16T, 2.30 GHz	Intel® Xeon® D-2166NT processor 12C24T, 2.00 GHz	Intel® Xeon® D-2177NT processor 14C28T, 1.90 GHz	Intel® Xeon® D-2187NT processor 16C32T, 2.00 GHz
	Chipset	Integrated in CPU				
Memory	Memory Technology	DDR4 2133/2400 MHz ECC DDR4 RDIMM/LRDIMM				
	Memory Capacity	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 10 GbE: Intel® X722 integrated in CPU				
	Ethernet Port	4 x 10 GbE SFP+ / 8 x 1GbE RJ-45 LAN ports				
	Network Module Slot	1 x PulM module slot				
Expansion Slot	PCIe Slot	1 x PCIe 3.0 x8 (FHHL) slot (double width)				
	PCIe Mini Card Slot	1 x PCIe Mini (PCIe + USB 2.0) with SIM card				
	M.2	1 x M.2 M key 2260/2280 Support PCIe 3.0 x4 nVME				
Storage	Storage	2 x 2.5" SATA HDD/SSD bay support SATA 3.0 (6 Gbps)				
	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	HDMI	N/A				
	USB	N/A				
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 Hole	1 x Antenna hole				
Physical and Environmental	Storage Temperature	-20°C ~ 75°C (-4°F ~ 167°F)				
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)				
	Operating 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 / RoHS				
	Operating System	Linux Ubuntu 18.04.04 CentOS 7 / Red Hat / Fedora EPEL Microsoft Windows 10				
Indicators	LCM	LCM, 2 buttons				
	LED	Power status, Storage status, Alert LED				

Ordering Information

Part No.	Description
PUZZLE-IN004-XD1/R-R10	1U rackmount network appliance with Intel® Xeon® D-2145NT processor, eight 1GbE, four 10 GbE, one PulM module slot and one PCIe expansion, RoHS
PUZZLE-IN004-XD1/32G/R-R10	1U rackmount network appliancee with Intel® Xeon® D-2145NT processor, four 8GB DDR4, two 240GB SSD, eight 1GbE, four 10 GbE, one PulM module slot and one PCIe expansion, RoHS
PUZZLE-IN004-XD2/R-R10	1U rackmount network appliance with Intel® Xeon® Intel Xeon D-2146NT processor, 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, four 8GB DDR4, two 240GB SSD, eight 1GbE, four 10 GbE, one PulM module slot and one PCIe expansion, RoHS
PUZZLE-IN004-XD3/R-R10	1U rackmount network appliancee with Intel® Xeon® D-2166NT processor, 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, four 8GB DDR4, two 240GB SSD, eight 1GbE, four 10 GbE, one PulM module slot and one PCIe expansion, RoHS
PUZZLE-IN004-XD4/R-R10	1U rackmount network appliance with Intel® Xeon® D-2177NT processor, eight 1GbE, four 10 GbE, one PulM module slot and one PCIe expansion, RoHS
PUZZLE-IN004-XD4/64G/R-R10	1U rackmount network appliance with Intel® Xeon® D-2177NT processor, four 16GB DDR4, two 480GB SSD, eight 1GbE, four 10 GbE, one PulM module slot and one PCIe expansion, RoHS
PUZZLE-IN004-XD5/R-R10**	1U rackmount network appliance with Intel® Xeon® D-2187NT processor, eight 1GbE, four 10 GbE, one PulM module slot and one PCIe expansion, RoHS
PUZZLE-IN004-XD5/64G/R-R10**	1U rackmount network appliance with Intel® Xeon® D-2187NT processor, four 16GB DDR4, two 480GB SSD, eight 1GbE, four 10 GbE, one PulM module slot and one PCIe expansion, RoHS

** By order production

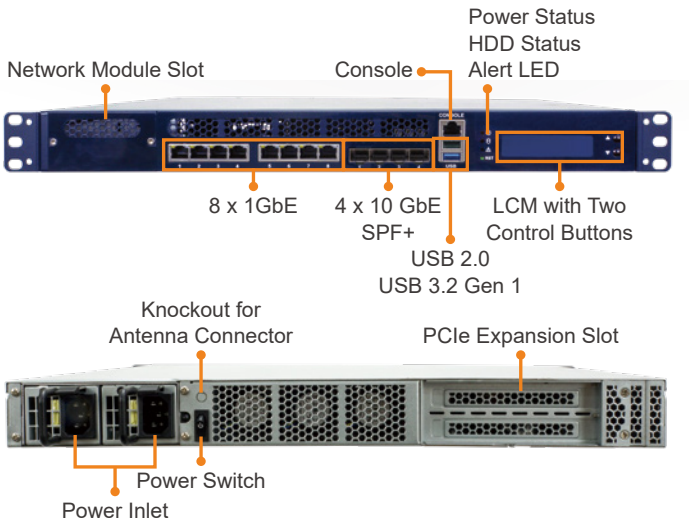
Packing List

	PUZZLE-IN004									
	XD1/R	XD2/R	XD3/R	XD4/R	XD5/R	XD1/32G/R	XD2/32G/R	XD3/32G/R	XD4/64G/R	XD5/64G/R
Power cord	2	2	2	2	2	2	2	2	2	2
Rack mounting ears	2	2	2	2	2	2	2	2	2	2
Screws for rack mounting ears	6	6	6	6	6	6	6	6	6	6
USB to console cable	option	option	option	option	option	1	1	1	1	1
RS-232 to console cable	1	1	1	1	1	option	option	option	option	option
Slide rail	option	option	option	option	option	option	option	option	option	option

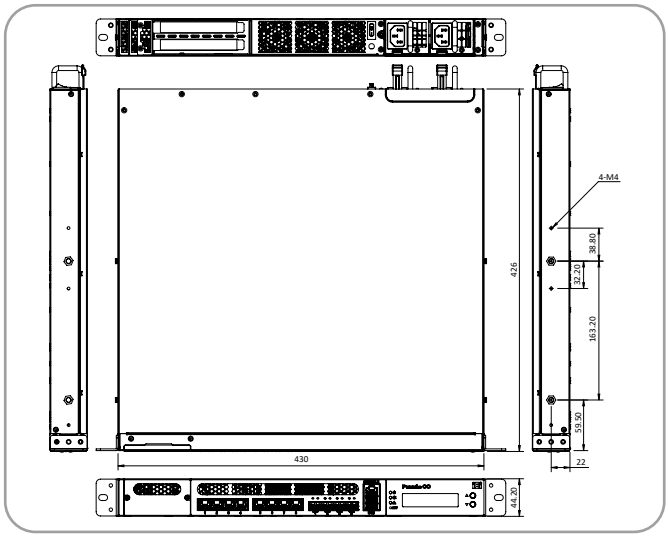
Options

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 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

IO Interface



Dimensions (Unit: mm)



PUZZLE-IN001

1U Rackmount Network Appliance with Intel® Xeon® E and 8th & 9th Generation Intel® Core™ i3/Pentium®/Celeron® Processor, two PulM module slots and two PCIe slots

Microsoft Azure Certified

Features

- Intel® Xeon® E, 8th & 9th Generation Intel® Core™/Pentium®/Celeron® processor
- 8 x GbE RJ-45 via Intel® I211
- 2 x 288-pin DIMM, DDR4 2400 MHz 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 2400 MHz ECC/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	8 x 1GbE RJ-45 LAN ports	
	Network Module Slot	2 x PulM module slots	
Expansion Slot	PCIe Slot	1 x PCIe 3.0 x8 (FHHL) slot, 1 x PCIe 3.0 x4 (FHHL) slots	
	PCIe Mini Card Slot	1 x PCIe Mini card (PCIe 3.0 & SATA 3.0, USB 2.0)	
	M.2	1 x 3042/2260 M.2 B key (SATA 3.0 / USB 3.2 Gen 1) Support SATA SSD and 4G LTE module	
Storage	Storage	2 x 2.5" SATA HDD/SSD bay support SATA 3.0 (6 Gbps) (RAID 0/1 support)	
	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	N/A	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 Hole	1 x Antenna hole	
Physical and Environmental	Storage Temperature	-20°C ~ 75°C (-4°F ~ 167°F)	
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)	
	Operating 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 / RoHS	
	Operating System	Linux Ubuntu 18.04.04 CentOS 7 / Red Hat / Fedora EPEL Microsoft Windows 10	
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-R-R11*	1U Rackmount Network Appliance support Intel® Gen 8 Xeon®E3, Core™ i3, Pentium® or Celeron® processor, two DDR4 slots, two SSD slots and eight 1GbE, two PulM, two PCIe expansion without heatsink, Redundant Power, RoHS
PUZZLE-IN001-XE/R-R11	1U Rackmount Network Appliance with Intel® Gen 8 Xeon® E-2136 processor, two DDR4 slots, and eight 1GbE, two PulM module slots, two PCIe expansion, Redundant Power, RoHS
PUZZLE-IN001-i3T/R-R11	1U Rackmount Network Appliance with Intel® Gen 8 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-R11	1U Rackmount Network Appliance with Intel® Gen 8 Xeon® E-2136 processor, two 8GB DDR4, two 256GB SSD, and eight 1GbE, two PulM module slots, two PCIe expansion, Redundant Power, RoHS
PUZZLE-IN001-i3T/16G/R-R11	1U Rackmount Network Appliance with Intel® Gen 8 Core™ i3-8100T processor, two 8GB DDR4, two 256GB SSD, and eight 1GbE, two PulM module slots, two PCIe expansion, Redundant Power, RoHS

* A CPU heatsink must be purchased separately

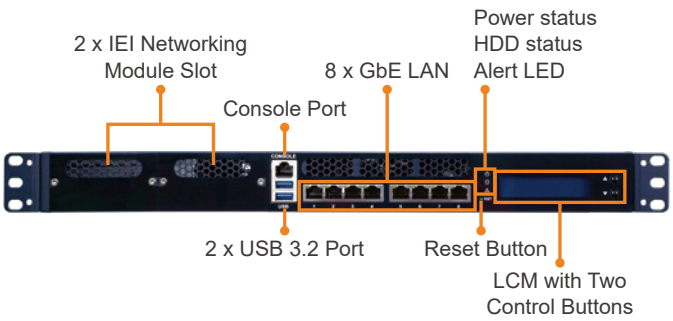
Packing List

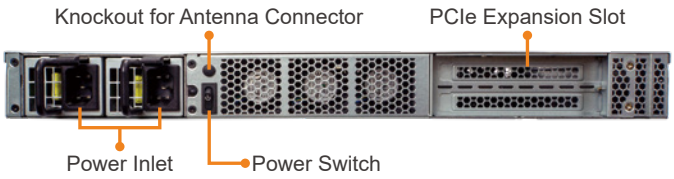
	PUZZLE-IN001-R	PUZZLE-IN001-XE/R	PUZZLE-IN001-i3T/R	PUZZLE-IN001-XE/16G/R	PUZZLE-IN001-i3T/16G/R
Power cord	2	2	2	2	2
Rack mounting ears	2	2	2	2	2
Screws for rack mounting ears	6	6	6	6	6
USB to console cable	Option	Option	Option	1	1
RS-232 to console cable	1	1	1	Option	Option
Slide rail	Option	Option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

Options

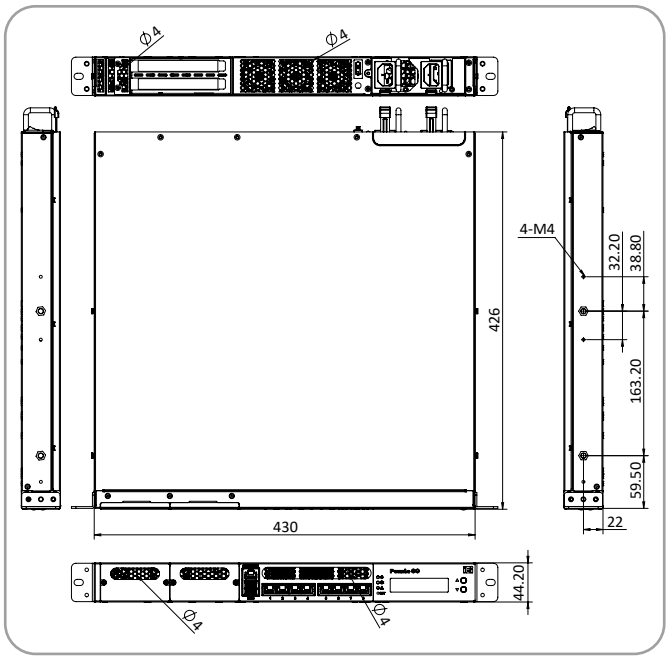
Item	Part No.	Description
Slide rail	RAIL-B02	New rail kit for new 1U & 2U NAS: TVS-471U, 1253U, etc
USB to console cable	32013-004000-100-RS	Round cable; LAN CABLE; FTDI console cable; 2; 1800MM; (A)USB A TYPE 4P MALE+PCB:FTDI_FT232RL; (B)RJ-45 8P8C; RoHS
RS-232 to console cable	32005-005100-100-RS	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
HDMI cable	19B00-000403-00-RS	Z532; Accessory module; PUZZLE series HDMI cable assembly (only processor support graphics model); standard; 00, RoHS
Heatsink (TDP: 35W)	34000-000731-RS	HEATSINK; 90*90*27MM, GREASE:35*35mm_K=6.5; Washer*4+SPING SCREW Set*4, for CPU TDP 35W; RoHS
Heatsink (TDP: 80W)	34000-000722-RS	HEATSINK/Heat Pipe; FIN:89.5X88.4X20MM+Ø6 Heat Pipe*1, Copper Block:40*36*3MM + Aluminum Block:90*90*4.0MM; SCREW+SPRING+E-RING+WASHER*4, GREASE:X23-7762for CPU TDP 80W; RoHS

IO Interface





Dimensions (Unit: mm)



PUZZLE-IN001A

1U Rackmount Network Appliance with Intel® Xeon® E and 8th & 9th Generation Intel® Core™ i3/Pentium®/Celeron® Processor, two PulM module slots and two PCIe slots

Features

- Intel® Xeon® E, 8th & 9th Generation Intel® Core™/Pentium®/Celeron® processor
- 8 x 5 GbE RJ-45 via AQC 111C, support 100 meters over Cat 5e or better at 5 Gbps, 2.5 Gbps, 1 Gbps, 100 Mbps (require no change to existing infrastructure or cabling)
- 4 x 288-pin DIMM, DDR4 2400 MHz ECC & non ECC, up to 64 GB
- 1 x RJ-45 Console, 2 x USB 3.2 Gen 1, LCM
- 2 x 2.5" SATA drive bay, 1 x M.2 B-Key, 1 x PCIe Mini

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 2400 MHz 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: AQC 111C	
	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 3.0 x8 (FHHL) slot, 1 x PCIe 3.0 x4 (FHHL) slots	
	PCIe Mini Card Slot	1 x PCIe Mini card (PCIe 3.0 & SATA 3.0, USB 2.0)	
	M.2	1 x 3042/2260 M.2 B key (SATA 3.0 / USB 3.2 Gen 1) Support SATA SSD and 4G LTE module	
Storage	**Storage**	2 x 2.5" SATA HDD/SSD bay support SATA 3.0 (6 Gbps)	
	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**	N/A	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 Hole	1 x Antenna hole	
Physical and Environmental	**Storage Temperature**	-20°C ~ 75°C (-4°F ~ 167°F)	
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)	
	Operating 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 / RoHS	
	Operating System	Linux Ubuntu 18.04.04 CentOS 7 / Red Hat / Fedora EPEL Microsoft Windows 10	
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-i3T/16G/R-R10	1U Rackmount Network Appliance with Intel® Gen 8 Core™ i3-8100T processor, two 8GB DDR4, two 256GB SSD, eight 5GbE, two PulM, two PCIe expansion, Redundant Power, RoHS
PUZZLE-IN001A-XE/16G/R-R10	1U Rackmount Network Appliance with Intel® Gen 8 Xeon® E-2136 processor, two 8GB DDR4, two 256GB SSD, eight 5GbE, two PulM, two PCIe expansion, Redundant Power, RoHS

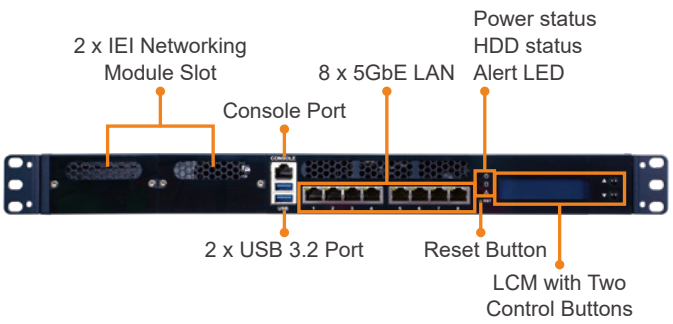
Packing List

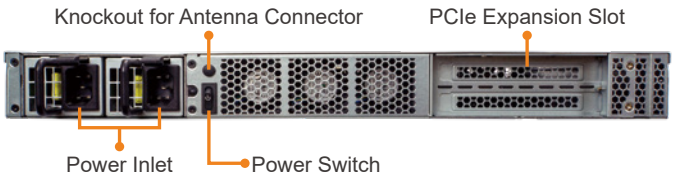
	PUZZLE-IN001A-XE/16G/R	PUZZLE-IN001A-i3T/16G/R
Power cord	2	2
Rack mounting ears	2	2
Screws for rack mounting ears	6	6
USB to console cable	1	1
RS-232 to console cable	Option	Option
Slide rail	Option	Option

Options

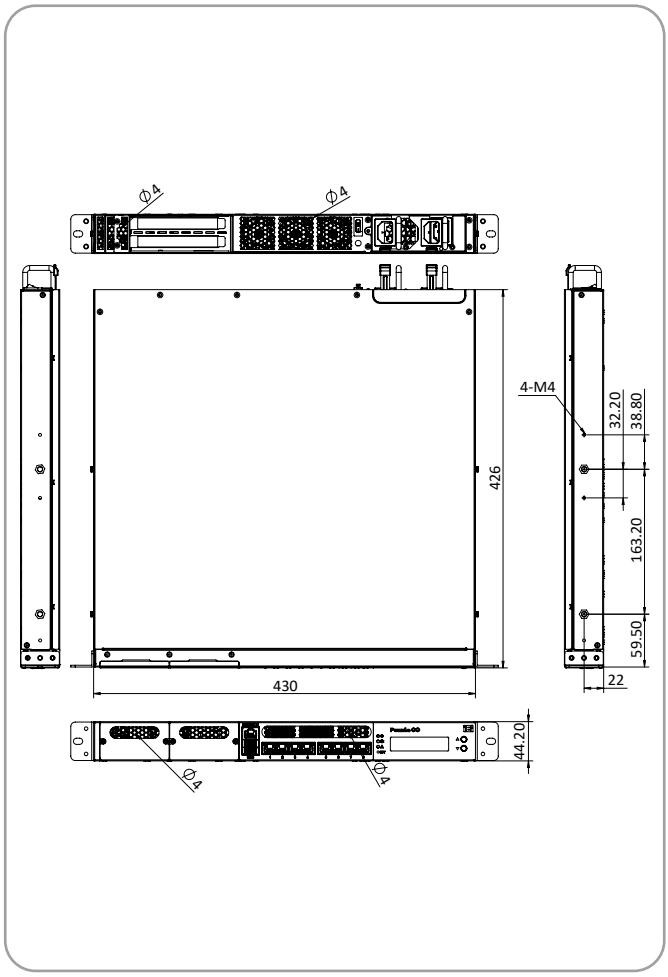
Item	Part No.	Description
Slide rail	RAIL-B02	New rail kit for new 1U & 2U NAS: TVS-471U, 1253U, etc
USB to console cable	32013-004000-100-RS	ROUND CABLE; LAN CABLE; FTDI Console Cable; 2; 1800MM; (A)USB A TYPE 4P MALE+PCB:FTDI_FT232RL; (B)RJ-45 8P8C; RoHS
RS-232 to console cable	32005-005100-100-RS	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

IO Interface





Dimensions (Unit: mm)



PUZZLE-IN002

1U Rackmount Network Appliance with 8th & 9th Generation Intel® Core™ i7/i5/i3, Pentium® or Celeron® Processor, 1 PCIe slots

Features

- 8th & 9th Generation Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor
- 6 x GbE RJ-45 via Intel® I211
- 2 x DDR4 2400 MHz 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 2400 MHz 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 3.0 x16 (FHHL) slot (double width)	
	PCIe Mini Card Slot	1 x PCIe Mini card (SATA 3.0, USB 2.0) with SIM slot	
	M.2	1 x M.2 A key (PCIe 2.0& USB 2.0)	
Storage	Storage	2 x 2.5" SATA HDD/SSD bay support SATA 3.0 (6 Gbps)	
	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	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 Hole	1 x Antenna hole	
Physical and Environmental	Storage Temperature	-20°C ~ 75°C (-4°F ~ 167°F)	
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)	
	Operating Humidity	5% ~ 90% non-condensing	
	Dimensions (W x L x H) (mm)	430 x 320 x 44.2	
	Weight	5 kg	
OS and Certifications	Certification	CE / FCC / RoHS	
	Operating System	Linux Ubuntu 18.04.04 CentOS 7 / Red Hat / Fedora EPEL Microsoft Windows 10	
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-R11*	1U Rackmount Network Appliance support Intel® Gen 8 Core™ i7, i5, i3, Pentium® or Celeron® processor, two DDR4 slots, and six 1GbE, one PCIe x16 expansion, RoHS
PUZZLE-IN002-i3T-R11	1U Rackmount Network Appliance with Intel® Gen 8 Core™ i3-8100T processor, two DDR4 slots, and six 1GbE, one PCIe x16 expansion, RoHS
PUZZLE-IN002-PGT-R11	1U Rackmount Network Appliance with Intel® Gen 8 Pentium® Gold G5400T processor, two DDR4 slots, and six 1GbE, one PCIe x16 expansion, RoHS
PUZZLE-IN002-i3T/8G-R11	1U Rackmount Network Appliance with Intel® Gen 8 Core™ i3-8100T processor, two 4GB DDR4, one 256GB SSD, six 1GbE, one PCIe x16 expansion, RoHS
PUZZLE-IN002-PGT/8G-R11	1U Rackmount Network Appliance with Intel® Gen 8 Pentium® Gold G5400T processor, two 4GB DDR4, one 256GB SSD, and six 1GbE, one PCIe x16 expansion, RoHS

* A CPU heatsink must be purchased separately

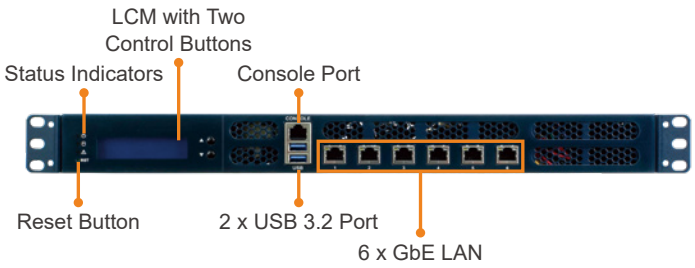
Packing List

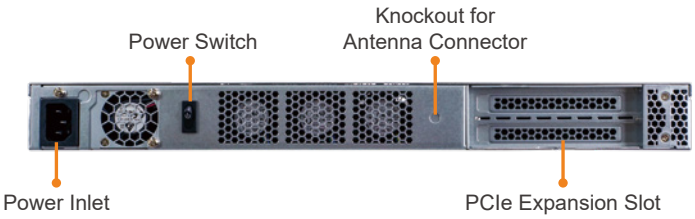
	PUZZLE-IN002	PUZZLE-IN002-i3T	PUZZLE-IN002-PGT	PUZZLE-IN002-i3T/8G	PUZZLE-IN002-PGT/8G
Power cord	1	1	1	1	1
Rack mounting ears	2	2	2	2	2
Screws for rack mounting ears	6	6	6	6	6
USB to console cable	Option	Option	Option	1	1
RS-232 to console cable	1	1	1	Option	Option
Slide rail	Option	Option	Option	Option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

Options

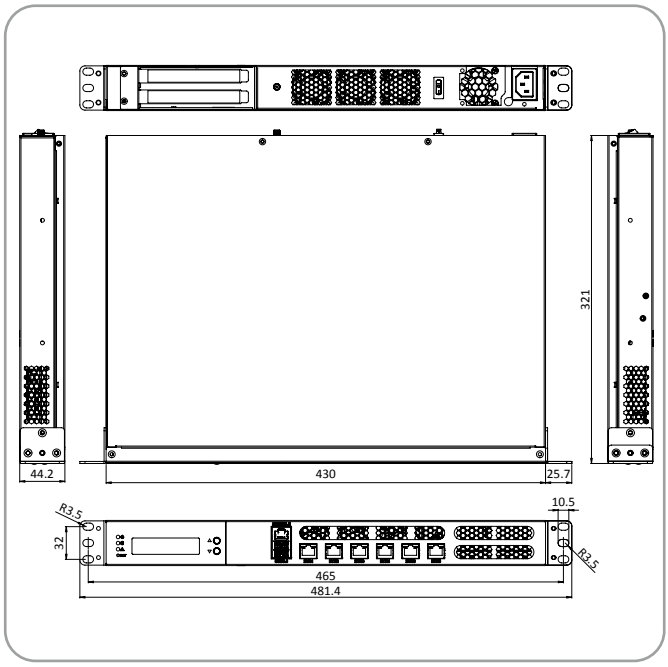
Item	Part No.	Description
USB to console cable	32013-004000-100-RS	ROUND CABLE; LAN CABLE; FTDI Console Cable; 2; 1800MM; (A)USB A TYPE 4P MALE+PCB:FTDI_FT232RL; (B)RJ-45 8P8C; RoHS
RS-232 to console cable	32005-005100-100-RS	ROUND CABLE; RS-232/422/485; PUZZLE RS-232 Cable; 2; 500MM; 24AWG; (A)D-SUB 9P MALE+#4-40 Screw; (B)RJ-45 PLUG 8P8C; ONE PCS PKG; TC&C; RoHS
HDMI cable	19B00-000403-00-RS	Z532; Accessory module; PUZZLE series HDMI cable assembly (only processor support graphics model); standard; 00, RoHS
Heatsink (TDP: 35W)	34000-000731-RS	HEATSINK; 90*90*27MM, GREASE:35*35mm_K=6.5; Washer*4+SPING SCREW Set*4, for CPU TDP 35W; RoHS
Heatsink (TDP: 80W)	34000-000722-RS	HEATSINK/Heat Pipe; FIN:89.5X88.4X20MM+Ø6 Heat Pipe*1, Copper Block:40*36*3MM + Aluminum Block:90*90*4.0MM; SCREW+SPRING+E-RING+WASHER*4, GREASE:X23-7762for CPU TDP 80W; RoHS

IO Interface





Dimensions (Unit: mm)



PUZZLE-9030

Features

- AMD 3rd Gen EPYC™ 7003 Processor Family (Codename: Milan)
- 8-channel DDR4 3200 MHz memory, support ECC RDIMM/ LRDIMM up to 4TB
- 2 x 2.5" U.2 (PCIe 4.0 x4) NVMe SSD or 2 x 3.5" SATA 6Gb/s HDD
- Support 2 SFP+, 4 NIC modules (PulM)
- 1 x Riser card for PCIe x16 expansion slot to rear
- 2 x M.2 2280/22110 & 1 x mSATA

Specifications

		PUZZLE-9030
Platform	Form Factor	1U
	CPU	2 x AMD® EPYC™ Milan 7543
	Chipset	Integrated in CPU
Memory	Memory Technology	ECC & Register DDR4 3200 MHz memory, up to 256GB per DIMM
	Memory Capacity	RDIMM/LRDIMM: up to 4TB
	Memory Socket	16 x 288-pin DIMM (8 DIMM/CPU) eight channels
IPMI	IPMI Solution	1 x AST2620 (RTL8211E)
Networking	Ethernet Port	1 x GbE RJ-45 Intel I211
	Network Module Slot	4 x PulM-100G2SF-CX6 (GenZ 4C+, PCIe Gen 4 x16)
Expansion Slot	PCIe slot	2 x PCIe x16 FHHL
Storage	Storage	2 x M.2 M key 2280 (PCIe 4.0 x4)
	U.2/SATA	2 x U.2 (PCIe 4.0 x4) or 2 x SATA 6Gb/s - (colay design)
External I/O	USB	2 x USB 3.1
	Console	1 x RJ-45
Power and Mechanical	Reset Button	1 x Reset button
	Power Input	AC power inlet on PSU AC 100V ~ 240V @47~63Hz
	Type/Watt	YM-2132EAR 90 ~ 132VAC @900W 100 ~ 132VAC @1000W 110 ~ 132VAC @1100W 180 ~ 264VAC @1300W
	Processor Cooling	2 x CPU heatsink
	System Cooling	6 x Individual hot-swappable cooling fans
Physical and Environmental	Storage Temperature	-10°C ~ 50°C
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)
	Operating Humidity	5% ~ 90% non-condensing
Supported OS and Certifications	Certification	RoHS, CE/FCC, UL
	Supported OS	Linux (CentOS, Red Hat, Ubuntu, etc.)
Indicators	LED	1 x Power / 1 x Status / 1 x Alert

Ordering Information

Part No.	Description
PUZZLE-9030	1U rackmount network appliance supporting AMD 3rd Gen EPYC™ 7003 Processor Family (codenamed Milan), 8-channel 3200 MHz DDR4 ECC RDIMM/LRDIMM up to 4TB, two 2.5" U.2 (PCIe 4.0 x4) NVMe SSD or two 3.5" SATA 6Gb/s HDD, two SFP+, four NIC modules (PulM), one riser card for PCIe x16 expansion slot to rear, two M.2 2280/22110 & one mSATA, support IPMI (optional)

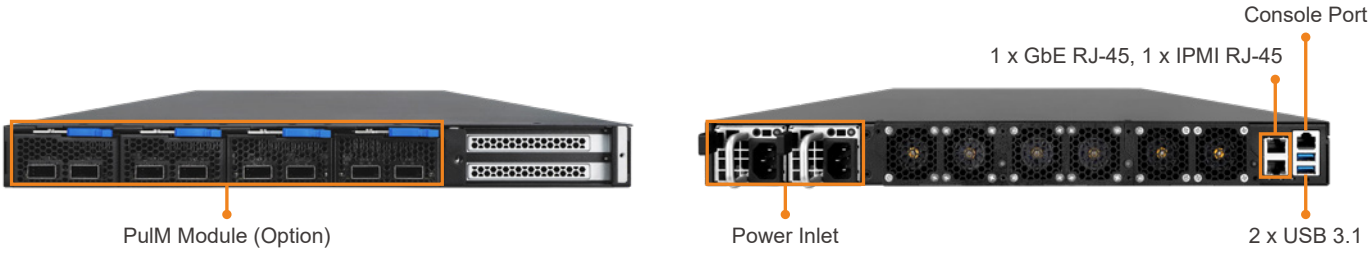
Packing List

	PUZZLE-9030
Power cord	2
Rack mounting ears	2
Screw for rack mounting ears	6
USB to console cable	1
RS-232 to console cable	Optional
Slide rail	Optional

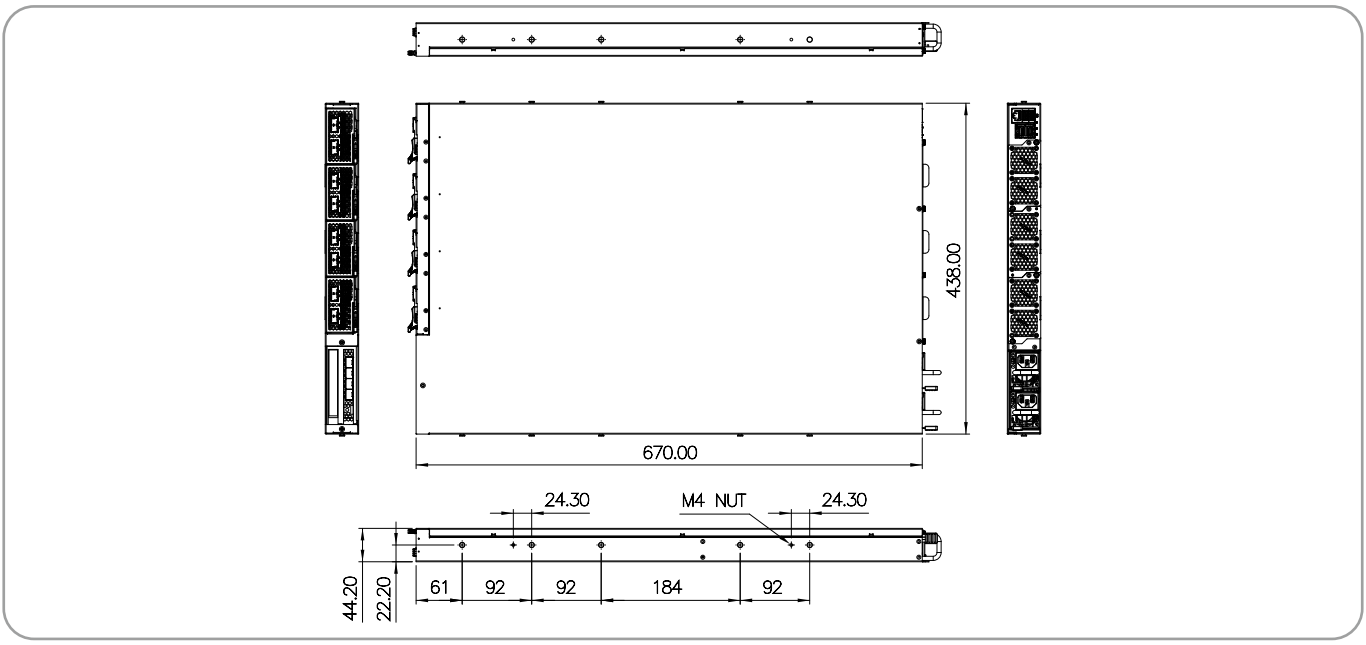
Options

Item	Part No.	Description
Slide rail		Slide rail kit for PUZZLE-9030
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 8P8C; ONE PCS PKG; TC&C; RoHS

IO Interface



Dimensions *(Unit: mm)*



PUZZLE-3034

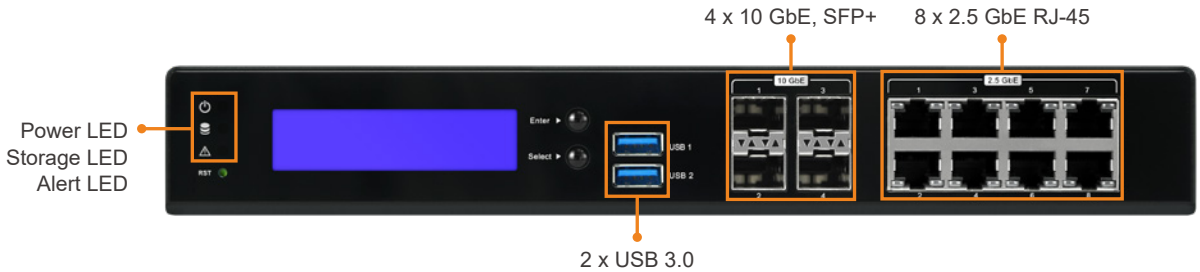
Features

- Intel® Atom® C3758R 8C/8T (16M Cache, 2.4 GHz)
- 2 x DDR4 2400 MHz non-ECC UDIMM
- 8 x 2.5GbE RJ-45 LAN ports, 4 x 10 GbE SFP+
- 1 x RJ-45 console, 2 x USB 3.0
- SATA DOM, 64GB eMMC

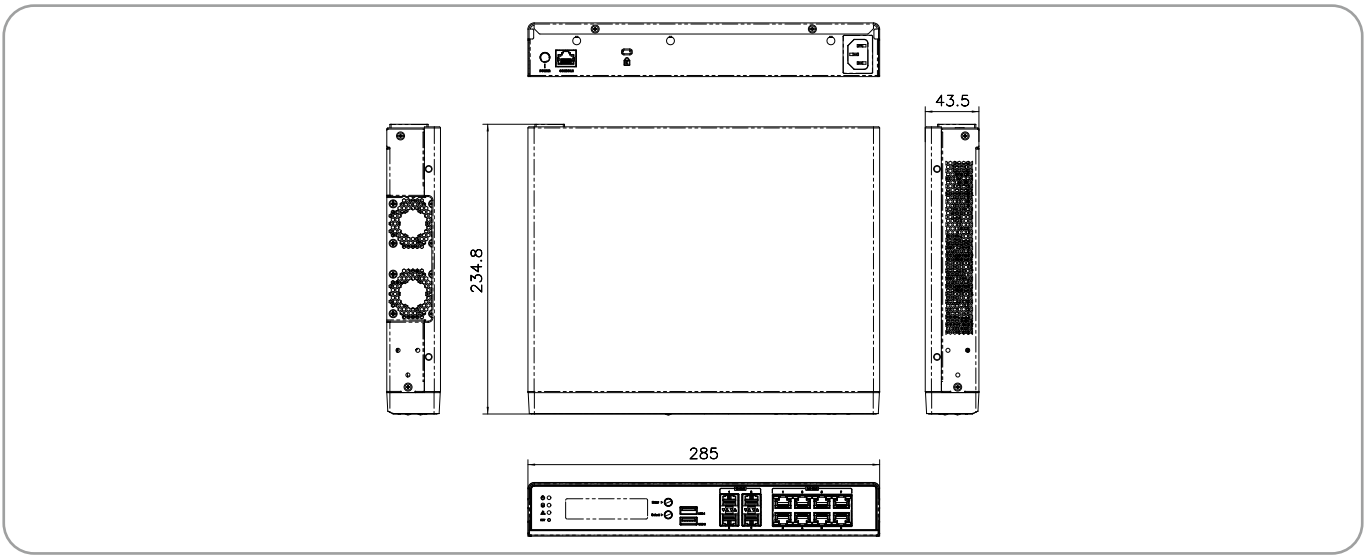
Specifications

		PUZZLE-3034
Platform	Form Factor	Desktop
	CPU	Intel® Atom® C3758R 8C/8T (16M Cache, 2.4 GHz)
	Chipset	Intel® Denverton-R
Memory	Memory Technology	2 x DDR4 2400 MHz Non-ECC UDIMM Default: 2 x UDIMM 8G
	Memory Capacity	Up to 64GB (based on DIMM capacity)
	Memory Socket	2 x 288-pin DIMM
Network and Security	Network acceleration and Security function	Intel® AES New Instructions Intel® Memory Protection Extensions (Intel® MPX) Intel® Trusted Execution Technology Intel® QuickAssist Technology (Intel® QAT)
Networking	Ethernet IC	Intel 2.5GbE KTI225V SLNMH
	Ethernet Port	8 x 2.5 GbE RJ-45 LAN ports 4 x 10 GbE, SFP+
Expansion Slot	M.2	1 x 2242 B key slot for M.2 SATA 1 x 3052 B key slot + SIM card socket for 5G/LTE card 2 x 2280 M key slots for NVMe
Storage	eMMC	64GB eMMC
External I/O	USB	2 x USB 3.0
	Console	1 x RJ-45
Power and Mechanical	Power Switch	1 x Power button
	Reset Button	1 x Reset button
	Power Input	100 V ~ 240 V
	Type/Watt	Open-frame DPS-60AP-5 D; Vin: 90 ~ 264VAC; 70W
	Processor Cooling	1 x Passive CPU heatsink
	System Cooling	2 x Cooling fans
	Antenna Port	3 x Antenna hole (reserved)
Physical and Environmental	Storage Temperature	-10°C ~ 50°C
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)
	Operating Humidity	5% ~ 90% non-condensing
	Dimensions (W x H x D) (mm)	46.65 x 285 x 236.6
Supported OS and Certifications	Certification	CE, FCC, VCCI, RCM
	Supported OS	Linux Ubuntu 18.04
Indicators	LCM	16 x 2 character with control keys
	LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED

IO Interface



Dimensions *(Unit: mm)*



Ordering Information

Part No.	
PUZZLE-3034	Desktop network appliance with Intel® Atom® C3758R 8C/8T (16M cache, 2.4 GHz), two DDR4 2400 MHz non-ECC UDIMM, eight 2.5GbE RJ-45 LAN ports, four 10 GbE SFP+, one RJ-45 console, two USB 3.0 (support UPS equipment only), SATA DOM, 64GB eMMC

Packing List

	PUZZLE-3034
Power cord	1
Rack mounting ears	2
Screw for rack mounting ears	6

Options

	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 8P8C; ONE PCS PKG; TC&C; RoHS

PUZZLE-3032

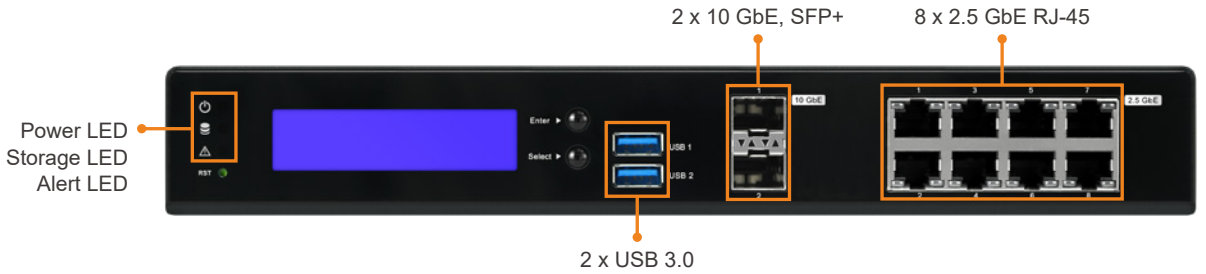
Features

- Intel® Atom® C3558R 4C/4T (8M cache, 2.4 GHz)
- 2 x DDR4 2400 MHz non-ECC UDIMM
- 8 x 2.5GbE RJ-45 LAN ports, 2 x 10 GbE SFP+
- 1 x RJ-45 console, 2 x USB 3.0
- SATA DOM, 64GB eMMC

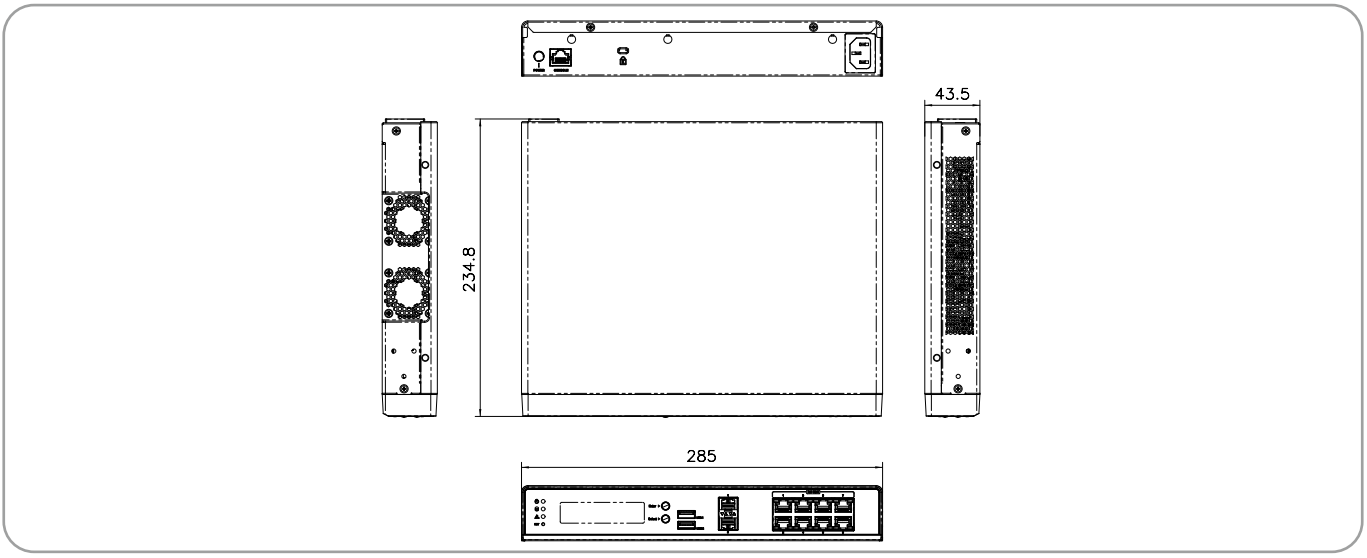
Specifications

		PUZZLE-3032
Platform	Form Factor	Desktop
	CPU	Intel® Atom® C3558R 4C/4T (8M cache, 2.4 GHz)
	Chipset	Intel® Denverton-R
Memory	Memory Technology	2 x DDR4 2400 MHz non-ECC UDIMM Default: 1 x UDIMM 8G
	Memory Capacity	Up to 64GB (based on DIMM capacity)
	Memory Socket	2 x 288-pin DIMM
Network and Security	Network Acceleration and Security Function	Intel® AES New Instructions Intel® Memory Protection Extensions (Intel® MPX) Intel® Trusted Execution Technology Intel® QuickAssist Technology (Intel® QAT)
Networking	Ethernet IC	Intel 2.5GbE KTI225V SLNMH
	Ethernet Port	8 x 2.5GbE RJ-45 LAN ports 2 x 10 GbE, SFP+
Expansion Slot	M.2	1 x 2242 B key slot for M.2 SATA 1 x 3052 B key slot + SIM card socket for 5G/LTE card 2 x 2280 M key slots for NVMe
Storage	eMMC	64GB eMMC
External I/O	USB	2 x USB 3.0
	Console	1 x RJ-45
Power and Mechanical	Power Switch	1 x Power button
	Reset Button	1 x Reset button
	Power Input	100 V ~ 240 V
	Type/Watt	Open-frame DPS-60AP-5 D; Vin: 90 ~ 264VAC; 70W
	Processor Cooling	1 x Passive CPU heatsink
	System Cooling	2 x Cooling fans
	Antenna Port	3 x Antenna hole (reserved)
Physical and Environmental	Storage Temperature	-10°C ~ 50°C
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)
	Operating Humidity	5% ~ 90% non-condensing
	Dimensions (W x H x D) (mm)	46.65 x 285 x 236.6
Supported OS and Certifications	Certification	CE, FCC, VCCI, RCM
	Supported OS	Linux Ubuntu 18.04
Indicators	LCM	16 x 2 character with control keys
	LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED

IO Interface



Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
PUZZLE-3032	Desktop network appliance with Intel® Atom® C3558R processor, two DDR4 2400 MHz non-ECC UDIMM, eight 2.5GbE RJ-45 LAN ports, two 10 GbE SFP+, one RJ-45 console, two USB 3.0 (support UPS equipment only), SATA DOM, 64GB eMMC

Packing List

	PUZZLE-3032
Power cord	1
Rack mounting ears	2
Screw for rack mounting ears	6

Options

	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 8P8C; ONE PCS PKG; TC&C; RoHS

PUZZLE-IN003A

Desktop Network Appliance with Intel® Atom® Processor C3000 Processor, up to 8 x 1 GbE on Board with 2 (by sku) bypass segments, 1 x eMMC 32GB

Microsoft Azure Certified

Features

- Intel® Atom® processor C3558 8M Cache, up to 2.20 GHz
- Support 4 x 1 GbE NIC via Intel® I211, 4 x 1 GbE PHY via Marvell 88E1543
- Support bypass function (by sku)
- DDR4 2133 MHz ECC (by CPU) or non-ECC UDIMM/R-DIMM Up to 128GB
- 1 x M.2 A key (USB 2.0, PCIe x1), 1 x miniPCIe (USB 2.0, PCIe x1) with SIM card slot, 1 x eMMC 32GB

Specifications

		PUZZLE-IN003A-C1	PUZZLE-IN003A-C3
Platform	Form Factor	Desktop	
	CPU	Intel® Atom® processor C3558 8M cache, up to 2.20 GHz	Intel® Atom® Processor C3336 4M Cache, 1.50 GHz
	Chipset	Integrated in CPU	
Memory	Memory Technology	DDR4 2133 MHz ECC (By CPU) or non-ECC UDIMM, Support DDR4 RDIMM	
	Memory Capacity	UDIMM up to 64GB / RDIMM up to 128GB	
	Memory Socket	2 x 288-pin DIMM	1 x 288-pin DIMM
Network and Security	Network Acceleration and Security Function	• 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® Virtualization Technology for Directed I/O (VT-d) • Intel® Virtualization Technology (VT-x) • 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 88E1543	
	Ethernet Port	4 x GbE from Intel® i211-AT 4 x GbE from Marvell 88E1543	4 x GbE from Intel® i211-AT 2 x GbE from Marvell 88E1543
	Bypass	Yes, 2 bypass segments	Yes, 1 bypass segments
	Network Module Slot	N/A	
Expansion Slot	PCIe Slot	N/A	
	PCIe Mini Card Slot	1 x PCIe Mini card (PCIe 3.0, USB 2.0) with SIM slot	
	M.2	1 x M.2 A key (PCIe 3.0 & USB 2.0)	
Storage	Storage	1 x SATA 3.0 + 1 x 5V power connector (for SATA DOM) 1 x M.2 M key 2260/2280 Support PCIe 3.0 x4 nVME	
	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	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	Fanless	
	Antenna Hole	2 x Antenna hole	
Physical and Environmental	Storage Temperature	-20°C ~ 75°C (-4°F ~ 167°F)	
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)	
	Operating 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 / RoHS	
	Operating System	Linux Ubuntu 18.04.04 CentOS 7 / Red Hat / Fedora EPEL Microsoft Windows 10	
Indicators	LCM	N/A	
	LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED	

Ordering Information

Part No.	Description
PUZZLE-IN003A-C1-R10	Desktop network appliance with Intel® ATOM® C3558 processor, 8 x 1GbE on Board with up to 2 bypass segments, eMMC 32GB & 2 x M.2 slot, RoHS
PUZZLE-IN003A-C1/8G-R10	Desktop network appliance with Intel® ATOM® C3558 processor, 8 x 1GbE on Board with up to 2 bypass segments, 8GB DDR4, eMMC 32GB & 2 x M.2 slot, RoHS
PUZZLE-IN003A-C3-R10	Desktop network appliance with Intel® ATOM® C3336 processor, 6 x 1GbE on Board with up to 1 bypass segments, eMMC 32GB & 2 x M.2 slot, RoHS
PUZZLE-IN003A-C3/8G-R10	Desktop network appliance with Intel® ATOM® C3336 processor, 6 x 1GbE on Board with up to 1 bypass segments, 8GB DDR4, eMMC 32GB & 2 x M.2 slot, RoHS

Packing List

	PUZZLE-IN003A-C1-R10	PUZZLE-IN003A-C1/8G-R10	PUZZLE-IN003A-C3-R10	PUZZLE-IN003A-C3/8G-R10
Power cord	1	1	1	1
Power adapter	1	1	1	1
Rack mounting ears	Option	2	Option	2
Screws for rack mounting ears	Option	6	Option	6
USB to console cable	Option	1	option	1
RS-232 to console cable	1	Option	1	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
Rack ear mounting kit	19B00-000417-00-RS	Accessory module: PUZZLE-IN003 series rack ear mounting kit

IO Interface

PUZZLE-IN003A-C1

Power LED
Storage LED
Alert LED

8 x GbE sku

PUZZLE-IN003A-C3

Power LED
Storage LED
Alert LED

6 x GbE sku

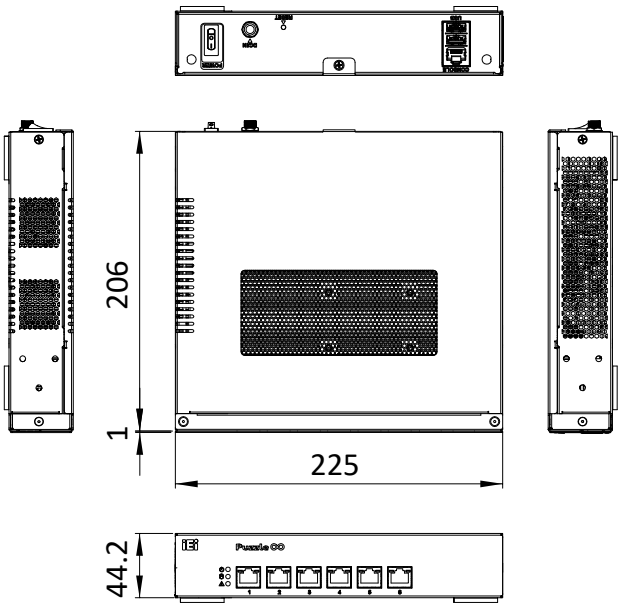
Rear view

Antenna Port

CONSOLE
USB 2.0
USB 3.0

Reset DC/IN Power

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

Microsoft Azure Certified

Features

- Intel® Atom® processor C3558 8M Cache, up to 2.20 GHz
- Support 4 x 1 GbE NIC via Intel® C3558, 2 x 1 GbE PHY via Marvell 88E1512, 2 x 10 GbE SFP+ via intel C3558
- DDR4 2133 MHz ECC (by CPU) or non-ECC UDIMM/R-DIMM Up to 128GB
- 1 x M.2 A key (USB 2.0, PCIe x1), 1 x miniPCIe (USB 2.0, PCIe x1) with 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 2133 MHz 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: Intel® X553 integrated in CPU	
	Ethernet Port	4 x 1GbE from Intel® i211-AT 2 x 1GbE from Marvell 88E1512 2 x 10 GbE SFP+	
	Network Module Slot	N/A	
Expansion Slot	PCIe Slot	N/A	
	PCIe Mini Card Slot	1 x PCIe Mini card (PCIe 3.0, USB 2.0) with SIM slot	
	M.2	1 x M.2 A key (PCIe 3.0& USB 2.0)	
Storage	Storage	1 x SATA 3.0 + 1 x 5V power connector (for SATA DOM) 1 x M.2 M key 2260/2280 Support PCIe 3.0 x4 nVME	
	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	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 Hole	2 x Antenna hole	
Physical and Environmental	Storage Temperature	-20°C ~ 75°C (-4°F ~ 167°F)	
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)	
	Operating 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 / RoHS	
	Operating System	Linux Ubuntu 18.04.04 CentOS 7 / Red Hat / Fedora EPEL Microsoft Windows 10	
Indicators	LCM	N/A	
	LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED	

Ordering Information

Part No.	Description
PUZZLE-IN003B-C0-R10	Desktop network appliance with Intel® ATOM® C3758 processor, 4 x DDR4 slots, 6 x 1GbE, 2 x 10 GbE & 2 x M.2 slots, 1 x PCIe Mini slot, 1 x eMMC 32GB, RoHS
PUZZLE-IN003B-C0/8G-R10	Desktop network appliance with Intel® ATOM® C3758 processor, one 8GB DDR4, 6 x 1GbE, 2 x 10 GbE & 2 x M.2 slots, 1 x PCIe Mini slot, 1 x eMMC 32GB, RoHS
PUZZLE-IN003B-C1-R10	Desktop network appliance with Intel® ATOM® C3558 processor, 4 x DDR4 slots, 6 x 1GbE, 2 x 10 GbE & 2 x M.2 slots, 1 x PCIe Mini slot, 1 x eMMC 32GB, RoHS
PUZZLE-IN003B-C1/8G-R10	Desktop network appliance with Intel® ATOM® C3558 processor, one 8GB DDR4, 6 x 1GbE, 2 x 10 GbE & 2 x M.2 slots, 1 x PCIe Mini slot, 1 x eMMC 32GB, RoHS

Packing List

	PUZZLE-IN003B-C0-R10	PUZZLE-IN003B-C0/8G-R10	PUZZLE-IN003B-C1-R10	PUZZLE-IN003B-C1/8G-R10
Power cord	1	1	1	1
Power adapter	1	1	1	1
Rack mounting ears	Option	2	Option	2
Screws for rack mounting ears	Option	6	Option	6
USB to console cable	Option	1	Option	1
RS-232 to console cable	1	Option	1	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
Rack ear mounting kit	19B00-000417-00-RS	Accessory module: PUZZLE-IN003 series rack ear mounting kit

IO Interface

Power LED
Storage LED
Alert LED

Six GbE

Two 10 GbE

Rear view

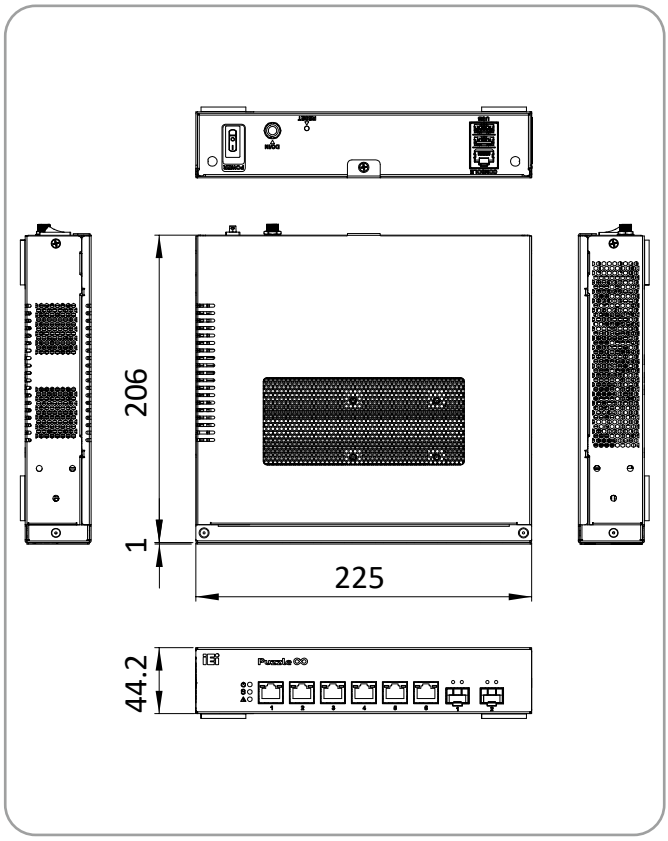
CONSOLE
USB 2.0
USB 3.0

Reset

DC/IN

Power

Dimensions (Unit: mm)



PUZZLE-M901

Features

- Marvell CN9130 quad-core ARMv8 cortex-A72 @ up to 2200 MHz
- Six 2.5 GbE RJ-45 ports
- Onboard 4 GB eMMC
- LED indicators: Status/Power & WAN/LAN interface indicator
- Pre-installed OpenWrt
- Support M.2 2242 M key (PCIe Gen 3 x2)

Specifications

		PUZZLE-M901
Form Factor	Desktop	Desktop
	CPU	Marvell® CN9130 quad-core ARMv8 Cortex-A72 @ up to 2200 MHz
Memory	System Memory	4GB
Networking	Ethernet IC	Aquantia AQR112R
		Aquantia AQR112C
		Aquantia AQR112
	Ethernet Port	1 x 2.5GbE LAN integrated in CPU via PHY Aquantia AQR112R
		1 x 2.5GbE LAN integrated in CPU via PHY Aquantia AQR112C
		1 x 2.5GbE LAN integrated in CPU via PHY Aquantia AQR112
		1 x 2.5GbE LAN via Marvell 88F8215 (PHY: Aquantia AQR112R)
		1 x 2.5GbE LAN via Marvell 88F8215 (PHY: Aquantia AQR112C)
		1 x 2.5GbE LAN via Marvell 88F8215 (PHY: Aquantia AQR112)
Expansion slot	M.2	M.2 2242 M key (PCIe Gen 3 x2)
Storage	eMMC	1 x 4GB eMMC
Internal I/O	USB	USB 3.2 Gen 1 (5Gb/s)
Power and Mechanical	Reset Button	1 x Reset to factory default
	System Cooling	Active fan
Physical and Environmental	Storage Temperature	-20°C ~ 75°C (-4°F ~ 167°F)
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)
	Relative Humidity	5% ~ 95% non-condensing, wet bulb: 27˚C
	Dimensions (W x L x H) (mm)	166.4 x 145.7 x 34
OS and Certifications	Certification	CE/FCC/BSMI (BSMI safety)/VCCI, LVD
	Operating System	OpenWrt
	Forum	OpenWrt forum
	FAQ	OpenWr FAQ
Indicators	LED Indicators	Status/Power, WAN/LAN interface indicator
	System Warning	Beep

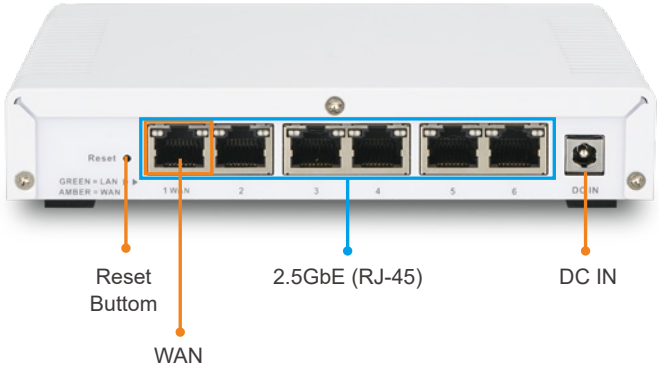
Ordering Information

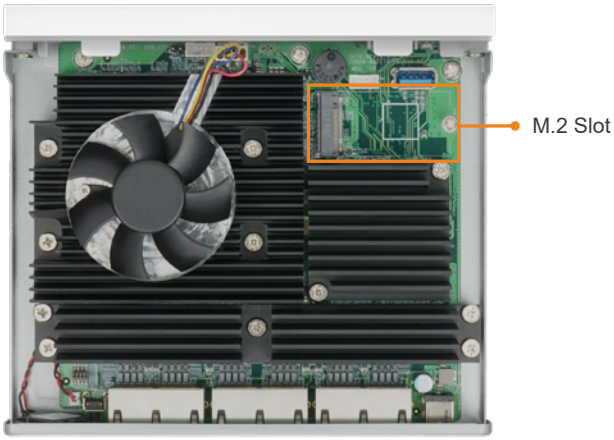
Part No.	Description
PUZZLE-M901-CN1-R10	Desktop network appliance with Marvell CN9130 processor, six 2.5GbE, on-board 4GB eMMC, one M.2 slot, RoHS

Packing List

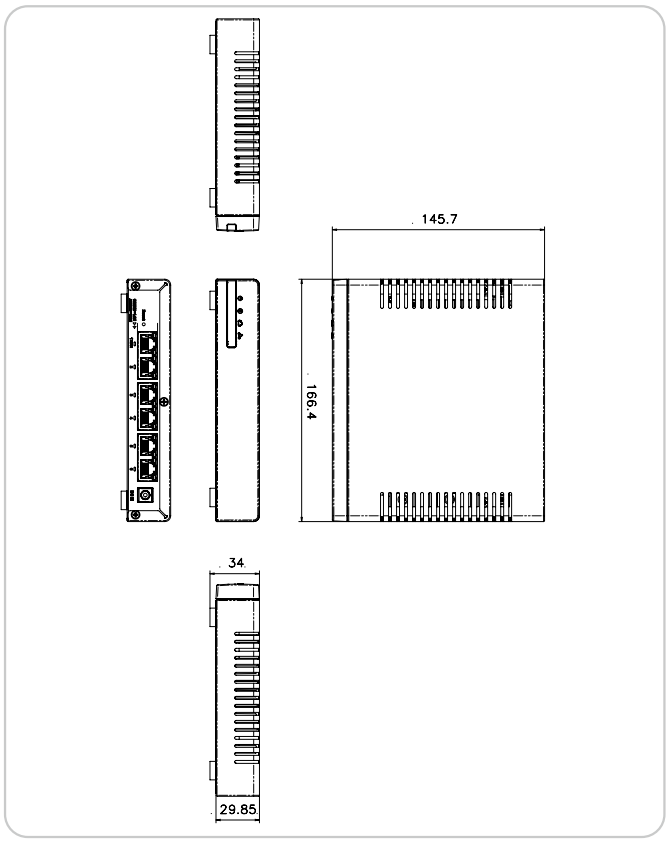
	PUZZLE-M901-CN1-R10
Power cord	1
Power adapter	1

IO Interface

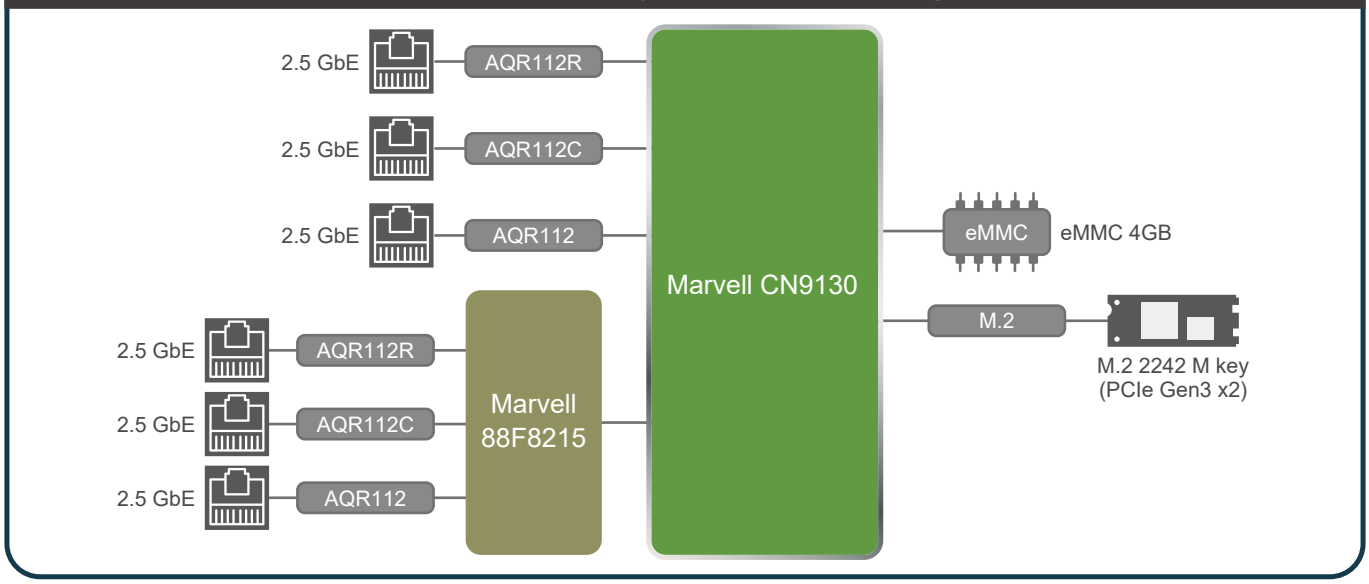




Dimensions (Unit: mm)



PUZZLE-M901 System Block Diagram



PUZZLE-M902

Desktop network appliance with Marvell CN9130 processor, six 2.5GbE and three 10 GbE, on-board 4GB eMMC, one M.2 slot

Features

- Marvell CN9130 quad-core ARMv8 cortex-A72 @ up to 2200 MHz
- Six 2.5 GbE RJ-45 ports & Three 10 GbE RJ-45 ports
- Onboard 4 GB eMMC, one console port (pin-header)
- LED indicators : Status/Power & WAN/LAN interface indicator
- Pre-installed OpenWrt
- Support M.2 2242/2280 M key (PCIe Gen 3 x1)

Specifications

		PUZZLE-M902
Form Factor	**Desktop**	Desktop
	CPU	Marvell® CN9130 quad-core ARMv8 Cortex-A72 @ up to 2200 MHz
Memory	**System Memory**	4GB
Networking	**Ethernet IC**	Aquantia AQR112R
		Aquantia AQR113
	Ethernet Port	2 x 2.5GbE LAN integrated in CPU via PHY Aquantia AQR112R
		4 x 2.5GbE LAN via Marvell 88F8215 (PHY: Aquantia AQR112R)
		1 x 10GbE LAN integrated in CPU via PHY Aquantia AQR113
		2 x 10GbE LAN via Marvell 88F8215 (PHY: Aquantia AQR113)
Expansion slot	**M.2**	M.2 2242/2280 M key (PCIe Gen 3 x1)
Storage	**eMMC**	1 x 4GB eMMC
External I/O	**USB**	USB 3.2 Gen 1 (5Gb/s)
Power and Mechanical	**Reset Button**	to factory default
	System Cooling	1 system fan
Physical and Environmental	**Storage Temperature**	-20°C ~ 75°C (-4°F ~ 167°F)
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)
	Relative Humidity	5% ~ 95% non-condensing, wet bulb: 27˚C
	Dimensions (W x L x H) (mm)	226 x140 x 50.5
OS and Certifications	**Certification**	CE/FCC/BSMI (BSMI safety)/VCCI, LVD
	Operating System	OpenWrt
	Forum	OpenWrt forum
	FAQ	OpenWr FAQ
Indicators	**LED Indicators**	Status/Power, WAN/LAN interface indicator
	System Warning	Beep

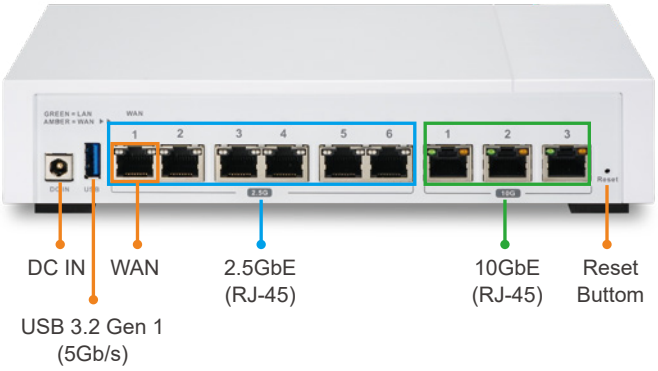
Ordering Information

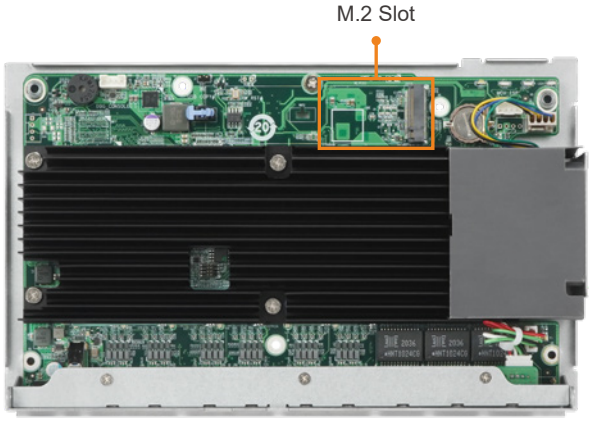
Part No.	Description
PUZZLE-M902-CN1-R10	Desktop network appliance with Marvell CN9130 processor, six 2.5GbE and three 10 GbE, on-board 4GB eMMC, one M.2 slot, RoHS

Packing List

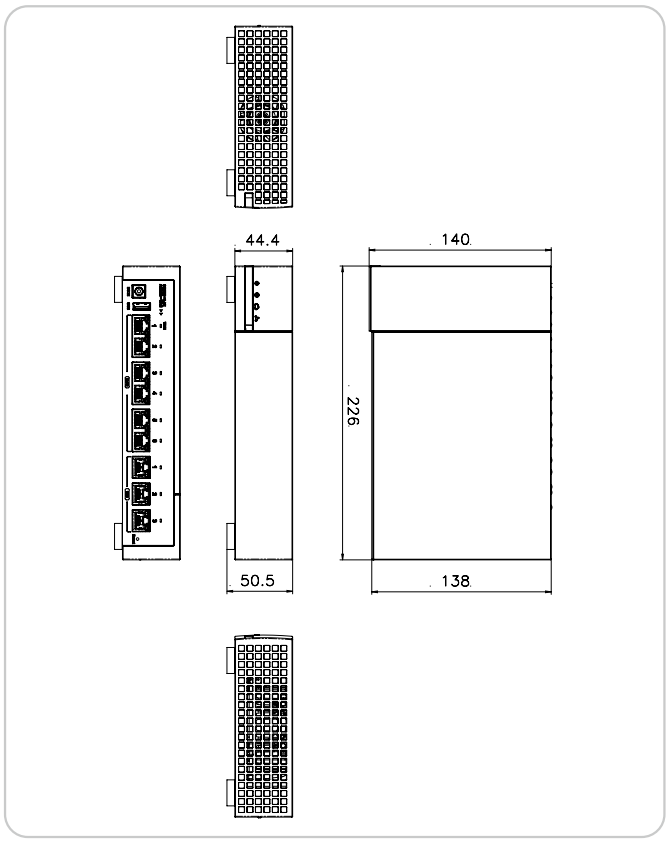
	PUZZLE-M902-CN1-R10
Power cord	1
Power adapter	1

IO Interface

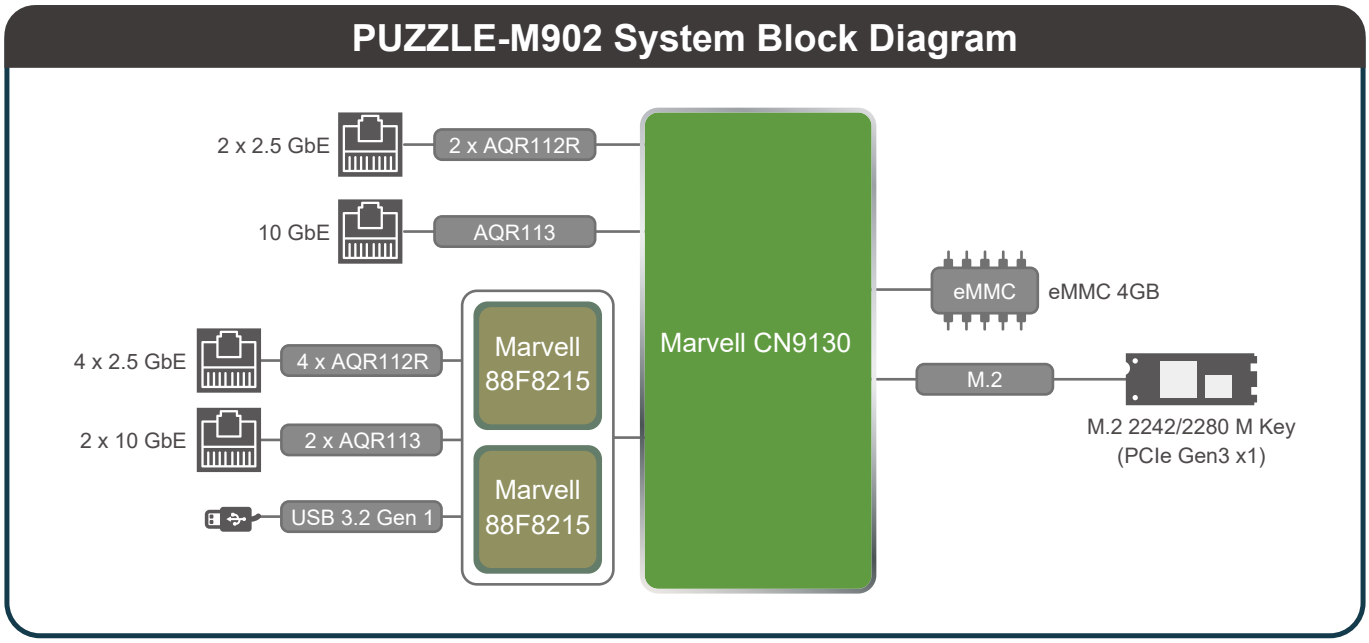




Dimensions (Unit: mm)



PUZZLE-M902 System Block Diagram



PUZZLE-M801

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

aws qualified device

Features

- Marvell® ARMADA® 88F8040 high-performance quad-core System-on-Chip processor
- 1 x 288-pin DIMM, DDR4 2400 MHz, 16GB (ECC)
- 2 x 10GbE SFP+ via Marvell® ARMADA® 88F8040, 4 x GbE RJ-45 via Marvell 88E1512P
- 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, 2.0GHz
	Chipset	Integrated in CPU
Memory	Memory Technology	DDR4 2400 MHz 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 10GbE PHY: SoC Marvell 88F8040
	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 (FHHL) slot PCIe 3.0 x2 signal
	PCIe Mini Card Slot	N/A
	M.2	1 x M.2 B Key (3042/2260) (SATA 3.0 and USB 3.2 Gen 1) Support SATA SSD or 4G LTE module (USB signal)
Storage	Storage	1 x 2.5" SATA HDD/SSD bay support SATA 3.0 (6 Gbps)
	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	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 Hole	1 x Antenna hole
Physical and Environmental	Storage Temperature	-20°C ~ 75°C (-4°F ~ 167°F)
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)
	Operating Humidity	5% ~ 90% non-condensing
	Dimensions (W x L x H) (mm)	430 x 320 x 44.2
	Weight	5 kg
OS and Certifications	Certification	CE / FCC / RoHS
	Operating System	Linux Ubuntu 16.04.04
Indicators	LCM	N/A
	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

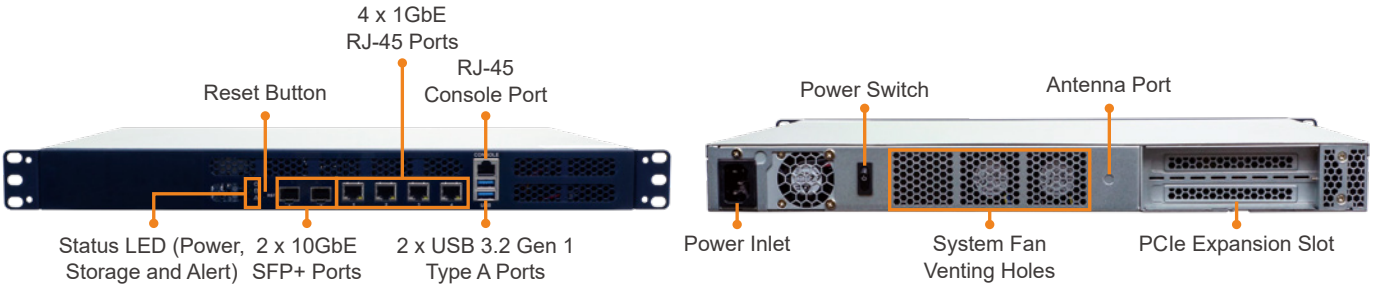
Packing List

	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

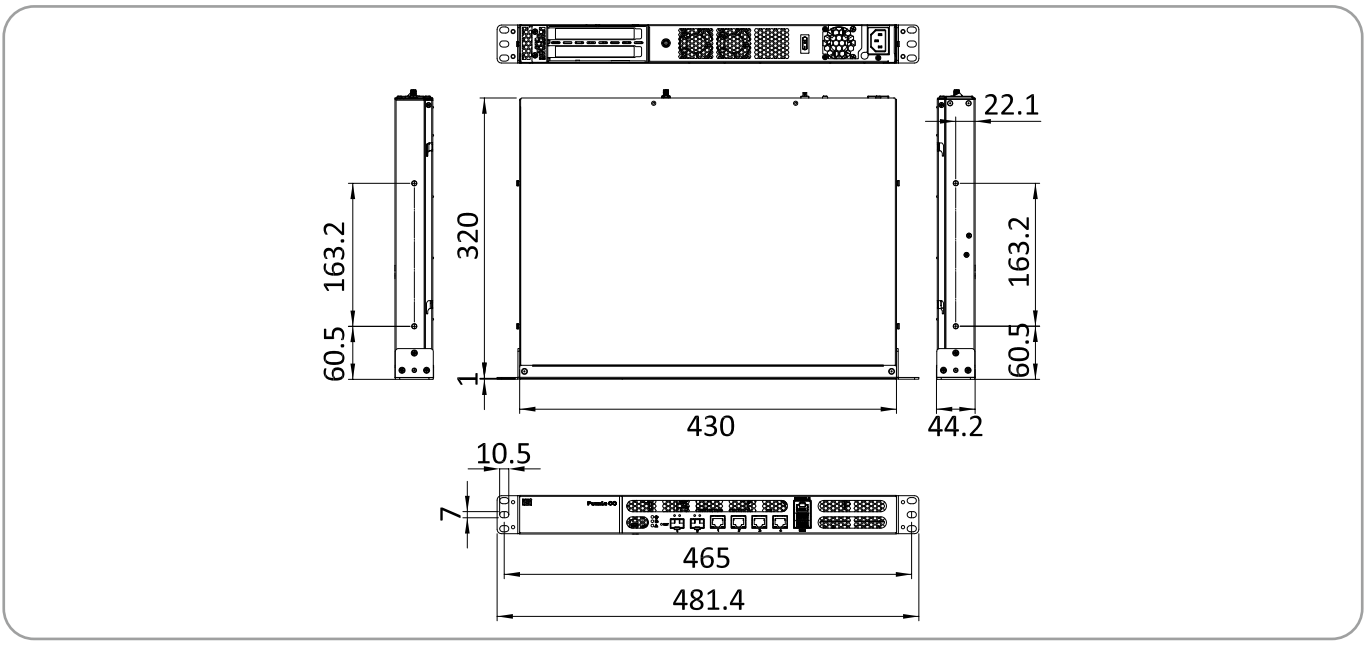
Options

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

IO Interface



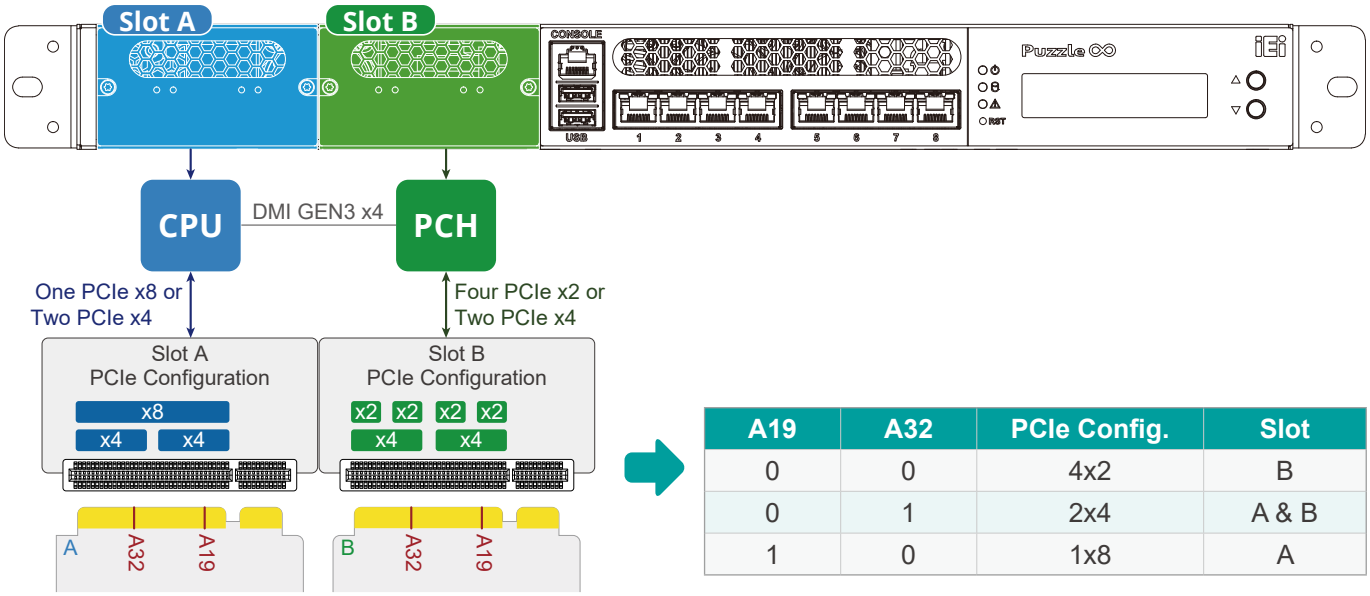
Dimensions (Unit: mm)



Diverse PulM Network Modules

Dual BIOS

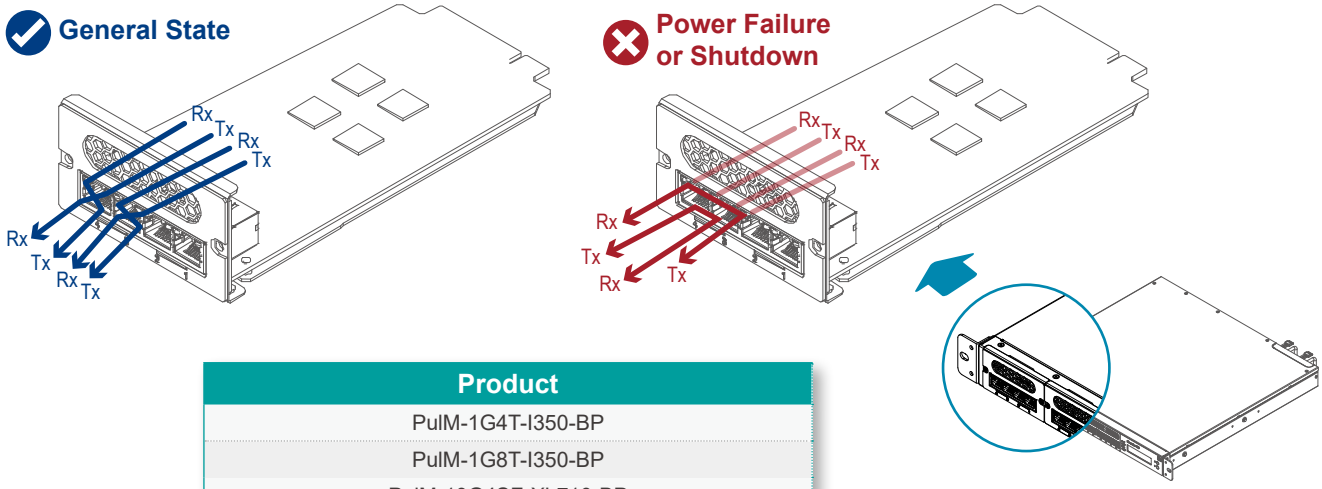
Install the IEI PulM networking module into the slot of the PUZZLE series. The Slot A supports 8 lanes from CPU (one PCIe x8 or two PCIe x4); the Slot B supports two PCIe x4 or four PCIe x2 from PCH.



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

Uninterrupted Data Transmission - Bypass Function

With bypass function, the network connected to this device can be connected to each other when the network security device fails.



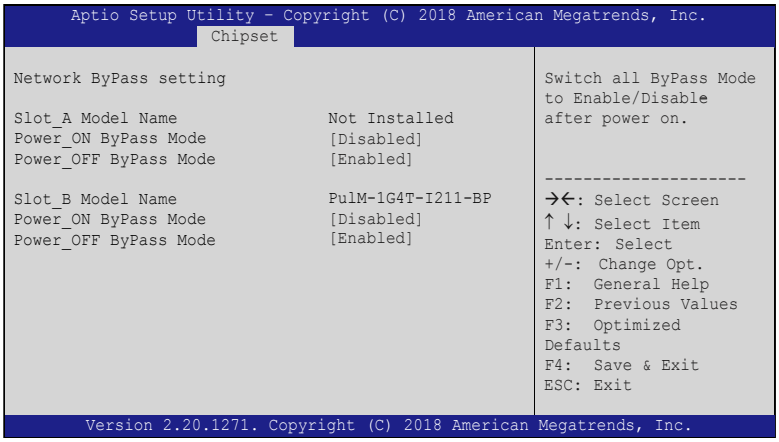
Product
PulM-1G4T-I350-BP
PulM-1G8T-I350-BP
PulM-10G4SF-XL710-BP

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)

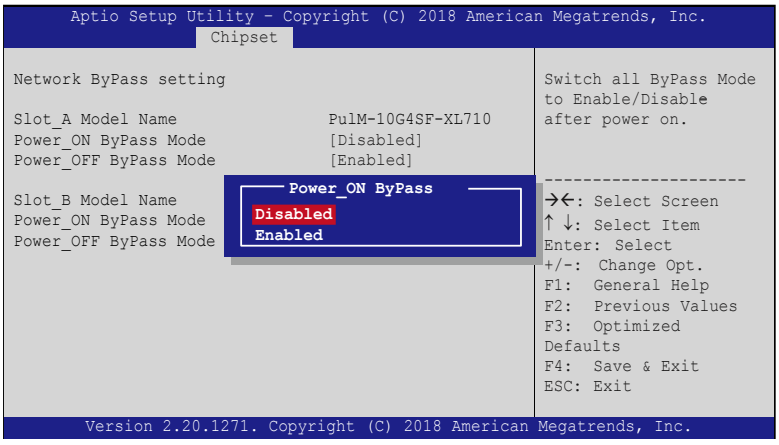


Step 2

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.

2U PulM Series Selection Guide

	PulM-100G2SF-E810	PulM-100G2SF-CX6	PulM-10G4SF/T-XL710
Chipset	Intel® E810	Mellanox ConnectX-6 Dx	Intel® XL710
Bypass	No	No	No
Host Interface	PCIe 4.0 x8	PCIe 4.0 x16	PCIe 3.0 x8
LAN Interface	QSFP28	2 x QSFP28	SFP+
Speed	1GbE / 10GbE / 25GbE / 50GbE / 100GbE	1/10/25/40/50/100 Gb/s	1GbE/10GbE
LAN Port Number	2	2	4
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)	-20°C ~ 75°C (-4°F ~ 167°F)	-20°C ~ 75°C (-4°F ~ 167°F)
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C	0°C ~ 40°C (32°F ~ 104°F)
Humidity	5% ~ 90% RH, non-condensing	5% ~ 90% RH, non-condensing	5% ~ 90% RH, non-condensing
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)	162.2 (L) x 74 (W) x 41.85 (H)	165.50 (L) x 77.8 (W) x 44.2 (H)
Certification	RoHS	CE / FCC / RoHS	CE / FCC / RoHS

	PulM-10G4SF/T-XL710-BP	PulM-10G4SF/T-MLX	PulM-1G4SF/T-I350	PulM-1G8SF/T-I350
Chipset	Intel® XL710	Mellanox ConnectX-4	Intel® I350-AM4	Intel® I350-AM4
Bypass	Yes, two pairs	No	No	No
Host Interface	PCIe 3.0 x8	2 PCIe 3.0 x4	2 PCIe 2.0 x4	2 PCIe 2.0 x4
LAN Interface	SFP+	SFP+	SFP	SFP
Speed	1GbE/10GbE	1GbE/10GbE	GbE	GbE
LAN Port Number	4	4	4	8
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)			
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)			
Humidity	5% ~ 90% RH, non-condensing			
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)			
Certification	RoHS	CE / FCC / RoHS	RoHS	RoHS

	PulM-1G4T/T-I350	PulM-1G4T/T-I350-BP	PulM-1G8T/T-I350	PulM-1G8T/T-I350-BP
Chipset	Intel® I350-AM4	Intel® I350-AM4	Intel® I350-AM4	Intel® I350-AM4
Bypass	No	Yes, two pairs	No	Yes, four pairs
Host Interface	2 PCIe 2.0 x4	2 PCIe 2.0 x4	2 PCIe 2.0 x4	2 PCIe 2.0 x4
LAN Interface	RJ-45	RJ-45	RJ-45	RJ-45
Speed	GbE	GbE	GbE	GbE
LAN Port Number	4	4	8	8
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)			
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)			
Humidity	5% ~ 90% RH, non-condensing			
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)			
Certification	CE / FCC / RoHS	CE / FCC / RoHS	CE / FCC / RoHS	CE / FCC / RoHS

1U PulM Series Selection Guide

	PulM-10G4SF-XL710	PulM-10G4SF-XL710-BP
Chipset	Intel® XL710	Intel® XL710
Bypass	No	Yes, two pairs
Host Interface	PCIe 3.0 x8	PCIe 3.0 x8
LAN Interface	SFP+	SFP+
Speed	1GbE/10GbE	1GbE/10GbE
LAN Port Number	4	4
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)	
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)	
Humidity	5% ~ 90% RH, non-condensing	
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)	
Certification	CE / FCC / RoHS	RoHS

	PulM-10G4T-AQC107	PulM-1G4SF-I350	PulM-1G8SF-I350
Chipset	Aquantia AQC107	Intel® I350-AM4	Intel® I350-AM4
Bypass	No	No	No
Host Interface	4 PCIe 3.0 x2	2 PCIe 2.0 x4	2 PCIe 2.0 x4
LAN Interface	RJ-45	SFP	SFP
Speed	10GBASE-T/ 5GBASE-T/ 2.5GBASE-T/ 1000BASE-T/ 100BASE-TX	GbE	GbE
LAN Port Number	2	4	8
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)		
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)		
Humidity	5% ~ 90% RH, non-condensing		
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)		
Certification	RoHS	RoHS	RoHS

	PulM-1G4T-I350	PulM-1G4T-I350-BP	PulM-1G8T-I350	PulM-1G8T-I350-BP	PulM-1G8T-BCM5720
Chipset	Intel® I350-AM4	Intel® I350-AM4	Intel® I350-AM4	Intel® I350-AM4	Broadcom BCM5720
Bypass	No	Yes, two pairs	No	Yes, four pairs	No
Host Interface	2 PCIe 2.0 x4	2 PCIe 2.0 x4	2 PCIe 2.0 x4	2 PCIe 2.0 x4	4 PCIe 2.0 x2
LAN Interface	RJ-45	RJ-45	RJ-45	RJ-45	RJ-45
Speed	GbE	GbE	GbE	GbE	GbE
LAN Port Number	4	4	8	8	8
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)				
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)				
Humidity	5% ~ 90% RH, non-condensing				
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)				
Certification	CE / FCC / RoHS	CE / FCC / RoHS	CE / FCC / RoHS	CE / FCC / RoHS	RoHS

	PulM-2P1M	PulM-M2-2S
Interface	1 PCIe 3.0 x4	2 PCIe 3.0 x4
Onboard IC	ASM1812 (PCIe Gen 2 x4) FL1100EX (PCI-E To USB 3.0 (4 Port))	N/A
M.2	1 x 2230/2242 M.2 B key (PCIe 2.0, USB 3.2 Gen 1) with SIM card slot	2 x M key 2260/2280/22110 (PCIe 3.0 x4/NVMe)
PCIe	2 x PCIe Mini (PCIe 2.0, USB 2.0) with SIM card slot	N/A
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)	
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)	
Humidity	5% ~ 90% RH, non-condensing	
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)	
Certification	RoHS	RoHS

PulM-100G2SF-E810

Intel® Ethernet Controller EZE810CAM2 based Network Interface Card with 2 x QSFP28 by PCIe 4.0 x8 interface

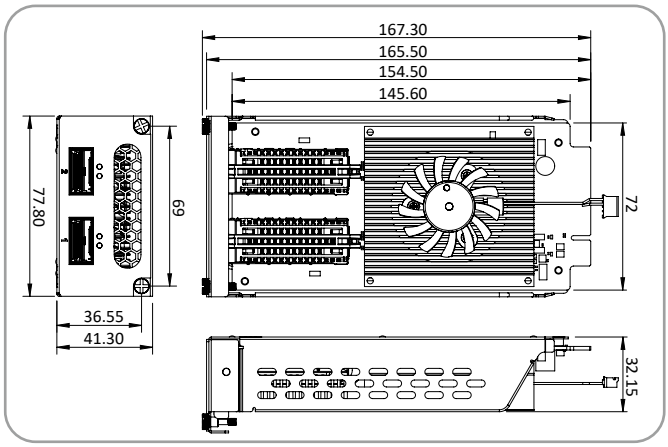
Features

- 1 x Intel® E810 Ethernet controller
- 2 ports 100GbE QSFP28 connector
- PCIe 4.0 x8 interface
- RoHS compliant

Specifications

	PulM-100G2SF-E810
Form Factor	IEI Networking Module - PulM
NIC	Intel® E810
LAN Bypass	N/A
LAN Interface	QSFP28
Speed	100GbE
Ports	2
Host Interface	PCIe 4.0 x8
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)
Humidity	5% ~ 90% RH, Non-condensing
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)
Compliance	RoHS

Dimensions *(Unit: mm)*



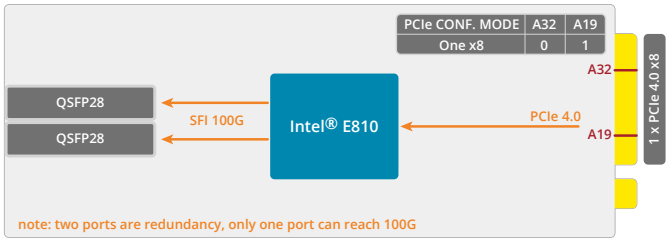
Ordering Information

Part No.	Description
PulM-100G2SF-E810-R10	Intel® Ethernet Controller EZE810CAM2 based Network Interface Card with 2 x QSFP28 by PCIe 4.0 x8 interface

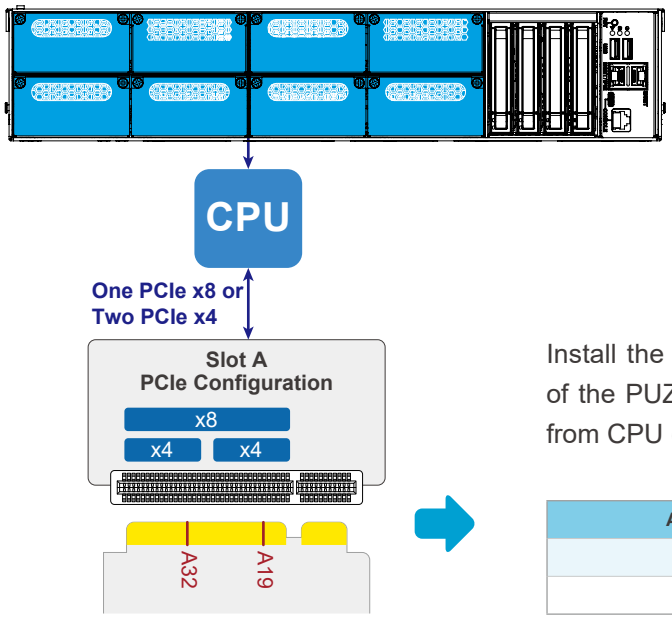
Packing List

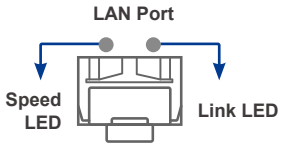
1 x PulM-100G2SF-E810 module	1 x QIG

Block Diagram



Hardware Installation





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

Install the IEI PulM-100G2SF-E810 networking module into the slot of the PUZZLE-IN005. All slots support 8 lanes of PCIe gen4 signal from CPU (one PCIe x8 or two PCIe x4).

A19	A32	PCIe Config.
0	1	2x4
1	0	1x8

PulM-100G2SF-CX6

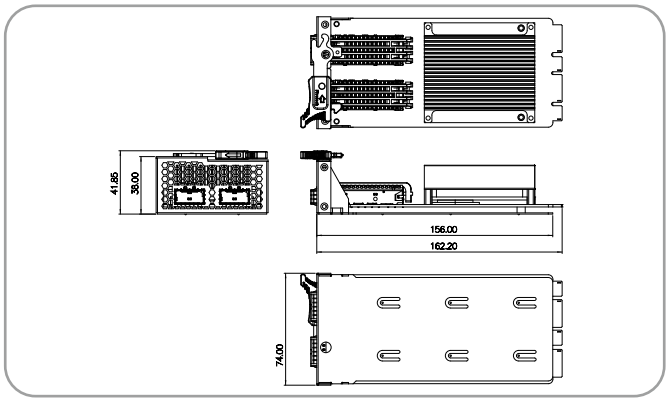
Features

- ConnectX-6 Dx dual 100GbE network IC supports 1/10/25/40/50/100 Gb/s
- Ethernet with host interface: PCIe Gen 3.0/4.0 x16 cyber security
- Inline hardware IPsec encryption & decryption
- Inline hardware TLS encryption & decryption
- Data-at-rest AES-XTS encryption & decryption
- Platform security: 1. Hardware root-of-trust, 2. Secure firmware update
- Stateless offloads
- TCP/UDP/IP stateless offload: LSO, LRO, checksum offload
- Advanced timing & synchronization
- Storage accelerations
- RDMA over Converged Ethernet (RoCE)

Specifications

	PulM-100G2SF-CX6
Form Factor	IEI Networking Module - PulM
NIC	ConnectX-6 Dx
LAN Bypass	N/A
LAN Interface	2 x QSFP28
LAN Speed	1/10/25/40/50/100 Gb/s
Host Interface	PCIe 4.0 x16
Operating Temp	0°C ~ 40°C
Humidity	5% ~ 90% RH, Non-condensing
Compliance	CE, FCC, RoHS
Support Device	PUZZLE-9030

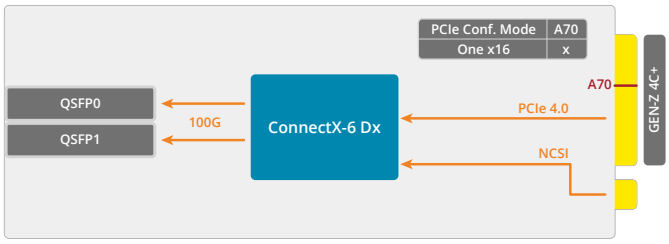
Dimensions *(Unit: mm)*

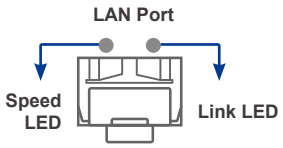


Ordering Information

Part No.	Description
PulM-100G2SF-CX6	ConnectX-6 Dx dual 100GbE network IC support 1/10/25/40/50/100 Gb/s, Ethernet with Host Interface > PCIe Gen 3.0/4.0 x16 Cyber Security, Inline hardware IPsec encryption & decryption, Inline hardware TLS encryption & decryption, Data-at-rest AES-XTS encryption & decryption, Platform security : 1. Hardware root-of-trust, 2.Secure firmware update, Stateless Offloads, TCP/UDP/IP stateless offload > LSO, LRO, checksum offload, Advanced Timing & Synchronization, Storage Acceleration, RDMA over Converged Ethernet (RoCE)

Block Diagram



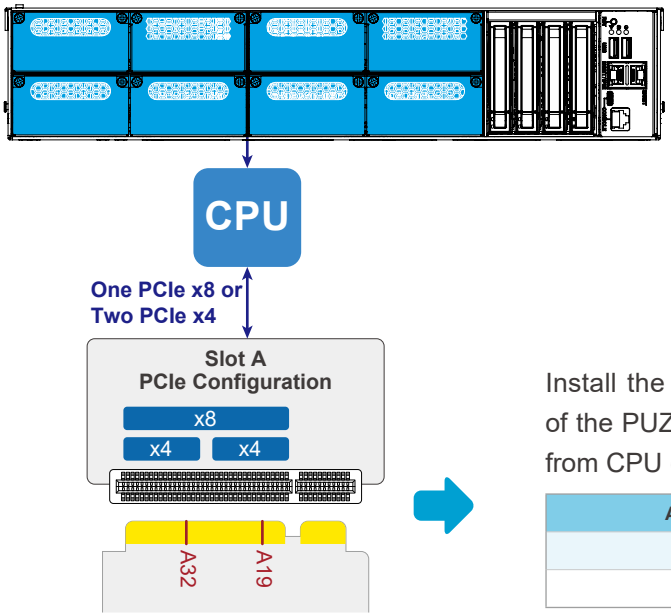


LED	State	Description
Link (Right)	Yellow	Active
Speed (Left)	Green	100Gbps data rate
	Orange	Other data rate

Packing List

PulM-100G2SF-CX6	2

Hardware Installation



Install the IEI PulM-100G2SF-CX6 networking module into the slot of the PUZZLE-IN005. All slots support 8 lanes of PCIe Gen 4 signal from CPU (one PCIe x8 or two PCIe x4).

A19	A32	PCIe Config.
0	1	2x4
1	0	1x8

PulM-10G4SF-XL710

Intel® Ethernet Controller XL710-BM1 based Network Interface Card with 4 x SFP+ by PCIe 3.0 x8 interface

Features

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

Specifications

Model Name	PulM-10G4SF-XL710	PulM-10G4SF/T-XL710
Form Factor	IEI Networking Module	
NIC	Intel® XL710-BM1 Ethernet Controller	
LAN Interface	SFP+	
Speed	1GbE/ 10GbE	
Ports	4	
Host Interface	PCIe 3.0 x8	
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)	
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)	
Humidity	5% ~ 90% RH, Non-condensing	
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)	
Compliance	CE / FCC / RoHS	
Support Device	PUZZLE-IN001 PUZZLE-IN001A PUZZLE-IN004	PUZZLE-IN005

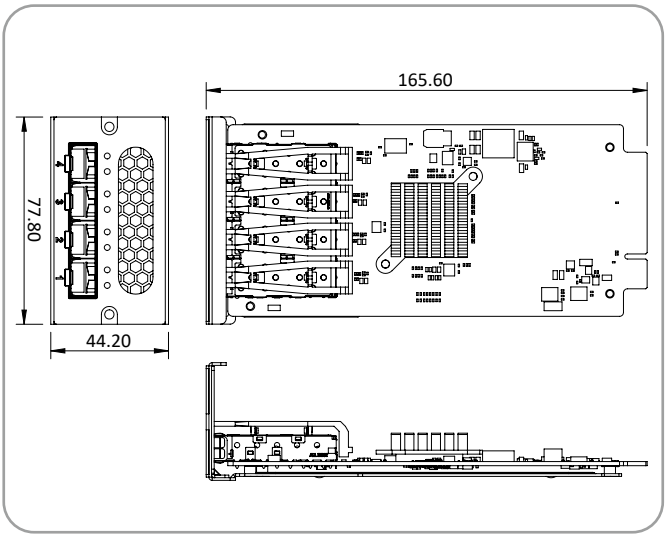
Ordering Information

Part No.	Description
PulM-10G4SF-XL710-R10	Intel® Ethernet Controller XL710-BM1 based Network Interface Card with 4 x SFP+ by 1 PCIe 3.0 x 8 interface, RoHS
PulM-10G4SF/T-XL710-R10	Intel® Ethernet Controller XL710-BM1 based Network Interface Card with 4 x SFP+ by 1 PCIe 3.0 x 8 interface, RoHS

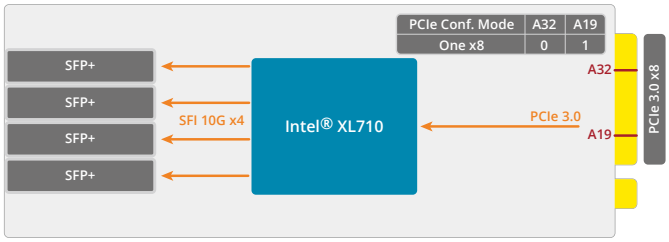
Packing List

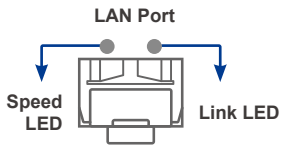
Part No.	L-shaped T10 PulM Wrench	Torx Screws	QIG
PulM-10G4SF-XL710-R10	1	2	1
PulM-10G4SF/T-XL710-R10	N/A	N/A	1

Dimensions *(Unit: mm)*



Block Diagram





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

PulM-10G4SF-XL710-BP

Intel® Ethernet Controller XL710-BM1 based Network Interface Card with four 10GbE Fiber ports, two pair Bypass

Features

- 1 x Intel® Ethernet Controller XL710-BM1
- 4 x Fiber LC (SR or LR) interface
- PCIe 3.0 x8
- Two LAN bypass model available

Specifications

Model Name	PulM-10G4SF-XL710-BP	PulM-10G4SF/T-XL710-BP
Form Factor	IEI Networking Module	
NIC	Intel® XL710-BM1 Ethernet Controller	
Bypass	Yes, two pairs	
LAN Interface	10 GbE fiber LC (SR & LR)	
Speed	10GbE	
Ports	4	
Host Interface	PCIe 3.0 x8	
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)	
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)	
Humidity	5% ~ 90% RH, Non-condensing	
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)	
Compliance	CE / FCC / RoHS	
Support Device	PUZZLE-IN001 PUZZLE-IN001A PUZZLE-IN004	PUZZLE-IN005

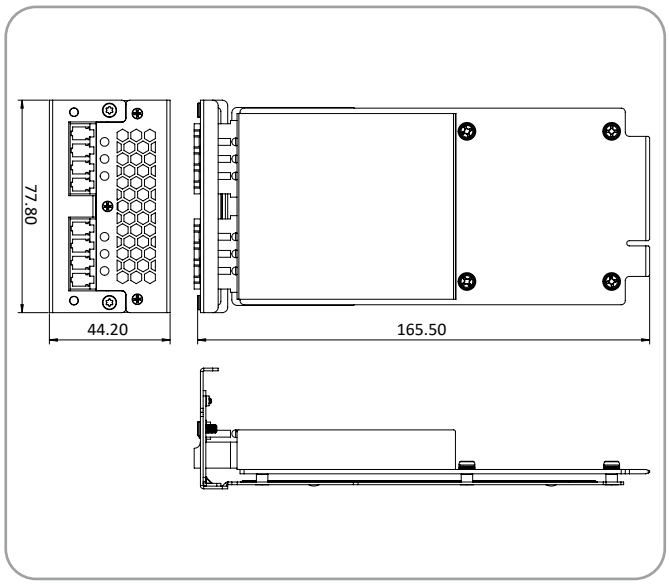
Ordering Information

Part No.	Description
PulM-10G4SF-XL710-BP-R10	Intel® Ethernet Controller XL710-BM1 based Network Interface Card with four 10GbE Fiber ports, two pair Bypass, RoHS.
PulM-10G4SF/T-XL710-BP-R10	Intel® Ethernet Controller XL710-BM1 based Network Interface Card with four 10GbE Fiber ports, two pair Bypass, RoHS.

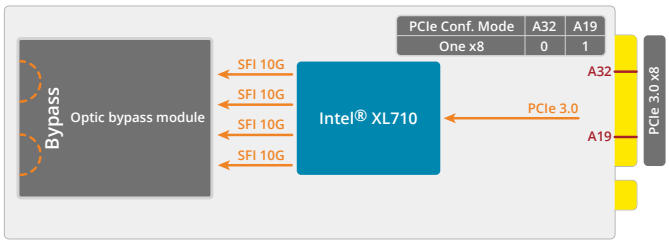
Packing List

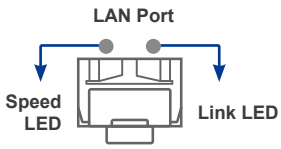
Part No.	L-shaped T10 PulM Wrench	Torx Screws	QIG
PulM-10G4SF-XL710-BP-R10	1	2	1
PulM-10G4SF/T-XL710-BP-R10	N/A	N/A	1

Dimensions *(Unit: mm)*



Block Diagram





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

PulM-10G4T-AQC107

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

Features

- 4 x Aquantia AQC107
- 4 x 10GBASE-T connectors
- 4 PCIe 3.0 x2
- RoHS compliant

Specifications

Model Name	PulM-10G4T-AQC107	PulM-10G4T/T-AQC107
Form Factor	IEI Networking Module	
NIC	Aquantia AQC107	
LAN Interface	10GBASE-T (RJ-45)	
Speed	10GBASE-T/ 5GBASE-T/ 2.5GBASE-T/ 1000BASE-T/ 100BASE-TX	
Ports	4	
Host Interface	4 PCIe 3.0 x2	
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)	
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)	
Humidity	5% ~ 90% RH, Non-condensing	
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)	
Compliance	RoHS	
Support Device	PUZZLE-IN001 PUZZLE-IN001A PUZZLE-IN004	PUZZLE-IN005

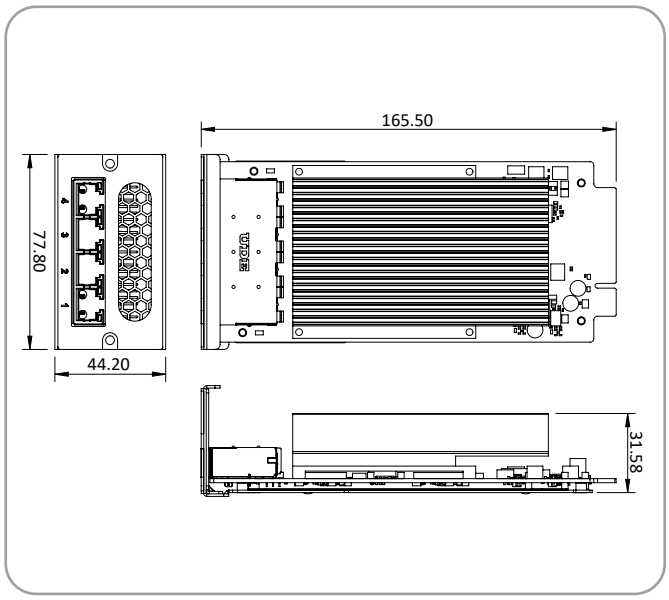
Ordering Information

Part No.	Description
PulM-10G4T-AQC107-R10	Aquantia AQC107 based Network Interface Card with 4 x 10GBASE-T by 4 PCIe 3.0 x2 Interface, RoHS
PulM-10G4T/T-AQC107-R10	Aquantia AQC107 based Network Interface Card with 4 x 10GBASE-T by 4 PCIe 3.0 x2 Interface, RoHS

Packing List

Part No.	L-shaped T10 PulM Wrench	Torx Screws	QIG
PulM-10G4T-AQC107-R10	1	2	1
PulM-10G4T/T-AQC107-R10	N/A	N/A	1

Dimensions *(Unit: mm)*



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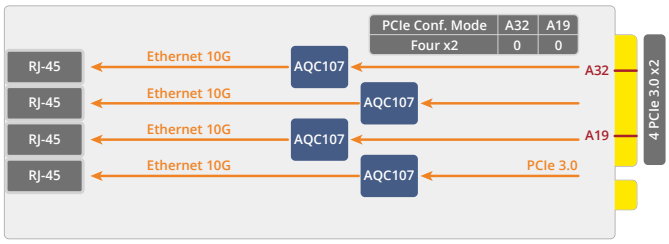
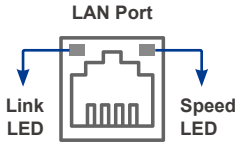




LED	State	Description
Link (Left)	Yellow	Active
Speed (Right)	Green	10 Gbps date rate
	Orange	5 Gbps/1 Gbps/ 100 Mbps data rate

PulM-1G4SF-I350

Intel® Ethernet Controller I350-AM4 based Network Interface Card with 4 x SFP by 2 PCIe 2.0 x4 interface

Features

- 1 x Intel® Ethernet Controller I350-AM4
- 4 x GbE SFP connectors
- 2 PCIe2.0 x4
- RoHS compliant

Specifications

Model Name	PulM-1G4SF-I350	PulM-1G4SF/T-I350
Form Factor	IEI Networking Module	
NIC	Intel® Ethernet Controller I350-AM4	
LAN Interface	SFP	
Speed	1GbE	
Ports	4	
Host Interface	2 PCIe 2.0 x4	
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)	
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)	
Humidity	5% ~ 90% RH, Non-condensing	
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)	
Compliance	RoHS	
Support Device	PUZZLE-IN001 PUZZLE-IN001A PUZZLE-IN004	PUZZLE-IN005

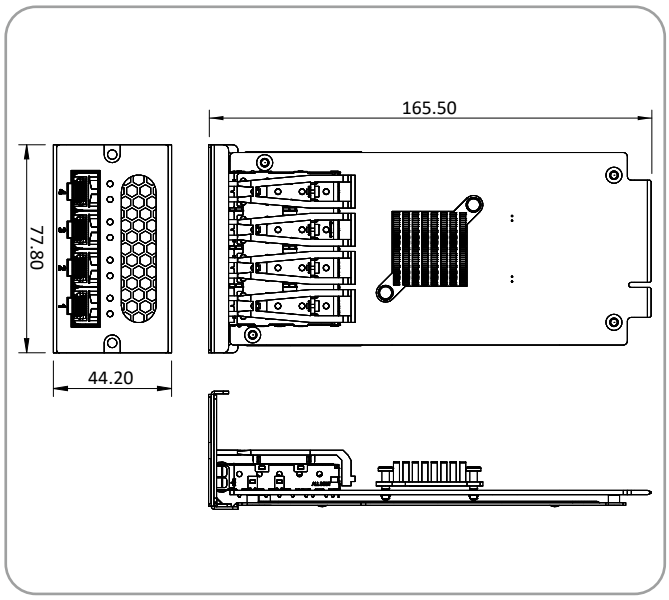
Ordering Information

Part No.	Description
PulM-1G4SF-I350-R10	Intel® Ethernet Controller I350-AM4 based Network Interface Card with 4 x SFP by 2 PCIe 2.0 x4 interface, RoHS
PulM-1G4SF/T-I350-R10	Intel® Ethernet Controller I350-AM4 based Network Interface Card with 4 x SFP by 2 PCIe 2.0 x4 interface, RoHS

Packing List

Part No.	L-shaped T10 PulM Wrench	Torx Screws	QIG
PulM-1G4SF-I350-R10	1	2	1
PulM-1G4SF/T-I350-R10	N/A	N/A	1

Dimensions *(Unit: mm)*



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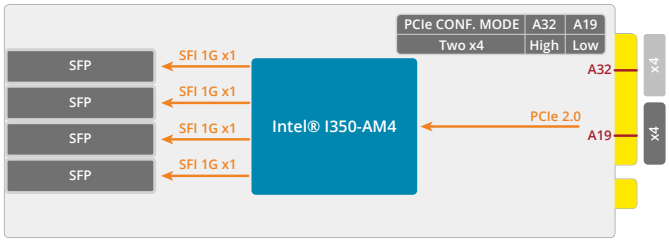
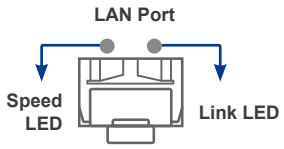




LED	State	Description
Link (Right)	Yellow	Active
Speed (Left)	Green	1 Gbps data rate

PulM-1G8SF-I350

Intel® Ethernet Controller I350-AM4 based Network Interface Card with 8 x SFP by 2 PCIe 2.0 x4 interface

Features

- 2 x Intel® Ethernet Controller I350-AM4
- 8 x GbE SFP connectors
- 2 PCIe2.0 x4
- RoHS compliant

Specifications

Model Name	PulM-1G8SF-I350	PulM-1G8SF/T-I350
Form Factor	IEI Networking Module	
NIC	Intel® Ethernet Controller I350-AM4	
LAN Interface	SFP	
Speed	1GbE	
Ports	8	
Host Interface	2 PCIe 2.0 x4	
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)	
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)	
Humidity	5% ~ 90% RH, Non-condensing	
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)	
Compliance	RoHS	
Support Device	PUZZLE-IN001 PUZZLE-IN001A PUZZLE-IN004	PUZZLE-IN005

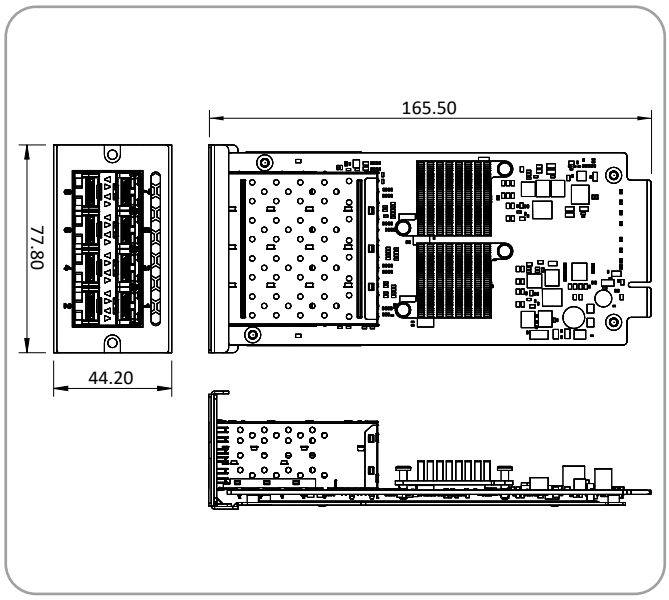
Ordering Information

Part No.	Description
PulM-1G8SF-I350-R10	Intel® Ethernet Controller I350-AM4 based Network Interface Card with 8 x SFP by 2 PCIe 2.0 x4 interface.
PulM-1G8SF/T-I350-R10	Intel® Ethernet Controller I350-AM4 based Network Interface Card with 8 x SFP by 2 PCIe 2.0 x4 interface.

Packing List

Part No.	L-shaped T10 PulM Wrench	Torx Screws	QIG
PulM-1G8SF-I350-R10	1	2	1
PulM-1G8SF/T-I350-R10	N/A	N/A	1

Dimensions *(Unit: mm)*



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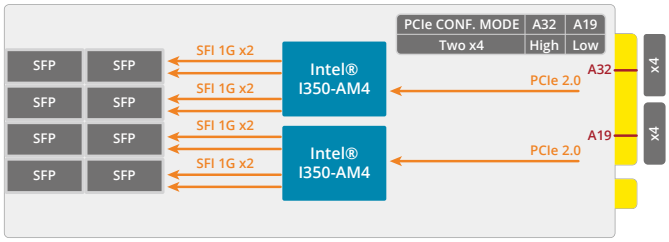
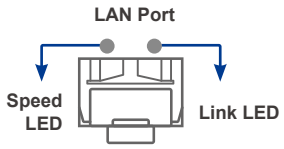




LED	State	Description
Link (Right)	Yellow	Active
Speed (Left)	Green	1 Gbps data rate

PulM-1G4T-I350

Intel® Ethernet Controller I350-AM4 based Network Interface Card with 4 x RJ-45 by 2 PCIe 2.0 x4 interface, RoHS

Features

- 1 x Intel® Ethernet Controller I350-AM4
- 4 x GbE RJ-45 connectors
- 2 PCIe2.0 x4
- CE / FCC / RoHS compliant

Specifications

Model Name	PulM-1G4T-I350	PulM-1G4T/T-I350
Form Factor	IEI Networking Module	
NIC	Intel® Ethernet Controller I350-AM4	
LAN Interface	RJ-45	
Speed	1GbE	
Ports	4	
Host Interface	2 PCIe 2.0 x4	
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)	
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)	
Humidity	5% ~ 90% RH, Non-condensing	
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)	
Compliance	CE / FCC / RoHS	
Support Device	PUZZLE-IN001 PUZZLE-IN001A PUZZLE-IN004	PUZZLE-IN005

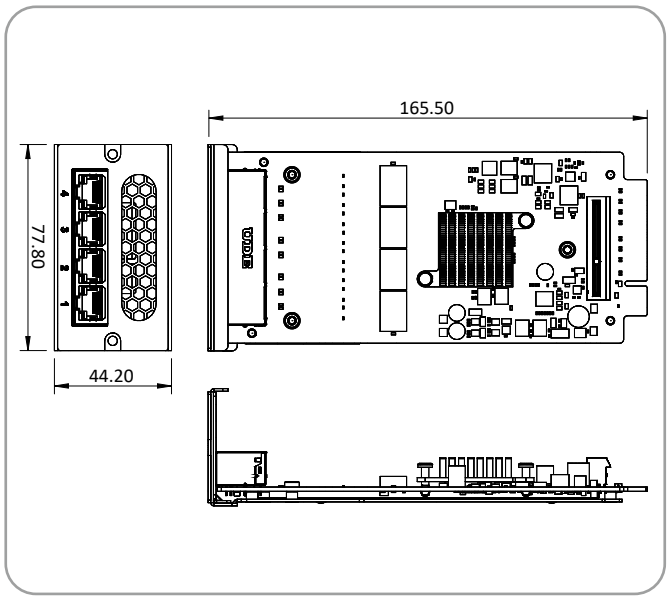
Ordering Information

Part No.	Description
PulM-1G4T-I350-R10	Intel® Ethernet Controller I350-AM4 based Network Interface Card with 4 x RJ-45 by 2 PCIe 2.0 x4 interface, RoHS.
PulM-1G4T/T-I350-R10	Intel® Ethernet Controller I350-AM4 based Network Interface Card with 4 x RJ-45 by 2 PCIe 2.0 x4 interface, RoHS.

Packing List

Part No.	L-shaped T10 PulM Wrench	Torx Screws	QIG
PulM-1G4T-I350-R10	1	2	1
PulM-1G4T/T-I350-R10	N/A	N/A	1

Dimensions (Unit: mm)



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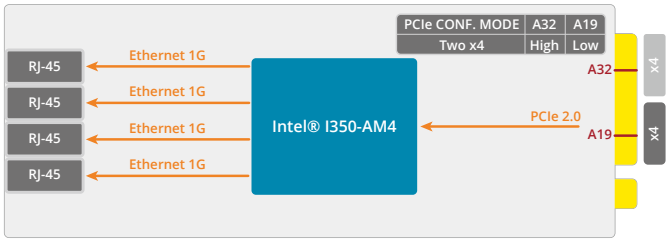
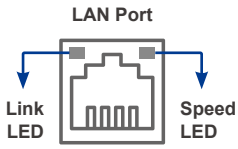




LED	State	Description
Link (Left)	Yellow	Active
Speed (Right)	Green	1 Gbps data rate
	Orange	100 Mbps data rate

PulM-1G4T-I350-BP

Intel® Ethernet Controller I350-AM4 based Network Interface Card with 4 x RJ-45 by 2 PCIe 2.0 x4 interface, RoHS

Features

- 1 x Intel® Ethernet Controller I350-AM4
- 4 x GbE RJ-45 connectors
- 2 PCIe2.0 x4
- LAN Bypass
- CE / FCC / RoHS compliant

Specifications

Model Name	PulM-1G4T-I350-BP	PulM-1G4T/T-I350-BP
Form Factor	IEI Networking Module	
NIC	Intel® Ethernet Controller I350-AM4	
Bypass	Yes, two pairs	
LAN Interface	RJ-45	
Speed	1GbE	
Ports	4	
Host Interface	2 PCIe 2.0 x4	
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)	
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)	
Humidity	5% ~ 90% RH, Non-condensing	
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)	
Compliance	CE / FCC / RoHS	
Support Device	PUZZLE-IN001 PUZZLE-IN001A PUZZLE-IN004	PUZZLE-IN005

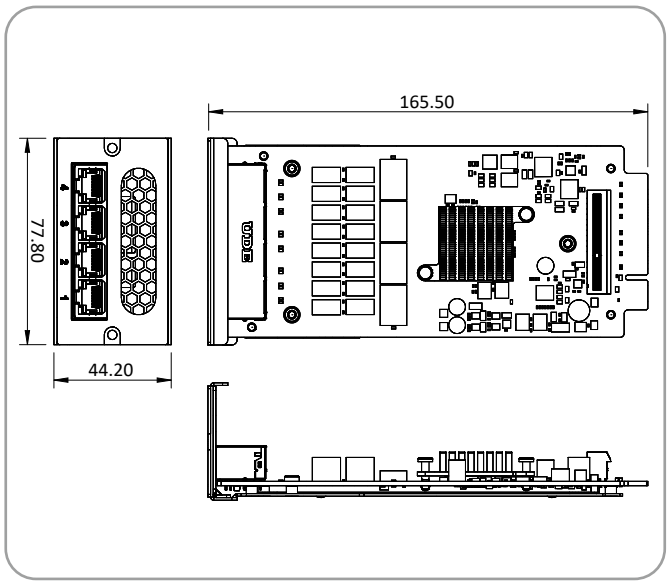
Ordering Information

Part No.	Description
PulM-1G4T-I350-BP-R10	Intel® Ethernet Controller I350-AM4 based Network Interface Card with 4 x RJ-45 by 2 PCIe 2.0 x4 interface, RoHS.
PulM-1G4T/T-I350-BP-R10	Intel® Ethernet Controller I350-AM4 based Network Interface Card with 4 x RJ-45 by 2 PCIe 2.0 x4 interface, RoHS.

Packing List

Part No.	L-shaped T10 PulM Wrench	Torx Screws	QIG
PulM-1G4T-I350-BP-R10	1	2	1
PulM-1G4T/T-I350-BP-R10	N/A	N/A	1

Dimensions *(Unit: mm)*



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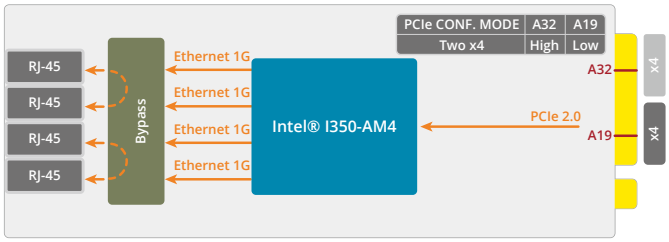
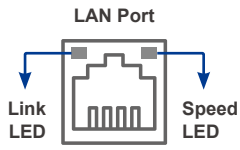




LED	State	Description
Link (Left)	Yellow	Active
Speed (Right)	Green	1 Gbps data rate
	Orange	100 Mbps data rate
Off	Off	Bypass functio

PulM-1G8T-I350

2 x Intel® Ethernet Controller I350-AM4 based Network Interface Card with 8 x RJ-45 by 2 PCIe 2.0 x4 interface, RoHS

Features

- 2 x Intel® Ethernet Controller I350-AM4
- 8 x GbE RJ-45 connectors
- 2 PCIe2.0 x4
- CE / FCC / RoHS compliant

Specifications

Model Name	PulM-1G8T-I350	PulM-1G8T/T-I350
Form Factor	IEI Networking Module	
NIC	Intel® Ethernet Controller I350-AM4	
LAN Interface	RJ-45	
Speed	1GbE	
Ports	8	
Host Interface	2 PCIe 2.0 x4	
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)	
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)	
Humidity	5% ~ 90% RH, Non-condensing	
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)	
Compliance	CE / FCC / RoHS	
Support Device	PUZZLE-IN001 PUZZLE-IN001A PUZZLE-IN004	PUZZLE-IN005

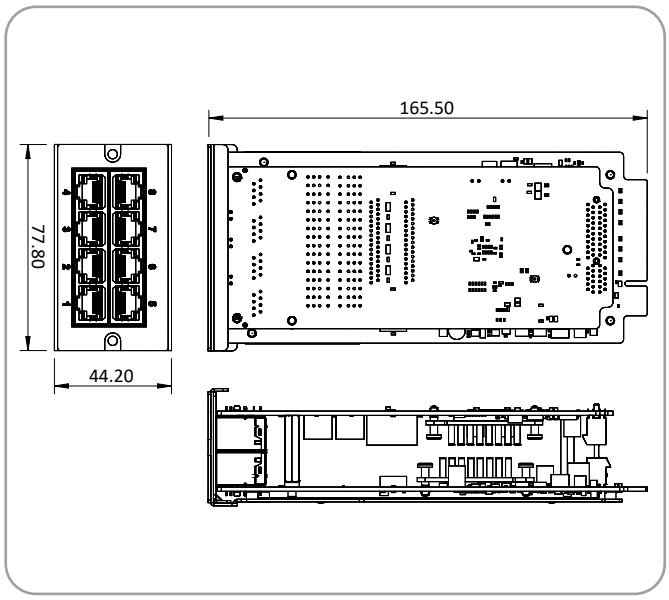
Ordering Information

Part No.	Description
PulM-1G8T-I350-R10	Intel® Ethernet Controller I350-AM4 based Network Interface Card with 8 x RJ-45 by 2 PCIe 2.0 x4 interface, RoHS.
PulM-1G8T/T-I350-R10	Intel® Ethernet Controller I350-AM4 based Network Interface Card with 8 x RJ-45 by 2 PCIe 2.0 x4 interface, RoHS.

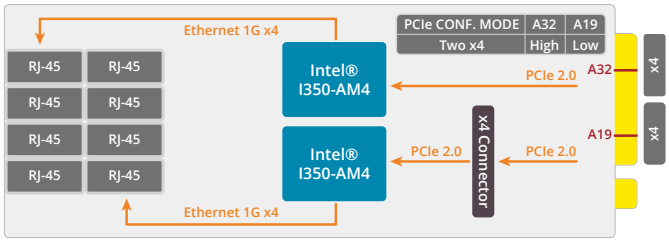
Packing List

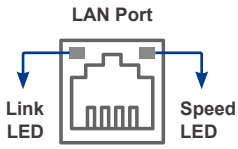
Part No.	L-shaped T10 PulM Wrench	Torx Screws	QIG
PulM-1G8T-I350-R10	1	2	1
PulM-1G8T/T-I350-R10	N/A	N/A	1

Dimensions *(Unit: mm)*



Block Diagram





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

PulM-1G8T-I350-BP

Intel® Ethernet Controller I350-AM4 based Network Interface Card with 4 x RJ-45 by 2 PCIe 2.0 x4 interface, RoHS

Features

- 2 x Intel® Ethernet Controller I350-AM4
- 8 x GbE RJ-45 connectors
- 2 PCIe2.0 x4
- LAN Bypass (by sku)
- CE / FCC / RoHS compliant

Specifications

Model Name	PulM-1G8T-I350-BP	PulM-1G8T/T-I350-BP
Form Factor	IEI Networking Module	
NIC	Intel® Ethernet Controller I350-AM4	
Bypass	Yes, four pairs	
LAN Interface	RJ-45	
Speed	1GbE	
Ports	8	
Host Interface	2 PCIe 2.0 x4	
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)	
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)	
Humidity	5% ~ 90% RH, Non-condensing	
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)	
Compliance	CE / FCC / RoHS	
Support Device	PUZZLE-IN001 PUZZLE-IN001A PUZZLE-IN004	PUZZLE-IN005

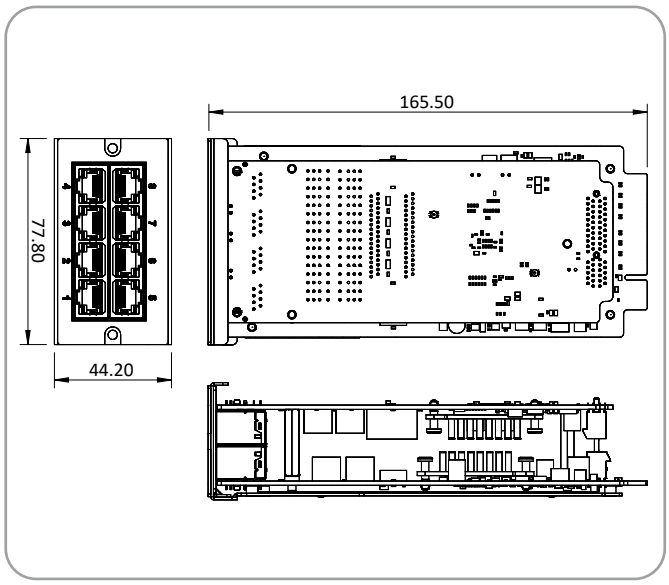
Ordering Information

Part No.	Description
PulM-1G8T-I350-BP-R10	Intel® Ethernet Controller I350-AM4 based Network Interface Card with 8 x RJ-45 by 2 PCIe 2.0 x4 with bypass interface, RoHS
PulM-1G8T/T-I350-BP-R10	Intel® Ethernet Controller I350-AM4 based Network Interface Card with 8 x RJ-45 by 2 PCIe 2.0 x4 with bypass interface, RoHS

Packing List

Part No.	L-shaped T10 PulM Wrench	Torx Screws	QIG
PulM-1G8T-I350-BP-R10	1	2	1
PulM-1G8T/T-I350-BP-R10	N/A	N/A	1

Dimensions *(Unit: mm)*



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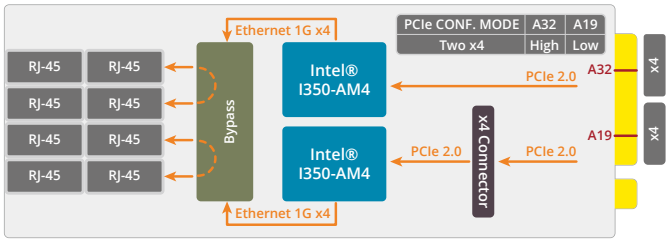
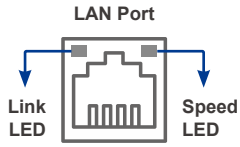
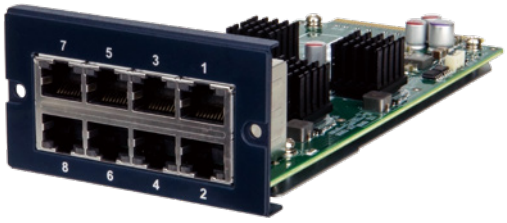




LED	State	Description
Link (Left)	Yellow	Active
Speed (Right)	Green	1 Gbps data rate
	Orange	100 Mbps data rate
Off	Off	Bypass function

PulM-1G8T-BCM5720

Broadcom BCM5720 based Network Interface Card with 8 x RJ-45 by 4 PCIe 2.0 x 2 Interface



Features

- 2 x Intel® Ethernet Controller I350-AM4
- 8 x GbE RJ-45 connectors
- 2 PCIe2.0 x4
- CE / FCC / RoHS compliant

Specifications

Model Name	PulM-1G8T-BCM5720
Form Factor	IEI Networking Module - PulM
NIC	Broadcom BCM5720
LAN Bypass	N/A
LAN Interface	RJ-45
Speed	GbE
Ports	8
Host Interface	4 PCIe 2.0 x2
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)
Humidity	5% ~ 90% RH, Non-condensing
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)
Compliance	RoHS

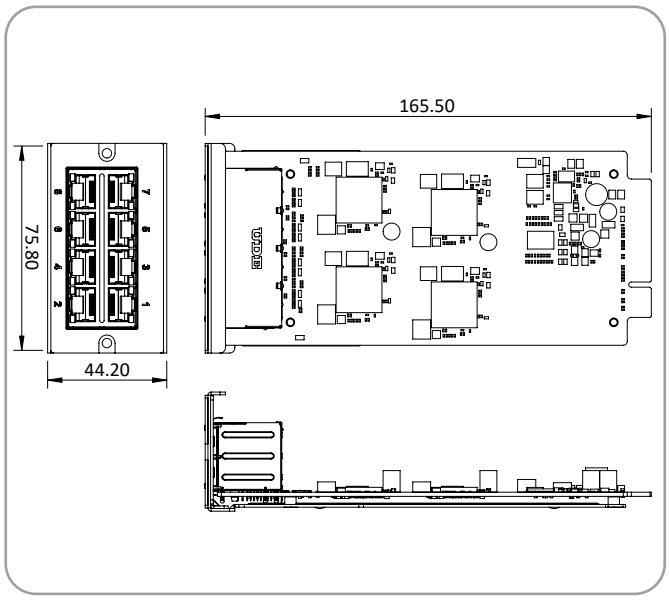
Ordering Information

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

Packing List

Part No.	L-shaped T10 PulM Wrench	Torx Screws	QIG
PulM-1G8T-BCM5720	1	2	1

Dimensions *(Unit: mm)*



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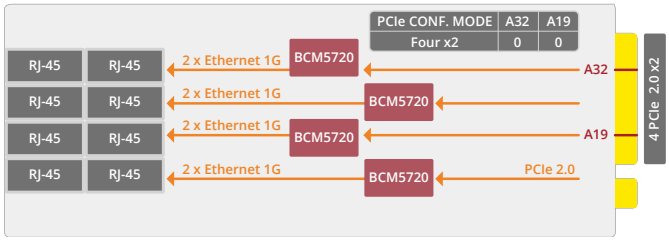
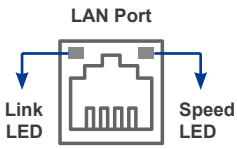
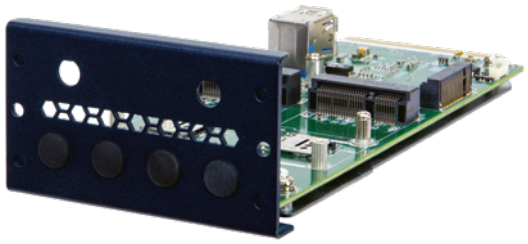




LED	State	Description
Link (Left)	Yellow	Active
Speed (Right)	Green	1 Gbps date rate
	Orange	100 Mbps data rate

PulM-2P1M

Two Mini-PCIe and One M.2 Expansion Card Support the Wi-Fi or LTE Module, RoHS



Features

- Supports 2 x PCIe mini and 1 x 2230/2242 M.2 B key
- Mini PCIe and M.2 with SIM card slots
- 2 PCIe 3.0 x4
- RoHS compliant

Specifications

Model Name	PulM-2P1M
Interface	IEI Networking Module - PulM
Onboard IC	ASM1812 (PCIe Gen 2 x4) FL1100EX (PCI-E To USB 3.0 (4 Port))
M.2	1 x 2230/2242 M.2 B key (PCIe 2.0, USB 3.2 Gen 1) with SIM card slot
PCIe	2 x PCIe Mini (PCIe, USB 2.0) with SIM card slots
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)
Humidity	5% ~ 90% RH, Non-condensing
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)
Compliance	RoHS
Support Device	PUZZLE-IN001 PUZZLE-IN001A PUZZLE-IN004

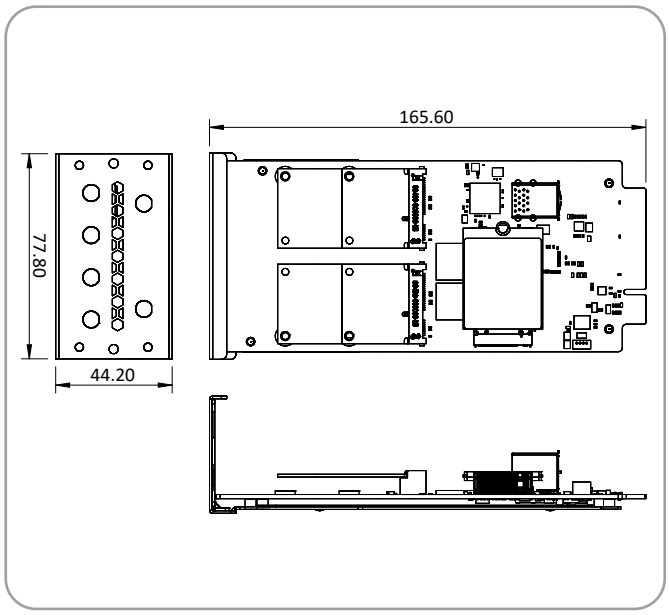
Ordering Information

Part No.	Description
PulM-2P1M-R10	Two Mini-PCIe and One M.2 Expansion Card Support the Wi-Fi or LTE Module, RoHS

Packing List

Part No.	L-shaped T10 PulM Wrench	Torx Screws	QIG
PulM-2P1M-R10	1	2	1

Dimensions *(Unit: mm)*



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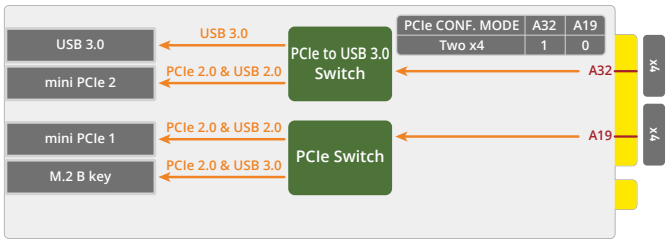


PulM-M2-2S

M.2 PCIe SSD expansion card supports two M.2 2280 PCIe NVMe (3.0 x4) SSDs, two PCIe 3.0 x4 host interface

Features

- Supports two M.2 2280 PCIe NVMe (3.0 x4) SSDs
- M.2 SSD temperature is monitored in real time by sensor IC
- 2 PCIe 3.0 x4
- LED indicator shows the M.2 status
- RoHS compliant

Specifications

Model Name	PulM-M2-2S
Interface	IEI Networking Module - PulM
Onboard IC	N/A
M.2	2 x M key 2260/2280/22110 (PCIe 3.0 x4/NVMe)
PCIe	N/A
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)
Humidity	5% ~ 90% RH, Non-condensing
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)
Compliance	RoHS
Support Device	PUZZLE-IN001 PUZZLE-IN001A PUZZLE-IN004

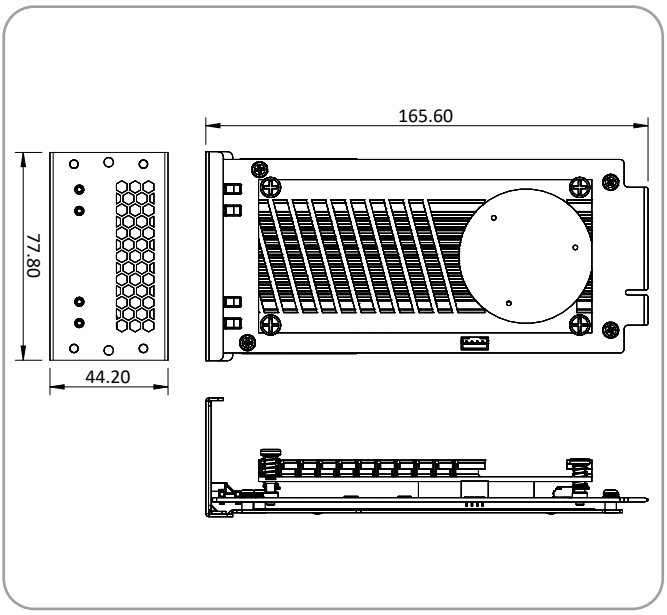
Ordering Information

Part No.	Description
PulM-M2-2S-R10	M.2 PCIe SSD expansion card supports two M.2 2280 PCIe NVMe (3.0 x4) SSDs; two PCIe 3.0 x4 host interface, RoHS

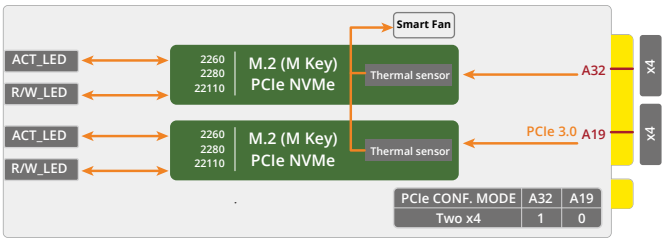
Packing List

Part No.	L-shaped T10 PulM Wrench	Thermal Pad kit	Torx Screws	M.2 SSD Screw	QIG
PulM-M2-2S-R10	1	2	2	4	1

Dimensions *(Unit: mm)*



Block Diagram



LED	State	Description
Left	Red	Active
Right	Green	Read/Write

Mustang-QA100-C627

Intel® QAT accelerator for Crypto and Compression with lewisburg chipset, PCIe Gen 3 x16, RoHS

Features

- 1 x Intel® Lewisburg chipset C627
- Asymmetric and Symmetric encryption and authentication
- Digital signatures
- RSA, DH, and ECC
- Lossless data compression

Specifications

Throughput	
SSL/IPSec	100Gbps
Compression Deflate	100Gbps
Decompression Deflate	100Gbps
RSA Decrypt 1k-bit	550K Ops/sec
RSA Decrypt 2k-bit	100 Ops/Sec

Specifications	
Main Chip	Intel® C627 Chipset
Cooling	Active cooling
Interface	PCIe Gen 3 x16
Operating Humidity	0% ~ 90%, non-condensing
Operating Temperature	0°C ~ 40°C
Storage Temperature	-40°C ~ 75°C (-40°F ~ 167°F)
Dimension	144.27 x 68.9 x 15.43 (L x W x H mm)
Regulation	RoHS
Operating system support	Linux

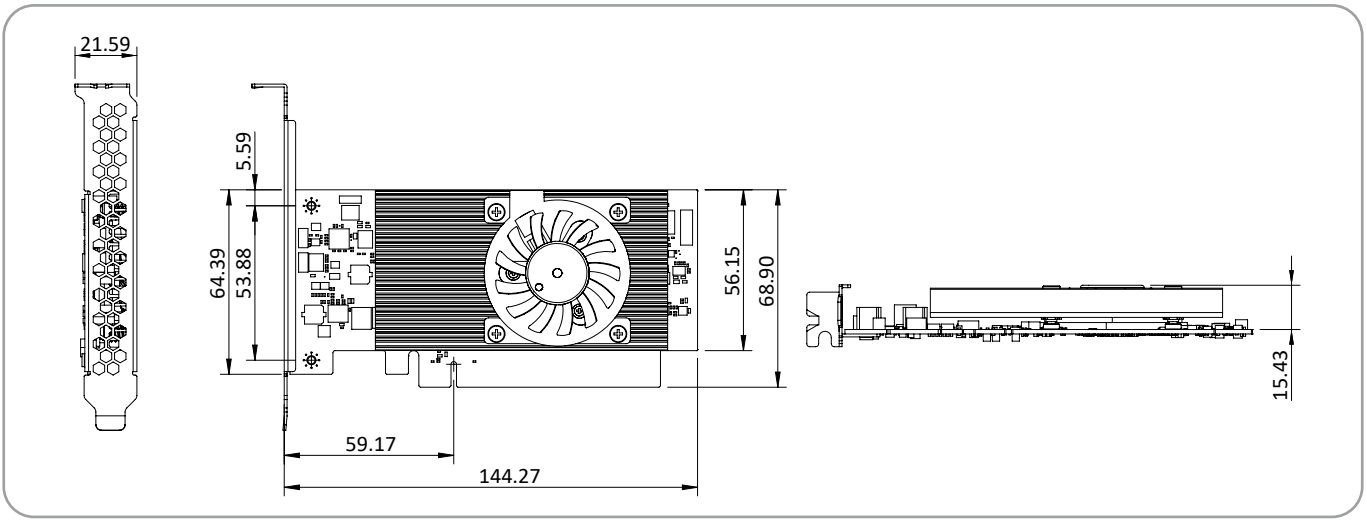
Ordering Information

Part No.	Description
Mustang-QA100-C627-R10	Intel® QAT accelerator for Crypto and Compression with lewisburg chipset, PCIe Gen 3 x16, RoHS

Packing List

Mustang-QA100-C627-R10	1 x QIG

Dimensions *(Unit: mm)*



Medical Strategy of IEI Group

Providing better services from both IEI and BriteMED

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 planned 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 improved day by day are the worldwide phenomenons which make the medical application become friendlier, such as healthcare digitalization (paper-less and automatic data collection), healthcare mobility and telemedicine. To provide our customers better services, we divide R&D works into two parts - by IEI and by BriteMED.

Medical IT for general healthcare

Medical Panel PC

AI Box PC

Medical Embedded Box

Medical devices for clinical use

Medical Monitor

E-Medical Cart

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's all-in-one medical grade panel PC series offers four product lines to accommodate all healthcare needs. All products are equipped with antibateria chassis and IP65 front bezel for easy sterilization. The integrated touchscreen can be operated whilst wearing multiple gloves. In addition, the products we designed support various communication functions, such as Bluetooth, 1D/2D barcode scanner, RFID, SCR and MSR. These panel PCs can provide convenience to clinicians and increase their work efficiency.

IASO Series

Light medical panel PC

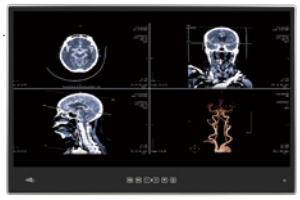
- 10.1" Medical Panel PC
- Light bars at both side
- Remote device management
- Elkhart Lake platform

POCm Series

Mobile point-of-care terminal

- Lightweight design: under 6.8kg without battery
- Fanless system with high performance
- 3 hot-swappable batteries with battery management utility

POCi Series



Intelligent point-of-care terminal

- Ultra-slim front bezel
- Fanless system with high performance
- PCIe x4 expansion
- Optional DICOM preset

MPOCm Series

Mobile Medical Monitor

- IP65 front bezel
- 2 variable DC outputs
- 10-point PCAP touchscreen
- Hot-swappable batteries

POC Series

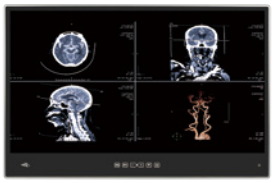
Point-of-care terminal

- Rich bottom I/O
- High-performance system with smart fan (or fanless)
- Ambient light sensor for panel brightness adjustment

Selection Guide

Series		IASO
Model		IASO-W10B-N6210
LCD Specifications	LCD Size	10.1"
	Max. Resolution (W/H)	1280 x 800
	Brightness (cd/m²)	400
	Contrast Ratio	800:1
	LCD Color	16.7M (RGB 6-bit + Hi-FRC)
	Pixel Pitch (H/V)	0.1695 x 0.1695 mm
	Viewing Angle (H/V)	178˚/178˚
	Backlight MTBF (hrs)	30,000 (LED backlight)
Touch	Touchscreen	Projected capacitive type with 10-point multi-touch and optical bonding
	Touch Controller	EETI
	Surface Hardness	6H
System	CPU Support	Intel® Celeron® N6210 (Elkhart Lake, 6.5W TDP)
	LAN Controller	1 x Intel® I225 Ethernet Controller
	RAM	1 x DDR4 SO-DIMM slot
	Storage	1 x M.2 2242 M key (PCIe/SATA signal)
	Audio	AMP 1W + 1W (internal speaker)
	Camera & Microphone	1 x Digital microphone
	I/O Port	1 x HDMI output 1 x Reset button 1 x Power button 1 x 12V DC jack 1 x AT/ATX switch 1 x RS-232 1 x Audio jack (TRRS) 1 x 1GbE supporting PoE (ErP is not supported in PoE mode) 2 x USB 3.2 Gen 1 (5Gb/s)
	LED	2 x LED light bar
	Wi-Fi & Bluetooth	IEEE 802.11 ax 2T2R module (Intel® Wi-Fi 6E AX210) with BT v5.0 (M.2 2230 A-E key)
Physical	Construction Material	Front: PC Rear cover: PC/ABS plastic
	Mounting	Wall, Stand and Arm; VESA 75 compliant
	Weight (Net / Gross)	1.49 kg / 2.86 kg
	Dimensions (LxWxH)	261 x 196.4 x 40 mm
Environment	Operating Temperature	0°C – 40°C
	Storage Temperature	-20°C – 60°C
	Humidity	10% – 95% (non-condensing)
	Vibration	1G
	Shock	Operating shock: 5G peak acceleration (11ms duration) Non-operating shock: 15G peak acceleration (11ms duration)
	IP Level	Front: IP65
	Thermal	Fanless
Power	Power Input	12V DC input
	Power Adapter	65W medical grade power adapter
	PoE	Class 5 (IEEE802.3bt) PD device w/ full loading taken on I/O
Certification	EMC & Safety	CE, FCC Class B Part18 EN 60601-1: 2006/A1:2013 (Edition 3.1) EN 60601-1-2: 2015 (Edition 4.0)

Selection Guide



Series		POCi	
Model		**POCi-W22C-ULT5**	**POCi-W24C-ULT5**
LCD Specifications	LCD Size	21.5'' (16:9)	23.8'' (16:9)
	Max. Resolution (W/H)	1920 x 1080	
	Brightness (cd/m²)	350	
	Contrast Ratio	1000:1	
	LCD Color	16.7M (RGB 6-bit + Hi-FRC)	
	Pixel Pitch (H/V)	0.24795 x 0.24795 mm	0.2745 × 0.2745 mm
	Viewing Angle (H/V)	178˚/178˚	
	Backlight MTBF (hrs)	30,000 (LED backlight)	
Touch	Touchscreen	Projected capacitive type with 10-point multi-touch	
	Touch Controller	EETI (80H84)	
	Surface Hardness	6H	
	Coating	Chemical AG etching	
System	CPU Support	Intel® Core™ i5-8365UE (Whiskey Lake ULT platform) Intel® Core™ i7-8665UE (Whiskey Lake ULT platform)	
	LAN Controller	1 x Intel® I211 Ethernet Controller 1 x Intel® I219 Ethernet Controller (AMT 12.x supported by i7/i5 SKUs)	
	RAM	2 x 260-pin 2400/2133MHz dual-channel DDR4 SO-DIMM, 4GB pre-installed (system max. 64GB)	
	Storage	1 x M.2 2242/60/80 M key (PCIe x4) 1 x 2.5" accessible SATA HDD/SSD bay	
	Audio	2 x 2W speaker	
	I/O Port	Bottom 1 x DC jack 1 x HDMI output 1 x Isolated 1.5kV RS-232 1 x Combo audio-out/mic-in 1 x Isolated Gigabit LAN (I211) 1 x Isolated Gigabit LAN (I219 supports Intel® vPro) 4 x USB 3.2 Gen 2 (10Gb/s) port	Side 2 x USB 2.0 port
	OSD Function	1 x Power on/off 1 x Reading light on/off 1 x Brightness up 1 x Brightness down	1 x LCD & touch lock on/off 1 x DICOM mode app on/off (optional)
	Expansion	1 x PCIe x4	
	LED	1 x RFID indicator (optional) 2 x LED reading light	
	Wi-Fi & Bluetooth	IEEE 802.11ax 2T2R module (Wi-Fi 6) with BT v5.0 (M.2 2230 A-E key)	IEEE 802.11ax 2T2R module (Wi-Fi 6E) with BT v5.0 (M.2 2230 A-E key)
Physical	Construction Material	Front bezel: Aluminum die-casting Rear cover: ABS+PC plastic (chemical resistant)	
	Mounting	Wall, Stand and Arm; VESA 75/100 compliant	
	Weight (Net)	6.9 kg	8.1 kg
	Dimensions (LxWxH)	507.5 x 335.5 x 64.5 mm	567 x 370.6 x 63.9 mm
Environment	Operating Temperature	0°C – 40°C	
	Storage Temperature	-20°C – 60°C	
	Humidity	10% – 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	
	Thermal	Fanless	
Power	Power Input	19V DC input	
	Power Adapter	150W medical power adapter	
	Battery	3S3P Li-ion battery pack, 11.1V, 7800mAh (optional)	
	Built-in Medical Power	150W, 85V – 264V AC, medical power supply (optional)	
Certification	EMC & Safety	CE, FCC Class B Part18 EN 60601-1: 2006/A1:2013 (Edition 3.1) EN 60601-1-2: 2015 (Edition 4.0)	

Selection Guide

TAIWAN EXCELLENCE 2020

DESIGN AWARD 2019

Series		POCm	
Model		**POCm-W22C-ULT3**	**POCm-W24C-ULT3**
LCD Specifications	LCD Size	21.5" (16:9)	23.8" (16:9)
	Max. Resolution (W/H)	1920 x 1080	
	Brightness (cd/m²)	250	
	Contrast Ratio	1000:1	
	LCD Color	16.7M (RGB 6-bit + Hi-FRC)	
	Pixel Pitch (H/V)	0.24825 x 0.24825 mm	0.2745 x 0.2745 mm
	Viewing Angle (H/V)	170°/160°	178°/178°
	Backlight MTBF (hrs)	30,000 (LED backlight)	
Touch	Touchscreen	Projected capacitive type with 10-point multi-touch	
	Touch Controller	EETI	
	Surface Hardness	6H	
System	CPU Support	6th Gen Intel® mobile ULT Core™ i7-6600U / Core™ i5-6300U / Celeron® 3855U	
	LAN Controller	1 x Intel® I211 Ethernet Controller 1 x Intel® I219 Ethernet Controller (AMT 12.x supported by i7/i5 SKUs)	
	RAM	2 x 260-pin 2400/2133MHz dual-channel DDR4 SO-DIMM, 4GB pre-installed (system max. 32GB)	
	Storage	1 x 2.5" accessible SATA HDD bay 2 x M.2 2280 M key (PCIe/SATA) with RAID	
	Audio	2 x 2W speaker	
	Camera & Microphone	5-megapixel CMOS front-facing camera with auto-focus and digital microphone	
	I/O Port	Bottom 1 x DC jack 1 x Digital mic 2 x HDMI output 2 x GbE LAN port 2 x RS-232/422/485 4 x USB 3.2 Gen 1 (5Gb/s) port	Side 1 x Mic in 1 x Audio out 2 x USB 2.0 port
	OSD Function	1 x Power on/off 1 x Volume up 1 x Volume down	1 x Brightness up 1 x Brightness down 1 x LCD on/off and touch lock for cleaning
	Expansion	1 x Full-size/Half-size PCIe Mini (PCIe+USB)	
	LED	1 x RFID indicator 1 x Power indicator 3 x Battery indicator (color: blue/red)	
	Wi-Fi & Bluetooth	IEEE 802.11a/b/g/n/ac 2T2R module with BT v4.2 (M.2 2230 A-E key)	
Physical	Construction Material	ABS+PC plastic with anti-bacterial material	
	Mounting	Wall, Stand and Arm; VESA 75/100 compliant	
	Weight (Net)	7.07 kg (without battery) 8.43 kg (with 3 batteries)	8.18 kg (without battery) 9.53 kg (with 3 batteries)
	Dimensions (LxWxH)	543 x 350 x 71mm	594.6 x 379.6 x 71 mm
Environment	Operating Temperature	0°C – 40°C	
	Storage Temperature	-20°C – 60°C	
	Humidity	10% – 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	
	Thermal	Fanless	
Power	Power Input	19V DC input	
	Power Adapter	150W medical power adapter	
	Battery	3 slots for Li-ion battery packs	
Certification	EMC & Safety	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		POC	
Model		**POC-17C-ULT3**	**POC-W24C-ULT3**
LCD Specifications	LCD Size	17” (5:4)	24” (16:9)
	Max. Resolution (W / H)	1280 x 1024	1920 x 1080
	Brightness (cd/m²)	350	250
	Contrast Ratio	1000:1	1000:1
	LCD Color	16.7M (RGB 6-bit + Hi-FRC)	16.7M (RGB 6-bit + Hi-FRC)
	Pixel Pitch (H / V)	0.264 x 0.264 mm	0.2745 x 0.2745 mm
	Viewing Angle (H / V)	170°/160°	178°/178°
	Backlight MTBF (hrs)	30,000 (LED backlight)	30,000 (LED backlight)
Touch	Touchscreen	Projected capacitive type with 10-point multi-touch	Projected capacitive type with 10-point multi-touch
	Touch Controller	EETI	EETI
	Surface Hardness	6H	6H
System	CPU Support	6th Gen Intel® mobile ULT Core™ i7-6600U / Core™ i5-6300U / Celeron® 3855U	6th Gen Intel® mobile ULT Core™ i7-6600U / Core™ i5-6300U / Celeron® 3855U 7th Gen Intel® mobile ULT Kaby Lake on-board SoC (By project base)
	RAM	2 x 260-pin 2400/2133MHz dual-channel DDR4 SO-DIMM, 4GB pre-installed (system max.32GB)	2 x 260-pin 2400/2133MHz dual-channel DDR4 SO-DIMM, 4GB pre-installed (system max. 32GB)
	Storage	1 x mSATA (E-Window) 2 x 2.5" SATA 6Gb/s accessible HDD bay with RAID 0, 1 (RAID is only supported by Core™ i5 and Core™ i7)	1 x mSATA (E-Window) 1 x 2.5" SATA 6Gb/s HDD/SDD bay
	Audio	2 x 2W speaker	2 x 3W speaker
	Camera & Microphone	2-megapixel CMOS front-facing camera with auto-focus and digital microphone	5-megapixel CMOS front-facing camera with auto-focus and digital microphone
	I/O Port	1 x HDMI output 1 x 12V – 28V DC jack 1 x RS-232/422/485 1 x RJ-11 for 1D/2D barcode reader	2 x GbE LAN port 4 x USB 3.2 Gen 1 (5Gb/s) port 4 x USB 2.0 port (2 on the side)
	OSD Function	1 x LCD on/off 1 x Volume up 1 x Volume down 1 x Brightness up 1 x Brightness down 1 x Touch lock button for cleaning	Combinations: 1 x Lock/Unlock OSD 1 x Power on/off
	Expansion	1 x E-Window slot (full-size PCIe Mini slot with PCIe/mSATA/USB)	1 x PCIe Mini reserved for E-Window expansion
	LED	1 x RFID indicator	1 x RFID indicator
	Wi-Fi & Bluetooth	IEEE 802.11a/b/g/n/ac 2T2R module with BT V4.1 (M.2 2230 A-E key)	IEEE 802.11a/b/g/n/ac 2T2R module with BT v4.1 (M.2 2230 A-E key)
Other Features	Auto-dimming	Yes	Yes
	Light Sensor	-	Ambient light sensor for panel brightness adjustment
Physical	Construction Material	ABS+PC plastic with anti-bacterial material	ABS+PC plastic with anti-bacterial material
	Mounting	Wall, Stand and Arm; VESA 75/100 compliant	Wall, Stand and Arm; VESA 75/100 compliant
	Weight (Net)	6.0 kg	7.5 kg
	Dimensions (LxWxH)	435 x 376 x 64.5 mm	594.6 x 379.6 x 60.68 mm
Environment	Operating Temperature	0°C – 40°C	0°C – 40°C
	Storage Temperature	-20°C – 65°C	-20°C – 60°C
	Humidity	10% – 95% (non-condensing)	10% – 95% (non-condensing)
	Vibration	1G	1G
	Shock	Operating shock: 5G peak acceleration (11ms duration) Non-operating shock: 15G peak acceleration (11ms duration)	Operating shock: 5G peak acceleration (11ms duration) Non-operating shock: 15G peak acceleration (11ms duration)
	IP Level	Front: IP65	Front: IP65
	Thermal	Fanless	Fanless
Power	Power Input	19V DC input	19V DC input
	Power Adapter	150W medical power adapter	150W medical power adapter
Certification	EMC & Safety	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)

Data Acquisition Terminal

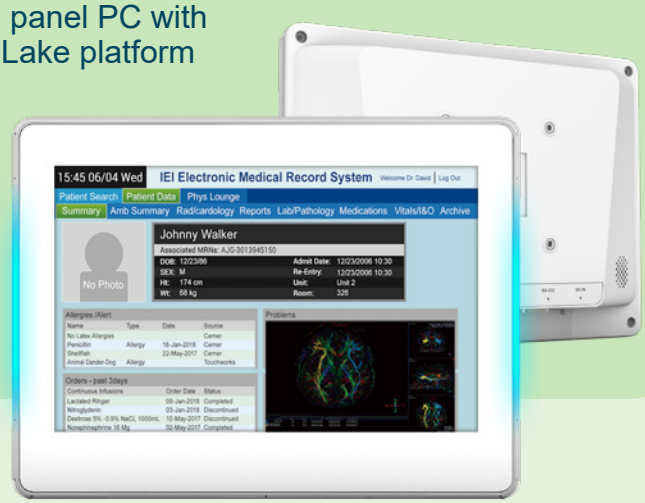
NEW

IASO-W10B-N6210

10.1" medical panel PC with Intel® Elkhart Lake platform

Features

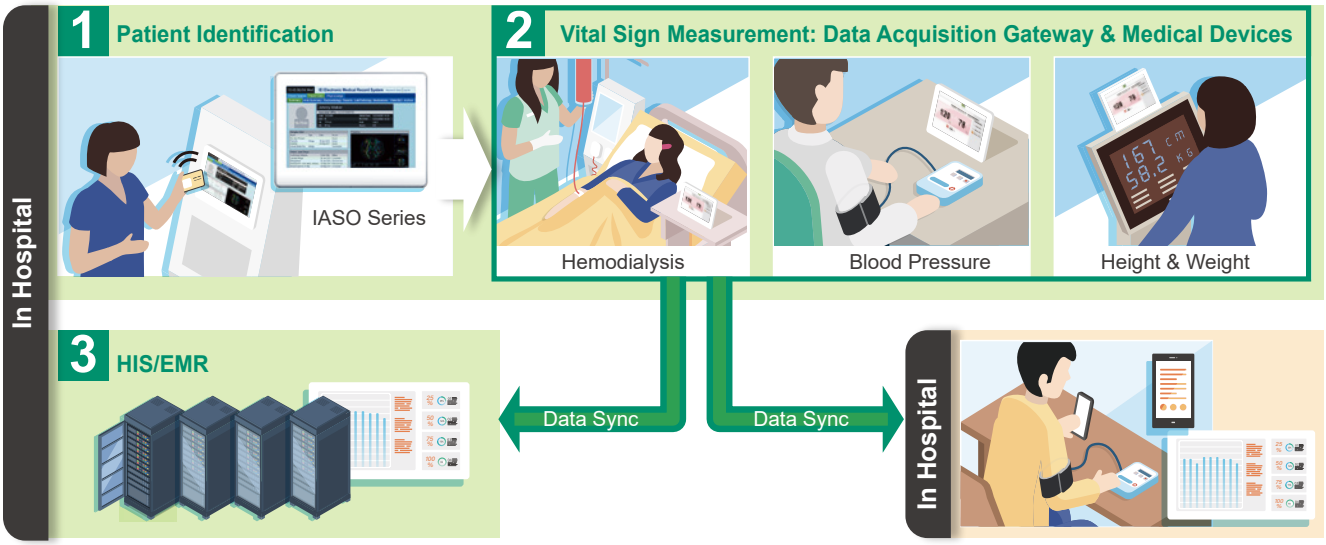
- Intel® Celeron® Processor N6210
- Programmable LED light bar on both side
- 10-point PCAP touch with optical bonding
- IEEE 802.3 PoE (optional)
- RFID (NFC) reader (optional)



Intel® Elkhart Lake | RFID | IP65 | Multi-touch | LED light bar

Medical Data Acquisition

IEI helps to combine the data obtained at home with the medical records at the hospital so that medical personnels can observe the patient's measurement information thoroughly. The data can also be digitalized to effectively help data integration and tracking. In addition to synchronizing with the data in the hospital, if the patient is hospitalized, the data can also be saved in the system. These data can be kept intact and effectively used as an evaluation basis for diagnosis and treatment.



Usage Scenarios

Patient Card

Patient Card

Medical Data Acquisition

Specifications

Model		IASO-W10B-N6210
LCD Specifications	LCD Size	10.1"
	Max. Resolution (W/H)	1280 x 800
	Brightness (cd/m²)	400
	Contrast Ratio	800:1
	LCD Color	16.7M (RGB 6-bit + Hi-FRC)
	Pixel Pitch (H/V)	0.1695 x 0.1695 mm
	Viewing Angle (H/V)	178˚/178˚
	Backlight MTBF (hrs)	30,000 (LED backlight)
Touch	Touchscreen	Projected capacitive type with 10-point multi-touch and optical bonding
	Touch Controller	EETI
	Surface Hardness	6H
System	CPU Support	Intel® Celeron® N6210 (Elkhart Lake, 6.5W TDP)
	LAN Controller	1 x Intel® I225 Ethernet Controller
	RAM	1 x DDR4 SO-DIMM slot
	Storage	1 x M.2 2242 M key (PCIe/SATA signal)
	Audio	AMP 1W + 1W (internal speaker)
	Camera & Microphone	1 x Digital microphone
	I/O Port	1 x HDMI output 1 x Reset button 1 x Power button 1 x 12V DC jack 1 x AT/ATX switch 1 x RS-232 1 x Audio jack (TRRS) 1 x 1GbE supporting PoE (ErP is not supported in PoE mode) 2 x USB 3.2 Gen 1 (5Gb/s)
	LED	2 x LED light bar
	Wi-Fi & Bluetooth	IEEE 802.11 ax 2T2R module (Intel® Wi-Fi 6E AX210) with BT v5.0 (M.2 2230 A-E key)
Physical	Construction Material	Front: PC Rear cover: PC/ABS plastic
	Mounting	Wall, Stand and Arm; VESA 75 compliant
	Weight (Net / Gross)	1.49 kg / 2.86 kg
	Dimensions (LxWxH)	261 x 196.4 x 40 mm
Environment	Operating Temperature	0°C – 40°C
	Storage Temperature	-20°C – 60°C
	Humidity	10% – 95% (non-condensing)
	Vibration	1G
	Shock	Operating shock: 5G peak acceleration (11ms duration) Non-operating shock: 15G peak acceleration (11ms duration)
	IP Level	Front: IP65
	Thermal	Fanless
Power	Power Input	12V DC input
	Power Adapter	65W medical grade power adapter
	PoE	Class 5 (IEEE802.3bt) PD device w/ full loading taken on I/O
Certification	EMC & Safety	CE, FCC Class B Part18 EN 60601-1: 2006/A1:2013 (Edition 3.1) EN 60601-1-2: 2015 (Edition 4.0)

Ordering Information

Part No.	Description
IASO-W10B-N6210/4G-R10	10.1" 400cd/m² medical panel PC with Intel® Celeron® N6210 (Elkhart Lake, 6.5W TDP), one 4GB DDR4 RAM, Wi-Fi 6E module, PCAP touchscreen
IASO-W10B-N6210/4G/PoE-R10 *	10.1" 400cd/m² medical panel PC with Intel® Celeron® N6210 (Elkhart Lake, 6.5W TDP), one 4GB DDR4 RAM, Wi-Fi 6E module, PCAP touchscreen, IEEE802.3 PoE

* By order production

Options

Item	Part No.	Description
RFID	27765-000002-RS	RFID module (integrated RFID reader, RF Ideas KT-805N24KU-F01009, USB 2.0, 13.56MHz/125KHz, CCL, RoHS)

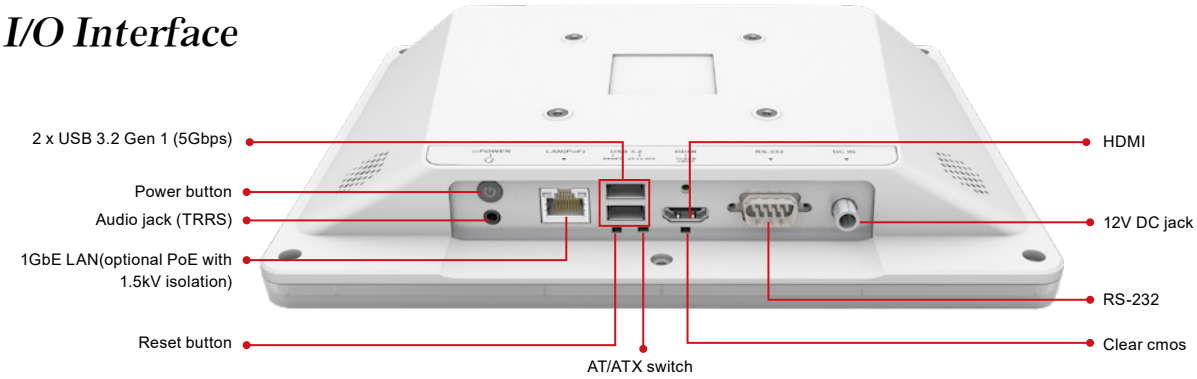
IQ Mounting Options

Item	Part No.	Description
In-wall Mounting Kit	IASOWK-10B	In-wall mounting kit with lock for IASO-W10B-N6210, RoHS *In-wall mounting kit is not recommended for use in a fully sealed space.

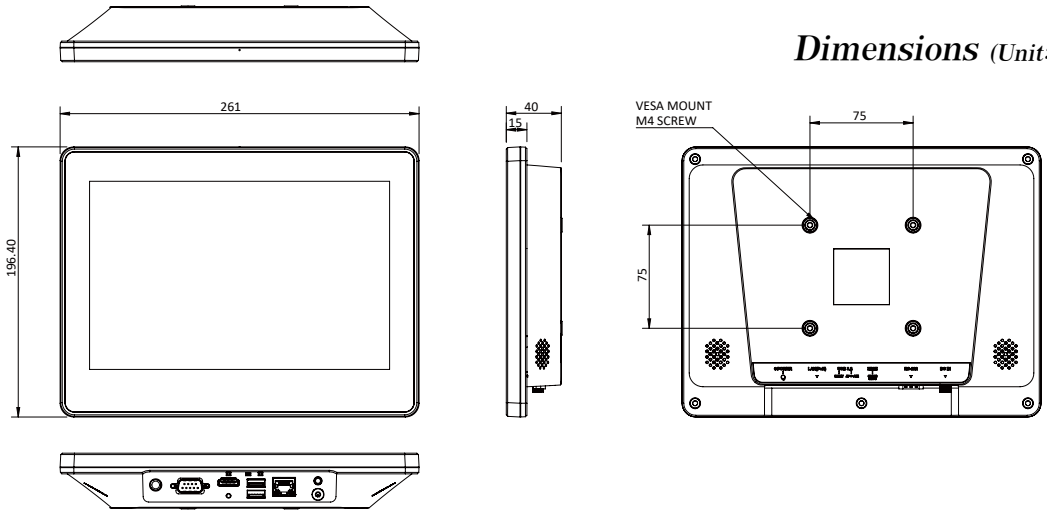
Packing List

Item	Q'ty	Remark
Power Adapter	1	65W medical power adapter
Power Cord	1	European power cord, 183 cm, C13

I/O Interface



Dimensions (Unit: mm)



Intelligent Point-of-Care Terminal

NEW

POCi-W22C-ULT5
POCi-W24C-ULT5

22” / 24" Medical Panel PC with 8th Generation Intel® mobile ULT Core™ i7/i5 processor

Features

- Dual reading light
- Chemical etching AG coating
- Modular PCIe x4 expansion slot
- Aluminum front bezel (IP66) & PC/ABS rear cover
- FHD IPS panel with optional DICOM preset module
- 14nm 8th generation Intel® Whiskey Lake U platform

Intel® Whiskey lake | Wi-Fi 6 | RFID | 10-Point | Modular PCIe x4 | Isolated I/O | Ultra Slim | DICOM Module | Reading light | Chemical Etching AG Coating

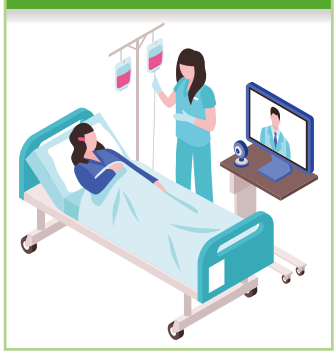
• Intelligent Working Station

The POCi series 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.

Endoscopy system

Surgical working station

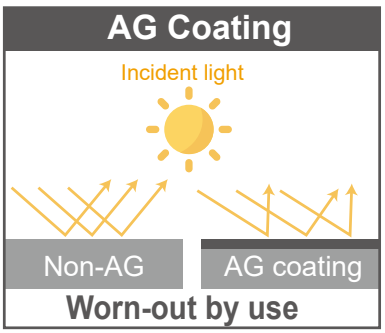
Telemedicine

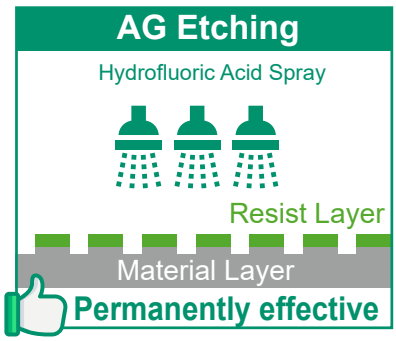


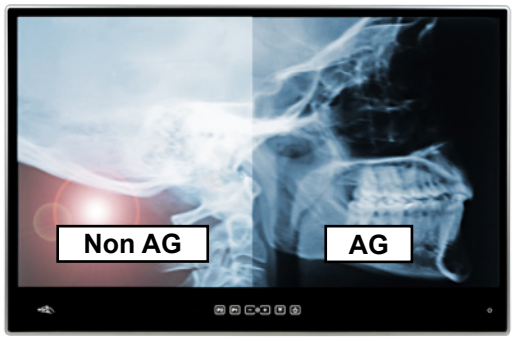
Radiology

• IPS Panel with Chemical Etching AG Coating Glass

High-performance IPS panel enables a wider 178° viewing angles and advanced visual performance. The chemical etching AG coating reduces the watching fatigue resulting from glare or any other light interference in different kinds of environments.







Intelligent Point of Care Terminal

● Ultra-slim Aluminum Front Bezel

The 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.

● 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.

* To order the POCi series with DICOM module, please contact IEI's product manager for more information.

● 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.

● Isolated I/O Ports

These 1.5kV isolated COM & LAN ports are compliant to the MOOP classification and use UL94 V-0 Flammability Standard Mylar® sheet insulation.

● ESD Protection

IEI provides Electrostatic discharge (ESD) 15kV (air) and 8kV (contact) ESD Protection. It can protect the circuit of a device from an Electrostatic discharge (ESD), in order to prevent malfunction of device.

• Chemical Resistance for Easy Sterilization

Sterilization is a daily routine of 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 | Virkon® S

High-Level Disinfectants

Cidex | Cidex OPA | Metricide 14 | Metricide 28 | Wavicide

• IP Protection

IP66 front bezel and cover are easy to be cleaned with cleaners.

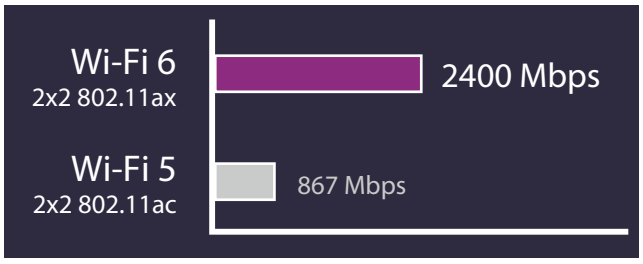
• True Flat OSD Hotkey Buttons

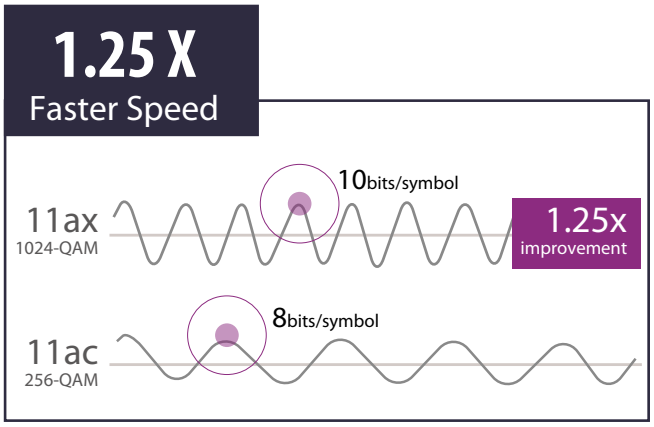
True flat OSD button design with no inaccessible corner brings conveniences for the cleaning personnel and increases cleaning efficiency.

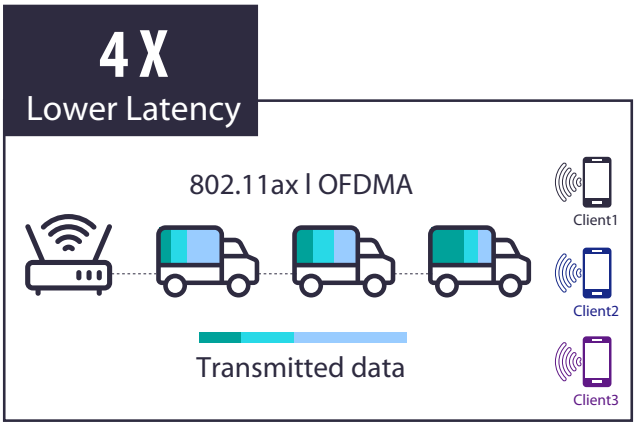
True Flat OSD Hotkey Buttons

• Wi-Fi 6 Module

The POCi-W22/24C-ULT5 supports the latest Wi-Fi 6 standard which enables more clients in dense environments and will provide a better experience for typical wireless LAN networks.





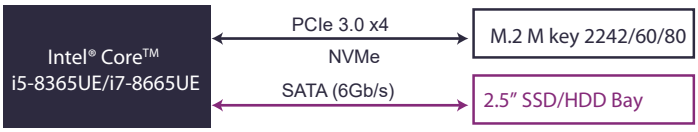


• Storage Device

The POCi-W22C-ULT5 provides flexible options for storage

˙ 2.5" HDD/SSD

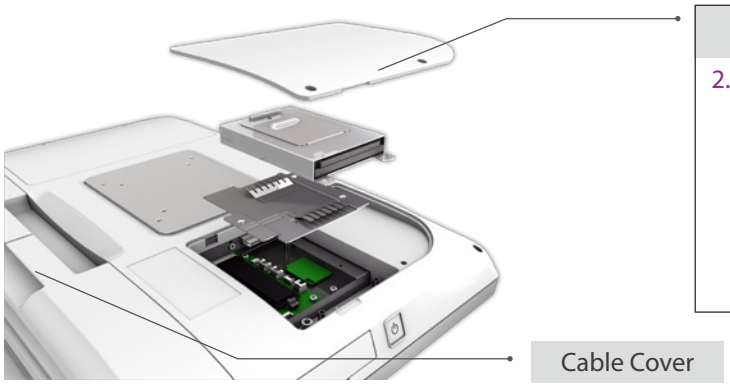
˙ M.2 M key slot for NVMe, up to PCIe 3.0 x4

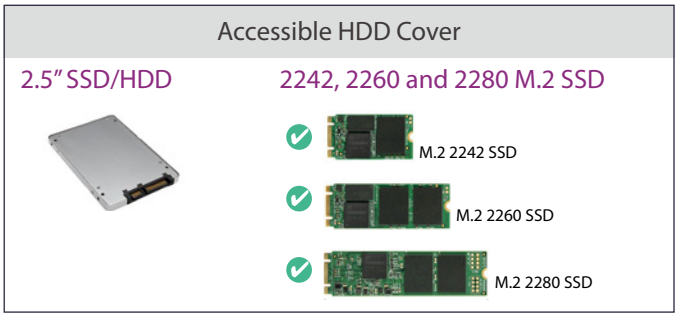


Interface	Bandwidth	
M.2 SATA 6Gb/s	Mainstream	6Gb/s
M.2 PCIe 2.0 x2		1.0GB/s
M.2 PCIe 3.0 x4		3.94GB/s

• Accessible HDD Cover & Cable Cover

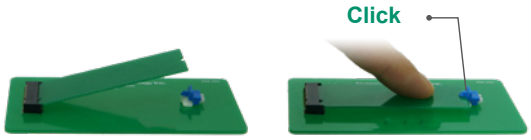
Users can easily manage all the cables from the I/O ports, preventing splash to IO ports or messy cabling. Accessible HDD cover makes the IT maintenance job more efficient.





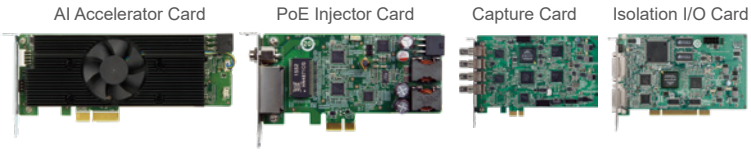
• Click-to-fix M.2 Slot

Special click-to-fix plunger design makes the M.2 replacing work much more convenient and prompt.



• Modular Expansion Design

The highly expandable PCIe x4 slot makes the whole system more flexible and easily meet the individual needs from different applications. For instance, adopting the AI accelerator card 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.



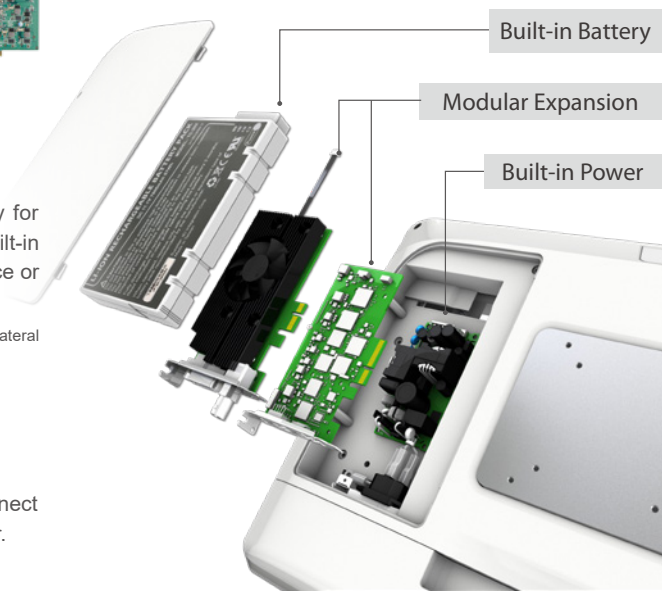
• Optional Built-in Battery

Uninterruptible Power System (UPS) is widely used in medical industry for securing patient's safety. The lateral expansion slot is available for a built-in battery which provides emergency power for 60 mins when the input source or main power fails under unexpected events.

* This feature needs to be requested before product shipment only and it will interfere with the lateral PCIe x4 expansion slot.

• Optional Built-in Power

To implement the built-in medical-grade power supply system, simply connect the power cord to the system without the use of an external power adapter.



Specifications

Model		POCi-W22C-ULT5	POCi-W24C-ULT5
LCD Specifications	LCD Size	21.5" (16:9)	23.8'' (16:9)
	Max. Resolution (W/H)	1920 x 1080	
	Brightness (cd/m²)	350	
	Contrast Ratio	1000:1	
	LCD Color	16.7M (RGB 6-bit + Hi-FRC)	
	Pixel Pitch (H/V)	0.24795 x 0.24795 mm	0.2745 × 0.2745 mm
	Viewing Angle (H/V)	178˚/178˚	
	Backlight MTBF (hrs)	30,000 (LED backlight)	
Touch	Touchscreen	Projected capacitive type with 10-point multi-touch	
	Touch Controller	EETI (80H84)	
	Surface Hardness	6H	
	Coating	Chemical AG etching	
System	CPU Support	Intel® Core™ i5-8365UE (Whiskey Lake ULT platform) Intel® Core™ i7-8665UE (Whiskey Lake ULT platform)	
	LAN Controller	1 x Intel® I211 Ethernet Controller 1 x Intel® I219 Ethernet Controller (AMT 12.x supported by i7/i5 SKUs)	
	RAM	2 x 260-pin 2400/2133MHz dual-channel DDR4 SO-DIMM, 4GB pre-installed (system max. 64GB)	
	Storage	1 x M.2 2242/60/80 M key (PCIe x4) 1 x 2.5" accessible SATA HDD/SSD bay	
	Audio	2 x 2W speaker	
	I/O Port	Bottom 1 x DC jack 1 x HDMI output 1 x Isolated 1.5kV RS-232 1 x Combo audio-out/mic-in 1 x Isolated Gigabit LAN (I211) 1 x Isolated Gigabit LAN (I219 supports Intel® vPro) 4 x USB 3.2 Gen 2 (10Gb/s) port	Side 2 x USB 2.0 port
	OSD Function	1 x Power on/off 1 x Reading light on/off 1 x Brightness up 1 x Brightness down	1 x LCD & touch lock on/off 1 x DICOM mode app on/off (optional)
	Expansion	1 x PCIe x4	
	LED	1 x RFID indicator (optional) 2 x LED reading light	
	Wi-Fi & Bluetooth	IEEE 802.11ax 2T2R module (Wi-Fi 6) with BT v5.0 (M.2 2230 A-E key)	IEEE 802.11ax 2T2R module (Wi-Fi 6E) with BT v5.0 (M.2 2230 A-E key)
Physical	Construction Material	Front bezel: Aluminum die-casting Rear cover: ABS+PC plastic (chemical resistant)	
	Mounting	Wall, Stand and Arm; VESA 75/100 compliant	
	Weight (Net)	6.9 kg	8.1 kg
	Dimensions (LxWxH)	507.5 x 335.5 x 64.5 mm	567 x 370.6 x 63.9 mm
Environment	Operating Temperature	0°C – 40°C	
	Storage Temperature	-20°C – 60°C	
	Humidity	10% – 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	
	Thermal	Fanless	
Power	Power Input	19V DC input	
	Power Adapter	150W medical power adapter	
	Battery	3S3P Li-ion battery pack, 11.1V, 7800mAh (optional)	
	Built-in Medical Power	150W, 85V – 264V AC, medical power supply (optional)	
Certification	EMC & Safety	CE, FCC Class B Part18 EN 60601-1: 2006/A1:2013 (Edition 3.1) EN 60601-1-2: 2015 (Edition 4.0)	

Ordering Information

Part No.		Description
22”	POCi-W22C-ULT5-i5/PC/4G-R10	21.5” 350cd/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, 802.11ax Wi-Fi module, PCAP touchscreen w/ AG coating, microphone, R10
	POCi-W22C-ULT5-i5/PC/4G-B-R10 *	21.5” 350cd/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, w/ battery, R10
	POCi-W22C-ULT5-i5/PC/4G-BP-R10 *	21.5” 350cd/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, w/ built-in power, R10
	POCi-W22C-ULT5-i7/PC/4G-R10 *	21.5” 350cd/m² FHD medical panel PC with 8th generation 14nm Intel® mobile Core™ i7-8665UE (15W) 1.7GHz on-board processor (ULT), one 4GB DDR4 RAM, 802.11 ax Wi-Fi module, PCAP touchscreen w/ AG coating, microphone, R10
	POCi-W22C-ULT5-i7/PC/4G-B-R10 *	21.5” 350cd/m² FHD medical panel PC with 8th generation 14nm Intel® mobile Core™ i7-8665UE (15W) 1.7GHz on-board processor (ULT), one 4GB DDR4 RAM, 802.11 ax Wi-Fi module, PCAP touchscreen w/ AG coating, microphone, w/ battery, R10
	POCi-W22C-ULT5-i7/PC/4G-BP-R10 *	21.5” 350cd/m² FHD medical panel PC with 8th generation 14nm Intel® mobile Core™ i7-8665UE (15W) 1.7GHz on-board processor (ULT), one 4GB DDR4 RAM, 802.11 ax Wi-Fi module, PCAP touchscreen w/ AG coating, microphone, w/ built-in power, R10
24”	POCi-W24C-ULT5-i5/PC/4G-R10	23.8” 350cd/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-W24C-ULT5-i5/PC/4G-B-R10 *	23.8” 350cd/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, w/ battery, R10
	POCi-W24C-ULT5-i5/PC/4G-BP-R10 *	23.8” 350cd/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, w/ built-in power, R10
	POCi-W24C-ULT5-i7/PC/4G-R10 *	23.8” 350cd/m² FHD medical panel PC with 8th generation 14nm Intel® mobile Core™ i7-8665UE (15W) 1.7GHz on-board processor (ULT), one 4GB DDR4 RAM, 802.11 ax Wi-Fi module, PCAP touchscreen w/ AG coating, microphone, R10
	POCi-W24C-ULT5-i7/PC/4G-B-R10 *	23.8” 350cd/m² FHD medical panel PC with 8th generation 14nm Intel® mobile Core™ i7-8665UE (15W) 1.7GHz on-board processor (ULT), one 4GB DDR4 RAM, 802.11 ax Wi-Fi module, PCAP touchscreen w/ AG coating, microphone, w/ battery, R10
	POCi-W24C-ULT5-i7/PC/4G-BP-R10 *	23.8” 350cd/m² FHD medical panel PC with 8th generation 14nm Intel® mobile Core™ i7-8665UE (15W) 1.7GHz on-board processor (ULT), one 4GB DDR4 RAM, 802.11 ax Wi-Fi module, PCAP touchscreen w/ AG coating, microphone, w/ built-in power, R10

* By order production

** To order the POCi series with DICOM module, please contact IEI's product manager for more information.

Options

Item	Part No.	Description
RFID1	19B00-000430-00-RS	Mifare RFID reader for POCi-W22C-ULT5, 13.56MHz, Z641, RFID board + antenna, IEI assembly only
	19B00-000426-00-RS	Mifare RFID reader for POCi-W24C-ULT5, 13.56MHz, Z686, RFID board + antenna, IEI assembly only
RFID2	19B00-000425-00-RS	RFID reader for POCi-W22C-ULT5, 125KHz, IEI assembly only
RFID3	19XS0Z686-0006001-000-RS	RFID reader for POCi-W24C-ULT5, 13.56MHz and 125KHz dual band, IEI assembly only
TPM	TPM-IN03-R10	20-pin Infineon SPI TPM 2.0 module, software management tool, firmware V7.63
OS Image	POCi-W22C-W10E64-V-R10	OS image with Windows Embedded Standard 10 E Value 64-bit 2019 for POCi-W22C/W24C Series
Cable Cover	43106-4327K8-00-RS	Cable cover for POCi-W22C, white, plastic, R10, IEI assembly only
	43106-4335K8-00-HF	Cable cover for POCi-W24C, white, plastic, R10, IEI assembly only
Battery	31603-000069-RS	3S3P Li-ion battery pack, 11.1V, 7800mAh, ATO only, CCL, RoHS

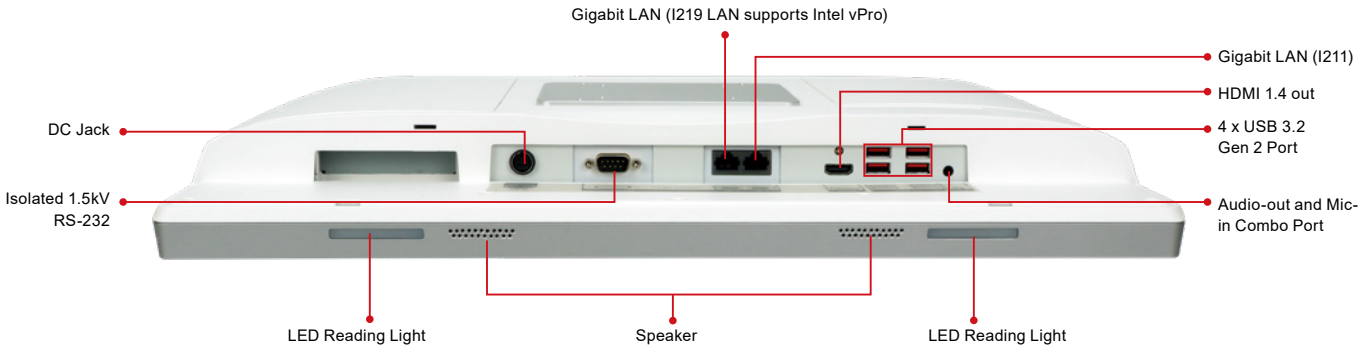
IQ Mounting Options

Item	Part No.
Stand	STAND-A21-R10 (black)
	STAND-A21W-R10 (white)

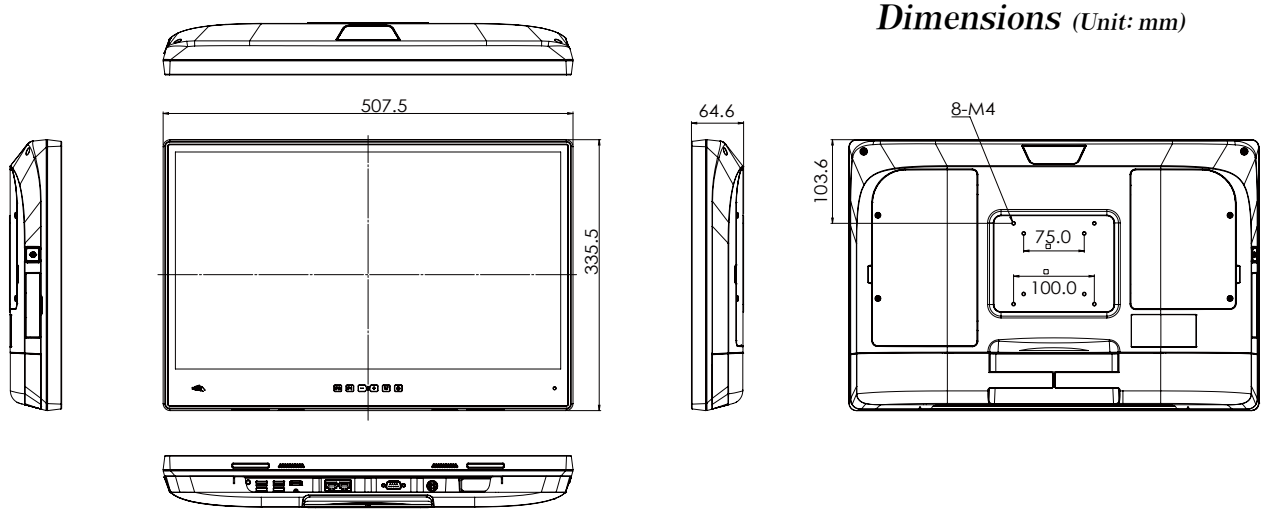
Packing List

Item	Q’ty	Remark
Power Adapter	1	150W medical power adapter
Power Cord	1	European power cord, 183 cm, C13

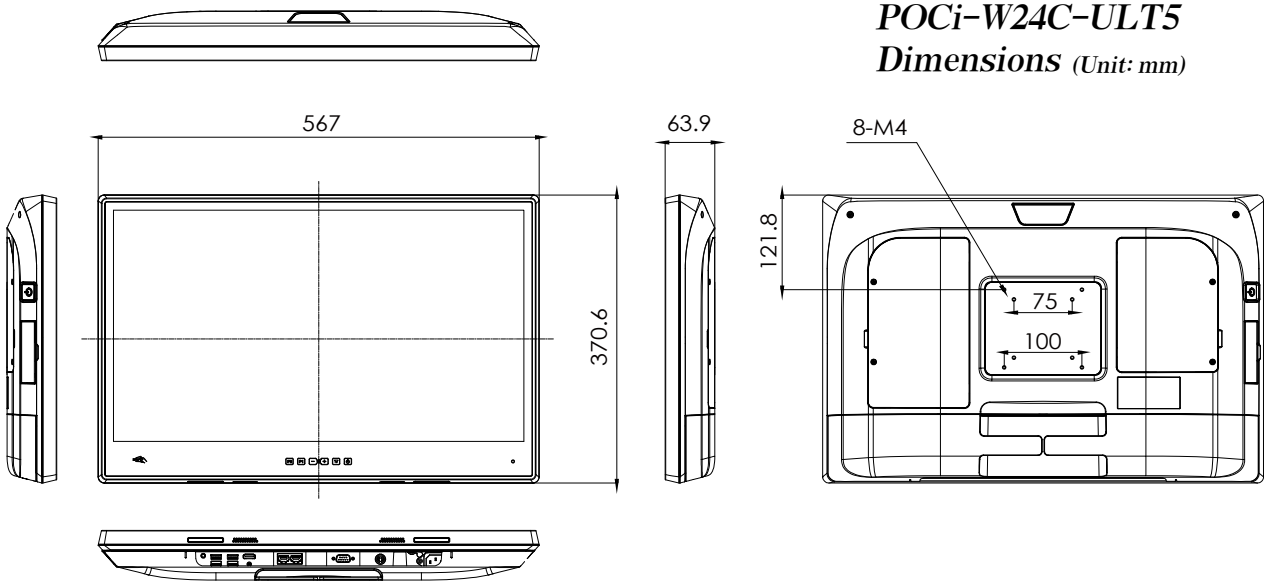
POCi-W22C-ULT5 / POCi-W24C-ULT5
I/O Interface



POCi-W22C-ULT5 Dimensions (Unit: mm)



POCi-W24C-ULT5 Dimensions (Unit: mm)



Mobile Point-of-Care Terminal

NEW

POCm2-W22C-TGL

22” Medical Panel PC with 11th Gen Intel® mobile ULT(UP3) Core™ i7/i5 processor

Features

- Dual reading light
- Chemical etching AG coating
- Aluminum front bezel (IP66) & PC/ABS rear cover
- Two hot-swappable batteries with a total runtime of 8 hours, ideal for non-powered medical carts

Intel® Tiger Lake | Fanless | Wi-Fi 6 | RFID | 10-Point | Bezel Design | Reading light | Chemical Etching AG Coating

Specifications

Model		POCm2-W22C-TGL
LCD Specifications	LCD Size	21.5" (16:9)
	Max. Resolution (W/H)	1920 x 1080
	Brightness (cd/m²)	350
	Contrast Ratio	1000:1
	LCD Color	16.7M (RGB 6-bit + Hi-FRC)
	Pixel Pitch (H/V)	0.24795 x 0.24795 mm
	Viewing Angle (H/V)	178˚/178˚
	Backlight MTBF (hrs)	30,000 (LED backlight)
Touch	Touchscreen	Projected capacitive type with 10-point multi-touch
	Touch Controller	EETI (80H84)
	Surface Hardness	6H
	Coating	Chemical AG etching
System	CPU Support	11th Gen Intel® mobile ULT(UP3) on-board processor Intel® Core™ i5-1145G7E (Tiger Lake ULT platform) Intel® Core™ i7-1185G7E (Tiger Lake ULT platform)
	LAN Controller	2 x Intel® I225 Ethernet Controller
	RAM	2 x SO-DIMM DDR4 3200MHz (system max. 128GB)
	Storage	2 x M.2 2242/60/80 M key (PCIe+SATA) with RAID
	Audio	2 x 2W speaker
	I/O Port	Bottom 1 x DC jack 1 x HDMI output 1 x DC output (12V/19V/24V) 1 x USB Type-C (DP + USB 5V/3A) 1 x Audio jack 2 x USB 2.0 2 x 2.5GbE LAN port 4 x USB 3.2 Gen 2 (10Gb/s) port Other 1 x Barcode scanner (optional)
System	OSD Function	1 x Power on/off 1 x Reading light on/off 1 x Brightness up 1 x Brightness down 1 x LCD & touch lock on/off 1 x Programmable button
	Expansion	1 x PCIe Mini (PCIe) 1 x M.2 2230 A-E key (PCIe+USB) 2 x M.2 2260/80 B-M key (PCIe/SATA)
	LED	1 x Power indicator 1 x RFID indicator 2 x Battery indicator 2 x LED reading light
	Wi-Fi & Bluetooth	IEEE 802.11ax 2T2R module (Wi-Fi 6E) with BT v5.0 (M.2 2230 A-E key)
Physical	Construction Material	Front bezel: Aluminum Rear cover: ABS+PC plastic (ENH2900)
	Mounting	Wall, Stand and Arm; VESA 75/100 compliant
	Weight (net)	Under 6.8 kg (without battery)
	Dimensions (LxWxH)	507.5 x 335.5 x 71 mm
Environment	Operating Temperature	0°C – 40°C
	Storage Temperature	-20°C – 60°C
	Humidity	10% – 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
	Thermal	Fanless
Power	Power Input	19V DC input
	Power Adapter	150W medical power adapter
	Battery	2 slots for Li-ion battery pack
Certification	EMC & Safety	CE, FCC Class B Part18 EN 60601-1: 2006/A1:2013 (Edition 3.1) EN 60601-1-2: 2015 (Edition 4.0)

Ordering Information

Part No.	Description
POCm2-W22C-TGL-i5/PC-R10	21.5" 350cd/m² FHD medical panel PC with 11th generation 10nm Intel® mobile Core™ i5-1145G7E 4.1GHz on-board processor, 802.11a/b/g/n/ac/ax Wi-Fi 6E module, PCAP touchscreen, w/o battery, R10
POCm2-W22C-TGL-i5/PC/4G-R10	21.5" 350cd/m² FHD medical panel PC with 11th generation 10nm Intel® mobile Core™ i5-1145G7E 4.1GHz on-board processor, one 4GB DDR4 RAM, 802.11a/b/g/n/ac/ax Wi-Fi 6E module, PCAP touchscreen, w/o battery, R10
POCm2-W22C-TGL-i7/PC-R10	21.5" 350cd/m² FHD medical panel PC with 11th generation 10nm Intel® mobile Core™ i7-1185G7E 4.4GHz on-board processor, 802.11a/b/g/n/ac/ax Wi-Fi 6E module, PCAP touchscreen, w/o battery, R10
POCm2-W22C-TGL-i7/PC/4G-R10	21.5" 350cd/m² FHD medical panel PC with 11th generation 10nm Intel® mobile Core™ i7-1185G7E 4.4GHz on-board processor, one 4GB DDR4 RAM, 802.11a/b/g/n/ac/ax Wi-Fi 6E module, PCAP touchscreen, w/o battery, R10

Options

Item	Number	Description
RFID	19B00-000430-00-RS	Mifare RFID reader for POCm2-W22C, 13.56MHz, Z641, RFID board + antenna, IEI assembly only
	7J006-RDR6021AKU-RS	RFID reader, 125KHz, RDR-6021AKU, IEI assembly only
DICOM	19B00-000431-00-RS	DICOM board module for POCm2-W22C, Z641, IEI assembly only
TPM	TPM-IN03-R10	20-pin Infineon SPI TPM 2.0 module, software management tool, firmware V7.63

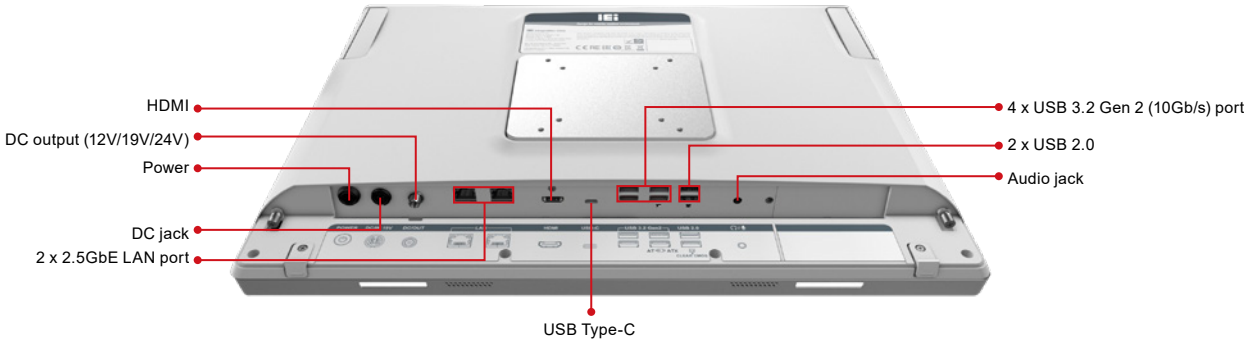
IQ Mounting Options

Item	Part No.
Stand	STAND-A21-R10 (black)
	STAND-A21W-R10 (white)

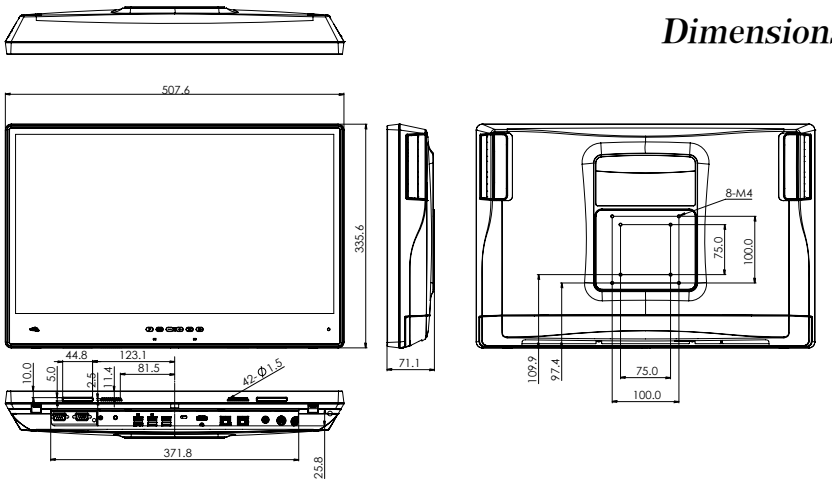
Packing List

Item	Q'ty	Remark
Power Adapter	1	150W medical power adapter
Power Cord	1	European power cord, 183 cm, C13

I/O Interface



Dimensions (Unit: mm)



Mobile Point-of-Care Terminal

POCm-W22C-ULT3
POCm-W24C-ULT3

22”/24" Medical Panel PC with 6th Generation Intel® mobile ULT Core™ i7/i5/Celeron® processor

DESIGN AWARD 2019

TAIWAN EXCELLENCE 2020

Features

- Intel® Celeron®, Core™ i5/i7 Skylake processor
- Anti-bacteria housing with IP65 front bezel and IP32 rear cover protection
- PCAP touch allows multi-touch, multi-layer gloves and water-on-screen operation
- Three hot-swappable batteries with a total runtime of 8 hours, ideal for non-powered medical carts

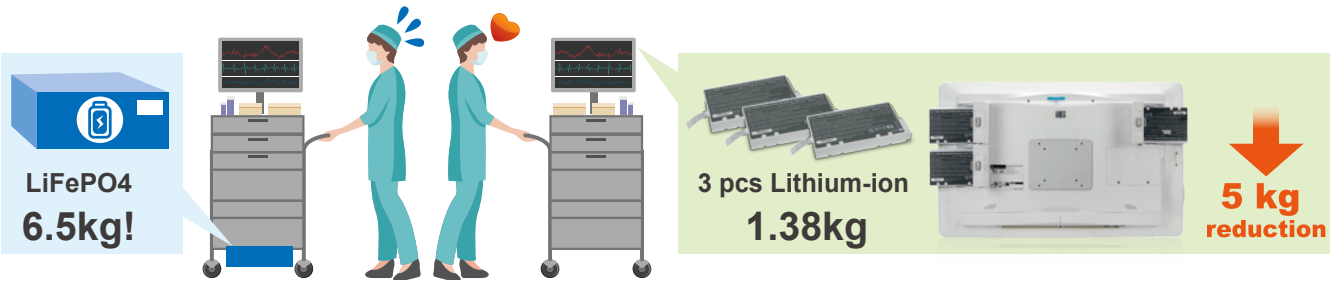
Intel® Skylake-U | Fanless | RFID | Camera | HDMI | IP65 | Multi-touch | E-Window

Key Features

3 hot-swappable batteries that can provide sufficient power, and the ergonomic side-facing design eases 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 the POCm series an ideal medical cart computer for decreasing the total weight up to 5 kg.



• Highly Integration

The POCm series product is a highly integrated panel PC. 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 Size	21.5" (16:9)	23.8" (16:9)
	Max. Resolution (W/H)	1920 x 1080	
	Brightness (cd/m²)	250	
	Contrast Ratio	1000:1	
	LCD Color	16.7M (RGB 6-bit + Hi-FRC)	
	Pixel Pitch (H/V)	0.24825 x 0.24825 mm	0.2745 x 0.2745 mm
	Viewing Angle (H/V)	170°/160°	178°/178°
	Backlight MTBF (hrs)	30,000 (LED backlight)	
Touch	Touchscreen	Projected capacitive type with 10-point multi-touch	
	Touch Controller	EETI	
	Surface Hardness	6H	
System	CPU Support	6th Gen Intel® mobile ULT Core™ i7-6600U / Core™ i5-6300U / Celeron® 3855U	
	LAN Controller	1 x Intel® I211 Ethernet Controller 1 x Intel® I219 Ethernet Controller (AMT 12.x supported by i7/i5 SKUs)	
	RAM	2 x 260-pin 2400/2133MHz dual-channel DDR4 SO-DIMM, 4GB pre-installed (system max. 32GB)	
	Storage	1 x 2.5" accessible SATA HDD bay 2 x M.2 2280 M key (PCIe/SATA) with RAID	
	Audio	2 x 2W speaker	
	Camera & Microphone	5-megapixel CMOS front-facing camera with auto-focus and digital microphone	
	I/O Port	Bottom 1 x DC jack 1 x Digital mic 2 x HDMI output 2 x GbE LAN port 2 x RS-232/422/485 4 x USB 3.2 Gen 1 (5Gb/s) port	Side 1 x Mic in 1 x Audio out 2 x USB 2.0 port
	OSD Function	1 x Power on/off 1 x Volume up 1 x Volume down	1 x Brightness up 1 x Brightness down 1 x LCD on/off and touch lock for cleaning
	Expansion	1 x Full-size/Half-size PCIe Mini (PCIe+USB)	
	LED	1 x RFID indicator 1 x Power indicator 3 x Battery indicator (color: blue/red)	
	Wi-Fi & Bluetooth	IEEE 802.11a/b/g/n/ac 2T2R module with BT v4.2 (M.2 2230 A-E key)	
Physical	Construction Material	ABS+PC plastic with anti-bacterial material	
	Mounting	Wall, Stand and Arm; VESA 75/100 compliant	
	Weight (Net)	7.07 kg (without battery) 8.43 kg (with 3 batteries)	8.18 kg (without battery) 9.53 kg (with 3 batteries)
	Dimensions (LxWxH)	543 x 350 x 71mm	594.6 x 379.6 x 71 mm
Environment	Operating Temperature	0°C – 40°C	
	Storage Temperature	-20°C – 60°C	
	Humidity	10% – 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	
	Thermal	Fanless	
Power	Power Input	19V DC input	
	Power Adapter	150W medical power adapter	
	Battery	3 slots for Li-ion battery packs	
Certification	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
22”	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
24”	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

Item	Number	Description
RFID	19B00-000432-00-RS	Mifare RFID reader for POCm, 13.56MHz, Z641, RFID Board + Antenna, IEI assembly only
TPM	TPM-IN02-R20	Trusted platform module kit, TPM 2.0, IEI assembly only
Charging Docking Station	POCm-DOCKING-6BAY-R10	6-slot battery charger, LED indicator, 15V/280W power adapter
OS Image	POCm-W22C-ULT3-W10E64-V-R10	OS image with Windows Embedded Standard 10 E Value 64-bit 2019 for POCm-W22C/W24C Series
Cable Cover	43106-0272Q7-00-RS	Cable cover for POCm, white, plastic, R10, IEI assembly only
Battery	31603-000069-RS	3S3P Li-ion battery pack, 11.1V, 7800mAh, CCL, RoHS, IEI assembly only

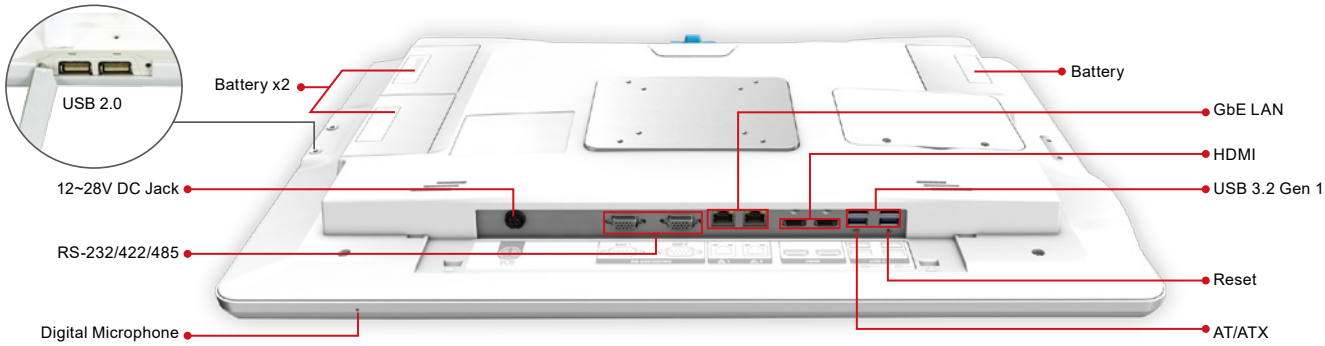
IQ Mounting Options

Item	Part No.
Arm	ARM-31-RS
Stand	STAND-A21-R10 (black)
	STAND-A21W-R10 (white)

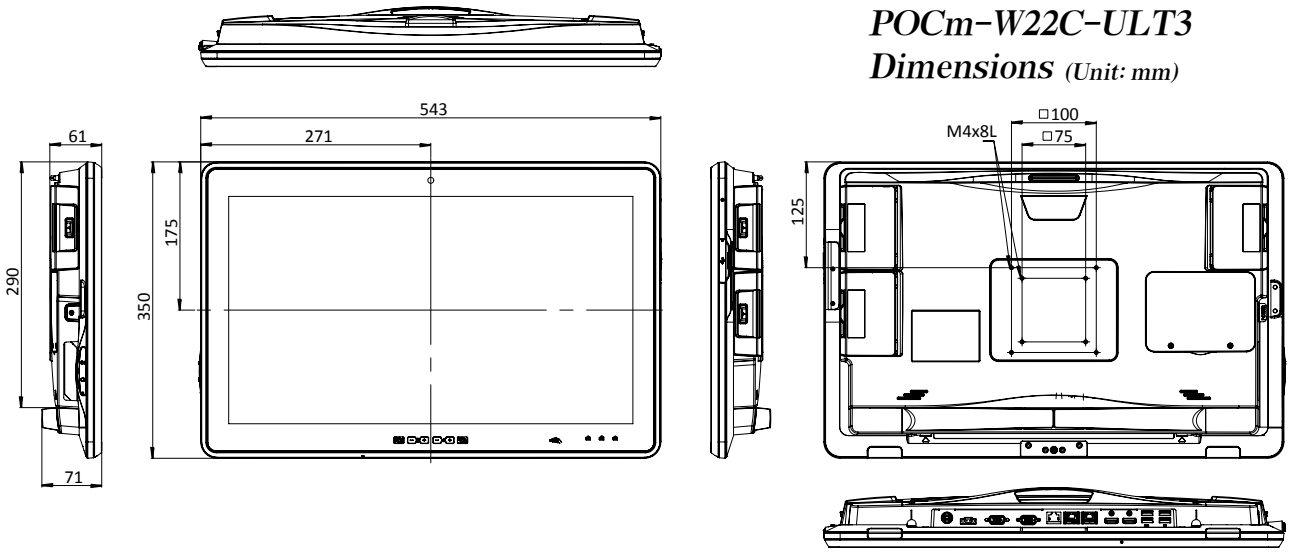
Packing List

Item	Q’ty	Remark
Power Adapter	1	150W medical power adapter
Power Cord	1	European power cord, 183 cm, C13

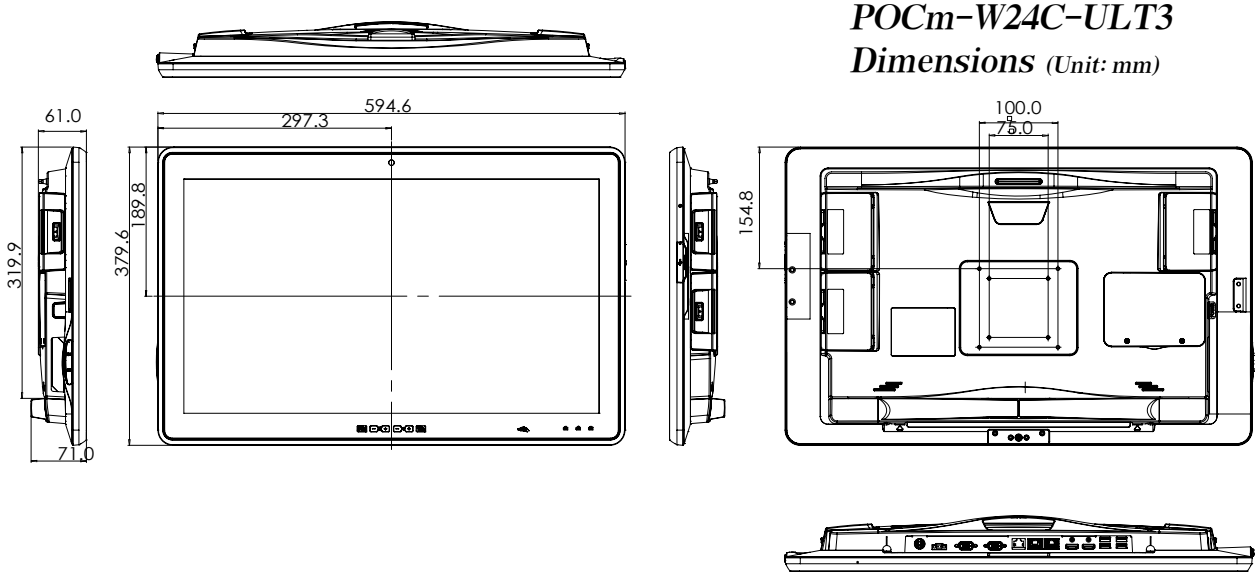
POCm-W22C-ULT3 / POCm-W24C-ULT3
I/O Interface



POCm-W22C-ULT3 Dimensions (Unit: mm)



POCm-W24C-ULT3 Dimensions (Unit: mm)



Point-of-Care Terminal

POC-17C-ULT3

17” Medical Panel PC with 6th Generation Intel® mobile ULT Core™ i7/i5/Celeron® processor

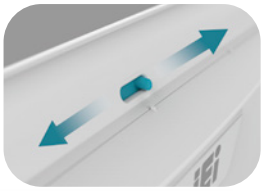
Features

- 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 the front panel by spray and wipe detergent.

• 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 Size	17” (5:4)
	Max. Resolution (W/H)	1280 x 1024
	Brightness (cd/m²)	350
	Contrast Ratio	1000:1
	LCD Color	16.7M (RGB 6-bit + Hi-FRC)
	Pixel Pitch (H/V)	0.264 x 0.264 mm
	Viewing Angle (H/V)	170°/160°
	Backlight MTBF (hrs)	30,000 (LED backlight)
Touch	Touchscreen	Projected capacitive type with 10-point multi-touch
	Touch Controller	EETI
	Surface Hardness	6H
System	CPU Support	6th Gen Intel® mobile ULT Core™ i7-6600U / Core™ i5-6300U / Celeron® 3855U
	RAM	2 x 260-pin 2400/2133MHz dual-channel DDR4 SO-DIMM, 4GB pre-installed (system max.32GB)
	Storage	1 x mSATA (E-Window) 2 x 2.5" SATA 6Gb/s accessible HDD bay with RAID 0, 1 (RAID is only supported by Core™ i5 and Core™ i7)
	Audio	2 x 2W speaker
	Camera & Microphone	2-megapixel CMOS front-facing camera with auto-focus and digital microphone
	I/O Port	1 x HDMI output 1 x 12V – 28V DC jack 1 x RS-232/422/485 1 x RJ-11 for 1D/2D barcode reader 2 x GbE LAN port 4 x USB 3.2 Gen 1 (5Gb/s) port 4 x USB 2.0 port (2 on the side)
	OSD Function	1 x LCD on/off 1 x Volume up 1 x Volume down 1 x Brightness up 1 x Brightness down 1 x Touch lock button for cleaning Combinations: 1 x Lock/Unlock OSD 1 x Power on/off
	Expansion	1 x E-Window slot (full-size PCIe Mini slot with PCIe/mSATA/USB)
	LED	1 x RFID indicator
	Wi-Fi & Bluetooth	IEEE 802.11a/b/g/n/ac 2T2R module with BT V4.1 (M.2 2230 A-E key)
Other Features	Auto-dimming	Yes
Physical	Construction Material	ABS+PC plastic with anti-bacterial material
	Mounting	Wall, Stand and Arm; VESA 75/100 compliant
	Weight (Net)	6.0 kg
	Dimensions (LxWxH)	435 x 376 x 64.5 mm
Environment	Operating Temperature	0°C – 40°C
	Storage Temperature	-20°C – 65°C
	Humidity	10% – 95% (non-condensing)
	Vibration	1G
	Shock	Operating shock: 5G peak acceleration (11ms duration) Non-operating shock: 15G peak acceleration (11ms duration)
	IP Level	Front: IP65
	Thermal	Fanless
Power	Power Input	19V DC input
	Power Adapter	150W medical power adapter
Certification	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
POC-17C-ULT3-C/PC/4G-R11	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, R11
POC-17C-ULT3-i5/PC/4G-R11	17" 350 cd/m² 1280x1024 Panel PC with Intel® 14nm 6th Generation Mobile Core™ i5-6300U (15W) 2.4GHz on-board processor (ULT), 1 x 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, PCAP touchscreen, 2M camera, microphone, R11
POC-17C-ULT3-i7/PC/4G-R11	17" 350 cd/m² 1280x1024 Panel PC with Intel® 14nm 6th Generation Mobile Core™ i7-6600U (15W) 2.6GHz on-board processor (ULT), 1 x 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, PCAP touchscreen, 2M camera, microphone, R11

Options

Item	Number	Description
RFID	19B00-000433-00-RS	Mifare RFID reader, 13.56MHz, with LED indicator and 100mm antenna, IEI assembly only
TPM	MEDP-TPM-02-R10	Trusted platform module kit with 300mm cable, IEI assembly only
OS Image	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
Cable Cover	43103-4506K6-00-RS	Cable cover for POC-17C, white, plastic, R10, IEI assembly only

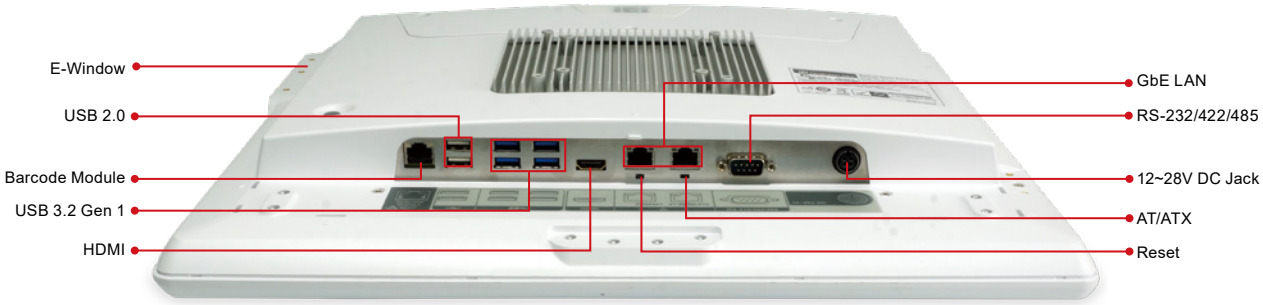
IQ Mounting Options

Item	Part No.
Wall Mounting Kit	AFLWK-19B
Arm	ARM-31-RS
Stand	STAND-A21-R10 (black)
	STAND-A21W-R10 (white)

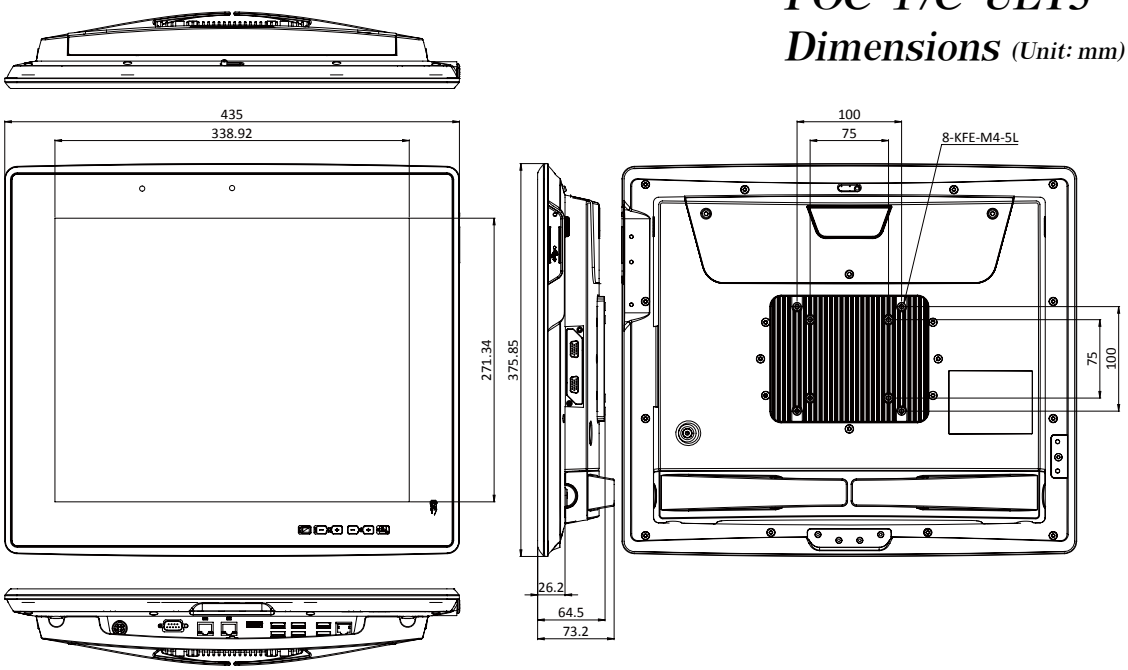
Packing List

Item	Q'ty	Remark
Power Adapter	1	150W medical power adapter Input: 90V – 264V AC; Output: 19V DC
Power Cord	1	European power cord, 183 cm, C13

POC-17C-ULT3
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

- E-Window expansion slot
- Intel® Core™ i5-6300U (Skylake) processor
- Anti-bacteria housing with IP65 front bezel and IP32 rear cover protection
- PCAP touch allows multi-touch, multi-layer gloves and water on screen operation

Intel® Skylake-U | Fanless | RFID | Camera | HDMI | IP65 | Multi-touch | E-Window

Specifications

Model		POC-W24C-ULT3
LCD Specifications	LCD Size	24" (16:9)
	Max. Resolution (W/H)	1920 x 1080
	Brightness (cd/m²)	250
	Contrast Ratio	1000:1
	LCD Color	16.7M (RGB 6-bit + Hi-FRC)
	Pixel Pitch (H/V)	0.2745 x 0.2745 mm
	Viewing Angle (H/V)	178°/178°
	Backlight MTBF (hrs)	30,000 (LED backlight)
Touch	Touchscreen	Projected capacitive type with 10-point multi-touch
	Touch Controller	EETI
	Surface Hardness	6H
System	CPU Support	6th Gen Intel® mobile ULT Core™ i7-6600U / Core™ i5-6300U / Celeron® 3855U 7th Gen Intel® mobile ULT Kaby Lake on-board SoC (By project base)
	RAM	2 x 260-pin 2400/2133MHz dual-channel DDR4 SO-DIMM, 4GB pre-installed (system max. 32GB)
	Storage	1 x mSATA (E-Window) 1 x 2.5" SATA 6Gb/s HDD/SDD bay
	Audio	2 x 3W speaker
	Camera & Microphone	5-megapixel CMOS front-facing camera with auto-focus and digital microphone
	I/O Port	1 x HDMI output 1 x 12V – 28V DC jack 1 x RS-232/422/485 1 x RJ-11 for 1D/2D barcode reader 2 x GbE LAN port 4 x USB 3.2 Gen 1 (5Gb/s) port 4 x USB 2.0 port (2 on the side)
	OSD Function	1 x LCD on/off 1 x Volume up 1 x Volume down 1 x Brightness up 1 x Brightness down 1 x Touch lock button for cleaning Combinations: 1 x Lock/unlock OSD 1 x Power on/off
	Expansion	1 x PCIe Mini reserved for E-Window expansion
	LED	1 x RFID indicator
	Wi-Fi & Bluetooth	IEEE 802.11a/b/g/n/ac 2T2R module with BT v4.1 (M.2 2230 A-E key)
Other Features	Auto-dimming	Yes
	Light Sensor	Ambient light sensor for panel brightness adjustment
Physical	Construction Material	ABS+PC plastic with anti-bacterial material
	Mounting	Wall, Stand and Arm; VESA 75/100 compliant
	Weight (Net)	7.5 kg
	Dimensions (LxWxH)	594.6 x 379.6 x 60.68 mm
Environment	Operating Temperature	0°C – 40°C
	Storage Temperature	-20°C – 60°C
	Humidity	10% – 95% (non-condensing)
	Vibration	1G
	Shock	Operating shock: 5G peak acceleration (11ms duration) Non-operating shock: 15G peak acceleration (11ms duration)
	IP Level	Front: IP65
	Thermal	Fanless
Power	Power Input	19V DC input
	Power Adapter	150W medical power adapter
Certification	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
POC-W24C-ULT3-C/PC/4G-R11	24" 250cd/m² FHD medical panel PC, Intel® Skylake dual-core Celeron® 3855U processor (1.60 GHz), one 4GB DDR4, 802.11a/b/g/n/ac, PCAP touchscreen, 5-megapixel camera, microphone, R11
POC-W24C-ULT3-i5/PC/4G-R11	24" 250cd/m² FHD medical panel PC, Intel® Skylake dual-core Core™ i5-6300U processor (2.4 GHz), one 4GB DDR4, 802.11a/b/g/n/ac, PCAP touchscreen, 5-megapixel camera, microphone, R11
POC-W24C-ULT3-i7/PC/4G-R11	24" 250cd/m² FHD medical panel PC, Intel® Skylake dual-core Core™ i7-6600U processor (2.60 GHz), one 4GB DDR4, 802.11a/b/g/n/ac, PCAP touchscreen, 5-megapixel camera, microphone, R11

Options

Item	Number	Description
RFID	19B00-000434-00-RS	Mifare RFID reader, 13.56MHz, with LED indicator, 200mm antenna, RFID & LED cable, IEI assembly only
TPM	MEDP-TPM-03-R10	Trusted platform module kit with 150mm cable, IEI assembly only
OS Image	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
Cable Cover	41006-1079K6-00-RS	Cable cover for POC-W24C, white, plastic, R10, IEI assembly only

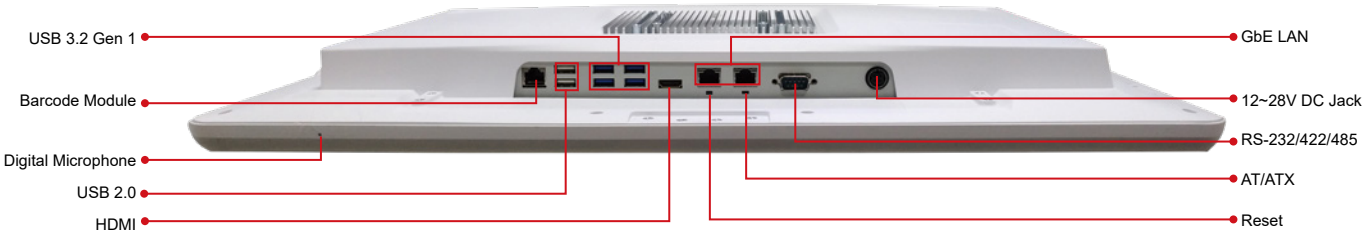
IQ Mounting Options

Item	Part No.
Wall Mounting Kit	AFLWK-19B
Arm	ARM-31-RS
Stand	STAND-A21-R10 (black)
	STAND-A21W-R10 (white)

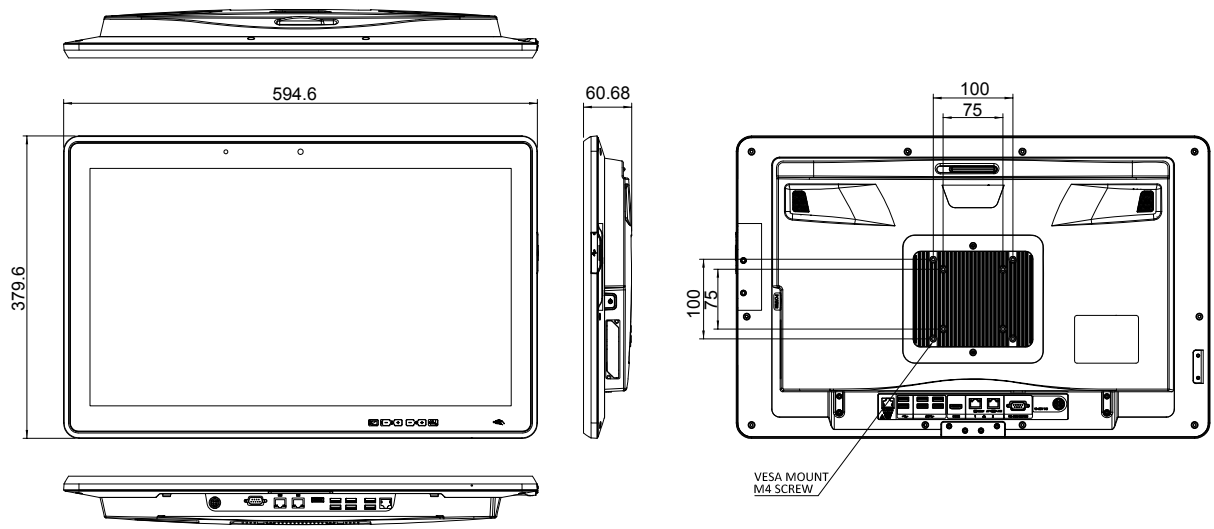
Packing List

Item	Q'ty	Remark
Power Adapter	1	150W medical power adapter Input: 90V – 264V AC; Output: 19V DC
Power Cord	1	European power cord, 183 cm, C13

POC-W24C-ULT3
I/O Interface



POC-W24C-ULT3
Dimensions (Unit: mm)



Mobile Medical Monitor

NEW

MPOCm-W24 | 24” Medical monitor with 3 hot-swappable batteries

Features

- IP65 front bezel
- 2 variable DC outputs
- 10-point PCAP touchscreen
- Hot-swappable batteries
- Intelligent working station
- 23.8” FHD medical monitor
- Internal Wi-Fi antenna

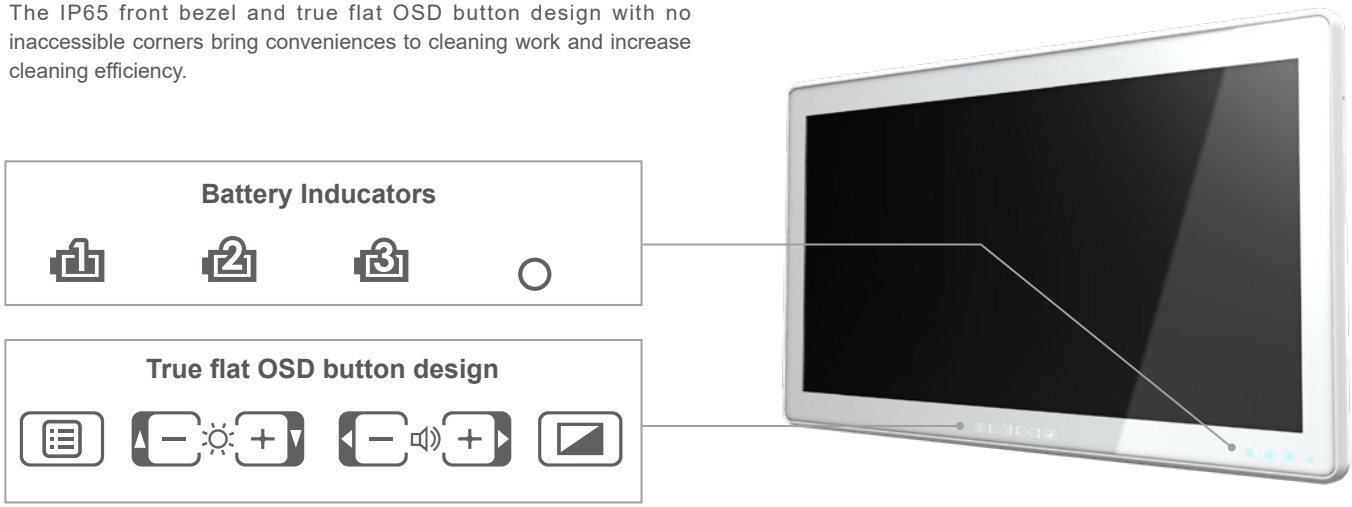
Fanless | 2DC Outputs | IP65 | 10 PCAP touchscreen | Battery | Full HD 1080

Three hot-swappable batteries

The MPOCm-W24 is a medical monitor with 3 hot-swappable batteries, and it can perfect fit with thin client box PC. It is ideal for improving caregivers’ working efficiency and mobility.

Easy Sterilization

The IP65 front bezel and true flat OSD button design with no inaccessible corners bring conveniences to cleaning work and increase cleaning efficiency.



Specifications

Model		MPOCm-W24/PC-R10
LCD Specifications	LCD Size	23.8"
	Max. Resolution (W/H)	1920 x 1080
	Brightness (cd/m²)	250
	Contrast Ratio	1000:1
	LCD Color	16.7M (RGB 6-bit + Hi-FRC)
	Pixel Pitch (H/V)	0.2745 x 0.2745 mm
	Viewing Angle (H/V)	178°/178°
	Backlight MTBF (hrs)	30,000 (LED backlight)
Touch	Touchscreen	Projected capacitive type with 10-point multi-touch
	Touch Controller	EETI
	Surface Hardness	6H
System	Audio	2 x 3W speaker
	I/O Port	1 x HDMI-in 1 x DC-in jack 1 x USB 2.0 (black, Type-B) for Touch 1 x USB 3.2 Gen 1 (blue, Type-B) 2 x USB 3.2 Gen 1 (blue, Type-A) 2 x Wi-Fi SMA connector (main/aux) 2 x Variable voltage DC power output for external devices (55W in total) DC OUT1: 19V, 24V (45 watts sustained, maximum of 55 watts) DC OUT2: 5V, 12V, 15V, 19V, 24V (10 watts sustained, maximum of 50 watts) *To use battery power, at least 2 batteries must be installed and the DC outputs must work properly.
	OSD Function	1 x LCD on/off 1 x Volume up 1 x Volume down 1 x Brightness up 1 x Brightness down 1 x OSD menu Key
	LED	1 x Power indicator 3 x Battery indicator (color: blue/orange)
	Battery Management APP	EC UART to USB, output to the box PC
Physical	Construction Material	ABS+PC plastic with anti-bacterial material
	Mounting	Wall, Stand and Arm; VESA 75/100 compliant
	Weight (Net)	8.18 kg (without battery) 9.53 kg (with 3 batteries)
	Dimensions (LxWxH)	594.6 x 379.6 x 63.2 mm
Environment	Operating Temperature	0°C – 40°C
	Storage Temperature	-20°C – 60°C
	Humidity	10% – 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
	Thermal	Fanless
Power	Power Input	19V DC input (4-pin)
	Power Adapter	150W medical power adapter
	Battery	Up to 3 hot-swappable TC-202 batteries
Certification	EMC & Safety	CE, FCC Class B Part 18 EN 60601-1: 2006/A1:2013 (Edition 3.1) EN 60601-1-2: 2015 (Edition 4.0)

Ordering Information

Part No.	Description
MPOCm-W24/PC-R10	23.8" 250cd/m² FHD medical monitor, 2 DC outputs, PCAP touchscreen, support 3 TC-202 batteries, R10

Options

Item	Number	Description
Charging Docking Station	POCm-DOCKING-6BAY-R10	6-slot battery charger, LED indicator, 15V/280W power adapter
Cable Cover	43106-0272Q7-00-RS	Cable cover for MPOCm, white, plastic, R10, IEI assembly only
Battery	31603-000069-RS	3S3P Li-ion battery pack, 11.1V, 7800mAh, CCL, RoHS, IEI assembly only
	MEDP-HSBAT-R10	3S3P Li-ion battery pack, 11.1V, 7800mAh (for eco packing, an order of at least 14 pcs per box or multiple of 14 pcs)

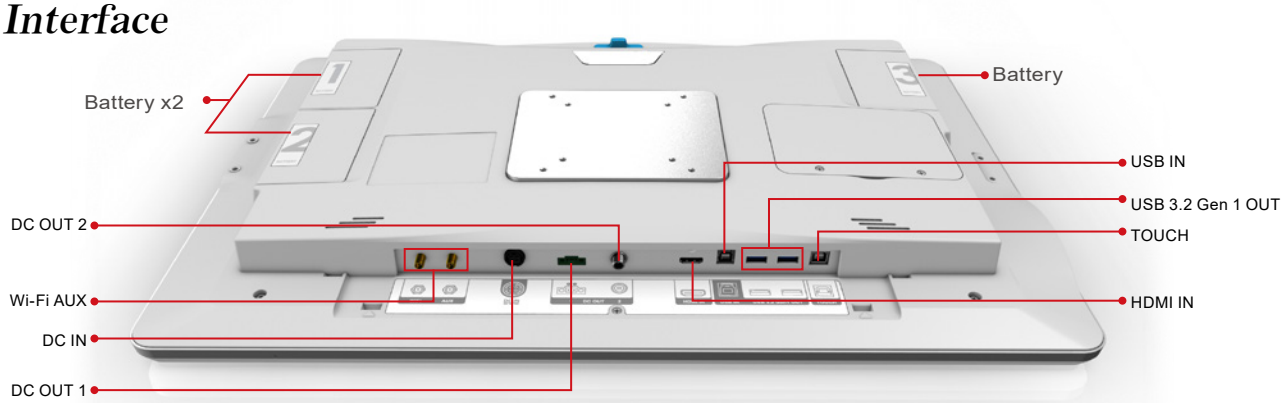
IQ Mounting Options

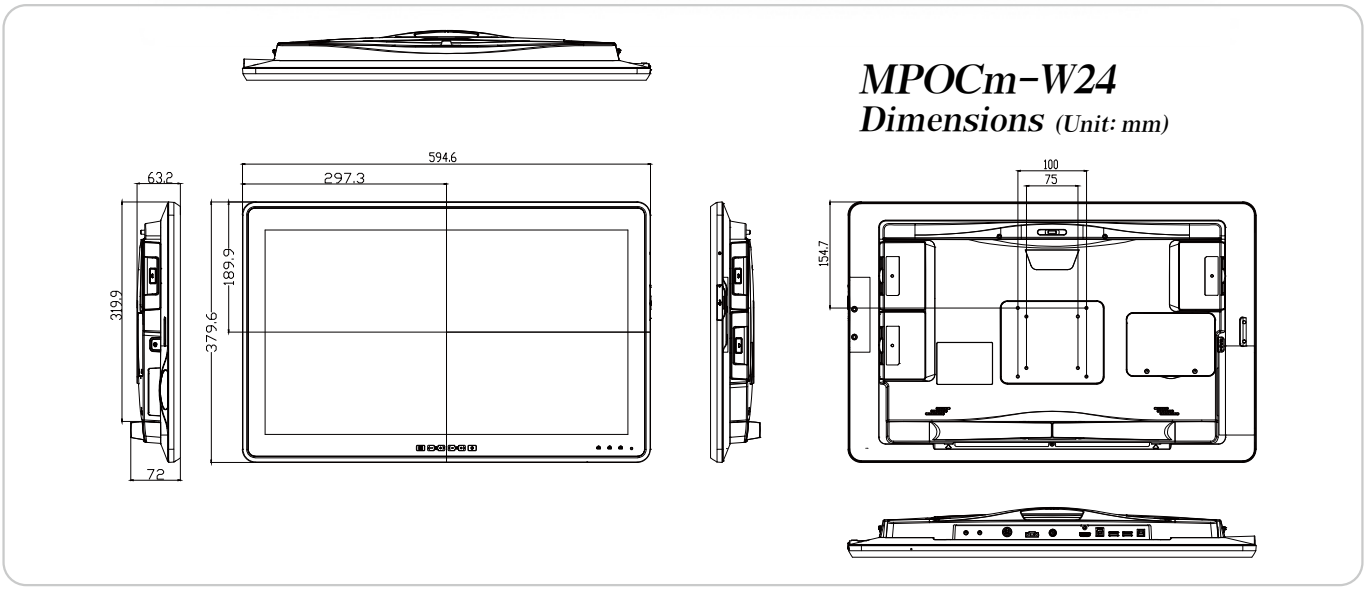
Item	Part No.
Wall Mount Kit	AFLWK-19B
Arm	ARM-31-RS
Stand	STAND-A21-R10

Packing List

Item	Q'ty	Remark
Power Adapter	1	150W medical power adapter; input: 90V – 264V AC; output: 19V DC
Power Cord	1	European power cord, 183 cm, C13

I/O Interface





Medical Grade Box PC & Edge AI Computing

With the advance of medical technology, more and more computing systems are adopted by various healthcare professionals for EMR integration, AI computing, medical information transfer, HMI and various medical applications.

The entire HTB series is developed to help our global partners to tackle the foreseeable growing opportunities in hospital digitalization, precision medicine, and artificial intelligence in healthcare.

HTB-100

- Desktop CPU
- Isolated RS-232
- Optional PCIe x16 expansion slot
- Support up to three independent displays

The HTB-100 is a medical grade fanless system with Intel® desktop CPU. It can serve as a medical controller or a medical gateway.

HTB-210

- Smart fan design
- PCIe x16 slot for GPU cards
- Server grade & desktop CPU
- Small size for easy deployment
- PCIe x4 slot for expansion cards

It adopts Intel® Xeon® or Core™ processor and features smart fan control to minimize the noise generated by system thermal solution. It is a perfect AI landing platform for algorithm development or applications in startup companies.

Selection Guide

Series		HTB	
Model		HTB-100-HM170	HTB-210-Q470
Chassis	Color	Silver + grayish blue	White
	Dimension (LxWxH)	294 x 209 x 90.2 mm	140 x 306.7 x 171 mm
	Thermal	Fanless	Smart fan
	Chassis Construction	Extruded aluminum alloy	Metal housing (SECC)
Motherboard	CPU	Intel® Core™ i5-6442EQ (6M cache, up to 2.70GHz, 25W) Intel® Core™ i7-6822EQ (8M cache, up to 2.80GHz, 25W)	Intel® Core™ i5-10500TE (6-core, 35W TDP) Intel® Core™ i7-10700TE (8-core, 35W TDP)
	Chipset	Intel® HM170	Intel® Q470
	System Memory	2 x 260-pin DDR4 SO-DIMM (4GB pre-installed, system max. 32GB)	2 x 260-pin 2666/2133MHz dual-channel DDR4 SO-DIMM ECC & non-ECC unbuffered (system max. 128GB)
Storage	Hard Drive	1 x 2.5" SATA HDD/SSD bay	1 x 2.5" SATA HDD/SSD bay
I/O Interfaces	USB	2 x USB 2.0 4 x USB 3.2 Gen 1 (5Gb/s)	1 x USB Type-C (USB/DP) 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 (front side)
	Ethernet	2 x RJ-45 PCIe GbE by Intel® I211 controller	2 x Intel® I225-V PCIe controller (2.5GbE)
	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)"	1 x RS-232/422/485
	Display	1 x VGA 1 x HDMI 2.0 1 x iDP (optional)	1 x HDMI
	Resolution	VGA: up to 1920 x 1200 @60HZ HDMI 2.0: up to 4096 x 2160 @60Hz	HDMI: up to 4096 x 2304 @30Hz
	Audio	1 x Mic-in 1 x Line-in 1 x Line-out Realtek ALC662, 5.1-channel High Definition Audio (HDA)	-
	Wireless	1 x 802.11a/b/g/n/ac 2T2R (optional)	-
	Others	-	1 x Power button 1 x AT/ATX switch
Expansions	PCIe	1 x PCIe x16	1 x PCIe 3.0 x4 1 x PCIe 3.0 x16
	PCIe Mini	1 x Half-size PCIe Mini 1 x Full-size PCIe Mini (supports mSATA, colay with SATA)	-
	M.2	1 x M.2 1630/2230/3030 A-E key (PCIe x2/USB 2.0)	1 x M.2 2230 A key (PCIe x2 and USB 2.0) 1 x M.2 2280 M key (PCIe x4 and SATA)
	Acceleration Card (optional)	-	Quadro P2200 (75W) NVIDIA Tesla T4 (75W)
Power	Power Input	12V – 28V DC	19V DC
	Power Consumption	19V @4.4A (Intel® Core™ i7-6822EQ with 4GB memory)	19V @4.8A
	Adapter	90V – 264V AC input, 19V DC output; 150W	100V – 240V AC input, 19V DC output, 180W
Reliability	Mounting	Wall mount	-
	Operating Temperature	0°C – 40°C, with air flow (SSD)	0°C – 40°C
	Operating Humidity	10% – 95% (non-condensing)	10% – 95% (non-condensing)
	Storage Temperature	-40°C – 70°C, with air flow (SSD)	-20°C – 60°C
	Storage Humidity	10% – 90% (non-condensing)	-
	Operating Shock	Half-sine wave shock 5G; 11ms; 100 shocks per axis	Half-sine wave shock 5G, 11ms, 100 shocks per axis
	Operation Vibration	MIL-STD-810G 514.6 C-1 (with SSD)	MIL-STD-810G 514.6C-1 (with SSD)
	Weight (Net/Gross)	2.2 kg/3.0 kg	2.8 kg
Certification	Safety/EMC	CE, FCC class B part 18 IEC 62304 IEC 60601-1 V3.1 IEC 60601-1-2 V4.0 ISO 14971:2007	UL/cUL FCC Part15B EN 62368-1 Ed.2 + RMF EN 55032 + EN 55035
OS	Supported OS	Microsoft Windows 10, Microsoft Embedded Standard 7	Windows 11, Windows 10, Linux

AI Box PC

NEW

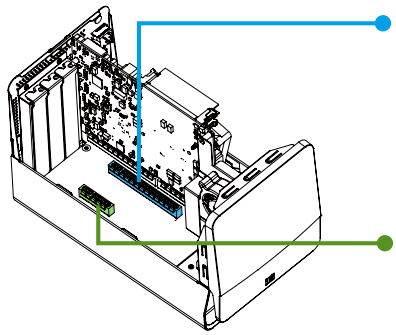
HTB-210-Q470 | 10th Gen Intel® Core™ processor

Features

- 10th Gen Intel® Core™ processor platform with Intel® Q470 chipset
- PCIe x4 slot supports capture cards or other applications
- Compact edge device with great computing & graphics performance
- PCIe x16 slot supports NVIDIA GPU acceleration card
- Two 260-pin 2666/2133MHz Dual-Channel DDR4 SODIMM unbuffered Memory supported up to 128GB

Intel® Comet Lake | Smart Fan | USB 3.2 | HDMI | Type C | 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 allows the end user to choose accelerator cards based on their different needs.

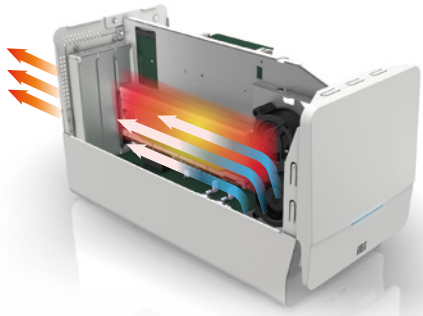
PCIe x4

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-210 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-210 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-210-Q470
Chassis	Color	White
	Dimension (LxWxH)	140 x 306.7 x 171 mm
	Thermal	Smart Fan
	Chassis Construction	Metal Housing (SECC)
Motherboard	CPU	Intel® Core™ i5-10500TE (6-core, 35W TDP) Intel® Core™ i7-10700TE (8-core, 35W TDP)
	Chipset	Intel® Q470
	System Memory	2 x 260-pin 2666/2133MHz dual-channel DDR4 SO-DIMM ECC & non-ECC unbuffered (system max. 128GB)
Storage	Hard Drive	1 x 2.5" SATA HDD/SSD bay
I/O Interfaces	USB	1 x USB Type-C (USB/DP) 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 (front side)
	Ethernet	2 x Intel® I225-V PCIe controller (2.5GbE)
	COM port	1 x RS-232/422/485
	Display	1 x HDMI
	Resolution	HDMI: up to 4096 x 2304 @30Hz
	Others	1 x Power button 1 x AT/ATX switch
Expansions	PCIe	1 x PCIe 3.0 x4 slot 1 x PCIe 3.0 x16 slot
	M.2	1 x M.2 2230 A key (PCIe x2 and USB 2.0) 1 x M.2 2280 M key (PCIe x4 and SATA)
	Acceleration Card (Optional)	NVIDIA Tesla T4 (75W) Quadro P2200 (75W)
Power	Power Input	19V DC
	Power Consumption	19V @4.8A
	Power Adapter	100V – 240V AC input, 19V DC output, 180W
Reliability	Operating Temperature	0°C – 40°C
	Operating Humidity	10% – 95% (non-condensing)
	Storage Temperature	-20°C – 60°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)	2.8 kg
Certification	Safety / EMC	UL/ cUL FCC Part15B EN 62368-1 Ed.2 + RMF EN 55032 + EN 55035
OS	Supported OS	Windows 11, Windows 10, Linux

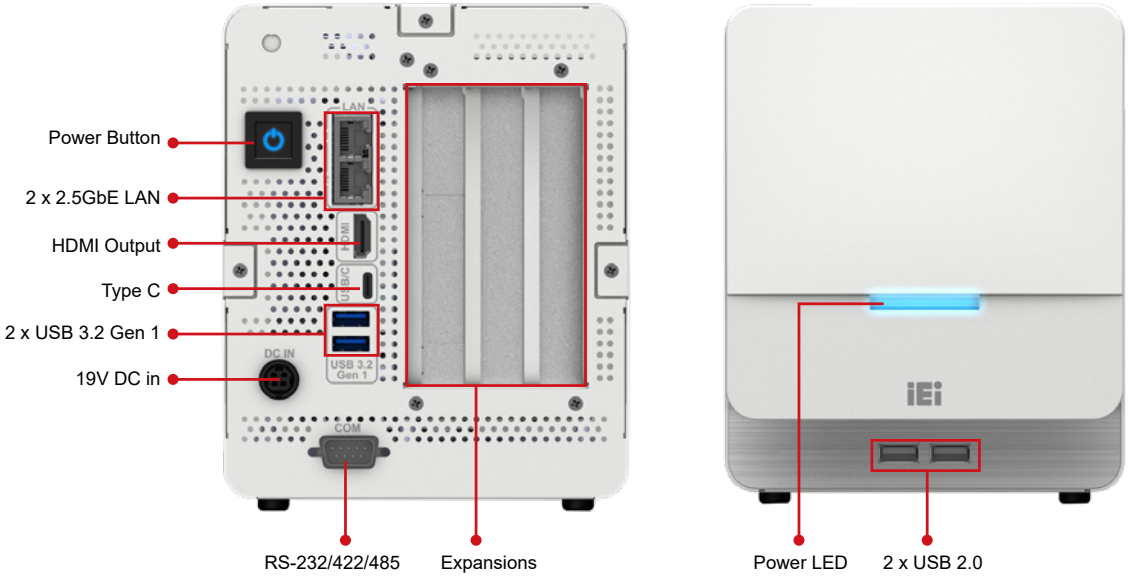
Ordering Information

Part No.	Description
HTB-210-Q470/2A-R10	Embedded system w/o CPU, w/o RAM, one PCIe x16 slot, one PCIe x4 slot, 19V DC 180W power adapter, white, for ATO only, R10
24133-02023012-01-RS	Intel® Core™ i5-10500TE (6-core, 35W TDP)
24133-03020016-01-RS	Intel® Core™ i7-10700TE (8-core, 35W TDP)
19FHTB210-000001-RS	Fan module for NVIDIA Tesla T4, CCL, RoHS

Packing List

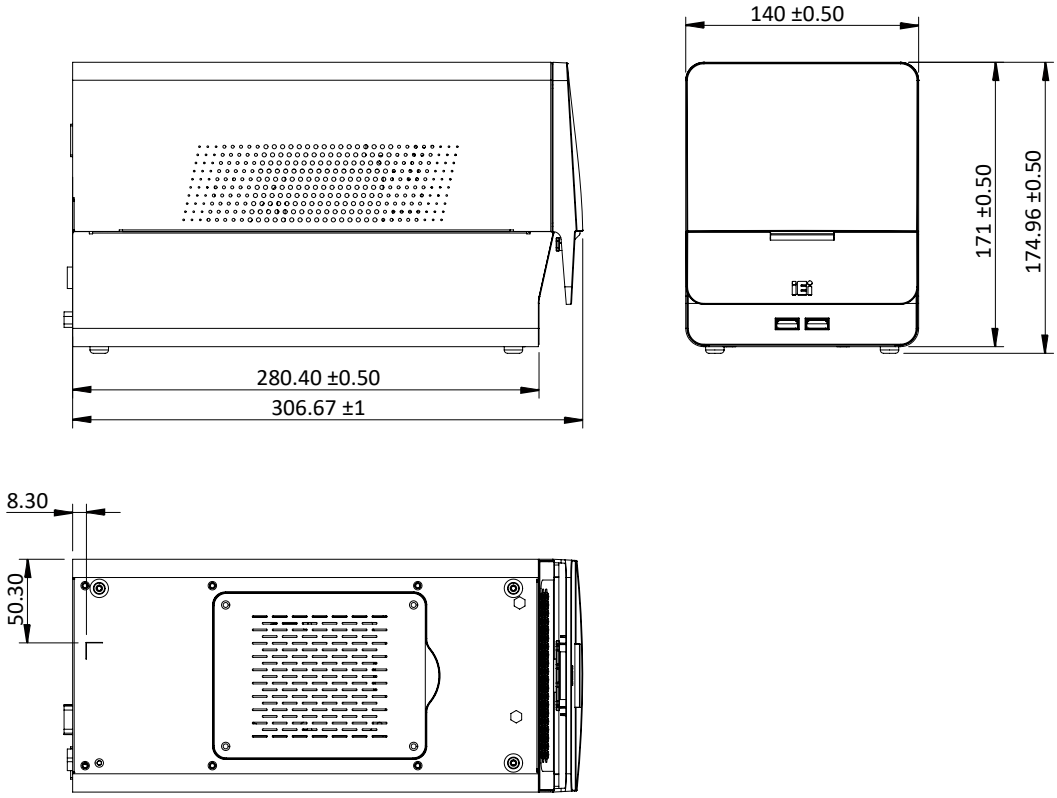
Item	Part No.	Q'ty	Remark
Power Adapter	63040-010180-200-RS	1	180W power adapter Input: 100V – 240V AC; Output: 19V DC
Power Cord	32702-000200-100-RS	1	European power cord, 180 cm, C13
HDD Screws	44043-030041-RS	4	Machine screw; I head; M3x4

I/O Interface



HTB-210-Q470 Dimensions

(Unit: mm)



Medical Box PC

HTB-100-HM170 | Fanless Quad Core Box PC

Features

- Triple independent display with high resolution support
- Isolated COM ports for enhancing safety among devices
- Optional PCIe x16 expansion slot supports more flexible functions
- Medical grade with high performance fanless embedded computing
- 6th Gen Intel® Core™ processor platform with Intel® HM170 chipset and DDR4 memory

Fanless | DDR4 | M.2 | Triple Display | Isolated COM Port | Waterproof Top Cover

Smart & Friendly Design

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 electric current flowing 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
Chassis	Color	Silver + Grayish blue
	Dimension (L x W x H)	294 x 209 x 90.2 mm
	Thermal	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	Intel® Core™ i5-6442EQ (6M cache, up to 2.70GHz, 25W) Intel® Core™ i7-6822EQ (8M cache, up to 2.80GHz, 25W)
	Chipset	Intel® HM170
	System Memory	2 x 260-pin DDR4 SO-DIMM (4GB pre-installed, system max. 32GB)
Storage	Hard Drive	1 x 2.5" SATA HDD/SSD bay
I/O Interfaces	USB	2 x USB 2.0 4 x USB 3.2 Gen 1 (5Gb/s)
	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	1 x Mic-in 1 x Line-in 1 x Line-out Realtek ALC662, 5.1-channel High Definition Audio (HDA)
	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 M.2 1630/2230/3030 A-E key (PCIe x2/USB 2.0)
Power	Power Input	12V – 28V DC
	Power Consumption	19V @4.4A (Intel® Core™ i7-6822EQ with 4GB memory)
	Adapter	90V – 264V AC input, 19V DC output; 150W
Reliability	Mounting	Wall mounting
	Operating Temperature	0°C – 40°C, with air flow (SSD)
	Operating Humidity	10% – 95% (non-condensing)
	Storage Temperature	-40°C – 70°C, with air flow (SSD)
	Storage Humidity	10% – 90% (non-condensing)
	Operating Shock	Half-sine wave shock 5G; 11ms; 100 shocks per axis
	Operation Vibration	MIL-STD-810G 514.6 C-1 (with SSD)
	Weight (Net / Gross)	2.2 kg/3.0 kg
Certification	Safety / EMC	CE IEC 62304 IEC 60601-1 V3.1 IEC 60601-1-2 V4.0 ISO 14971:2007 FCC class B part 18
OS	Supported OS	Microsoft Windows 10, Microsoft Embedded Standard 7

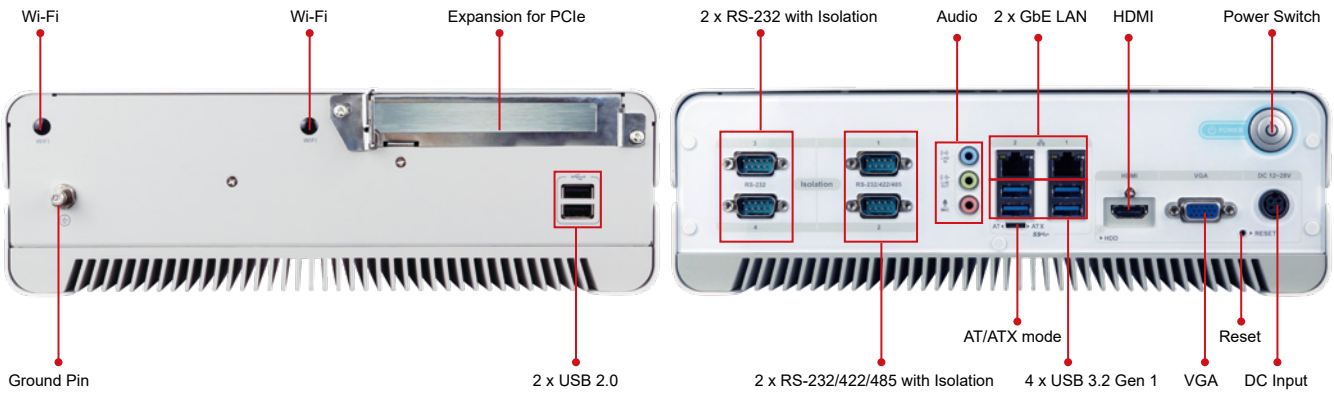
Ordering Information

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, 12V–28V DC, power adapter
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, 12V–28V DC, power adapter

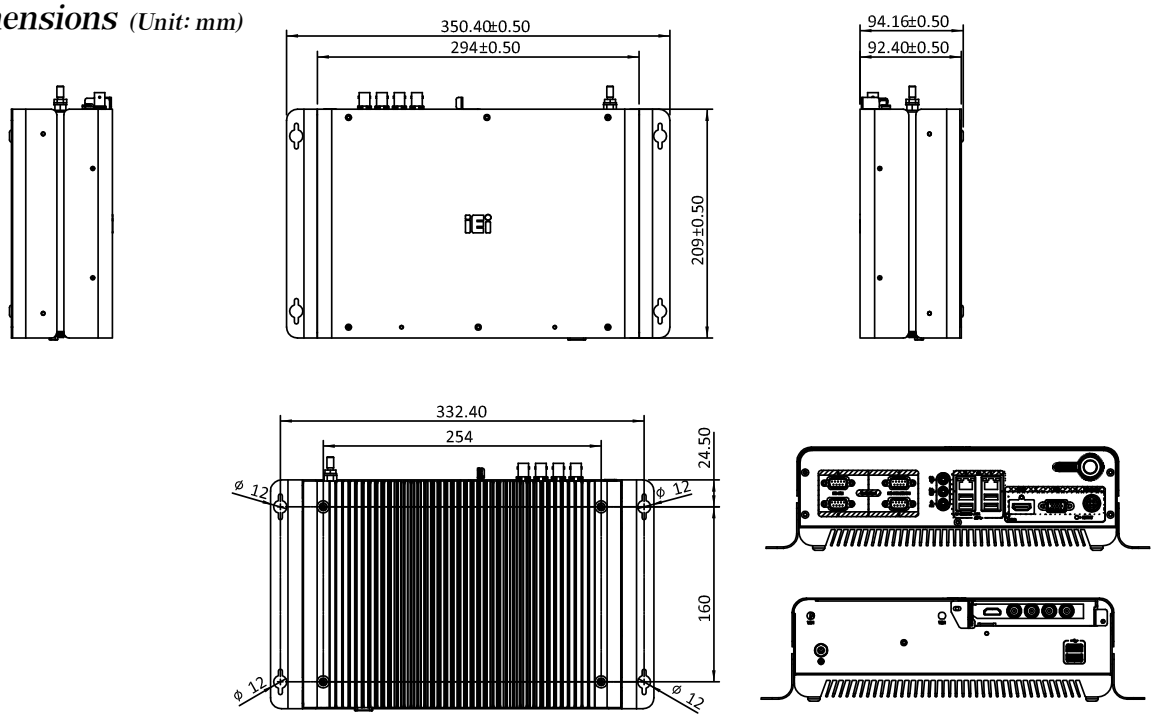
Packing List

Item	Part No.	Q'ty	Remark
Power Adapter	63040-010150-400-RS	1	Vin: 90 – 264V AC; 150W; Dim: 85 x 170 x 42.5mm; Plug: 6.5mm; Cable: 1,200 mm; Medical; Vout:19VDC; Din 4-Pin/lock; CCL; R10

I/O Interface



HTB-100-HM170 Dimensions *(Unit: mm)*



Medical Power

With the advance of medical technology, more and more computing systems are adopted by various healthcare professionals for EMR integration, AI computing, medical information transfer, HMI and various medical applications.

The series is developed to help our global partners to tackle the foreseeable growing opportunities in hospital digitalization, precision medicine, and artificial intelligence in healthcare.

AXON-mPOWER

With two 12V/15V/19V/24V configurable power outputs to support diverse POC and medical peripherals

POCm-DOCKING-6BAY

Battery docking station with fast charging which takes only 3.5 hours to charge from 0 to 100%

TAIWAN
EXCELLENCE 2020

Medical Grade Power System

NEW

AXON-mPOWER

With two 12V/15V/19V/24V configurable power outputs to support diverse POC and medical peripherals

Features

- 2 x 7800mAh high-capacity Lithium-ion battery pack
- 6 – 12 hours runtime (depending on system power consumption)
- Fast charge design - less than 3.5 hrs from 0% to 100%
- Real-time battery monitoring by mPOWER APP
- Compliant with IEC 60601-1-2 4th edition and IEC 60601-1
- VESA 75/ 100 mount for easy installation onto POC systems
- 2 x 12V/15V/19V/24V configurable power output to support diverse POC and medical peripherals
- 1 x USB Type-C port

Fanless | Power APP | Certification | Type-C

Specifications

Model		AXON-mPOWER
Battery	Battery Pack Type	2 x 3S3P Lithium-ion batteries
	Battery Pack Capacity	2 x 7800 mAh (2 x 87Wh) 2 batteries support 6 – 12 hours runtime (depending on system power consumption)
	Normal Voltage	11.1 V
	Battery Life Time	300 cycles > 70%
	Charge Time	210 mins. from 5% – 95% (2A charge for each battery pack)
	Charge Voltage	12.6 V
	Continuous Charge Current	2 A for each battery
	Continuous Discharge Current	5 A (each battery pack's discharge power < 55.5W at 40 °C)
	Maximum Discharge Current	7 A (each battery pack's discharge power < 77.7W at 25 °C)
	Discharge Cut-off Voltage	8.25 V
Power	DC-out Power	110W maximal
	Built-in Power Supply	Power input: 100V – 240V Type/Watt: Medical, 150W
I/O Interface	DC-out 1	12V/15V/19V/24V (80 watts)
	DC-out 2	12V/15V/19V/24V (15 watts)
	USB Type-C	5V/3A (15 watts)
	USB Type-A	Engineering port (for app read/write)
	AC-in	C13 connector
LED Indicator	Normal	Blue: Battery capacity is above 25% (non-AC mode) / battery is fully charged (AC mode) Orange: Battery capacity is 25% – 10% Blinking Orange: Battery capacity is less than 10% Off: sleep mode / battery error / non-IEI battery / without battery
	Charging	Blinking Blue: 0% – 94% charged Blue: 95% – 100% charged
	Full Charge Capacity (FCC)	Battery FCC < 50% - Charging: blinking purple - Fully charged: solid purple
Physical	Weight (Net)	4 kg (with 2 batteries)
	Dimensions (LxWxH)	195 x 180 x 94.1 mm
Environment	Operating Temperature	0°C – 40°C
	Operating Humidity	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
Certification	Battery Pack	UN38.3, UL2054, IEC62133
	EMC & Safety	CE, FCC Class B Part18 Compatible with EN 60601-1: 2006/A1:2013 (Edition 3.1) and EN 60601-1-2: 2015 (Edition 4.0)

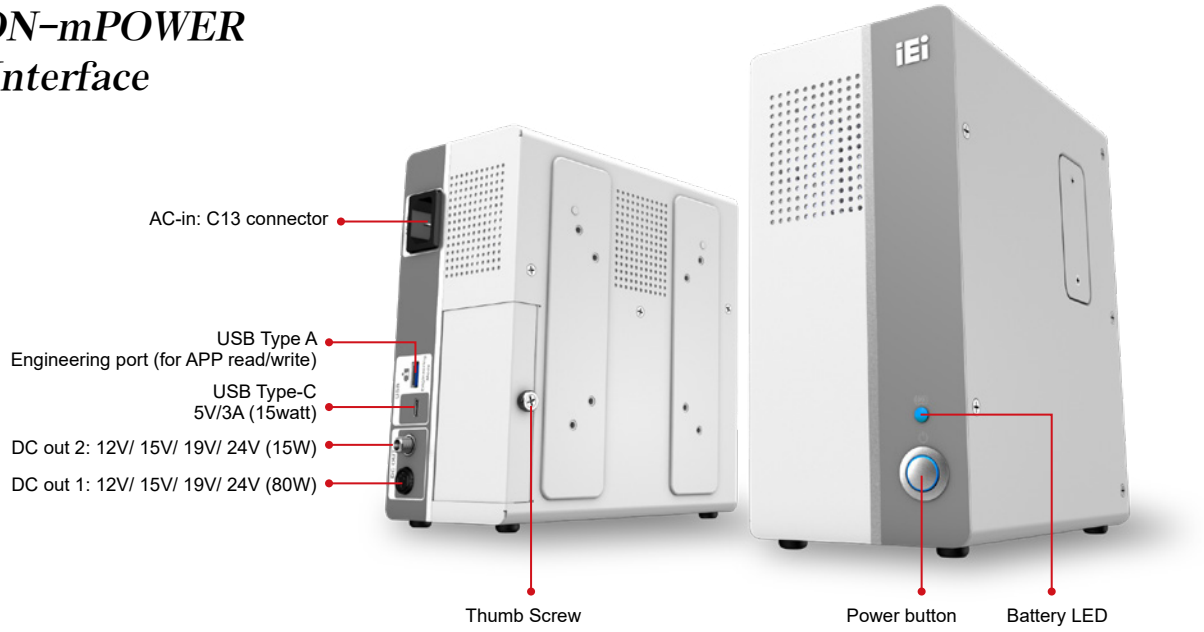
Ordering Information

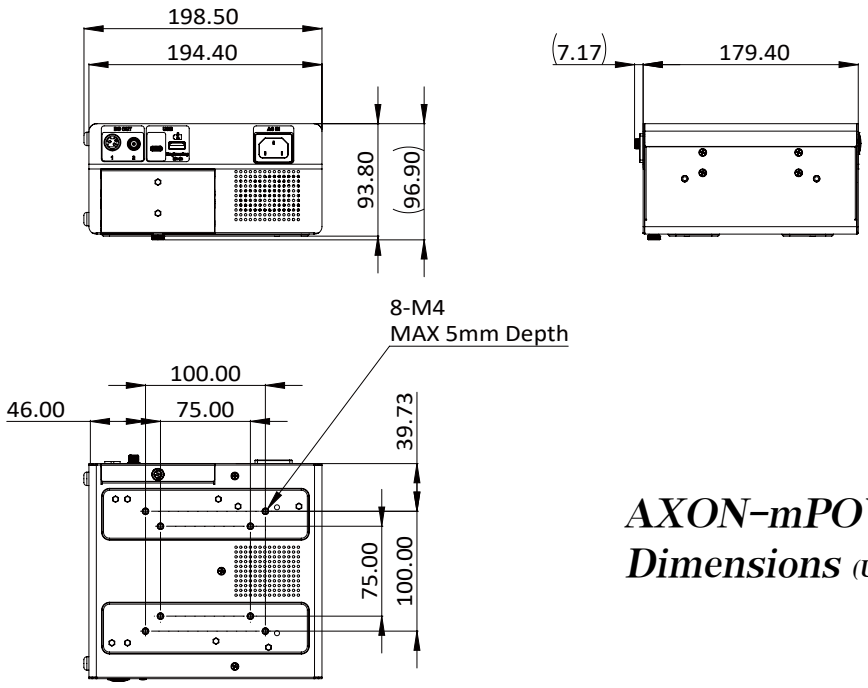
Part No.	Description
AXON-mPOWER-R10	100V – 240V AC 150W built-in medical grade power supply, VESA 75/100, two configurable DC outputs, support two TC-202 battery slots, w/o battery, R10

Packing List

Item	Part No.	Q'ty	Remark
Power Cord	32000-000002-RS	1	Round cable; power cord; 2; 1830 mm; (A) plug (16A 250V); (B) connector (10A 250V); European power cord (CEE); CCL; RoHS

AXON-mPOWER I/O Interface





AXON-mPOWER Dimensions *(Unit: mm)*

POCm-DOCKING-6BAY-R10

NEW

Battery docking station with fast charging which takes only 3.5 hours to charge from 0 to 100%

TAIWAN EXCELLENCE 2020

Specifications

Model		POCm-DOCKING-6BAY-R10
Chassis	Color	White
	Dimension (LxWxH)	274 x 253.3 x 122.85 mm
	Thermal	Active fan
	Chassis Construction	NCT metal housing
Battery	Battery Type	TC-202 (7800mAh)
	Battery Bay	6
	Charge Time	255W, Vin: 100 – 240V AC, Vout: 15V DC 3 – 3.5 hours from 0 – 100% (TC-202)
	Maximum Charge Voltage	12.6V
	Maximum Charge Current	2.2 A/bay
Power	Power Connector	6-pin Molex power connector
	Power Switch	AT power switch
LED Indicator	Normal	1 x Power LED (orange) 6 x Battery LED (green/red)
	Charging	Charging battery: red
	Full Charge Capacity (FCC)	Fully charged battery: green
Physical	Weight (Net)	-
Environment	Operating Temperature	0°C – 40°C
	Storage Temperature	-20°C – 60°C
	Operating Humidity	20 – 90%, non-condensing
	Storage Humidity	10 – 95%, non-condensing
Certification	Battery Pack	-
	EMC & Safety	CE EMC: EN 55032 + EN 55024) FCC part 15B report (one final test mode) UL/CB: 60950-1 & 62368 (covering 2 UL standards/UL 60950-1 + UL 62368) 2 IEC standards/IEC 60950-1 + IEC 62368

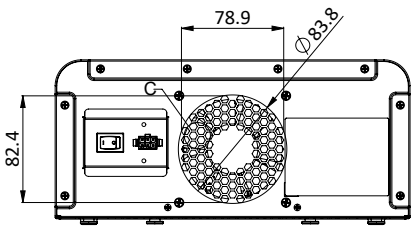
Ordering Information

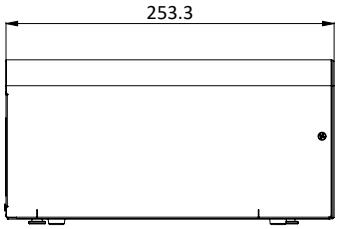
Part No.	Description
POCm-DOCKING-6BAY-R10	6 Bay Smart Charging Docking, with 255 watts PSU, Fast Charging, TC-202, R10

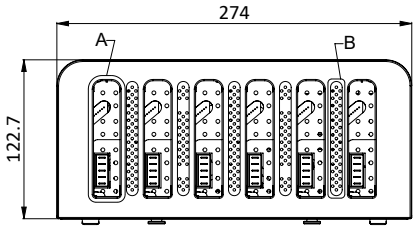
Packing List

Item	Part No.	Q'ty	Remark
Power Adapter	63040-030138-100-RS	1	Adapter Power; MEAN WELL; GST280A15-C6P; GST280A15-C6P; Active PFC; Vin:85 – 264V AC; 138W; Cable=1000mm; Erp(NO LOAD 0.5W); Vout: 15V DC; ATX 2 x 3 Pitch: 4.2mm; CCL; RoHS
Power Cord	32000-000002-RS	1	POWER CORD; 2; 1830mm; (A) PLUG (16A, 250V); (B) CONNECTOR (10A, 250V); EUROPEAN POWER CORD (VDE); CCL; C13; RoHS

Dimensions *(Unit: mm)*







Solution Partner for Healthcare Industry

Medical Certifications

SYSTEM CERTIFICATION ISO 9001 SGS

SYSTEM CERTIFICATION ISO 13485 SGS

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 Computer Cart

A wide range of medication and documentation carts for ward rounds

The BriteMED® Medical Computer Cart can be integrated with the battery medical panel PCs, providing an all-in-one solution for EHR workstation. For various hospital requirements, a range of colors and accessories can be chosen to maximize the flexibility for different applications.

BriteMED® 21" Medical Monitor

Multi-Interfaces for Endoscopy Examination

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 DICOM and GAMMA compliance ensures optimized color and grey scale reproduction, bringing the accurate and quality imaging for further diagnosis.

Easy for Maintenance

The smart OSD allows quick monitor setting by PC. The optional GPIO port is reserved for developing customized functions and facilitating maintenance purpose.

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

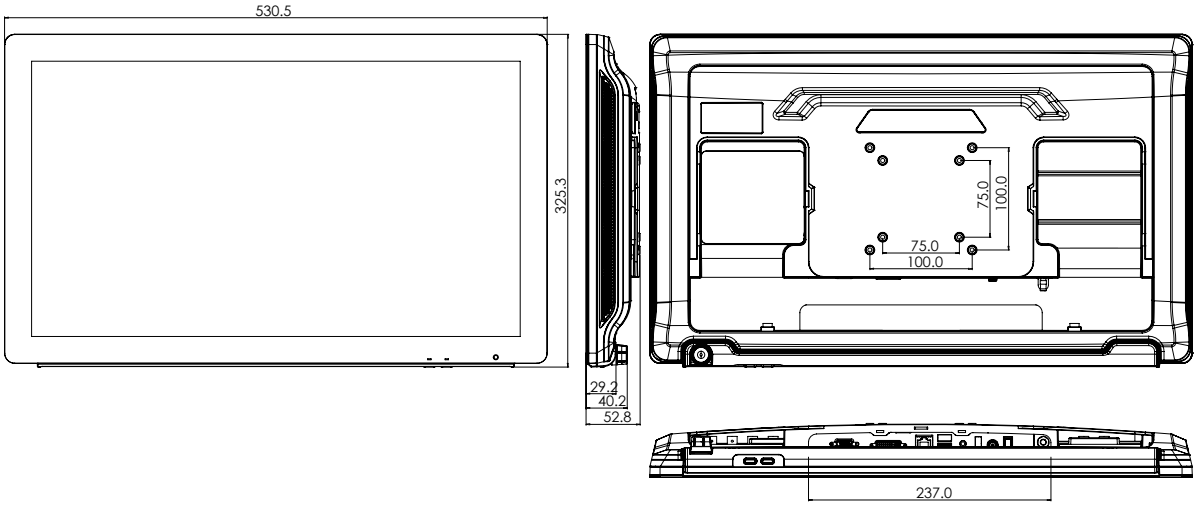
Selection Guide

	With VGA & DVI input for general connection	With analog video input for traditional system	With 3G-SDI input for advanced system
Without HDMI Input/output	MMS-21C	MMS-21CA	MMS-21CS MMS-21CAS
With HDMI Input/output for PIP/PBP Display	MMS-21CH	MMS-21CAH	MMS-21CHS MMS-21CAHS

Specifications

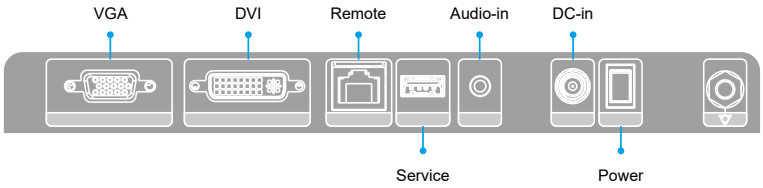
Model		MMS-21C	MMS-21CA	MMS-21CH	MMS-21CAH	MMS-21CS	MMS-21CAS	MMS-21CHS	MMS-CAHS
Description		General VGA, DVI inputs	VGA, DVI, and multiple analog inputs	VGA, DVI, and HDMI inputs	VGA, DVI, analog, and HDMI inputs	VGA, DVI, and 3G-SDI inputs	Analog and 3G-SDI inputs	HDMI and 3G-SDI inputs	Analog, HDMI, and 3G-SDI 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	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
	3G-SDI	N/A	N/A	N/A	N/A	1	1	1	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
	3G-SDI	N/A	N/A	N/A	N/A	1, loop through	1, loop through	1, loop through	1, loop through
	Audio	0.8W x 2							
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
	USB Cable	1	1	1	1	1	1	1	1
	User Manual (USB flash drive)	1	1	1	1	1	1	1	1

Dimensions (unit: mm)

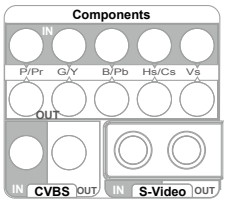


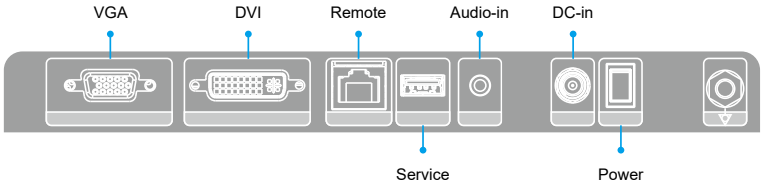
Signal Interface

MMS-21C

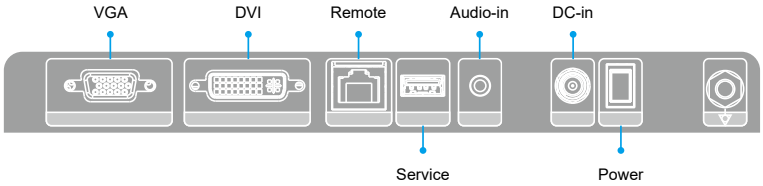


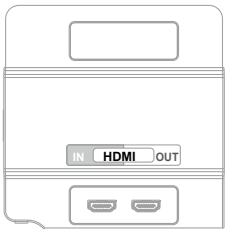
MMS-21CA





MMS-21CH





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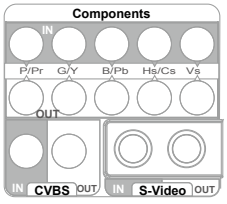
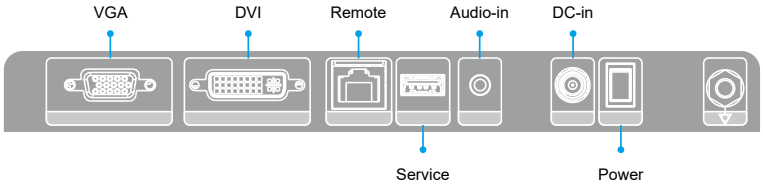
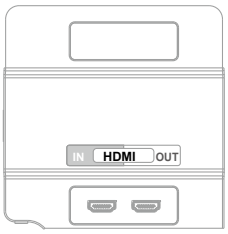
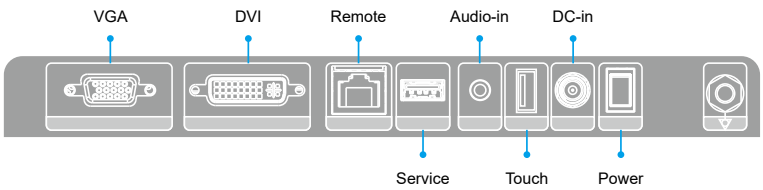




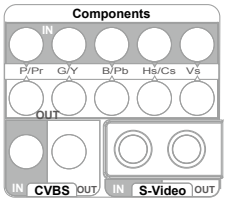


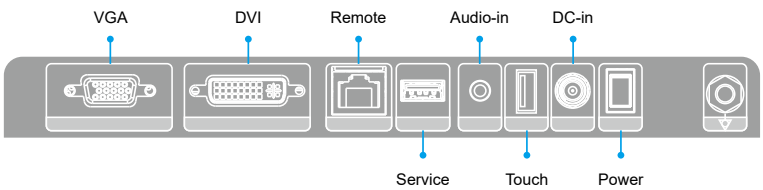
Signal Interface

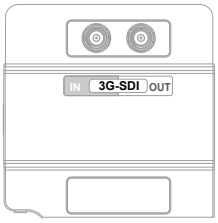
MMS-21CS



MMS-21CAS







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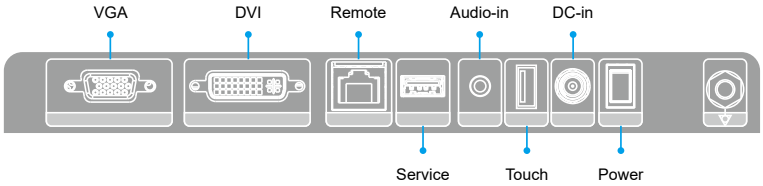
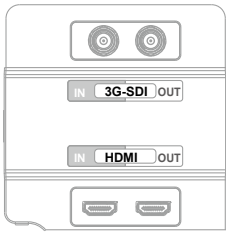
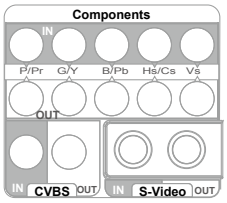
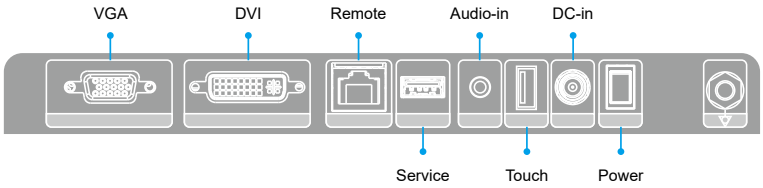
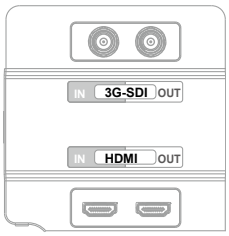




MMS-21CAHS







Ordering Information

Part No.	Description
MMS-21C-R11	21.5", White, 1920x1080, VGA/DVI-D, 100~240 VAC to 12V DC power adaptor
MMS-21CA-R11	21.5", White, 1920x1080, VGA/DVI-D/Component/CVBS/S-Video input, 100~240 VAC to 12V DC power adaptor
MMS-21CH-R11	21.5", White, 1920x1080, VGA/DVI-D/HDMI input, 100~240 VAC to 12V DC power adaptor
MMS-21CAH-R11	21.5", White, 1920x1080, VGA/DVI-D/Component/CVBS/S-Video/HDMI input, 100~240 VAC to 12V DC power adaptor
MMS-21CS-R11	21.5", White, 1920x1080, VGA/DVI-D/3G SDI input, 100~240 VAC to 12V DC power adaptor
MMS-21CAS-R11	21.5", White, 1920x1080, VGA/DVI-D/Component/CVBS/S-Video/3G SDI input, 100~240 VAC to 12V DC power adaptor
MMS-21CHS-R11	21.5", White, 1920x1080, VGA/DVI-D/HDMI/3G SDI input, 100~240 VAC to 12V DC power adaptor
MMS-21CAHS-R11	21.5", White, 1920x1080, VGA/DVI-D/Component/CVBS/S-Video/HDMI/3G SDI input, 100~240 VAC to 12V DC power adaptor

Factory Options

Part No.	Description
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

BriteMED® 21" Medical Monitor

Touch Function for Medical Modality Control Terminal

Powered by BriteMED

* Stand is optional

Benefits

Versatile Connection

Multiple analog and digital inputs/outputs, including HDMI loop-through, allow flexible connections and image sharing simultaneously.

Intuitive Touch Operation

The PCAP multi-touch screen enables easy operation even in latex gloves, facilitating procedure of image-viewing and information accessing.

Easy to Clean

The special-coating glass not only ensures precise image viewing experience under strong OR lighting but also brings easy-to-clean advantage required for infection control.

Accurate Image Viewing

The DICOM and GAMMA compliance ensures precise color and grey scale reproduction, satisfying medical imaging requirement and assisting further diagnosis.

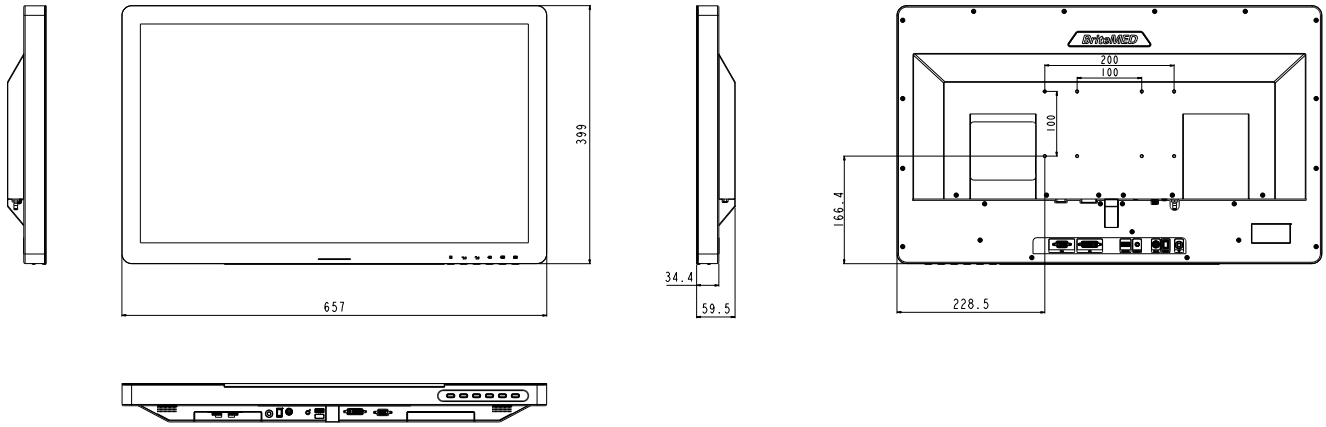
Selection Guide

	With VGA & DVI input for general connection	With analog video input for traditional system	With 3G-SDI input for advanced system
Without HDMI Input/output	MMS-21CT	MMS-21CAT	MMS-21CST MMS-21CAST
With HDMI Input/output for PIP/PBP Display	MMS-21CHT	MMS-21CAHT	MMS-21CHST MMS-21CAHST

Specifications

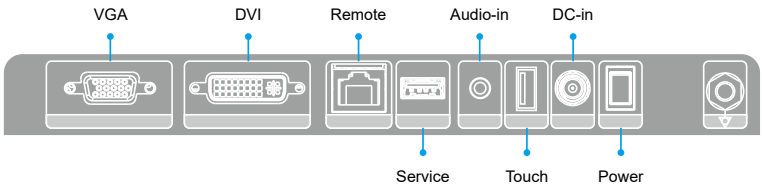
Model		MMS-21CT	MMS-21CAT	MMS-21CHT	MMS-21CAHT	MMS-21CST	MMS-21CAST	MMS-21CHST	MMS-21CAHST
Description		Touch-screen model with general VGA & DVI inputs	Touch-screen model with analog inputs	Touch-screen model with HDMI input	Touch-screen model with analog and HDMI inputs	Touch-screen model with VGA, DVI, and 3G-SDI inputs	Touch-screen model with analog, and 3G-SDI inputs	Touch-screen model with HDMI, and 3G-SDI inputs	Touch-screen model with analog HDMI, and 3G-SDI 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	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
	3G-SDI	N/A	N/A	N/A	N/A	1	1	1	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
	3G-SDI	N/A				1, loop through			
	Audio	0.8W x 2							
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	1	1	1	1	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

Dimensions (unit: mm)

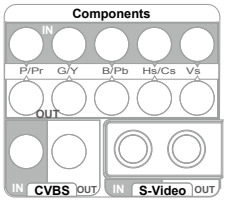


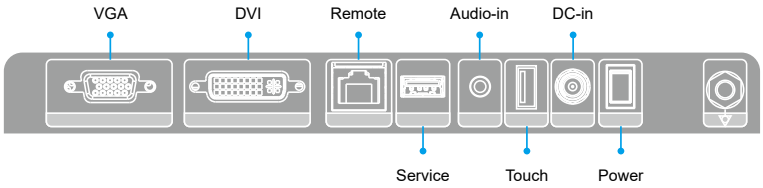
Signal Interface

MMS-21CT

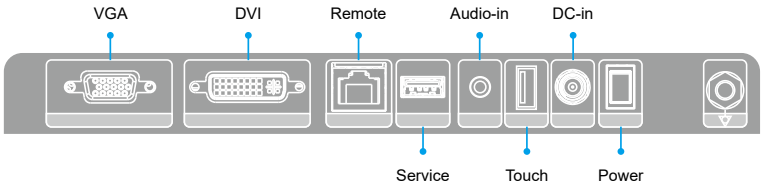


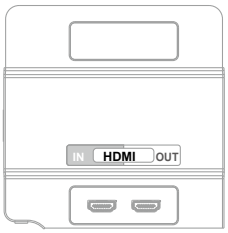
MMS-21CAT



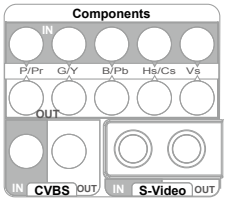


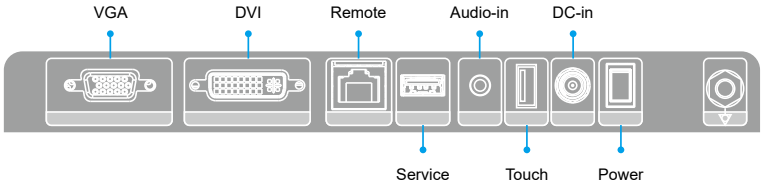
MMS-21CHT

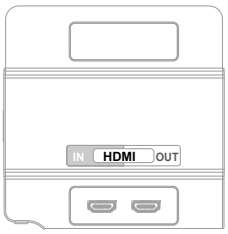




MMS-21CAHT

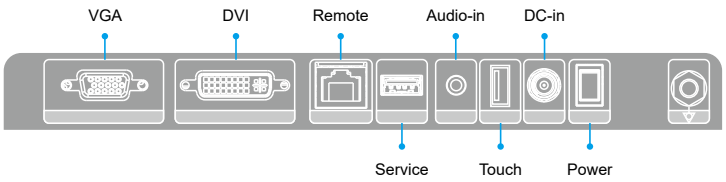


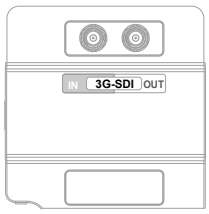




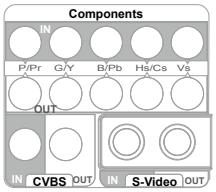
Signal Interface

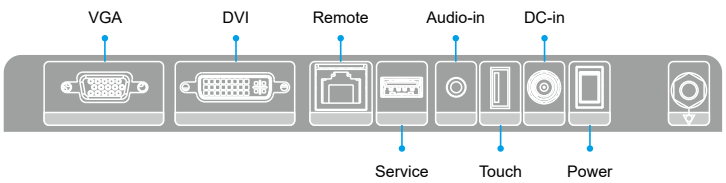
MMS-21CST

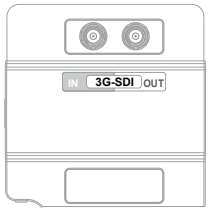




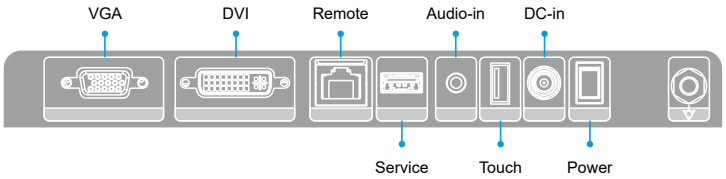
MMS-21CAST

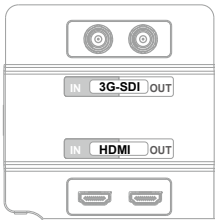




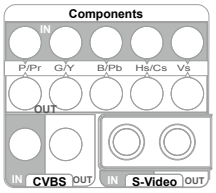


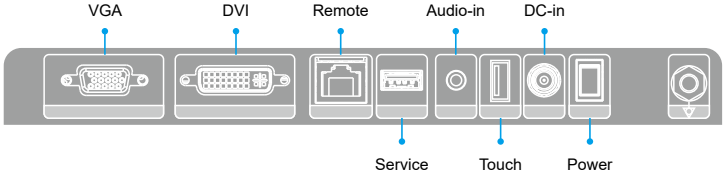
MMS-21CHST

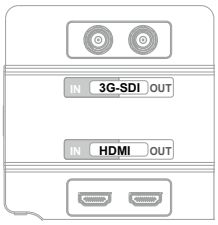




MMS-21CAHST







Ordering Information

Part No.	Description
MMS-21CT-R11	21.5", White, 1920x1080, VGA/DVI-D input, P-CAP Touchscreen, 100~240 VAC to 12V DC power adaptor
MMS-21CAT-R11	21.5", White, 1920x1080, VGA/DVI-D/Component/CVBS/S-Video input, P-CAP Touchscreen, 100~240 VAC to 12V DC power adaptor
MMS-21CHT-R11	21.5", White, 1920x1080, VGA/DVI-D/HDMI input, P-CAP Touchscreen, 100~240 VAC to 12V DC power adaptor
MMS-21CAHT-R11	21.5", White, 1920x1080, VGA/DVI-D/Component/CVBS/S-Video/HDMI input, P-CAP Touchscreen, 100~240 VAC to 12V DC power adaptor
MMS-21CST-R11	21.5", White, 1920x1080, VGA/DVI-D/3G SDI input P-CAP Touchscreen, 100~240 VAC to 12V DC power adaptor
MMS-21CAST-R11	21.5", White, 1920x1080, VGA/DVI-D/Component/CVBS/S-Video/3G SDI input P-CAP Touchscreen, 100~240 VAC to 12V DC power adaptor
MMS-21CHST-R11	21.5", White, 1920x1080, VGA/DVI-D/HDMI/3G SDI input P-CAP Touchscreen, 100~240 VAC to 12V DC power adaptor
MMS-21CAHST-R11	21.5", White, 1920x1080, VGA/DVI-D/Component/CVBS/S-Video/HDMI/3G SDI input P-CAP Touchscreen, 100~240 VAC to 12V DC power adaptor

Factory Options

Part No.	Description
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

BriteMED® 27" Medical Monitor

High Brightness for Surgical 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.

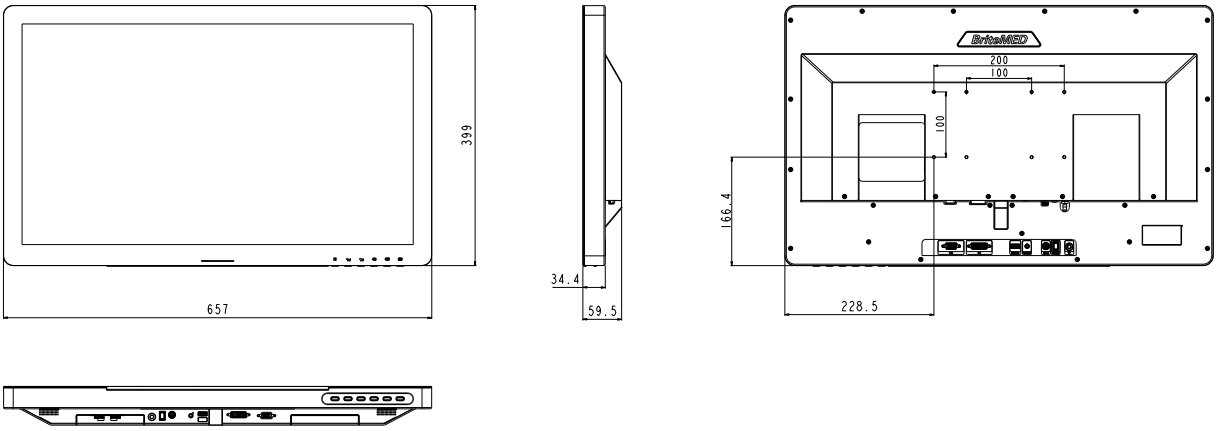
Selection Guide

	With VGA & DVI input for general connection	With analog video input for traditional system	With 3G-SDI input for advanced system
Without HDMI Input/output	MMS-27C	MMS-27CA	MMS-27CS MMS-27CAS
With HDMI Input/output for PIP/PBP Display	MMS-27CH	MMS-27CAH	MMS-27CHS MMS-27CAHS

Specifications

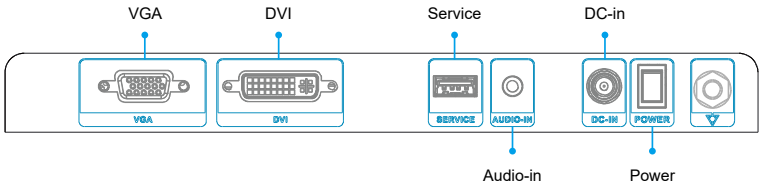
Model		MMS-27C	MMS-27CA	MMS-27CH	MMS-27CAH	MMS-27CS	MMS-27CAS	MMS-27CHS	MMS-27CAHS
Description		General VGA, DVI inputs	Multiple analog inputs	VGA, DVI, and HDMI inputs	VGA, DVI, analog, and HDMI inputs	VGA, DVI, and 3G-SDI inputs	Analog and 3G-SDI inputs	HDMI and 3G-SDI inputs	Analog, HDMI, and 3G-SDI 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	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
	3G-SDI	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
	3G-SDI	N/A	N/A	N/A	N/A	1, loop through			
	Audio	0.8W x 2							
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	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
	USB Cable	1	1	1	1	1	1	1	1
	User Manual (USB flash drive)	1	1	1	1	1	1	1	1

Dimensions (unit: mm)

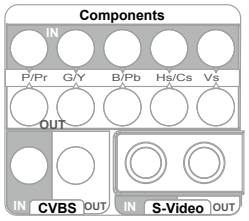


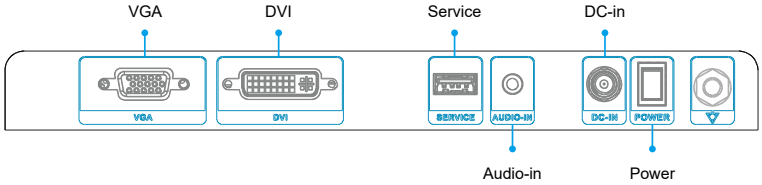
Signal Interface

MMS-27C

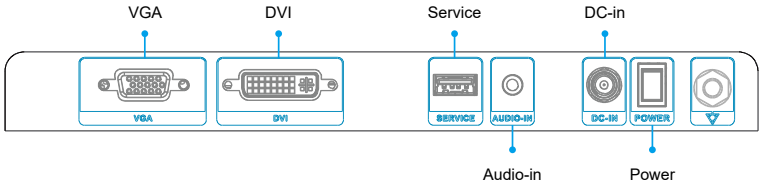


MMS-27CA

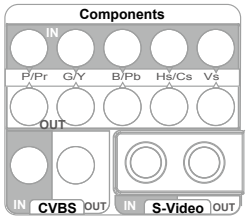


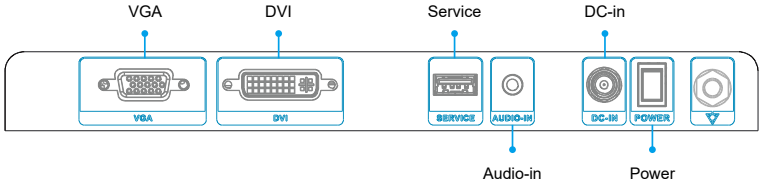


MMS-27CH



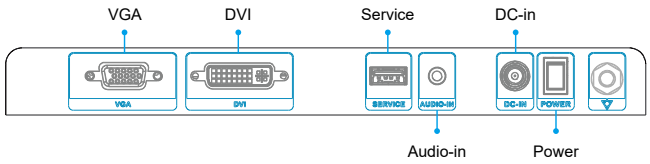
MMS-27CAH

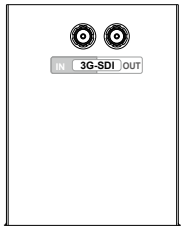




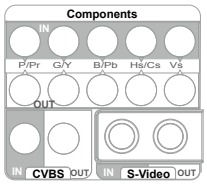
Signal Interface

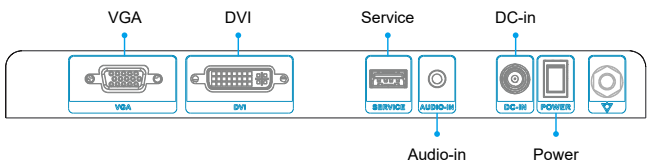
MMS-27CS

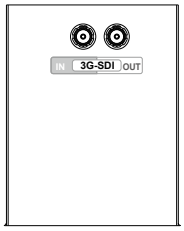




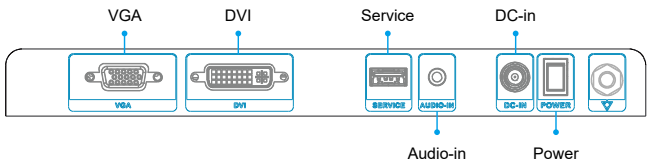
MMS-27CAS

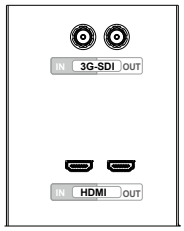




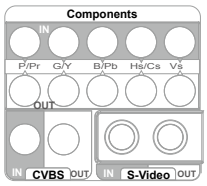


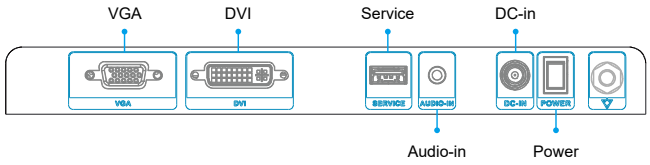
MMS-27CHS

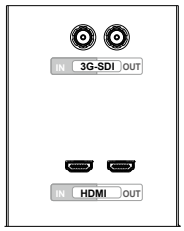




MMS-27CAHS







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
MMS-27CS-R10	27” 1920x1080 color monitor, VGA/DVI-D/3G SDI input, 100~240 VAC to 12V DC power adaptor
MMS-27CAS-R10	27” 1920x1080 color monitor, VGA/DVI-D/Component/CVBS/S-Video/3G SDI input, 100~240 VAC to 12V DC power adaptor
MMS-27CHS-R10	27” 1920x1080 color monitor, VGA/DVI-D/HDMI/3G SDI input, 100~240 VAC to 12V DC power adaptor
MMS-27CAHS-R10	27” 1920x1080 color monitor, VGA/DVI-D/Component/CVBS/S-Video/HDMI/3G SDI input, 100~240 VAC to 12V DC power adaptor

Factory Options

Part No.	Description
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

BriteMED® Medical Computer Cart

Powered by BriteMED

BriteMED® Medical Computer Carts are in wide selection for medication, ICU, and documentation purpose. Designed with aluminum-alloy structure and ABS working table feature durability and easy-to-clean advantage. When integrating with medical panel PC, the intelligent medical workstation creates clinical mobility that streamline the hospital workflow and improve ward-round efficiency.

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)		68 x 54 x 103 cm	46 x 51 x 94 cm	54 x 52 x 79.5~109.5 cm
Working Table Dimensions (L x W)		59 x 45 cm		45 x 54 cm
Side Table Loading Weight (max.)		8 kg		N/A
Supported Arm Loading Weight (max.)		12 kg		8 kg
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	3	N/A	N/A
	6" drawer	2	1	N/A
	9" drawer	N/A	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

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
IVS-200-ULT2	Intel® Core™ i5-5350U 1.8 GHz, Intel® Celeron® 3765U 1.9 GHz
IVS-110-AL	Intel® Atom® E3950 2.0 GHz

2. Embedded Edge Computing System

Model Name	Processor
FLEX-BX210-Q470	Intel® Core™ i9-10900TE 1.8 GHz (up to 4.5 GHz) Intel® Core™ i5-10500TE 2.3 GHz (up to 3.7 GHz)

3. Industrial Automation System

Model Name	Processor
TANK-XM811	Intel® Core™ i5-12500TE 1.9 GHz (up to 4.3 GHz) Intel® Core™ i7-12700TE 1.4 GHz (up to 4.6 GHz)
TANK-XM810	Intel® Core™ i3-10320 3.8 GHz (up to 4.6 GHz) Intel® Core™ i5-10500TE 2.3 GHz (up to 3.7 GHz) Intel® Core™ i7-10700TE 2.0 GHz (up to 4.4 GHz)
TANK-880-Q370	Intel® Core™ i7-9700TE 1.8 GHz (up to 3.8 GHz) Intel® Core™ i5-9500TE 2.2 GHz (up to 3.6 GHz)
TANK-871-Q170	Intel® Core™ i7-6700TE 2.4 GHz (up to 3.4 GHz) Intel® Core™ i5-6500TE 2.3 GHz (up to 3.3 GHz)
TANK-870-Q170	Intel® Core™ i7-6700TE 2.4 GHz (up to 3.4 GHz) Intel® Core™ i5-6500TE 2.3 GHz (up to 3.3 GHz)
TANK-870e-H110	Intel® Core™ i7-6700TE 2.4 GHz (up to 3.4 GHz) Intel® Core™ i5-6500TE 2.3 GHz (up to 3.3 GHz)
TANK-610-BW	Intel® Celeron® N3160 1.6 GHz

4. DIN-Rail Embedded System

Model Name	Processor
DRPC-W-TGL-U	Intel® Core™ i7-1185G7E 1.8 GHz (up to 4.4 GHz) Intel® Core™ i5-1145G7E 1.5 GHz (up to 4.1 GHz) Intel® Core™ i3-1115G4E 2.2 GHz (up to 3.9 GHz) Intel® Celeron® 6305 1.8 GHz
DRPC-W-JL	Intel® Celeron™ N5105 2.0 GHz (up to 2.9 GHz)
DRPC-W-EHL	Intel® Celeron™ J6412 2.0 GHz (up to 2.6 GHz)
DRPC-240-TGL	Intel® Core™ i5-1145G7E 1.5 GHz (up to 4.1 GHz) Intel® Celeron® 6305 1.8 GHz
DRPC-230-ULT5	Intel® Core™ i5-8265U 1.6 GHz (up to 3.9 GHz)
DRPC-130-AL	Intel® Atom® x5-E3930 1.3 GHz (up to 1.8 GHz)
DRPC-120-BT	Intel® Atom® E3845 1.91 GHz

5. Compact Size Embedded System

Model Name	Processor
ITG-100-AL	Intel® Atom® x5-E3930 1.3 GHz (up to 1.8 GHz)
uIBX-250-BW	Intel® Celeron® N3160 1.6 GHz

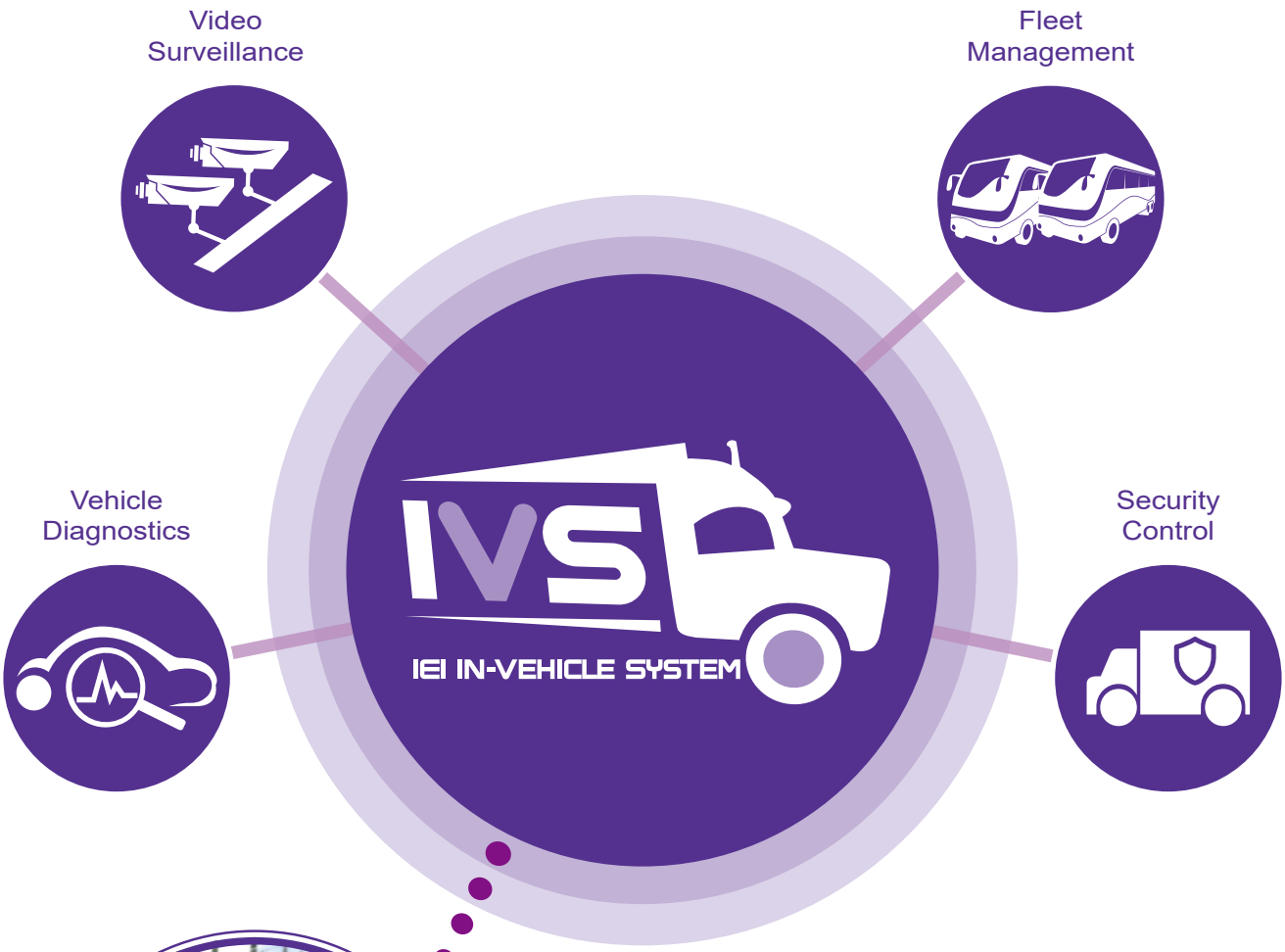
6. Digital Signage Embedded System

Model Name	Processor
IDS-310-AL	Intel® Celeron® J3455 1.5 GHz (up to 2.3 GHz) Intel® Celeron® N3350 1.1 GHz (up to 2.4 GHz)

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



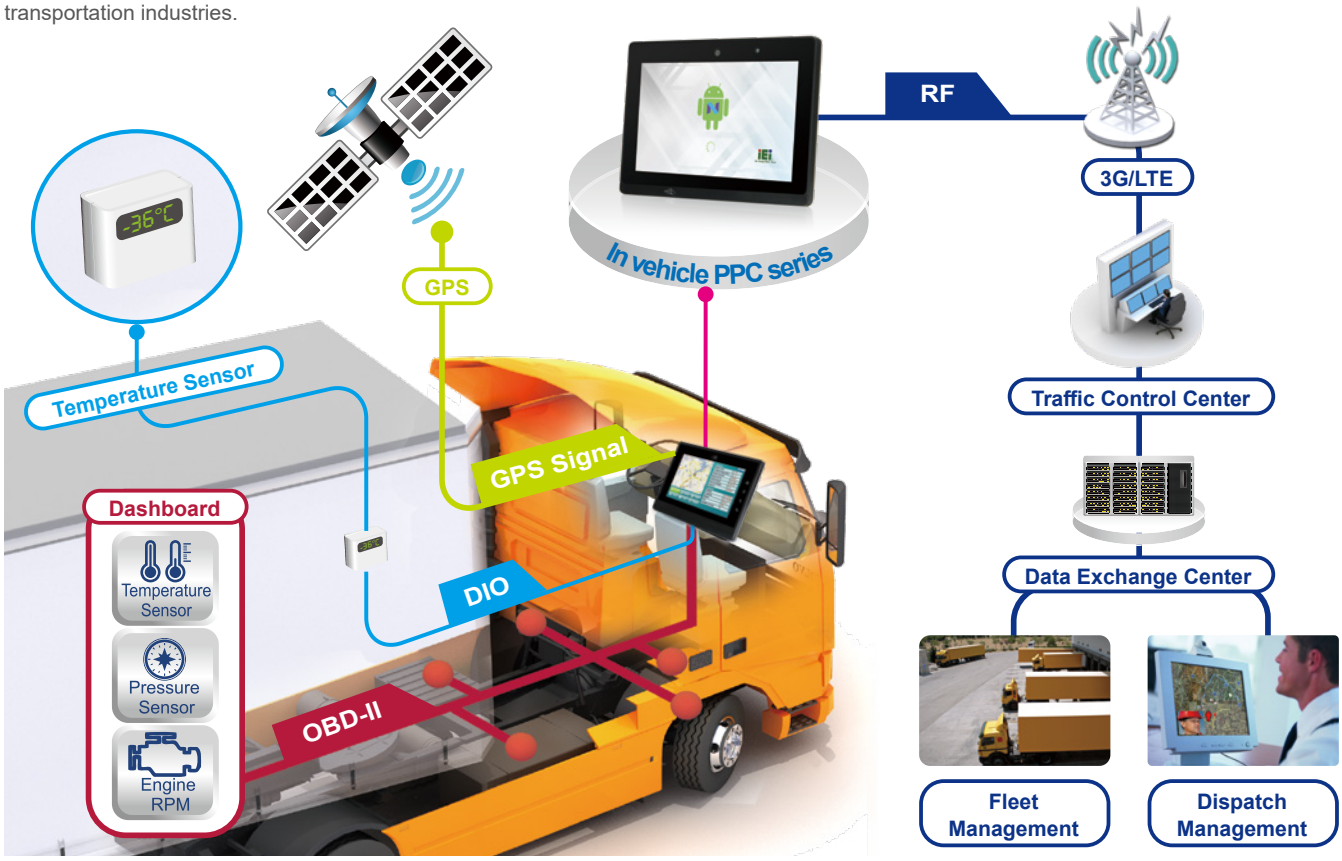
■ IVS & In-Vehicle PPC Series

In-Vehicle Features

- Wide working temperature
- Wide DC input range
- E-mark certification
- OBD-II function
- Multi wireless communication
- IP 4X protection

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)

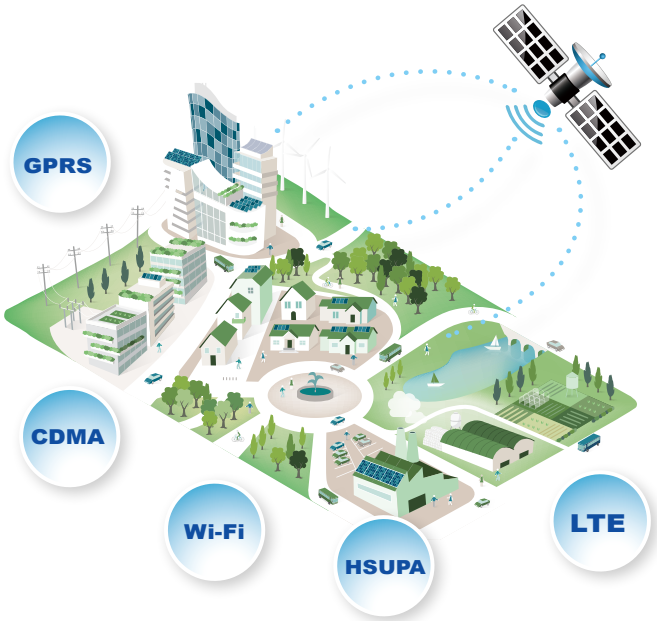
The in-vehicle panel PC series supports On-board Diagnostics (OBD) and Controller Area Network (CAN bus) and is built-in with OBD-II and CAN bus for real time vehicle diagnostic. CAN has a high degree of flexibility to adjust capacity which can be added in the existing network of nodes.

■ 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.

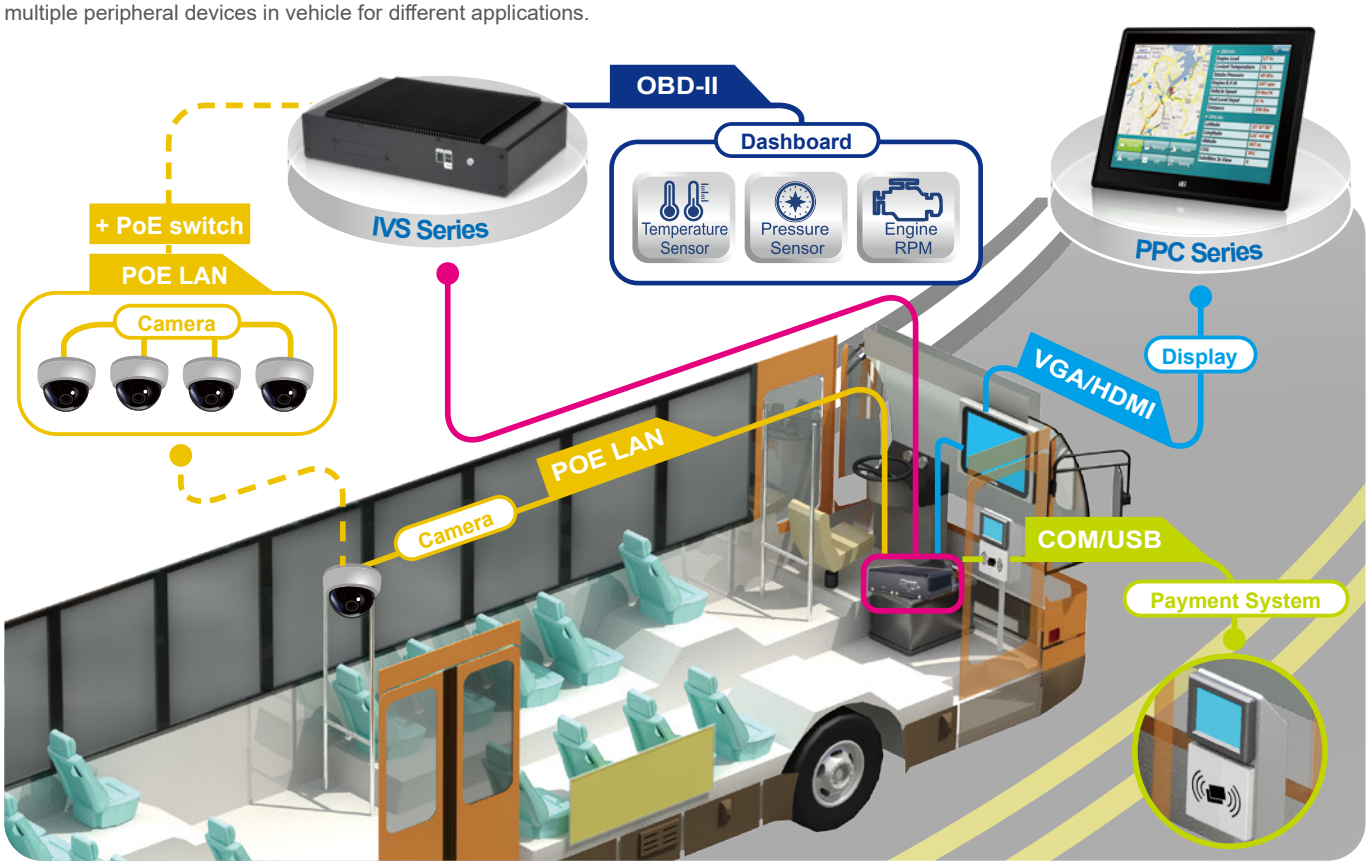
■ Communication

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

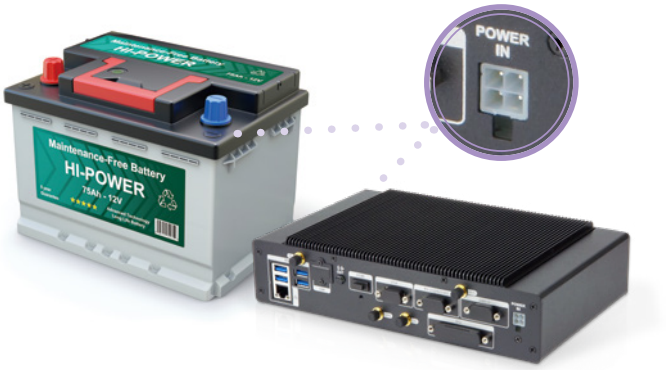
MIL-STD 810F COMPLIANT

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.



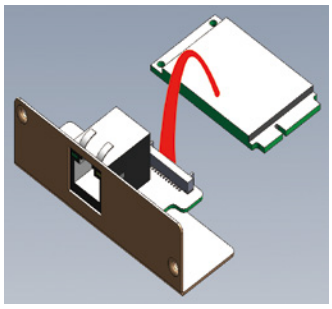
E-Window Tool Kit

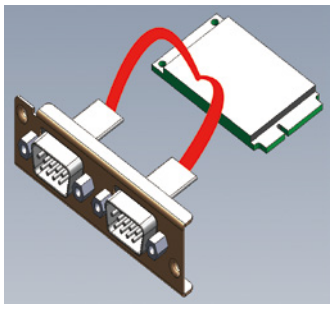
Innovative E-windows technology is a new modular way of adding flexible functionality to a wide range of device. Using standardized component helps system integrators easily add more features without any costly efforts.

E-Window

Features

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

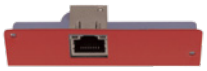




E-Window I/O Plate with PCIe Mini Card
An E-Window module uses a PCIe Mini slot embedded on the motherboard.

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
E-MPCIE-CAN-R10	PCI Express Mini Dual CAN Bus module, Full size, RoHs

Transportation System

Model Name		IVS-200-ULT2	IVS-110-AL
Chassis	Color	Blue C	Black
	Dimensions (WxDxH) (mm)	290 x 225 x 69	261 x 170 x 60
	System Fan	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloy	Extruded aluminum alloy
Motherboard	CPU	Intel® Core™ i5-5350U 1.8 GHz (up to 2.9 GHz, dual-core, TDP 15W) Intel® Celeron® 3765U 1.9 GHz (dual-core, TDP 15W)	Intel® Atom™ x7-E3950 1.6 GHz (up to 2.0 GHz, quad-core, TDP 12W)
	Chipset	SoC	SoC
	System Memory	2 x SO-DIMM DDR3L 1600/1866 (4GB pre-installed)(up to 16GB)	1 x SO-DIMM DDR3L 1600/1866 (4GB pre-installed)(up to 8GB)
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD removable bay	1 x 2.5" SATA 6Gb/s HDD/SSD bay
	eMMC	N/A	1 x eMMC5.0 (optional)
Communication	WLAN	802.11 a/b/g/n/ac (optional)	802.11 a/b/g/n/ac (optional)
	Bluetooth	Bluetooth 2.1 (optional)	BT 4.0/3.0+HS (optional)
	WWAN	WCDMA/HSDPA/HSUPA (optional)	WCDMA/HSDPA/HSUPA (optional)
	GPS	N/A	On-board GPS
I/O Interfaces	USB	2 x USB 3.2 Gen1 2 x USB 2.0	4 x USB 3.2 Gen1
	Ethernet	4 x RJ-45: 1 x GbE by Intel® I218 3 x GbE by Intel® I211	1 x RJ-45: 1 x GbE by Intel® I210
	COM Port	2 x RS232/422/485 with AFC (DB9) 4 x RS232 (DB9)	1 x RS232/422/485 with AFC (DB9)
	Digital I/O	8-bit Digital I/O (4-in/ 4-out)(pin header)	16-bit Digital I/O (8-in/ 8-out)
	OBD-II	N/A	1 x OBD-II/J1939 (DB9)
	Display	1 x HDMI (up to 3840 x 2160@30Hz) 1 x VGA (up to 1920 x 1600@60Hz)	1 x HDMI (up to 3840 x 2160@30Hz) 1 x VGA (up to 1920 x 1600@60Hz)
	Audio	1 x Line-out, 1 x Mic-in	1 x Line-out
	Antenna	1 x 3G, 1 x BT, 1 x Wi-Fi	1 x 3G, 1 x GPS, 1 x BT, 1 x Wi-Fi
	Other	1 x Power button, 1 x Reset button, 1 x AT/ATX Switch, 1 x ACC Switch, 1 x LED for Power (Red), 1 x LED for Storage (Green)	1 x Power Button, 1 x LED for HDD, 1 x LED for Wi-Fi, 2 x LED for SIM
Expansions	PCIe Mini	1 x Full-size with SIM card slot (PCIe/USB2.0) 1 x Full-size (PCIe/USB 2.0/SATA)	1 x Full/Half-size with SIM card slot (PCIe/USB 2.0) 1 x Full/Half-size with SIM card slot (PCIe/USB 2.0) 1 x Half-size (PCIe/USB 2.0)
Power	Power Input	DC Jack: 9 ~ 36V DC	Cigarette lighter power cable: 9 ~ 36V DC
	Power Consumption	12V @ 2.1A (Intel® i5-5350U with 4GB memory)	12V @ 5A (Intel® x7-E3950 with 8GB memory)
Reliability	Mounting	VESA 100	Wall-mount/ VESA 100
	Operating Temperature	-20 ~ 60°C with air flow, 10% ~ 95% non-condensing	-30 ~ 70°C with air flow (SSD), 10% ~ 95% non-condensing
	Storage Temperature	-40 ~ 80°C with air flow, 10% ~ 95% non-condensing	-40 ~ 80°C with air flow (SSD), 10% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)	MIL-STD-810F 514.5C-2 (SSD)
	Weight (Net/ Gross)	1.3KG/ 1.45KG	2.4KG/ 3.8KG
	Safety/EMC	CE/ FCC/ E-Mark	CE/ FCC/ E-Mark
	IP Rating	N/A	IP 4X compliant
	Watchdog Timer	Programmable 1 ~ 255 sec/min	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft® Windows Embedded 8, Microsoft® Windows Embedded Standard 7 E	Microsoft® Windows 10

IVS-200-ULT2

Vehicle Surveillance System

Features

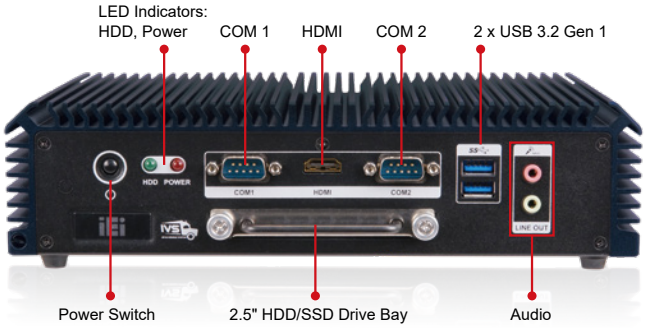
- Intel® i5-5350U dual-core 1.8 GHz CPU or Intel® Celeron® 3755U dual-core 1.7 GHz CPU
- Four Intel® GbE LAN ports
- 9 V ~ 36 V DC input
- Two RS-232/422/485
- E-Mark certification

Specifications

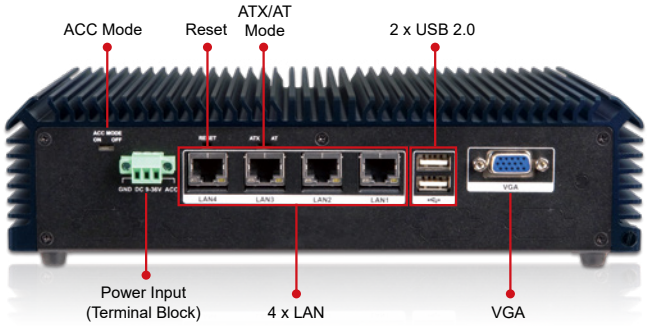
Model Name		IVS-200-ULT2
Chassis	Color	Blue C
	Dimensions (WxHxD) (mm)	255 x 63 x 150
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	Intel® Core™ i5-5350U 1.8 GHz (up to 2.9 GHz, dual-core, TDP 15W) Intel® Celeron® 3765U 1.9 GHz (dual-core, TDP 15W)
	Chipset	SoC
	System Memory	2 x SO-DIMM DDR3L 1600/1866 (4GB pre-installed)(up to 16GB)
Storage	Hard Drive	1 x 2.5'' SATA 6Gb/s HDD/SSD removable bay
Communication	WLAN	802.11 a/b/g/n/ac (optional)
	Bluetooth	Bluetooth 2.1 (optional)
	WWAN	WCDMA/HSDPA/HSUPA (optional)
I/O Interfaces	USB	2 x USB 3.2 Gen1 2 x USB 2.0
	Ethernet	4 x RJ-45: 1 x GbE by Intel® I218 3 x GbE by Intel® I211
	COM Port	2 x RS232/422/485 with AFC (DB9) 4 x RS232 (DB9)
	Digital I/O	8-bit Digital I/O (4-in/ 4-out)(pin header)
	Display	1 x HDMI (up to 3840 x 2160@30Hz) 1 x VGA (up to 1920 x 1600@60Hz)
	Audio	1 x Line-out, 1 x Mic-in
	Antenna	1 x 3G, 1 x BT, 1 x Wi-Fi
	Other	1 x Power button, 1 x Reset button, 1 x AT/ATX Switch, 1 x ACC Switch, 1 x LED for Power (Red), 1 x LED for HDD (Green)
Expansions	PCIe Mini	1 x Full-size with SIM card slot (PCIe/USB 2.0) 1 x Full-size (PCIe/USB 2.0/SATA)
Power	Power Input	DC Jack: 9 ~ 36V DC
	Power Consumption	12V @ 2.1A (Intel® i5-5350U with 4GB memory)
Reliability	Mounting	VESA 100
	Operating Temperature	-20°C ~ 60°C with air flow, 10% ~ 95% non-condensing
	Storage Temperature	-30°C ~ 70°C with air flow, 10% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810F 514.5C-2 (SSD)
	Weight (Net/Gross)	2.2KG/ 3.0KG
	Safety/EMC	CE/ FCC/ E-Mark
	Watchdog Timer	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft® Windows Embedded 8, Microsoft® Windows Embedded, Standard 7 E

Fully Integrated I/O

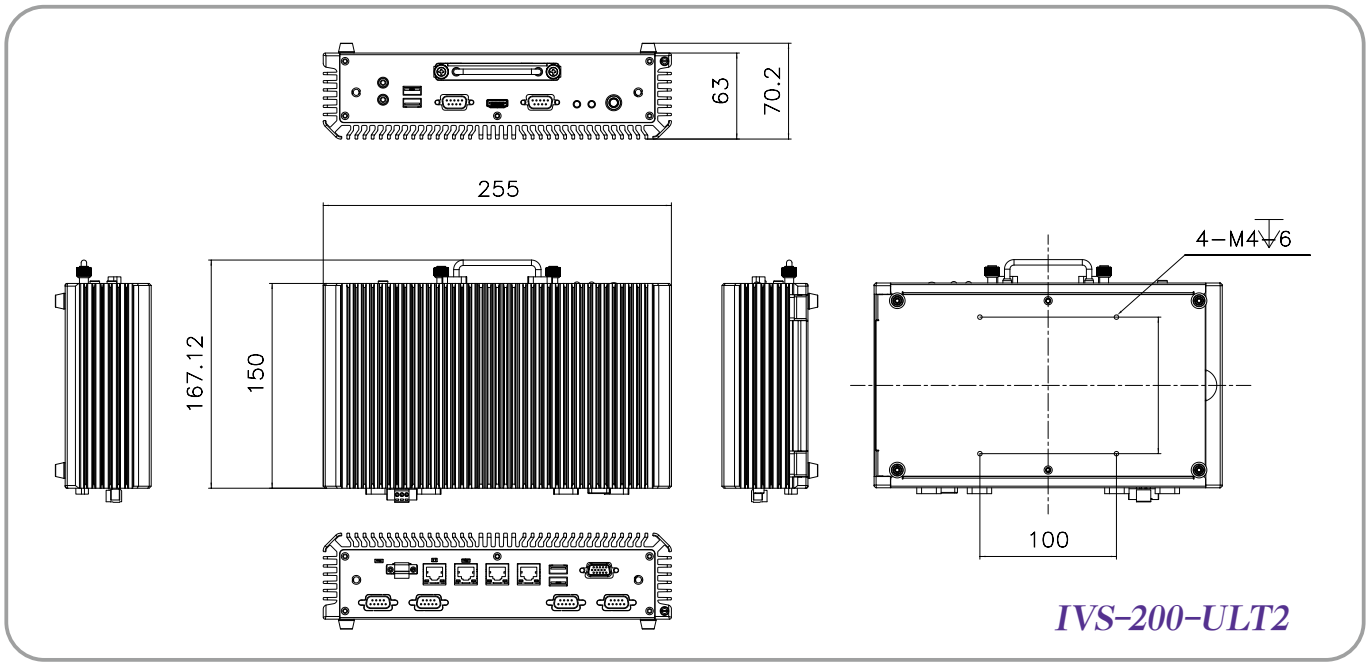
Front view



Rear view



Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
IVS-200-ULT2-i5/4G-R11	Fanless system with Intel® Core™ i5-5350U CPU, up to 2.9 GHz, 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, RoHS
IVS-200-ULT2-C/4G-R11	Fanless system with Intel® Celeron® 3765U 1.7 GHz 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, 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
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

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

Features

- Intel® Apollo Lake processor
- Dual SIM slot
- 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

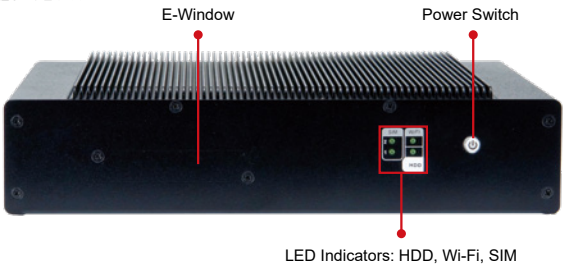
Specifications

Model		IVS-110-AL
Chassis	Color	Black
	Dimensions (WxDxH) (mm)	261 x 170 x 60
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	Intel® Atom™ x7-E3950 1.6 GHz (up to 2.0 GHz, quad-core, TDP 12W)
	Chipset	SoC
	System Memory	1 x SO-DIMM DDR3L 1600/1866 (4GB pre-installed)(up to 8GB)
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD bay
	eMMC	1 x eMMC5.0 (optional)
Communication	WLAN	802.11 a/b/g/n/ac (optional)
	Bluetooth	BT 4.0/3.0+HS (optional)
	WWAN	WCDMA/HSDPA/HSUPA (optional)
	GPS	On-board GPS
I/O Interfaces	USB	4 x USB 3.2 Gen1
	Ethernet	1 x RJ-45: 1 x GbE by Intel® I210
	COM Port	1 x RS232/422/485 with AFC (DB9)
	Digital I/O	16-bit Digital I/O (8-in/ 8-out)
	OBD-II	1 x OBD-II/J1939 (DB9)
	Display	1 x HDMI (up to 3840 x 2160@30Hz) 1 x VGA (up to 1920 x 1600@60Hz)
	Audio	1 x Line-out
	Antenna	1 x 3G, 1 x GPS, 1 x BT, 1 x Wi-Fi
	Other	1 x Power Button, 1 x LED for HDD, 1 x LED for Wi-Fi, 2 x LED for SIM
Expansions	PCIe Mini	1 x Full/Half-size with SIM card slot (PCIe/USB 2.0) 1 x Full/Half-size with SIM card slot (PCIe/USB 2.0) 1 x Half-size (PCIe/USB 2.0)
Power	Power Input	Cigarette lighter power cable: 9 ~ 36V DC
	Power Consumption	12V @ 5A (Intel® x7-E3950 with 8GB memory)
Reliability	Mounting	Wall-mount/ VESA 100
	Operating Temperature	-30 ~ 70°C with air flow (SSD), 10% ~ 95% non-condensing
	Storage Temperature	-40 ~ 80°C with air flow (SSD), 10% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810F 514.5C-2 (SSD)
	Weight (Net/Gross)	2.4KG/ 3.8KG
	Safety/EMC	CE/ FCC/ E-Mark
	IP Rating	IP 4X compliant
	Watchdog Timer	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft® Windows 10

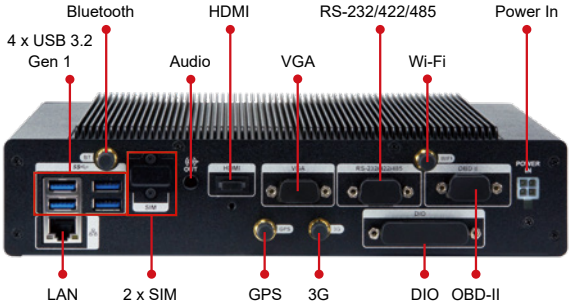
Fleet Management Tracking System

Fully Integrated I/O

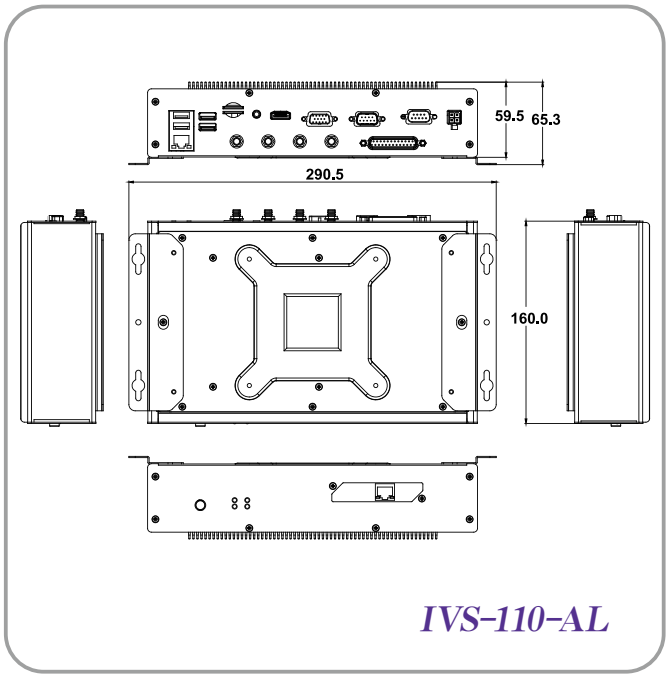
Front view



Side view



Dimensions *(Unit: mm)*



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-R20	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
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

FLEX System

Model Name		FLEX-BX210-Q470
Chassis	Color	Black
	Dimensions (WxDxH) (mm)	357 x 230 x 88
	System Fan	System Fan x3, CPU Cooler x1
	Chassis Construction	Metal Housing
Motherboard	CPU	10th/11th Generation Intel® Core™ processor (65W TDP up to 125W) Intel® Core™ i3-10320 3.8 GHz (up to 4.6 GHz, quad-core, 65W TDP) Intel® Core™ i5-10500TE 2.3 GHz (up to 3.7 GHz, 6-core, 35W TDP) Intel® Core™ i7-10700TE 2.0 GHz (up to 4.4 GHz, 8-core, 35W TDP)
	Chipset	Q470/Q470E
	System Memory	2 x 288-pin 2933/2666 MHz dual-channel DDR4 unbuffered DIMM supporting up to 64GB
Storage	Hard Drive	4 x 2.5" SATA 6Gb/s HDD/SSD bay
I/O Interfaces	USB	6 x USB 3.2 Gen.1
	Ethernet	3 x RJ-45: 1 x GbE by Intel® I225LM 2 x GbE by Intel® I225V
	COM Port	2 x RS-232
	Display	1 x HDMI (up to 3840 x 2160@30Hz) 1 x DP (up to 4096 x 2304@60Hz)
	Audio	1 x Line-out, 1 x Mic-in
	Wireless	1 x 802.11a/b/g/n/ac (optional)
	TPM	Intel PTT from CPU
	Other	1 x Power switch wits LED 1 x AT/ATX switch 1 x Reset button 1 x HDD LED
	M.2	1 x M.2 A-Key (2230 for Wi-Fi) Optional 1 x M.2 B-Key 3042/52 socket (with SIM card slot, supporting 5G/LTE; supports PCIe 3.0 x1 & USB 3.2 Gen 1) 1 x M.2 M-Key 2280 socket (supports PCIe 3.0 x4)
	Backplane	2 x PCIe 3.0 x8 (x16 Slot) 2 x PCIe 3.0 x 4
Power	Power Input	100 ~ 240V AC
	Power Consumption	100 ~ 240V AC @ 6 ~ 3A
Reliability	Mounting	Wall mount / Rack mount
	Operating Temperature	-10°C ~ 50°C (with air flow), 10% ~ 95% (non-condensing)
	Storage Temperature	-20°C ~ 60°C, 10% ~ 95% (non-condensing)
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)
	Weight (Net/ Gross)	4.1KG/7.2KG
	Safety/EMC	CE/ FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft® Windows 10 / 11, Linux

FLEX-BX210-Q470

■ *2U Modular PC with 10/11th Generation LGA1200 Intel® Core™ i7/i5/i3, Pentium® Processor*

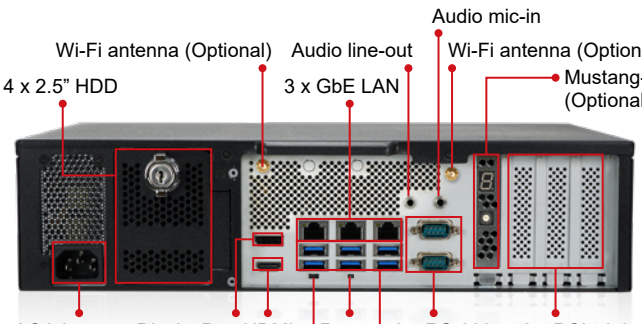
Features

- Supported CPUs:
  Intel® Core™ i3-10320 3.8 GHz (up to 4.6 GHz, quad-core, 65W TDP)
  Intel® Core™ i5-10500TE 2.3 GHz (up to 3.7 GHz, 6-core, 35W TDP)
  Intel® Core™ i7-10700TE 2.0 GHz (up to 4.4 GHz, 8-core, 35W TDP)
- Four hot-swappable HDD/SSD bays with RAID 0/1/5/10 support
- Equipped with PCIe 3.0 x4 slots and PCIe 3.0 x8 slots
- M.2 2280 PCIe Gen 3 x4 supporting NVMe
- Support IEI Mustang accelerator cards

Specifications

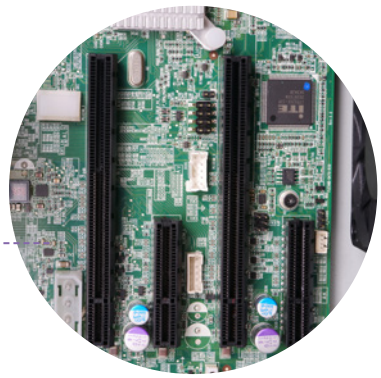
Model Name		FLEX-BX210-Q470
System	CPU	10th/11th Generation Intel® Core™ processor (65W TDP up to 125W) Intel® Core™ i3-10320 3.8 GHz (up to 4.6 GHz, quad-core, 65W TDP) Intel® Core™ i5-10500TE 2.3 GHz (up to 3.7 GHz, 6-core, 35W TDP) Intel® Core™ i7-10700TE 2.0 GHz (up to 4.4 GHz, 8-core, 35W TDP)
	Chipset	Q470/Q470E
	Memory	2 x 288-pin 2933/2666 MHz dual-channel DDR4 unbuffered DIMM supporting up to 64GB
	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	LAN1: Intel® I225LM LAN2/LAN3: Intel® I225V
	Storage	4 hot-swappable 2.5" HDD/SSD SATA 6Gb/s bays (support RAID 0/1/5/10), with LED indicators
Wireless Communication	WLAN	802.11ac, 2.4/5 GHz (by M.2 2230 optional)
	Bluetooth	Bluetooth v5.1 (optional)
	WWAN and GNSS	M.23052 LTE (by M.2 3052 optional)
I/O Interface & Buttons	I/O Interface & Buttons	1 x DP 1 x HDMI 3 x 2.5GbE LAN 6 x USB 3.2 Gen 1 Type-A 2 x RS-232 DB-9 1 x Mic in 1 x Line out 1 x AC inlet 4 x SMA Power button with power LED (power on = blue) AT/ATX mode switch Reset button
	TPM	Intel PTT from CPU
Expansions	Expansion Slots	2 x PCIe 3.0 x8 2 x PCIe 3.0 x4 1 x M.2 A-Key 2230 (PCIe 3.0 x1 & USB 2.0) 1 x M.2 B-Key 3042/52 socket (with SIM card slot, supporting 5G/LTE; supports PCIe 3.0 x1 & USB 3.2 Gen 1) 1 x M.2 M-Key 2280 socket (supports PCIe 3.0 x4)
Thermal	Thermal Solution	3 x System fan, 1 x CPU fan
Power	Power Supply	ATX power supply, AC input - 350W power input - Input: 90VAC ~ 264VAC, 50/60Hz - Output (max.): 3.3V@14A, 5V@16A, 12V@29A, -12V@0.3A
Watchdog Timer		Software programmable 1 ~ 255 sec/min, system reset
Construction	Chassis Construction	Metal
	Mounting	Wall mount / Rack mount
	Color	Black
	Dimensions (LxWxH) (mm)	357 x 230 x 88
	Weight	4.1 kg/7.2 kg
Environmental	Operating Temperature	-10°C ~ 50°C
	Storage Temperature	-20°C ~ 60°C
	Operating Humidity	5% ~ 95%, non-condensing
	Operating Vibration	5~17Hz, 0.1 double amplitude displacement 17 ~ 640Hz 1.5G acceleration peak to peak
	Operating Shock	10G acceleration part to part (11ms)
	Safety/EMC	CE/FCC

Fully Integrated I/O

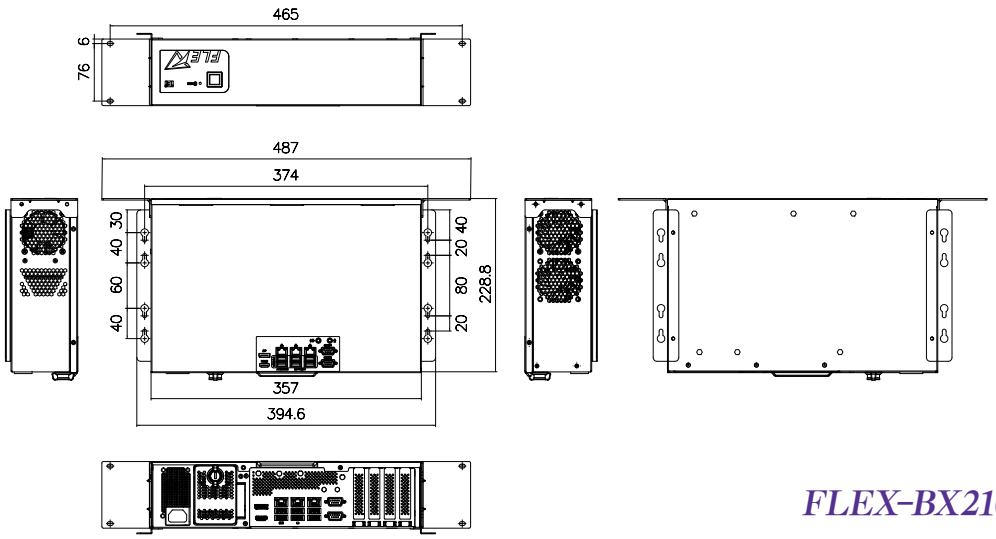


Four hot-swappable HDD/ SSD bays with RAID 0/1/5/10 support

Four expansion slots:
- 2 x PCIe x4 slots
- 2 x PCIe x8 slots
- Support IEI Mustan gaccelerator cards



Dimensions *(Unit: mm)*



FLEX-BX210-Q470

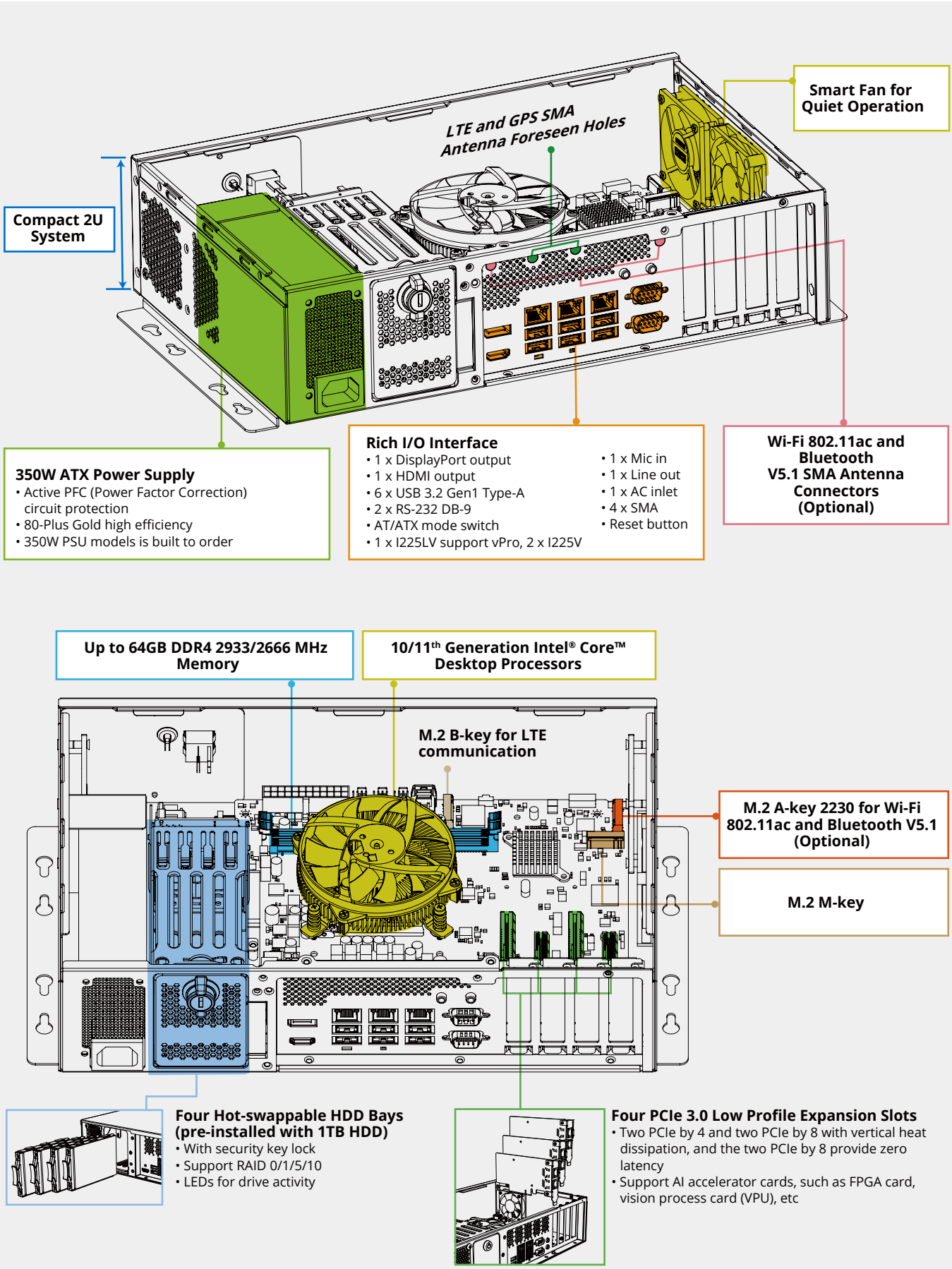
Ordering Information

Part No.	Description
FLEX-BX210-Q470/35-R20	Barebone, 2U AI Modular BOX PC, Intel® COMET Lake, Q470 chipset, 2 x PCIe x4 and 2 x PCIe x8 slots, 4x HDD bay, w/o CPU, 350W PSU, R20
FLEX-BX210-Q470-i3C-R20	2U Modular box PC, Intel® 10th Generation Core™ i3-10320 3.8 GHz (up to 4.6 GHz, 4-core, TDP 65W), 8GB DDR4 pre-installed memory, 350W PSU, R20
FLEX-BX210-Q470-i5C-R20	2U Modular box PC, Intel® 10th Generation Core™ i5-10500TE 2.3 GHz (up to 3.7 GHz, 6-core, TDP 35W), 8GB DDR4 pre-installed memory, 350W PSU, R20
FLEX-BX210-Q470-i7D-R20	2U Modular box PC, Intel® 10th Generation Core™ i7-10700TE 2.0 GHz (up to 4.4 GHz, 8-core, TDP 35W), 16GB DDR4 pre-installed memory, TPM 2.0, 350W PSU, R20
FLEX-BX210-Q470-i9D-R20	2U Modular box PC, Intel® 10th Generation Core™ i9-10900TE 1.8 GHz (up to 4.5 GHz, 10-core, TDP 35W), 16GB DDR4 pre-installed memory, 350W PSU, R20

Packing List

1 x Mounting bracket	1 x Power cord

Hardware Features



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. "TANK" is a model name for a series of IEI ruggedize embedded box products.

Ruggedized Solution

■ TANK XM81 Series

Multiple Expansion Slot

- 2 x 2.5GbE ports
- Multiple USB ports and serial ports
- Wide range temperature
- Low power consumption

■ TANK-XM81/600 Series

Multiple Serial Port

- Multiple expansion slot
- Multiple internal expansion boards for flexible selection
- Support multiple types storage device

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.

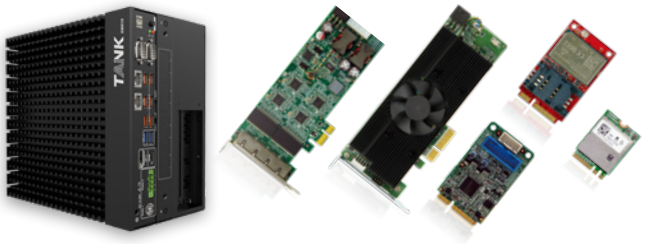
Platform		Model
Desktop	Alder Lake-S	TANK-XM811-R680E
	Comet Lake	TANK-XM810-Q470
	Coffee Lake/ Coffee Lake-R	TANK-880-Q370
	Skylake/ Kaby Lake	TANK-870-Q170 TANK-870e-H110 TANK-871-Q170

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.

■ Multiple Expansion Slots

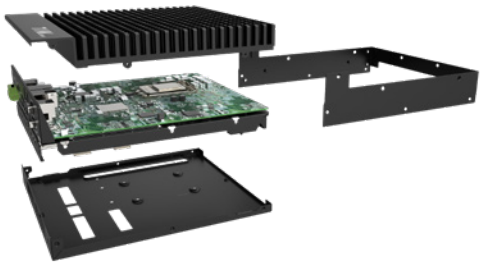
The TANK Series integrates multiple expansion such as PCIe/PCI slots and PCIe Mini / M.2 card slots. Users could install the card they need such as graphics card, capture card, I/O card, PoE card or AI accelerator card to enhance system function and performance, and it allows system to be customized, upgraded and repaired for faster time to market.



Key Features

■ Modular Design, Easy to Install

The mainboard is secured to the support bracket to prevent PCB from bending or warping. The three-layer structure consisting of heat spreader, mainboard and baseboard makes it easier to install CPU, memory and HDD, compared with the former TANK series.



■ Flexible Expansion

Different expansion requirements can be met. Dual-slot and four-slot SKUs are provided for selection. Customers can choose the type of expansion slot according to their needs.

■ Support High-performance Graphics Card

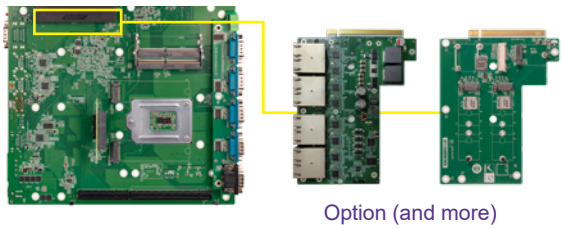
With IEI power board, it can support 3060 and other advanced graphics cards.
Maximum length of graphics card supported: 350mm
*Specified power adapter is required.

NVIDIA 3060

*Support advanced graphics card

■ Modular Board Design

It supports various optional modules, such as M.2 expansion card, 8-port PoE expansion card, etc.



Option (and more)

■ Support 35W & 65W CPU

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.

Operating temperature:	
With 35w CPU: (or 65W CPU PL1 & PL2, default 35W)	-20°C ~ 60°C
With 65w CPU:	-20°C ~ 50°C

Industrial Automation System

Preliminary

New

	Model Name	TANK-XM811	TANK-XM810	TANK-880-Q370
Chassis	Color	Black C	Black C	Black C + Silver
	Dimensions (WxDxH) (mm)	230.6 x 256.04 x 76.2	230.6 x 256.04 x 76.2	169 x 255.2 x 225
	System Fan	Fanless	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloys	Extruded aluminum alloys	Extruded aluminum alloys
Motherboard	CPU	12th Gen Intel® Core™ CPU 35/65W TDP Intel® Core™ i5-12500TE 1.9 GHz (up to 4.3 GHz, 6-core, 35W TDP) Intel® Core™ i7-12700TE 1.4 GHz (up to 4.6 GHz, 12-core, 35W TDP) Intel® Core™ i9-12900TE 1.1 GHz (up to 4.8 GHz, 16-core, 35W TDP)	10/11th Gen Intel® Core™ CPU 35/65W Intel® Core™ i3-10320 3.8 GHz (up to 4.6 GHz, quad-core, 65W TDP) Intel® Core™ i5-10500TE 2.3 GHz (up to 3.7 GHz, 6-core, 35W TDP) Intel® Core™ i7-10700TE 2.0 GHz (up to 4.4 GHz, 8-core, 35W TDP)	8th Gen Intel® Core™ CPU & Intel® Core™ i7-9700TE 1.8 GHz (up to 3.8 GHz, 8-core, TDP 35W) Intel® Core™ i5-9500TE 2.2 GHz (up to 3.6 GHz, 6-core, TDP 35W)
	Chipset	R680E	Q470/Q470E	Intel® Q370
	System Memory	2 x SO-DIMM DDR4 3200 MHz (8GB pre-installed) (up to 64GB)	2 x SO-DIMM DDR4 2933 MHz (up to 64GB)	2 x SO-DIMM DDR4 2666/ 2400 MHz (8GB pre-installed) (up to 64GB)
IPMI	iRIS Solution	N/A	N/A	N/A
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD bay	1 x 2.5" SATA 6Gb/s HDD/SSD bay	4 x 2.5" SATA 6Gb/s HDD/SSD bay (RAID 0/1/5/10 support)
I/O Interfaces	USB	8 x USB 3.2 Gen 2 (10Gb/s)	6 x USB 3.2 Gen 2 (10Gb/s) 2 x USB 2.0	6 x USB 3.2 Gen 1
	Ethernet	2 x RJ-45 2 x I225V 2.5GbE (colay I225LM)	2 x RJ-45 2 x I225V 2.5GbE (colay I225LM)	3 x RJ-45: 1 x GbE by Intel® I219 2 x GbE by Intel® I210
	COM Port	2 x RS-232/422/485, 4 x RS-232	2 x RS-232/422/485, 4 x RS-232	3 x RS-232/422/485 with AFC (DB-9 with 2.5kV isolation)
	Digital I/O	12-bit Digital I/O (6-in/6-out) DB15	12-bit Digital I/O (6-in/6-out) DB15	8-bit Digital I/O (4-in/ 4-out)
	Display	1 x DP++ 1 x HDMI	1 x DP++ 1 x HDMI	1 x HDMI (up to 3840x2160@30Hz) 1 x DP (up to 4096×2304@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)	1 x 802.11a/b/g/n/ac (optional)
	TPM	Support Intel® PTT function	Support Intel® PTT function	1 x TPM 2.0 (2 x 10 pin) (optional)
Expansions	PCIe Mini	Optional	Optional	1 x Full-size (PCIe/ USB 2.0/ SATA)
	M.2	1 x 2280 M-key (PCIe x4) 1 x 2230 A-key (USB+PCIe x1, supports vPRO)	2 x 2280 M-key (PCIe x2)	1 x 2230 A-key (PCIe x2/USB 2.0) 2 x 2280 M-key (PCIe x2)
	Backplane	Optional	Optional	1 x PCIe x16 1 x PCIe x1 2 x PCIe x4
Power	Power Input	12 ~ 28V DC	12 ~ 28V DC	DC Jack: 9 ~ 36V DC Terminal Block: 9 ~ 36V DC
	Power Consumption	12V @ 8.8A (Intel® Core™ i9-12900TE with 16GB memory)	12V @ 8A (Intel® Core™ i9-10900TE with 8GB memory)	19V@3.6A (Intel® Core™ i7-8700T with 8GB memory)
	Internal Power Connector	N/A	N/A	12V@10A
Reliability	Mounting	Wall mount	Wall mount	Wall mount
	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 ~ 60°C with air flow (SSD) 10% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms 100 shocks per axis (SSD)	Half-sine wave shock 5G, 11ms 100 shocks per axis (SSD)	Half-sine wave shock 5G, 11ms 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (with SSD)	MIL-STD-810G 514.6C-1 (with SSD)	MIL-STD-810G 514.6C-1 (SSD)
	Weight (Net/Gross)	3.33 kg/3.7 kg	3.2 kg/3.5 kg	5.4 kg/8.45 kg
	Safety/EMC	CE/FCC	CE/FCC	CE/FCC
OS	Supported OS	Windows 10 / Windows 11 IoT Enterprise/ Linux	Windows 10 / Windows 11 IoT Enterprise/ Linux	Microsoft Windows 10 / Windows 11 / Linux

Industrial Automation System

	Model Name	TANK-871-Q170	TANK-870-Q170
Chassis	Color	Black C + Silver	Black C + Silver
	Dimensions (WxDxH) (mm)	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
	Chassis Construction	Extruded aluminum alloys	Extruded aluminum alloys
Motherboard	CPU	7th Gen Intel® Core™ CPU & Intel® Core™ i7-6700TE 2.4 GHz (up to 3.4 GHz, quad-core, TDP 35) Intel® Core™ i5-6500TE 2.3 GHz (up to 3.3 GHz, quad-core, TDP 35)	
	Chipset	Intel® Q170	Intel® Q170
	System Memory	2 x SO-DIMM DDR4 2666 (4GB pre-installed) (up to 32GB)	2 x SO-DIMM DDR4 2666 (4GB pre-installed) (up to 32GB)
IPMI	iRIS Solution	1 x iRIS-2400 (optional)	1 x iRIS-2400 (optional)
Storage	Hard Drive	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)
I/O Interfaces	USB	4 x USB 3.2 Gen 1 4 x USB 2.0	4 x USB 3.2 Gen 1 4 x USB 2.0
	Ethernet	2 x RJ-45: LAN1: GbE by Intel® I219LM LAN2 (iRIS): GbE by Intel® I210	2 x RJ-45: LAN1: GbE by Intel® I219LM LAN2 (iRIS): GbE by Intel® I210
	COM Port	2 x RS-232/422/485 with AFC (DB-9) 4 x RS-232 (2 x RJ-45, 2 x DB-9 with 2.5kV isolation)	2 x RS-232/422/485 with AFC (DB-9) 4 x RS-232 (2 x RJ-45, 2 x DB-9 with 2.5kV isolation)
	Digital I/O	8-bit Digital I/O (4-in/ 4-out)	8-bit Digital I/O (4-in/ 4-out)
	Display	1 x VGA (up to 1920 x 1200@60Hz) 1 x HDMI/DP (up to 3840x2160@30Hz/4096×2304@60Hz) 1 x iDP (optional)	1 x VGA (up to 1920 x 1200@60Hz) 1 x HDMI/DP (up to 3840x2160@30Hz/4096×2304@60Hz) 1 x iDP (optional)
	Audio	1 x Line-out, 1 x Mic-in	1 x Line-out, 1 x Mic-in
	Wireless	1 x 802.11 a/b/g/n/ac (optional)	1 x 802.11 a/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)
Expansions	PCIe Mini	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)
	M.2	N/A	N/A
	Backplane	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/USB 2.0) 4-slot model: 1 x PCIe x16, 3 x PCI, 1 x Full-size PCIe Mini (PCIe/ USB 2.0)
Power	Power Input	DC Jack: 9 ~ 36V DC Terminal Block: 9 ~ 36V DC	DC Jack: 9 ~ 36V DC Terminal Block: 9 ~ 36V DC
	Power Consumption	19V@3.68 A (Intel® Core™ i7-6700TE with 8 GB memory)	19V@3.68 A (Intel® Core™ i7-6700TE with 8 GB memory)
	Internal Power Connector	5V@3A or 12V@3A	5V@3A or 12V@3A
Reliability	Mounting	Wall mount	Wall mount
	Operating Temperature	i7-6700TE: -20ºC ~ 45°C with air flow (SSD), 10% ~ 95% non-condensing i5-6500TE: -20ºC ~ 60°C with air flow (SSD), 10% ~ 95% non-condensing	i7-6700TE: -20ºC ~ 45°C with air flow (SSD), 10% ~ 95% non-condensing i5-6500TE: -20ºC ~ 60°C with air flow (SSD), 10% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6 C-1 (SSD)	MIL-STD-810G 514.6 C-1 (SSD)
	Weight (Net/Gross)	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/KC	CE/FCC/KC
OS	Supported OS	Microsoft® Windows® 8 Embedded, Microsoft® Windows® Embedded Standard 7 E, Microsoft® Windows® 10 IoT Enterprise	

Industrial Automation System

	Model Name	TANK-870e-H110	TANK-610-BW
Chassis	Color	Dark silver purple + Silver	Black C + Silver
	Dimensions (WxDxH) (mm)	132.6 x 255.2 x 190	184 x 200.6 x 58.2
	System Fan	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloys	Extruded aluminum alloys
Motherboard	CPU	7th Gen Intel® Core™ CPU & Intel® Core™ i7-6700TE 2.4 GHz (up to 3.4 GHz, quad-core, TDP 35) Intel® Core™ i5-6500TE 2.3 GHz (up to 3.3 GHz, quad-core, TDP 35)	Intel® Celeron® N3160 1.6 GHz (up to 2.24 GHz, quad-core, TDP 6W)
	Chipset	Intel® H110	SoC
	System Memory	2 x SO-DIMM DDR4 2666 (4GB pre-installed)(up to 32GB)	2 x DDR3L SO-DIMM (2GB pre-installed)(up to 8GB)
Storage	Hard Drive	2 x 2.5" SATA 6Gb/s HDD/SSD bay	1 x 2.5" SATA 6Gb/s HDD/SSD Bay
I/O Interfaces	USB	4 x USB 3.2 Gen1	4 x USB 3.2 Gen1
	Ethernet	2 x RJ-45: 2 x GbE by RTL8111G	2 x RJ-45: 2 x GbE by Intel® I210
	COM Port	2 x RS-232/422/485 with AFC (DB-9 with 2.5kV isolation)	2 x RS-232/422/485 with AFC 6 x RS-232
	Digital I/O	N/A	N/A
	Display	1 x VGA (up to 1920 x 1200@60Hz) 1 x HDMI (up to 3840 x 2160@30Hz)	1 x VGA (up to 1920 x 1200@60Hz) 1 x HDMI (up to 3840 x 2160@30Hz)
	Audio	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)
	TPM	N/A	N/A
Expansions	PCIe Mini	1 x Full-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/SATA)
	M.2	N/A	N/A
	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	N/A
Power	Power Input	DC Jack: 9 ~ 36V DC Terminal Block: 9 ~ 36V DC	DC Jack: 9 ~ 36V DC Terminal Block: 9 ~ 36V DC
	Power Consumption	19V@3.44A (Intel® Core™ i7-6700TE with 8GB memory)	12V@1.49A (Intel® Celeron® N3160 with 4GB DDR3L memory)
Reliability	Mounting	Wall mount & Din Rail	Wall mount, VESA 100
	Operating Temperature	-20ºC ~ 50°C with air flow (SSD), 10% ~ 95% non-condensing	-40ºC ~ 60°C with air flow(SSD), 10% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)	MIL-STD-810G 514.6C-1 (SSD)
	Weight (Net/Gross)	2.8 kg/4.3 kg	2.2 kg/3 kg
	Safety/EMC	CE/FCC/KC	CE/FCC/KC
OS	Supported OS	Microsoft® Windows® 8 Embedded, Microsoft® Windows® Embedded Standard 7 E, Microsoft® Windows® 10 IoT Enterprise	Microsoft® Windows 8 Embedded, Microsoft® Windows® Embedded Standard 7 E

TANK-XM811

- *High-Performance 12th Generation Intel® Core™ Processor*
- *Fanless Embedded Computer*

Preliminary

Features

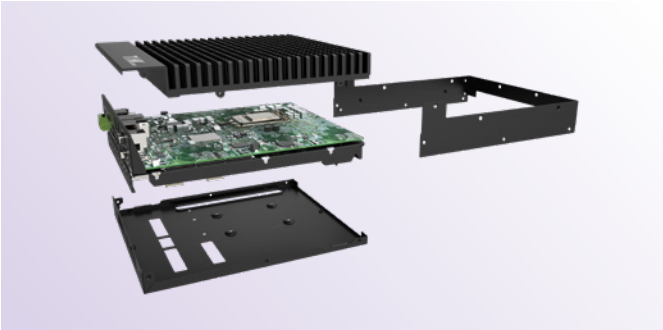
- Supported CPUs:
  Intel® Core™ i5-12500TE 1.9 GHz (up to 4.3 GHz, 6-core, 35W TDP)
  Intel® Core™ i7-12700TE 1.4 GHz (up to 4.6 GHz, 12-core, 35W TDP)
  Intel® Core™ i9-12900TE 1.1 GHz (up to 4.8 GHz, 16-core, 35W TDP)
- 2 x 2.5G Ethernet ports
- Multiple USB ports and serial ports
- Multiple internal expansion boards for flexible selection
- Various optional backplanes and chassis
- CE/FCC compliant

Specifications

Model Name		TANK-XM811
Chassis	Color	Black C
	Dimensions (WxDxH) (mm)	230.6 x 256.04 x 76.2
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloys
Motherboard	CPU	12th Gen Intel® Core™ CPU 35/65W TDP Intel® Core™ i5-12500TE 1.9 GHz (up to 4.3 GHz, 6-core, 35W TDP) Intel® Core™ i7-12700TE 1.4 GHz (up to 4.6 GHz, 12-core, 35W TDP) Intel® Core™ i9-12900TE 1.1 GHz (up to 4.8 GHz, 16-core, 35W TDP)
	Chipset	R680E
	Memory	2 x SO-DIMM DDR4 3200 (8GB pre-installed) (up to 64GB)
Storage	HDD Bay	1 x 2.5" SATA 6Gb/s HDD/SSD bay
I/O Interfaces	Ethernet	2 x RJ-45, 2 x I225V 2.5GbE (colay I225LM)
	USB 3.2 Gen 2 (10Gb/s)	8
	COM	2 x RS-232/422/485, 4 x RS-232
	Digital I/O	12-bit (6-in/6-out) DB15
	Display Interface	1 x DP++, 1 x HDMI
Internal Expansions	M.2	1 x 2280 M-key (PCIe x4) 1 x 2230 A-key (USB+PCIe x1, supports vPRO)
	Expansion Backplane	Optional
Power	Power Input	12 ~ 28V DC
	Remote Power	1 x 2-pin
	Power Consumption	12V @ 8.8A (Intel® Core™ i9-12900TE with 16GB memory)
Reliability	Mounting	Wall mount
	Operating Temperature	-20°C ~ 60°C with air flow (CPU TDP35W &SSD) -20°C ~ 50°C with air flow (CPU TDP65W &SSD), 10% ~ 95% non-condensing
	Storage Temperature	-40°C ~ 85°C, 10% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (with SSD)
	Weight (Net/Gross)	3.33/3.7 kg
	Safety / EMC	CE/FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min
OS	Supported OS	Windows® 10/11 IoT Enterprise/ Linux

Modular Design, Easy to Install

The mainboard is secured to the support bracket to prevent PCB from bending or warping. The three-layer structure consisting of heat spreader, mainboard and baseboard makes it easier to install CPU, memory and HDD, compared with the former TANK series.

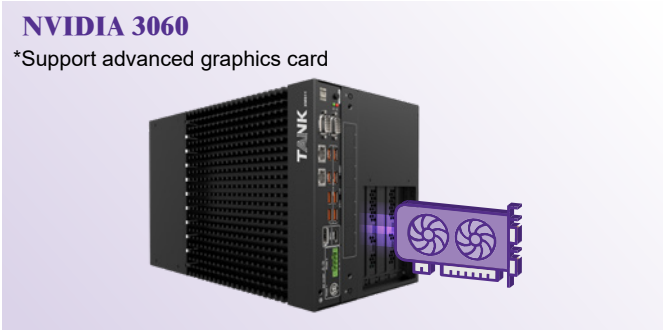


Support High-performance Graphics Card

With IEI power board, it can support 3060 and other advanced graphics cards.

Maximum length of graphics card supported:350mm

*Specified power adapter is required.

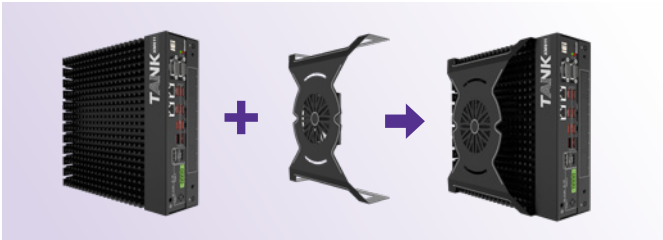


Flexible Expansion

Different expansion requirements can be met. Dual-slot and four-slot SKUs are provided for selection. Customers can choose the type of expansion slot according to their needs.

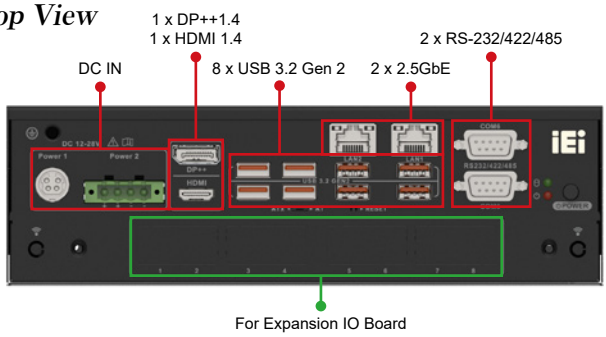
External Fan

Installing an external fan helps to increase system performance in harsh environment.

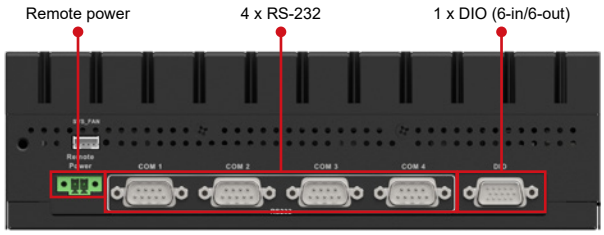


Fully Integrated I/O

Top View

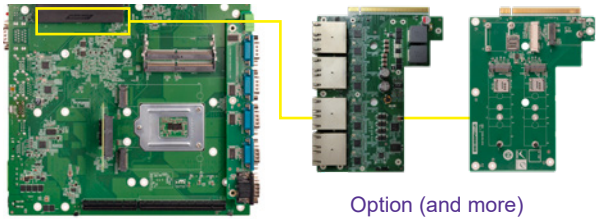


Front View



Modular Board Design

It supports various optional modules, such as M.2 expansion card, 8-port PoE expansion card, etc.

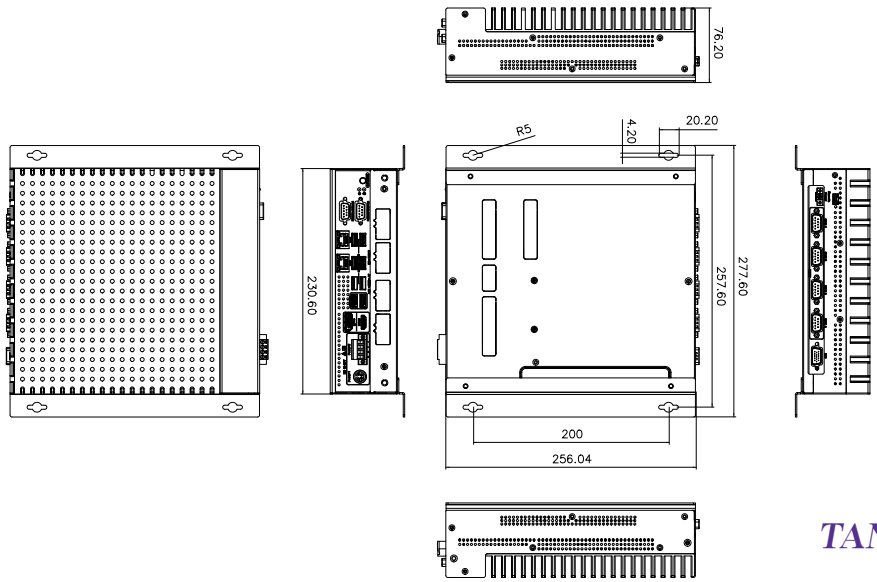


Expansion IO Board	
GPOE-XM81-8P-R10	I/O expansion module for TANK 81 series, 8 x 2.5G LAN with PoE
TXIOB-XM81-A-R10	I/O expansion module for TANK 81 series, 2 x M.2 B Key, 1 x M.2 A Key, 1 x PCIe Mini

Support 35W & 65W CPU

Operating temperature:	
With 35w CPU (or 65W CPU PL1 & PL2, default 35W):	-20°C ~ 60°C
With 65w CPU:	-20°C ~ 50°C

Dimensions (Unit: mm)



TANK-XM811

Ordering Information

Model	Description
TANK-XM811-i5AC-R10	Ruggedized Fanless Embedded System with Intel® Core™ i5, 8GB RAM, 1 x HDMI, 1 x DP++, 12~28V DC and RoHS
TANK-XM811-i7AC-R10	Ruggedized Fanless Embedded System with Intel® Core™ i7, 8GB RAM, 1 x HDMI, 1 x DP++, 12~28V DC and RoHS
TANK-XM811-i9AD-R10	Ruggedized Fanless Embedded System with Intel® Core™ i9, 16GB RAM, 1 x HDMI, 1 x DP++, 12~28V DC and RoHS

Options

Part No.	Description
EMB-WIFI-KIT02I3-R10	2T2R M.2 wifi module kit for embedded system, IEEEE802.11a/b/g/n/ac/ax, 1 x M.2 AE Key Wireless LAN & Bluetooth 5.2;Intel;AX210.NGWG Module, 2 x RF cable, 2 x Antenna; RoHs
63040-010180-200-RS	Adapter Power;FSP;FSP180-ABAN3;9NA1804008;Active PFC;Vin:90~264VAC;180W;Dim:75.6*151.3*25.4mm;Plug=6.5mm;Cable=1500mm;Erp(NO LOAD 0.5W);Vout:19VDC;Din 4Pin/lock;CCL;RoHS
32000-000002-RS	European power cord
SF-TANK-XM81-R10	External fan for TANK-XM81 Series

Optional Expansion Backplane

Part No.	Description
TXCBP-XM81-2A-R10	Expansion backplane module for TANK 81 Series, 2 slot, 1 x PCIe x16 & 1 x PCIe x4
TXCBP-XM81-2B-R10	Expansion backplane module for TANK 81 Series, 2 slot, 2 x PCIe x8
TXCBP-XM81-4A-R10	Expansion backplane module for TANK 81 Series, 4 slot, 1 x PCIe x16 & 2 x PCIe x4 & 1 x PCIe x1 w/ external power supply
TXCBP-XM81-4B-R10	Expansion backplane module for TANK 81 Series, 4 slot, 2 x PCIe x8 & 2 x PCIe x4 w/ external power supply
TXCBP-XM81-4C-R10	Expansion backplane module for TANK 81 Series, 4 slot, 1 x PCIe x16 & 2 x PCI & 1 x PCIe x4
TXCBP-XM81-G1-PW-R10	Expansion backplane module for TANK 81 Series, 4 slot, 1 x PCIe x16 & 1 x PCIe x4 w/ external power supply
TXCBP-XM81-G2-PW-R10	Expansion backplane module for TANK 81 Series, 6 slot, 2 x PCIe x8 & 2 x PCIe x4 w/ external power supply
IDD-X1228150-R10*	Extended Power Board for TANK-XM81 Series, 150W DC/DC 12-28V input 12V output

* For expansion cards (graphics cards, accelerator cards) that require independent power supply to provide independent power supply, it must be equipped with a Backplane with W/extemal power supply function.

Optional Expansion Chassis

Part No.	Description
TXC-XM81-3S-R10	3-slot expansion chassis for TANK 81 Series
TXC-XM81-4S-R10	4-slot expansion chassis for TANK 81 Series
TXC-XM81-G1-R10	One GPU expansion chassis for TANK 81 Series
TXC-XM81-G2-R10	Dual GPU expansion chassis for TANK 81 Series

Optional Internal Expansion Boards

Part No.	Description
GPOE-XM81-8P-R10	I/O expansion module for TANK 81 Series, 8 x 2.5G LAN with PoE
TXIOB-XM81-A-R10	I/O expansion module for TANK 81 Series, 2 x M.2 B Key, 1 x M.2 A Key, 1 x PCIe Mini

Packing List

1 x Screw pack	1 x Power cable	1 x Mounting bracket

TANK-XM810

- *High-Performance 10th /11th Generation Intel® Core™ Processor*
- *Fanless Embedded Computer*

New

Features

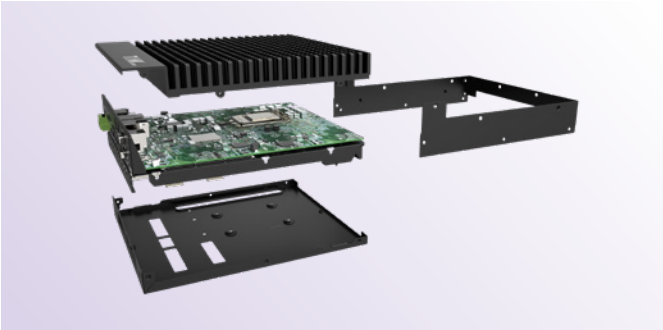
- Supported CPUs:
  Intel® Core™ i3-10320 3.8 GHz (up to 4.6 GHz, quad-core, 65W TDP)
  Intel® Core™ i5-10500TE 2.3 GHz (up to 3.7 GHz, 6-core, 35W TDP)
  Intel® Core™ i7-10700TE 2.0 GHz (up to 4.4 GHz, 8-core, 35W TDP)
- 2 x 2.5GbE ports
- Multiple USB ports and serial ports
- Multiple internal expansion boards for flexible selection
- Various optional backplanes and chassis
- CE/FCC compliant

Specifications

Model Name		TANK-XM810
Chassis	Color	Black C
	Dimensions (WxDxH) (mm)	230.6 x 256.04 x 76.2
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloys
Motherboard	CPU	10/11th Gen Intel® Core™ CPU TDP 35/65W Intel® Core™ i3-10320 3.8 GHz (up to 4.6 GHz, quad-core, 65W TDP) Intel® Core™ i5-10500TE 2.3 GHz (up to 3.7 GHz, 6-core, 35W TDP) Intel® Core™ i7-10700TE 2.0 GHz (up to 4.4 GHz, 8-core, 35W TDP)
	Chipset	Q470/Q470E
	Memory	2 x SO-DIMM DDR4 3200 (8GB pre-installed) (up to 64GB)
Storage	HDD Bay	1 x 2.5" SATA 6Gb/s HDD/SSD bay
I/O Interfaces	Ethernet	2 x RJ-45, 2 x I225V 2.5GbE (colay I225LM)
	USB 2.0	2
	USB 3.2 Gen 2 (10Gb/s)	6
	COM	2 x RS-232/422/485, 4 x RS-232
	Digital I/O	12-bit (6-in/6-out) DB15
	Display Interface	1 x DP++, 1 x HDMI
Internal Expansions	M.2	2 x 2280 M-key (PCIe x2)
	Expansion Backplane	Optional
Power	Power Input	12 ~ 28V DC
	Remote Power	1 x 2-pin
	Power Consumption	12V @ 8A (Intel® Core™ i9-10900TE with 8GB memory)
Reliability	Mounting	Wall mount
	Operating Temperature	-20°C ~ 60°C with air flow (CPU TDP35W & SSD) -20°C ~ 50°C with air flow (CPU TDP65W & SSD), 10% ~ 95% non-condensing
	Storage Temperature	-40°C ~ 85°C, 10% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (with SSD)
	Weight (Net/Gross)	3.2/3.5 kg
	Safety / EMC	CE/FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min
OS	Supported OS	Windows® 10/11 IoT Enterprise/ Linux

Modular Design, Easy to Install

The mainboard is secured to the support bracket to prevent PCB from bending or warping. The three-layer structure consisting of heat spreader, mainboard and baseboard makes it easier to install CPU, memory and HDD, compared with the former TANK series.

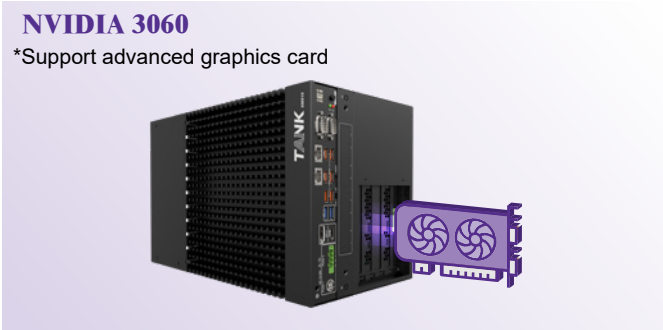


Support High-performance Graphics Card

With IEI power board, it can support 3060 and other advanced graphics cards.

Maximum length of graphics card supported:350mm

*Specified power adapter is required.

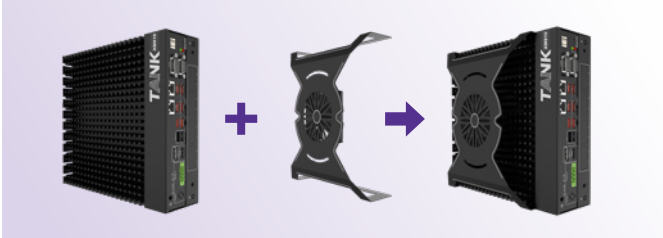


Flexible Expansion

Different expansion requirements can be met. Dual-slot and four-slot SKUs are provided for selection. Customers can choose the type of expansion slot according to their needs.

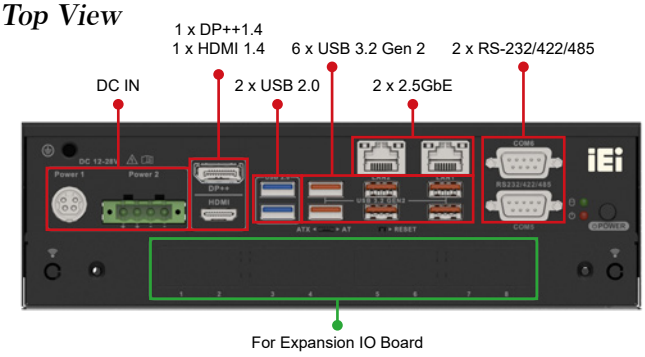
External Fan

Installing an external fan helps to increase system performance in harsh environment.

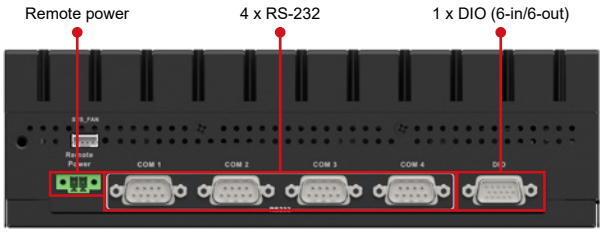


Fully Integrated I/O

Top View

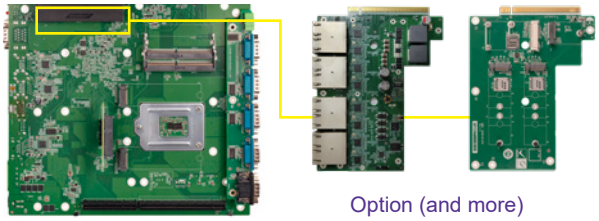


Front View



Modular Board Design

It supports various optional modules, such as M.2 expansion card, 8-port PoE expansion card, etc.

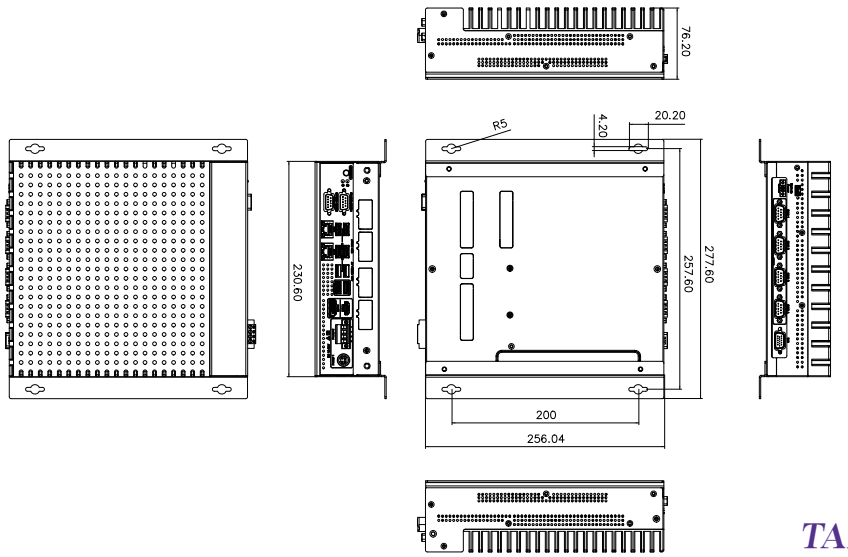


Expansion IO Board	
GPOE-XM81-8P-R10	I/O expansion module for TANK 81 series, 8 x 2.5G LAN with PoE
TXIOB-XM81-A-R10	I/O expansion module for TANK 81 series, 2 x M.2 B Key, 1 x M.2 A Key, 1 x PCIe Mini

Support 35W & 65W CPU

Operating temperature:	
With 35w CPU (or 65W CPU PL1 & PL2, default 35W):	-20°C ~ 60°C
With 65w CPU:	-20°C ~ 50°C

Dimensions (Unit: mm)



TANK-XM810

Ordering Information

Part No.	Description
TANK-XM810-i3BC-R10	Ruggedized Fanless Embedded System with Intel® Core™ i3-10320 3.8 GHz, (up to 4.6 GHz, 4-core, TDP 65W), 8GB DDR4 pre-installed memory, 1xHDMI, 1xDP++, 12~28V DC and RoHS
TANK-XM810-i5AC-R10	Ruggedized Fanless Embedded System with Intel® Core™ i5-10500TE 2.3 GHz, (up to 3.7 GHz, 6-core, TDP 35W), 8GB DDR4 pre-installed memory, 1xHDMI, 1xDP++, 12~28V DC and RoHS
TANK-XM810-i5BC-R10	Ruggedized Fanless Embedded System with Intel® i5-10500 3.1GHz, (up to 4.5GHz, 6-core, TDP 65W), 8GB DDR4 pre-installed memory, 1xHDMI, 1xDP++, 12~28V DC and RoHS
TANK-XM810-i7AC-R10	Ruggedized Fanless Embedded System with Intel® Core™ i7-10700TE 2.0 GHz, (up to 4.4 GHz, 8-core, TDP 35W), 8GB DDR4 pre-installed memory, 1xHDMI, 1xDP++, 12~28V DC and RoHS
TANK-XM810-i7BC-R10	Ruggedized Fanless Embedded System with Intel® i7-10700E 2.9GHz, (up to 4.5GHz, 8-core, TDP 65W), 8GB DDR4 pre-installed memory, 1xHDMI, 1xDP++, 12~28V DC and RoHS

Options

Part No.	Description
EMB-WIFI-KIT02I3-R10	2T2R M.2 wifi module kit for embedded system, IEEEE802.11a/b/g/n/ac/ax, 1 x M.2 AE Key Wireless LAN & Bluetooth 5.2;Intel;AX210.NGWG Module, 2 x RF cable, 2 x Antenna; RoHs
63040-010180-200-RS	Adapter Power;FSP;FSP180-ABAN3;9NA1804008;Active PFC;Vin:90~264VAC;180W;Dim:75.6*151.3*25.4mm;Plug=6.5mm;Cable=1500mm;Erp(NO LOAD 0.5W);Vout:19VDC;Din 4Pin/lock;CCL;RoHS
32000-000002-RS	European power cord
SF-TANK-XM81-R10	External fan for TANK-XM81 Series

Optional Expansion Backplane

Part No.	Description
TXCBP-XM81-2A-R10	Expansion backplane module for TANK 81 Series, 2 slot, 1 x PCIe x16 & 1 x PCIe x4
TXCBP-XM81-2B-R10	Expansion backplane module for TANK 81 Series, 2 slot, 2 x PCIe x8
TXCBP-XM81-4A-R10	Expansion backplane module for TANK 81 Series, 4 slot, 1 x PCIe x16 & 2 x PCIe x4 & 1 x PCIe x1 w/ external power supply
TXCBP-XM81-4B-R10	Expansion backplane module for TANK 81 Series, 4 slot, 2 x PCIe x8 & 2 x PCIe x4 w/ external power supply
TXCBP-XM81-4C-R10	Expansion backplane module for TANK 81 Series, 4 slot, 1 x PCIe x16 & 2 x PCI & 1 x PCIe x4
TXCBP-XM81-G1-PW-R10	Expansion backplane module for TANK 81 Series, 4 slot, 1 x PCIe x16 & 1 x PCIe x4 w/ external power supply
TXCBP-XM81-G2-PW-R10	Expansion backplane module for TANK 81 Series, 6 slot, 2 x PCIe x8 & 2 x PCIe x4 w/ external power supply
IDD-X1228150-R10*	Extended Power Board for TANK-XM81 Series, 150W DC/DC 12-28V input 12V output

* For expansion cards (graphics cards, accelerator cards) that require independent power supply to provide independent power supply, it must be equipped with a Backplane with W/extemal power supply function.

Optional Expansion Chassis

Part No.	Description
TXC-XM81-3S-R10	3-slot expansion chassis for TANK 81 Series
TXC-XM81-4S-R10	4-slot expansion chassis for TANK 81 Series
TXC-XM81-G1-R10	One GPU expansion chassis for TANK 81 Series
TXC-XM81-G2-R10	Dual GPU expansion chassis for TANK 81 Series

Optional Internal Expansion Boards

Part No.	Description
GPOE-XM81-8P-R10	I/O expansion module for TANK 81 Series, 8 x 2.5G LAN with PoE
TXIOB-XM81-A-R10	I/O expansion module for TANK 81 Series, 2 x M.2 B Key, 1 x M.2 A Key, 1 x PCIe Mini

Packing List

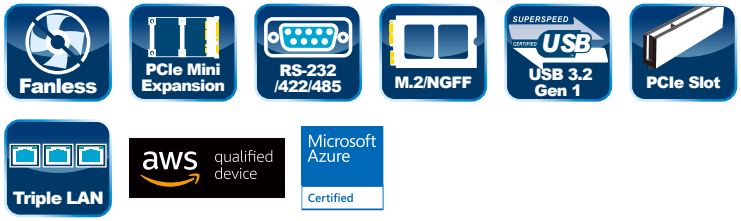
1 x Screw pack	1 x Power cable

TANK-880-Q370

- *High-Performance 8th/9th Generation Intel® Core™ Processor*
- *Fanless Embedded Computer*

Features

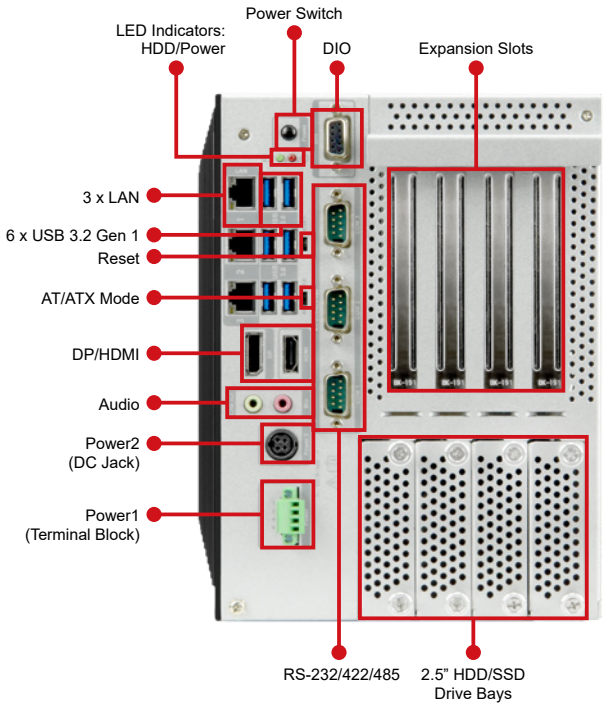
- 8th/9th Gen Intel® Core™ processor platform with Intel® Q370 chipset and DDR4 memory
- Dual independent displays with high resolution support
- Rich high-speed I/O interfaces
- On-board internal power connector for providing power to add-on cards
- Four accessible 2.5" HDD/SSD SATA 6 Gb/s bay (with RAID 0/1/5/10 support)
- Great flexibility for hardware expansion



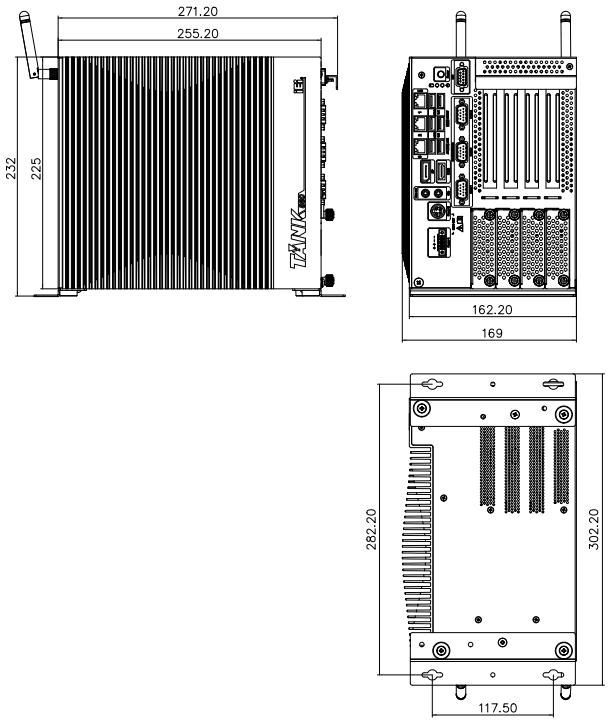
Specifications

Model Name		TANK-880-Q370
Chassis	Color	Black C + Silver
	Dimensions(WxDxH) (mm)	169 x 255.2 x 225
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloys
Motherboard	CPU	8th Gen Intel® Core™ CPU & Intel® Core™ i7-9700TE 1.8 GHz (up to 3.8 GHz, 8-core, TDP 35W) Intel® Core™ i5-9500TE 2.2 GHz (up to 3.6 GHz, 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	USB	6 x USB 3.2 Gen 1
	Ethernet	3 x RJ-45: 1 x GbE by Intel® I219 2 x GbE by Intel® I210
	COM Port	3 x RS-232/422/485 with AFC (DB-9 with 2.5kV isolation)
	Digital I/O	8-bit Digital I/O (4-in/ 4-out)
	Display	1 x HDMI 1.4b (up to 3840 x 2160@30Hz) 1 x DP (up to 4096 x 2304@60Hz)
	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/USB 2.0) 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 ~ 36V DC Terminal Block: 9 ~ 36V DC
	Power Consumption	19V @ 5.4A (Intel® Core™ i7-9700TE with 8GB memory)
	Internal Power Output	12V @ up to 10A
Reliability	Mounting	Wall mount
	Operating Temperature	-20ºC ~ 60°C with air flow (SSD), 10% ~ 95% non-condensing
	Storage Temperature	-40ºC ~ 85°C with air flow (SSD), 10% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operation Vibration	MIL-STD-810G 514.6C-1 (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 / Windows 11, 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 1.8 GHz, (up to 3.8 GHz, 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 2.2 GHz, (up to 3.6 GHz, 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	27319-000009-RS*	Wireless LAN Module;Wireless LAN & Bluetooth M.2 Module;Sparklan;R9701810011;IEEE802.11a/b/g/n/ac;2.412 GHz~2.4835 GHz, 5.15 GHz~5.85 GHz;M.2 2230;.;3.3V;22*30*2.15mm;QCNFA364A;QCA6174A-5;2x2 MIMO;Dual Band;WCBN808A-Q2;CCL;CCL;RoHS
Antenna	32505-000900-100-RS*	External Antenna; WLAN; RG 178; 108MM; TANK-700-QM67-R10; PEAK GAIN 2.0DBI; Exceltek; 2.4-2.5 GHz/5.15-5.85 GHz; REVERSE SMA PLUG; RoHS
RF Cable	32501-004000-100-RS*	RF; RF CABLE; LINE DIAMETER:0.81mm; 250MM;;; 50Ω; Sparklan; 0-6 GHz; 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
OS:Windows Embedded 10	TANK-880-Q370-W10E64-H-R10	OS Image with Windows® Embedded Standard 10 E High End 64-bit 2019 for TANK-880-Q370-i7 Series, with DVD-ROM, RoHS
OS:Windows Embedded 10	TANK-880-Q370-W10E64-V-R10	OS Image with Windows® Embedded Standard 10 E Value 64-bit 2019 for TANK-880-Q370-i5 Series, with DVD-ROM, 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*

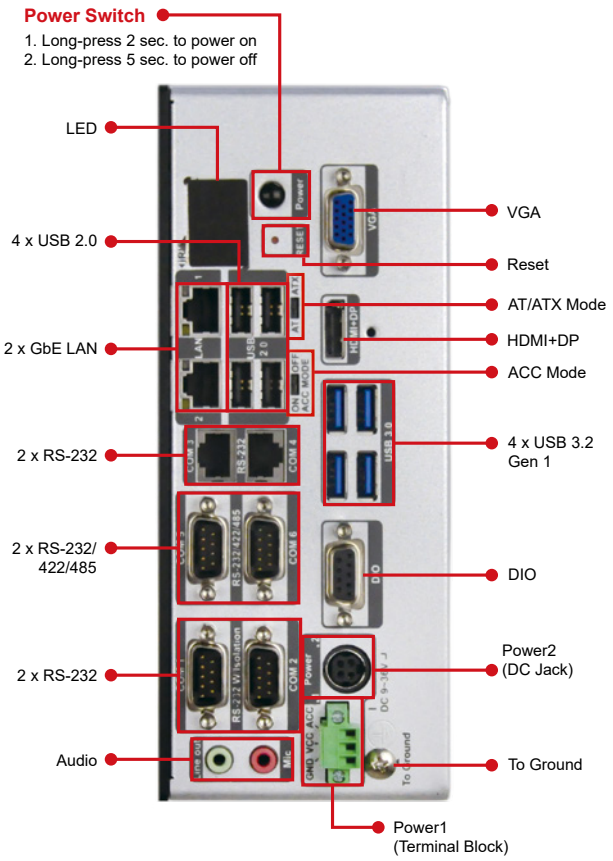
Features

- 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

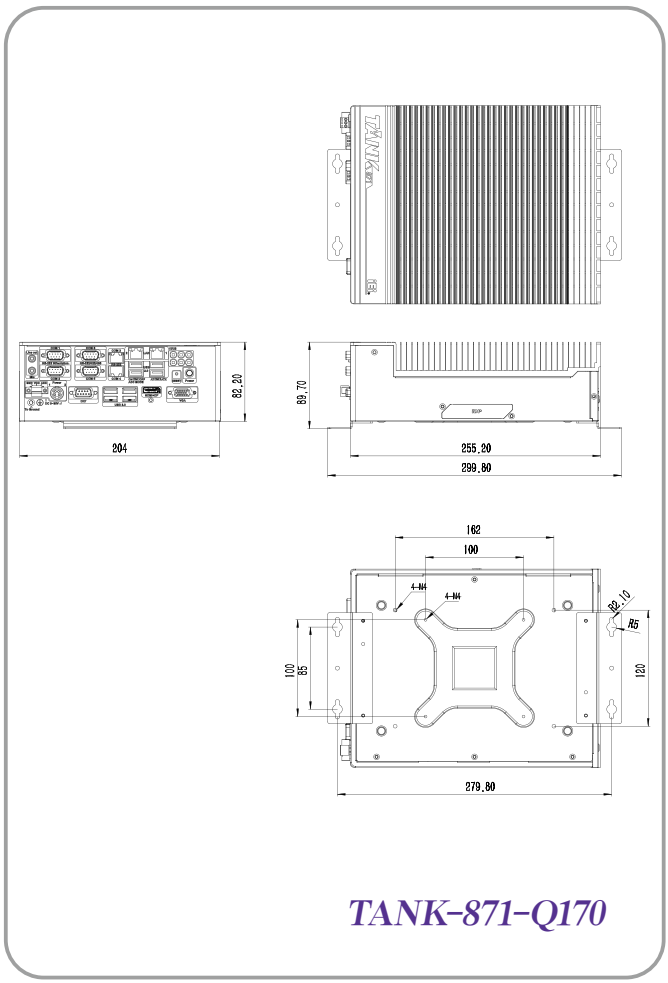
Specifications

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 (up to 3.4 GHz, quad-core, TDP 35) Intel® Core™ i5-6500TE 2.3 GHz (up to 3.3 GHz, quad-core, TDP 35)
	Chipset	Intel® Q170
	System Memory	2 x SO-DIMM DDR4 2133 (4GB pre-installed) (up to 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	4 x USB 3.2 Gen 1 4 x USB 2.0
	Ethernet	2 x RJ-45: LAN1: GbE by Intel® I219LM LAN2 (iRIS): GbE by Intel® I210
	COM Port	2 x RS-232/422/485 with AFC (DB-9) 4 x RS-232 (2 x RJ-45, 2 x DB-9 with 2.5kV isolation)
	Digital I/O	8-bit Digital I/O (4-in/ 4-out)
	Display	1 x VGA (up to 1920 x 1200@60Hz) 1 x HDMI/DP (up to 3840 x 2160@30Hz /4096×2304@60Hz) 1 x iDP (optional)
	Audio	1 x Line-out, 1 x Mic-in
	Wireless	1 x 802.11a/b/g/n/ac (optional)
	TPM	1 x TPM 2.0 (2 x 10 pin) (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 ~ 36V DC Terminal Block: 9 ~ 36V DC
	Power Consumption	19V@3.68A (Intel® Core™ i7-6700TE with 8GB memory)
Reliability	Mounting	Wall mount
	Operating Temperature/Humidity	i7-6700TE: -20ºC ~ 45°C with air flow (SSD), 10% ~ 95% non-condensing i5-6500TE: -20ºC ~ 60°C with air flow (SSD), 10% ~ 95% non-condensing
	Storage Temperature/Humidity	-40ºC ~ 85°C with air flow (SSD), 10% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6 C-1 (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)



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
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

Packing List

1 x Chassis Screw	1 x Mounting Bracket

TANK-870-Q170

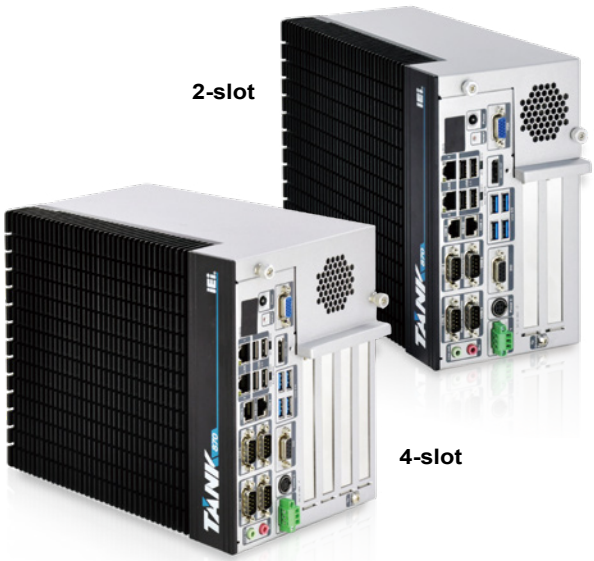
- *High-Performance 6th/7th Generation Intel® Core™ Processor*
- *Fanless Embedded Computer*

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

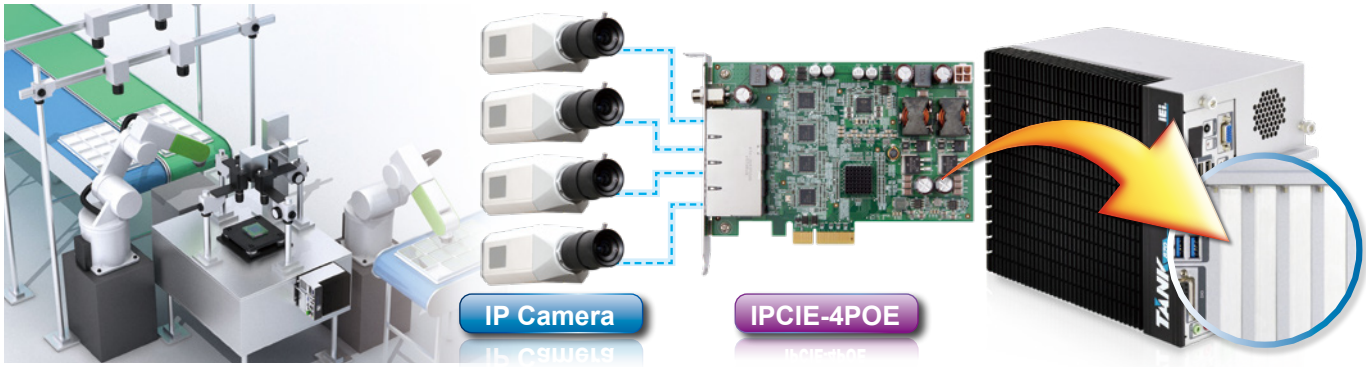
IPMI 2.0 Compliant | Fanless | Triple Display | PCI/PCIe Expansion | DDR4 2133

Microsoft Azure Certified



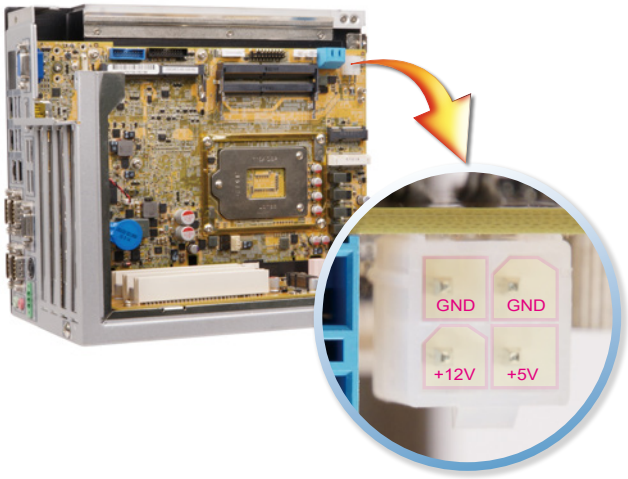
Smart Choice for Surveillance System

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.

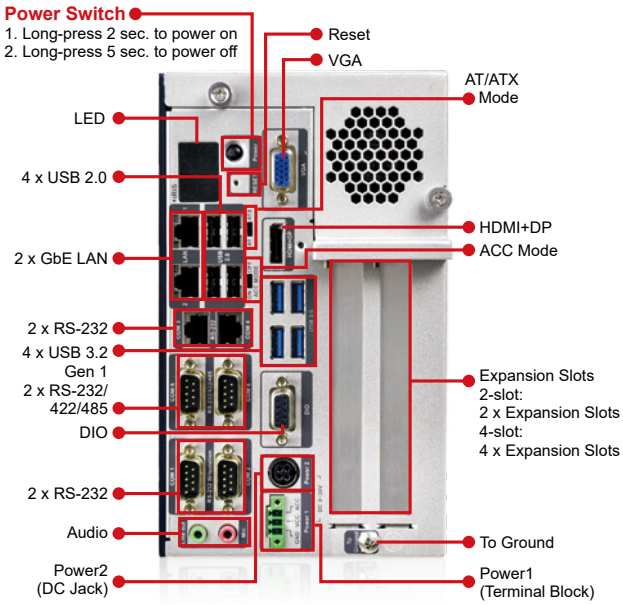


5V@3A or 12V@3A Internal Power Connector

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	
Slot Type	PCIe x16	PCIe x16	PCIe x16	PCIe x16
Signal	PCIe x8	PCIe x16	PCIe x8	PCIe x8
Slot Type	PCIe x16	PCI	PCI	PCI
Signal	PCIe x8	PCI	PCI	PCI
PCIe Mini	N/A	N/A	1	

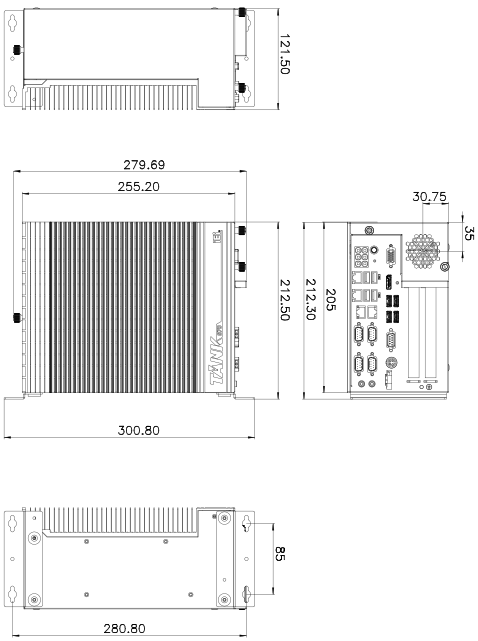
* The expansions described above are provided by the backplanes

Specifications

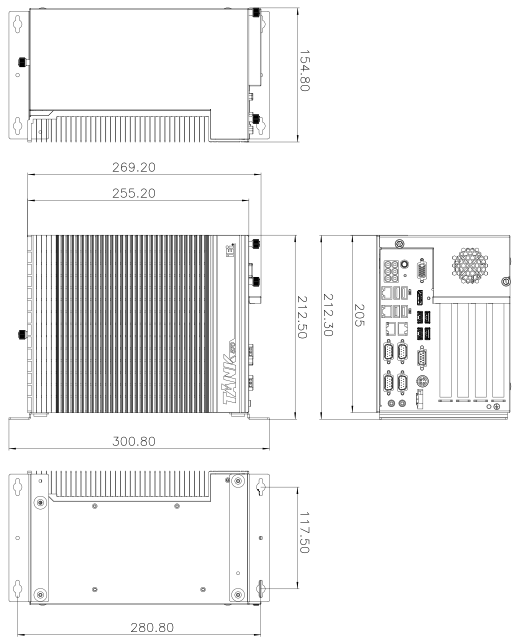
Model Name		TANK-870-Q170
Chassis	Color	Black C + Silver
	Dimensions (WxDxH) (mm)	2-slot: 121.5 x 255.2 x 205 4-slot: 154.8 x 255.2 x 205
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloys
Motherboard	CPU	7th Gen Intel® Core™ CPU & Intel® Core™ i7-6700TE 2.4 GHz (up to 3.4 GHz, quad-core, TDP 35) Intel® Core™ i5-6500TE 2.3 GHz (up to 3.3 GHz, quad-core, TDP 35)
	Chipset	Intel® Q170
	System Memory	2 x SO-DIMM DDR4 2133 (4GB pre-installed)(up to 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	4 x USB 3.2 Gen 1 4 x USB 2.0
	Ethernet	2 x RJ-45: LAN1: GbE by Intel® I219LM LAN2 (iRIS): GbE by Intel® I210
	COM Port	2 x RS-232/422/485 with AFC (DB-9) 4 x RS-232 (2 x RJ-45, 2 x DB-9 with 2.5kV isolation)
	Digital I/O	8-bit Digital I/O (4-in/ 4-out)
	Display	1 x VGA (up to 1920 x 1200@60Hz) 1 x HDMI/DP (up to 3840 x 2160@30Hz /4096 x 2304@60Hz) 1 x iDP (optional)
	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	PCIe Mini	1 x Half-size (PCIe/ USB 2.0) 1 x Full-size (PCIe/ USB 2.0/ SATA)*
	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)
Power	Power Input	DC Jack: 9 ~ 36V DC Terminal Block: 9 ~ 36V DC
	Power Consumption	19V@3.68A (Intel® Core™ i7-6700TE with 8 GB memory)
	Internal Power output	5V@3A or 12V@3A
Reliability	Mounting	Wall mount
	Operating Temperature	i7-6700TE: -20ºC ~ 45°C with air flow (SSD), 10% ~ 95% non-condensing i5-6500TE: -20ºC ~ 60°C with air flow (SSD), 10% ~ 95% non-condensing
	Storage Temperature	-40ºC ~ 85°C with air flow (SSD), 10% ~ 90% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6 C-1 (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-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

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	2 x RJ-45 to COM Port Cable

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

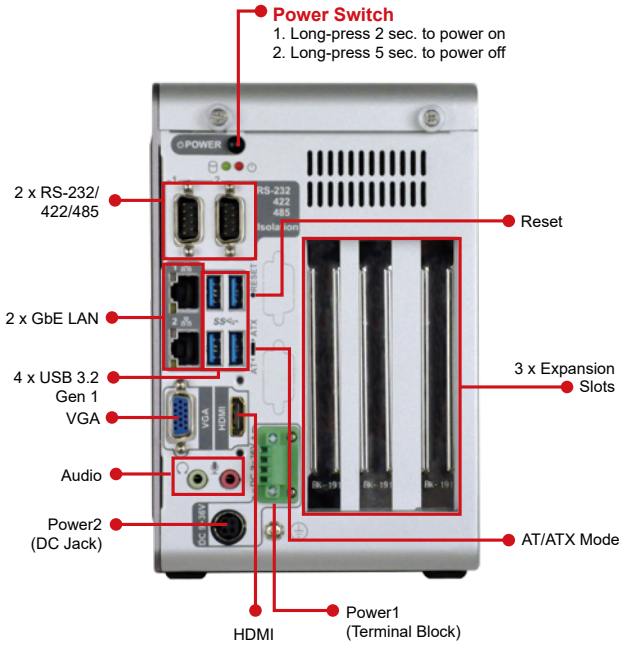
Specifications

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™ i5-6500TE 2.3 GHz (up to 3.3 GHz, quad-core, TDP 35)
	Chipset	Intel® H110
	System Memory	2 x SO-DIMM DDR4 2133 (4GB pre-installed)(up to 32GB)
Storage	Hard Drive	2 x 2.5" SATA 6Gb/s HDD/SSD bay
I/O Interfaces	USB	4 x USB 3.2 Gen 1
	Ethernet	2 x RJ-45: 2 x GbE by RTL8119I
	COM Port	2 x RS-232/422/485 with AFC (DB-9 with 2.5kV isolation)
	Display	1 x VGA (up to 1920 x 1200@60Hz) 1 x 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/ USB 2.0) 1 x Full-size (PCIe/ USB 2.0/ SATA)
	Backplane	3A: 1 x PCIe x16, 2 x PCI 3B: 1 x PCIe x16, 1 x PCIe x4, 1 x PCI
Power	Power Input	DC Jack: 9 ~ 36V DC Terminal Block: 9 ~ 36V 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	i5-6500TE -20°C ~ 60°C with air flow (SSD), 10% ~ 95% non-condensing
	Storage Temperature	-40ºC ~ 85ºC with air flow (SSD), 5% ~ 90% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)
	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

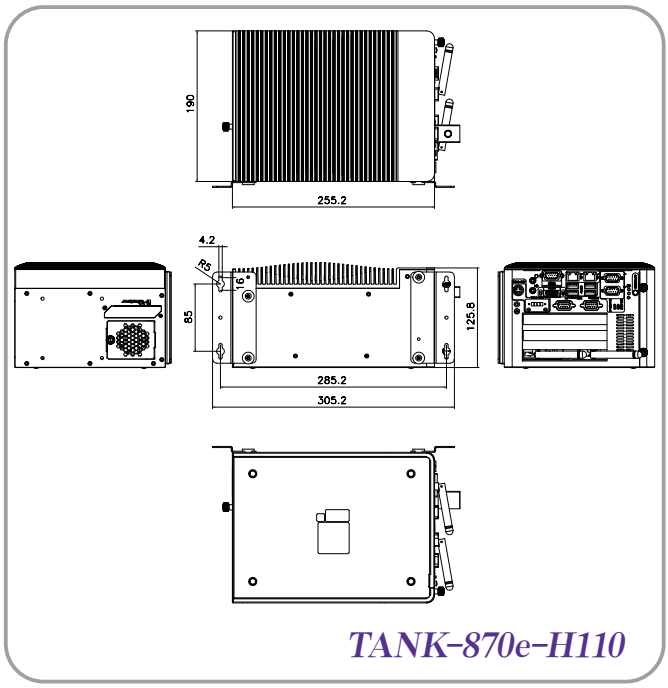
Versatile Expansion Interface

Backplane	3A HPE-3S6		3B HPE-3S7		
Slot	2 x PCI	1 x PCIe x16	1 x PCI	1 x PCIe x4	1 x PCIe x16
Signal	PCI	PCIe x16	PCI	PCIe x1	PCIe x16

Fully Integrated I/O



Dimensions (Unit: mm)



Ordering Information

Part No.	Description
TANK-870e-H110-i5/4G/3A-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 & 2 x PCI expansion, VGA/HDMI, 9 ~ 36V DC, RoHS
TANK-870e-H110-i5/4G/3B-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 PCIe by 1 & 1 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
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-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-610-BW

Fanlesss Embedded System

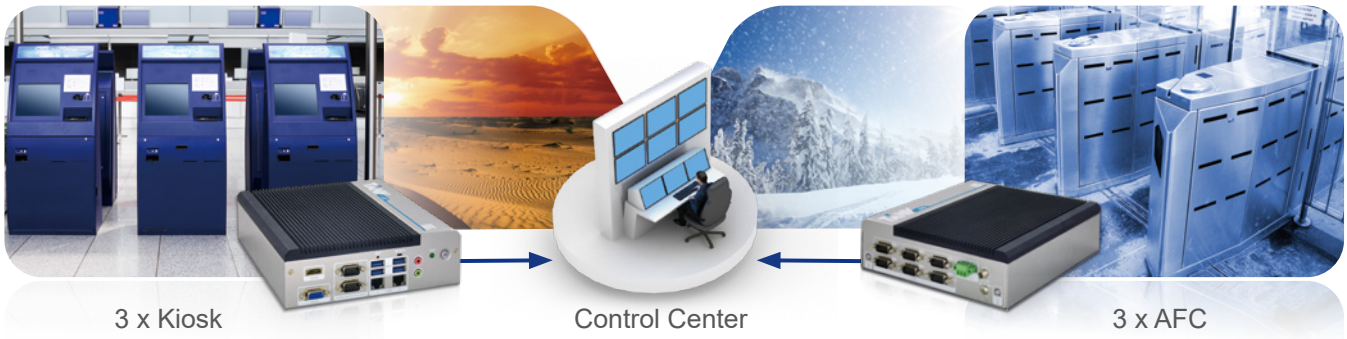
Features

- 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

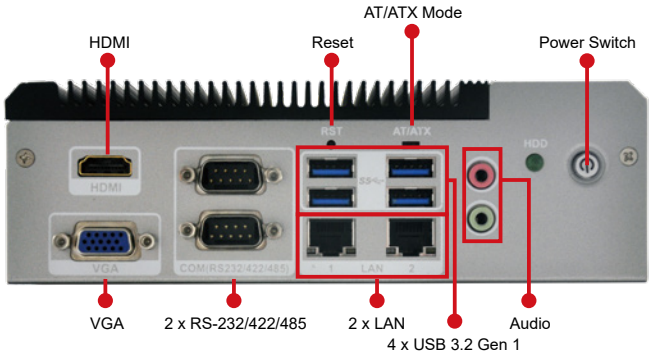
Model Name		TANK-610-BW
Chassis	Color	Black C + Silver
	Dimensions (WxDxH) (mm)	184 x 200.6 x 58.2
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	Intel® Celeron® N3160 1.6 GHz (up to 2.24 GHz, quad-core, TDP 6W)
	Chipset	SoC
	System Memory	2 x DDR3L SO-DIMM (2GB pre-installed)(up to 8GB)
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD Bay
I/O Interfaces	USB	4 x USB 3.2 Gen1
	Ethernet	2 x RJ-45: 2 x GbE by Intel® I210
	COM Port	2 x RS-232/422/485 with AFC 6 x RS-232
	Display	1 x VGA (up to 1920 x 1200@60Hz) 1 x 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 Half-size (PCIe/USB 2.0) 1 x Full-size (PCIe/SATA)
Power	Power Input	DC Jack: 9 ~ 36V DC Terminal Block: 9 ~ 36V 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 with air flow (SSD), 10% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (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

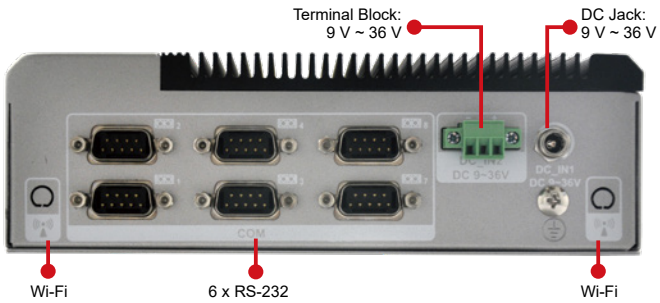


Fully Integrated I/O

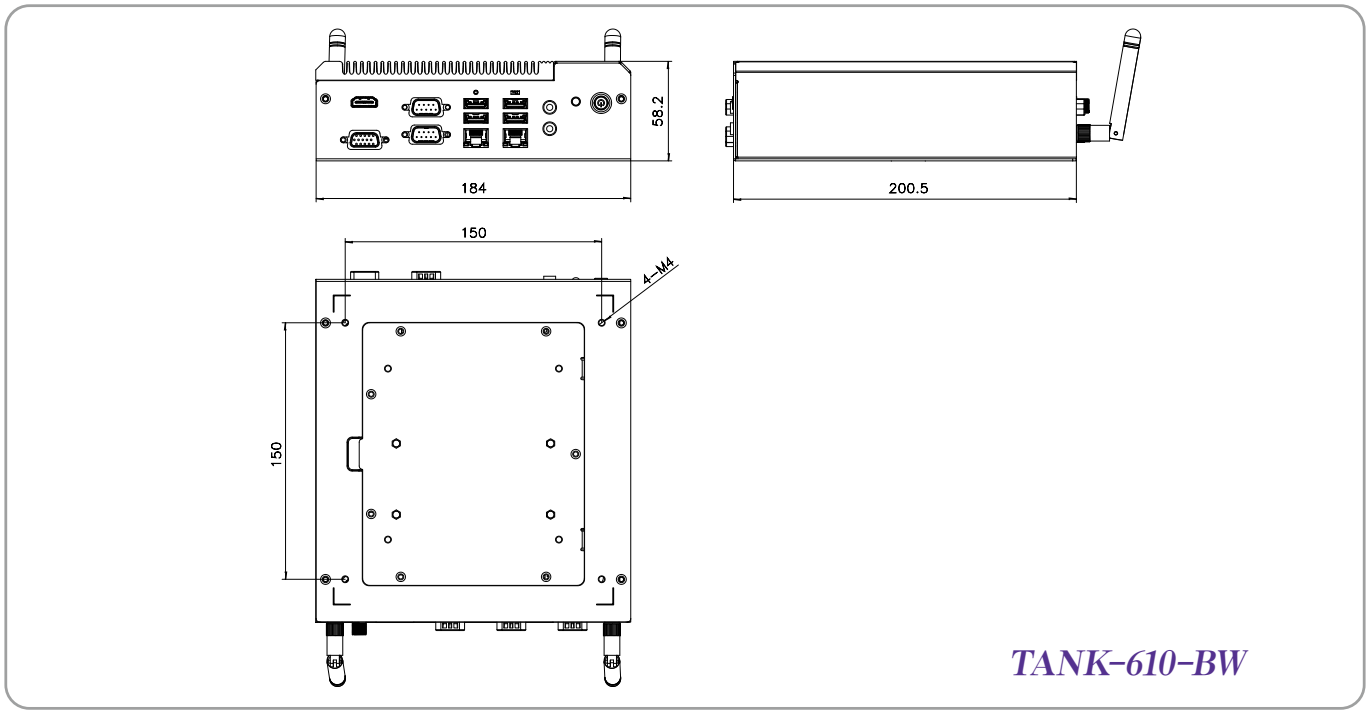
Front View



Rear View



Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
TANK-610-BW-N3/2G-R10	Fanless wide temperature embedded system with Intel® Celeron® N3160 1.6 GHz, (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

Preliminary

Preliminary

New

	Model Name	DRPC-W-TGL-U	DRPC-W-JL	DRPC-W-EHL
Chassis	Color	Black		
	Dimensions (WxDxH)(mm)	176 x 116 x 67.8	176 x 116 x 60.8	
	System Fan	Fanless		
	Chassis Construction	Extruded aluminum alloys		
Motherboard	CPU	Intel® Core™ i7-1185G7E 1.8 GHz (up to 4.4 GHz, quad-core, TDP 15W) Intel® Core™ i5-1145G7E 1.5 GHz (up to 4.1 GHz, quad-core, TDP 15W) Intel® Core™ i3-1115G4E 2.2 GHz (up to 3.9 GHz, dual-core, TDP 15W) Intel® Celeron® 6305 1.8 GHz (dual-core, TDP 15W)	Intel® Jasper Lake Celeron® N5105 2.0 GHz (up to 2.9 GHz, quad-core, TDP=10W)	Intel® Atom® 6000 series (Elkhart Lake platform) Intel® Celeron® J6412 2.0 GHz (up to 2.6 GHz, quad-core, TDP=10W)
	Chipset	SoC		
	System Memory	1 x DDR4 3200 MHz SO-DIMM (up to 32GB)	1 x DDR4 2933 MHz SO-DIMM (up to 16GB)	Onboard LPDDR4 8G (up to 16GB)
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD bay		
	eMMC	N/A	N/A	N/A
	Micro SD	N/A	N/A	N/A
I/O Interfaces	USB	4 x USB 3.2	2 x USB 3.2	2 x USB 3.2
	Ethernet	3 x 2.5GbE	3 x 2.5GbE	2 x 2.5GbE
	COM Port	2 x RS-232/422/485 (optional)	2 x RS-232 (optional)	2 x RS-232/422/485 (optional)
	Digital I/O	1 x 12-bit digital I/O (optional)		
	Display	1 x DP, 2 x HDMI	1 x DP, 1 x HDMI	1 x DP, 1 x HDMI
	Wireless	Optional		
	TPM	Intel PTT		
	Other	1 x Power button, 1 x Reset button, 1 x Power LED, 1 x HDD LED, 1 x System fan connector		
Expansions	PCIe Mini	N/A	N/A	N/A
	M.2	1 x M.2 2230 A key slot for Wi-Fi & BT 1 x M.2 2242/3052 B key slot for 5G (PCIe x2) 1 x M.2 2240/3040 B key slot (only for IEI M.2 eDP/LVDS module)	1 x M.2 2230 A key slot 1 x M.2 3042/2280 B key slot for 5G, w/ SIM slot (PCIe)	1 x M.2 2230 A key slot for Wi-Fi & BT 1 x M.2 2242/3052 B key slot for 5G (PCIe x2) 1 x M.2 2240/3040 B key slot (only for IEI M.2 eDP/LVDS module)
	Backplane	N/A	N/A	N/A
Power	Power Input	12V DC		
	Power Consumption	12V@4.1A (Intel® i5-1145G7E with 8GB DDR4 memory)	12V@2.45A (Intel® N5105 with 16GB DDR4 memory)	12V@2.5A (Intel® J6412 with 4GB DDR4 memory)
	Remote PWR	N/A	N/A	N/A
Reliability	Mounting	DIN-Rail		
	Operating Temperature	-20°C ~ 60°C with airflow, 10% ~ 95% non-condensing		
	Storage Temperature	-30°C ~ 85°C, 10% ~ 95% non-condensing		
	Operating Shock	Half-sine wave shock 5G, 11ms, 3 shocks per axis		
	Operating Vibration	MIL-STD-810F 514.5C-2		
	Weight (Net/ Gross)	0.98/1.2 kg	0.91/1.16 kg	0.92/1.16 kg
	Safety/EMC	CE/ FCC		
	Watchdog Timer	Programmable 1 ~ 255 sec/min		
OS	Supported OS	Microsoft® Windows 10 / 11, Linux		

DIN-Rail Embedded System

New

	Model Name	DRPC-240-TGL-U	DRPC-230-ULT5
Chassis	Color	Black	Black & Silver
	Dimensions (WxDxH)(mm)	81 x 150 x 190	Non-slot: 81 x 150 x 190 One-slot: 127 x 150 x 190
	System Fan	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloy	Extruded aluminum alloy
Motherboard	CPU	Intel® Celeron® 6305 1.8 GHz (dual-core, TDP 15W) Intel® Core™ i5-1145G7E 1.5 GHz (up to 4.1 GHz, quad-core, TDP 15W) Intel® Core™ i7-1185G7E 1.8 GHz (up to 4.4 GHz, quad-core, TDP 15W)	Intel® Core™ i5-8365UE 1.6 GHz (up to 4.1 GHz, quad-core, TDP 15W) Intel® Celeron® 4205U 1.8 GHz (dual-core, TDP 15W)
	Chipset	SoC	SoC
	System Memory	2 x SO-DIMM DDR4 3200 MHz (8 GB pre-installed) (up to 64GB) Support in-band ECC	2 x SO-DIMM DDR4 2400 MHz (8GB pre-installed) (up to 64GB)
Storage	Hard Drive	1 x 2.5'' SATA 6Gb/s HDD/SSD bay	1 x 2.5" SATA 6Gb/s HDD/SSD bay
	eMMC	N/A	N/A
	Micro SD	N/A	N/A
I/O Interfaces	USB	2 x USB 3.2 Gen 2 2 x USB 2.0	i5 model: 6 x USB 3.2 Gen 2 Celeron model: 4 x USB 3.2 Gen 2, 2 x USB 2.0
	Ethernet	4 x RJ-45: 1 x 2.5 GbE by Intel® I225LM 3 x 2.5 GbE by Intel® I225V (colay I225LM) * Support optional PoE af module	3 x RJ-45: 1 x GbE by Intel® I219 2 x GbE by Intel® I210
	COM Port	2 x RS-422/485 with AFC (DB-9, with 2.5kV isolation) 2 x RS-232 (DB-9, with 2.5kV isolation)	4 x RS-232/422/485 with AFC (DB9) 2 x RS-232 (RJ-45)
	Digital I/O	12-bit Digital I/O (6-in/ 6-out)	8-bit Digital I/O (4-in/ 4-out)(pin header)
	Display	1 x HDMI (up to 3840 x 2160@30Hz) 1 x DP++ (up to 4096 x 2304@60Hz)	1 x HDMI (up to 3840 x 2160@30Hz) 1 x DP (up to 4096 x 2304@60Hz)
	Wireless	1 x 802.11a/b/g/n/ac (optional)	1 x 802.11a/b/g/n/ac (optional)
	TPM	Support Intel PTT	1 x TPM 2.0 (2 x 10 pin)(optional)
	Other	1 x Power button, 1 x Reset button, 1 x AT/ATX switch, 1 x Power LED (green), 1 x HDD LED (yellow), 4-pin external system fan connector	1 x Power button, 1 x Reset button, 1 x AT/ATX switch, 1 x Power LED (green), 1 x HDD LED (yellow)
Expansions	PCIe Mini	N/A	1 x Full-size with SIM card slot (PCIe/USB 3.0/SATA)
	M.2	1 x 2230 A-key (PCIe x1/USB 2.0) 1 x 3042/52/80 B-key (PCIe x2/USB 3.0/USB 2.0)	i5 model: 1 x 2230 A-key (PCIe x1/USB 2.0) Celeron model: 1 x 2230 A-key (PCIe x1)
	Backplane	1 x PCIe Gen 3 x4	One-slot: 1 x PCIe Gen 3 x4, 1 x USB 2.0
Power	Power Input	Terminal block: 12 ~ 28V DC	Terminal block: 12 ~ 24V DC
	Power Consumption	12V @ 6.98A (Intel® Core™ i5-1145G7E with 8GB memory)	12V @ 4.98A (Intel® Core™ i5-8365UE with 8GB memory)
	Remote PWR	N/A	N/A
Reliability	Mounting	DIN-Rail	DIN-Rail
	Operating Temperature	-20°C ~ 60°C with air flow (SSD), 10% ~ 95% non-condensing	-20°C ~ 60°C with air flow, 10% ~ 95% non-condensing
	Storage Temperature	-40°C ~ 85°C, 10% ~ 95% non-condensing	-40°C ~ 85°C with air flow (SSD), 10% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)	MIL-STD-810G 514.6C-1 (SSD)
	Weight (Net/ Gross)	2.15/ 2.5 kg	Non-slot: 2.9 kg/ 3.2 kg One-slot: 3.2 kg/ 3.5 kg
	Safety/EMC	CE/ FCC	CE/ FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft Windows 10 / Windows 11, Linux	Microsoft Windows 10 / Windows 11, Linux

DIN-Rail Embedded System

	Model Name	DRPC-130-AL	DRPC-120-BT
Chassis	Color	Black	Black
	Dimensions (WxDxH) (mm)	58.75 x 130 x 174	74.08 x 140 x 171.5
	System Fan	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloy	Extruded aluminum alloy
Motherboard	CPU	Intel® Atom® x5-E3930 1.3 GHz (up to 1.8 GHz, dual-core, TDP 6.5W)	Intel® Atom® E3845 1.91 GHz (quad-core, TDP 10W)
	Chipset	SoC	SoC
	System Memory	1 x SO-DIMM DDR3L 1333/1600 (4GB pre-installed) (up to 8GB)	1 x SO-DIMM DDR3L 1066 (2GB pre-installed) (up to 8GB)
IPMI	iRIS Solution	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 3Gb/s HDD/SSD bay
	eMMC	1 x eMMC 5.0 (optional, up to 32GB)	N/A
I/O Interfaces	USB	4 x USB 3.2 Gen 1	2 x USB 3.2 Gen 1 2 x USB 2.0
	Ethernet	2 x RJ-45: 2 x GbE by Intel® I211	2 x RJ-45: 1 x GbE by Intel® I211 1 x GbE by Intel® I210
	COM Port	4 x RS-232/422/485 with AFC (DB9)	2 x RS-232/422/485 with AFC (DB9 with 3kV isolation) 2 x RS-232 (DB9 with 3kV isolation)
	Digital I/O	8-bit Digital I/O (4-in/ 4-out)	8-bit Digital I/O (4-in/ 4-out)
	CAN-bus	1 x Port support two CAN-bus (DB9 with 2.5kV isolation)	N/A
	Display	2 x HDMI (up to 3840 x 2160@30Hz)	1 x HDMI (up to 1920 x 1200@60Hz) 1 x VGA (up to 1920 x 1200@60Hz)
	Wireless	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)	N/A
	Motor Connector	N/A	N/A
	Other	1 x Power button, 1 x Reset button, 1 x AT/ATX switch, 1 x Power LED (green), 1 x HDD LED (yellow)	1 x Power button, 1 x Reset button, 1 x AT/ATX switch
Expansions	PCIe Mini	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	N/A	N/A
Power	Power Input	Terminal block: 12 ~ 24V DC	Terminal block: 9 ~ 30V DC
	Power Consumption	12V @ 2.88 A (Intel® Atom® x5-E3930 with 4GB memory)	12V @ 2.1 A (Intel® Atom® E3845 with 2GB memory)
	Remote PWR	Terminal block: PSON	N/A
Reliability	Mounting	DIN-Rail	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
	Storage Temperature	-40°C ~ 85°C with air flow (SSD), 10% ~ 95% non-condensing	-40°C ~ 85°C with air flow (SSD), 10% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)	MIL-STD-810G 514.6C-1 (SSD)
	Weight (Net/ Gross)	1.4 kg/ 2.5 kg	1.4 kg/ 2.5 kg
	Safety/EMC	CE/ FCC	CE/ FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft® Windows 10, Linux	Microsoft® 8, Microsoft® Windows® Embedded Standard 7 E

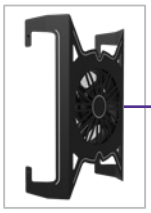
DRPC-W-TGL-U

- *Fanless DIN-Rail Embedded System*
- *Tiger Lake 11th Gen Intel® Celeron™ Solution (up to 4 cores)*

Preliminary

Features

- Supported CPU:
  Intel® Core™ i7-1185G7E 1.8 GHz (up to 4.4 GHz, quad-core, TDP 15W)
  Intel® Core™ i5-1145G7E 1.5 GHz (up to 4.1 GHz, quad-core, TDP 15W)
  Intel® Core™ i3-1115G4E 2.2 GHz (up to 3.9 GHz, dual-core, TDP 15W)
  Intel® Celeron™ 6305 1.8 GHz (dual-core, TDP 15W)
- Support dual independent display
- 2 x 2.5GbE ports
- 1 x M.2 A Key
- 1 x M.2 B Key (with SIM card slot)



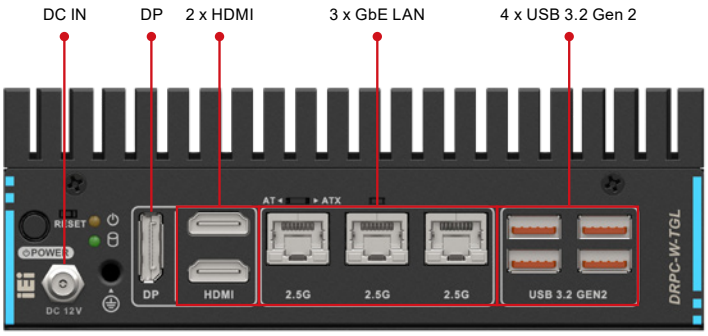
External fan module

Specifications

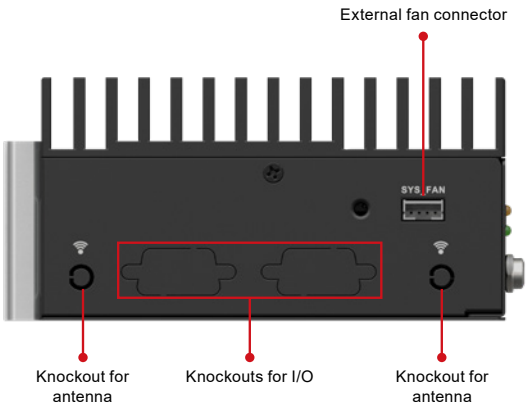
Model Name		DRPC-W-TGL-U-i7C-R10	DRPC-W-TGL-U-I5C-R10	DRPC-W-TGL-U-i3C-R10	DRPC-W-TGL-U-CC-R10
Chassis	Color	Black			
	Dimensions (WxDxH) (mm)	176 x 116 x 67.8			
	System Fan	Fanless			
	Chassis Construction	Extruded aluminum alloys			
Motherboard	CPU	Intel® Core™ i7-1185G7E 1.8 GHz (up to 4.4 GHz, quad-core, TDP 15W)	Intel® Core™ i5-1145G7E 1.5 GHz (up to 4.1 GHz, quad-core, TDP 15W)	Intel® Core™ i3-1115G4E 2.2 GHz (up to 3.9 GHz, dual-core, TDP 15W)	Intel® Celeron™ 6305 1.8 GHz (dual-core, TDP 15W)
	Chipset	SoC			
	Memory	1x DDR4 3200MHz SO-DIMM (pre-installed 8GB) (up to 32GB)			
Storage	HDD Bay	1 x 2.5" SATA 6Gb/s HDD bay			
IO Interfaces	USB	4 x USB 3.2			
	LAN	3 x 2.5GbE			
	Display	1 x DP, 2 x HDMI			
	Others	1 x Power button, 1 x Reset button, 1 x Power LED, 1 x HDD LED, 1 x System fan connector			
Internal Expansions	PCIe Mini	N/A			
	M.2	1 x M.2 A Key 2230 for WIFI & BT (optional) 1 x M.2 B Key (PCIe x2) 3042/3052 w/SIM slot for 5G (optional)			
Power	Power Input	12V DC			
	Power Consumption	12V@4.1A (Intel i5-1145G7E With 8GB DDR4 Memory)			
Reliability	Mounting	DIN-Rail			
	Operating Temperature	-20°C ~ 60°C with airflow, 10% ~ 95% non-condensing			
	Storage Temperature	-30°C ~ 85°C, 10% ~ 95% non-condensing			
	Operating Shock	Half-sine wave shock 5G, 11ms, 3 shocks per axis			
	Operating Vibration	MIL-STD-810F 514.5C-2			
	Weight (Net/Gross)	0.98/1.2 Kg			
	Safety/EMC	CE/FCC			
	Watchdog Timer	Programmable 1 ~ 255 sec/min			
OS	Supported OS	Microsoft® Windows 10 / 11, Linux			

Fully Integrated I/O

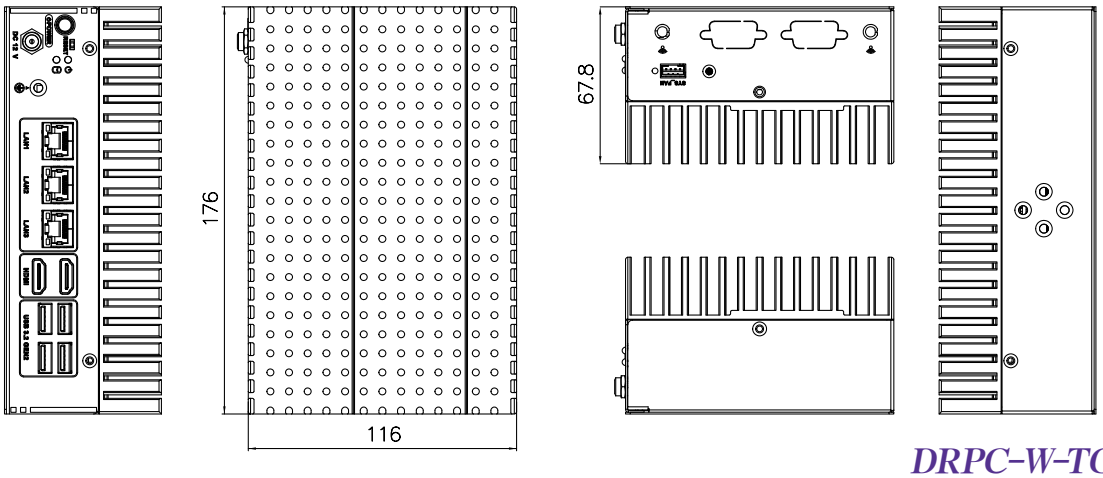
Front View



Top View



Dimensions *(Unit: mm)*



DRPC-W-TGL-U

Ordering Information

Part No.	Description
DRPC-W-TGL-U-CC-R10	Fanless System with Intel® Tiger Lake-U Celeron™6305 1.8 GHz (dual core, TDP 15W), 3 x 2.5GbE Lan, 1 x HDMI, 1 x DP, 8GB memory pre-installed, 12V DC, RoHS
DRPC-W-TGL-U-i3C-R10	Fanless System with Intel® Core™ Tiger Lake-U i3-1115G4E 2.2 GHz(quad core, TDP 15W), 3 x 2.5GbE Lan, 1 x HDMI, 1 x DP, 8GB memory pre-installed, 12V DC, RoHS
DRPC-W-TGL-U-I5C-R10	Fanless System with Intel® Core™ i5-1145G7E up to 4.1 GHz TDP 28/15/12W, 3 x 2.5GbE Lan, 1 x HDMI, 1 x DP, 8GB memory pre-installed, 12V DC, RoHS
DRPC-W-TGL-U-i7C-R10	Fanless System with Intel® Tiger Lake-U i7-1185G7E 1.8 GHz (quad core, TDP 15W), 3 x 2.5GbE Lan, 1 x HDMI, 1 x DP, 8GB memory pre-installed, 12V DC, RoHS

Options

Item	Part No.	Description
Adapter	63040-010060-211-RS	Adapter Power;FSP;FSP060-DHAN3;9NA0608097;;Vin:90~264VAC;60W;Dim:62.0*110*31.5mm;Plug=7.5mm;Cable=1 200mm;Erp(NO LOAD 0.21W);Vout:12VDC;Φ2.5/Φ5.5/lock;CCL;RoHS
Wifi Kit	EMB-WIFI-KIT02I3-R10	2T2R M.2 wifi module kit for embedded system, IEEEE802.11a/b/g/n/ac/ax, 1 x M.2 AE Key Wireless LAN & Bluetooth 5.2;Intel;AX210.NGWG Module, 2 x RF cable, 2 x Antenna; RoHs
Fan Kit	SF-DRPC-W-R10	External fan for DRPC-W Series
COM Cable	32205-002700-200-RS	FLAT CABLE;RS-232/422/485;RS-232 CABLE;2;200MM;28AWG;300V;(A)D-SUB 9P MALE;(B)DU PONT 2*5P P=2.0 FEAMLE;;;;;;;;ONE PCS PKG W/ LABEL;32200-000049-RS SUBSTITUTE;;;Wins Precision;RoHS

Packing List

1 x DIN-rail mounting kit	1 x Screw pack	1 x SATA cable with power cable

DRPC-W-JL

- *Fanless DIN-Rail Embedded System*
- *Jasper Lake Intel® Celeron™ Solution (up to 4 cores)*

New

Features

- Supported CPU:
  Intel® N5105 2.0 GHz (up to 2.9 GHz, quad-core, TDP 10W)
- Support dual independent display
- 3 x 2.5GbE ports
- 1 x M.2 A Key
- 1 x M.2 B Key (with SIM card slot)

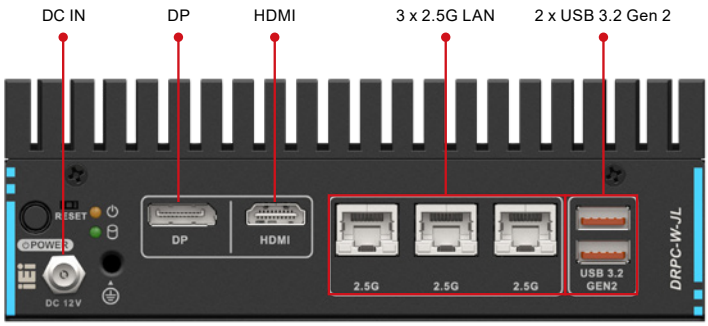
External fan module

Specifications

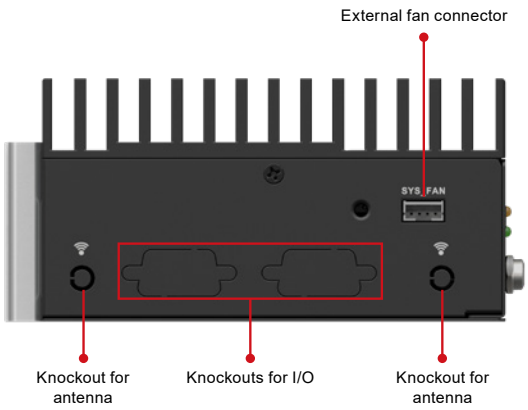
Model Name		DRPC-W-JL
Chassis	Color	Black
	Dimensions (WxDxH) (mm)	176 x 116 x 60.8
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloys
Motherboard	CPU	Intel® Celeron® N5105 2.0 GHz (up to 2.9 GHz, quad-core, TDP 10W)
	Chipset	SoC
	Memory	1 x DDR4 2933 MHz SO-DIMM (pre-installed 8GB) (up to 16GB)
Storage	HDD Bay	1 x 2.5" SATA 6Gb/s HDD bay
IO Interfaces	USB	2 x USB 3.2
	LAN	3 x 2.5GbE
	Display	1 x DP 1 x HDMI
	Others	1 x Power button, 1 x Reset button, 1 x Power LED, 1 x HDD LED, 1 x System fan connector
Internal Expansions	PCIe Mini	N/A
	M.2	1 x M.2 A Key 2230 for WIFI & BT (optional) 1 x M.2 B Key (PCIe x2) 2242/2280 w/SIM slot for 5G (optional)
Power	Power Input	12V DC
	Power Consumption	12V@2.45A (Intel N5105 with 16GB DDR4 memory)
Reliability	Mounting	DIN-Rail
	Operating Temperature	-20°C ~ 60°C with airflow, 10% ~ 95% non-condensing
	Storage Temperature	-30°C ~ 85°C, 10% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 3 shocks per axis
	Operating Vibration	MIL-STD-810F 514.5C-2
	Weight (Net/Gross)	0.91/1.16 kg
	Safety/EMC	CE/FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft® Windows 10 / 11, Linux

Fully Integrated I/O

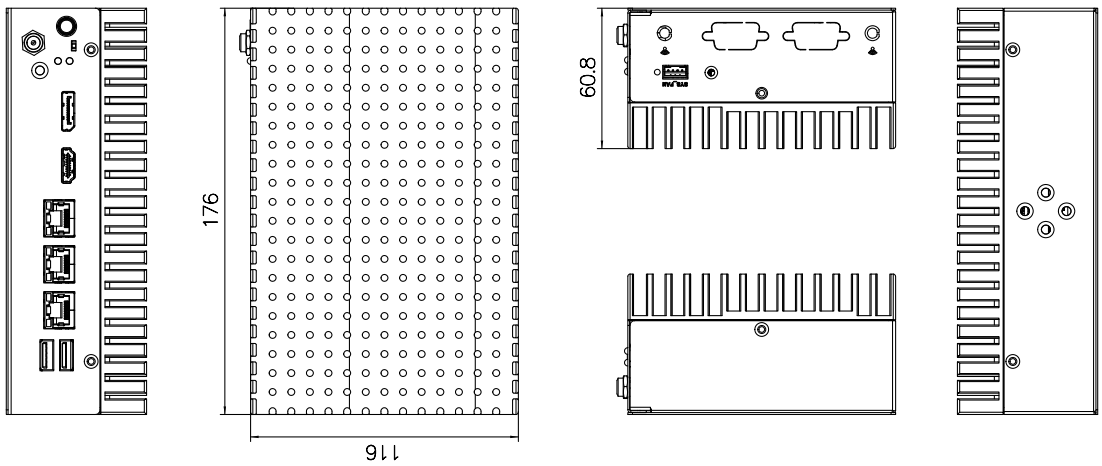
Front View



Top View



Dimensions *(Unit: mm)*



DRPC-W-JL

Ordering Information

Part No.	Description
DRPC-W-JL-NC-R10	Fanless System with Intel® Celeron™ N5105 up to 2.9 GHz TDP 10W, 3 x 2.5GbE Lan, 1 x HDMI, 1 x DP, 8GB memory pre-installed, 12V DC, RoHS

Options

Item	Part No.	Description
Adapter	63040-010060-211-RS	Adapter Power;FSP;FSP060-DHAN3;9NA0608097;;Vin:90~264VAC;60W;Dim:62.0*110*31.5mm;Plug=7.5mm;Cable=1 200mm;Erp(NO LOAD 0.21W);Vout:12VDC;Φ2.5/Φ5.5/lock;CCL;RoHS
Wifi Kit	EMB-WIFI-KIT02I3-R10	2T2R M.2 wifi module kit for embedded system, IEEEE802.11a/b/g/n/ac/ax, 1 x M.2 AE Key Wireless LAN & Bluetooth 5.2;Intel;AX210.NGWG Module, 2 x RF cable, 2 x Antenna; RoHs
Fan Kit	SF-DRPC-W-R10	External fan for DRPC-W Series
COM Cable	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

Packing List

1 x DIN-rail mounting kit	1 x Screw pack	1 x SATA cable with power cable

DRPC-W-EHL

- *Fanless DIN-Rail Embedded System*
- *Elkhart Lake Intel® Celeron™ Solution (up to 4 cores)*

Preliminary

Features

- Supported CPU:
  Intel® Celeron™ J6412 2.0 GHz (up to 2.6 GHz, quad-core, TDP 10W)
- Support dual independent display
- 2 x 2.5GbE ports
- 1 x M.2 A Key
- 1 x M.2 B Key (with SIM card slot)

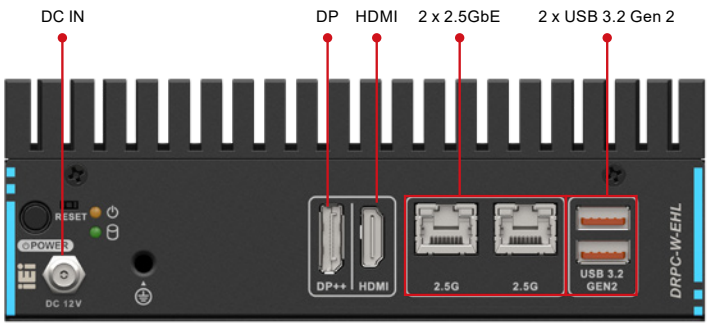
External fan module

Specifications

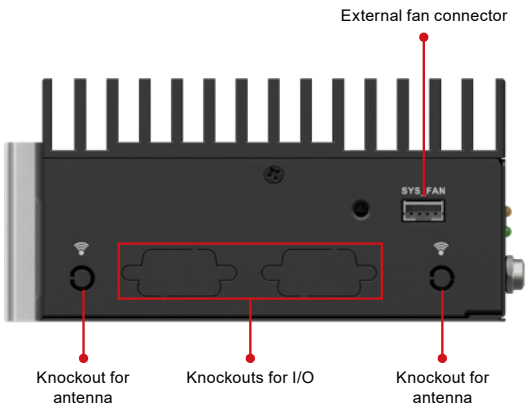
Model Name		DRPC-W-EHL
Chassis	Color	Black
	Dimensions (WxDxH) (mm)	176 x 116 x 60.8
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloys
Motherboard	CPU	Intel® Celeron® J6412 2.0 GHz (up to 2.6 GHz, quad-core, TDP 10W)
	Chipset	SoC
	Memory	Onboard LPDDR4X 3200MHz 8G (up to 16GB)
Storage	HDD Bay	1 x 2.5" SATA 6Gb/s HDD bay
IO Interfaces	USB	2 x USB 3.2
	LAN	2 x 2.5GbE
	Display	1 x DP 1 x HDMI
	Others	1 x Power button, 1 x Reset button, 1 x Power LED, 1 x HDD LED, 1 x System fan connector
Internal Expansions	PCIe Mini	N/A
	M.2	1 x M.2 A Key 2230 for WIFI & BT (optional) 1 x M.2 B Key (PCIe x2) 3042 w/SIM slot for 5G (optional)
Power	Power Input	12V DC
	Power Consumption	12V@2.5A (Intel J6412 With 4GB DDR4 Memory)
Reliability	Mounting	DIN-Rail
	Operating Temperature	-20°C ~ 60°C with airflow, 10% ~ 95% non-condensing
	Storage Temperature	-30°C ~ 85°C, 10% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 3 shocks per axis
	Operating Vibration	MIL-STD-810F 514.5C-2
	Weight (Net/Gross)	0.92/1.16 Kg
	Safety/EMC	CE/FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min

Fully Integrated I/O

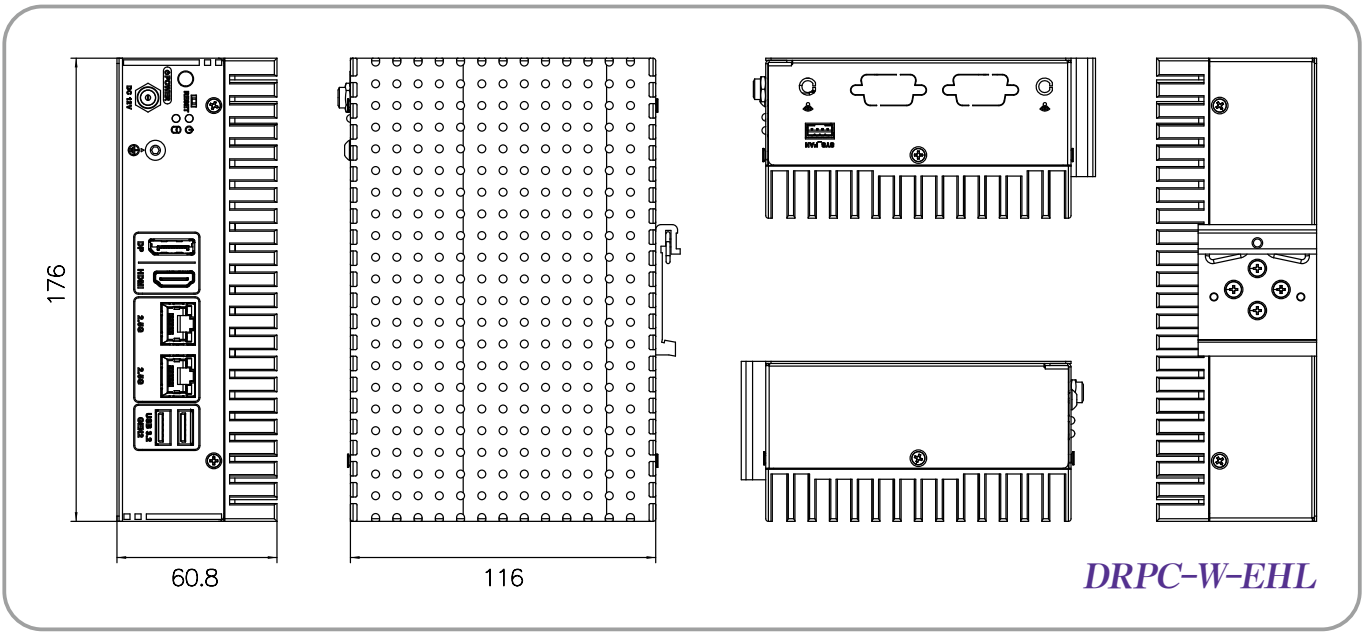
Front View



Top View



Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
DRPC-W-EHL-JC-R10	Fanless System with Intel® Celeron® J6412 up to 2.6 GHz TDP 10W, 2 x 2.5GbE Lan, 1 x HDMI, 1 x DP, 1 x 2.5" SATA HDD bay, 8GB memory pre-installed, 12V DC, RoHS

Options

Item	Part No.	Description
Adapter	63040-010060-211-RS	Adapter Power;FSP;FSP060-DHAN3;9NA0608097;;Vin:90~264VAC;60W;Dim:62.0*110*31.5mm;Plug=7.5mm;Cable=1 200mm;Erp(NO LOAD 0.21W);Vout:12VDC;Φ2.5/Φ5.5/lock;CCL;RoHS
Wifi Kit	EMB-WIFI-KIT02I3-R10	2T2R M.2 wifi module kit for embedded system, IEEEE802.11a/b/g/n/ac/ax, 1 x M.2 AE Key Wireless LAN & Bluetooth 5.2;Intel;AX210.NGWG Module, 2 x RF cable, 2 x Antenna; RoHs
Fan Kit	SF-DRPC-W-R10	External fan for DRPC-W Series
COM Cable	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

Packing List

1 x DIN-rail mounting kit	1 x Screw pack	1 x SATA cable with power cable

DRPC-240-TGL-U

- *Fanless DIN-Rail Embedded System*
- *Tiger Lake 11th Gen Intel® Core™ Solution (up to 4 cores)*

New

Features

- Supported CPUs:
  Intel® Celeron® 6305 1.8 GHz (dual-core, 15W TDP)
  Intel® Core™ i5-1145G7E 1.5 GHz (up to 4.1 GHz, quad-core, 15W TDP)
  Intel® Core™ i7-1185G7E 1.8 GHz (up to 4.4 GHz, quad-core, 15W TDP)
- 4 x 2.5GbE ports, supporting PoE (optional)
- Two RS-232 & two RS-422/485 (with 2.5kV isolation)
- CE/FCC compliant

Specifications

Model Name		DRPC-240-TGL-U-i7CS-R10	DRPC-240-TGL-U-i5CS-R10	DRPC-240-TGL-U-CCS-R10
Chassis	Color	Black		
	Dimensions (WxDxH) (mm)	81 x 150 x 190		
	System Fan	Fanless		
	Chassis Construction	Extruded aluminum alloys		
Motherboard	CPU	Intel® Core™ i7-1185G7E 1.8 GHz (up to 4.4 GHz, quad-core, TDP 15W)	Intel® Core™ i5-1145G7E 1.5 GHz (up to 4.1 GHz, quad-core, TDP 15W)	Intel® Celeron® 6305 1.8 GHz (dual-core, TDP 15W)
	Chipset	SoC		
	BIOS	BIOS		
	Memory	2 x SO-DIMM DDR4 3200 MHz (8 GB pre-installed) (up to 64GB) Support in-band ECC		
Storage	HDD Bay	1 x 2.5" SATA 6Gb/s HDD/SSD bay		
I/O Interfaces	USB	2 x USB 3.2 Gen 2 2 x USB 2.0		
	Ethernet	4 x RJ-45: 1 x 2.5GbE by Intel® I225LM 3 x 2.5GbE by Intel® I225V (colay I225LM) * Support optional PoE af module		
	Port	2 x RS-422/485 with AFC (DB-9, with 2.5kV isolation) 2 x RS-232 (DB-9, with 2.5kV isolation)		
	Digital I/O	12-bit Digital I/O (6-in/ 6-out)		
	Display	1 x HDMI (up to 3840 x 2160@30Hz) 1 x DP++ (up to 4096 x 2304@60Hz)		
	Wireless	1 x 802.11a/b/g/n/ac (optional)		
	TPM	Support Intel PTT		
	Others	1 x Power button, 1 x Reset button, 1 x AT/ATX switch, 1 x Power LED (green), 1 x HDD LED (yellow), 4-pin external system fan connector		
Expansions	M.2	1 x 2230 A-key (PCIe x1/USB 2.0) 1 x 3042/52/80 B-key (PCIe x2/USB 3.0/USB 2.0)		
	Backplane	1 x PCIe Gen 3 x4 (optional)		
Power	Power Input	Terminal block: 12 ~ 28V DC		
	Power Consumption	12V @ 6.98A (Intel® Core™ i5-1145G7E with 8GB memory)		
Reliability	Mounting	DIN-Rail		
	Operating Temperature	-20°C ~ 60°C with air flow (SSD), 10% ~ 95% non-condensing		
	Storage Temperature	-40°C ~ 85°C, 10% ~ 95% non-condensing		
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)		
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)		
	Weight (Net/Gross)	2.15/2.5 kg		
	Safety/EMC	CE/ FCC		
	Watchdog Timer	Programmable 1 ~ 255 sec/min		
OS	Supported OS	Microsoft® Windows 10 / Windows 11, Linux		

Built-in 11th Gen Intel® CPU

It is powered by 11th Gen Intel® Core™ i7/i5 or Celeron® processor (FCBGA 1449) to unleash optimal performance and multitasking capability.

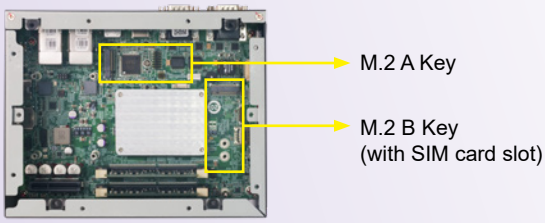
Built-in Intel® I225-LM (V) 2.5GbE Controllers

Four RJ-45 Ethernet ports on the I/O panel through Intel® I225-V GbE controllers provide up to 2.5G network transmission rate, and support optional PoE modules.

USB 3.2 Gen 2 Ports, up to 10Gb/s

Internal M.2 Expansion

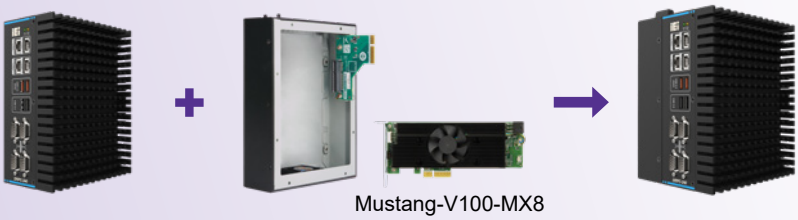
The system motherboard has one M.2 A key slot and one M.2 B key slot. The A key slot supports Wi-Fi or Bluetooth expansion; the B key slot (with SIM card holder) can support 4G modules or accelerator cards.



Optional PoE Module

Support Chassis Expansion

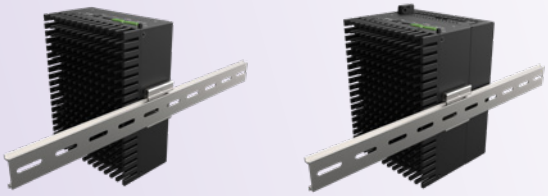
The expansion chassis provides one PCIe x4 slot for IEI Mustang accelerator card.



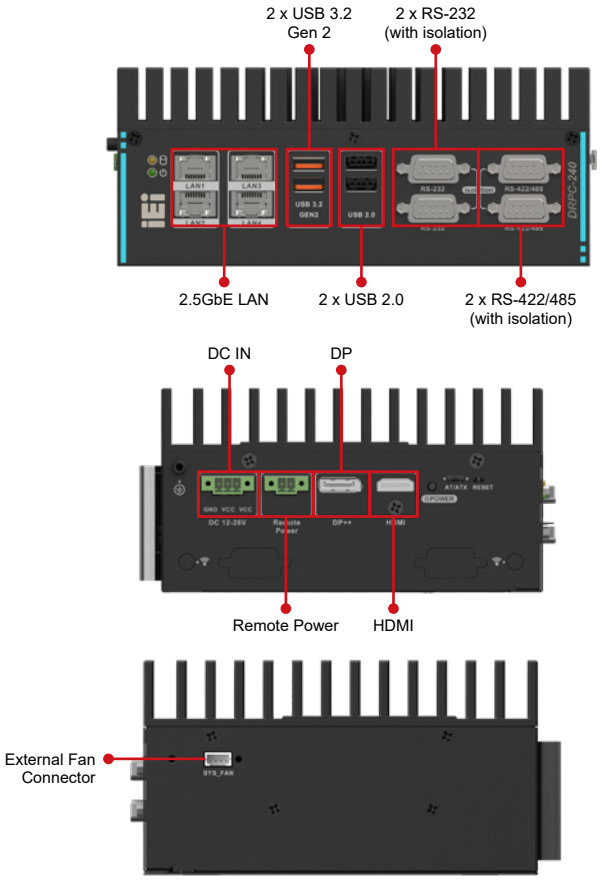
External Fan

Installing an external fan helps to increase system performance in harsh environment.

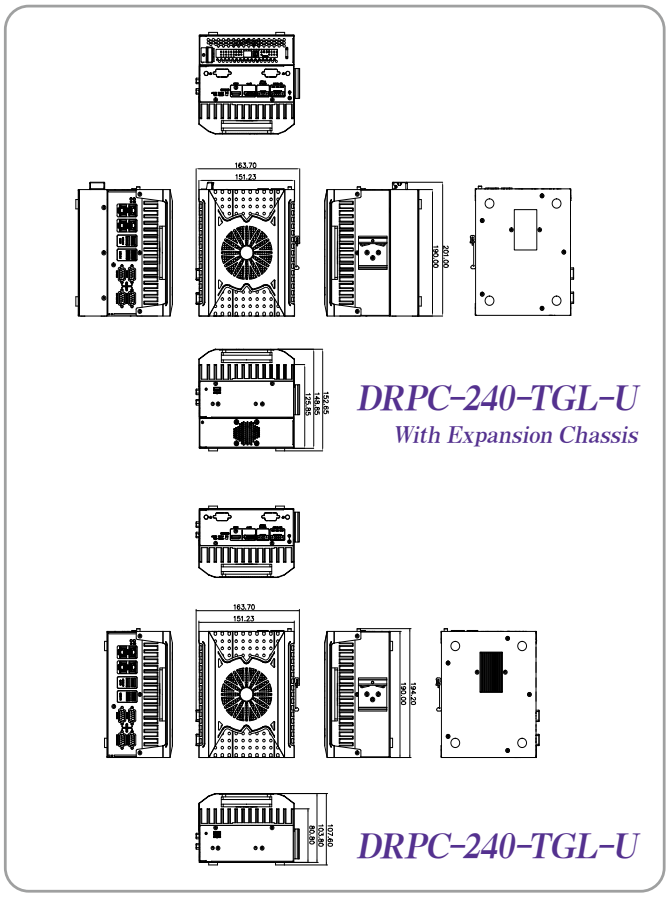
Support DIN-rail Mount



Fully Integrated I/O



Dimensions (Unit: mm)



Ordering Information

Part No.	Description
DRPC-240-TGL-U-CCS-R10	Fanless embedded system, Intel® Tiger Lake-U Celeron® 6305 1.8 GHz (dual core, TDP 15W), 8GB DDR4 pre-installed memory, HDMI/DP++, 4 x 2.5GbE LAN, 4 x COM, DIO, 12~28V DC and RoHS
DRPC-240-TGL-U-i5CS-R10	Fanless embedded system, Intel® Tiger Lake-U i5-1145G7E 1.5 GHz (quad core, TDP 15W), 8GB DDR4 pre-installed memory, HDMI/DP++, 4 x 2.5GbE LAN, 4 x COM, DIO, 12~28V DC and RoHS
DRPC-240-TGL-U-i7CS-R10	Fanless embedded system, Intel® Tiger Lake-U i7-1185G7E 1.8 GHz (quad core, TDP 15W), 8GB DDR4 pre-installed memory, HDMI/DP++, 4 x 2.5GbE LAN, 4 x COM, DIO, 12~28V DC and RoHS

Options

Part No.	Description
EMB-WIFI-KIT02I3-R10	2T2R M.2 wifi module kit for embedded system, IEEEE802.11a/b/g/n/ac/ax, 1 x M.2 AE Key Wireless LAN & Bluetooth 5.2;Intel;AX210.NGWG Module, 2 x RF cable, 2 x Antenna; RoHs
GPOE-DRPC-240-R10[1]	PoE power module for DRPC-240 only
SF-DRPC-240-R10	External fan for DRPC-240 only
TXC-DRPC-240-1S-R10	DRPC-240 Series 1 Slot Expansion Chassis with Riser Card
32031-000600-100-RS	ROUND CABLE;DIO CABLE;;2;150mm;28AWG;300V;(A)D-SUB 15P MALE;(B)DU PONT 2*7P P=2.0 FEMALE;Wins Precision;C24210815-0;RoHS
32205-003800-300-RS	FLAT CABLE;RS-232/422/485;RS-422/485 CABLE;2;200MM;28AWG;(A)D-SUB 9PIN MALE;(B)JST PHR-4 P=2.0;ONE PCS PKG W/ LABEL;Wins Precision;RoHS
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
41019-2312C2-00-HF	HOLDER;FAN FILTER BRACKET;NCT processing formation;DRPC-240-ULT6;PAINTING;PMS Black C;41019-2312XX;;NCT(N);SECC;VER:00;CCL;Halogen Free
32102-054800-100-RS	WIRE CABLE;POWER CABLE;;2;200mm;18AWG;300V;(A)POWER DIN 4P FEMALE;(B)TERMINAL BLOCK-3P P=3.5;Wins Precision;C24210816-0;RoHS
63040-010230-000-RS	Adapter Power;FSP;FSP220-ABAN2;9NA2200401;Active PFC;Vin:90~264VAC;220W;Cable=1500mm;Erp(NO LOAD 0.5W);Vout:19VDC;Din 4Pin;CCL;RoHS
63040-010120-300-RS[2]	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
Mustang-V100-MX8-R11[3]	Computing Accelerator Card with 8 x Movidius Myriad X MA2485 VPU, PCIe Gen 2 x4 interface, RoHS

[1] For the PoE module, it is suggested to use a 180W (or above) power adapter (63040-010230-000-RS 220W is recommended).
[2] The power adapter must be used with the 32102-054800-100-RS power cable.
[3] For IEI Mustang accelerator card, it is suggested to use a 180W (or above) power adapter (63040-010230-000-RS 220W is recommended), and the Mustang can only be used in the dual-layer model.

Packing List

1 x DIN-Rail mounting kit	1 x Screw pack	1 x Terminal block

DRPC-230-ULT5

- *Fanless DIN-Rail Embedded System*
- *Whiskey Lake 8th Gen Intel® Core™ Solution (up to 4 cores)*

Features

- Intel® Core™ i5-8365UE/ Celeron® 4305UE Processor
- Triple GbE LAN Ports
- Multiple USB 3.2 Gen 2 (10Gb/s)
- Multiple COM Ports
- Modulized Flexible Expansion

Fanless | Triple LAN | RS-232 /422/485 | M.2 | PCIe Mini Expansion | USB 3.2 Gen 2

aws qualified device | Microsoft Azure Certified

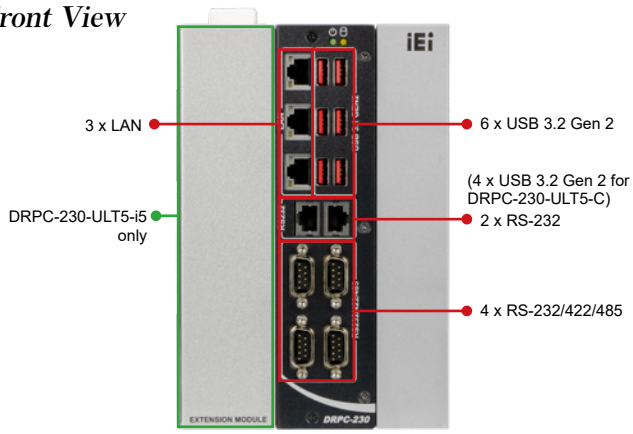
Specifications

Model Name		DRPC-230-ULT5-i5/S	DRPC-230-ULT5-i5	DRPC-230-ULT5-CE/S
Chassis	Color	Black & Silver		
	Dimensions (WxDxH)	81 x 150 x 190	127 x 150 x 190	81 x 150 x 190
	System Fan	Fanless		
	Chassis Construction	Extruded aluminum alloy		
Motherboard	CPU	Intel® Core™ i5-8365UE 1.6 GHz (up to 4.1 GHz, quad-core, TDP 15W)		Intel® Celeron® 4305UE 2 GHz (dual-core, TDP 15W)
	Chipset	SoC		
	System Memory	2 x SO-DIMM DDR4 2400 (8GB pre-installed) (up to 64GB)		
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD bay		
I/O Interfaces	USB	6 x USB 3.2 Gen 2		4 x USB 3.2 Gen 2 2 x USB 2.0
	Ethernet	3 x RJ-45: 1 x GbE by Intel® I219 2 x GbE by Intel® I210		
	COM Port	4 x RS-232/422/485 with AFC (DB9) 2 x RS-232 (RJ-45)		
	Digital I/O	8-bit Digital I/O (4-in/ 4-out)(pin header)		
	Display	1 x HDMI (up to 3840 x 2160@30Hz) 1 x DP (up to 4096 x 2304@60Hz)		
	Wireless	1 x 802.11a/b/g/n/ac (optional)		
	TPM	1 x TPM 2.0 (2 x 10 pin)(optional)		
	Other	1 x Power button, 1 x Reset button, 1 x AT/ATX switch, 1 x Power LED (green), 1 x HDD LED (yellow)		
Expansions	PCIe Mini	1 x Full-size with SIM card slot (PCIe/USB 3.0/SATA)		
	M.2	1 x 2230 A-key (PCIe x1/USB 2.0)		1 x 2230 A-key (PCIe x1)
	Backplane	-	1 x PCIe Gen 3 x4, 1 x USB 2.0	-
Power	Power Input	Terminal block: 12 ~ 24V DC (Reserved internal 40W power with 12V DC output)		
	Power Consumption	12V @ 4.98A (Intel® Core™ i5-8365UE with 8GB memory)		
Reliability	Mounting	DIN-Rail		
	Operating Temperature	-20°C ~ 70°C with air flow (SSD), 10% ~ 95% non-condensing*		
	Storage Temperature	-40°C ~ 85°C with air flow (SSD), 10% ~ 95% non-condensing		
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)		
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)		
	Weight (Net/Gross)	2.9 kg/ 3.2 kg	3.2 kg/ 3.5 kg	2.9 kg/ 3.2 kg
	Safety/EMC	CE/ FCC		
	Watchdog Timer	Programmable 1 ~ 255 sec/min		
OS	Supported OS	Microsoft Windows 10 / Windows 11, Linux		

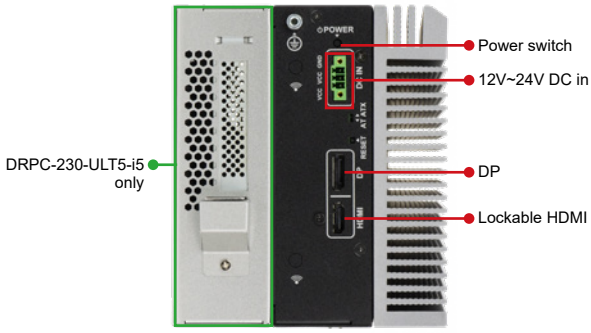
* CPU can remain high performance and run at or above its base frequency without any thermal throttling under 60°C.

Fully Integrated I/O

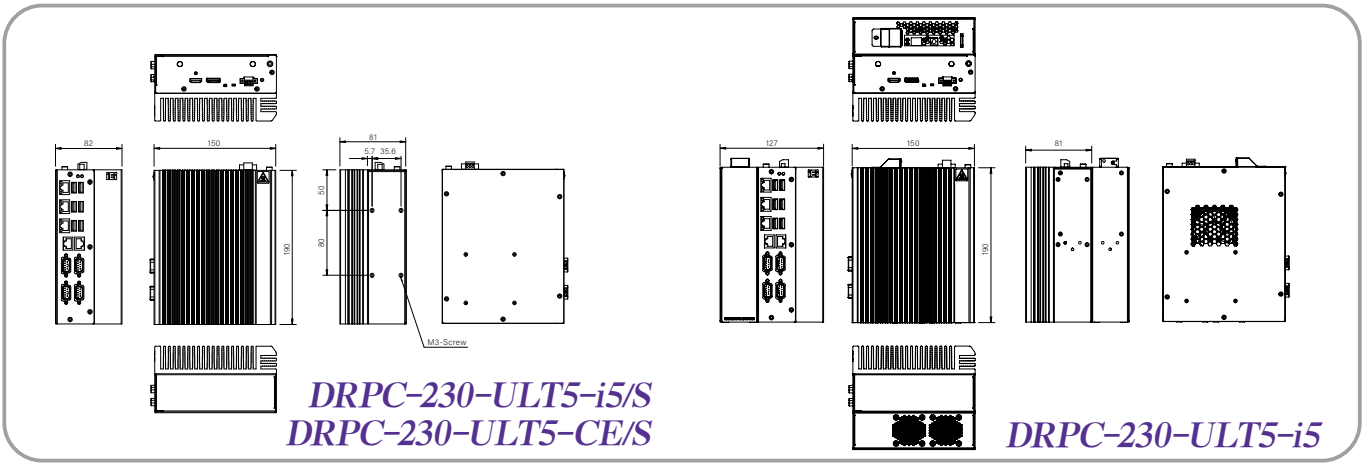
Front View



Top View



Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
DRPC-230-ULT5-i5/8G/S-R11	Fanless embedded system, Intel® Whiskey Lake i5-8365UE 1.6 GHz (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-R11	Fanless embedded system, Intel® Whiskey Lake i5-8365UE 1.6 GHz (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
DRPC-230-ULT5-CE/8G/S-R11	Fanless embedded system, Intel® Whiskey Lake Celeron® 4305UE 2 GHz (dual core, TDP 15W), 8GB DDR4 pre-installed memory, HDMI/DP, 3 PCIe GbE LAN, 6 COM, 12~24V DC and RoHS

Options

Item	Part No.	Description
Adapter[1]	63040-010060-211-RS	Adapter Power;FSP;FSP060-DHAN3;9NA0608097;;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
Adapter[1/2]	63040-010096-230-RS	Adapter Power;FSP;FSP096-AHAN3;9NA0961412 ;Active PFC;Vin:90~264VAC;96W;Dim:75.6 x 151.3 x 25.4mm;Plug=7.5mm;Cable=1500mm;Erp(NO LOAD 0.15W);Vout:12VDC;Φ2.5/Φ5.5/lock;CCL;RoHS
Power cable[1]	32102-026500-100-RS	WIRE CABLE;POWER CABLE;;2;200MM;18AWG;(A)DC JACK 5.5 x 2.5, NUT+WASHER;(B)TERMINAL BLOCK:3P P=3.5;SHANGHAI YING YU;RoHS
Power cord	32000-000002-RS	European power cord
RJ-45 to D-SUB cable	32005-004600-200-RS	ROUND CABLE;RS-232/422/485;RS-232 CABLE;2;300MM;26AWG;(A)D-SUB 9P MALE+4#40 Screw;(B)RJ-45 8P8C PLUG, Iron+Sheathed;Wins Precision;RoHS
Wifi module[3]	27319-000009-RS	Wireless LAN Module;Wireless LAN & Bluetooth M.2 Module;Sparklan;R9701810011;IEEE802.11a/b/g/n/ac;2.412 GHz~2.4835 GHz, 5.15 GHz~5.85 GHz;M.2 2230;.;3.3V;22 x 30 x 2.15mm;QCNFA364A;QCA6174A-5;2x2 MIMO;Dual Band;WCBN808A-Q2;CCL;CCL;RoHS
Antenna[3]	32505-000900-100-RS	External Antenna;WLAN;RG 178;108MM;TANK-700-QM67-R10;PEAK GAIN 2.0DBI;Exceltek;2.4-2.5 GHz/5.15-5.85 GHz;REVERSE SMA PLUG;RoHS
RF cable[3]	32501-004000-100-RS	RF;RF CABLE;LINE DIAMETER:0.81mm;250MM;50Ω;Sparklan;0-6 GHz;VSWR≤1.3;I-PEX MHF-4 Plug;REVERSE SMA JACK;NUT x 1;WASHER x 1;RoHS
TPM Module	TPM-IN03-R10	20-pin Infineon SPI TPM 2.0 module, software mangement tool, firmware V7.63
System fan[4]	31100-000365-RS	FAN;+12V;4PIN;YEN SUN;40 x 40 x 10mm;6500RPM;TWO BALL BEARING;LINE LENGTH:150MM;3.4+/-0.1MM;FD124010HB;FD124010HB-NBG(2W7T);AXIAL FAN;WITH FRAME;6.599CFM;7~13.2V;29dB;75000hur;UL, CUL, TUV;CCL;RoHS
Accelerator cards[4]	Mustang-V100-MX8	Computing Accelerator Card with 8 x Movidius Myriad X MA2485 VPU, PCIe Gen 2 x 4 interface, RoHS
	Mustang-V100-MX4	Computing Accelerator Card with 4 x Intel® Movidius™ Myriad™ X MA2485 VPU, PCIe Gen 2 x 2 interface, RoHS
OS: Windows Embedded 10	DRPC-230-ULT5-W10E64-V-R10	OS Image with Windows® Embedded Standard 10 E Value 64-bit 2019 for DRPC-230-ULT5 Series, with DVD-ROM, RoHS

[1] It is required to order Power Cable together with Adapter for power usage
[2] Please select 96W adapter if intend to add accelerator cards
[3] Each Wi-Fi module needs two antennas and two RF cables to fully support Wi-Fi function
[4] Only applicable for DRPC-230-ULT5-i5/8G-R10

Packing List

1 x Din-rail mounting kit	1 x Screw kit

DRPC-130-AL

- *Fanless DIN-Rail Embedded System*
- *Intel® Atom® x5-E3930 1.3 GHz (up to 1.8 GHz) Solution*

Features

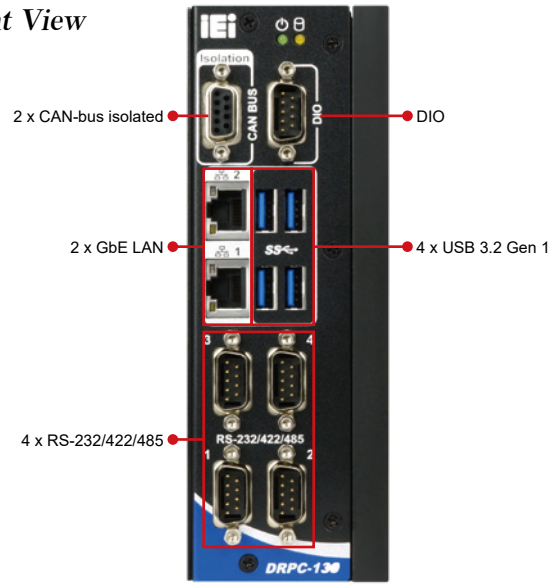
- Intel® Atom® x5-E3930 1.3 GHz (up to 1.8 GHz)
- DDR3L 1.35V SO-DIMM supported
- Serial, CAN bus and digital I/O interface

Specifications

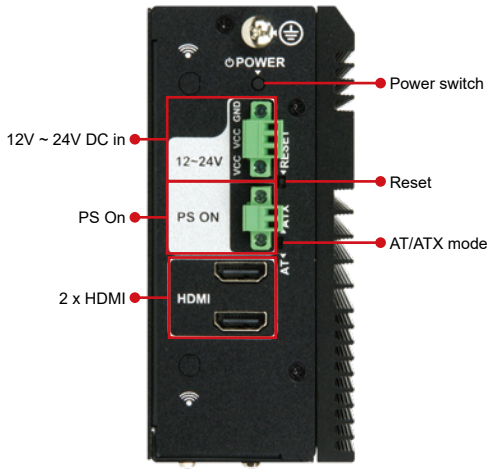
Model Name		DRPC-130-AL
Chassis	Color	Black
	Dimensions (WxDxH) (mm)	58.75 x 130 x 174
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	Intel® Atom® x5-E3930 1.3 GHz (up to 1.8 GHz, dual-core, TDP 6.5W)
	Chipset	SoC
	System Memory	1 x SO-DIMM DDR3L 1333/1600 (up to 8GB)
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD bay
	eMMC	1 x eMMC 5.0 (optional, up to 32GB)
I/O Interfaces	USB	4 x USB 3.2 Gen 1
	Ethernet	2 x RJ-45: 2 x GbE by Intel® I211
	COM Port	4 x RS-232/422/485 with AFC (DB9)
	Digital I/O	8-bit Digital I/O (4-in/ 4-out)
	CAN-bus	1 x port support two CAN-bus (DB9 with 2.5kV isolation)
	Display	2 x HDMI (up to 3840 x 2160@30Hz)
	Wireless	1 x 802.11a/b/g/n/ac (optional)
	TPM	1 x TPM 2.0 (2 x 10 pin)(optional)
	Other	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 Half-size (PCIe/USB 2.0) 1 x Full-size (PCIe/USB 2.0/SATA)
Power	Power Input	Terminal block: 12 ~ 24V DC
	Power Consumption	12V @ 2.88 A (Intel® Atom® x5-E3930 with 4GB memory)
	Remote PWR	Terminal block: PSON
Reliability	Mounting	DIN-Rail
	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% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)
	Weight (Net/Gross)	1.4 kg/ 2.5 kg
	Safety/EMC	CE/ FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft® Windows 10, Linux

Fully Integrated I/O

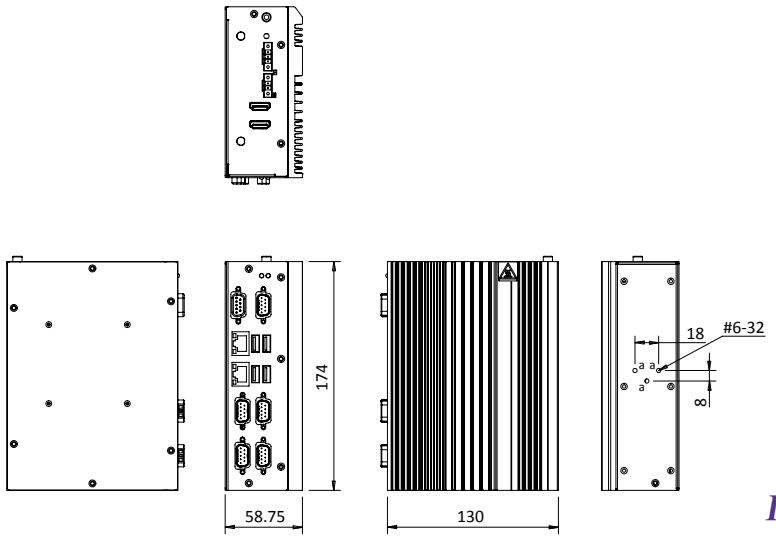
Front View



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 1.3 GHz (up to 1.8 GHz, dual core), two HDMI, 8-bit DIO, CAN-Bus, COM, 12~24V DC and RoHS
DRPC-130-AL-E1/4GB-R11	Fanless embedded system, Intel® Apollo Lake x5-E3930 1.3 GHz (up to 1.8 GHz, dual core), 4GB DDR3L pre-installed memory, two HDMI, 8-bit DIO, CAN-Bus, COM, 12~24V DC and RoHS

Options

Item	Part No.	Description
Adapter*	63040-010036-210-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
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
Power Cord	32702-000400-200-RS	European power cord
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

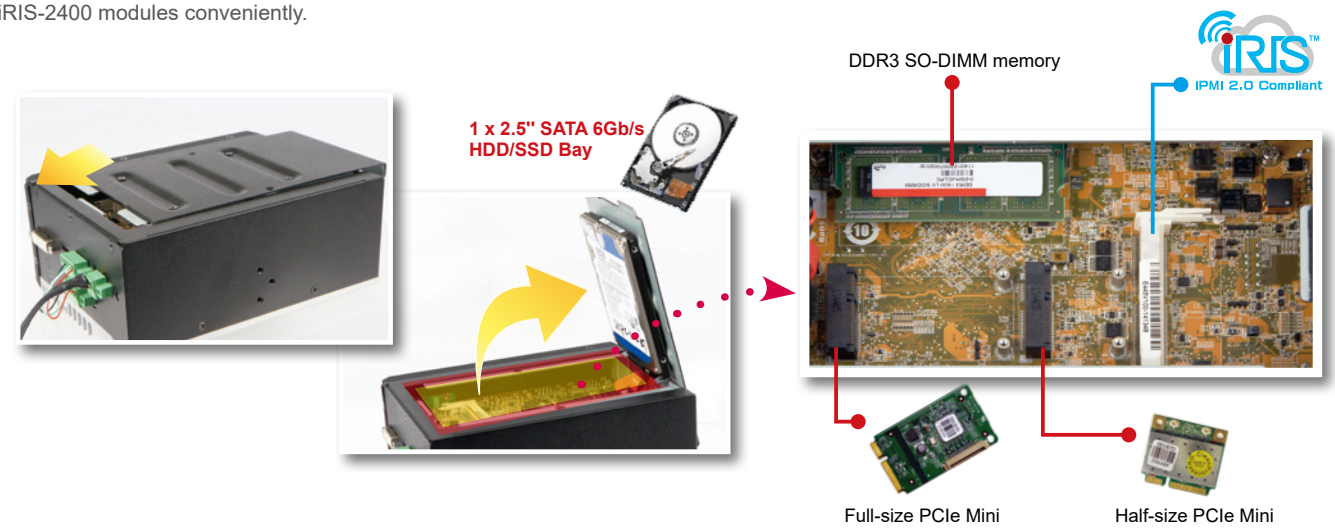
- *Fanless DIN-Rail Embedded System*
- *Intel® E3845 1.91 GHz Solution*

Features

- Intel® Atom® E3845 1.91 GHz
- 1 x 2.5" SATA HDD/SSD drive bay
- DDR3L 1.35V SO-DIMM support
- 8-bit digital I/O (4-bit inputs/outputs)
- IEI iRIS-2400 solution

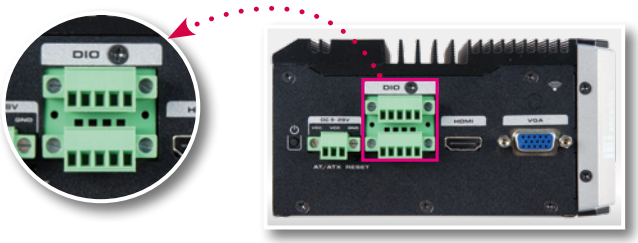
User Friendly Installation

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.

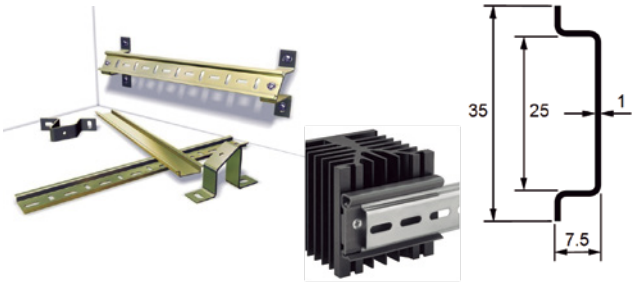
iRIS Solution

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.

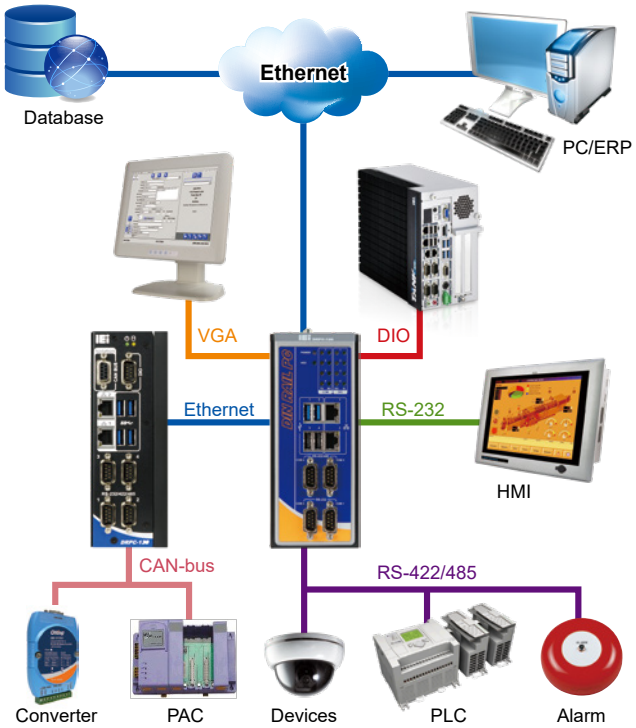
DIN Rail Standard

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.



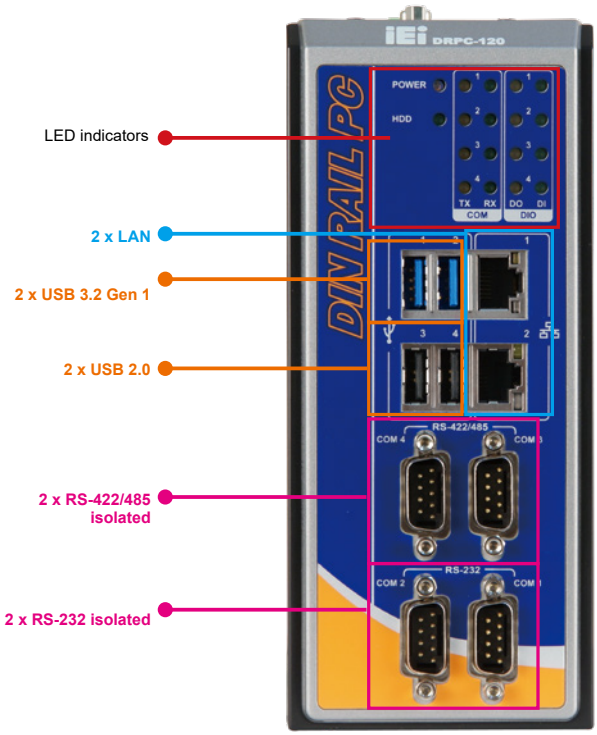
Communication Gateway

For high surge ESD automation environments, the DRPC series provides isolated digital IO, CAN-bus and serial communication ports.

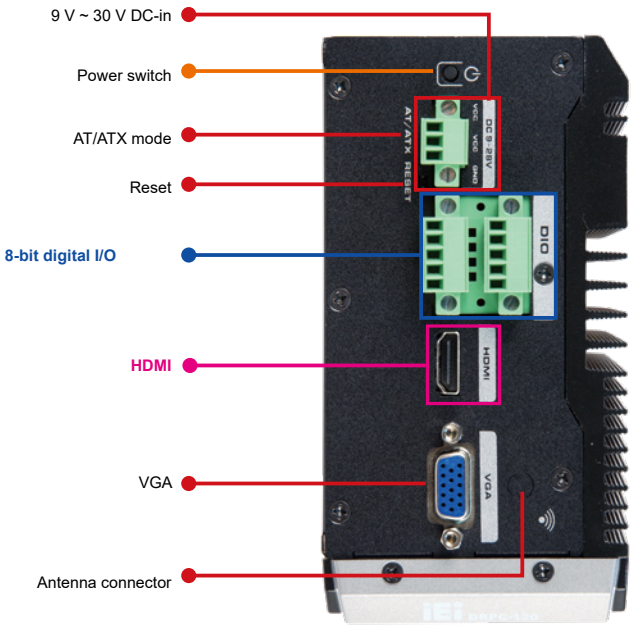


Fully Integrated I/O

Front View



Top Side View



Specifications

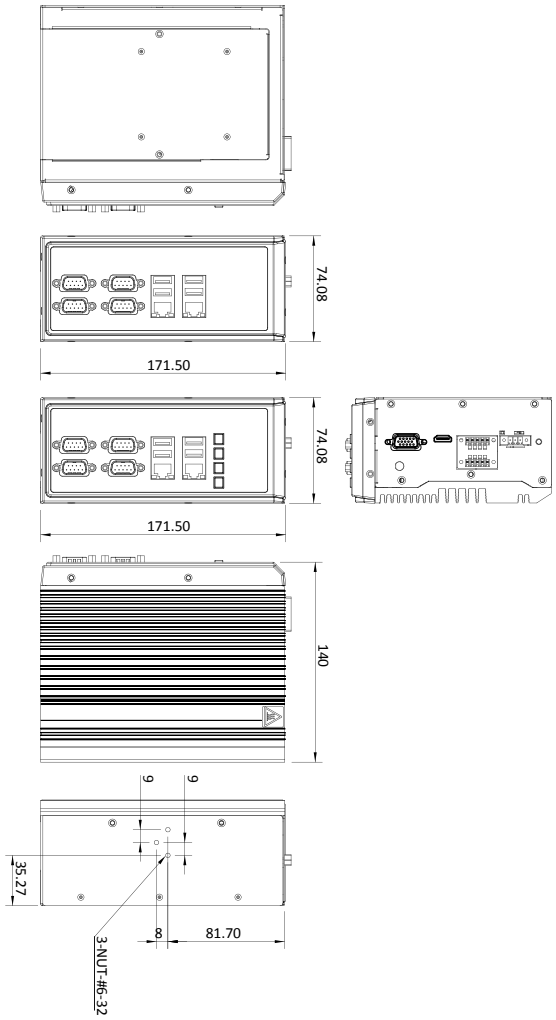
Model Name		DRPC-120-BT
Chassis	Color	Black
	Dimensions (WxDxH) (mm)	74.08 x 140 x 171.5
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	Intel® Atom® E3845 1.91 GHz (quad-core, TDP 10W)
	Chipset	SoC
	System Memory	1 x SO-DIMM DDR3L 1066 (up to 8GB)
IPMI	iRIS Solution	1 x iRIS-2400 (optional)
Storage	Hard Drive	1 x 2.5" SATA 3Gb/s HDD/SSD bay
I/O Interfaces	USB	2 x USB 3.2 Gen 1 2 x USB 2.0
	Ethernet	2 x RJ-45: 1 x GbE by Intel® I211 1 x GbE by Intel® I210
	COM Port	2 x RS-232/422/485 with AFC (DB9 with 3kV isolation*) 2 x RS-232 (DB9 with 3kV isolation*)
	Digital I/O	8-bit Digital I/O (4-in/ 4-out)
	Display	1 x HDMI (up to 1920 x 1200@60Hz) 1 x VGA (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	Terminal block: 9 ~ 30V DC
	Power Consumption	12V @ 2.1A (Intel® Atom® E3845 with 2GB memory)
Reliability	Mounting	DIN-Rail
	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% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)
	Weight (Net/ Gross)	1.4 kg/ 2.5 kg
	Safety/EMC	CE/ FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft® 8, Microsoft® Windows® Embedded Standard 7 E

*COM port isolation: 3kV for 1 sec, 2.5kV for 1 minute

Ordering Information

Part No.	Description
DRPC-120-BTi-E5-LED/2G-R11	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, R11, RoHs

Dimensions (Unit: mm)



DRPC-120-BT

Options

Item	Part No.	Description
Adapter*	63040-010036-210-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
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
Power Cord	32702-000400-200-RS	European power cord
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
DIN-Rail Mounting Kit	DK-DRPC-R10	Rugged DIN-rail mounting kit for DPRC series only
OS: Windows Embedded 7	DRPC-120-WES7E-R10 (CD-ROM)	OS Image with Windows® Embedded Standard 7 E for DRPC-120 Series, CDROM, RoHS

*It is required to order Power Cable together with Adapter for power usage

Packing List

1 x Screw kit	1 x Mounting bracket
1 x SATA cable & SATA power cable	

Compact Size Embedded System

Fanless

	Model Name	ITG-100-AL	uIBX-250-BW
Chassis	Color	Blue & Silver	Black
	Dimensions (WxDxH) (mm)	Single layer: 137 x 102.8 x 36.2 Dual layer: 137 x 102.8 x 56.2	137 x 102.8 x 52
	System Fan	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloy	Extruded aluminum alloy
Motherboard	CPU	Intel® Atom® x5-E3930 1.3 GHz (up to 1.8 GHz, dual-core, TDP 6.5W)	Intel® Celeron® N3160 1.6 GHz (up to 2.24 GHz, quad-core, TDP 6W)
	Chipset	SoC	SoC
	System Memory	1 x SO-DIMM DDR3L 1600/1867 (2GB pre-installed)(up to 8GB)	1 x SO-DIMM DDR3L 1600 (2GB pre-installed)(up to 8GB)
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD bay	1 x 2.5" SATA 6Gb/s HDD/SSD bay
	SATADOM	N/A	N/A
	eMMC	1 x eMMC5.0 (up to 32GB)(optional)	N/A
	Micro SD	1 x Micro SD slot (optional)	N/A
I/O Interfaces	USB	2 x USB 3.2 Gen 1 2 x USB 2.0 (optional)	4 x USB 3.2 Gen 1
	Ethernet	2 x RJ-45: 2 x GbE by Intel® I211	2 x RJ-45: 2 x GbE by Intel® I211
	COM Port	2 x RS-232/422/485 with AFC (DB9/RJ-45) 2 x RS-232 (optional)	2 x RS-232/422/485 with AFC (RJ-45)
	Digital I/O	8-bit Digital I/O (4-in/ 4-out)(optional)	N/A
	Display	1 x VGA (up to 1920 x 1080@60Hz)	1 x HDMI (up to 3840 x 2160@30Hz) 1 x VGA (up to 1920 x 1080@60Hz)
	Audio	N/A	1 x Line-out, 1 x Line-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 Reset Button, 1 x AT/ATX Switch, 1 x LED for Power (Green), 1 x LED for HDD (Yellow)	1 x Power Button, 1 x Reset Button, 1 x AT/ATX Switch, 1 x LED for HDD (Green)
Expansions	PCIe Mini	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 x 1/USB 2.0)	N/A
Power	Power Input	Terminal block: 12 V DC	DC Jack: 12V DC
	Power Consumption	12V @ 1A (Intel® Atom® E3930 with 2GB memory)	12V @ 2A (Intel® Celeron® N3160 with 2GB memory)
Reliability	Mounting	DIN-Rail/ Wall-mount	Wall-mount/ VESA 75
	Operating Temperature	-20°C ~ 60°C with air flow (SSD), 10% ~ 95% noncondensing	-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	-20°C ~ 80°C with air flow (SSD), 10% ~ 90% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)	MIL-STD-810G 514.6C-1 (SSD)
	Weight (Net/ Gross)	Single layer: 0.67g/ 1.03 kg Dual layer: 0.86g/ 1.22 kg	470g/ 1.4 kg
	Safety/EMC	CE/ FCC	CE/ FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft Windows 10 / Windows 11, Linux	Microsoft® Windows 8, Microsoft® Embedded Standard 7 E

ITG-100-AL

- *Ultra Compact Size*
- *Fanless DIN-Rail Embedded System*
- *Intel® Atom® x5-E3930 1.3 GHz (up to 1.8 GHz) Solution*

Features

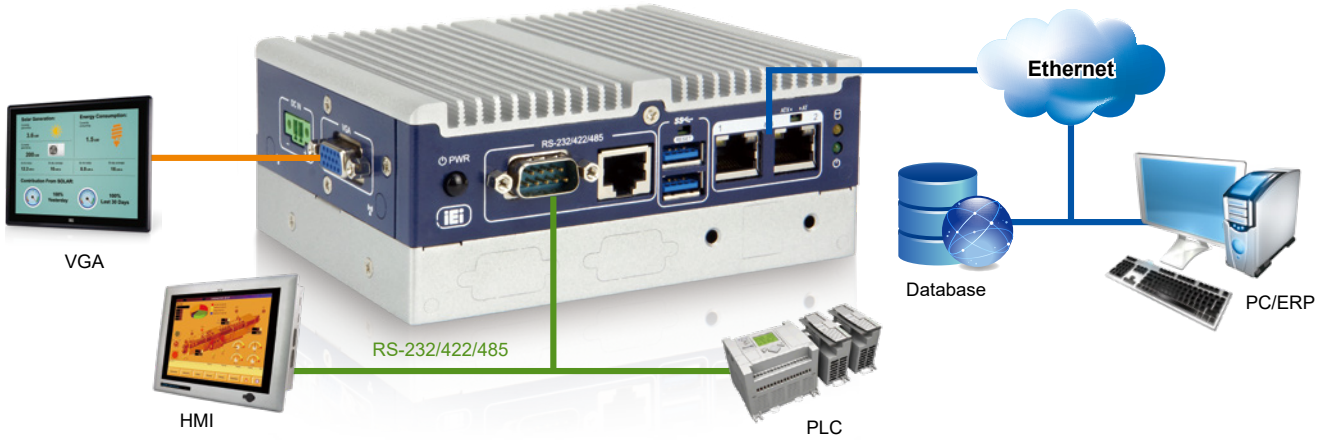
- Intel® Atom® x5-E3930 1.3 GHz (up to 1.8 GHz)
- Two GbE LAN ports
- Two RS-232/422/485
- Full-size PCIe Mini slot and M.2 A-key slot for expansion

Fanless | USB 3.2 Gen 1 | Dual LAN | RS-232 /422/485 | M.2 | PCIe Mini Expansion

aws qualified device | Microsoft Azure Certified

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.



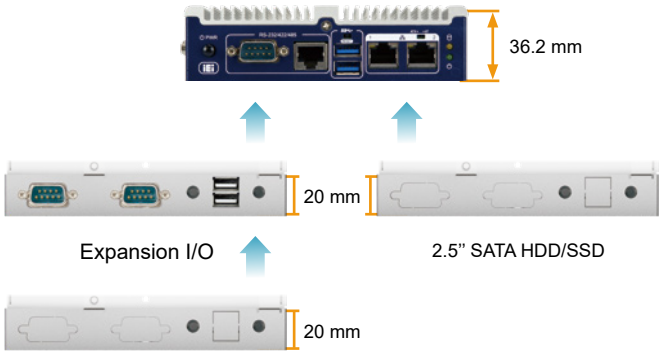
A Wide Range of Applications

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.

Ultra-compact Size

Space limitation is one of the constraints commonly seen in today's industrial environment. Under tight restrictions, the ITG-100-AL not only provides palm-sized design to meet the space requirement, but also comes with adequate basic I/O interfaces for various applications.

Full-size PCIe Mini

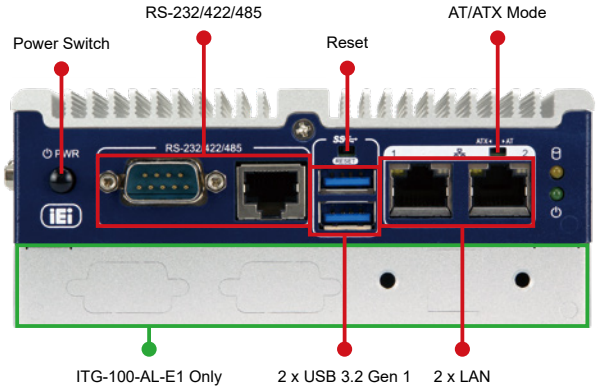
M.2 A key

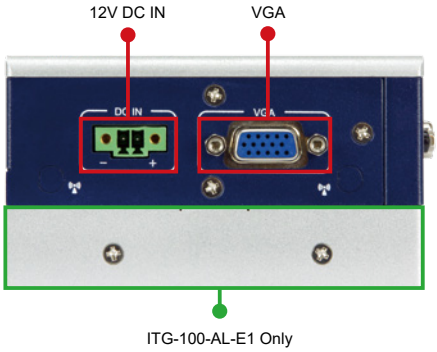
Specifications

Model Name		ITG-100-AL
Chassis	Color	Blue & Silver
	Dimensions (WxDxH) (mm)	Single layer: 137 x 102.8 x 36.2 Dual layer: 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 1.8 GHz, dual-core, TDP 6.5W)
	Chipset	SoC
	System Memory	1 x SO-DIMM DDR3L 1600/1867 (2GB pre-installed)(up to 8GB)
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD bay
	eMMC	1 x eMMC5.0 (up to 32GB)(optional)
	Micro SD	1 x Micro SD slot (optional)
I/O Interfaces	USB	2 x USB 3.2 Gen 1 2 x USB 2.0 (optional)
	Ethernet	2 x RJ-45: 2 x GbE by Intel® I211
	COM Port	2 x RS-232/422/485 with AFC (DB9/RJ-45) 2 x RS-232 (optional)
	Digital I/O	8-bit Digital I/O (4-in/ 4-out)(optional)
	Display	1 x VGA (up to 1920 x 1080@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, 1 x LED for Power (Green), 1 x LED for HDD (Yellow)
Expansions	PCIe Mini	1 x Full-size (PCIe/USB 2.0/SATA)
	M.2	1 x 2230 A-key (PCIe x 1/USB 2.0)
Power	Power Input	Terminal block: 12 V DC (9 ~ 36V DC BOM optional)[1]
	Power Consumption	12V @ 1A (Intel® Atom® E3930 with 2GB memory)
Reliability	Mounting	DIN-Rail/ Wall-mount
	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 (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)
	Weight (Net/Gross)	Single layer: 0.67 g/ 1.03 kg Dual layer: 0.86 g/ 1.22 kg
	Safety/EMC	CE/ FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft Windows 10 / Windows 11, Linux

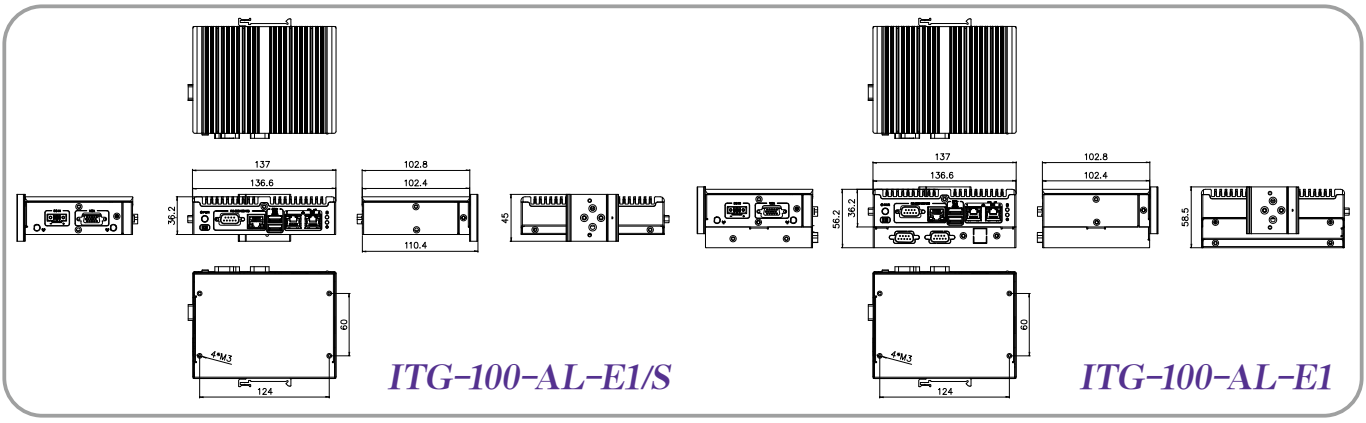
1. By order production, MOQ:100

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 1.3 GHz (up to 1.8 GHz, 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 1.3 GHz (up to 1.8 GHz, 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 1.3 GHz (up to 1.8 GHz, 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 1.3 GHz (up to 1.8 GHz, 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	27319-000009-RS**	Wireless LAN Module;Wireless LAN & Bluetooth M.2 Module;Sparklan;R9701810011;IEEE802.11a/b/g/n/ac;2.412 GHz~2.4835 GHz, 5.15 GHz~5.85 GHz;M.2 2230;.;3.3V;22*30*2.15mm;QCNFA364A;QCA6174A-5;2x2 MIMO;Dual Band;WCBN808A-Q2;CCL;CCL;RoHS
Antenna	32505-000900-100-RS**	External Antenna;WLAN;RG 178;108MM;TANK-700-QM67-R10;PEAK GAIN 2.0DBI;Exceltek;2.4-2.5 GHz/5.15-5.85 GHz;REVERSE SMA PLUG;RoHS
RF Cable	32501-004000-100-RS**	RF;RF CABLE;LINE DIAMETER:0.81mm;250MM;;;50Ω;Sparklan;0-6 GHz;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

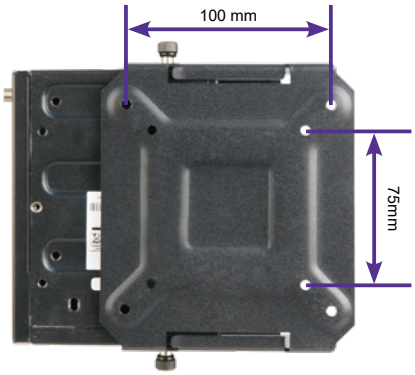
Ultra Compact Size

Features

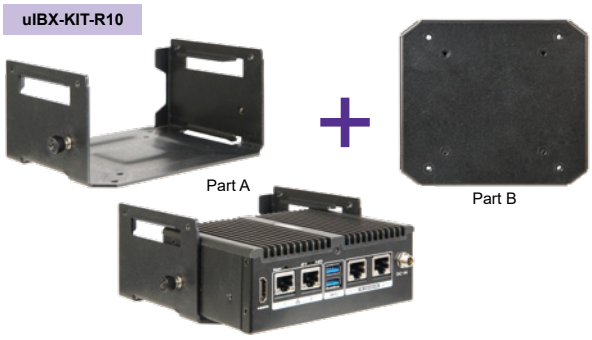
- Fanless system with Intel® Celeron® N3160 processor
- Dual display
- Two RS-232/422/485
- Full-size PCIe Mini slot for expansion
- Four USB 3.2 Gen 1 (5Gb/s) ports
- Two GbE LAN ports

aws qualified device

Smart Mounting Design

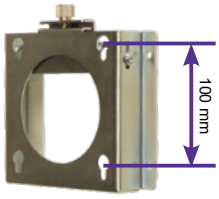


uIBX-KIT-R10

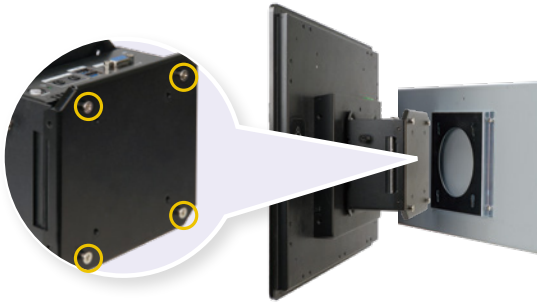


A. Wall mount

Assemble the uIBX-250 with the uIBX-KIT-R10 on the back of monitor.



AFLWK-12/AFLWK-19



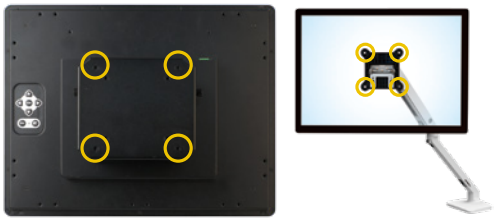
The monitor with the uIBX-250 can be mounted on the wall easily and support VESA 75/100.

B. VESA mount 75/100

Step.1

Install the part A of the uIBX-KIT on the back of the monitor compliant with VESA 75/100.

Step.2



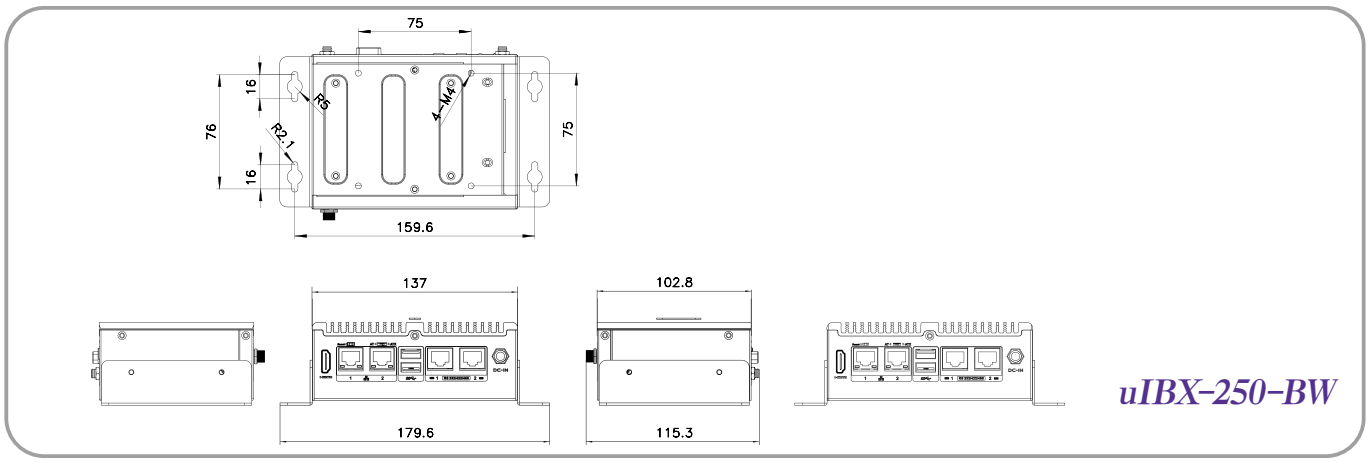
Assemble the uIBX-250 and the part B of the uIBX-KIT. Then, it can be mounted onto any devices with VESA 75/100 interface.

The position of the uIBX-250 could be adjusted to best fit your applications.
Space can be greatly saved by mounting on the back of monitor.

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 1.6 GHz (up to 2.24 GHz, quad-core, 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	4 x USB 3.2 Gen 1
	Ethernet	2 x RJ-45: 2 x GbE by Intel® I211
	COM Port	2 x RS-232/422/485 with AFC (RJ-45)
	Display	1 x HDMI (up to 3840 x 2160@30Hz) 1 x VGA (up to 1920 x 1080@60Hz)
	Audio	1 x Line-out, 1 x Line-in
	Wireless	1 x 802.11a/b/g/n/ac (optional)
	Other	1 x Power Button, 1 x Reset Button, 1 x AT/ATX Switch, 1 x LED for HDD (Green)
Expansions	PCIe Mini	1 x Full-size (PCIe/USB 2.0/SATA)
Power	Power Input	DC Jack: 12V DC
	Power Consumption	12V @ 2A (Intel® Celeron® N3160 with 2GB memory)
Reliability	Mounting	Wall-mount/ VESA 75
	Operating Temperature	-20°C ~ 60°C with air flow (SSD), 10% ~ 95% non-condensing
	Storage Temperature	-20°C ~ 80°C with air flow (SSD), 10% ~ 90% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)
	Weight (Net/Gross)	470g/ 1.4 kg
	Safety/EMC	CE/ FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft® Windows 8, Microsoft® Embedded Standard 7 E

Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
uIBX-250-BW-N3/2G-R21	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 Series

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.

Key Features

■ Ultra HD

Display approaching 4K2K resolution. Best for high-definition screen.
Triple display port:

- 3 x HDMI 3840 x 2160 @30Hz

■ Hardware Expansion

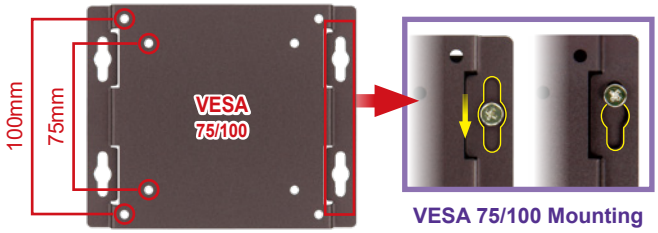
The M.2 A-key & PCIe Mini slots are reserved for Wi-Fi, 3G/4G or mSATA modules, and also support SATADOM for storage to achieve flexible application. Users can quickly replace the modules inside by simply opening the bottom panel of the chassis. Such a design can produce huge benefits for those who need quick response and efficient services.

■ 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.

■ Mounting Method

The series has passed shock and vibration test based on the MIL-STD-810G standard.



Digital Signage Embedded System

Model Name		IDS-310-AL-N1	IDS-310-AL-J1
Chassis	Color	Brown & Sliver	Brown & Sliver
	Dimensions (WxDxH)(mm)	137 x 102.8 x 38.1	137 x 102.8 x 52.1
	System Fan	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloy	Extruded aluminum alloy
Motherboard	CPU	Intel® Celeron® N3350 1.1 GHz (up to 2.4 GHz, dual-core, TDP 6W)	Intel® Celeron® J3455 1.5 GHz (up to 2.3 GHz, quad-core, TDP 10W)
	Chipset	SoC	SoC
	System Memory	1 x SO-DIMM DDR3L (4GB pre-installed)(up to 8GB)	1 x SO-DIMM DDR3L (4GB pre-installed)(up to 8GB)
Storage	Hard Drive	1 x SATA 6Gb/s connector	1 x SATA 6Gb/s connector
	Micro SD	1 x Micro SD slot (optional)	1 x Micro SD slot (optional)
I/O Interfaces	USB	3 x USB 3.2 Gen 1	3 x USB 3.2 Gen 1
	Ethernet	2 x RJ-45: 2 x GbE by RTL8111	2 x RJ-45: 2 x GbE by RTL8111
	RS-232/422/485	1 x RS-232/422/485 with AFC	1 x RS-232/422/485 with AFC
	Display	3 x HDMI 1.4b (3840 x 2160@30Hz)	3 x HDMI 1.4b (3840 x 2160@30Hz)
	Audio	1 x Line-out, 1 x Mic-in	1 x Line-out, 1 x Mic-in
	Wireless	1 x 802.11 a/b/g/n/ac (optional)	1 x 802.11 a/b/g/n/ac (optional)
	TPM	Optional	Optional
Expansions	PCIe Mini	1 x Full-size with SIM card slot (PCIe/USB 2.0/SATA)	1 x Full-size with SIM card slot (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)
Power	Power Input	DC Jack: 12V DC	DC Jack: 12V DC
	Power Consumption	12V @ 1.9A (Intel® Celeron® N3350 with 4GB memory)	12V @ 2.2A (Intel® Celeron® J3455 with 4GB memory)
Reliability	Mounting	VESA 75/100/Wall mount (optional)	VESA 75/100/Wall mount (optional)
	Operating Temperature	-20°C ~ 60°C with air flow (mSATA), 10% ~ 95% non-condensing	-20°C ~ 60°C with air flow (mSATA), 10% ~ 95% non-condensing
	Storage Temperature	-30°C ~ 80°C with air flow, 10% ~ 90% non-condensing	-30°C ~ 80°C with air flow, 10% ~ 90% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (mSATA)	Half-sine wave shock 5G, 11ms, 100 shocks per axis (mSATA)
	Operation Vibration	MIL-STD-810G 514.6C-1 (mSATA)	MIL-STD-810G 514.6C-1 (mSATA)
	Weight (Net/ Gross)	680g/1.4 kg	950g/1.7 kg
	Safety / EMC	CE/FCC Class A/BSMI	CE/FCC Class A/BSMI
	Watchdog timer	Programmable 1~255 sec/min	Programmable 1~255 sec/min
OS	Supported OS	Microsoft® Windows® 10, Linux	Microsoft® Windows® 10, Linux

IDS-310-AL

- *Digital Signage System*
- *Ultra Compact Size*

Features

- Triple HDMI displays up to 4K resolution
- Two GbE LAN ports
- Full-size PCIe Mini slot and M.2 A-key slot for expansion

aws qualified device

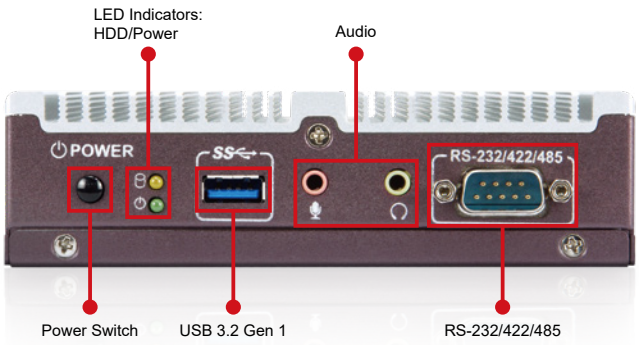
Specifications

Model Name		IDS-310-AL-N1	IDS-310-AL-J1
Chassis	Color	Brown & Silver	
	Dimensions (WxDxH)(mm)	137 x 102.8 x 38.1	137 x 102.8 x 52.1
	System Fan	Fanless	
	Chassis Construction	Extruded aluminum alloys	
Motherboard	CPU	Intel® Celeron® N3350 1.1 GHz (up to 2.4 GHz, dual-core, TDP 6W)	Intel® Celeron® J3455 1.5 GHz (up to 2.3 GHz, quad-core, TDP 10W)
	Chipset	SOC	
	System Memory	1 x SO-DIMM DDR3L (4GB pre-installed)(up to 8GB)	
Storage	Hard Drive	1 x SATA 6Gb/s connector	
	Micro SD	1 x Micro SD slot (optional)	
I/O Interfaces	USB	3 x USB 3.2 Gen 1	
	Ethernet	2 x RJ-45: 2 x GbE by RTL8111	
	COM Port	1 x RS-232/422/485 with AFC	
	Display	3 x HDMI 1.4b (3840x2160@30Hz)[1, 2]	
	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 (optional)	
Expansions	PCIe Mini	1 x Full-size with SIM card slot (PCIe/USB 2.0/SATA)	
	M.2	1 x 2230 A-key (PCIe x1/USB 2.0)	
Power	Power Input	DC Jack: 12V DC (9 ~ 36V DC BOM optional)[3]	
	Power Consumption	12V @ 1.9A (Intel® Celeron® N3350 with 4GB memory)	12V @ 2.2A (Intel® Celeron® J3455 with 4GB memory)
Reliability	Mounting	VESA 75/100/Wall mount(optional)	
	Operating Temperature	-20°C ~ 60°C with air flow (mSATA), 10% ~ 95% non-condensing	
	Storage Temperature	-30°C ~ 80°C with air flow (mSATA), 10% ~ 95% non-condensing	
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (mSATA)	
	Operation Vibration	MIL-STD-810G 514.6C-1 (mSATA)	
	Weight (Net/Gross)	680 g / 1.4 kg	950 g / 1.7 kg
	Safety / EMC	CE/FCC Class A/BSMI	
	Watchdog Timer	Programmable 1 ~ 255 sec/min	
OS	Supported OS	Microsoft® Windows® 10, Linux	

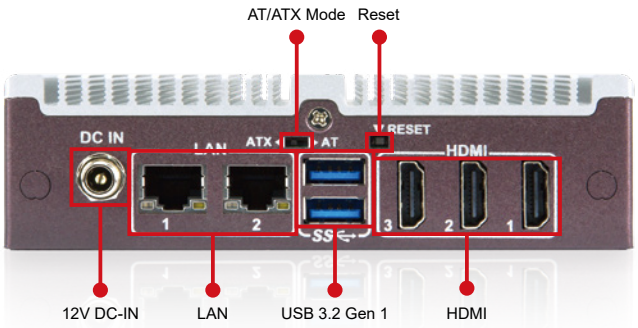
1. Due to chipset limitation, audio is not supported over the HDMI3 connector.
2. Fully support of triple 4K display output may vary in different system environment setting. Contact an IEI sales representative for detailed information.
3. By order production, MOQ:100

Fully Integrated I/O

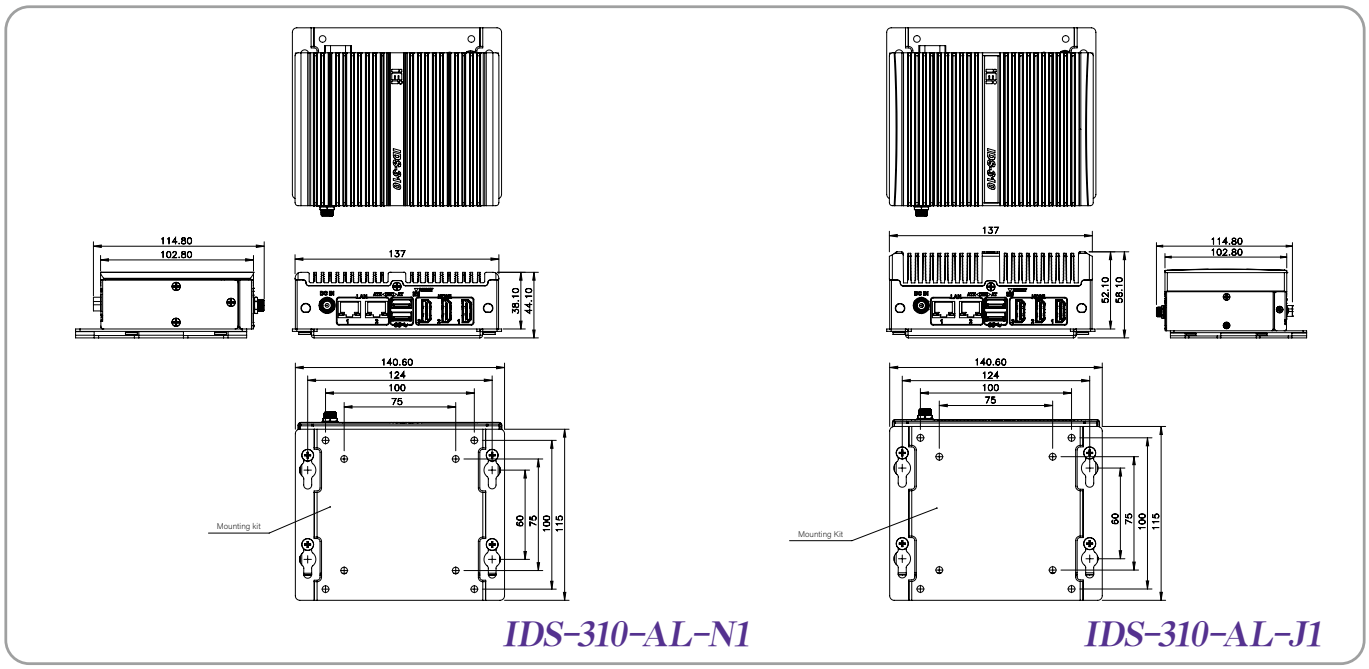
Front View



Rear View



Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
IDS-310-AL-J1/4GB-R10	Fanless embedded system with Intel® Celeron® J3455 1.5 GHz (up to 2.3 GHz, 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® N3350 1.1 GHz (up to 2.4 GHz, dual dore, TDP 6W), pre-installed 4GB DDR3L memory, triple HDMI display, 12V DC and RoHS

Options

Part No.		Description
Wi-Fi Module	27319-000009-RS*	Wireless LAN Module;Wireless LAN & Bluetooth M.2 Module;Sparklan;R9701810011;IEEE802.11a/b/g/n/ac;2.412 GHz~2.4835 GHz, 5.15 GHz~5.85 GHz;M.2 2230;.;3.3V;22*30*2.15mm;QCNFA364A;QCA6174A-5;2x2 MIMO;Dual Band;WCBN808A-Q2;CCL;CCL;RoHS
Antenna	32505-000900-100-RS*	External Antenna;WLAN;RG 178;108MM;TANK-700-QM67-R10;PEAK GAIN 2.0DBI;Exceltek;2.4-2.5 GHz/5.15-5.85 GHz;REVERSE SMA PLUG;RoHS
RF Cable	32501-004000-100-RS*	RF;RF CABLE;LINE DIAMETER:0.81mm;250MM;;;50Ω;Sparklan;0-6 GHz;VSWR≤1.3;I-PEX MHF-4 Plug;REVERSE SMA JACK;NUT x 1;WASHER x 1;;RoHS
OS:Windows Embedded 10	IDS-310-AL-W10E64-E-R10	OS Image with Windows® 10 IoT Enterprise Entry 64-bit 2019 for IDS-310-AL Series, with DVD-ROM, 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

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-W07A-AL2	AFL3-W10A-AL	AFL3-12A-AL	AFL3-W15A-AL		
Intel® Whiskey 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® Apollo lake						AFL3-W19A-AL	

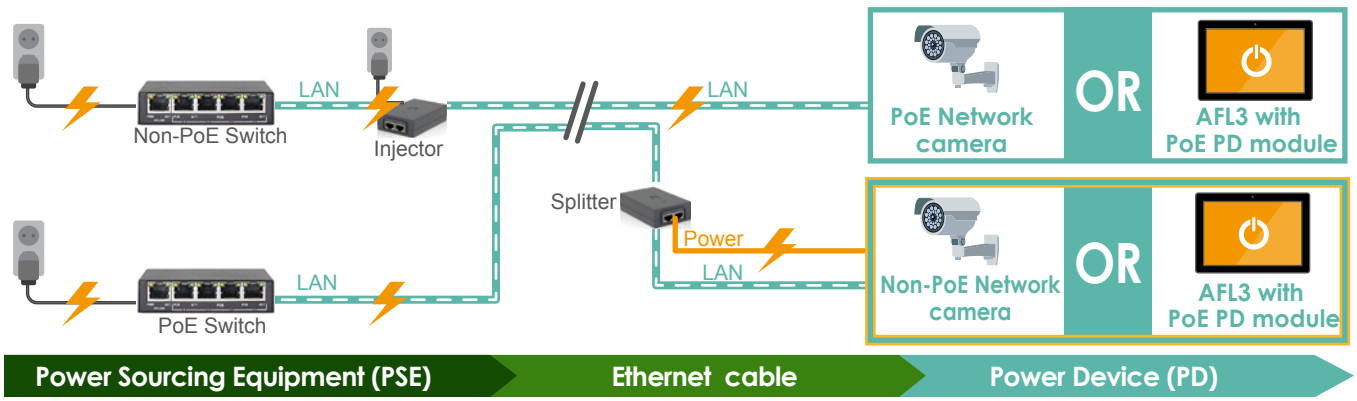
Intelligent PoE Management System

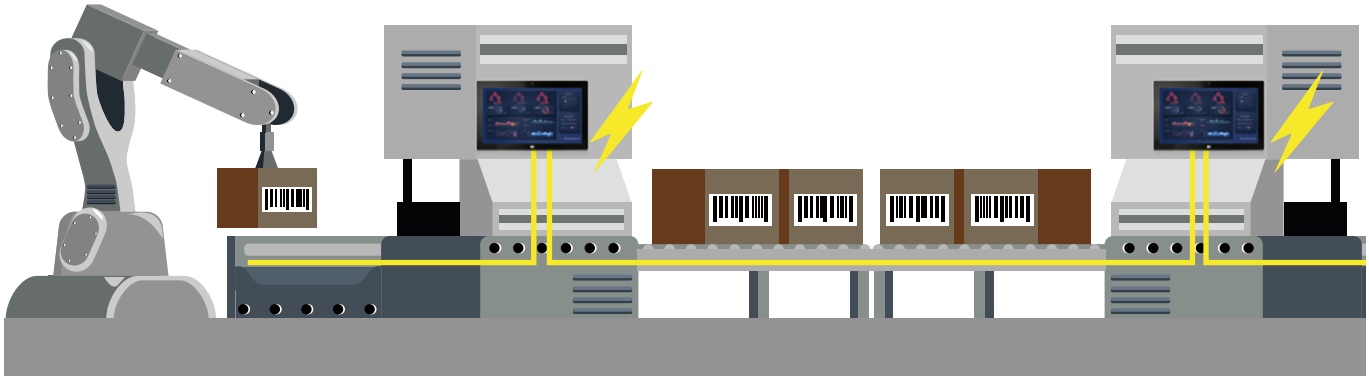
AFL3 Series Products support up to IEEE 802.3bt standard and IEI offer PoE PD bt standard module to option install to AFL3 series panel pc.

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

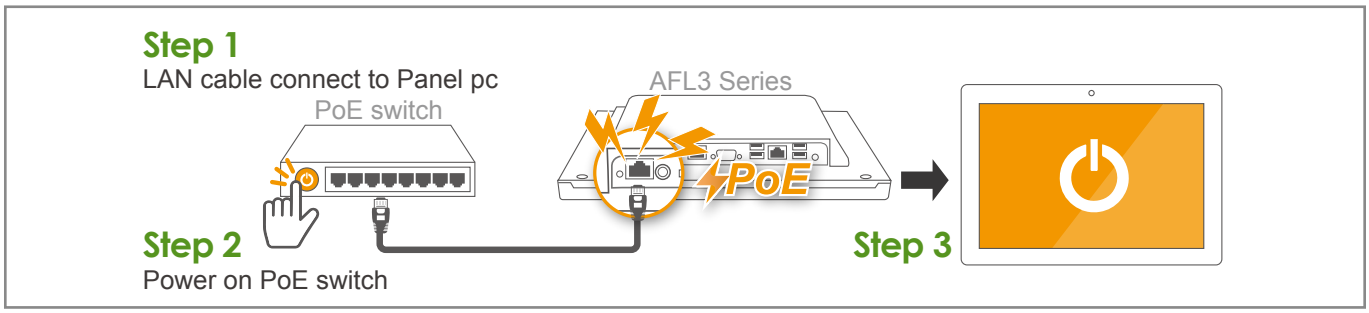
Application

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



IEI AFL3 PoE Product Support List

The AFL3 series uses DC adapter as a default to connect with power source. The following PoE PD modules provide additional options for powering up the system.

Item	IEEE802.3 PD module (Power device)		IEEE802.3 PSE switch (Power sourcing equipment)	
	AFL3-PD-BT01-KIT01 input power 71~90W	GPOE-PD-BT01 input power 71~90W	IEEE802.3at switch Output power 30W	IEEE802.3bt switch Output power 90W
AFL3-W07A-AL*			V	V
AFL3-W07A-AL2*			V	V
AFL3-W10A-AL*	V		V	V
AFL3-12A-AL	V			V
AFL3-W15A-AL	V			V
AFL3-W15C-ULT5*		V	V	V
AFL3-W19C-ULT5*		V	V	V
AFL3-W22C-ULT5*		V	V	V

AFL3 Apollo Lake with PoE Selection Guide

LCD Size		7”		10.1”	12.1”	15.6”
Model		AFL3-W07A-AL	AFL3-W07A-AL2	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	LAN1: Intel® I211	LAN1: Intel® I211 + LAN2: Intel® I211		
	Audio Codec	Realtek ALC 888S				
Storage		1 x M.2 B+M key 2242 slot (USB/SATA signal)		1 x M.2 B+M key 2242 slot (USB/SATA signal)	*1 x 2.5” SATA 3Gb/s HDD bay (optional one of the two) 1 x M.2 B+M key 2242 slot (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 Button 1 x Reset button 1 x Clear CMOS button 1 x AT/ATX switch	1 x GbE LAN 2 x USB 3.2 Gen1 (5Gb/s) 1 x RS232/422/485 (by DB9) 1 x HDMI 1 x 12 DC Jack 1 x Power Button 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 Button 1 x Line out 1 x Reset button 1 x Clear CMOS button 1 x AT/ATX switch		
PoE Support		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 V4.2 (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)	-20°C ~ 50°C				
	Storage Temperature (°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 class A				
	Thermal 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” light industrial interactive panel PC
- 12V DC input with lockable DC jack
- Selectable AT/ATX power mode
- Built-in speakers
- Support PoE PD IEEE803.2 af/at
- IP65 compliant front panel
- Touch screen with anti-UV / anti-glare coating
- Support Auto Flow Control over RS-485

Intel® Apollo lake | Fanless | PoE | Touchscreen | Anti-glare Coating

Specifications

Model		AFL3-W07A-AL	AFL3-W07A-AL2
LCD	Size	7”	
	Resolution	1024 x 600 (16:9)	
	Brightness (cd/m²)	500	
	Contrast Ratio	700:1	
	Viewing Angle (H-V)	150 / 145	
	Backlight MTBF	20000	
Touch	Touch Screen	PCAP with USB interface (anti-UV/AG coating)	
	Touch Controller	EETI 80H60	
Mainboard	CPU	Intel® Celeron N3350 (2M Cache, up to 2.4 GHz) TDP 6W	
	RAM	one 204-pin 1866MHz DDR3L DIMMs support up to 8GB	
	Ethernet	LAN1: Intel® I211 + LAN2: Intel® I211	LAN1: Intel® I211
	Audio Codec	Realtek ALC 888S	
Storage		1 x M.2 B+M key 2242 slot (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 Button 1 x Reset button 1 x Clear CMOS button 1 x AT/ATX switch	1 x GbE LAN 2 x USB 3.2 Gen1 (5Gb/s) 1 x RS232/422/485 (by DB9) 1 x HDMI 1 x 12 DC Jack 1 x Power Button 1 x Reset button 1 x Clear CMOS button 1 x AT/ATX switch
PoE Support		On board PoE at	
Audio		AMP 2W (internal speaker)	
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	
	Color	Black C	
	Dimensions (W x H x D) (mm)	191 x 127 x 43	
	Cut-out Dimensions (W x H)	182 x 111	
	Net/Gross Weight (kgs)	0.73/1.81	
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 65 compliant front panel	
	Safety&EMC	CE / FCC class A	
	Thermal Solution	Fanless	
Power	Power Requirement	12V/3A	
ErP		ErP 2009/125/EC	
Supported OS		Microsoft Windows® 10 / Windows® 11, Linux	

AFL3 Apollo Lake with PoE

Intelligent PoE Management System

Features

- W10" ~ 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 | Fanless | PoE | Touchscreen | Anti-glare Coating | 9V~30V DC

Specifications

Model		AFL3-W10A-AL	AFL3-12A-AL	AFL3-W15A-AL
LCD	Size	10.1"	12.1"	15.6"
	Resolution	1280 x 800 (16:10)	1024 x 768 (4:3)	1366 x 768 (16:9)
	Brightness (cd/m²)	350	500	300
	Contrast Ratio	800:1	700:1	500:1
	Viewing Angle (H-V)	170 / 170	160 / 160	170 / 160
	Backlight MTBF	15000	50000	50000
Touch	Touch Screen	PCAP with USB interface (anti-UV/anti-glare coating)		
	Touch Controller	EXC3146	EXC3146	EXC3160
Mainboard	CPU	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	Realtek ALC 888S		
Storage		1 x M.2 B+M key 2242 slot (USB/SATA signal)	*1 x 2.5" SATA 3Gb/s HDD bay (optional one of the two) 1 x M.2 B+M key 2242 slot (USB/SATA signal)	
I/O Ports & 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 Button 1 x Line out 1 x Reset button 1 x Clear CMOS button 1 x AT/ATX switch	
PoE Support		Yes (option single channel)		
Audio		AMP 2W + 2W	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 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)	262 x 181 x 42	304 x 243 x 44	396 x 250 x 53
	Cut-out Dimensions (W x H)	236 x 149	243 x 205	273 x 226
	Net/Gross Weight (kgs)	1.06/2.58	1.92/3.95	3.3/5.6
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		
	Thermal Solution	Fanless		
Power	Power Requirement	9 ~ 30V, 4~1, 2A	9 ~ 30V, 6.67~2A	9 ~ 30V, 6.67 ~ 2A
ErP		ErP 2009/125/EC		
Supported OS		Microsoft Windows® 10 / Windows® 11, Linux		

*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-W07A-AL2-N1/P/PC/4G-R10	7" 500cd/m² 1024 x 600 Panel PC with Intel® Celeron® Processor N3350 (6W) on-board Processor, w/COM, on-baord POE at, 1*4GB DDR3L, 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

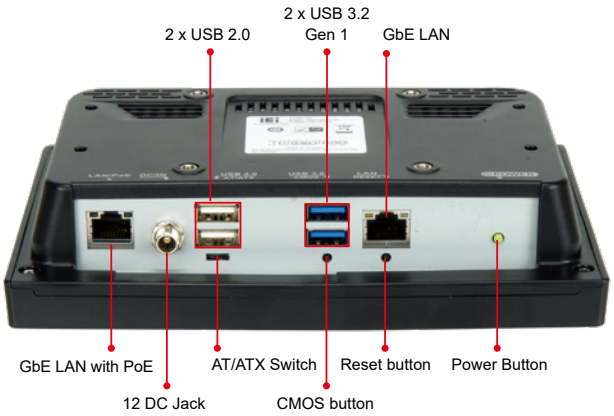
Options

Item	AFL3-W07A-AL	AFL3-W07A-AL2	AFL3-W10A-AL	AFL3-12A-AL	AFL3-W15A-AL
Panel Mounting Kit	AFL3PK-W07A-R11	AFL3PK-W07A-R11	AFL3PK-08A-R10	AFL3PK-08A-R10	AFL3PK-W15A-R10
Wall Mounting Kit	AFLWK-12	AFLWK-12	AFLWK-12	AFLWK-19B	AFLWK-19B
Rack Mounting Kit	AFL3RK-W07A-R11	AFL3RK-W07A-R11	AFL3RK-W10A-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	ARM-11-RS/ARM-31-RS
Stand	STAND-A21-R10/STAND-210-R11/STAND-C12-R10				
V-Stand	VSTAND-A07-R1	VSTAND-A07-R1	VSTAND-A10-R11	VSTAND-A12-R11	
Barcode Scanner	N/A	N/A	AFL3-2D-R11	AFL3-2D-R11	AFL3-2D-R11
RFID Reader (13.56 MHz Mifare Type)	N/A	N/A	AFL3-MF-RFID-KIT02-R11	AFL3-MF-RFID-KIT02-R11	AFL3-MF-RFID-KIT02-R11
OS: Win 10 IOT Enterprise (64-bit)	AFL3-W07A-AL-W10E64-E-R10				
PoE PD module	N/A	N/A	AFL3-PD-BT01-KIT01-R10	AFL3-PD-BT01-KIT01-R10	AFL3-PD-BT01-KIT01-R10

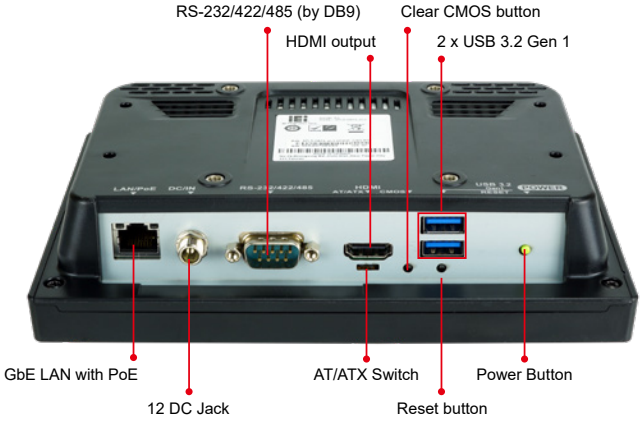
Packing List

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-W07A-AL2 / 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

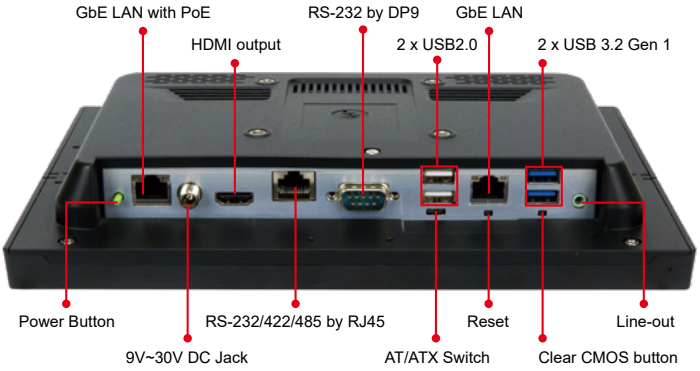
AFL3-W07A-AL
Fully Integrated I/O



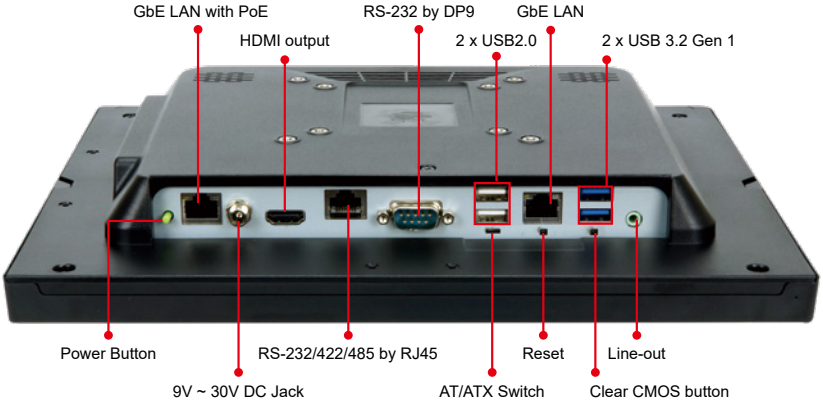
AFL3-W07A-AL2
Fully Integrated I/O



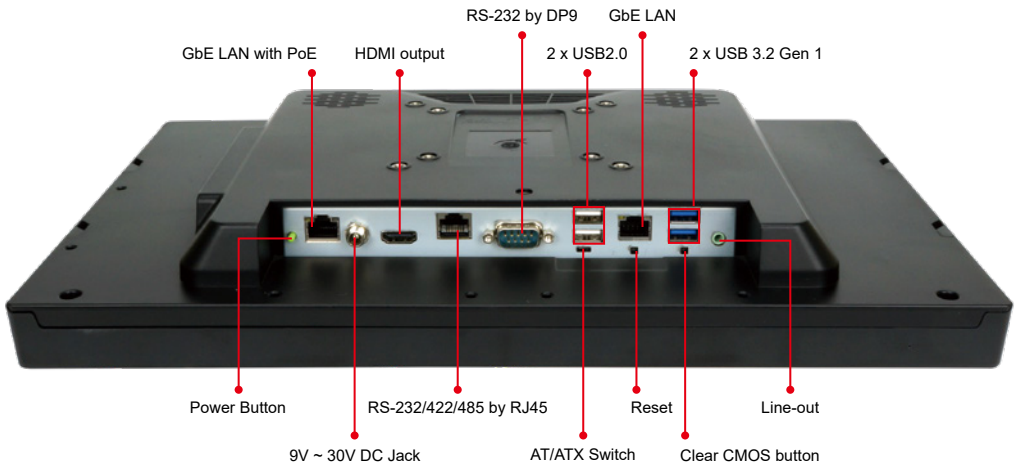
AFL3-W10A-AL
Fully Integrated I/O



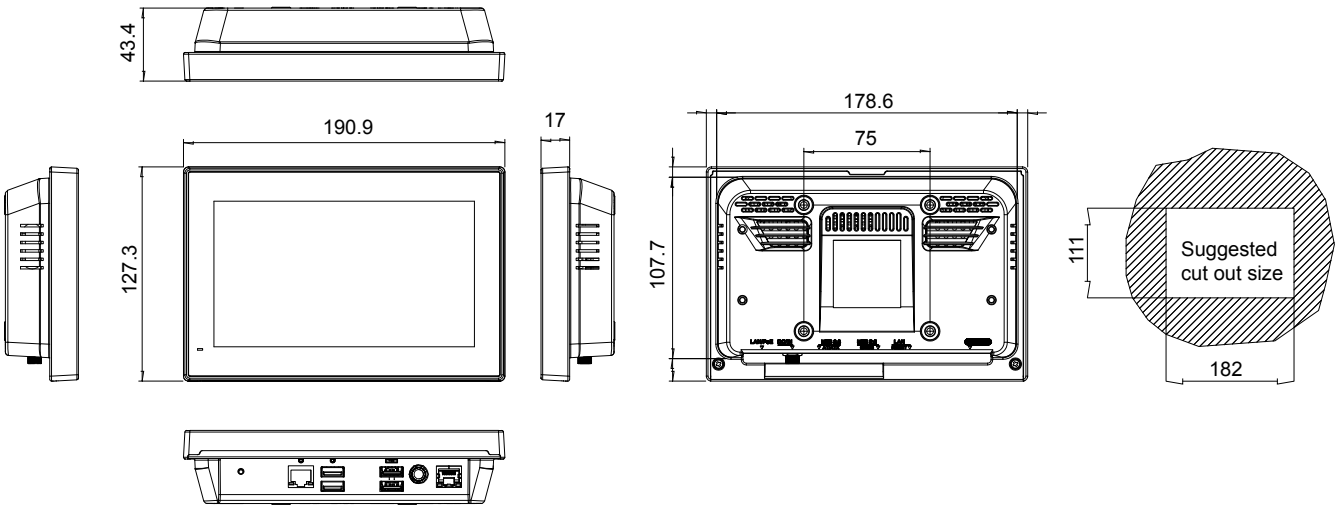
AFL3-12A-AL
Fully Integrated I/O



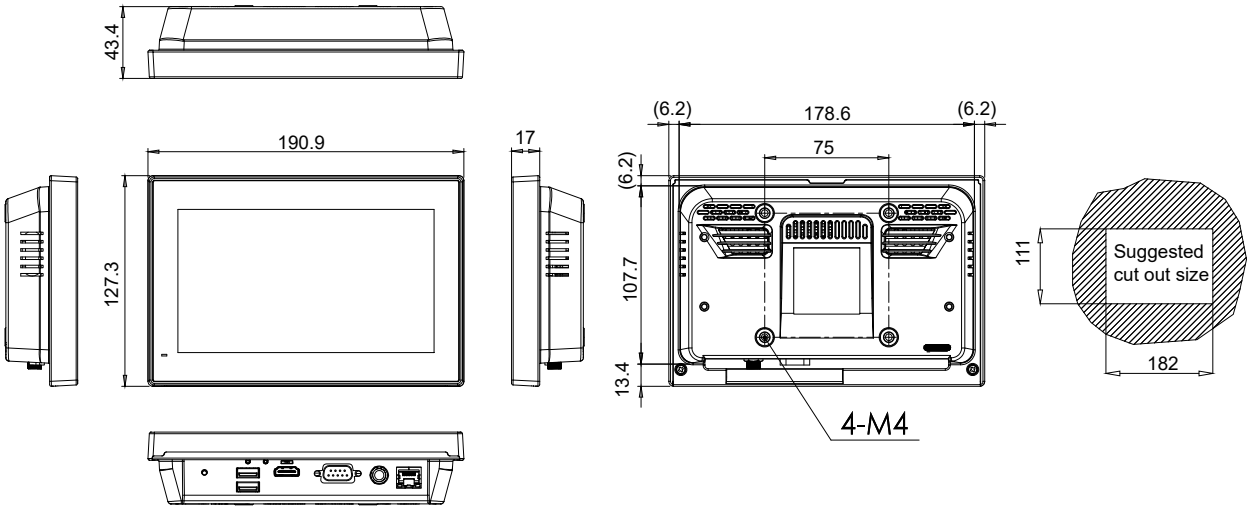
AFL3-W15A-AL
Fully Integrated I/O



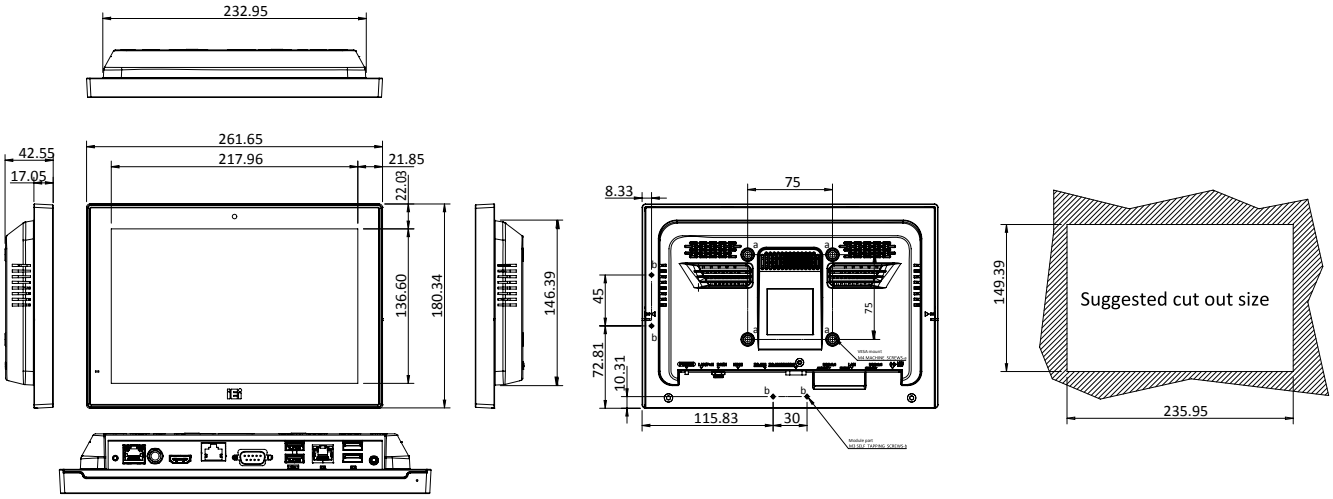
AFL3-W07A-AL Dimensions (Unit: mm)



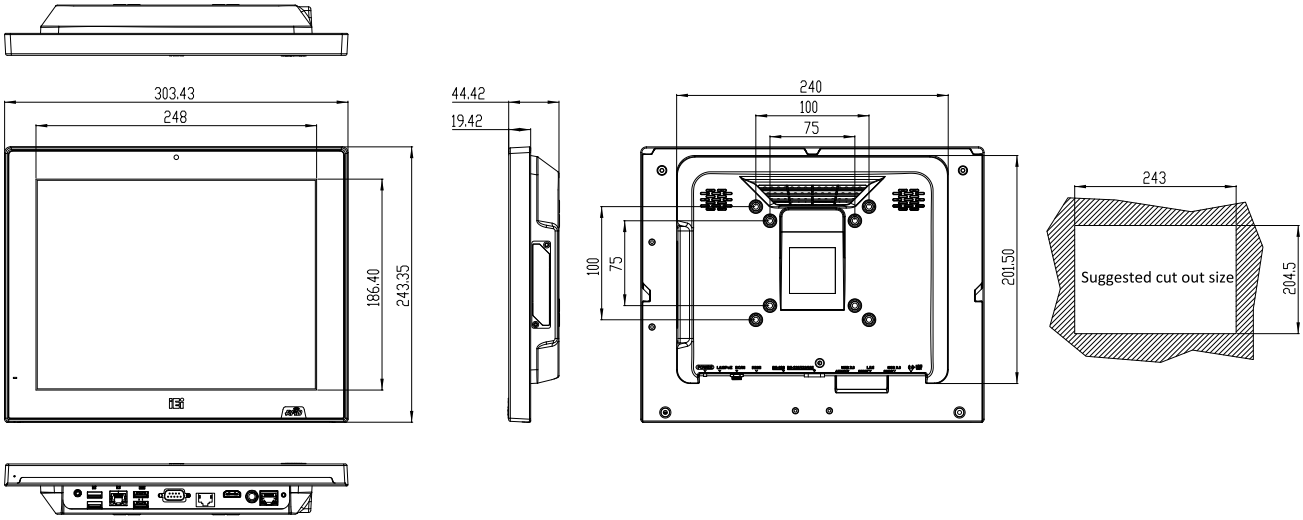
AFL3-W07A-AL2 Dimensions (Unit: mm)



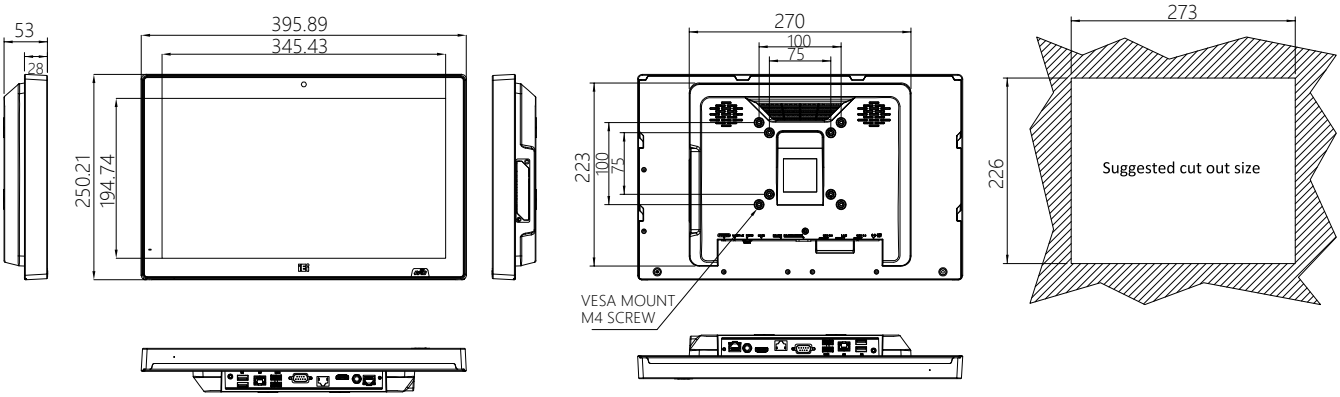
AFL3-W10A-AL Dimensions (Unit: mm)



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



AFL3-W15A-AL Dimensions (Unit: mm)



AFL3 Whiskey 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	500:1	1000:1	1000:1
	Viewing Angle (H-V)	170º/160º	170º/160º	170º/160º
	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	Realtek ALC 888S		
Storage		1 x M.2 M-key 2280 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 Button 1 x AT/ATX switch		
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		
	Thermal Solution	Fanless		
Power	Power Requirement	12V, 8A		
		PoE IEEE802.3af/at/bt (redundancy, power load-sharing)		
ErP		ErP 2009/125/EC		

AFL3 Whiskey Lake with PoE

NEW

Intelligent PoE Management System

Features

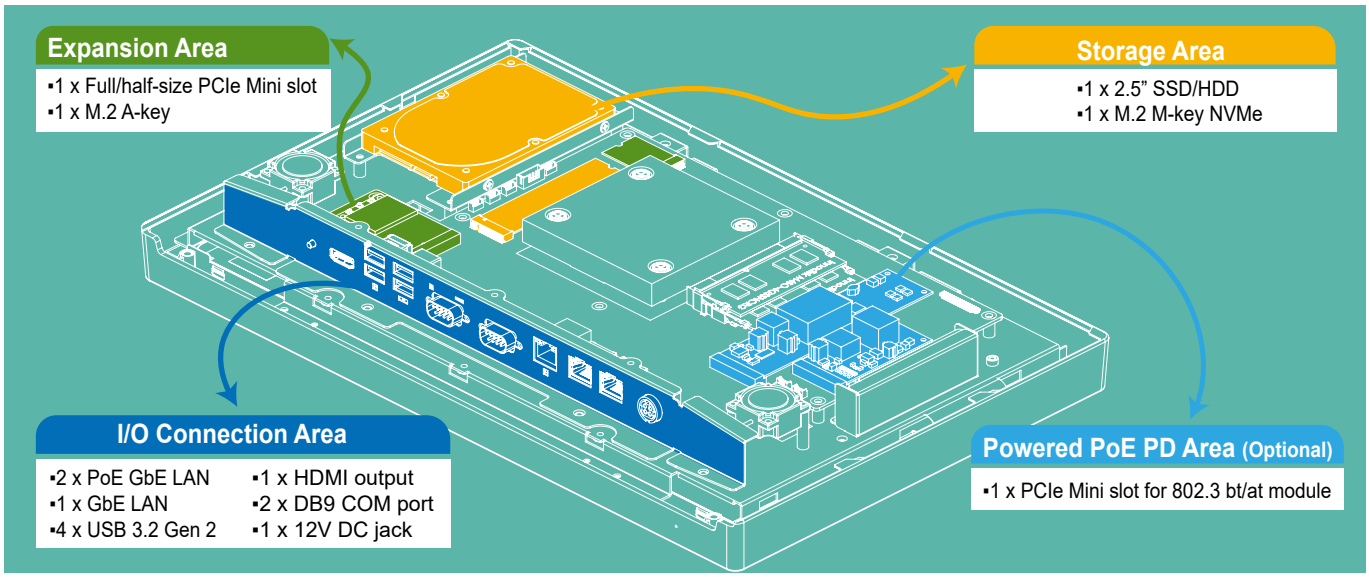
- W15.6"~ W21.5" light industrial interactive panel PC
- 8th Generation Intel® Core™ i5 on-board Whiskey Lake-U processor
- Selectable AT/ATX power mode
- Built-in speakers
- Support PoE PD IEEE803.2 af/at/bt (optional)
- IP64 compliant front panel
- Touch screen wth anti-UV / anti-glare coating
- Support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

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

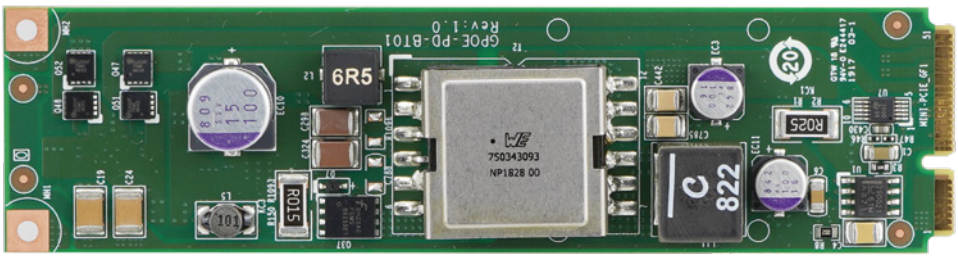
Specifications

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	500:1	1000:1	1000:1
	Viewing Angle (H-V)	170º/160º	170º/160º	170º/160º
	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	Realtek ALC 888S		
Storage		1 x M.2 M-key 2280 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 Button 1 x AT/ATX switch		
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		
	Thermal Solution	Fanless		
Power	Power Requirement	12V, 8A		
		PoE IEEE802.3 af/at/bt (redundancy, power load-sharing)		
ErP		ErP 2009/125/EC		
Supported OS		Microsoft Windows® 10 / Windows® 11, Linux		

Rich Interface

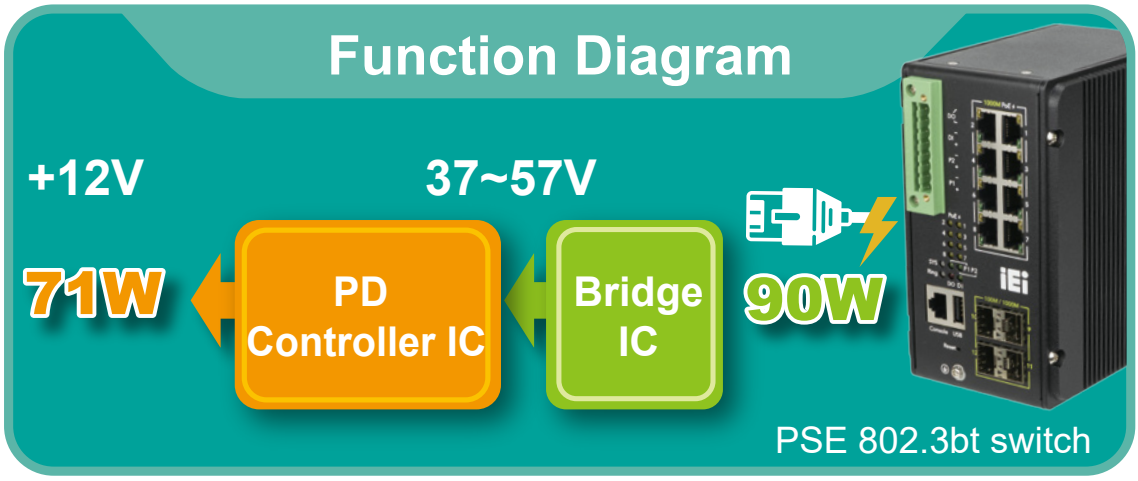


IEEE802.3 PD Module



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%



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-BT01-R10	PoE PD IEEE802.3af/at/bt with PCIe Mini form factor, supports AFL3-W15C/W19C/W22C-ULT5, R10

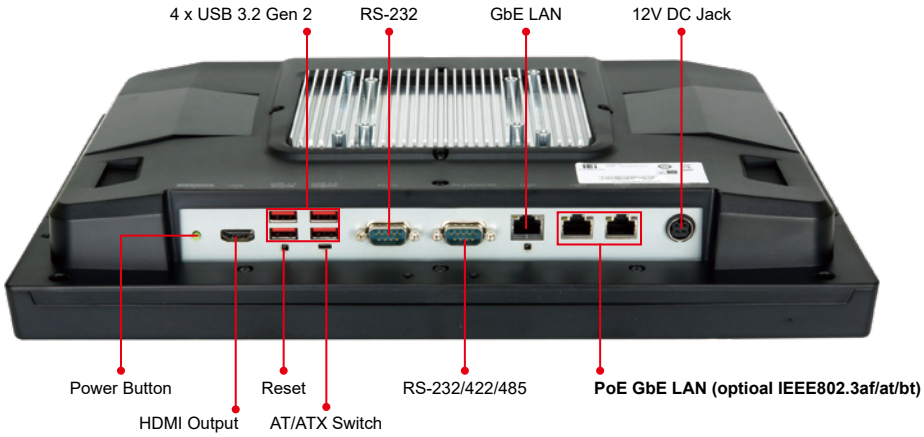
Options

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	N/A	N/A	N/A
Arm	ARM-11-RS/ARM-31-RS		
Stand	STAND-A21-R10/ STAND-210-R11/STAND-C19-R10		
Barcode Scanner	AFL3-2D-R11		
RFID Reader (13.56 MHz Mifare Type For ATO assembly)	AFL3-MF-RFID-KIT02-R11		

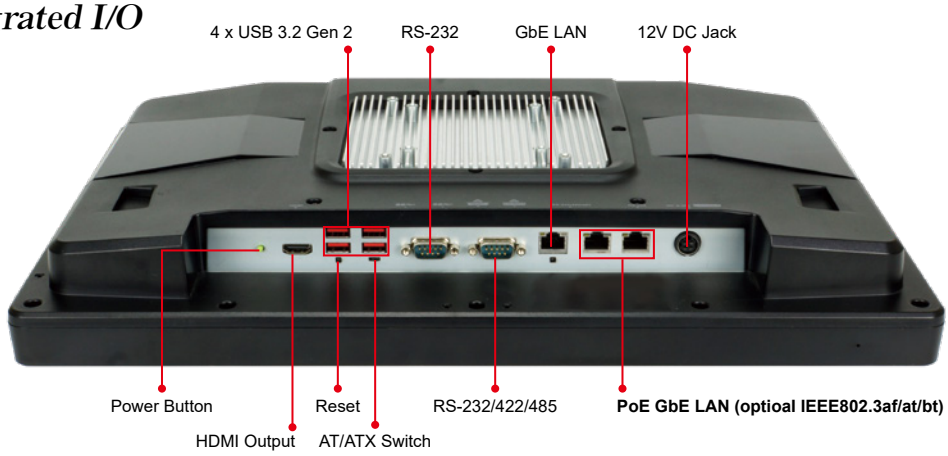
Packing List

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

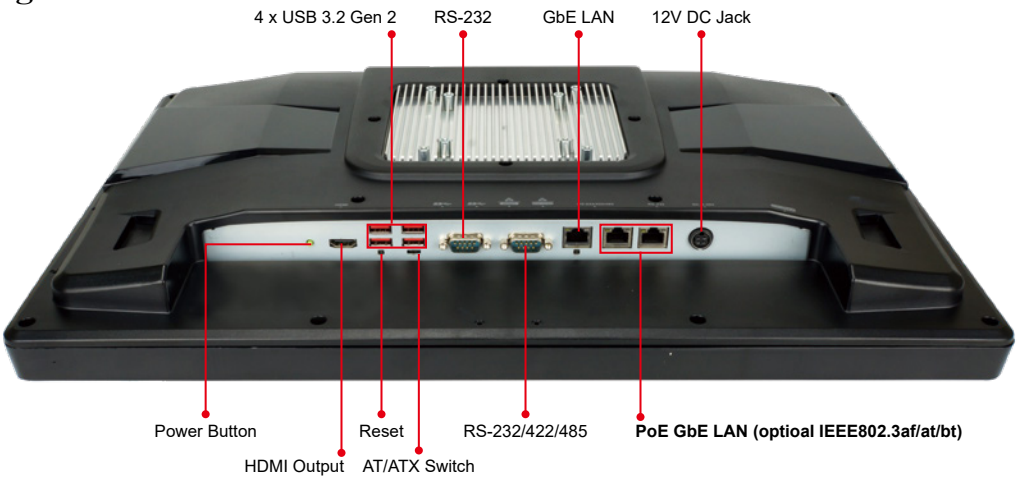
AFL3-W15C-ULT5
Fully Integrated I/O



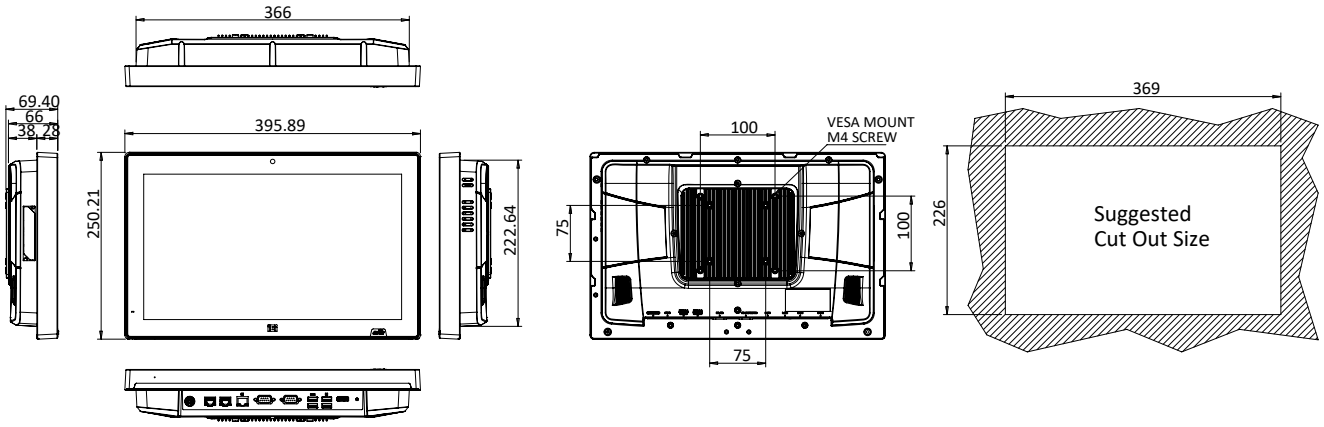
AFL3-W19C-ULT5
Fully Integrated I/O



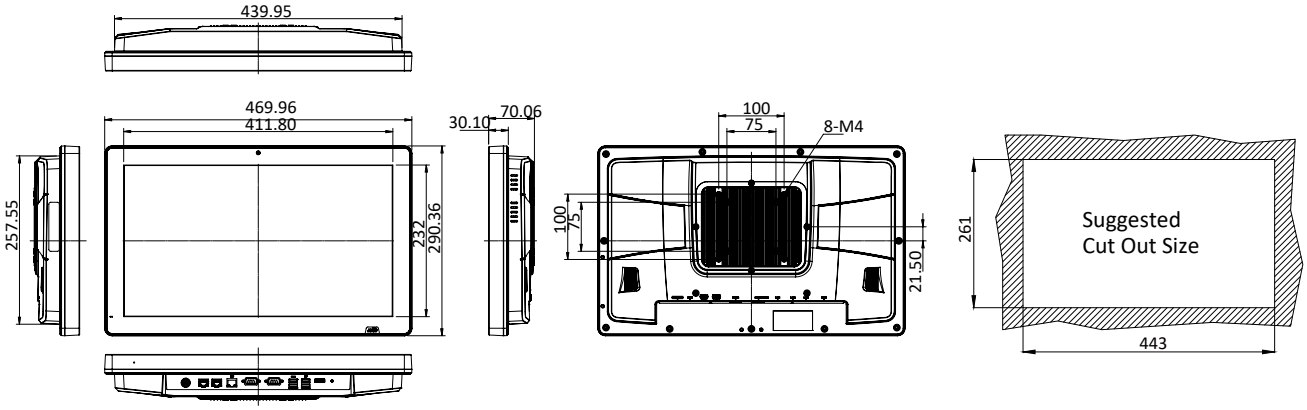
AFL3-W22C-ULT5
Fully Integrated I/O



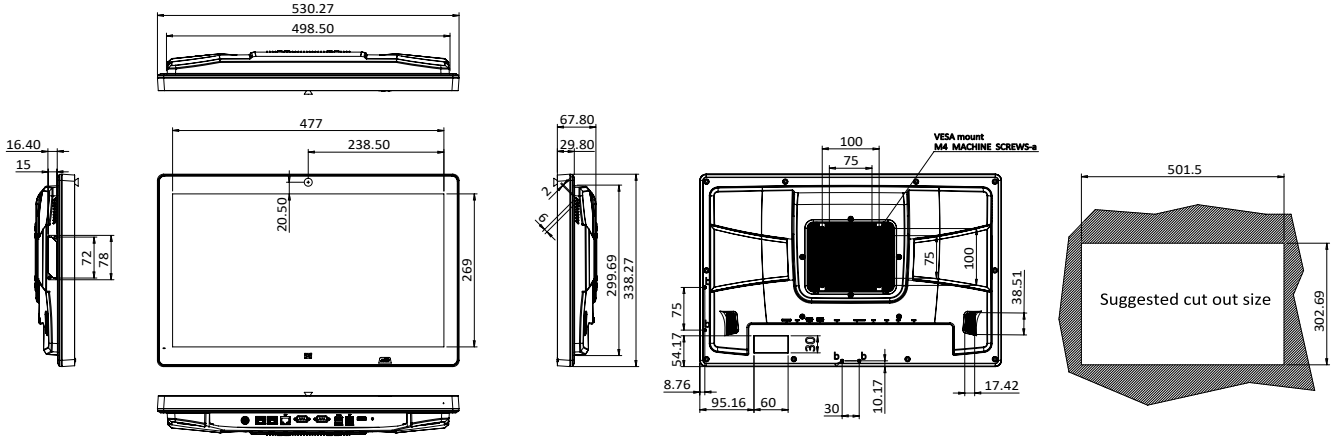
AFL3-W15C-ULT5 Dimensions (Unit: mm)



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

Stylish

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

Connectivity

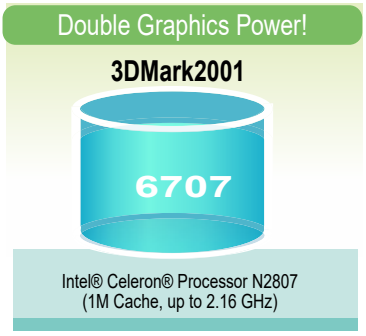
- Digital microphone, 2-megapixel camera, speakers
- Wireless 802.11ac connectivity
- Bluetooth 4.0 (optional)

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



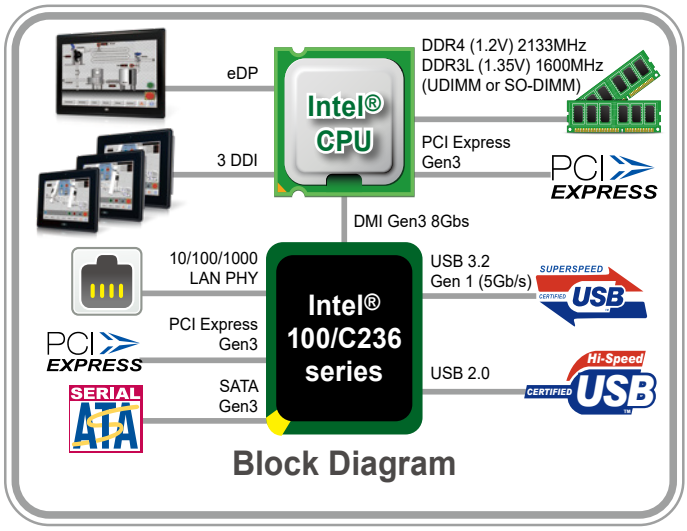
B. 7, 6th Generation Intel® Solution

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



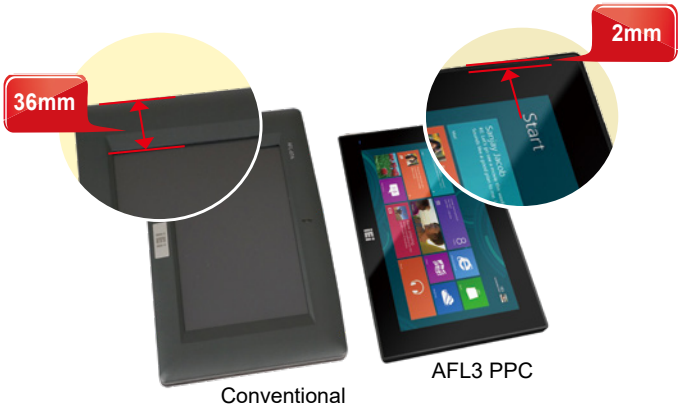
	ULT			
Item	**8 Series**	**9 Series**	**100 Series**	**100 Series**
Platform Name	Haswell	Broadwell	Skylake	Kabylake
Process	22nm	14nm	14nm	14nm
CPU Package	BGA1168	BGA1168	BGA1356	BGA1356
Memory	DDR3L	DDR3/DDR3L 1600	DDR3L/DR4	DDR3L/DR4
PCI Express Lanes	Up to 8 Lanes PCIe (Gen2)	Up to 12 PCIe (Gen2)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

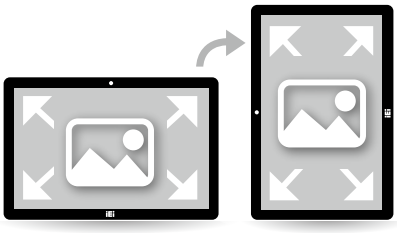
Only 2 screws are needed for rear cover installation, making it easy to access and replace storage and PCIe Mini card quickly.

2mm Narrow Bezel



Symmetric Bezel

Landscape/Portrait screen mode supports different applications



Light Weight Plastic Housing

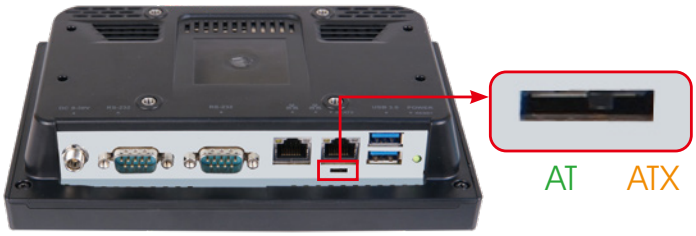
The ABS plus PC plastic housing helps to shape the stylish outlook and only weight 1/3 of metal housing panel PC.

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 Button. 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 Button 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

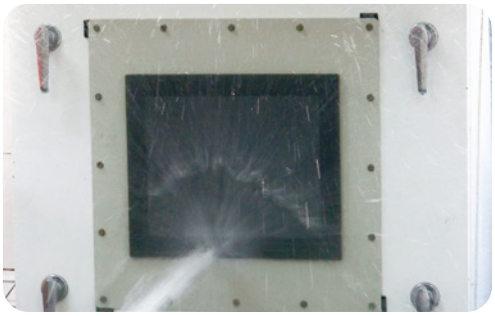
Advantages

- 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

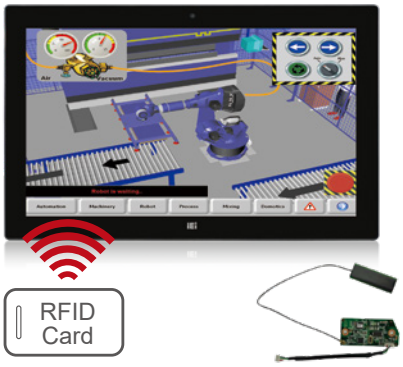
Software OSD Configuration

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.

*Support OS
Windows 7
Windows 8 / Windows 8.1
Windows 10 / Windows 10.1

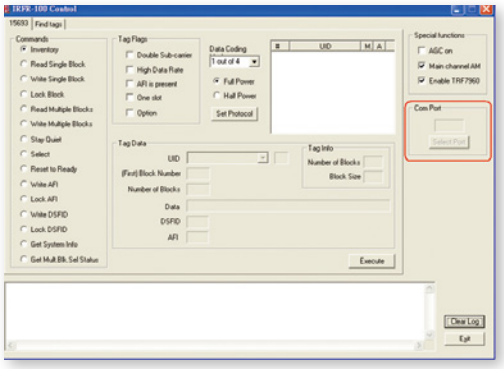
Rich Peripherals

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

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

AFOLUX GEN III Selection Guide

LCD Size		7”	8.4”
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)	150º / 145º	160º / 140º
	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	One 204-pin 2 GB 1333MHz single-channel, 2GB DDR3L SO-DIMM pre-installed (system max. 8GB)
	Ethernet	2 x PCIe GbE by RTL8111HN-CG	2 x PCIe GbE by RTL8111HN-CG controller
	Audio Codec	Realtek ALC 888S	
Storage		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 Button 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 Button 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 4.2 half-size mini-PCIe slot (PCIe / USB 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 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)

AFOLUX GEN III Selection Guide

LCD Size		10.1”	12.1”
Model		AFL3-W10A-BT	AFL3-12A-BT
LCD	Size	10.1”	12.1”
	Resolution	1280 x 800 (16:10)	1024 x 768 (4:3)
	Brightness (cd/m²)	350	500
	Contrast Ratio	800:1	700:1
	LCD Color	16.2M	16.2M
	Pixel Pitch (mm)	0.1695 (H)×0.1695 (V)	0.240 (H) x 0.240 (V)
	Viewing Angle (H-V)	170º / 170º	160º / 140º
	Backlight MTBF(hrs)	15000 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 EXC3146	PenMount DMC9000/ EETI EXC3146
Motherboard	CPU	Intel® Celeron® J1900 (quad core, 2.0 GHz)	
	RAM	One 204-pin 2 GB 1333MHz single-channel, 2GB DDR3L SO-DIMM pre-installed (system max. 8GB)	
	Ethernet	2 x PCIe GbE by RTL8111HN-CG controller	
	Audio Codec	Realtek ALC 888S	
Storage		1 x mSATA	1 x mSATA 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 Button 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 Button 1 x Audio port (line-out) 1 x Reset button 1 x AT/ATX switch 1 x 9-30V lockable power jack
Audio		AMP 2W + 2W (internal speaker)	AMP 3W + 3W (internal speaker)
Camera and Microphone		2-megapixel with low light function, digital microphone	
Wireless		IEEE 802.11 a/b/g/n/ac / Bluetooth 4.2 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	Panel, Wall, Rack, Stand and Arm VESA 75mm x 75mm / 100mm x 100mm
	Color	Black C	
	Dimensions (WxHxD) (mm)	262 x 181 x 42	304 x 243 x 44
	Cut-out Dimensions (WxH) (mm)	236 x 149	243 x 205
	Net/Gross Weight (kgs)	1.06/2.58	1.92/3.95
Environment	Operating Temperature (Ambient with air flow)	-10°C ~ 50°C	-20°C ~ 50°C
	Storage Temperature	-20°C ~ 60°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	
Power	Power Requirement	9 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)

AFOLUX GEN III Selection Guide

LCD Size		15.6”	18.5”
Model		AFL3-W15A-BT	AFL3-W19A-AL
LCD	Size	15.6”	18.5”
	Resolution	1366 x 768 (16:9)	1366 x 768 (16:9)
	Brightness (cd/m²)	400	250
	Contrast Ratio	500:1	1000:1
	LCD Color	16.2M	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)	50000 (LED backlight)	30, 000 (LED backlight panel)
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 EXC3188	EETI EXC3188
Motherboard	CPU	Intel® Celeron® J1900 (quad core, 2 GHz)	Intel® Celeron® J3455 (quad core, 1.5GHz up to 2.3 GHz)
	Chipset		
	RAM	One 204-pin 1333 MHz single-channel DDR3L SO-DIMM, 2GB pre-installed (system max. 8GB)	One 204-pin 1600/1333 MHz single-channel DDR3L SO-DIMM, 4GB pre-installed (system max. 8GB)
	Ethernet	2 x PCIe GbE by RTL8111HN-CG controller	2 x PCIe GbE by Intel® i211 controller
	Audio Codec	Realtek ALC 888S	Realtek ALC 269
Storage		1 x mSATA 1 x 2.5” SATA 3Gb/s HDD bay	1 x mSATA 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 2.0 2 x USB 3.2 Gen 1 (5Gb/s) 2 x GbE LAN 1 x Power Button 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-232/422/485 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 Button 1 x AT/ATX switch 1 x Line out
Audio		AMP 3W + 3W (internal speakers)	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 802.11a/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	Software OSD
Physical	Front Panel Construction	PC + ABS Plastic	PC + ABS Plastic
	Mounting	Panel, Wall, Rack, 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 (WxHxD) (mm)	396 x 250 x 53	470 x 280 x 60
	Cut-out Dimensions (WxH) (mm)	273 x 226	418 x 230
	Net/Gross Weight (kgs)	3.3/5.6	6.3/9
Environment	Operating Temperature (°C) (Ambient with air flow)	-20°C ~ 50°C	-15ºC ~ 50ºC
	Storage Temperature (°C)	-20°C ~ 60°C	-20ºC ~ 60ºC
	Humidity	10% to 95% (non-condensing)	10% to 95% (non-condensing)
	IP Level	IP 64 compliant front panel	IP 64 compliant front panel
	Safety & EMC	CE / FCC	CE / FCC
	Thermal Solution	Fanless	Fanless
Power	Power Requirement	9 V ~ 30 V	12V ~ 34V DC
	Power Consumption	12V@4.16A (Intel® J1900 CPU with 2GB 1333 MHz DDR3 memory)	12V@3.2A (Intel® Celeron J3455 CPU with 4GB DDR3L 1866 MHz DDR3L 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)	150º / 145º	160º / 140º
	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	One 204-pin 2 GB 1333MHz single-channel, 2GB DDR3L SO-DIMM pre-installed (system max. 8GB)
	Ethernet	2 x PCIe GbE by RTL8111HN-CG	2 x PCIe GbE by RTL8111HN-CG controller
	Audio Codec	Realtek ALC 888S	Realtek ALC 888S
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 Button 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 Button 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 4.2 half-size mini-PCIe slot (PCIe / USB signal)	IEEE 802.11 a/b/g/n/ac / Bluetooth 4.2 half-size mini-PCIe slot (PCIe / USB 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-R20	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, R20
AFL3-W07A-BT-N1/PC/2G/MF-R20	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, R20
AFL3-08A-BT-J1/R/2G-R14	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, R14

Options

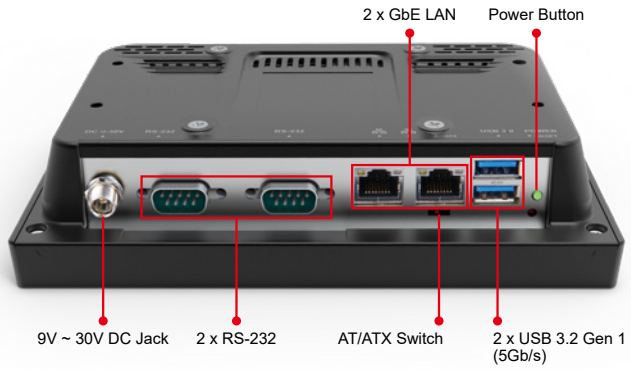
Item	AFL3-W07A-BT	AFL3-08A-BT
Panel Mounting Kit	AFL3PK-W07A-R11	AFL3PK-08A-R10
Wall Mounting Kit	AFLWK-12	AFLWK-12
Rack Mounting Kit	AFL3RK-W07A-R11	AFL3RK-08A-R10
Arm	ARM-11-RS/ARM-31-RS	ARM-11-RS/ARM-31-RS
Stand	STAND-A21-R10/STAND-210-R11/STAND-C12-R10	
V-Stand	VSTAND-A07-R11	VSTAND-A10-R11
Barcode Scanner	N/A	AFL3-2D-R11
RFID Reader (13.56 MHz Mifare Type)	AFL3-W07A-BT-N1/PC/2G/MF-R20	N/A (Customized by project base)
*OS: Win 7 Embedded (64-bit)	AFL3-W07A-BT-WES7P64-R12 (for PCAP touch)	AFL3-W07A-BT-WES7P64-R12 (for PCAP touch) AFL3-W07A-BT-WES7E64-R12 (for Resistive touch)
*OS: Win 10 IOT Enterprise (64-bit)	AFL3-W07A-BT-W10E64-E-R12	

*OS image with CD-ROM without storage

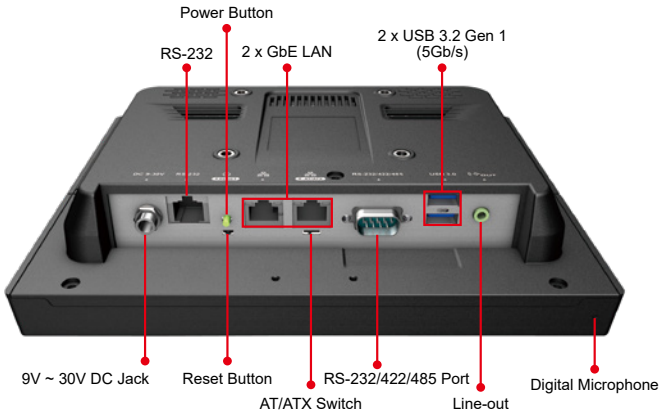
Packing List

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	63040-010036-210-RS (AFL3-W07A-BT / AFL3-08A-BT)	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

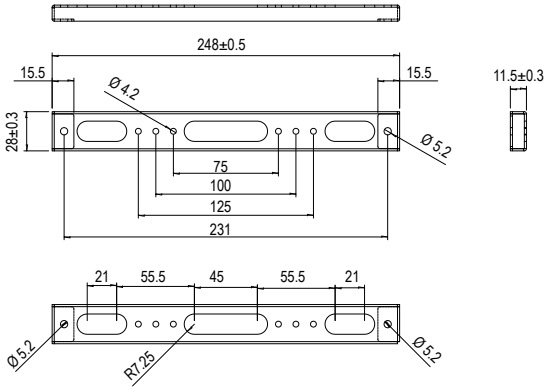
AFL3-W07A-BT Fully Integrated I/O



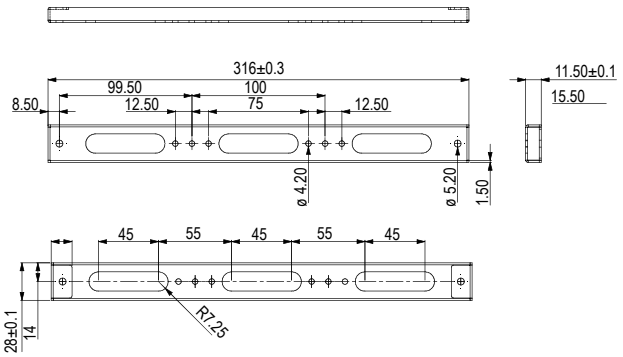
AFL3-08A-BT Fully Integrated I/O



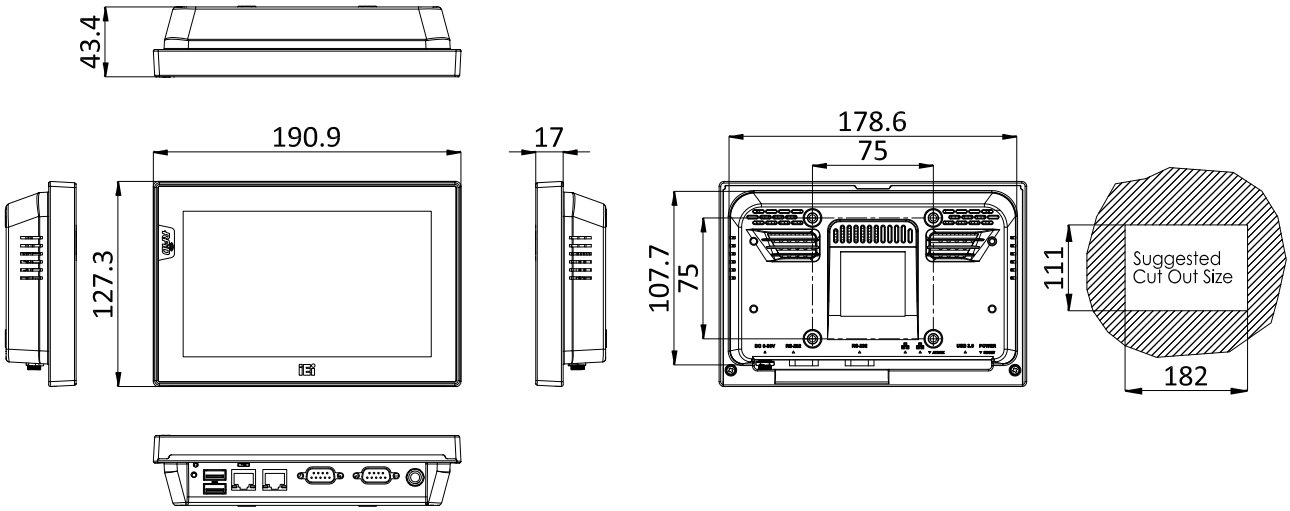
AFL3PK-W07A-R11
Panel Mounting Kit Dimensions (Unit: mm)



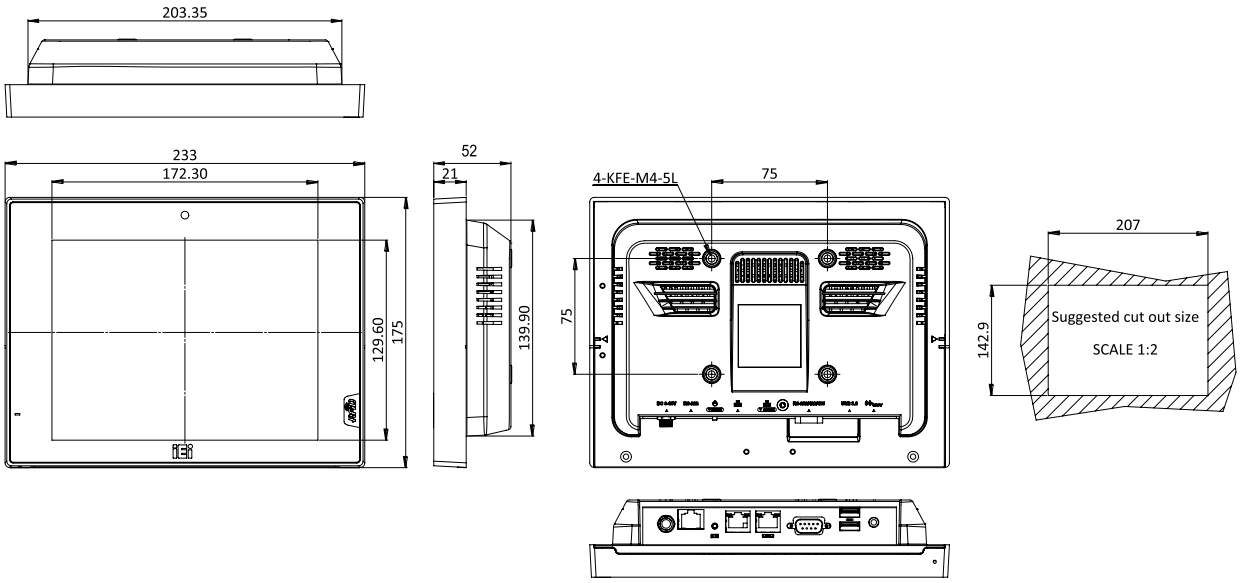
AFL3PK-08A-R10
Panel Mounting Kit Dimensions (Unit: mm)



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)

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
LCD	Size	10.1"	12.1"
	Resolution	1280 x 800 (16:10)	1024 x 768 (4:3)
	Brightness (cd/m²)	350	500
	Contrast Ratio	800:1	700:1
	LCD Color	16.2M	16.2M
	Pixel Pitch (mm)	0.1695 (H)×0.1695 (V)	0.240 (H) x 0.240 (V)
	Viewing Angle (H-V)	170º / 170º	160º / 140º
	Backlight MTBF(hrs)	15000 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 EXC3146	PenMount DMC9000/ EETI EXC3146
Motherboard	CPU	Intel® Celeron® J1900 (quad core, 2.0 GHz)	Intel® Celeron® J1900 (quad core, 2.0 GHz)
	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 RTL8111HN-CG controller	2 x PCIe GbE by RTL8111HN-CG controller
	Audio Codec	Realtek ALC 888S	
Storage		1 x mSATA	1 x mSATA 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 Button 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 Button 1 x Audio port (line-out) 1 x Reset button 1 x AT/ATX switch 1 x 9-30V lockable power jack
Audio		AMP 2W + 2W (internal speaker)	AMP 3W + 3W (internal speaker)
Camera and Microphone		2-megapixel with low light function, digital microphone	
Wireless		IEEE 802.11 a/b/g/n/ac / Bluetooth 4.2 half-size mini-PCIe slot (PCIe / USB signal)	IEEE 802.11 a/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 VESA 75mm x 75mm	Panel, Wall, Rack, Stand and Arm VESA 75mm x 75mm / 100mm x 100mm
	Color	Black C	
	Dimensions (WxHxD) (mm)	262 x 181 x 42	304 x 243 x 44
	Cut-out Dimensions (WxH) (mm)	236 x 149	243 x 205
	Net/Gross Weight (kgs)	1.06/2.58	1.92/3.95
Environment	Operating Temperature (Ambient with air flow)	-10°C ~ 50°C	-20°C ~ 50°C
	Storage Temperature	-20°C ~ 60°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	
Power	Power Requirement	9 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)

Ordering Information

Part No.	Description
AFL3-W10A-BT-J1/PC/2G-R14	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, R14
AFL3-12A-BT-J1/PC/2G-R16	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, R16
AFL3-12A-BT-J1/R/2G-R16	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, R16
AFL3-12A-BT-J1/PC/4G-R16	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, 4GB DDR3L RAM, with AG, R16
AFL3-12A-BT-J1/R/4G-R16	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, 4GB DDR3L RAM, with AG, R16

Options

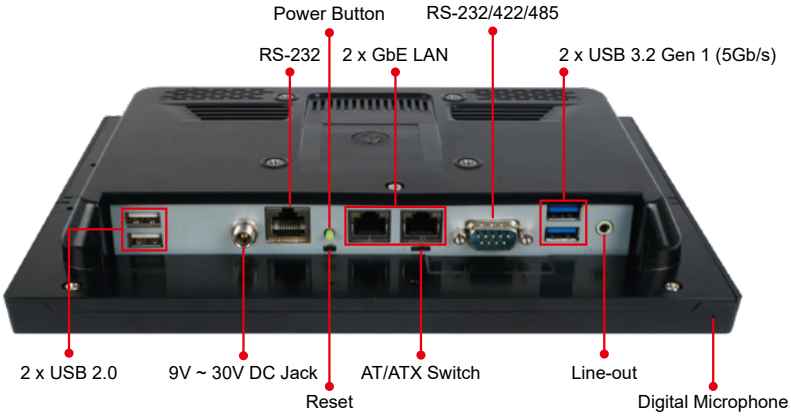
Item	AFL3-W10A-BT	AFL3-12A-BT
Panel Mounting Kit	AFL3PK-08A-R10	
Wall Mounting Kit	AFLWK-12	AFLWK-19B
Rack Mounting Kit	AFL3RK-W10A-R10	-
Arm	ARM-11-RS/ARM-31-RS	
Stand	STAND-A21-R10/STAND-210-R11/STAND-C12-R10	
V-Stand	VSTAND-A10-R11	VSTAND-A12-R11
Barcode Scanner	AFL3-2D-R11	
RFID Reader **(13.56 MHz Mifare Type) for ATO assembly	AFL3-MF-RFID-KIT02-R10	AFL3-MF-RFID-KIT02-R10**
*OS: Win 7 Embedded (64-bit)	AFL3-W07A-BT-WES7P64-R12* (for PCAP touch)	AFL3-W07A-BT-WES7P64-R12* (for PCAP touch) AFL3-W07A-BT-WES7E64-R12* (for Resistive touch)
*OS: Win 10 IOT Enterprise	AFL3-W07A-BT-W10E64-E-R12	

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

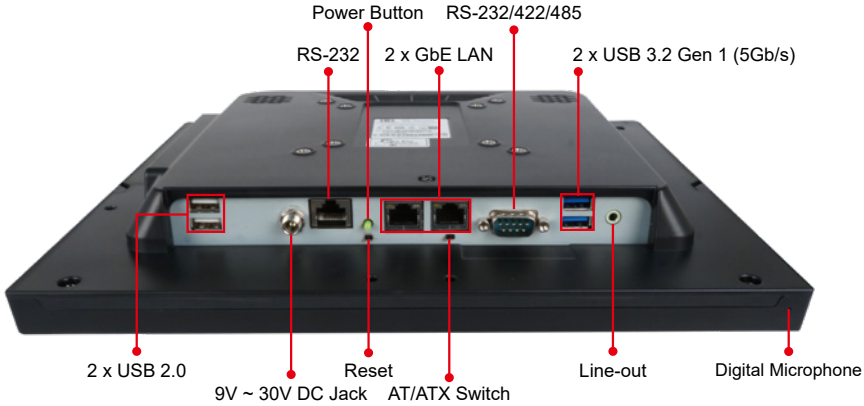
Packing List

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	63040-010036-210-RS (AFL3-W10A-BT) 63040-010060-211-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

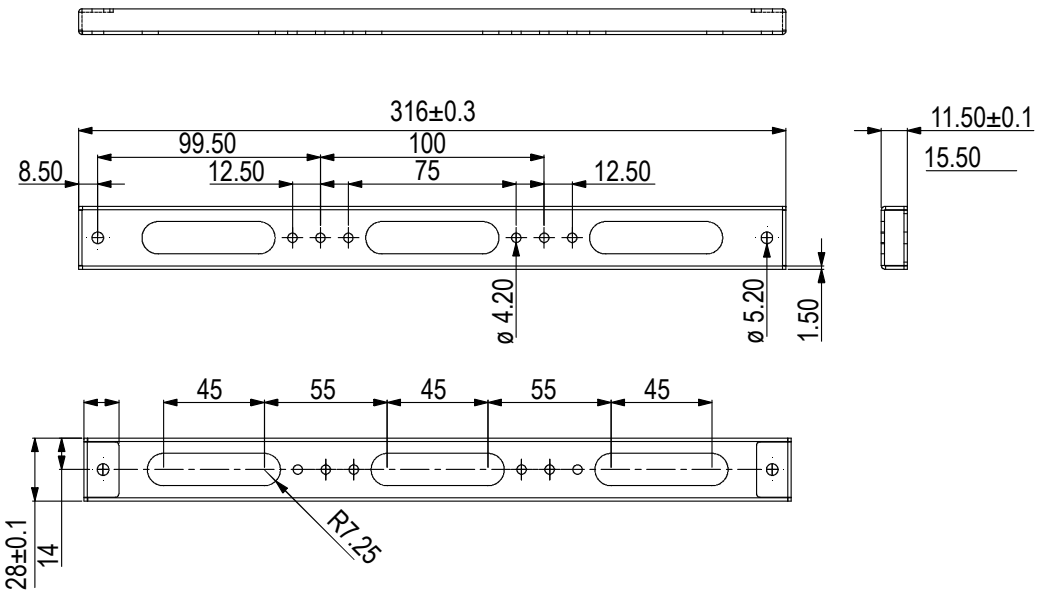
AFL3-W10A-BT
Fully Integrated I/O



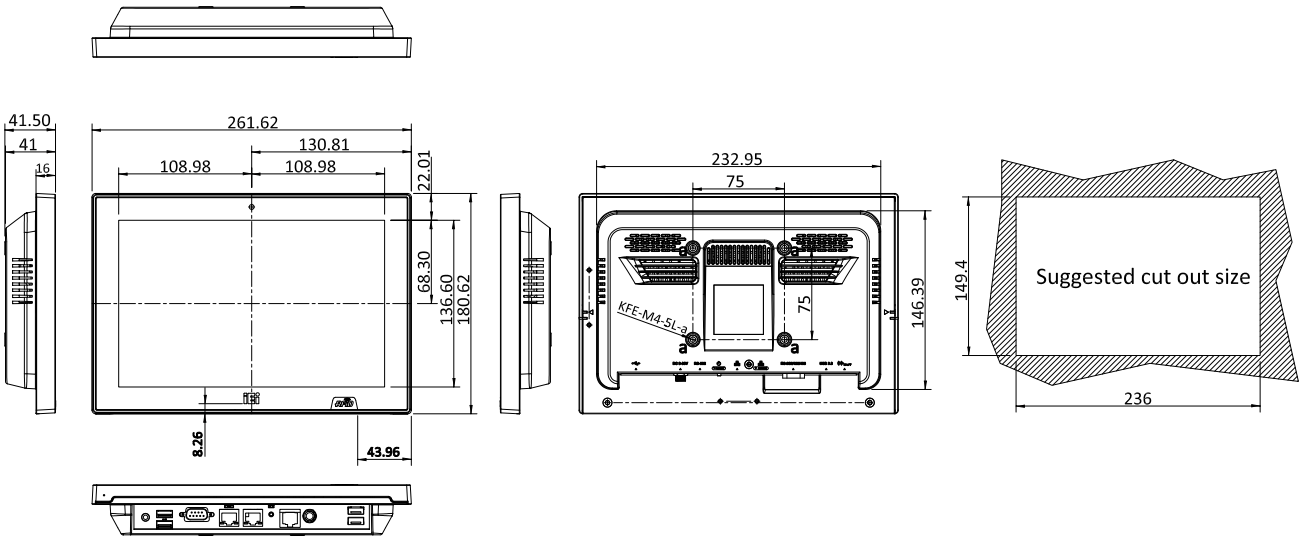
AFL3-12A-BT
Fully Integrated I/O



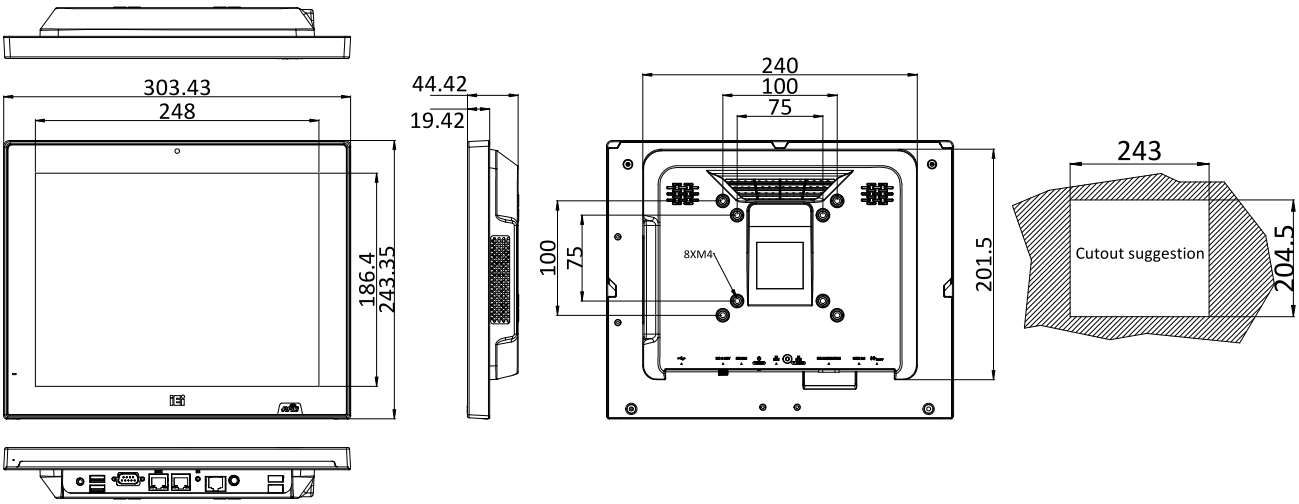
AFL3PK-08A-R10
Panel Mounting Kit Dimensions (Unit: mm)



AFL3-W10A-BT Dimensions (Unit: mm)



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



AFL3-W15A-BT

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

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
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
Motherboard	CPU / Chipset	Intel® Celeron® J1900 (quad core, 2 GHz)
	RAM	One 204-pin 1333 MHz single-channel DDR3L SO-DIMM, 2GB pre-installed (system max. 8GB)
	Ethernet	2 x PCIe GbE by RTL8111HN-CG controller
	Audio Codec	Realtek ALC 888S
Storage		1 x mSATA 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 2.0 2 x USB 3.2 Gen 1 (5Gb/s) 2 x GbE LAN 1 x Power button 1 x Reset button 1 x AT/ATX switch 1 x Audio port (line-out) 1 x 9-30V lockable power jack
Audio		AMP 3W + 3W (internal speakers)
Camera and Microphone		2-megapixel with low light function, digital microphone
Wireless & Bluetooth		IEEE 802.11 a/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, Rack, Stand and Arm VESA 75mm x 75mm / 100mm x 100mm
	Color	Black C
	Dimensions (WxHxD) (mm)	396 x 250 x 53
	Cut-out Dimensions (WxH) (mm)	273 x 226
	Net/Gross Weight (kgs)	3.3/5.6
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
	Thermal Solution	Fanless
Power	Power Requirement	9 V ~ 30 V
	Power Consumption	12V@4.16A (Intel® J1900 CPU with 2GB 1333 MHz DDR3 memory)

Ordering Information

Part No.	Description
AFL3-W15A-BT-J1/R/2G-R15	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, R15
AFL3-W15A-BT-J1/R/4G-R15	Wide 15.6" 400 cd/m² 1366x768 fanless panel PC with Intel® Celeron® J1900 quad core 2 GHz, 802.11a/b/g/n/ac wireless module, resistive touch window, 4GB DDR3L RAM, with AG, R15

Packing List

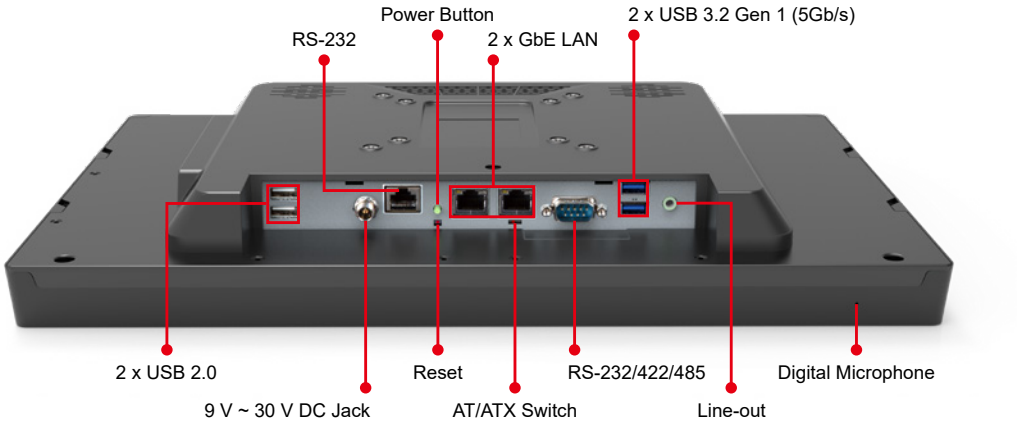
Item	Part No.	Q'ty	Remark
Round head machine screw	44003-020041-RS (W15A-BT/15B-H81)	4	M2*4 round head machine screw
Pan head machine screw	44403-040061-RS	4	M4*6 pan head machine screw
Fix holder	46003-009500-RS	2	
Power adapter	63040-010060-211-RS (AFL3-W15A-BT)	1	60W; Vin: 90V~264V AC; Vout: 12VDC
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

Options

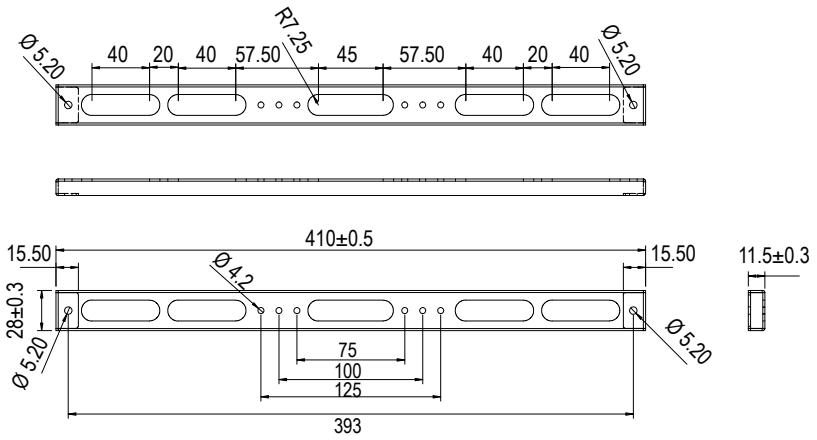
Item	AFL3-W15A-BT
Panel Mounting Kit	AFL3PK-W15A-R10
Wall Mounting Kit	AFLWK-19B
Rack Mounting Kit	AFL3RK-W15A-R11
Arm	ARM-11-RS/ARM-31-RS
Stand	STAND-A21-R10/ STAND-210-R11/STAND-C19-R10
Barcode Scanner	AFL3-2D-R11
RFID Reader (13.56 MHz Mifare Type) (for ATO assembly)	AFL3-MF-RFID-KIT02-R10**
*OS: Win 7 Embedded (64-bit)	AFL3-W07A-BT-WES7P64-R12 (for PCAP touch) AFL3-W07A-BT-WES7E64-R12 (for resistive touch)
*OS: Win 10 IoT Enterprise (64-bit)	AFL3-W07A-BT-W10E64-E-R12

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

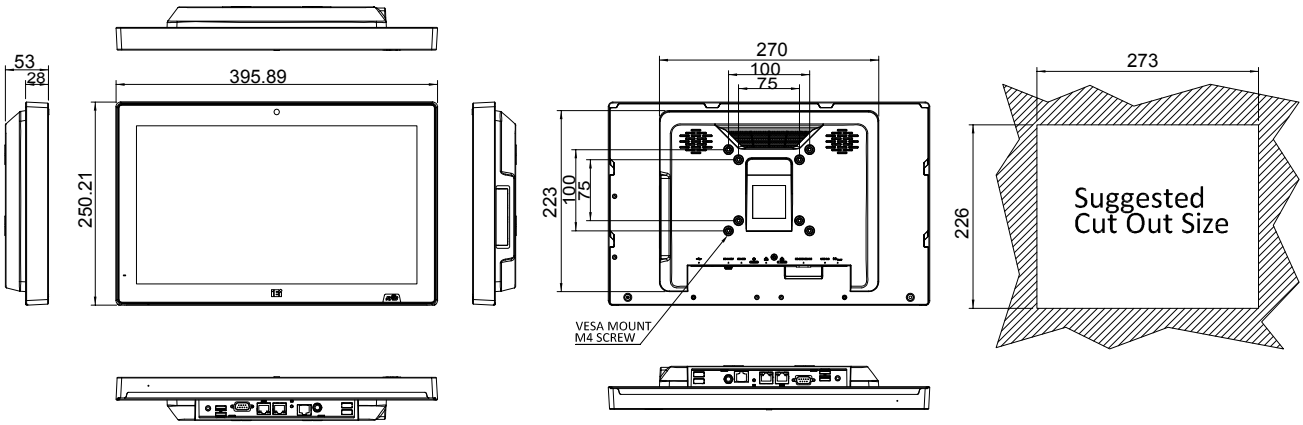
AFL3-W15A-BT
Fully Integrated I/O



AFL3PK-W15A-R10
Panel Mounting Kit Dimensions (Unit: mm)



AFL3-W15A-BT Dimensions (Unit: 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® H81	Intel® ULT5
8"	PPC-F08B-BT		
10.4"	PPC-F10B-BT		
12.1"	PPC-F12B-BT		
15"	PPC-F15B-BT	PPC-F15A-H81	PPC-F15D-ULT5
15.6"			PPC-FW15D-ULT5
17"	PPC-F17B-BT	PPC-F17A-H81	PPC-F17D-ULT5
18.5"			PPC-FW19D-ULT5

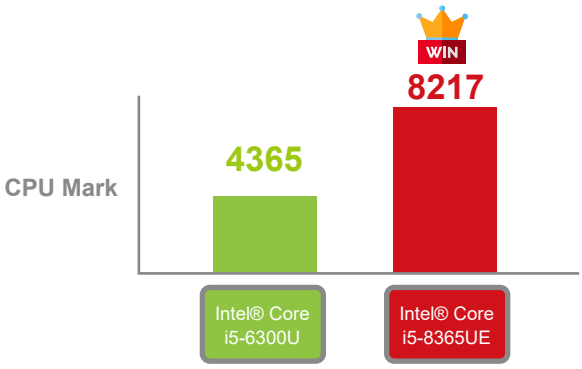
Verticak Market Panel PC

Solutions	Marine Series	
Size	Intel® QM87 (PPC)	Embedded Box
12”		SBOX-100-QM87
15”		
19”	S19A-QM87	

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™ i5-8365UE (WIN)
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

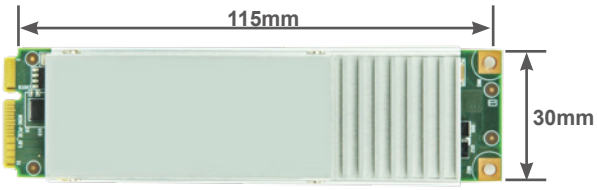
802.3bt PoE PD Supported

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)



Modular Architecture

High Flexibility

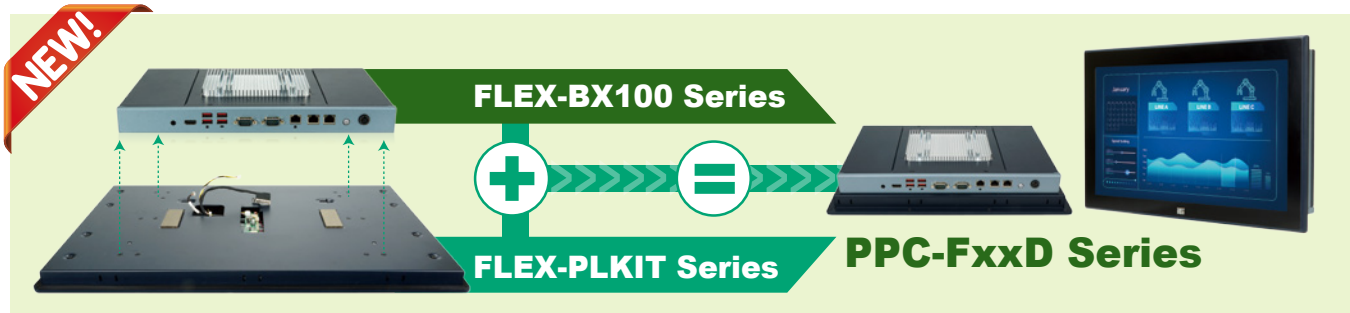
The panel modules (available in 6 sizes) installed on the box PC can be swapped to provide up to 7 platform solutions for diverse applications

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.

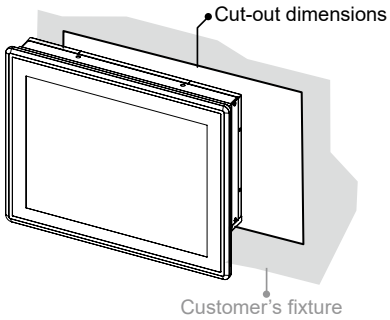
Faster Time to Market

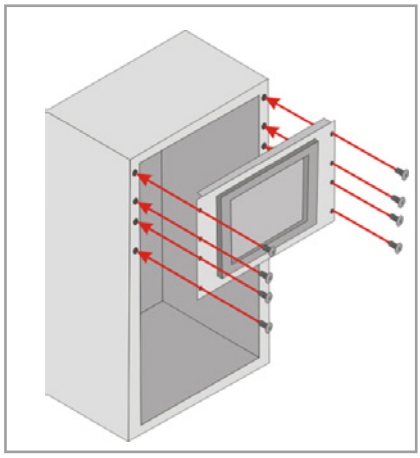
Build the system upon specific hardware (CPU, memory, add-on-card, etc.) requirement with faster time-to-market, reducing total cost of ownership for solution providers.

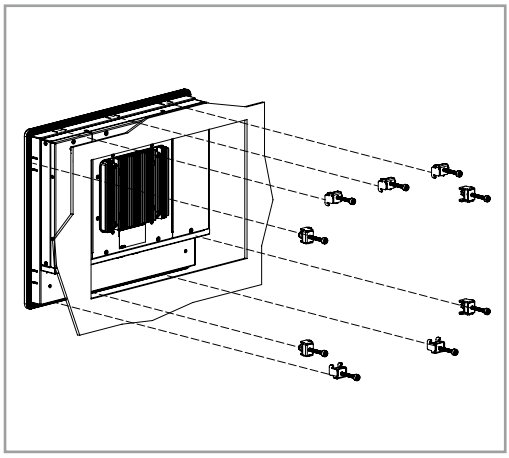


Backward-Compatible with PPC-F series

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.



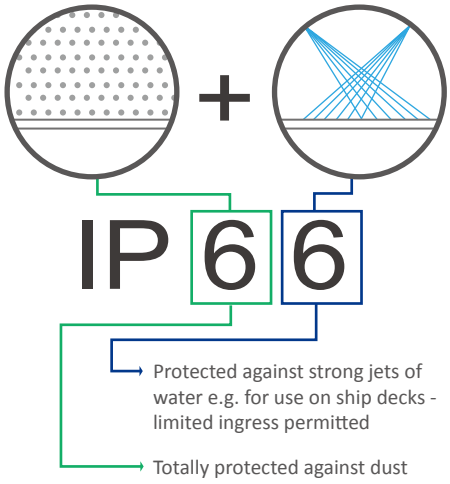




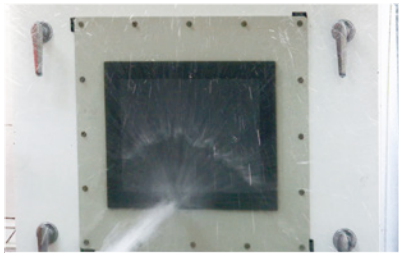
IP66 Front Panel Protection

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

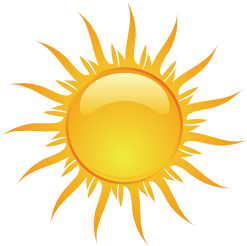
Etching anti-glare, never peel off!

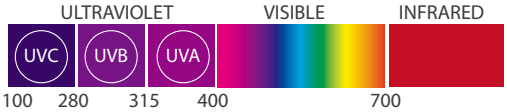
The PPC-FxxC series is built with anti-glare touch screen, which has lower reflection compared to normal touch screen. The reflection will reduce from 8% to 1% and it will eliminate the interference of shine and lights on displays and improve the screen clarity.

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





PPC-F-ULT5 Series Selection Guide

LCD Size		15”	15.6”
Model		PPC-F15D-ULT5	PPC-FW15D-ULT5
TFT LCD	LCD Size	15”	15.6”
	Max. Resolution	1024 x768	1366x768
	Brightness (cd/m²)	450	400
	Contrast Ratio	800:1	500:1
	LCD Color	16.2M	16.2M
	Pixel Pitch (mm)	0.29 x 0.29	0.252 x 0.252
	Viewing Angle (H/V)	160°/150°	170°/160°
	Backlight MTBF (Hrs)	70,000	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™ i5-8365UE 4.10GHz 8th Genertion Intel® Celeron® 4305UE 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
	Cutout Dimensions (W x H) (mm)	361.1 x 285.6	379.1 x 232.3
	Net Weight (kg)	6.1	7.1
	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)	
	Safety & EMC	CE / FCC class A	
Power Input		12V DC input	

PPC-F-ULT5 Series Selection Guide

LCD Size		17”	18.5”
Model		PPC-F17D-ULT5	PPC-FW19D-ULT5
TFT LCD	LCD Size	17”	18.5”
	Max. Resolution	1280 x 1024	1366 x 768
	Brightness (cd/m²)	350	400
	Contrast Ratio	1000:1	1000:1
	LCD Color	16.7M	16.7M
	Pixel Pitch (mm)	0.26 x 0.26	0.3 x 0.3
	Viewing Angle (H/V)	170°/160°	170°/160°
	Backlight MTBF (Hrs)	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™ i5-8365UE 4.10GHz 8th Genertion Intel® Celeron® 4305UE 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)	408.4 x 341.4 x 75.6	469.8 x 289.2 x 76.9
	Cutout Dimensions (mm)	391 x 324	447.8 x 257.2
	Net Weight (kgs)	7.2	7.3
	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)	
	Safety & EMC	CE / FCC class A	
Power Supply		12V DC input	

PPC-F-ULT5

15”/15.6” Panel PC Based on Intel® Whiskey Lake ULT Processor

Features

- 15”~17” Panel PC with Intel® Whiskey Lake Core™ i5-8365UE, Intel® Celeron® 4305UE
- 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

Fanless | USB 3.2 GEN2 | 10 Point Multi-touch | PoE | Modular | SSD NVME

Specifications

Model		PPC-F15D-ULT5	PPC-FW15D-ULT5
TFT LCD	LCD Size	15”	15.6”
	Max. Resolution	1024 x 768	1366 x 768
	Brightness (cd/m²)	450	400
	Contrast Ratio	800:1	500:1
	LCD Color	16.2M	16.2M
	Pixel Pitch (mm)	0.29 x 0.29	0.252 x 0.252
	Viewing Angle (H/V)	160°/150°	170°/160°
	Backlight MTBF (Hrs)	70,000	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™ i5-8365UE 4.10GHz 8th Genertion Intel® Celeron® 4305UE 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	
	TPM	On-board TPM2.0	
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
	Cutout Dimensions (W x H) (mm)	361.1 x 285.6	379.1 x 232.3
	Net Weight (kg)	6.1	7.1
	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)	
	Safety & EMC	CE / FCC class A	
Power Input		12V DC input	

PPC-F-ULT5

17”/18.5” Panel PC Based on Intel® Whiskey Lake ULT Processor

Features

- 17”~18.5” Panel PC with Intel® Whiskey Lake Core™ i5-8365UE, Intel® Celeron® 4305UE
- 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

Fanless | USB 3.2 GEN2 | 10 Point Multi-touch | PoE | Modular | NVME

Specifications

Model		PPC-F17D-ULT5	PPC-FW19D-ULT5
TFT LCD	LCD Size	17”	18.5”
	Max. Resolution	1280 x 1024	1366 x 768
	Brightness (cd/m²)	350	400
	Contrast Ratio	1000:1	1000:1
	LCD Color	16.7M	16.7M
	Pixel Pitch (mm)	0.26 x 0.26	0.3 x 0.3
	Viewing Angle (H/V)	170°/160°	170°/160°
	Backlight MTBF (Hrs)	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™ i5-8365UE 4.10GHz 8th Genertion Intel® Celeron® 4305UE 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	
	TPM	On-board TPM2.0	
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)	408.4 x 341.4 x 75.6	469.8 x 289.2 x 76.9
	Cutout Dimensions (mm)	391 x 324	447.8 x 257.2
	Net Weight (kgs)	7.2	7.3
	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)	
	Safety & EMC	CE / FCC class A	
Power Supply		12V DC input	

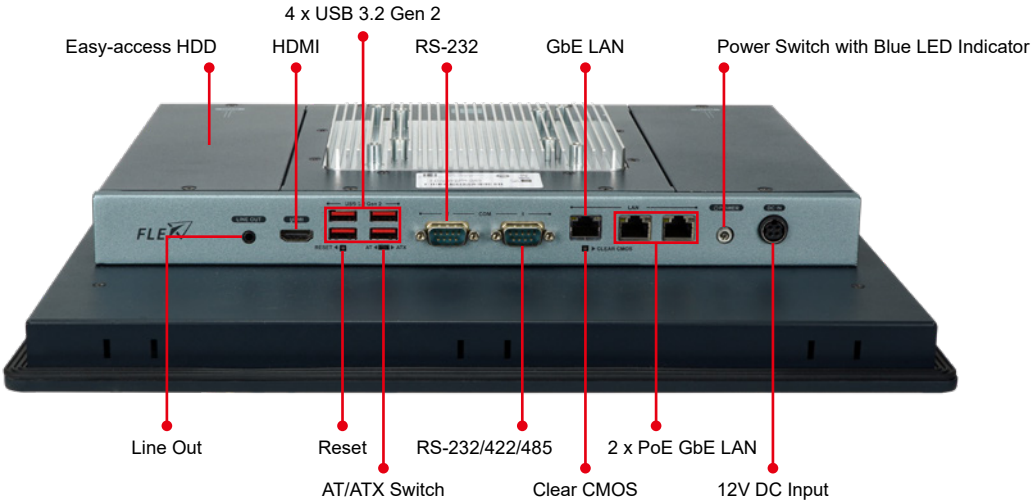
Ordering Information

Part No.		Description
15”	PPC-F15D-ULT5-i5/4G/PC-R10	15” 450 cd/m² 1024 x 768 Panel PC with 14nm 8th gen. Intel® 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® Whiskey Lake Celeron® 4305UE TDP 15W on-board Processor (ULT), 4GB DDR4 RAM x1, 12VDC input, PCAP touch with AG, R10
15.6”	PPC-FW15D-ULT5-C/4G/PC-R10	15.6” 400 cd/m² 1366 x 768 Panel PC with 14nm 8th gen. Intel® Whiskey Lake Celeron® 4305UE 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® 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® Whiskey Lake Celeron® 4305UE 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® 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® Whiskey Lake Celeron® 4305UE TDP 15W on-board Processor (ULT), 4GB DDR4 RAM x1, 12VDC input, PCAP touch with AG, R10

Options

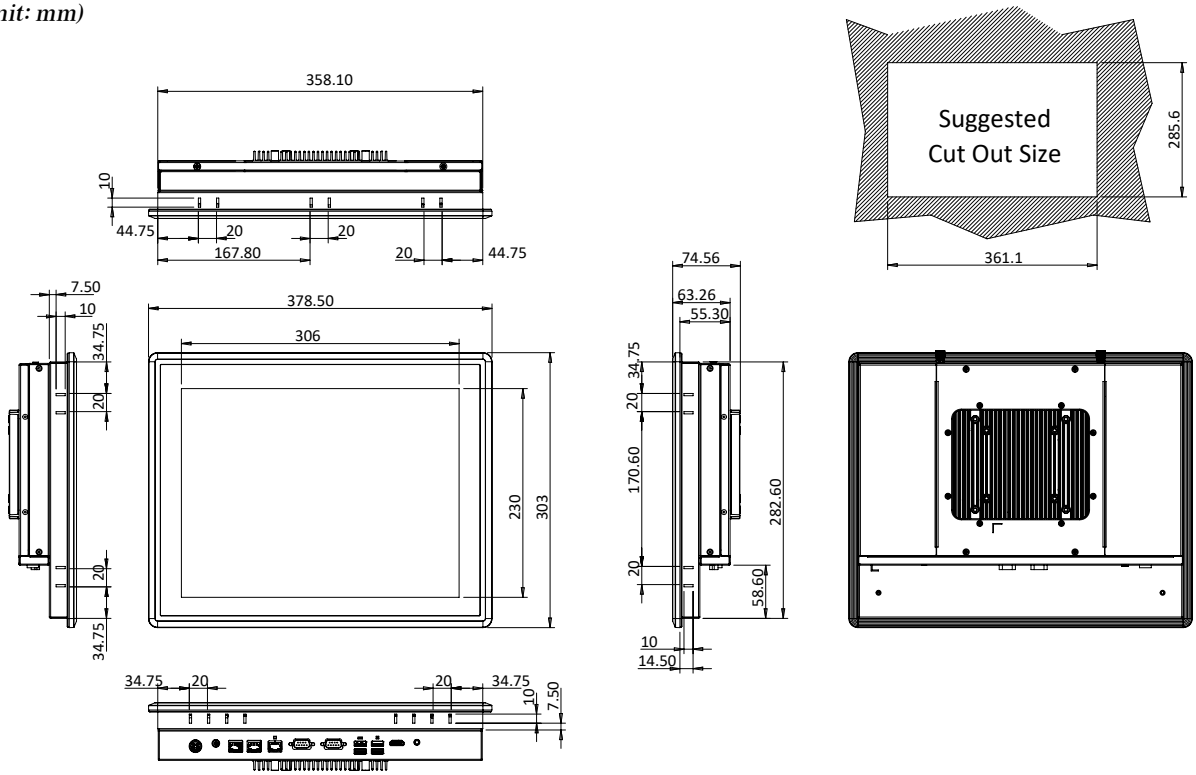
Item	PPC-F15D	PPC-FW15D	PPC-F17D	PPC-FW19D
Arm	ARM-31-RS			
Stand	STAND-A21-R10 STAND-C19-R10			
Wall Mount Kit	WK-190MS-R10			
Panel Mount Kit	FPK-12-R10	FPK-14-R10	FPK-13-R10	FPK-13-R10
Rack Mount Kit	-	FRKW15C-R10	-	FRKW19C-R10
PoE PD Kit	GPOE-PD-BT01-R10 (PoE IEEE802.3 af/at/bt, 71W)			

Fully Integrated I/O



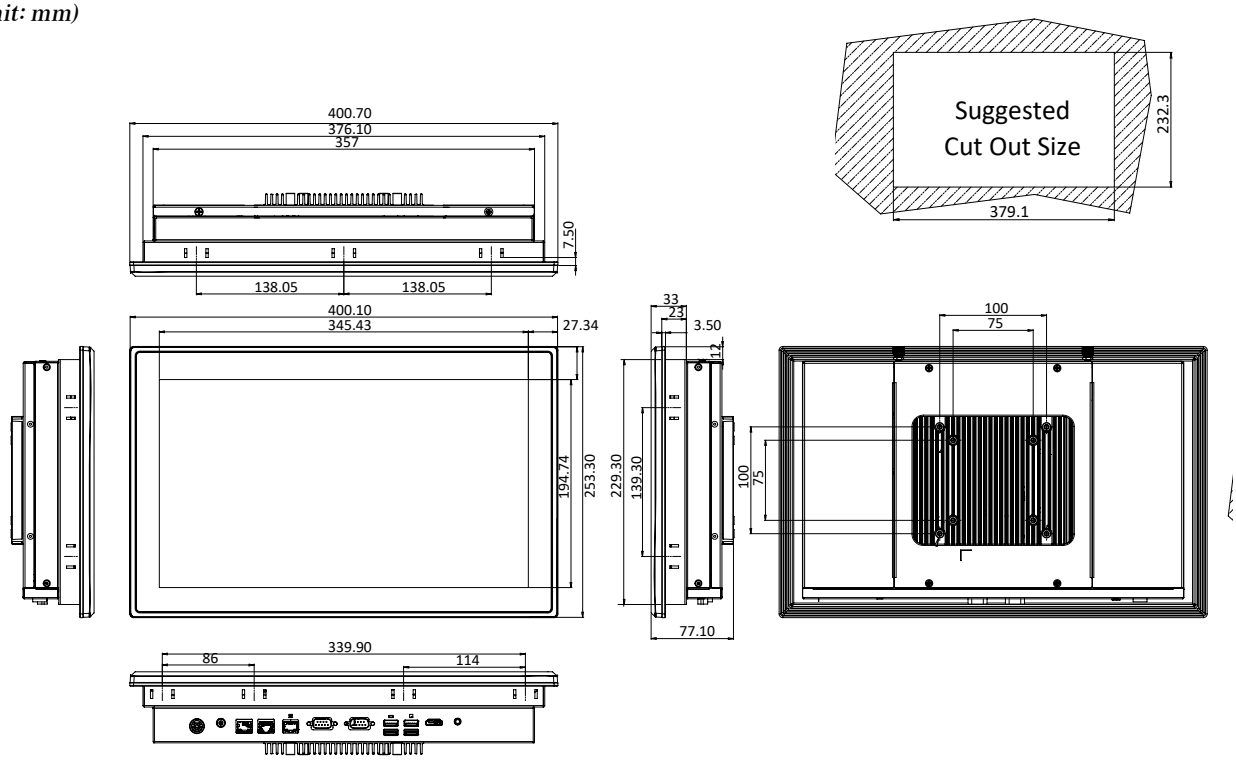
PPC-F15D-ULT5 Dimensions

(Unit: mm)



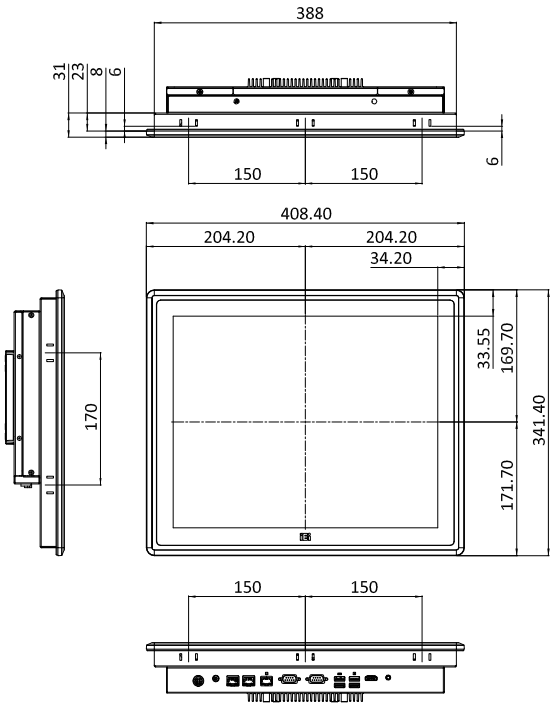
PPC-FW15D-ULT5 Dimensions

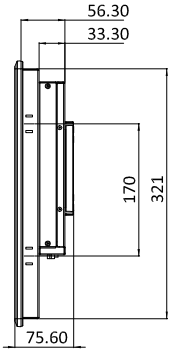
(Unit: mm)

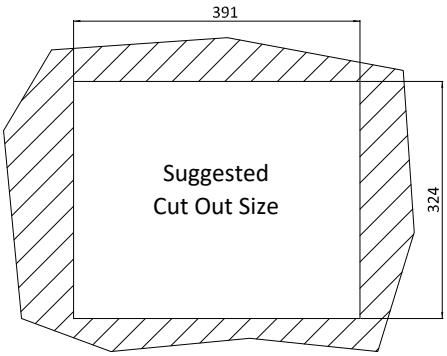


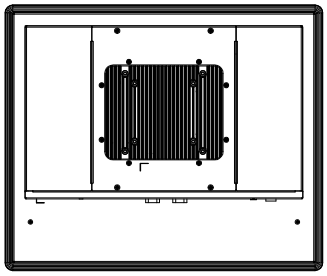
PPC-F17D-ULT5 Dimensions

(Unit: mm)



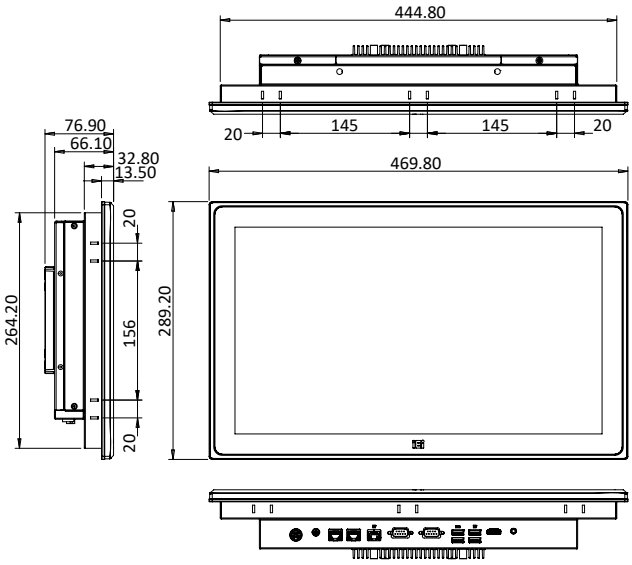


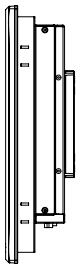


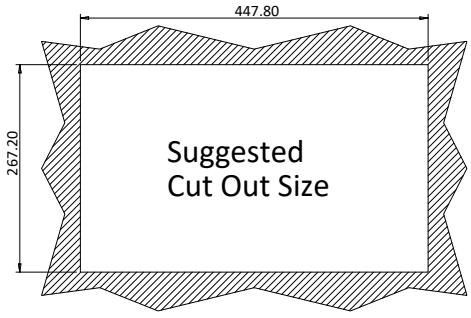


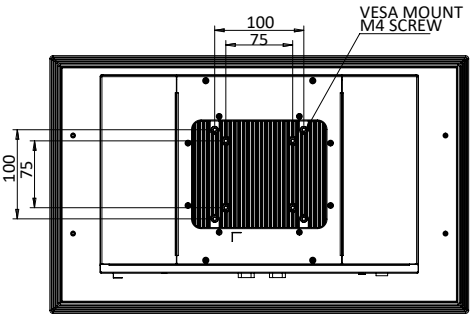
PPC-FW19D-ULT5 Dimensions

(Unit: mm)









PPC-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

■ 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.

■ 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.

■ 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
		80 PLUS GOLD	80 PLUS SILVER	80 PLUS 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)

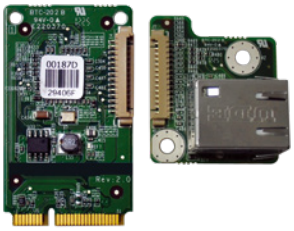
■ PCIe Mini Card Expansion

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.

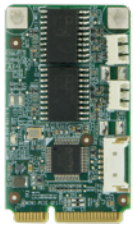
WiFi Module

EMB-WIFI-KIT01-R20

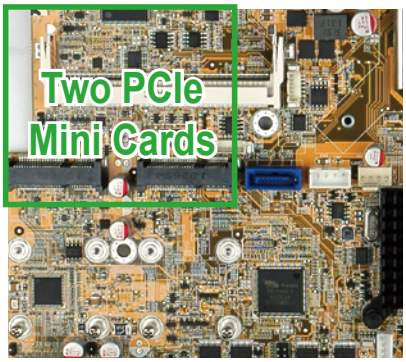
LAN Module



MPCIE-LAN-R10



MPCIE-CAN-R10



PPC-F Series Selection Guide

LCD Size		8”	10.4”	12”
Model		PPC-F08B-BT	PPC-F10B-BT	PPC-F12B-BT
Display	LCD Size	8” (4:3)	10.4”	12” (4:3)
	Max. Resolution	800 (W) x 600 (H)	800 (W) x 600 (H)	1024 (W) x 768 (H)
	Brightness (cd/m²)	500	400	600
	Contrast Ratio	500 : 1	700 : 1	700 : 1
	LCD Color	16.2M	16.2M	16.2M
	Pixel Pitch (mm) (HxV)	0.2025 x 0.0675	0.264 x 0.264	0.24 x 0.24
	Viewing Angle (V/H)	140° / 120°	160° / 140°	160° / 140°
	Backlight MTBF (hrs)	50000	30000	50000
Touch	TouchScreen	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 DMC 9000 EETI EXC3188
Motherboard	CPU	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
	Chipset	N/A	N/A	N/A
	RAM	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)
	Ethernet	2 x RTL 8111HN	2 x RTL 8111HN	1 x PCIe GbE by Intel® I210 controller 1 x PCIe GbE by Intel® I211 controller
	Audio Codec	REALTEK ALC888S	REALTEK ALC888S	REALTEK ALC888S
I/O Ports and Switches		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 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	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
Drive Bay	HDD Driver Bay	N/A	1 x 2.5” HDD bay	1 x 2.5” HDD bay
	SSD	mSATA		
Expansion Slot		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
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		15”		17”	
Model		PPC-F15A-H81	PPC-F15B-BT	PPC-F17A-H81	PPC-F17B-BT
Display	LCD Size	15” (4:3)	15” (4:3)	17”	17”
	Max. Resolution	1024 (W) x 768 (H)		1280 (W) x 1024 (H)	
	Brightness (cd/m²)	450		350	
	Contrast Ratio	800 : 1		1000 : 1	
	LCD Color	16.2M		16.7M	
	Pixel Pitch (mm) (HxV)	0.297 x 0.297		0.26 x 0.26	0.26 x 0.26
	Viewing Angle (V/H)	160° / 150°		170° / 160°	170° / 160°
	Backlight MTBF (hrs)	70000		50000	
Touch	Touchscreen	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 DMC 9000 EETI EXC3188			
Motherboard	CPU	4th generation Intel® Core™ i7/ i5, Pentium® and Celeron® processor, up to TDP 65W CPU	Intel® Celeron® quad-core J1900 SoC, 2GHz	4th generation Intel® Core™ i7/ i5, Pentium® and Celeron® processor, up to TDP 65W CPU	Intel® Celeron® quad-core J1900 SoC, 2GHz
	Chipset	N/A	Intel® H81	Intel® H81	N/A
	RAM	2 x 204-pin DDR3 SO-DIMM slots (max. 16GB)	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 DDR3L SO-DIMM supported (max. 8GB)
	Ethernet	1 x PCIe GbE by Intel® I210 controller 1 x PCIe GbE by Intel® I211 controller			
	Audio Codec	Realtek ALC888S			
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 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	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
Drive Bay	HDD Driver Bay	1 x 2.5” HDD bay		1 x 2.5” 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	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 H81 Series

Intelligent Industrial Panel PC

Features

- Scalable Intel® H81 chipset supports LGA1150 Intel® 4th generation Core™ i7/i5, 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

FHD | Multi-touch | IP65 | PCIe Mini | USB 3.2 | MOUNT

Specifications

Model		PPC-F15A	PPC-F17A
LCD	LCD Display	15" (4:3)	17" (5:4)
	Max. Resolution	1024 (W) x 768 (H)	1280 (W) x 1024 (H)
	Brightness (cd/m²)	450	350
	Contrast Ratio	800 : 1	800 : 1
	LCD Color	16.2M	16.7M
	Pixel Pitch (mm)	0.297 x 0.297	0.26 x 0.26
	Viewing Angle (H-V)	160° / 150°	170° / 160°
	Backlight MTBF (hrs)	70000	50000
Motherboard	SBC Model	FPPCMB-H81-R10	
	CPU	LGA1150 Intel® 4th generation Core™ i7/i5, 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)	
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	
	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	
Physical	Construction Material	Aluminum front cover and sheet metal rear cover	
	Mounting	Panel mount, rack 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
	Cutout Dimensions (mm)	285.6 x 361.1	323 x 390
	Net/ Gross Weight (kg)	5.6/ 8.3	7.5/10.7
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	
Power Consumption		80W	100W

Ordering Information

Part No.		Description
15”	PPC-F15AA-H81i-P/4G/PC-R23	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, black color, PSU ACE-A622C, projective capacitive touch window with AG coating, R23
	PPC-F15AA-H81i-P/4G/R-R23	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, black color, PSU ACE-A622C, resistive touch window with AG coating, R23
	PPC-F15AA-H81i-i5/4G/R-R23	15" 450 cd/m² XGA Panel PC with Intel® H81 chipset, Core i5 Quad Core i5-4570S Processor (6M Cache, up to 3.60GHz), TDP 65W, 2GB RAM*2, black color, PSU ACE-A622C, resistive touch window with AG coating, R23
17”	PPC-F17AA-H81i-P/4G/PC-R14	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, black color, PSU ACE-A622C, projective capacitive touch window with AG coating, R14
	PPC-F17AA-H81i-i5/4G/PC-R14	17" 350 cd/m² SXGA Panel PC with Intel® H81 chipset, Core i5 Quad Core i5-4570S Processor(6M Cache,up to 3.60GHz),TDP 65W, 2GB RAM*2, black color, PSU ACE-622C, projective capacitive touch window with AG coating, R14
	PPC-F17AA-H81i-P/4G/R-R14	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, black color, PSU ACE-A622C, resistive touch window with AG coating, R14
	PPC-F17AA-H81i-i5/4G/R-R14	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, black color, PSU ACE-622C, resistive touch window with AG coating, R14

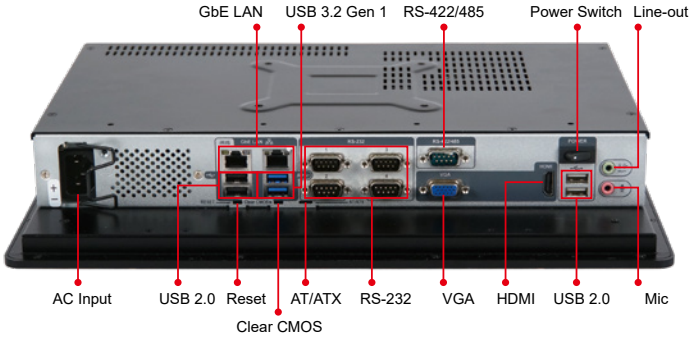
Options

Item	PPC-F15A	PPC-F17A
Arm	ARM-31-RS	ARM-31-RS
Stand	STAND-A21 STAND-C19-R10	STAND-C19-R10 STAND-A21-R10
Wall Mount Kit	WK-190MS-R10	
Panel Mount Kit	FPK-04-R10	
Rack Mount Kit	FRK15-R10	FRK17-R10

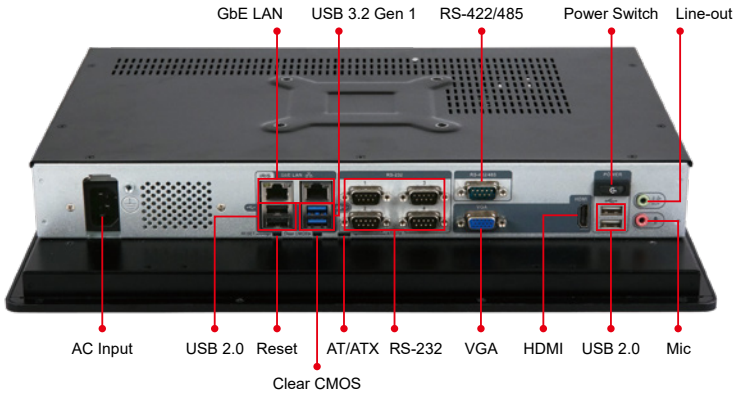
Packing List

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

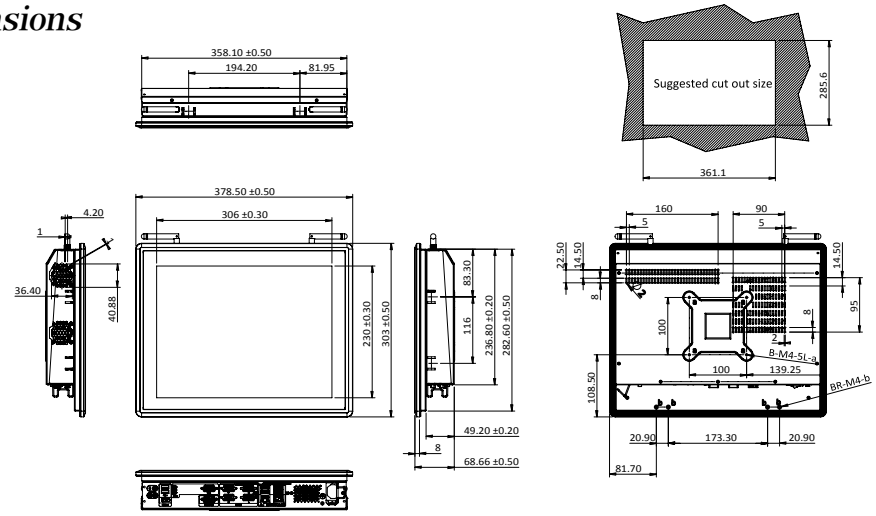
PPC-F15A
Fully Integrated I/O



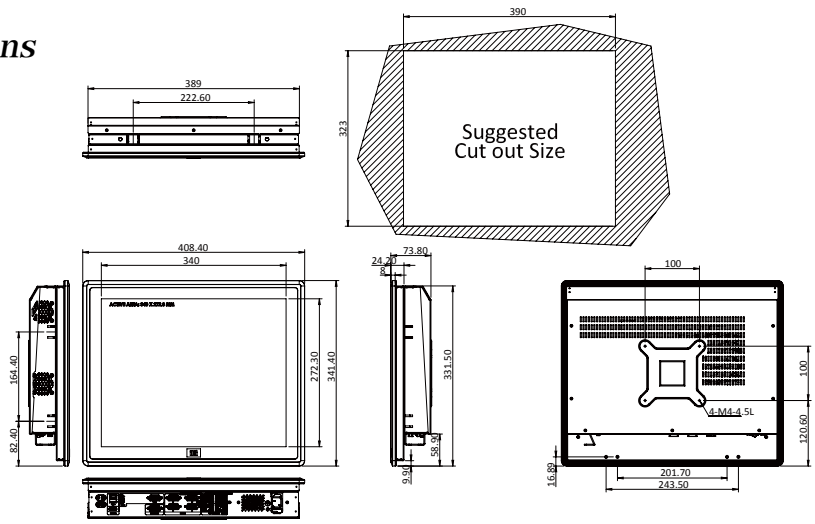
PPC-F17A
Fully Integrated I/O



PPC-F15A Dimensions
(Unit: mm)



PPC-F17A Dimensions
(Unit: mm)



PPC-F Bay Trail Fanless Series

8”/10.4” Fanless Intel® Bay Trail Solution

Features

- 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

Fanless | Multi-touch | IP65 | USB 3.2 | MOUNT

Specifications

Model		PPC-F08B-BT	PPC-F10B-BT
LCD	LCD Display	8” (4:3)	10.4”
	Max. Resolution	800 (W) x 600 (H)	800 (W) x 600 (H)
	Brightness (cd/m²)	500	400
	Contrast Ratio	500:1	700:1
	LCD Color	16.2M	16.2M
	Pixel Pitch (mm)	0.2025 (H) x 0.0675 (V)	0.264 (H) x 0.264 (V)
	Viewing Angle (H-V)	140° / 120°	160° / 140°
	Backlight MTBF (hrs)	50000	30000
Motherboard	CPU	Intel® Celeron® J1900 quad-core on-board SoC, 2GHz	
	RAM	1 x 204-pin DDR3L SO-DIMM slots (max. 8GB)	
Touch	Touchscreen & Controller	5-wire resistive type flat touchscreen, PenMount DMC9000	
	Surface Hardness	3H	3H
Input Interfaces	I/O Ports & Switches	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/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
	HDD	N/A	1 x 2.5” HDD bay
Physical	Construction Material		
	Mounting	Stand, panel mount, rack mount, VESA 75x75	Stand, panel mount, rack mount, VESA 75x75/100x100
	Enclosure Color		
	Dimensions (mm)	182.2 x 222.2 x 44	232.4 x 285.2 x 44
	Net Weight	1.17 kg	1.77 kg
	Cut-out Dimensions (mm)	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: 63040-010036-210-RS 36W Power Adapter Input: 90 - 264V AC, 50/60Hz Output: 12V DC	
	Power Requirement	9 ~ 30V DC	
	Power Consumption	28W	34W

Ordering Information

Part No.	Description
PPC-F08B-BT-J1/2G/R-R11	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, R11
PPC-F10B-BT-J1/2G/R-R11	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, R11

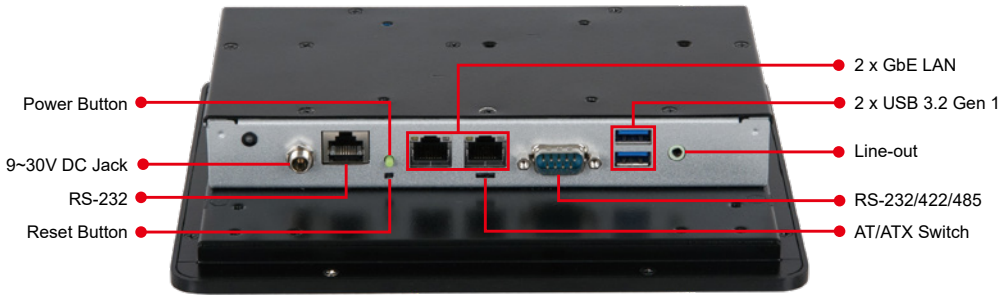
Options

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

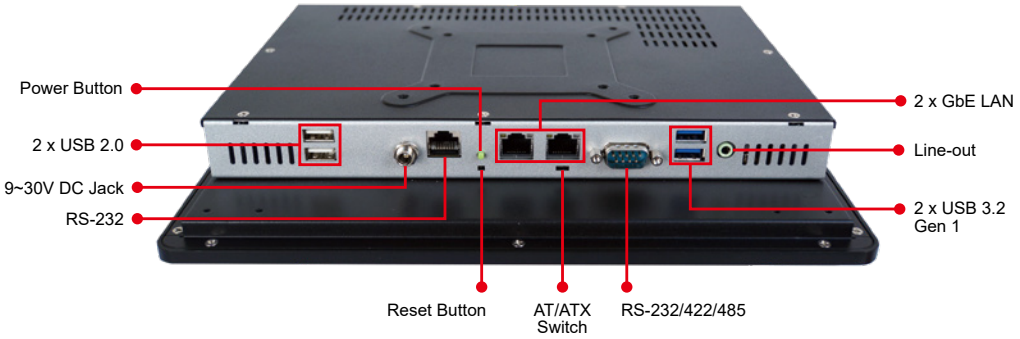
Packing List

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: 63040-010036-210-RS

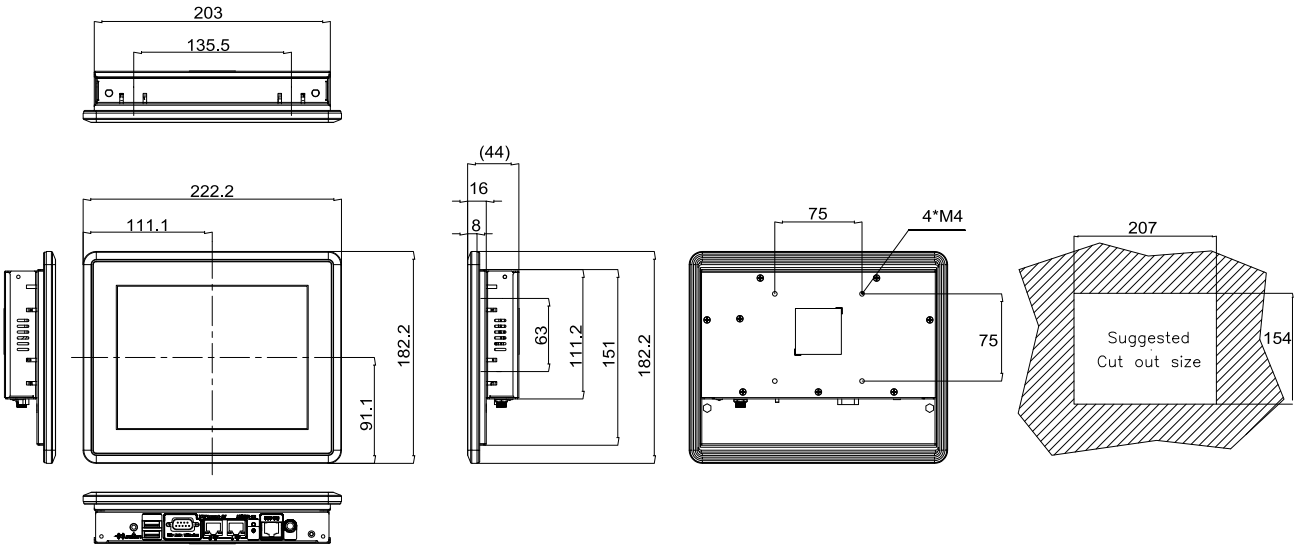
PPC-F08B Fully Integrated I/O



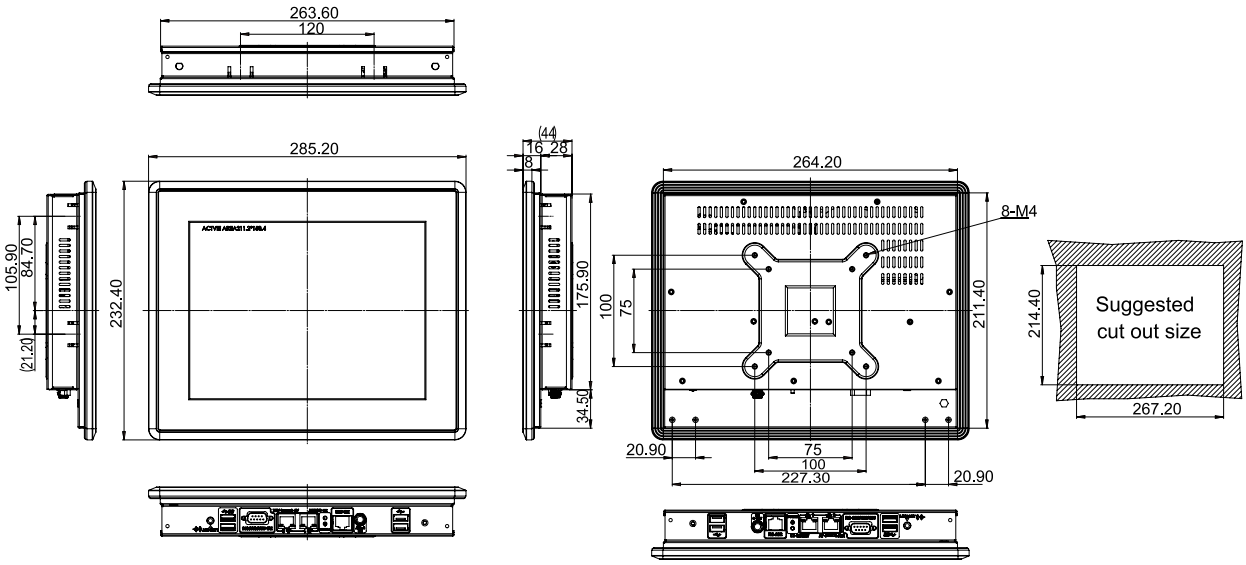
PPC-F10B Fully Integrated I/O



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

- 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

Fanless | Multi-touch | IP65 | PCIe Mini | USB 3.2 | MOUNT

Specifications

Model		PPC-F12B-BT	PPC-F15B-BT	PPC-F17B-BT
LCD	LCD Display	12.1” (4:3)	15” (4:3)	17” (5:4)
	Max. Resolution	1024 (W) x 768 (H)	1024 (W) x 768 (H)	1280 (W) x 1024 (H)
	Brightness (cd/m²)	600	450	350
	Contrast Ratio	700 : 1	800 : 1	800 : 1
	LCD Color	16.2M	16.2M	16.7M
	Pixel Pitch (mm)	0.24 x 0.24	0.297 x 0.297	0.26 x 0.26
	Viewing Angle (H-V)	160° / 140°	160° / 150°	170° / 160°
	Backlight MTBF (hrs)	50000	70000	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		
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
	Weight (Net)	3.2 kg	4.1 kg	5 kg
	Cutout Dimensions (mm)	244.8 x 304.8	285.6 x 361	323 x 390
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: 63040-010060-220-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

Ordering Information

Part No.	Description
PPC-F12B-BTi-J1/2G/PC-R13	12.1" 600 cd/m² XGA Panel PC with Intel® Celeron® Processor J1900, TDP 10W, 2GB RAM*1, black color, 9-36V DC input, projected capacitive touch window with AG coating, R13
PPC-F12B-BTi-J1/2G/R-R13	12.1" 600 cd/m² XGA Panel PC with Intel® Celeron® Processor J1900, TDP 10W, 2GB RAM*1, black color, 9-36V DC input, resistive touch window with AG coating, R13
PPC-F15B-BTi-J1/2G/R-R23	15" 450 cd/m² XGA Panel PC with Intel® Celeron® Processor J1900, TDP 10W, 2GB RAM*1, black color, 9-36V DC input, resistive touch window with AG coating, R23
PPC-F17B-BTi-J1/2G/R-R13	17" 350 cd/m² SXGA Panel PC with Intel® Celeron® Processor J1900, TDP 10W, 2GB RAM*1, black color, 9-36V DC input, resistive touch window with AG coating, R13

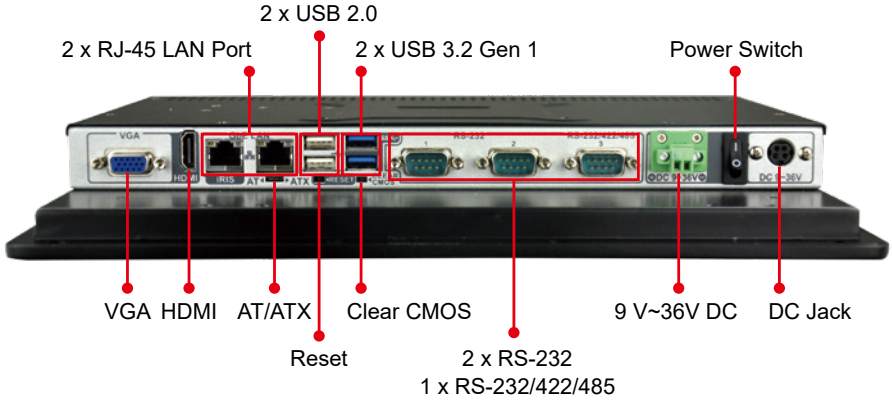
Options

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

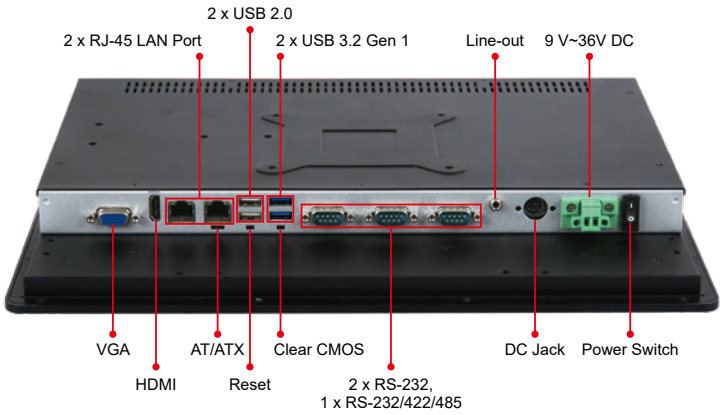
Packing List

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: 63040-010060-220-RS)

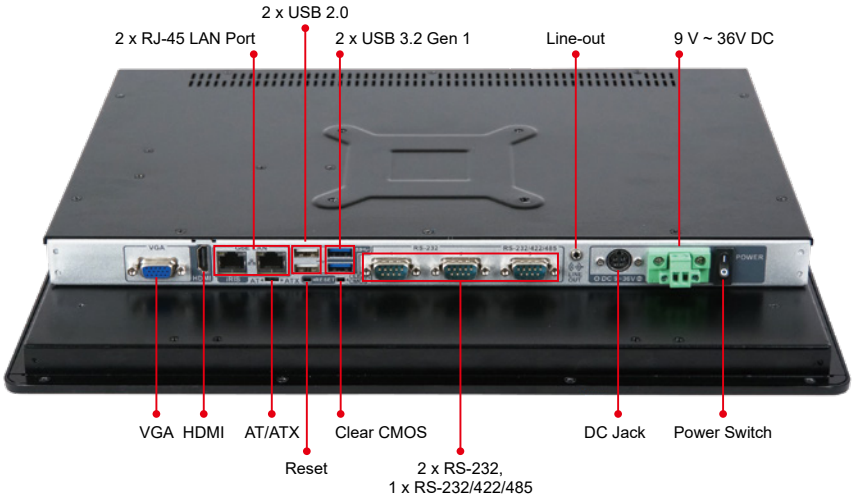
PPC-F12B Fully Integrated I/O



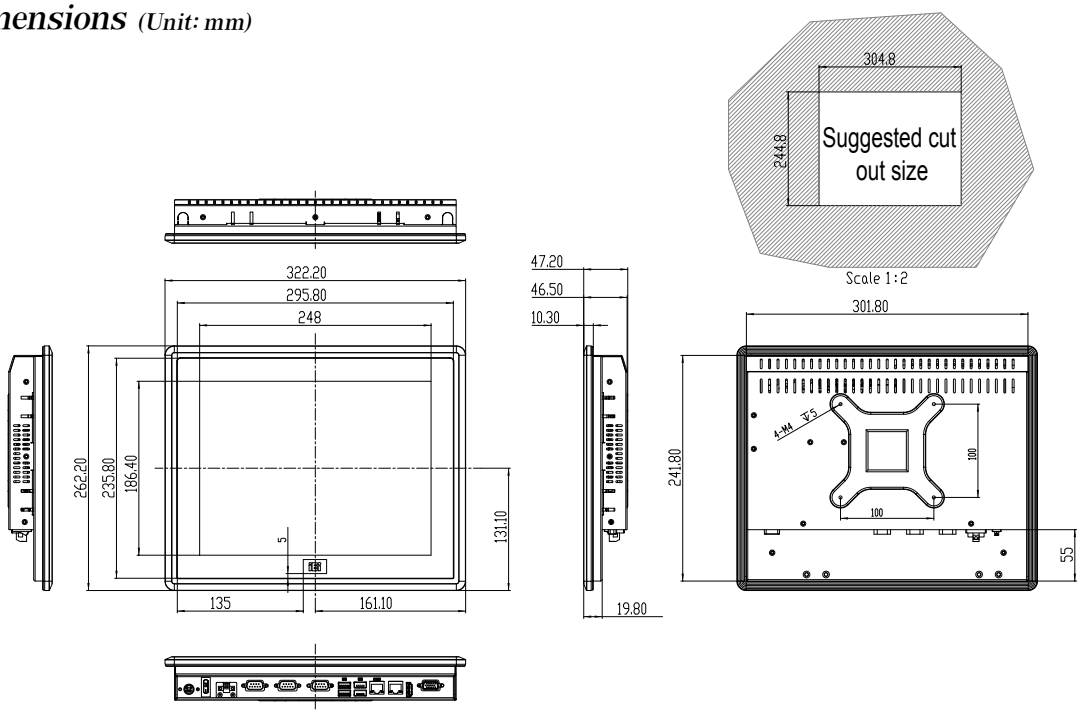
PPC-F15B
Fully Integrated I/O



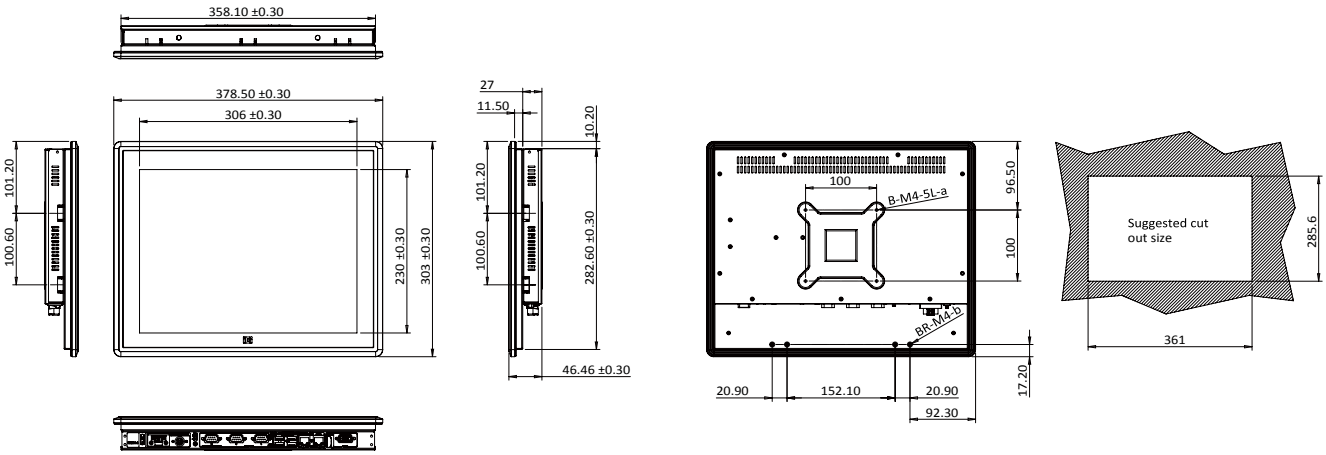
PPC-F17B
Fully Integrated I/O



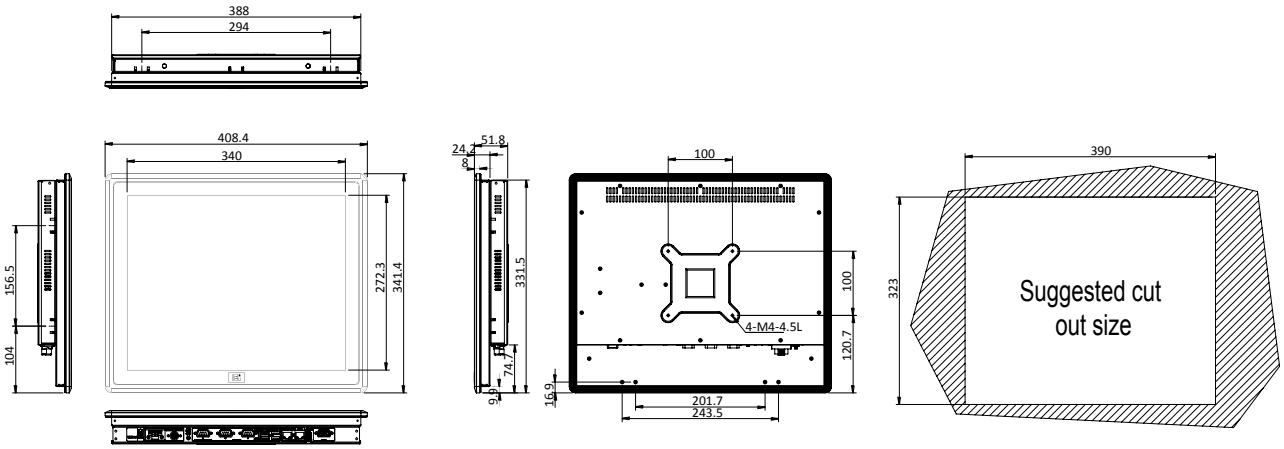
PPC-F12B
Dimensions *(Unit: mm)*



PPC-F15B Dimensions (Unit: mm)



PPC-F17B Dimensions (Unit: mm)



Vertical Market PPC Selection Guide

Marine Series

Model		S19A-QM87	S24A-QM87
Display	LCD Size	19”	24”
	Max. Resolution	1280 x 1024	1920 x 1080
	Brightness (cd/m²)	300	300
	Contrast Ratio	2000:1	5000:1
	LCD Color	16.7M	16.7M
	Pixel Pitch (mm) (HxV)	0.294 x 0.294	276.75 x 276.75
	Viewing Angle (V/H)	178° / 178°	178° / 178°
	Backlight MTBF (hrs)	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	
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
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	

IEI Marine System

www.ieiworld.com

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.

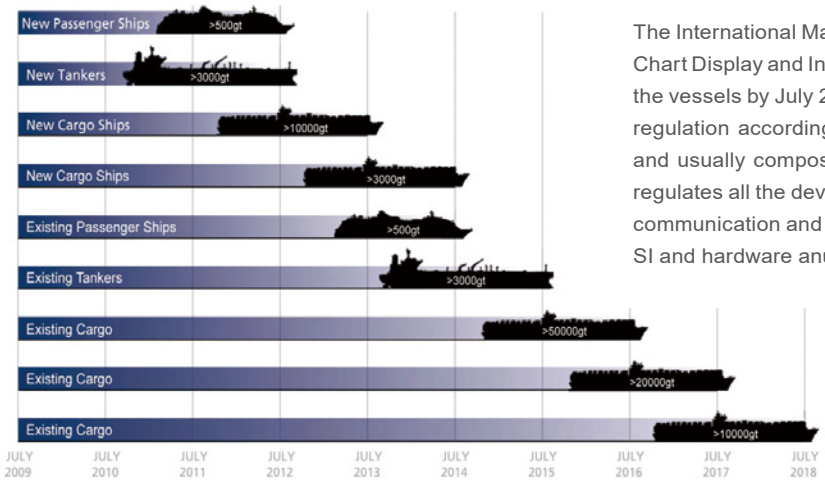
iRIS™ IPMI 2.0 Compliant

TYPE APPROVED PRODUCT DNV·GL MARITIME

IEC 60945

IACS -E10

ECDIS Implementation Schedule

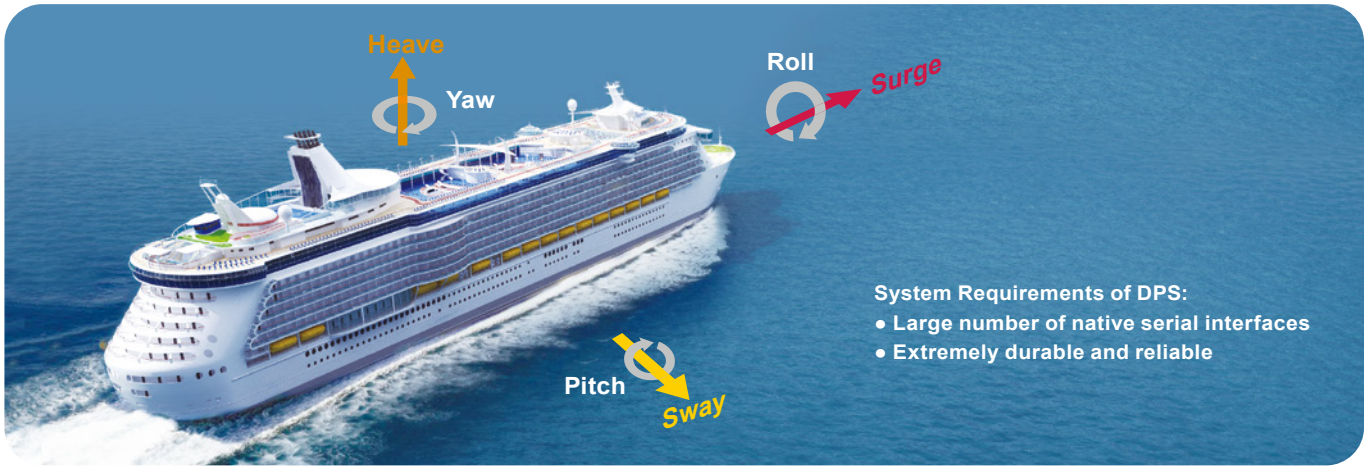


The International Maritime Organization (IMO) has announced that Electronic Chart Display and Information System (ECDIS) should be implemented into all the vessels by July 2018. Both new ships and existing ships should follow this regulation according to the timetable. The bridge systems are complicated 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)

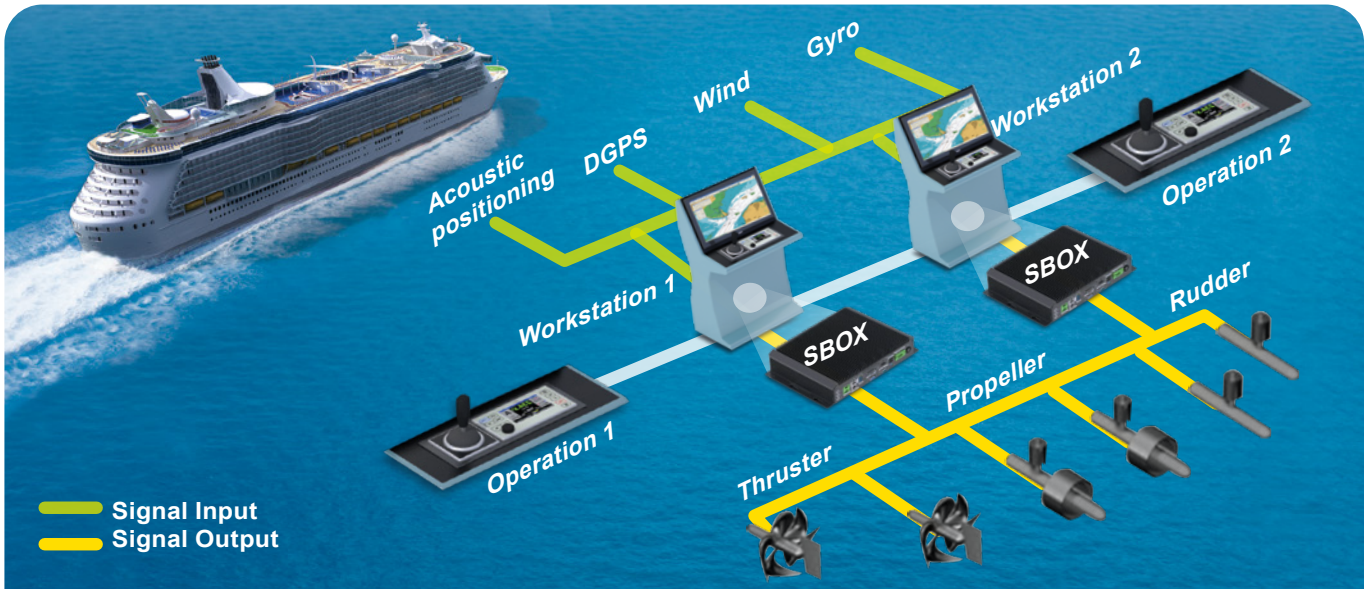
Dynamic Positioning System (DPS) is a closed-loop control system. It is driven by the control system of the ship to counteract the environmental forces to the ship, such as wind, waves and ocean currents. This mechanism could make ship remain in the position on the sea. DPS precisely calculates the propellant 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.



System Requirements of DPS:

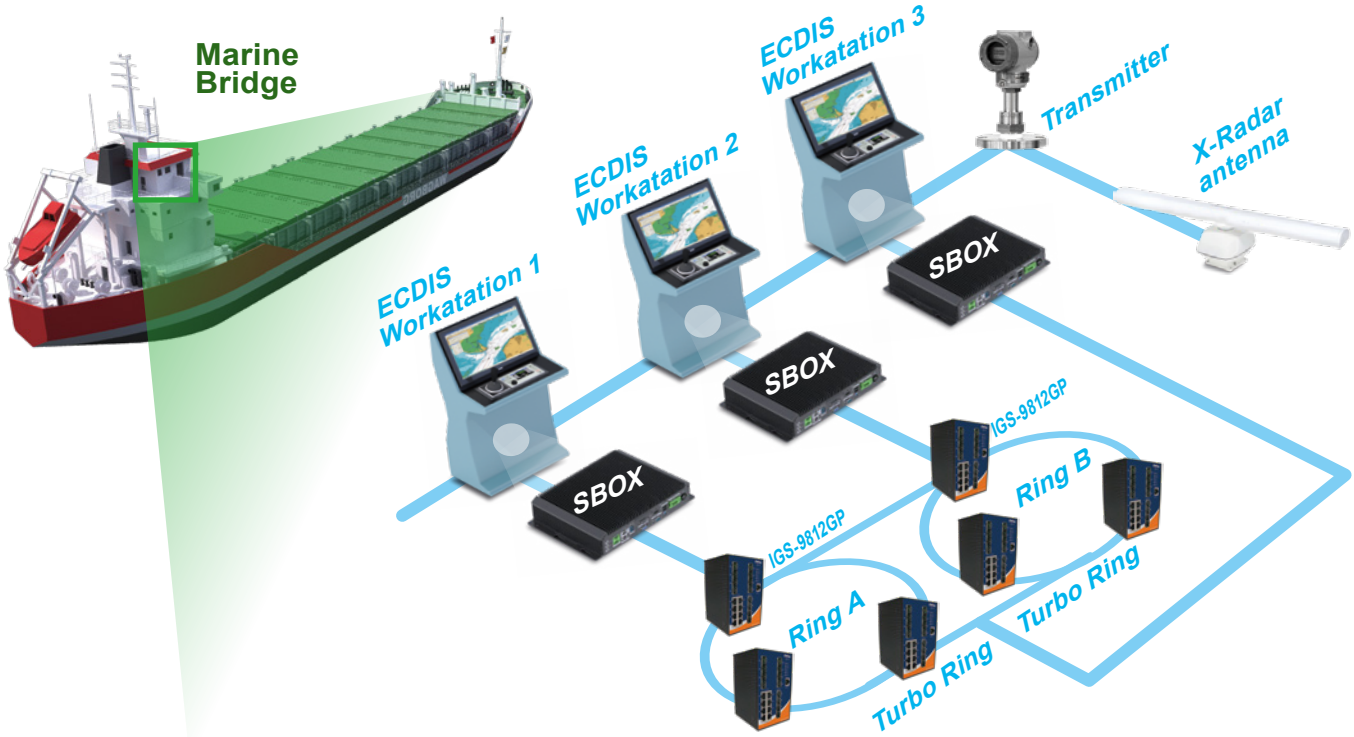
- **Large number of native serial interfaces**
- **Extremely durable and reliable**



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.



www.ieiworld.com

IEI Marine System

Marine Panel PC Series

S19A-QM87

Intel® Core™ i5 Dual-core Processor

- **19"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**

TYPE APPROVED PRODUCT DNV·GL MARITIME | IEC 60945 | IACS-E10 | Fanless | Triple Display | Dual GbE

Specifications

Model		S19A-QM87
LCD	LCD Size	19"
	Panel Type	PMVA
	Max. Resolution	1280 x 1024 (5:4)
	Contrast Ratio	2000 : 1
	Brightness (cd/m²)	300
	LCD Color	16.7M
	Pixel Pitch (um)	294 x 294
	Viewing Angles (H-V)	178° / 178°
	Backlight MTBF (HRs)	50000
Touchscreen & Controller		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) 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) 2 x CAN-bus 2.0B, 3-pin terminal block (2.5 kv isolation protection) 1 x DB-9 RS-232 (non-isolated)
	Expansion	2 x Full-size PCIe Mini slot
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 GL CG-0339, 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
Dimensions (L x W x H)		463 mm x 394 mm x 113 mm
Net Weight (kg)		9.91
Gross Weight (kg)		13.38
Vibration and Shock		IEC 60945 / DNV GL CG-0339 / 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

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, R11

Options

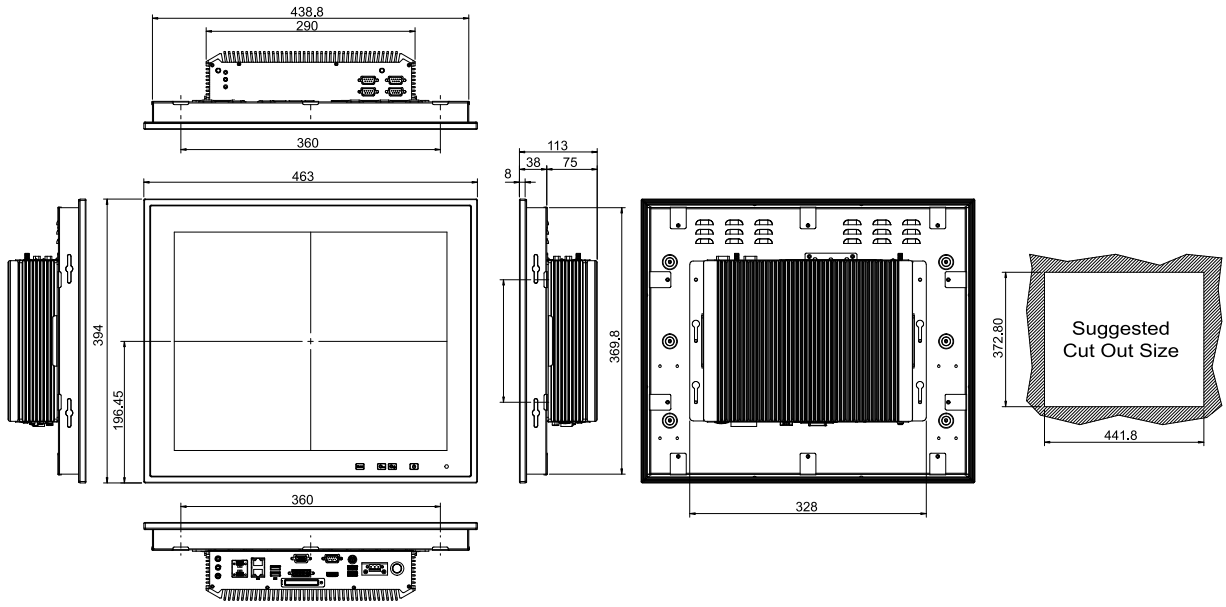
Item	Part No.	Description
Desktop Stand	STAND-S24A-R10	For S19A

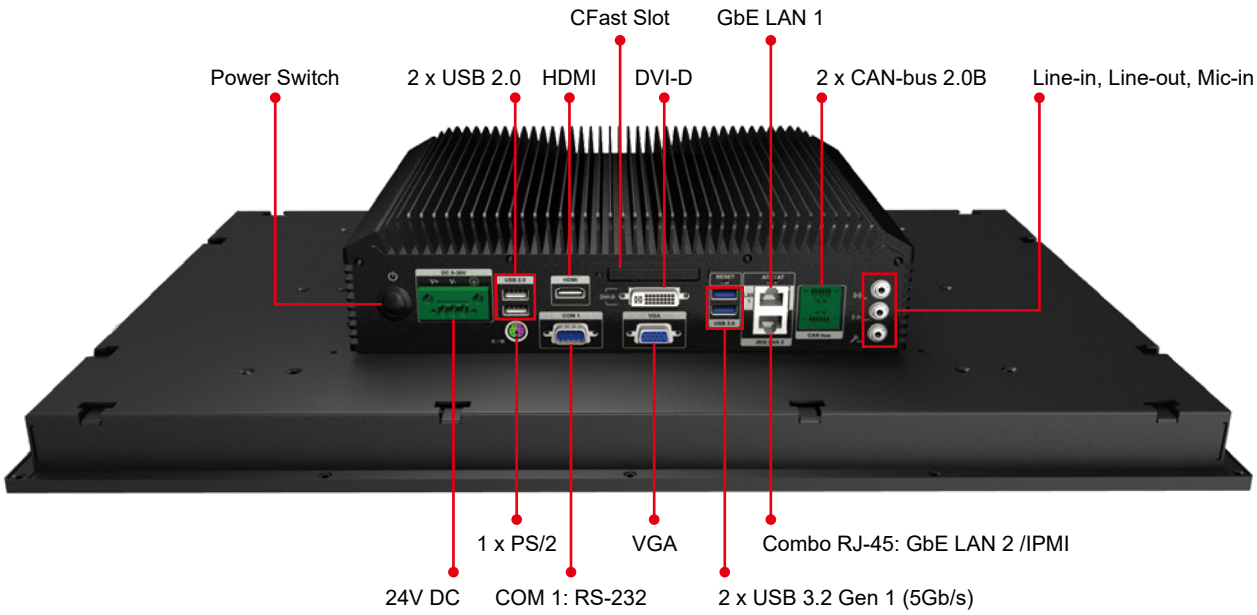
Packing List

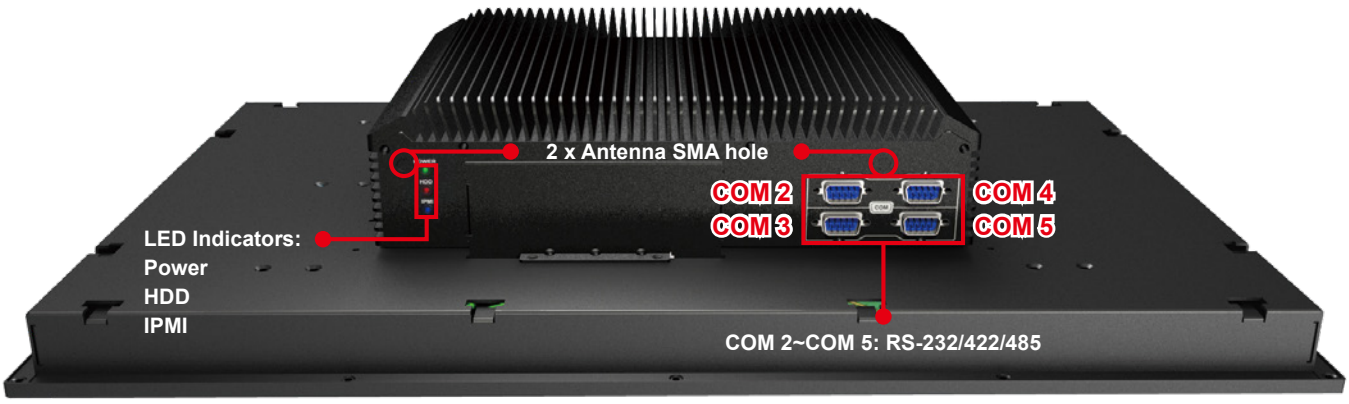
Item	Q'ty	Remark
S19A-QM87	1	
Screw Pack	1	Including necessary screws
PS/2 Cable	1	Round cable; PS/2 cable
Wire Strain Band	3	Wire strain band

S19A-QM87 Dimensions

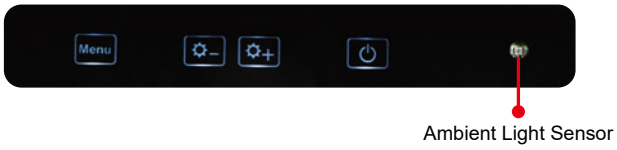
(Unit: mm)







Four OSD Keys by Cap-sensor
(Menu, Brightness down, Brightness up, LCD on/off)



IEI Marine System

www.ieiworld.com

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

TYPE APPROVED PRODUCT DNV·GL MARITIME | Fanless | CAN-Bus | Triple Display | Dual HDD

■ Intel® Core™ i5 High Performance Computing Power in a Fanless Design

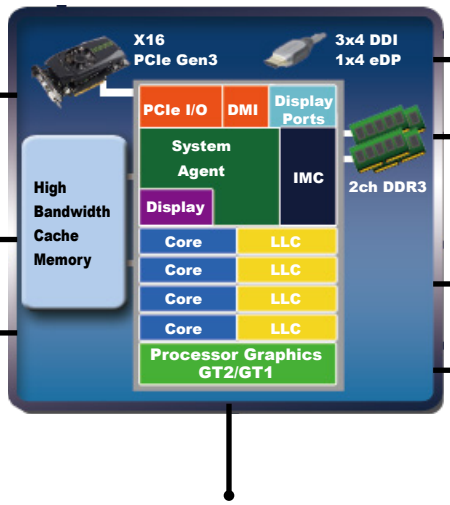
IEI's high performance marine solutions are built with the powerful Intel® Core™ i5 CPU within a fanless system architecture. No matter your applications are general marine system management, monitoring or conning systems, radar systems, or ECDIS navigation, IEI's marine computers will give you the most 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

Next Generation Intel® HD Graphics with DX 11.1, OpenGL 4.x, OpenCL 1.2

Fully Integrated VR

3 Independent Displays High Resolution DP v1.2, HDMI 1.4a



Built-in 22 nm Processor

Intel® Turbo Boost Technology

2 Ch DDR3L 1600 MHz 1/2 DIMM per Channel

Up to 4C and 8MB of Intel® Smart Cache

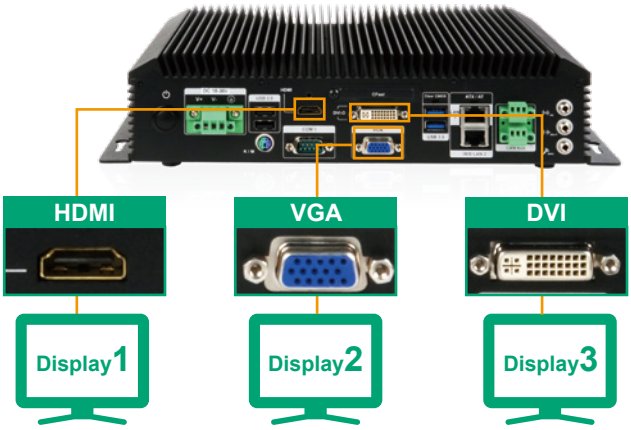
Intel® AVX 2.0 + Intel® AES New Instructions and Improvements

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.

■ Isolated 18 V~24 V DC power 2250 V DC Input to Output Basic Insulation

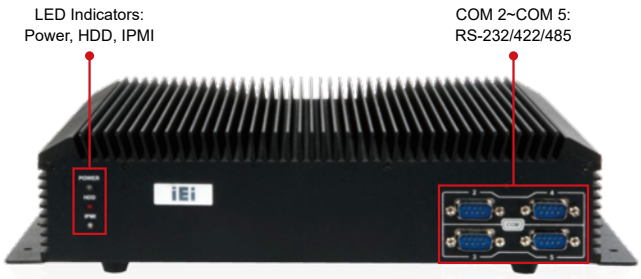
■ 2.5 kV isolation protection on the RS-232/422/485

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.

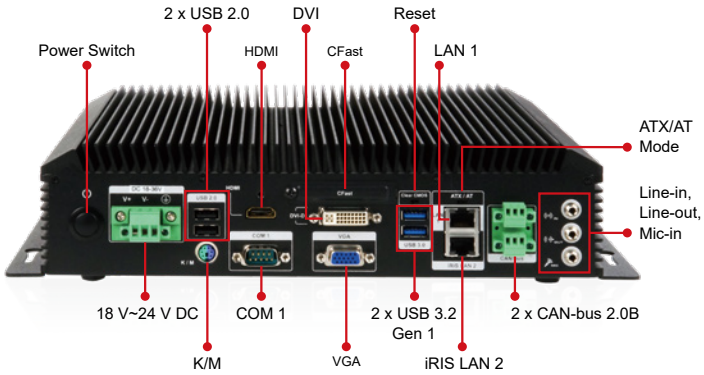
■ Two independent CAN 2.0B channels with 2.5 kV isolation protection

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.

Front view



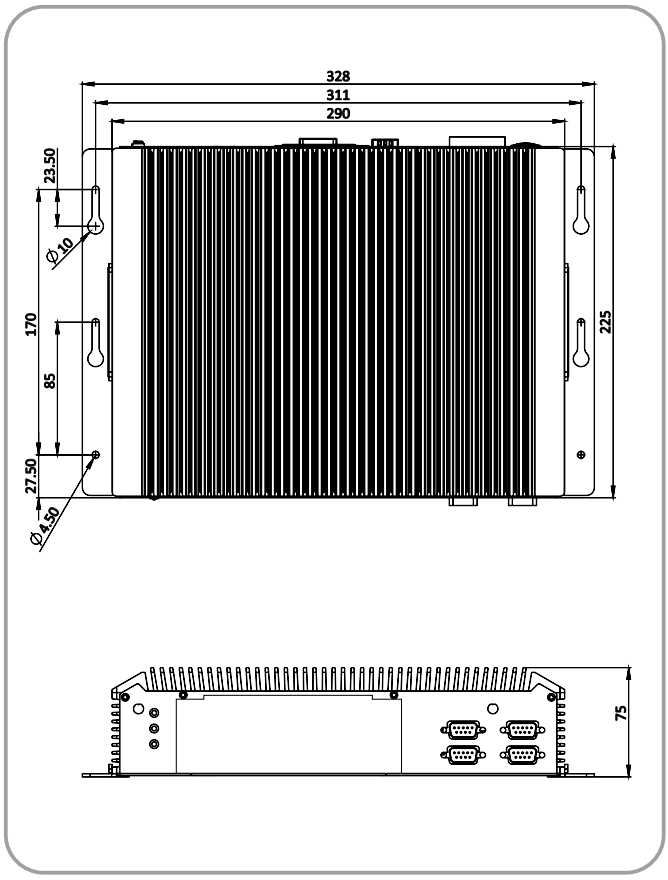
Rear view



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 GL CG-0339, 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

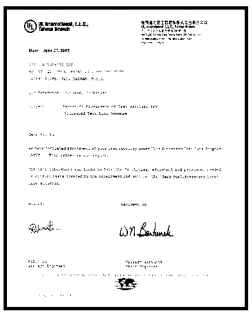
Item	P/N	Qty	Remark
PS/2 cable	32006-000300-100-RS	1	PS/2 cable
Rubber pad & screw pack		1	Rubber pad & screw pack

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

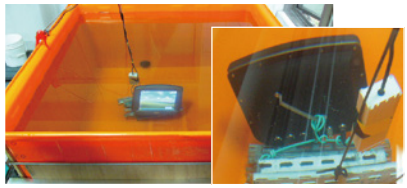


UL 50 Certificate
Chamber strickly approved by Underwriters Laboratories Inc.
IEI's in-house water resistance chamber is approved by the UL organization commonly recognized in North America.

IP 69K

IP 64

IP 65



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° 0°	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

MediaTek MT6765 Helio P35 Processor

CPU: 4 x Cortex-A53 up to 2.3GHz / 4 x Cortex-A53 up to 1.8GHz
Graphics: IMG GE8320 up to 680MHz
Memory: 1 x LP3 933MHz, up to 4GB / 2 x LP4x 1600MHz, up to 6GB / eMMC 5.1
Camera: 25MP @ 30fps w/ ZSD/13MP + 13MP @ 30fps (LP4X) / MIPI
Lane: 4+4+4 / 4+4+2+2 / HW dual cam
Video Dec.: 1080p 30fps H.264/H.265
Video Enc.: 1080p 30fps H.264
Display: FHD+ (2400x1080)
Modem: Cat-7, L+L
Connectivity: MT6631 (+11.ac + BT 5.0 + Galileo)

Low Power
A53 core, 15% less power consumption than A57

-15% power consumption Cortex-A57

MT6765 Application

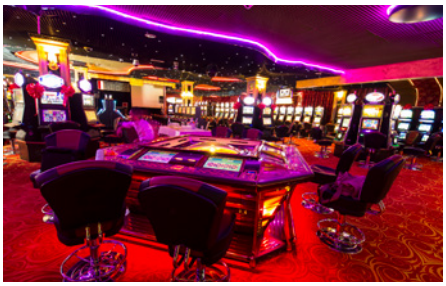
MT6765 has high performance and low power consumption, ideal for industrial PDA and industrial tablet applications.

Store management

Express delivery and logistics

Manufacturing

Retail



Dining and entertainment

Port and pier

Mobile Tablet PC Selection Guide

Model		MODAT-800A
Display and Touch	LCD Size	8"
	Brightness (cd/m²)	500
	Max. Resolution	1280 x 800
	Viewing Angle	85°/85°/85°/85°
	Touchscreen	5-point PCAP touch (Surface hardness 6H)
	Contrast	800:1
System	CPU	MediaTek MT6765 Helio P35 Octa-core 64-bit Cortex-A53 2.3 GHz
	Operating System	Android 11
	Memory	6GB LPDDR4
	ROM	128GB eMMC
Communication	WLAN	802.11 a/b/g/n and ac (2.4GHz/5GHz)
	Bluetooth	Bluetooth v5.0+EDR
	Modem	GSM: B2/1900;B3/1800;B5/850;B8/900 3G: WCDMA (B1/2100;B5/850;B8/900); EVDO (BC0); SCDMA 4G LTE: FDD-LTE (B1/2100;B3/1800;B7/2600;B20/800;B2/1900;B4/AWS;B5/850;B8/900;B12/700;B17/700b;B13/700c) TDD-LTE (B38, B39, B40, B41)
	GNSS	GPS/BeiDou/GLONASS/Galileo (Could be 2 kinds of the 4; Default: GPS and BeiDou)
Data Collection	NFC	ISO/IEC 14443A/B MIFARE JIS X 6319-4 (FeliCa1) ISO/IEC 18092 ISO/IEC 15693
	Camera	13-megapixel auto focus rear camera with LED flash 5-megapixel front-facing camera
	Fingerprint	MODAT-800A-MT65-R10: fingerprint lock MODAT-800A-MT65-A-R10: FBI-certified fingerprint reader MODAT-800A-MT65-B-R10: CNAS-certified fingerprint reader
Sensors		3D accelerator GYRO-Sensor Electronic compass proximity sensor ambient light sensor
Battery Status LED		Red/Green (Red light shows the battery is being charged; Blinking red light shows the battery is low <15%; Green light shows the battery is full >90%)
Buttons		(1) Power button, Volume up, Volume down (2) 2 programmable buttons (3) PCAP buttons: Home, Menu, Back
I/O Interface	Audio	2 x 1.5W speaker 1 x 3.5 mm audio jack for headset 1 x Receiver microphone 2 x Analog microphone
	USB	USB OTG 2.0 by either USB Type-C connector or USB Type-A connector
	Charging Interface	USB Type-C
	SIM Card / SD Card Slot	Dual Nano SIM card (dual standby) or one Nano SIM + one microSD up to 64GB
	Power Adapter	Optional: 20W USB Type-C wall charger compatible with USB Power Delivery 3.0 Input: 100-240V, 50/60Hz, 0.5A Output: 5V@3A, 9V@2A, 12V@1.5A (20W max.)
	Battery	16, 000mAh Li-Polymer Battery (59.2Wh, 3.7V)
Environmental	Operating Temperature	0°C ~ 50°C for discharging, and active CPU throttling at a higher temperature 0°C ~ 40°C for charging, and 16°C ~ 40°C for fast charging
	Storage Temperature	-20°C ~ 60°C
	Drop Survival	1.2 meter
	IP Level	IP54
	Color	Case: Pantone Black C and Pantone Medium Blue C Touch screen: Pantone Black C and Pantone 431C
	Dimensions (L x W x H)	277.32 x 159.76 x 27.61 (mm)
Power Input	Weight	1 kg
EMC and Safety		Conform to CE/FCC ESD: ±10KV AIR; ±6KV CONTACT

MODAT-800A

8” IP54 Rugged Android Tablet PC

PRELIMINARY

Features

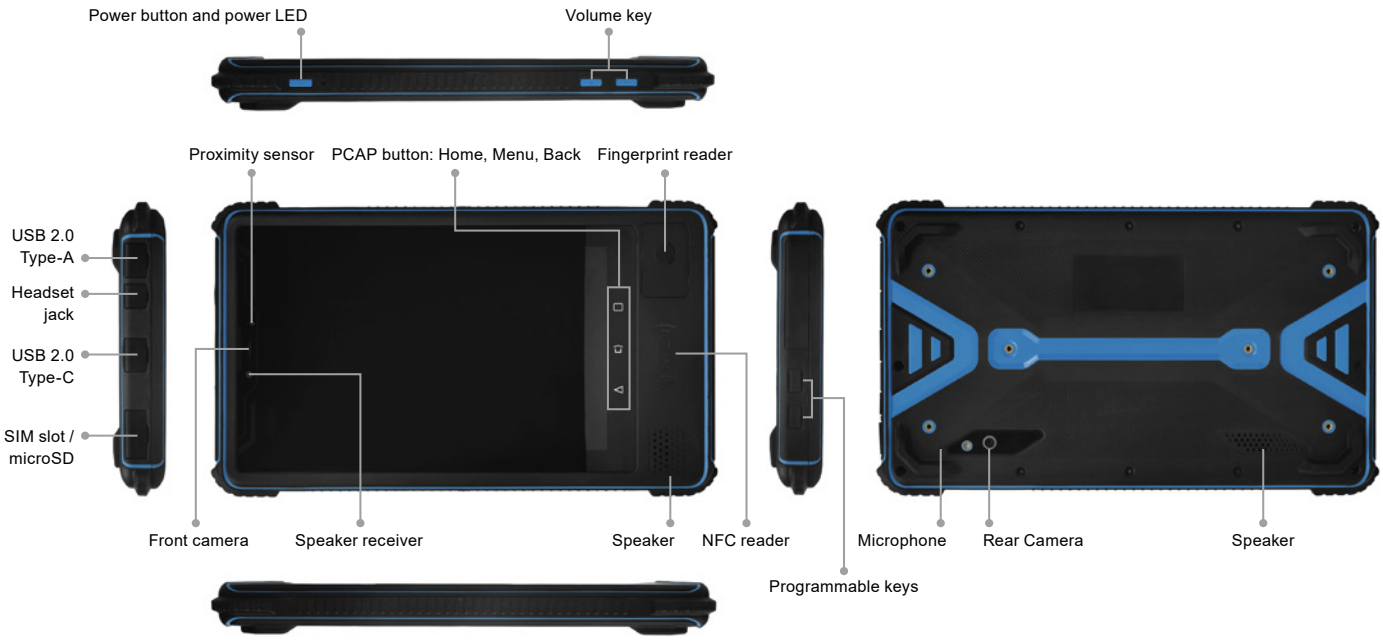
- 8” 1280 x 800 screen with 500nits brightness for outdoor applications
- IP54 waterproof dustproof, ideal for wild use and field work in harsh conditions
- MediaTek MT6765 octa-core 64-bit Cortex-A53 2.3 GHz processor
- 16, 000 mAh Li-ion battery, and the extraordinary low power consumption design, allowing full-day use in the field, without worrying about data loss
- Biometric lock, FBI- or CNAS-certified fingerprint reader
- USB Type-C fast charging, USB PD 3.0 compliant
- Built-in 4G LTE, dual-band Wi-Fi AC, GPS navigation, Bluetooth v5.0 and NFC
- Android 11

Specifications

Model		MODAT-800A
Display and Touch	LCD Size	8"
	Brightness (cd/m²)	500
	Max. Resolution	1280 x 800
	Viewing Angle	85°/85°/85°/85°
	Touchscreen	5-point PCAP touch (Surface hardness 6H)
	Contrast	800:1
System	CPU	MediaTek MT6765 Helio P35 Octa-core 64-bit Cortex-A53 2.3 GHz
	Operating System	Android 11
	Memory	6GB LPDDR4
	ROM	128GB eMMC
Communication	WLAN	802.11 a/b/g/n and ac (2.4GHz/5GHz)
	Bluetooth	Bluetooth v5.0+EDR
	Modem	GSM: B2/1900;B3/1800;B5/850;B8/900 3G: WCDMA (B1/2100;B5/850;B8/900); EVDO (BC0); SCDMA 4G LTE: FDD-LTE (B1/2100;B3/1800;B7/2600;B20/800;B2/1900;B4/AWS;B5/850;B8/900;B12/700;B17/700b;B13/700c) TDD-LTE (B38, B39, B40, B41)
	GNSS	GPS/BeiDou/GLONASS/Galileo (Could be 2 kinds of the 4; Default: GPS and BeiDou)
Data Collection	NFC	ISO/IEC 14443A/B MIFARE JIS X 6319-4 (FeliCa1) ISO/IEC 18092 ISO/IEC 15693
	Camera	13-megapixel auto focus rear camera with LED flash 5-megapixel front-facing camera
	Fingerprint	MODAT-800A-MT65-R10: fingerprint lock MODAT-800A-MT65-A-R10: FBI-certified fingerprint reader MODAT-800A-MT65-B-R10: CNAS-certified fingerprint reader

Sensors		3D accelerator GYRO-Sensor Electronic compass proximity sensor ambient light sensor
Battery Status LED		Red/Green (Red light shows the battery is being charged; Blinking red light shows the battery is low <15%; Green light shows the battery is full >90%)
Buttons		(1) Power button, Volume up, Volume down (2) 2 programmable buttons (3) PCAP buttons: Home, Menu, Back
I/O Interface	Audio	2 x 1.5W speaker 1 x 3.5 mm audio jack for headset 1 x Receiver microphone 2 x Analog microphone
	USB	USB OTG 2.0 by either USB Type-C connector or USB Type-A connector
	Charging Interface	USB Type-C
	SIM Card / SD Card Slot	Dual Nano SIM card (dual standby) or one Nano SIM + one microSD up to 64GB
Power	Power Adapter	Optional: 20W USB Type-C wall charger compatible with USB Power Delivery 3.0 Input: 100-240V, 50/60Hz, 0.5A Output: 5V@3A, 9V@2A, 12V@1.5A (20W max.)
	Battery	16, 000mAh Li-Polymer Battery (59.2Wh, 3.7V)
Enviroments	Operating Temperature	0°C ~ 50°C for discharging, and active CPU throttling at a higher temperature 0°C ~ 40°C for charging, and 16°C ~ 40°C for fast charging
	Storage Temperature	-20°C ~ 60°C
	Drop Survival	1.2 meter
	IP Level	IP54
	Color	Case: Pantone Black C and Pantone Medium Blue C Touch screen: Pantone Black C and Pantone 431C
Physical	Dimensions (L x W x H)	277.32 x 159.76 x 27.61(mm)
	Weight	1kg
EMC and Safety		Conform to CE/FCC ESD: ±10KV AIR; ±6KV CONTACT

Fully Integrated I/O



Ordering Information

Part No.	Description
MODAT-800A-MT65-R10	8" Android 11 tablet PC with Octa-core Cortex-A53 2.3GHz processor, Wi-Fi 802.11ac/a/b/g/n, Bluetooth 5.0, GPS, 5-megapixel front and 13-megapixel rear camera, 6GB LPDDR4, 128GB eMMC, NFC, unlock fingerprint, R10
MODAT-800A-MT65-A-R10	8" Android 11 tablet PC with Octa-core Cortex-A53 2.3GHz processor, Wi-Fi 802.11ac/a/b/g/n, Bluetooth 5.0, GPS, 5-megapixel front and 13-megapixel rear camera, 6GB LPDDR4, 128GB eMMC, NFC, FBI-certified fingerprint, R10
MODAT-800A-MT65-B-R10	8" Android 11 tablet PC with Octa-core Cortex-A53 2.3GHz processor, Wi-Fi 802.11ac/a/b/g/n, Bluetooth 5.0, GPS, 5-megapixel front and 13-megapixel rear camera, 6GB LPDDR4, 128GB eMMC, NFC, CNAS-certified fingerprint, R10

MODAT-800A-MT65

MODAT-800A-MT65-A

MODAT-800A-MT65-B

Optional Accessory List

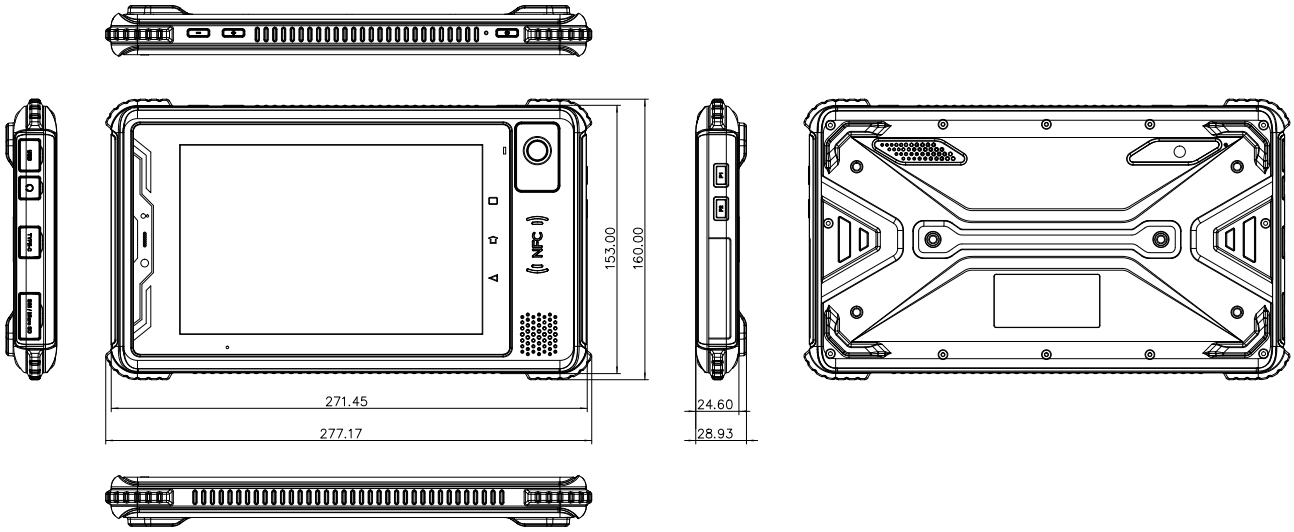
Item	Part No.	Description
Hand strap	19XMOSFB6-0006002-000-RS	Hand strap for MODAT-800 (155.6x56) + Screw
Desktop Stand	19XMOSFB6-0006001-000-RS	Support frame+Screw

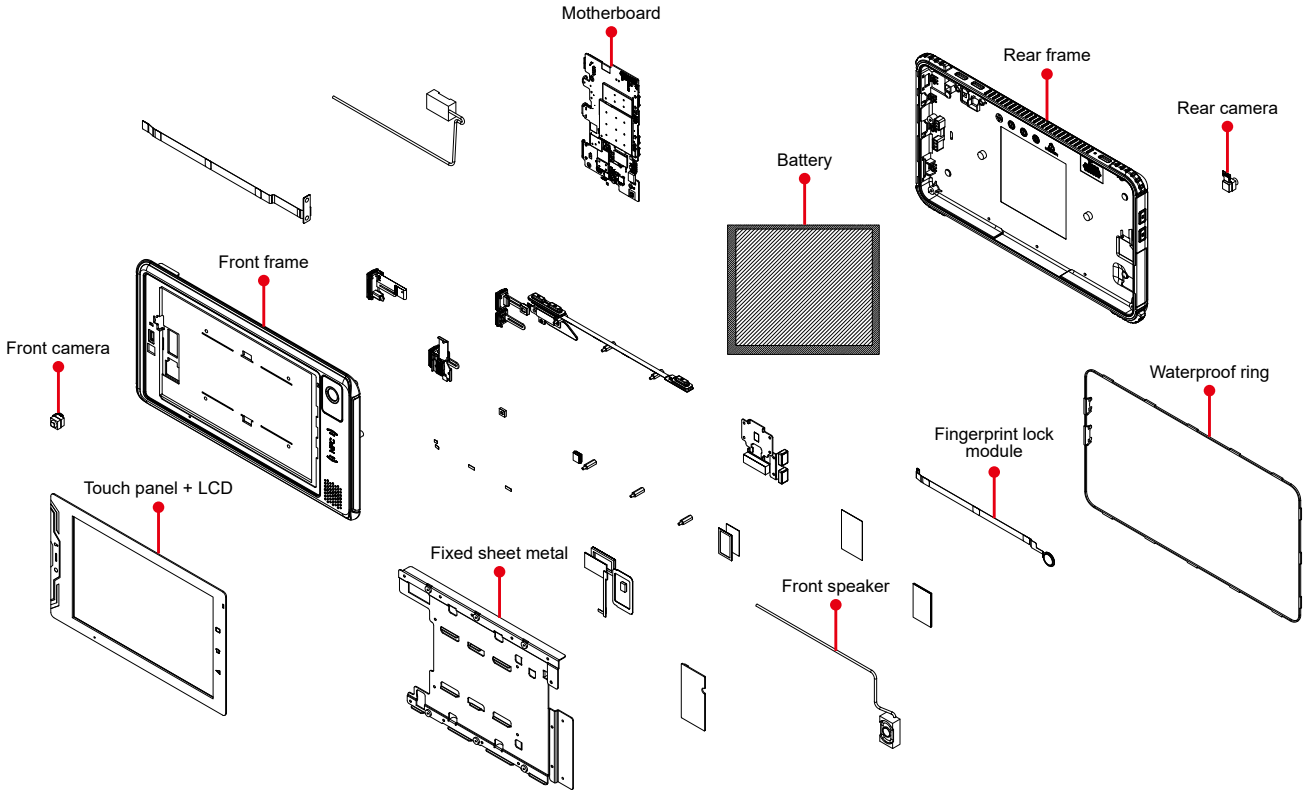
Packing List

Item	Part No.	Q'ty
63040-430020-010-RS	Power Adapter: Vin: 90~264VAC;20W;CCC, Erp (NO LOAD 0.1w): Vout: 5VDC/9VDC: USB Type-C	1
32001-030300-100-RS	Type C cable :ROUND USB CABLE, 2;1200mm;TYPE C MALE*2, Huntkey	1
45030-0049C0-00-HF	Sim Card Tray Ejector Eject Pin key Removal Tool	1

MODAT-800A Dimensions

(Unit: mm)





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

Product Line	DM-F Series
LCD Size	6.5" ~ 24"
Input Signal Interface	6.5"/ 8": VGA+DVI-D 12.1" ~ 24": VGA+HDMI+DisplayPort
Brightness (cd/m²)	250 ~ 800
Operating Temperature	-20°C ~ 60°C
OSD Function	Yes
IEI samrtOSD Support	Yes
Front Panel Protection	IP 65

Industrial Monitor Redefine

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

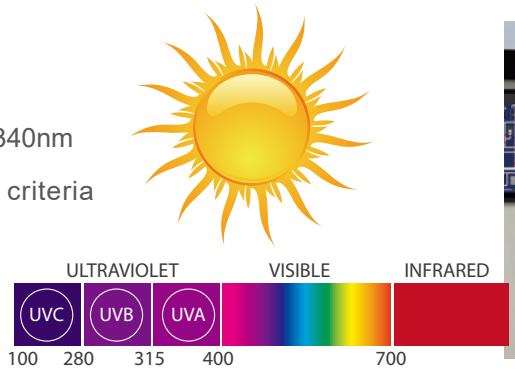
Etching anti-glare, never peel off!

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

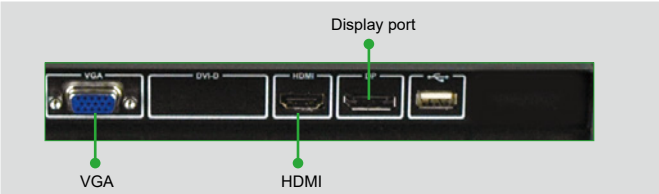
Outdoor applications exposing to direct sunlight and long-term ultraviolet (UV) light will affect PCAP panel appearance such as PCAP top glass hard coat cracking and hazing, or varying degrees of yellowing and bubbling. Thus, IEI offers a UV resistant PCAP touch solution to equip outdoor industrial systems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

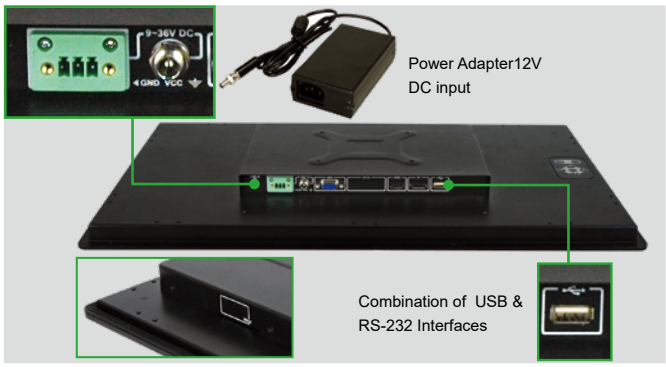
Lockable

■ 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.

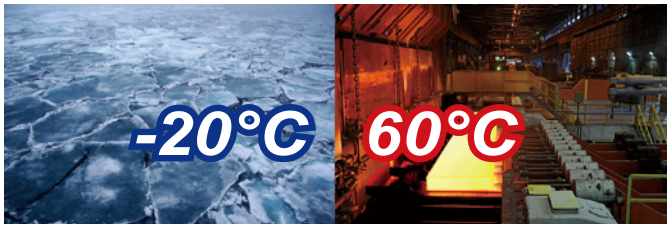
- Lockable RS-232 connector ensures secure attachment (Optional)
- Standard Type A USB 2.0 interface with 480 Mbit/s maximum transfer rate provides faster data transmission than a traditional RS-232 interface

■ 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.

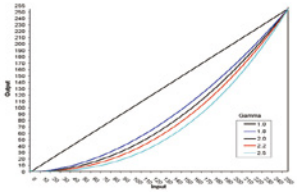
■ Wide Operating Temperature

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).

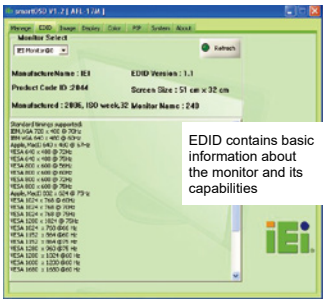
■ 100% Compatible with VESA DDC / CI Protocol

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.

smart OSD

Various Remote Management Functions

1.EDID

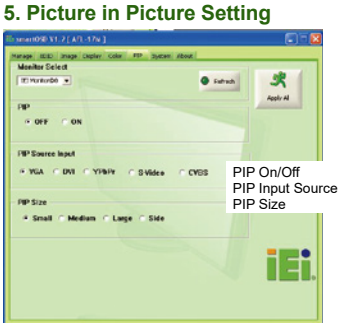


2.Image Setting

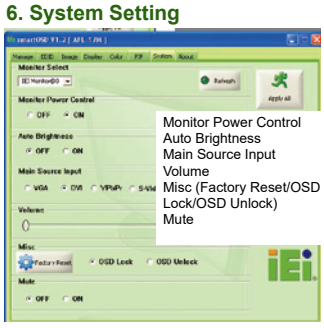
3.Display Setting

4.Color Setting

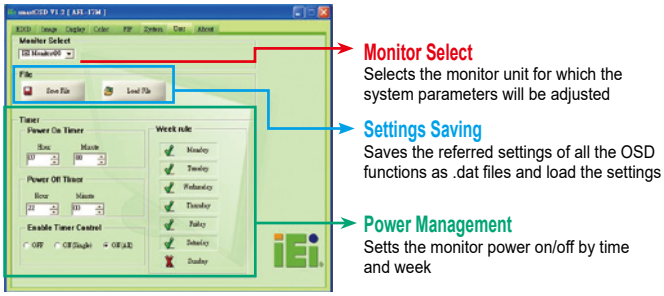
5. Picture in Picture Setting



6. System Setting



7.Monitor Power Management and File Saving



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

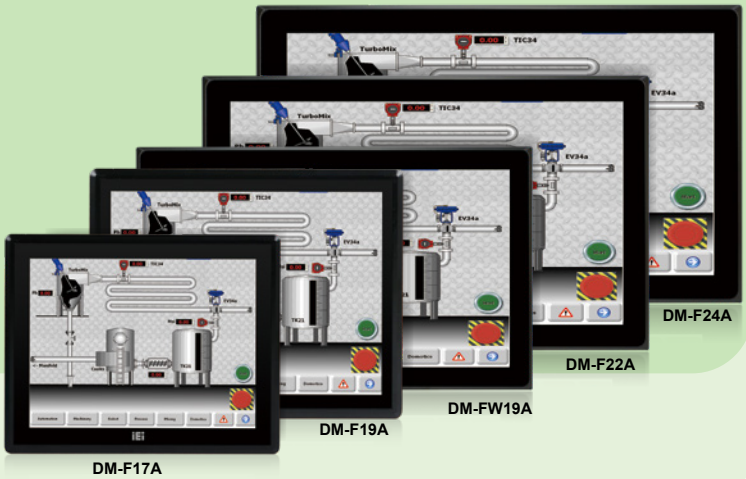
Model		DM-F65A	DM-F08A	DM-F12A	DM-F15A	DM-FW15A
LCD	LCD Display	6.5” (4:3)	8” (4:3)	12.1" (4:3)	15" (4:3)	15.6” (16:9)
	Max. Resolution	640 (W) x 480 (H)	800 x 600	1024 (W) x 768 (H)	1024 (W) x 768 (H)	1366 (W) x768 (H)
	Brightness (cd/m²)	800	500	600	500	400
	Contrast Ratio	600:1	500:1	700 : 1	800 : 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



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-R20	6.5” 800 cd/m² high-luminance VGA LCD monitor with aluminum die casting front panel, black color, USB resistive touchscreen, R20
DM-F08A/R-R20	8” 500 cd/m² SVGA LCD monitor, Aluminum front panel, Black color, W/ USB resistive touch screen, 12V DC input, R20
DM-F12A/R-R30	12.1” 600 cd/m² XGA LCD monitor, Aluminum die casting front panel, Black color, W/ USB resistive touch screen, 9 ~36V DC input, R30
DM-F12A/PC-R30	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, R30
DM-F15A/R-R40	15” 450 cd/m² XGA LCD monitor, Aluminum die casting front panel, Black color, W/ USB resistive touch screen, 9 ~36V DC input, R40
DM-F15A/PC-R40	15” 450 cd/m² XGA LCD monitor, Aluminum die casting front panel, Black color, W/ USB projected capacitive touch screen, 9 ~36V DC input, R40
DM-FW15A/PC-R20	15.6” 400 cd/m² 1366x768 LCD monitor, Aluminum front panel, Black color, W/ USB PCAP touch screen, 9 ~36V DC input, R20
DM-F17A/R-R30	17” 350 cd/m² SXGA LCD monitor, Aluminum die casting front panel, Black color, W/ USB resistive touch screen, 9 ~36V DC input, R30
DM-F17A/PC-R30	17” 350 cd/m² SXGA LCD monitor, Aluminum die casting front panel, Black color, W/ USB projected capacitive touch screen, 9 ~36V DC input, R30
DM-FW19A/PC-R20	18.5” 400 cd/m² 1366x768 LCD monitor, Aluminum front panel, Black color, W/ USB PCAP touch screen, 9 ~36V DC input, R20
DM-F19A/R-R30	19” 350 cd/m² SXGA LCD monitor, Aluminum die casting front panel, Black color, W/ USB resistive touch screen, 9 ~36V DC input, R30
DM-F19A/PC-R30	19” 350 cd/m² SXGA LCD monitor, Aluminum die casting front panel, Black color, W/ USB projected capacitive touch screen, 9 ~36V DC input, R30
DM-F22A/PC-R30	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, R30
DM-F24A/PC-R40	23.8” 250 cd/m² FHD LCD monitor, Aluminum front panel, Black color, W/ USB projected capacitive touch screen, 9 ~36V DC input, R40

Options

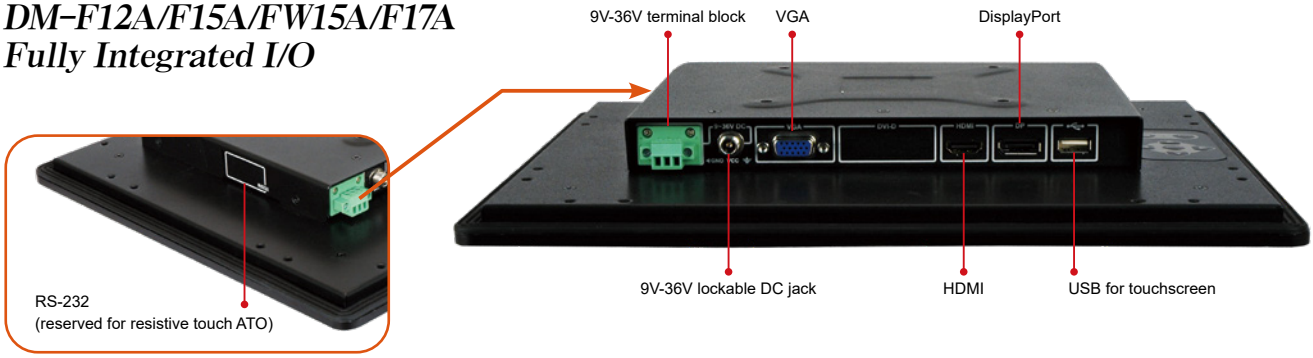
Item	DM-F65A	DM-F08A	DM-F12A	DM-F15A	DM-FW15A	DM-F17A	DM-F19A	DM-FW19A	DM-F22A	DM-F24A
Arm	ARM-11-RS		ARM-11-RS	ARM-31-RS	ARM-31-RS	ARM-31-RS	ARM-31-RS	ARM-31-RS	ARM-31-RS	ARM-31-RS
Stand	STAND-C12-R10		STAND-C12-R10	STAND-C19-R10 STAND-A21-R10						
Wall Mount Kit	AFLWK-12		WK-190MS-R10							
Panel 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		63040-010060-211-RS							

Packing List

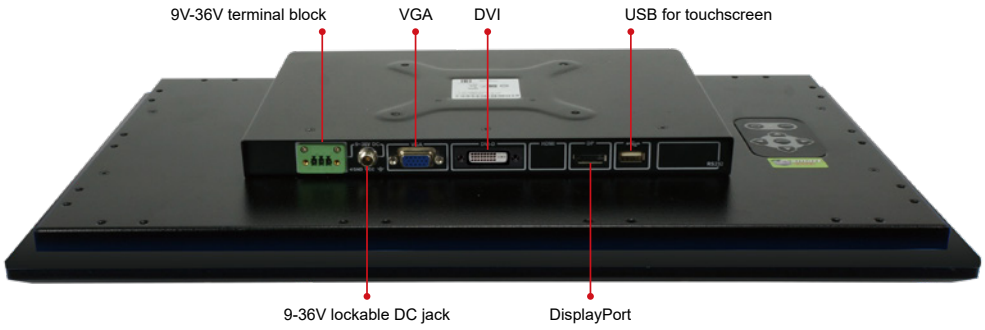
Item	P/N	Q'ty	Remark
USB Cable	32001-006100-100-RS	1	For touchscreen
VGA Cable	32000-036200-RS	1	
Power Adapter	63040-010036-210-RS (for DM-F65/08A)		

DM-F65A/08A
Fully Integrated I/O

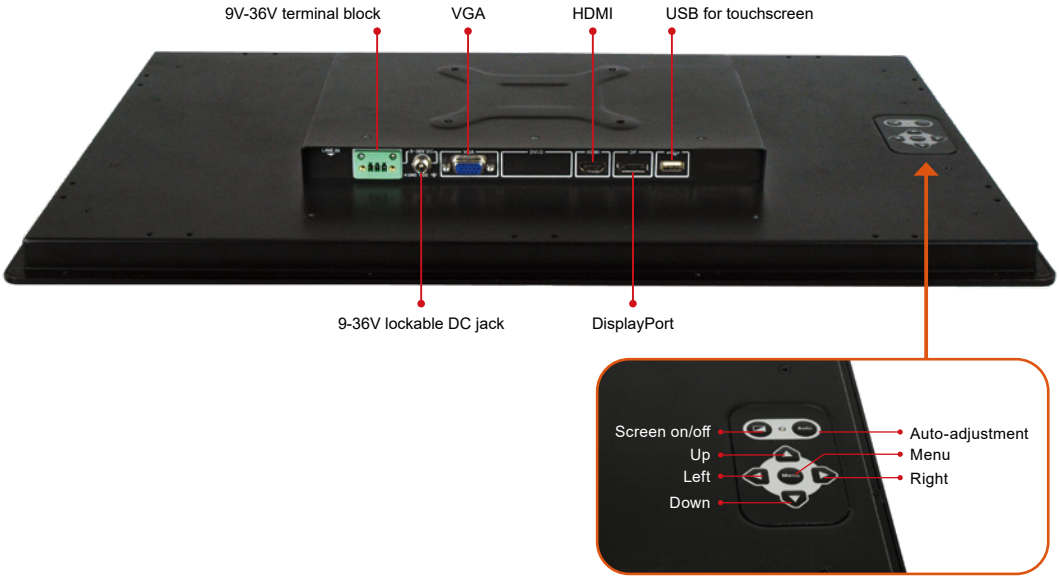
DM-F12A/F15A/FW15A/F17A
Fully Integrated I/O



DM-F19A
Fully Integrated I/O

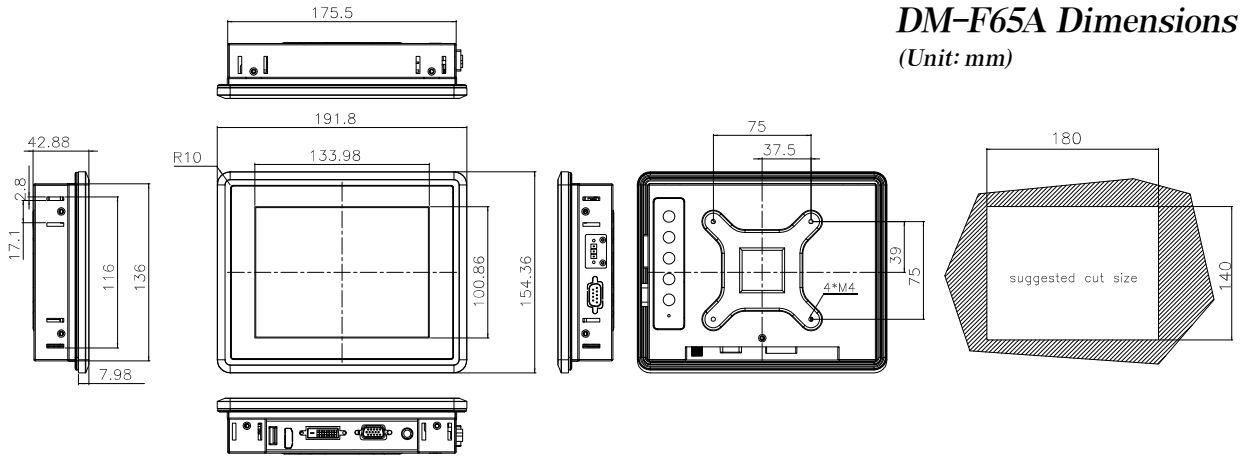


DM-F22A/F24A
Fully Integrated I/O



DM-F65A Dimensions

(Unit: mm)



DM-F08A Dimensions

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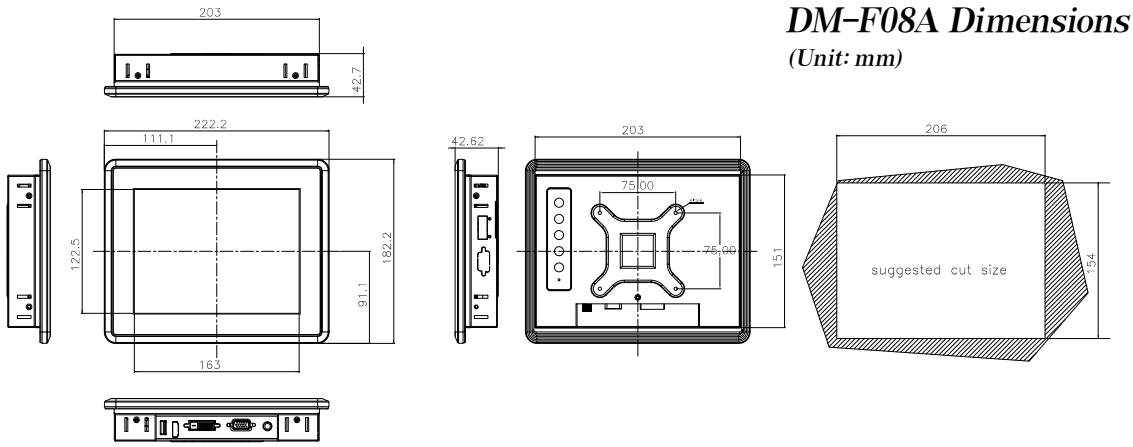
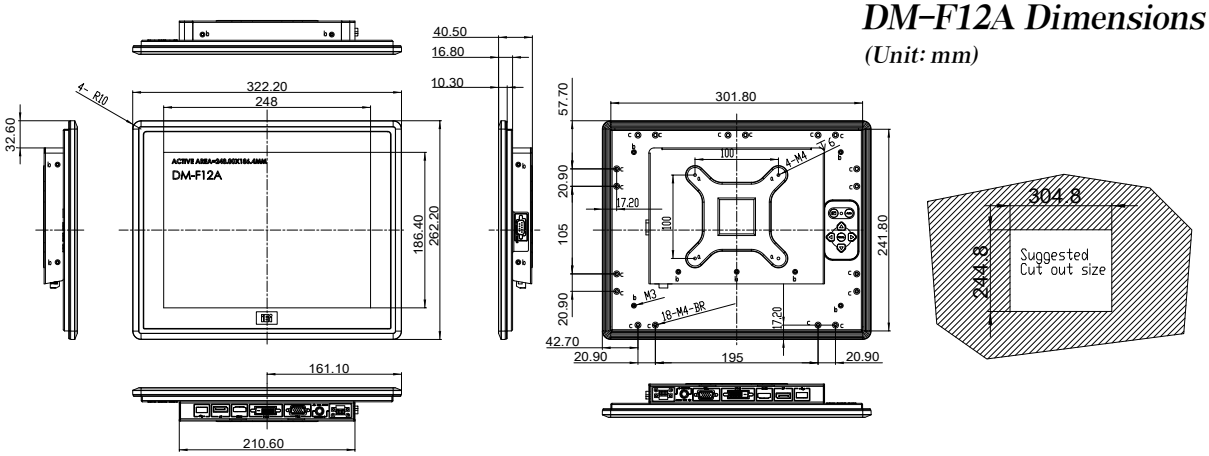


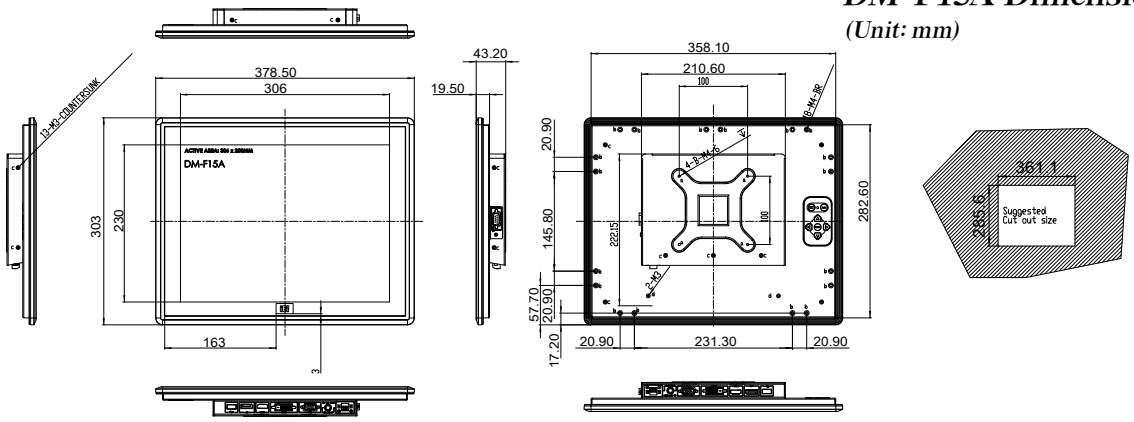
DM-F12A Dimensions

(Unit: mm)



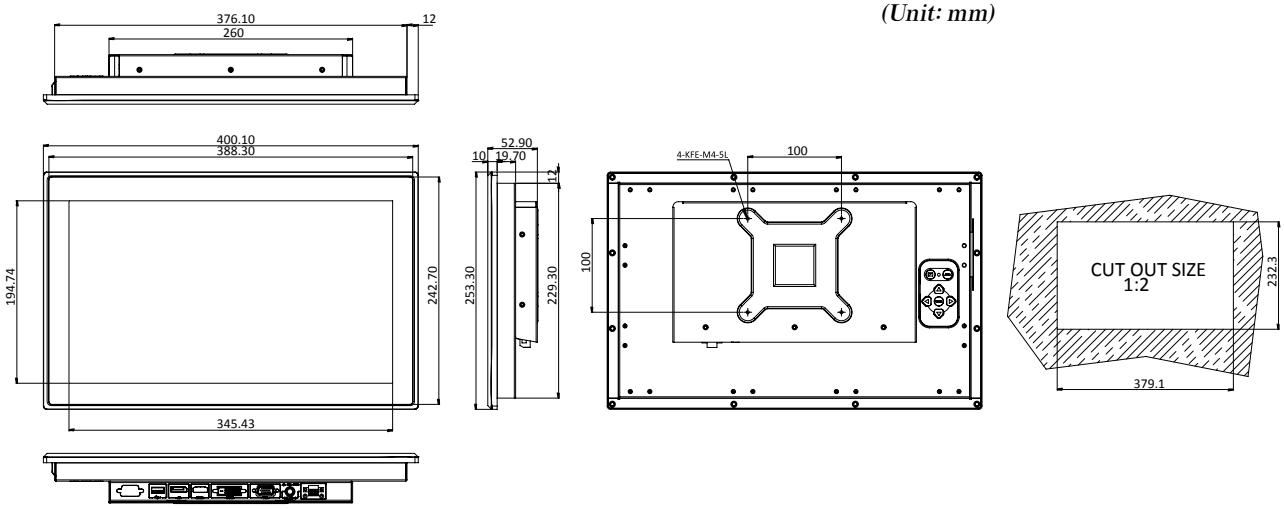
DM-F15A Dimensions

(Unit: mm)



DM-FW15A Dimensions

(Unit: mm)



DM-F17A Dimensions

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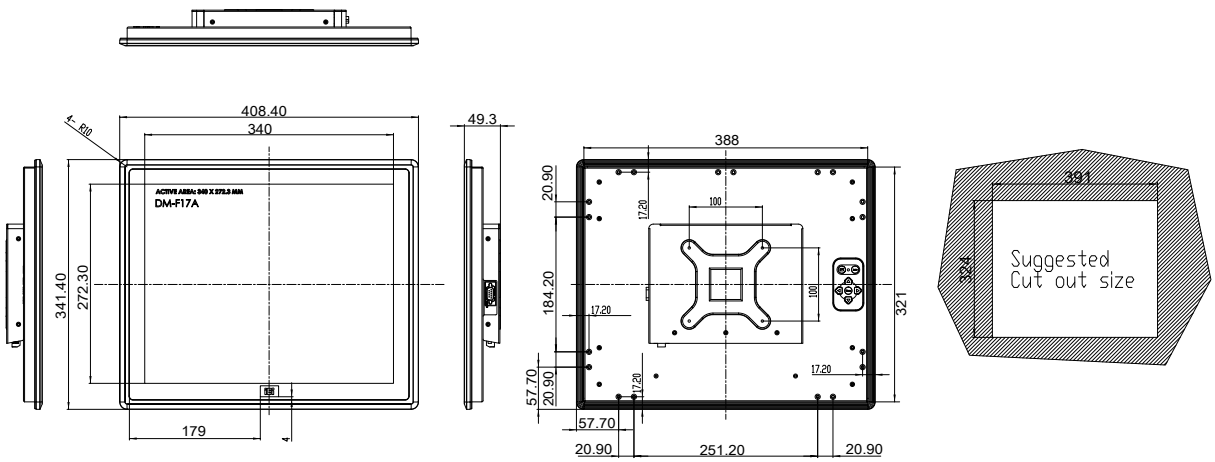
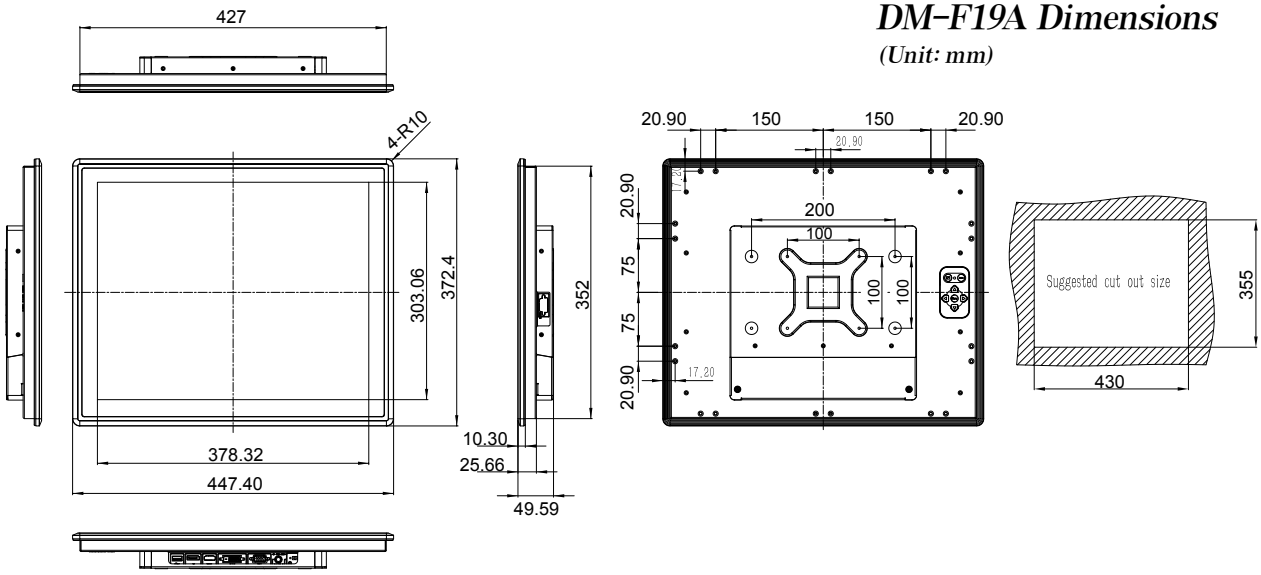


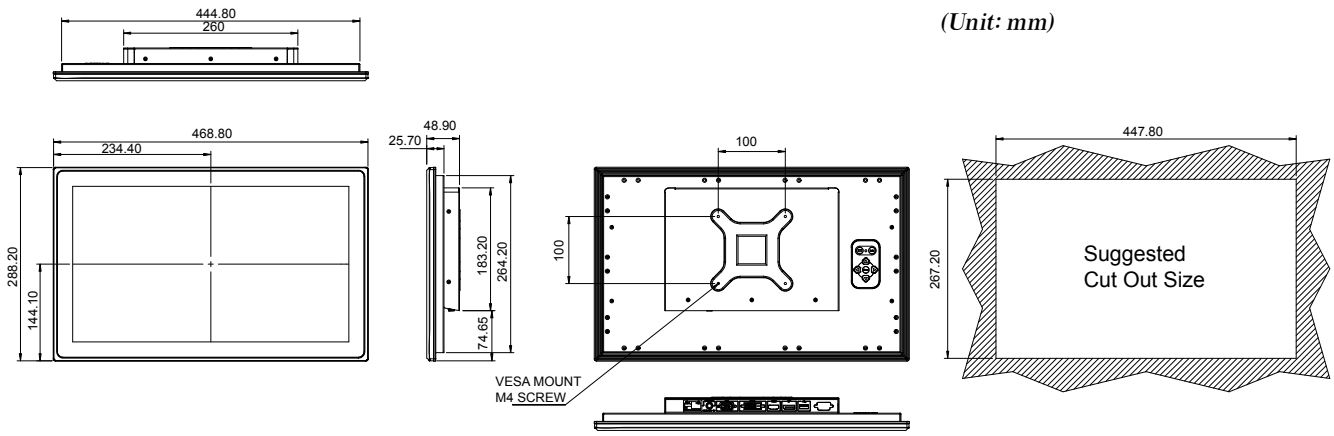
DM-F19A Dimensions

(Unit: mm)



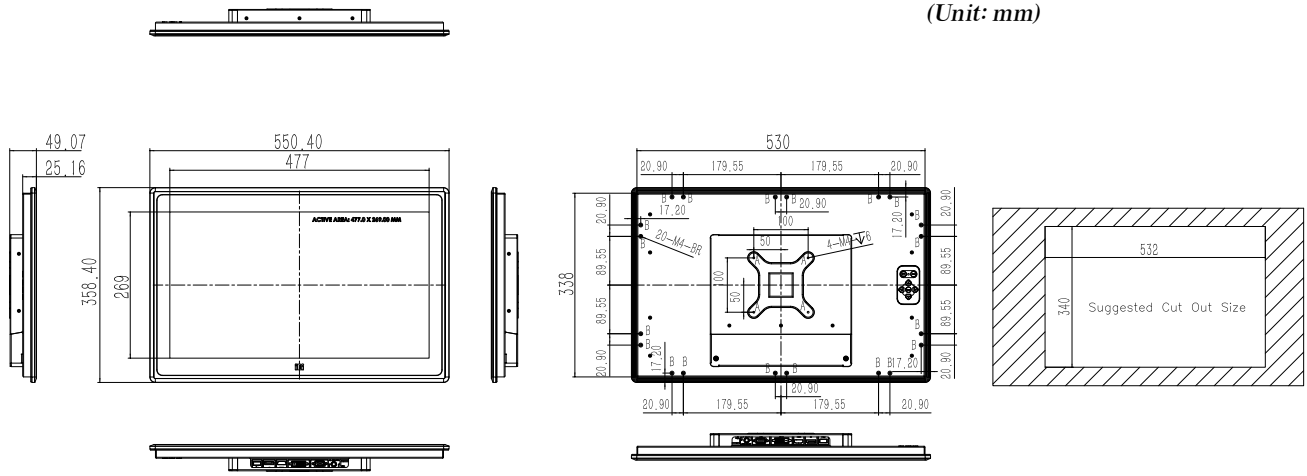
DM-FW19A Dimensions

(Unit: mm)



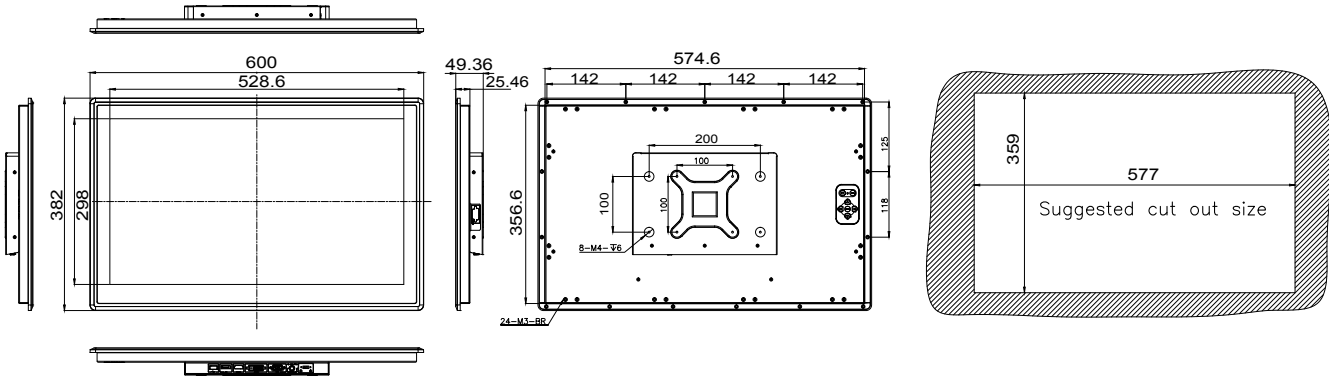
DM-F22A Dimensions

(Unit: mm)



DM-F24A Dimensions

(Unit: mm)



4K HDR SDVoE IP Combo Transceiver

Support 10GbE Copper & Fiber

iSDV-200CTR

IEI iSDV-200CTR is a high performance, zero latency, and 4K@60Hz (4:4:4) AV over IP video. With its 10GbE combo port design, the iSDV-200CTR allows streaming over copper cable or fiber cable in one single device. As a leading 4K video streaming transceiver, the iSDV-200CTR delivers advanced capabilities for live event, video wall or situation room.

10GbE

• 10GbE Combo Port

Both RJ45 and SFP+ support for flexible application usage in one device

Free

• Free Software, Flex Utility

Flexible management for TX/ RX configurations and applications

• Management Visualization

LCD display shows the IP address of the device, enabling visualization for easy on-site setup

TX RX

• 4K Video Streaming Transceiver

Combining Tx and Rx functions

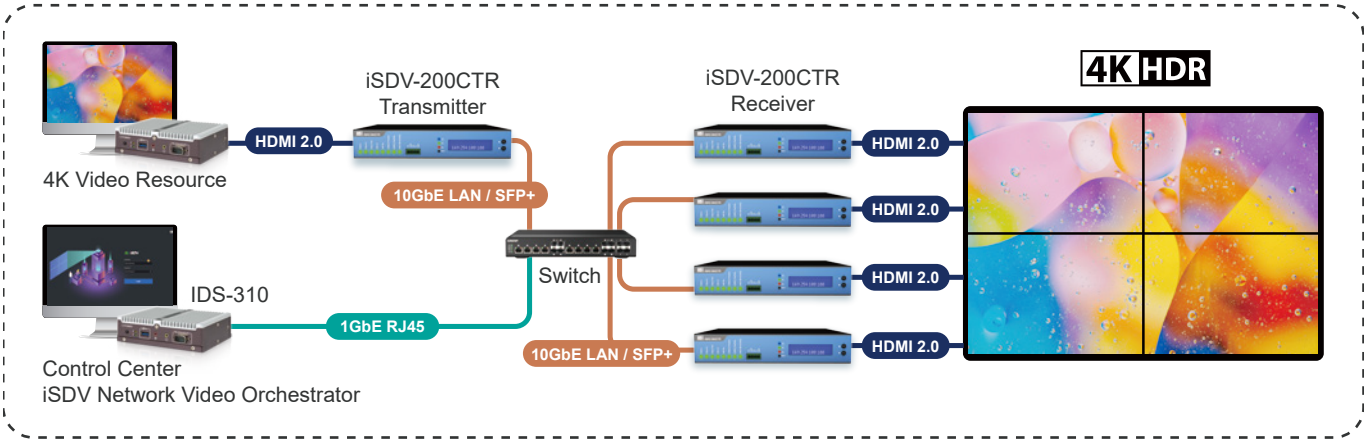
• Zero Latency

Zero latency extension and switching for 4K video

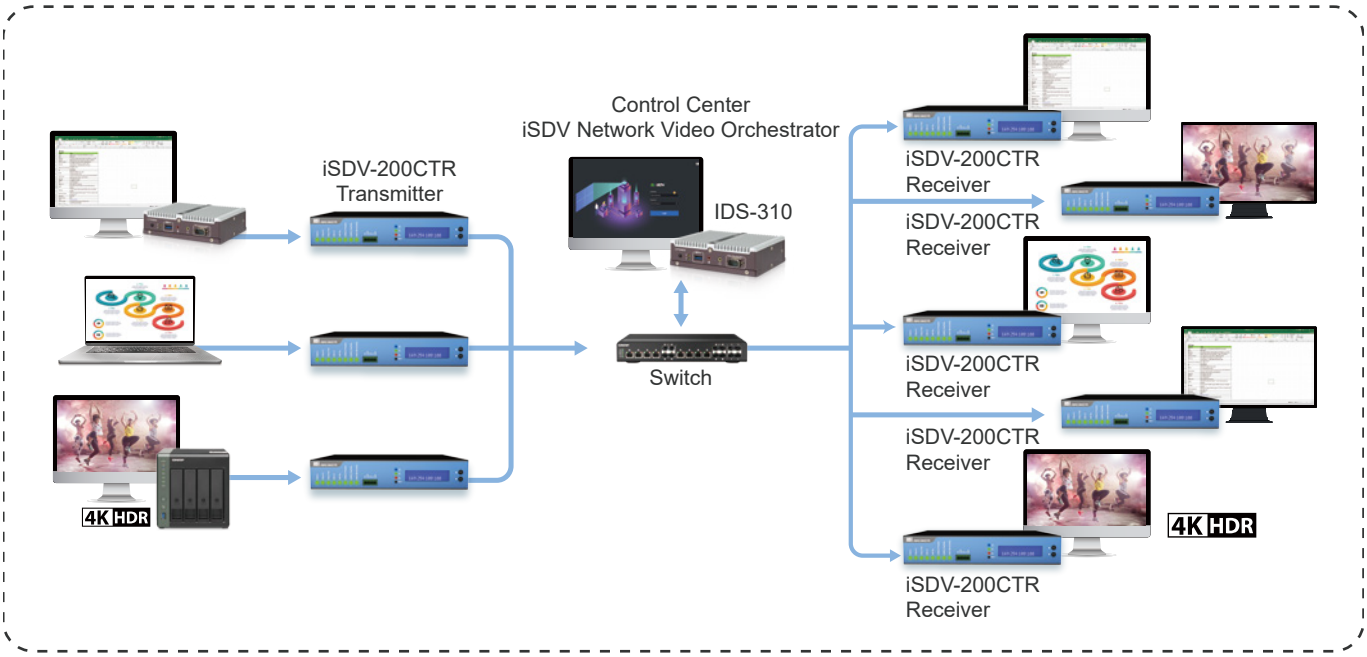
• High Performance

BlueRiver AVP2000T AV Processor

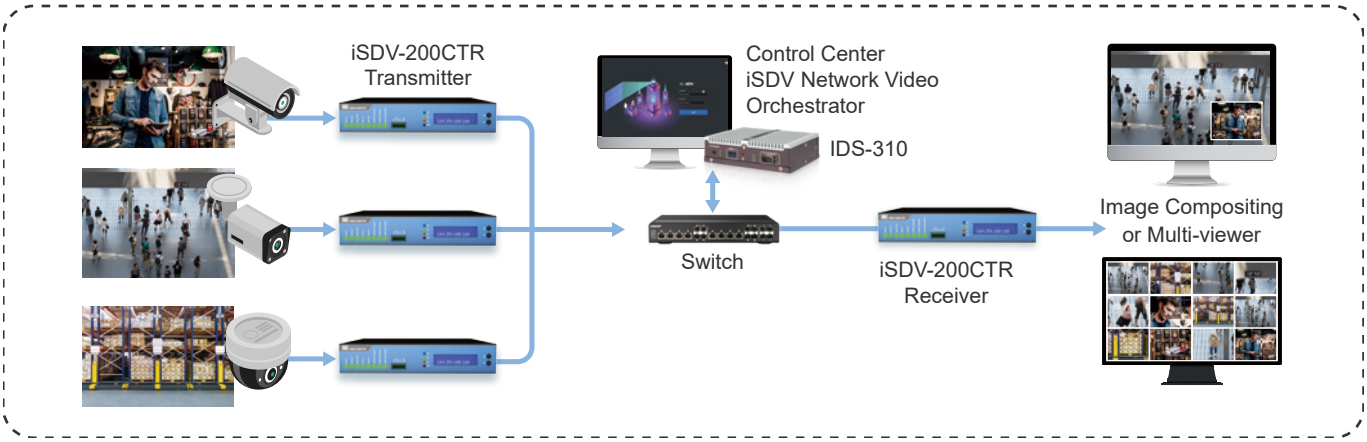
• SDVoE 4K Video Wall Solution



• Fast and Stable Switching Solution



• Powerful Multi Viewer Solution



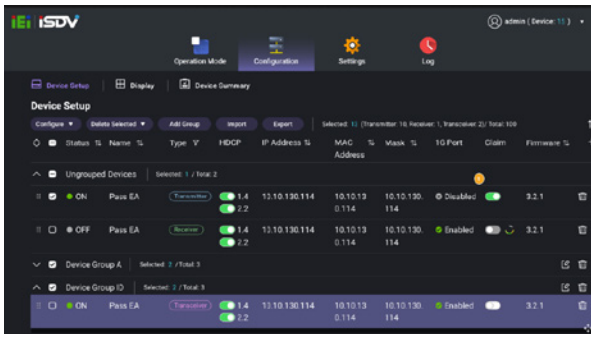
iSDV Network Video Orchestrator

Simple System Management with Free Software

Simply login the iSDV Network Video Orchestrator, a free software and free installation, to manage all your iSDV devices from a central console. The free software can be easily implemented in different platforms, such as Windows 10/11, Ubuntu 18.04 LTS+, QNAP NAS QTS 5. It has intuitive user interface, allowing you to setup the mode of Tx/Rx, quickly configure display array or other settings, and check the status of all devices in real-time.

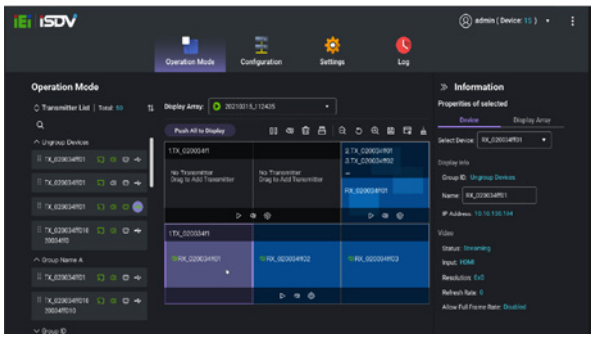
- **Free source and free installation**
- **Simple installation procedure and user interface design**
- **Compliant with various OS: Windows 10/11, Ubuntu 18.04 LTS+, QNAP NAS QTS 5**

Software Features



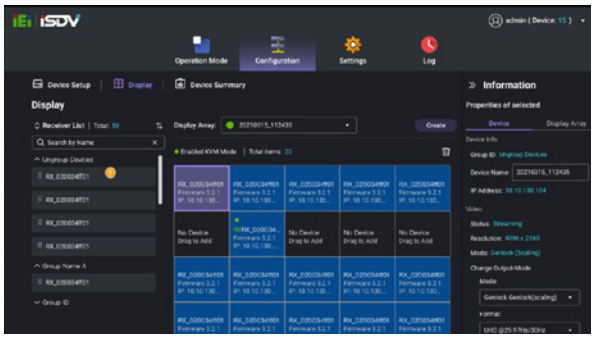
• iSDV Device Setup:

To manage the configuration of Group, Devices, Audio, RS232, Hardware or Firmware Update



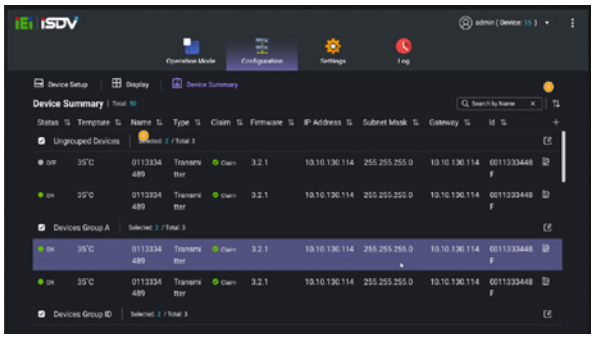
• iSDV Display Configuration:

To create display array and setup receiver position



• iSDV Transmitter & Receiver Routing Setup:

To set up display property and execute settings to start video streaming



• Real-time Status of iSDV Devices:

Offer data visualization and summary of all iSDV devices

iSDV-200CTR

Feature

- Encoder/Decoder hybrid and copper/fiber combo device
- Visualization hardware design for IP management
- Flexible software, iSDV Network Video Orchestrator, for TX/RX configuration and applications

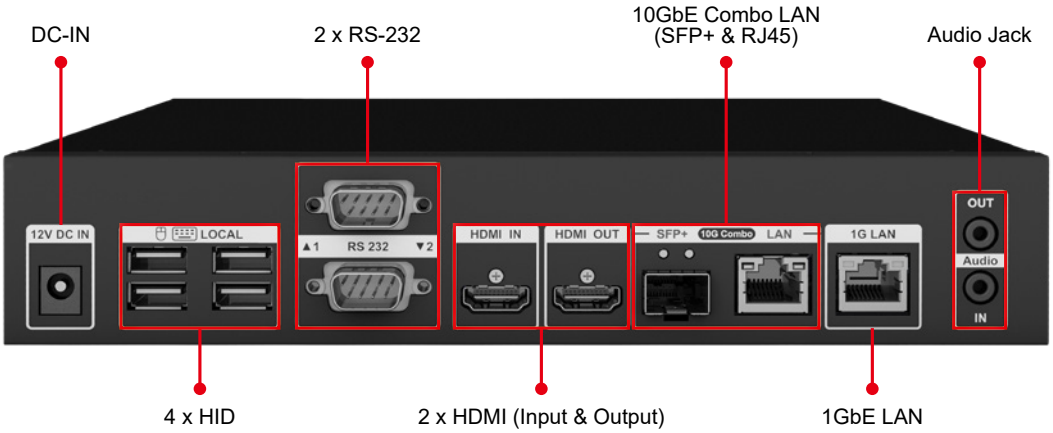
Application

- Flexible transmitter/receiver mode configuration via iSDV Network Video Orchestrator software
- 4K video wall / switching / multi viewer / KVM

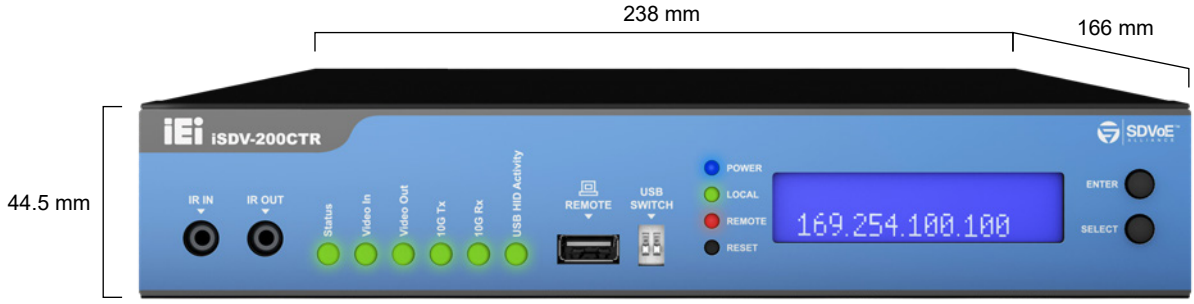
Specifications

Model Name	iSDV-200CTR
Description	4K HDR SDVoE IP combo transceiver supports 10G copper & fiber
Memory	2 x 128Mx16 DDR3 onboard
Video Interfaces	HDMI 2.0 supporting all resolutions up to 594MHz 4K60 RGB and 4:4:4 8-bit 4K60 4:2:2 10-bit for broadcast and medical applications 4K60 4:2:0 10-bit and 12-bit HDR
I/O Ports	1 x 1GbE LAN 1 x 10GbE LAN 1 x 10GbE SFP+ 1 x IR in 1 x IR out 1 x HDMI 2.0 in 1 x HDMI 2.0 out 1 x 3.5mm audio-in jack 1 x 3.5mm audio-out jack 4 x HID 2 x RS-232 6 x LED indicator 1 x Reset button 1 x USB switch
Control Button	2 x Trigger & Tuning: 1 x Reset button, 1 x USB switch
LCD	1 x Monochrome LCD (65 x 15 mm)
Application Mode	Transmitter / Receiver Extension / Switching / Video Wall / Multi Viewer / KVM supported
Dimension (WxDxH)	238 x 166 x 44.5 mm
Weight	1235g
Operating Humidity	20% ~ 95%, non-condensing
Operation Temperature	-20°C ~ 50°C w/o air flow -20°C ~ 60°C w/ air flow
Power	12VDC In, 3.3A
Safety & EMC	CE, FCC, CCC Certificated
Software	Free management software (iSDV Network Video Orchestrator) supported
Software Compatible OS	Microsoft Windows 10 64 bits Microsoft Windows 11 64 bits Linux Ubuntu 18.04 LTS+ QNAP NAS QTS 5

Fully Integrated I/O



iSDV-200CTR Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
iSDV-200CTR-R10	SDVoE Transmitter&Receiver, Semtech BlueRiver® AVP2000T, 2x128Mx16 DDR3, 1x1GbE RJ-45, 1x10GbE RJ-45, 1x 10GbE SFP+, 2xIR, 2xHDMI 2.0, 2x3.5mm audio jack, 4xHID, 2xRS-232, RoHS

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

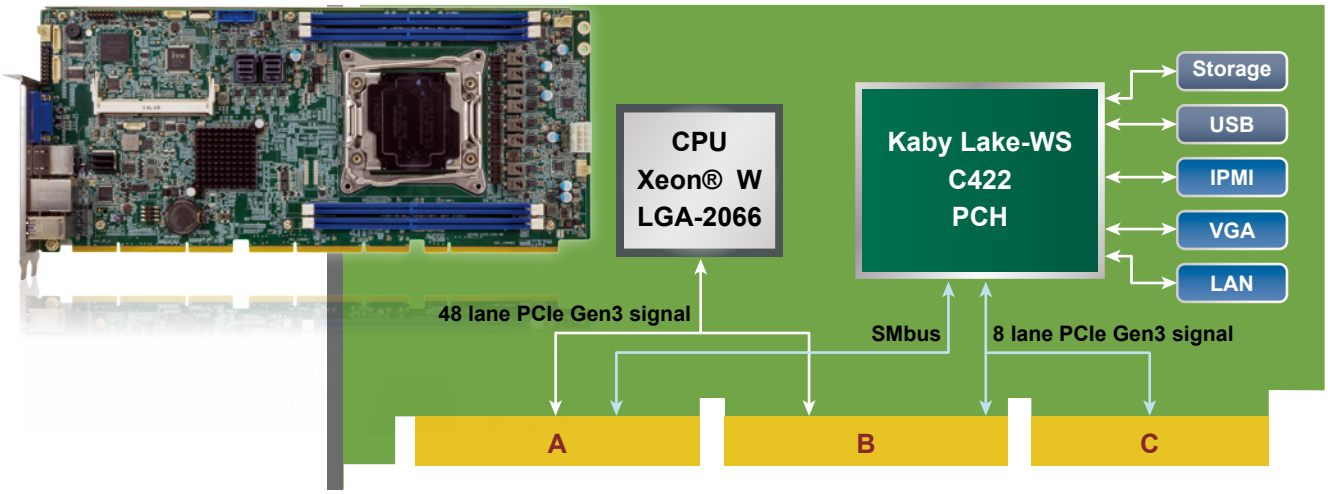
- Maximum 56 lane PCIe signals signals to fulfill AI deep learning or inference demand
- IPMI remote management

The Benefits of PEMUX

- With the backplane can expand up to 4 dual width graphics cards
- Use Intel® Xeon W High performance processor

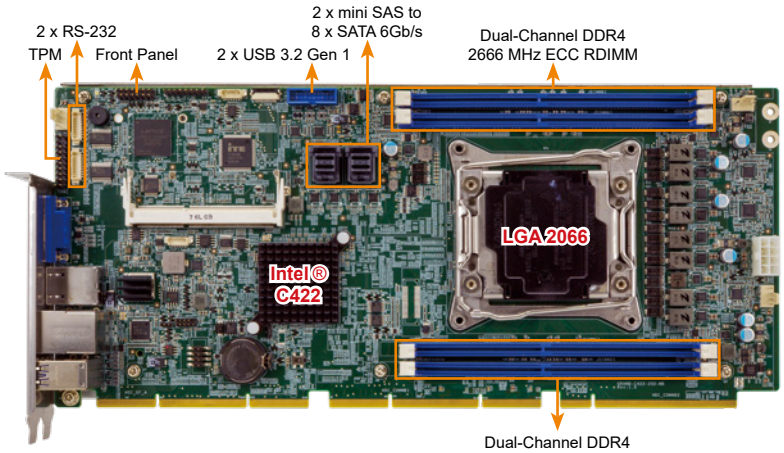
Full-size PEMUX PCIe Slot Configuration

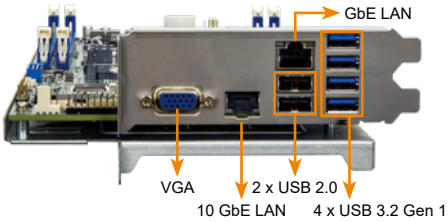
Full-size SBC Type			Server & Graphic Grade	
Combination			A	B
PCIe Slots Available (non switch)	CPU	x16		2
		x8	4	
		x4	4	4
	PCH	x4	2	2
Backplane Solution			PEMUX-DB series	

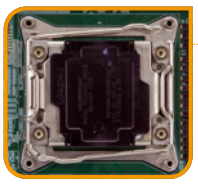


PEMUX-XEW1

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

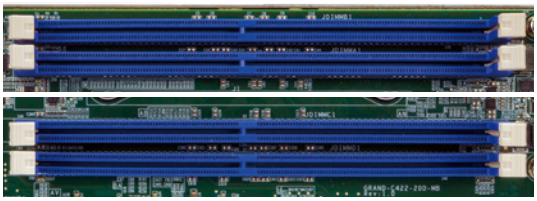






LGA 2066

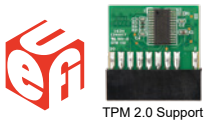
Support Intel® Xeon W series CPU



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 VGA port (from IPMI)
- 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 M Key (2280, PCIe Gen3 x4)
  1 x USB DOM header
  2 x mini SAS 8643 (for 8 x SATA 6GB/s)
  2 x RS-232 pin header
  2 x USB 3.2 Gen 1 pin header
- Front Panel
  1 x Front Panel (Power LED, HDD LED, Speaker, Power Button, Reset Button)
- Audio
  Supports by IEI AC-KIT-888S-R10 audio kit (2 x 5 pin)
- TPM
  1 x TPM (2 x 10-pin)
- 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
- Support M.2 M Key(2280, PCIe Gen3 x4)
- Intel® PCIe GbE Intel® i210-AT with NCSI support
- Aquantia AQC107 10 GbE NIC
- Supports RAID function via SATA 6Gb/s
- TPM 2.0 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

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, MOLEX 8981-4M to SATA15P, 150MM
CF-2011B-RS	High performance LGA1355/1356/2011 cooler kit, 130W
32037-000600-100-RS	1 x mini SAS to 4 SATA Cable
32005-005000-100-RS	RS-232 cable, 150MM, P=1.25

PEMUX Backplane

Accelerate to The Future

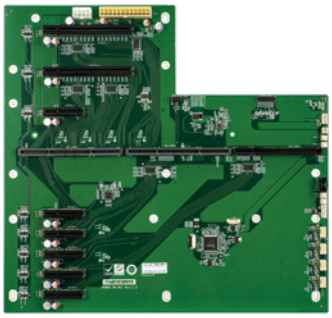
Server grade backplane accommodates multiple PCIe x8 and PCIe x4 add-on cards. It is specially designed for intensive AI computing applications such as deep learning and inference engine that requires more numbers of PCIe slot for accelerator cards. Given the multiple PCIe slots support, it provides a more efficiency solution for end-users.

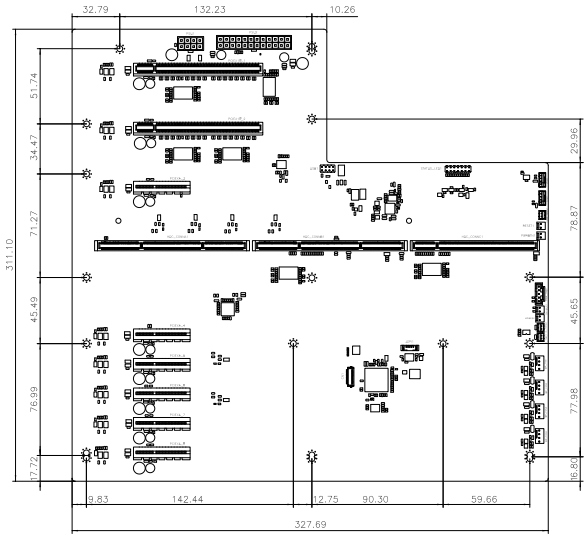
Selection Guide

4U rack-mount chassis

Model Name		PEMUX-DB-10S1	PEMUX-DB-8S1
Total Slots		11	9
PCIe Lanes	x16		2 (Gen 3.0)
	x8	4 (Gen 3.0)	
	x4	6 (Gen 3.0)	6 (Gen 3.0)
	x1		
PSU type		24+8pin ATX	24+8pin ATX
Chsaais Option		RACK-360G RACK-3000G	RACK-360G RACK-3000G

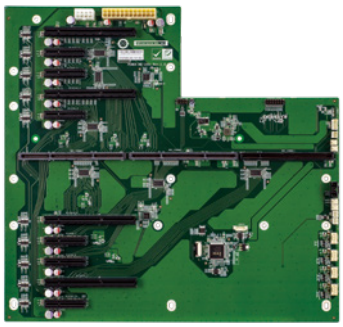
PEMUX-DB-8S1-R10

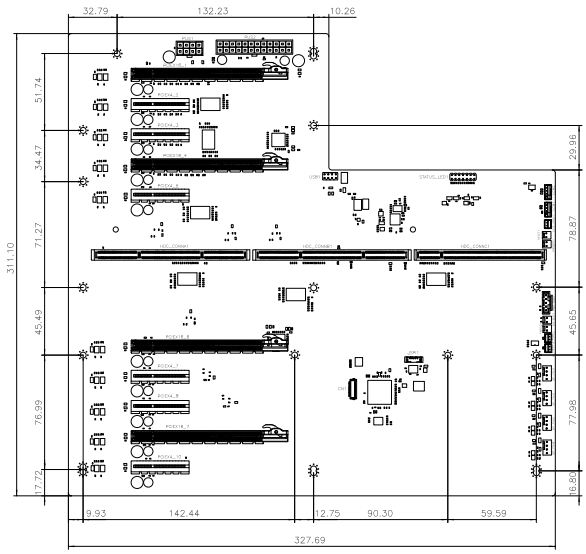




Ordering Information	
PEMUX-DB-8S1-R10	1-Slot PEMUX backplane, 2 PCIe Gen 3.0 x16 w/ x16 slot,6 PCIe Gen3.0 x4 w/ x4 slots, and RoHS
RACK-360G	4U 14-slot full-size rack-mount chassis
RACK-3000G	4U 14-slot full-size rack-mount chassis
41005-4223C2-00-RS	Rear card frame; black
41005-4222C3-00-RS	Rear card 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 slots, and RoHS
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 ?

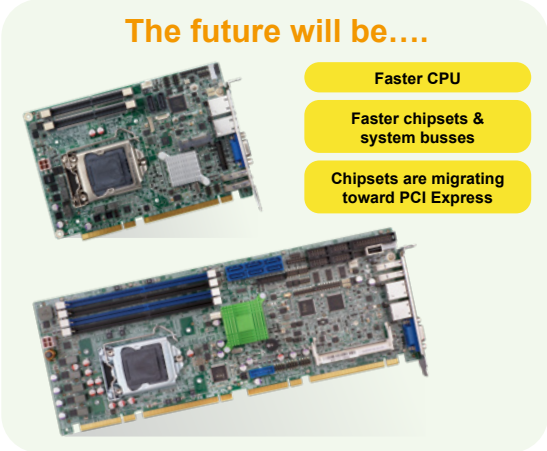
- **Bringing PCI Express to your SBC with increased speed and bandwidth**
  PICMG 1.3 is designed to interface with PCI Express peripherals on a backplane. The PCI Express interconnects with the backplane and can operate at x1, x4, x8, x16, and more, depending on the capabilities of both the SHB and 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

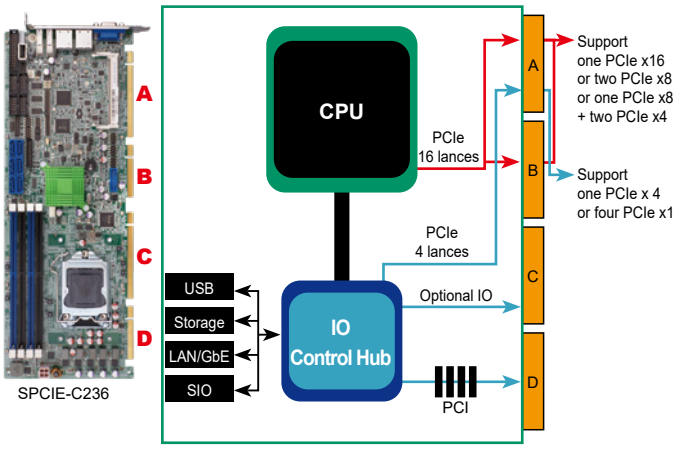
Why PICMG 1.3?

- 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

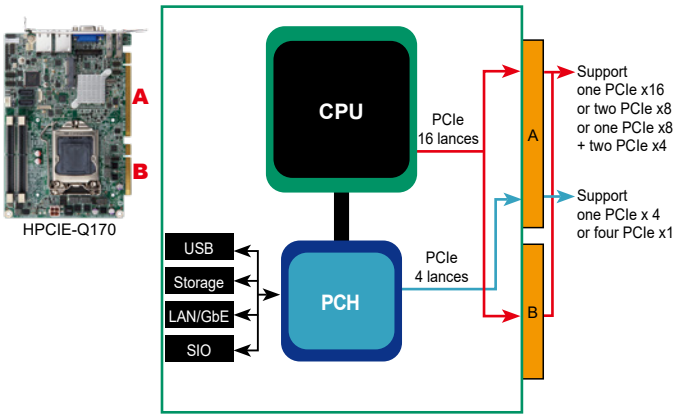


Graphic & Server Grade PICMG 1.3 Solutions

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	-

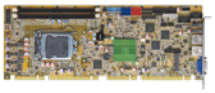
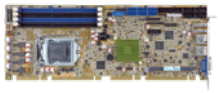
PICMG 1.3 Selection Guide

Model Name	HPCIE-Q470	HPCIE-C236	HPCIE-Q170
CPU Socket	LGA1200	LGA 1151	LGA 1151
CPU Type	10th/11th Gen Intel® Core™ i9/i7/i5/i3, Pentium® and Celeron® processor (up to 65W)	Intel® Xeon® E3 v5/v6, 6th/7th Gen Intel® Core™ i3, Pentium® or Celeron® processor	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor
Chipset	Intel® Q470 / Q470E	Intel® C236	Intel® Q170
Memory	2 x 260-pin 2933 MHz dual-channel DDR4 SO-DIMMs (system max. 64GB)	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)
Display Interface	1 x HDMI 1.4 (up to 4096 x 2160@30Hz)	Dual display supported 1 x VGA 1 x iDP interface	Dual display supported 1 x VGA 1 x iDP interface
Ethernet	LAN1: Intel® I225V 2.5GbE controller (colay with I225-LM) LAN2: Intel® I225V 2.5GbE controller (colay with I225-LM)	LAN1 : Intel® I219LM PCIe controller LAN2: Intel® I211AT PCIe controller	LAN1: Intel® I219-LM with Intel® AMT 11.0 support LAN2: Intel® I211-AT Ethernet controller
I/O Interface	2 x USB 3.2 Gen 1 Type-A 1 x USB 3.2 Gen 2 Type-C 2 x USB 2.0 pin header 2 x RS-232/422/485 pin header	2 x USB 3.2 Gen 1 (Type-A) 1 x KB/MS pin header 4 x USB 2.0 pin header 2 x RS-232/422/485 pin header	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
Storage Interface	2 x SATA 6Gb/s (RAID 0/1 supported) 1 x M.2 (M Key)	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)
Audio	1 x iAUDIO, support IEI AC-KIT-888S audio kit (2 x 5 pin)	Supports by IEI AC-KIT-888S-R10 audio kit	
Digital I/O	12-bit digital I/O (2 x 7 pin)	8-bit programmable digital I/O	
Power Consumption	3.3V@0.11A, 5V@1.12A, 12V@13.31A, 5VSB@0.15A (Intel® Core™ i9-11900K CPU with 4 GB 3200 MHz DDR4 memory)	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)
Watchdog Timer	Software programmable supports 1~255 sec. system reset		
Operation Environment	Temperature Range: 0ºC ~ 60ºC Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: -20ºC ~ 60ºC (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing	
Expansion Slot	16-lanes PCIe via golden finger 4-lanes PCIe via golden finger 1 x M.2 (A Key) 1 x M.2 (M Key)	16-lanes PCIe via golden finger 4-lanes PCIe via golden finger 1 x Full/Half-size PCIe Mini card slot (supports mSATA)	16-lanes PCIe via golden finger 4-lanes PCIe via golden finger 1 x Full/Half-size PCIe Mini card slot (supports mSATA)
CPU Cooler	CF-115XA-R10 CF-1156C-R20 CF-1156D-R30 CF-115XE-R10	CF-115XA-R10 CF-1156C-R20 CF-1156D-R30 CF-115XE-R10	CF-115XA-R10 CF-1156C-R20 CF-1156D-R30 CF-115XE-R10

PICMG 1.3 Selection Guide

Model Name	SPCIE-C246	SPCIE-C236	SPCIE-C2260-i2
	Server Grade	Server Grade	Server Grade
CPU Socket	LGA1151	LGA1151	LGA 1150
CPU Type	Intel® Xeon® E, 8th/9th generation Core™ i9/i7/i5/ i3, Pentium®,Celeron® processor	Intel® Xeon® E3, Core™ i3, Pentium®, Celeron® processor	Intel® Xeon® E3, 4th/5th generation Core™ i3, Pentium®,Celeron® processor
Chipset	Intel® C246	Intel® C236	Intel® C226
Memory	Four 288-pin 2666MHz dual-channel DDR4 SDRAM unbuffered DIMMs support up to 128GB ECC & non-ECC	Four 288-pin 1866/2133 MHz Dual-Channel DDR4 ECC & non-ECC unbuffered DIMM supported up to 64GB	Four 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs (system max. 32 GB)
Display Interface	Dual display supported 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
Ethernet	LAN1 : Intel® I219LM PCIe controller LAN2: Intel® I211AT PCIe controller(Co-lay I210-AT)	LAN1: Intel® I219LM Clarkville-V with Intel® AMT 11.0 supported LAN2: Intel® I210 PCIe controller	LAN1 : Intel® I217LM PCIe controller LAN2: Intel® I210AT PCIe controller
I/O Interface	2 x USB 3.2 Gen 1 (Type-A) 1 x USB 2.0 (Type-A) 1 x KB/MS pin header 1 x RS-422/485 pin header 2 x USB 3.2 Gen 1 pin header 3 x RS-232 pin header 6 x USB 2.0 pin header	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	2 x USB 3.2 Gen 1 (Type-A) 1 x KB/MS pin header 1 x LPT pin header 1 x RS-422/485 pin header 2 x USB 3.2 Gen 1 pin header 4 x USB 2.0 (Golden finger) 4 x USB 2.0 pin header 4 x RS-232 pin header
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)
Audio	Supports by IEI AC-KIT-888S-R10 audio kit		
Digital I/O	8-bit programmable digital I/O		
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)	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)	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)
Watchdog Timer	Software programmable supports 1~255 sec. system reset		
Operation Environment	Temperature Range: -20ºC ~ 60ºC (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing		
Expansion Slot	1 x M.2 M key 16-lanes PCIe via golden finger 4-lanes PCIe via golden finger 4 x PCI signal via golden finger	1 x PCIe x16 & 4 x PCIe x1 signal via golden finger 4 x PCI signal via golden finger 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-1150SA-R10 CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11	CF-1150SA-R10 CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11	CF-1150SA-R10 CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11

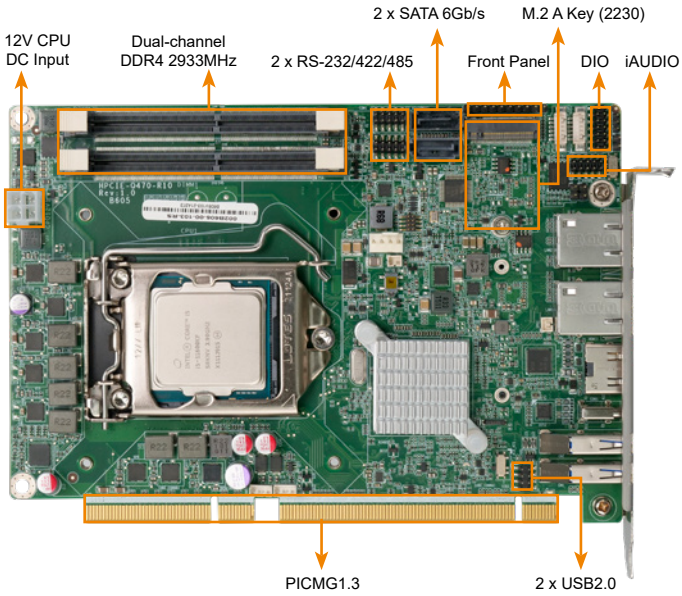
PICMG 1.3 Selection Guide

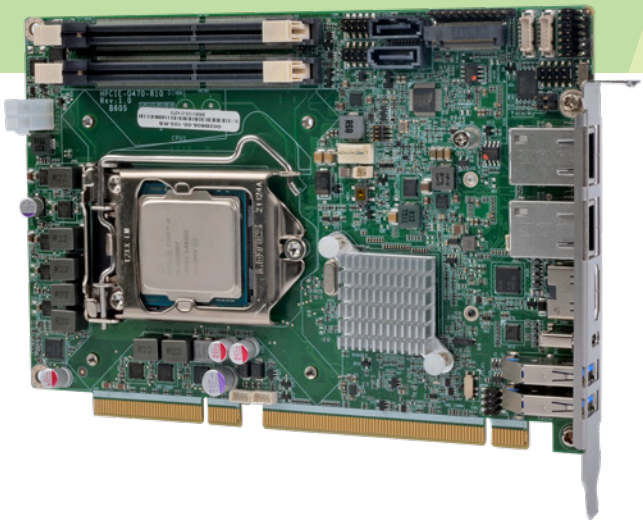



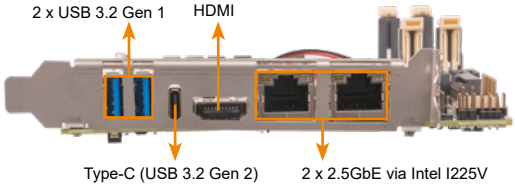
Model Name	PCIE-Q470	PCIE-Q370	PCIE-Q170	PCIE-H810	PCIE-Q870-i2
CPU Socket	LGA1200	LGA1151	LGA1151	LGA 1150	LGA 1150
CPU Type	10th/11th Gen I ntel® Core™ i9/i7/i5/i3, Pentium® and Celeron® processor (up to 65W)	8th/9th generation Intel® Core™ i9/i7/5/i3, Pentium®,Celeron® processor	6th/7th generation Intel® Core™ i9/i7/5/i3, Pentium®,Celeron® processor	4th/5th generation Intel® Core™ i9/i7/5/i3, Pentium®,Celeron® processor	4th/5th generation Intel® Core™ i9/i7/5/i3, Pentium®,Celeron® processor
Chipset	Intel® Q470 / Q470E	Intel® Q370	Intel® Q170	Intel® H81	Intel® Q87
Memory	Four 288-pin 2933 MHz dual-channel DDR4 SDRAM Unbuffered DIMMs (system Max. 128 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)
Display Interface	1 x HDMI 1.4 (up to 4096 x 2160@30Hz)	Dual display supported 1 x VGA 1 x DP PCIE-Q370-HDMI 1 x HDMI 1 x DP	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 VGA 1 x iDP interface
Ethernet	LAN1: Intel® I225V 2.5GbE controller (colay with I225-LM) LAN2: Intel® I225V 2.5GbE controller (colay with I225-LM)	LAN1: Intel® I219LM PCIe controller LAN2: Intel® I211-AT PCIe controller (colay I210-AT)	LAN1: Intel® I219LM PCIe controller LAN2: Intel® I210 PCIe controller	LAN1: Realtek RTTL8111E PCIe controller LAN2: Realtek RTTL8111E PCIe controller	LAN1: Intel® I217LM with Intel® AMT 9.0 support LAN2: Intel® I210-AT PCIe controller with NCSI support
I/O Interface	2 x USB 3.2 Gen 1 (Type-A) 1 x USB 3.2 Gen 2 (Type-C) 6 x USB 2.0 pin header 2 x USB 3.2 Gen 1 pin header 1 x Internal USB 3.2 Gen 1 (Type-A 180°) 2 x RS-232 pin header 2 x RS-422/485 pin header	2 x USB 3.2 Gen 2 (Type-A) 1 x USB 2.0 (Type-A) 1 x KB/MS (Type-A) 1 x RS-422/485 pin header 2 x USB 3.2 Gen 1 pin header 3 x RS-232 pin header 6 x USB 2.0 pin header	2 x USB 3.2 Gen 1 (Type-A) 1 x KB/MS pin header 1 x LPT pin header 1 x USB 2.0 (interface Type-A) 2 x USB 3.2 Gen 1 pin header 2 x RS-232/422/485 pin header 2 x RS-232 pin header 6 x USB 2.0 pin header	2 x USB 2.0 (Type-A) 1 x KB/MS pin header 1 x LPT pin header 1 x RS-422/485 pin header 1 x USB 2.0 (interface Type-A) 2 x RS-232 pin header 2 x USB 3.2 Gen 1 pin header 4 x USB 2.0 (Golden finger) 4 x USB 2.0 pin header	2 x USB 3.2 Gen 1 (Type-A) 1 x KB/MS pin header 1 x LPT pin header 1 x RS-422/485 pin header 2 x USB 3.2 Gen 1 pin header 4 x RS-232 pin header 4 x USB 2.0 (Golden finger) 4 x USB 2.0 pin header
Storage Interface	4 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)
Audio	Supports by IEI AC-KIT-888S-R10 audio kit				
Digital I/O	12-bit digital I/O (2x7 pin)	8-bit programmable digital I/O			
Power Consumption	3.3V@1.04A, 5V@8.61A, 12V@12.33A (Intel® Core™ i9-11900K CPU with 4 GB 3200 MHz DDR4 memory)	5V@3.12A, 12V@6.85A, 3.3V@1.13A, 5VSB@0.15A (Intel® Core™ i7-8700K 4.0 GHz 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)
Watchdog Timer	Software programmable supports 1~255 sec. system reset				
Operation Environment	Temperature Range: 0ºC ~ 60ºC (32°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: -20ºC ~ 60ºC (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing			
Expansion Slot	1 x PCIe x16 & 4 x PCIe x1 signal via golden finger 4 x PCI signal via golden finger 1 x M.2 A Key 1 x M.2 B Key 1 x M.2 M Key	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 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	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 (support mSATA)	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 (support mSATA)
CPU Cooler	CF-1150SA-R10 CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11	CF-1150SA-R10 CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11	CF-1150SA-R10 CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11	CF-1150SA-R10 CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11	CF-1150SA-R10 CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11

HPCIE-Q470

Half-size PICMG 1.3 CPU Card supports LGA1200 10th/11th Gen Intel® Core™ i9/i7/i5/i3, Pentium®, Celeron® Processor with Intel® Q470 / Q470E, DDR4 SO-DIMM, HDMI, Dual Intel® 2.5GbE, USB 3.2 Gen 2, SATA 6Gb/s, M.2, iAUDIO, and RoHS







Half-size PICMG 1.3

Standard PICMG 1.3 SBCs have several advantages over non-standard SBCs. Firstly, they are more maintainable than a motherboard system and have a much lower mean time to repair (MTTR). Secondly, it is easy to upgrade to a newer or faster processor if desired.

Features

Support 10th/11th Generation Intel® Processor

Support 10th/11th Generation Intel® Core™ i9/i7/i5/i3, Pentium® and Celeron® processor (LGA 1200 slot), unleashing optimal performance, and can handle multiple tasks at the same time.

Support Intel® I225V 2.5GbE Controller

Support dual RJ45 network interfaces, based on Intel® I225V 2.5GbE network controller to achieve up to 2.5GbE network transmission rate.

Support Multiple Interface

The HPCIE-Q470 equips one USB Type-C (10Gb/s), two USB 3.2 Gen 1 (5Gb/s), providing faster transmission rates. It also supports two internal USB 2.0 ports, M.2 A key for Bluetooth, Wi-Fi module expansion, and M.2 M key for NVMe storage expansion.

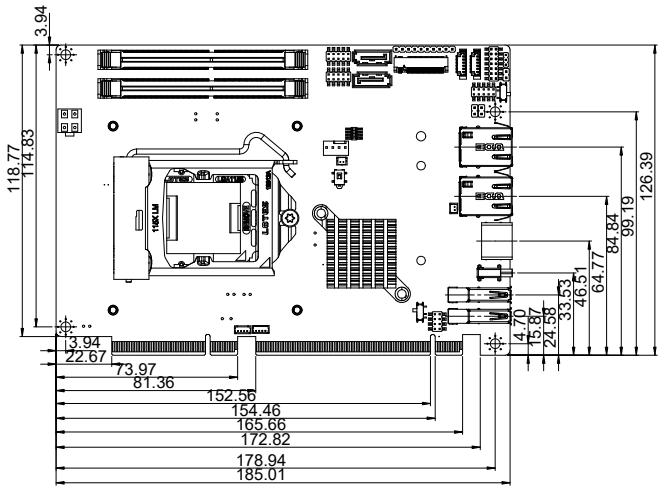
Multiple Backplane Options

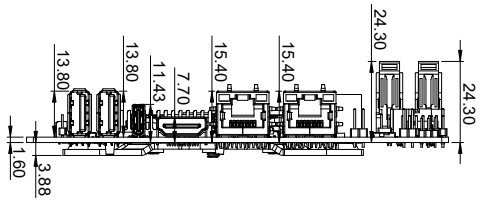
Support 16-lane PCIe signal from CPU and 4-lane PCIe signal from PCH via golden finger, and multiple backplane options are available to meet various requirements.

Specifications

- CPU
  LGA1200 10th/11th Gen Intel® Core™ i9/i7/i5/i3, Pentium® and Celeron® processor (support up to 65W)
- Chipset
  Intel® Q470/Q470E
- BIOS
  AMI UEFI BIOS
- Memory
  2 x 260-pin 2933 MHz dual-channel DDR4 SO-DIMMs (system max. 64GB)
- Graphics Engine
  10th Generation CML-S up to Intel® UHD Graphics 630, Intel® HD 9th Generation Display Engine based on 16 low power execution units supporting DX2015, OpenGL 5.X and OpenCL2.x, ES 2.0
  11th Generation RKL-SXe 12th Generation Graphics Architecture, Intel® UHD Graphics 750,supports 12-bit end-to-end,support AV1, VP9,HEVC 12b, HDR10, FP16
- Display Output
  1 x HDMI 1.4 (up to 4096 x 2160@30Hz)
- Ethernet
  LAN1: Intel® I225V 2.5GbE controller (Colay with I225-LM)
  LAN2: Intel® I225V 2.5GbE controller (Colay with I225-LM)
- External I/O Interface
  2 x USB 3.2 Gen 1 (5Gb/s)
  1 x USB 3.2 Gen 2 (10Gb/s) by USB Type-C
- Internal I/O Interface
  2 x SATA 6Gb/s (Support RAID 0/1)
  2 x USB 2.0 (2x4 pin, P=2.0)
  2 x RS-232/422/485 (2x5 pin, P=2.0) (RS-485 support AFC)
- SMBus/ I²C
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- Audio
  1 x iAUDIO, support IEI AC-KIT-888S Audio Module (2x5 pin)
- Front Panel
  1 x Front panel connector (1x10 pin)
  Power LED, HDD LED, Power Button, Reset Button
- LAN LED
  2 x LAN LED (1x2 pin)
- Expansion
  16-lanes PCIe signal from CPU via golden finger (supports x16, or x8 + x8, or x4 + x4 + x8)
  4-lanes PCIe signal from PCH via golden finger (supports x4, or x1 + x1 + x1 + x1)
  1 x M.2 A key (2230) with PCIe Gen3 x2/USB 2.0
  1 x M.2 M key (2280/2242) with PCIe Gen3 x4
- Digital I/O
  1 x 12-bit digital I/O (2x6 pin)
- TPM
  Intel® PTT (TPM 2.0)
- Fan Connector
  1 x CPU fan connector (1x4 pin)
- Chassis Open
  1 x Chassis intrusion (1x2 pin)
- Power Supply
  5V/12V, ATX/AT power supply
  Support AT/ATX mode
  ErP/EuP
- Watchdog Timer
  Software programmable, support 1~255 sec. system reset
- Power Consumption
  3.3V@0.11A, 5V@1.12A, 12V@13.31A, 5VSB@0.15A
  (Intel® Core™ i9-11900K CPU with 4 GB 3200 MHz DDR4 memory)
- Operating Temperature
  0°C ~ 60°C
- Storage Temperature
  -30°C ~ 70°C
- Operating Humidity
  5% ~ 95%,non-condensing
- Dimension
  185 mm x 126 mm
- Weight
  GW:1000g / NW:420g
- Certification
  CE/FCC compliant

Dimensions *(Unit: mm)*





Packing List

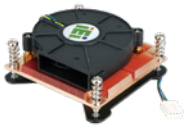
1 x HPCIE-Q470 single board computer	1 x SATA cable
1 x Mini jumper pack	1 x QIG

Ordering Information

Part No.	Description
HPCIE-Q470-R10	Half-size PICMG 1.3 CPU Card supports 14nm LGA1200 Intel® 10th/11th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor with Intel® Q470 / Q470E, DDR4 SO-DIMM, Dual Intel® 2.5GbE, USB 3.2, SATA 6Gb/s, M.2, iAUDIO and RoHS

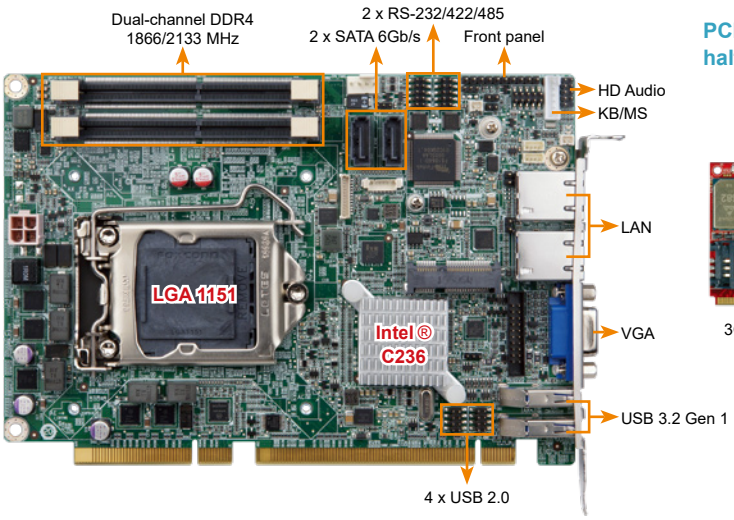
Optional Accessories

Part No.	Description
CB-USB02A-RS	Dual port USB cable with bracket, 300mm, 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
CF-115XA-R10	High-performance LGA1155/1156/1200 cooler kit, 1U chassis compatible 73W
CF-1156C-R20	LGA1155/1156/1200 cooler kit, 1U chassis compatible, 45W
CF-1156D-R30	LGA1155/1156/1200 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High-performance LGA1155/1156/1200 cooler kit, 95W
AC-KIT-888S-R10	Realtek ALC888S 7.1 Channel HD Audio peripheral board,RoHS

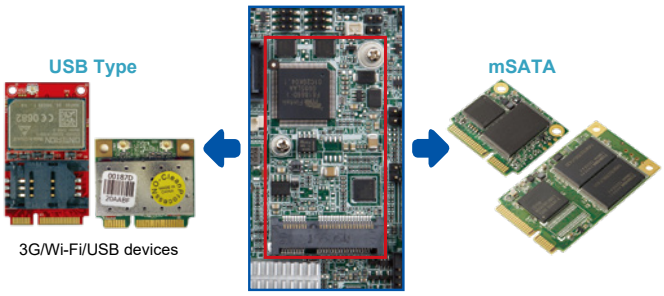
			
CB-USB02A-RS	CF-115XA-R10	CF-1156C-R20	CF-1156D-R20
CF-115XE-R10	AC-KIT-888S-R10	32102-000100-200-RS	32205-002700-200-RS

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 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin, P=2.0)
  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-888S-R10 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 half-size CPU card
- LGA 1151 socket supports Intel® Xeon® E3 v5/v6, 6th/7th generation Core™ i3, Pentium® or Celeron® processor
- Dual-channel DDR4 1866/2133MHz
- Supports dual independent display by VGA & internal DP pin header
- Intel® PCIe GbE with Intel® AMT 11.0 supported
- Support Full/Half-size PCIe Mini card slot (supports mSATA)
- Supports RAID 0, 1 function via SATA 6Gb/s

Packing List

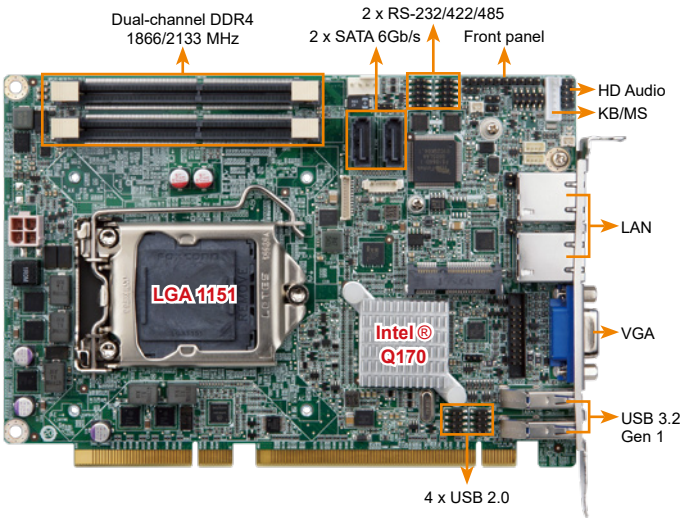
1 x HPCIE-C236 single board computer
1 x SATA cable
1 x QIG

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-888S-R10	Realtek ALC888S 7.1 Channel HD Audio peripheral board,RoHS
CF-115XA-R10	High-performance LGA 1155/LGA 1156 cooler kit, 1U chassis compatible, 73W
CF-1156C-R20	LGA 1155/LGA 1156 cooler kit, 1U chassis compatible, 45W
CF-1156D-R30	LGA 1155/LGA 1156 cooler kit, 1U chassis compatible, 65W
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)

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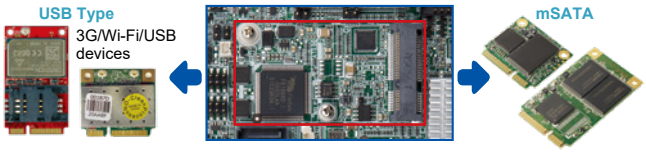
PCIe Mini slot provides mSATA and USB signal for full-size or half-size mSATA SSD and wireless LAN card.



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-888S-R10 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-888S-R10	Realtek ALC888S 7.1 Channel HD Audio peripheral board,RoHS
CF-115XA-R10	High-performance LGA 1155/LGA 1156 cooler kit, 1U chassis compatible, 73W
CF-1156C-R20	LGA 1155/LGA 1156 cooler kit, 1U chassis compatible, 45W
CF-1156D-R30	LGA 1155/LGA 1156 cooler kit, 1U chassis compatible, 65W
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)

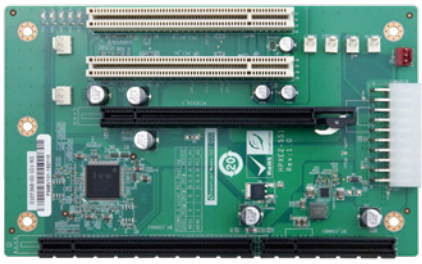
PICMG 1.3 Passive Backplane for Half-Size CPU Card

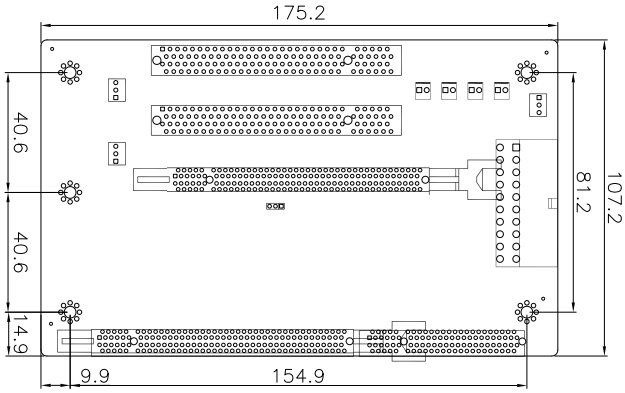
Selection Guide

PAC series wall-mount chassis 4U rack-mount chassis

PICMG 1.3 (PCIe+PCI)	Model	HPXE2-5S1	HPXE2-8S1
Total Slot		5	8
Expansion Slots	PCIe x16	1 (Gen 3.0)	
	PCIe x8		2 (Gen 3.0)
	PCIe x4		
	PCIe x1		
	PCI-X		
	PCI	2	4
PSU Type		24+4-pin ATX	24+4-pin ATX
Chassis Option		PR-1500G	PAC-125G
		N/A	RACK-3000G RACK-360G
Note		ATX power	ATX power

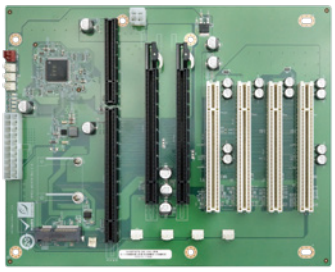
HPXE2-5S1-R10

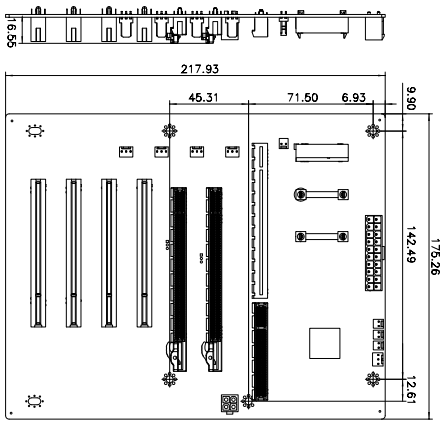




Ordering Information	
HPXE2-5S1-R10	5-slot PICMG 1.3 backplane for half-size SBC, with two PCI slots and one PCIe x16 slot (x16 signal) (PCIe Gen 3.0)
PR-1500G	5-slot half-size compact chassis

HPXE2-8S1-R10

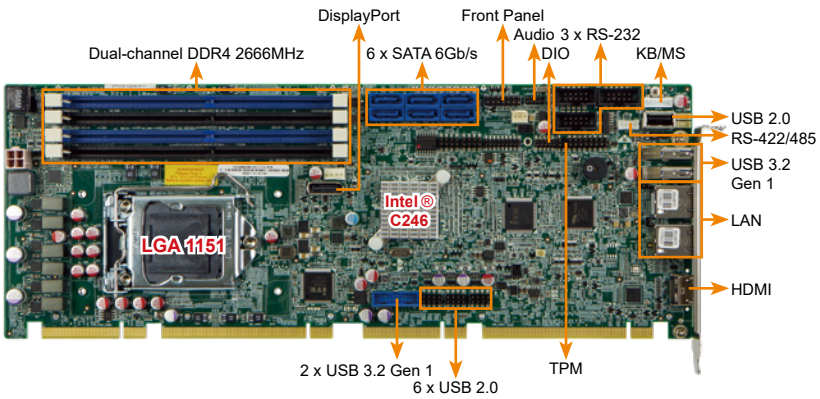


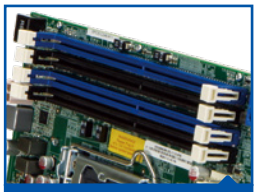


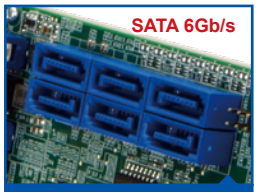
Ordering Information	
HPXE2-8S1-R10	8-slot PICMG 1.3 backplane for half-size SBC, with four PCI slots and two PCIe x 16 slot (x8 signal) (PCIe Gen 3.0)
PAC-125G	10-slot full-size compact chassis
RACK-3000G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis

SPCIE-C246

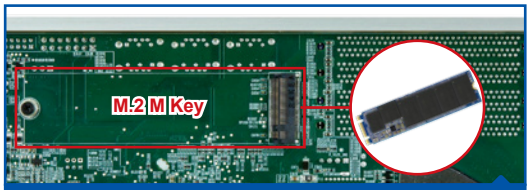
Full-size PICMG 1.3 CPU Card supports LGA1151 Intel® Xeon® E, Core™ i9/i7/i5/i3/ Pentium®/Celeron® CPU per Intel® C246, ECC & non-ECC DDR4, HDMI, DP, Dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, M.2, HD Audio, Intel® AMT and RoHS




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® E, 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
- 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-888S-R10 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, PCIe Gen3 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® E, 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

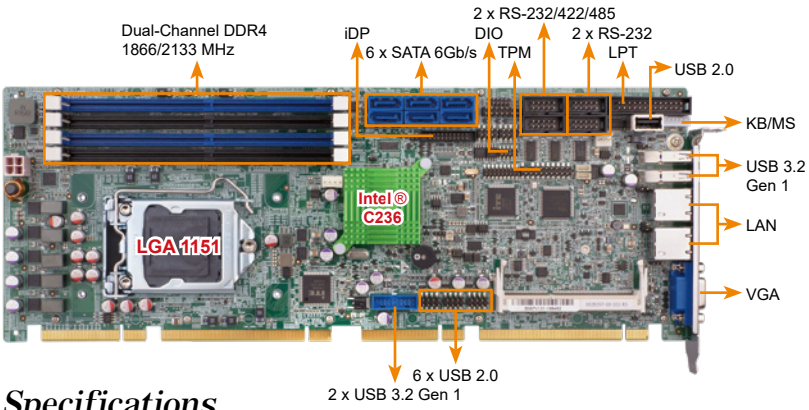
1 x SPCIE-C246 single board computer	1 x SATA cable
1 x Mini jumper pack	1 x QIG (Quick Installation Guide)

Ordering Information

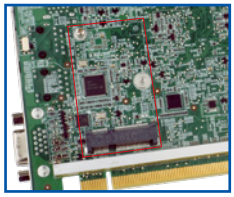
Part No.	Description
SPCIE-C246-R11	Full-size PICMG 1.3 CPU Card supports LGA1151 Intel® Xeon® E, Core™ i9/i7/i5/i3/Pentium®/Celeron® CPU per Intel® C246, ECC & non-ECC DDR4, HDMI, DP, Dual Intel® PCIe GbE, M.2, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio, iAMT and RoHS
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
CB-USB02-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
32205-000702-200-RS	RS-232 cable, 230mm, P=2.54
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
AC-KIT-888S-R10	Realtek ALC888S 7.1 Channel HD Audio peripheral board,RoHS
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

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 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

Intel® AMT 11.0

DDR4 2133 | USB 3.2 | SATA 6Gb/s | Dual GbE | mSATA | iDP

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-888S-R10 kit
- TPM
  1 x TPM (2x10 pin)
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- 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

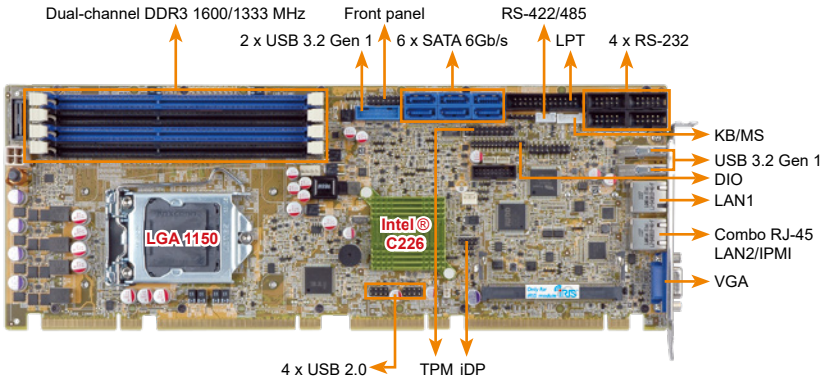
1 x SPCIE-C236 single board computer	1 x Mini jumper pack
1 x SATA cable	1 x QIG

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
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
CB-USB02-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
32205-000702-200-RS	RS-232 cable, 230mm, P=2.54
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
AC-KIT-888S-R10	Realtek ALC888S 7.1 Channel HD Audio peripheral board,RoHS
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
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)

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 and RoHS



PICMG 1.3 Server Grade Solution

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
  Support 7.1 channel HD Audio by IEI AC-KIT-888S-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)
- 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

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, PCIe Mini, 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
19800-010500-200-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-888S-R10	Realtek ALC888S 7.1 Channel HD Audio peripheral board,RoHS
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
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-6S	SPE-9S	SPXE-11S	SPXE-14S
Total	Slot	6	7	11	14
PCIe	x16				
	x8		1 (x16 connector) (Gen 3.0)		1 (x16 connector) (Gen 3.0)
	x4	5 (Gen 3.0)	3 (Gen 3.0)	6 (x16 connector) (Gen 3.0)	
	x1				12 (x4 connector) (Gen 3.0)
	PCI-X				
	PCI		3	4	
PSU Type		24+4-pin ATX	24+4-pin ATX	24+8-pin ATX	24+8-pin ATX
Chassis Option		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

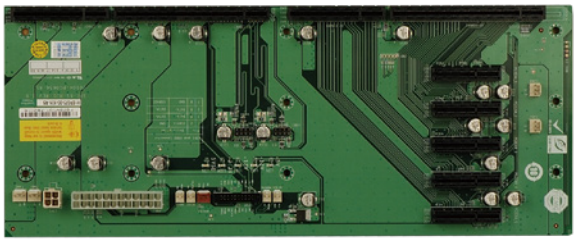
Backplane	Total	PCIe						PSU Type	Chassis Option
	Slot	x16	x8	x4	x1	PCI-X	PCI		
SPE-6S	6	-		5	-	-	-	24+4-pin ATX	PAC-106G PAC-1000G
SPE-9S	7	-	1 (x16 connector)	3			3	24+4-pin ATX	PAC-125G
SPXE-11S	11	-	-	6 (x16 connector)	-	-	4	24+8-pin ATX	RACK-305G RACK-360G RACK-3000G
SPXE-14S	14	-	1 (x16 connector)	-	12 (x4 connector)	-	-	24+8-pin ATX	RACK-305G RACK-360G RACK-3000G

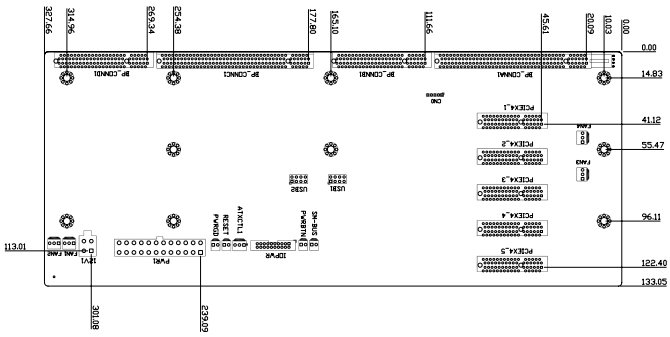
Server Grade Backplane

Example	Corresponding Model
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-6S-R10

Server Grade





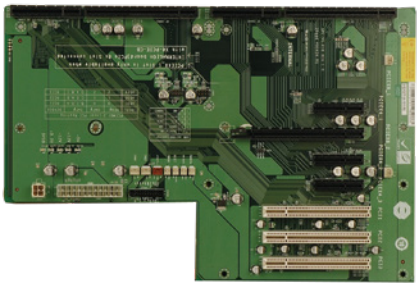
Ordering Information

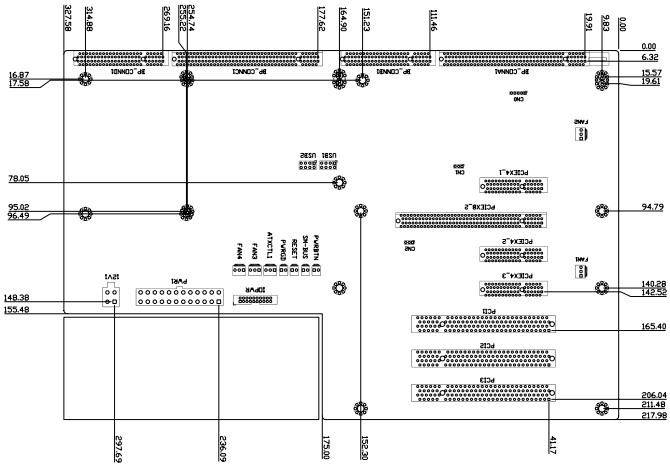
SPE-6S-R10	6-slot PICMG 1.3 backplane with five PCIe x4 slots (PCIe Gen 3.0)
PAC-106G	6-slot full-size compact chassis
PAC-1000G	6-slot full-size compact chassis

Note: PCIEX4_3 can not work with SPCIE-C2060, SPCIE-C2160, SPCIE-C22260, SPCIE-C236 & HPCIE-C236.

SPE-9S-R11

Server Grade

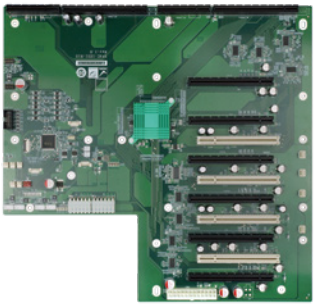


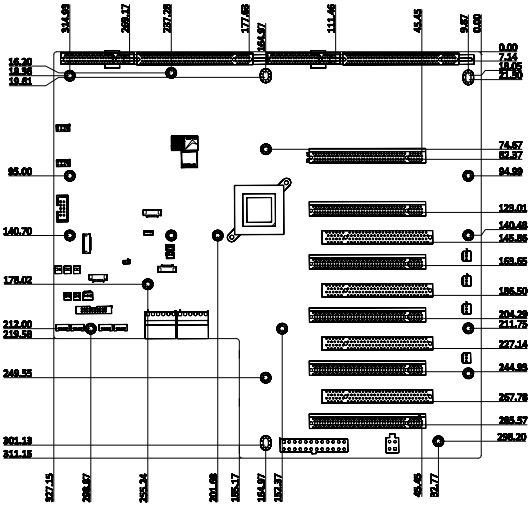


Ordering Information	
SPE-9S-R11	7-slot PICMG 1.3 backplane with one PCIe x16 slot (x8 signal), three PCIe x4 slots and three PCI slots (PCIe Gen 3.0)
PAC-125G	10-slot full-size compact chassis

SPXE-11S-R10

Server Grade

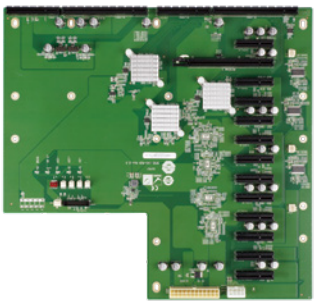


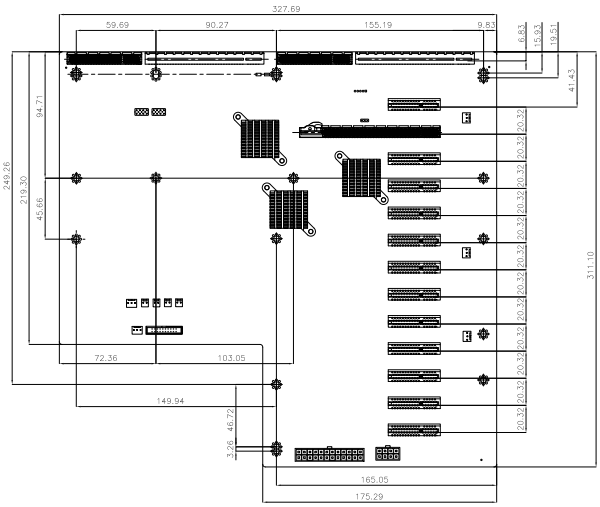


Ordering Information	
SPXE-11S-R10	11-Slot PICMG 1.3 PCIe to PCIe Switch (PLX PEX8724) Backplane, 6 PCIe Gen 3.0 x4 w/ x16 slot,4 PCI, RoHS (PCIe Gen 3.0)
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis
RACK-3000G	4U 14-slot full-size rack-mount chassis

SPXE-14S-R20

Server Grade

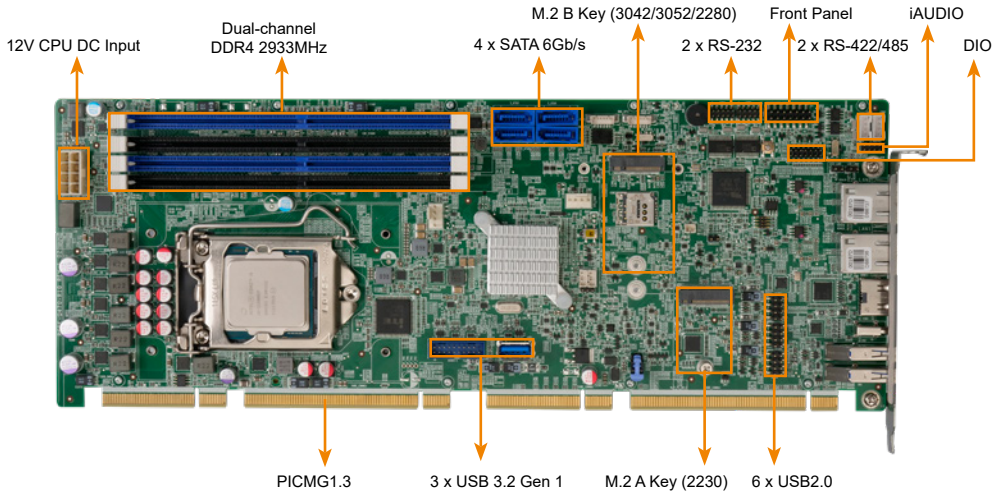


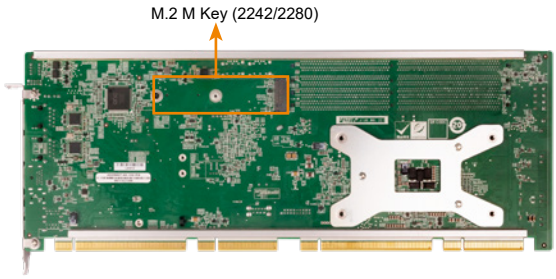


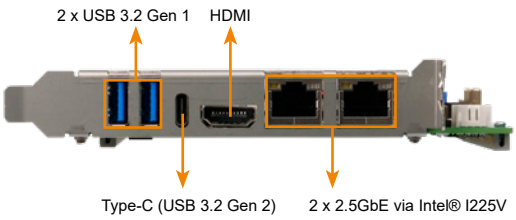
Ordering Information	
SPXE-14S-R20	14-slot PICMG 1.3 backplane with one PCIe x16 slot (x8 signal) and twelve PCIe x4 slots (x1 signal) (PCIe Gen 3.0)
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis
RACK-3000G	4U 14-slot full-size rack-mount chassis

PCIE-Q470

Full-size PICMG 1.3 CPU Card supports LGA1200 10th/11th Gen Intel® Core™ i9/i7/i5/i3, Pentium®, Celeron® Processor with Intel® Q470 / Q470E, DDR4, HDMI, Dual Intel® 2.5GbE, USB 3.2, SATA 6Gb/s, M.2, iAUDIO and RoHS







Features

Support 10th/11th Generation Intel® Processor

Support 10th/11th Generation Intel® Core™ i9/i7/i5/i3, Pentium® and Celeron® processor (LGA 1200 slot), unleashing optimal performance, and can handle multiple tasks at the same time.

Support Intel® I225V 2.5GbE Controller

Support dual RJ45 network interfaces, based on Intel® I225V 2.5GbE network controller to achieve up to 2.5GbE network transmission rate.

Support Multiple Interface

Support one PCIe x16 signal via golden finger (support x16 or x8 + x8 or x4 + x4 + x8), four PCIe x1 signal from PCH via golden finger (support1 x4 or four x1), four PCI signal via golden finger, M.2 A key for Bluetooth, Wi-Fi module expansion, M.2 B key for 5G module expansion and M.2 M key for NVMe storage expansion.

USB 3.2 Gen 2 / USB 2.0, up to 10Gb/s Transmission Rate

The motherboard is designed based on the USB 3.2 protocol. One USB Type-C (10Gb/s) and two USB 3.2 Gen 1 (5Gb/s) are provided on the I/O panel, and there are USB 3.2 Gen 1 and USB 2.0 ports onboard for additional wiring options.

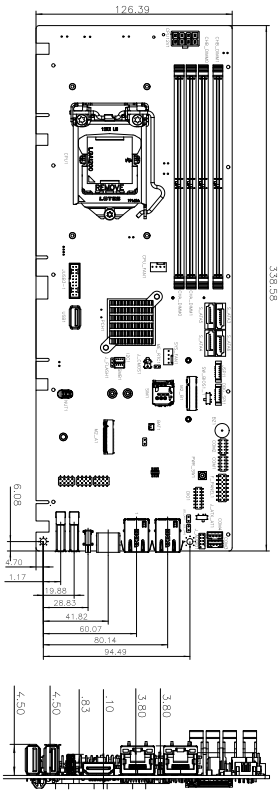
Full-size PICMG 1.3

Standard PICMG 1.3 SBCs have several advantages over non-standard SBCs. Firstly, they are more maintainable than a motherboard system and have a much lower mean time to repair (MTTR). Secondly, it is easy to upgrade to a newer or faster processor if desired.

Specifications

- CPU
  LGA1200 10th/11th Gen Intel® Core™ i9/i7/i5/i3, Pentium® and Celeron® processor (support up to 65W)
- Chipset
  Intel® Q470/Q470E
- BIOS
  AMI UEFI BIOS
- Memory
  4 x 288-pin 2933 MHz dual-channel DDR4 DIMMs (system max. 128GB)
- Graphics Engine
  10th Generation CML-S up to Intel® UHD Graphics 630, Intel® HD 9th Generation Display Engine based on 16 low power execution units supporting DX2015, OpenGL 5.X and OpenCL2.x, ES 2.0
  11th Generation RKL-S Xe 12th Generation Graphics Architecture, Intel® UHD Graphics 750, supports 12-bit end-to-end,support AV1, VP9, HEVC 12b, HDR10, FP16
- Display Output
  1 x HDMI 1.4 (up to 4096 x 2160@30Hz)
- Ethernet
  LAN1: Intel® I225V 2.5GbE controller (colay with I225-LM)
  LAN2: Intel® I225V 2.5GbE controller (colay with I225-LM)
- External I/O Interface
  2 x USB 3.2 Gen 1 (5Gb/s)
  1 x USB 3.2 Gen 2 (10Gb/s) by USB Type-C
- Internal I/O Interface
  4 x SATA 6Gb/s (support RAID 0/1/5/10)
  6 x USB 2.0 (2x4 pin, P=2.54)
  2 x USB 3.2 Gen 1 (5Gb/s) (2x10 pin)
  1 x USB 3.2 Gen 1 (Type-A 180°)
  2 x RS-232 (2x5 pin, P=2.0)
  2 x RS-422/485 (1x4 pin, P=2.00) (RS-485 support AFC)
- SMBus/ I²C
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- Audio
  1 x iAUDIO, support IEI AC-KIT-888S Audio Module (2x5 pin)
- Front Panel
  1 x Front panel connector (2x7 pin)
  Power LED, HDD LED, Power Button, Reset Button
- LAN LED
  2 x LAN LED (1x2 pin)
- Expansion
  1 x PCIe x16 signal via golden finger (support x16, or x8 + x8, or x4 + x4 + x8)
  4 x PCIe x1 signal from PCH via golden finger (support1 x4, or 4 x1)
  4 x PCI signal via golden finger
  1 x M.2 A Key (2230) (with PCIe Gen3 x2/USB 2.0)
  1 x M.2 B Key (3042/3052/2242/2280) w/ SIM holder (with PCIe Gen3 x2/USB 2.0)
  1 x M.2 M Key (2280/2242) (with PCIe x4)
- Digital I/O
  1 x 12-bit digital I/O (2x7 pin)
- TPM
  Intel® PTT (TPM 2.0)
- Fan Connector
  1 x CPU fan connector (1x4 pin)
  1 x System fan connector (1x4 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@1.04A, 5V@8.61A, 12V@12.33A
  (Intel® Core™ i9-11900K CPU with 4 GB 3200 MHz DDR4 memory)
- Operating Temperature
  0ºC ~ 60ºC
- Storage Temperature
  -30ºC ~ 70ºC
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimension: 338 mm x 126 mm
- Weight: GW:1000g / NW:500g
- Certification: CE/FCC compliant

Dimensions *(Unit: mm)*



Packing List

1 x PCIE-Q470 single board computer	1 x Mini jumper pack
1 x SATA cable	1 x QIG

Ordering Information

Part No.	Description
PCIE-Q470-R10	Full-size PICMG 1.3 CPU Card supports LGA1200 Intel® 10th/11th Gen. Core™ i9/i7/i5/i3, Pentium®, Celeron® Processor with Intel® Q470 / Q470E, DDR4, HDMI, Dual Intel® 2.5GbE, USB 3.2, SATA 6Gb/s, M.2, iAUDIO and RoHS

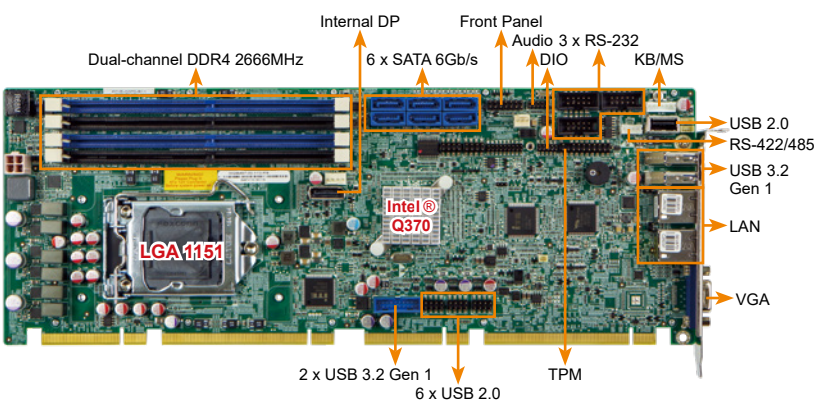
Optional Accessories

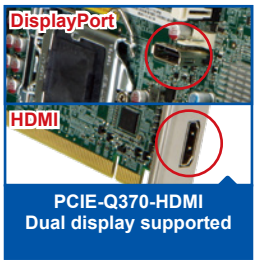
Part No.	Description
CB-USB02-RS	Dual port USB cable with bracket, 300mm, P=2.54
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-002700-200-RS	RS-232/422/485 cable, 200mm, P=2.0
CF-1150SA-R10	Special cooler kit for LGA1150/1151/1200, high-performance compatible, 95W
CF-1150SB-R11	Special cooler kit for LGA1150/1151/1200, high-performance compatible, 65W
CF-1150SC-R20	Special cooler kit for LGA1150/1151/1200, 1U chassis compatible, 65W
CF-1150SE-R11	Special cooler kit for LGA1150/1151/1200, high-performance compatible, 95W

CB-USB02-RS	32102-000100-200-RS	32205-002700-200-RS	CF-1150SA-R10
CF-1150SB-R11	CF-1150SC-R20	CF-1150SE-R11	

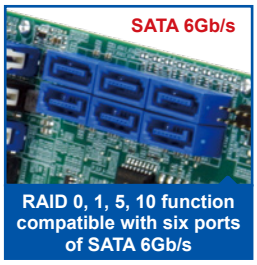
PCIE-Q370

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

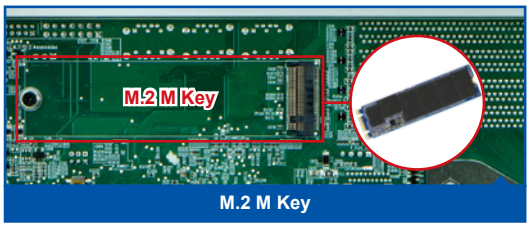




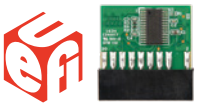
PCIE-Q370-HDMI
Dual display supported



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



M.2 M Key



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-888S-R10 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, PCIe Gen3 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)

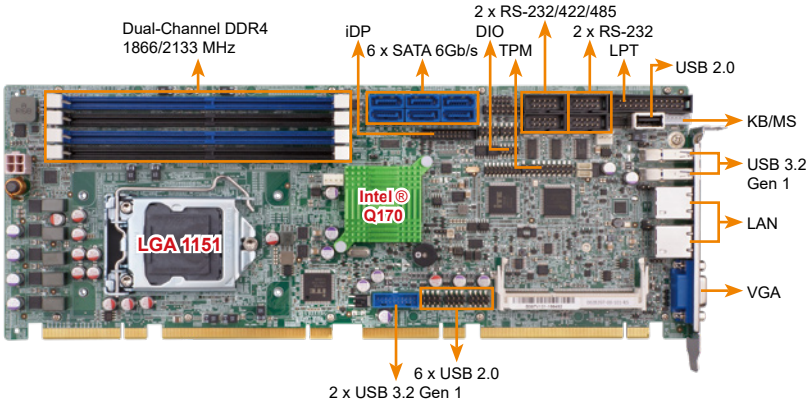
Ordering Information

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
19800-000100-100-RS	Cable module, USB cable, 6, 300mm, 28AWG, (A) USB A type female*4, (B) Dupont 2X4P P=2.54 female*2, ONE PCS PKG w/ label, with bracket, RoHS
19800-010500-200-RS	Cable module, USB 3.0 internal cable+bracket, 3, 450mm, 30AWG, (A) USB 3.0 20pin P=2.0, (B) USB 9pin A type female*2, bracket+M3 screw*2, lotes, RoHS
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-000702-200-RS	RS-232 cable, 230mm, P=2.54
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
AC-KIT-888S-R10	Realtek ALC888S 7.1 Channel HD Audio peripheral board,RoHS
CB-USB02-RS	Dual ports USB cable with bracket
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

**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 and RoHS



Four 288-pin DDR4 SDRAM Supported

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

TPM 2.0 Support

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-888S-R10 kit
- TPM
  1 x TPM (2x10 pin)
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- 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

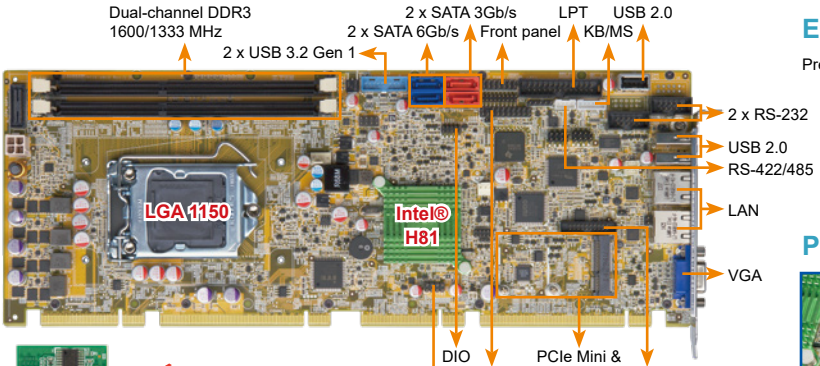
1 x PCIE-Q170 single board computer	1 x Mini jumper pack
1 x SATA cable	1 x QIG

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
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
CB-USB02-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
32205-000702-200-RS	RS-232 cable, 230mm, P=2.54
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
AC-KIT-888S-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
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)

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

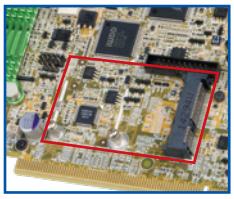


TPM 1.2 Support

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

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

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-888S-R10 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

Packing List

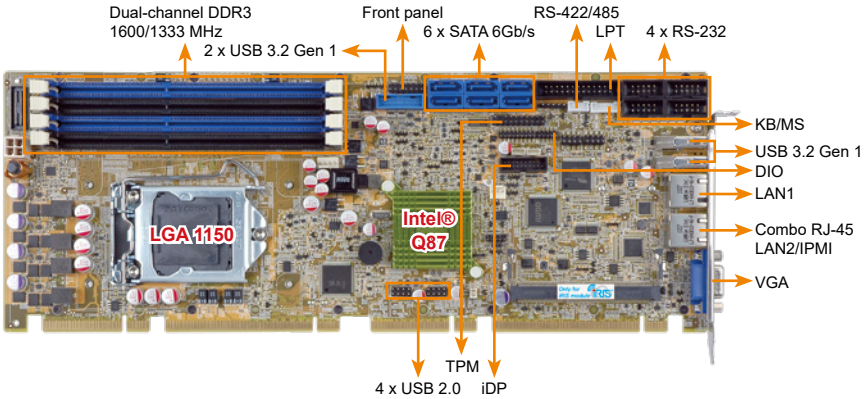
1 x PCIE-H810 single board computer
2 x SATA cable
1 x QIG

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
CB-USB02-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
32205-000702-200-RS	RS-232 cable, 230mm, P=2.54
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
AC-KIT-888S-R10	Realtek ALC888S 7.1 Channel HD Audio peripheral board,RoHS
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
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 and RoHS



TPM 2.0 Support

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
  Support 7.1 channel HD Audio by IEI AC-KIT-888S-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)
- 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

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 per Intel® Q87, DDR3, VGA, iDP, Dual PCIe GbE, mSATA, PCIe Mini 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
19800-010500-200-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-888S-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
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 Passive Backplane

Selection Guide

PAC series wall-mount chassis | 4U/5U rack-mount chassis | 1U/2U rack-mount chassis

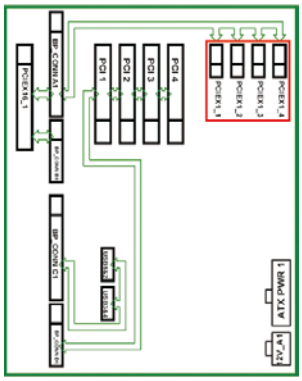
PICMG 1.3 (PCIe+PCI)	Model		PE-2SD1	PE-3S1	PE-4S	PE-5S	PE-5S2	PE-6S	PE-6S2	PE-6SD	PE-6SD3
Total Slot			2	5	4	5	5	6	6	5	5
Expansion Slots	PCIe Slots	x16 *	1 (Gen 2.0)	1 (Gen 3.0)	1	1 (Gen 2.0)	1 (Gen 2.0)	1 (Gen 2.0)	1 (Gen 2.0)	1 (Gen 2.0)	1 (Gen 2.0)
		x4		1 (Gen 3.0)	1	1 (Gen 2.0)			1 (Gen 2.0)		1 (Gen 2.0)
		x1					3 (Gen 2.0)	2 (Gen 2.0)		3 (Gen 2.0)	
	PCI-X Slots										
	PCI Slots				1	2		2	3		2
USB Connectors by Pin Header			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
Chassis			RACK-1150-PE	RACK-500AI	N/A	N/A	N/A	RACK-305G RACK-360G RACK-3000G PAC-1700G PAC-125 G	PAC-106G PAC-1000G	N/A	N/A
Note			1U Type							2U Type	2U Type

PICMG 1.3 (PCIe+PCI)	Model		PE-7S	PE-8S	PE-9S	PE-10S	PE- 10S2	PXE-13S
Total Slot			7	8	9	10	10	13
Expansion Slots	PCIe Slots	x16 *	1 (Gen 2.0)	1 (Gen 2.0)	1 (Gen 2.0)	1 (Gen 2.0)	1 (Gen 2.0)	1 (Gen 3.0)
		x4						
		x1	2 (Gen 2.0)	3 (Gen 2.0)	4 (Gen 2.0)	4 (Gen 2.0)	4 (Gen 2.0)	3 (Gen 3.0)
	PCI-X Slots							
	PCI Slots		3	3	3	4	4	8
USB Connectors by Pin Header			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
Chassis			PAC-1700G	PAC-125G	N/A	RACK-305G RACK-360G RACK-3000G	RACK-3000G RACK-305G RACK-360G	RACK-3000G RACK-305G RACK-360G
Note								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.



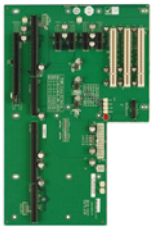
PE-3S1

PE-4S

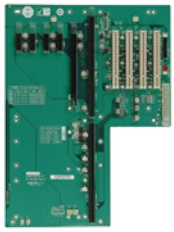
PE-5S

PE-6S2

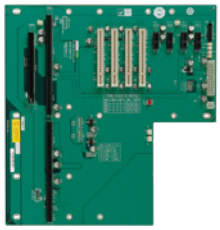
PE-9S



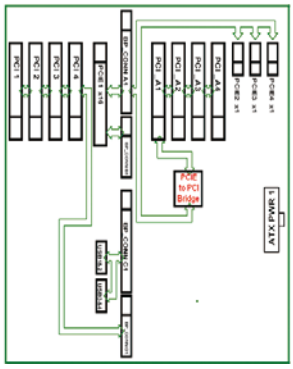
PE-10S



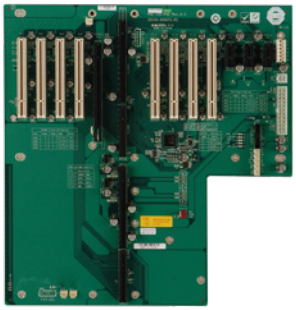
PE-10S2



- 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)

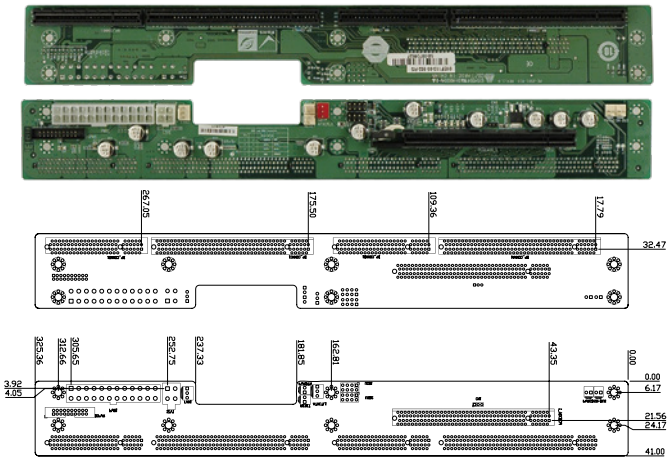


PXE-13S



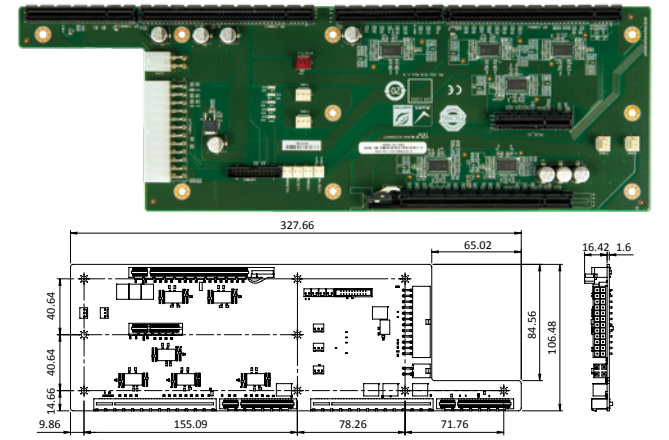
PE-2SD1-R10

For 1U system!



Ordering Information	
PE-2SD1-R10	2-slot backplane with one PCIe slot (PCIe Gen 2.0)
RACK-1150G-PE	1U full-size rack-mount chassis

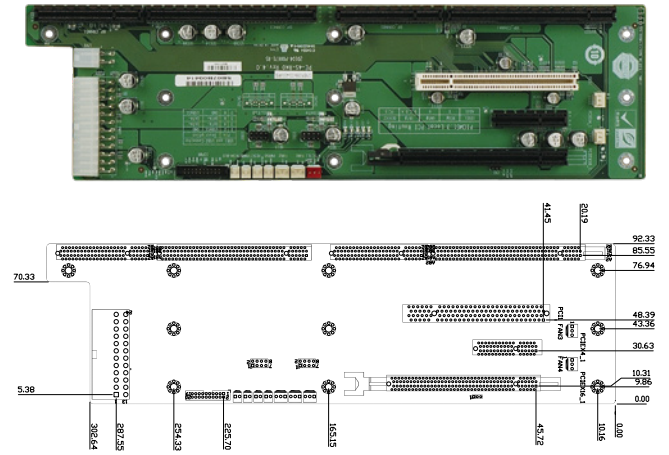
PE-3S1-R10



Ordering Information	
PE-3S1-R10	5-slot PICMG 1.3 backplane with one PCIe x16 slot and one PCIe x4 Slot, RoHS (PCIe Gen 3.0)
RACK-500AI	5U 5-slot full-size rackmount chassis

PE-4S-R40

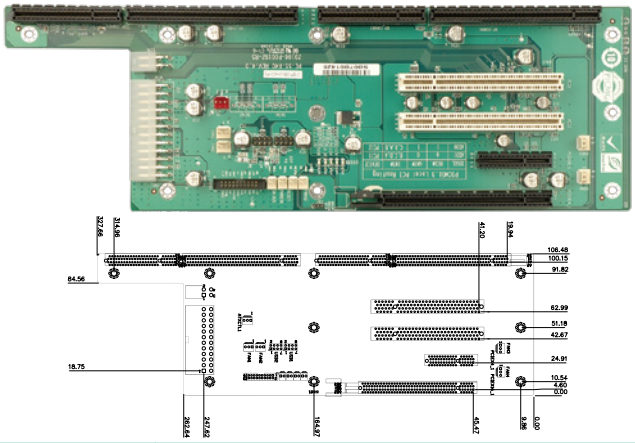
Mounting holes compatible with PCI-4S



Ordering Information	
PE-4S-R40	4-slot backplane with one PCIe x16 slot, one PCIe x4 slot and one PCI slot

PE-5S-R40

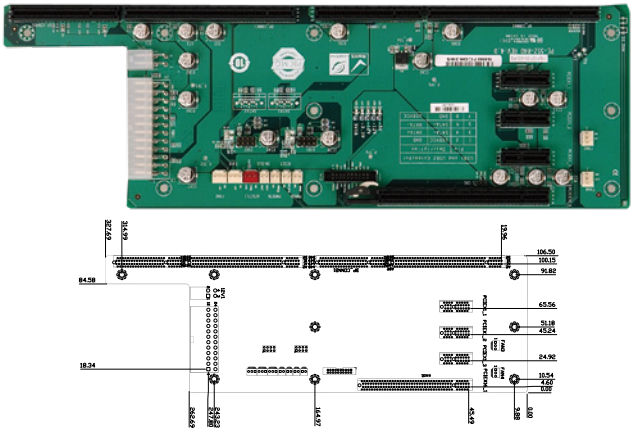
Mounting holes compatible with PCI-5S



Ordering Information	
PE-5S-R40	5-slot backplane with one PCIe x16 slot, one PCIe x4 slot and two PCI slots (PCIe Gen 2.0)

PE-5S2-R40

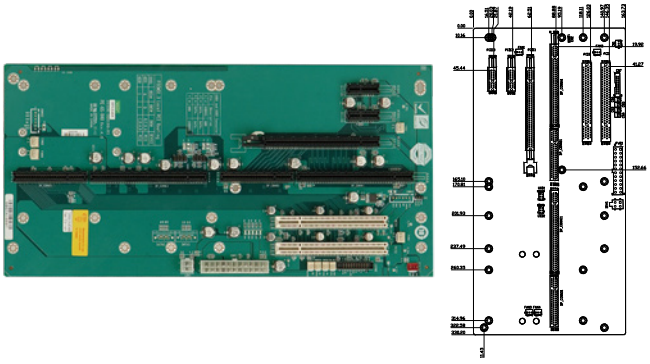
Mounting holes compatible with PCI-5S



Ordering Information	
PE-5S2-R40	5-slot backplane with one PCIe x16 slot and three PCIe x1 slots(PCIe Gen 2.0)

PE-6S-R41

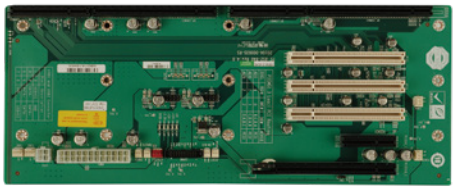
Mounting holes compatible with PCI-7S

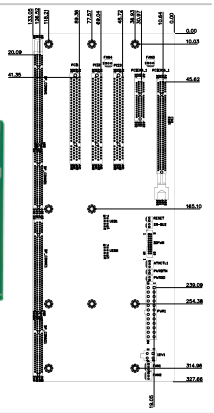


Ordering Information	
PE-6S-R41	6-slot backplane with one PCIe x16 slot, two PCIe x1 slots and two PCI slots (PCIe Gen 2.0)
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis
RACK-3000G	4U 14-slot full-size rack-mount chassis
PAC-1700G	7-slot full-size compact chassis
PAC-125G	10-slot full-size compact chassis

PE-6S2-R40

Mounting holes compatible with PCI-6S



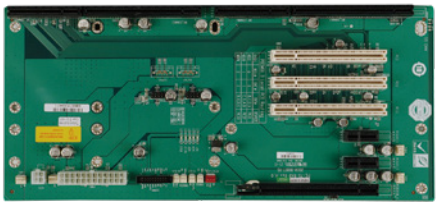


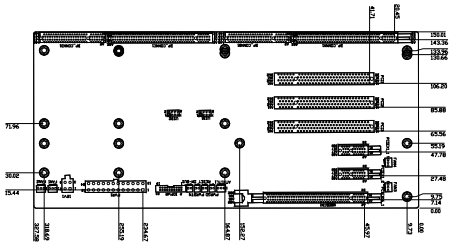
Ordering Information	
PE-6S2-R40	6-slot backplane with one PCIe x16 slot, one PCIe x4 slot and three PCI slots (PCIe Gen 2.0)
PAC-106G *	6-slot full-size compact chassis
PAC-1000G	6-slot full-size compact chassis

*** When using a PCIe x16 add-on card, the length of the card must not exceed 167mm or 6.57 inches.**

PE-7S-R40

Mounting holes compatible with PCI-7S



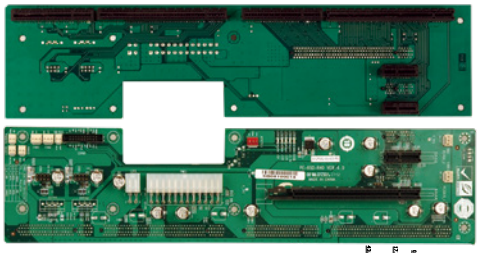


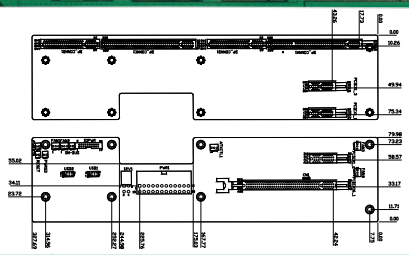
Ordering Information	
PE-7S-R40	7-slot backplane with one PCIe x16 slot, two PCIe x1 slots and three PCI slots (PCIe Gen 2.0)
PAC-1700G	7-slot full-size compact chassis

PE-6SD-R40

Mounting holes compatible with PCI-6SD

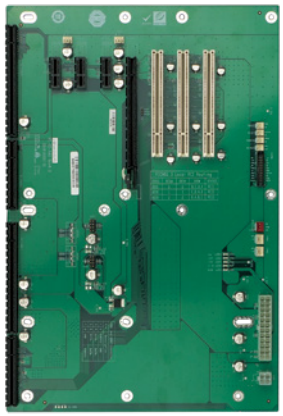
2U Type

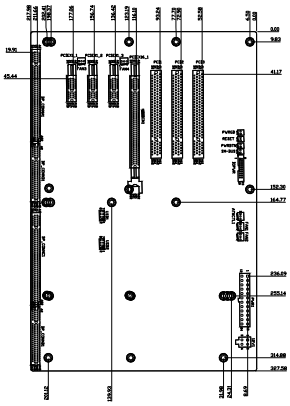




Ordering Information	
PE-6SD-R40	5-slot backplane with one PCIe x16 slot and three PCIe x1 slots (PCIe Gen 2.0)

PE-8S-R40

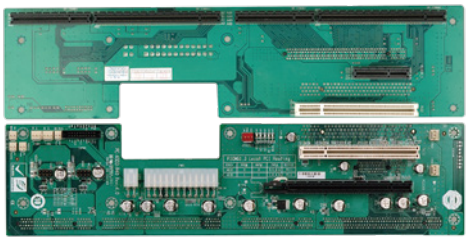


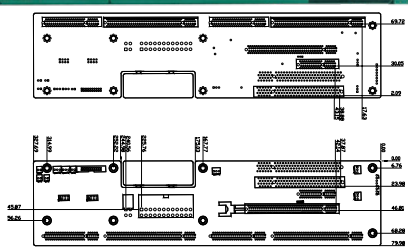


Ordering Information	
PE-8S-R40	8-slot backplane with one PCIe x16 slot, three PCIe x1 slots and three PCI slots (PCIe Gen 2.0)
PAC-125G	10-slot full-size compact chassis

PE-6SD3-R40

Mounting holes compatible with PCI-6SD

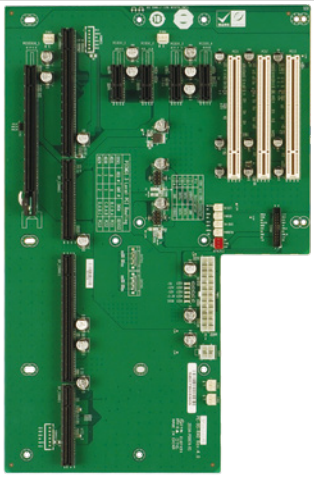


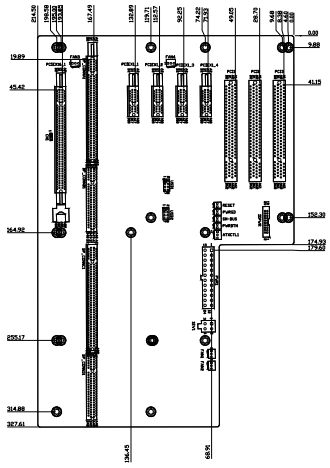


Ordering Information	
PE-6SD3-R40	5-slot backplane with one PCIe x16 slot, one PCIe x4 slot and two PCI slots (PCIe Gen 2.0)

PE-9S-R40

Mounting holes compatible with PCI-10S2

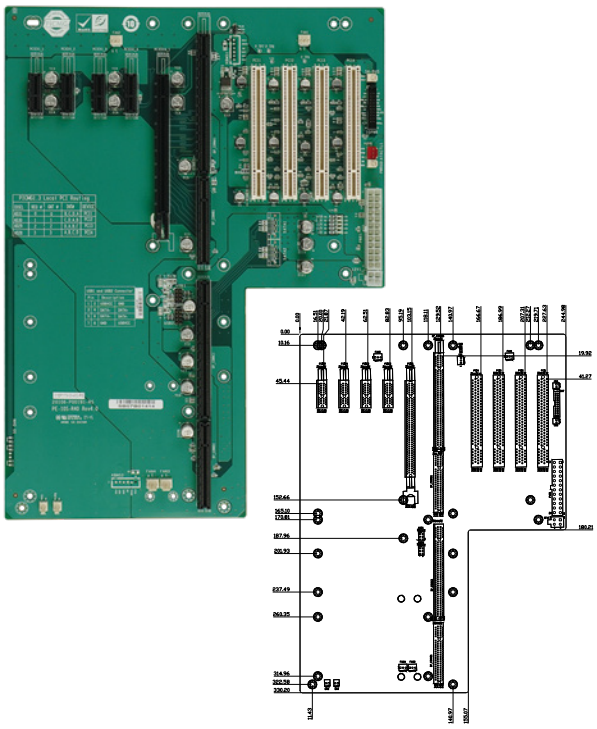




Ordering Information	
PE-9S-R40	9-slot backplane with one PCIe x16 slot, four PCIe x1 slots and three PCI slots (PCIe Gen 2.0)

PE-10S-R40

Mounting holes compatible with PCI-14S

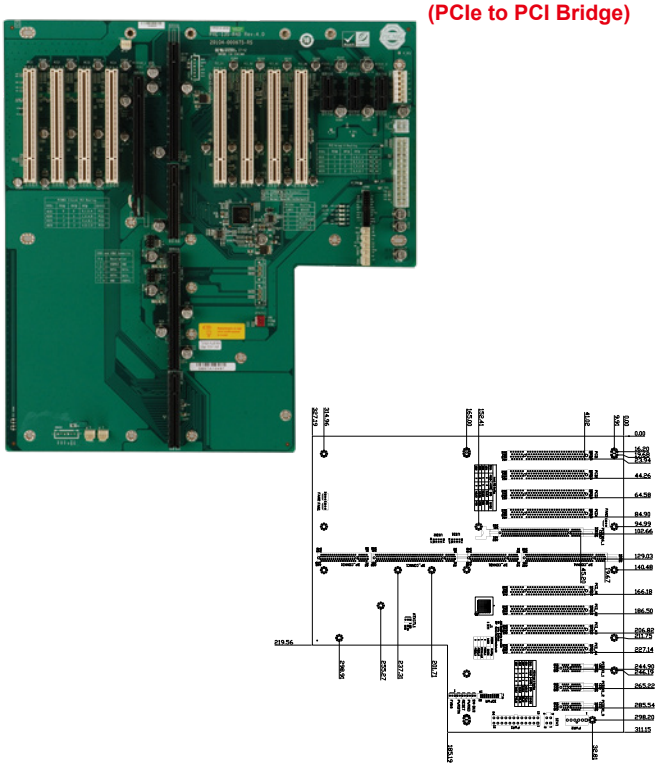


Ordering Information	
PE-10S-R40	10-slot backplane with one PCIe x16 slot, four PCIe x1 slots and four PCI slots (PCIe Gen 2.0)
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis
RACK-3000G	4U 14-slot full-size rack-mount chassis

PXE-13S-R51

Mounting holes compatible with PCI-14S

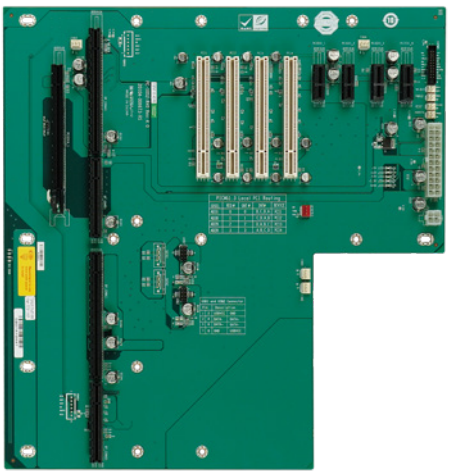
(PCIe to PCI Bridge)

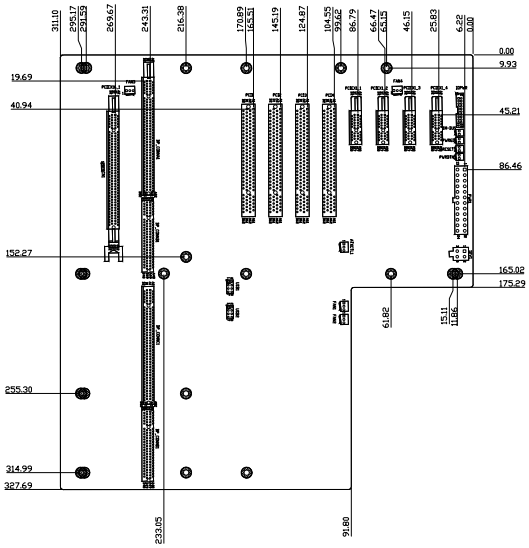


Ordering Information	
PXE-13S-R51	13-slot backplane with one PCIe x16 slot, three PCIe x1 slots and eight PCI slots (PCIe Gen 3.0)
RACK-3000G	4U 14-slot full-size rack-mount chassis
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis

PE-10S2-R40

Mounting holes compatible with PCI-14S

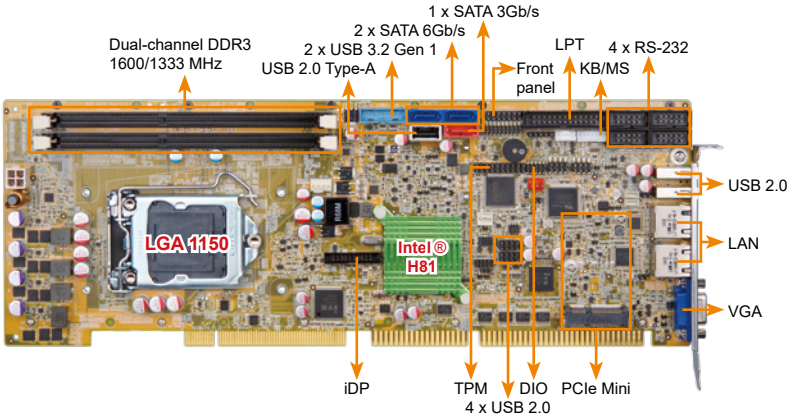


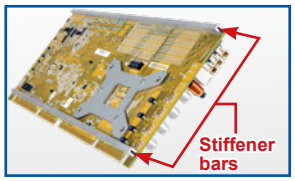


Ordering Information	
PE-10S2-R40	10-slot backplane with one PCIe x16 slot, four PCIe x1 slots and four PCI slots (PCIe Gen 2.0)
RACK-3000G	4U 14-slot full-size rack-mount chassis
RACK-305G	4U 14-slot full-size rack-mount chassis
RACK-360G	4U 14-slot full-size rack-mount chassis

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

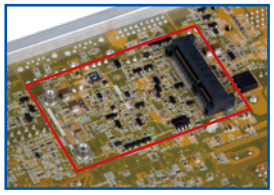




Enhanced stability

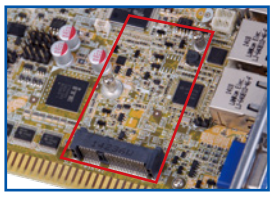
Strengthen the mechanism
Prevent PCB bending

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
  Support 7.1 channel HD Audio by IEI AC-KIT-888S-R10 kit
- External I/O Interface
  2 x USB 2.0
- Internal I/O Interface
  1 x KB/MS (1x6 pin) — 2 x SATA 6Gb/s
  1 x LPT (2x13 pin) — 2 x USB 3.2 Gen 1 (5Gb/s) (2x10 pin)
  1 x RS-422/485 (1x4 pin, P=2.0) — 4 x RS-232 (2x5 pin, P=2.54)
  1 x USB 2.0 (180° Type-A) — 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

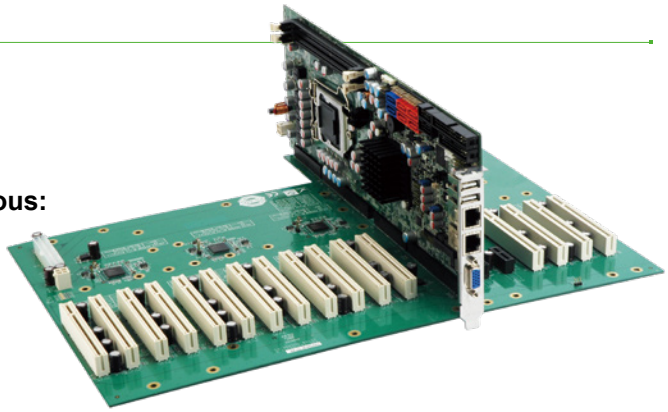
1 x WSB-H810 single board computer	
2 x SATA cable	1 x QIG

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
19800-010500-200-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
32205-000702-200-RS	RS-232 cable, 230mm, P=2.54
AC-KIT-888S-R10	Realtek ALC888S 7.1 Channel HD Audio peripheral board,RoHS
CB-USB02-RS	Dual port USB 2.0 cable with bracket, 300mm, P=2.54
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
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

PCI/PX Backplane

Supports PCI and ISA slot on one backplane!
For PICMG 1.0 Single Board Computer



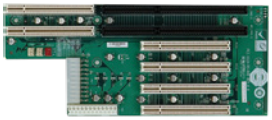
The advantages of using the PICMG 1.0 card are numerous:

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

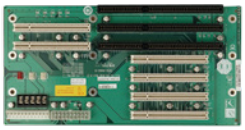
Selection Guide

PAC series wall-mount chassis | 4U/5U rack-mount chassis | 1U/2U rack-mount chassis

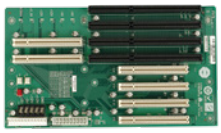
RoHS Ready



RoHS Ready



RoHS Ready

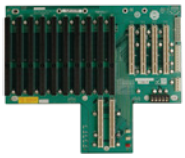


Model	PCI-5S2A-RS-R40	PCI-6S-RS-R40	PCI-7S-RS-R41
Total Slot	5	6	7
PCI Slot	4	4	4
ISA Slot	1	2	3
PSU Type	ATX/AT	ATX/AT	ATX/AT
Chassis	N/A	PAC-106G PAC-1000G	PAC-1700G

RoHS Ready

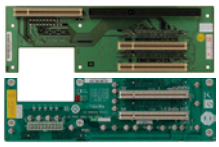
RoHS Ready

RoHS Ready

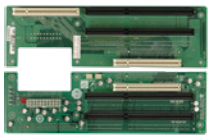


Model	PCI-10S-RS-R41	PCI-12S-RS-R40	PCI-14S-RS-R40
Total Slot	10	12	14
PCI Slot	4	4	4
ISA Slot	5	7	9
PSU Type	ATX/AT	ATX/AT	ATX/AT
Chassis	PAC-125G	RACK-3000G	N/A

RoHS Ready

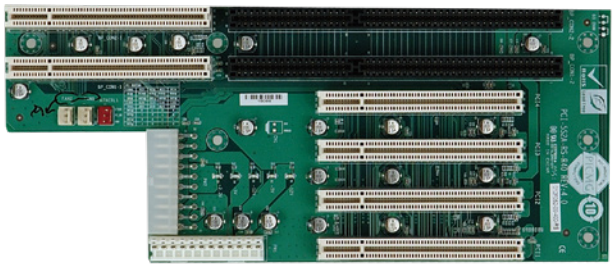


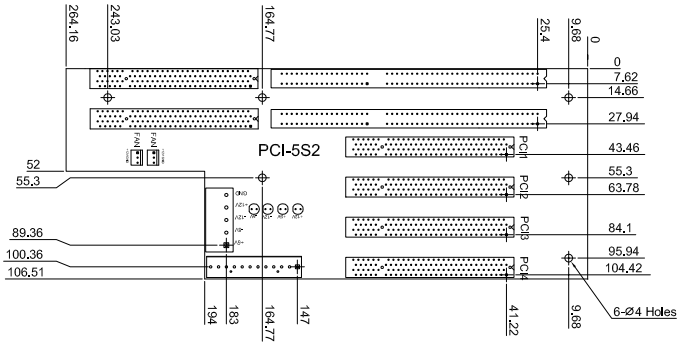
RoHS Ready



Model	PCI-5SD6-RS-R40	PCI-6SD-RS-R40
Total Slot	6	6
PCI Slot	L2+R2	L1+R1
ISA Slot		L1+R1
PSU Type	ATX	ATX
Chassis	RACK-220G	RACK-220G

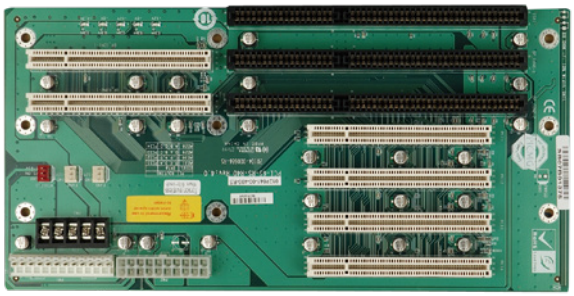
PCI-5S2A-RS-R40

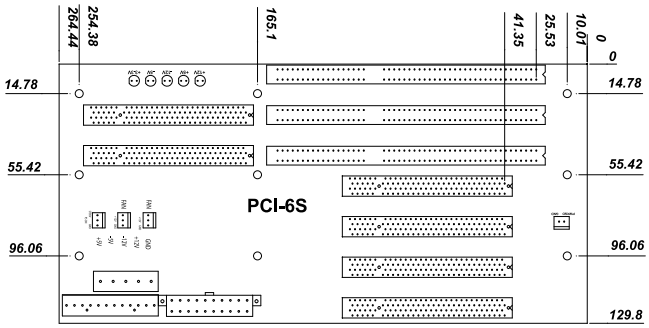




Ordering Information	
PCI-5S2A-RS-R40	5-slot ATX power backplane with four PCI slots and one ISA slot

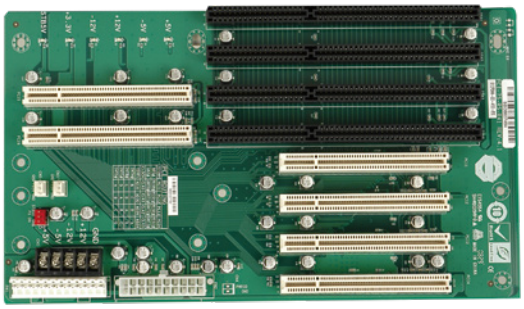
PCI-6S-RS-R40

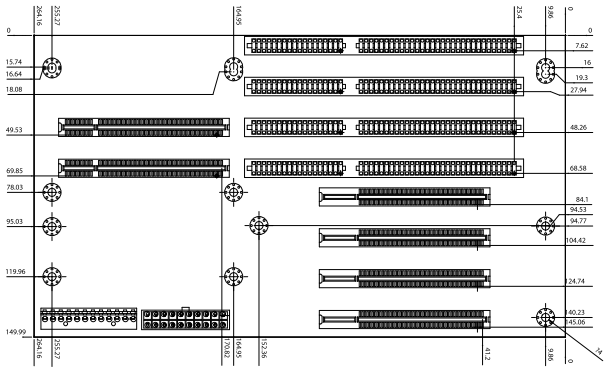




Ordering Information	
PCI-6S-RS-R40	6-slot backplane with four PCI slots and two ISA slots
PAC-106G	6-slot full-size compact chassis
PAC-1000G	6-slot full-size compact chassis

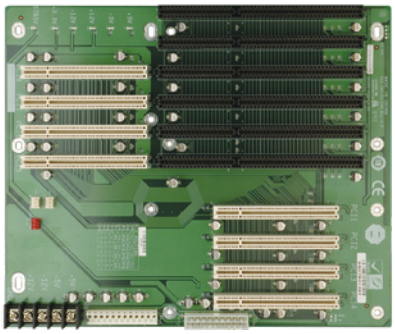
PCI-7S-RS-R41

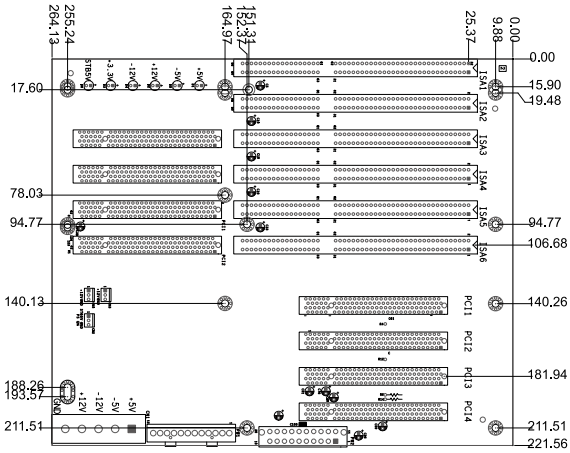




Ordering Information	
PCI-7S-RS-R41	7-slot backplane with four PCI slots and three ISA slots
PAC-1700G	7-slot full-size compact chassis

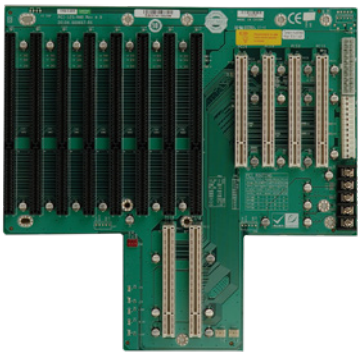
PCI-10S-RS-R41

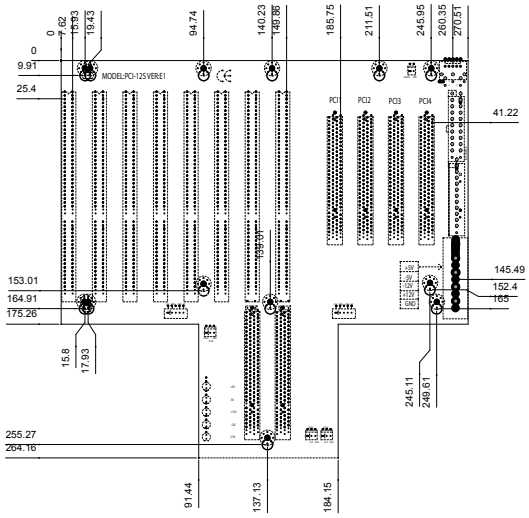




Ordering Information	
PCI-10S-RS-R41	10-slot backplane with four PCI slots and five ISA slots
PAC-125G	10-slot full-size compact chassis

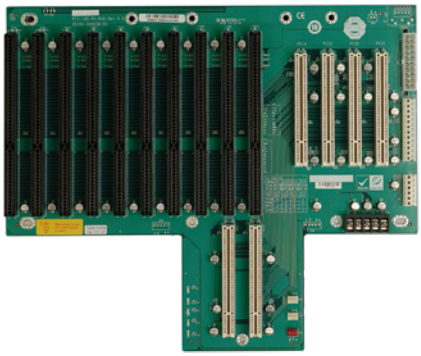
PCI-12S-RS-R40

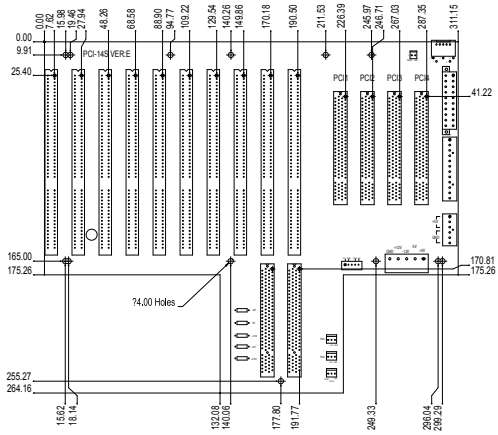




Ordering Information	
PCI-12S-RS-R40	12-slot backplane with four PCI slots and seven ISA slots
RACK-3000G	4U 14-slot full-size rack-mount chassis

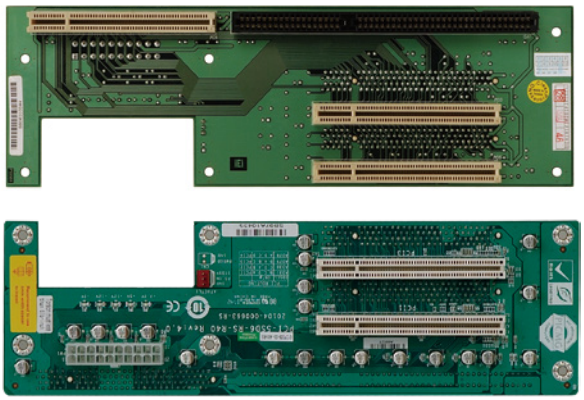
PCI-14S-RS-R40

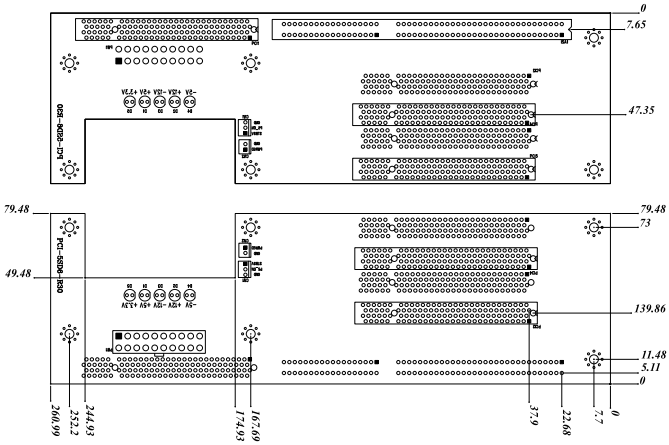




Ordering Information	
PCI-14S-RS-R40	14-slot backplane with four PCI slots and nine ISA slots

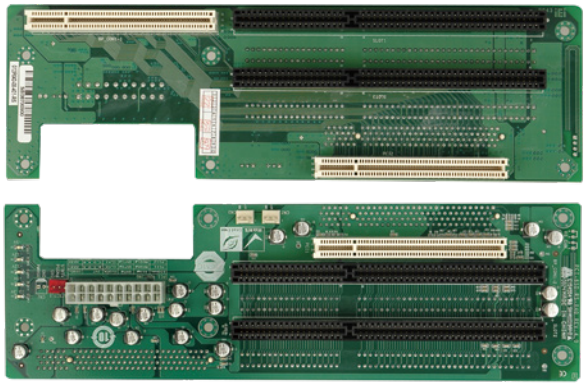
PCI-5SD6-RS-R40 2U Type

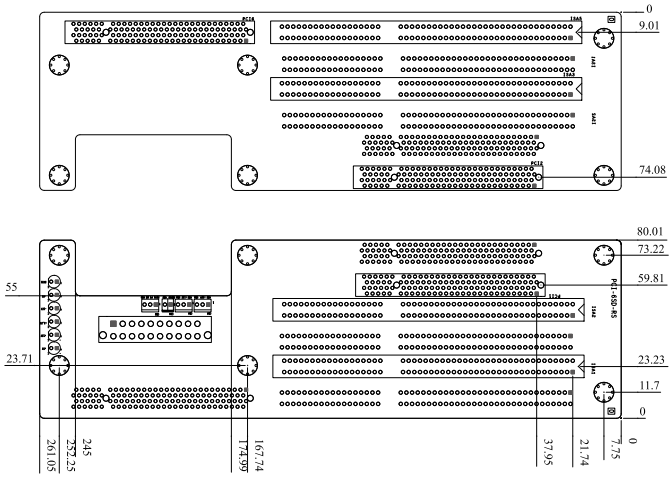




Ordering Information	
PCI-5SD6-RS-R40	2U chassis backplane with four PCI slots
RACK-220G	2U 6-slot full-size rack-mount chassis

PCI-6SD-RS-R40 2U Type

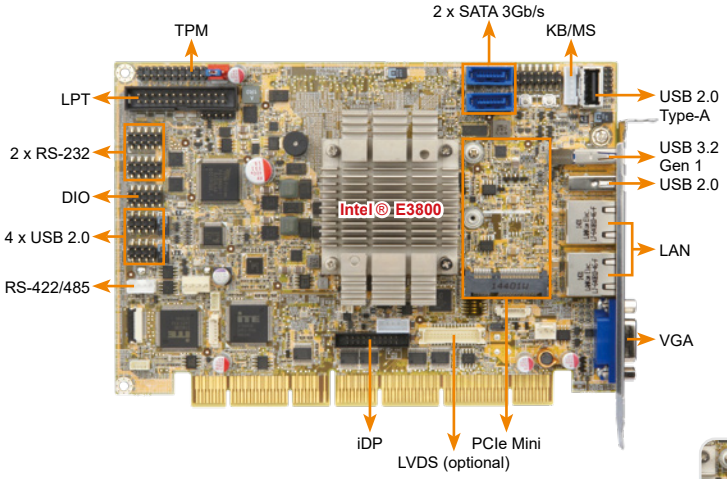


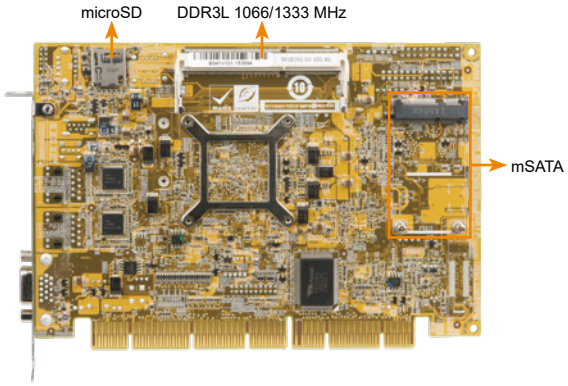


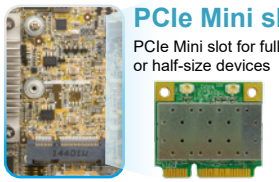
Ordering Information	
PCI-6SD-RS-R40	2U chassis backplane with two PCI slots and two ISA slots
RACK-220G	2U 6-slot full-size rack-mount chassis

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

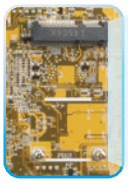






PCIe Mini slot

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™ 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
  Support 7.1 channel HD Audio by IEI AC-KIT-888S-R10 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
PCISA-BT-E38151-R11	Half-size PCISA CPU card supports Intel® Atom™ E3815 (5W) on-board SoC with VGA, iDP, Dual Intel® PCIe GbE, USB 3.1, PCIe Mini, 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-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

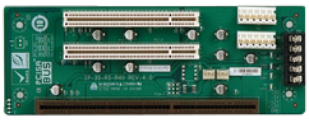
The advantages of using the PCISA card are numerous:

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.

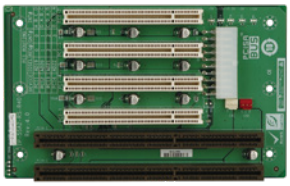
Selection Guide

PAC series wall-mount chassis 4U rack-mount chassis

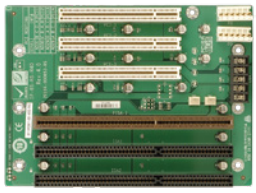
RoHS Ready



RoHS Ready

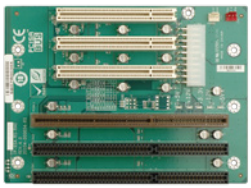


RoHS Ready

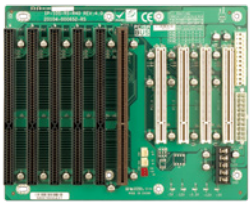


Model	IP-3S-RS	IP-5SA2-RS	IP-6S-RS
Total Slot	3	5	6
PCI Slot	2	4	3
ISA Slot			2
PSU Type	AT	ATX	AT
Chassis	PAC-53GH	PR-1500G	PAC-1000G

RoHS Ready

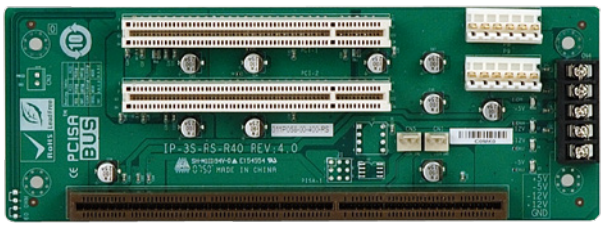


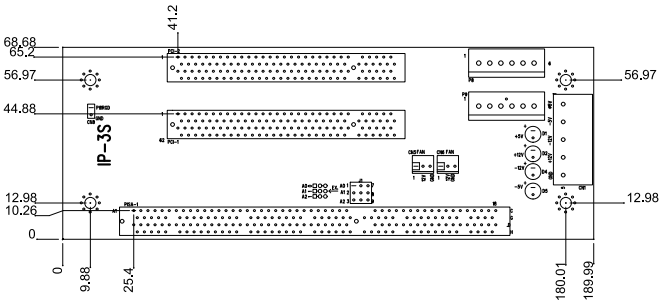
RoHS Ready



Model	IP-6SA-RS	IP-10S-RS
Total Slot	6	10
PCI Slot	3	4
ISA Slot	2	5
PSU Type	ATX	ATX/AT
Chassis	PAC-106G PAC-1000G	PAC-125G

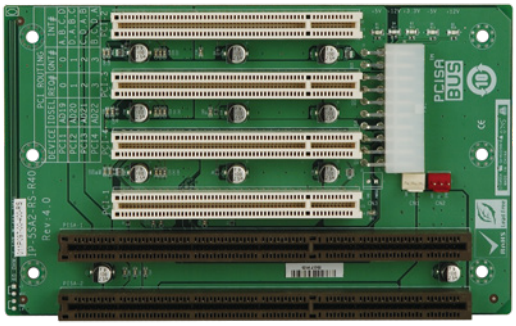
IP-3S-RS-R40

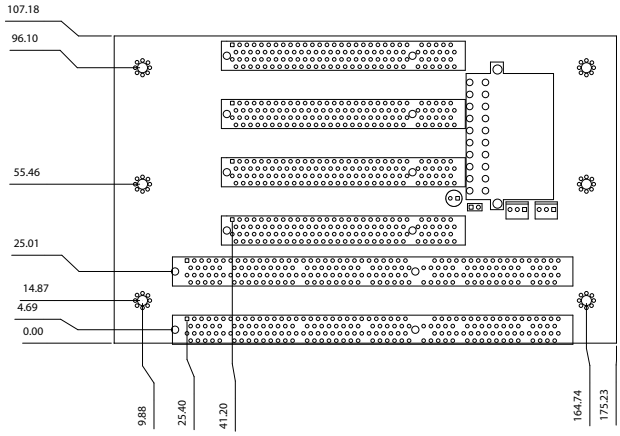




Ordering Information	
IP-3S-RS-R40	3-slot backplane with two PCI slots
PAC-53GH	3-slot half-size compact chassis

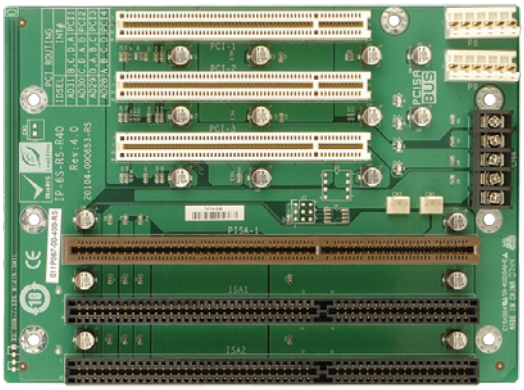
IP-5SA2-RS-R40

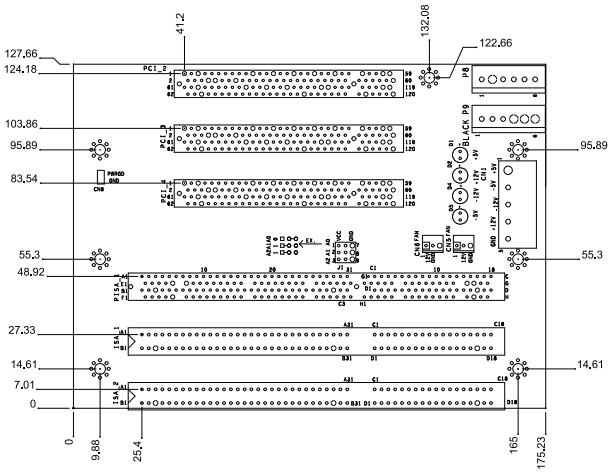




Ordering Information	
IP-5SA2-RS-R40	5-slot backplane with four PCI slots
PR-1500G	5-slot half-size compact chassis

IP-6S-RS-R40

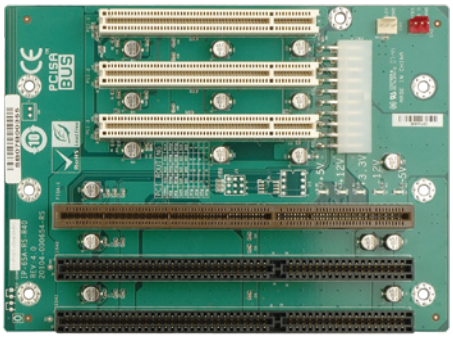


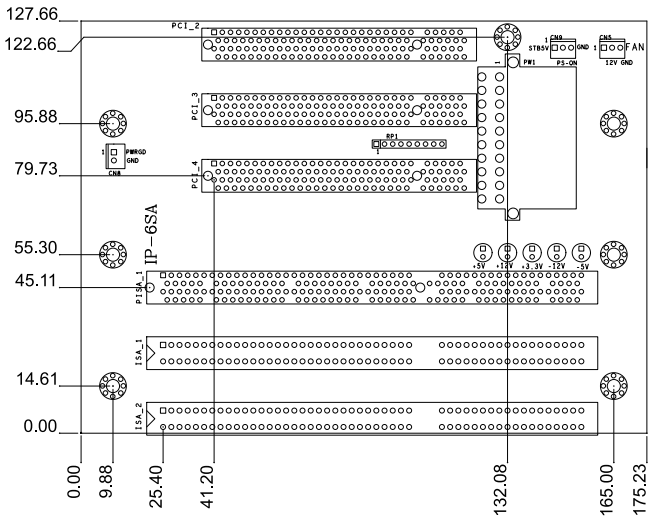


Ordering Information	
IP-6S-RS-R40	6-slot backplane with three PCI slots and two ISA slots
PAC-1000G	6-slot full-size compact chassis

IP-6SA-RS-R40

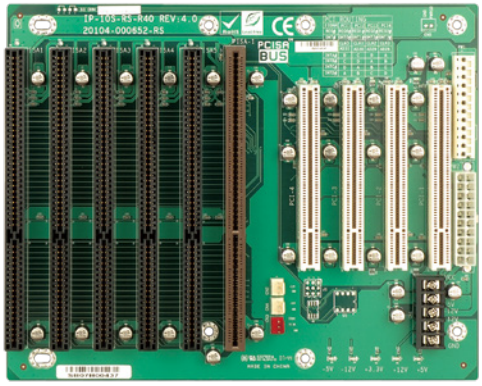
ATX power

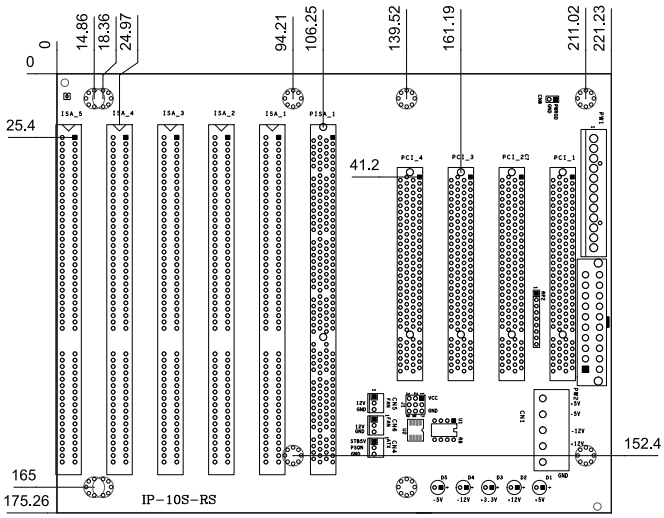




Ordering Information	
IP-6SA-RS-R40	6-slot backplane with three PCI slots and two ISA slots
PAC-106G	6-slot full-size compact chassis
PAC-1000G	6-slot full-size compact chassis

IP-10S-RS-R40

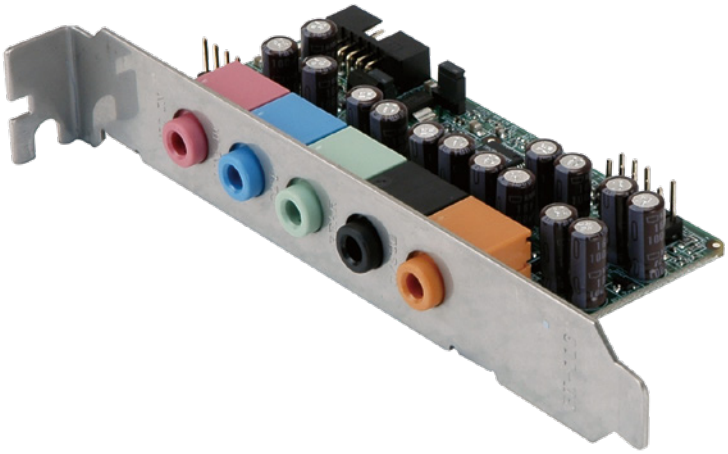




Ordering Information	
IP-10S-RS-R40	10-slot backplane with four PCI slots and five ISA slots
PAC-125G	10-slot full-size compact chassis

AC-KIT-888S

Realtek ALC888S 7.1 Channel HD Audio Peripheral Board, RoHS



Features

- Realtek ALC888S 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/88.2k/96k/192kHz sample rate
- Driver supports Windows® 2000/2003/XP/Vista/7/10 (32/64 bits) and Linux (Ubuntu or Debian)
- CE/FCC compliant

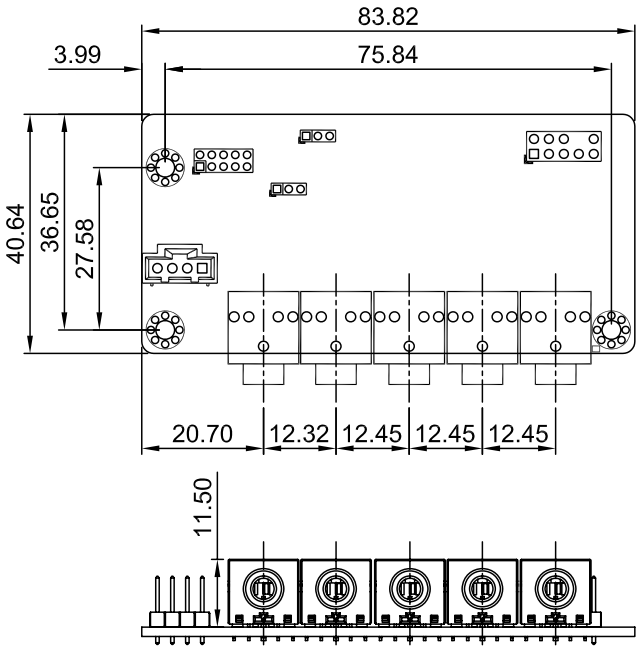
Packing List

1 x AC-KIT-888S audio peripheral board	
1 x Audio cable	1 x QIG

Ordering Information

Part No.	Description
AC-KIT-888S-R10	Realtek ALC888S 7.1 Channel HD Audio peripheral board, RoHS
32107-001100-100-RS	Audio cable with length of 200 mm, 2x5 pin, pitch=2.0 mm

Dimensions *(Unit: mm)*



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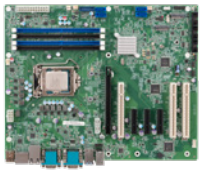
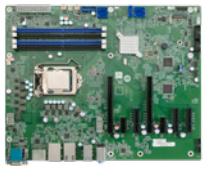

Model Name	IMBA-R680	IMBA-Q470	IMBA-Q471	IMBA-H420
CPU Socket	LGA1700	LGA1200	LGA1200	LGA1200
CPU Type	12th/13th generation Intel® Core™ i9/i7/i5/i3, Pentium® and Celeron® Processor	10th/11th generation Intel® Core™ i9/i7/5/i3, Pentium® and Celeron® processor	10th/11th Generation LGA1200 Intel® Core™ i9/i7/i5/i3, Celeron® and Pentium® processors	10th/11th generation Intel® Core™ i9/i7/i5/i3, Celeron® and Pentium® processor
Chipset	Intel® R680E	Intel® Q470/Q470E	Intel® Q470/Q470E	Intel® H420E
Memory	Four 288-pin Dual-Channel DDR5 (up to 4400 MHz) SDRAM Unbuffered DIMMs supported up to 128GB (ECC&non-ECC support)	Four 288-pin 2933 MHz dual-channel DDR4 SDRAM unbuffered DIMMs (system max. 128 GB)	Four 288-pin 2933 MHz dual-channel DDR4 SDRAM unbuffered DIMMs (system max. 128 GB)	Two 288-pin 2933 MHz dual-channel DDR4 SDRAM unbuffered DIMMs (system max.64GB)
Display Interface	Triple independent display 1 x DisplayPort 1 x HDMI 1 x IEI iDPM 3040 slot (only for IEI eDP/LVDS/VGA module)	Triple independent display 1 x VGA 1 x DisplayPort 1 x HDMI	Triple independent display 1 x VGA 1 x DisplayPort 1 x HDMI	Triple display 1 x VGA 1 x Internal DP++ 1 x HDMI
Ethernet	LAN1: Intel® I225V 2.5GbE controller (CO-LAY I225-LM support vPro) LAN2: Intel® I225V 2.5GbE controller	LAN1: Intel® I225V 2.5GbE controller LAN2: Intel® I225V 2.5GbE controller	LAN1: Intel® I225V 2.5GbE controller LAN2: Intel® I225V 2.5GbE controller LAN3: Intel® I225V 2.5GbE controller	LAN1: Intel® I225V GbE controller
I/O Interface	4 x USB 3.2 Gen 2 (Type-A) 2 x USB 3.2 Gen 1 (Type-A) 2 x RS-232/422/485 (RS-485 support AFC) 4 x USB 2.0 pin header 2 x USB 3.2 Gen1 pin header 4 x RS-232 pin header	2 x USB 2.0 1 x RS-232/422/485 2 x RS-232 2 x USB 3.2 Gen 1 (Type-A) 2 x USB 3.2 Gen 2 (Type-A) 1 x RS-232/422/485 pin header 2 x RS-232 pin header 2 x USB 3.2 Gen 1 pin header 5 x USB 2.0 pin header	2 x USB 3.2 Gen 2 (Type-A) 2 x USB 3.2 Gen 1 (Type-A) 2 x USB 2.0 (Type-A) 1 x RS-232 6 x USB 2.0 pin header 2 x USB 3.2 Gen1 pin header 2 x RS-232 pin header 1 x RS-422/485 pin header	4 x USB 3.1 Gen 1 (Type-A) 2 x USB 2.0 (Type-A) 1 x RS-232 1 x KB/MS 1 x RS-232/422/485 pin header 2 x USB 2.0 pin header 4 x RS-232 pin header
Storage Interface	4 x SATA 6Gb/s (RAID 0/1/5/10 supported) 2 x M.2 (M Key, support NVME SSD)	4 x SATA 6Gb/s (RAID 0/1/5/10 supported)	5 x SATA 6Gb/s (RAID 0/1/5/10 supported) 1 x M.2 (M Key, support NVMe SSD)	4 x SATA 6Gb/s (no RAID)
Audio	1 x iAUDIO, support IEI AC-KIT-888S Audio Module (2 x 5 pin)	Realtek ALC888S HD Audio codec		
Digital I/O	12-bit programmable I/O (12-bit GPIO is for programming I/O)	8-bit programmable I/O (8-bit GPIO is for programming I/O)	12-bit programmable I/O (12-bit GPIO is for programming I/O)	8-bit programmable I/O (8-bit GPIO is for programming I/O)
Power Consumption	3.3V@0.89A, 5V@10.05A, 12V@6.05A, 5VSB@0.64A (Intel® Core™ i7-12700E CPU with four 16 GB 4800 MHz DDR5 memory, EuP mode enabled)	3.3V@1.36A, 5V@14.16A, 12V@7.5A (Intel® Core™ i9-10900E CPU with four 32 GB 3200 MHz DDR4 memory)	3.3V@1.1A, 5V@3.359A, 12V@2.18A, 5VSB@0.12A (Intel® Core™ i5-10500TE CPU with four 8 GB 2933 MHz DDR4 DIMMs)	3.3V@0.84A, 5V@8.12A, 12V@3.77A, 5VSB@0A (Intel® Core™ i5-10500TE CPU with two 32 GB 2933 MHz DDR4 memory, EuP mode enabled)
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			
Expansion Slot	1 x M.2 M Key 1 x M.2 M Key 2 x PCIe Gen5 x16 with x8 Signal 3 x PCIe Gen4 x4 open-end 2 x PCIe Gen3 x1	1 x M.2 A Key 1 x M.2 M Key 1 x PCIe Gen3 x16 3 x PCIe Gen3 x4 3 x PCI	1 x M.2 M Key 2 x PCIe Gen3 x16 with x8 Signal 3 x PCIe Gen3 x4 open-end 2 x PCIe Gen3 x1	1 x PCIe Gen3 x16 1 x PCIe Gen3 x4 4 x PCI
CPU Cooler	TBD	CF-115XA-R10 CF-1156C-R20 CF-1156D-R30 CF-115XE-R10	CF-115XA-R10 CF-1156C-R20 CF-1156D-R30 CF-115XE-R10	CF-115XA-R10 CF-1156C-R20 CF-1156D-R30 CF-115XE-R10

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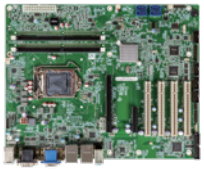

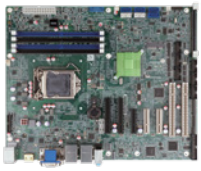

Model Name	IMBA-C2460	IMBA-Q370	IMBA-H310	IMBA-C2360-i2	IMBA-Q170-i2
CPU Socket	LGA1151	LGA1151	LGA1151	LGA1151	LGA1151
CPU Type	8th/9th generation Intel® Xeon® E, Core™ i9/i7/5/i3, Pentium® and Celeron® processor	8th/9th generation Intel® Core™ i9/i7/i5/i3, Pentium® and Celeron® processor	8th/9th generation Intel® Core™ i9/i7/5/i3, Pentium® and Celeron® processor	6th/7th generation Intel® Xeon® E3 v5/v6, Core™ i3, Pentium®, Celeron® processor	6th/7th generation Intel® Core™ i7/i5/i3, Pentium® and Celeron® processor
Chipset	Intel® C246	Intel® Q370	Intel® H310	Intel® C236	Intel® Q170
Memory	Four 288-pin 2666/2400 MHz dual-channel DDR4 SDRAM unbuffered DIMMs (ECC & non-ECC support) (system max. 64 GB)	Four 288-pin 2666/2400 MHz dual-channel DDR4 SDRAM unbuffered DIMMs (system max. 64 GB)	Two 288-pin 2666/2400 MHz dual-channel DDR4 SDRAM unbuffered DIMMs (system max. 64 GB)	Four 288-pin 2133 MHz dual-channel DDR4 SDRAM unbuffered DIMMs (ECC & non-ECC support) (system max. 64 GB)	Four 288-pin 2133 MHz dual-channel DDR4 SDRAM unbuffered DIMMs (system max. 64 GB)
Display Interface	Triple independent display 1 x VGA 1 x DP++ 1 x HDMI 1 x Internal DisplayPort 90°	Triple independent display 1 x VGA 1 x DP++ 1 x HDMI 1 x Internal DisplayPort 90°	Triple independent display 1 x DVI-D 1 x VGA 1 x Internal 180º Type-C DP	Triple independent display 1 x HDMI 2.0 1 x DVI-D 1 x VGA 1 x iDP interface	Triple independent display 1 x HDMI 2.0 1 x DVI-D 1 x VGA 1 x iDP interface
Ethernet	LAN1: Intel® I219LM PCIe controller LAN2: Intel® I211AT PCIe controller	LAN1: Intel® I219LM PCIe controller LAN2: Intel® I211AT PCIe controller	LAN1: Intel® I219LM with Intel® AMT 11.0 support LAN2: Intel® I211 AT PCIe controller	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
I/O Interface	2 x USB 3.2 Gen 2 (Type-A) 2 x USB 3.2 Gen 1 (Type-A) 1 x PS/2 KB/MS 2 x USB 2.0 1 x RS-232 1 x KB/MS pin header 2 x RS-232/422/485 pin header 3 x RS-232 pin header 2 x USB 3.2 Gen 1 pin header 4 x USB 2.0 pin header	2 x USB 3.2 Gen 2 (Type-A) 2 x USB 3.2 Gen 1 (Type-A) 1 x PS/2 KB/MS 2 x USB 2.0 1 x RS-232 1 x KB/MS pin header 2 x RS-232/422/485 pin header 3 x RS-232 pin header 2 x USB 3.2 Gen 1 pin header 4 x USB 2.0 pin header	1 x LPT 1 x RS-232/422/485 (RS-485 support AFC) 2 x KB/MS 4 x USB 2.0 4 x USB 3.2 Gen 1 5 x RS-232	1 x KB/MS 2 x USB 2.0 4 x USB 3.2 Gen 1 Type A 1 x KB/MS pin header 4 x RS-232 pin header 1 x LPT pin header 4 x USB 2.0 pin header 2 x USB 3.2 Gen 1 pin header 2 x RS-232/422/485 pin header	1 x KB/MS 2 x USB 2.0 4 x USB 3.2 Gen 1 Type A 1 x KB/MS pin header 4 x RS-232 pin header 1 x LPT pin header 4 x USB 2.0 pin header 2 x USB 3.2 Gen 1 pin header 2 x RS-232/422/485 pin header
Storage Interface	6 x SATA 6Gb/s (RAID 0/1/5/10 supported) 1 x M.2 (M Key,support NVME SSD)	6 x SATA 6Gb/s (RAID 0/1/5/10 supported) 1 x M.2 (M Key,support NVME SSD)	4 x SATA 6Gb/s (no RAID)	6 x SATA 6Gb/s (RAID 0/1/5/10 supported)	6 x SATA 6Gb/s (RAID 0/1/5/10 supported)
Audio	Realtek ALC888S HD Audio codec				
Digital I/O	8-bit programmable I/O (8-bit GPIO is for programming I/O)				
Power Consumption	3.3V@0.38A, 5V@9.38A, 12V@6.23A, 5VSB@0.16A (Intel® Core™ I5-8500 3.0 GHz CPU with four 16 GB 2400 MHz DDR4 memory)	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@0.39A, 5V@2.99A, 12V@3.08A, 5VSB@0.2A (Intel® Core™ i5-8500 up to 3.00 GHz CPU with 20 GB 2400/2133 MHz 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@0.22A (Intel® Core™ i7-6700K 4.0GHz CPU with 32 GB (four 4 GB) 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 M.2 A Key 1 x M.2 M Key 2 x PCIe Gen3 x8 3 x PCIe Gen3 x4 2 x PCI	1 x M.2 A Key 1 x M.2 M Key 2 x PCIe Gen3 x8 3 x PCIe Gen3 x4 2 x PCI	1 x PCIe x16 (Gen3) 1 x PCIe x4 (Gen2) 4 x PCI	1 x Full-size PCIe Mini card (support mSATA) 2 x PCIe x8 (Gen3) 3 x PCIe x4 (Gen3) 2 x PCI	1 x Full-size PCIe Mini card (support mSATA) 2 x PCIe x8 (Gen3) 3 x PCIe x4 (Gen3) 2 x PCI
CPU Cooler	CF-115XA-R10 CF-1156C-R20 CF-1156D-R30 CF-115XE-R10	CF-115XA-R10 CF-1156C-R20 CF-1156D-R30 CF-115XE-R10	CF-115XA-R10 CF-1156C-R20 CF-1156D-R30 CF-115XE-R10	CF-115XA-R10 CF-1156C-R20 CF-1156D-R30 CF-115XE-R10	CF-115XA-R10 CF-1156C-R20 CF-1156D-R30 CF-115XE-R10

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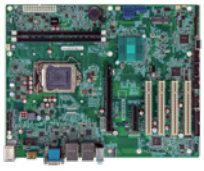
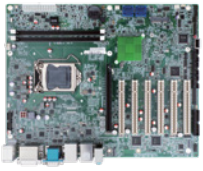

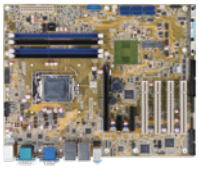

Model Name	IMBA-H112	IMBA-H110	IMBA-C2260-i2-R11	IMBA-Q870-i2
CPU Socket	LGA1151	LGA1151	LGA1150	LGA1150
CPU Type	6th/7th generation Intel® Core™ i7/i5/i3, Celeron® and Pentium® processor	6th/7th generation Intel® Core™ i7/i5/i3, Celeron® and Pentium® processor	4th generation Intel® Xeon® E3, Core™ i3, Pentium®, Celeron® processor	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor
Chipset	Intel® H110	Intel® H110	Intel® C226	Intel® Q87
Memory	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)	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)
Display 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	Dual display support 1 x VGA 1 x iDP interface	Triple display support 1 x VGA 1 x DVI-D 1 x HDMI 1 x iDP interface
Ethernet	LAN1: Intel® I219V PHY LAN2: Intel® I211 PCIe controller	LAN1: Intel® I219V PHY LAN2: Intel® I211 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
I/O Interface	1 x KB/MS 4 x USB 3.2 Gen 1 Type A 2 x USB 2.0 1 x RS-232 1 x KB/MS pin header 1 x RS-232/422/485 pin header 1 x LPT pin header 1 x internal USB 2.0 (type A) 4 x RS-232 pin header 2 x USB 2.0pin header	1 x KB/MS 4 x USB 3.2 Gen 1 Type A 2 x USB 2.0 2 x RS-232 1 x KB/MS pin header 2 x RS-232 pin header 1 x LPT pin header 2 x USB 2.0 pin header 1 x RS-232/422/485 pin header 1 x internal USB 2.0 (type A)	1 x KB/MS 4 x USB 2.0 1 x RS-232 4 x USB 3.2 Gen 1 Type A 1 x KB/MS pin header 1 x RS-422/485 pin header 1 x LPT pin header 4 x RS-232 pin header 4 x USB 2.0 pin header	1 x KB/MS 2 x USB 3.2 Gen 1 Type A 1 x RS-232 4 x USB 2.0 1 x KB/MS pin header 2 x USB 3.2 Gen 1 pin header 1 x LPT pin header 4 x RS-232 pin header 4 x USB 2.0 pin header 1 x RS-422/485 pin header
Storage Interface	3 x SATA 6Gb/s	4 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)
Audio	Realtek ALC888S HD Audio codec			
Digital I/O	N/A	8-bit programmable I/O (8-bit GPIO is for programming I/O)		
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)	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)	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)
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 Full-size PCIe Mini card (support mSATA) 1 x PCIe x16 (Gen3) 1 x PCIe x4 (Gen3) 4 x PCI	1 x Full-size PCIe Mini card (support mSATA) 1 x PCIe x16 (Gen3) 6 x PCI	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
CPU Cooler	CF-115XA-R10 CF-1156C-R20 CF-1156D-R30 CF-115XE-R10	CF-115XA-R10 CF-1156C-R20 CF-1156D-R30 CF-115XE-R10	CF-115XA-R10 CF-115XE-R10	CF-115XA-R10 CF-115XE-R10

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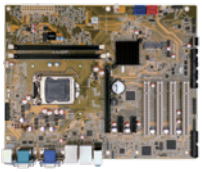
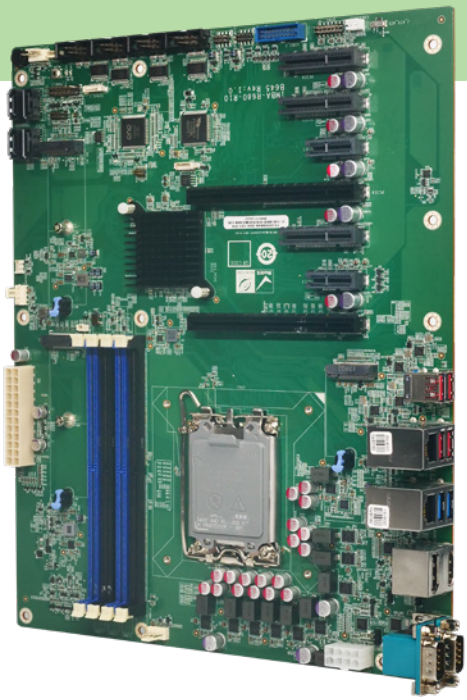
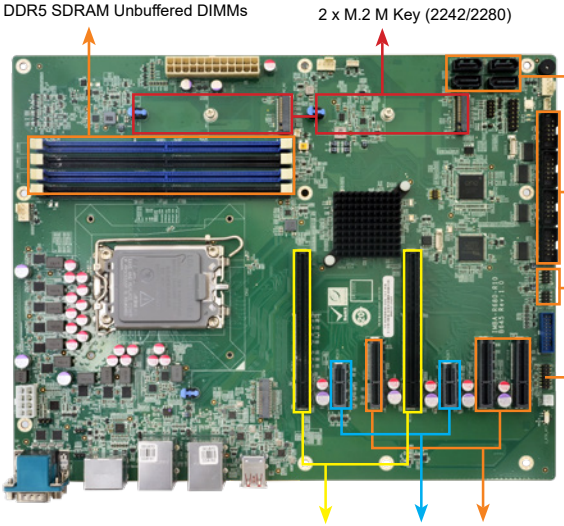


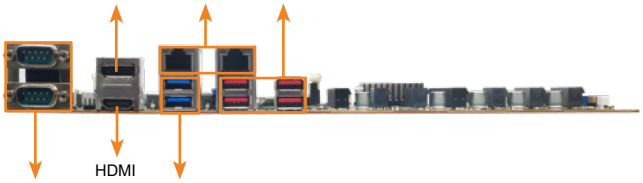
Model Name	IMBA-H810	IMB-H110	IMB-Q870-i2	IMB-H810-i2-R11
CPU Socket	LGA1150	LGA1151	LGA1150	LGA1150
CPU Type	4th generation Intel® Core™ i7/i5/i3 Pentium® and Celeron® processor	6th generation Intel® Core™ i7/i5/i3, Celeron® and Pentium® processor	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor
Chipset	Intel® H81	Intel® H110	Intel® Q87	Intel® H81
Memory	Two 240-pin 1333/1600 MHz dual-channel DDR3 SDRAM unbuffered DIMM (system max. 16 GB)	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. 16 GB)
Display Interface	Dual independent display support 1 x DVI-D 1 x VGA 1 x iDP interface	Dual independent display support 1 x VGA 1 x DVI-I 1 x LVDS 1 x iDP	Triple display support 1 x VGA 1 x DVI-D 1 x HDMI 1 x iDP interface	Triple display support 1 x VGA1 1 x VGA2 1 x iDP interface
Ethernet	LAN1: Intel® I217-LM with Intel® AMT 9.0 support LAN2: Intel® I211-AT PCIe controller	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	N/A	1 x iRIS-2400 slot	
I/O Interface	1 x KB/MS 2 x USB 2.0 2 x RS-232 2 x USB 3.2 Gen 1 Type A 1 x KB/MS pin header 1 x internal USB 2.0 (180° Type-A) 1 x LPT pin header 3 x RS-232 pin header 1 x RS-422/485 pin header 4 x USB 2.0 pin header 2 x SATA 6Gb/s 2 x SATA 3Gb/s	4 x USB 3.2 Gen 1Type A 6 x USB 2.0 1 x KB/MS pin header 2 x RS-232/422/485 pin header 1 x LPT pin header 2 x USB 2.0 pin header 10 x RS-232 pin header	1 x KB/MS 2 x USB 3.2 Gen 1 Type A 1 x RS-232 4 x USB 2.0 1 x KB/MS pin header 1 x RS-422/485 pin header 4 x RS-232 pin header 2 x USB 3.2 Gen 1 pin header 4 x USB 2.0pin header	1 x KB/MS 2 x USB 2.0 2 x RS-232 2 x USB 3.2 Gen 1 Type A 1 x LPT pin header 1 x RS-422/485 (pin header 8 x RS-232 pin header 8 x USB 2.0 pin header
Storage Interface	2 x SATA 3Gb/s 2 x SATA 6Gb/s	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 ALC888S HD Audio codec			
Digital I/O	8-bit programmable I/O (8-bit GPIO is for programming 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@0.83A, 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@ 0.93A, 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 x 16 2 x PCIe x 1 4 x PCI 1 x PCIe Mini (support mSATA)	1 x PCIe x16 (Gen3) 1 x Full-size PCIe Mini card 1 x PCIe x1 (Gen2) 2 x PCI	1 x PCIe x16 (Gen 3) 1 x PCIe x4 1 x PCIe x1 1 x PCI	1 x PCIe x16 (Gen 3) 1 x PCIe x1 2 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 CF-115XE-R10

IMBA-R680

ATX motherboard supports LGA1700 Intel® 12th/13th Generation Core™ i9/i7/i5/i3, Pentium® and Celeron® processor, DDR5, Triple independent displays, dual 2.5GbE LAN, M.2, USB 3.2, SATA 6Gb/s, and RoHS







Features

- LGA1700 12th/13th Generation Intel® Core™ i9/i7/i5/i3, Pentium® and Celeron® processor (125W)
- Dual-channel DDR5 4400MHz
- Support DisplayPort 1.4a, HDMI & iDPM modules
- Support two M.2 M key for NVMe storage
- High-performance ATX motherboard with PCIe Gen4 & Gen5 expansion slots

Support 12th/13th Gen Intel® Core™ CPU

Support LGA1700 socket 12th/13th generation Alder Lake-S Intel® Core™ i9/i7/i5/i3, Pentium®, Celeron® processor (up to 125W TDP), up to 16 cores / 24 threads for outstanding multi-thread performance.

Support DDR5 4400MHz

iEi design the IMBA-R680 support 4 x 288-pin Dual-Channel DDR5 (up to 4400 MHz) SDRAM Unbuffered DIMMs, system up to 128GB (ECC&non-ECC support)

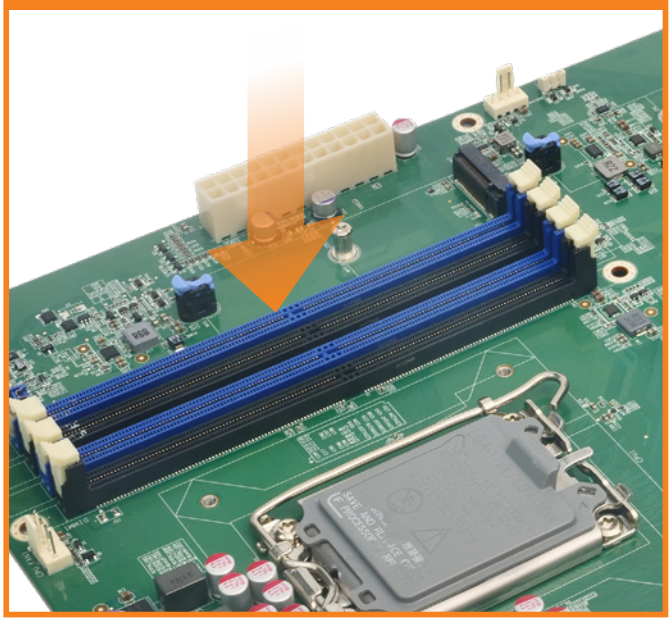
Pure PCIe Expansion Slot

It supports 2 x PCIe Gen5 x16 slot with x8 Signal ,3 x PCIe Gen4 x4 slot open-end and 2 x PCIe Gen3 x1 slot, for more PCI express card to install

Support Four SATA for Storage

It supports 4 x SATA 6Gb/s, and RAID 0/1/5/10 supported. Otherwise, there are 2 x M.2 M key with PCIe signal support NVMe storage

Four 288-pin 4400 MHz Dual-channel DDR5 (up to 128GB)

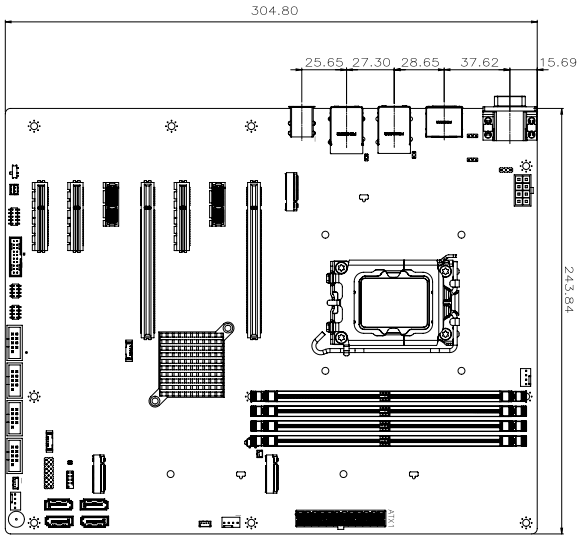


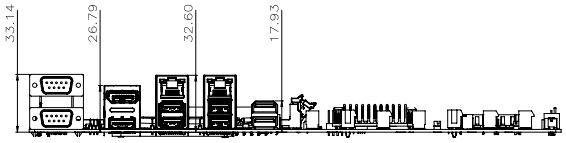
Specifications

- CPU
  LGA1700 socket supports 12th/13th generation Alder Lake-S Intel® Core™ i9/i7/i5/i3/ Pentium®/Celeron® Processor (up to 125W TDP CPU)
- Chipset
  Intel® R680E
- BIOS
  AMI UEFI BIOS
- Memory
  Four 288-pin Dual-Channel DDR5 (up to 4400 MHz) SDRAM Unbuffered DIMMs supported up to 128GB (ECC&non-ECC support)
- Graphics Engine
  New Intel® Xe Graphics architecture with SRIOV, Genlock
- Display Output
  Triple independent display
  1 x DP (up to 4096 x 2304 @60Hz)
  1 x HDMI (up to 4096 x 2304 @30Hz)
  1 x iDPM support iEi eDP/ LVDS/ VGA module
- Ethernet
  LAN1: Intel® I225V 2.5GbE controller (CO-LAY I225-LM support vPro)
  LAN2: Intel® I225V 2.5GbE controller
- External I/O Interface
  4 x USB 3.2 Gen 2 (Type-A) (10Gb/s)
  2 x USB 3.2 Gen 1 (Type-A) (5Gb/s)
  2 x RS-232/422/485 (RS-485 support AFC)
- Internal I/O Interface
  4 x SATA 6Gb/s (RAID 0/1/5/10 supported)
  4 x USB 2.0 (2x4 pin, P=2.0)
  2 x USB 3.2 Gen 1 (2x10 pin, P=2.00, wafer) (5Gb/s)
  4 x RS-232 (2x5 pin, P=2.54)
- SMBus
  1 x SMBus (1x4 pin)
- I^2C
  1 x I^2C (1x4 pin)
- Audio
  1 x iAUDIO supports IEI AC-KIT-888S Audio Kit (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
  **2 x PCIe Gen5 x16 slot with x8 Signal
  **1 x PCIe Gen4 x4 open-end
  2 x PCIe Gen4 x4 open-end
  2 x PCIe Gen3 x1
  2 x M.2 M Key (2242/2280, PCIe x4) NVMe supported
- Digital I/O
  1 x 12-bit digital I/O (2x7 pin)
- TPM
  Intel® PTT (TPM 2.0)
- Fan Connector
  1 x CPU fan connector (1x4 pin)
  2 x System fan connector (1x4 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@0.89A, 5V@10.05A, 12V@6.05A, 5VSB@0.64A (Intel® Core™ i7-12700E CPU with four 16 GB 4800 MHz DDR5 memory, EuP mode enabled)
- Operating Temperature
  0°C~60°C
- Storage Temperature
  -30°C ~ 70°C
- Operating Humidity
  5% ~95%, non-condensing
- Dimensions
  244mm x 305mm
- Weight
  GW:1200g / NW:700g
- Certification
  CE/FCC compliant

**Intel® recommends that Alder Lake-S CPU PCIe ports are only used for discrete graphics and storage devices

Dimensions (Unit: mm)





Packing List

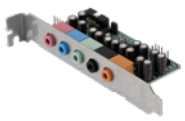
1 x IMBA-R680 single board computer	1 x I/O shielding
2 x SATA cable	1 x QIG

Ordering Information

Part No.	Description
IMBA-R680-R10	ATX motherboard supports LGA1700 12th/13th Generation Intel® Core™ i9/i7/i5/i3, Pentium® and Celeron® processor, DDR5, triple independent displays, dual 2.5GbE LAN, M.2, USB 3.2, SATA 6Gb/s, and RoHS

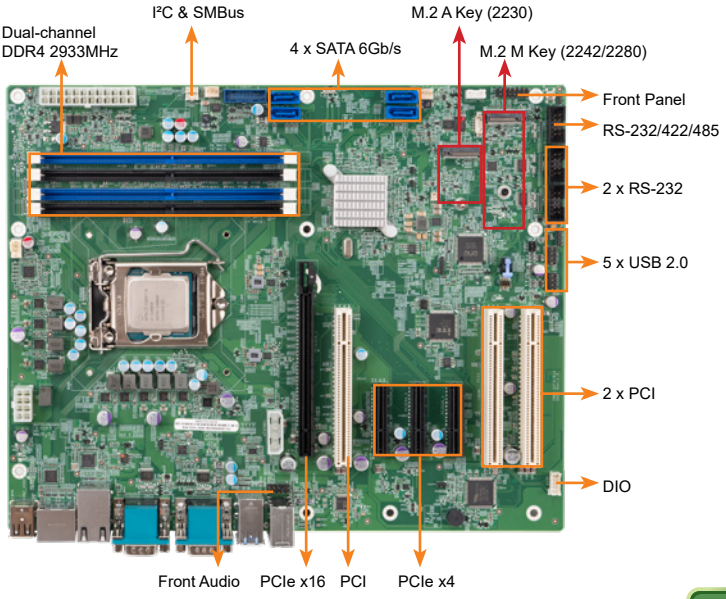
Optional Accessories

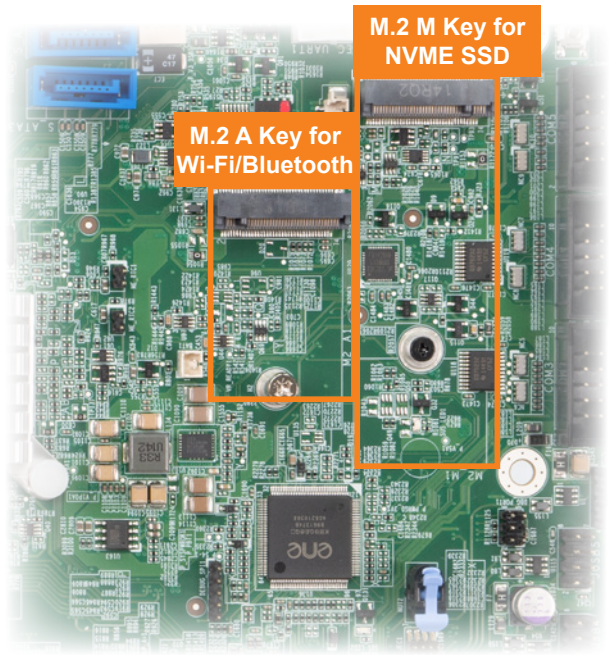
Part No.	Description
AC-KIT-888S-R10	Realtek ALC888S 7.1 Channel HD Audio peripheral board,RoHS
CB-USB02A-RS	Dual port USB cable with bracket, 300mm, P=2.0
19800-010500-200-RS	USB 3.0 cable 457mm with bracket
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-000702-100-RS	RS-232 cable, 230mm, P=2.54
19100-000323-00-RS	LGA1700 cooler kit,65W
iDPM-eDP-R10	eDP to eDP DisplayPort converter board (for IEI iDPM connector)
iDPM-LVDS-R10	eDP to LVDS DisplayPort converter board (for IEI iDPM connector)

			
AC-KIT-888S-R10	CB-USB02A-RS	19800-010500-200-RS	32102-000100-200-RS
32205-000702-100-RS	19100-000323-00-RS	iDPM-eDP-R10	iDPM-eDP-R10

IMBA-Q470

ATX motherboard supports 10th/11th Generation Intel® Core™ i9/i7/i5/ i3, Celeron® and Pentium® processor, DDR4 memory, triple independent display, dual 2.5GbE LAN, M.2, USB 3.2, SATA 6Gb/s, HD Audio and RoHS





Features

Support 10th/11th Gen Intel® Core™ CPU

Built-in with 10th/11th Generation Intel® Core™ i9/i7/i5/ i3, Celeron® and Pentium® processor (LGA1200), high performance capability with multi-tasking function

Support Intel® I225V 2.5GbE Controller

The IMBA-Q470 is designed with two 2.5 GbE LAN ports via Intel® I225V Ethernet Controllers

Rich Expansion I/O

It includes one PCIe x16, three PCIe x4 and three PCI slots for functional expansions like graphics cards, LAN cards or motion control cards. It also provides an M.2 A-key slot for Bluetooth and Wi-Fi, and an M.2 M-key for storage.

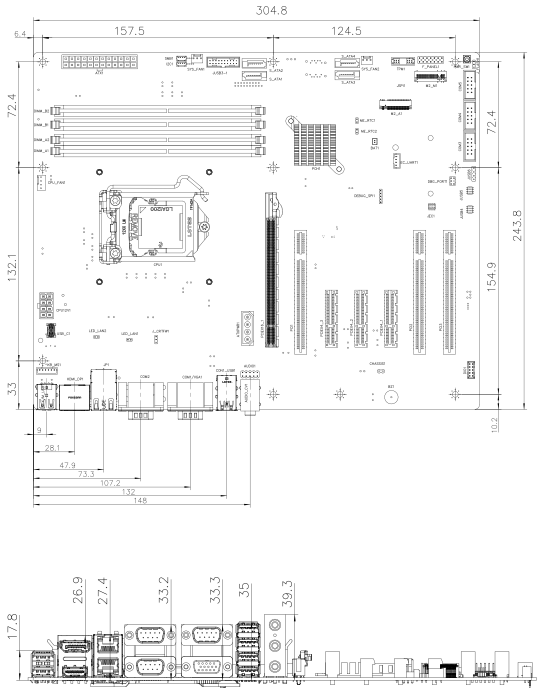
Support USB 3.2 Gen 1 and Gen 2, up to 10Gb/s

It supports USB 3.2 specification and is equipped with two USB 3.2 Gen 1 (5Gb/s) ports and two USB 3.2 Gen 2 (10Gb/s) ports. Additionally, two USB 3.2 Gen 1 ports and six USB 2.0 ports are supported via internal connectors.

Specifications

- CPU
  LGA1200 socket supports 10th/11th generation Intel® Core™ i9/i7/i5/i3, Pentium® or Celeron® processor. up to 125W TDP
- Chipset
  Intel® Q470/Q470E
- BIOS
  AMI UEFI BIOS
- Memory
  Four 288-pin 2933MHz dual-channel unbuffered DDR4 SDRAM DIMM slots (system max. 128GB)
- Graphics Engine
  Intel® UHD Graphics 630
  Intel® HD Graphics Gen9 Engines with 16 low-power execution units, supporting DX2015, OpenGL 5.X, OpenCL2.x and ES 2.0
- 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 2160@30Hz)
- Ethernet
  LAN1: Intel® I225V 2.5GbE controller
  LAN2: Intel® I225V 2.5GbE controller
- External I/O Interface
  2 x USB 2.0
  1 x RS-232/422/485 (RS-485 supports AFC)
  2 x USB 3.2 Gen 1 (5Gb/s)
  2 x RS-232
  2 x USB 3.2 Gen 2 (10Gb/S)
- Internal I/O Interface
  1 x RS-232/422/485 (2x5 pin, P=2.54) (RS-485 supports AFC)
  2 x RS-232 (2x5 pin, P=2.54)
  2 x USB 3.2 Gen 1 (2x10 pin, P=2.0) (5Gb/s)
  4 x SATA 6Gb/s (supports RAID 0/1/5/10)
  5 x USB 2.0 (2x4 pin, P=2.54)
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- Audio
  Realtek ALC888S HD Audio codec
  3 x Audio jack (Line-in, Line-out, Mic-in)
  1 x Analog audio (2x5 pin)
- Front Panel
  1 x Front panel connector
  (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
- Expansions
  1 x PCIe 3.0 x16 slot
  1 x M.2 2230 A key (PCIe Gen3 x1, USB 2.0)
  3 x PCIe 3.0 x4 slot
  1 x M.2 2242/2280 M Key (PCIe Gen3 x4)
  3 x PCI slot
- Digital I/O
  1 x 8-bit digital I/O (2x5 pin)
- TPM
  Support Intel® PTT (TPM 2.0)
- Fan Connector
  1 x CPU fan connector (1x4 pin)
  2 x System fan connector (1x3 pin)
- Chassis Intrusion
  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@1.36A, 5V@14.16A, 12V@7.5A
  (Intel® Core™ i9-10900E CPU with four 32 GB 3200 MHz DDR4 DIMMs)
- Operating Temperature: 0°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 244mm x 305mm
- Weight: GW:1200g / NW:700g
- Certification: CE/FCC compliant

Dimensions *(Unit: mm)*



Packing List

1 x IMBA-Q470 single board computer	1 x I/O shielding
2 x SATA cable	1 x QIG

Ordering Information

Part No.	Description
IMBA-Q470-R10	ATX industrial motherboard supports 10th/11th Generation Intel® Core™ i9/i7/i5/i3, Celeron® and Pentium® processor, DDR4 memory, triple independent display, dual 2.5GbE LAN, M.2, USB 3.2, SATA 6Gb/s, HD Audio and RoHS

Optional Accessories

Part No.	Description
CB-USB02-RS	Dual port USB cable with bracket, 300mm, P=2.54
19800-010500-200-RS	USB 3.0/USB3.2 cable 450mm with bracket, P=2.0
19800-020100-100-RS	RS-232 cable, 230mm, P=2.54
32102-000100-200-RS	SATA power cable, MOLEX 8981-4M to SATA15P,150MM
19100-000318-00-RS**	High-performance LGA1155/1156/1200 cooler kit, 4U chassis compatible 125W, 0ºC~50ºC
CF-115XA-R10	High-performance LGA1155/1156/1200 cooler kit, 1U chassis compatible 73W
CF-1156C-R20	LGA1155/1156/1200 cooler kit, 1U chassis compatible, 45W
CF-1156D-R30	LGA1155/1156/1200 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High-performance LGA1155/1156/1200 cooler kit, 95W

**For more 125W CPU FAN details, Please refer to Chapter 12, Page31

CB-USB02-RS

19800-010500-200-RS

19800-020100-100-RS

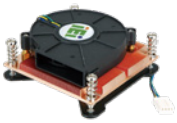
32102-000100-200-RS

19100-000318-00-RS

CF-115XA-R10

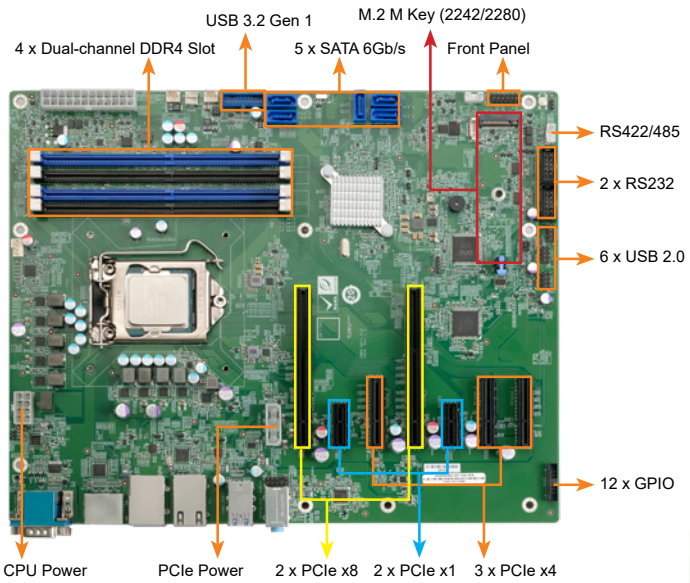
CF-1156C-R20

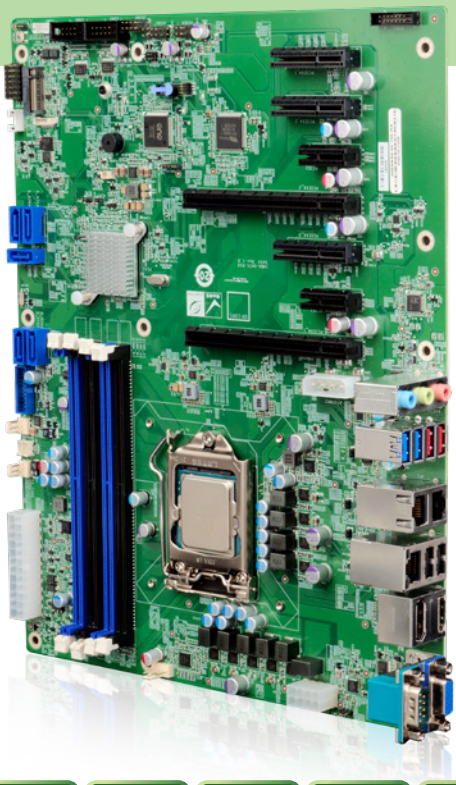
CF-1156D-R30

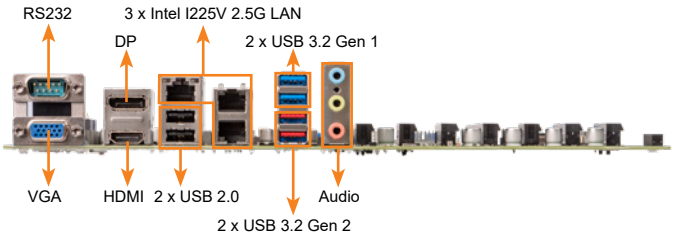

CF-115XE-R10

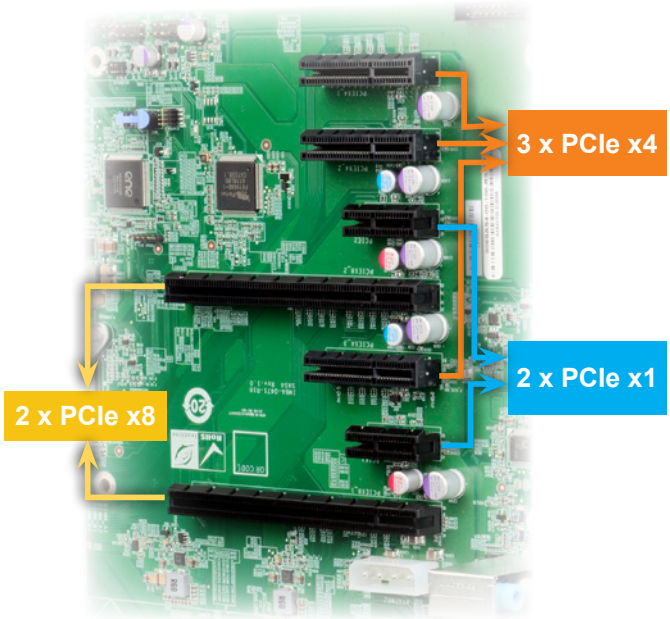
IMBA-Q471

ATX Motherboard Supports 10th/11th Gen. LGA1200 Intel® Core™ i9/ i7/i5/i3, Celeron® and Pentium® Processors, DDR4, Triple Independent Displays, Triple 2.5GbE, M.2, USB 3.2, SATA 6Gb/s, HD Audio and RoHS









Features

Support 10th/11th Generation Intel® Processor

Support 10th/11th generation Intel® Core™ i9/i7/i5/i3, Celeron® and Pentium® processor (LGA 1200 slot) to provide superior performance and run multi-tasking.

Support Intel® I225V 2.5GbE Controller

The IMBA-Q471 is equipped with 3 Gigabit RJ45 network ports via Intel® I225V 2.5GbE network controllers to achieve up to 2.5GbE network transmission rate.

Support USB 3.2 Gen 1 / Gen 2 up to 10Gb/s

The design of the motherboard is based on USB 3.2 protocol. Two USB 3.2 Gen 1 (5Gb/s) and two USB 3.2 Gen 2 (10Gb/s) are provided through external I/O for faster data transfer rate. The IMBA-Q471 also has internal USB 3.2 Gen 1 and USB 2.0 ports for additional wiring options.

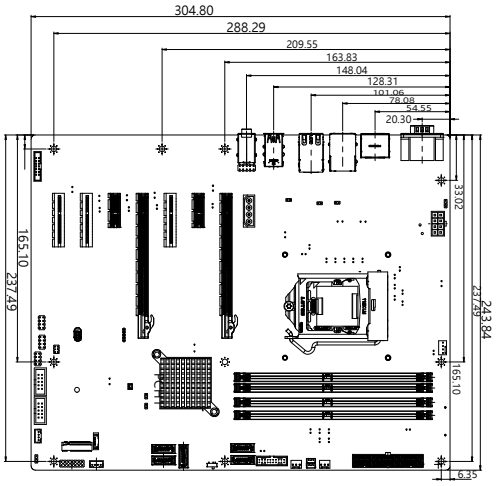
Full-featured PCIe Expansion Slot

The IMBA-Q471 features two PCIe Gen3 x16 slots that support PCIe Gen3 x8 signals, enabling it to accept two independent graphics cards at the same time. There are also three PCIe Gen3 x4 slots and two PCIe Gen3 x1 slots that support PCIe expansion cards such as network cards, sound cards or motion control cards.

Specifications

- CPU
  10th/11th Generation LGA1200 Intel® Core™ i9/i7/i5/i3, Celeron® and Pentium® processors
- Chipset
  Intel® Q470/Q470E
- BIOS
  AMI UEFI BIOS
- Memory
  Four 288-pin 2933 MHz dual-channel unbuffered DDR4 SDRAM DIMM slots supporting up to 128 GB memory
- Graphics Engine
  Up to Intel® UHD Graphics 630; Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, supporting DX2015, OpenGL 5.x, OpenCL2.x and ES 2.0
- Display Output
  Triple independent displays
  1 x VGA (up to 1920 x 1080 @ 60 Hz)
  1 x DP (up to 4096 x 2304 @ 60 Hz)
  1 x HDMI (up to 4096 x 2304 @ 30 Hz)
- Ethernet
  LAN1: Intel® I225V 2.5GbE controller (Colay with I225-LM)
  LAN2: Intel® I225V 2.5GbE controller (Colay with I225-LM)
  LAN3: Intel® I225V 2.5GbE controller (Colay with I225-LM)
- External I/O Interface
  2 x USB 3.2 Gen 2 (10Gb/s) (Type-A)
  2 x USB 3.2 Gen 1 (5Gb/s) (Type-A)
  2 x USB 2.0 (Type-A)
  1 x RS-232
- Internal I/O Interface
  5 x SATA 6Gb/s (RAID 0/1/5/10 supported)
  6 x USB 2.0 (2x4 pin, P=2.54)
  2 x USB 3.2 Gen1 (2x10 pin, P=2.0)
  2 x RS-232 (2x5 pin, P=2.54)
  1 x RS-422/485 (1x4 pin, P=2.0)
- I²C
  I²C (1x4 pin)
- SMBus
  1 x SMBus (1x4 pin)
- Audio
  Realtek ALC888S HD codec supports 7.1-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
  2 x PCIe Gen3 x16 (x8 signal)
  3 x PCIe Gen3 x4 open-end
  2 x PCIe Gen3 x1
  M.2 M key (2240/2280) with PCIe x2 &SATA signal
- Digital I/O
  1 x 12-bit digital I/O (2x7 pin)
- TPM
  Intel® PTT (TPM 2.0)
- Fan Connector
  1 x CPU fan connector (1x4 pin) / 2 x System fan connector (1x3 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@1.1A, 5V@3.359A, 12V@2.18A, 5VSB@0.12A
  (Intel® Core™ i5-10500TE CPU with four 8 GB 2933 MHz DDR4 DIMMs)
- Operating Temperature
  0°C ~ 60°C
- Storage Temperature
  -30°C ~ 70°C
- Operating Humidity
  5% ~95%, non-condensing
- Dimensions
  244mm x 305mm
- Weight
  GW:1200 g / NW:700 g
- Safety
  CE/FCC compliant

Dimensions (Unit: mm)



Packing List

1 x IMBA-Q471 single board computer	1 x I/O shielding
2 x SATA cable	1 x QIG

Ordering Information

Part No.	Description
IMBA-Q471-R10	ATX Motherboard Supports 10th/11th Gen. LGA1200 Intel® Core™i9/i7/i5/i3, Celeron® and Pentium® Processors, DDR4, Triple Independent Displays, Triple 2.5GbE, M.2, USB 3.2, SATA 6Gb/s, HD Audio and RoHS

Optional Accessories

Part No.	Description
CB-USB02-RS	Dual port USB cable with bracket, 300mm, P=2.54
19800-010500-200-RS	USB 3.0/USB3.2 cable 450mm with bracket, P=2.0
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
19800-020100-100-RS	RS-232 cable (230mm) P=2.54
19100-000318-00-RS**	High-performance LGA1155/1156/1200 cooler kit, 4U chassis compatible 125W, 0ºC~50ºC
CF-115XA-R10	High-performance LGA1155/1156/1200 cooler kit, 1U chassis compatible 73W
CF-1156C-R20	LGA1155/1156/1200 cooler kit, 1U chassis compatible, 45W
CF-1156D-R30	LGA1155/1156/1200 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High-performance LGA1155/1156/1200 cooler kit, 95W

**For more 125W CPU FAN details, Please refer to Chapter 12, Page31

CB-USB02-RS

19800-010500-200-RS

32102-000100-200-RS

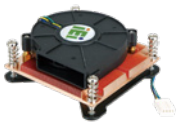
19800-020100-100-RS

19100-000318-00-RS

CF-115XA-R10

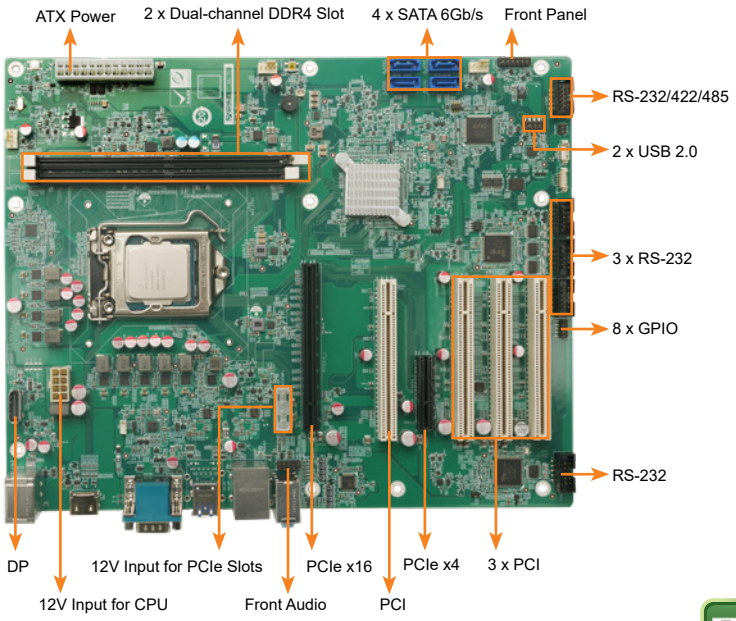
CF-1156C-R20

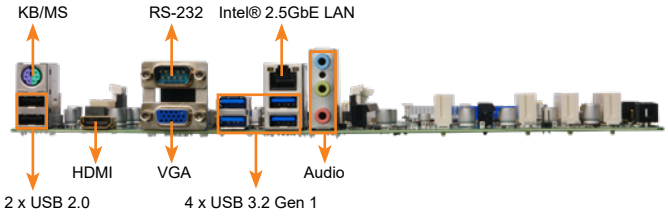
CF-1156D-R30

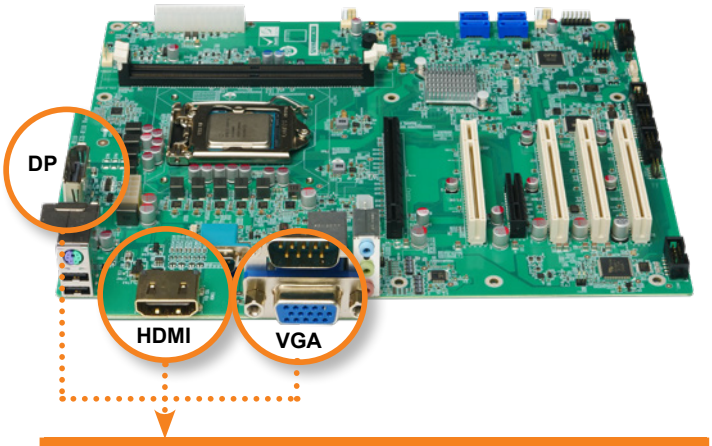

CF-115XE-R10

IMBA-H420

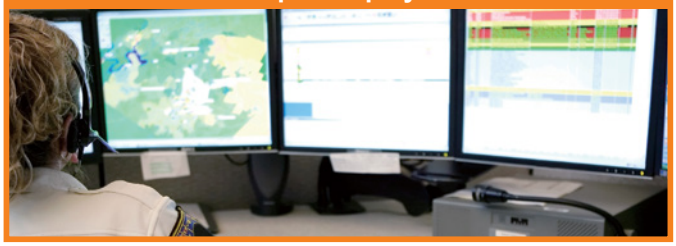
ATX motherboard supports 14nm LGA1200 Intel® 10th/11th Generation Intel® Core™ i9/i7/i5/i3, Celeron® and Pentium® processor, DDR4, Triple displays, 2.5GbE LAN, USB 3.2, SATA 6Gb/s, HD Audio and RoHS







Triple Displays



Features

Support 10th/11th Generation Intel® Processor

10th/11th generation Intel® Core™ i9/i7/i5/i3, Celeron® and Pentium® processors (LGA 1200 slot) are supported to provide superior performance and handle multiple tasks simultaneously.

Support Intel® I225V 2.5GbE Ethernet Controller

Support RJ45 network interface via Intel ® I225v 2.5GbE network controller to achieve up to 2.5GbE network transmission rate.

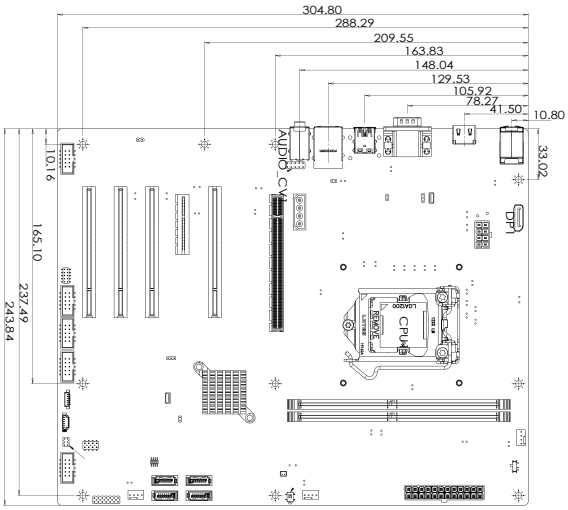
Support Multiple Expansion Slots

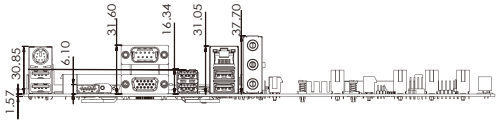
The IMBA-H420 supports one PCIe Gen3 x16, one PCIe Gen3 x4 and four PCI slots for PCIe expansion cards such as graphics card, network cards and motion control cards.

Specifications

- CPU
  LGA1200 socket supports 10th/11th Gen Intel® Core™ i9/i7/i5/i3, Celeron® and Pentium® processor
- Chipset
  Intel® H420E
- BIOS
  AMI UEFI BIOS
- Memory
  Two 288-pin 2933 MHz dual-channel unbuffered DDR4 SDRAM DIMM slots supporting up to 64 GB memory
- Graphics Engine
  Up to Intel® UHD Graphics 630; Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, supporting DX2015, OpenGL 5.x, OpenCL2.x and ES 2.0
- Display Output
  Triple display
  1 x VGA (up to 1920 x 1200@60Hz)
  1 x internal DP++ (up to 4096 x 2304@60Hz)
  1 x HDMI (up to 4096 x 2160@30Hz)
- Ethernet
  LAN1: Intel® i225-V GbE controller (colay i225-LM)
- External I/O Interface
  4 x USB 3.1 Gen 1 (5Gb/s)
  2 x USB 2.0
  1 x RS-232
  1 x KB/MS
- Internal I/O Interface
  1 x RS-232/422/485 (2x5 pin, P=2.54)
  2 x USB 2.0 (2x4 pin, P=2.54)
  4 x RS-232 (2x5 pin, P=2.54)
  4 x SATA 6Gb/s (no RAID)
- I²C
  1 x I²C (1x4 pin)
- SMBus
  1 x SMBus (1x4 pin)
- Audio
  Realtek ALC888S HD codec
  3 x Audio jack (Line-in, 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
  1 x LAN LED (1x2 pin)
- Expansion
  1 x PCIe Gen3 x16
  1 x PCIe Gen3 x4
  4 x PCI
- Digital I/O
  1 x 8-bit digital I/O (2x5 pin)
- TPM
  Intel® PTT (TPM 2.0)
- Fan Connector
  1 x CPU fan connector (1x4 pin)
  2 x System fan connector (1x4 pin)
- Chassis Open
  1 x Chassis intrusion connector (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@0.84A, 5V@8.12A, 12V@3.77A, 5VSB@0A (Intel® Core™ i5-10500TE CPU with two 32 GB 2933 MHz DDR4 memory, EuP mode enabled)
- Operating Temperature
  0°C ~ 60°C
- Storage Temperature
  -30°C ~ 70°C
- Operating Humidity
  5% ~95%, non-condensing
- Dimensions
  244mm x 305mm
- Weight
  GW:1200g / NW:700g

Dimensions *(Unit: mm)*





Packing List

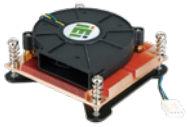
1 x IMBA-H420 single board computer	1 x I/O shielding
2 x SATA cable	1 x QIG

Ordering Information

Part No.	Description
IMBA-H420-R10	ATX motherboard supports 14nm LGA1200 Intel® 10th/11th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor, DDR4, Triple displays, 2.5GbE LAN, USB 3.2, SATA 6Gb/s, HD Audio and RoHS
IMBA-H420-ECO-R10	ATX motherboard supports 14nm LGA1200 Intel® 10th/11th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor, DDR4, Triple displays, 2.5GbE LAN, USB 3.2, SATA 6Gb/s, HD Audio ECO packing and RoHS

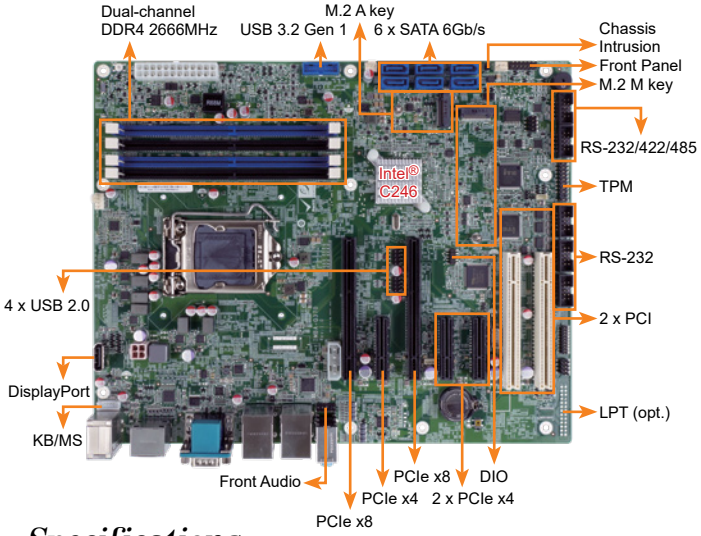
Optional Accessories

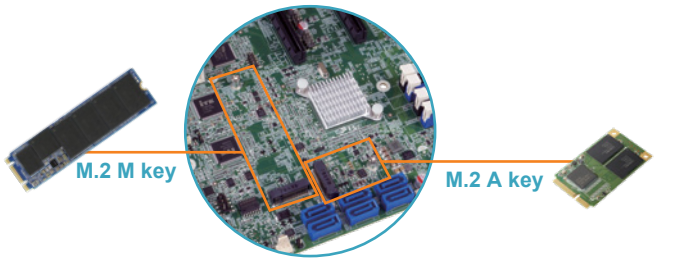
Part No.	Description
CB-USB02-RS	Dual port USB cable with bracket, 300mm, P=2.54
19800-020100-100-RS	RS-232 cable 230mm P=2.54
32205-000702-200-RS	RS-232 cable, 230mm, P=2.54
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
CF-115XA-R10	High-performance LGA1155/1156/1200 cooler kit, 1U chassis compatible 73W
CF-1156C-R20	LGA1155/1156/1200 cooler kit, 1U chassis compatible, 45W
CF-1156D-R30	LGA1155/1156/1200 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High-performance LGA1155/1156/1200 cooler kit, 95W

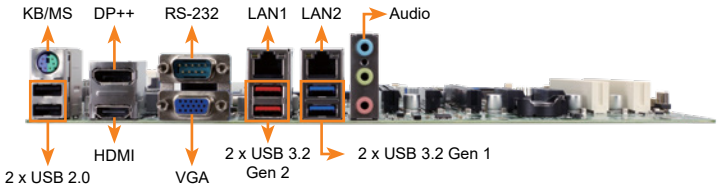
CB-USB02-RS	19800-020100-100-RS	32205-000702-200-RS	32102-000100-200-RS
			
CF-115XA-R10	CF-1156C-R20	CF-1156D-R30	CF-115XE-R10

IMBA-C2460

ATX motherboard supports 14nm LGA1151 Intel® 8th/9th Generation Xeon® E, Core™ i9/i7/i5/i3, Celeron® and Pentium® processor per Intel® C246, DDR4, triple displays, dual GbE LAN, M.2, USB 3.2, SATA 6Gb/s, HD Audio and RoHS







Specifications

- CPU
  LGA1151 Intel® 8th/9th Generation Xeon® E, Core™ i9/i7/i5/i3, Celeron® and Pentium® processor
- Chipset: Intel® C246
- BIOS: AMI UEFI BIOS
- Memory
  Four 288-pin 2666/2400 MHz Dual-channel DDR4 SDRAM Unbuffered DIMMs supported up to 64GB (ECC&non-ECC support)
- 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
  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® I210AT PCIe controller
- External I/O Interface
  2 x USB 3.2 Gen 2 (10Gb/s) — 1 x RS-232
  2 x USB 3.2 Gen 1 (5Gb/s) — 1 x PS/2 KB/MS
  2 x USB 2.0
- Internal I/O Interface
  1 x 180° Displyport — 1 x KB/MS (1x6 pin,P=2.0)
  2 x RS-232/422/485 (2x5 pin, P=2.54) — 3 x RS-232 (2x5 pin, P=2.54)
  2 x USB 3.2 Gen 1 (5Gb/s) (2x10 pin, P=2.0) — 4 x USB 2.0 (2x4 pin, P=2.54)
  6 x SATA 6Gb/s (RAID 0/1/5/10 supported)
- SMBus: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- Audio
  Realtek ALC888S HD Audio codec
  3 x Audio Jack (Line-in, Line-out, Mic-in)
  1 x Analog 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
  2 x PCIe x8 — 1 x M.2 A key (2230, PCIe x1 & USB 2.0)
  3 x PCIe x4 — 1 x M.2 M Key (2280, PCIe x2 only)
  2 x PCI
- 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@0.38A, 5V@9.38A, 12V@6.23A, 5VSB@0.16A
  (3.0 GHz Intel® Core™ I5-8500 CPU with four 16 GB 2400 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

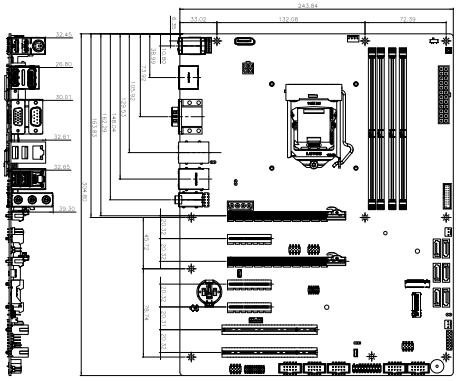
Features

- LGA1151 Intel® 8th/9th Generation Xeon® E, 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-C2460 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

Dimensions *(Unit: mm)*

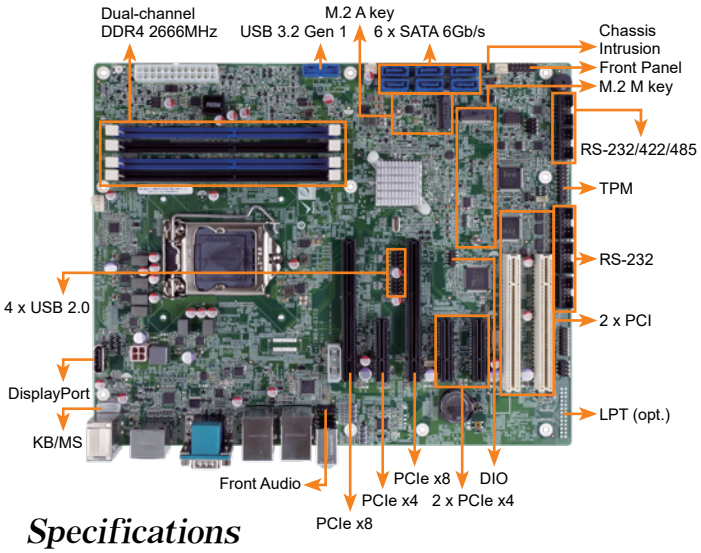


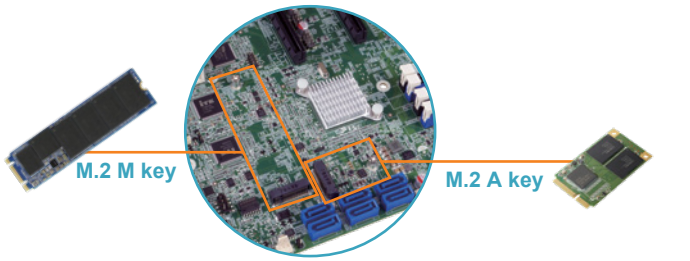
Ordering Information

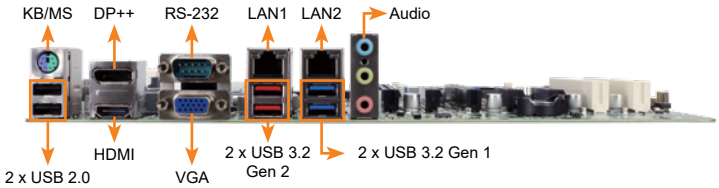
Part No.	Description
IMBA-C2460-R10	ATX motherboard supports 14nm LGA1151 Intel® 8th/9th Generation Xeon® E, Core™ i9/i7/i5/i3, Celeron® and Pentium® processor per Intel® C246, DDR4, triple displays, dual GbE LAN, M.2, USB 3.2, SATA 6Gb/s, HD Audio and RoHS
19800-000075-RS	PS/2 KB/MS cable with bracket, 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
32205-000702-200-RS	RS-232 cable, 230mm, P=2.54
CF-115XA-R10	High performance LGA115X cooler kit ,1U chassis compatible, 73W
CF-1156C-R20	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-1156D-R30	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

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
- 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 180º 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 6Gb/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 ALC888S HD Audio codec
  3 x Audio Jack (Line-in, Line-out, Mic-in)
  1 x Analog 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
  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
- Dimensions: 244mm x 305mm
- Weight: GW:1200g / NW:700g
- CE/FCC compliant

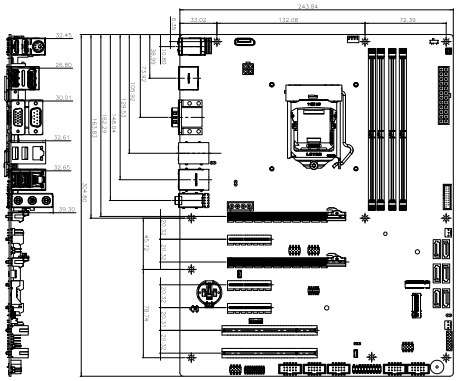
Features

- 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)*

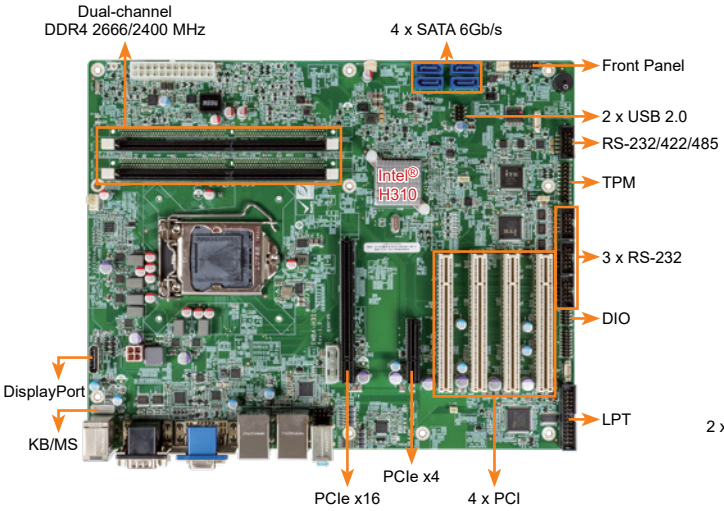


Ordering Information

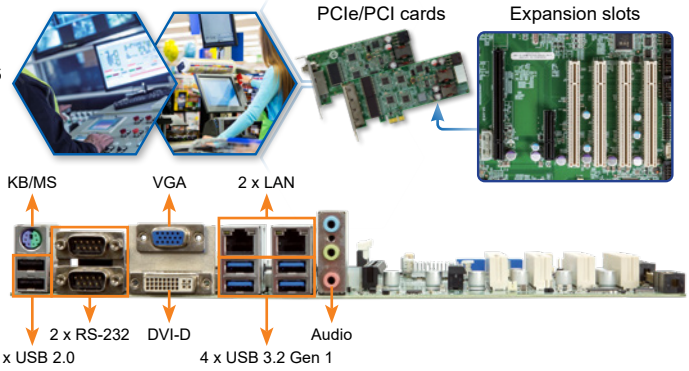
Part No.	Description
IMBA-Q370-R20	ATX motherboard supports 14nm LGA1151 Intel® 8th/9th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor, DDR4, triple independent displays, dual GbE LAN, M.2, USB 3.2, SATA 6Gb/s, HD Audio and RoHS
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
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
32205-000702-200-RS	RS-232 cable, 230mm, P=2.54
CF-115XA-R10	High performance LGA115X cooler kit ,1U chassis compatible, 73W
CF-1156C-R20	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-1156D-R20	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

IMBA-H310

ATX motherboard supports 14nm LGA1151 Intel® H310 8th/9th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor, DDR4, Dual Independent Displays, dual GbE LAN, USB 3.2, SATA 6Gb/s, HD Audio and RoHS



PCIe and PCI Slots for Multiple Expansion Support



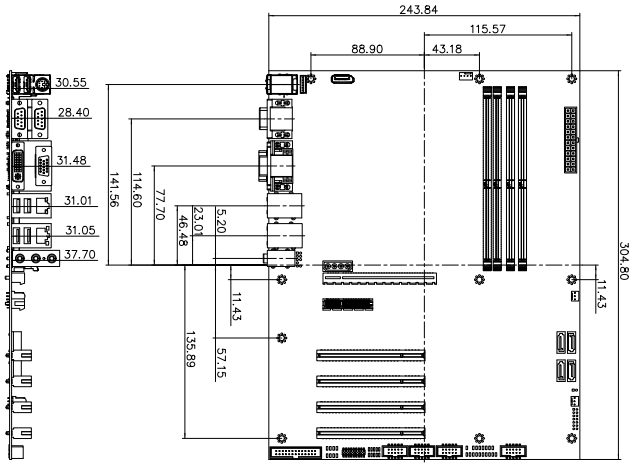
Specifications

- CPU
  LGA1151 Intel® H310 8th/9th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor
- Chipset
  Intel® H310
- BIOS
  AMI UEFI BIOS
- Memory
  Two 288-pin 2666/2400 MHz Dual-channel DDR4 SDRAM Unbuffered DIMMs supported up to 64GB
- 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-D (up to 2560x1600@60Hz)
  1 x VGA (UP to 1920x1200@60Hz)
  1 x Internal 180º DP (up to 4096x2304@60Hz)
- Ethernet
  LAN1: Intel® I219LM PCIe controller
  LAN2: Intel® I211 AT PCIe controller
- External I/O Interface
  4 x USB 3.2 Gen 1 (5Gb/s)
  2 x USB 2.0
  2 x RS-232
  1 x KB/MS
- 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)
  2 x USB 2.0 (2x4 pin, P=2.54)
  3 x RS-232 (2x5 pin, P=2.54)
  4 x SATA 6Gb/s (no RAID)
- Audio
  Realtek ALC888S HD Audio codec supports 7.1-channel
  3 x Audio Jack (Line-in, 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 x16 (Gen3)
  1 x PCIe x4 (Gen2)
  4 x PCI
- Digital I/O: 1 x 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)
- Fan Connector
  1 x CPU fan connector (1x4 pin)
  2 x System fan connector (1x3 pin)
- Chassis Open: 1 x Chassis intrusion connector (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@0.39A, 5V@2.99A, 12V@3.08A, 5VSB@0.2A
  (Intel® Core™ i5-8500 up to 3.00 GHz CPU with 20 GB 2400/2133 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

- LGA1151 Intel® H310 8th/9th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor
- Dual-channel DDR4 2666MHz
- Support dual displays with DVI-D/VGA/DP
- Support USB 3.2 Gen 1 (5Gb/s) and SATA 6Gb/s

Dimensions *(Unit: mm)*



Packing List

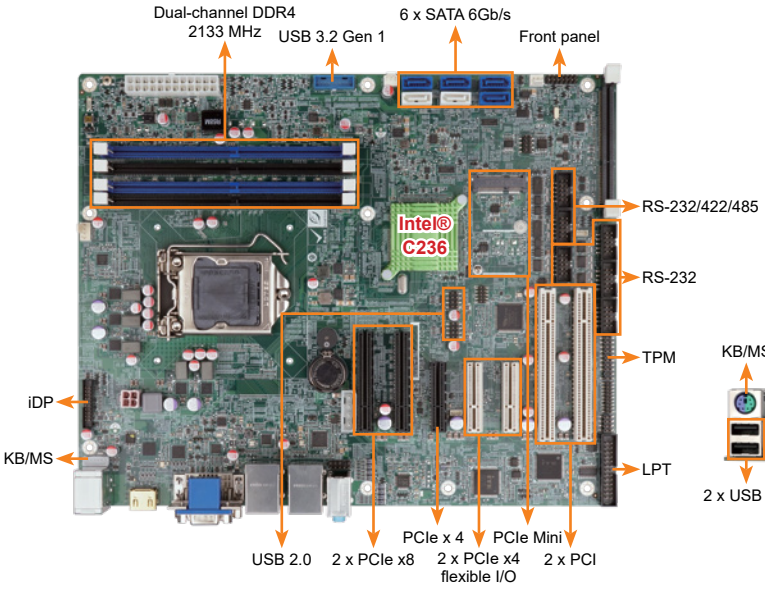
1 x IMBA-H310 single board computer	1 x I/O Shielding
2 x SATA cable	1 x QIG

Ordering Information

Part No.	Description
IMBA-H310-R10	ATX motherboard supports 14nm LGA1151 Intel® H310 8th/9th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor, DDR4, Dual Independent Displays, dual GbE LAN, 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
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-000702-200-RS	RS-232 cable, 230mm, P=2.54
CF-115XA-R10	High-performance LGA1155/1156 cooler kit, 1U chassis compatible 73W
CF-1156C-R20	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-1156D-R30	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

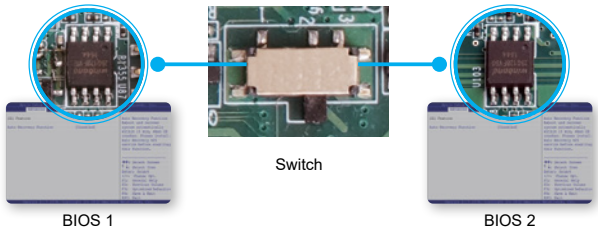
IMBA-C2360-i2

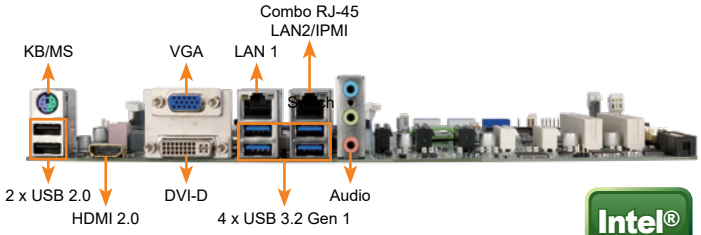
ATX motherboard supports 14nm LGA1151 Intel® Xeon® E3 v5 series, Core™ i3, Pentium®, Celeron® processor per Intel® C236, DDR4, triple independent display, HDMI 2.0, dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio, IPMI 2.0 and RoHS



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)
  1 x KB/MS
- 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 ALC888S HD Audio codec supports 7.1-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)
- 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

Packing List

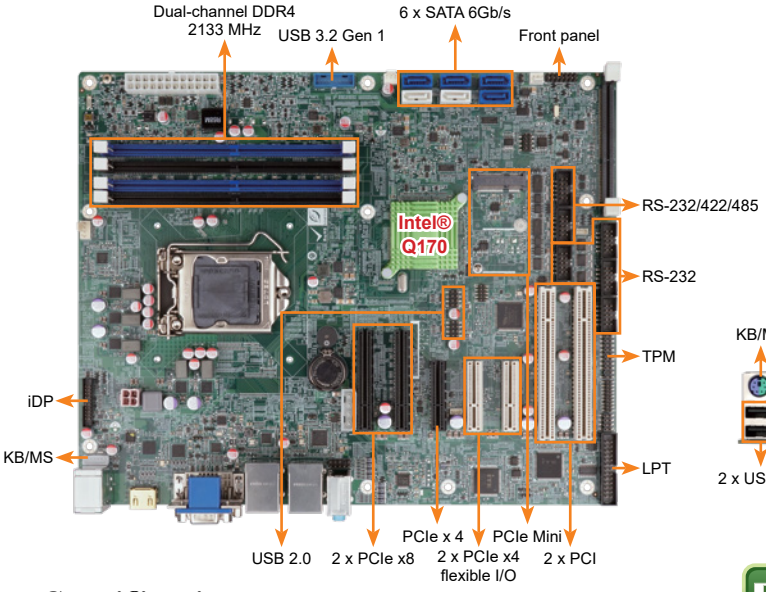
1 x IMBA-C2360-i2 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

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
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
19800-000049-RS	LPT flat cable, 240mm, P=2.54
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-1156C-R20	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-1156D-R30	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High performance LGA1155/LGA1156 cooler kit, 95W
CF-115XA-R10	High-performance LGA1155/1156 cooler kit, 1U chassis compatible 73W
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

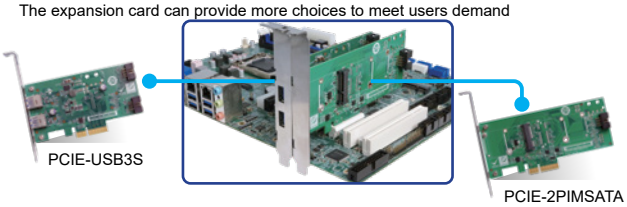
ATX motherboard supports 14nm LGA1151 Intel® CPU, Intel® Q170, DDR4, triple independent display VGA/ DVI-D/ HDMI 2.0, dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio, IPMI 2.0 and RoHS

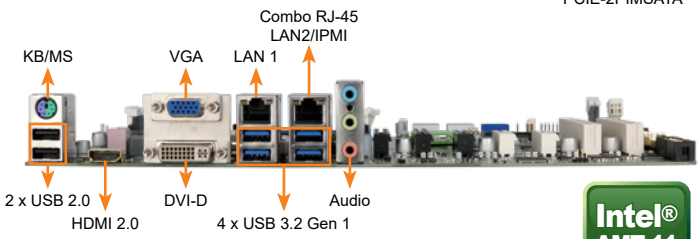


Flexible I/O support

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)
  1 x KB/MS
- 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 ALC888S HD Audio codec supports 7.1-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)
- 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@0.22A
  (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

Packing List

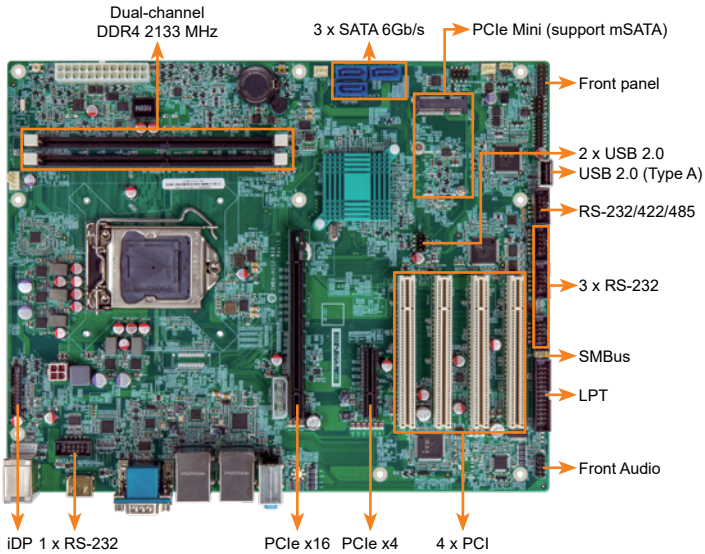
1 x IMBA-Q170-i2 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

Ordering Information

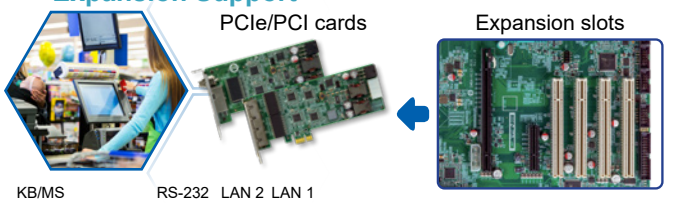
Part No.	Description
IMBA-Q170-i2-R10	ATX motherboard supports 14nm LGA1151 Intel® CPU, Intel® Q170, DDR4, triple independent display VGA/ DVI-D/ HDMI 2.0, dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio, IPMI 2.0 and RoHS
IMBA-Q170-ECO-R10	ATX motherboard supports 14nm LGA1151 Intel® 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 (10 pcs/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
19800-003100-100-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
32205-000702-200-RS	RS-232 cable, 230mm, P=2.54
CF-1156C-R20	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-1156D-R30	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High-performance LGA1155/1156 cooler kit, 95W
CF-115XA-R10	High-performance LGA1155/1156 cooler kit, 1U chassis compatible 73W
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

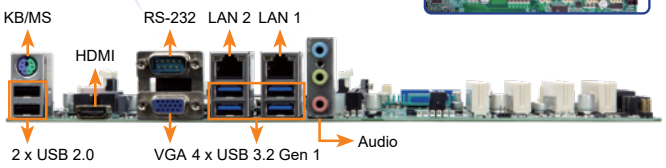
IMBA-H112

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





DDR4 2133 | Dual Display | USB 3.2 | SATA 6Gb/s | PCIe GbE

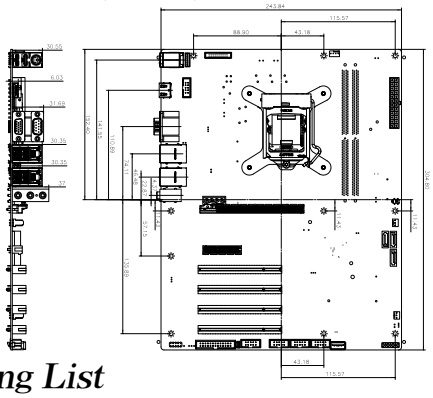
Features

- 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
  1 x KB/MS
- 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 ALC888S HD Audio codec supports 7.1-channel (2 Audio Jack colay 3 Jack) (Line-out, Mic)
- Front Audio
  2x5 pin pin header
- 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)
  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)
  2 x System smart fan (1x3 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

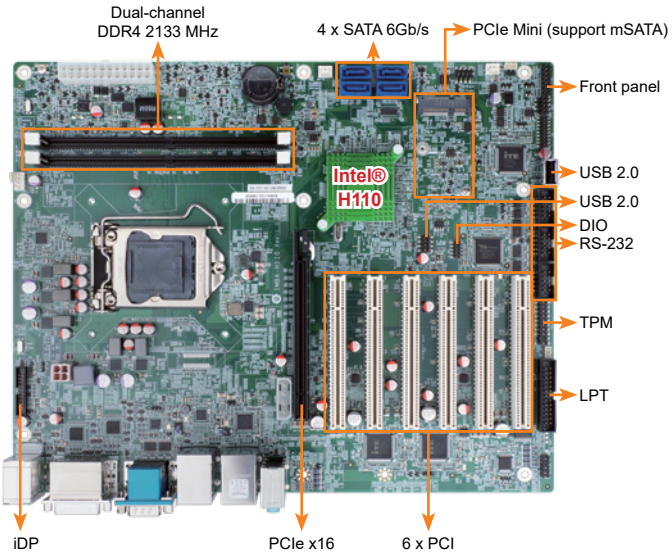
1 x IMBA-H112 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

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
IMBA-H112-ECO-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, ECO packing and RoHS (10 pcs/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
19800-020100-100-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-1156C-R20	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-1156D-R30	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High performance LGA1155/LGA1156 cooler kit, 95W
CF-115XA-R10	High-performance LGA1155/1156 cooler kit, 1U chassis compatible 73W
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)

IMBA-H110

ATX motherboard supports 14nm LGA1151 6th/7th 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



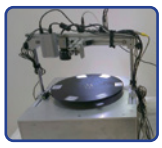
Multiple PCI Expansion Support

PCI cards

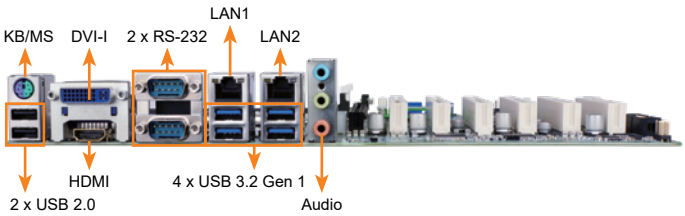
Expansion slots

XYZ Machine

Production Line



Automation Test Machine



DDR4 2133 | mSATA | USB 3.2 | SATA 6Gb/s | PCIe GbE

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
  1 x KB/MS
- 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 ALC888S HD Audio codec supports 7.1-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

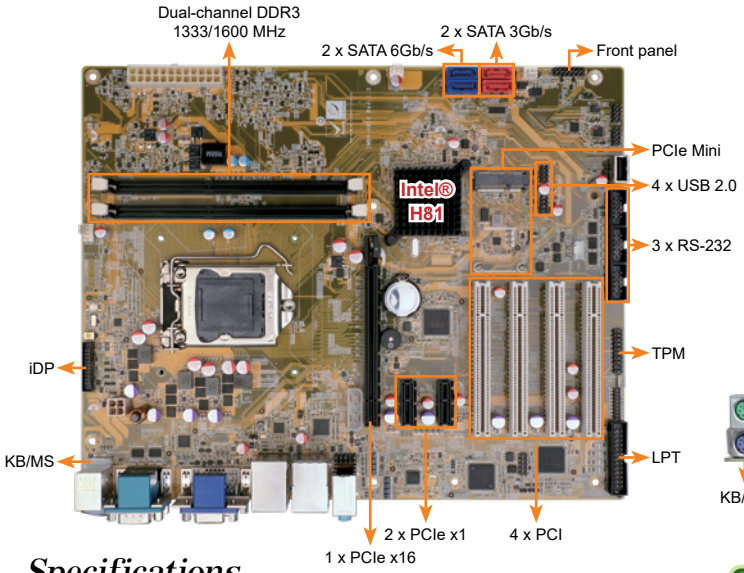
1 x IMBA-H110 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

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
IMBA-H110-ECO-R10	ATX Motherboard supports LGA1151 6th Generation Intel® Core i7/i5/i3, Celeron® Pemtium® processor,DDR4,Dual Independent Displays DVI-I/HDMI/iDP, Dual®Intel GbE LAN, USB 3.2, SATA 6Gb/s,HD Audio,ECO Packing, RoHS (10 pcs/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
19800-020100-100-RS	RS-232 cable, 230mm, P=2.54
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
CF-1156C-R20	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-1156D-R30	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High performance LGA1155/LGA1156 cooler kit, 95W
CF-115XA-R10	High-performance LGA1155/1156 cooler kit, 1U chassis compatible 73W
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

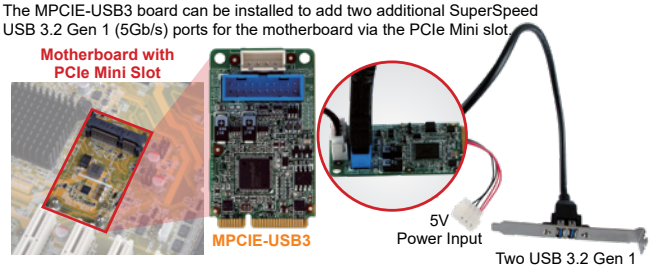
ATX motherboard supports 22nm LGA 1150 4th generation Intel® Core™ i7/i5/i3, Pentium® and Celeron® CPU with Intel® H81, DDR3, VGA/DVI-D/iDP, dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio and RoHS

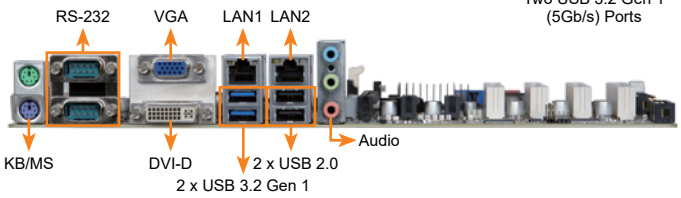


PCIe Mini Add-on Value

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 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 USB 2.0
  2 x RS-232 — 2 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x KB/MS (1x6 pin) — 1 x USB 2.0 (180° Type-A)
  1 x LPT (2x13 pin) — 2 x SATA 3Gb/s (SATA3, SATA4) (Red)
  1 x mSATA (share with SATA4) — 3 x RS-232 (2x5 pin, P=2.54)
  1 x RS-422/485 (1x4 pin, P=2.0) — 4 x USB 2.0 (2x4 pin, P=2.54)
  2 x SATA 6Gb/s (SATA1, SATA2) (AHCI supported, no RAID) (Blue)
- Audio
  Realtek ALC888S HD Audio codec supports 7.1-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) — 2 x PCIe x1
  1 x PCIe x16 — 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

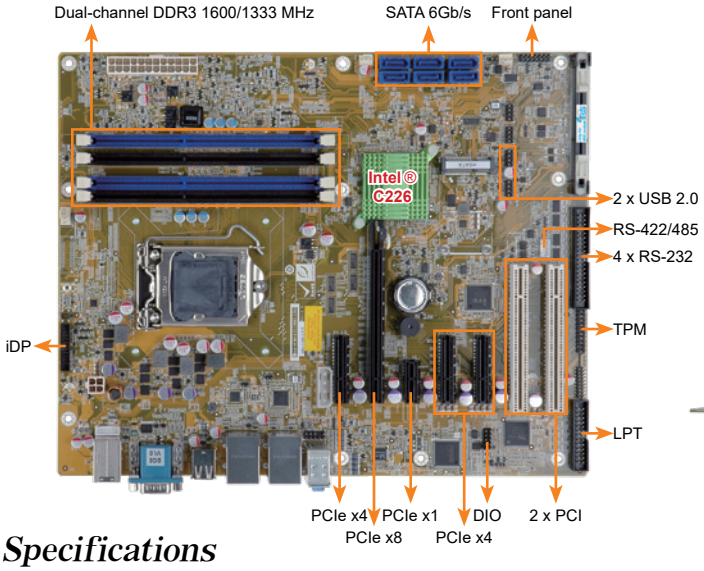
1 x IMBA-H810 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

Ordering Information

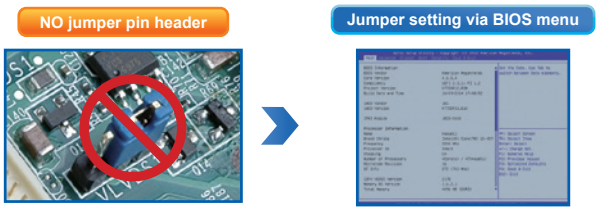
Part No.	Description
IMBA-H810-R10	ATX motherboard supports 22nm LGA 1150 4th generation Intel® Core™ i7/i5/i3, Pentium® and Celeron® CPU with Intel® H81, DDR3, VGA/DVI-D/iDP, dual Intel® PCIe GbE, SATA 6Gb/s, USB 3.2 Gen 1 (5Gb/s), HD Audio and RoHS
IMBA-H810-ECO-R10	ATX motherboard supports 22nm LGA 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
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

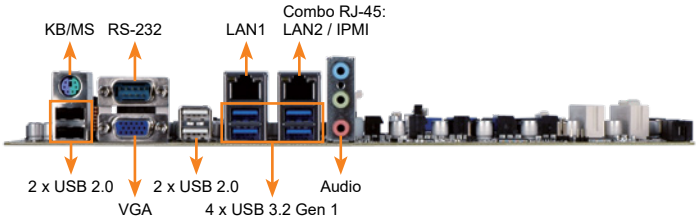
IMBA-C2260-i2-R11

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 and RoHS



Fully Jumper-less Support





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 ALC888S HD Audio codec supports 7.1-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 — 4 x USB 2.0
  1 x RS-232 — 4 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)
  1 x LPT (2x13 pin, P=2.54) — 4 x RS-232 (2x20 pin, P=2.54)
  1 x mSATA (colay SATA 6) — 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)
- 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

Packing List

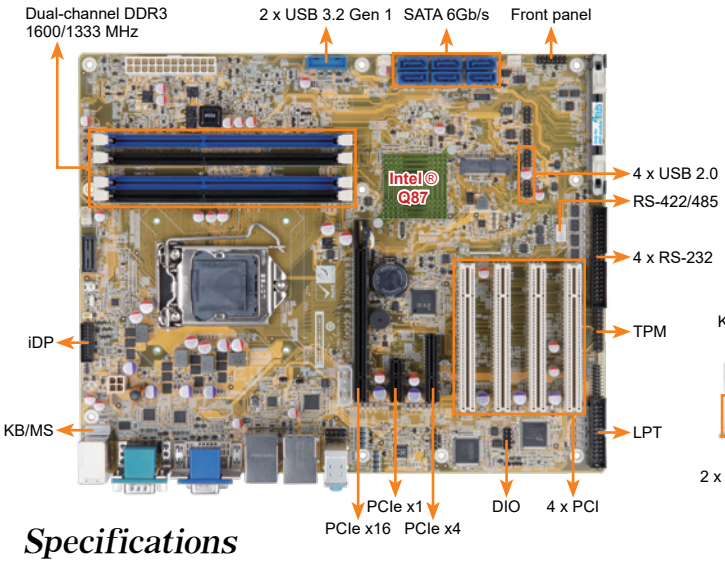
1 x IMBA-C2260-i2 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

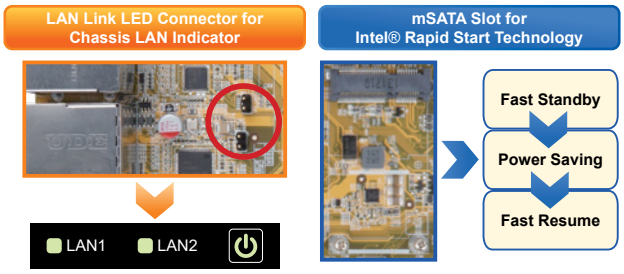
Ordering Information

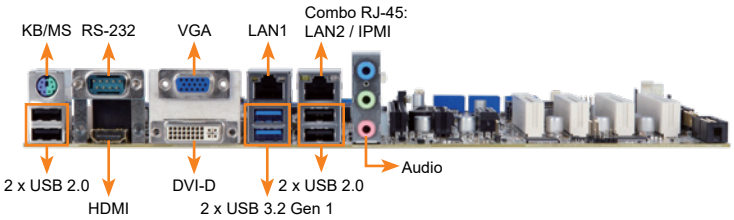
Part No.	Description
IMBA-C2260-i2-R11	ATX motherboard supports 22nm LGA1150 Intel® Xeon E3, Core™ i3, Pentium® and Celeron® per Intel® C226, DDR3, VGA, Dual Intel® PCIe GbE, HD Audio, four USB 3.2 Gen 1 (5Gb/s), six SATA 6Gb/s and RoHS
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
CB-USB02-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







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 ALC888S HD Audio codec supports 7.1-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 — 2 x USB 3.2 Gen 1 (5Gb/s)
  1 x RS-232 — 4 x USB 2.0
- Internal I/O Interface
  1 x KB/MS (1x6 pin) — 2 x USB 3.2 Gen 1 (5Gb/s) (2x10 pin, P=2.0)
  1 x LPT (2x13 pin, P=2.54) — 4 x RS-232 (2x20 pin,P=2.54)
  1 x mSATA (colay SATA 6) — 4 x USB 2.0 (2x4 pin, P=2.54)
  1 x RS-422/485 (1x4 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)
- Expansion
  1 x PCIe x16 slot (Gen 3) — 1 x PCIe x4 slot
  1 x PCIe x1 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

Packing List

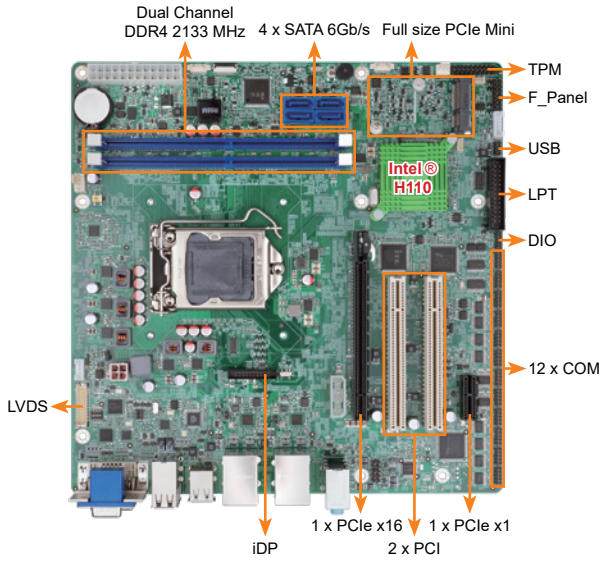
1 x IMBA-Q870-i2 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

Ordering Information

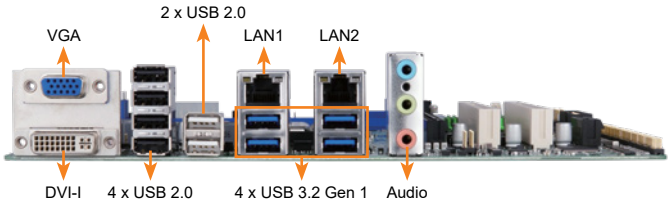
Part No.	Description
IMBA-Q870-i2-R10	ATX motherboard supports 22nm LGA1150 Intel® Core™ i7/i5/i3, Pentium® and Celeron® CPU per Intel® Q87, DDR3, triple independent display VGA/DVI-D/HDMI/iDP, dual Intel® GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, audio and RoHS
IMBA-Q870-ECO-R10	LGA1150 Intel® Core™ i7/i5/i3, 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 pcs/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
CB-USB02-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

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 ALC888S HD Audio codec supports 7.1-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)
- I^2C
  1 x I^2C (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

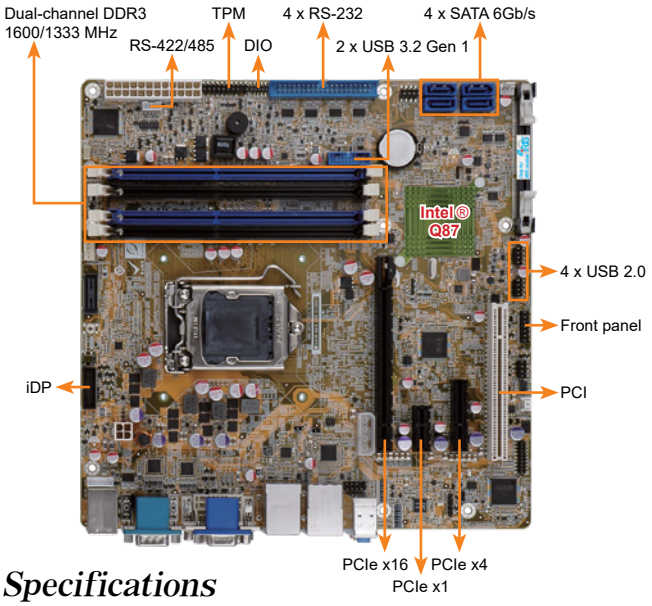
1 x IMB-H110 motherboard	2 x SATA cable
1 x I/O shielding	1 x QIG

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 (10 pcs/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
19800-000200-100-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

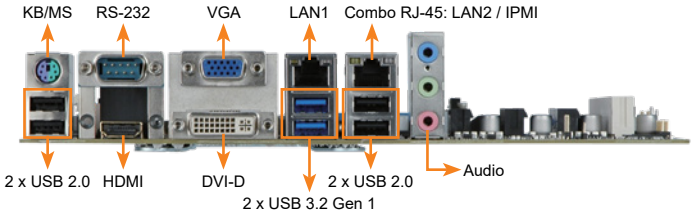
IMB-Q870-i2

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



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



Specifications

- CPU
  LGA1150 socket supports Intel® 4th generation Core™ i7/i5/i3, Pentium® or Celeron® processor
- 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 ALC888S HD Audio codec supports 7.1-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 — 2 x USB 3.2 Gen 1 (5Gb/s)
  1 x RS-232 — 4 x USB 2.0
- Internal I/O Interface
  1 x KB/MS (1x6 pin) — 4 x SATA 6Gb/s (RAID 0/1/5/10 supported)
  1 x RS-422/485 (1x4 pin, P=2.0) — 4 x RS-232 (2x5 pin, P=2.54)
  2 x USB 3.2 Gen 1 (5Gb/s) (2x10 pin) — 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)
- I^2C: 1 x I^2C (1x4 pin)
- Expansion
  1 x PCIe x16 slot (Gen 3) — 1 x PCIe x4 slot
  1 x PCIe x1 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

Packing List

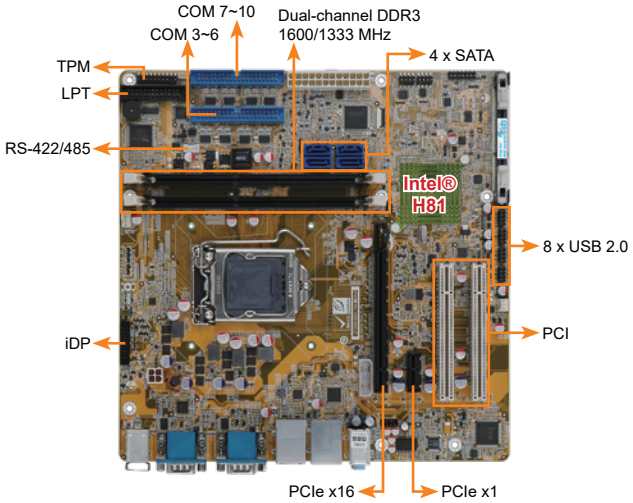
1 x IMB-Q870-i2 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

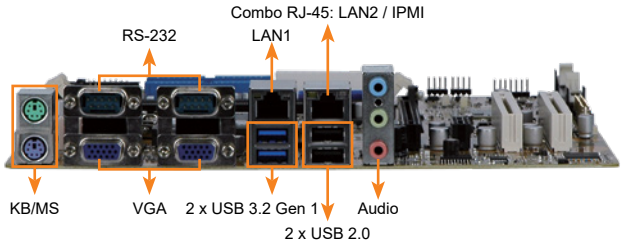
Ordering Information

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
19800-000049-RS	LPT flat cable, 240mm, P=2.54
19800-000075-RS	PS/2 KB/MS cable with bracket, 220mm, P=2.0
CB-USB02-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





DDR3 1600 | USB 3.2 | SATA 6Gb/s | PCIe GbE

Specifications

- CPU
  LGA1150 socket supports Intel® 4th generation Core™ i7/i5/i3, Pentium® or Celeron® processor
- 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 ALC888S HD Audio codec supports 7.1-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)
- 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
- IEI jumper-less function

Packing List

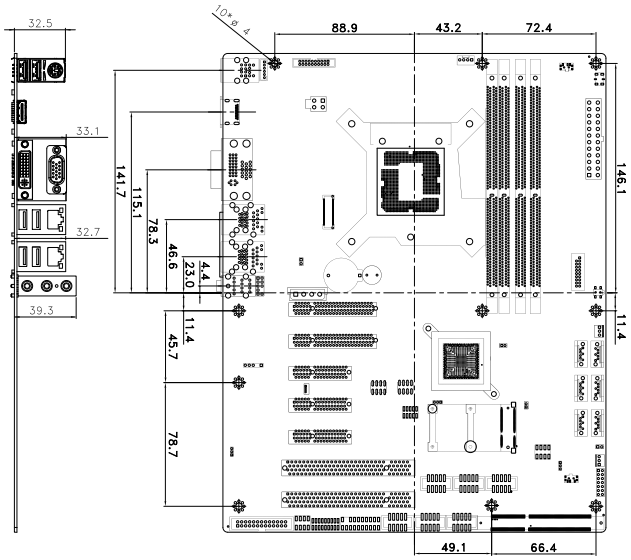
1 x IMB-H810-i2 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

Ordering Information

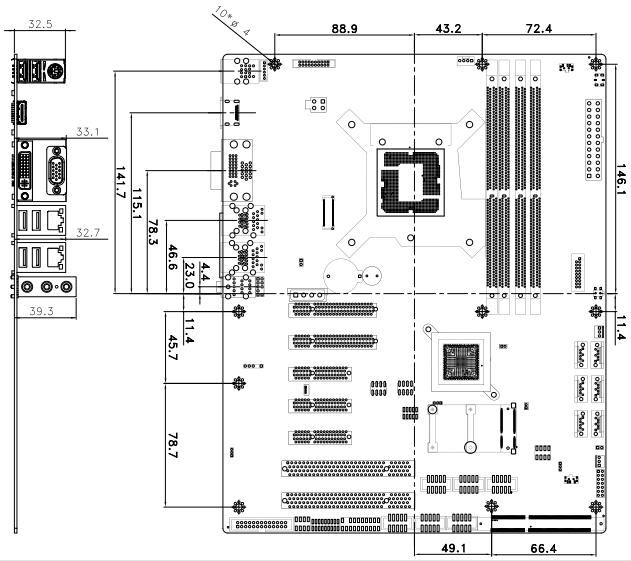
Part No.	Description
IMB-H810-i2-R11	microATX motherboard supports 22nm LGA1150 Intel® Core™ i7/i5/i3/Pentium® and Celeron® CPU per Intel® H81, DDR3, VGA, Dual Intel® PCIe GbE, USB 2.0, PCI, COM, SATA 6Gb/s, LPT, HD Audio, iRIS-2400 and RoHS
IMB-H810-ECO-R11	LGA1150 Intel® Core™ i7/i5/i3, Pentium® and 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)
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)

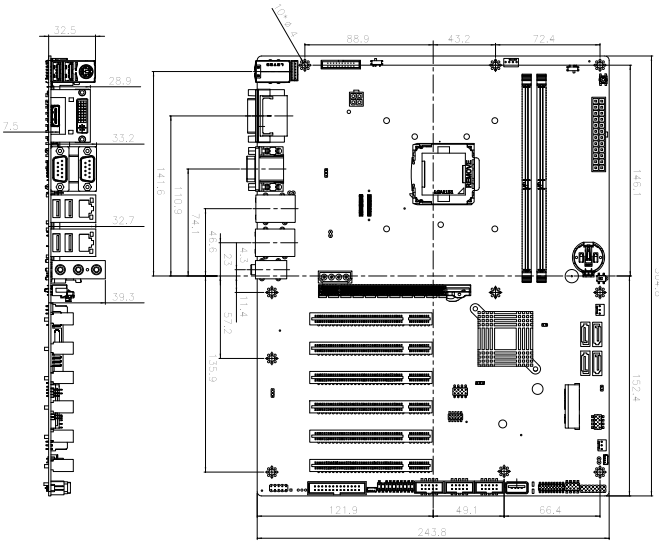
IMBA-C2360-i2



IMBA-Q170-i2

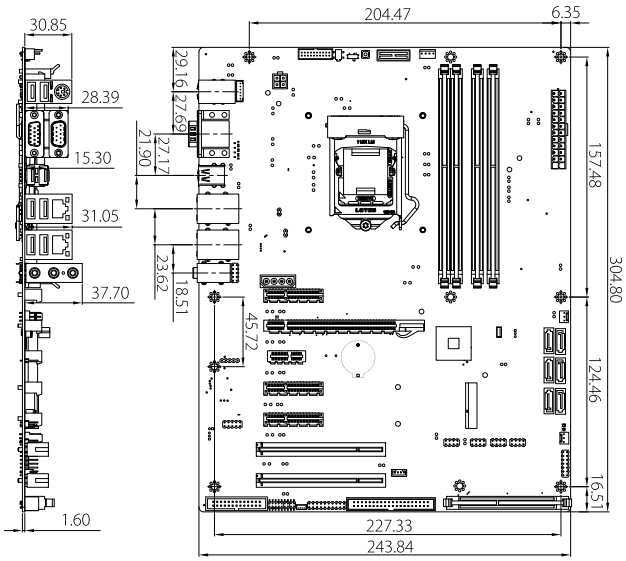


IMBA-H110

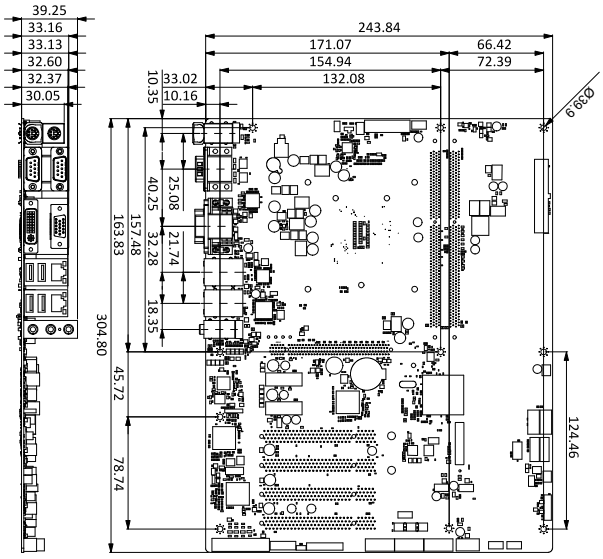


Dimensions (Unit: mm)

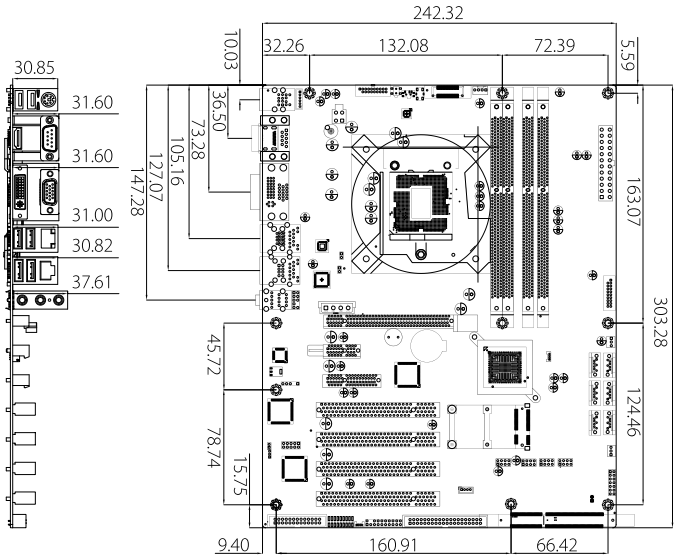
IMBA-C2260-i2-R11



IMBA-H810

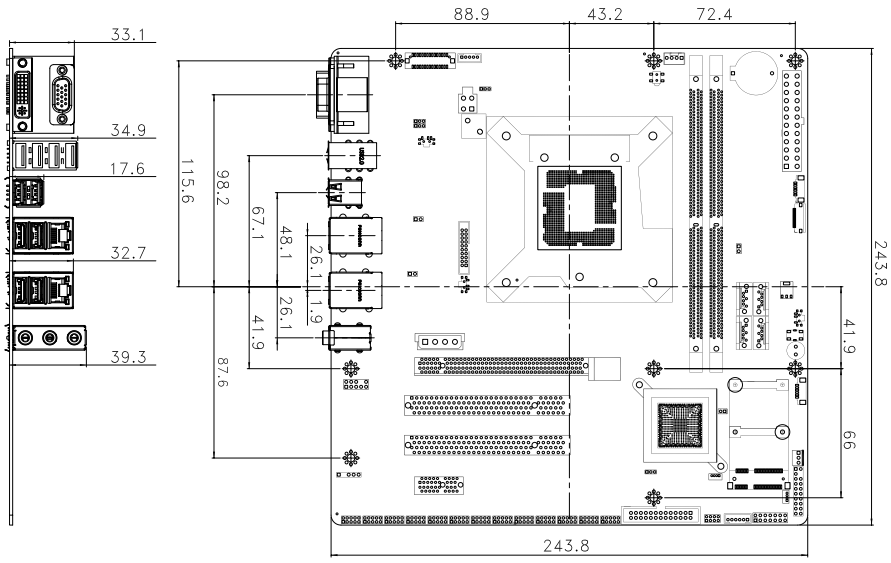


IMBA-Q870-i2

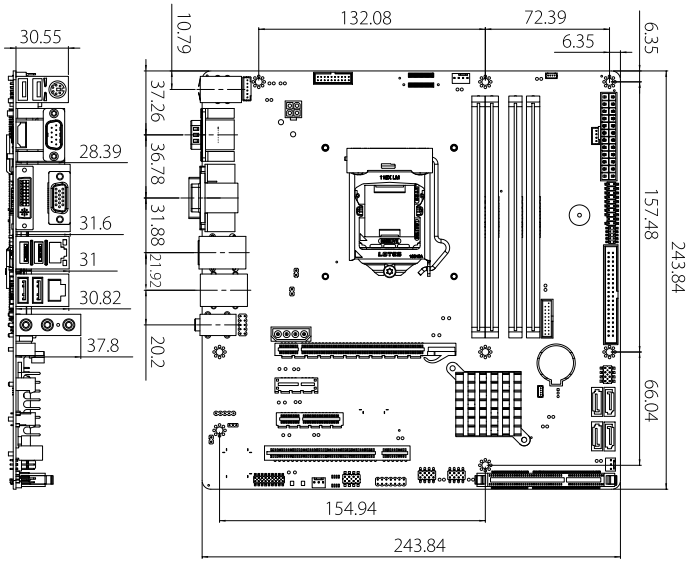


Dimensions (Unit: mm)

IMB-H110



IMB-Q870-i2



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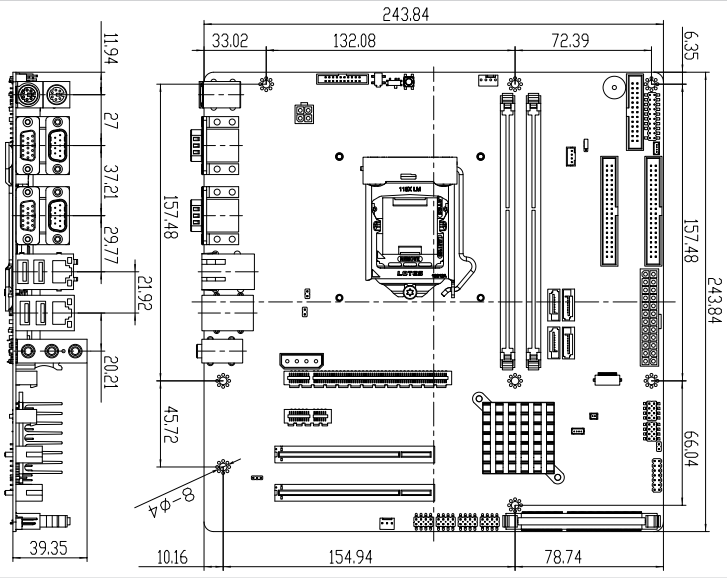
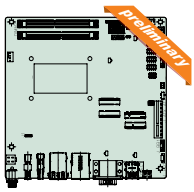


Mini-ITX Selection Guide



Model Name	KINO-ADL-P	KINO-EHL-J6412	KINO-TGL-U	KINO-DH420	KINO-KX
CPU Socket	On Board	On Board	On Board	LGA1200	On Board
CPU Type	12th Gen. Intel® mobile Alder Lake-P on-board processor	Intel® Celeron® J6412 on-board SoC	Intel® 11th Gen. Core™ i7/i5/ i3, Celeron® UP3 processor (code name: Tiger Lake)	10th generation Intel® Core™ i9/ i7/5/i3/Pentium® and Celeron® processor	Zhaoxin Kaixian KX-6000 series 8-core processor Zhaoxin KX-U6580/U6780A on-board SoC
Chipset	12th Gen. Intel® mobile Alder Lake-P on-board processor	Intel® Celeron® J6412 on-board SoC	Intel® 11th Gen. Core™ i7/i5/ i3, Celeron® UP3 processor (code name: Tiger Lake)	Intel® H420E	Zhaoxin ZX-200
Memory	Two 260-pin 3200 MHz DDR4 SO-DIMM (system max.64GB)	Onboard LPDDR4x-3200MHz 4GB (system max. 8GB)	2 x 260-pin 3200 MHz DDR4 SO-DIMM (system max. 64GB)	2 x 260-pin 2933 MHz dual-channel DDR4 SDRAM SO-DIMMs (system max. 64 GB)	2 x 260-pin 2666 MHz dual-channel DDR4 SDRAM SO-DIMMs (system max. 64 GB)
Display Interface	Quadruple independent display 1 x HDMI 1.4 1 x DP 1.4 2 x Type-C DP with Thunderbolt 1 x IEI iDPM 3040 slot (only for IEI eDP/ LVDS/ VGA module)	Triple independent display 1 x HDMI 1.4 1 x DP 1.4 1 x IEI iDPM 3040 slot (only for IEI eDP/LVDS/VGA module)	Triple independent display 1 x HDMI 1.4 1 x DP 1.4 1 x IEI iDPM 3040 slot (only for IEI eDP/LVDS/VGA module)	Dual independent display 1 x DP 1.4 1 x HDMI 1.4	Dual independent display 1 x VGA 1 x DVI-I
Ethernet	LAN1: Intel® I225V 2.5GbE controller LAN2: Intel® I225V 2.5GbE controller LAN3: Intel® I225V 2.5GbE controller	LAN1: Intel® I225V 2.5GbE controller LAN2: Intel® I225V 2.5GbE controller	LAN1: Intel® I225V 2.5GbE (Colay with I225-LM) LAN2: Intel® I225V 2.5GbE controller	LAN1: Intel® I225V 2.5GbE controller LAN2: Intel® I225V 2.5GbE controller LAN3: Intel® I225V 2.5GbE controller	LAN1: Realtek RTL8111H PCIe GbE controller LAN2: Realtek RTL8111H PCIe GbE controller
I/O Interface	3 x USB 3.2 Gen 2 (Type A) 2 x USB4 (Type C) 2 x RS-232/422/485 4 x USB 2.0 pin header 4 x RS-232 pin header	2 x USB 3.2 Gen 2 (Type A) 2 x USB 2.0 (Type A) 2 x RS-232 4 x USB 2.0 (pin header) 4 X RS-422/485 (pin header)	4 x USB 3.2 Gen 2 (Type A) 1 x RS-232/422/485 pin header 2 x USB 2.0 pin header 5 x RS-232 pin header	2 x RS-232 2 x USB 2.0 4 x USB 3.2 Gen 1 Type A 1 x RS-232 pin header 1 x RS-422/485 pin header 2 x USB 2.0 pin header	1 x KB/MS 4 x USB 3.2 Gen 1 Type A 10 x USB 2.0 10 x RS-232 pin header
Storage Interface	2 x SATA 6Gb/s	1 x SATA 6Gb/s 1 x M.2 (B key, support NVMe SSD)	2 x SATA 6Gb/s	2 x SATA 6Gb/s (No RAID) 1 x M.2 (B key, support NVMe SSD)	4 x SATA 6Gb/s (RAID 0/1/5/10 supported)
Audio	1 x iAUDIO, support IEI AC-KIT-888S Audio Module (2 x 5 pin)	1 x iAUDIO, support IEI AC-KIT-888S Audio Module (2 x 5 pin)	1 x iAUDIO, support IEI AC-KIT-888S Audio Module (2 x 5 pin)	Realtek ALC888S HD Audio codec	Realtek ALC888S HD Audio codec
Digital I/O	12-bit programmable I/O (12-bit GPIO is for programming I/O)	12-bit programmable I/O (12-bit GPIO is for programming I/O)	12-bit programmable I/O (12-bit GPIO is for programming I/O)	8-bit programmable I/O (8-bit GPIO is for programming I/O)	N/A
Power Consumption	TBD	12V@2.78A (Intel® Celeron® J6412 2.0GHz with 8GB 3200MHz LPDDR4X memory and EUP enabled)	9V@9.19A, 12V@7.768A, 28V@3.119A, 36V@2.459A (Intel® Core™ i7-1185G7E CPU with one 8 GB 2933 MHz DDR4 SO-DIMM)	12V@12.408A (Intel® Core™ i7-10900E CPU with two 32 GB 2933 MHz DDR4 memory, EuP/ ErP mode disabled)	12V@3.38A, 3.3V@0.62A, 5V@9.81A, 5VSB@0.03A (Zhaoxin KX-U6580 2.5 GHz CPU with 8 GB 2400 MHz DDR4 memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset				
Operation Enviornment	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	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	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing
Expansion Slot	1 x PCIe x4 slot, open-ended 1 x M.2 A key 1 x M.2 B key 1 x M.2 M key	1 x PCIe x4 slot, open-ended 1 x M.2 A key 1 x M.2 B key w/ SIM holder	1 x PCIe x8 slot, open-ended (PCIe Gen3 x4 signal)	1 x PCIe x16 (Gen3) 1 x M.2 (B key) 1 x M.2 (A key)	1 x PCIe x16 slot (x8 Gen3 signal) 1 x Full-size PCIe Mini Slot
CPU Cooler	Cooler/Heatsink	Cooler/Heatsink	Cooler/Heatsink	CF-115XA-R10 CF-1156C-R20 CF-1156D-R30 CF-115XE-R10	Cooler

Mini-ITX Selection Guide

Model Name	KINO-DH310	KINO-DH110	KINO-DAL
CPU Socket	LGA1151	LGA1151	On Board
CPU Type	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
Chipset	Intel® H310	Intel® H110	Intel® Atom™/Celeron®/Pentium® on-board SoC
Memory	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)
Display Interface	Dual independent display 2 x HDMI 1 x internal DisplayPort (180°)	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
Ethernet	Dual LAN: RTL8111H	LAN1: Intel® I219LM PCIe controller LAN2: Intel® I211 PCIe controller	LAN1: Intel® I211 PCIe controller LAN2: Intel® I211 PCIe controller
I/O Interface	4 x USB 3.2 Gen 1 Type A 2 x RS-232 1 x KB/MS pin header 1 x RS-422/485 pin header 1 x RS-232 pin header 4 x USB 2.0 pin header	4 x USB 3.2 Gen 1 Type A 1 x RS-232/422/485 1 x KB/MS pin header 2 x RS-232 pin header 4 x USB 2.0 pin header	4 x USB 3.2 Gen 1 Type A 2x RS-232/422/485 1 x internal USB 2.0 (180° Type-A) 1 x KB/MS pin header 4 x RS-232 pin header 4 x USB 2.0 pin header
Storage Interface	2 x SATA 6Gb/s	2 x SATA 6Gb/s	2 x SATA 6Gb/s 1 x 8 GB eMMC (optional)
Audio	Realtek ALC888S HD Audio codec		
Digital I/O	8-bit programmable digital I/O		
Power Consumption	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)	12V@3.62A (Intel® Pentium® N4200 CPU with two 8GB 1600MHz DDR3L 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
Expansion Slot	1 x PCIe x16 1 x M.2 M key (2280, PCIe Gen2 x2 only) 1 x M.2 A Key (2230, PCIe x1 & USB 2.0)	1 x Full-size PCIe Mini card 1 x M.2 B key 1 x PCIe x16	1 x PCIe x1 1 x Full/Half-size PCIe Mini card 1 x M.2 B key
CPU Cooler	CF-115XA-R10 CF-1156C-R20 CF-1156D-R30 CF-115XE-R10	CF-1156C-R20 CF-1156D-R30 CF-115XE-R10	Heatsink

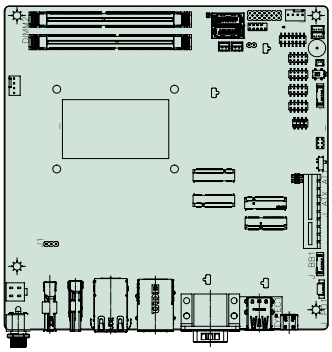
Mini-ITX Selection Guide

Model Name	KINO-DQM170	KINO-AQ170	tKINO-BW	KINO-DBT	KINO-DH810	eKINO-BT
CPU Socket	On board	LGA1151	On board	On board	LGA1150	On board
CPU Type	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 (Code name: Bay Trail)	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor	Intel® Atom™/Celeron® on board SoC (Code name: Bay Trail)
Chipset	Intel® QM170	Intel® Q170	Intel® Pentium®/Celeron® on-board SoC	Intel® Atom™/Celeron® on-board SoC	Intel® H81	Intel® Atom™/Celeron® on-board SoC
Memory	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) One 204-pin 1066/1333 MHz dual-channel unbuffered DDR3L SDRAM SO-DIMM supports up to 4 GB (N2807)	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)
Display Interface	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-I	Dual display supported 1 x VGA 1 x DVI-I 1 x iDP interface	Dual display supported 1 x VGA 2 x 18/24-bit dual-channel LVDS
Ethernet	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 RTL8111HN PCIe controller	Dual LAN: Intel® I211-AT PCIe controller	Dual LAN: Realtek RTL8111E PCIe controller
I/O Interface	4 x USB 3.2 Gen 1 Type A 1 x RS-232 1 x KB/MS pin header 2 x RS-232/422/485 pin header 3 x RS-232 pin header 4 x USB 2.0 pin header	1 x KB/MS 4 x USB 3.2 Gen 1 Type A 2 x USB 2.0 2 x RS-232/422/485 pin header 4 x RS-232 pin header 4 x USB 2.0 pin header	4 x USB 3.2 Gen 1Type A 1 x KB/MS pin header 2 x RS-232/422/485 pin header 4 x RS-232 pin header 2 x USB 2.0 pin header	2 x RS-232 2 x USB 2.0 2 x USB 3.2 Gen 1 Type A 1 x KB/MS pin header 1 x RS-422/485 pin header 3 x RS-232 pin header 4 x USB 2.0 pin header	2 x USB 2.0 2 x USB 3.2 Gen 1 Type A 2 x RS-232 1 x KB/MS pin header 1 x RS-422/485 pin header 3 x RS-232 pin header 4 x USB 2.0 pin header	2 x USB 2.0 2 x USB 3.2 Gen 1 Type A 2 x RS-232 1 x KB/MS pin header 1 x RS-422/485 pin header 1 x RS-232 pin header 2 x USB 2.0 pin header
Storage Interface	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 microSD slot	2 x SATA 3Gb/s 1 x microSD slot (E38xx sku only)	2 x SATA 6Gb/s	2 x SATA 3Gb/s 1 x microSD card 1 x CFast slot
Audio	Realtek ALC888S HD Audio codec					
Digital I/O	8-bit digital I/O			8-bit digital I/O	8-bit programmable digital I/O	
Power Consumption	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)	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)
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: 0°C ~ 60°C (32°F ~ 140°F) Relative Humidity: 5% ~ 95% non-condensing
Expansion Slot	1 x PCIe x16 1 x Full-size PCIe Mini card 1 x Half-size PCIe Mini card 1 x M.2 2230 (A key)	1 x PCIe x8 1 x Full-size PCIe Mini card	1 x PCIe x1 1 x PCIe Mini card	1 x Full-size PCIe Mini card slot (support mSATA) 1 x PCIe x4 slot (with PCIe x1 signal)	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
CPU Cooler	Heatsink	CF-1156C-R20 CF-1156D-R30 CF-115XE-R10	Heatsink	Heatsink	CF-115XA-R10 CF-115XE-R10	Heatsink

KINO-ADL-P

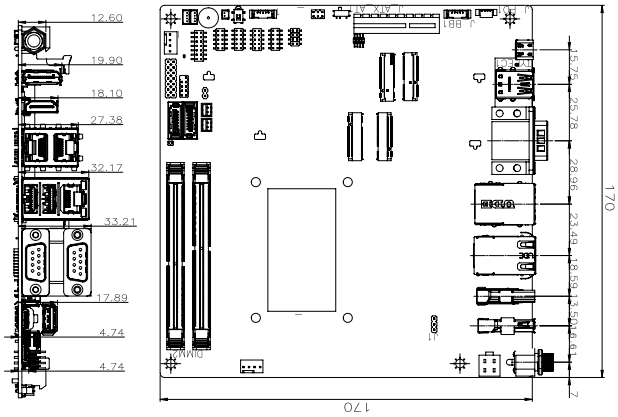
Mini-ITX SBC with 12th Gen. Intel® Alder Lake-P on-board processor, DDR4 SO-DIMM, 12~28V DC input, quad display, SATA, triple Intel® 2.5GbE, USB 3.2, M.2, SoC, RoHS

preliminary



12~28V DC Input | Dual Display | iDPM | TPM 2.0 | 2.5GbE LAN | HDMI

Dimensions (Unit: mm)



Specifications

- CPU
  12th Gen. Intel® mobile Alder Lake-P on-board processor
- BIOS
  AMI UEFI BIOS
- Memory
  2 x 260-pin 3200 MHz DDR4 SO-DIMM (system max. 64GB)
- Graphics Engine
  Intel® Xe Graphics architecture, 4 independent displays, up to 8K resolution
- Display Output
  Quadruple independent display
  1 x HDMI 1.4 (up to 4096 x 2160@30Hz)
  1 x DP 1.4 (up to 4096 x 2160 @60Hz)
  2 x Type-C DP (up to 4096 x 2304 @60Hz) with Thunderbolt
  1 x IEI iDPM 3040 slot (only for IEI eDP/LVDS/VGA module)
- Ethernet
  LAN1: Intel® I225V 2.5GbE controller
  LAN2: Intel® I225V 2.5GbE controller
  LAN3: Intel® I225V 2.5GbE controller
- External I/O Interface
  3 x USB 3.2 Gen 2 (10Gb/s)
  2 x RS-232/422/485
  2 x USB4
- Internal I/O Interface
  2 x SATA 6Gb/s
  4 x USB 2.0 (2x4pin, P=2.0)
  4 x RS-232 (2x5 pin, P=2.0)
- SMBus
  1 x SMBus (1x4 pin)
- I^2C
  1 x I²C (1x4 pin)
- Audio
  1 x iAUDIO, support IEI AC-KIT-888S Audio Module (2x5 pin)
- Front Panel
  1 x Front Panel (2x7pin, Power LED, HDD LED, Speaker, Power Button, Reset Button)
- Expansion
  1 x PCIe x4 slot, open-ended
  1 x M.2 A key for Wi-Fi & BT 2230 (PCIe x1 & USB 2.0)
  1 x M.2 B key 3042 (PCIe x1 + USB 3.2 / USB 2.0)
  1 x M.2 M key 2280 (PCIe x4)
- Digital I/O
  1 x 12-bit digital I/O (2x7 pin)
- TPM
  Intel® PTT (TPM 2.0)
- Fan Connector
  1 x CPU fan connector (1x4 pin)
  1 x System fan connector (1x4 pin)
- Power Supply
  Input voltage: 12~28V
  1 x Internal power connector (2x2 pin)
  1 x External DC power jack (Ø5.5mm)
  ErP/EuP Compliant
- Watchdog Timer
  Software Programmable support 1~255 sec. System reset
- Power Consumption: TBD
- Operating Temperature: 0°C ~ 60°C
- Storage Temperature: -30°C ~ 70°C
- Operating Humidity: 5% ~95%, non-condensing
- Dimensions: 170 mm x 170 mm
- Weight: GW:900g / NW:450g
- Certification: CE/FCC Compliant

Packing List

1 x KINO-ADL-Psingle board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

Ordering Information

Part No.	Description
KINO-ADL-P-C-R10	Mini-ITX SBC with Intel® Alder Lake-P Celeron® processor, DDR4 SO-DIMM, 12~28V DC input, quad display, SATA, triple Intel® 2.5GbE, USB 3.2, M.2, SoC, RoHS
KINO-ADL-P-i3-R10	Mini-ITX SBC with Intel® Alder Lake-P Core™ i3 processor, DDR4 SO-DIMM, 12~28V DC input, quad display, SATA, triple Intel® 2.5GbE, USB 3.2, M.2, SoC, RoHS
KINO-ADL-P-i5-R10	Mini-ITX SBC with Intel® Alder Lake-P Core™ i5 processor, DDR4 SO-DIMM, 12~28V DC input, quad display, SATA, triple Intel® 2.5GbE, USB 3.2, M.2, SoC, RoHS
KINO-ADL-P-i7-R10	Mini-ITX SBC with Intel® Alder Lake-P Core™ i7 processor, DDR4 SO-DIMM, 12~28V DC input, quad display, SATA, triple Intel® 2.5GbE, USB 3.2, M.2, SoC, RoHS

Optional Accessories

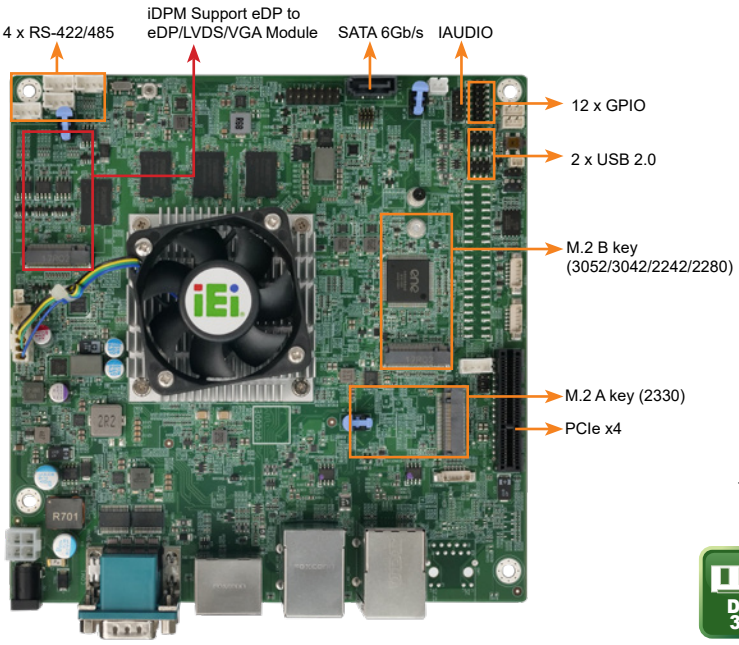
Part No.	Description
CB-USB02A-RS	Dual port USB cable with bracket, 300mm, P=2.00
AC-KIT-888S-R10	Realtek ALC888S 7.1 Channel HD Audio peripheral board,RoHS
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-000702-200-RS	RS-232 cable, 230mm, P=2.54
iDPM-eDP-R10	eDP to eDP DisplayPort converter board (for IEI iDPM connector)
iDPM-LVDS-R10	eDP to LVDS DisplayPort converter board (for IEI iDPM connector)

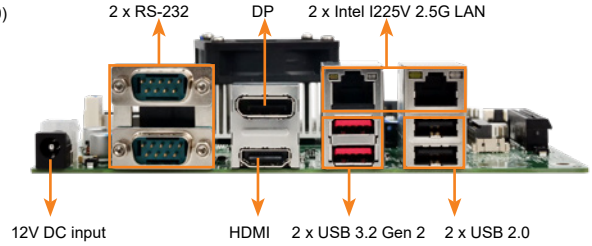
CB-USB02A-RS	AC-KIT-888S-R10	32102-000100-200-RS
32205-000702-200-RS	iDPM-eDP-R10	iDPM-LVDS-R10

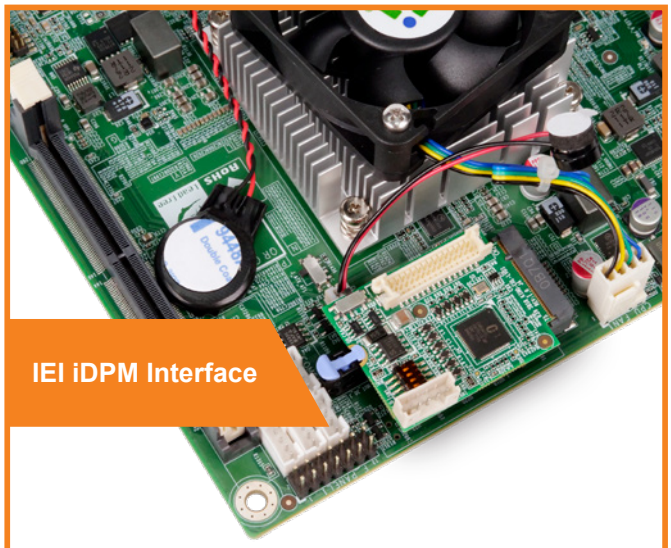
KINO-EHL-J6412

NEW

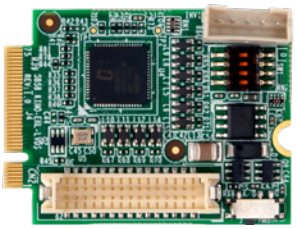
Mini-ITX SBC supports Intel® Elkhart Lake Celeron® on-board SoC with Triple Independent Display, HDMI, DP, iDPM, SATA 6Gb/s, Dual 2.5GbE, USB 3.2, M.2, 12V DC input and RoHS







IEI iDPM Interface



iDPM-LVDS

eDP to 24-bit dual-channel LVDS converter board

Features

10W Low-power Intel® Elkhart Lake Celeron® J6412 CPU

Intel® 10nm Celeron® J6412 On-board SoC, 4 cores and 4 threads, base frequency 2.00GHz, turbo frequency up to 2.60GHz, 1.5MB cache

Supporting Intel® I225V 2.5GbE Controllers

Two RJ45 network interfaces are supported via Intel® I225V 2.5GbE controllers, achieving up to 2.5GbE network transmission rate.

Rich Expansion I/O

Support one M.2 A key for Wi-Fi & Bluetooth modules, one M.2 B key 3042 for 5G modules and one open-ended PCIe Gen3 x4 slot.

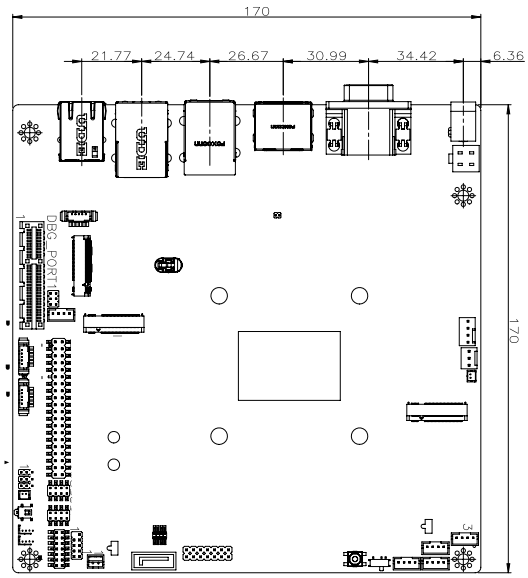
IEI-specific iDPM Interface

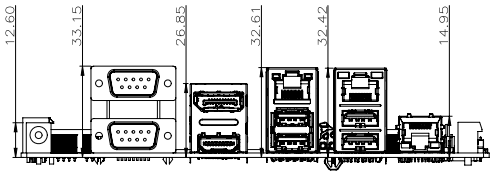
IEI uniquely designs a iDPM interface that can connect to display modules, enabling users to add LVDS/eDP/VGA display interface upon requirements.

Specifications

- CPU
  Intel® Elkhart Lake Processor
  Intel® Celeron® J6412 on-board SoC (up to 2.6GHz, quad-core, 1.5M Cache, TDP=10W)
- BIOS
  AMI UEFI BIOS
  Dual BIOS for boot & recovery
- Memory
  Onboard LPDDR4x-3200MHz 8GB, system up to 16GB
- Graphics Engine
  Gen11LP Gfx firmware and driver, Media SDK, OpenCL* 1.2, OpenGL 4.5, OpenGL-ES 3.2, Vulkan v1.1, DirectX
- Display Output
  Triple Independent Display
  1 x HDMI 1.4 (up to 4096 x 2160@30Hz)
  1 x DP 1.4 (up to 4096 x 2160 @60Hz)
  1 x IEI iDPM 3040 slot (only for IEI eDP/LVDS/VGA module)
- Ethernet
  LAN1: Intel® I225V 2.5GbE controller
  LAN2: Intel® I225V 2.5GbE controller
- External I/O Interface
  2 x USB 3.2 Gen 2 (10Gb/s) (USB Type A)
  2 x USB 2.0 (USB Type A)
  2 x RS-232
- Internal I/O Interface
  1 x SATA 6Gb/s
  4 x USB 2.0 (2x4 pin, P=2.0)
  4 X RS-422/485 (1x4 pin, P=2.0)
- SMBus
  1 x SMBus (1x4 pin)
- I^2C
  1 x I^2C (1x4 pin)
- Audio
  1 x iAUDIO, support IEI AC-KIT-888S Audio Module (2x5 pin, P=2.0)
- Front Panel
  1 x Front Panel (2x7 pin, power LED, HDD LED,power button, reset button)
- LAN LED
  2 x LAN LED (1x2 pin)
- Expansion
  1 x PCIe x4 slot, open-ended (PCIe Gen3 x1 signal)
  1 x M.2 A key (2230) (PCIe x 1 & USB 2.0)
  1 x M.2 B key (3052/3042/2242/2280) w/ SIM holder (PCIe x2 USB 2.0)
- Digital I/O
  1 x 12-bit DIO (2x7 pin)
- TPM
  Intel® PTT(TPM 2.0)
- Fan Connector
  1 x CPU fan connector (1x4 pin)
  1 x System fan connector (1x3 pin)
- Power Supply
  12V DC input
  1 x Internal power connector (2x2 pin)
  1 x External DC power jack (Ø5.5mm)
  ErP/EuP Compliant
- Watchdog Timer
  Software programmable, support 1~255 sec. system reset
- Power Consumption
  12V@2.78A (Intel® Celeron® J6412 2.0GHz with 8GB 3200MHz LPDDR4X memory and EUP enabled)
- Operating Temperature
  0°C ~ 60°C
- Storage Temperature
  -30°C ~ 70°C
- Operating Humidity
  5% ~95%, non-condensing
- Dimension
  170 mm x 170 mm
- Weight
  GW:900g / NW:400g
- Certification
  CE/FCC Compliant

Dimensions (Unit: mm)





Packing List

1 x KINO-EHL single board computer with cooler module	2 x SATA cable
1 x I/O shielding	1 x QIG

Ordering Information

Part No.	Description
KINO-EHL-J6412-R10	Mini-ITX SBC supports Intel® Elkhart Lake Celeron® J6412 onboard SoC with triple independent display, HDMI, DP, iDPM, SATA 6Gb/s, dual 2.5GbE, USB 3.2, M.2, 12V DC input and RoHS

Optional Accessories

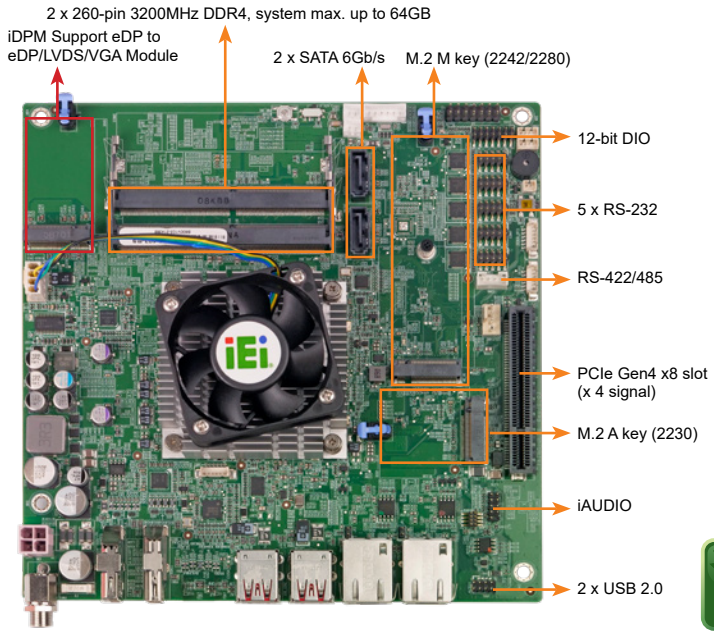
Part No.	Description
CB-USB02A-RS	Dual port USB cable with bracket, 300mm, P=2.00
AC-KIT-888S-R10	Realtek ALC888S 7.1 Channel HD Audio peripheral board,RoHS
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
iDPM-eDP-R10	eDP to eDP converter board (for IEI iDPM connector)
iDPM-LVDS-R10	eDP to LVDS converter board (for IEI iDPM connector)

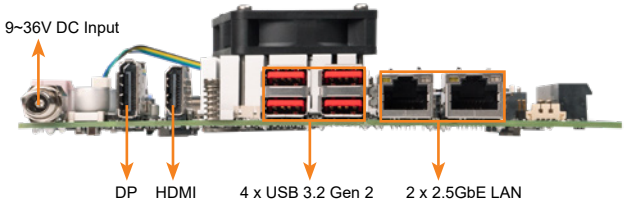
CB-USB02A-RS	AC-KIT-888S-R10	32102-000100-200-RS
32205-003800-200-RS	iDPM-eDP-R10	iDPM-LVDS-R10

KINO-TGL-U

NEW

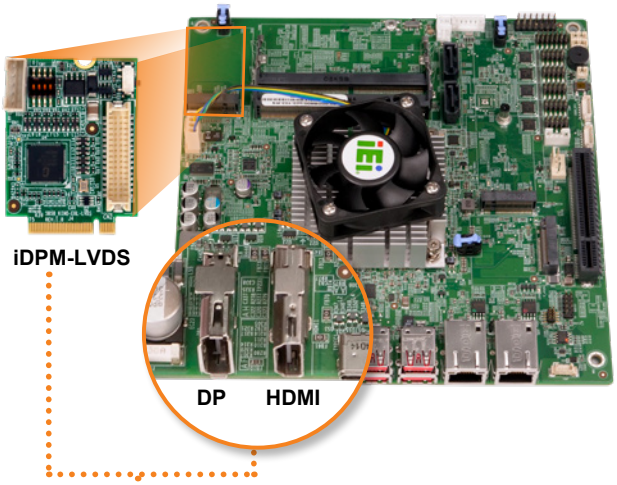
Mini-ITX SBC supports Intel® Tiger Lake-UP3 Processor, 9~36V DC input, triple independent displays, HDMI, DP, SATA 6Gb/s, dual Intel® 2.5GbE, USB 3.2, M.2 and RoHS



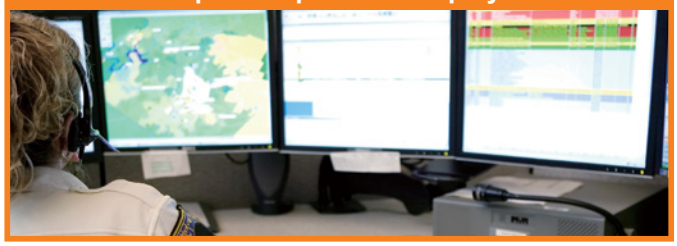


iDPM-LVDS

eDP to 24-bit dual-channel LVDS converter board



Triple Independent Displays



Features

Support Intel® Tiger Lake-UP3 Processors

Equipped with 11th Gen. Intel® Core™ i7/i5/i3, Celeron® UP3 processor, the KINO-TGL features high performance, and can handle multitasking efficiently.

Support Intel® I225V 2.5GbE Network Controller

Two Gigabit RJ45 network ports are provided via Intel® I225V 2.5GbE network controller to achieve up to 2.5GbE network transmission rate.

Abundant Expansion Slots

The KINO-TGL provides PCIe x8(x 4 signal) for expansion, M.2 A key for Bluetooth and Wi-Fi modules, M.2 M key for NVME storage.

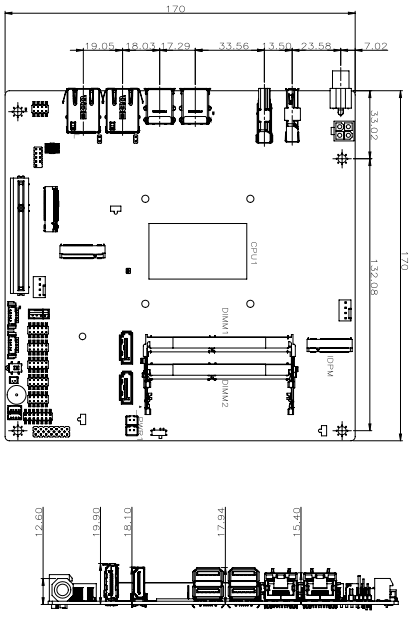
IEI-specific iDPM Interface

IEI uniquely designs a iDPM interface that can connect to display modules, enabling users to add LVDS/eDP/VGA display interface upon requirements.

Specifications

- CPU
  11th Gen. Intel® mobile Tiger Lake-UP3 SoC
  Intel® Core™ i7-1185G7E (up to 4.4GHz, quad-core, 12M Cache, TDP=28/15/12W)
  Intel® Core™ i5-1145G7E (up to 4.1GHz, quad-core, 8M Cache, TDP=28/15/12W)
  Intel® Core™ i3-1115G4E (up to 3.9GHz, quad-core, 6M Cache, TDP=28/15/12W)
  Intel® Celeron® 6305 (up to 1.8GHz, dual-core, 4M Cache, TDP=15W)
- BIOS
  AMI UEFI BIOS
- Memory
  2 x 260-pin 3200MHz DDR4, system max. up to 64GB
- Graphics Engine
  Intel® Gen11 UHD Graphics for Core™ i3-1115G4E and Celeron® 6305E, Intel® Iris® Xe Graphics for i5-1145G7E and i7-1185G7E
- Display Output
  Triple independent display
  1 x HDMI 1.4 (up to 4096 x 2160@30Hz)
  1 x DP 1.4 (up to 4096 x 2160 @60Hz)
  1 x IEI iDPM 3040 slot (only for IEI eDP/LVDS/VGA module)
- Ethernet
  LAN1: Intel® I225V 2.5GbE (Colay with I225-LM)
  LAN2: Intel® I225V 2.5GbE controller
- External I/O Interface
  4 x USB 3.2 Gen 2 (10Gb/s)
- Internal I/O Interface
  2 x SATA 6Gb/s with 5V SATA power connector
  1 x RS-422/485 (1x4 pin, P=2.0) (RS-485 support AFC)
  2 x USB 2.0 (2x4 pin, P=2.0)
  5 x RS-232 (2x5 pin, P=2.0)
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- Audio
  1 x iAUDIO, support IEI AC-KIT-888S Audio Module (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)
- Expansion
  1 x PCIe x8 slot, open-ended (PCIe Gen4 x4 signal)
  1 x M.2 A key (2230) (PCIe Gen3 x1 & USB 2.0 signal)
  1 x M.2 M key (2242/2280) (PCIe Gen3 x2 signal)
- Digital I/O
  1 x 12-bit digital I/O (2x7 pin, P=2.0))
- TPM
  Support Intel® PTT (TPM 2.0)
- Fan Connector
  1 x CPU fan connector (1x4 pin)
  1 x System fan connector (1x4 pin)
- Power Supply
  9~36V DC input
  1 x Internal power connector (2x2 pin)
  1 x External DC power jack (Ø5.5mm)
  ErP/EuP Compliant
- Watchdog Timer
  Software programmable, support 1~255 sec. system reset
- Power Consumption
  9V@9.19A, 12V@7.768A, 28V@3.119A, 36V@2.459A
  (Intel® Core™ i7-1185G7E CPU and one 8 GB 2933 MHz DDR4 SO-DIMM)
- Operating Temperature
  0°C ~ 50°C i5/i7)
  0°C ~ 60°C (i3/Celeron®)
- Storage Temperature
  -30°C ~ 70°C
- Operating Humidity
  5% ~95%, non-condensing
- Dimension
  170 mm x 170 mm
- Weight
  GW:900g / NW:400g
- Certification
  CE/FCC Compliant

Dimensions *(Unit: mm)*



Packing List

1 x KINO-TGL-U single board computer with Cooler Module	1 x SATA cable
1 x Power cable for P4	1 x QIG

Ordering Information

Part No.	Description
KINO-TGL-U-C-R10	Mini-ITX SBC with Intel® Tiger Lake-UP3 Celeron® 6305 Proccessor,DDR4 SO-DIMM, 10~28V DC input, Quad Display, SATA,Dual Intel® 2.5GbE,USB3.2,M.2,SoC, 0ºC~60ºC, RoHS
KINO-TGL-U-i3-R10	Mini-ITX SBC with Intel® Tiger Lake-UP3 Core™ i3-1115G4E Proccessor, DDR4 SO-DIMM, 10~28V DC input, quad display, SATA, dual Intel® 2.5GbE, USB 3.2, M.2, SoC, 0ºC~60ºC, RoHS
KINO-TGL-U-i5-R10	Mini-ITX SBC with Intel® Tiger Lake-UP3 Core™ i5-1145G7E Proccessor, DDR4 SO-DIMM, 10~28V DC input, quad display, SATA, dual Intel® 2.5GbE, USB 3.2, M.2, SoC, 0ºC~50ºC, RoHS
KINO-TGL-U-i7-R10	Mini-ITX SBC with Intel® Tiger Lake-UP3 Core™ i7-1185G7E Proccessor, DDR4 SO-DIMM, 10~28V DC input, quad display, SATA, dual Intel® 2.5GbE, USB 3.2, M.2, SoC, 0ºC~50ºC, RoHS

Optional Accessories

Part No.	Description
CB-USB02A-RS	Dual port USB cable with bracket, 300mm, P=2.00
AC-KIT-888S-R10	Realtek ALC888S 7.1 Channel HD Audio peripheral board,RoHS
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32205-000702-200-RS	RS-232 cable, 230mm, P=2.54
32205-003800-200-RS	RS-232/422/485, 200mm, P=2.0
iDPM-eDP-R10	eDP to eDP converter board (for IEI iDPM connector)
iDPM-LVDS-R10	eDP to LVDS converter board (for IEI iDPM connector)

CB-USB02A-RS

AC-KIT-888S-R10

32102-000100-200-RS

32205-002700-200-RS

32205-003800-200-RS

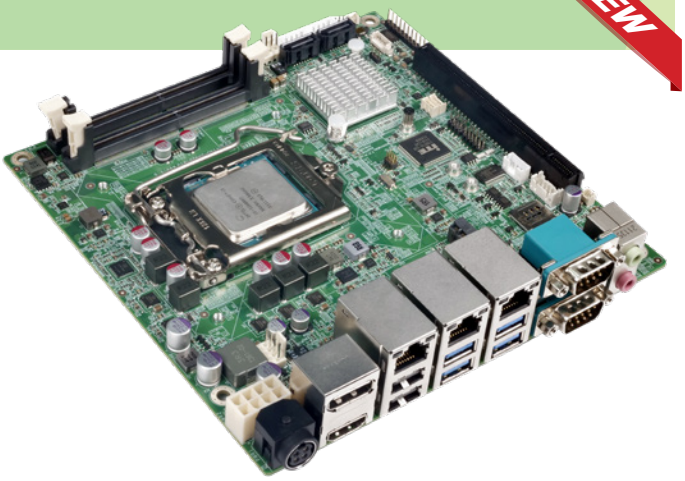
iDPM-eDP-R10

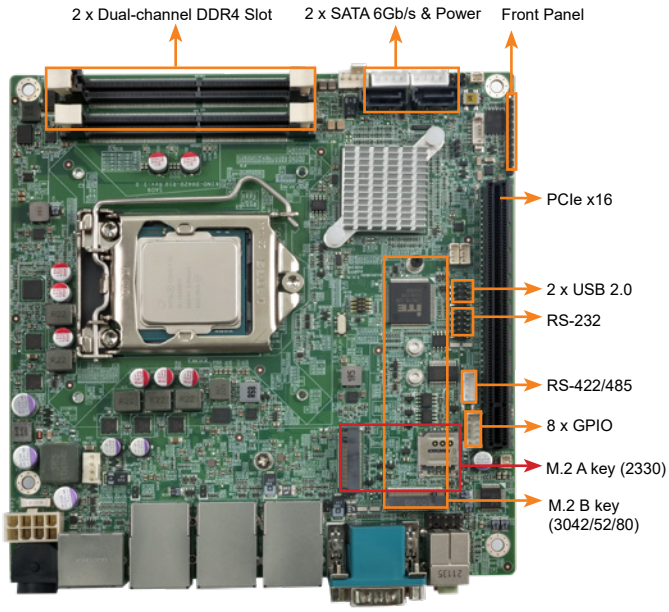
iDPM-LVDS-R10

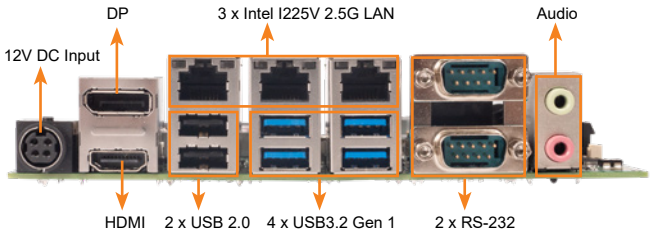
KINO-DH420

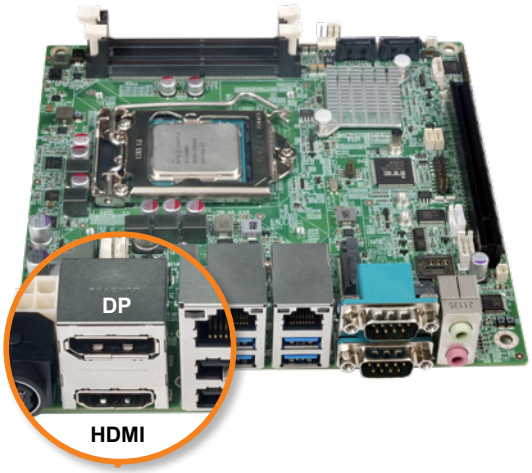
NEW

Mini-ITX SBC supports LGA1200 10th Generation Intel® Core™ i9/i7/i5/i3, Pentium® and Celeron® CPU per Intel® H420E, DDR4, dual independent display, triple GbE LAN, M.2, SATA 6Gb/s, HD Audio and RoHS









Dual Independent Display

Features

Support 10th Gen Intel® Processors

Equipped with 10th Gen. Intel® Core™ i9/i7/i5/i3, Celeron® and Pentium® processors, the KINO-DH420 features superior performance, and can handle multitasking efficiently.

Support Intel® I225V 2.5GbE Controller

Support triple RJ45 network interfaces based on Intel® I225V/I225LM 2.5GbE network controller to achieve up to 2.5GbE network transmission rate.

Support Multiple Expansion Slots

Support one PCIe Gen3 x16 slot that can enable PCIe function expansion, M.2 A key that can be used for Wi-Fi modules or Bluetooth modules, and M.2 B key with SIM card that can be used for 5G module and NVME storage expansion.

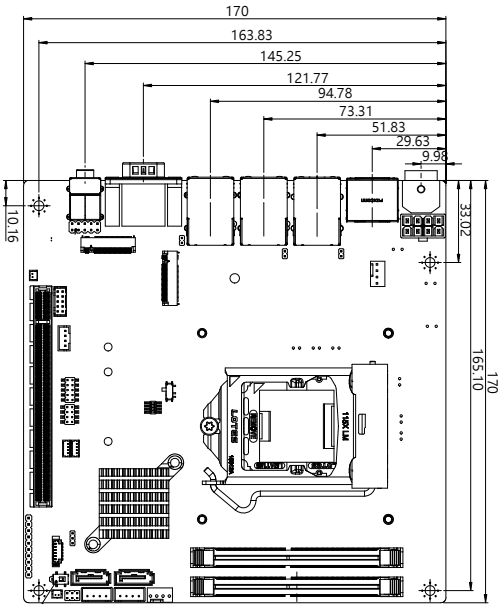
Support Dual Independent Display

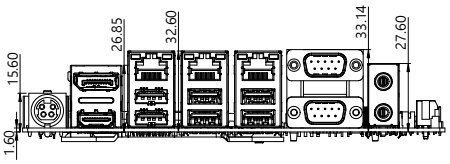
Support dual independent display outputs: one DP (resolution up to 4096 x 2304 @60Hz) and one HDMI (resolution up to 4096 x 2160@30Hz).

Specifications

- CPU
  LGA1200 socket supports 10th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor
- Chipset
  Intel® H420E
- BIOS
  AMI UEFI BIOS
- Memory
  Two 260-pin 2933 MHz dual-channel DDR4 SO-DIMMs (system max. 64GB)
- Graphics Engine
  Intel® HD Graphics Gen9 Engines with 16 low-power execution units, supporting DX11.3/12, OpenGL 4.3/4.4/4.5 and OpenCL 1.2/2.0/2.1
- Display Output
  Dual independent display
  1 x DP (up to 4096 x 2304 @60Hz)
  1 x HDMI (up to 4096 x 2160@30Hz)
- Ethernet
  LAN1: Intel® I225V 2.5GbE controller
  LAN2: Intel® I225V 2.5GbE controller
  LAN3: Intel® I225V 2.5GbE controller
- External I/O Interface
  2 x RS-232
  2 x USB 2.0
  4 x USB 3.2 Gen 1 (5Gb/s)
- Internal I/O Interface
  1 x RS-232 (2 x 5 pin, P=2.0)
  1 x RS-422/485 (1 x 4 pin, P=2.0)
  2 x SATA 6Gb/s (No RAID)
  2 x USB 2.0 (2 x 4 pin, P=2.0)
- I^2C
  1 x I²C (1x4 pin)
- SMBus
  1 x SMBus (1x4 pin)
- Audio
  Realtek ALC888S HD codec
  2 x Audio Jack (Lin-out, Mic-in)
  1 x Front audio (2x5 pin P=2.54)
- Front Panel
  1 x Front Panel (1x10 pin, Power LED, HDD LED, Power Button, Reset Button)
- LAN LED
  3 x LAN LED (1x2 pin)
- Expansion
  1 x PCIe Gen3 x16
  1 x M.2 A key (2230) (PCIe Gen 3 x1/USB 2.0)
  1 x M.2 B key (3042/3052/2242/2280) w/ SIM holder (PCIe Gen 3 x2 /USB 2.0)
- Digital I/O
  1 x 8-bit digital I/O connector (2x5 pin)
- TPM
  Intel® PTT (TPM 2.0)
- Fan Connector
  1 x CPU fan connector (1x4 pin)
  1 x System fan connector (1x4 pin)
- Power Supply
  DC 12V input
  1 x ATX power connector (2x4 pin)
  1 x DIN 4-pin DC Jack
  Support AT/ATX mode
  ErP/EuP Compliant
- Watchdog Timer
  Software Programmable support 1~255 sec. System reset
- Power Consumption
  12V@12.408A (Intel Core i7-10900E CPU with two 32 GB 2933 MHz DDR4 memory, EuP/ErP mode disabled)
- Operating Temperature
  0°C ~ 60°C
- Storage Temperature
  -30°C ~ 70°C
- Operating Humidity
  5% ~95%, non-condensing
- Dimensions
  170mm x 170mm
- Weight
  GW:900g / NW:400g

Dimensions *(Unit: mm)*





Packing List

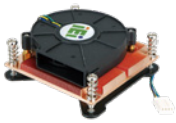
1 x KINO-DH420 single board computer	1 x SATA cable
1 x I/O Shielding	1 x QIG

Ordering Information

Part No.	Description
KINO-DH420-R10	Mini-ITX SBC supports LGA1200 10th Generation Intel® Core™ i9/i7/i5/i3/ Pentium®/Celeron® CPU per Intel® H420E, DDR4, dual independent displays, triple GbE LAN, M.2, SATA 6Gb/s, HD Audio and RoHS

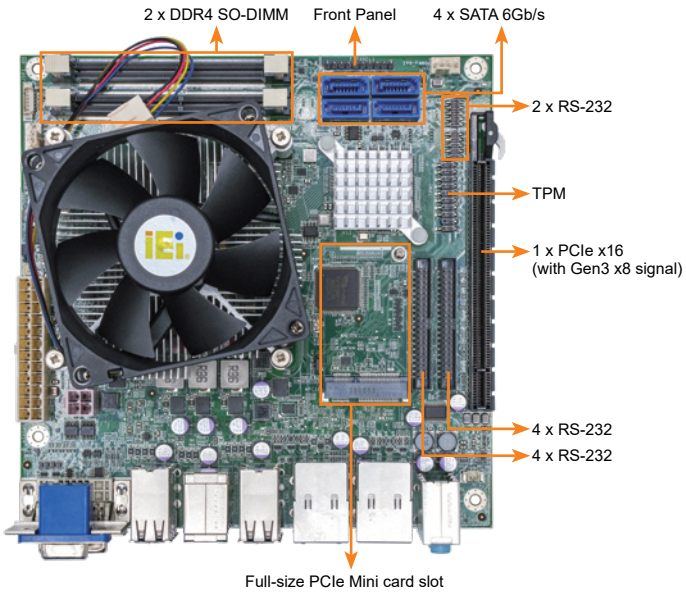
Optional Accessories

Part No.	Description
19800-000300-100-RS	RS-232 cable with bracket, 300mm, P=2.0
32205-003800-300-RS	RS-422/485 cable, 200mm, P=2.0
32801-000703-500-RS	SATA cable, 500mm
CF-115XA-R10	LGA1155/1156 cooler kit, 1U chassis compatible ,73W
CF-1156C-R20	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-1156D-R30	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High-performance LGA1155/1156 cooler kit, 95W

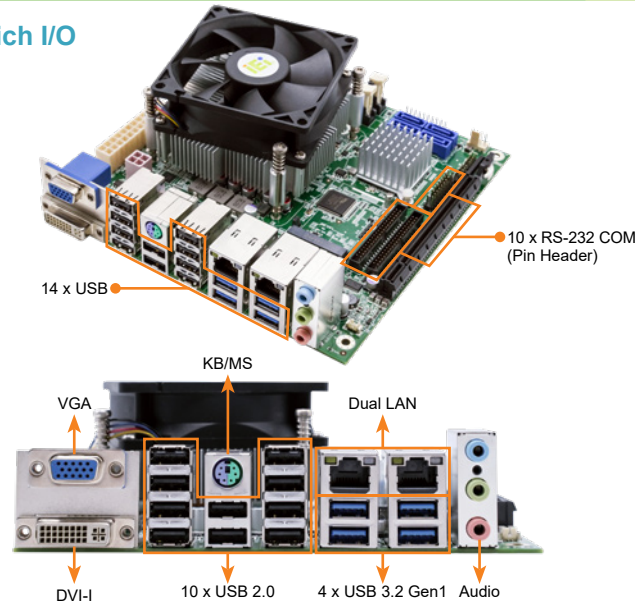
19800-000300-100-RS	32205-003800-300-RS	32801-000703-500-RS	CF-115XA-R10
			
CF-1156C-R20	CF-1156D-R30	CF-115XE-R10	

KINO-KX-U6580 U6780A

Mini-ITX SBC supports Zhaoxin 16nm KX-U6580/KX-U6780A(70W) on-board processor with PCIe Mini, VGA, DVI, USB 3.2 Gen1, SATA 6Gb/s, COM, Audio and RoHS



Rich I/O



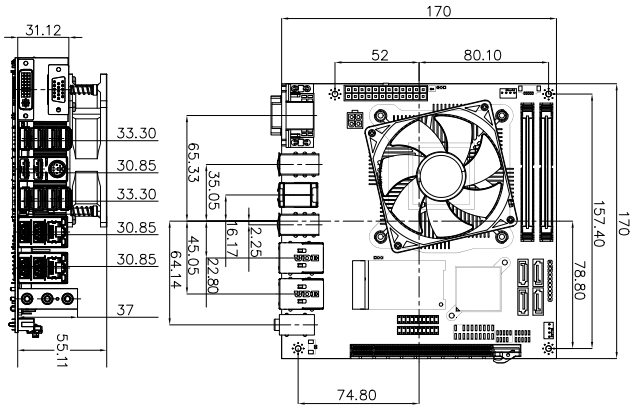
Specifications

- SoC
  Zhaoxin Kaixian KX-6000 series 8-core processor
  Zhaoxin KX-U6580 on-board SoC (8-Core, 8MB Cache, 2.5GHz, 70W)
  Zhaoxin KX-U6780A on-board SoC (8-Core, 8MB Cache, 2.7GHz, 70W)
- Chipset
  Zhaoxin ZX-200
- BIOS
  AMI UEFI BIOS
- Memory
  2 x 260-pin 2666MHz Dual-channel DDR4 SO-DIMM (system max. 64GB)
- Graphics Engine
  C-960 Graphics Processing Unit with 2D/3D/Video Acceleration
- Display Output
  1 x VGA (up to 1920x1080@60Hz)
  1 x DVI-I (up to 1920x1080@60Hz)
- Ethernet
  LAN1: Realtek RTL8111H PCIe GbE controller
  LAN2: Realtek RTL8111H PCIe GbE controller
- External I/O Interface
  10 x USB 2.0
  4 x USB 3.2 Gen 1 (5Gb/s)
  1 x KB/MS
- Internal I/O Interface
  2 x RS-232 (2x5 pin, P=2.0)
  8 x RS-232 (2x20 pin, P=2.0)
  4 x SATA 6Gb/s
- TPM
  TPM: 1 x TPM 2.0 connector (2x10 pin) (LPC interface)
- Audio
  Realtek ALC888S
  3 x Audio jacks (line-out, line-in, mic-in) on rear IO
- Front Panel
  1 x Front panel (1x10 pin, power LED, HDD LED, power button, reset button)
- Expansion
  1 x Full-size PCIe Mini card slot
  1 x PCIe x16 slot (with PCIe Gen3 x8 signal)
- Fan Connector
  1 x CPU smart fan connector (1x4 pin)
  1 x System smart fan connector (1x4 pin)
- Power Supply
  ATX power supply
- Watchdog Timer
  Software Programmable support 1~255 sec. System reset
- Power Consumption
  12V @ 3.38A, 3.3V @ 0.62A, 5V @ 9.81A, 5VSB @ 0.03A
  (Zhaoxin KX-U6580 2.5 GHz CPU with 8 GB 2400 MHz DDR4 memory)
- Operating Temperature
  -10°C ~ 60°C
- Storage Temperature
  -20°C ~ 60°C
- Operating Humidity
  20% ~ 95%, non-condensing
- Dimensions
  170 mm x 170 mm
- Weight
  GW:900g / NW:400g
- CE/FCC compliant

Features

- Mini-ITX SBC supports Zhaoxin 16nm KX-U6580/KX-U6780A(70W) on-board processor supports dual-channel DDR4 SO-DIMMs
- Dual independent display(VGA & DVI-I) support
- Up to 10 x RS-232 and 10 x USB 2.0 support
- USB 3.2 Gen1, SATA 6Gb/s, Full-size PCIe Mini Card slot and PCIe x16 expansion slot
- ATX power input

Dimensions *(Unit: mm)*



Packing List

1 x KINO-KX single board computer with CPU Cooler	1 x I/O Shielding
1 x SATA cable	1 x QIG

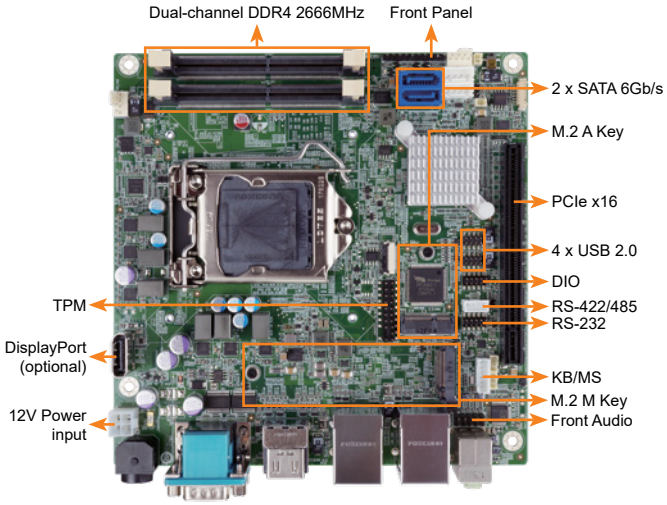
Ordering Information

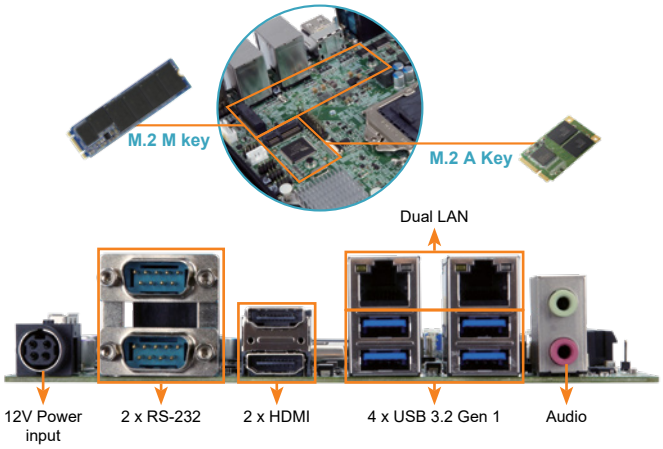
Part No.	Description
KINO-KX-U6580-R10	Mini-ITX SBC supports Zhaoxin 16nm KX-U6580 (70W) on-board processor with PCIe Mini, VGA, DVI, USB 3.2 Gen1, SATA6Gb/s, COM, Audio and RoHS
KINO-KX-U6780A-R10**	Mini-ITX SBC supports Zhaoxin 16nm KX-U6780A (70W) on-board processor with PCIe Mini, VGA, DVI, USB 3.2 Gen1, SATA 6Gb/s, COM, Audio and RoHS
32200-025401-RS	RS-232 cable, 300mm, P=2.0, 40-pin
32205-002000-100-RS	RS-232/422/485 cable, 300mm, P=2.0, 40-pin
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

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) 4 x USB 2.0 (2x4 pin, P=2.0)
  1 x RS-422/485 (1x4 pin, P=2.0) 1 x RS-232 (2x5 pin, P=2.0)
  2 x SATA 6Gb/s with 5/12V SATA power connector (No RAID)
- I²C: 1 x I²C (1x4 pin)
- TPM: 1 x TPM (2x10 pin)
- SMBus: 1 x SMBus (1x4 pin)
- Audio
  Realtek ALC888S HD Audio 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

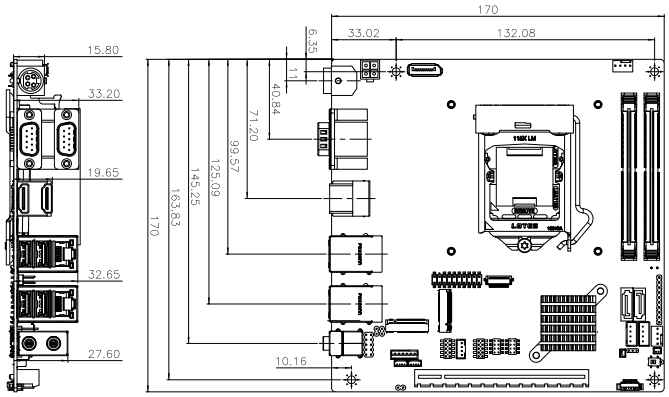
Features

- LGA1151 Intel® 8th/9th generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor
- Dual-channel DDR4 2666MHz
- Support internal DisplayPort & 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)*

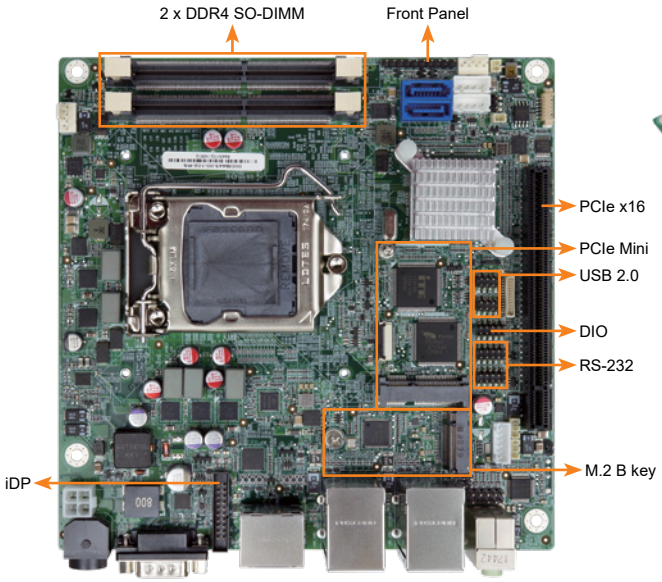


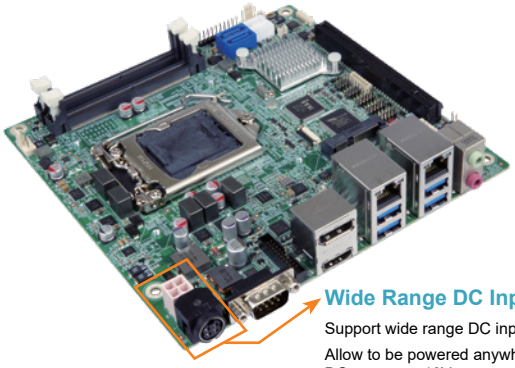
Ordering Information

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
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 cable, 200mm, P=2.0
CF-115XA-R10	High performance LGA115X cooler kit ,1U chassis compatible, 73W
CF-1156C-R20	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-1156D-R30	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

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

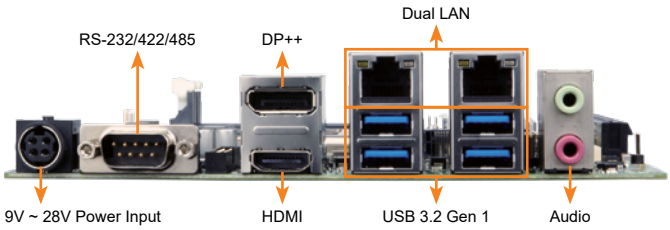




Wide Range DC Input Support

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 ALC888S HD Audio codec supports 7.1-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

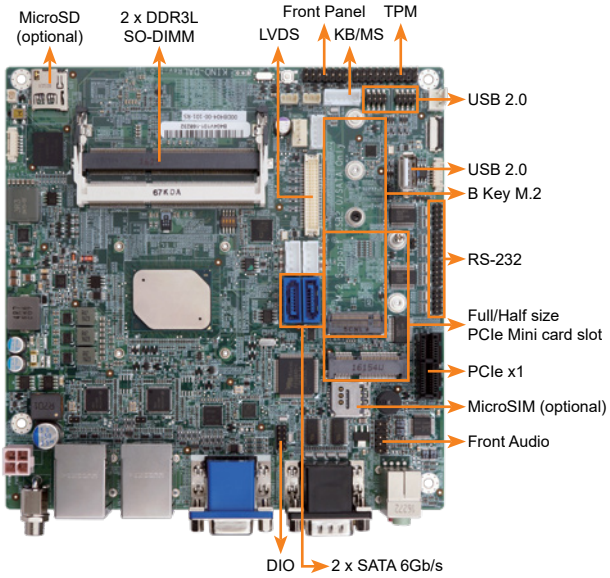
1 x KINO-DH110 single board computer	1 x SATA cable
1 x I/O shielding	1 x QIG

Ordering Information

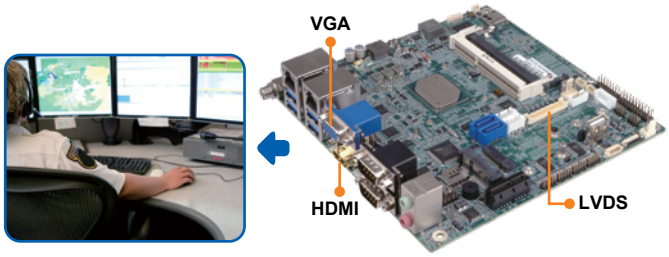
Part No.	Description
KINO-DH110-R10	Mini-ITX Motherboard supports 14nm LGA1151 Intel® 6th/7th Generation Core™ i7/i5/i3, Celeron® and Pemtium® processor, DDR4, dual independent displays, dual GbE LAN, M.2, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio and RoHS
32000-070301-RS	Dual USB Cable
32200-000049-RS	RS232 cable, 200mm
CF-1156C-R20	LGA1155/1156 kit, 1U chassis compatible, 45W
CF-1156D-R30	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)

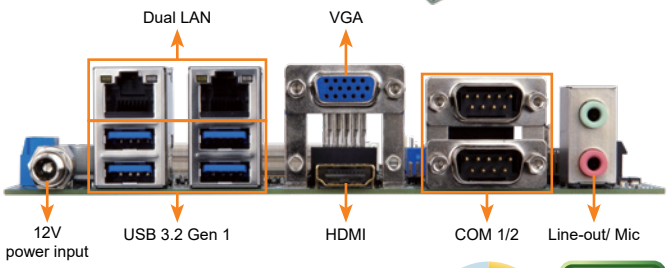
KINO-DAL

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 KB/MS (1x6 pin)
  1 x MicroSD card slot (optional) 4 x RS-232 (2x5 pin, P=2.0)
  1 x USB 2.0 (180° Type-A) 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 ALC888S 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 (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

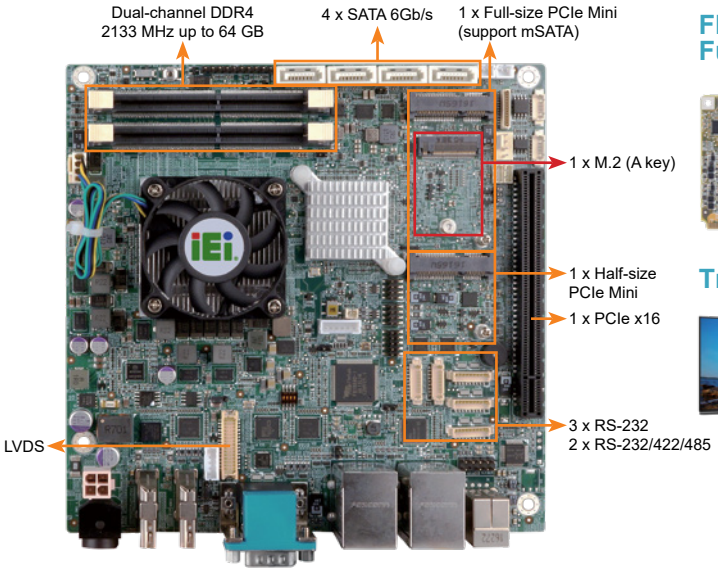
Ordering Information

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-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
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 cable, 200mm, P=2.0
TPM-IN02-R20	20-pin Infineon TPM 2.0 module, software management tool, firmware v5.5

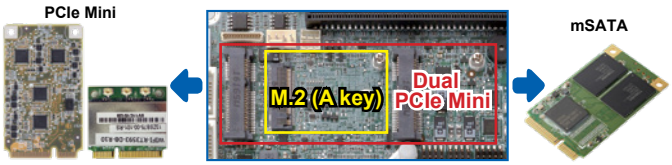
**By order production, MOQ: 100

KINO-DQM170

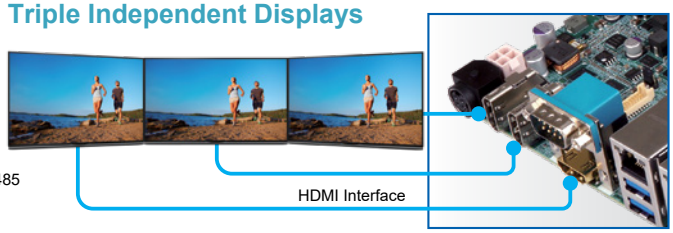
Mini-ITX SBC supports 6th Intel® Core™ Mobile CPU, HDMI 2.0, M.2, SATA 6Gb/s, dual Intel® GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, HD Audio and RoHS

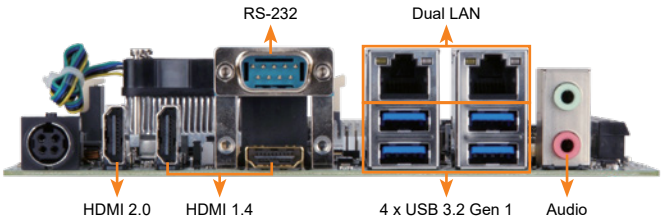


Flexible Selection of Modules with Different Functions



Triple Independent Displays





Specifications

- CPU
  6th generation Intel® Core™ mobile processor
  Intel® Core™ 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 ALC888S HD Audio codec supports 7.1-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

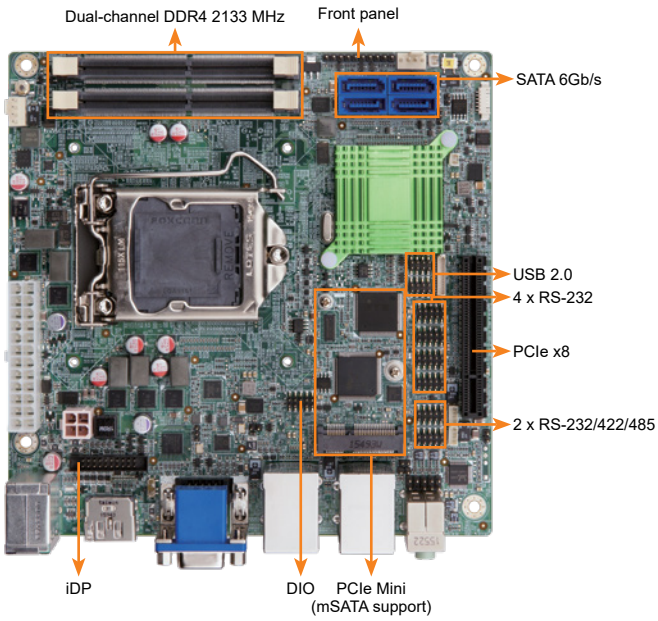
1 x KINO-DQM170 single board computer with CPU cooler
2 x SATA cable
1 x I/O shielding
1 x QIG

Ordering Information

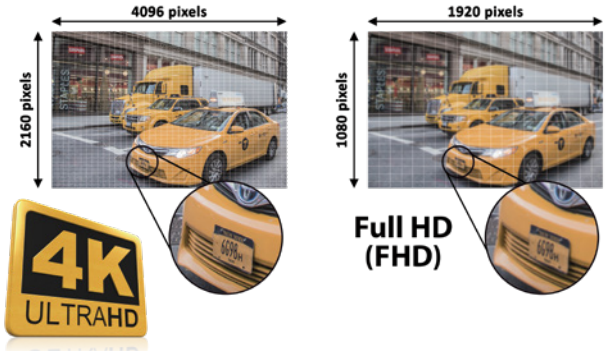
Part No.	Description
KINO-DQM170-i3E-R11	Mini-ITX SBC with BGA 1440 supports 6th Gen Intel® Core™ i3-6102E processor, HDMI 2.0, SATA 6Gb/s, dual Intel® GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, M.2, HD Audio and RoHS
32001-008600-200-RS	Dual-port USB cable, 210mm, P=2.0
32005-003500-200-RS	RS-232/422/485 cable, 250mm, P=1.25
32006-001100-201-RS	PS/2 KB/MS cable, 135mm/110mm, P=2.0

KINO-AQ170

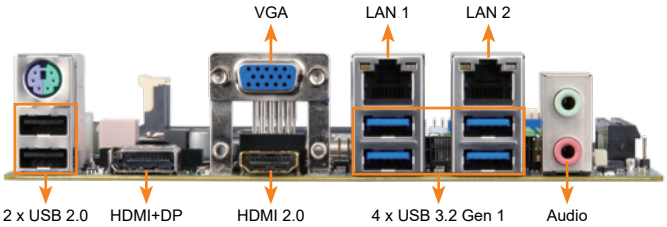
Mini-ITX SBC supports LGA 1151 Intel® Core™ i7/i5/i3, Pentium® or Celeron® CPU with Intel® Q170, HDMI 2.0/HDMI+DP/VGA, Dual Intel® GbE, SATA 6Gb/s, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, HD Audio and RoHS



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



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 ALC888S 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

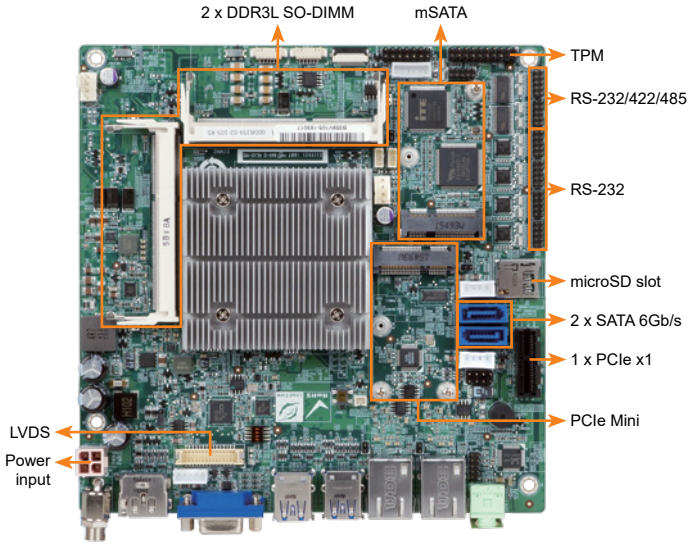
1 x KINO-AQ170 single board computer	2 x SATA cable
1 x I/O shielding	1 x QIG

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-1156C-R20	LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W
CF-1156D-R30	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)

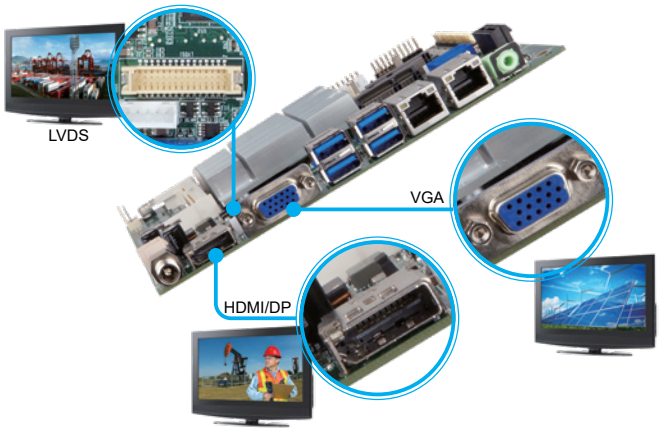
tKINO-BW

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 ALC888S HD Audio 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

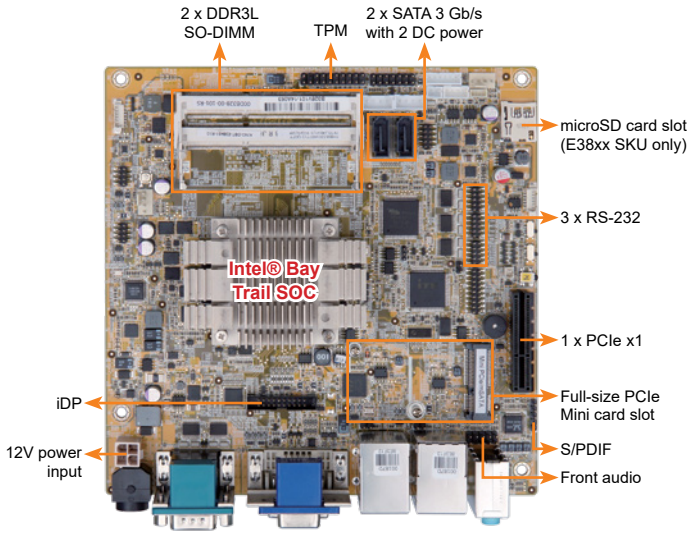
Ordering Information

Part No.	Description
tKINO-BW-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

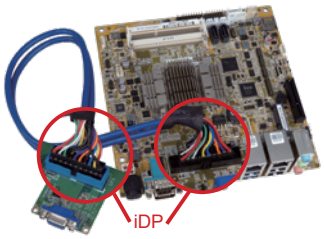
**By order production, MOQ: 100

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



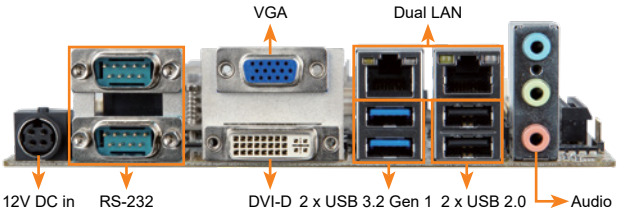
iDP (IEI Internal DisplayPort)



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® 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=4.5W)
- 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 RTL8111HN PCIe GbE controller
  LAN2: Realtek RTL8111HN 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 ALC888S HD Audio codec supports 7.1-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

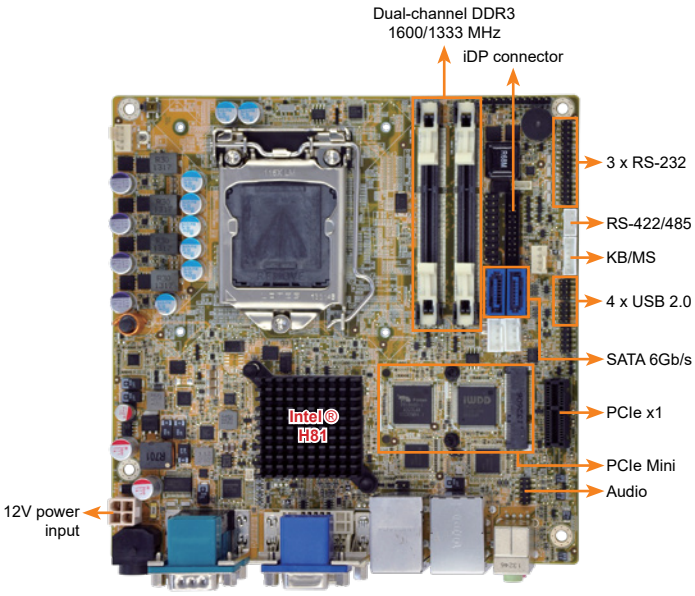
1 x KINO-DBT single board computer	1 x SATA cable with power output cable
1 x IO shielding	1 x QIG

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-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
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

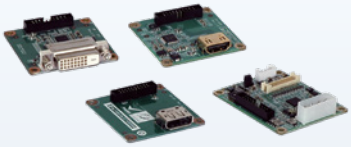
KINO-DH810

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)

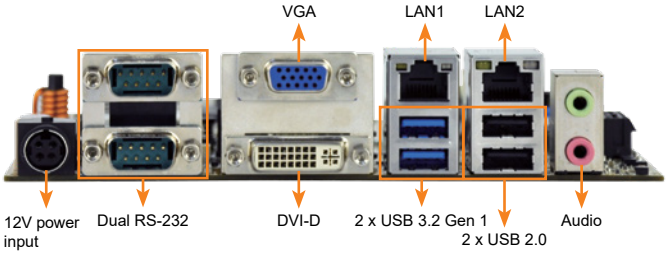
The iDP connector is provided on the IEI 8-series products. Through the IEI iDP converter cards, the iDP connector can support different display specifications, such as VGA, HDMI, DVI-D and LVDS.



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 ALC888S 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

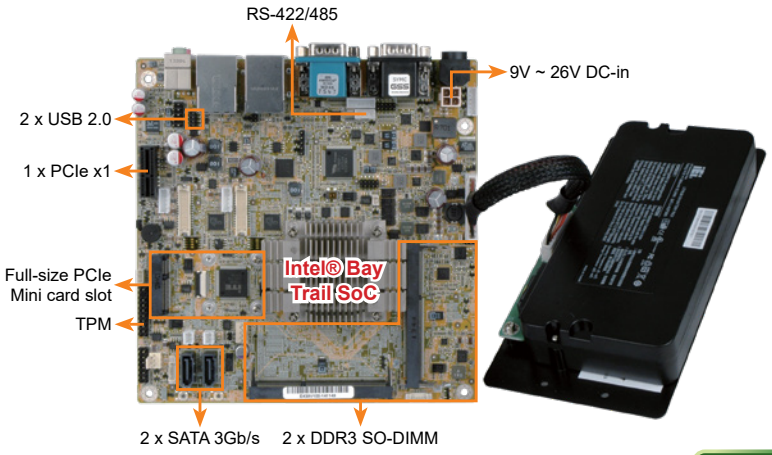
1 x KINO-DH810 single board computer	2 x SATA with power cable kit
1 x I/O shielding	1 x QIG

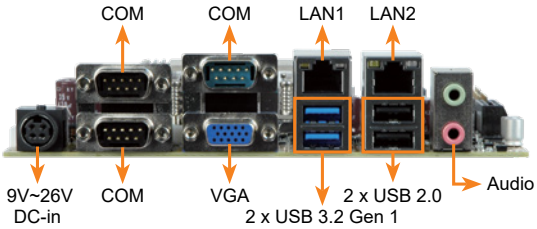
Ordering Information

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 LGA115X cooler kit, 1U chassis compatible, 73W
CF-1156C-R20	LGA115X cooler kit, 1U chassis compatible, 45W
CF-1156D-R30	LGA115X cooler kit, 1U chassis compatible, 65W
CF-115XE-R10	High-performance LGA115X 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





Specifications

- CPU
  Intel® Atom™/Celeron® on board SoC(Code name: Bay Trail)(Code name: Bay Trail)
  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 ALC888S 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

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
- 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

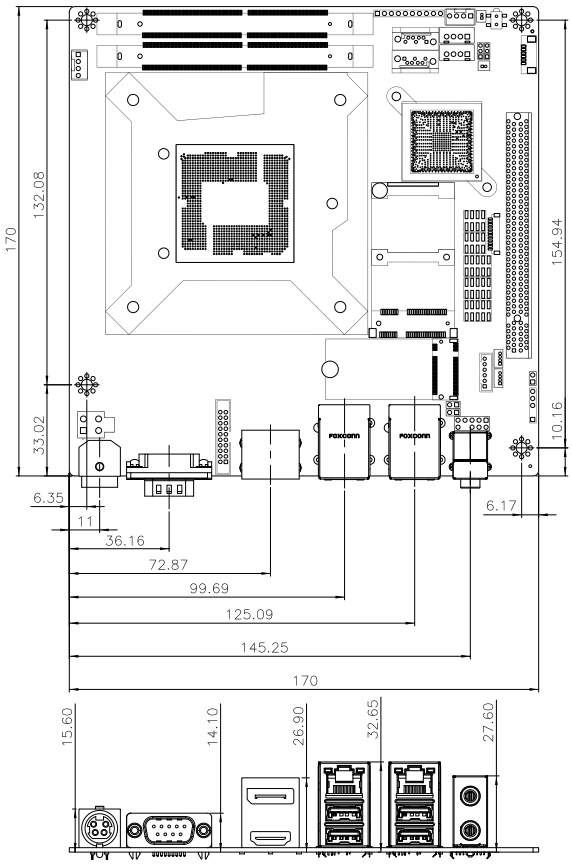
Ordering Information

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)
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

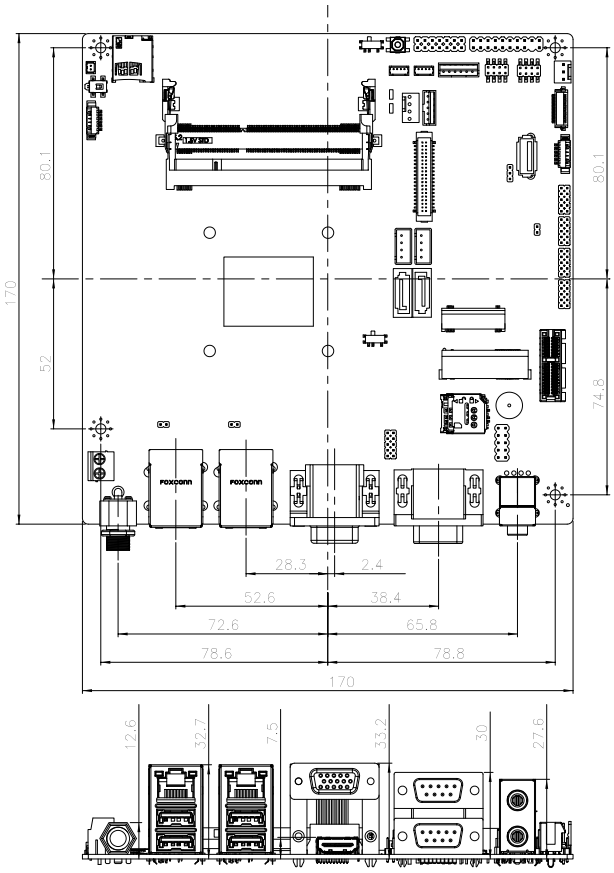
**By order production, MOQ: 100

Mini-ITX Dimensions (Unit: mm)

KINO-DH110

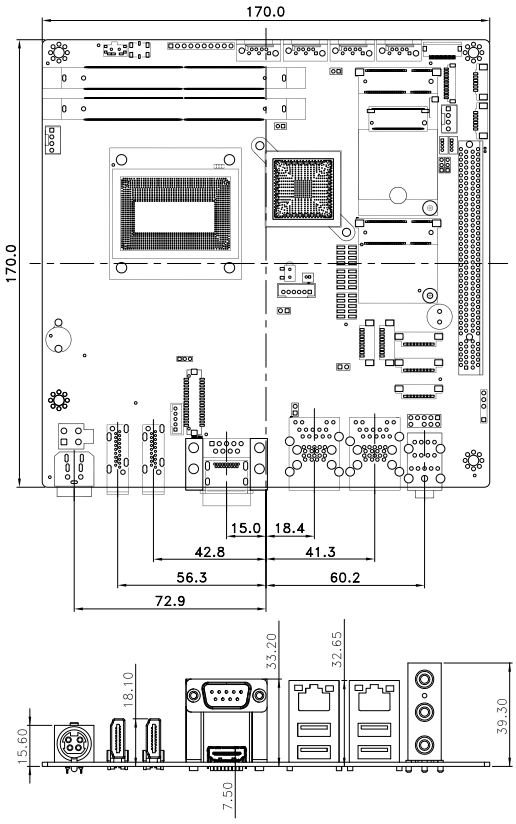


KINO-DAL

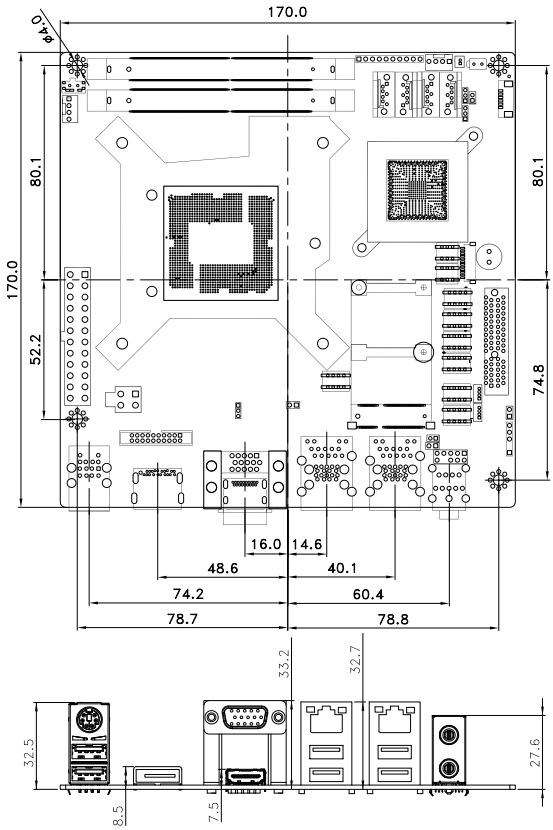


Mini-ITX Dimensions (Unit: mm)

KINO-DCM236



KINO-AQ170



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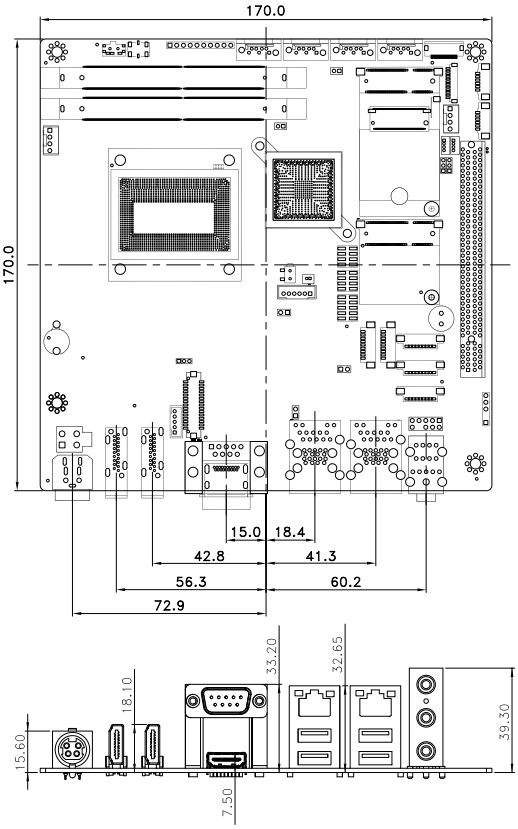
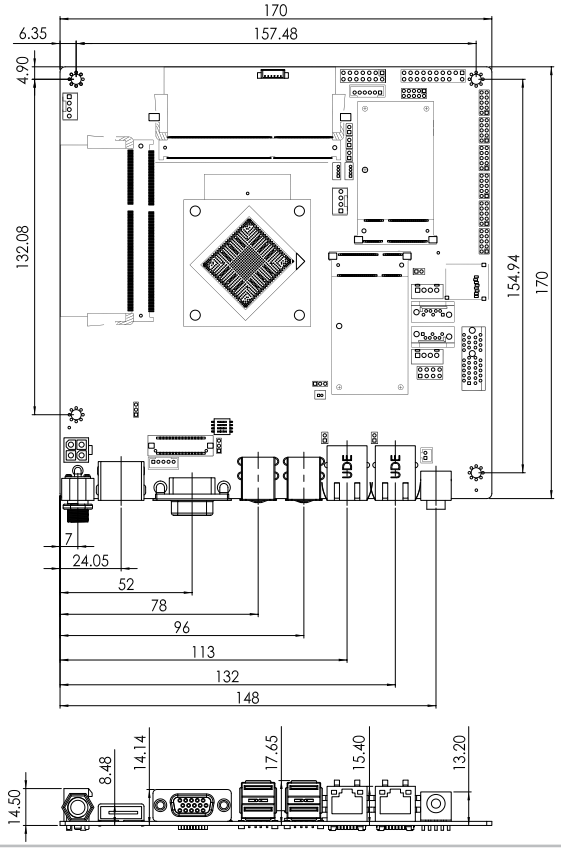
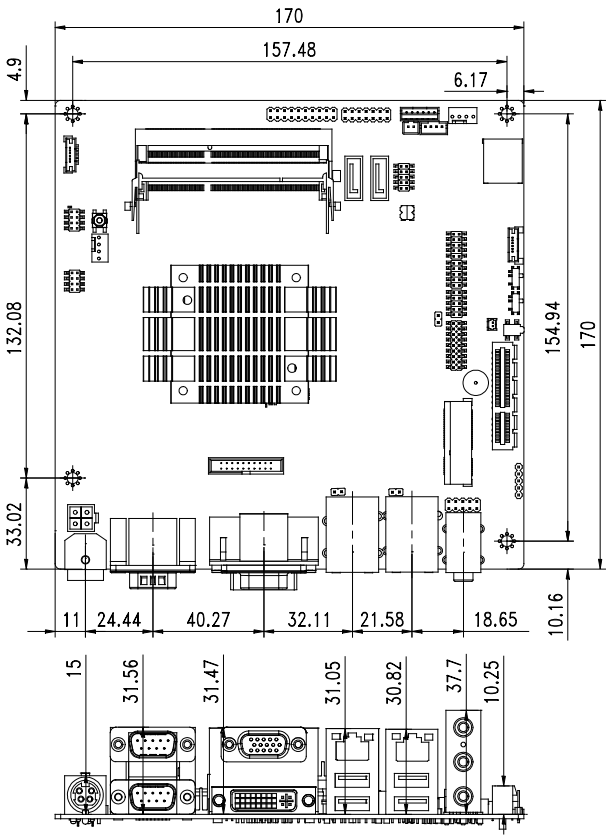


tKINO-BW

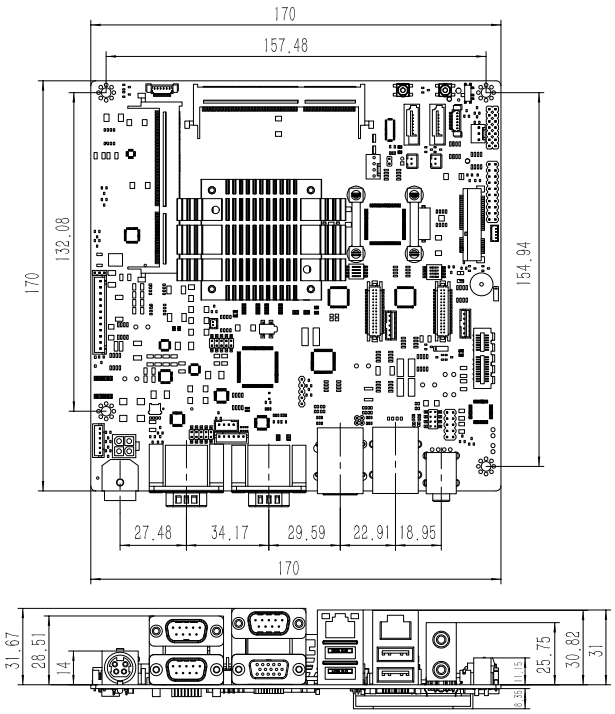


Mini-ITX Dimensions (Unit: mm)

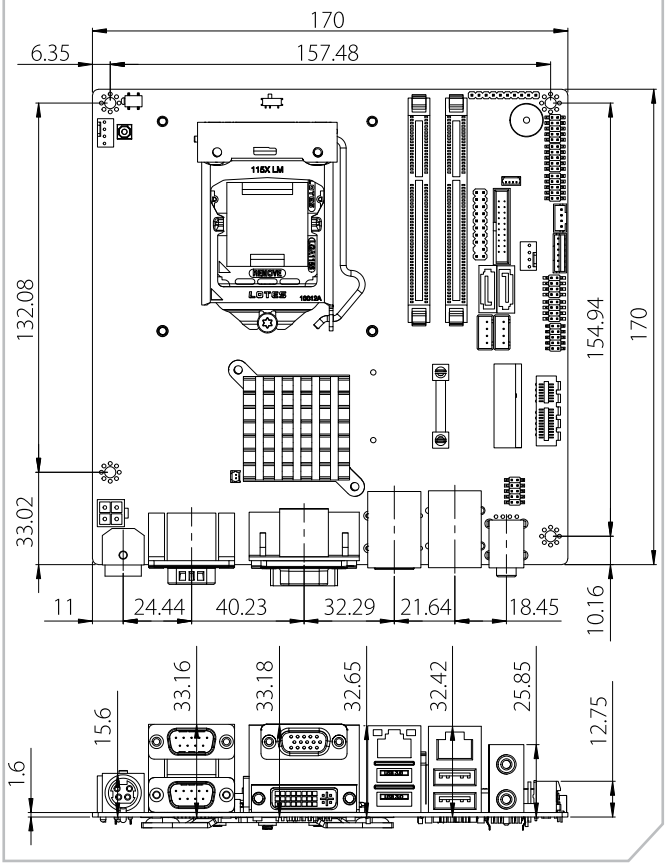
KINO-DBT



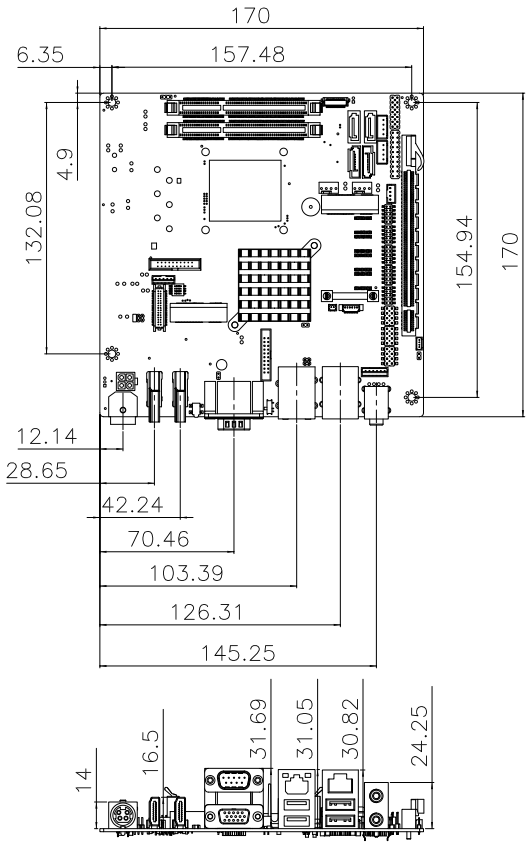
eKINO-BT



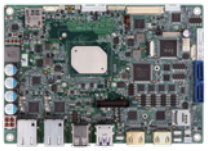
KINO-DH810

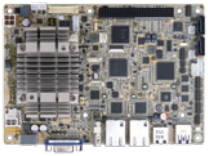


KINO-DQM871-i1



EPIC NANO Selection Guide

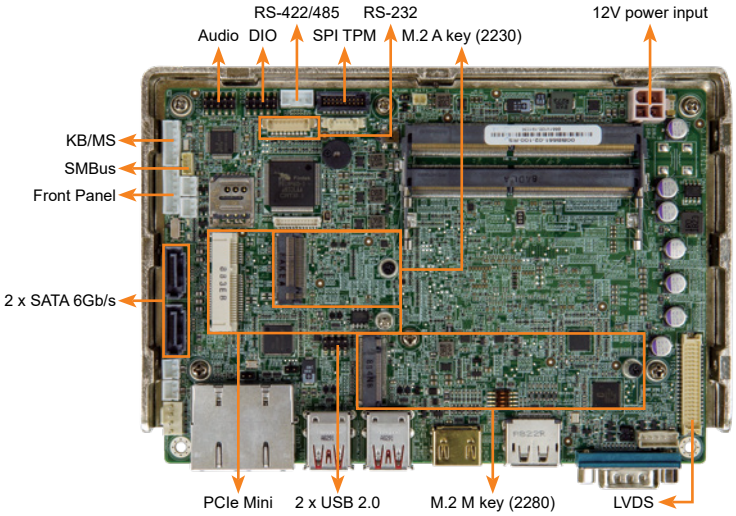




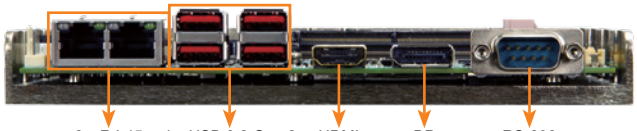
Model Name	NANO-ULT5	NANO-AL	NANO-ULT3	NANO-BT-i1/BTW2
CPU Socket	On board	On board	On board	On board
CPU Type	Intel® Core™ i7/i5/i3, Celeron® ULT processor	Intel® Atom®/Celeron®/Pentium® on-board SoC	Intel® Core™ i7/i5/i3, Celeron® ULT processor	Intel® Atom®, Celeron® SoC
Chipset	Intel® Core™ i7/i5/i3, 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 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
I/O Interface	1 x TPM (2x10 pin SPI interface) 1 x RS-422/485 pin header (Support Auto Flow Control over RS-485) 1 x RS-232 1 x RS-232 pin header 4 x USB 3.2 Gen 2	1 x PS/2 KB/MS pin header 2 x RS-232/422/485 pin header 4 x RS-232 pin header 2 x USB 2.0 2 x USB 2.0 pin header 2 x USB 3.2 Gen 1	1 x PS/2 KB/MS pin header 1 x RS-232/422/485 pin header 2 x RS-232 pin header 2 x USB 2.0 pin header 4 x USB 3.2 Gen 1	1 x PS/2 KB/MS 1 x RS-422/485 pin header 1 x USB 3.2 Gen 1 3 x RS-232 pin header 1 x USB 2.0 2 x USB 2.0 pin header
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 ALC888S HD Audio codec 1 x Analog audio	Realtek ALC888S HD Audio codec		
Digital I/O	8-bit programmable digital I/O			
Power Consumption	12V@6.62A (4.6 GHz Intel® Core™ i7-8665UE CPU with two 16 GB 2666 MHz DDR4 memory modules)	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	Temperature 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	Temperature 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

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



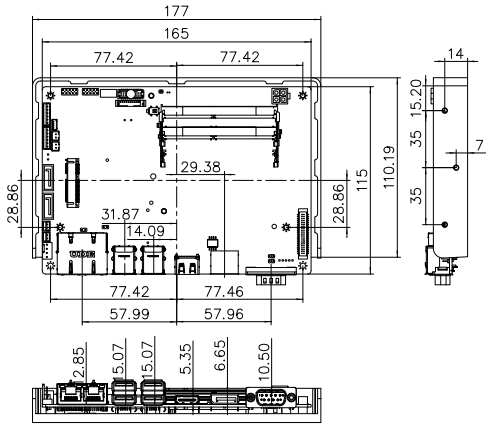
Specifications

- 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) 2 x SATA 6G/s with 5V SATA power connector
  1 x TPM (2x10 pin, p=0.5) 2 x USB 2.0 (2x4 pin, P=2.0)
  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)
- SMBus/I²C
  1 x 4-pin connector (1x4)
- Audio
  Realtek ALC888S HD Audio codec
  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 Full-size PCIe Mini slot
  1 x M.2 slot with 2280 M key 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
  12V@6.62A (4.6 GHz Intel® Core™ i7-8665UE CPU with two 16 GB 2666 MHz DDR4 memory modules)
- 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

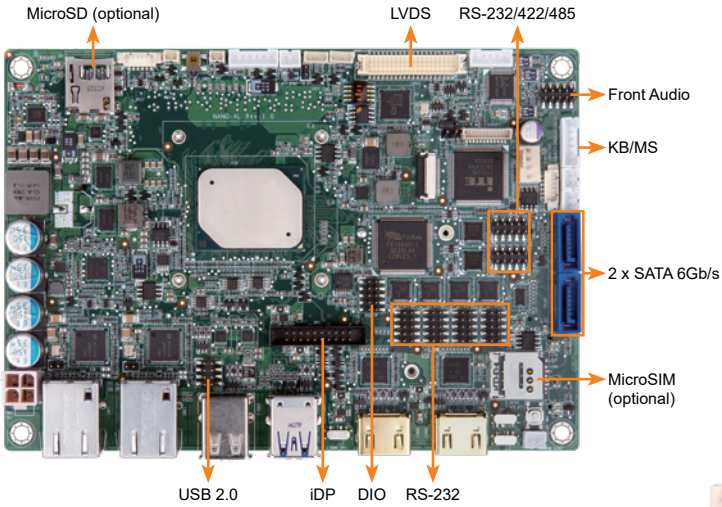
Ordering Information

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

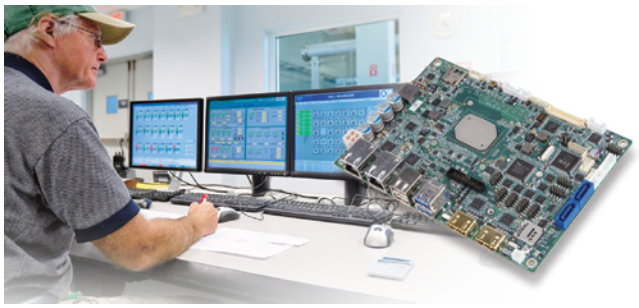
** Without full functions support, please refer to user manual

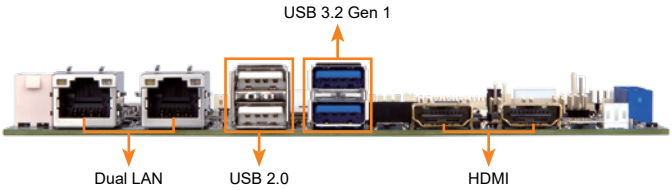
NANO-AL

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 ALC888S 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/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-232/422/485 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

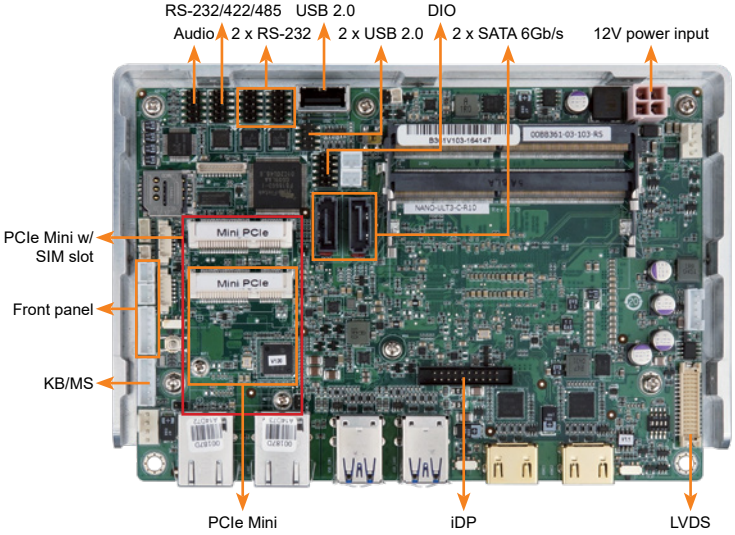
Ordering Information

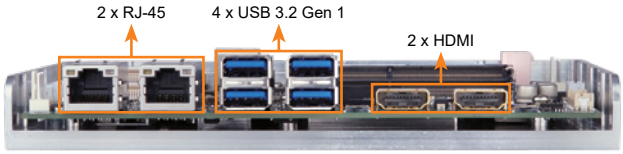
Part No.	Description
NANO-AL-J2-R10	EPIC SBC supports Intel® 14nm dual-core Celeron® J3455 2.3GHz on-board SoC with Dual HDMI/LVDS/iDP, Dual PCIe GbE, USB 3.0, PCIe Mini, M.2, SATA 6Gb/s, COM, Audio and RoHS
NANO-AL-N2-R10**	EPIC SBC supports Intel® 14nm quad-core Pentium® N4200 2.5GHz on-board SoC with 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
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
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)

◆ 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 ALC888S 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 (with SIM holder & mSATA support)
1 x Half-size PCIe Mini card slot

◆ 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

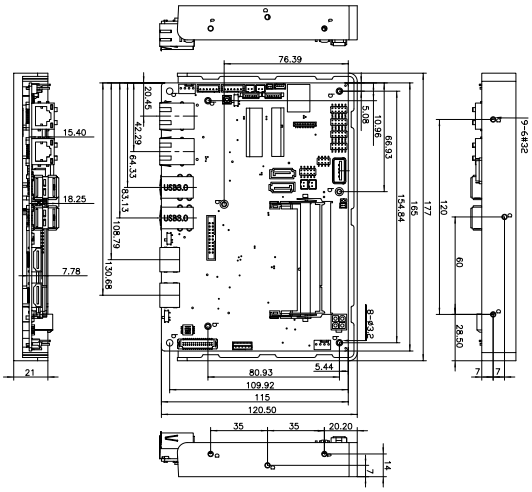
◆ Operating Humidity: 5% ~ 95%, non-condensing

◆ Dimensions: 115mm x 165mm

◆ Weight: GW: 850g / NW: 350g

◆ CE/FCC compliant

Dimensions *(Unit: mm)*



Packing List

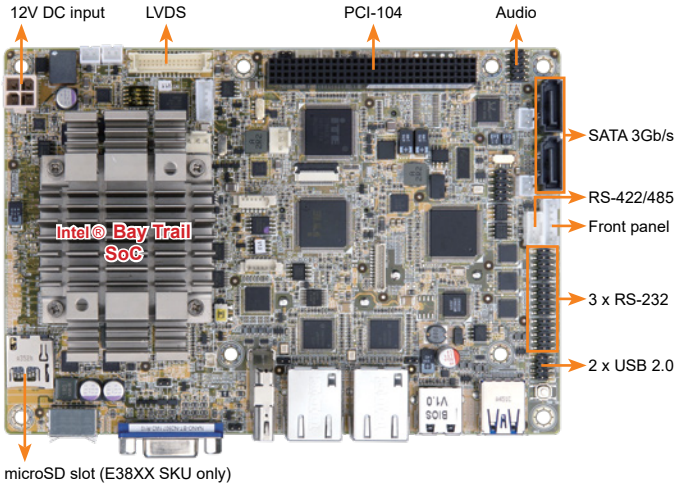
1 x NANO-ULT3 single board computer with heatspreader	1 x Audio cable
1 x RS-232 cable	1 x Power cable
1 x SATA with power cable kit	1 x QIG

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
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

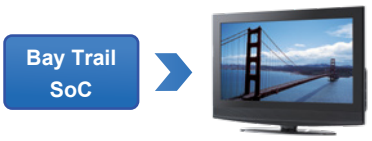
NANO-BTW2 / BT-i1

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

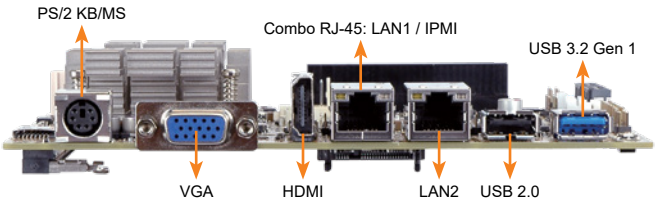


Highly efficient and power optimized multi-format codec engine

- **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 ALC888S 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

Packing List

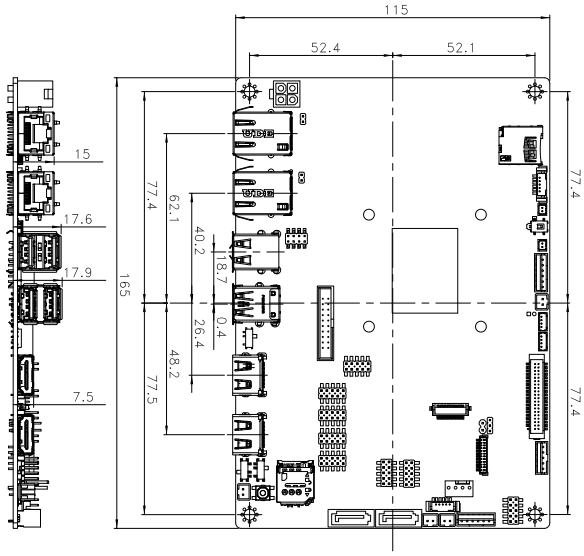
1 x NANO-BT single board computer with heatsink	
1 x Power cable	2 x SATA with power cable kit
2 x RS-232 cable	1 x QIG

Ordering Information

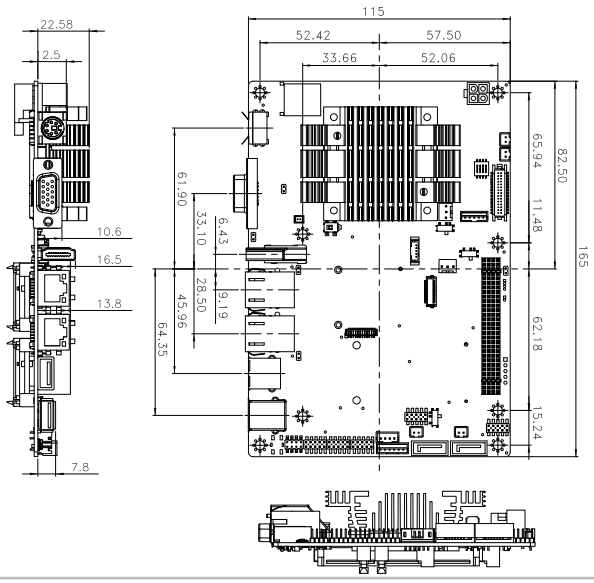
Part No.	Description
NANO-BT-i1-J19001-R11	EPIC SBC supports Intel® 22nm quad-core J1900 2.0GHz (10W) on-board SoC with VGA/HDMI/LVDS, Dual PCIe GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 3Gb/s, mSATA, COM, iRIS-1010, Audio and RoHS
NANO-BT-i1-N28071-R11	EPIC SBC supports Intel® 22nm dual-core N2807 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-J19001-ECO-R11	Intel 22nm Quad-Core Celeron J1900 2.0GHz (10W) on-board SoC with VGA/HDMI/LVDS, Dual PCIe GbE, USB 3.0, PCIe Mini, SATA, mSATA , COM, Audio, ECO packing and RoHS
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

EPIC NANO Dimensions (Unit: mm)

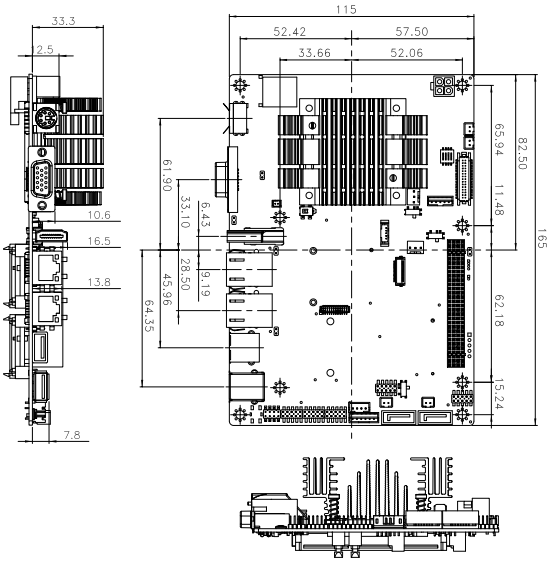
NANO-AL



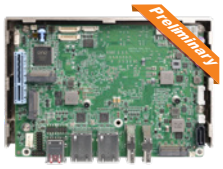
NANO-BTW2

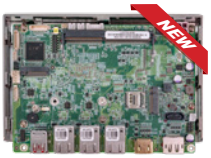


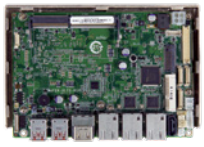
NANO-BT-i1



3.5″ WAFER Selection Guide

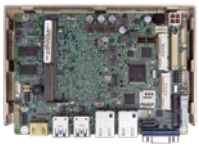


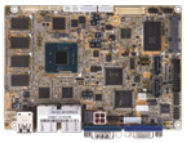
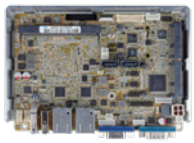




Model Name	WAFER-EHL-J6412	WAFER-JL	WAFER-TGL	WAFER-ULT5	WAFER-AL
CPU Socket	On board	On board	On board	On board	On board
CPU Type	Intel® Elkhart Lake Processor Non-PSE SKU Intel® Celeron® J6412 on-board SoC (up to 2.6GHz, quad-core, 1.5M Cache, TDP=10W)	Intel® Celeron® N5105 on-board SoC (Code name: Jasper Lake)	Intel® Mobile ULT processors (Code name: Tiger Lake)	Intel® Mobile ULT processor (Code name: Whiskey Lake)	Intel® Celeron®/Pentium® on-board SoC (Code name: Apollo Lake)
Chipset	Intel® Elkhart Lake Processor Non-PSE SKU Intel® Celeron® J6412 on-board SoC (up to 2.6GHz, quad-core, 1.5M Cache, TDP=10W)	Intel® Celeron® N5105 on-board SoC	Intel® Mobile ULT processors	Intel® Mobile ULT processor	Intel® Celeron®/Pentium® on-board SoC
Memory	On-board LPDDR4x-3200 MHz 4GB (system max. 16GB)	1 x 260-pin 2933 MHz DDR4 SO-DIMM (system max. 16GB)	1 x 260-pin 3200 MHz DDR4 SO-DIMM (system max. 32GB)	1 x 260-pin 2400MHz DDR4 SDRAM SO-DIMM single channel	1 x 204-pin 1866/1600 MHz single-channel DDR3L SO-DIMM (system max. 8 GB)
Display Interface	Triple independent display 1 x HDMI 1.4 (up to 4096 x 2160@30Hz) 1 x DP 1.4 (up to 4096x2160 @ 60Hz) 1 x IEI iDPM 3040 slot (only for IEI eDP/LVDS/VGA module)	Dual independent display 1 x DP 1.4 1 x HDMI 1.4	Quad independent display 2 x HDMI 1.4 1 x DP++ 1.4 1 x IEI iDPM 3040 slot (only for IEI eDP/LVDS/VGA module)	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
Ethernet	LAN1: Intel® I225V 2.5GbE controller LAN2: Intel® I225V 2.5GbE controller	LAN1: Intel® I225V 2.5GbE controller LAN2: Intel® I225V 2.5GbE controller LAN3: Intel® I225V 2.5GbE controller	LAN1: Intel® I225V 2.5GbE (i5 and i7 Colay with I225-LM) LAN2: Intel® I225V 2.5GbE (i5 and i7 Colay with I225-LM) LAN3: Intel® I225V 2.5GbE (i5 and i7 Colay with I225-LM)	LAN1: Intel® I211AT LAN2: Intel® I211AT LAN3: Intel® I219LM	LAN1: Realtek RTL8111 controller LAN2: Realtek RTL8111 controller
I/O Interface	2 x USB 3.2 Gen 2 Type A 4 x USB 2.0 pin header 2 x RS-232/422/485 pin header	2 x RS-232 pin header 2 x USB 2.0 pin header 2 x USB 3.2 Gen 2	4 x USB 3.2 Gen 2 2 x USB 2.0 pin header 2 x RS-232/422/485 pin header 1 x RS-232 pin header	1 x RS-232 pin header 1 x RS-232/422/485 pin header (support Auto Flow Control over RS-485) 4 x USB 3.2 Gen 2 2 x USB 2.0 pin header	2 x RS-232 pin header 2 x RS-232/422/485 pin header 2 x USB 3.2 Gen 1 4 x USB 2.0 pin header
Storage Interface	1 x SATA 6Gb/s	1 x SATA 6Gb/s	2 x SATA 6Gb/s	1 x SATA 6Gb/s with 5V SATA power connector	2 x SATA 6Gb/s with 5V SATA power connector
Audio	1 x iAUDIO, support IEI AC-KIT-888S Audio Module (2x5 pin)			N/A	Realtek ALC888S HD Audio codec
Digital I/O	12-bit programmable I/O (12-bit GPIO is for programming I/O)	1 x 12-bit digital I/O (2x7 pin)	1 x 12-bit digital I/O (2x7 pin)	8-bit programmable digital I/O	
Power Consumption	12V@3.14A (Intel® Celeron® J6412 2.0GHz with on-board 8GB 3200MHz LPDDR4 memory and EUP enabled)	12V@2.45A (Intel® Pentium® Silver N6000 3.30 GHz TDP 6W with one 16GB 2933MHz DDR4 SO-DIMM)	12V@4.0A (11th Gen Intel® Core™ i5-1145G7E 2.6GHz with 8GB 3200MHz DDR4 memory and EUP enabled)	12V@3.38A (Intel® Core™ i7-8665UE up to 1.7GHz CPU with 16GB 2666MHz DDR4 memory)	12V@2.57A (Intel® Pentium® N4200 up to 2.5GHz with 8GB DDR3L memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset				
Operating Environment	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	Temperature Range: 0°C ~ 60°C (32°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing	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
Expansion Slot	1 x M.2 A key 1 x M.2 B key 1 x PCIe x4 (PCIe Gen3 x2 signal (x2 or x1+x1)	1 x M.2 A key (PCIe Gen3 x1/USB 2.0 signal) 1 x M.2 B key w/ SIM holder (PCIe Gen3 x2/USB 2.0 signal)	1 x M.2 A key (PCIe Gen3 x1/USB 2.0 signal) 1 x M.2 B key w/ SIM holder (PCIe Gen3 x2/USB 2.0 signal)	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, the other one with SIM holder)
Recommended CPU Cooler	Heatsink	Heat Spreader	Heat Spreader	Heat Spreader	Heatsink

3.5″ WAFER Selection Guide



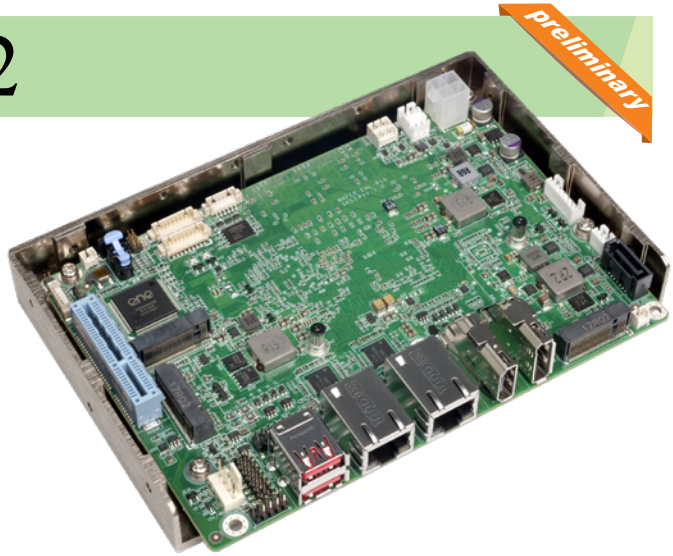



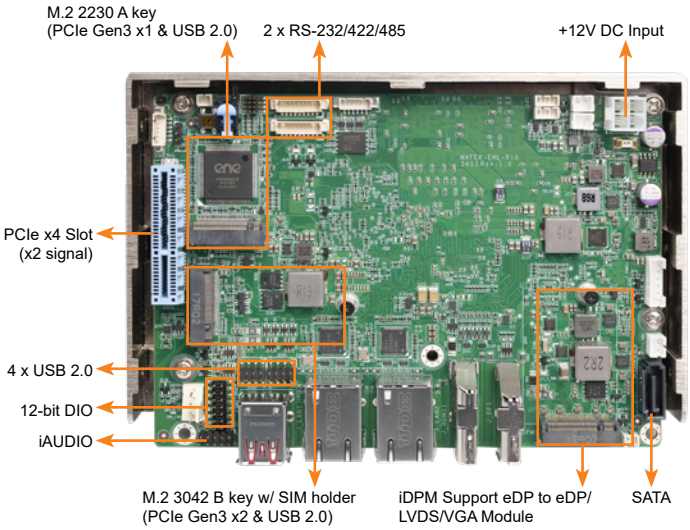
Model Name	WAFER-ULT3	WAFER-BW	WAFER-ULT2/ULT-i1	WAFER-BT-E38001W2	WAFER-BT
CPU Socket	On board	On board	On board	On board	On board
CPU Type	Intel® Mobile ULT processor (Code name: Kaby Lake)	Intel® Pentium®/Celeron® SoC (Code name:Braswell)	Intel® Mobile ULT processor (Code name: Broadwell)	Intel® Atom® SoC (Code name: Bay Trail)	Intel® Atom®/Celeron® SoC (Code name: Bay Trail)
Chipset	Intel® Mobile ULT processor	Intel® Pentium®/Celeron® SoC	Intel® Lynx Point SoC	Intel® Atom® SoC	Intel® Atom®/Celeron® on-board SoC
Memory	1 x 260-pin 2133MHz single-channel DDR4 SDRAM SO-DIMM On-board DDR4 memory (optional 4GB/8GB support)	1 x 204-pin 1600/1333 MHz single-channel DDR3L SDRAM unbuffered SO-DIMM slot (system max. 8 GB)	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)
Display Interface	Triple independent display 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 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
Ethernet	1 x Intel® I219LM 1 x Intel® I211AT	LAN1: Realtek RTL8111GN controller LAN2: Realtek RTL8111GN controller	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
I/O Interface	2 x RS-232/422/485 pin header 4 x USB 3.2 Gen 1 2 x USB 2.0 pin header	1 x PS/2 KB/MS pin header 2 x RS-232/422/485 pin header 1 x RS-232 3 x RS-232 pin header 2 x USB 3.2 Gen 1 4 x USB 2.0 pin header	1 x PS/2 KB/MS pin header 1 x RS-232 2 x RS-232 pin header 1 x RS-422/485 pin header 2 x USB 2.0 pin header 2 x USB 3.2 Gen 1	1 x PS/2 KB/MS pin header 1 x RS-422/485 pin header 1 x RS-232 1 x USB 2.0 1 x USB 3.2 Gen 1 4 x USB 2.0 pin header	1 x PS/2 KB/MS pin header 1 x RS-232 1 x RS-422/485 pin header 2 x RS-232 pin header 1 x USB 3.2 Gen 1 1 x USB 2.0 4 x USB 2.0 pin header
Storage Interface	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 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)
Audio	N/A	Realtek ALC888S HD Audio codec			
Digital I/O	8-bit programmable digital I/O				
Power Consumption	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@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)
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 ~ 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	Temperature Range: -40°C ~ 85°C 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 Full-size PCIe Mini slot (w/ SIM card slot support)	2 x Full/Half-size PCIe Mini card slot (one with SIM holder)	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 Half-siza PCIe Mini card slot (except for ECO sku)
Recommended CPU Cooler	Heat Spreader	Heat Spreader	Heat Spreader	Heatsink	N/A

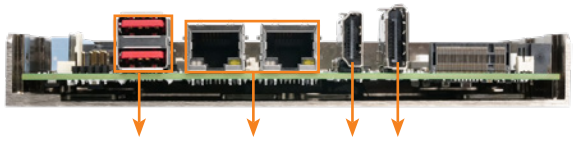
WAFER-EHL-J6412

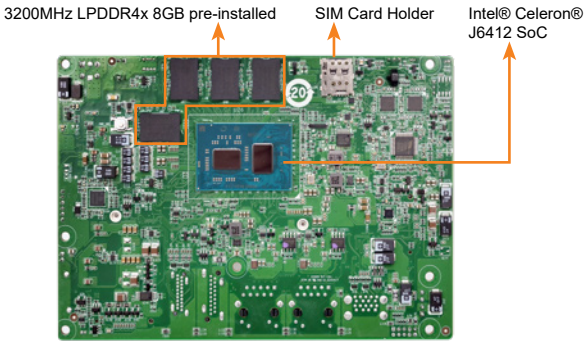
preliminary

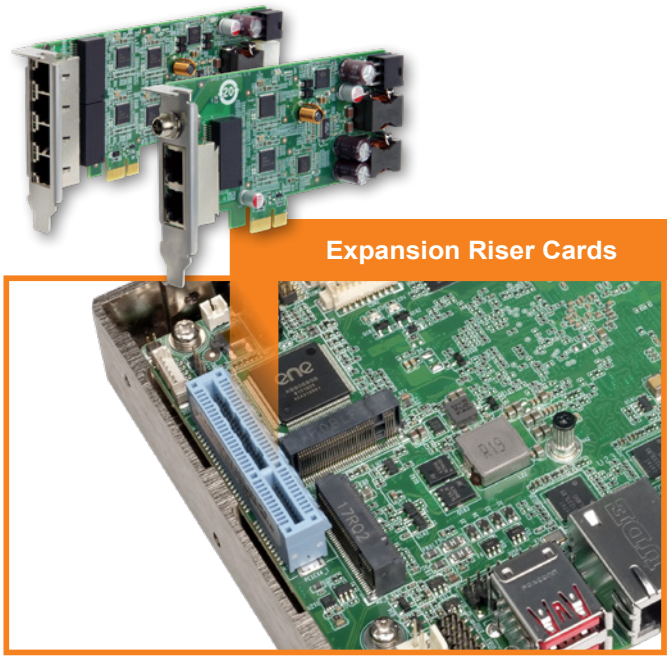
3.5" SBC supports Intel® Celeron® J6412 on-board SoC, triple display with DP, HDMI and iDPM slot, dual 2.5 GbE, USB 3.2 Gen 2, M.2, SATA 6Gb/s, COM, iAUDIO, 0°C ~60°C and RoHS











Features

10W Low-power Intel® Elkhart Lake Celeron® J6412 CPU

10nm Intel® Celeron® J6412 on-board SoC, 4 cores and 4 threads, base frequency 2.00GHz, turbo frequency up to 2.60GHz, 1.5MB cache

Supporting Intel® I225V 2.5GbE Controllers

Two RJ45 network interfaces are supported via Intel® I225V 2.5GbE controllers, achieving up to 2.5GbE network transmission rate.

PCIe x4 Slot Available for Expansion

One PCIe x4 slot (PCIe Gen3 x2 signal) is reserved on the edge of the motherboard, which can be used to connect a PCIe expansion card or a riser card designed by IEI. The riser card provides two PCIe x1 slots for multiple PCIe expansion cards.

IEI-specific iDPM Interface

IEI uniquely designs a iDPM interface that can connect to display modules, enabling users to add LVDS/eDP/VGA display interface upon requirements.

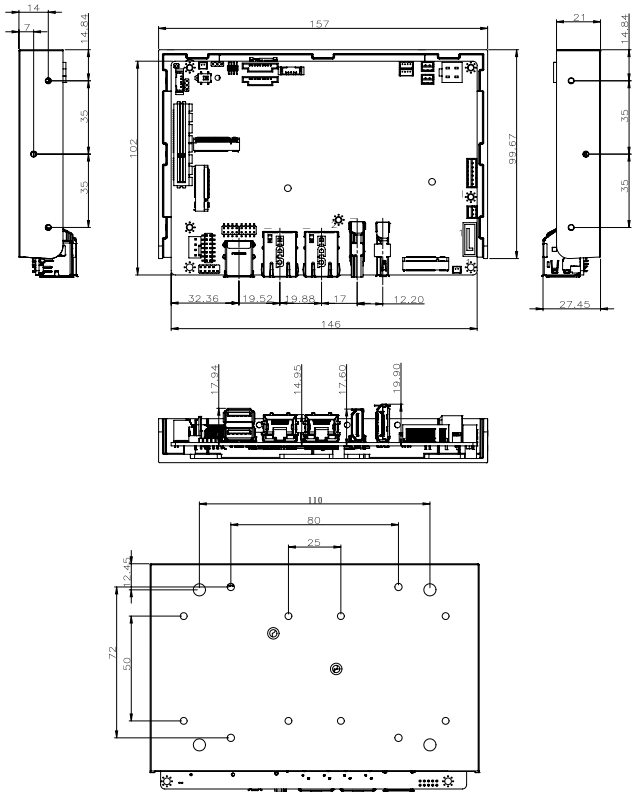
Specifications

- SoC
  Onboard Intel® Atom® x6000 series / Pentium® / Celeron® processor (Elkhart Lake platform)
  Intel® Celeron® J6412 on-board SoC (up to 2.6GHz, quad-core, 1.5M Cache, TDP=10W)
- BIOS
  AMI UEFI BIOS
- Memory
  On-board LPDDR4x 3200 MHz 8GB
- Graphics Engine
  Intel® Gen11 UHD Graphics
- Display Output
  Triple independent display
  1 x HDMI 1.4 (up to 4096 x 2160@30Hz)
  1 x DP 1.4 (up to 4096x2160 @ 60Hz)
  1 x IEI iDPM 3040 slot (only for IEI eDP/LVDS/VGA module)
- Ethernet
  LAN1: Intel® I225V 2.5GbE
  LAN2: Intel® I225V 2.5GbE
- External I/O Interface
  2 x USB 3.2 Gen 2
- Internal I/O Interface
  1 x SATA 6Gb/s with 5V SATA power connector
  4 x USB 2.0 (2x4 pin, p=2.0)
  2 x RS-232/422/485 (1x9 pin, P=1.25)
- I^2C
  1 x I^2C (1x4 pin, P=2.0)
- Audio
  1 x iAUDIO (2x5 pin) support IEI AC-KIT-888S kit
- 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 2230 A key for Wi-Fi & BT (PCIe Gen3 x1 / USB 2.0 signal)
  1 x M.2 3042 B key w/ SIM holder (PCIe Gen3 x2 / USB 2.0 signal)
  1 x PCIe Gen3 x4 (x2 signal) (x2 or x1+x1)
- Digital I/O
  1 x 12-bit digital I/O (2x7 pin)
- TPM
  Intel® PTT (TPM 2.0)
- Fan Connector
  1 x System fan connector (1x4 pin)
- Power Supply
  +12V DC input power (AT/ATX mode)
- Watchdog Timer
  Software programmable, support 1~255 sec. system reset
- Power Consumption
  12V@3.14A (Intel® Celeron® J6412 2.0GHz with on-board 8GB 3200MHz LPDDR4 memory and EUP enabled)
- Operating Temperature
  0°C ~ 60°C
- Storage Temperature
  -30°C ~ 70°C
- Operating Humidity
  5% ~95%, non-condensing
- Dimensions
  146mm x 102mm
- Weight
  GW:850g / NW:350g
- Certification: CE/FCC Compliant

Ordering Information

Part No.	Description
WAFER-EHL-J6412-R10	3.5" SBC supports Intel® Celeron® J6412 on-board SoC, triple display with DP, HDMI and iDPM slot, dual 2.5 GbE, USB 3.2 Gen 2, M.2, SATA 6Gb/s, COM, iAUDIO, 0°C ~60°C and RoHS

Dimensions (Unit: mm)



Packing List

1 x WAFER-EHL single board computer	1 x SATA with power cable kit
1 x Power cable for P4	1 x QIG

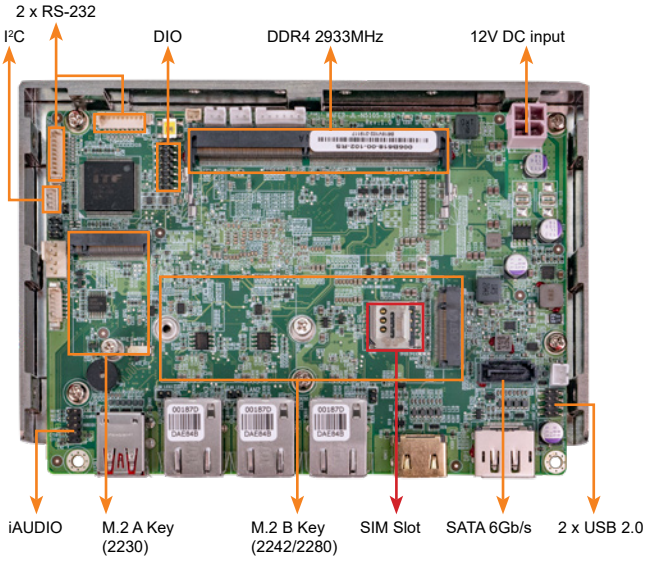
Optional Accessories

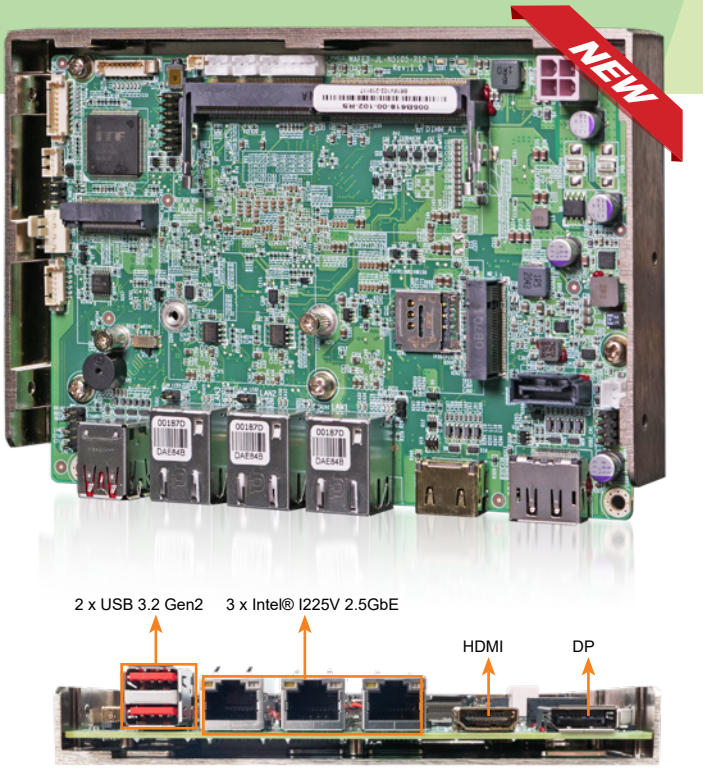
Part No.	Description
AC-KIT-888S-R10	Realtek ALC888S 7.1 Channel HD Audio peripheral board, RoHS
CB-USB02A-RS	Dual port USB cable with bracket, 300mm, P=2.00
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P
32005-003500-200-RS	Round cable, RS-232/422/485, 300mm, P=1.25
NWR-L2S-R10	PCIe x2 to two PCIe x1 riser card for NANO/WAFER on the left side
NWR-R2S-R10	PCIe x2 to two PCIe x1 riser card for NANO/WAFER on the right side
CM-WAFER-WF-R10	Cooler Module (W/FAN); Mechanical; for 3.5" WAFER series; RoHS
CM-WAFER-WOF-R10	Cooler Module (W/O FAN); Mechanical; for 3.5" WAFER series; RoHS
iDPM-eDP-R10	eDP to eDP DisplayPort converter board (for IEI iDPM connector)
iDPM-LVDS-R10	eDP to LVDS DisplayPort converter board (for IEI iDPM connector)

AC-KIT-888S-R10	CB-USB02A-RS	32102-000100-200-RS	32005-003500-200-RS
CM-WAFER-WF-R10	CM-WAFER-WOF-R10	iDPM-eDP-R10	iDPM-LVDS-R10

WAFER-JL

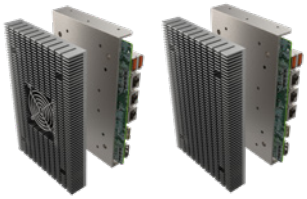
ATX motherboard supports 10th/11th Generation Intel® Core™ i9/i7/i5/i3, Celeron® and Pentium® processor, DDR4 memory, triple independent display, dual 2.5GbE LAN, M.2, USB 3.2, SATA 6Gb/s, HD Audio and RoHS





Structure Solution

IEI has developed a highly efficient thermal solution for the 3.5" motherboard - IEI Heat Conduction Casing (IHCC). With its well-design structure, the IHCC can effectively improve heat transfer performance and cut time-to-market.
Completely joint with CPU for better heat transfer in 0ºC~60ºC operating temperature with the active cooling (PN:CM-WAFER-WF-R10), and in 0°C~45°C operating temperature with the passive cooling (PN:CM-WAFER-WOF-R10).



IEI Heat Conduction Casing (IHCC)

The DRPC-W-JL-R10 is a compact embedded system and designed for 3.5" single board computers . With the two-dimensional heat conduction and low wind resistance design on the surfaced which means you don't need extra thermal solution to form the heat dissipation part. You can get higher hardness, and benefit from the reduced production cost resulting from shortening manufacturing time .Furthermore, the height of aluminum extrusion can therefore be downsized to make the product light weight.

Features

Advanced Jasper Lake Platform

The new generation of Intel ultra-low power processor, the Jasper Lake series, is built with the new 10nm process and Tremont architecture, and integrated with 11th gen Intel® UHD Graphics.

10W Low-power Inte® Celeron® N5105 CPU

10nm Intel® Celeron® N5105 on-board SoC features 4 cores, 4 threads, 2.0GHz base frequency, up to 2.9GHz turbo frequency and 4MB cache.

Supporting Intel® I225V 2.5GbE Controllers

Three RJ45 network interfaces are supported via Intel® I225V 2.5GbE controllers, achieving up to 2.5GbE network transmission rate

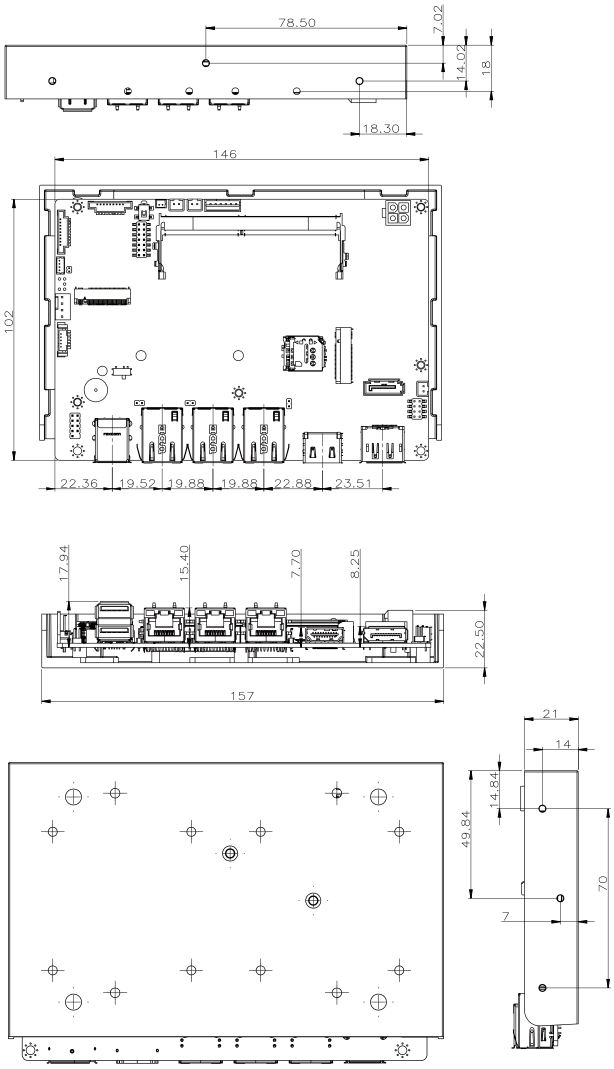
Rich I/O Interface

The WAFER-JL supports two external USB 3.2 Gen 2 (10Gb/s) ports, providing lightning-fast data transfer rate. The internal USB 2.0 ports, M.2 A key slot and M.2 B key slot can be used for function expansion.

Specifications

- CPU
  Intel® Celeron® N5105 on-board SoC (up to 2.90GHz, Quad-core, 4M Cache, TDP=10W)
- BIOS
  AMI UEFI BIOS
- Memory
  1 x 260-pin 2933 MHz DDR4 SO-DIMM (system max. 16GB)
- Graphics Engine
  Intel® Gen11 UHD Graphics
- Display Output
  Dual independent display
  1 x DP 1.4 (up to 4096 x 2160 @60Hz)
  1 x HDMI 1.4 (up to 4096 x 2160@30Hz)
- Ethernet
  3 x Intel® I225V 2.5GbE controller (colay with I225-LM)
- External I/O Interface
  2 x USB 3.2 Gen 2
- Internal I/O Interface
  1 x SATA 6Gb/s
  2 x USB 2.0 (2x4 pin, P=2.0)
  2 x RS-232 (1x9 pin, P=1.25)
- SMBus / I²C
  1 x SMBus (1x4 pin)
- Audio
  1 x iAUDIO supports IEI AC-KIT-888S Audio Kit (2x5 pin)
- Front Panel
  1 x Front panel connector
  Power LED & HDD LED (1x6 pin); power button (1x2 pin); reset button (1x2 pin)
- LAN LED
  3 x LAN LED (1x2 pin)
- Expansions
  1 x M.2 2230 A key (PCIe Gen3 x1, USB 2.0)
  1 x M.2 3042/2280 B key w/ SIM holder (PCIe Gen3 x2, USB 2.0)
- Digital I/O
  1 x 12-bit digital I/O (2x7 pin)
- TPM
  Intel® PTT (TPM 2.0)
- Fan Connector
  1 x System fan connector (1x4 pin)
- Power Supply
  12V DC power input (AT/ATX mode)
- Watchdog Timer
  Software programmable, support 1~255 sec. system reset
- Power Consumption
  12V@2.45A (Intel® Pentium® Silver N6000 3.30 GHz TDP 6W with one 16GB 2933MHz DDR4 SO-DIMM)
- Operating Temperature
  0°C ~ 60°C
- Storage Temperature
  -30°C ~ 70°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions
  146mm x 102mm
- Weight
  GW:850g / NW:350g
- Certification
  CE/FCC compliant

Dimensions (Unit: mm)



Optional Accessories

Part No.	Description
CB-USB02A-RS	Dual-port USB 2.0 cable, 210mm, P=2.0
AC-KIT-888S-R10	Realtek ALC888S 7.1 Channel HD Audio peripheral board, RoHS
32005-003500-200-RS	RS-232/422/485 cable, 2, 250mm, 26AWG, (A) D-SUB 9P MALE+HEXAGONAL screw, (B) MOLEX 51021-0900 P=1.25
CM-WAFER-WF-R10	Cooler Module (W/FAN); Mechanical; for 3.5" WAFER series; RoHS
CM-WAFER-WOF-R10	Cooler Module (W/O FAN); Mechanical; for 3.5" WAFER series; RoHS

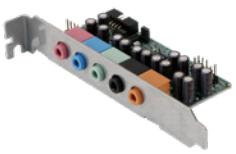
Packing List

1 x WAFER-JL single board computer with heatspreader	1 x SATA with power cable kit
1 x Power cable for P4	1 x QIG

Ordering Information

Part No.	Description
WAFER-JL-N5105-R10	3.5" SBC supports 10nm 11th Gen. Intel® Celeron® N5105 on-board SoC, dual HDMI, DP, triple 2.5GbE LAN ports, USB 3.2 Gen 2x1, M.2, SATA 6Gb/s, COM, RoHS, 0°C ~ 60°C

CB-USB02A-RS


AC-KIT-888S-R10

32005-003500-200-RS

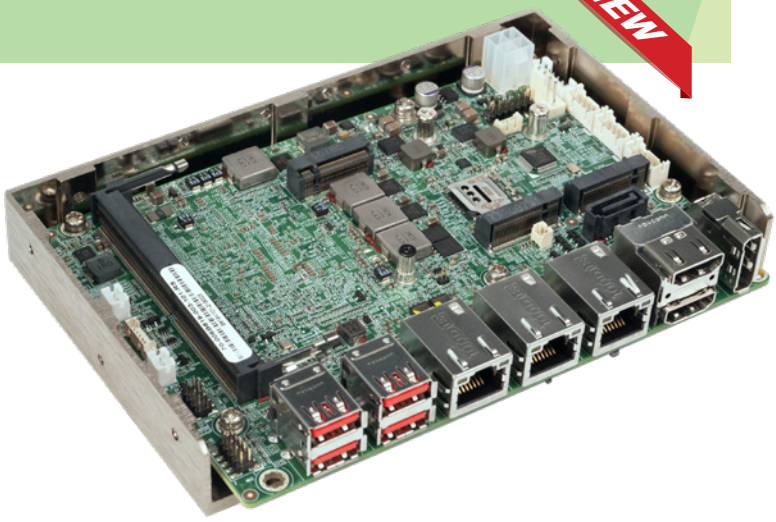
CM-WAFER-WF-R10

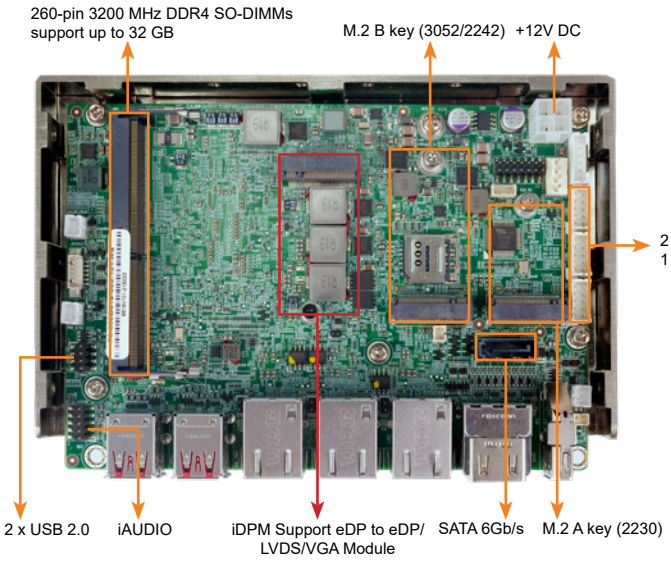
CM-WAFER-WOF-R10

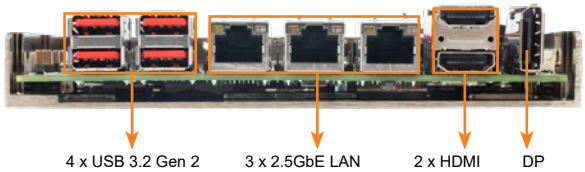
WAFER-TGL-U

NEW

3.5" SBC with 10nm 11th Gen. Intel® Tiger Lake-UP3 Core™ i7/i5/i3 and Celeron® on-board SoC with HDMI, DP, iDPM, triple 2.5 GbE LAN , USB 3.2 Gen 2, M.2, SATA 6Gb/s, COM, iAUDIO, 0°C ~60°C and RoHS

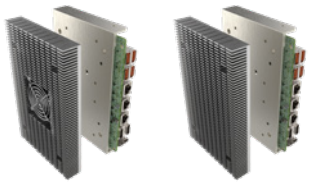






Structure Solution

IEI has developed a highly efficient thermal solution for the 3.5" motherboard - IEI Heat Conduction Casing (IHCC). With its well-design structure, the IHCC can effectively improve heat transfer performance and cut time-to-market.
Completely joint with CPU for better heat transfer in 0ºC~60ºC operating temperature with the active cooling (PN:CM-WAFER-WF-R10), and in 0°C~45°C operating temperature with the passive cooling (PN:CM-WAFER-WOF-R10).



IEI Heat Conduction Casing (IHCC)

The DRPC-W-TGL-R10 is a compact embedded system and designed for 3.5" single board computers . With the two-dimensional heat conduction and low wind resistance design on the surfaced which means you don't need extra thermal solution to form the heat dissipation part. You can get higher hardness, and benefit from the reduced production cost resulting from shortening manufacturing time .Furthermore, the height of aluminum extrusion can therefore be downsized to make the product light weight.

Features

Support Intel® Tiger Lake-UP3 Processors

Equipped with 11th Gen. Intel® Core™ i7/i5/i3, Celeron® UP3 processor, the WAFER-TGL features high performance, and can handle multitasking efficiently.

Support Intel® I225V 2.5GbE Network Controller

Two Gigabit RJ45 network ports are provided via Intel® I225V 2.5GbE network controller to achieve up to 2.5GbE network transmission rate.

Support USB 3.2 Gen 1 / Gen 2 up to 10Gb/s

The design of the motherboard is based on USB 3.2 protocol. Four USB 3.2 Gen 2 (10Gb/s) are provided through external I/O for efficient data transfer rate. The WAFER-TGL also supports two internal USB 2.0 ports for additional wiring options.

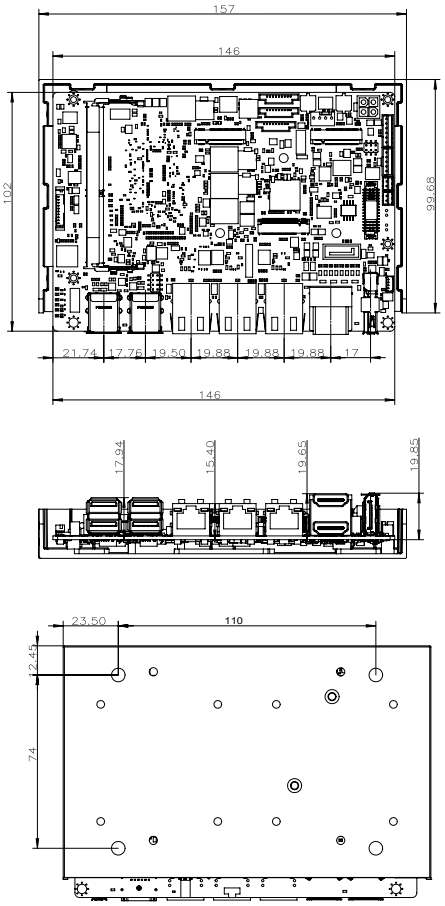
IEI-specific iDPM Interface

IEI uniquely designs a iDPM interface that can connect to display modules, enabling users to add LVDS/eDP/VGA display interface upon requirements.

Specifications

- SOC
  11th Gen. Intel® mobile Tiger Lake-UP3 SoC
  Intel® Core™ i7-1185G7E (up to 4.4GHz, quad-core, 12M Cache, TDP=28/15/12W)
  Intel® Core™ i5-1145G7E (up to 4.1GHz, quad-core, 8M Cache, TDP=28/15/12W)
  Intel® Core™ i3-1115G4E (up to 3.9GHz, quad-core, 6M Cache, TDP=28/15/12W)
  Intel® Celeron® 6305 (up to 1.8GHz, dual-core, 4M Cache, TDP=15W)
- BIOS
  AMI UEFI BIOS
- Memory
  1 x 260-pin 3200 MHz DDR4 SO-DIMMs support up to 32 GB
- Graphics Engine
  Intel® Gen11 UHD Graphics for Core™ i3-1115G4E and Celeron® 6305E, Intel® Iris® Xe Graphics for i5-1145G7E and i7-1185G7
- Display Output
  Four Independent Displays
  2 x HDMI 1.4 (up to 4096 x 2160@30Hz)
  1 x DP 1.4 (up to 4096 x 2160 @60Hz)
  1 x IEI iDPM 3040 slot (only for IEI eDP/LVDS/VGA module)
- Ethernet
  LAN1: Intel® I225V 2.5GbE (i5 and i7 Colay with I225-LM)
  LAN2: Intel® I225V 2.5GbE (i5 and i7 Colay with I225-LM)
  LAN3: Intel® I225V 2.5GbE (i5 and i7 Colay with I225-LM)
- External I/O
  4 x USB 3.2 Gen 2 (10Gb/s)
- Internal I/O
  1 x SATA 6Gb/s
  2 x USB 2.0 pin header (P=2.0)
  2 x RS-232/422/485 (2x5 pin, P=2.0)
  1 x RS-232 (2x5 pin, P=2.0)
- I²C
  1 x I²C (1x4 pin)
- Audio
  1 x iAUDIO (2x5 pin) supporting IEI AC-KIT-888S kit
- Front Panel
  1 x Power LED & HDD LED (1x6 pin P=2.0)
  1 x Power button (1x2 pin P=2.0)
  1 x Reset button (1x2 pin P=2.0)
- LAN LED
  3 x LAN LED (1x2 pin)
- Expansion
  1 x M.2 A key for Wi-Fi & BT (2230) (PCIe Gen3 x1/USB 2.0 signal)
  1 x M.2 B key (3052/2242) w/ SIM holder (PCIe Gen3 x2/USB 2.0 signal)
- Digital I/O
  1 x 12-bit digital I/O (2x7pin)
- TPM
  Intel® PTT (TPM 2.0)
- Fan Connector
  1 x System fan connector (1x4 pin)
- Power Supply
  +12V DC input power (AT/ATX mode)
- Watchdog Timer
  Software Programmable support 1~255 sec. System reset
- Power Consumption
  12V@4.0A (11th Gen Intel® Core™ i5-1145G7E 2.6GHz with 8GB 3200MHz DDR4 memory and EUP enabled)
- Operating Temperature
  0°C ~ 60°C
- Storage Temperature: -20°C ~ 70°C
- Operating Humidity: 5% ~95%, non-condensing
- Dimension: 146mm x 102mm
- Weight: GW: 850g / NW: 350g
- Certification: CE/FCC Compliant

Dimensions *(Unit: mm)*



Packing List

1 x WAFER-TGL-U single board computer	1 x SATA with power cable kit
1 x Power cable for P4	1 x QIG

Optional Accessories

Part No.	Description
CB-USB02A-RS	Dual port USB cable with bracket, 300mm, P=2.00
AC-KIT-888S-R10	Realtek ALC888S 7.1 Channel HD Audio peripheral board, RoHS
32205-002700-200-RS	RS-232/422/485, 200mm, P=2.0
CM-WAFER-WF-R10	Cooler Module (W/FAN); Mechanical; for 3.5” WAFER series; RoHS
CM-WAFER-WOF-R10	Cooler Module (W/O FAN); Mechanical; for 3.5” WAFER series; RoHS
iDPM-eDP-R10	eDP to eDP converter board (for IEI iDPM connector)
iDPM-LVDS-R10	eDP to LVDS converter board (for IEI iDPM connector)

Ordering Information

Part No.	Description
WAFER-TGL-U-C-R10	3.5" SBC with Intel® Tiger Lake-UP3 Celeron® 6305 Proccessor, DDR4 SO-DIMM, 12V DC input, quad display, triple Intel® 2.5 GbE, SATA, USB 3.2, M.2, SoC, RoHS
WAFER-TGL-U-i3-R10	3.5" SBC with Intel® Tiger Lake-UP3 Core™ i3-1115G4E Proccessor, DDR4 SO-DIMM, 12V DC input, quad display, triple M.2 A/B key, triple Intel® 2.5 GbE, SATA, USB 3.2, SoC, RoHS
WAFER-TGL-U-i5-R10	3.5" SBC with Intel® Tiger Lake-UP3 Core™ i5-1145G7E Proccessor, DDR4 SO-DIMM, 12V DC input, quad display, triple M.2 A/B key, triple Intel® 2.5 GbE, SATA, USB 3.2, SoC, RoHS
WAFER-TGL-U-i7-R10	3.5" SBC with Intel® Tiger Lake-UP3 Core™ i7-1185G7E Proccessor, DDR4 SO-DIMM, 12V DC input, quad display, triple M.2 A/B key, triple Intel® 2.5 GbE, SATA, USB 3.2, SoC, RoHS

CB-USB02A-RS

AC-KIT-888S-R10

32205-002700-200-RS

CM-WAFER-WF-R10

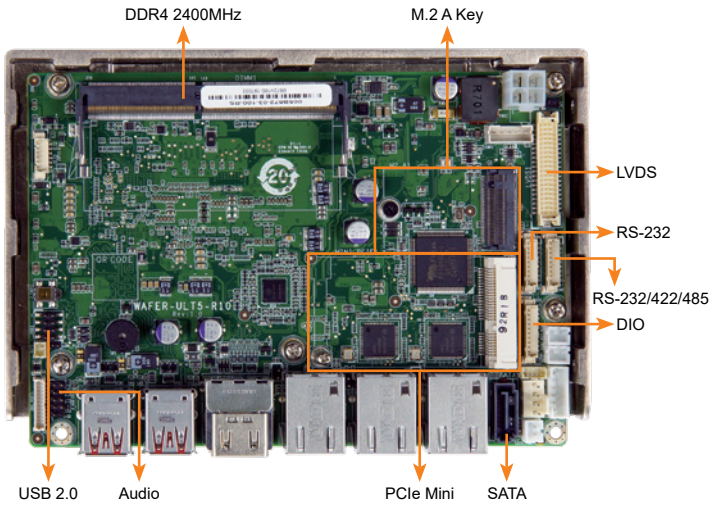
CM-WAFER-WOF-R10

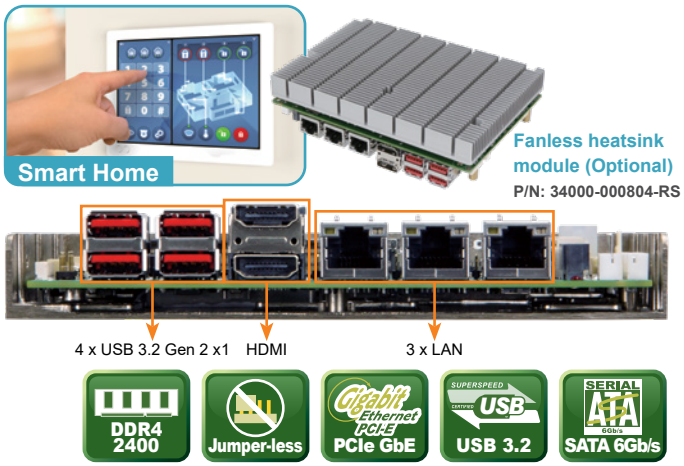
iDPM-eDP-R10

iDPM-LVDS-R10

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, M.2 A key, USB 3.2 Gen 2 x1, mPCIe with mSATA support, SATA 6Gb/s, COM and RoHS





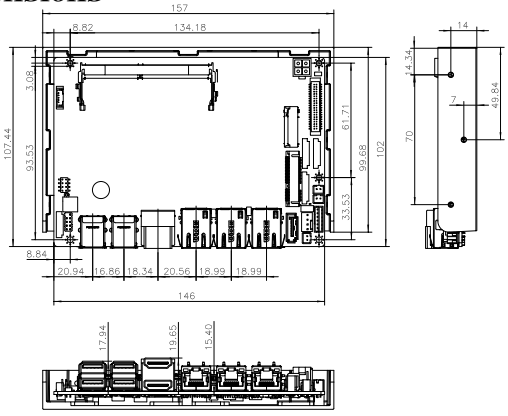
Specifications

- 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 3.2 Gen 2 x1
- 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 6Gb/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 IEI AC-KIT-888S-R10 kit)
- 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
  12V@3.38A (Intel® Core™ i7-8665UE up to 1.7GHz CPU with 16GB 2666MHz DDR4 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: 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 3.2 Gen 2 x1, 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)

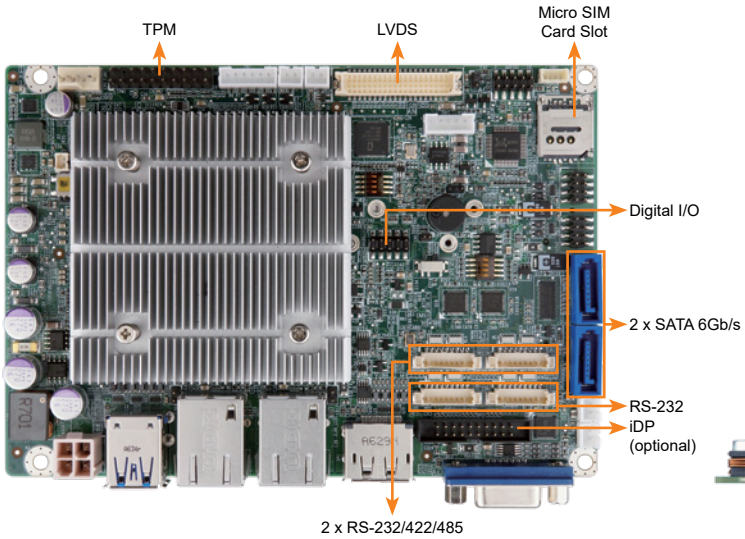
Ordering Information

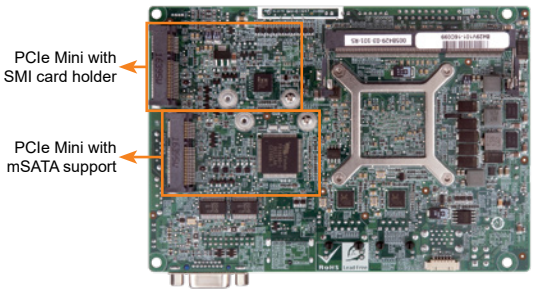
Part No.	Description
WAFER-ULT5-i7-R10	3.5" SBC supports Intel® 8th Generation Core™ i7-8665UE with DDR4 SO-DIMM, triple display with dual HDMI 1.4, LVDS, Triple GbE, USB 3.2 Gen 2 x1, M.2 A key, mPCIe with mSATA support, SATA 6Gb/s, COM and RoHS
WAFER-ULT5-i5-R10	3.5" SBC supports Intel® 8th Generation Core™ i5-8365UE with DDR4 SO-DIMM, triple display with dual HDMI 1.4, LVDS, Triple GbE, USB 3.2 Gen 2 x1, 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 3.2 Gen 2 x1, 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 3.2 Gen 2 x1, M.2 A key, mPCIe support, SATA 6Gb/s, COM and RoHS
WAFER-ULT5-CE-R10	3.5" SBC supports Intel® 8th Generation Celeron® 4205U with DDR4 SO-DIMM, triple display with dual HDMI 1.4, LVDS, Triple GbE, USB 3.2 Gen 2 x1, 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

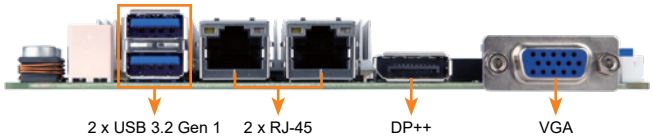
**By order production, MOQ: 100

WAFER-AL

3.5" SBC supports Intel® 14nm Generation Pentium® 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 ALC888S 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/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® Apollo Lake platform 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

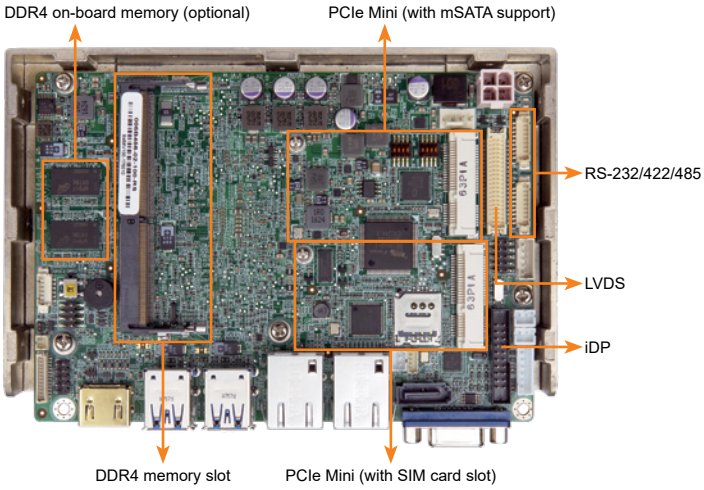
Ordering Information

Part No.	Description
WAFER-AL-N1-R11	3.5" SBC supports Intel® 14nm dual-core Celeron® N3350 2.4GHz on-board SoC with tripple display, Dual PCIe GbE, USB 3.0, PCIe Mini with mSATA support, SATA 6Gb/s, COM, Audio and RoHS
WAFER-AL-N2-R11	3.5" SBC supports Intel® 14nm quad-core Pentium® N4200 2.5GHz on-board SoC with tripple display, Dual PCIe GbE, USB 3.0, PCIe Mini with mSATA support, 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

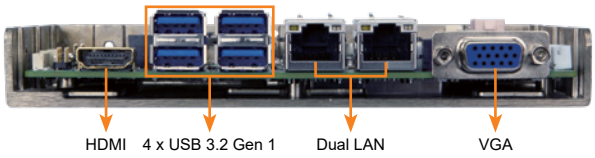
WAFER-ULT3

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)
- 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, support 7.1 channel HD audio by IEI AC-KIT-888S-R10 kit)
- 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)
  ** 3955U 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

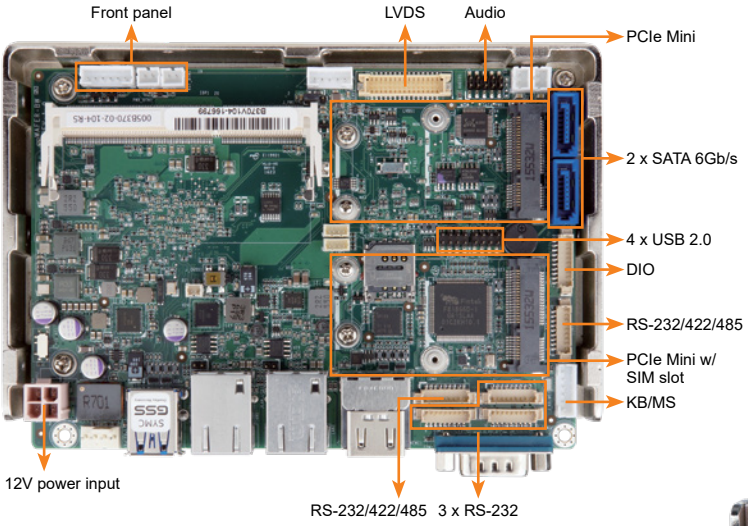
Ordering Information

Part No.	Description
WAFER-ULT3-i7-R11	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-R11*	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-R11*	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-R11*	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
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

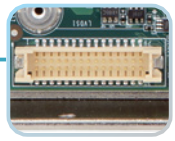
*EOS

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)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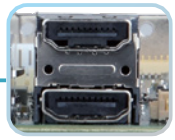
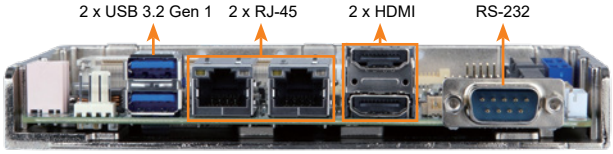

HDMI



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 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)
  2 x RS-232/422/485 (2 by pin header) (1x9 pin, P=1.25)
- SMBus
  1 x SMBus (1x4 pin)
- I²C
  1 x I²C (1x4 pin)
- Audio
  Realtek ALC888S 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/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	

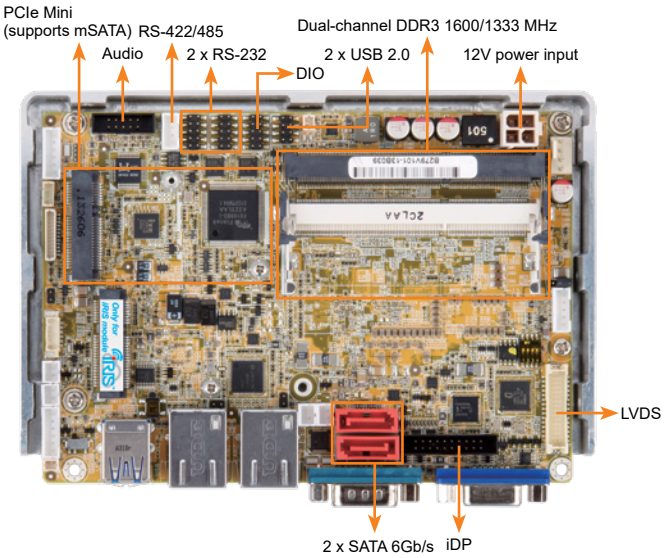
Ordering Information

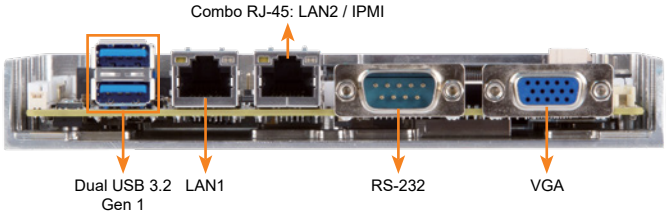
Part No.	Description
WAFER-BW-N4-R21*	3.5" SBC supports Intel® Pentium® quad-core processor N3710 up to 2.56GHz (6W) with dual HDMI and LVDS, Dual PCIe GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, mSATA, COM, Audio and RoHS
WAFER-BW-N3-R21	3.5" SBC supports Intel® Celeron® quad-core processor N3160 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-R21	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-R21**	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

*EOS
**By order production, MOQ: 100

WAFER-ULT2-i1

3.5" SBC supports Intel® 22nm 4th/14nm 5th Generation Mobile Core™ i5 , VGA/LVDS/iDP, Dual GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s Audio and RoHS





Specifications

- CPU
  5th generation Intel® mobile ULT on-board SoC
  Intel® Core™ i5-5350U (1.8GHz, dual-core, 3MB 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 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) 2 x USB 2.0 (2x4 pin, P=2.0)
  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 power connector
- iRIS Remote Management Module
  1 x iRIS-1010 slot
- Expansion
  1 x Full-size PCIe Mini card slot (mSATA support)
- Audio
  Realtek ALC888S 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

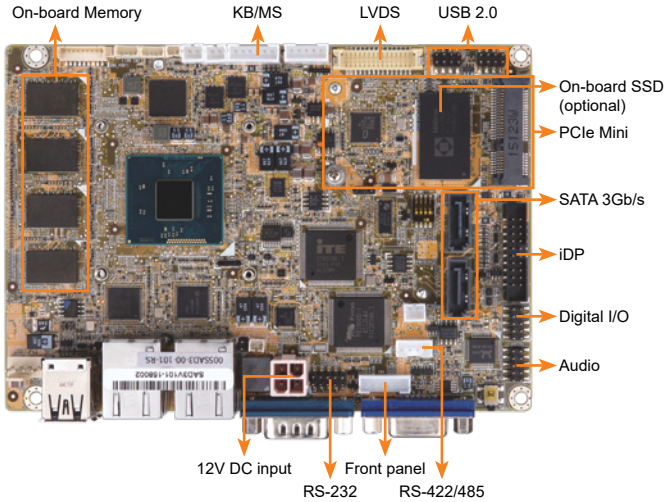
1 x WAFER-ULT2 single board computer with heatsink enclosure	
1 x Audio cable	
1 x Dual-port USB 2.0 cable	2 x SATA with 5V output cable kit
1 x Power cable	1 x QIG

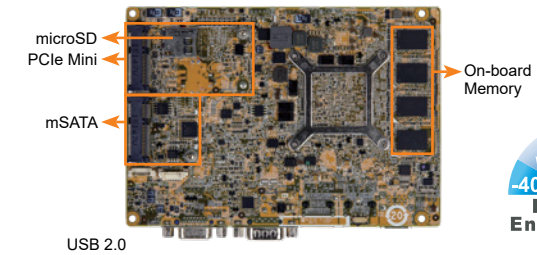
Ordering Information

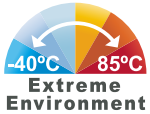
Part No.	Description
WAFER-ULT2-i1-i5-R12	3.5" SBC with Intel® 14nm 5th Generation ULT Mobile Core™ i5-5350U processor (ULT), VGA/LVDS/iDP, Dual GbE, PCIe Mini, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s and iRIS
19800-000300-200-RS	RS-232 cable, 300mm, P=2.0
32006-001100-201-RS	PS/2 KB/MS cable, 135mm/110mm, 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)

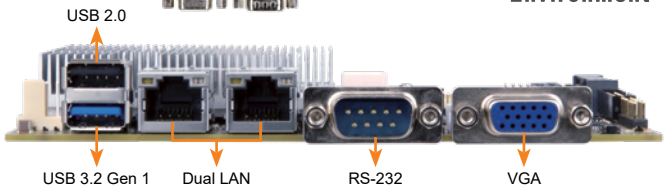
WAFER-BT-E38001W2

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)
- BIOS
  UEFI BIOS
- Memory
  4 GB solder-down 1066/1333 MHz DDR3L memory
- 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)
  1 x RS-232 (2x5 pin, P=2.0)
  4 x USB 2.0 (2x4 pin, P=2.0)
  1 x RS-422/485 (1x4 pin, P=2.0)
  2 x SATA 3Gb/s with 5V SATA power connector (no RAID)
- Expansion
  2 x Full-size PCIe Mini slot
- Audio
  Realtek ALC888S 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

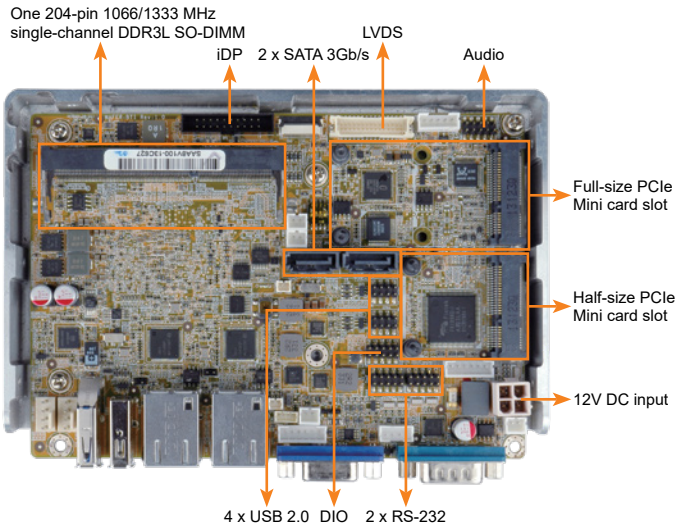
1 x WAFER-BT single board computer	1 x SATA with power cable kit
1 x Power cable	1 x QIG

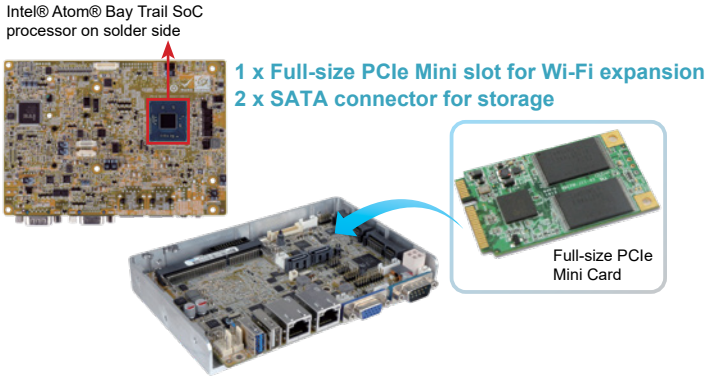
Ordering Information

Part No.	Description
WAFER-BT-E38451W2-R12	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
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)

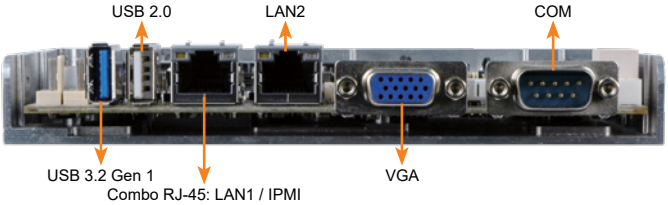
WAFER-BT

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® 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) 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 ALC888S 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 (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

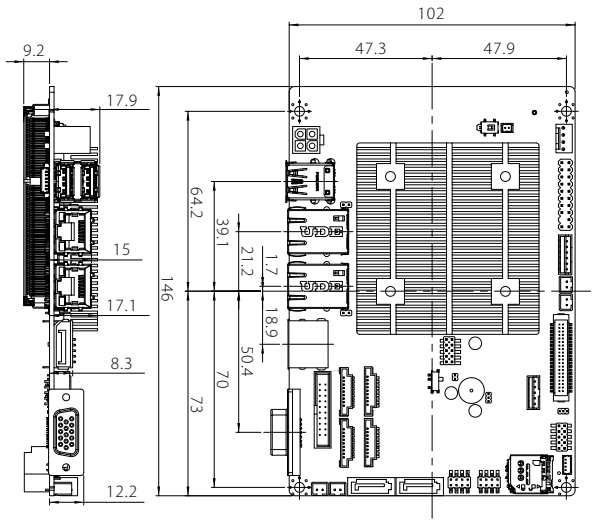
1 x WAFER-BT-i1 single board computer	
1 x Audio cable	1 x SATA with power cable kit
1 x Power cable	1 x QIG

Ordering Information

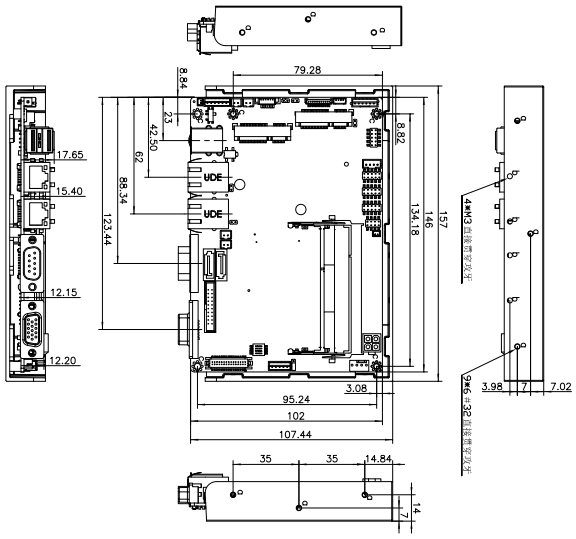
Part No.	Description
WAFER-BT-J19001-R21	3.5" SBC supports Intel® 22nm Quad-Core Celeron™ J1900 2.0GHz (10W) on-board SoC with VGA/LVDS/iDP, Dual PCIe GbE, USB 3.2 Gen 1 (5Gb/s), PCIe Mini, SATA, mSATA, COM, Audio and RoHS
WAFER-BT-N28071-R21	3.5" SBC supports Intel® 22nm Dual-Core Celeron™ N2807 1.58GHz (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-R21	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-J19001-ECO-R21	3.5" SBC supports Intel® 22nm Quad-Core Celeron™ J1900 2.0GHz (10W)on-board SoC with VGA/LVDS/iDP, Dual PCIe GbE, USB 2.0, PCIe Mini, SATA 6Gb/s, 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

WAFER Dimensions (Unit: mm)

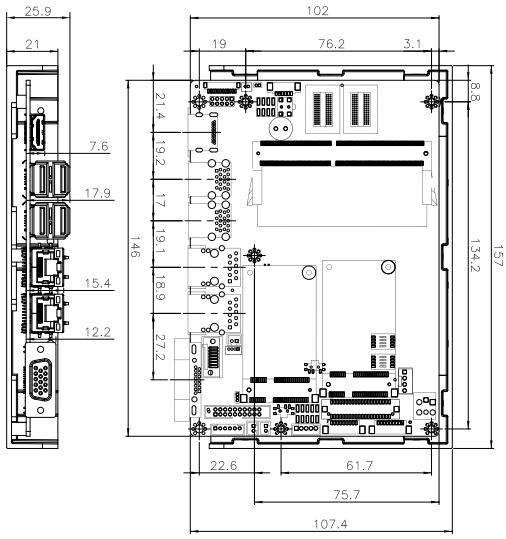
WAFER-AL



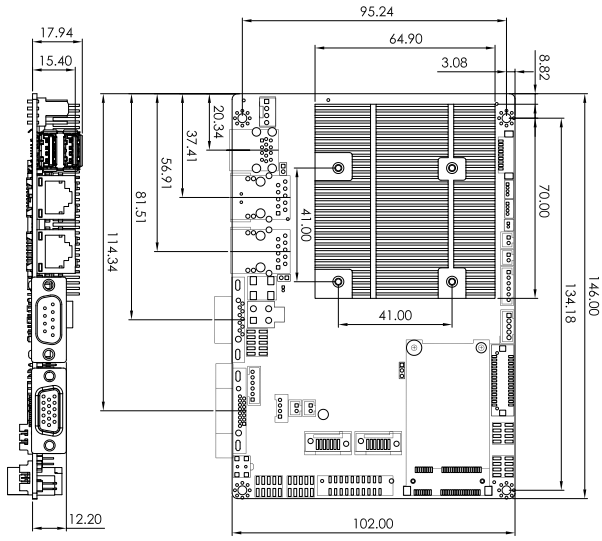
WAFER-ULT2-i1/WAFER-ULT-i1



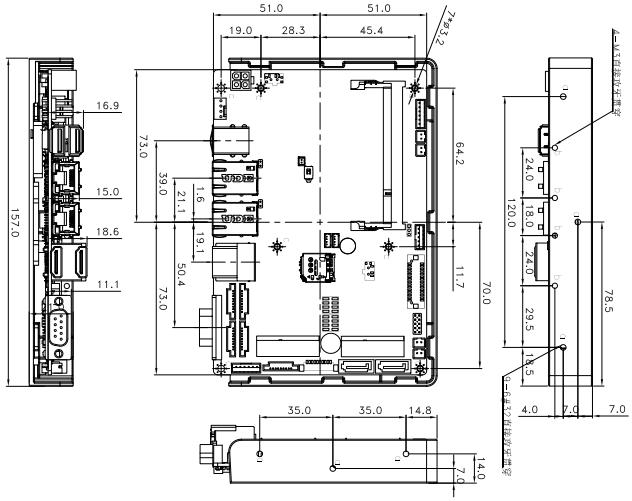
WAFER-ULT3



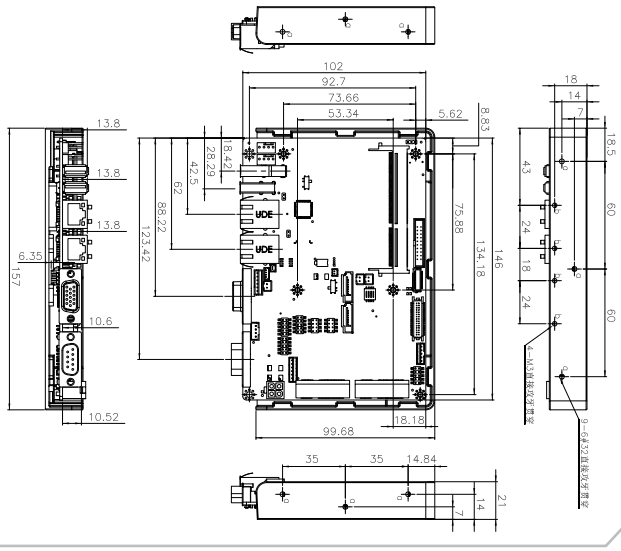
WAFER-BT-E38001W2



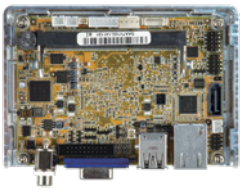
WAFER-BW



WAFER-BT-i1



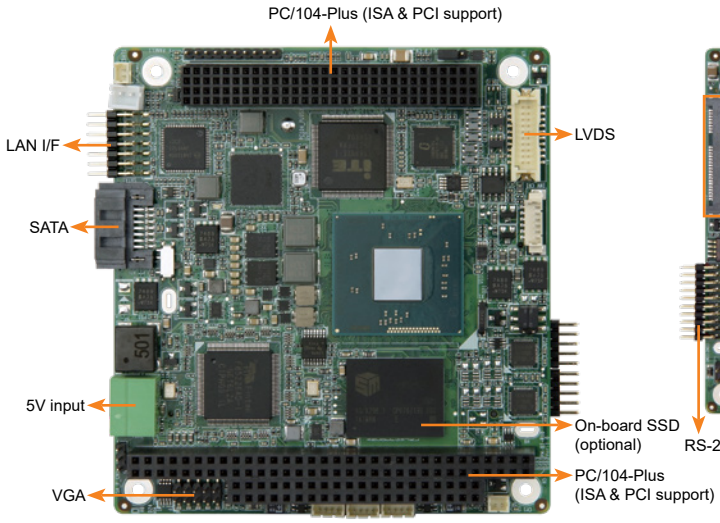
PC/104, Pico-ITX Selection Guide

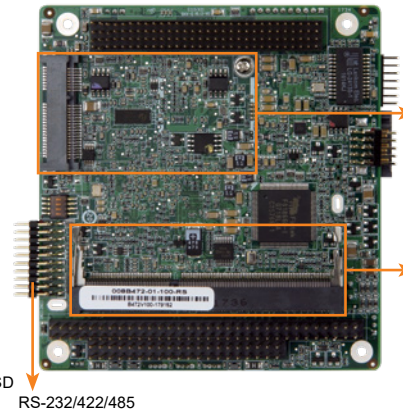


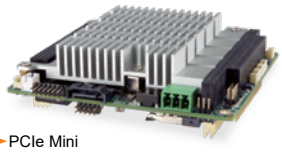
Model Name	PM-BT	HYPER-AL	HYPER-BW	HYPER-BT
CPU Socket	On board	On board	On board	On board
CPU Type	Intel® Atom®/Celeron® SoC (Code name: Bay Trail)	Intel® Celeron® SoC Code name: Apollo Lake	Intel® Pentium®/Celeron® SoC (Code name:Braswell)	ntel® Atom®/Celeron® SoCCode name:BayTrail
Chipset	Intel® Atom®/Celeron® SoC	Intel® Celeron® SoC	Intel® Pentium®/Celeron® SoC	Intel® Atom®/Celeron® SoC
Memory	1 x 204-pin 1066/1333 MHz DDR3L SO-DIMM (system max. 8 GB)	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 display supported 1 x VGA 1 x 18/24-bit single-channel LVDS	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	GbE by Intel® I210 Ethernet PHY	LAN1: Realtek RTL8111H controller LAN2: Realtek RTL8111H controller	LAN: Realtek RTL8111GN controller	LAN: Intel® I211-AT PCIe GbE controller
I/O Interface	2 x RS-232/422/485 (2x5, P=2.0) 3 x USB 2.0 (1x4 pin, P=1.25)	N/A		
Storage Interface	1 x SATA 3Gb/s with 5V SATA power connector On-board SSD (optional)	1 x RS-232 pin header 2 x USB 2.0 pin header 2 x USB 3.2 Gen 1	1 x RS-232 pin header 1 x USB 3.2 Gen 1 1 x USB 2.0 2 x USB 2.0 pin header	1 x RS-232 pin header 1 x USB 3.2 Gen 1 1 x USB 2.0 2 x USB 2.0 pin header
Audio	N/A	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)
Digital I/O	1 x 8-bit DIO	10 pin header on board support 7.1 channel HD Audio by IEI AC-KIT-888S-R10 kit		Realtek ALC888S HD Audio codec
Power Consumption	5V@1.70A (Intel® Celeron® J1900 CPU with 8GB memory)	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	Temperature Range: -20°C ~ 60°C (for J1900/N2930/N2807) Relative Humidity: -40°C ~ 85°C (for E38xx)	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 (support mSATA) 1 x PC/104-Plus (ISA+PCI)	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

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







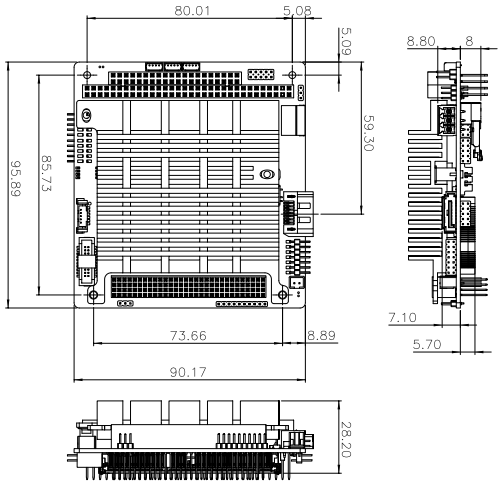
Specifications

- SoC
  Intel® Celeron® J1900 on-board SoC (2GHz, quad-core, 2MB cache, TDP=10W)
- BIOS
  AMI UEFI BIOS
- Memory
  One 204-pin 1333/1066 MHz single-channel DDR3L SO-DIMM supports up to 8 GB
- 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
- 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

Dimensions *(Unit: mm)*



Packing List

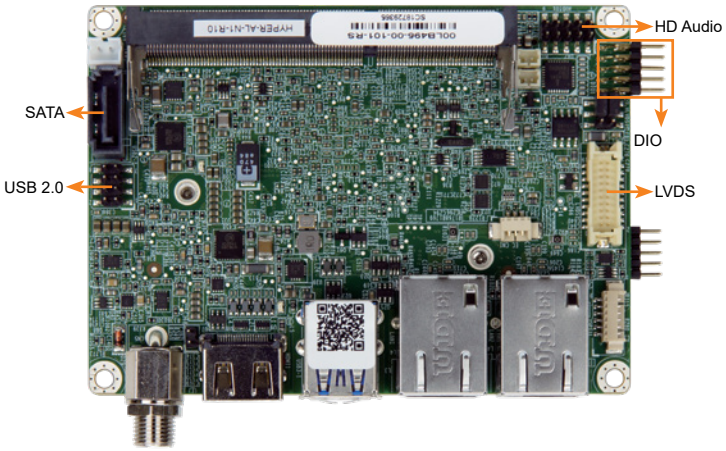
1 x PM-BT single board computer	
1 x COM port cable	1 x SATA cable kit
1 x Heatsink	1 x Single-port USB cable
1 x LAN cable	1 x VGA cable

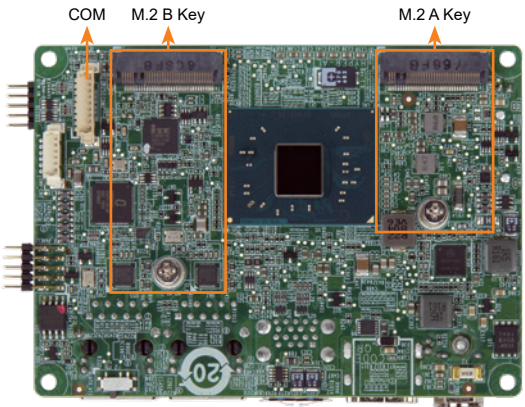
Ordering Information

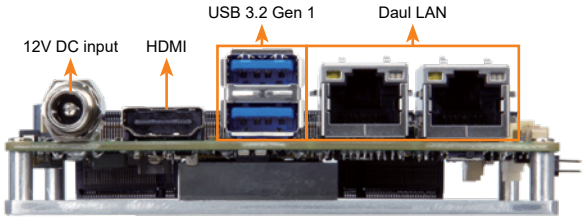
Part No.	Description
PM-BT-J19001-R10	PC/104-Plus single board computer with Intel® Celeron® J1900 SoC with DDR3L, VGA, LVDS, USB 2.0, SATA 3Gb/s, GbE, RS-232/422/485 and 5V DC input, RoHS
33403-000015-RS	PC104 plus spacer (for PCI) 120 pin socket connector
33403-000016-RS	PC104 plus spacer (for ISA) 64+40 pin socket connector

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







Electronic Scale

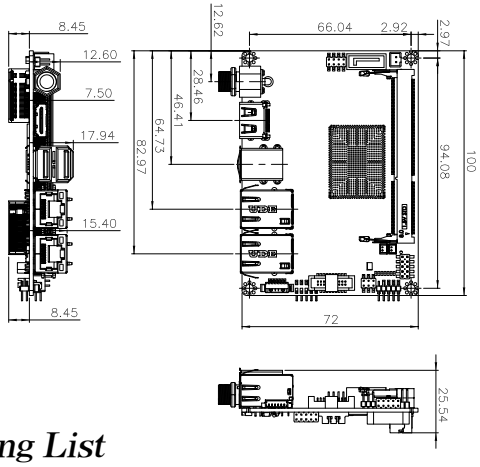
Specifications

- 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 (2x5 pin, support 7.1 channel HD audio by IEI AC-KIT-888S-R10 kit)
- 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

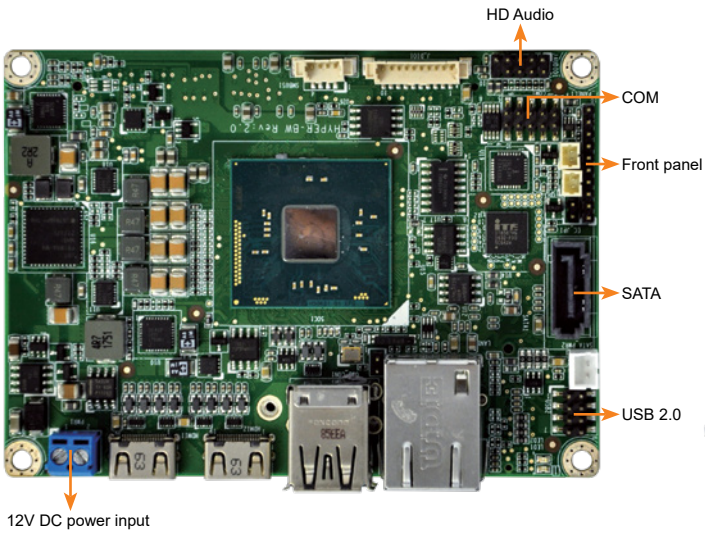
1 x HYPER-AL single board computer (heat spreader by default)	
1 x COM port cable	1 x QIG (Quick Installation Guide)
1 x SATA cable kit	

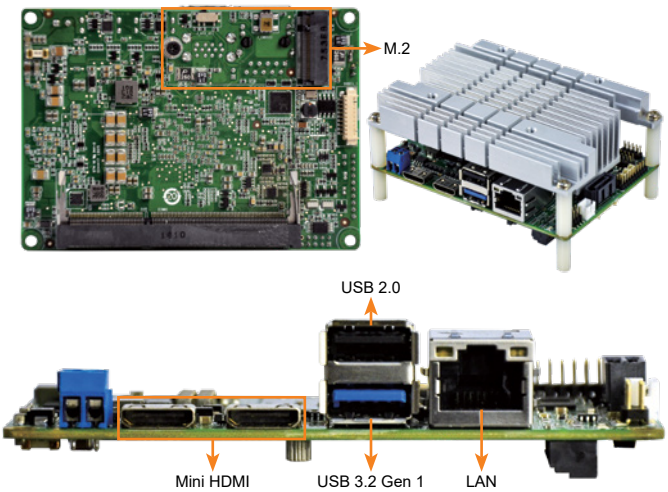
Ordering Information

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

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 (2x5 pin, support 7.1 channel HD audio by IEI AC-KIT-888S-R10 kit)
- 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

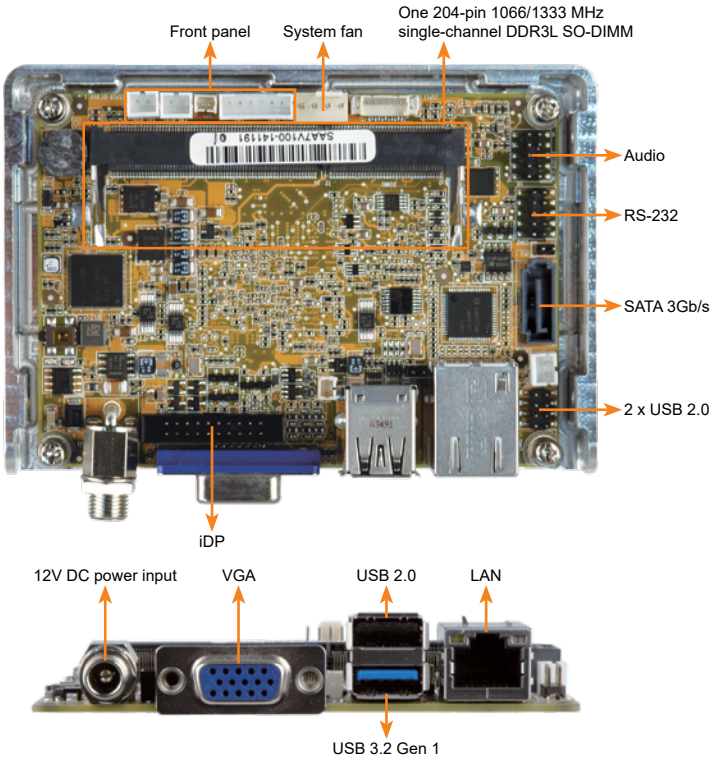
Ordering Information

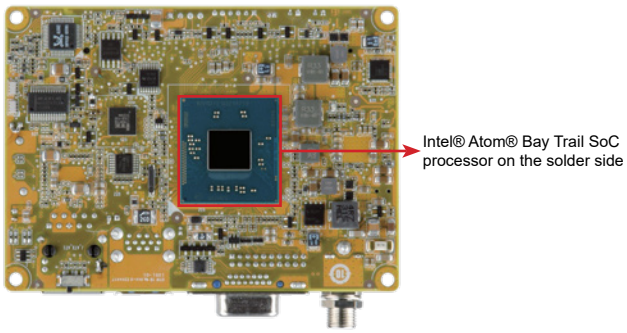
Part No.	Description
HYPER-BW-N4-R20	Pico-ITX SBC with Intel® Pentium® 14nm quad-core N3710 up to 2.56GHz (6W) on-board SoC with dual Mini HDMI, PCIe GbE, M.2, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, COM, Audio and RoHS
HYPER-BW-N3-R20	Pico-ITX SBC with Intel® Celeron® 14nm quad-core N3160 up to 2.24GHz (6W) 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 (10 pcs/pack)
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
63040-010036-101-RS	12V 36W AC/DC adapter
AC-KIT-888S-R10	Realtek ALC888S 7.1 Channel HD Audio peripheral board,RoHS

*EOS
**By order production, MOQ: 100

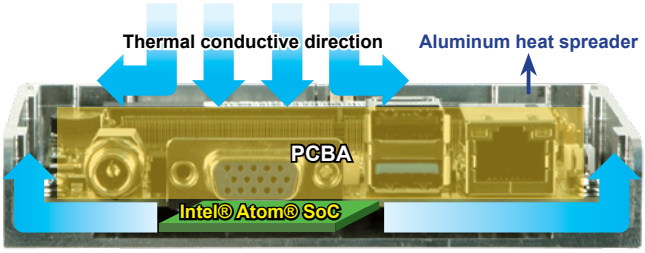
HYPER-BT

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 ALC888S HD Audio codec supports 7.1-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

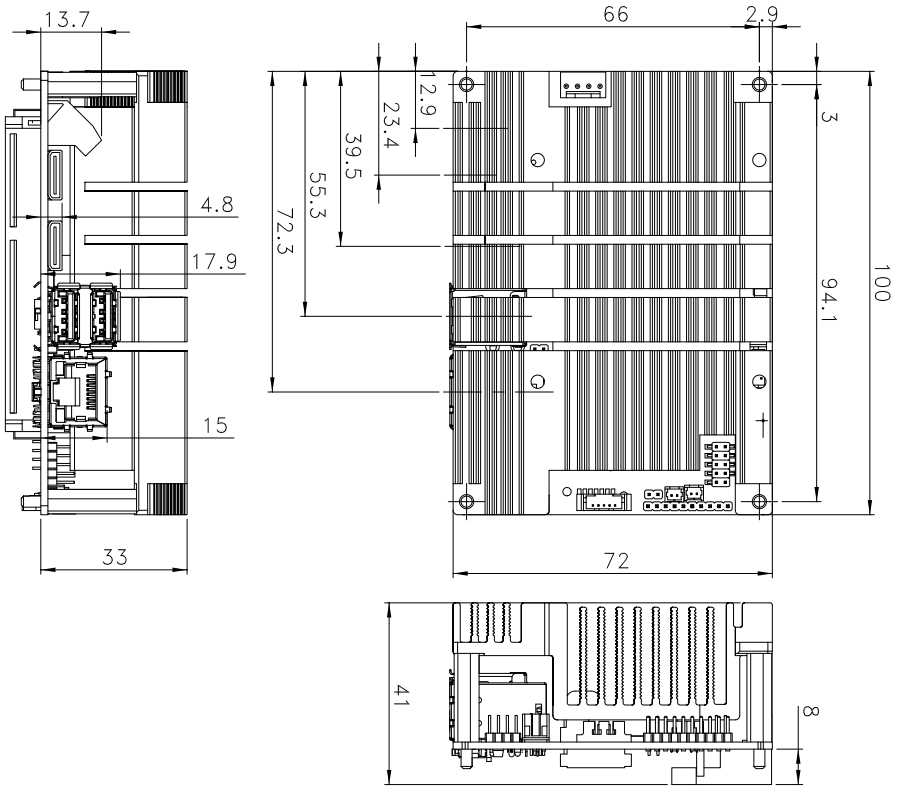
Ordering Information

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
32205-002700-200-RS	RS-232 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 borad (for IEI iDP connector)
DP-VGA-R10	DisplayPort to VGA converter board (for IEI iDP connector)

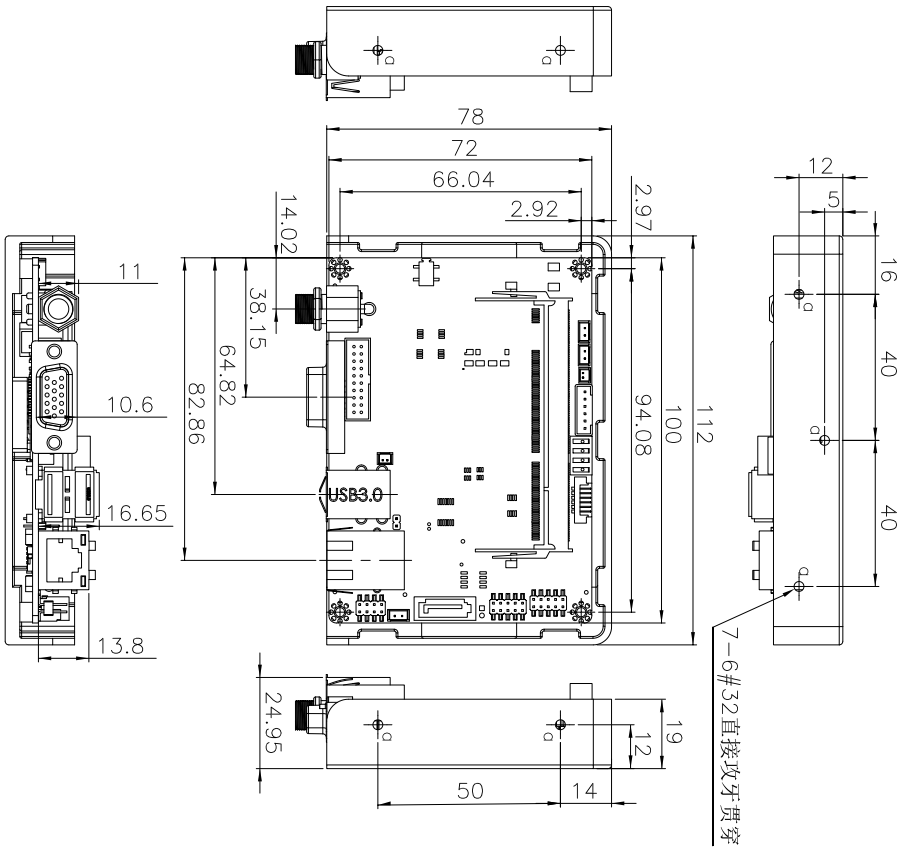
*EOS
**By order production, MOQ: 100

HYPER Dimensions (Unit: mm)

HYPER-BW



HYPER-BT



IEI Computer on Modules

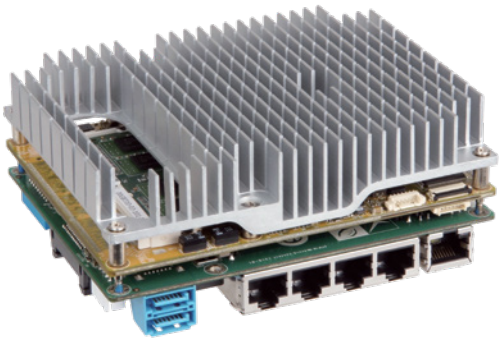
A computer-on-module (COM) is a type of single-board computer (SBC), a subtype of an embedded computer system. An extension of the concept of system on chip (SoC) and system in package (SiP), COM lies between a full-up computer and a microcontroller in nature.

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

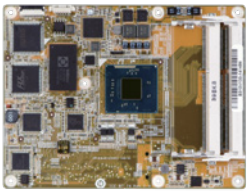
IEI Computer on Module Form Factors

COM Express Type 6
Compact: 95 mm x 95 mm

COM Express Type 6
Basic: 125 mm x 95 mm

Qseven 2.0
70 mm x 70 mm

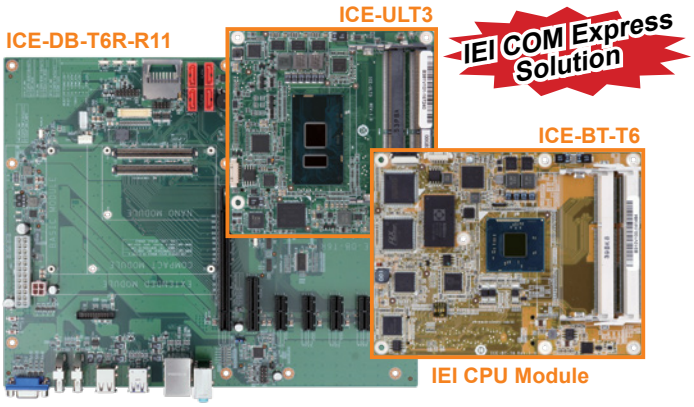
Computer on Module Selection Guide



Computer on Module	COM Express Type 6	COM Express Type 6	Qseven 2.0
COM Express Size	Compact: 95 mm x 95 mm	Basic: 125 mm x 95 mm	70 mm x 70 mm
Model Name	**ICE-ULT3**	**ICE-BT-T6**	**iQ7-BT-E38001 iQ7-BT-E38001W2**
CPU Socket	On board	On board	On board
CPU Type	Intel® Skylake ULT on-board SoC	Intel® Atom™/Celeron® on-board SoC	Intel® Atom™/Celeron® on-board SoC
Chipset	Intel® Skylake ULT	Intel® Atom™/Celeron® on-board SoC	Intel® Atom™/Celeron® on-board SoC
Memory	Two 260-pin 2133/1867 MHz dual-channel DDR4 SDRAM Unbuffered SO-DIMM supported (system max. 32GB)	Two 204-pin 1333/1066 MHz dual-channel DDR3L SO-DIMM supported (system max. 8 GB)	2 GB soldered down 1333/1066 MHz DDR3L memory (up to 4 GB)
Display Interface	Triple display supported 1 x DDI: DisplayPort/HDMI/DVI 1 x DDI: DP to VGA via CH7517 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: DisplayPort/HDMI 1 x LVDS: 18/24-bit dual-channel LVDS	Dual display supported 1 x DDI: DisplayPort/HDMI 1 x LVDS: 18/24-bit dual-channel LVDS
Ethernet	LAN1: Intel® I219LM	LAN1: Intel® I210 GbE controller	LAN1: Intel® I210 GbE controller
I/O Interface	2 x RS-232 (2-Wire) to baseboard 4 x USB 2.0 signal to baseboard 4 x USB 3.2 Gen1 signal to baseboard (with 4 x USB 2.0)	1 x I²C 1 x LPC 1 x SMBus 2 x Serial port (TX & RX) 7 x USB 2.0 signal to baseboard 4 x USB 3.2 Gen1 signal to baseboard	3 x I²C 1 x LPC 1 x SDIO 1 x SMBus 5 x USB 2.0 signal to baseboard 1 x USB 3.2 Gen 1 signal to baseboard
Storage Interface	2 x SATA 6Gb/s signal to baseboard eMMC 5.0 (optional)	2 x SATA 3Gb/s signal to baseboard Optional soldered down SSD up to 64 GB (SATA port 1)	2 x SATA 3Gb/s signal to baseboard Optional soldered down SSD up to 64 GB (SATA port 1)
Audio	High-definition Audio interface		
Power Consumption	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	Operating Temperature: -20°C ~ 60°C Operating Humidity: 5% ~ 95%, non-condensing	Operating Temperature: -20°C ~ 60°C Operating Humidity: 5% ~ 95% non-condensing	Operating Temperature: -20°C ~ 60°C -40°C ~ 85°C (iQ7-DB-MATX) Operating Humidity: 5% ~ 95% non-condensing
Expansion Slot	1 x PCIe x1 signal to baseboard (Via PCIe x16 channel) 8 x PCIe x1 signal to baseboard	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

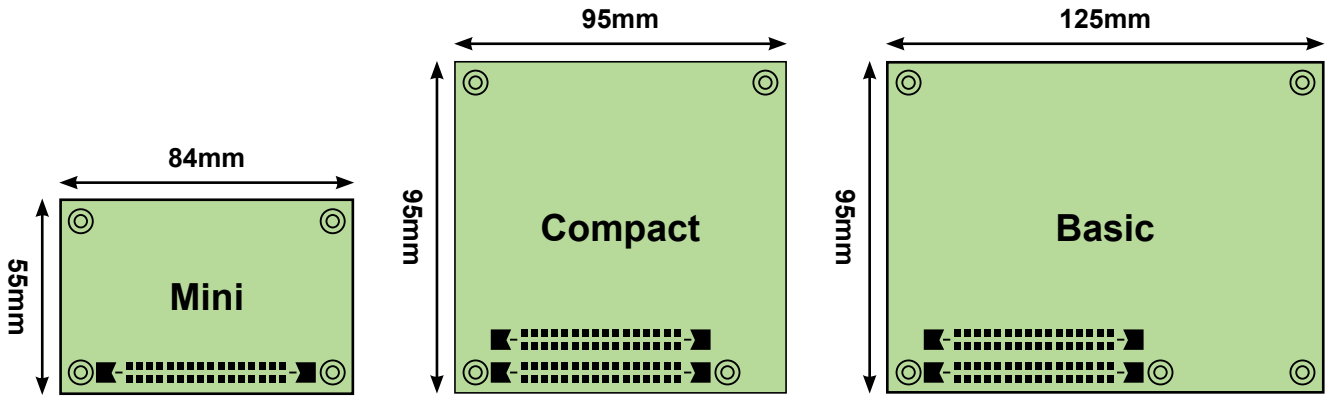
COM Express, a computer-on-module (COM) form factor, is a highly integrated and compact PC that can be used in a design application much like an integrated circuit component. Each COM Express Module COM integrates core CPU and memory functionality, the common I/O of a PC/AT, USB, audio, graphics (PEG), 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 C	4 ports USB 3.2 Gen 1/2.0	2 lanes PCIe x 1	DDI 1	DDI 2	DDI 3	PCIe x16	12V

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

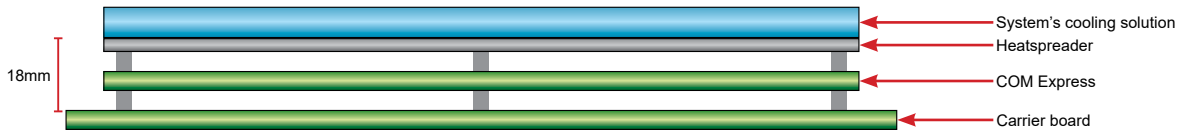
D C	4 ports USB 3.2 Gen 1/2.0	2 lanes PCIe x 1	4 x 10GbE LAN	PCIe x16	12V

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.

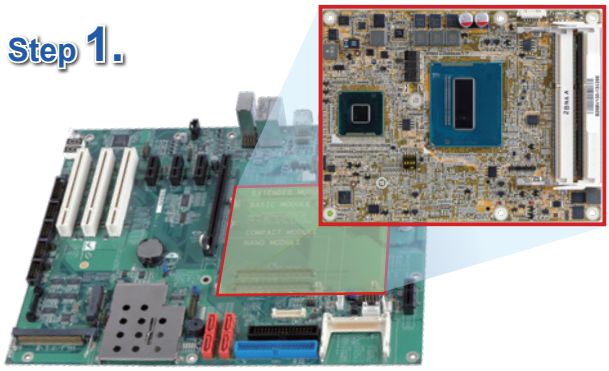


1. Installing the COM Express

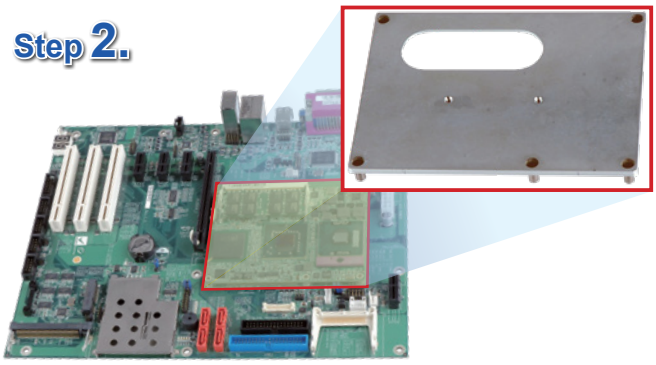
Firmly insert the COM Express into the COM Express socket.

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.

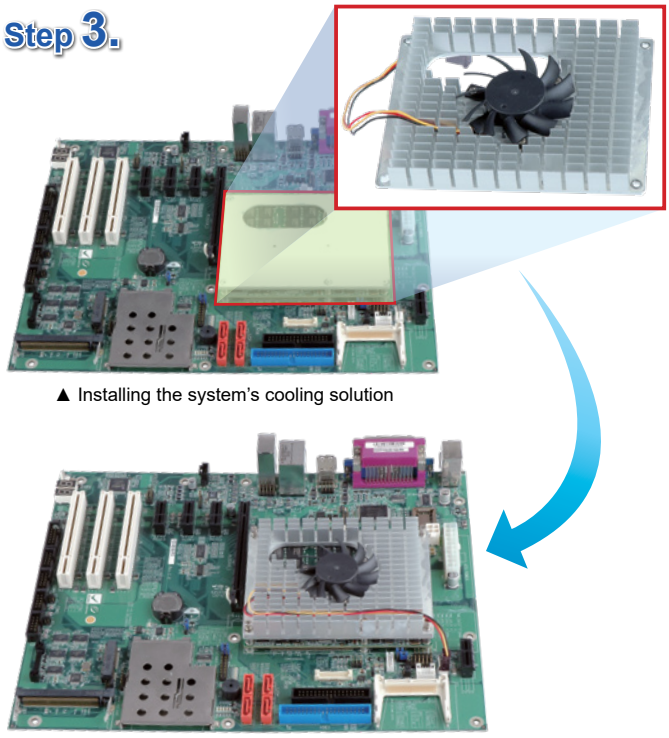
Operating Temperature

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.

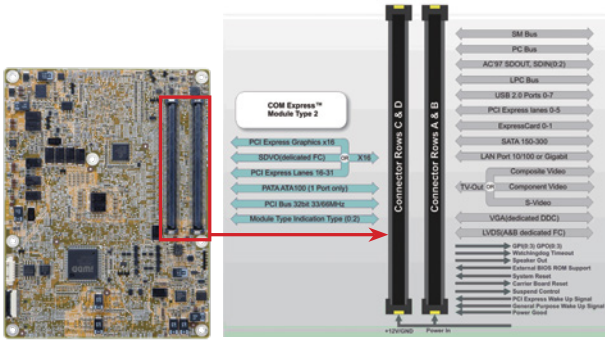


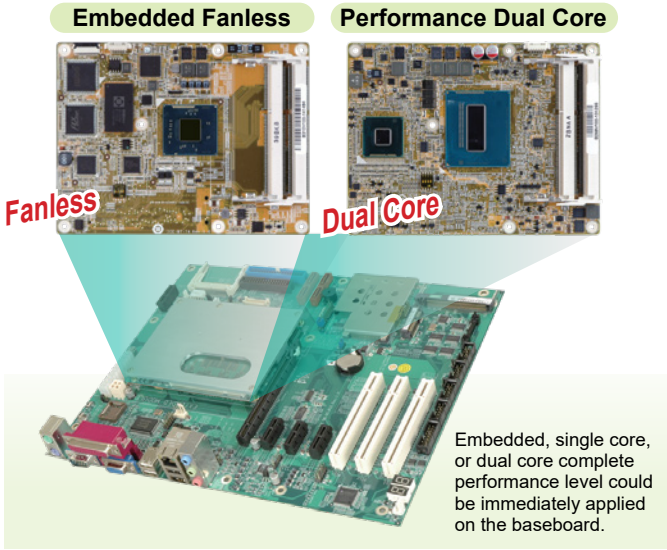
▲ Installing the system's cooling solution

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

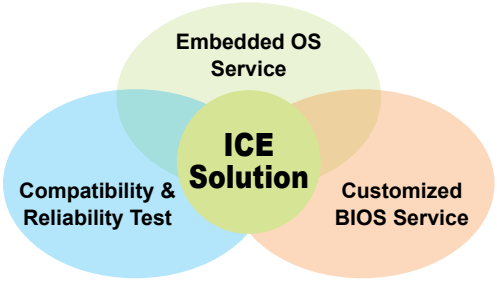




B: Strong Support

- 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

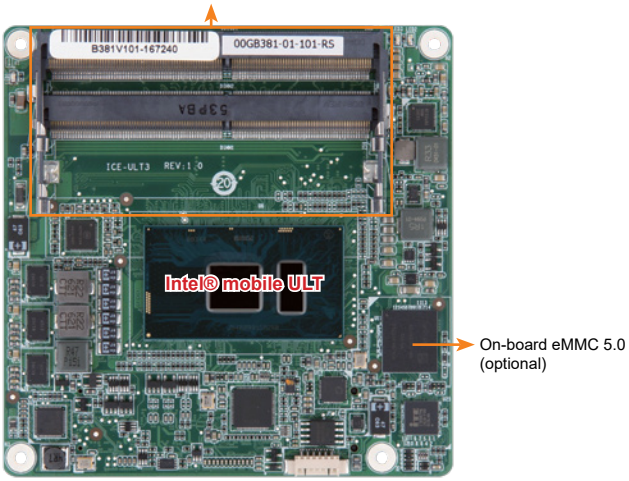
DQV Team
- Product validation
- Environmental testing
- Compatibility testing
- Reliability testing/prediction

Support Team
- EMC/Safety service (FCC, UL, CSA, CE..)
- Key parts/Component verification team

TYPE 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

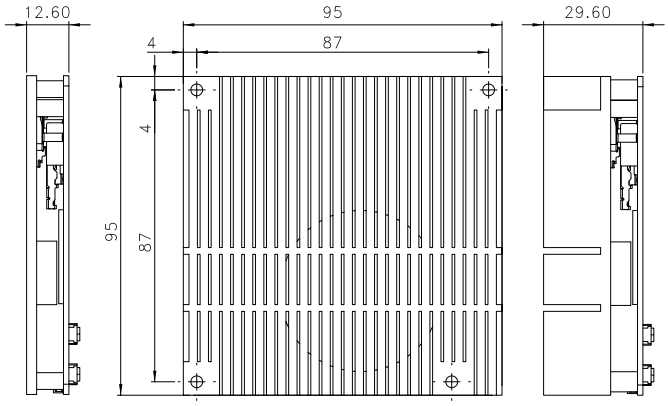
Specifications

- 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)
- Memory
  Two 260-pin 2133/1866 MHz dual-channel DDR4 non-ECC unbuffered SO-DIMM 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 baseboard
- I²C
  YES, to baseboard
- LPC
  YES, to baseboard
- 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 baseboard
- TPM
  Through baseboard
- 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 ~ 60°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimension
  95 mm x 95 mm
- Weight
  GW: 600g / NW: 250g
- Safety: CE/FCC compliant

Features

- Support Intel® Skylake ULT Processors
- Intel® HD Graphics technology integrates high-performance graphics and media processing
- Two 260-pin 2133/1867 MHz Dual-Channel DDR4 SDRAM Unbuffered SO-DIMM supported (system max. 32GB)
- Support 18/24-bit dual-channel LVDS, analog CRT, DDI (DisplayPort/HDMI/DVI)
- Support Intel® I219LM with AMT 11.0

Dimensions *(Unit: mm)*



Packing List

1 x ICE-ULT3 single board computer	
1 x Heatsink	1 x QIG

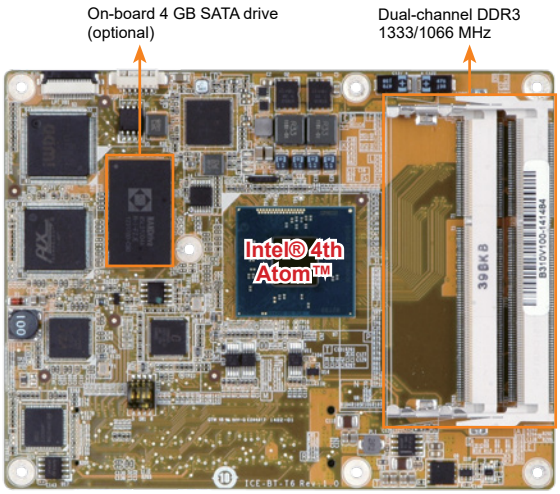
Ordering Information

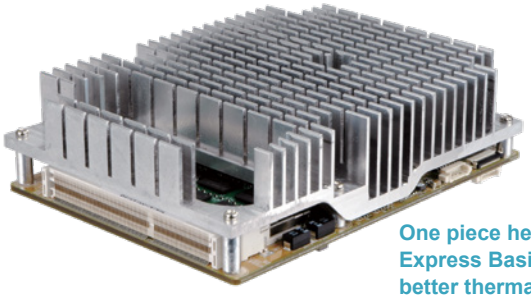
Part No.	Description
ICE-ULT3-i7-R10	COM Express Compact size Type 6 Module, 6th Generation Intel® Core™ i7-6600U (15W) on-board Processor (ULT), DDR4, VGA, LVDS, DDI, GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s and HD Audio, RoHS
ICE-ULT3-i3-R10	COM Express Compact size Type 6 Module, 6th Generation Intel® 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-DB-T6R-R11	Base Board for COM Express Type 6 Module COM.0 Rev. 2.1, support PICMG EAPI R1.0

TYPE 6

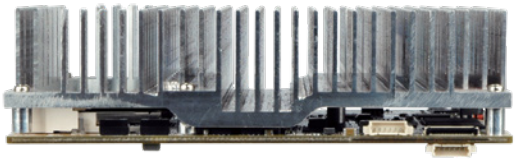
ICE-BT-T6

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



1.35V DDR3L | Dual Display | USB 3.2 | SATA 3Gb/s | GbE

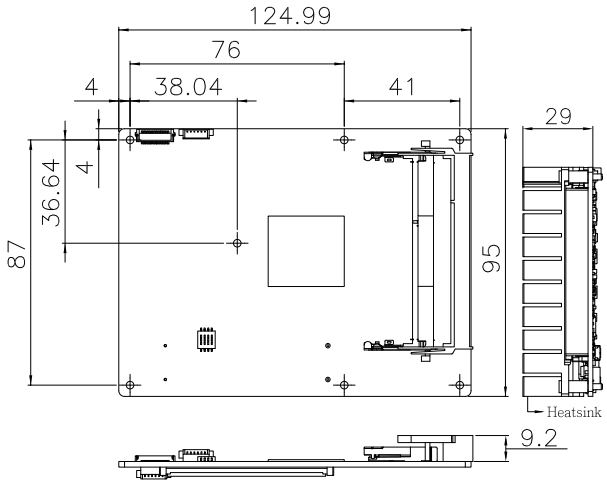
Specifications

- CPU
  Intel® Atom™ E3845 on-board SoC (1.91GHz, quad-core, 2MB cache, TDP=10W)
  Intel® Atom™ 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 1333/1066 MHz dual-channel DDR3L SDRAM unbuffered SO-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: (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 controller
- 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
- Safety:CE/FCC compliant

Features

- Support Intel® 22nm Atom™ or Celeron® on-board SoC
- Intel® HD Graphics Gen7 integrates high-performance graphics and media processing
- Support 1333/1066 MHz dual-channel DDR3L (1.35V) memory up to 8 GB
- Support one analog CRT, one 24-bit dual-channel LVDS, and one DDI (DisplayPort/ HDMI)
- Support optional soldered down SSD up to 64 GB

Dimensions *(Unit: mm)*



Packing List

1 x ICE-BT-T6 single board computer	
1 x Heatsink	1 x QIG

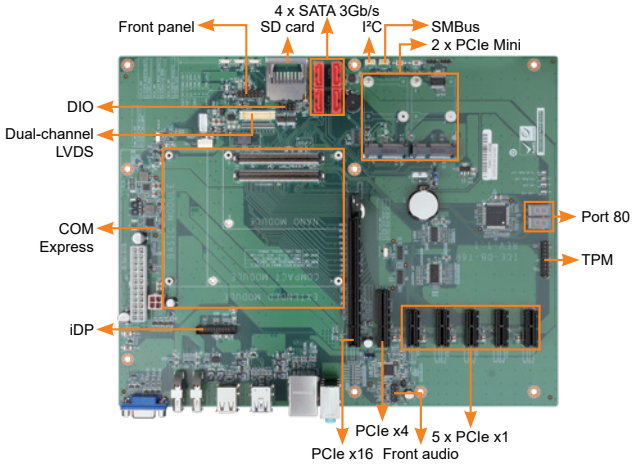
Ordering Information

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

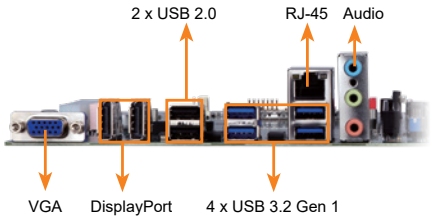
TYPE 6

ICE-DB-T6R

Baseboard for COM Express Type 6 Module COM.0 Rev. 2.1 (for ICE-ULT3, ICE-QM871 & ICE-BT-T6)



TPM 1.2 Support



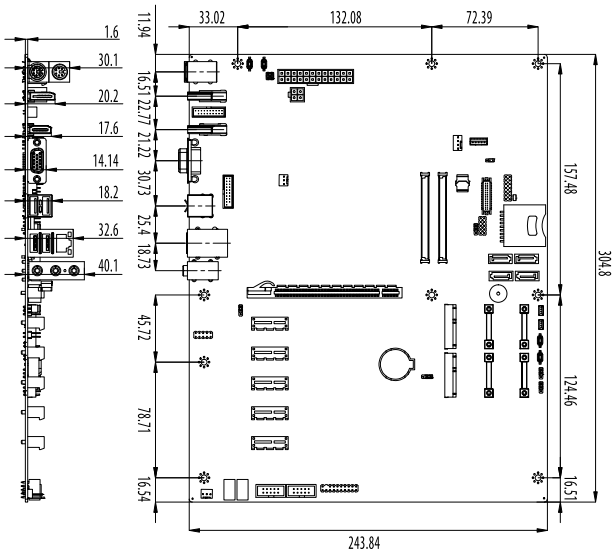
Specifications

- Form Factor
  ATX form factor baseboard
- CPU
  Supports COM Express Compact/Mini module using connector pin out Type 6
- Display Interfaces
  1 x iDP pin-header
  1 x LVDS 18/24-bit single or dual-channel (with PWM back light controller)
  1 x VGA
  2 x DisplayPort
- Audio
  Realtek ALC888S 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 3Gb/s
  1 x SD card socket
- External I/OInterface
  1 x Audio jack (Line-in, Line-out, Mic)
  2 x DisplayPort
  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:
  2x5 pin pin header
- TPM:
  1 x TPM connector (2x10 pin)
- 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 (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
- Safety:CE/FCC compliant

Features

- ATX form factor baseboard for COM Rev. 2.1, pin-out Type 6
- Support 1 x PCIe x16, 1 x PCIe x4, 5 x PCIe x1, 2 x PCIe Mini
- Support PICMG EAPI R1.0

Dimensions *(Unit: mm)*



Packing List

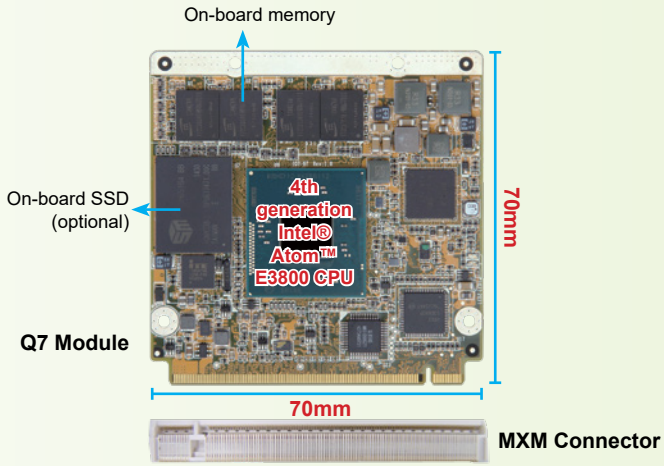
1 x Baseboard for COM Express	1 x Mini jumper pack
2 x SATA cable	1 x QIG

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

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

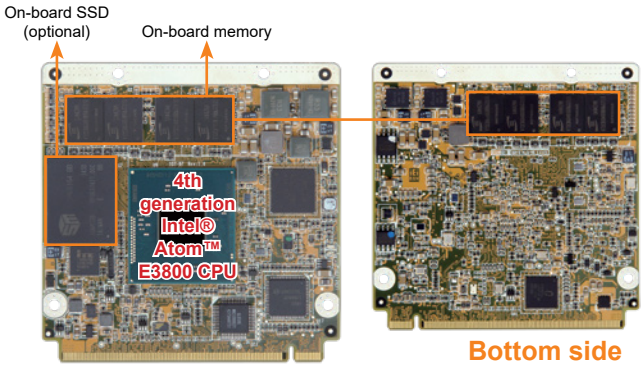
Automation Controllers

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



Features

- Support 22nm Intel® Atom™ on-board SoC
- Qseven connector pinout according to Qseven Specification Revision 2.0
- Supports 2 GB 1333/1066 MHz DDR3L memory (4 GB optional)
- Support optional soldered down SSD up to 64 GB

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 1333/1066 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 LVDS: 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 up to 64 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
- Safety
  CE/FCC compliant

Packing List

1 x iQ7-BT single board computer	
1 x Heatsink	1 x QIG

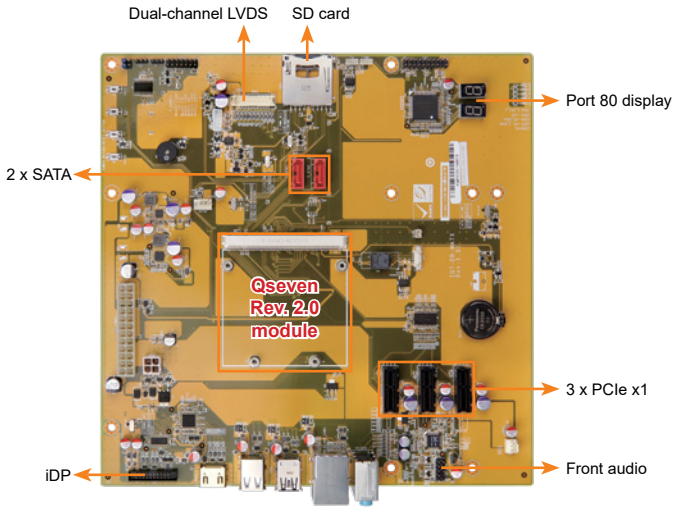
Ordering Information

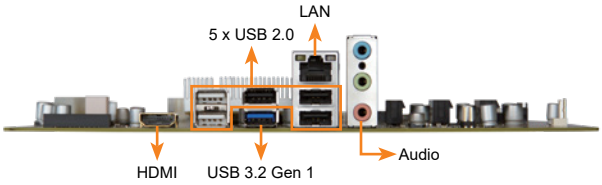
Part No.	Description
iQ7-BT-E38451-R10	Qseven Rev. 2.0 module supports Intel® Atom™ processor E3845 (quad core, 10W), on-board 2 GB DDR3L, LVDS, DDI, GbE, SATA 3Gb/s, SDIO, USB 3.2 Gen 1 (5Gb/s), Audio, and RoHS
iQ7-BT-E38251-R10	Qseven Rev. 2.0 module supports Intel® Atom™ processor E3825 (dual core, 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 ALC888S HD Audio codec (Line-in, Line-out, Mic)
- Internal I/O Interface
  1 x LPC
  1 x SD card socket
  2 x SATA 3Gb/s
  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 connector (2x5 pin)
- TPM
  1 x TPM connector(2x10 pin)
- Port 80 Display
  2x7 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)
- Operating Temperature
  -20°C ~ 60°C
- Humidity
  5% ~ 95%, non-condensing
- Dimensions
  243.8 mm x 243.8 mm
- Safety
  CE/FCC compliant

Packing List

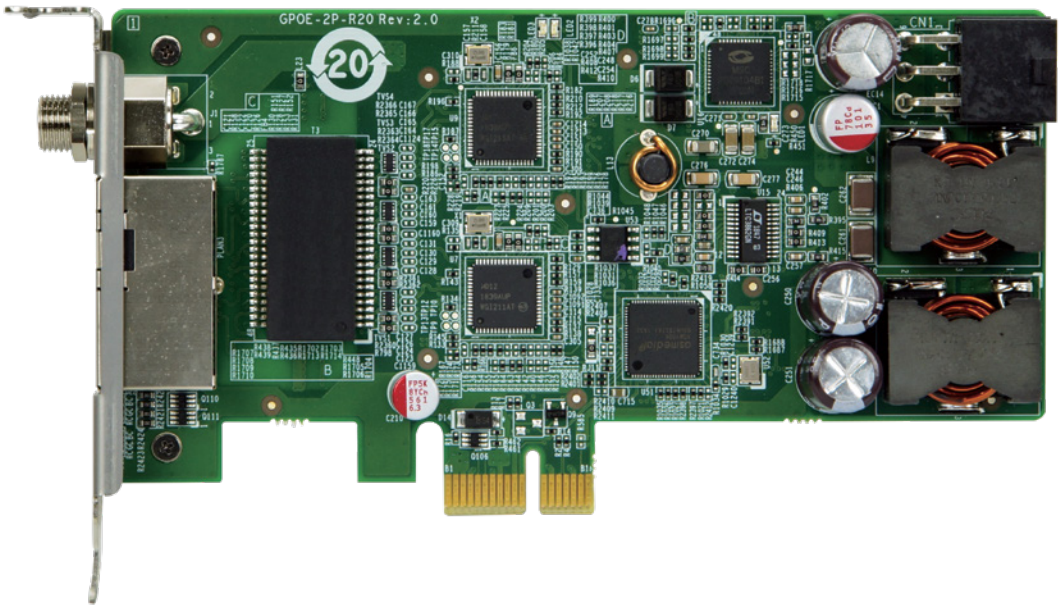
1 x Qseven® baseboard
1 x QIG

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

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 802.3at, 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
- Safety:
  CE/FCC compliant

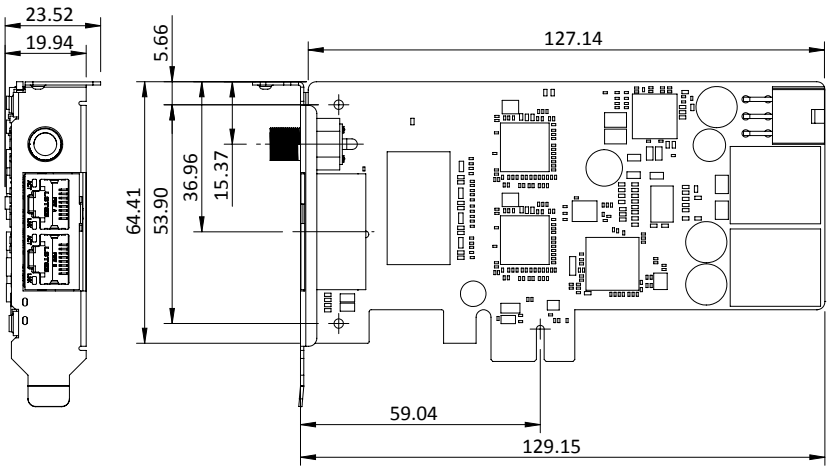
Features

- 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)
- Support 12V~24V DC input power

Packing List

1 x GPOE-2P card
1 x Full height bracket
1 x QIG

Dimensions



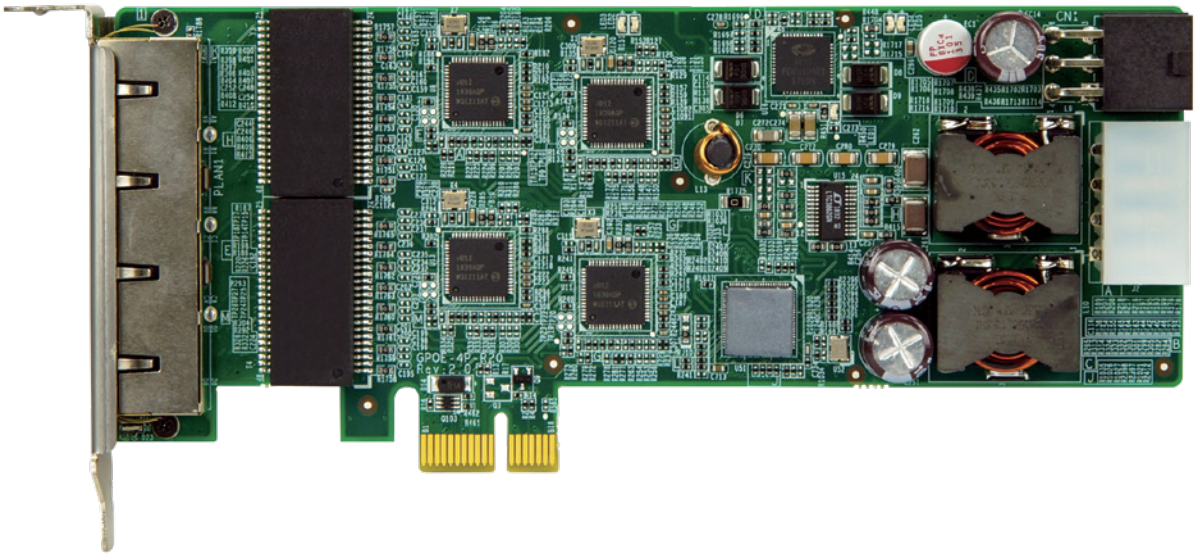
(Unit: mm)

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
63040-010065-710-RS	Adapter Power, FSP, FSP065-RBBN3, 9NA0657819, Vin:90~264VAC, 65W, Dim:46.3x108.3x30mm, Plug=7.5mm, Cable=1500mm, Erp (NO LOAD 0.15W), 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
  Support 12V~24V DC input power
  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
- Safety
  CE/FCC compliant

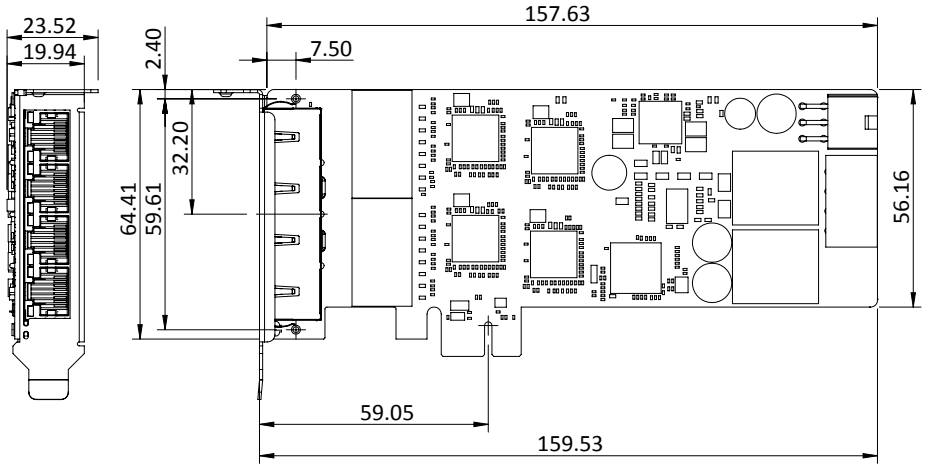
Features

- PCI Express® x1 compliant
- Support for total 90 watts under full load
- Support link aggregation/jumbo frames (9 Kbyte)
- Support 12V~24V DC input power

Packing List

1 x GPOE-4P card
1 x Full height bracket
1 x QIG

Dimensions



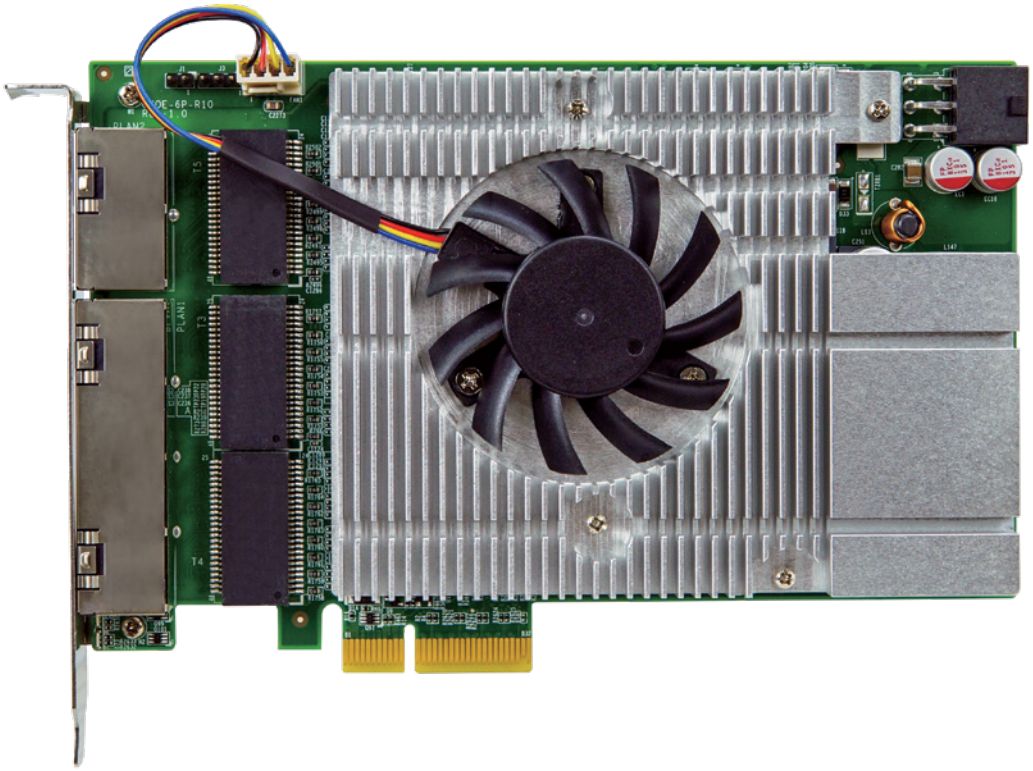
(Unit: mm)

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

GPOE-6P

PCI Express Power over Ethernet card, 6-port 1000 Base(T), 802.3at / bt compliant, RoHS



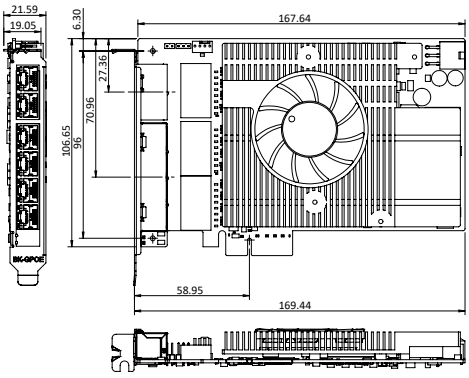
Features

- Provide six 10/100/1000Base-T(X) PoE (P.S.E.) ports
- Total 180 Watts power budget with maximum 90 Watts per port
- PoE power sourced from 12~24VDC of ATX power
- Each LAN port supports both PoE and non-PoE connections (Auto Detect & Classification)
- Support SW/RDK (IEI GPOE Management Software Tools)
- Compatible with x4, x8 and x16 PCIe slots
- IEEE 802.3at/bt PoE compliant

Specifications

- Interface
  PCI Express® x4
- Ethernet
  6 x Intel® I211AT controller
  9kB jumbo frame
- Fan
  One fan connector (1x4 pin)
- Power Input
  12~24V DC input
  1 x Internal DC input (2x3 pin)
- PoE Capability
  IEEE 802.3at with 30W / 52V per port
  IEEE 802.3bt with 90W / 52V per port
  (Support for total 180 watts under full load)
- Software
  IEI GPOE Management Tools (Windows/Linux)
- Operating Temperature
  0°C ~ 60°C
- Storage Temperature
  -10°C ~ 70°C
- Operating Humidity
  5% ~95%, non-condensing
- Dimensions
  169.44 mm x 106.65 mm
- Weight
  286g
- Safety
  CE/FCC compliant

Dimensions *(mm)*



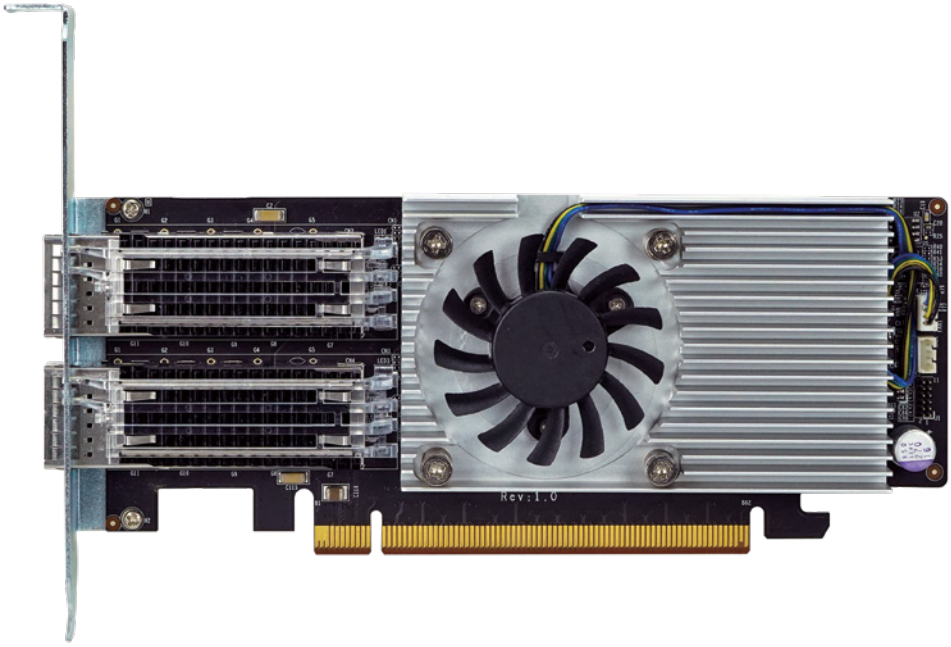
Packing List

1 x GPOE-6P card with cooler
1 x QIG

Part No.	Description
GPOE-6P-R10	PCI Express Power over ethernet card, 6-port 1000 Base(T), 802.3at / bt compliant, RoHS
32102-044900-100-RS	PCIe power cable, 100mm, 20AWG, (A)MOLEX 8981-04M P=5.08*2, (B)TKP:H6657R1-06-B-03 P=4.2, RoHS
63040-010065-710-RS	Power adapter, FSP065-RBBN3, 9NA0657819, Vin:90~264VAC, 65W, DIM:46.3x108.3x30mm, plug=7.5mm, cable=1500mm, Erp (no load 0.15W), Vout: 19VDC, Φ2.1/ Φ5.5/lock, CCL, RoHS

LAN-100G2SF-E810

Intel® EZE810CAM2 Ethernet Controller based Network Interface Card with Two QSFP28 via PCIe 4.0 x16 Interface



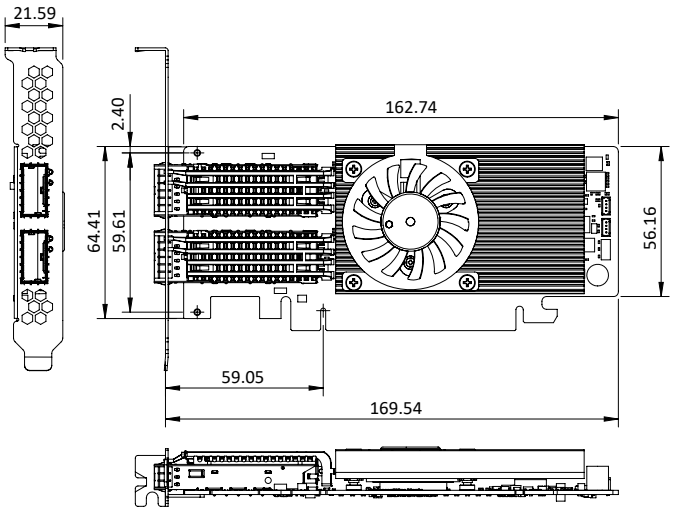
Features

- 1 x Intel E810 Ethernet controller
- 2-port 100GbE QSFP28 connector
- Support PCIe Gen4 x16

Specifications

- Form Factor
  Low profile PCI Express® add-on card
- NIC
  Intel® E810
- LAN Interface
  QSFP28
- Speed
  100GbE
- LAN Ports
  2 x LAN ports
- Host Interface
  1 x PCIe Gen4 x16
- Storage Temperature
  -20°C ~ 75°C (-4°F ~ 167°F)
- Operating Temperature
  0°C ~ 40°C (32°F ~ 104°F)
- Operating Humidity
  5% ~ 95% RH, Non-condensingg
- Dimensions (mm)
  165.50 (L) x 77.8 (W) x 44.2 (H)
- RoHS compliant

Dimensions



Packing List

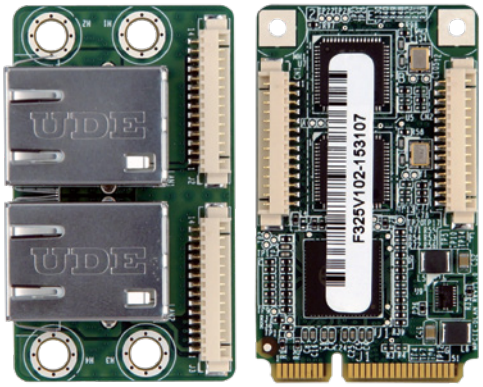
1 x LAN-100G2SF-E810 Module
1 x QIG

Ordering Information

Part No.	Description
LAN-100G2SF-E810-R10	Intel® EZE810CAM2 Ethernet Controller based PCIe Card with Two QSFP28 via PCIe 4.0 x16 Interface

MPCIE-DLAN-R10

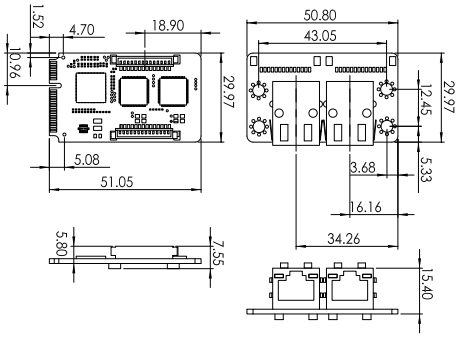
PCI Express Mini Dual Intel® GbE LAN Module, Full Size, RoHS



Features

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

Dimensions *(mm)*



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 later
- Operating Temperature: -10°C ~ 70°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions (LxW) : 51 mm x 30 mm
- Weight: 55g
- Safety: CE/FCC compliant

Packing List

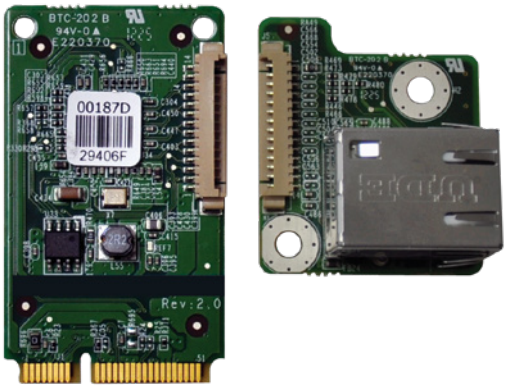
1 x MPCIE-DLAN module	2 x Flat cable (pitch=1.25mm), 340mm length	1 x QIG

Ordering Information

Part No.	Description
MPCIE-DLAN-R10	PCI Express Mini dual Intel® GbE LAN module, full size, RoHS

MPCIE-LAN-R10

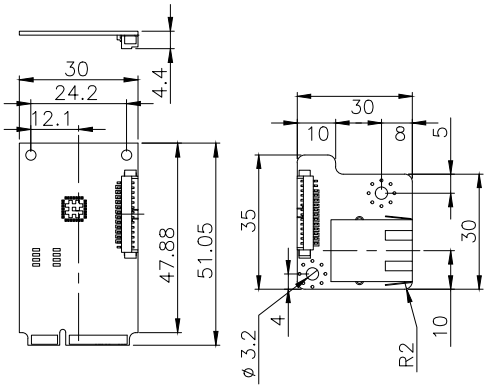
PCI Express Mini GbE LAN Module, Full Size, RoHS



Features

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

Dimensions *(mm)*



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 later
- 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
- Safety: CE/FCC compliant

Packing List

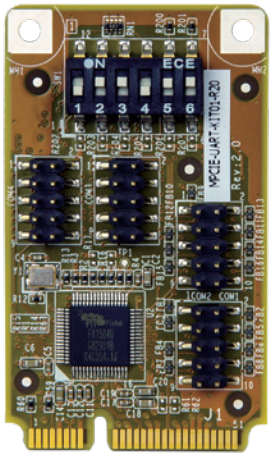
1 x MPCIE-LAN module	1 x Flat cable (pitch=1.25mm), 340mm length	1 x QIG

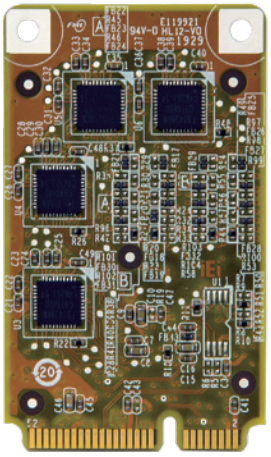
Ordering Information

Part No.	Description
MPCIE-LAN-R10	PCI Express Mini GbE LAN module, full size, RoHS

MPCIE-UART-KIT01-R20

PCI Express Mini Card Supports Quad-port RS-232/422/485, Full Size, RoHS

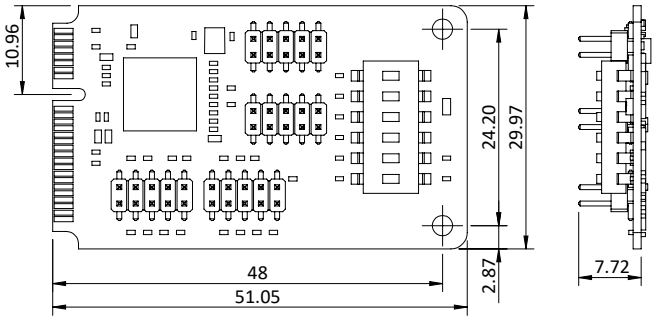




Features

- 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 connector (2x5 pin)
- Operating Temperature: 0°C ~ 60°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions (LxW): 51 mm x 30 mm
- Weight: GW: 100g / NW: 50g
- Safety: CE/FCC compliant

Packing List

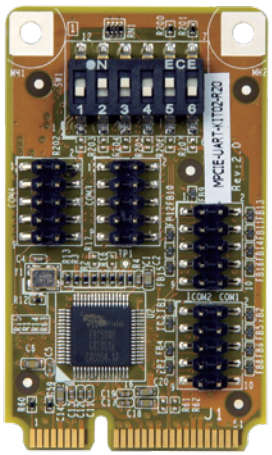
1 x MPCIE-UART-KIT01 module	
4 x D-SUB9 male cable	1 x QIG

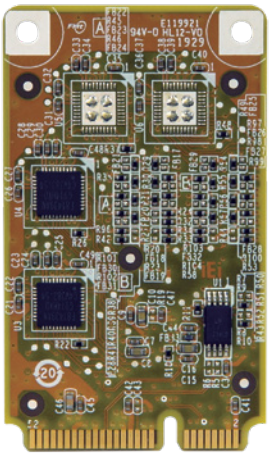
Ordering Information

Part No.	Description
MPCIE-UART-KIT01-R20	PCI Express Mini card supports quad-port RS-232/422/485, full size, RoHS

MPCIE-UART-KIT02-R20

PCI Express Mini Card Supports Dual-port RS-232/422/485, 16-bit GPIO, Full Size, RoHS

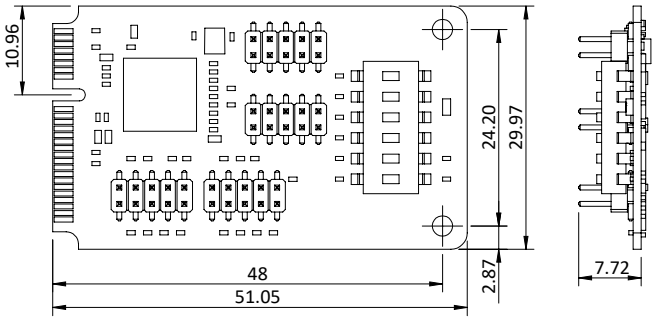




Features

- 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
- Safety: CE/FCC compliant

Packing List

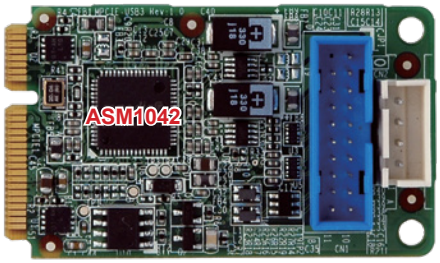
1 x MPCIE-UART-KIT02 module	
2 x D-SUB 9 male cable	1 x QIG

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

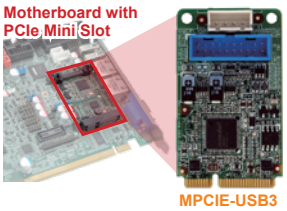
MPCIE-USB3

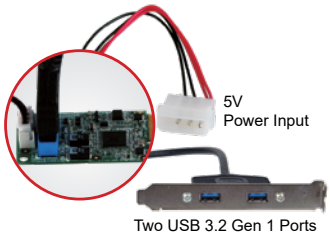
PCIe Mini USB 3.2 Gen 1 (5Gb/s) Adapter Card, RoHS



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 box header (2x10 pin)
- 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
- Safety: CE/FCC compliant

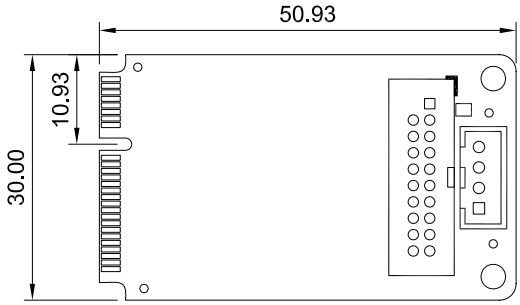
Features

- 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

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
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: 2.4GHz/5GHz, 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 7/8/10, Linux kernel 3.18
Temperature	0°C ~ 70°C
Dimensions	29.85mm x 26.65mm x 1.5mm
Weight	NW: 3.28g

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

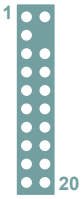
Solution / Features	Infineon SLB9660 TT1.2	SLB9665TT2.0
Secure Startup	Root of Trust Measurement of early boot devices	
Anti H/W Attack	Sensors and active shield	
TSS API Support	MS-CAPI/PKCS#11, #12	
H/W Certification	EAL 4	
Management Tool Function	1. TPM management 2. File & Folder En/De-cryption 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

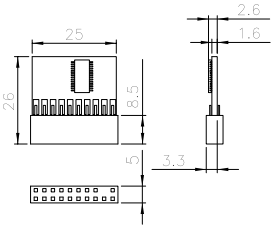


Pin	Singnal	Pin	Singnal	Pin	Singnal	Pin	Singnal
1	LCLK	6	VCC5	11	LAD0#	16	SERIRQ
2	GND	7	LAD3#	12	GND	17	GND
3	LFRAME#	8	LAD2#	13	SCL	18	CLKRUN#
4	KEYWAY	9	VCC3	14	SDA	19	LPCPD#
5	LRST#	10	LAD1#	15	SB3V	20	LDRQ#

Ordering Information

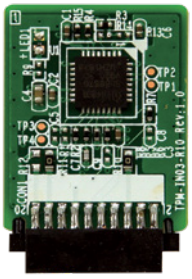
Model Name	Description
TPM-IN01-R20	20-pin Infineon TPM1.2 module, software management tool, firmware v4.4
TPM-IN02-R20	20-pin Infineon TPM2.0 module, software management tool, firmware v5.5

Dimensions (mm)



TPM-IN03

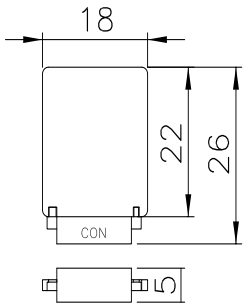
SPI TPM 2.0 module, software management tool, firmware v7.85



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

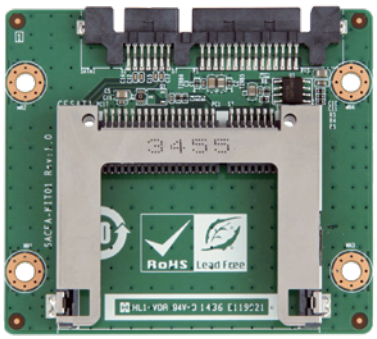
Packing List

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

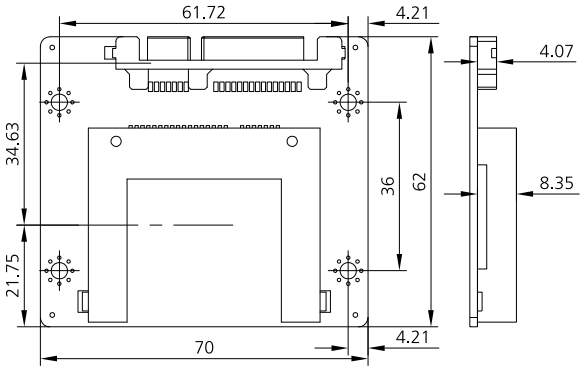
Features

- 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

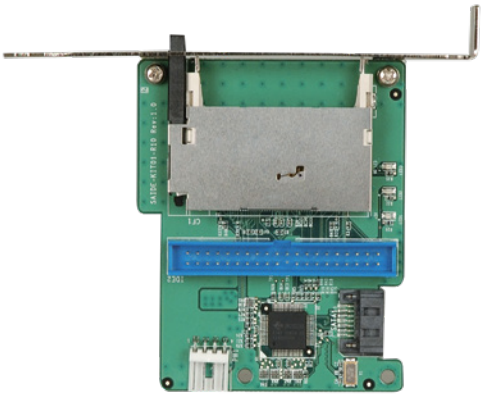
Dimensions *(Unit: mm)*



Ordering Information

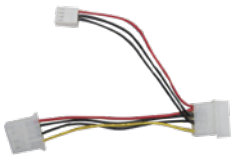
Part No.	Description
SACFA-KIT01-R10	SATA to 24-pin CFast™ socket converter board
32801-003706-100-RS	SATA 7+15P female to SATA 7P / PH 5.08 4P cable, L=200mm/100mm
32801-003706-100-RS	SATA 7+15P female to SATA 7P / PH 2.5 4P cable, L=200mm/200mm
32801-000201-100-RS	SATA 7+15P female to SATA 7P / PH 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

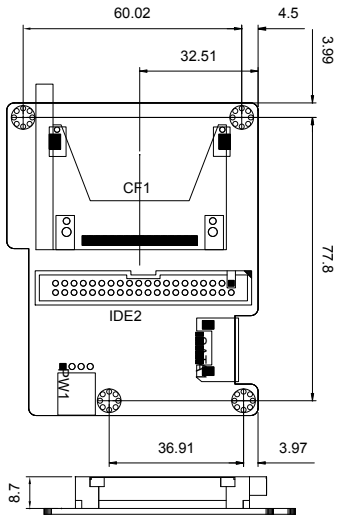
Features

- 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

Packing List

1 x SAIDE-KIT01-R10	
1 x Power cable	1 x QIG

Dimensions *(Unit: mm)*



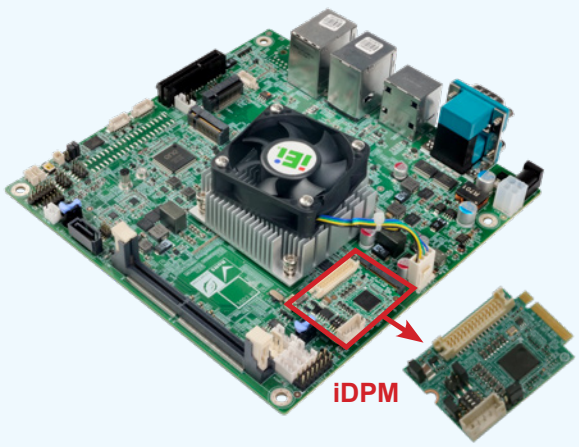
Ordering Information

Part No.	Description
SAIDE-KIT01-R10	SATA to 40-pin IDE/CF socket converter board with bracket
32801-000703-500-RS	SATA cable
32801-000703-500-RS	Power cable

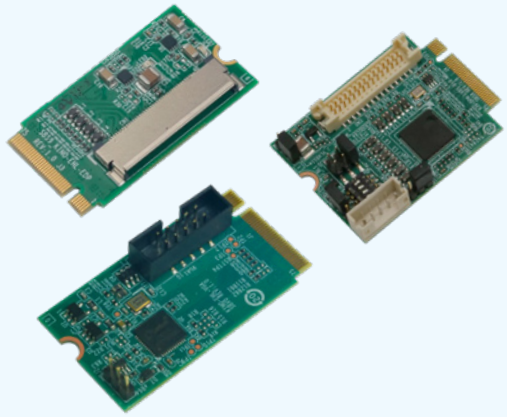
IEI iDPM Introduction

iDPM (IEI Internal DisplayPort Module)

The iDPM connector is provided on the IEI products. Through the IEI iDPM converter cards, the iDPM connector can support different display specifications, such as VGA, DisplayPort, and LVDS.



Flexible Display Output Options



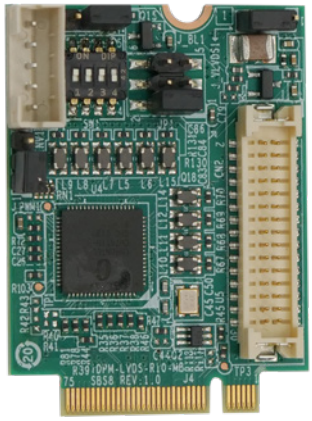
Easy Installation in the Chassis

iDPM Supported Models		
IMBA-R680	KINO-ADL-P	KINO-EHL-J6412
KINO-TGL	WAFER-EHL-J6412	WAFER-TGL

iDPM-LVDS

eDP to 24-bit Dual-channel LVDS Converter Board (for IEI iDPM Slot)

NEW



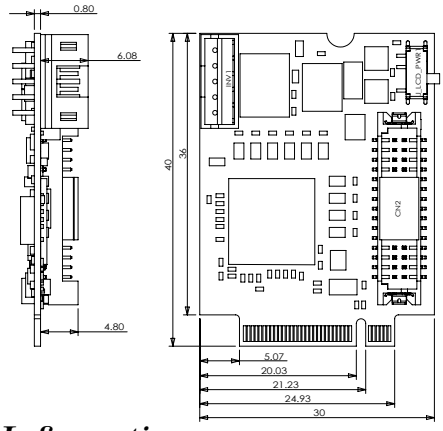
Features

- eDP to LVDS output

Specifications

- Form Factor
  M.2 B Key 3040
- Display Output
  1 x LVDS 24-bit dual-channel
- Display IC
  Chrontel - CH7511B (DP to LVDS)
- Power
  On board 3.3V ~ 12V
- Operating Temperature
  0°C ~ 60°C
- Operating Humidity
  5% ~ 95 non-condensing
- Dimensions
  40 mm x 30 mm
- Safety:
  CE/FCC compliant

Dimensions (mm)



Packing List

1 x iDPM-LVDS converter module

Ordering Information

Part No.	Description
iDPM-LVDS-R10	eDP to 24-bit dual-channel LVDS converter board (for IEI iDPM slot)

iDPM-eDP

eDP to eDP Converter Board (for IEI iDPM Slot)

NEW

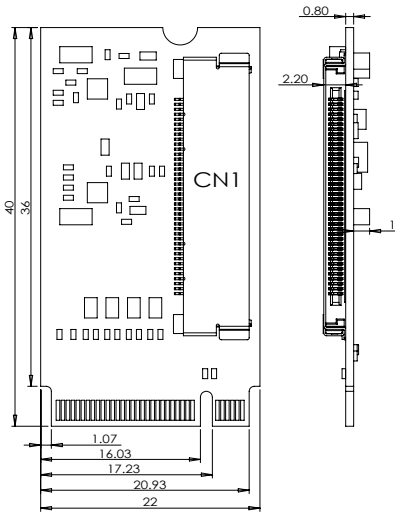
Features

- eDP to eDP output

Specifications

- Form Factor
  M.2 B Key 2240
- Internal Connector
  1 x eDP connector (1 x 40 pin)
- Power
  On board 3.3V ~ 12V
- Operating Temperature
  0°C ~ 60°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions (LxW)
  40 mm x 22 mm
- Safety:
  CE/FCC compliant

Dimensions (mm)



Packing List

1 x iDPM-eDP converter module

Ordering Information

Part No.	Description
iDPM-eDP-R10	eDP to eDP converter board (for IEI iDPM slot)

iDPM-VGA

eDP to VGA Converter Board (for IEI iDPM Slot)

preliminary

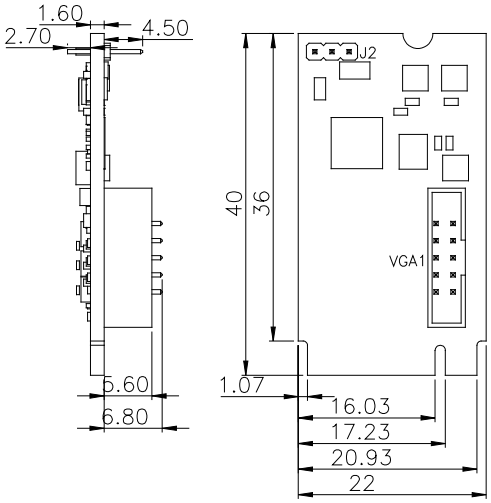
Features

- eDP to VGA output

Specifications

- Form Factor
  M.2 B Key 2240
- Display Output
  1 x VGA pin-header
- Power
  On board 3.3V ~ 12V
- Operating Temperature
  0°C ~ 60°C
- Operating Humidity
  5% ~ 95%, non-condensing
- Dimensions (LxW)
  40mm x 22mm
- Safety:
  CE/FCC compliant

Dimensions (mm)



Packing List

1 x iDPM-VGA converter module
1 x VGA Cable

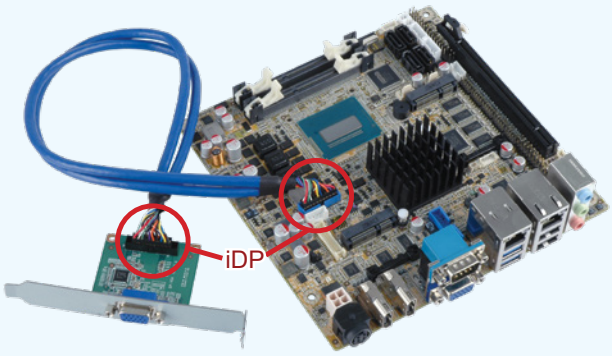
Ordering Information

Part No.	Description
iDPM-VGA-R10	eDP to VGA converter board (for IEI iDPM slot)

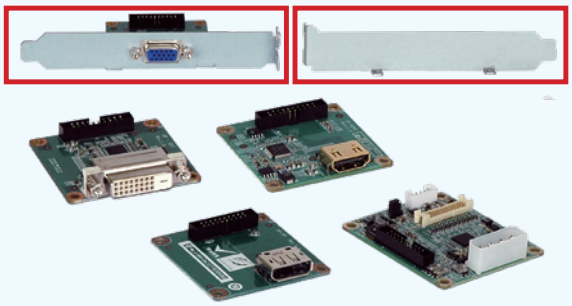
IEI iDP Introduction

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



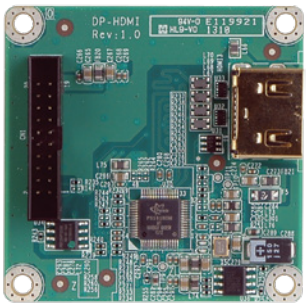
iDP converter cards with brackets

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-HDMI-R10

DisplayPort to HDMI 1.3a Converter Board (for IEI iDP connector), RoHS



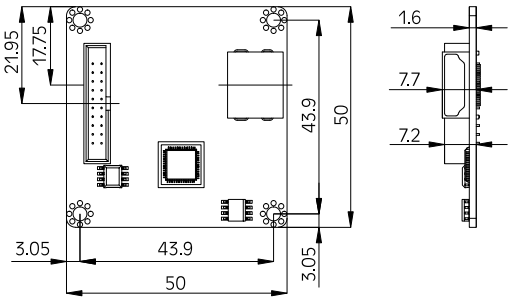
Features

- 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

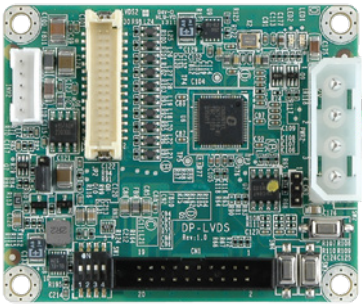
1 x DP-HDMI converter board	1 x QIG
1 x Internal DisplayPort cable, 450 mm length	

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



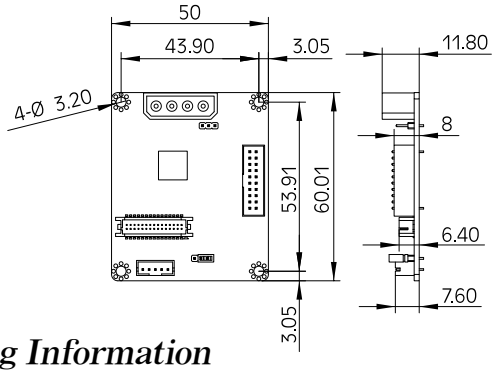
Features

- 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

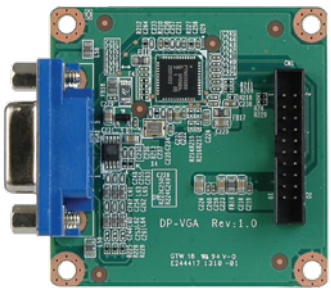
1 x DP-LVDS converter board	1 x QIG
1 x Internal DisplayPort cable, 450 mm length	

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



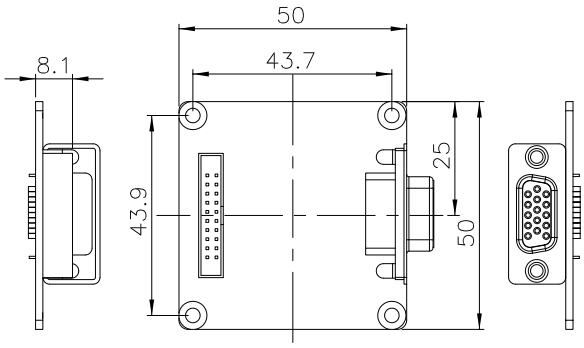
Features

- 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

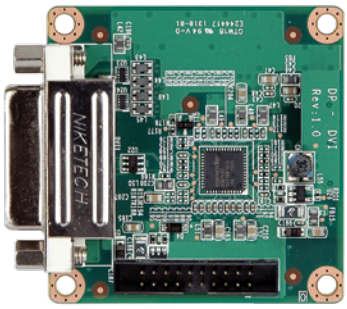
1 x DP-VGA converter board	1 x QIG
1 x Internal DisplayPort cable, 450 mm length	

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



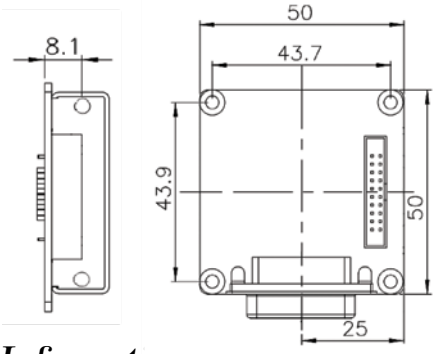
Features

- 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

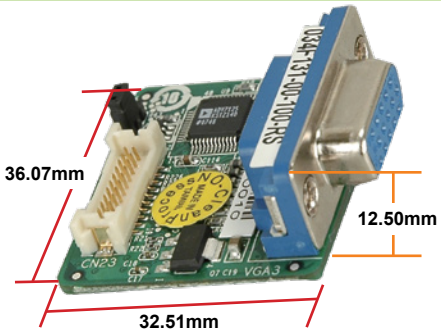
1 x DP-DVI converter board	1 x QIG
1 x Internal DisplayPort cable, 450 mm length	

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)



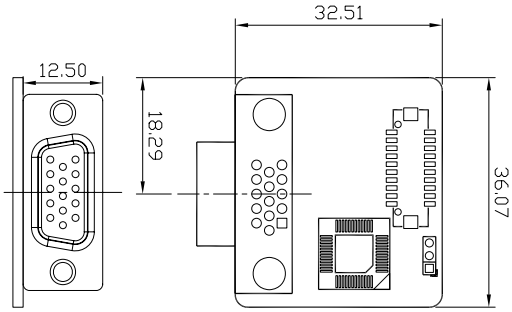
Features

- Provide 2nd VGA option for dual VGA display
- Resolution adjusted by BIOS: Support 1024x768, 800x600, 640x480
- 18-bit LVDS to VGA converter board

Packing List

1 x LVDS to VGA converter board
1 x QIG

Dimensions *(mm)*

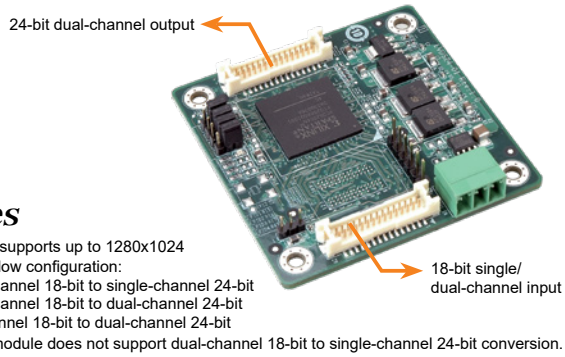


Ordering Information

Part No.	Description
LVDS-VGA-R10	18-bit LVDS to VGA converter board
32602-007900-200-RS	30-pin LVDS connecting cable (300mm)
32602-026400-100-RS	20-pin LVDS connecting cable (150mm)

LVDS24-01

18-bit to 24-bit LVDS Converter Board



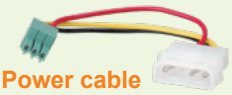
Features

- 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.

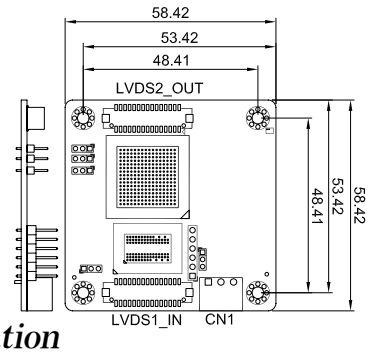
Packing List

1 x 18-bit to 24-bit LVDS converter board
1 x Power cable
1 x QIG



Power cable
P/N: 32100-130300-RS

Dimensions *(mm)*



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

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-360A Series**	**ECW-281B Series**
MB Model No.	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

Model Name	**EBC-3220**	**EBC-3100 / EBC-3000**	**EBC-3300**
MB Model No.	KINO Series (Mini-ITX)*	KINO Series (Mini-ITX)*	tKINO Series (Mini-ITX)

*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-360A-ULT3	ECW-281B-BT
Chassis	Color	Black	Black
	Dimensions (WxDxH) (mm)	255 x 130 x 75	229 x 132 x 64
	System Fan	Fanless	Fanless
	Chassis Construction	SECC	Aluminum alloy with heavy duty metal
Motherboard	Motherboard Model	NANO-ULT3	WAFER-BT
	SBC Size (mm)	EPIC (165 x 115)	3.5" (146 x 102)
	CPU	Intel® Core™ i5-6300U Intel® Celeron® 3955U	Intel® Celeron® J1900 quad-core 2.42GHz
	Chipset	N/A	SoC
	System Memory	Two 260-pin 2133/1866 MHz dual-channel DDR4 SO-DIMMs support up to 32GB, Pre-install 4GB DDR4	One 204-pin 1333/1066 MHz single-channel DDR3L SO-DIMM supports up to 4 GB, Pre-install 2GB DDR3L
IPMI	iRIS Solution	N/A	N/A
Storage	Hard Drive	2 x 2.5" SATA HDD/SSD bay (No RAID support)	1 x 2.5" SATA 3Gb/s HDD/SSD bay
	CF Card/CFast	N/A	N/A
I/O Interfaces	USB 3.2 Gen 1	4	1
	USB 2.0	N/A	3
	Ethernet	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	1 x RS-232/422/485 2 x RS-232	3 x RS-232 1 x RS-422/485
	Digital I/O	8-bit digital I/O	8-bit digital I/O (4-bit input, 4-bit output)
	Display	2 x HDMI	1 x VGA
	Resolution	HDMI: up to 4096x2160@24Hz	VGA: 2560x1600@60Hz
	Audio	1 x Line-out	1 x Line out
	Wireless	2 x 802.11b/g/n (optional)	1 x 802.11b/g/n
Expansions	PCIe Mini	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
Power	Power Input	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: 12 V DC
	Power Consumption	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
	Operating Temperature	-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-1 (HDD)
	Weight (Net/ Gross)	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-360A-ULT3

Fanless Embedded System with Intel® Solution

Features

- **On-board CPU**
  - » i5-6300U dual-core up to 3.0GHz
  - » 3955U dual-Core up to 2.0GHz
- **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**

E-Window

Fanless | PCIe Mini Expansion | USB 3.2 Gen 1 | Dual GbE | Dual Display

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® 3955U
	System Memory	Two 260-pin 2133/1866 MHz dual-channel DDR4 non-ECC unbuffered SO-DIMMs support up to 32GB, Pre-install 4GB DDR4
Storage	Hard Drive	2 x 2.5" SATA HDD/SSD 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

*3955U belongs to Skylake ULT Base series CPU, PCIe signal support only PCIe Gen 2

Friendly to Use

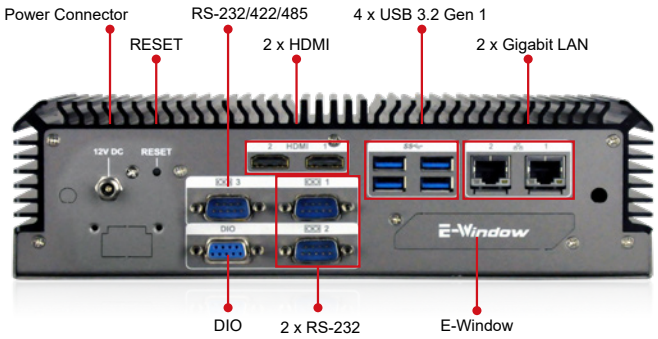
Easy for installation

- Flexible I/O function for expansion requirement
- Easy assembly and integration changing with IEI E-winodw tool kit

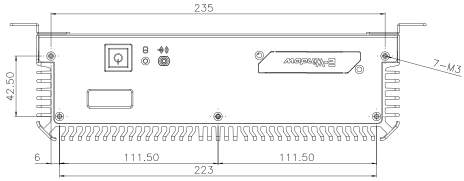
Fully Integrated I/O

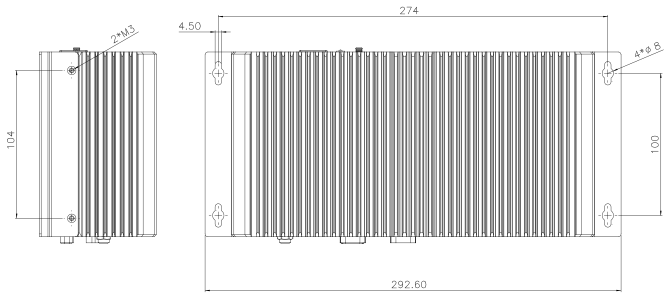
Front view

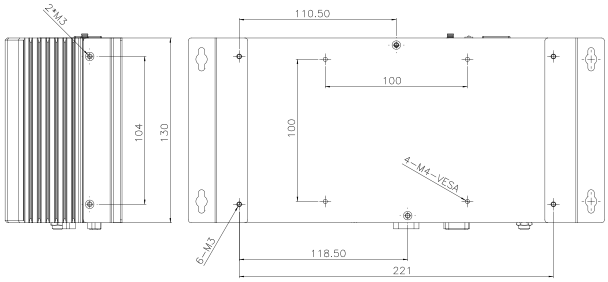
Rear view

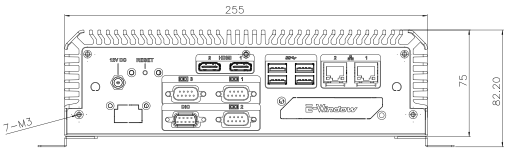


Dimensions (Unit: mm)









Ordering Information

Part No.	Description
ECN-360A-ULT3-i5/4G-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, 12V DC, RoHS
ECN-360A-ULT3-C/4GB-R10	Fanless System with Intel® Celeron® 3955U up to 2.00 GHz, 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-C/WD/4GB-R10	Fanless System with Intel® Celeron® 3955U up to 2.0GHz, 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-C/WD/4GB-R10**	Fanless System with Intel® Celeron® 3955U up to 2.0GHz, 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
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

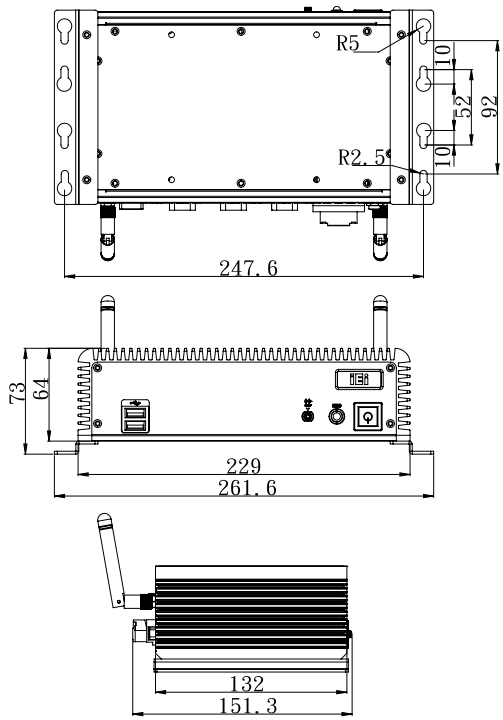
- Fanless system with Intel® Celeron® J1900 Processor
- Supports four COM ports (three RS-232, one RS-422/485)
- Wide operating temperature: -20°C ~ 60°C with SSD

QTS-Gateway | 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
	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)
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
Power	Power Input	DC jack: 12 V DC 3-pin terminal: 12 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

Dimensions *(Unit: mm)*



Options

Part No.	Description
ECW-281B-BT-WES7E64-R20	OS Image with Windows® Embedded Standard 7 E 64Bit for ECW-281BT Series, with DVD-ROM, RoHS, R20
DK-100-R10	VESA 100 to DIN-Rail mounting kit

Packing List

1 x Power cord	1 x Wall mount bracket
1 x 12V 60W power adapter	1 x Screw set

Ordering Information

Part No.	Description
ECW-281B-BTi-J1/2GB-R21	Fanless embedded system with WAFER-BT-R21, with Intel® Celeron J1900 2GHz, 4 serial ports, with 2GB DDR3L pre-installed SO-DIMM memory, 12VDC in, 60W power adapter, black, RoHS

Embedded Chassis Series

	Model Name	EBC-3300	EBC-3220
	Platform	Case only	Case only
Chassis	Color	Black	Black
	Dimensions (WxDxH) (mm)	190 x 190 x 43	190 x 180 x 55
	System Fan	--	1 x 4 cm
	Chassis Construction	Heavy duty metal	Heavy duty metal
Motherboard	Motherboard Model	EBC-3300-BW-R10: tKINO-BW	tKINO-BW KINO-DQM170 KINO-DH810 KINO-DBT eKINO-BT KINO-R1000 KINO-DH310 KINO-DH110 KINO-DAL tKINO-AL tKINO-ULT3 KINO-TGL-U
	SBC Size (mm)	Mini-ITX (170 x 170)	Mini-ITX (170 x 170)
Storage	Hard Drive	1 x 2.5" SATA HDD/SSD drive bay	1 x 2.5" SATA HDD/SSD drive bay
	CF Card/CFast	N/A	N/A
	SD Card	Refer to SBC	Refer to SBC
I/O Interfaces	PS2 (KB/MS)	N/A	N/A
	USB 3.2 Gen 1	Refer to SBC	Refer to SBC
	USB 2.0	Refer to SBC	Refer to SBC
	Ethernet	2	2
	COM Port	Refer to SBC	Refer to SBC
	LPT	Refer to SBC	Refer to SBC
	Display	Refer to SBC	Refer to SBC
	Resolution	Refer to SBC	Refer to SBC
	Audio	Refer to SBC	Refer to SBC
	Wireless	Refer to SBC	Refer to SBC
Expansions	PCI	N/A	N/A
	PCIe	N/A	N/A
	PCIe Mini	Refer to SBC	Refer to SBC
	Others	1 x E-Window	N/A
Power	Power Input	12V DC	12V DC
	Power Supply	12V DC	12V DC
Reliability	Mounting	VESA 100, wall mount	VESA 100, wall mount
	Operating Temperature	-10°C ~ 50°C	-10°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

Embedded Chassis Series

	Model Name	EBC-3100	EBC-3000
	Platform	Case only	Case only
Chassis	Color	Black	Black
	Dimensions (WxDxH) (mm)	260 x 250 x 156	280 x 230 x 88
	System Fan	1 x 8 cm	1 x 6 cm
	Chassis Construction	Heavy duty metal with plastic front panel	Heavy duty metal with plastic front panel
Motherboard	Motherboard Model	KINO-AQ170	KINO-AQ170
	SBC Size (mm)	Mini-ITX (170 x 170)	Mini-ITX (170 x 170)
Storage	Hard Drive	1 x 3.5" SATA HDD space	1 x 3.5" SATA HDD space
	CF Card/CFast	Refer to SBC	Refer to SBC
	SD Card	Refer to SBC	Refer to SBC
I/O Interfaces	PS2 (KB/MS)	Refer to SBC	Refer to SBC
	USB 3.2 Gen 1	Refer to SBC	Refer to SBC
	USB 2.0	Refer to SBC	Refer to SBC
	Ethernet	2	2
	COM Port	Refer to SBC	Refer to SBC
	LPT	Refer to SBC	Refer to SBC
	Display	Refer to SBC	Refer to SBC
	Resolution	Refer to SBC	Refer to SBC
	Audio	Refer to SBC	Refer to SBC
	Wireless	Refer to SBC	Refer to SBC
Expansions	PCI	N/A	N/A
	PCIe	1 x Full-height expansion slot	N/A
	PCIe Mini	Refer to SBC	Refer to SBC
	Others	N/A	N/A
Power	Power Input	90~264V AC	90~264V AC
	Power Supply	ACE-A618C 180W ACE-A627A 270W	ACE-A618C 180W ACE-A627A 270W
Reliability	Mounting	Desktop, wall mount	Desktop, wall mount
	Operating Temperature	0°C ~ 50°C	0°C ~ 50°C
	Operating Shock	Half-sine wave 3G, 11ms 3 shocks per axis	Half-sine wave 3G, 11ms 3 shocks per axis
	Operating Vibration	MIL-STD-810F 514.5C-1	MIL-STD-810F 514.5C-1
	Weight (Net/ Gross)	2.5 kg/3.9 kg	2.5 kg/3.9 kg

EBC-3300 *Embedded Chassis for IEI thin Mini-ITX SBC*

Easy for installation

- Flexible I/O function for expansion requirement
- Easy assembly and integration changing with IEI E-winodw tool kit

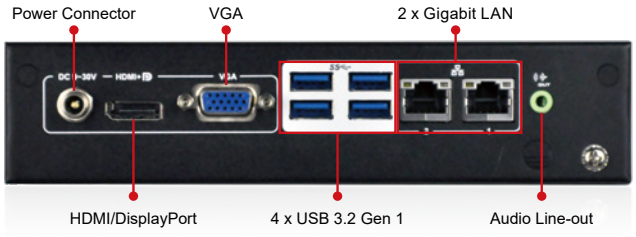
E-Window

Features

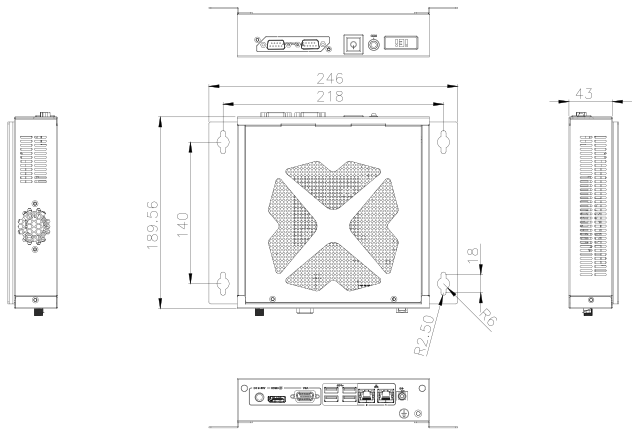
- Designs for thin type Mini-ITX SBC with single voltage input
- Total height 42mm for space critical application
- One 2.5" hard drive capacity
- Flexible E-Window tool kit support

Specifications

Model Name		EBC-3300-BW-R10
Platform		Case only
Chassis	Color	Black
	Dimension(WxDxH)	190 x 190 x 43
	System Fan	--
	Chassis Construction	Heavy duty metal
Motherboard	Motherboard	tKINO-BW
	SBC Size (mm)	Mini-ITX (170 x 170)
	CPU	Refer to SBC
	System Memory	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
	mSATA / M.2	1
I/O interfaces	PS2 (KB/MS)	pin header
	USB 3.2 Gen 1	4
	USB 2.0	pin header
	Ethernet	2
	RS-232/422/485	2 (pin header)
	RS-232	4 (pin header)
	DIO	8-bit (pin header)
	Display	1 x VGA 1 x DP/HDMI
	Resolution	1 x VGA (up to 1920x1200@60Hz) 1 x HDMI/DP (up to 3840x2160@30Hz)
	Audio	Realtek ALC662 1 x Audio jacks (line-out)
	Wireless	Refer to SBC
Expansions	PCIe Mini	1 x Full-size PCIe Mini
	Others	N/A
Power	Power Input	9~30V
	Power Consumption	12V@1.61A
	Others	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



Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
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

Packing List

1 x QIG	1 x Wall mount bracket kit
1 x Screw set	

Options

Part No.	Description
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
63040-010060-211-RS	FSP060-DIBAN2, 12V 60W AC/DC Adapter

EBC-3220

Compact Embedded Chassis for IEI Single Voltage Mini-ITX SBC

Features

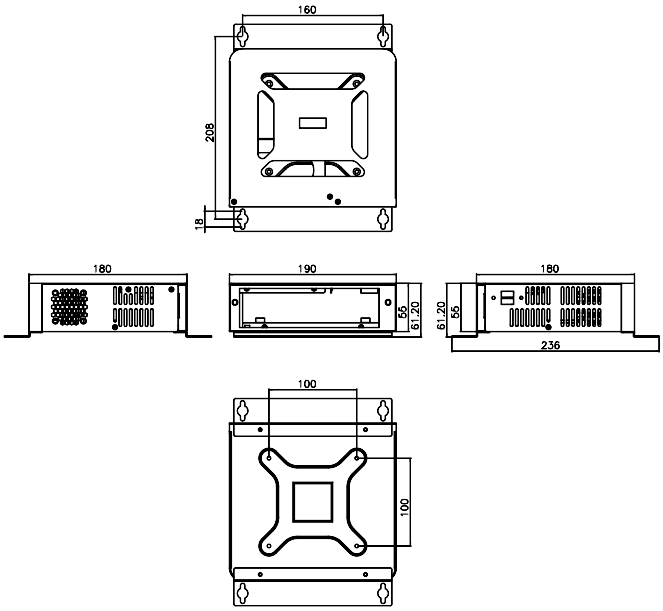
- Designed for Mini-ITX SBC with single voltage input
- Space critical application
- One 2.5" hard drive capacity
- Cost-effective, RoHS compliant design

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'' SATA 6Gb/s HDD/SSD Bay
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
KINO-TGL-U	TBD
gKINO-R1000	19100-000225-00-RS
KINO-DAL	Fanless
tKINO-AL	Fanless
tKINO-ULT3	19100-000224-00-RS, 34000-000645-RS
KINO-DH110	CF-115XA-R10, CF-1156C-R20, CF-1156D-R30
KINO-DH310	CF-115XA-R10, CF-1156C-R20, CF-1156D-R30
KINO-HM551	CF-989A-RS
KINO-QM57A	CF-989A-RS
KINO-QM670	CF-989A-RS
KINO-QM770	CF-989A-RS
KINO-DH610	CF-115XA-R10, CF-1156C-R20, CF-1156D-R30
KINO-DQM871-i1	19100-000203-00-RS
KINO-KBN/SE-i2	GX-424CC & GX415GA with fan
KINO-DA750-i2	CF-989A-RS
eKINO-BT	Fanless
KINO-DBT	Fanless
KINO-DH810	CF-115XA-R10, CF-1156C-R20, CF-1156D-R30
KINO-DQM170	19100-000203-00-RS (suitable for 25W CPU)
tKINO-BW	Fanless

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
32000-044300-RS	Dual port USB cable, 210mm, w/o bracket
19FR124010BL-000003-RS	Fan module, L=200mm, 4cm, 3-pin, CCL, RoHS

EBC-3100

Mini-ITX Chassis for High Power Consumption Applications

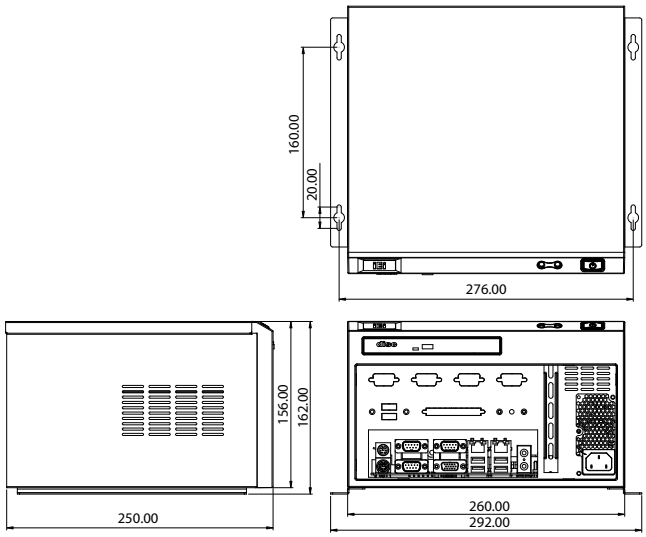
Features

- 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-A630C 300W
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-1156C-R20, CF-1156D-R30

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*

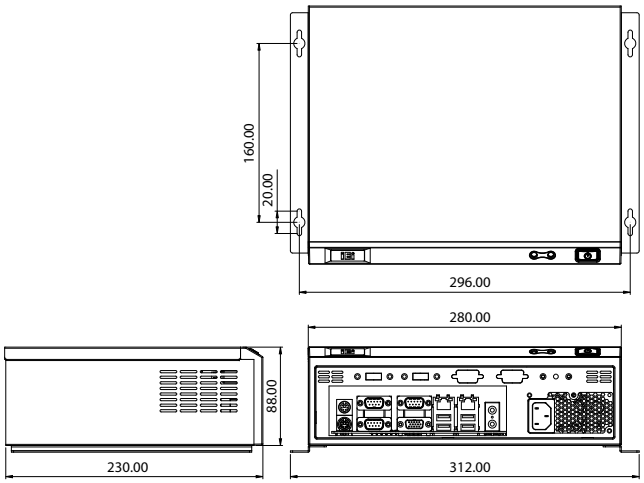
Features

- 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-A630C 300W
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-1156C-R20, CF-1156D-R30

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	

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	
	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					
	PR-1500G		Half-size		5	◇1	1		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
	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	1U	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
	PR-1500G	O	O	O	O		2					1U	254	132	286		O
	PAC-700G	O	O	O	O		2	O				1U	279	176	321	O	

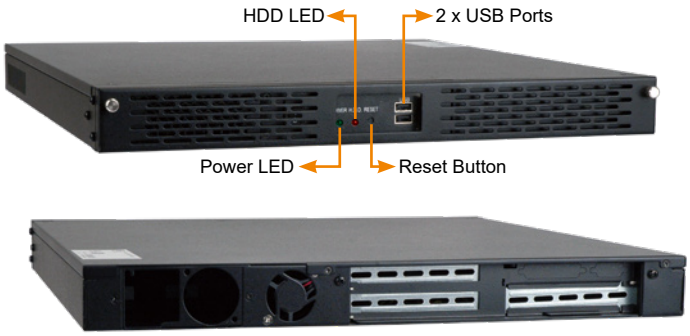
Rackmount chassis
Full-size wall mount chassis
Half-size wall mount chassis

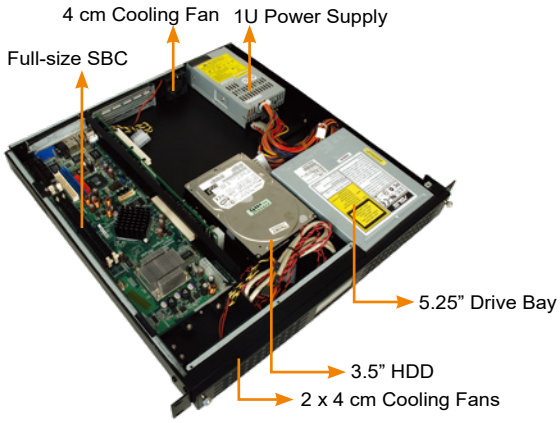
* For ATX model
*** Optional fans for ATX model

◇ Slim-type CD-ROM
△ Please refer to datasheet for detail information

RACK-1150G/1150G-PE

1U Full-size Rackmount Chassis



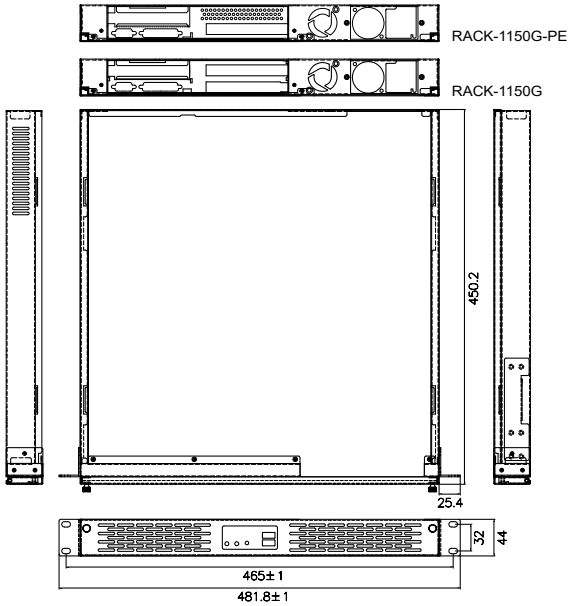


CD-ROM, and HDD are not included in package

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

Dimensions *(Unit: mm)*



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.

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-R10	180W
	ACE-A4520D-R10	250W
	ACE-A630C-R10	300W

RACK-1150G supports single 1U height PSU. For more IEI PSU models, please refer to section 5 or visit www.ieiworld.com.

Ordering Information

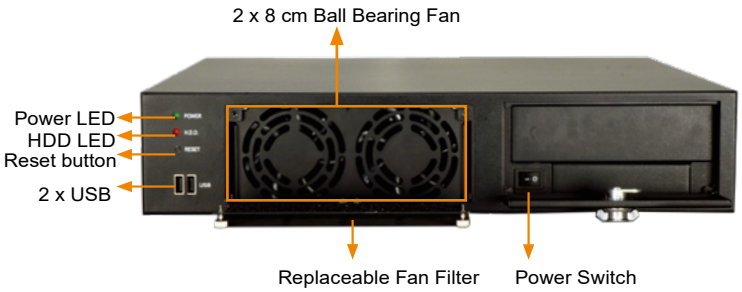
Part No.	Description
RACK-1150GB-PE-R11/A618C	1U 2-slot full size rackmount chassis for PICMG 1.3 backplane, Black, 3x 4cm fan, with ACE-A618C-RS-R10(180W), RoHS
RACK-1150GB-R11/A618C	1U 3-slot full size rackmount chassis for PICMG 1.0 backplane, Black, 3x 4cm fan, with ACE-A618C-RS-R10(180W), RoHS

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
32100-040602-RS	WIRE CABLE;POWER CABLE;2;400MM;18AWG;(A)MOLEX 5559-20P P=4.2MM;(B)MOLEX 5557-16P P=4.2MM;RACK-2320;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

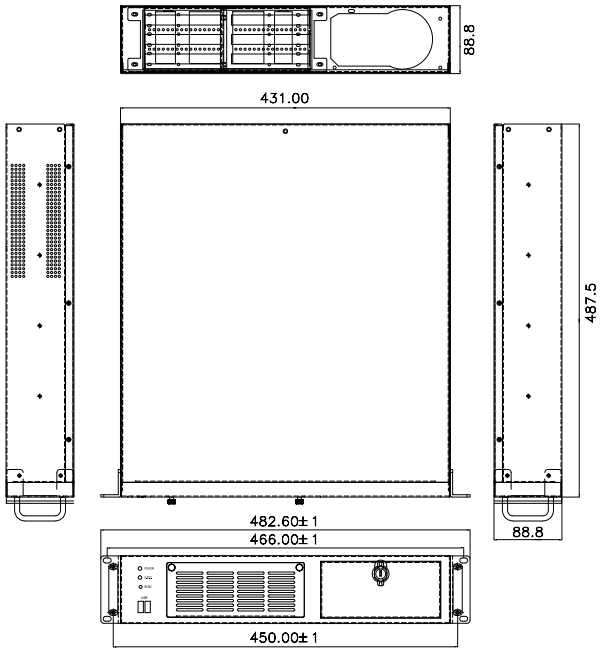
Specifications

◆ **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

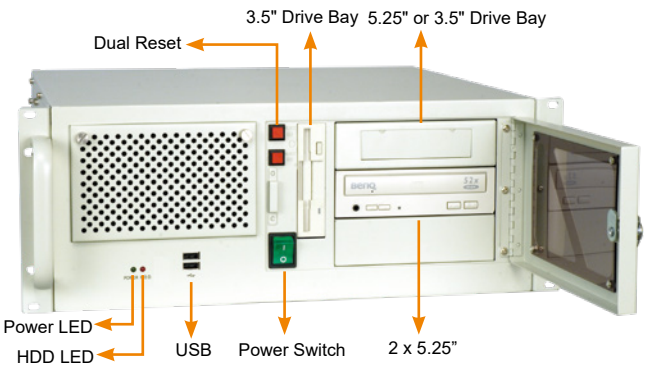
Power Supply Options

Type	Model No.	Watt
ATX	ACE-A130C-R10	300W
	ACE-A140B-S-R10	400W

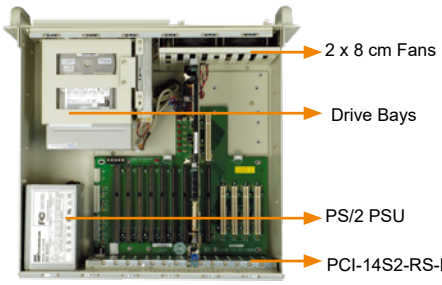
RACK-220G supports single PS/2 PSU. For more IEI PSU models, please refer to section 5 or visit www.ieiworld.com.

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

Specifications

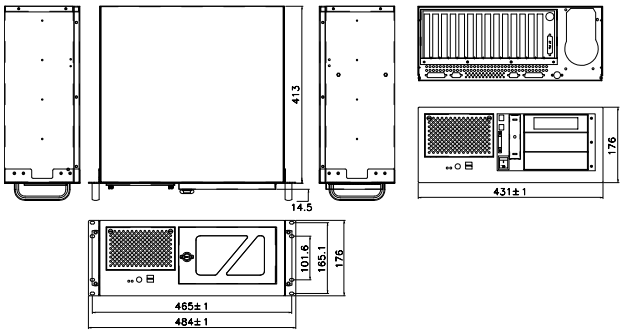
◆ **Construction**	Heavy duty metal
◆ **SBC Form Factor**	Full-size, slot CPU card
◆ **Drive Combinations**	3 x 5.25" + 1 x 3.5" HDD or 2 x 5.25" + 2 x 3.5" HDD or 2 x 5.25" + 1 x 3.5" HDD + 1 x front accessible 3.5" or 2 x 5.25" + 2 x front accessible 3.5"
◆ **Cooling Fans**	2 x 8 cm
◆ **I/O Ports**	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

Ordering Information

Part No.	Description
RACK-305G Ⓒ -R22/A130C	4U 14-slot rackmount chassis, (black/white), 2 x 8 cm fan, with ACE-A130C-R10 (300W ATX model), RoHS
RACK-305G Ⓒ ATX-R22/A130C	4U ATX motherboard rackmount chassis, (black/white), 2 x 8 cm fan, with ACE-A130C-R10 (300W ATX model), RoHS

Ⓒ Color Code: B-Black W-White

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

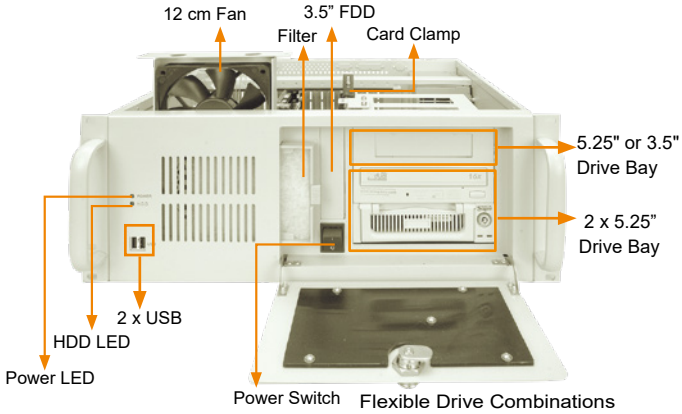
Power Supply Options

Type	Model No.	Watt
ATX	ACE-A130C-R10	300W
	ACE-A140B-S-R10	400W
	ACE-A160B-R10	600W
ATX Redundant	ACE-R4130AP-RS	300W
	ACE-R4150AP-R10	500W

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

Specifications

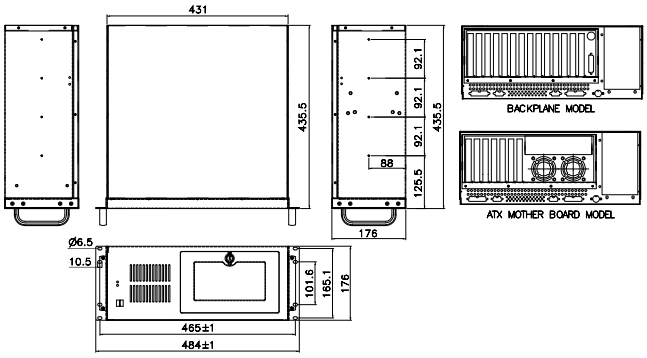
◆ **Construction**	Heavy duty metal
◆ **SBC Form Factor**	Full-size, slot CPU card
◆ **Drive Combinations**	3 x 5.25" + 1 x 3.5" HDD or 2 x 5.25" + 2 x 3.5" HDD or 2 x 5.25" + 1 x 3.5" HDD + 1 x front accessible 3.5" or 2 x 5.25" + 2 x front accessible 3.5"
◆ **Cooling Fans**	1 x 12 cm
◆ **I/O Ports**	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

Ordering Information

Part No.	Description
RACK-360G Ⓒ -R23/A130C	4U 14-slot rackmount chassis, (black/white), 1 x 12 cm fan, with ACE-A130C-R10 (300W ATX model), RoHS
RACK-360G Ⓒ ATX-R23/A130C	4U ATX motherboard rackmount chassis, (black/white), 1 x 12 cm fan, with ACE-A130C-R10 (300W ATX model), RoHS
RACK-360E Ⓒ -R23/A130C	4U 14-slot Rackmount Chassis, (black/white), 1x 12cm fan, w/ACE-A130C-R10 (300W ATX power)
RACK-360E Ⓒ ATX-R23/A130C	4U ATX motherboard Rackmount Chassis, (black/white), 1x 12cm fan, w/ACE-A130C-R10 (300W ATX power)

Ⓒ Color Code: B-Black W-White
Model variations are listed below:
* RACK-360G: with paint coating inside * RACK-360E: without paint coating inside

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

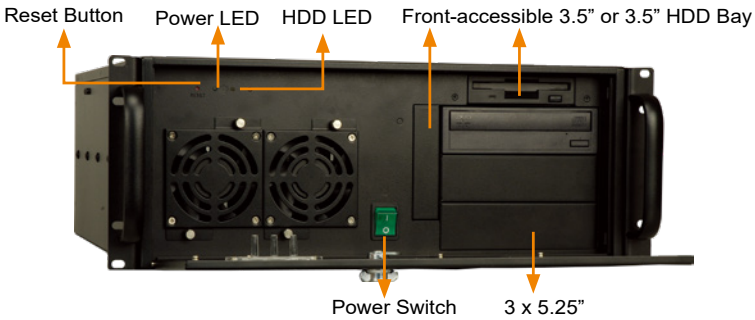
Power Supply Options

Type	Model No.	Watt
ATX	ACE-A130C-R10	300W
	ACE-A140B-S-R10	400W
	ACE-A160B-R10	600W
	ACE-A210A-R10	1000W
ATX Redundant	ACE-R4130AP-RS	300W
	ACE-R4150AP-R10	500W

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

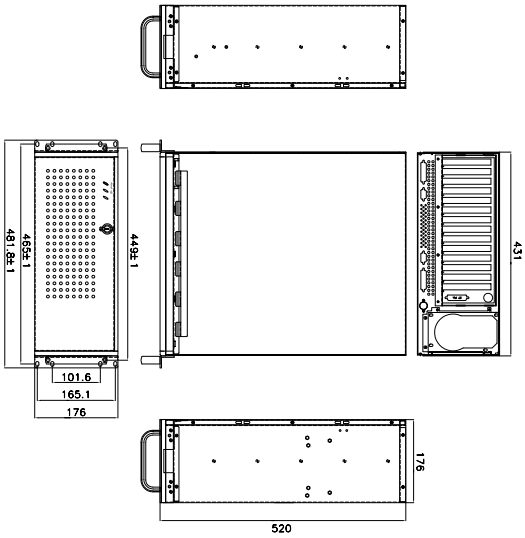
Specifications

◆ **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-14S-RS	PICMG 1.0	4	9	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-13S	PICMG 1.3	8	0	0	3	0	1	ATX
SPXE-14S	PICMG 1.3	0	0	0	12	0	0	ATX

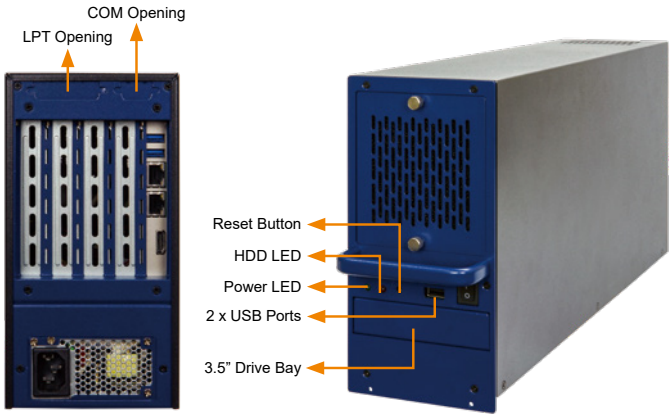
Power Supply Options

Type	Model No.	Watt
ATX	ACE-A130C-R10	300W
	ACE-A140B-S-R10	400W
	ACE-A160B-R10	600W
	ACE-A210A-R10	1000W
ATX Redundant	ACE-R4130AP-RS	300W
	ACE-R4150AP-R10	500W

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

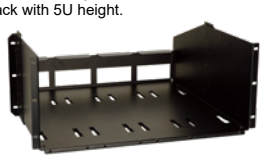


FDD and HDD are not included in the package

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)

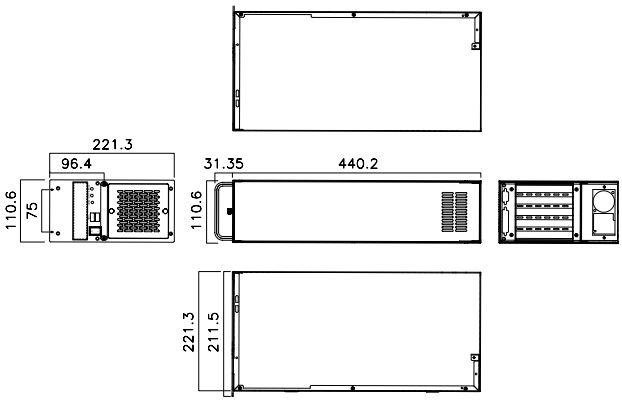
Specifications

◆ **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
◆ **PCIe Expansion Card (GPU/Add-on Cards) Recommendation**	Total maximum up to 150W (80W CPU with 16GB memory, 350W ATX Power)
	Total maximum up to 180W (35W CPU with 16GB memory, 350W ATX Power)

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

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
HPXE2-5S1	HPCIE	2	0	0	0	1	ATX

*Only R20 or later versions support PICMG 1.3 backplane.

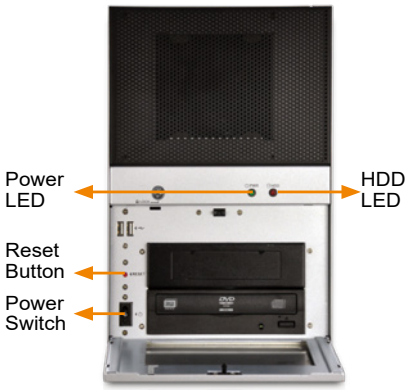
Power Supply Options

Type	Model No.	Watt
ATX	ACE-A618C-R10	180W
	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

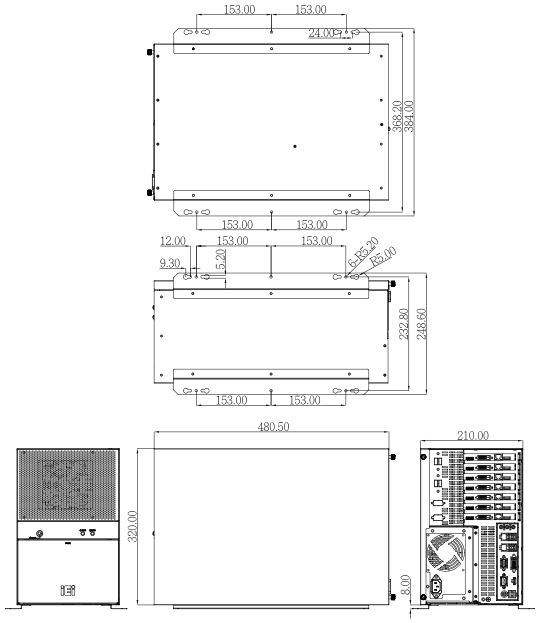
Ordering Information

Part No.	Description
ECA-300-R11	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

Power Supply Options

Type	Model No.	Watt
ATX	ACE-A160B-R10	600W
	ACE-4840APM-RS	400W
	ACE-A140B-R10	400W
	ACE-A130C-R10	300W

Dimensions *(Unit: mm)*

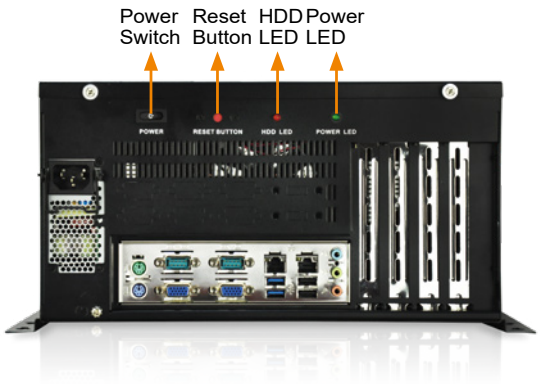


Compatible SBC

Model No.	SBC Type	PCI	PCIe			
			x1	x4	x8	x16
IMBA-Q470	ATX	3	0	3	0	1
IMBA-C2460	ATX	2	0	3	2	0
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	ATX	2	0	3	2	0
IMBA-H110	ATX	6	0	0	0	1
IMBA-H810	ATX	4	2	0	0	1
IMBA-Q870-i2	ATX	4	1	1	0	1
IMB-Q870-i2	microATX	1	1	1	0	1
IMB-H810-i2	microATX	2	1	0	0	1
IMB-H610A	microATX	0	3	0	0	1

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

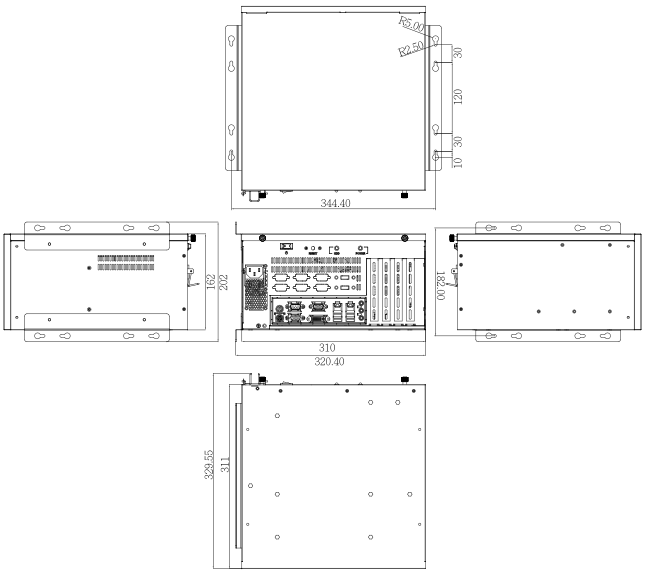
Specifications

◆ **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

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

Dimensions *(Unit: mm)*



Compatible SBC

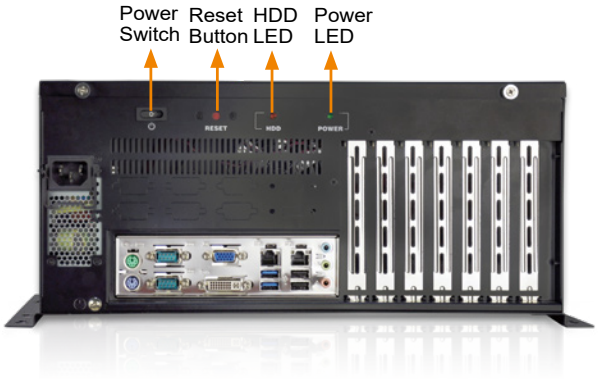
Model No.	SBC Type	PCI	PCIe			
			x1	x4	x8	x16
IMB-Q870-i2	microATX	1	1	1	0	1
IMB-H810-i2	microATX	2	1	0	0	1
IMB-H110	microATX	2	1	0	0	1

Power Supply Options

Type	Model No.	Watt
ATX	ACE-A615C-R10	150W
	ACE-A618C-R10	180W
	ACE-A622C-R10	220W
	ACE-A630C-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

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

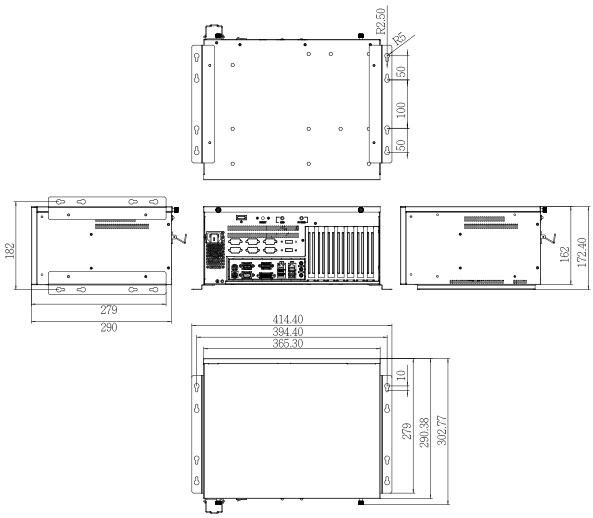
Ordering Information

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-A615C-R10	150W
	ACE-A618C-R10	180W
	ACE-A622C-R10	220W
	ACE-A630C-R10	300W

Dimensions *(Unit: mm)*

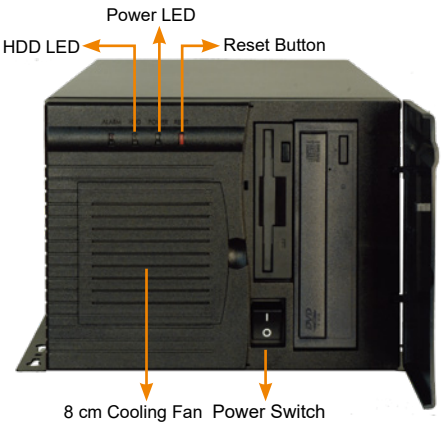


Compatible SBC

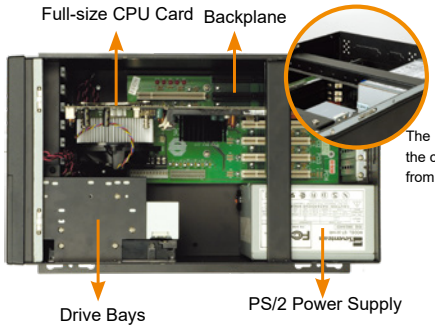
Model No.	SBC Type	PCI	PCIe			
			x1	x4	x8	x16
IMBA-Q470	ATX	3	0	3	0	1
IMBA-C2460	ATX	2	0	3	2	0
IMBA-Q370	ATX	2	0	3	2	0
IMBA-H310	ATX	4	0	1	0	1
IMBA-H112	ATX	4	0	1	0	1
IMBA-Q170-i2	ATX	2	0	3	2	0
IMBA-H110	ATX	6	0	0	0	1
IMBA-H810	ATX	4	2	0	0	1
IMBA-Q870-i2	ATX	4	1	1	0	1
IMB-H110	microATX	2	1	0	0	1
IMB-Q870-i2	microATX	1	1	1	0	1
IMB-H810-i2	microATX	2	1	0	0	1

PAC-1000G

6-slot Full-size Compact Chassis



CD-ROM and HDD are not included in package

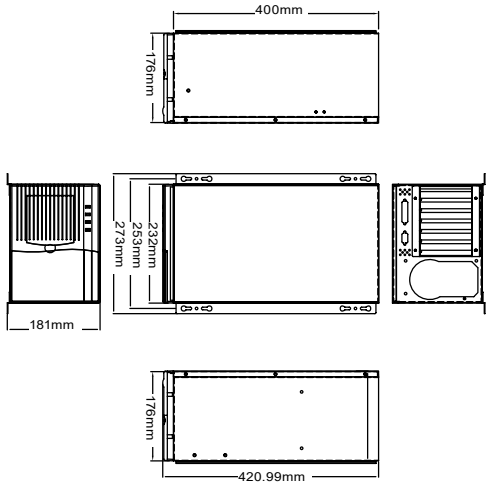


The hold-down clamp is designed to secure the cards within the chassis, protecting them from vibration.

Features

- RoHS compliant design
- One, 8 cm cooling fan with replaceable fan filter
- Plastic front panel with cover door

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" 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

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-6S	PICMG 1.3	0	0	0	5	0	0	ATX

*Only R20 or later versions support PICMG 1.3 backplane

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

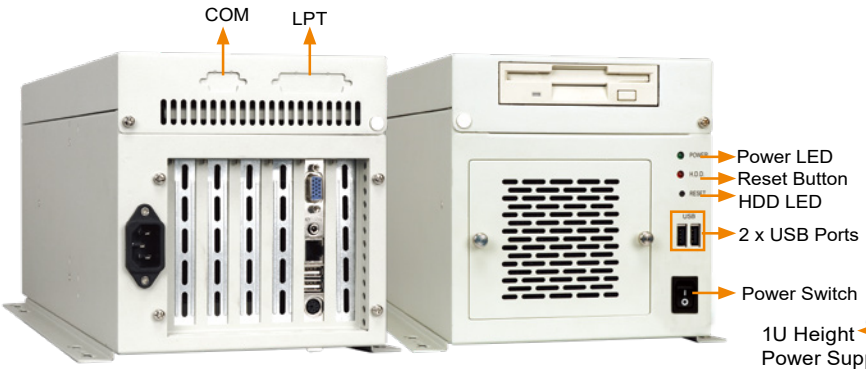
Power Supply Options

Type	Model No.	Watt
ATX	ACE-A130C-R10	300W
	ACE-A140B-S-R10	400W

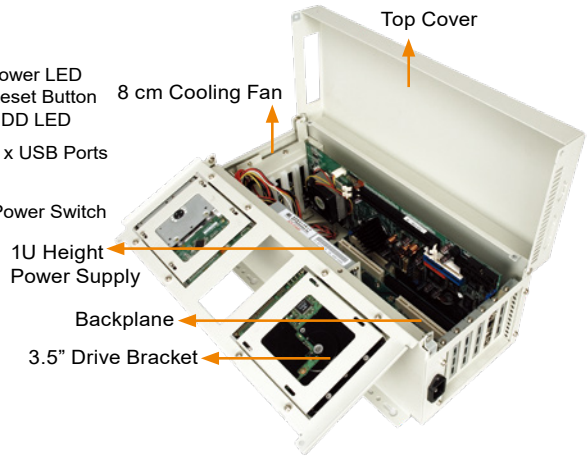
PAC-1000G supports single PS/2 PSU. For more IEI PSU models, please refer to section 5 or visit www.ieiworld.com.

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

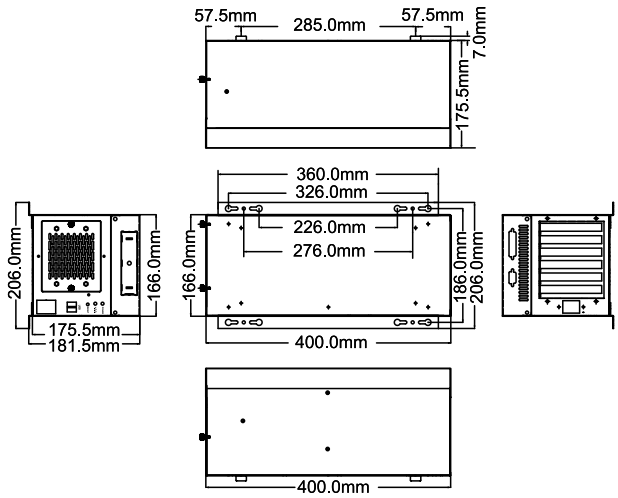
Specifications

◆ **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

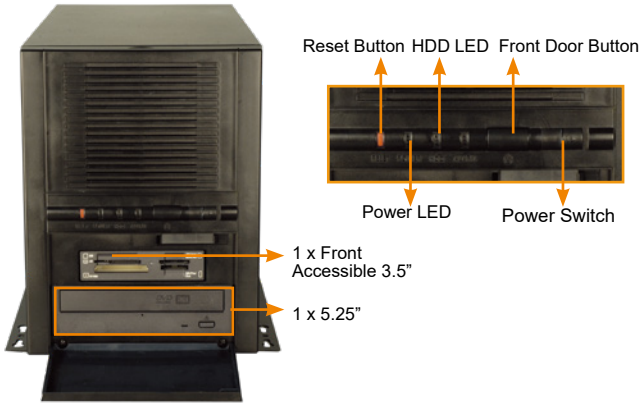
Power Supply Options

Type	Model No.	Watt
ATX	ACE-A618C-R10	180W

PAC-106G supports single 1U height PSU. For more IEI PSU models, please refer to section 5 or visit www.ieiworld.com.

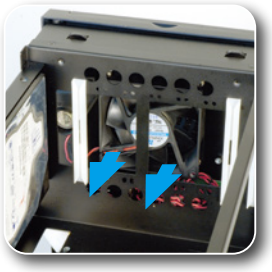
PAC-1700G

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

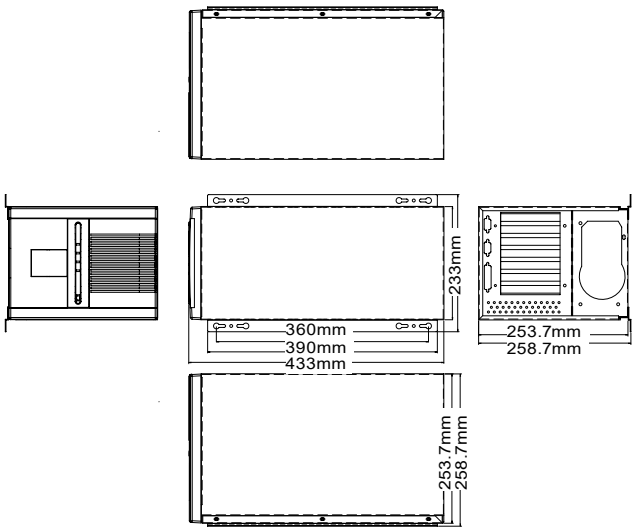
Specifications

◆ **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

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

Dimensions *(Unit: 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

Power Supply Options

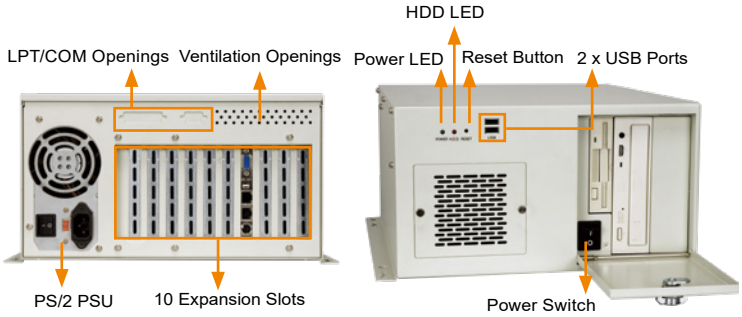
Type	Model No.	Watt
ATX	ACE-A130C-R10	300W
	ACE-A140B-S-R10	400W

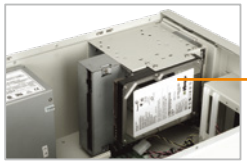
PAC-1700G supports single PS/2 PSU. For more IEI PSU models, please refer to section 5 or visit www.ieiworld.com.

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

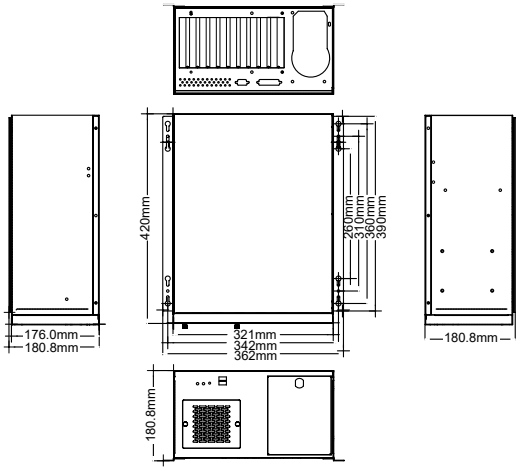
Specifications

◆ **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

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

Dimensions *(Unit: 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

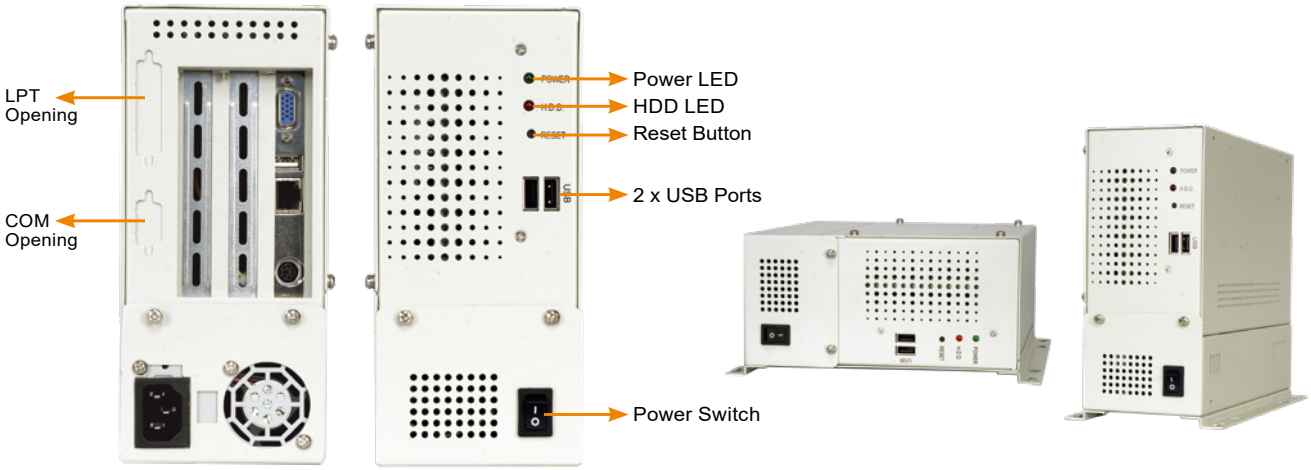
Power Supply Options

Type	Model No.	Watt
ATX	ACE-A130C-R10	300W
	ACE-A140B-S-R10	400W
	ACE-A160B-R10	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/SSD bay

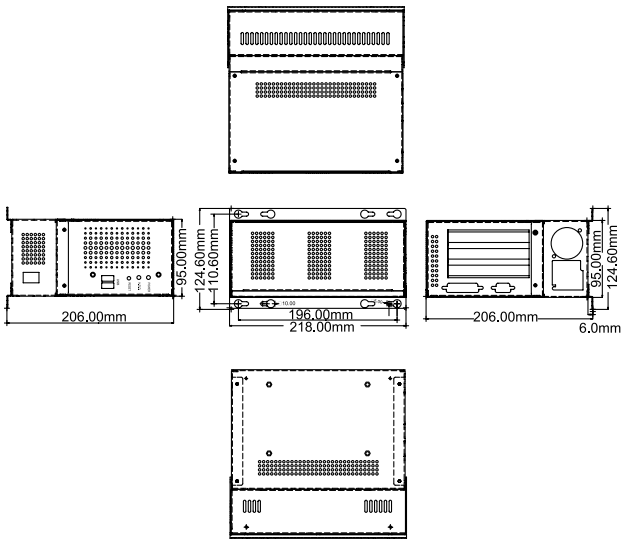
Specifications

◆ **Construction**	Heavy duty metal
◆ **SBC Form Factor**	Half-size, slot CPU cards
◆ **Drive Bays**	1 x 2.5" HDD/SSD
◆ **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

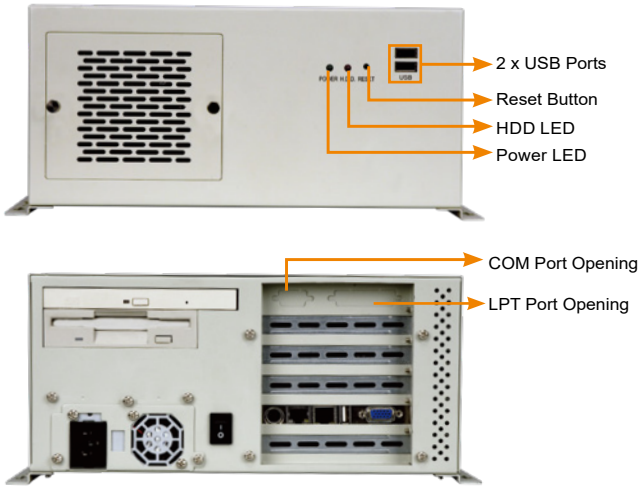
Power Supply Options

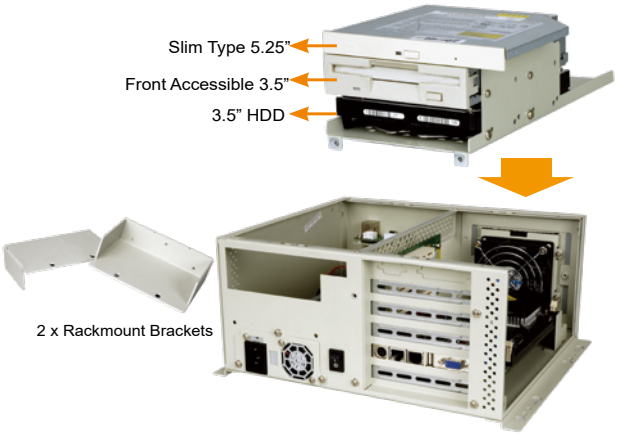
Type	Model No.	Watt
ATX	ACE-A618C-R10	180W
	ACE-A4520D-R10	250W

PAC-53GH 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

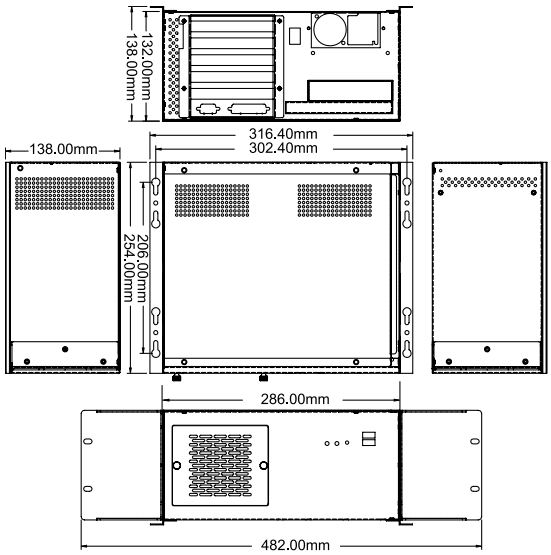
Specifications

◆ **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

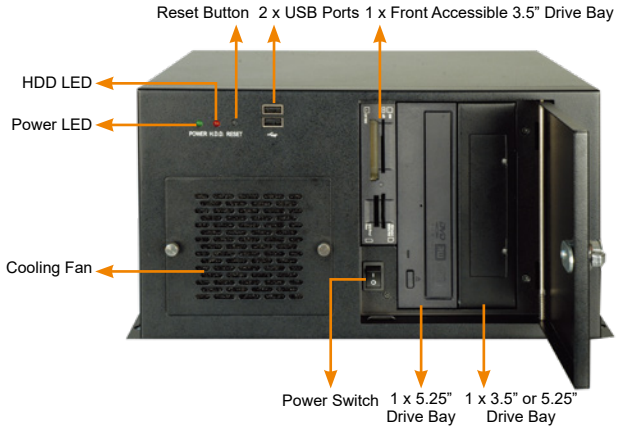
Power Supply Options

Type	Model No.	Watt
ATX	ACE-A618C-R10	180W
	ACE-A622C-R10	220W
	ACE-A630C-R10	300W

PR-1500G 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

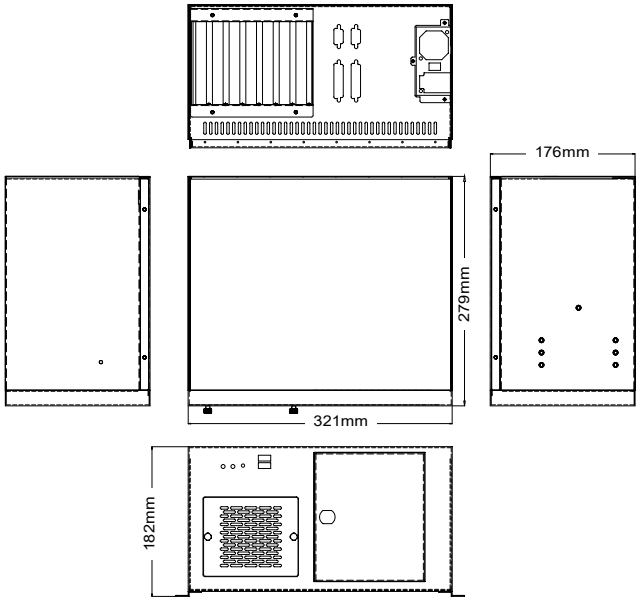
Specifications

◆ **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-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.

Faster and New SATA Flash Storage

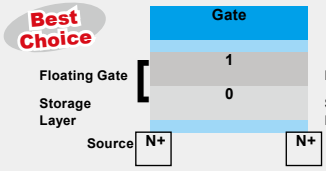
The anti-vibration IEI SLC flash modules featured low power consumption, high performance and perfect reliability are best for SATA SSD and SATA DOM solutions. The SSD not only has much higher performance than the HDD, but also can be operated anytime due to the lack of moving parts such as motor, bearing or rotating head. In addition, the SSD is able to fulfill any specialized application in any harsh environment.

Complete Industrial SLC Solution

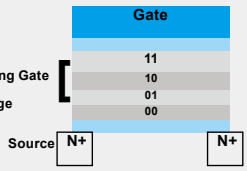
Interface	SATA 1.5Gb/s	SATA 3Gb/s
Data Transfer Rate	SATA 6Gb/s	SATA 6Gb/s 3Gb/s
Reliability	Better	Better
Power Consumption	Lower	Lower
Heat Delivery	Better	Better
Chipset Support after 945G/GM	Yes	Yes

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-2530IS(WT)
Capacity	1GB~32GB	8GB-1TB
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-2530IS: 0°C~+70°C ; IFD-2530WT: -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	
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**

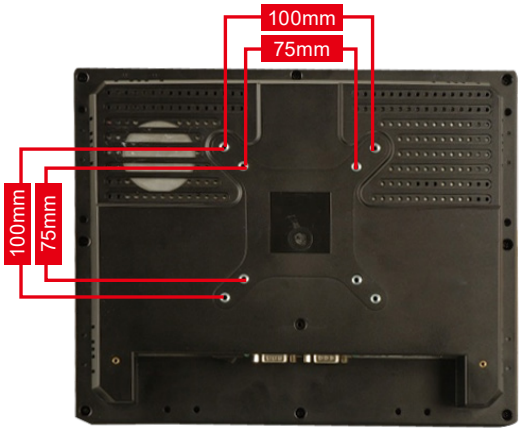
Part No.	Interface	Capacity
IFM-3010IS-XXXX	Vertical SATA 6Gb/s 7 pin	1G~32G
IFM-3010WS-XXXX	Vertical SATA 6Gb/s 7 pin	1G~32G
IFM-3010IL-XXX	Vertical SATA 6Gb/s 7 pin	1G~32G
IFM-3010WL-XXXX	Vertical SATA 6Gb/s 7 pin	1G~32G
IFM-3010IPS-XXXX	Horizontal SATA 6Gb/s 7 pin	1G~32G
IFM-3010WPS-XXXX	Horizontal SATA 6Gb/s 7 pin	1G~32G

- **Industrial SATA 2.5" Flash Disk**

Part No.	Interface	Capacity
IFD-2530IS-XXXX	SATA 6Gb/s 7+15 pin	8GB~1TB
IFD-2530WT-XXXX	SATA 6Gb/s 7+15 pin	32GB~1TB

XXXXX=Capacity-8GB/16GB/32GB/64GB/128GB/256GB/512GB/1TB
I= Standard grade opertion temp.: 0°C~70°C
W=Industrial grade opertion temp.: -40°C~85°C

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.

Stand Mounting

- **VESA 75/100 Universal Stand**

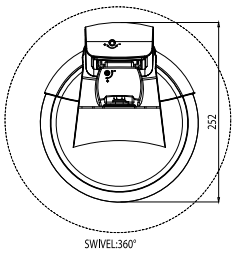
STAND-A21-R10

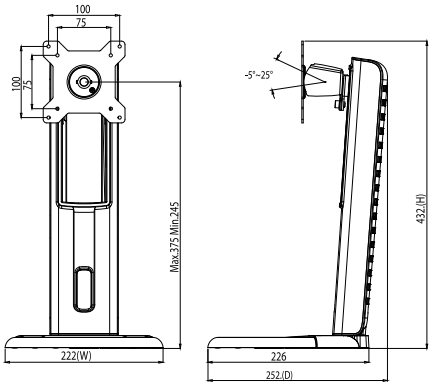
Portrait/Landscape

Height Adjustment (13 cm)

Right/Left Pan (360°)

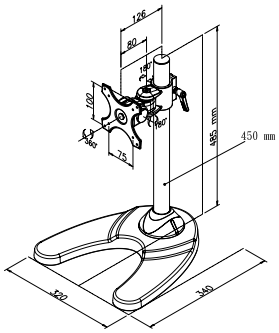
Forward/Backward Tilt (+25°/-5°)





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

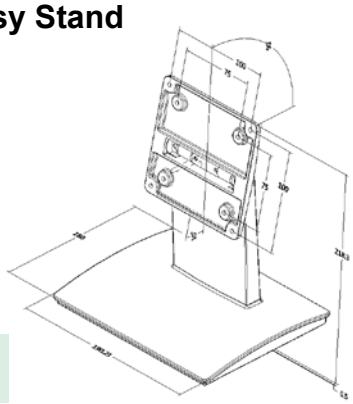


STAND-210

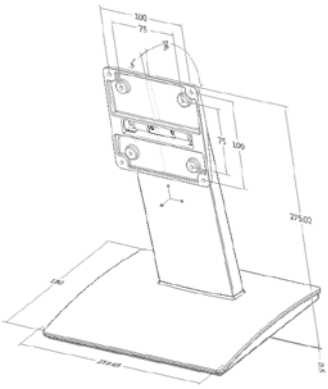
Ordering Information

Part No.	Description
STAND-210-R11	• Support VESA 75/100 standard • Weight capacity from 7kg~10kg

- **VESA 75/100 Easy Stand**



STAND-C12-R10



STAND-C19-R10

Tilt Forward/Backward

Ordering Information

Part No.	Description
STAND-C12-R10	5.7" ~ 12.1" VESA 100x100mm, 75x75mm PPC/Monitor Stand, support up to 7.5kg, Black color, RoHS
STAND-C19-R10	15”~19” VESA 100x100mm, 75x75mm PPC/Monitor Stand, support up to 15kg, Blackcolor, RoHS

DIN Rail Kit

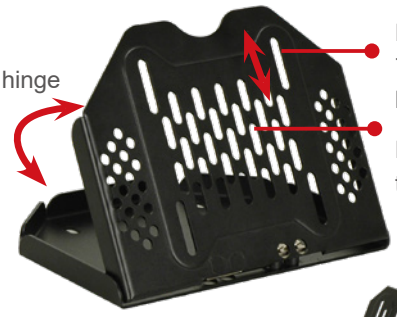
Model Name	DK-75-R10	DK-100-R10
Specification	850 mm (W) x 75mm (D)	110 mm (W) x 100 mm (D)
Description	VESA 75 to DIN-rail kit	VESA 100 to DIN-rail kit

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.

0° to 90° adjustable hinge design



Height adjustable and VESA 75/100 compliant mounting holes

Heat dissipation holes help to cool down the system

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

VSTAND-A07
(For 5.6"~7" AFL series)

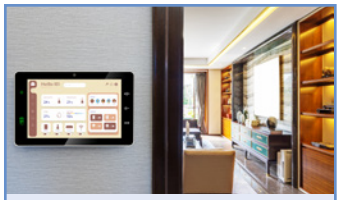
VSTAND-A10
(For 8.4"~10.4" AFL series)

VSTAND-A12
(For 12.1" AFL series)

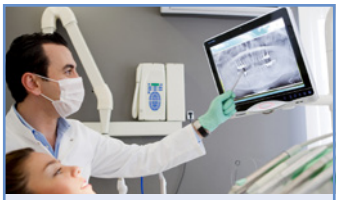
VESA	Model
75 x 75mm	VSTAND-A07-R11
75 x 75mm / 100 x 100mm	VSTAND-A10-R11
	VSTAND-A12-R11

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.



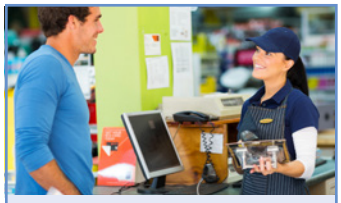
Wall Mounting



Ceiling Mounting

B. 0º to 90º 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

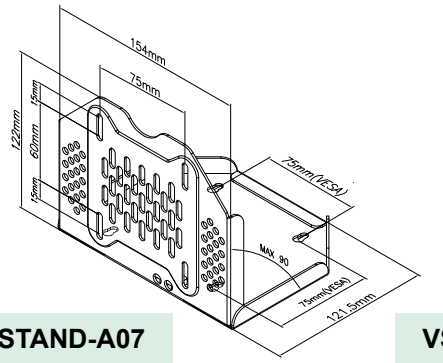
C. Space saving and easy installation

Compact size provides mobility

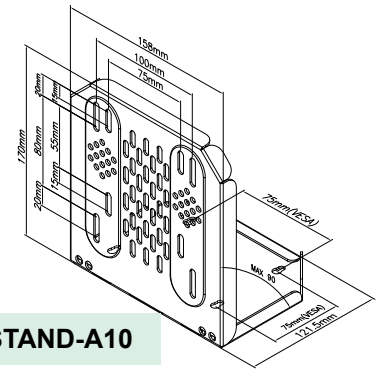
1: Tighten the screws in the rear of the AFOLUX PPC VESA mounting holes

2: Select the position to mount stand kit

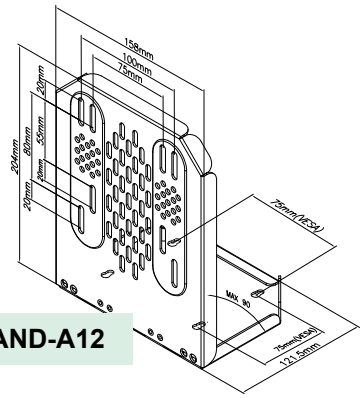
3: Plug in the system to operate



VSTAND-A07



VSTAND-A10



VSTAND-A12

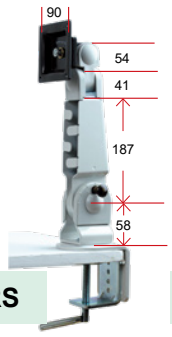
Ordering Information

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

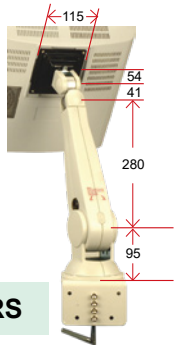
ARM

VESA 75/100 Desk ARM

VESA	Model
75x75mm/100x100mm	ARM-11-RS
	ARM-31-RS



ARM-11-RS



ARM-31-RS

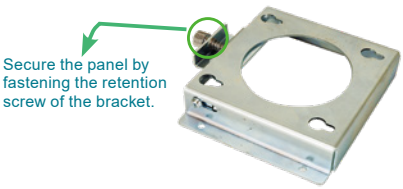
Ordering Information

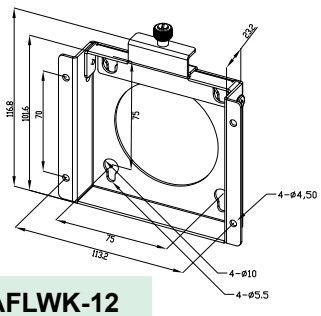
Part No.	Description
ARM-11-RS	LCD Monitor / PPC ARM, VESA 75/100, 3kg~6kg, RoHS
ARM-31-RS	LCD Monitor / PPC ARM, VESA 75/100, 7kg~14kg, RoHS

Wall Mounting

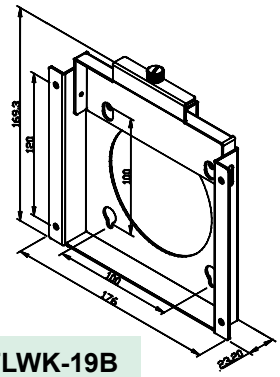
VESA 75/100 Wall Mounting

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

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.

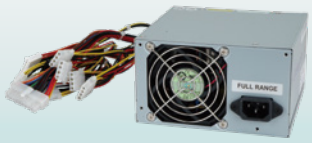
IEI's embedded system power supply solution is efficient and stable. IEI also provides customized power supply services to meet your demands.

Selection

■ 1U Series
- 1U Chassis

■ 2U Series
- 1U ~ 2U Chassis

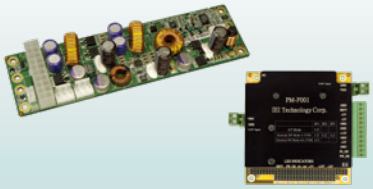
■ PS2 Series
- 2U ~ 4U Chassis



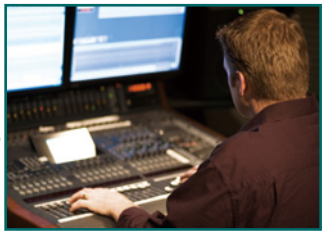
■ Redundant
- 2U ~ 4U Chassis

■ Adapter
- LCD Monitor
- AFL Series
- Embedded System

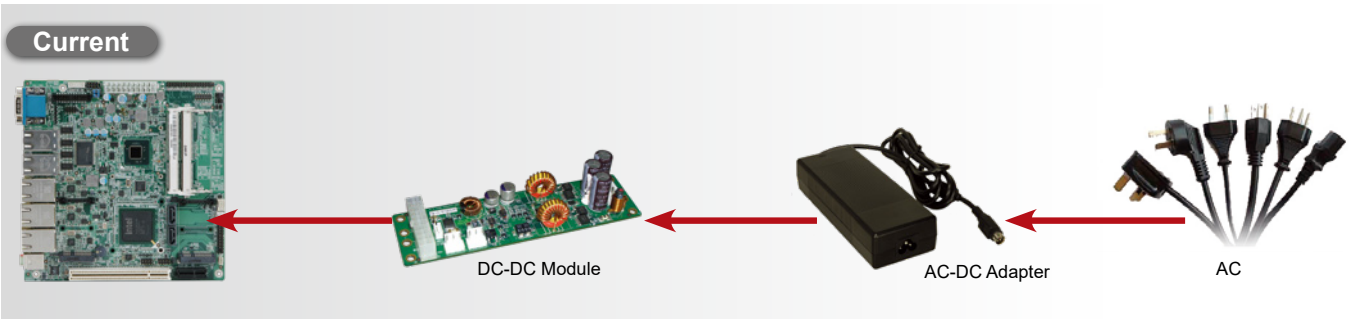
■ DC to DC Module
- Battery Backup System
- Embedded System
- Mobile Auto Solution



AC-DC Adapter



Type	Temperature
AC-DC Adapter	0°C ~ 40°C



Wide Temperature

Medical

Item	Model	Watt	AC/DC
PS/2	ACE-4840APM	400W	AC

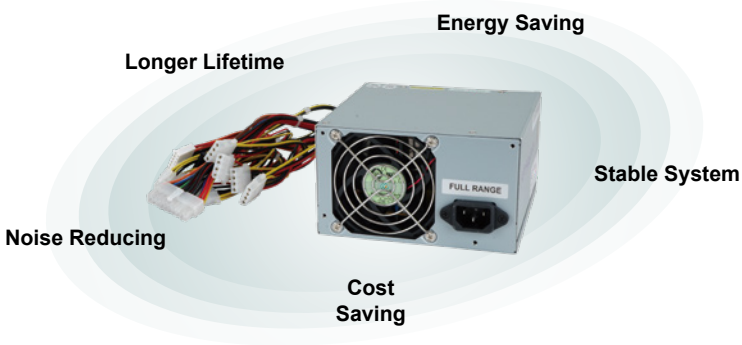
-20°C ~ 70°C

Item	Model	Watt	AC/DC
PS/2	ACE-160B	600W	AC
	ACE-A140B	400W	AC

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

1U/2U Type Selection Guide

- **Safety (ITE Standard)** - CB IEC 62368, UL 62368, CSA C 22.2 No. 62368 ,TUV EN 62368
- **Safety (Medical Standard)** - CB IEC 60601, UL 60601, CSA C 22.2 No. 60601, TUV EN 60601
- **EMI** - Meets EN 55032, FCC Part 15, CISPR 32 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

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-A4520D	250W ATX -	24 VDC (18 ~ 36 VDC)	10 A	14 A	18 A (0.05A min.)		0.3 A	2.5 A		80%	0°C ~ 50°C	CB UL TUV CCC NEMKO CE FCC	150 x 81.5 x 40.5

1U AC Input ATX Type

ACE-A630C

1U Flex ATX 300 W Power Supply

300W

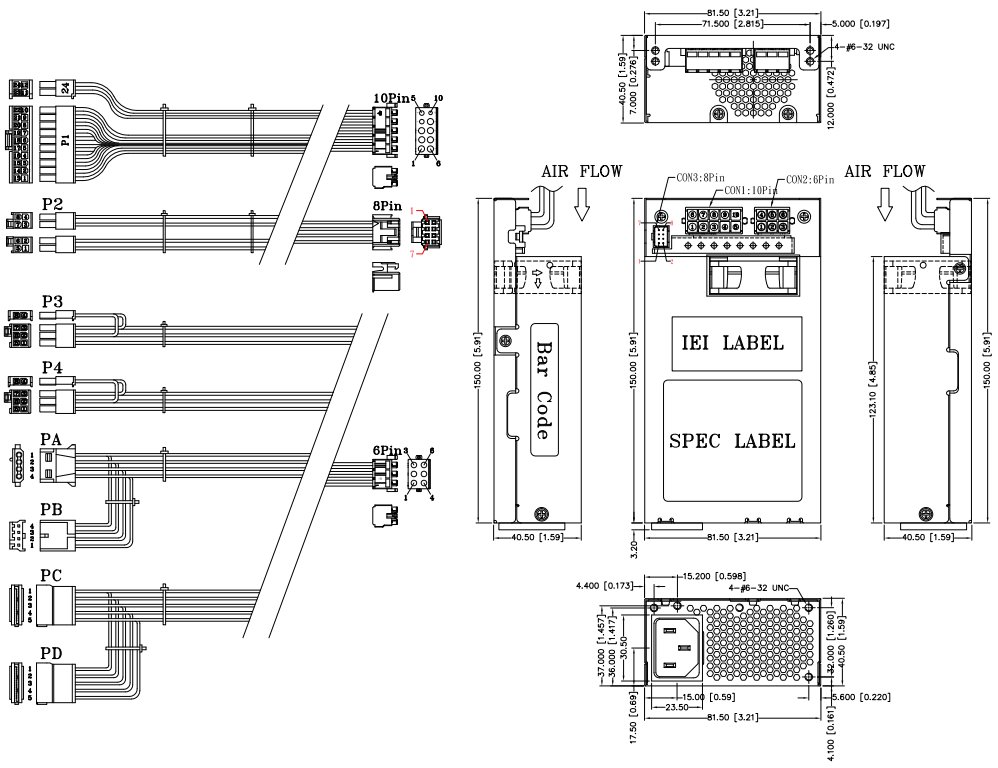
Specifications

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, 2 x 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-R11	1U Flex ATX 300W Power Supply, 90~264 VAC, ErP, CCL, RoHS

Dimensions *(Unit: mm)*



REF. ID.	PIN NO.	SIGNAL	WIRE COLOR	GAUGE	CONNECTOR TYPE	CABLE LENGTH
P1 / 24	1	+3.3V	ORANGE	18	WST P80-14200SK11DZ-W +P4-4200SK11DZ-W or EQUIV.	400±15mm
	2	+3.3V	ORANGE	18		
	3	COM	BLACK	18		
	4	+5V	RED	18		
	5	COM	BLACK	18		
	6	+5V	RED	18		
	7	COM	BLACK	18		
	8	PW-OK	GRAY	24		
		PW-OK	GRAY	24		
	9	+5Vsb	PURPLE	24		
		+5Vsb	PURPLE	24		
	10	+12V	YELLOW	18		
	11	+12V	YELLOW	18		
	12	+3.3V	ORANGE	18		
	13	+3.3V	ORANGE	18		
		+3.3Vsense	BROWN	24		
	14	-12V	BLUE	24		
	15	COM	BLACK	18		
	16	PS-ON	GREEN	24		
		PS-ON	GREEN	24		
	17	COM	BLACK	18		
	18	COM	BLACK	18		
	19	COM	BLACK	18		
	20					
	21	+5V	RED	18		
	22	+5V	RED	18		
	23	+5V	RED	18		
	24	COM	BLACK	18		
P2	1	COM	BLACK	18	WST P4-14200SK38Z +P4-14200SK48Z or EQUIV.	400±15mm
	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	COM	BLACK	18		
	5	+12V	YELLOW	18		
	6	+12V	YELLOW	18		
	7	+12V	YELLOW	18		
	8	+12V	YELLOW	18		
P3 P4	1	+12V	YELLOW	20	WST P5-14200SK21Z +P4-14200SK13SZ or EQUIV.	350±15mm
	2	+12V	YELLOW	20		
	3	+12V	YELLOW	20		
	5	COM	BLACK	20		
	6	COM	BLACK	20		
	7	COM	BLACK	20		
	4	COM	BLACK	20		70±10mm
	8	COM	BLACK	20		
PA	1	+12V	YELLOW	20	WST P4-A102G2Z or EQUIV.	250±15mm
	2	COM	BLACK	20		
	3	COM	BLACK	20		
	4	+5V	RED	18		
PB	1	+5V	RED	20	AMP 171822-4 or EQUIV.	155±10mm
	2	COM	BLACK	20		
	3	COM	BLACK	20		
	4	+12V	YELLOW	20		
PC	1	+3.3V	ORANGE	20	WST P5-112718 -B or EQUIV.	310±15mm
	2	COM	BLACK	20		
	3	+5V	RED	20		
	4	COM	BLACK	18		
	5	+12V	YELLOW	20		
PD	1	+3.3V	ORANGE	20	WST P5-112718 -B or EQUIV.	155±10mm
	2	COM	BLACK	20		
	3	+5V	RED	20		
	4	COM	BLACK	20		
	5	+12V	YELLOW	20		

ACE-A622C

220 W 1U Type ATX Power Supply

220W

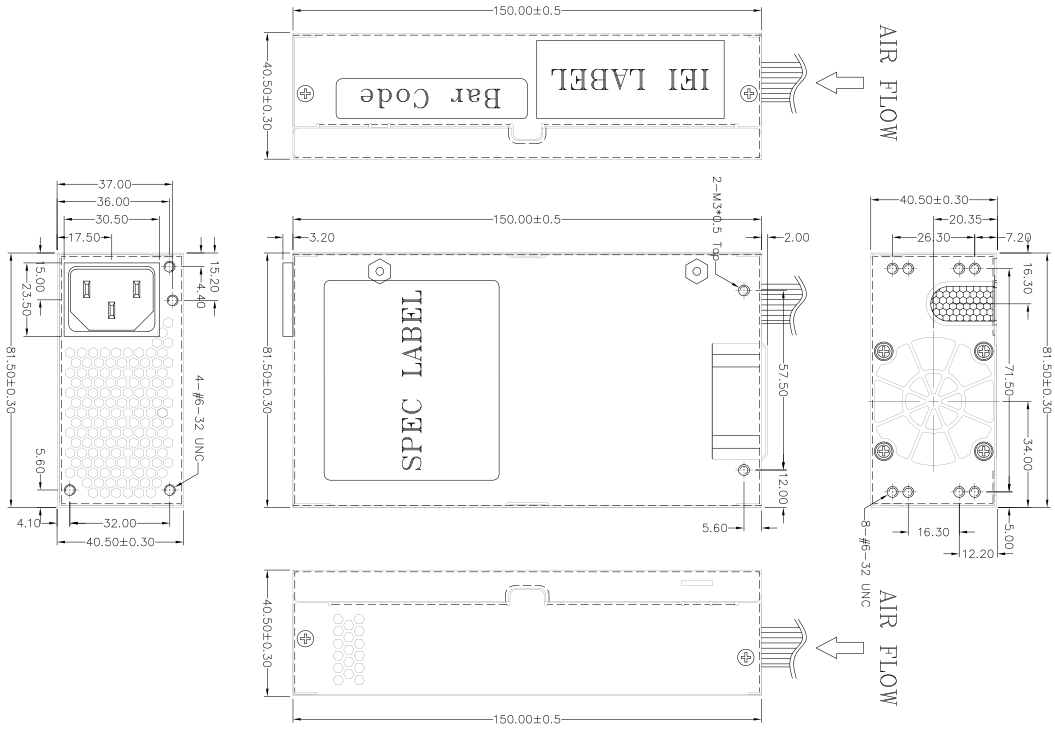
Specifications

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

Dimensions *(Unit: mm)*

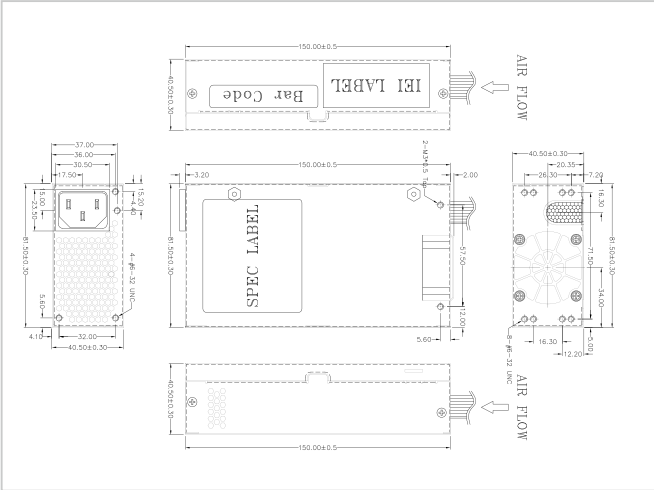


ACE-A618C

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

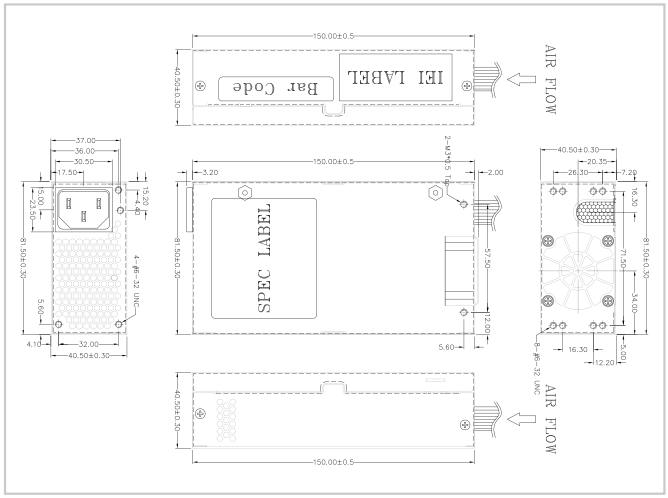
Part No.	Description
ACE-A618C-R10	1U Flex ATX 180W Power Supply, 90~264VAC, ErP, CCL, RoHS

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				

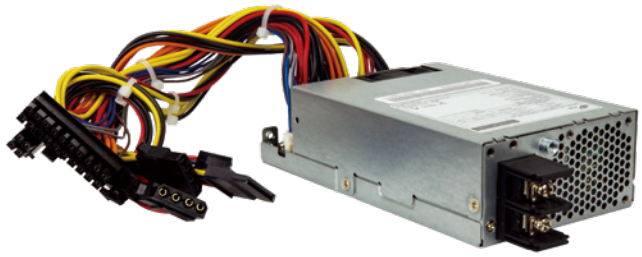
Ordering Information

Part No.	Description
ACE-A615C-R10	1U Flex ATX 150W Power Supply, 90~264VAC, ErP, CCL, RoHS

ACE-A4520D

250 W 24V DC input 1U ATX Power Supply

250W



High power capacity 250W in 1U size!!

Meets ATX revision 2.0 with 20+4-pin ATX power and SATA

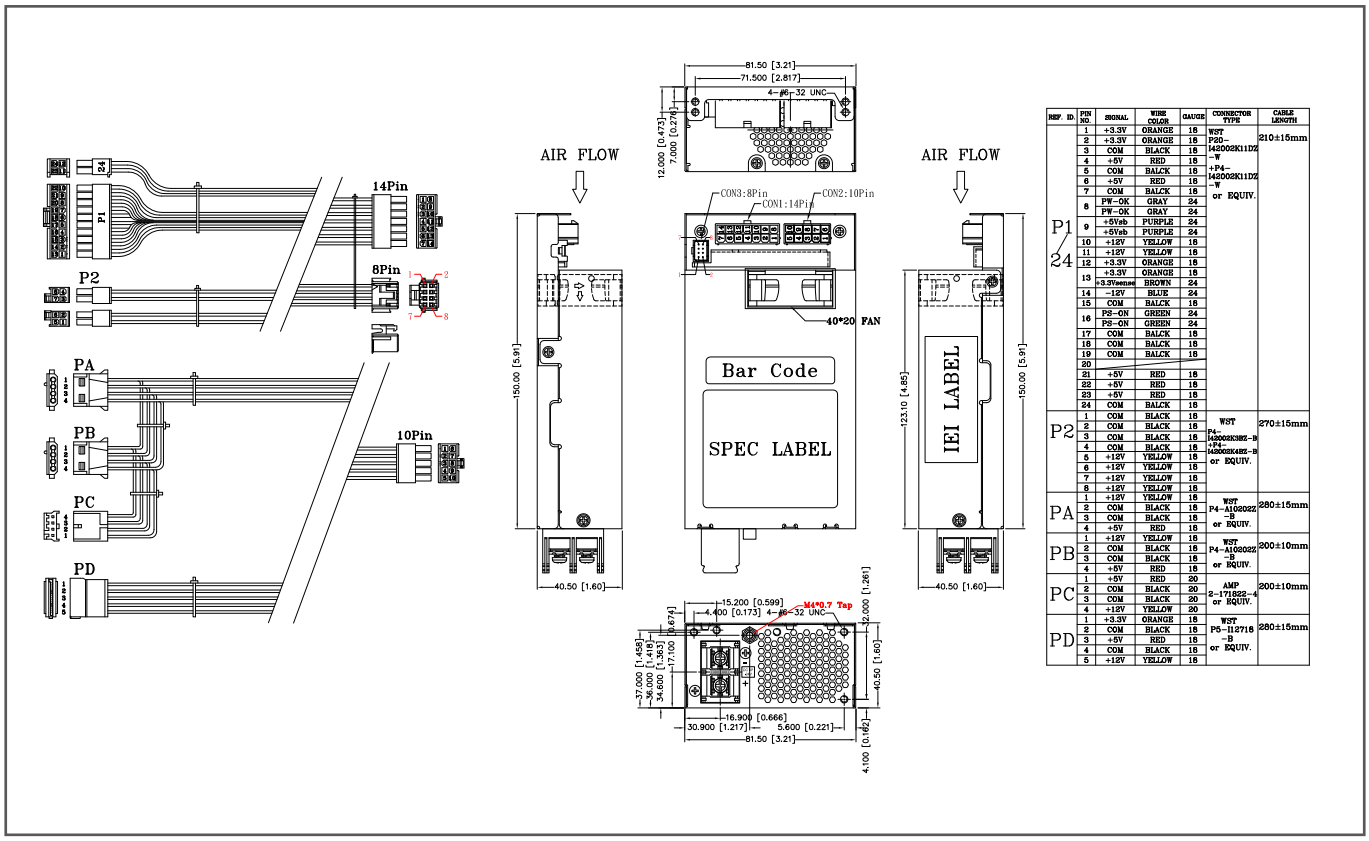
Specifications

Input	**Voltage**	18 ~ 36 VDC input		
	Input Current	15 A (RMS) @ -24 VDC		
	Inrush Current	18 A max. for -24 VDC		
Output	**Voltage**	**Min. Load**	**Max. Load**	**Ripple & Noise**
	+5 V	0 A	14 A	50 mV P-P
	+12 V	0.05 A	18 A	120 mV P-P
	-12 V	0 A	0.3 A	120 mV P-P
	+3.3 V	0 A	10 A	50 mV P-P
	+5 Vsb	0 A	2.5 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: 13.3 V ~ 15.5 V +3.3 V output: 3.7 V ~ 4.5 V		
	Over Circuit Protection	+5 V output: 18 V ~ 22 V +12 V output: 20 V ~ 26 V +3.3 V output: 15 V ~ 20 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	80%		
	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, 2 x 4-pin 12V CPU, FDD, SATA, 2 x HDD		

Ordering Information

Part No.	Description
ACE-A4520D-R11	250W 24 V DC Input 1U ATX Power Supply

Dimensions *(Unit: mm)*



REF. ID.	PIN NO.	SIGNAL	WIRE COLOR	GAUGE	CONNECTOR TYPE	CABLE LENGTH
P1 24	1	+3.3V	ORANGE	18	WST P20-142002K11D2-W or EQUIV.	210±15mm
	2	+3.3V	ORANGE	18		
	3	COM	BLACK	18		
	4	+5V	RED	18		
	5	COM	BALCK	18		
	6	+5V	RED	18		
	7	COM	BALCK	18		
	8	PW-OK	GRAY	24		
		PW-OK	GRAY	24		
	9	+5Vsb	PURPLE	24		
		+5Vsb	PURPLE	24		
	10	+12V	YELLOW	18		
	11	+12V	YELLOW	18		
	12	+3.3V	ORANGE	18		
	13	+3.3V	ORANGE	18		
		+3.3Vsense	BROWN	24		
	14	-12V	BLUE	24		
	15	COM	BALCK	18		
	16	PS-ON	GREEN	24		
		PS-ON	GREEN	24		
	17	COM	BALCK	18		
	18	COM	BALCK	18		
	19	COM	BALCK	18		
	20					
	21	+5V	RED	18		
	22	+5V	RED	18		
	23	+5V	RED	18		
	24	COM	BALCK	18		
P2	1	COM	BLACK	18	WST P4-142002K38Z-B +P4-142002K48Z-B or EQUIV.	270±15mm
	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	COM	BLACK	18		
	5	+12V	YELLOW	18		
	6	+12V	YELLOW	18		
	7	+12V	YELLOW	18		
	8	+12V	YELLOW	18		
PA	1	+12V	YELLOW	18	WST P4-A102022-B or EQUIV.	280±15mm
	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	+5V	RED	18		
PB	1	+12V	YELLOW	18	WST P4-A102022-B or EQUIV.	200±10mm
	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	+5V	RED	18		
PC	1	+5V	RED	20	AMP 2-171822-4 or EQUIV.	200±10mm
	2	COM	BLACK	20		
	3	COM	BLACK	20		
	4	+12V	YELLOW	20		
PD	1	+3.3V	ORANGE	18	WST P5-112718-B or EQUIV.	280±15mm
	2	COM	BLACK	18		
	3	+5V	RED	18		
	4	COM	BLACK	18		
	5	+12V	YELLOW	18		

PS/2 Selection Guide

- **Safety (ITE Standard)** - CB IEC 62368, UL 62368, CSA C 22.2 No. 62368 ,TUV EN 62368
- **Safety (Medical Standard)** - CB IEC 60601, UL 60601, CSA C 22.2 No. 60601, TUV EN 60601
- **EMI** - Meets EN 55032, FCC Part 15, CISPR 32 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

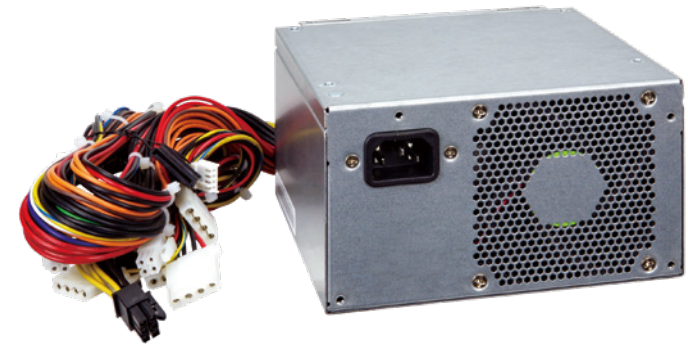
Product	Model No.	Watt AT/ATX PFC	Input Range	Output Current Range						Efficiency	ErP	Operating Temperature	Safety
			Voltage	+3.3 V	+5 V	+12 V	-5 V	-12 V	+5 Vsb				
	ACE-A160B	600W ATX PFC	90~264 VAC	25 A (0 A)	25 A (0.2 A)	V1: 16 A (0.05 A) V2: 16 A (0 A) V3: 16 A (0 A) V4: 16 A (0 A)	0.5 A (0 A)	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
	63010-010400-010-RS	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
	63010-010300-020-RS	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

PS/2 AC Input ATX Type

ACE-A160B

600W PS/2 ATX Power Supply with ErP

600W



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, 2 x 4-pin 12V CPU, 9 x HDD/ CDROM, 1 x Graphics card power, 2 x FDD, 2 x SATA		

80 PLUS BRONZE

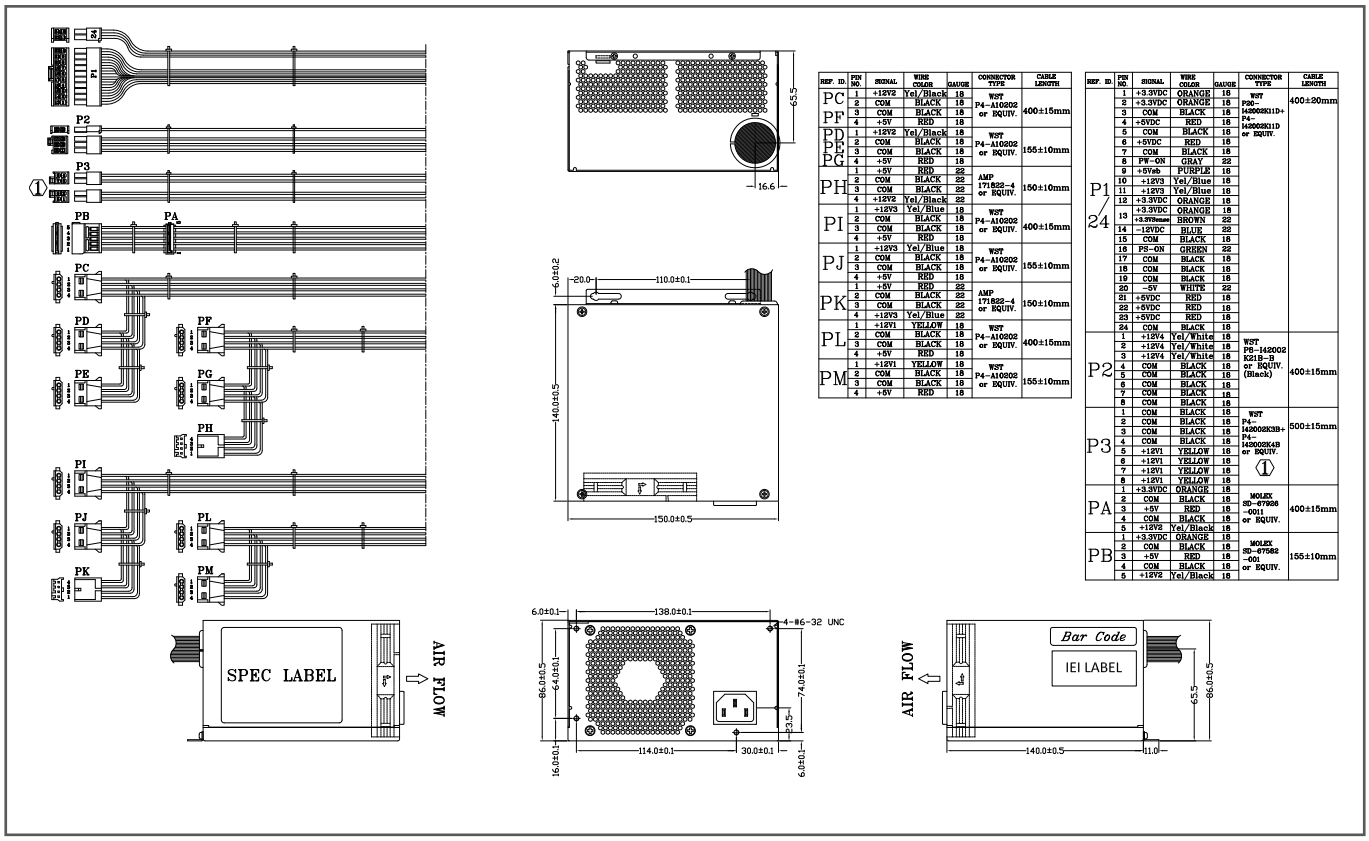
PFC

ErP 5Vsb < 0.5W Input

Ordering Information

Part No.	Description
ACE-A160B-R11	600W PS/2 ATX Power Supply with ERP, RoHS

Dimensions *(Unit: mm)*



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
	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
	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		
PL	1	+12V1	YELLOW	18	WST P4-A10202 or EQUIV.	400±15mm
	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	+5V	RED	18		
PM	1	+12V1	YELLOW	18	WST P4-A10202 or EQUIV.	155±10mm
	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	+5V	RED	18		

REF. ID	PIN NO.	SIGNAL	WIRE COLOR	GAUGE	CONNECTOR TYPE	CABLE LENGTH
P1/24	1	+3.3VDC	ORANGE	16	WST P20-142002K11D+ P4-142002K11D or EQUIV.	400±20mm
	2	+3.3VDC	ORANGE	16		
	3	COM	BLACK	16		
	4	+5VDC	RED	16		
	5	COM	BLACK	16		
	6	+5VDC	RED	16		
	7	COM	BLACK	16		
	8	PW-ON	GRAY	22		
	9	+5Vsb	PURPLE	16		
	10	+12V3	Yel/Blue	16		
	11	+12V3	Yel/Blue	16		
	12	+3.3VDC	ORANGE	16		
	13	+3.3VDC	ORANGE	16		
		+3.3VSense	BROWN	22		
	14	-12VDC	BLUE	22		
	15	COM	BLACK	16		
	16	PS-ON	GREEN	22		
	17	COM	BLACK	16		
	18	COM	BLACK	16		
	19	COM	BLACK	16		
	20	-5V	WHITE	22		
	21	+5VDC	RED	16		
	22	+5VDC	RED	16		
	23	+5VDC	RED	16		
	24	COM	BLACK	16		
P2	1	+12V4	Yel/White	16	WST P8-142002 K21B-B or EQUIV. (Black)	400±15mm
	2	+12V4	Yel/White	16		
	3	+12V4	Yel/White	16		
	4	COM	BLACK	16		
	5	COM	BLACK	16		
	6	COM	BLACK	16		
	7	COM	BLACK	16		
	8	COM	BLACK	16		
P3	1	COM	BLACK	18	WST P4-142002K3B+ P4-142002K4B or EQUIV.	500±15mm
	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	COM	BLACK	18		
	5	+12V1	YELLOW	18		
	6	+12V1	YELLOW	18		
	7	+12V1	YELLOW	18		
	8	+12V1	YELLOW	18		
PA	1	+3.3VDC	ORANGE	18	MOLEX 39-67926 -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 39-67582 -001 or EQUIV.	155±10mm
	2	COM	BLACK	18		
	3	+5V	RED	18		
	4	COM	BLACK	18		
	5	+12V2	Yel/Black	18		

ACE-4840APM

400 W PS/2 Medical Type ATX Power Supply

400W

Medical

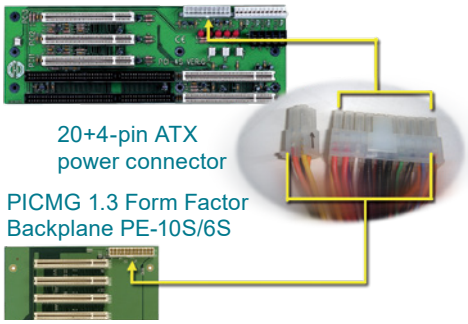
New Version 20+4 Pins Power Supply

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

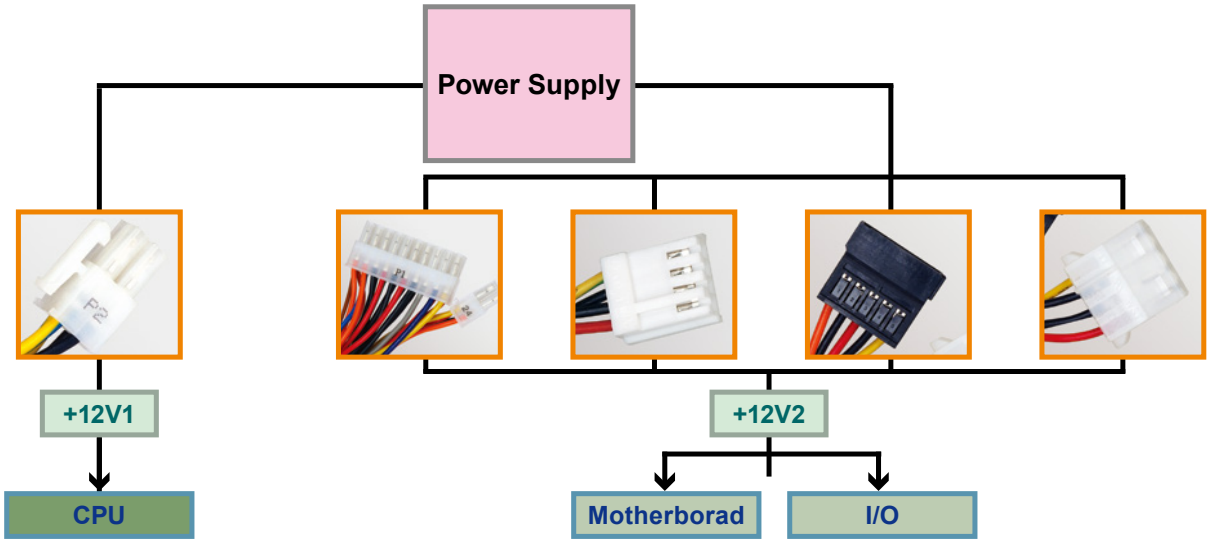
Specifications

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

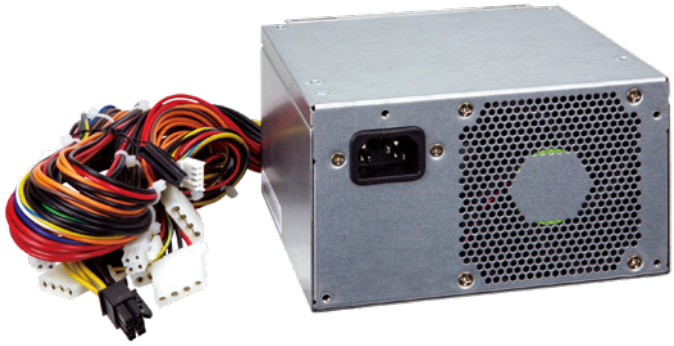
■ Power Connector +12 V



ACE-A140B

400 W PS/2 ATX Power Supply with ErP

400W



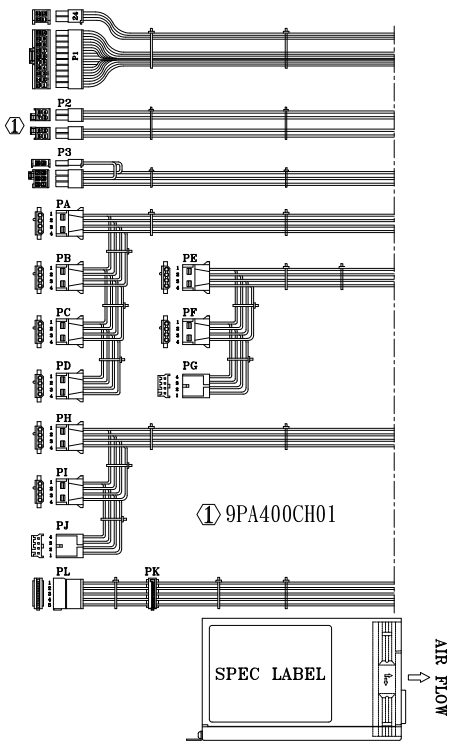
Specifications

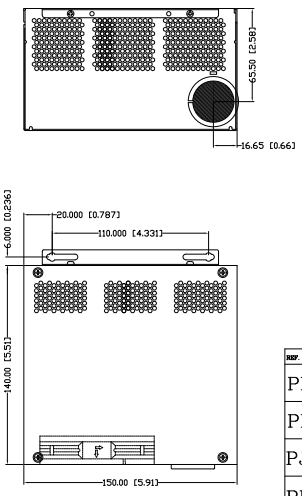
Input	**Voltage**	90~264 VAC Full Range		
	Frequency	47 Hz ~ 63 Hz		
	Input Current	5A (RMS)@115VAC, 2.5A (RMS)@230VAC		
	Inrush Current	80A max. for 115VAC 160A max. for 230VAC		
Output	**Voltage**	**Min. load**	**Max. load**	**Ripple & Noise**
	+3.3V	0 A	21 A	50mV
	+5V	0.2 A	16 A	50mV
	+12V1	0.05A	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, 2 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-R11	400W AC-DC PS/2 ATX Power Supply with ErP, meets 80 PLUS (Bronze)

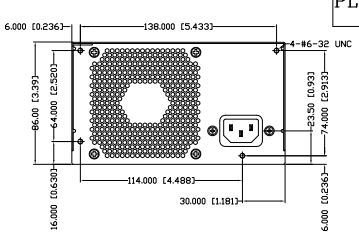
Dimensions *(Unit: mm)*

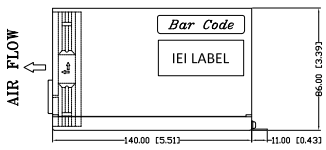




REF. ID.	PIN NO.	SIGNAL	WIRE COLOR	GAUGE	CONNECTOR TYPE	CABLE LENGTH
PH	1	+12V2	YEL/BLUE	18	WST P4-A10202 or EQUIV.	400±15mm
	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	+5V	RED	18		
PI	1	+12V2	YEL/BLUE	18	WST P4-A10202 or EQUIV.	200±10mm
	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	+5V	RED	18		
PJ	1	+5V	RED	22	AMP 171822-4 or EQUIV.	200±10mm
	2	COM	BLACK	22		
	3	COM	BLACK	22		
	4	+12V2	YEL/BLUE	22		
PK	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/BLUE	18		
PL	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/BLUE	18		

REF. ID.	PIN NO.	SIGNAL	WIRE COLOR	GAUGE	CONNECTOR TYPE	CABLE LENGTH
P1/24	1	+3.3VDC	ORANGE	18	WST P20-14200EK11D+ P4-14200EK11D or EQUIV.	500±15mm
	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-OK	GRAY	22		
	9	+5Vsb	PURPLE	18		
	10	+12V2	YEL/BLUE	18		
	11	+12V2	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	COM	BLACK	18	WST P4-14200EK2B+ P4-14200EK4B or EQUIV. ①	500±15mm
	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	COM	BLACK	18		
	5	+12V1	YELLOW	18		
	6	+12V1	YELLOW	18		
	7	+12V1	YELLOW	18		
	8	+12V1	YELLOW	18		
P3	1	+12V1	YELLOW	18	WST P8-14200EK2B-E or EQUIV.	500±15mm
	2	+12V1	YELLOW	18		
	3	+12V1	YELLOW	18		
	5	COM	BLACK	18		
	6	COM	BLACK	18		
	7	COM	BLACK	18		
	4	COM	BLACK	18		70±10mm
	8	COM	BLACK	18		
PA	1	+12V2	YEL/BLUE	18	WST P4-A10202 or EQUIV.	400±15mm
	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	+5V	RED	18		
PB PC PD	1	+12V2	YEL/BLUE	18	WST P4-A10202 or EQUIV	200±10mm
	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	+5V	RED	18		
PE	1	+12V2	YEL/BLUE	18	WST P4-A10202 or EQUIV	400±15mm
	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	+5V	RED	18		
PF	1	+12V2	YEL/BLUE	18	WST P4-A10202 or EQUIV	200±10mm
	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	+5V	RED	18		
PG	1	+5V	RED	22	AMP 171822-4 or EQUIV.	200±10mm
	2	COM	BLACK	22		
	3	COM	BLACK	22		
	4	+12V2	YEL/BLUE	22		

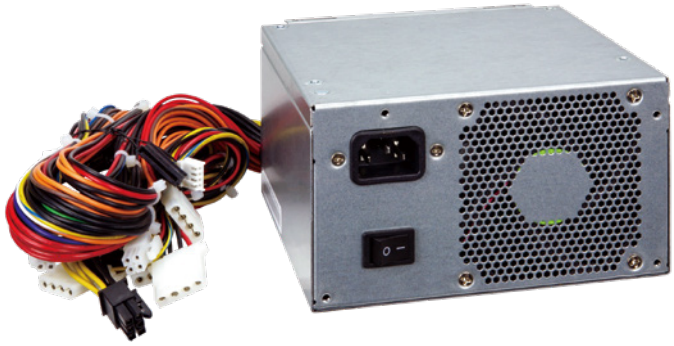




63010-010400-010-RS

400 W PS/2 ATX Power Supply with ErP

400W



80 PLUS GOLD PFC

ErP 5Vsb < 0.5W Input

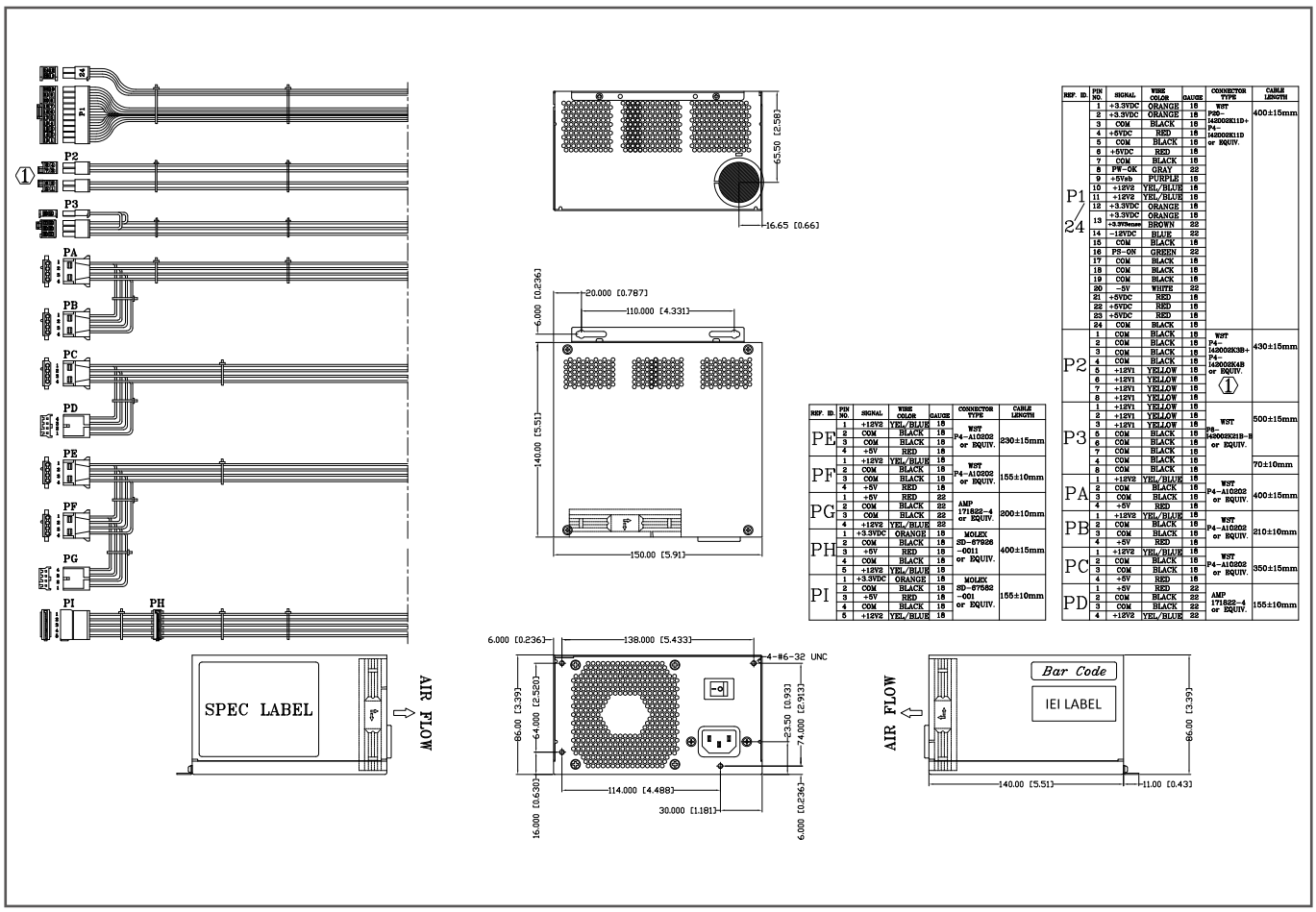
Specifications

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	0.05 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, 2 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
63010-010400-010-RS	400W PS/2 ATX Power Supply with ERP & on/off switch, meets 80 plus(Gold), RoHS

Dimensions *(Unit: mm)*



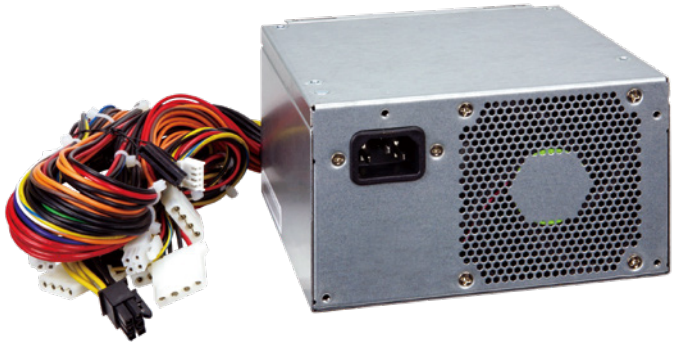
REF. ID.	PIN NO.	SIGNAL	WIRE COLOR	GAUGE	CONNECTOR TYPE	CABLE LENGTH
PE	1	+12V2	YEL/BLUE	18	WST P4-A10202 or EQUIV.	230±15mm
	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	+5V	RED	18		
PF	1	+12V2	YEL/BLUE	18	WST P4-A10202 or EQUIV.	155±10mm
	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	+5V	RED	18		
PG	1	+5V	RED	22	AMP 171822-4 or EQUIV.	200±10mm
	2	COM	BLACK	22		
	3	COM	BLACK	22		
	4	+12V2	YEL/BLUE	22		
PH	1	+3.3VDC	ORANGE	18	MOLEX 2D-67926 -0011 or EQUIV.	400±15mm
	2	COM	BLACK	18		
	3	+5V	RED	18		
	4	COM	BLACK	18		
	5	+12V2	YEL/BLUE	18		
PI	1	+3.3VDC	ORANGE	18	MOLEX 2D-67982 -001 or EQUIV.	155±10mm
	2	COM	BLACK	18		
	3	+5V	RED	18		
	4	COM	BLACK	18		
	5	+12V2	YEL/BLUE	18		

REF. ID.	PIN NO.	SIGNAL	WIRE COLOR	GAUGE	CONNECTOR TYPE	CABLE LENGTH
P1/24	1	+3.3VDC	ORANGE	18	WST P20-1420028K11D+ P4-1420028K11D or EQUIV.	400±15mm
	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-OK	GRAY	22		
	9	+5Vsb	PURPLE	18		
	10	+12V2	YEL/BLUE	18		
	11	+12V2	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	COM	BLACK	18	WST P4-1420028K3B+ P4-1420028K4B or EQUIV.	430±15mm
	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	COM	BLACK	18		
	5	+12V1	YELLOW	18		
	6	+12V1	YELLOW	18		
	7	+12V1	YELLOW	18		
	8	+12V1	YELLOW	18		
P3	1	+12V1	YELLOW	18	WST P8-1420028K3B-H or EQUIV.	500±15mm
	2	+12V1	YELLOW	18		
	3	+12V1	YELLOW	18		
	5	COM	BLACK	18		
	6	COM	BLACK	18		
	7	COM	BLACK	18		
	4	COM	BLACK	18		70±10mm
	8	COM	BLACK	18		
PA	1	+12V2	YEL/BLUE	18	WST P4-A10202 or EQUIV.	400±15mm
	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	+5V	RED	18		
PB	1	+12V2	YEL/BLUE	18	WST P4-A10202 or EQUIV.	210±10mm
	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	+5V	RED	18		
PC	1	+12V2	YEL/BLUE	18	WST P4-A10202 or EQUIV.	350±15mm
	2	COM	BLACK	18		
	3	COM	BLACK	18		
	4	+5V	RED	18		
PD	1	+5V	RED	22	AMP 171822-4 or EQUIV.	155±10mm
	2	COM	BLACK	22		
	3	COM	BLACK	22		
	4	+12V2	YEL/BLUE	22		

63010-010300-020-RS

300 W PS/2 ATX Power Supply with ErP

300W



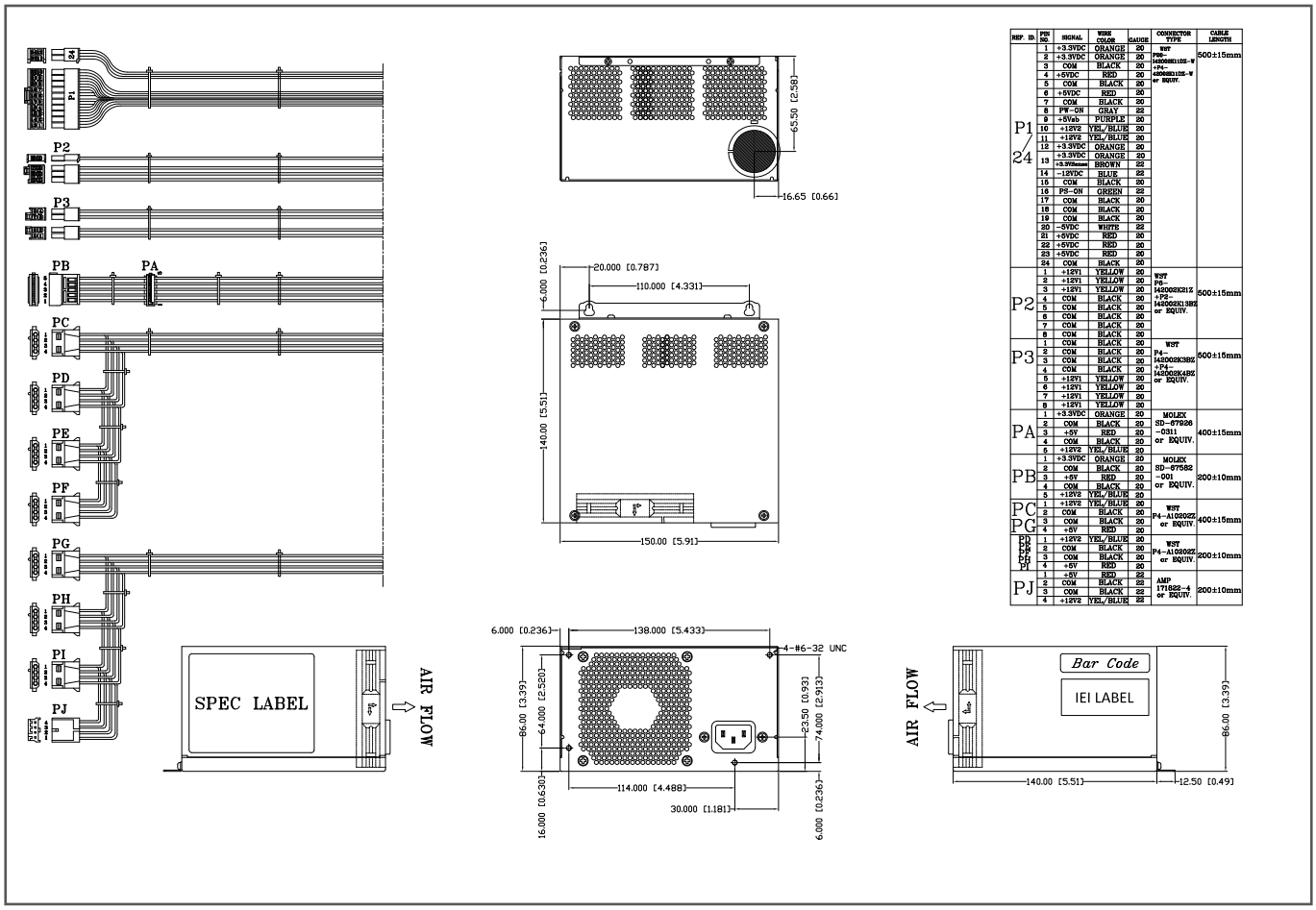
Specifications

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, 2 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
63010-010300-020-RS	300W PS/2 ATX Power Supply with ERP&PFC, meets 80 plus (Gold), RoHS

Dimensions *(Unit: mm)*

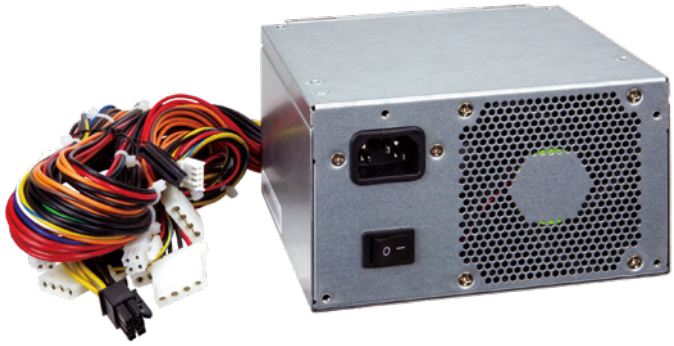


REF. ID.	PIN NO.	SIGNAL	WIRE COLOR	GAUGE	CONNECTOR TYPE	CABLE LENGTH
P1/24	1	+3.3VDC	ORANGE	20	WST P00-14200BB110Z-W +P4-48400B110Z-W or EQUIV.	500±15mm
	2	+3.3VDC	ORANGE	20		
	3	COM	BLACK	20		
	4	+5VDC	RED	20		
	5	COM	BLACK	20		
	6	+5VDC	RED	20		
	7	COM	BLACK	20		
	8	PW-ON	GRAY	22		
	9	+5Vsb	PURPLE	20		
	10	+12V2	YEL/BLUE	20		
	11	+12V2	YEL/BLUE	20		
	12	+3.3VDC	ORANGE	20		
	13	+3.3VDC	ORANGE	20		
	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 P2- 14200K21Z +P2- 14200K21BZ 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	WST P4- 14200K3BZ +P4- 14200K4BZ or EQUIV.	500±15mm
	2	COM	BLACK	20		
	3	COM	BLACK	20		
	4	COM	BLACK	20		
	5	+12V1	YELLOW	20		
	6	+12V1	YELLOW	20		
	7	+12V1	YELLOW	20		
	8	+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-67562 -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-A102022Z 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-A102022Z or EQUIV.	200±10mm
	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



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, 2 x 4-pin 12V CPU, 7 x HDD/ CDROM, 1 x Graphics card power, 1 x FDD, 2 x SATA		

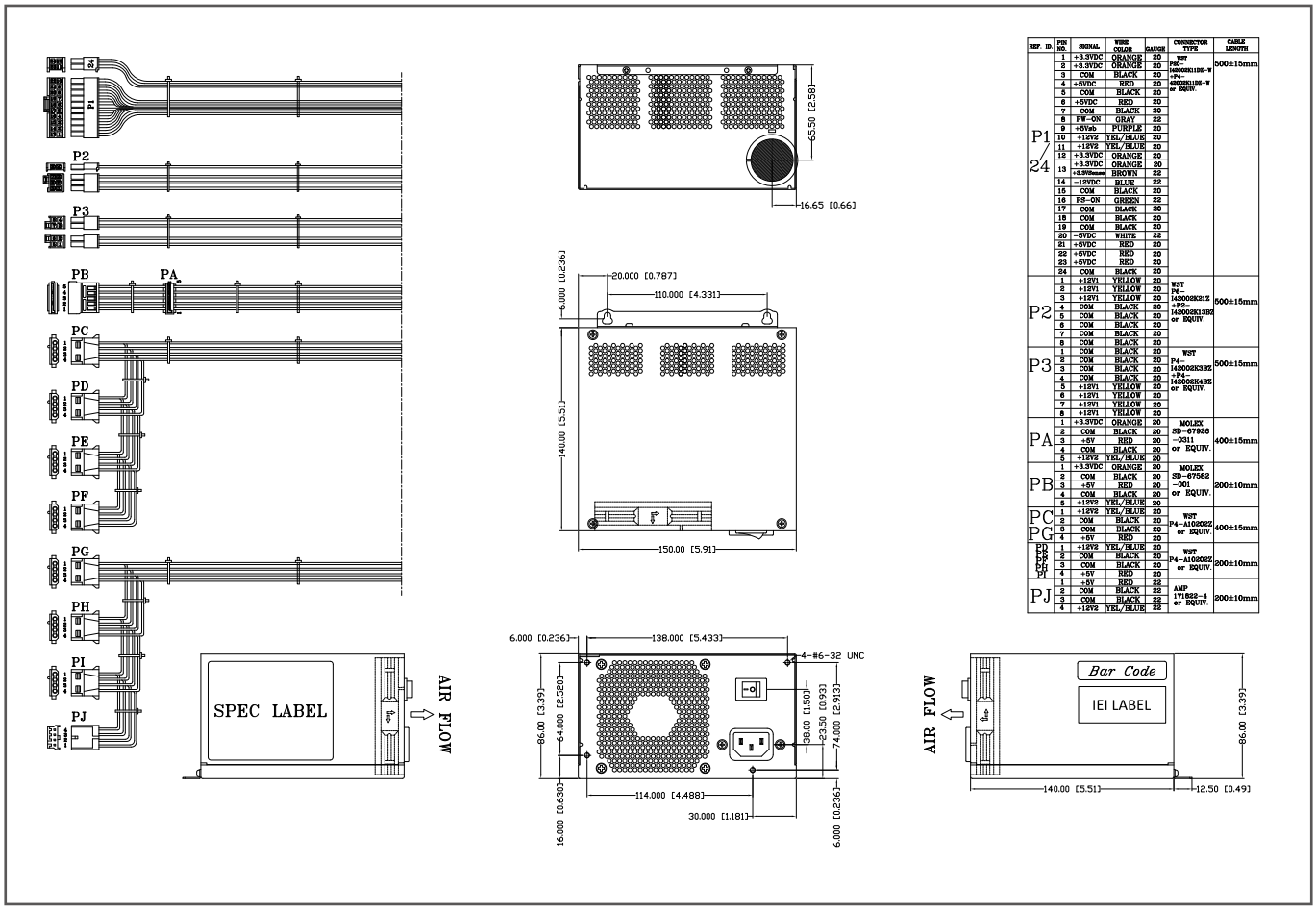
80 PLUS GOLD PFC

ErP 5Vsb < 0.5W Input

Ordering Information

Part No.	Description
ACE-A130C-S-R11	300W PS/2 ATX Power Supply with ERP/PFC & on/off switch, meets 80 plus (Gold), RoHS

Dimensions *(Unit: mm)*

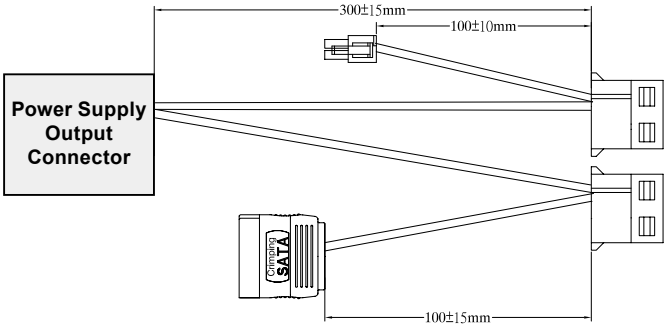


REF. ID.	PIN NO.	SIGNAL	WIRE COLOR	GAUGE	CONNECTOR TYPE	CABLE LENGTH
P1/24	1	+3.3VDC	ORANGE	20	WST PH-[illegible]K12S-W +PH-[illegible]K12S-W or EQUIV.	500±15mm
	2	+3.3VDC	ORANGE	20		
	3	COM	BLACK	20		
	4	+5VDC	RED	20		
	5	COM	BLACK	20		
	6	+5VDC	RED	20		
	7	COM	BLACK	20		
	8	PW-OK	GRAY	22		
	9	+5Vsb	PURPLE	20		
	10	+12V2	YEL/BLUE	20		
	11	+12V2	YEL/BLUE	20		
	12	+3.3VDC	ORANGE	20		
	13	+3.3VDC	ORANGE	20		
		+3.3VDC	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 PH-[illegible]K32 +PH-[illegible]K32 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	WST PH-[illegible]K32 +PH-[illegible]K32 or EQUIV.	500±15mm
	2	COM	BLACK	20		
	3	COM	BLACK	20		
	4	COM	BLACK	20		
	5	+12V1	YELLOW	20		
	6	+12V1	YELLOW	20		
	7	+12V1	YELLOW	20		
	8	+12V1	YELLOW	20		
PA	1	+3.3VDC	ORANGE	20	MOLEX 5D-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 5D-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-A102022 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-A102022 or EQUIV.	200±10mm
	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		

Optional Power Supply Cables

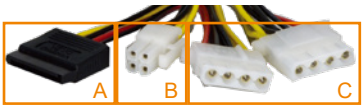
AC Input Solution

20 cm AC input cable with I/O connector and fuse

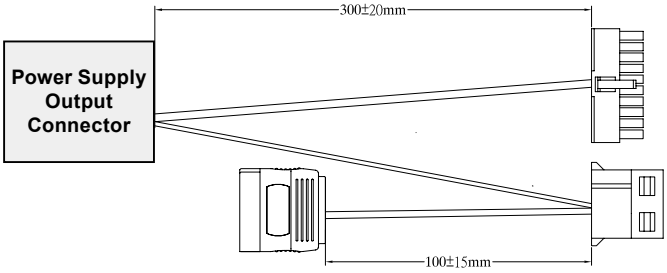


Embedded Solution

30 cm cable with SATA, 12 V and IDE device connectors

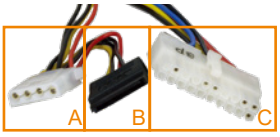


A. SATA device connector
B. 12V only connector
C. IDE device connector

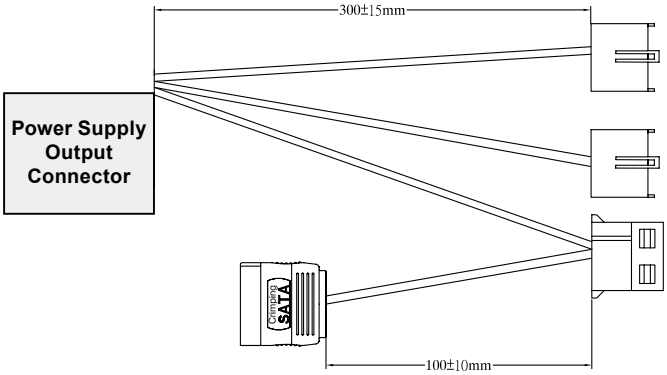


ATX Backplane Solution

30 cm cable with IDE, ATX and SATA device connectors

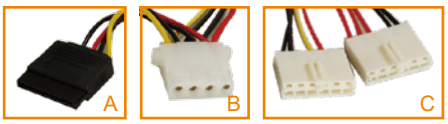


A. IDE device connector
B. SATA device connector
C. ATX backplane connector

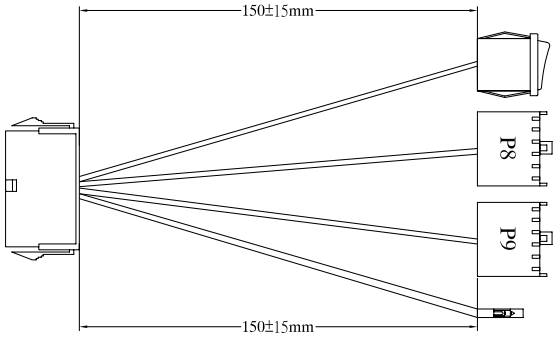


AT P8P9 Backplane Solution

30 cm cable with SATA, IDE and P8P9 AT device connectors

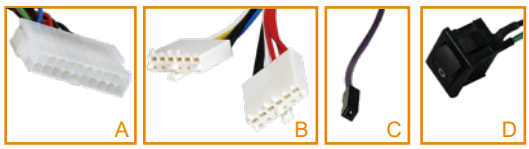


A. SATA device connector
B. IDE device connector
C. P8P9 AT connector



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

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-R4150AP	500W ATX PFC	90 ~ 264 VAC	20A (0A min.)	20A (0A min.)	40A (1A min.)	0.3 A (0A min.)	0.5 A (0A min.)	3 A		84%	0°C ~ 50°C	CB, UL, TUV, CCC, CE, FCC	150 × 84× 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	150 × 84 × 190

ACE-R4150AP

500 W ATX Mini Redundant Power Supply

500W

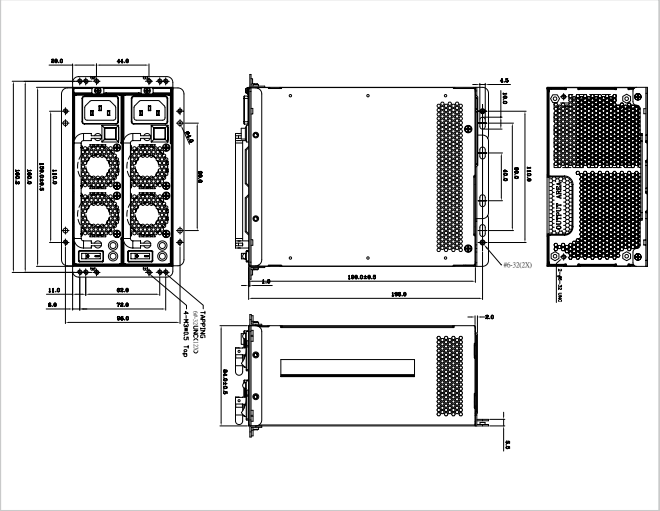
New

PFC

Specifications

Input	Voltage	90 ~ 264 VAC Full Range		
	Frequency	47 Hz ~ 63 Hz		
	Input Current	6 A (RMS) @115 VAC, 3 A (RMS) @230 VAC		
	Inrush Current	40 A max. for 115 VAC, 80 A max. for 230 VAC		
Output	Voltage	Min. load	Max. load	Ripple & Noise
	+3.3 V	0 A	20.0 A	50mVp-p
	+5 V	0 A	20.0 A	50mVp-p
	+12V	1 A	40.0 A	1200mVp-p
	-5 V	0 A	0.3 A	200mVp-p
	-12 V	0 A	0.5 A	200mVp-p
	+5 VSB	0 A	3 A	50mVp-p
General Specifications	Watt	500 W		
	Hold-up Time	The power supply holdup time requirements to 100% of maximum load.		
	Efficiency	84% min		
	MTBF	100,000 hours		
	Temperature	Operating: 0ºC ~ 50ºC, Storage: -20ºC ~ 80ºC		
	Dimensions	150 × 84× 190 (mm)		
	Output Connector	1 x 24-pin ATX, 2 x 4+4-pin 12V CPU, 2 x HDD/ CDROM, 1 x FDD, 2 x SATA, 1 x T.T.L signal, 1 x LED power		

Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
ACE-A4150AP-R10	500W ATX Redundant Power Supply,includes two ACE-R4150AP1-RS,with PFC function;CCL
ACE-A4150AP1-R10	500W AC-DC ATX Redundant module, for ACE-R4150AP,with PFC,CCL;RoHS

ACE-R4130AP

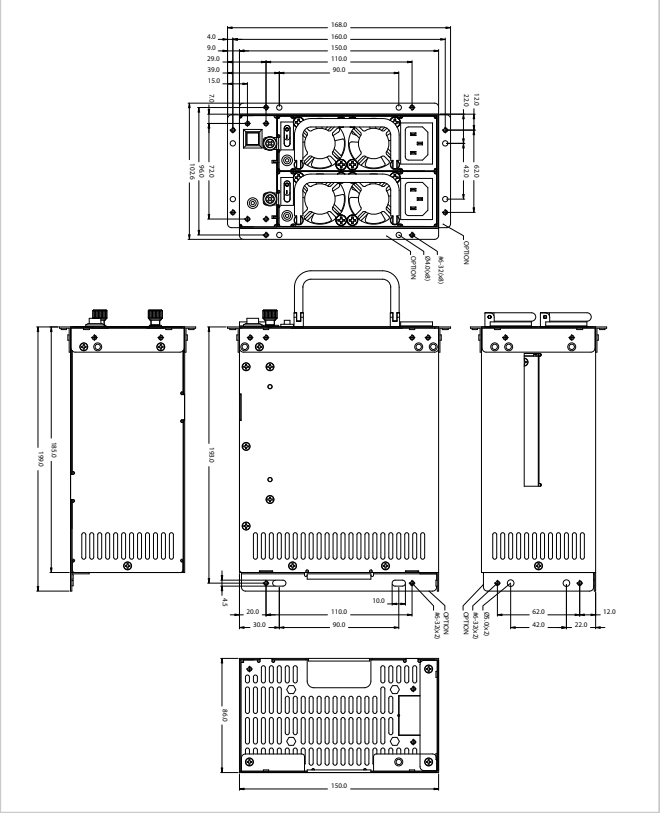
300 W ATX Mini Redundant Power Supply

300W

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		

Dimensions *(Unit: mm)*



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 Standard)** - CB IEC 62368, UL 62368, CSA C 22.2 No. 62368 ,TUV EN 62368
- **Safety (Medical Standard)** - CB IEC 60601, UL 60601, CSA C 22.2 No. 60601, TUV EN 60601
- **EMI** - Meets EN 55032, FCC Part 15, CISPR 32 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

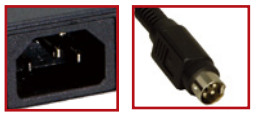
Product	Model No.	Watt	Input Range	Output Current Range			Plug Type	Efficiency	Operating Temperature	Safety	Dimensions (mm)
			Voltage	+5V	+12 V	+19 V					
	New **FSP150-ABAN3**	150W	90~264 VAC		10 A	7.89A		87%	0°C ~ 40°C	UL/TUV CCC/CE/ GS/PSE/KC/ BSMI	75.6 x 151.3 x 25.4
	FSP120-AHAN3	120W	90~264 VAC		10 A			87%	0°C ~ 40°C	UL/TUV CCC/CE/ GS/PSE/KC/ BSMI	75.6 x 151.3 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-DBBN3	90W	90~264 VAC			4.74 A		88%	0°C ~ 40°C	UL/TUV/CCC/ CE/GS/PSE/ KC/BSMI/ RCM/PSE	51 x 129 x 30.9
	FSP065-RBBN3	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
	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

FSP150-ABAN3

150 W AC/DC Adapter

150W

New



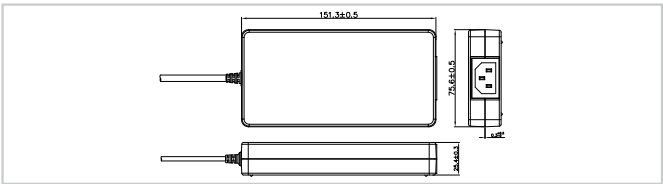
Plug Type: Power mini-DIN (4P)

**Meet ErP & PSE

Specifications

- Input Voltage Range: 90-264 VAC
- Input Frequency: 47-63 Hz
- Output Voltage: 19 V
- Output Current: 7.89 A
- Output Watts: 150 W
- Efficiency: 87%
- Operating Temperature: 0°C ~ 40°C
- Storage Temperature: -20°C ~ 80°C

Dimensions *(Unit: mm)*



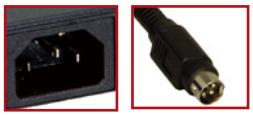
Ordering Information

Part No.	Description
63040-010150-700-RS	19 V 150W power adapter, 90~264 VAC input, ErP, PSE

FSP120-AHAN3

120 W AC/DC Adapter

120W



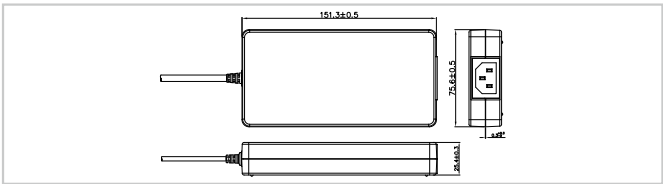
Plug Type: Power mini-DIN (4P)

**Meet ErP & PSE

Specifications

- Input Voltage Range: 90-264 VAC
- Input Frequency: 47-63 Hz
- Output Voltage: 12 V
- Output Current: 10 A
- Output Watts: 120 W
- Efficiency: 87%
- Operating Temperature: 0°C ~ 40°C
- Storage Temperature: -20°C ~ 80°C

Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
63040-010120-300-RS	12 V 120W power adapter, 90~264 VAC input, ErP, PSE

FSP096-AHAN3

96 W AC/DC Adapter

96W

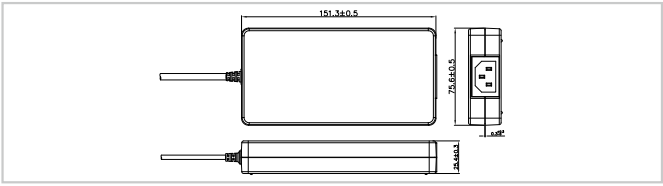
**Meet ErP & PSE

Plug Type: Power mini-DIN (4P)

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	12 V 96W power adapter with DIN 4-pin/lock 90~264 VAC input, ErP, PSE, KC, BSMI

FSP090-DBBN3

87 W AC/DC Adapter

90W

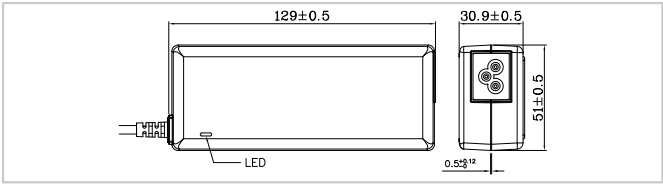
Plug Type: Power mini-DIN (4P)

**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: 90 W
- Efficiency: 88%
- Operating Temperature: 0°C ~ 40°C
- Storage Temperature: -20°C ~ 80°C

Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
待提供	19 V 90W power adapter with DIN 4-pin/lock 90~264 VAC input, ErP

FSP065-RBBN3

65 W AC/DC Adapter

65W

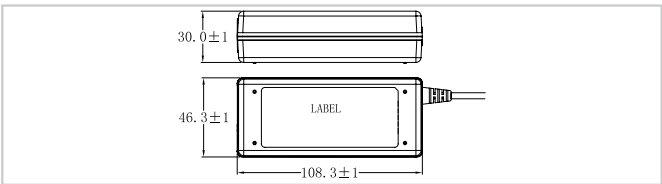
Plug Type: øin 2.1 mm / øout 5.5 mm

**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: 86%
- Operating Temperature: 0ºC ~ 40ºC
- Storage Temperature: -20ºC ~80ºC

Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
63040-010065-710-RS	19 V 65W power adapter with Φ2.1/Φ5.5/lock 90~264 VAC input, ErP, PSE

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: 0ºC ~ 40ºC
- Storage Temperature: -20ºC ~ 65ºC

Dimensions *(Unit: mm)*

Ordering Information

Part No.	Description
63040-010060-211-RS	12 V 60W power adapter with lock screw 90~264 VAC input, ErP, PSE
63040-010060-200-RS	12 V 60W power adapter with none lock 90~264 VAC input, ErP, PSE

FSP036-RHBN3

36 W AC/DC Adapter

36W

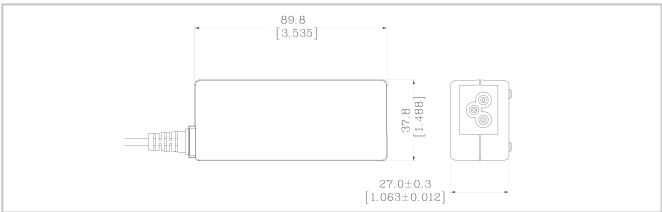
Plug Type: øin 2.5 mm / øout 5.5 mm

**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: 0ºC ~ 40ºC
- Storage Temperature: -20ºC ~ 80ºC

Dimensions *(Unit: mm)*



Ordering Information

Part No.	Description
63040-010036-210-RS	12 V 36W Power adapter with lock screw, 90~264VAC input, ErP, PSE
63040-010036-220-RS	12 V 36W Power adapter without lock, 90~264VAC input, ErP, PSE

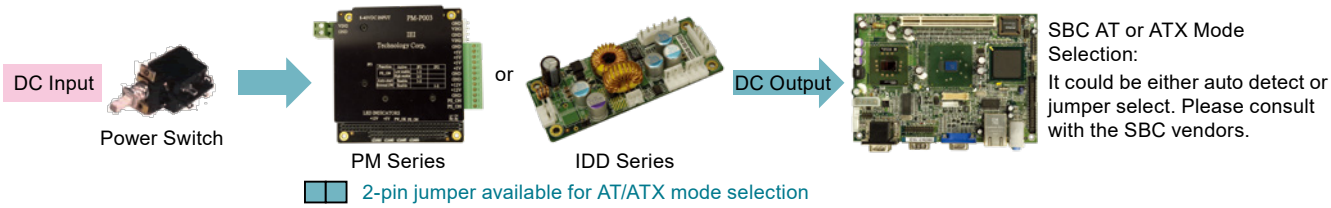
How to Configure the IDD & PM_P Series

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)



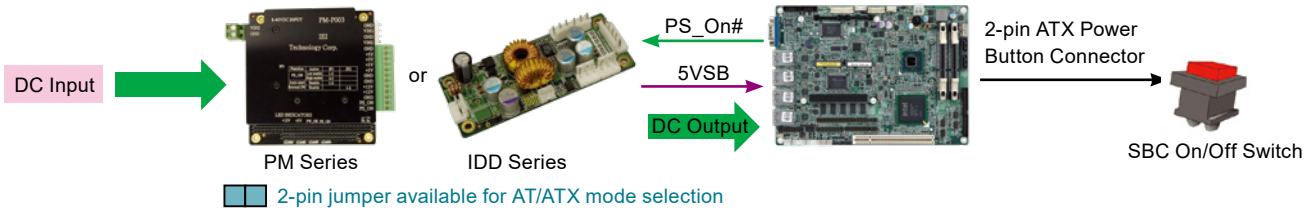
Step 2. Connect all input and output power cables **Step 3.** Wire/Isolate DC input by power switch **Step 4.** Power up by switch

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)



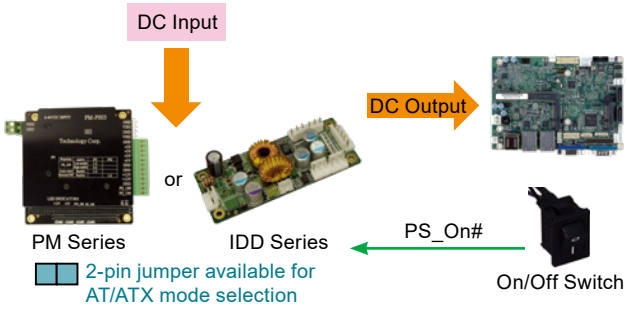
Step 2. Wire 5VSB and PS_ON# from power module to SBC **Step 3.** Wire all input, output power cables **Step 4.** Power up system by SBC on/off switch

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)



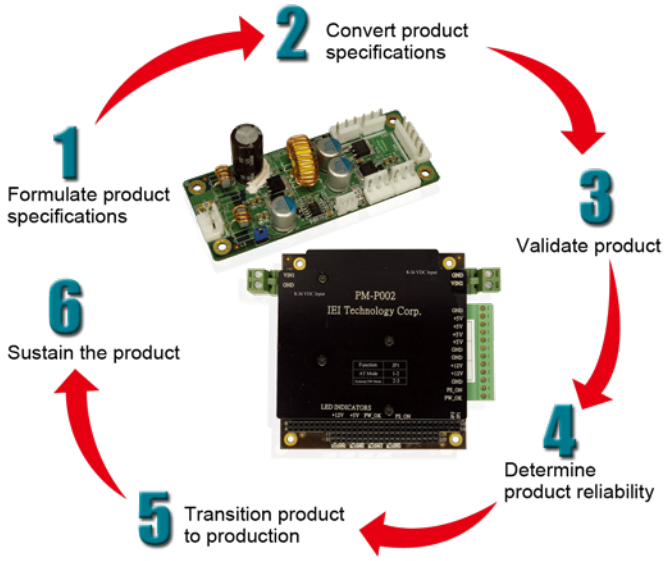
Step 2. Connect 5VSB & PS_ON# from the power module to the SBC.

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
IDD-936160	25 mm x 82 mm	60 W	9 ~ 36 V	5 A	-	-	-	-	-	-

Naming Conventions:

IDD xx - 630 4 120 A

- ATX On/Off Support
- Output Wattage
- Output Voltage Number
- Input Voltage Range
- Extra Features
- Industry DC to DC Converter

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

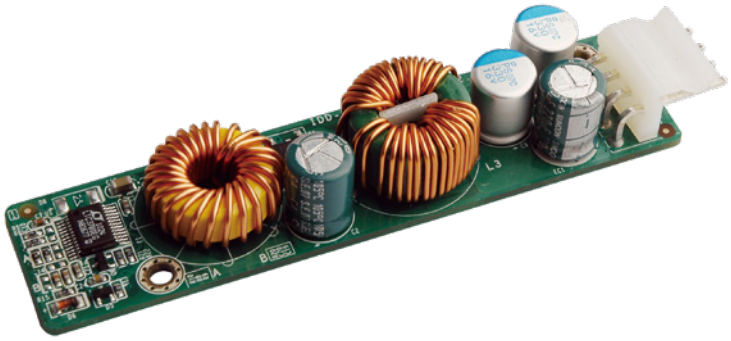
Power Analyzer Chroma 6632

IDD-936160

60 W DC/DC Converter Module

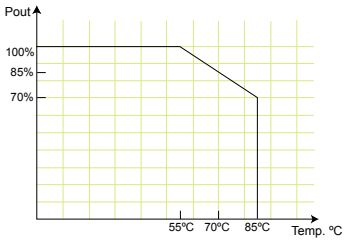
60W

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.



Specifications

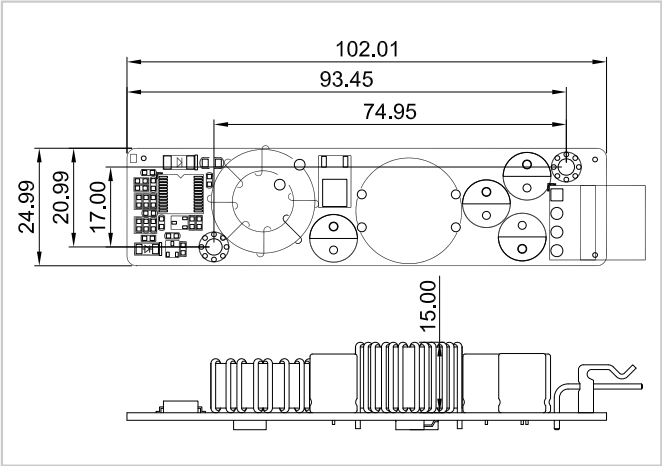
- Output (max.): 12 V@5 A
- Max. total output: 60 W
- Input: 9 VDC to 36 VDC
- Performance characteristics
  Noise & ripple: <300 mV
  Line regulation: <300 mV
  Load regulation: <85 mV
  Efficiency up to 95%
- Dimensions (mm): 82 x 25
- Weight (NW): 28 g
- Operating temperature: -40°C ~ 85°C



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

Dimensions *(Unit: mm)*



Pin Assignments

Input/Output Connector

VOUT1	Pin1	Pin2	Pin3
	+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)	

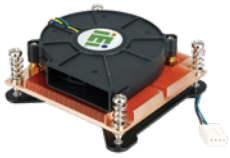
Ordering Information

Part No.	Description
IDD-936160-R20	60 W DC/DC 9~36 V input, 12 V output

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 special 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
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
CPU Solution	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
Dimensions (mm)	83 x 83 x 57	96 x 82 x 60	105 x 80 x 23.7	107 x 70 x 60
Material	Al	Al	Cu	Cu
Bearing Type	Ball and sleeve	Two-ball	Two-ball	Two-ball
Capability (Watt)	95 W	65 W	65 W	95 W
Fan Speed (RPM)	4200	3500	5500	4200
Noise Level (dBA)	40	41	55	36
Life Expectancy (hrs)	40,000	50,000	50,000	50,000
Weight	330 g	286 g	406 g	812 g

	Intel® Standard Desktop Core™ CPU Cooler				
					
	LGA115X (LGA1150/LGA1151/LGA1155/LGA1156)				
Model Name	CF-115XA-R10	CF-1156C-R20	CF-1156D-R30	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	90 x 90 x 33	90 x 90 x 33	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	45 W	65 W	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	70,000	70,000	40,000	50,000
Weight	422 g	198 g	240 g	301 g	432

CPU Cooler *High performance thermal solutions*

	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

CPU Cooler *High performance thermal solutions*

	CPU Cooler			
Where Used	**For special models: IMBA-Q470 & IMBA-Q471**			
Model Name	**19100-000316-00-RS**	**19100-000317-00-RS**	**19100-000312-00-RS**	**19100-000318-00-RS**
CPU Solution	Intel® Core™ i9/i7/i5/i3	Intel® Core™i9 /i7/i5/i3	Intel® Core™ i9/i7/i5/i3	Intel® Core™ i9/i7/i5/i3
Socket Solution	LGA 115X/1200	LGA 1156	LGA 115X/1200	LGA 115X/1200
Dimensions(mm)	91 x 90 x 65.5	105 x 92.5 x 125.8	92.5 x 90 x 30.15	103 x 95 x 127
Material	VC+AL	CU+AL	Al	Al
Bearing Type	Two-ball	Two-ball	Two-ball	Two-ball
Capability (Watt)	**125W**	**125W**	**125W**	**125W**
Fan Speed(RPM)	8500	2800	7000	3600
Noise Level(dBA)	55	36	59	44
Life Expectancy (hrs)	70,000	70,000	80,000	70,000
Temperature	0ºC-45ºC	0ºC-45ºC	0ºC-40ºC	0ºC-50ºC
Weight	430 g	660 g	435 g	380 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-3020HM
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
P/N – 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-2530ISMD

With the release of the brand-new designed firmware algorithm, 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-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-2540A2M & IFD-2530ISMD

IFD-2540A2M and IFD-2530ISMD provide a wide range demand of capacity. IFD-2530ISMD even supports large capacity up to 1TB.

	IFD-2540A2M	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	●	●

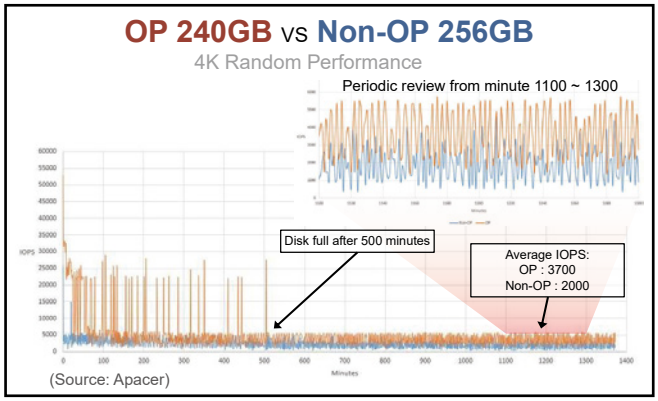
Model Name		2.5" SATA 6Gb/s IFD-2530ISMD	2.5" SATA 6Gb/s IFD-2540A2M
Picture			
Key Features		1. EverGreen L² architecture 2. 7mm height mechanical design 3. Excellent random performance	1. 7mm height mechanical design 2. Low power consumption 3. Budget-friendly MLC-based solution
Interface		SATA 6Gb/s	SATA 6Gb/s
Flash Type		MLC	MLC
Capacity (GB)		8GB~1TB	32GB~1TB
Sequential R/W		520/450	560/510
Max. Power Consumption		5W (5V x 1A)	0.5W (5V x 100 mA)
Thermal Sensor		Wide temperature model only	Wide temperature model only
ATA Security		Yes	Yes
S.M.A.R.T		Yes	Yes
Dimensions (mm)		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-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-R20 IFD-2540A2M-64GB-R20 IFD-2540A2M-128GB-R20 IFD-2540A2M-256GB-R20 IFD-2540A2M-512GB-R20 IFD-2540A2M-1TB-R20
	Wide Temperature (-40°C~+85°C)	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-R20 IFD-2540AW2M-64GB-R20 IFD-2540AW2M-128GB-R20 IFD-2540AW2M-256GB-R20 IFD-2540AW2M-512GB-R20 IFD-2540AW2M-1TB-R20

Industrial SSD Series

Over-provisioning for SSDs

Maintain the high performance of SSDs with over-provisioning

All SSDs feature a reserved space for over-provisioning (OP). This allows the SSD to continue writing data without affecting performance when the SSD is almost out of storage space. However, if this reserved space is used up, the SSD needs to reorganize its internal data before any new data can be written. This data reorganization can have drastic impacts to both SSD performance and lifetime. SSDs with insufficient OP reserved space is like a restaurant where the staff do not have enough time to clean up the tables left by customers, resulting in guests waiting at the door. With additional reserved space for OP, it is like opening separate tables for new customers.



Due to cost considerations of SSD manufacturers and general usage cases, SSDs intended for general consumers only provide a minimal reserved space for OP. For a larger OP reserved space, expensive enterprise-level SSDs are required. Additional space for over-provisioning can be reserved at the OS level (or by other software). Research by mainstream SSD manufacturers has shown that on a 512 GB consumer-level SSD, an additional 5% reserved space for OP can more than double the lifespan (write endurance) of an SSD, and improve performance by nearly 100%.

SSDs with over-provisioning technology, while sacrificing a portion of the physical capacity, have more free blocks for wear-leveling and garbage collection to further improve lifespan and overall performance.

The 3D 2.5” SATA SSD is SATA 6Gb/s solid state disk, which delivers excellent performance, especially in random data transfer rate, and which offers reliability making it the ideal solution for a variety of applications, including embedded system, industrial computing, and enterprise field. The 3D 2.5” SSD not only performs unmatched performance but also designed with industrial storage technologies to ensure the data integrity and highest levels of reliability.

Features of IFD-2540A3T

IFD-2540A3T provide a wide range demand of capacity. I

	IFD-2540A3T
DRAM-less Design	●
Price	●
Random IOPS	● R: 80,000 IOPS/W: 71,000 IOPS (128GB)
Easy to Design in SFF	●
Low Power Consumption	●
TRIM	●

Model Name	2.5” SATA 6Gb/s IFD-2540A3T	
Picture		
Key Features	1. LDPC ECC engine Internal Flash DIE RAID engine 2. End to End Data Protection Original Toshiba Industrial grade 3D TLC 3. End to End Power Protection Optional iCell	
Interface	SATA 6Gb/s	
Flash Type	3D TLC	
Capacity (GB)	30GB~960GB	
Sequential R/W	560/515	
Max. Power Consumption	2.6W (5V x 525mA)	
Thermal Sensor	Yes	
ATA Security	Yes	
S.M.A.R.T	Yes	
Dimensions (mm)	69.8 x 100.0 x 6.8	
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-2540A3T-30GB-R20 IFD-2540A3T-60GB-R20 IFD-2540A3T-120GB-R20 IFD-2540A3T-240GB-R20 IFD-2540A3T-480GB-R20 IFD-2540A3T-960GB-R20	**Wide Temperature (-40°C~+85°C):** IFD-2540IW3T-1TB-R20 IFD-2540IW3T-512GB-R20 IFD-2540IW3T-256GB-R20 IFD-2540WI3T-128GB-R20 IFD-2540WI3T-64GB-R20 IFD-2540WI3T-32GB-R20

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.

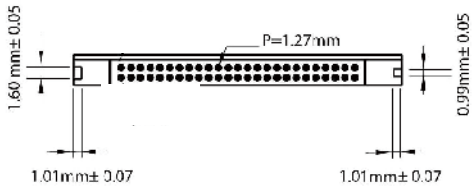
ATA security for CF card

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		ICF-9000	ICF-2000	ICF-1000	
Picture					
Capacity		4GB~32GB	512MB~8GB	128MB~8GB	128MB~16GB
Sequential R/W (Max.)		110/100 MB/sec	40/30 MB/sec	40/28 MB/sec	30/15 MB/sec
Flash Type		SLC	SLC	SLC	SLC
IDE Transfer Mode		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.		-55°C~+95°C			-40°C~+100°C
Vibration/Shock (7/2000Hz)/(0.5ms)		1500G/0.5ms			1500G/0.5ms
DC Power Input		ICF: +3.3V-+5V single power supply operation			Supply voltage: 3.3V & 5V
Power Consumption (Max.)		0.75W (5V x 125mA@210mA)			95 mA
Dimensions (mm)		42.8 x 36.4 x 3.3			42.8 x 36.4 x 3.3
ATA Security		Yes	Yes	Yes	Yes
S.M.A.R.T		Yes	Yes	Yes	No
P/N	STD (0°C~+70°C)	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)	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

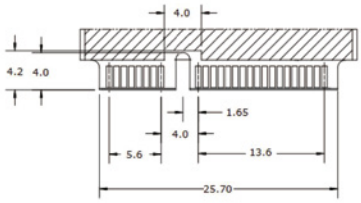
Industrial Mini PCIe DOM & mSATA Series

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.

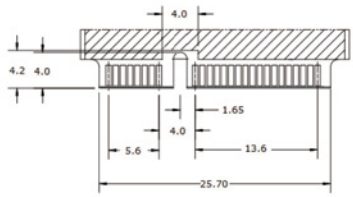


mini PCIe DOM 1ME: Pin Directions
Pin33: PETp0
Pin31: PETn0
Pin23: PERn0
Pin25: PERp0

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-5330A3T/AW3T	IPE-5330A2M/AW2M
Picture				
Key Features		1. Excellent data transfer speed 2. High quality SLC- based solution	1. SATA III solution for industrial field 2. High IOPS 3. DEVSLP supported	1. Excellent data transfer speed and IOPS 2. Budget- friendly MLC-based solution
Interface		SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Flash Type		SLC	TLC	MLC
Capacity (GB)		2GB~32GB	30GB~960GB	32GB~512GB
Sequential R/W		470/250	510/480	560/510
Max.Power Consumption		1.2W (3.3V x 360mA)	1.7W (3.3V x 540 mA)	3W (3.3V x 935mA)
Thermal Sensor		Wide temperature model only	Yes	Yes
ATA Security		Yes	Yes	Yes
S.M.A.R.T		Yes	Yes	Yes
Dimensions (mm)		29.8 x 50.8 x 4.4	29.85 x 50.8 x 3.7	29.8 x 50.8 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-5330A3T-30GB-R20 IPE-5330A3T-60GB-R20 IPE-5330A3T-120GB-R20 IPE-5330A3T-240GB-R20 IPE-5330A3T-480GB-R20 IPE-5330A3T-960GB-R20	IPE-5330A2M-32GB-R20 IPE-5330A2M-64GB-R20 IPE-5330A2M-128GB-R20 IPE-5330A2M-256GB-R20 IPE-5330A2M-512GB-R20
	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-5330AW3T-30GB-R20 IPE-5330AW3T-60GB-R20 IPE-5330AW3T-120GB-R20 IPE-5330AW3T-240GB-R20 IPE-5330AW3T-480GB-R20 IPE-5330AW3T-960GB-R20	IPE-5330AW2M-32GB-R20 IPE-5330AW2M-64GB-R20 IPE-5330AW2M-128GB-R20 IPE-5330AW2M-256GB-R20 IPE-5330AW2M-512GB-R20

M.2 SATA III

M.2, formerly known as the Next Generation Form Factor (NGFF), M.2's more flexible physical specification allows different module widths and lengths, and, paired with the availability of more advanced interfacing features, makes the M.2 more suitable than mSATA for solid-state storage applications in general and particularly for the use in small system.

Features

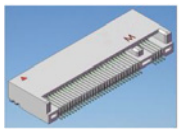
- Adopted SATA 6Gb/s interface, complaint with M.2 (NGFF) type 2242 and 2280
- Excellent data transfer speed in small form factor
- iCell technology for data protection
- Supports iSMART disk health monitoring

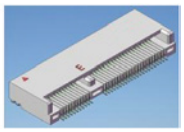
Benefits

- 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

- 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-2242IM	IM2SE-2280I2M	IM2SE-2242I3T	IM2SE-2280I3T	IM2SE-2242I3TD	IM2SE-2280I3TD
Picture						
Type	2242-D2-B-M	2280-D2-B-M	2242-D2-B-M	2280-D2-B-M	2242-D2-B-M	2280-D2-B-M
Key Features	1. Design with LDPC ECC engine 2. Budget-Friendly MLC-based solution		1. Truly industrial optimized firmware with 3D NAND flash 2. Advanced LDPC ECC engine 3. Internal RAID Technology 4. DRAM-less , high level data integrity 5. Excellent data transfer speed		1. Extreme SEQ and random performance 2. Advanced LDPC ECC engine 3. Flash DIE RAID function 4. AES 256 5. End to End data path protection	
Interface	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Flash Type	MLC	MLC	3D TLC	3D TLC	3D TLC	3D TLC
Capacity (GB)	8GB~256GB	32GB~1TB	32GB~512GB	32GB~1TB	128GB~512GB	128GB~1TB
Sequential R/W	530/210	530/450	530/210	520/210	550/340	540/500
Max. Power Consumption	1.4W (3.3V x 422 mA)	4.6W (3.3V x 1.4A)	1.6W (3.3V x 475 mA)	2.0W (3.3V x 614 mA)	2.4W (3.3V x 740 mA)	2.6W (3.3V x 800 mA)
Thermal Sensor	Yes	Yes	Yes	Yes	Yes	Yes
ATA Security	Yes	Yes	Yes	Yes	Yes	Yes
S.M.A.R.T	Yes	Yes	Yes	Yes	Yes	Yes
Dimensions (mm)	22.0 x 42.0 x 3.2	22.0 x 80.0 x 3.5	22.0 x 42.0 x 3.2	22.0 x 80.0 x 3.2	69.8 x 100.0 x 6.8	22.0 X 80.0 X 3.0
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-256GB-R10 IM2SE-2242IM-128GB-R10 IM2SE-2242IM-64GB-R10 IM2SE-2242IM-32GB-R10 IM2SE-2242IM-16GB-R10 IM2SE-2242IM-8GB-R10	IM2SE-2280I2MD-1TB-R10 IM2SE-2280I2MD-512GB-R10 IM2SE-2280I2MD-256GB-R10 IM2SE-2280I2MD-128GB-R10 IM2SE-2280I2MD-64GB-R10 IM2SE-2280I2MD-32GB-R10	IM2SE-2242I3T-512GB-R10 IM2SE-2242I3T-256GB-R10 IM2SE-2242I3T-128GB-R10 IM2SE-2242I3T-64GB-R10 IM2SE-2242I3T-32GB-R10	IM2SE-2280I3T-1TB-R10 IM2SE-2280I3T-512GB-R10 IM2SE-2280I3T-256GB-R10 IM2SE-2280I3T-128GB-R10 IM2SE-2280I3T-64GB-R10 IM2SE-2280I3T-32GB-R10	IM2SE-2242I3TD-512GB-R10 IM2SE-2242I3TD-256GB-R10 IM2SE-2242I3TD-128GB-R10	IM2SE-2280I3TD-1TB-R10 IM2SE-2280I3TD-512GB-R10 IM2SE-2280I3TD-256GB-R10 IM2SE-2280I3TD-128GB-R10
P/N – Wide Temperature (-40°C~+85°C)	IM2SE-2242WM-256GB-R10 IM2SE-2242WM-128GB-R10 IM2SE-2242WM-64GB-R10 IM2SE-2242WM-32GB-R10 IM2SE-2242WM-16GB-R10 IM2SE-2242WM-8GB-R10	IM2SE-2280IW2MD-1TB-R10 IM2SE-2280IW2MD-512GB-R10 IM2SE-2280IW2MD-256GB-R10 IM2SE-2280IW2MD-128GB-R10 IM2SE-2280IW2MD-64GB-R10 IM2SE-2280IW2MD-32GB-R10	IM2SE-2242IW3T-512GB-R10 IM2SE-2242IW3T-256GB-R10 IM2SE-2242IW3T-128GB-R10 IM2SE-2242IW3T-64GB-R10 IM2SE-2242IW3T-32GB-R10	IM2SE-2280IW3T-1TB-R10 IM2SE-2280IW3T-512GB-R10 IM2SE-2280IW3T-256GB-R10 IM2SE-2280IW3T-128GB-R10 IM2SE-2280IW3T-64GB-R10 IM2SE-2280IW3T-32GB-R10	IM2SE-2242IW3TD-512GB-R10 IM2SE-2242IW3TD-256GB-R10 IM2SE-2242IW3TD-128GB-R10	IM2SE-2280IW3TD-1TB-R10 IM2SE-2280IW3TD-512GB-R10 IM2SE-2280IW3TD-256GB-R10 IM2SE-2280IW3TD-128GB-R10

M.2 PCIeIII

M.2 SSD is an NVM Express DRAM-less SSD designed as the standard M.2 form factor with PCIe interface. M.2 SSD supports PCIe Gen III x2, and it is compliant with NVM 1.3 providing excellent performance. Moreover, it adopts industrial grade NAND Flash which provides high endurance and reliability. With sophisticated error detection and correction (ECC) functions, the module can ensure full End-to-end Data Path Protection that secures the data transmission between the host system and NAND flash.

Features

- PCIe Gen. III x2, NVMe 1.3
- Anti-vibration mechanical design
- LDPC ECC engine supported.
- End-to-end Data Path Protection
- iCell supported

Benefits

- Excellent data transfer speed
- Zero mechanical interference
- Enhanced power failure protection
- Native PCIe device without driver in needed.

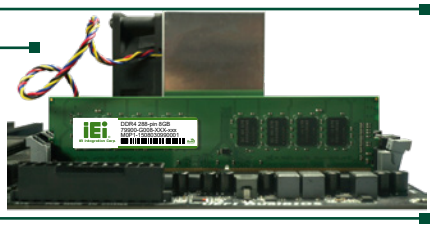
Model Name		IPE-G32-2242I2M	IPE-G32-2280I2M	IPE-G32-2242I3T	IPE-G32-2280I3T
Picture					
Key Features		1. Type 2242-D2-B-M 2. Heat-less controller chip 3. Support NVM3 v1.3 4. End-to-End data path protection 5. iDATA guard power protection	1.Type 2280-D2-B-M 2. Heat-less controller chip 3. Support NVM3 v1.3 4. End-to-End data path protection 5. iDATA guard power protection	1. Dram-Less solution 2. Heat-less controller chip 3. Support NVM3 v1.3 4. End-to-End data path protection	1. Dram-Less solution 2. Heat-less controller chip 3. Support NVM3 v1.3 4. End-to-End data path protection
Interface		PCIe Gen. III x2	PCIe Gen. III x2	PCIe Gen. III x2	PCIe Gen. III x2
Flash Type		MLC	MLC	3D TLC	3D TLC
Capacity (GB)		32GB~256GB	32GB~512GB	64GB~512GB	64GB~1TB
Sequential R/W		1300/360	1300/490	1300/680	1300/680
Max. Power Consumption		2.9W (3.3V x 880mA)	3.72W (3.3 x 1130mA)	2.31W(3.3V x 700mA)	3W(3.3V x 910mA)
Thermal Sensor		Yes	Yes	Standard: Yes, Wide Temperature: Yes	Standard: Yes, Wide Temperature: Yes
ATA Security		Yes	No	No	No
S.M.A.R.T		Yes	Yes	Yes	Yes
Dimensions (mm)		22.0 x 42.0 x 3.5	22.0 x 80.0 x 3.5	22.0 x 42.0 x 3.5	22.0 x 80.0 x 3.5
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)	IPE-G32-2242I2M-256GB-R10 IPE-G32-2242I2M-128GB-R10 IPE-G32-2242I2M-64GB-R10 IPE-G32-2242I2M-32GB-R10	IPE-G32-2280I2M-512GB-R10 IPE-G32-2280I2M-256GB-R10 IPE-G32-2280I2M-128GB-R10 IPE-G32-2280I2M-64GB-R10 IPE-G32-2280I2M-32GB-R10	IPE-G32-2242I3T-512GB-R10 IPE-G32-2242I3T-256GB-R10 IPE-G32-2242I3T-128GB-R10 IPE-G32-2242I3T-64GB-R10	IPE-G32-2280I3T-1TB-R10 IPE-G32-2280I3T-512GB-R10 IPE-G32-2280I3T-256GB-R10 IPE-G32-2280I3T-128GB-R10 IPE-G32-2280I3T-64GB-R10
	Wide Temperature (-40°C~+85°C)	IPE-G32-2242IW2M-256GB-R10 IPE-G32-2242IW2M-128GB-R10 IPE-G32-2242IW2M-64GB-R10 IPE-G32-2242IW2M-32GB-R10	IPE-G32-2280IW2M-512GB-R10 IPE-G32-2280IW2M-256GB-R10 IPE-G32-2280IW2M-128GB-R10 IPE-G32-2280IW2M-64GB-R10 IPE-G32-2280IW2M-32GB-R10	IPE-G32-2242IW3T-512GB-R10 IPE-G32-2242IW3T-256GB-R10 IPE-G32-2242IW3T-128GB-R10 IPE-G32-2242IW3T-64GB-R10	IPE-G32-2280IW3T-1TB-R10 IPE-G32-2280IW3T-512GB-R10 IPE-G32-2280IW3T-256GB-R10 IPE-G32-2280IW3T-128GB-R10 IPE-G32-2280IW3T-64GB-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

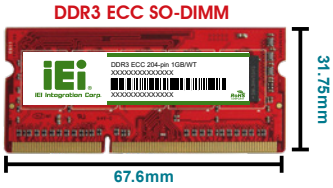
	Description
DDR4 SO-DIMM	DDR4 2400 4GB SO-DIMM CL17 512M*8
	DDR4 2400 8GB SO-DIMM CL17 512M*8
	DDR4 2400 8GB SO-DIMM CL17 1G*8
	DDR4 2400 16GB SO-DIMM CL17 1G*8
	DDR4 2666 4GB SO-DIMM CL17 512M*8
	DDR4 2666 8GB SO-DIMM CL17 512M*8
	DDR4 2666 8GB SO-DIMM CL17 1G*8
	DDR4 2666 16GB SO-DIMM CL17 1G*8

	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

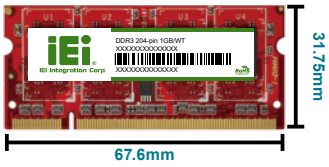
	Description
DDR3 SO-DIMM W/T	DDR3 1600 1GB ECC SO-DIMM CL11 128M*8
	DDR3 1600 2GB ECC SO-DIMM CL11 256M*8
	DDR3 1600 4GB ECC SO-DIMM CL11 256M*8
	DDR3 1600 8GB ECC SO-DIMM CL11 256M*8

	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

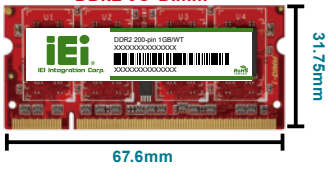
	Description
DDR3 SO-DIMM W/T	DDR3 1600 1GB SO-DIMM, ProMOS, 128M*8
	DDR3 1600 2GB SO-DIMM, ProMOS, 128M*8
	DDR3 1600 2GB SO-DIMM, Micron, 256M*8
	DDR3 1600 4GB SO-DIMM, Micron, 256M*8
	DDR3 1600 4GB SO-DIMM, ProMOS, 512M*8
	DDR3 1600 8GB SO-DIMM, ProMOS, 512M*8

	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

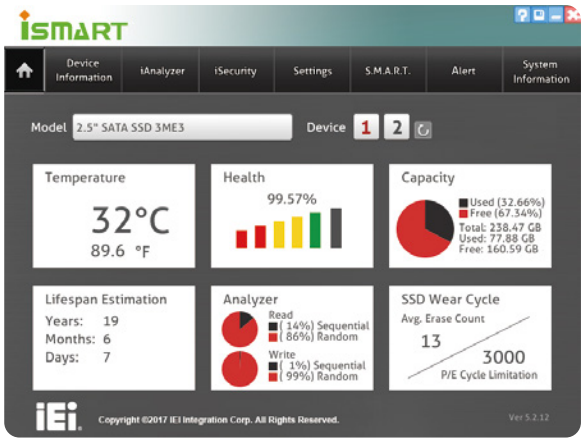
SLC is more reliable and has longer endurance than MLC.

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

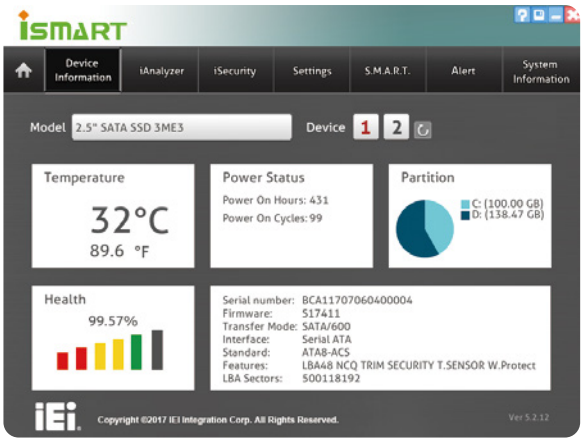
iSMART can monitor all our flash products in a system. It provides clear and easy to understand warnings, numbers, charts and graphics to enable system integrators and users to check storage device health, performance, temperature, free space, and status at a glance. Also, it can alert users with the 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.



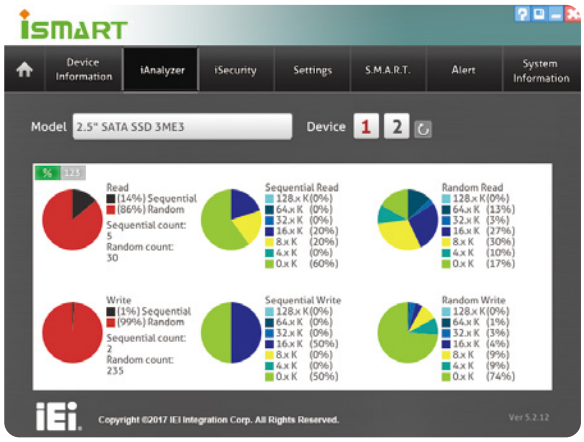
Dashbord

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.



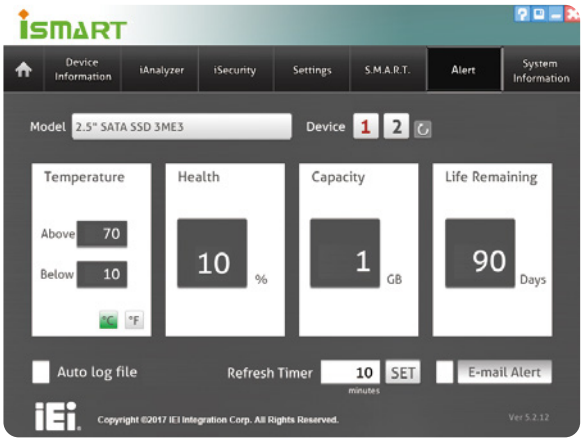
Device Information

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		
Model Name	**XWC-410030507220-RS**	**XWC-410030507230-RS**	**RHD-302SATA-R20**
Dimensions (L x W x H) (mm)	150 x 146 x 42	150 x 146 x 42	202 x 146 x 86
Material	Aluminum	Aluminum	Aluminum alloy
Interface	SATA / IDE / SSD	SATA / IDE / SSD	SATA III / SAS 2.0
Data Transfer Rate			SAS 2.0 / SATA III 6Gbps
Drive Bay Space	One 5.25" drive bay	One 5.25" drive bay	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
Cooling Fan			8 cm
Hot Swap	No	No	Yes
Keylock	No	No	No
Signal Out	No	No	SATA III 7-Pin
Color	Black	White	Black
Gross Weight	0.2 kg	0.2 kg	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

- Resistant to shocks and vibrations from all directions
- 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

- Resistant to shocks and vibrations from all directions
- Support 2.5" HDD into 3.5" drive bay (AS-25A)
- 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

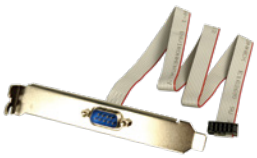
Ordering Information

Part No.	Description
AS-25A-RS	2.5" drive anti-vibration kit, RoHS

Cables and Connectors *HDMI / SATA HDD / Serial Cable*

	HDMI Cable	SATA HDD Cable	
Model Name	**19B00-000403-00-RS**	**32801-000703-500-RS**	**32102-000100-200-RS**
Cable Type	HDMI Cable	SATA HDD cable	SATA power cable
Connector	HDMI 90°	SATA 7-pin	4-pin + two 15-pin
Connector Type	HDMI	Lockable	SATA power connector
Length	35 cm	50 cm	15 cm

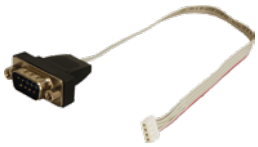
	SATA HDD Cable		
Model Name	**32801-000201-300-RS**	**32801-000100-300-RS**	**32801-003706-100-RS**
Cable Type	SATA + Power cable	SATA + Power cable	SATA + Power cable
Connector	SATA 7-pin + 2-pin wafer (P=2 mm)	SATA 7-pin + 4-pin wafer (P=2.54 mm)	SATA 7-pin + 4-pin
Connector Type	2-pin PH 2.0	4-pin PH 2.54 mm	
Length	SATA cable 15 cm Power cable 15 cm	SATA cable 20 cm Power cable 20 cm	SATA cable 20 cm Power cable 10 cm

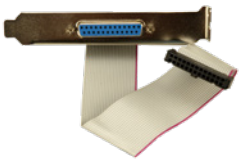
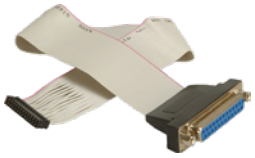
	Serial cable		
			
Model Name	**19800-000300-100-RS**	**19800-010900-200-RS**	**19800-020100-100-RS**
Cable Type	Serial port cable	Serial port cable	Serial port cable
Board Side	10-pin (2x5) connector	10-pin (2x5) connector	2 x 10-pin (2x5) connector
Board Side Pitch	2.0 mm	2.54 mm	2.54 mm
Device Side	DE9M	DE9M	DE9M
Bracket	Yes	Yes	Yes
Length	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	**19800-003600-200-RS**	**19800-000200-100-RS**	**32205-000702-200-RS**	**32205-002700-200-RS**
Cable Type	Serial port cable	Serial port cable	Serial port cable	Serial port cable
Board Side	2 x 10-pin (2x5) connector	2 x 10-pin (2x5) connector	10-pin (2x5) connector	10-pin (2x5) connector
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			
				New
Model Name	**32205-001203-200-RS**	**19800-026400-100-RS**	**32205-003800-300-RS**	**32005-003500-200-RS**
Cable Type	Serial port cable	RS-232 & RS-422/485 cable	RS-422/485 cable	RS-232/422/485 cable
Board Side	40-pin (2x20) connector	14-pin (2x7) connector	4-pin (1x4) connector	1x 9pin (1x9) connector
Board Side Pitch	2.54 mm	2.0 mm	2.0 mm	1.25 mm
Device Side	4 x DE9M	2 x DE9M	DE9M	DE9M
Bracket	No	Yes	No	No
Length	40/40/40/40 cm	25 cm	20 cm	25 cm

	Paralle cable	
		
Model Name	**19800-000049-RS**	**32223-000700-100-RS**
Cable Type	Parallel port cable	Parallel port cable
Board Side	26-pin (2x13) connector	26-pin (2x13) connector
Board Side Pitch	2.54 mm	2.0 mm
Device Side	DB25F	DB25F
Bracket	Yes	No
Length	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 / Power Cable / Keyboard / Mouse Cable*

	USB cable		
Model Name	**32001-010800-200-RS**	**19800-000100-100-RS**	**CB-USB02-RS**
Cable type	USB able	USB cable	USB cable
Board side	2 x 4-pin connector	2 x 8-pin (2x4) connector	2 x 4-pin (1x4) connector
Board side pitch	2.54 mm	2.54 mm	2.54 mm
Device side	2 x USB	4 x USB	2 x USB
Bracket	No	Yes	Yes
Length	20 cm	30 cm	30 cm

	USB cable			
Model Name	**CB-USB02A-RS**	**32001-002700-100-RS**	**32001-008600-200-RS**	**19800-010500-200-RS**
Cable type	USB cable	USB cable	USB cable	USB 3.0 Frant Panel cable
Board side	1 x 8-pin (2x4) connector	1 x 8-pin (2x4) connector	1 x 8-pin (2x4) connector	1 x 20-pin (2x10) connector
Board side pitch	2.0 mm	2.54 mm	2.0 mm	2.0 mm
Device side	2 x USB	2 x USB	2 x USB	2 x USB
Bracket	Yes	No	No	Yes
Length	30 cm	21 cm	21 cm	45 cm

	Power cable	Keyboard / Mouse cable		
Model Name	**32100-087100-RS**	**19800-025700-100-RS**	**32006-000300-400-RS**	**32006-001100-201-RS**
Cable type	12V power cable	Y-Cable	Y-Cable	Y-Cable
Board side	1 x 4-pin (2x2) connector	1 x 6-pin (1x6) connector	1 x male PS/2	1 x 6-pin (1x6) connector
Board side pitch		2.0 mm		2.0 mm
Device side	2 x 4-pin (1x4) molex	2 x Female PS/2	2 x Female PS/2	2 x Female PS/2
Bracket	No	Yes	No	No
Length	13 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.