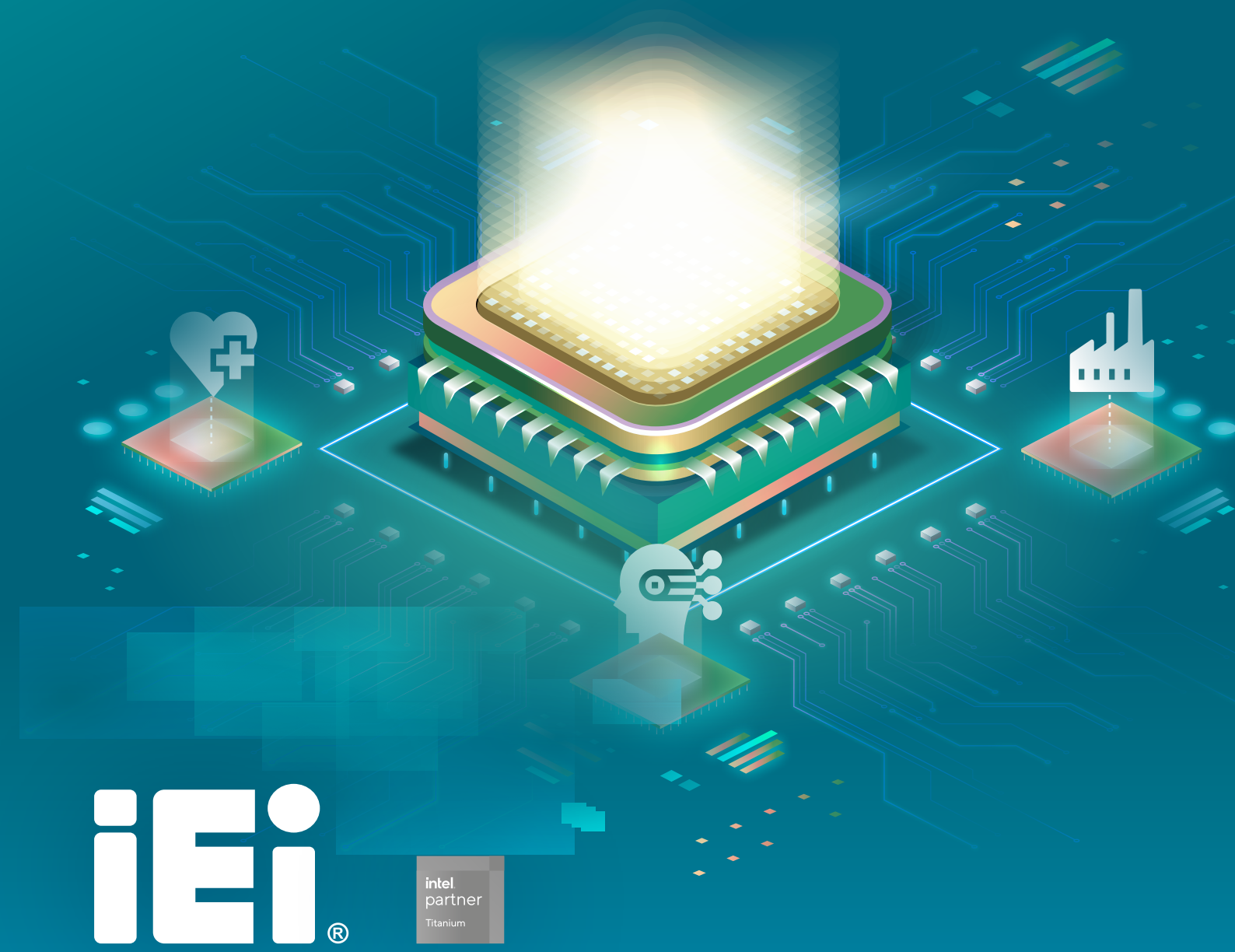
2021

AI Ready Solution



iEi®

intel partner Titanium

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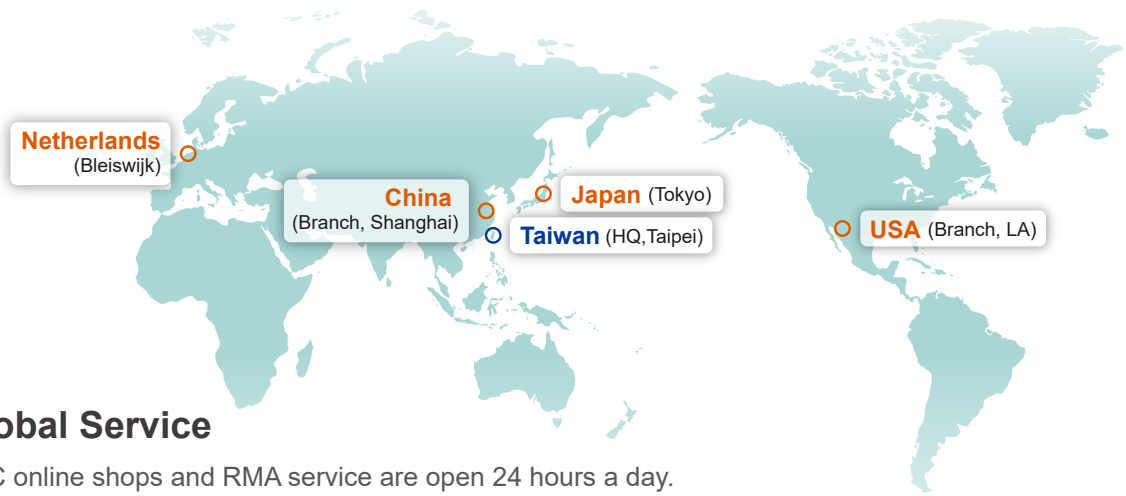
IEI Group

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



About IEI Integration Corp.

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



IEI Global Service

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

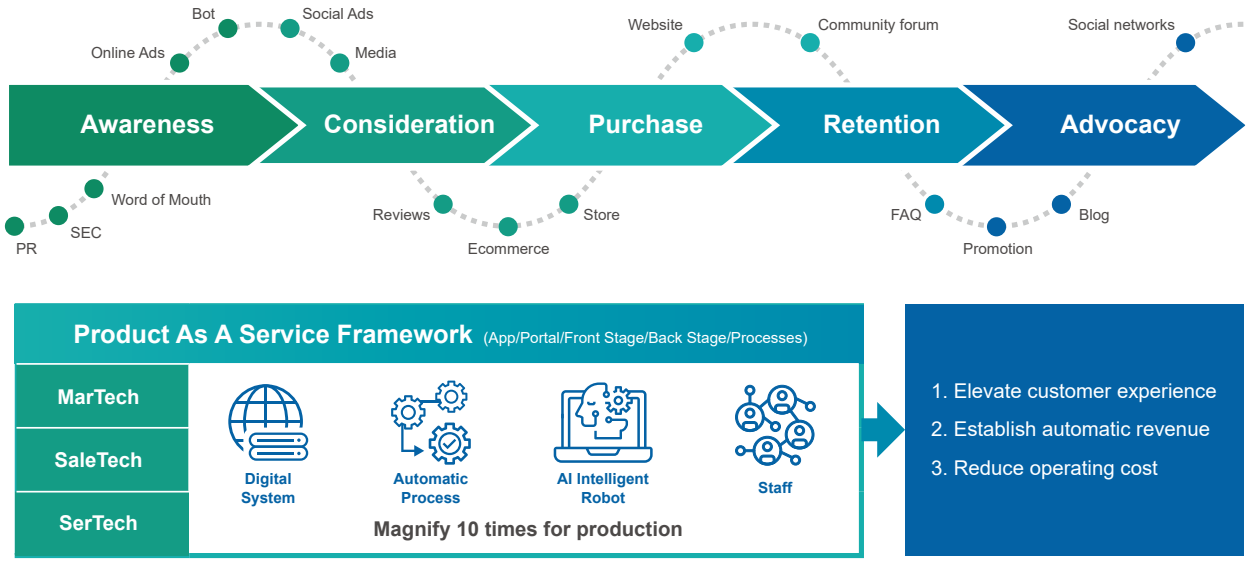
Core Competence

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.



Digital Transformation

To keep moving forward and to respond the advances of 5G and AI technologies, IEI has revolutionized its business model to a new generation – digital transformation. The purpose is to provide digital customer experience and service in customer relationships, achieve 24/7 non-stop operation, and offer a digital workplace for internal employees. IEI has started the implementation of MarTech, SaleTech and SerTech, and set the year of 2020 as the first year of digital transformation of IEI Group to elevate customer experience, establish automatic revenue and reduce operating cost.



Company Awards

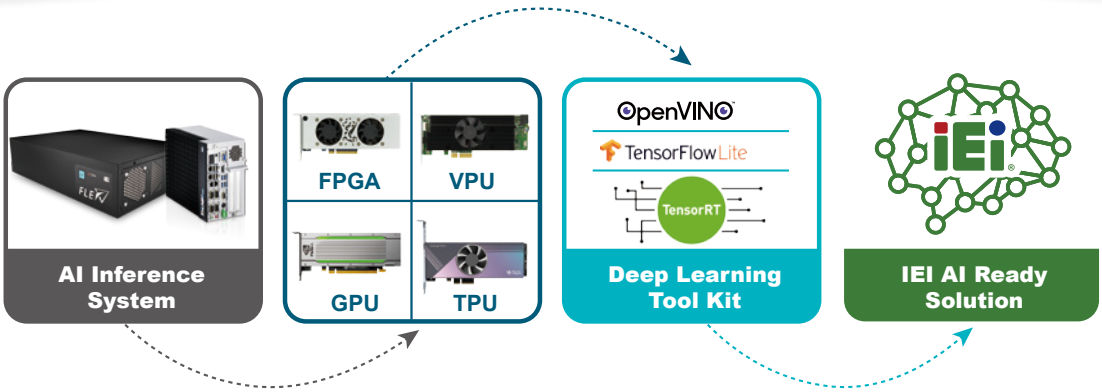
- Red Dot Design Award
- Taiwan Excellence Award
- iF Product Design Award
- ICT Month Innovative Elite
- Golden Pin Design Award

Certificates

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

IEI AI Solution Accelerates Your AI Initiative

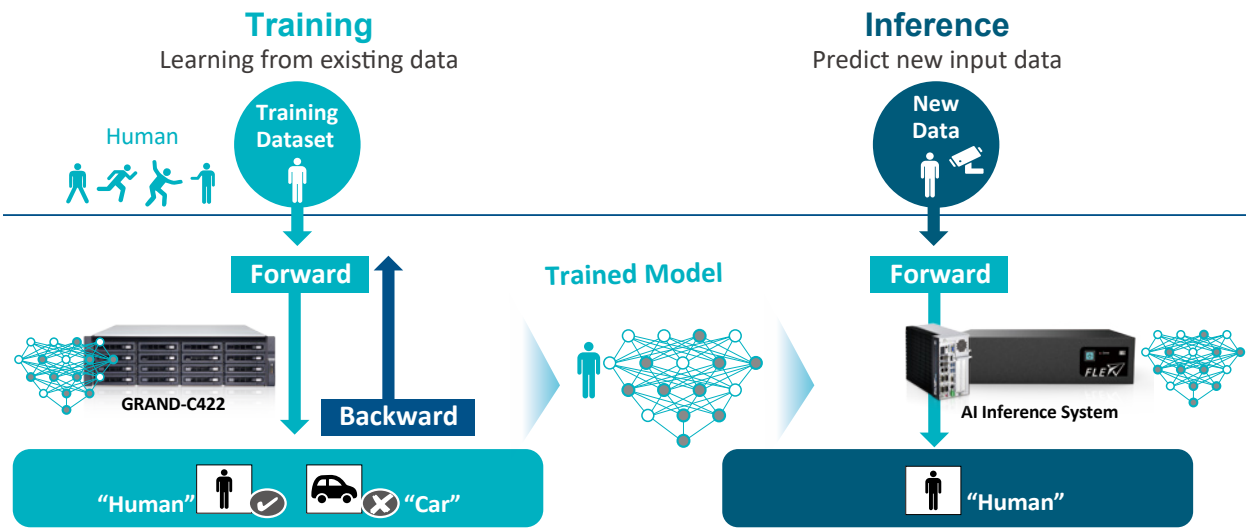
IEI's AI hardware ready system ideal for deep learning inference computing to help you get faster, deeper insights into your customers and your business. IEI's AI inference system. support Intel® FPGA acceleration cards, and Intel® VPU acceleration cards, NVIDIA graphics cards, and google TPU. Provides additional computational power plus end-to-end solution to run your tasks more efficiently. With the Intel® OpenVINO toolkit, NVIDIA TensorRT and Google Tensorflow Lite, it 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.

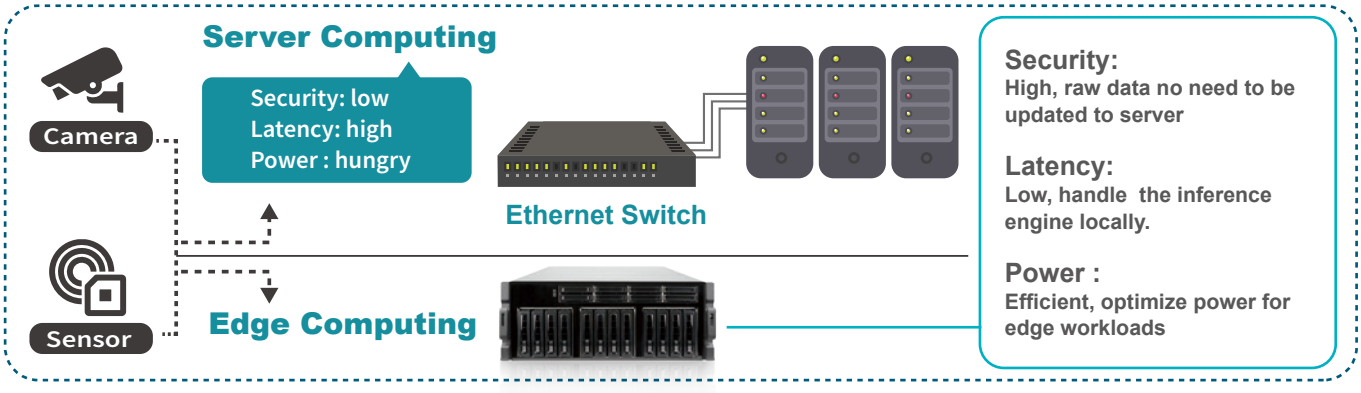
In the past, machine learning required researchers and domain experts knowledge to design filters that extracted the raw data into feature vectors. However, with the contributions of deep learning accelerators and algorithms, trained models can be applied to the raw data, which could be utilized to recognize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

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

Trained Model
.caffemodel
.pb
.params

Model Optimize





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

intel
Intermediate Representation(IR)

NVIDIA
Model file

Google
Tensorflow lite model file

Development & Deployment

Applications

- Surveillance
- Traffic monitoring
- Attendance system
- People counting

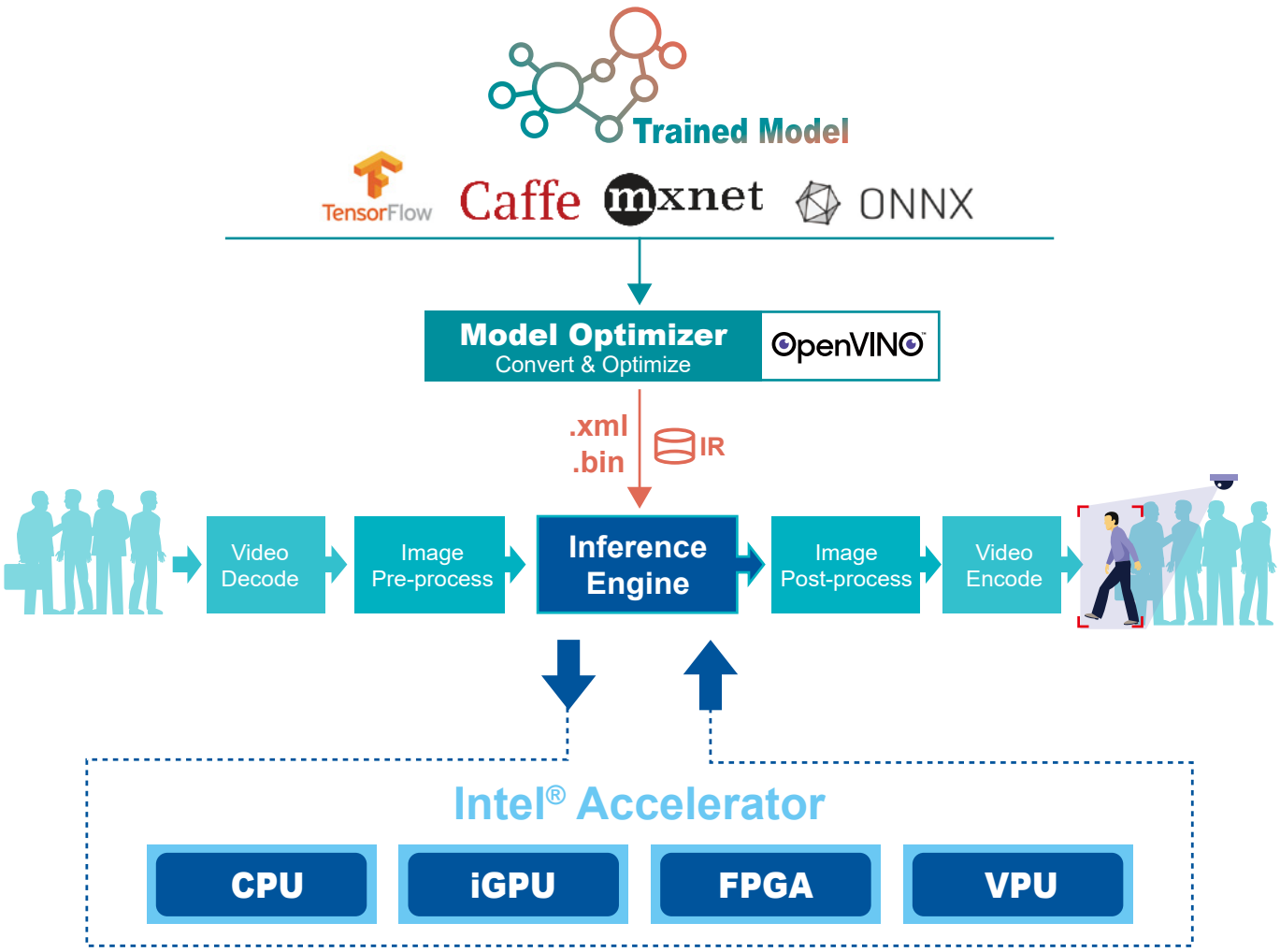
Integrate the Inference Engine in your application to deploy the model in the target environment

Edge AI Software SDK

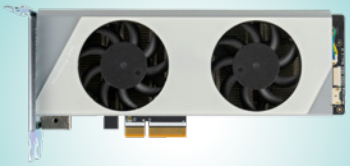
• Intel® Distribution of OpenVINO™ toolkit

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).



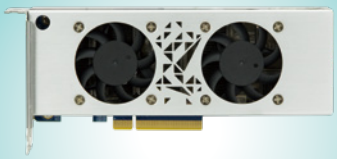
• Intel® Vision Accelerator Design



Mustang-V200-KB3
Three Intel® Movidius™ Keem Bay™



Mustang-M2BM-KB1
Intel® Movidius™ Keem Bay™



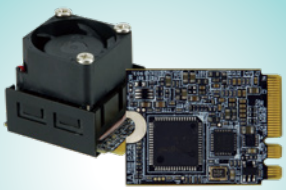
Mustang-F100-A10
Intel® Arria® 10 GX1150 FPGA



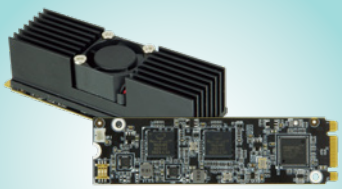
Mustang-V100-MX8
Eight Intel® Movidius™ Myriad™ X MA2485 VPU



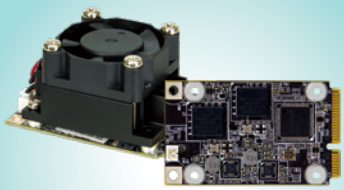
Mustang-V100-MX4
Intel® Movidius™ Myriad™ X MA2485 VPU



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

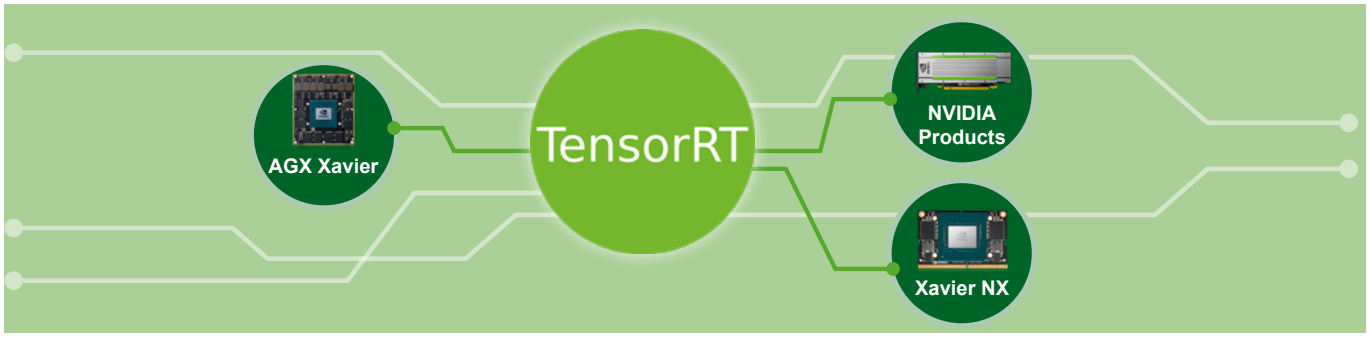
• Intel® Certified Developer kit

TANK





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-300		HTB-200		
SDK/OS	IEI BSP, Linux®		Windows®10, Linux®		
AI Accelerator	Jetson Nano™	Jetson Xavier™ NX	Jetson AGX Xavier™	Tesla T4	

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

Cloud

Edge Device

On-premise edge computing

HTB-300 | HTB-200 | PPC-FW15AI

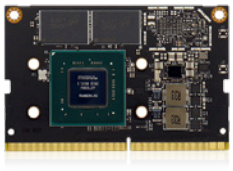
AI Accelerator

TensorRT | DeepStream | Jetpack

Jetson AGX Xavier™ | Graphics Card

• Embedded AI and Edge Computing Solutions from NVIDIA

Top-to-bottom Embedded AI Computer Lineup



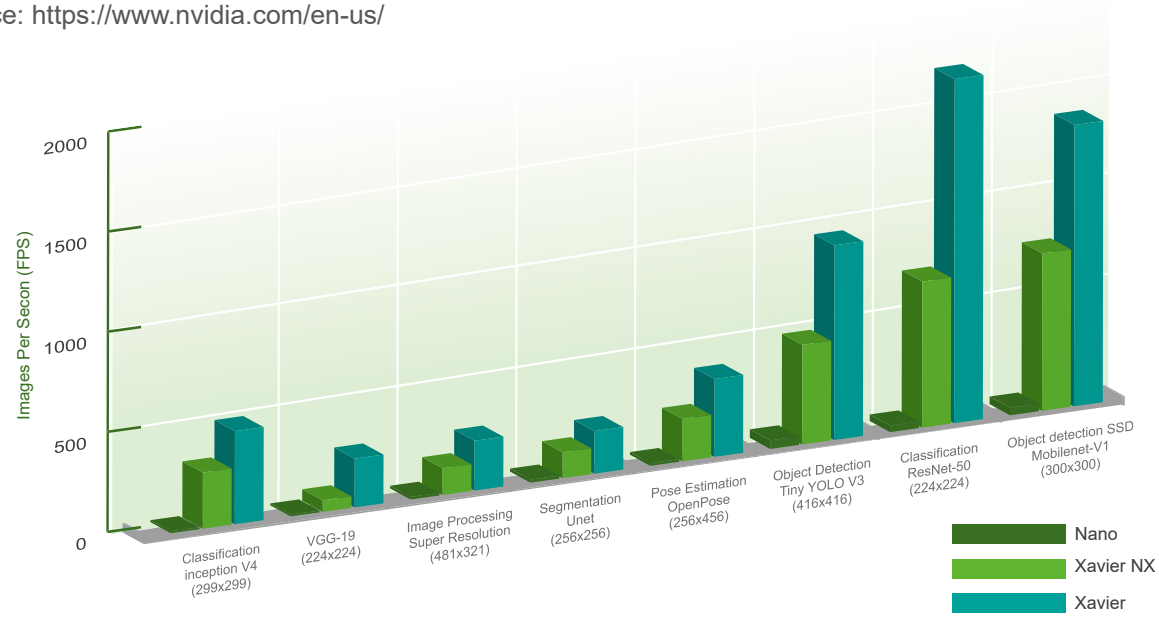


Item	Jetson Nano™	Jetson Xavier™ NX	Jetson AGX Xavier™
GPU	128-core Maxwell 0.5 TFLOPs (FP16)	384-core Volta 21 TOPs (INT8)	512-core Volta + NVDLA 32 TOPS (INT8)
CPU	4-core ARM A57	6-core Carmel ARM CPU (3x) 2MB L2 + 4MB L3	8-core Carmel ARM CPU (4x) 2MB L2 + 4MB L3
Memory	4 GB 64-bit LPDDR4 25.6 GB/s	8 GB 128-bit LPDDR4x 51.2 GB/s	Up to 32GB 256-bit LPDDR4x 137 GB/s
Storage	16 GB eMMC	16 GB eMMC	32 GB eMMC
Encode	4K @ 30 (H.265)	2x 4K @ 30 (H.265)	4x 4K @ 60 (H.265)
Decode	4K @ 60 (H.265)	2x 4K @ 60 (H.265)	6x 4K @ 60 (H.265)
Camera	12 (3x4 or 4x2) MIPI CSI-2 D-PHY 1.1 lanes (18Gbps)	12-lane (3x4 or 6x2) MIPI CSI-2 D-PHY 1.2 (30 Gbps)	16-lane MIPI CSI-2 | 8-lanes SLVS-EC D-PHY (40 Gbps) C-PHY (59 Gbps)
Mechanical	69.6mm x 45mm	69.6mm x 45mm	100mm x 87mm
	260-pin edge connector	260-pin edge connector	699-pin connector
Software	JetPack SDK – Unified software release across all Jetson products		
Related System	PPC-W15AI-NX		HTB-300-XA

• Deep Learning Inference Performance

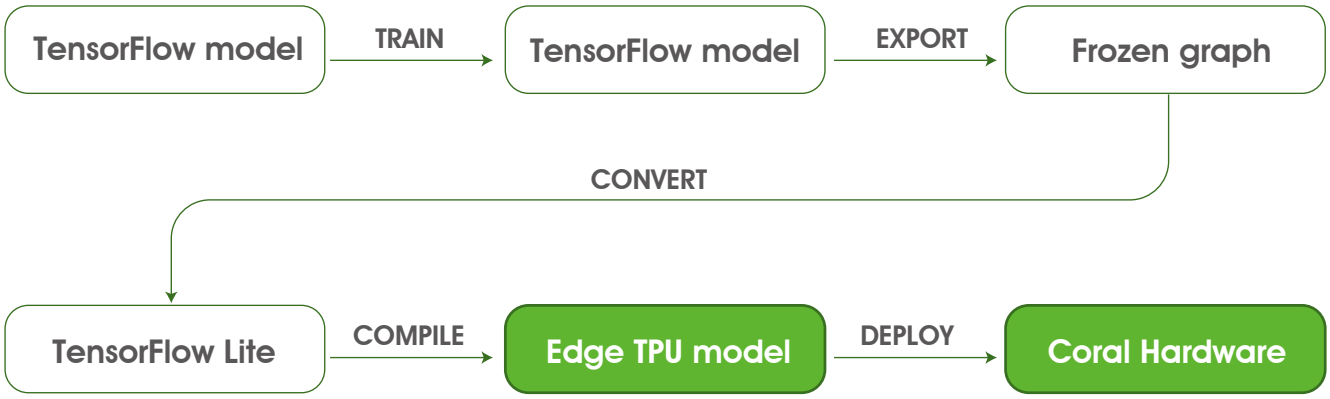
IEI's AI edge systems are designed as a total solution for various applications and improving the performance and flexibility of medical imaging and industrial AI inference. With IEI's AI edge systems, our SI customers not only can design their deep learning software on the systems but also can market the system as a complete solution. This approach can simplify the workflow and processes of the system integration when launching the customized deep learning solution into the market.

Source: https://www.nvidia.com/en-us/



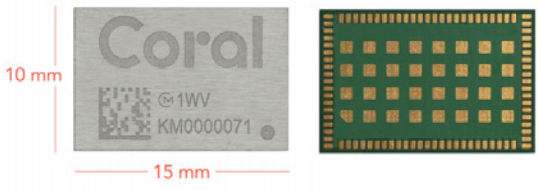
Google TensorFlow Lite

• TensorFlow models on the Edge TPU - Coral



• Edge TPU Coral

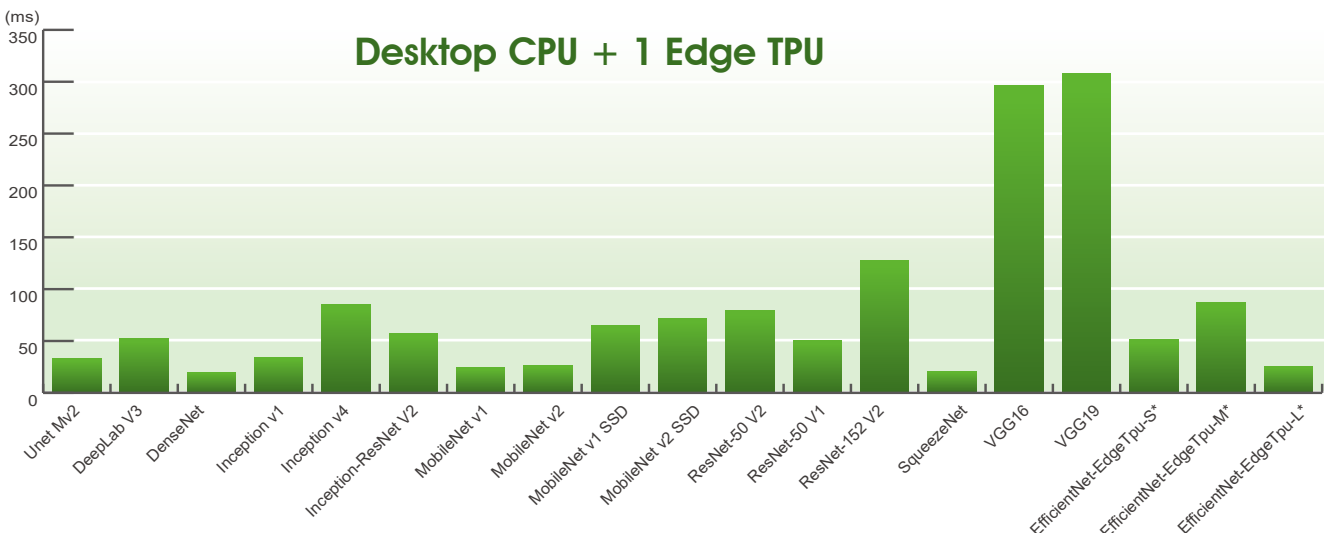
- Google Edge TPU ML accelerator: 4 TOPS peak performance (int8) / 2 TOPS per watt
- Integrated power management
- PCIe Gen2 x1 or USB 2.0 interface
- Surface-mounted (LGA) module
- Size: 15.0 x 10.0 x 1.5 mm
- Weight: 0.67 g
- Operating temp: -40°C~85°C
- RoHS compliant



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

As an industrial PC AI accelerator manufacturer, IEI keep provide excellent performance AI accelerator's option to fulfill different AI task. Google Coral edge TPU provide up to 4TOPS and power consumption is only 2 watt per TPU module.

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



• Mustang-T100-T5

IEI Mustang-T100-T5 leverage the power of Google Coral edge TPU, it integrates five Coral TPU module into one half-height, half-length, single slot PCIe card, and can provide up to 20 TOPS, is an idea compact PCIe accelerator for multiple AI tasks application.



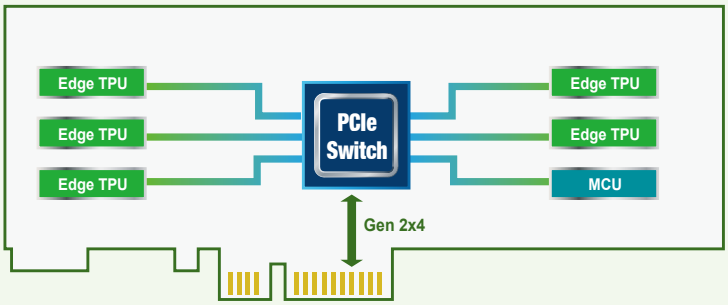
Feature

- 5 x Google Edge TPU ML accelerator
- 20 TOPS peak performance (int8)
- Host interface PCIe Gen2 x 4
- 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 provide 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/

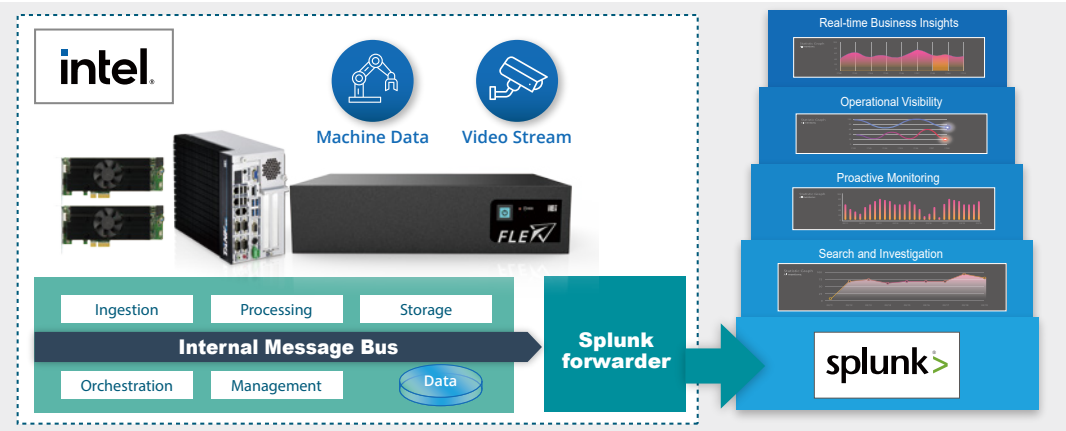
AI Use Cases

• 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.

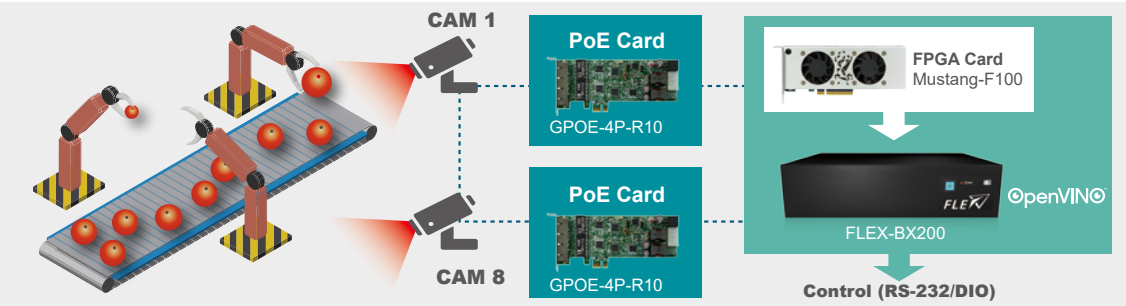
This solution can provide complete and convenient from data collection, storage, computing, etc. Simplify the data processing time and developing period effectively.



• 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.

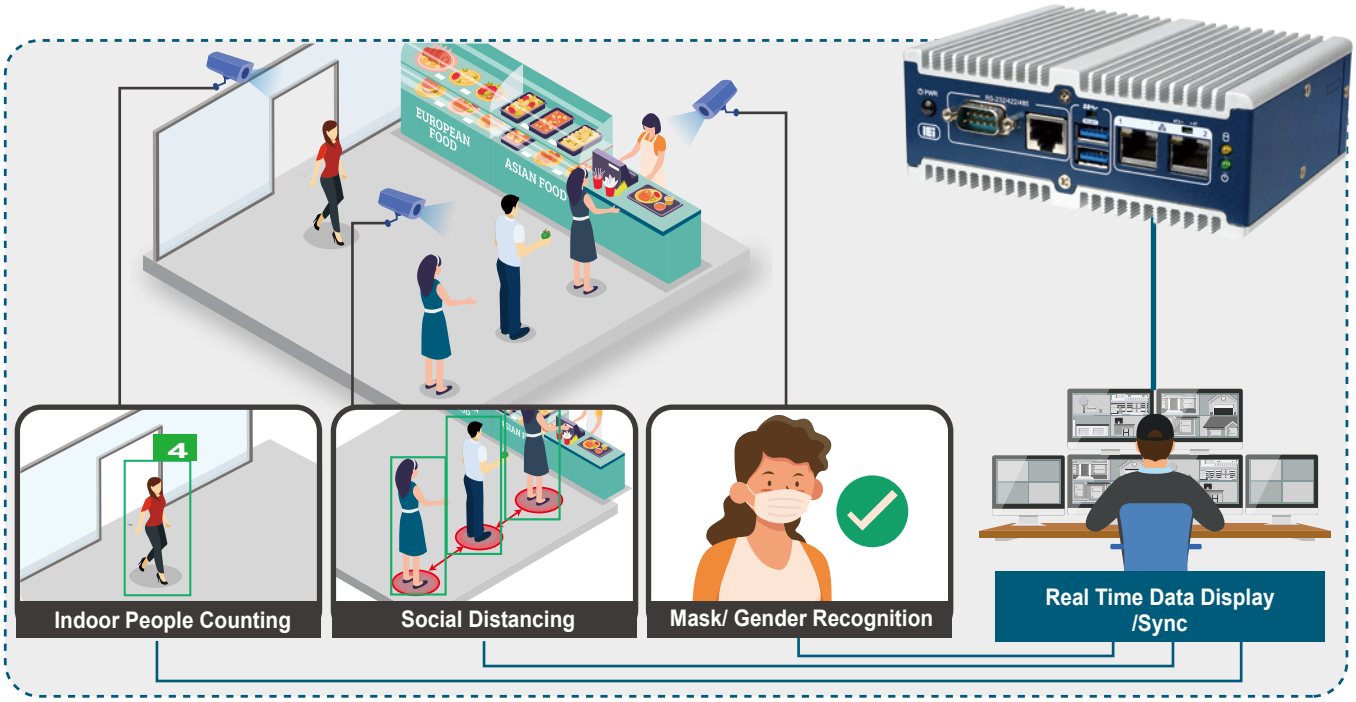
The FLEX series designed for machine vision market has four PCIe 3.0 expansion slots for installing motion controller cards, GP GPU/FPGA/VPU cards and the PoE Ethernet card which is developed by IEI and has four GbE Power over Ethernet (PoE) ports compliant with IEEE 802.3af for direct connection to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



• Retail

• Social Distance Monitoring

Indoor people congestion detection for COVID19 prevention with ITG-100AI. It can deploy in retail hotel office and restaurant. Also data can be sync to your remote devices



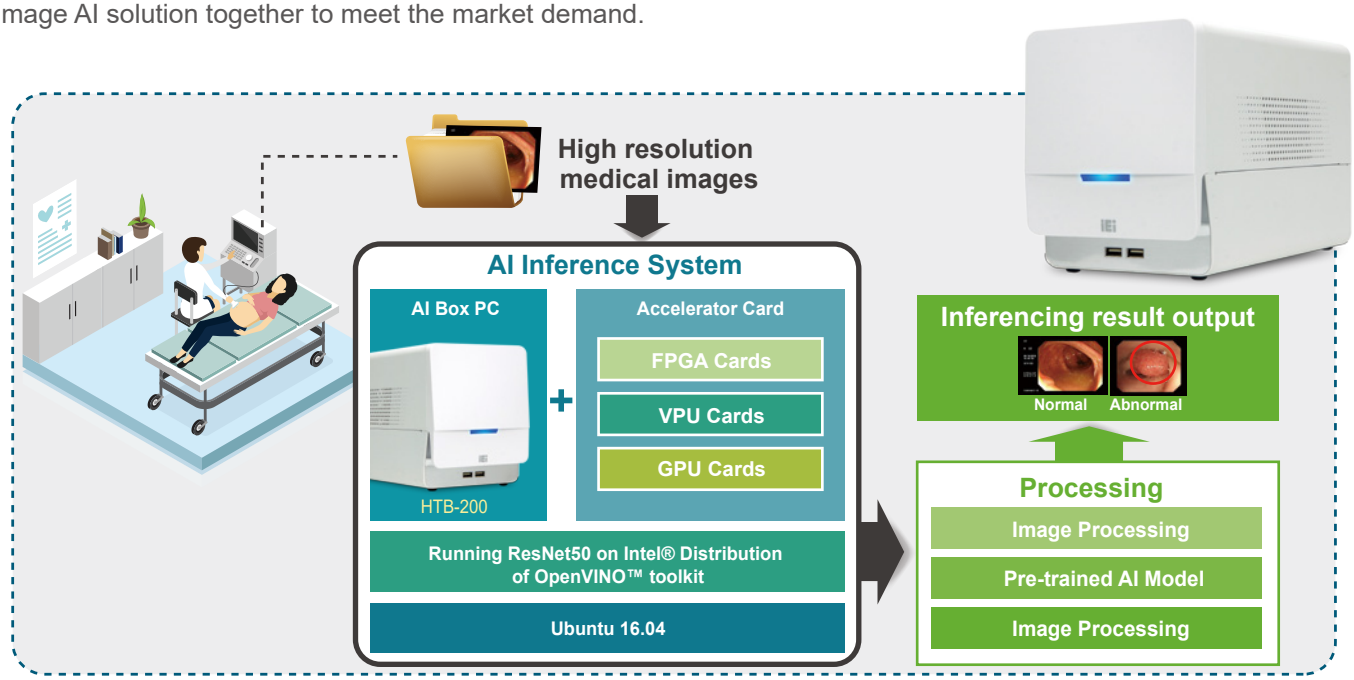
• Shopping mall surveillance

AI surveillance system can install in shopping mall for monitoring numbers of visitor and detect any suspicious person inside the mall. With TANK-870AIoT dev. Kit and Mustang-V10-MX8 we can expand more camera channel in the shopping mall.



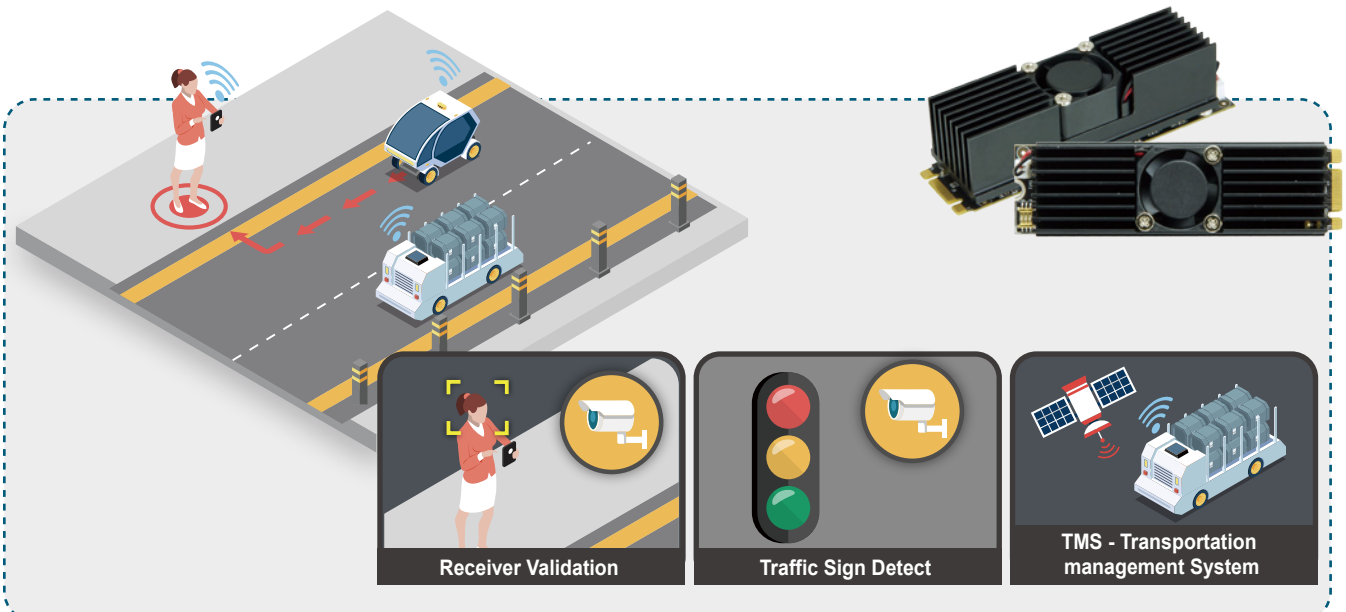
• Medical

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 to detect and analyze image data with color information, such as traffic light, sign mark. And in the delivery vehicle, AI computer vision technology helps to detect receiver information to identify ID, while customer is picking up their goods. So computer vision AI is the one of the key component 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

IEI GRAND AI Training Server System

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

Specifications

Model Name	TANK AIoT Dev. Kit
Chassis	
Color	Black C + Silver
Dimensions (WxDxH)	121.5 x 255.2 x 205 mm (4.7" x 10" x 8")
System Fan	Fan
Chassis Construction	Extruded aluminum alloys
Weight (Net/Gross)	4.2 kg (9.26 lbs)/ 6.3 kg (13.89 lbs)
Motherboard	
CPU	Intel® Xeon® E3-1268LV5 2.4GHz (up to 3.4 GHz, Quad Core, TDP 35W) Intel® Core™ i7-7700T 2.9GHz (up to 3.8 GHz, Quad Core, TDP 35W) Intel® Core™ i5-7500T 2.7GHz (up to 3.3 GHz, Quad Core, TDP 35W) Intel® Core™ i7-6700TE 2.4 GHz (up to 3.4GHz, quad-core, TDP 35W) Intel® Core™ i5-6500TE 2.3 GHz (up to 3.3GHz, quad-core, TDP 35W)
Chipset	Intel® Q170/C236 with Xeon® E3 only
System Memory	2 x 260-pin DDR4 SO-DIMM, 8 GB pre-installed (for i5/i5KBL/i7 sku) 16 GB pre-installed (for i7KBL sku) 32 GB pre-installed (for E3 sku)
Storage	
Hard Drive	2 x 2.5'' SATA 6Gb/s HDD/SSD bay, RAID 0/1 support (1x 2.5" 1TB HDD pre-installed)
I/O Interfaces	
USB 3.2 Gen 1	4
USB 2.0	4
Ethernet	2 x RJ-45 LAN1: Intel® I219LM PCIe controller with Intel® vPro™ support LAN2 (iRIS): Intel® I210 PCIe controller
COM Port	4 x RS-232 (2 x RJ-45, 2 x DB-9 w/2.5KV isolation protection) 2 x RS-232/422/485 (DB-9)
Digital I/O	8-bit digital I/O, 4-bit input / 4-bit output
Display	1 x VGA 1 x HDMI/DP 1 x iDP (optional)
Resolution	VGA: Up to 1920 x 1200@60Hz HDMI/DP: Up to 3840x2160@30Hz / 4096×2304@60Hz
Audio	1 x Line-out, 1 x Mic-in
TPM	1x Infineon TPM 2.0 Module
Expansions	
Backplane	2 x PCIe x8
PCIe Mini	1 x Half-size PCIe Mini slot 1 x Full-size PCIe Mini slot (supports mSATA, colay with SATA)
Power	
Power Input	DC Jack: 9 V~36 V DC Terminal Block: 9 V~36 V DC
Power Consumption	19 V@3.68 A (Intel® Core™ i7-6700TE with 8 GB memory)
Internal Power output	5V@3A or 12V@3A
Reliability	
Mounting	Wall mount
Operating Temperature	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-E3/32G/2A/F-R11	Ruggedized embedded system with Intel® Xeon® E3-1268LV5 2.4GHz, (up to 3.4 GHz, Quad Core, TDP 35W), 32 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5" 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, Mustang-F100, RoHS
TANK-870AI-E3/32G/2A/V-R11	Ruggedized embedded system with Intel® Xeon® E3-1268LV5 2.4GHz, (up to 3.4 GHz, Quad Core, TDP 35W), 32 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5" 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, Mustang-V100, RoHS
TANK-870AI-i7KBL/16G/2A-R11	Ruggedized embedded system with Intel® Core™ i7-7700T 2.9GHz, (up to 3.8 GHz, Quad Core, TDP 35W), 16 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5” 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, RoHS
TANK-870AI-i7KBL/16G/2A/F-R11	Ruggedized embedded system with Intel® Core i7-7700T 2.9GHz, (up to 3.8 GHz, Quad Core, TDP 35W), 16GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5" 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, Mustang-F100, RoHS
TANK-870AI-i7KBL/16G/2A/V-R11	Ruggedized embedded system with Intel® Core i7-7700T 2.9GHz, (up to 3.8 GHz, Quad Core, TDP 35W), 16GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5" 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, Mustang-V100, RoHS
TANK-870AI-i7/8G/2A-R11	Ruggedized embedded system with Intel® Core™ i7-6700TE 2.4GHz, (up to 3.4 GHz, Quad Core, TDP 35W), 8 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5” 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, RoHS
TANK-870AI-i7/8G/2A/F-R11	Ruggedized embedded system with Intel® Core i7-6700TE 2.4GHz, (up to 3.4 GHz, Quad Core, TDP 35W), 8 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5" 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, Mustang-F100, RoHS
TANK-870AI-i7/8G/2A/V-R11	Ruggedized embedded system with Intel® Core i7-6700TE 2.4GHz, (up to 3.4 GHz, Quad Core, TDP 35W), 8 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5" 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, Mustang-V100, RoHS
TANK-870AI-i5KBL/8G/2A-R11	Ruggedized embedded system with Intel® Core™ i5-7500T 2.7GHz, (up to 3.3 GHz, Quad Core, TDP 35W), 8 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5” 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, RoHS
TANK-870AI-i5KBL/8G/2A/F-R11	Ruggedized embedded system with Intel® Core i5-7500T 2.7GHz, (up to 3.3 GHz, Quad Core, TDP 35W), 8 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5" 1TB HDD , TPM 2.0, 9~36V DC, 150W AC DC power adaptor, Mustang-F100, RoHS
TANK-870AI-i5KBL/8G/2A/V-R11	Ruggedized embedded system with Intel® Core i5-7500T 2.7GHz, (up to 3.3 GHz, Quad Core, TDP 35W), 8 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5" 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, Mustang-V100, RoHS
TANK-870AI-i5/8G/2A-R11	Ruggedized embedded system with Intel® Core™ i5-6500TE 2.3GHz, (up to 3.3 GHz, Quad Core, TDP 35W), 8 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5” 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, RoHS
TANK-870AI-i5/8G/2A/F-R11	Ruggedized embedded system with Intel® Core i5-6500TE 2.3GHz, (Up to 3.3 GHz, Quad Core, TDP 35W), 8 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5" 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, Mustang-F100, RoHS
TANK-870AI-i5/8G/2A/V-R11	Ruggedized embedded system with Intel® Core i5-6500TE 2.3GHz, (Up to 3.3 GHz, Quad Core, TDP 35W), 8 GB DDR4 pre-installed memory, 2 x PCIe by 8 expansion, 2.5" 1TB HDD, TPM 2.0, 9~36V DC, 150W AC DC power adaptor, Mustang-V100, RoHS

AI Accelerator Card Options

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

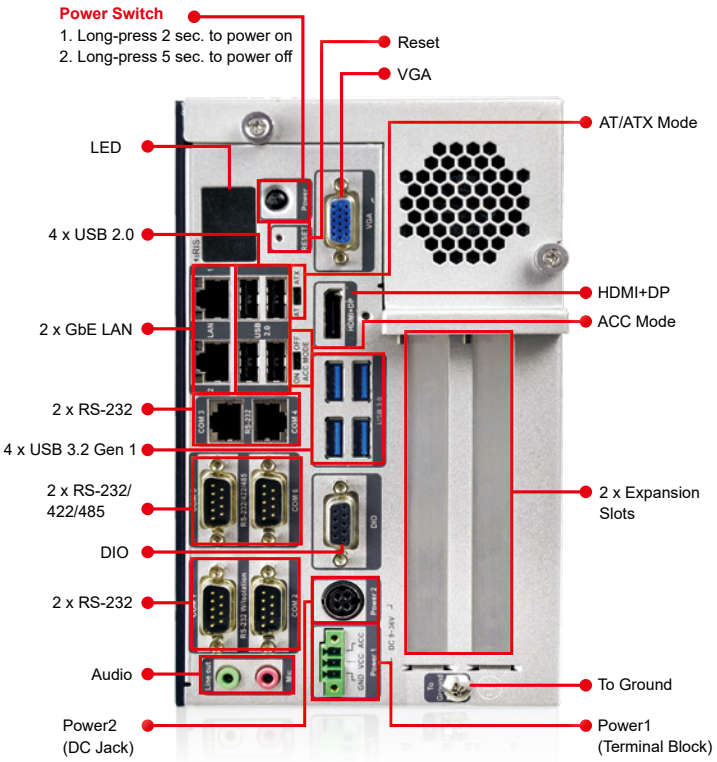
Peripheral Options

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

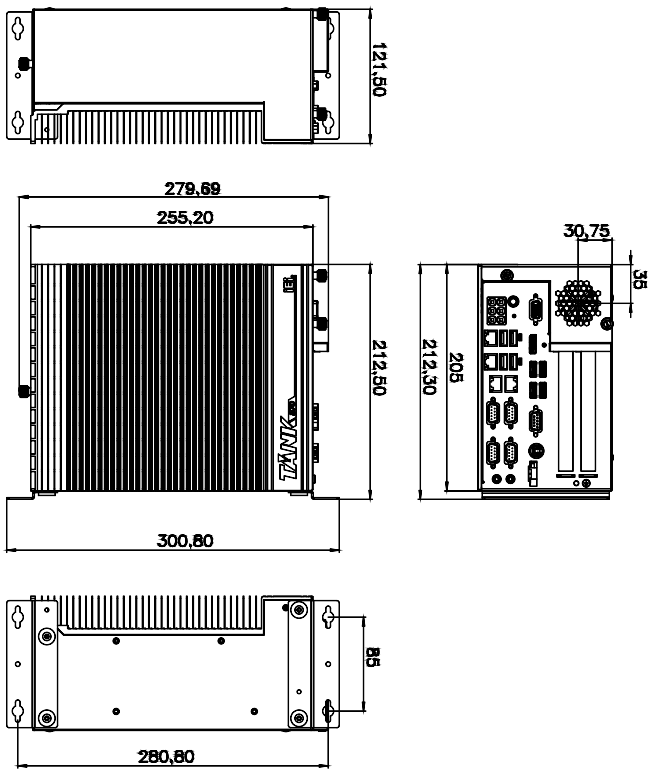
Packing List

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

Fully integrated I/O



Dimensions (Unit:mm)



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)

Specifications

Model		FLEX-BX200AI Series
System	CPU	Intel® Xeon® E-2278GEL 2.0GHz (up to 3.9GHz, 8-core, TDP 35W) Intel® 9th Generation Core™ i7-9700TE 1.8GHz (up to 3.8GHz, 8-core, TDP 35W) Intel® 9th Generation Core™ i5-9500TE 2.2GHz (up to 3.6GHz, 6-core, TDP 35W) Intel® 8th Generation 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

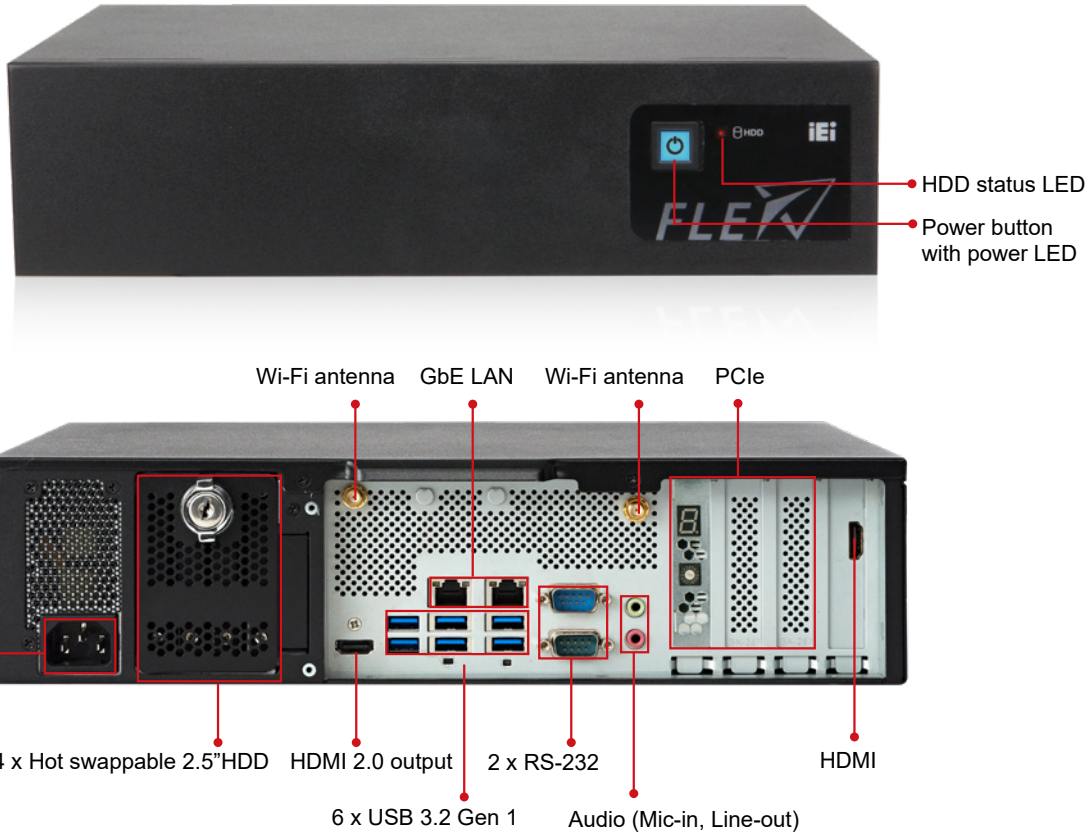
Options

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

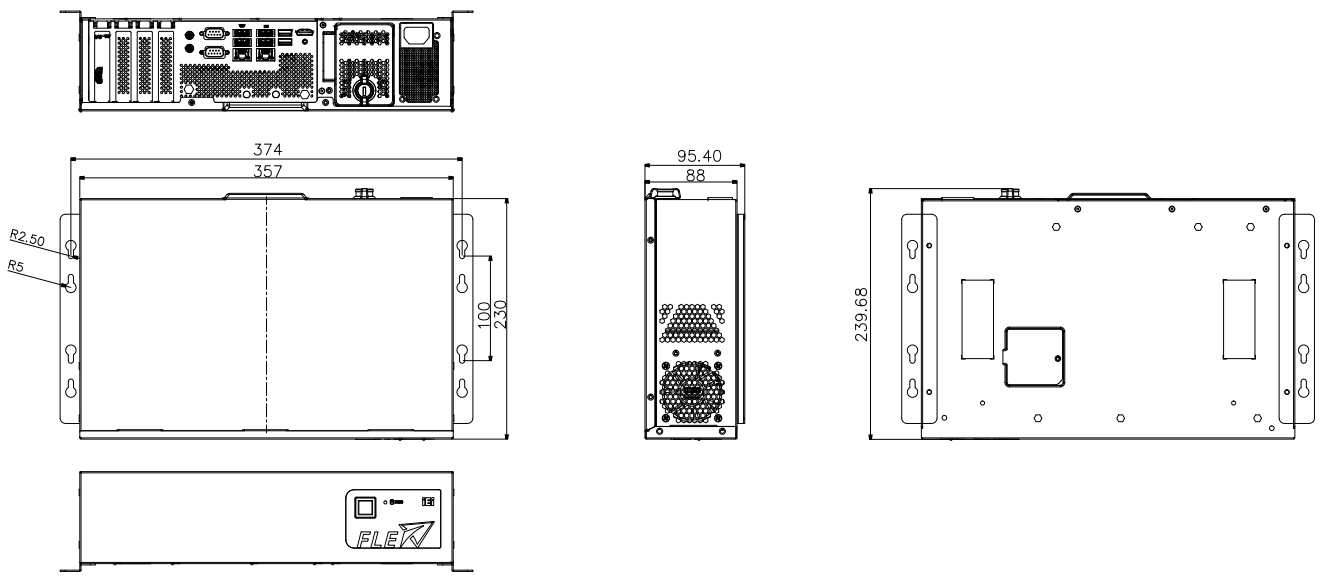




I/O Interface



FLEX-BX200AI
Dimensions (Unit: mm)



FLEX-BX210-Q470/W480

NEW



Feature

- 2U AI PC with 10th Generation LGA 1200 Intel® Core™/Xeon® processor with Intel® Q470/W480 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/W480
System	CPU	Intel® Xeon® W-1290TE 1.8GHz (up to 4.5GHz, 10-core, TDP 35W) Intel® 10th Generation Core™ i9-10900TE 1.8GHz (up to 4.5GHz, 10-core, TDP 35W) Intel® 10th Generation 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 6 Gb/s bay (with RAID 0/1/5/10 support) with LED indicator 1 x NGFF M.2(2280) M Key socket (support NVMe SSD) Pre-installed 1 x 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 (1x I219 support vPro, 2x 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

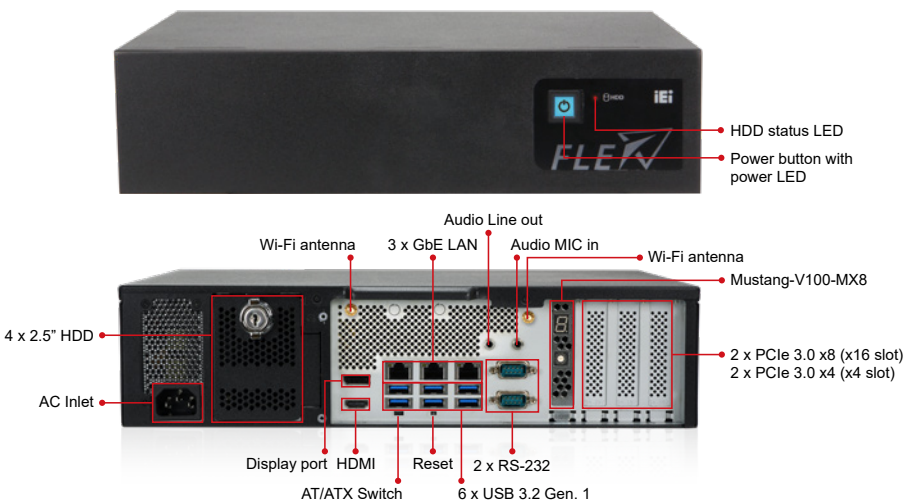
Ordering Information

Part No.	Description
With Mustang-V100-MX8	
FLEX-BX210AI-XE/32G/V-R10	2U AI Modular box PC, Intel® Xeon® W-1290TE 1.8GHz (up to 4.5GHz, 10-core, TDP 35W), 32GB DDR4, 2.5" 1TB HDD, TPM 2.0, 350W PSU, with Mustang-V100-MX8, Wi-Fi 802.11ac, R10
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-BX210AI-XE/32G-R10	2U AI Modular box PC, Intel® Xeon® W-1290TE 1.8GHz (up to 4.5GHz, 10-core, TDP 35W), 32GB DDR4, 2.5" 1TB HDD, TPM 2.0, 350W PSU, Wi-Fi 802.11ac, 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

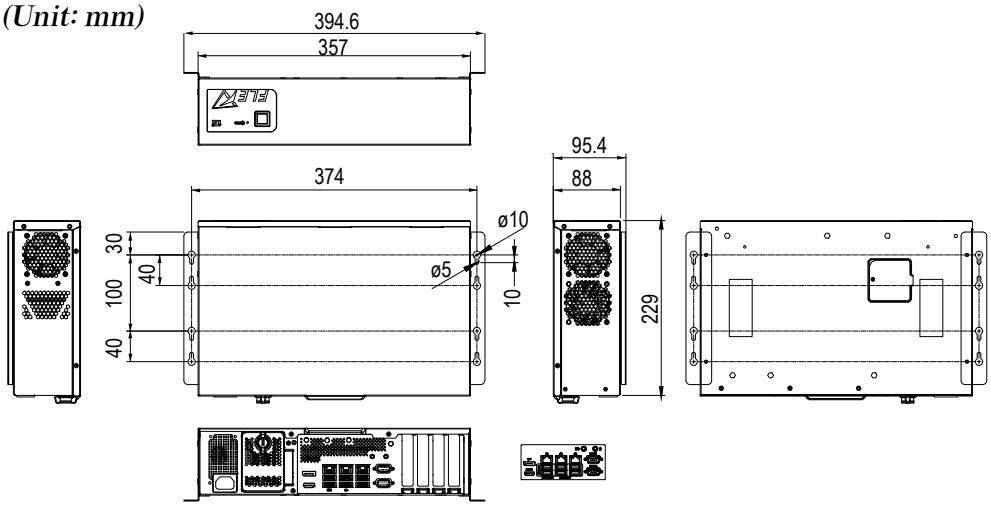
1 x Mounting Bracket	2 x Wi-Fi Antennas
1 x Power Cord	1 x QSG

I/O Interface

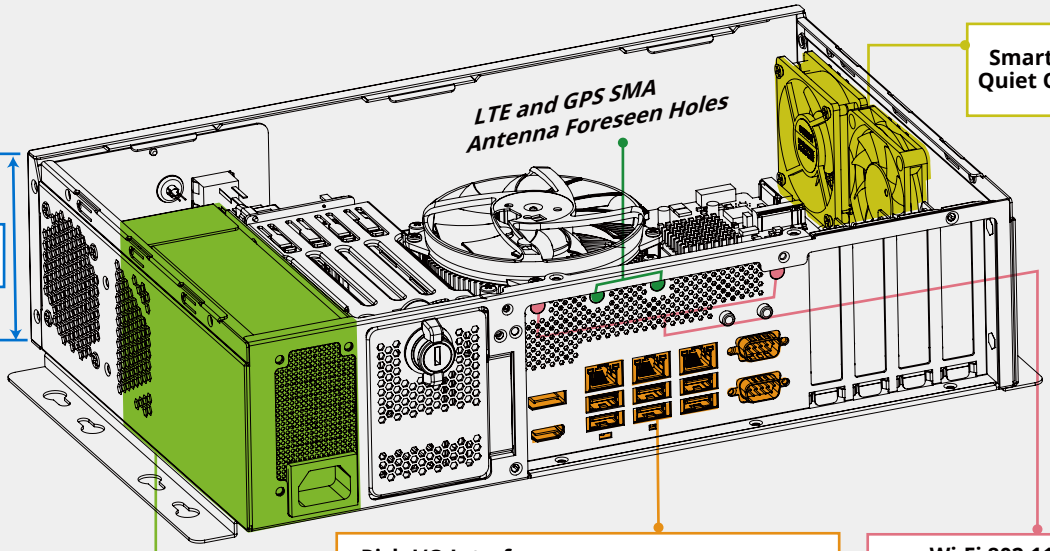


FLEX-BX210-Q470/W480

Dimensions (Unit: mm)



Hardware Features



Smart Fan for Quiet Operation

Compact 2U System

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

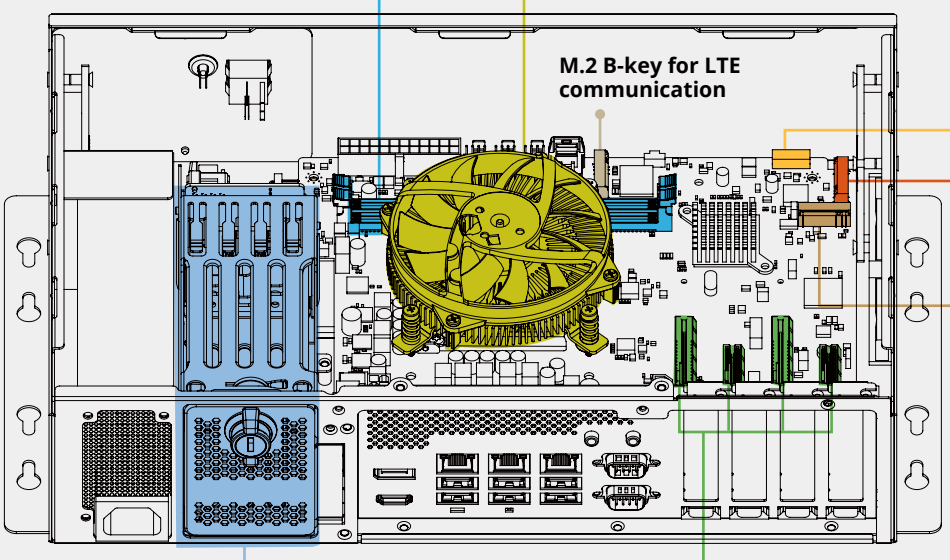
Rich I/O Interface
- 1 x Display port output
- 1 x HDMI output
- 6 x USB 3.2 Gen1 Type-A
- 2 x RS-232 DB-9
- AT/ATX mode switch
- 3 x GbE LAN (1x I219 support vPro, 2x I210)
- 1 x Mic in
- 1 x Line out
- 1 x AC inlet
- 4 x SMA
- Reset button

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

Up to 64GB DDR4 2933/2666 MHz Memory

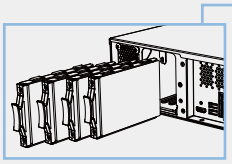
10th Generation Intel® Core™ Desktop Processors

TPM 2.0

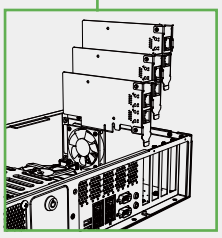


M.2 A-key 2230 for Wi-Fi 802.11ac and Bluetooth V5.1 (pre-installed)

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

IDS-310AI

- Ultra Compact Size
- Fanless Digital Signage System
- Intel Vision Accelerator Design for AI Deep Learning

NEW



Feature

- Intel® Celeron® J3455 1.5GHz (up to 2.3 GHz)
- Two GbE LAN ports
- Triple USB 3.2 Gen1
- M.2 A-key slot for expansion
- Pre-installed a Mustang-MPCIE-MX2 that has two Intel Myriad X VPUs for AI deep learning workload consolidation

Specifications

Model		IDS-310AI
AI Accelerator Card	Model Name	Mustang-MPCIE-MX2
	Main Chip	2 x Intel® Movidius™ Myriad™ X MA2485 VPU
	Supported Topology	AlexNet, GoogleNetV1/V2, Mobile_SSD, MobileNetV1/V2, MTCNN, Squeezenet1.0/1.1, Tiny Yolo V1 & V2, Yolo V2, ResNet-18/50/101
Chassis	Color	Brown & Silver
	Dimensions (WxDxH)(mm)	137 x 102.8 x 49.2
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	Intel® Celeron® J3455 (up to 2.3GHz, quad-core, TDP 10W)
	Chipset	SoC
	System Memory	1 x 204-pin DDR3L SO-DIMM slot, pre-installed with 8 GB memory
Storage	SATADOM	Pre-installed 128GB
	Micro SD	1 x Micro SD Slot
I/O Interfaces	USB 3.2 Gen 1 (5Gb/s)	3
	Ethernet	2 x RJ-45 PCIe GbE by RTL8111 controller
	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 802.11a/b/g/n/ac (optional)
	TPM	TPM2.0
	Others	1 x Power button, 1 x Reset button, 1 x AT/ATX switch, 1 x LED for HDD (yellow), 1 x LED for power (green)
Expansions	M.2	1 x 2230 A key (PCIe x1/ USB 2.0)
Power	Power Input	12V DC-in
	Power Consumption	12V @ 2.6A (Intel® Celeron® J3455 with 8GB memory)
Reliability	Mounting	Wall mount
	Operating Temperature	-20°C ~ 45°C with air flow, 10% ~ 95%, non-condensing
	Storage Temperature	-30°C ~ 80°C with air flow, 10% ~ 90%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis, IEC68-2-27
	Operation Vibration	MIL-STD-810G 514.6C-1
	Weight (Net/Gross)	910 g/ 1.7 kg
	Safety / EMC	CE/FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min
OS	Supported OS	Win10/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.

Ordering Information

Part No.	Description
IDS-310AI-AL-J1/8GB-R10	Fanless embedded system with Intel® Celeron® J3455 1.5GHz (up to 2.3GHz, quad dore, TDP 10W), pre-installed 8GB DDR3L memory, triple HDMI display, 12V DC, 128G SATADOM, Mustang-MPCIE-MX2 and RoHS

Packing List

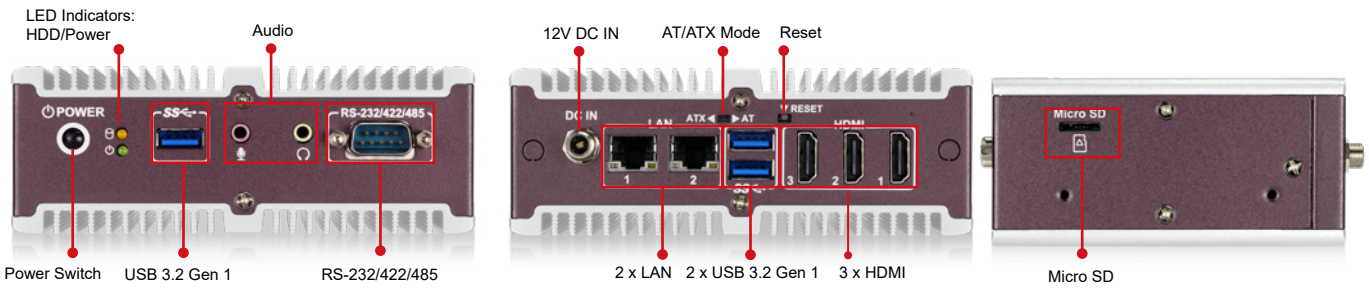
1 x Screw kit	1 x 36W power adapter
1 x Wall mounting bracket	1 x Power Cord

Options

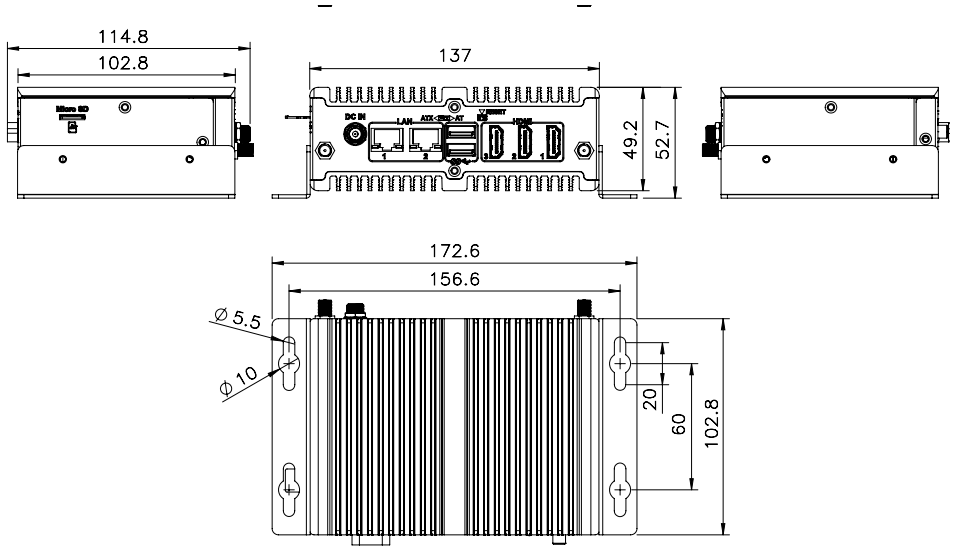
Item	Part No.	Description
Wi-Fi Module	27319-000009-RS*	Wireless Lan Module; Wireless LAN & Bluetooth M.2 Module; Sparklan; R9701810011;IEEE802.11a/b/g/n/ac;2.412GHz~2.4835GHz, 5.15GHz~5.85GHz; M.2 2230; 3.3V; 22*30*2.15mm; QCNFA364A; QCA6174A-5; 2x2 MIMO; Dual Band; WCBN808A-Q2; CCL;CCL; RoHS
Antenna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

* Each Wi-Fi module needs two antennas and two RF cables to fully support Wi-Fi function.

Fully Integrated I/O



IDS-310AI Dimensions (Unit: mm)



ITG-100AI

- Ultra Compact Size
- Fanless Digital Signage System
- Intel Vision Accelerator Design for AI Deep Learning



Feature

- Intel® Atom™ x5-E3930 1.3GHz (up to 1.8 GHz)
- Two GbE LAN ports
- Two RS-232/422/485
- M.2 A-key slot for expansion
- Pre-installed a Mustang-MPCIE-MX2 that has two Intel Myriad X VPUs for AI deep learning workload consolidation

Specifications

Model		ITG-100AI
AI Accelerator Card	Model Name	Mustang-MPCIE-MX2
	Main Chip	2 x Intel® Movidius™ Myriad™ X MA2485 VPU
	Supported Topology	AlexNet, GoogleNetV1/V2, Mobile_SSD, MobileNetV1/ V2, MTCNN, Squeezenet1.0/1.1, Tiny Yolo V1 & V2, Yolo V2, ResNet-18/50/101
Chassis	Color	Blue & Silver
	Dimensions (WxDxH)(mm)	137 x 102.8 x 49.4
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	Intel® Atom™ x5-E3930 1.3 GHz (up to 1.8 GHz, dual-core, TDP 6.5W)
	Chipset	SoC
	System Memory	1 x SO-DIMM DDR3L 1600/1867 (8GB pre-installed)
Storage	SATADOM	1 x 128GB pre-installed
	eMMC	1 x eMMC5.0 (up to 32GB)(optional)
	Micro SD	1 x Micro SD slot
I/O Interfaces	USB	2 x USB 3.2 Gen1
	Ethernet	2 x RJ-45: 2 x GbE by Intel® I211
	COM Port	2 x RS232/422/485 with AFC (DB9/RJ45)
	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	M.2	1 x 2230 A-key (PCIe x 1/USB 2.0)
Power	Power Input	Terminal block: 9 ~ 36V DC
	Power Consumption	12V @ 1.2A (Intel® Atom™ E3930 with 8GB memory)
Reliability	Mounting	DIN-Rail
	Operating Temperature	-20°C ~ 50°C with air flow, 10% ~ 95% non-condensing
	Storage Temperature	-20°C ~ 70°C with air flow, 10% ~ 90% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)
	Weight (Net/Gross)	895g/ 1.7kg
	Safety/EMC	CE/ FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft® Windows 10, Linux Ubuntu 16.04 LTS

Ordering Information

Part No.	Description
ITG-100AI-E1/8GB/S-R10	Fanless embedded system, Intel® Apollo Lake x5-E3930 1.3GHz (up to 1.8GHz, dual core), 8GB DDR3L pre-installed memory, VGA, M.2, COM, 9-36V DC, Mustang-MPCIE-MX2 and RoHS

Packing List

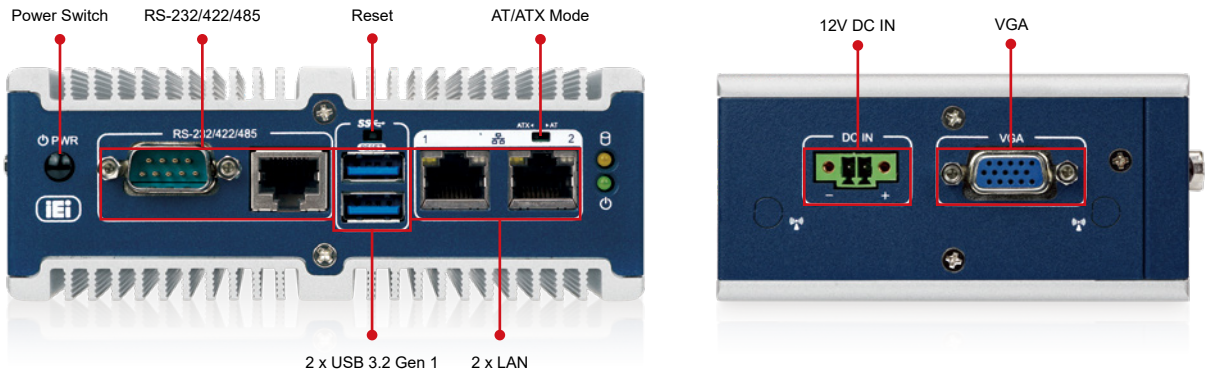
1 x 36W power adapter	1 x Screw kit
1 x Power cable	1 x Din-rail mounting bracket
1 x Power Cord	1 x RJ-45 to DB-9 COM port cable

Options

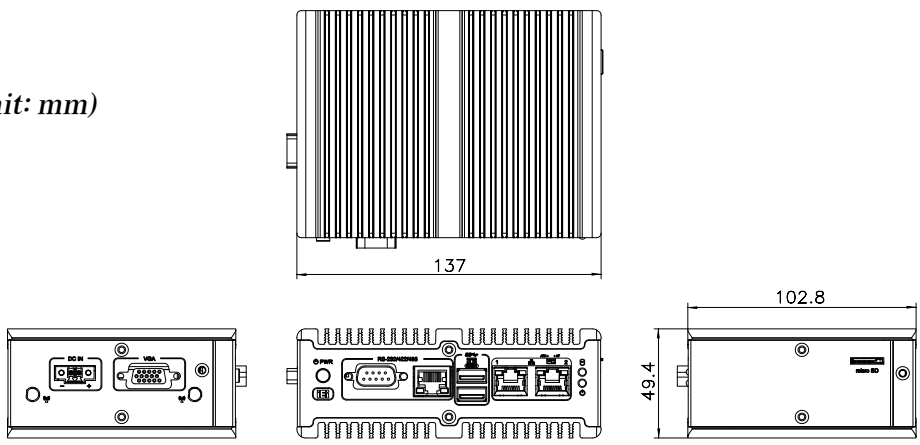
Item	Part No.	Description
Wi-Fi Module	27319-000009-RS*	Wireless Lan Module; Wireless LAN & Bluetooth M.2 Module; Sparklan; R9701810011;IEEE802.11a/b/g/n/ac;2.412GHz~2.4835GHz, 5.15GHz~5.85GHz; M.2 2230; 3.3V; 22*30*2.15mm; QCNFA364A; QCA6174A-5; 2x2 MIMO; Dual Band; WCBN808A-Q2; CCL;CCL; RoHS
Antenna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

* Each Wi-Fi module needs two antennas and two RF cables to fully support Wi-Fi function.

Fully Integrated I/O



ITG-100AI Dimensions (Unit: mm)



DRPC-230-ULT5

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

NEW



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

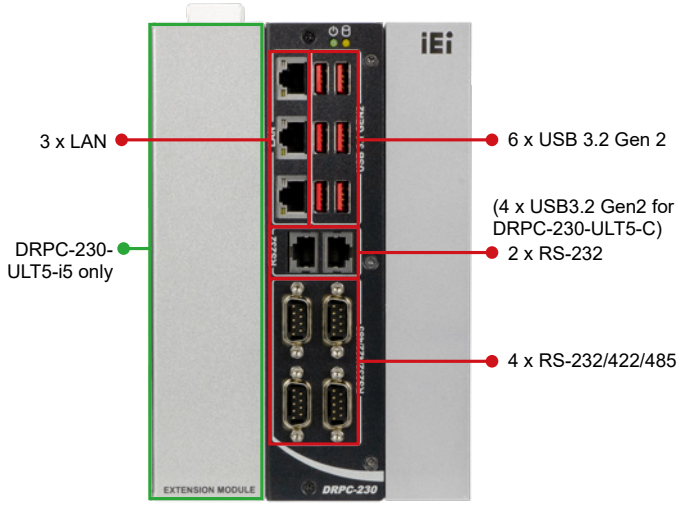
Options

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

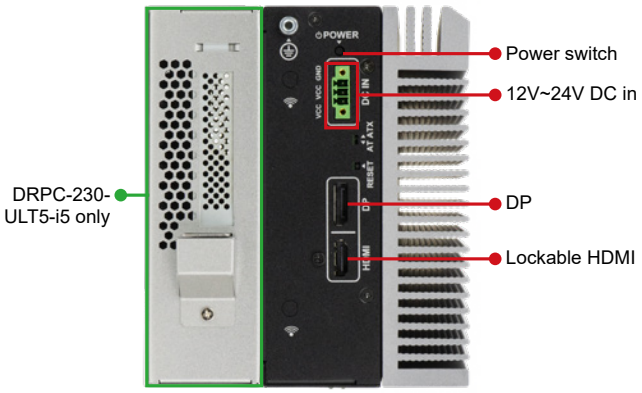
[1] It is required to order Power Cable together with Adapter for power usage
[2] Please select 96W adapter if intend to add accelerator cards
[3] Each Wi-Fi module needs two antennas and two RF cables to fully support Wi-Fi function
[4] Only applicable for DRPC-230-ULT5-i5/8G-R10

Fully Integrated I/O

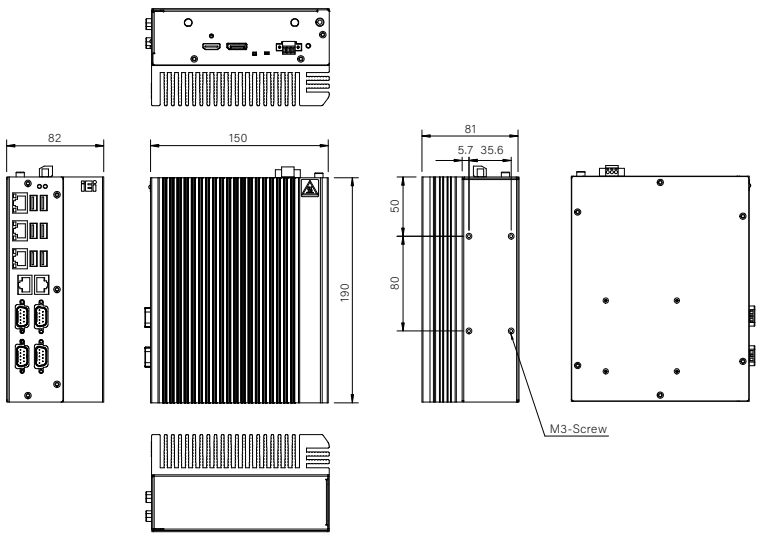
Front View



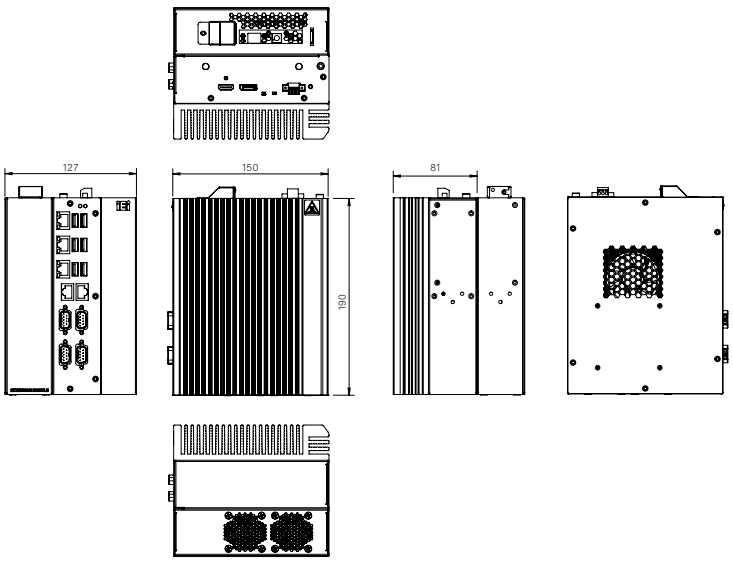
Top View



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



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



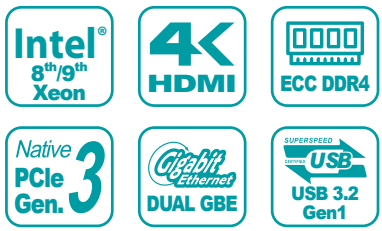
RACK-500AI-C246

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



Specifications

Model Name		RACK-500AI-C246
Chassis	Color	Navy blue and black
	Dimensions (WxDxH)	440.2 mm x 110.6 mm x 221.3 mm
	System Fan	System Fan & CPU Fan
	Chassis Construction	Heavy duty metal
Motherboard	CPU	Intel® Xeon® E-2176G CPU (3.70 GHz, Hexa Core, TDP 80W)
	Chipset	Intel® C246
	System Memory	Four 288-pin 2666MHz dual-channel DDR4 SDRAM unbuffered DIMMs support up to 64GB ECC & non-ECC (2 x 8G Pre-installed)
	Display Output	Dual display supported 1 x HDMI (up to 4096 x 2304@30Hz) 1 x Internal DisplayPort (up to 4096 x 2304@60Hz)
Storage	Hard Drive	1x 3.5" 6 Gb/s SATA removable drive Bay (Hot swap)
	M.2	1 x 2280 M key (PCIe x4)
I/O interfaces	Ethernet	LAN1: Intel® I219LM PHY LAN2: Intel® I211-AT PCIe controller (Co-lay I210-AT)
	USB 3.2	2 x Internal USB 3.2 Gen1 (2x10 pin)
	USB 2.0	6 (pin header)
	RS-232	3 (pin header)
	RS-422/485	1 (1x4 pin, P=2.0)
	Expansion	1 x PCIe Gen3 x16 slot 1 x PCIe Gen3 x4 slot **If use 2 slots capacity PCIe add-on Cards (maximum length 338mm) need to change cooler (P/N: 19100-000238-00-RS)
Power	Power Input	ATX Power (350W)
	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, Linux

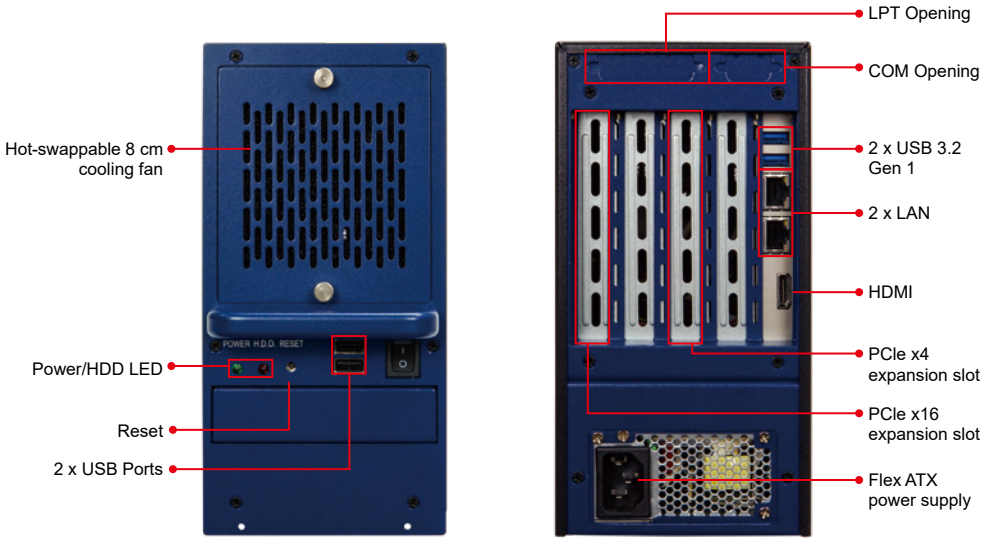
Ordering Information

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

Options

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

Fully Integrated I/O



FDD and HDD are not included in package



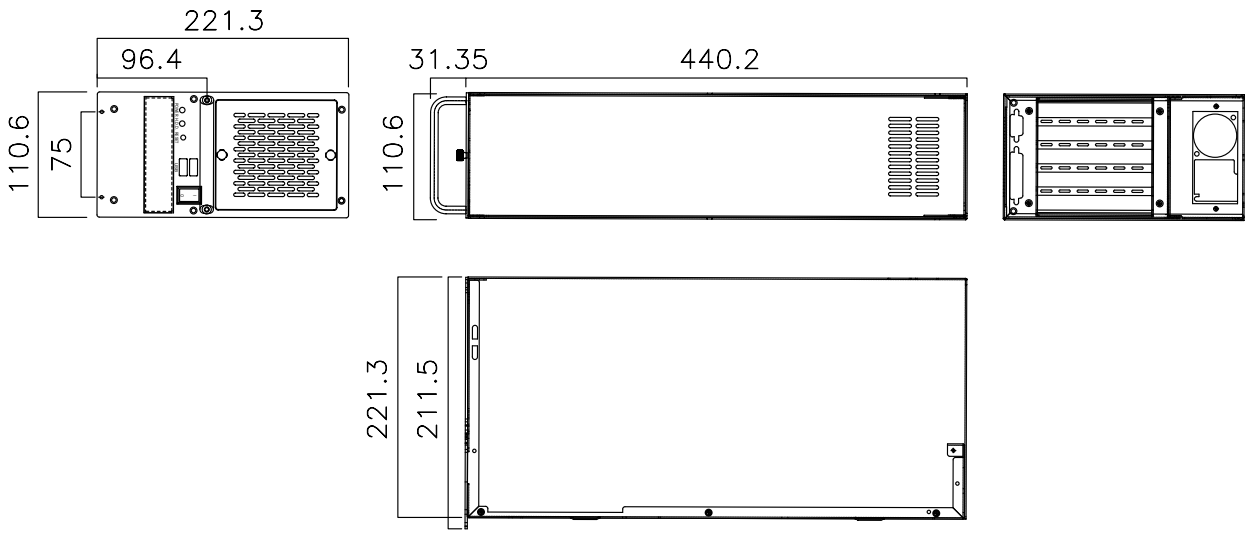
CA-950GB-R10



CA-950GB-R10

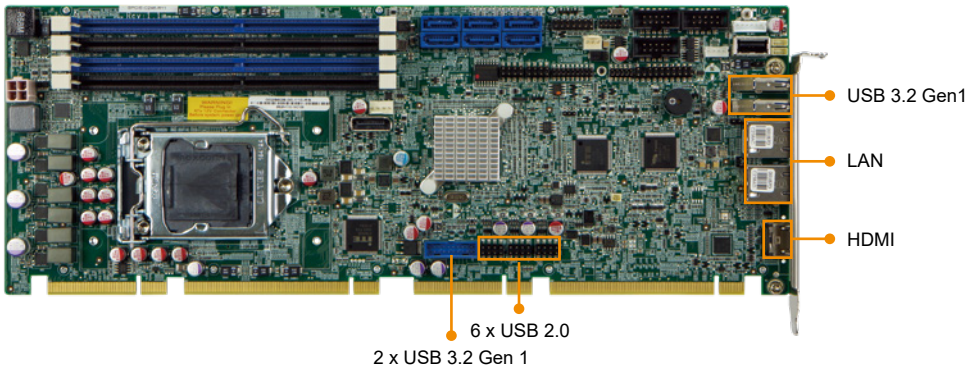
19" rack carrier can carry four RACK-500AI and fit into standard 19" width rack with 5U height.

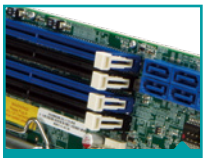
RACK-500AI-C246
Dimensions (Unit: mm)



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

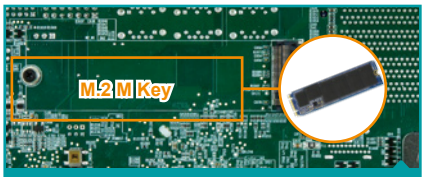
Full-size PICMG 1.3 CPU Card supports LGA1151 Intel® Xeon® E3, Core™ i9/i7/i5/i3/Pentium®/Celeron® CPU per Intel® C246, ECC & non-ECC DDR4, HDMI, DP, Dual Intel® PCIe GbE, USB 3.2, SATA 6Gb/s, M.2, HD Audio, iAMT and RoHS.




Four 288-pin DDR4 SDRAM Supported



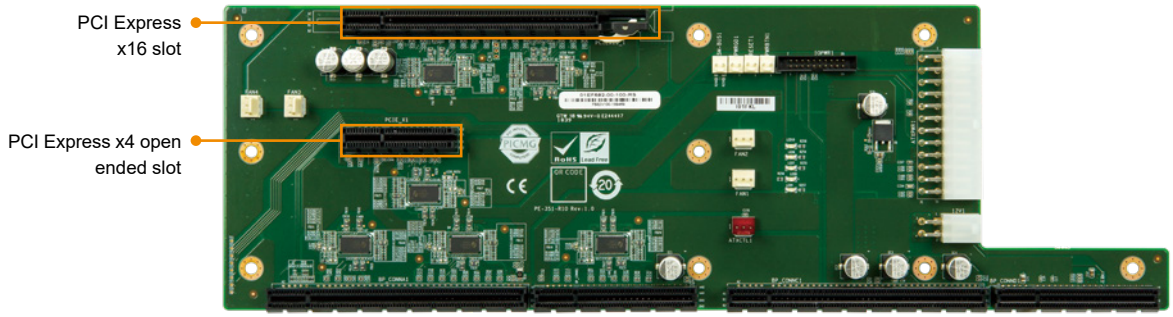
RAID 0, 1, 5, 10 function compatible with six ports of SATA 6Gb/s



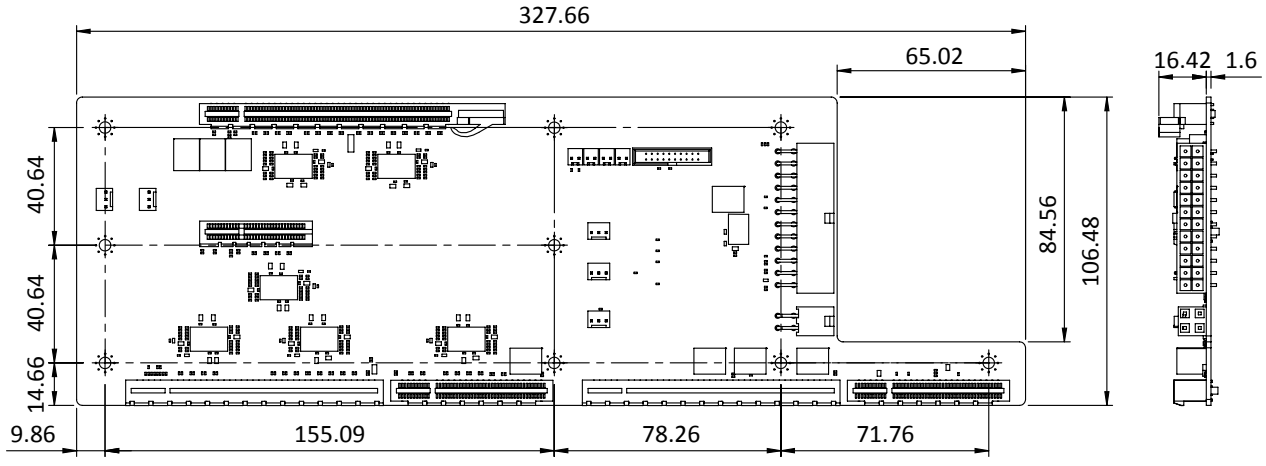
M.2 M key 2280 (PCIe x4)

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)



PAC-400AI-C236

NEW



Feature

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

Intel® Xeon | VGA | ECC DDR4 | Native PCIe Gen. 3 | Gigabit Ethernet DUAL GBE | SUPERSPEED USB 3.2 Gen1

intel

Specifications

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

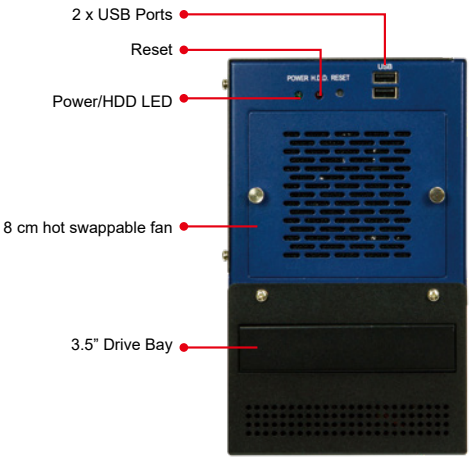
Ordering Information

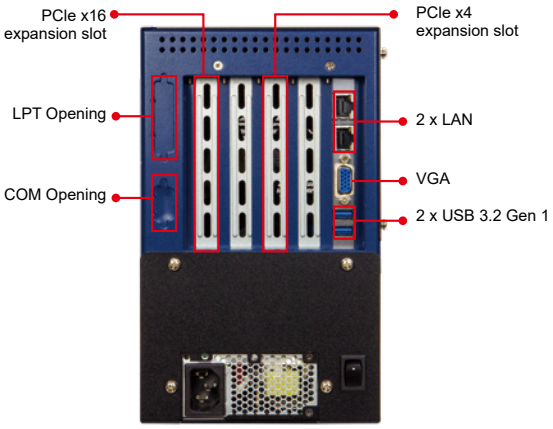
Part No.	Description
PAC-400AI-C236-XE/16G/35-R10	Half-size AI System with Intel® Xeon® E3-1275 v5 CPU (3.60 GHz, Quad Core, TDP 80W) w/ Intel® C236, pre-installed 16GB ECC DDR4 SO-DIMM memory, VGA, Intel GbE, USB 3.2, PCIe Mini, w/ 1 PCIe x16/x4 Slot BP, w/ FSP350 (350W), RoHS
PAC-400AI-C236-35-R10	Half-size AI System with Intel® C236, VGA, Intel GbE, USB 3.2, PCIe Mini, w/ 1 PCIe x16/x4 Slot BP, w/ FSP350 (350W), RoHS

Options

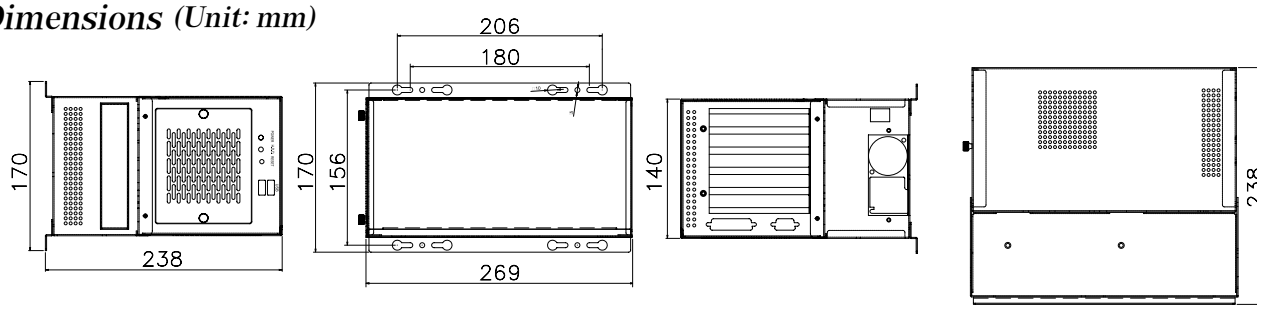
Part No.	Description
GPOE-2P-R20	PCI Express Power over Ethernet card, 2-port 1000 Base(T), 802.3at compliant, low profile, RoHS
GPOE-4P-R20	PCI Express Power over Ethernet card, 4-port 1000 Base(T), 802.3at/af compliant, low profile, RoHS
IPCIE-4POE-R10	PCI Express Power over ethernet card, 4-port 1000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

Fully Integrated I/O



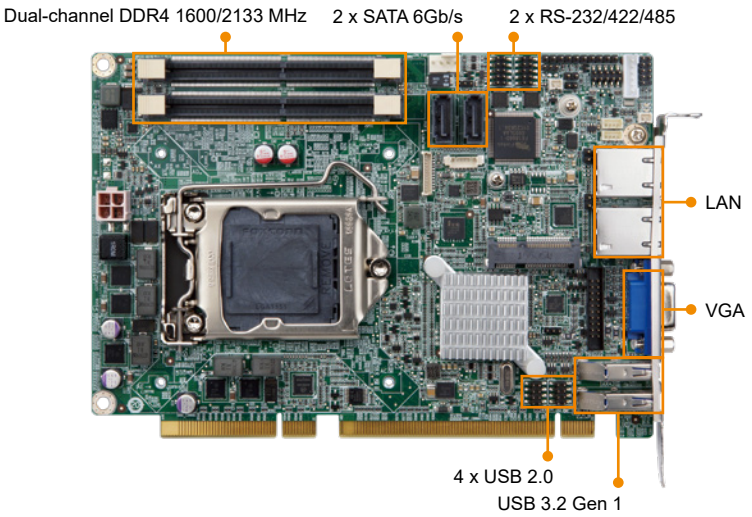


PAC-400AI-C236
Dimensions (Unit: mm)

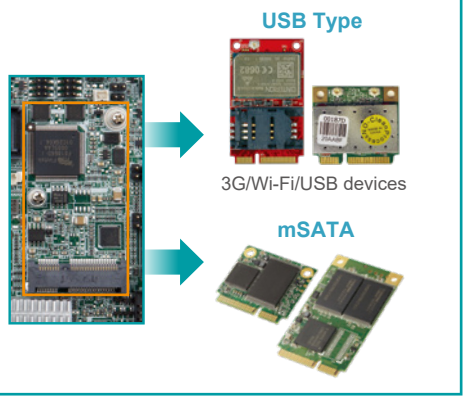


Single board computer in PAC-400AI (HPCIE-C236)

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

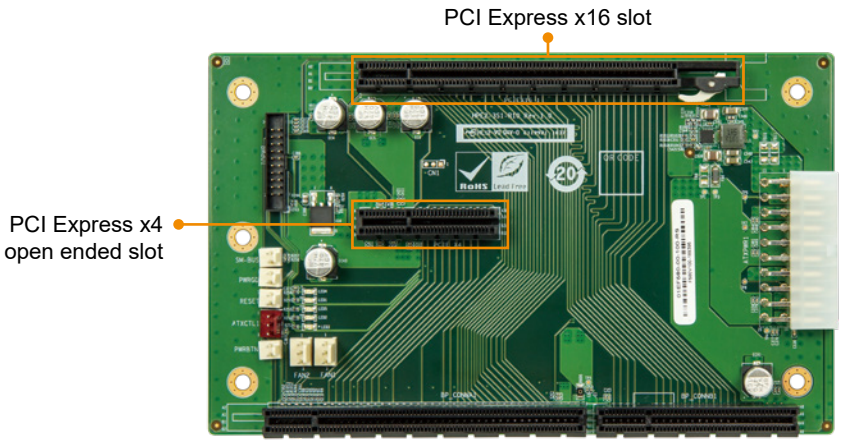


PCIe Mini slot provides mSATA and USB signal for full-size or half-size mSATA SSD and wireless LAN card.

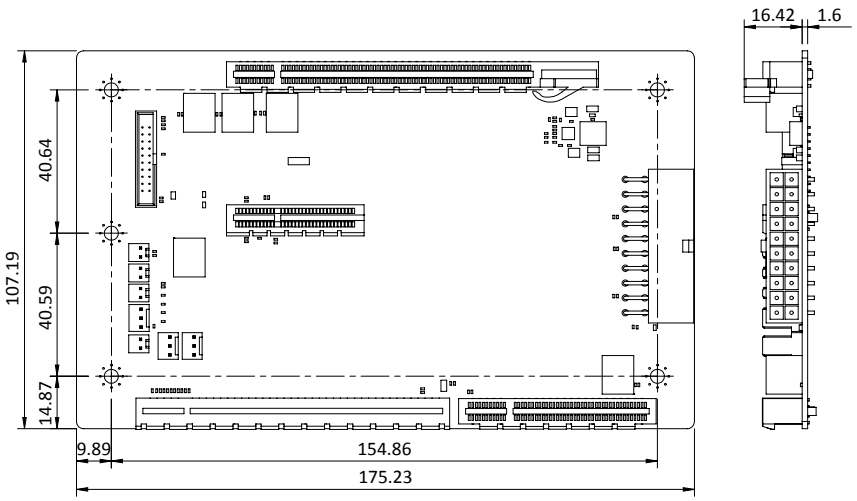


PCI Express Backplane in PAC-400AI (HPE2-3S1)

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



HPE2-3S1
Dimensions (Unit: mm)



Mustang-F100-A10



Feature

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

Specifications

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

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

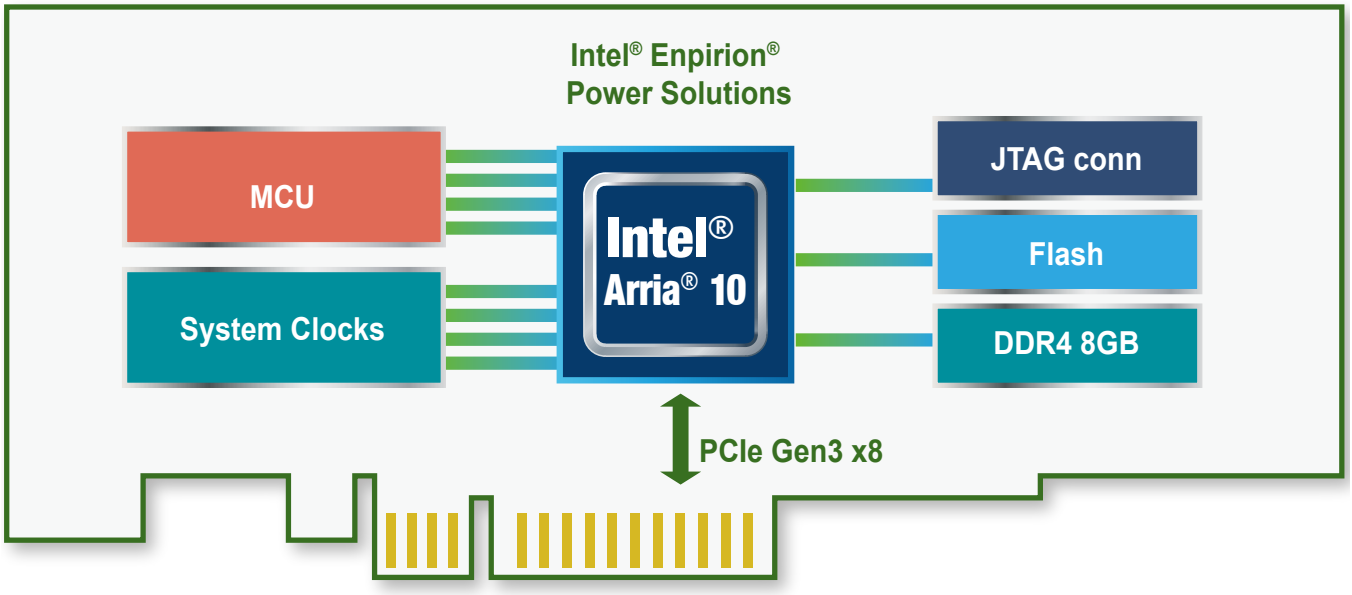
Ordering Information

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

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

Packing List

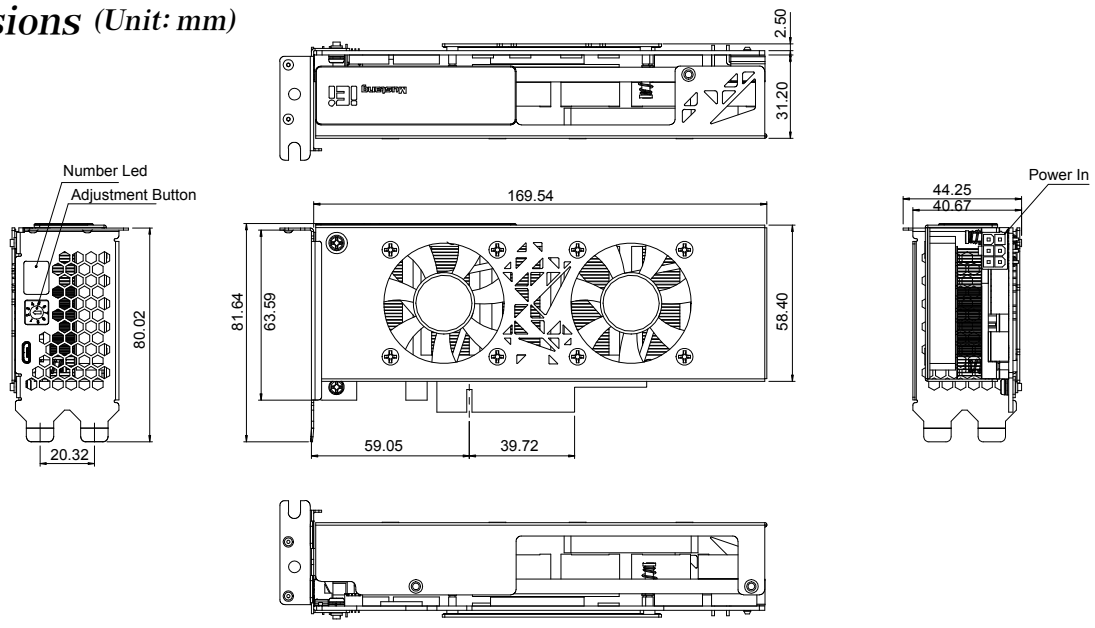
1 X Full height bracket
1 x External power cable
1 x QIG



Mustang-F100-A10 Block Diagram

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

Mustang-F100-A10 Dimensions (Unit: mm)



Mustang-V100-MX8



Feature

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

Specifications

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

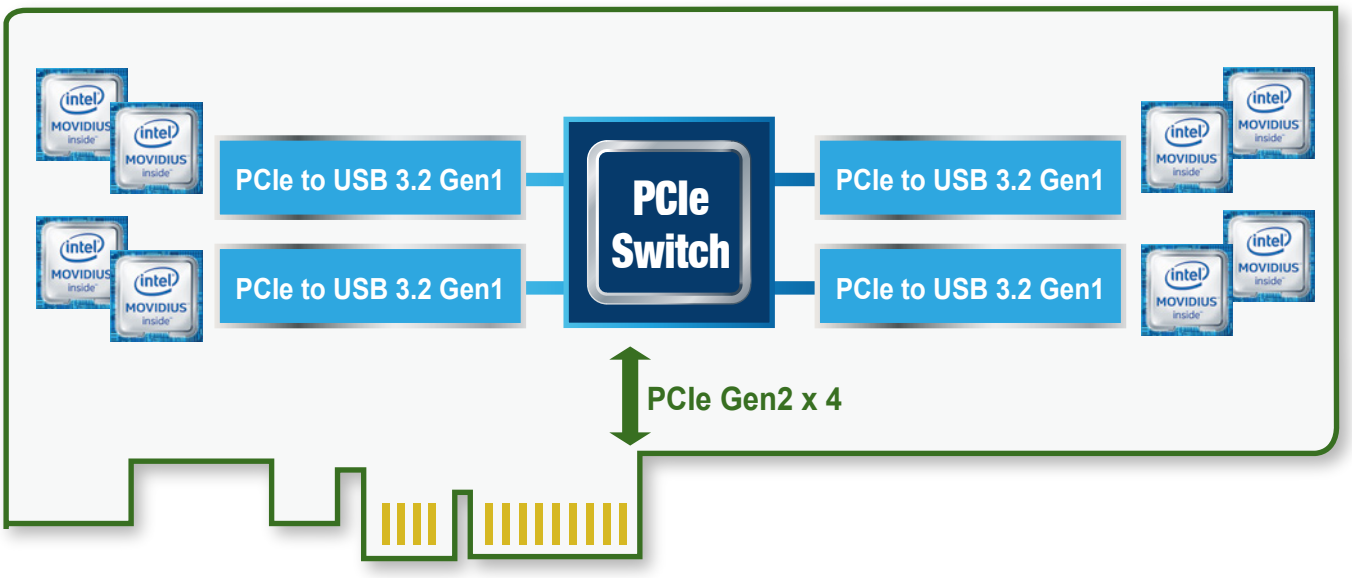
*TANK AIoT dev. kit PCIe slot provides 75W power, this feature is preserved for user in case of different system configuration.
Warning: DO NOT install the Mustang-V100-MX8 into the TANK AIoT Dev. Kit before shipment. It is recommended to ship them with their original boxes to prevent the Mustang-V100-MX8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

Ordering Information

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

Packing List

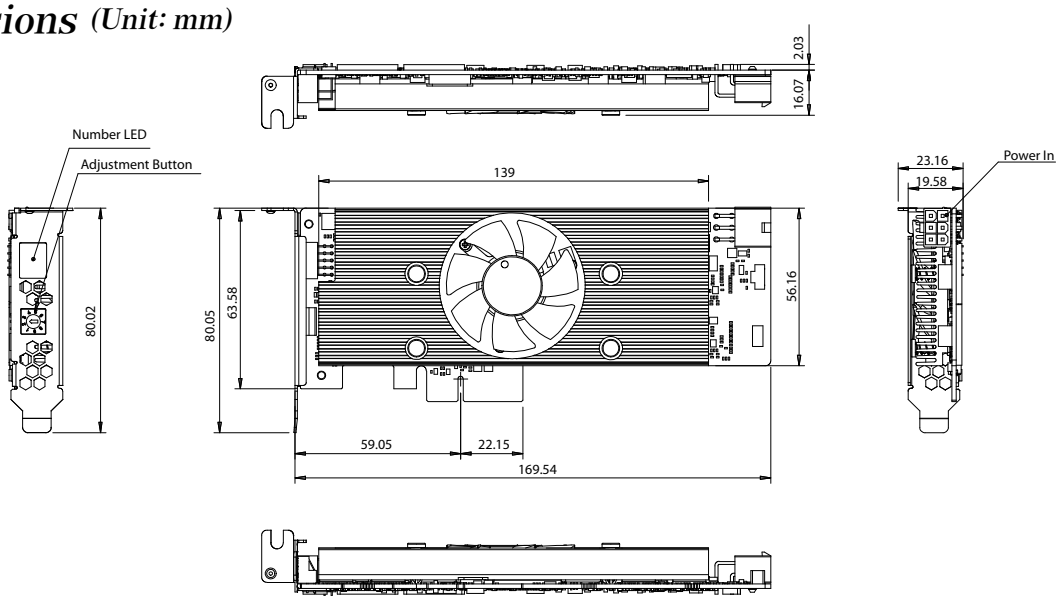
1 X Full height bracket
1 x External power cable
1 x QIG



Mustang-V100-MX8 Block Diagram

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

Mustang-V100-MX8 Dimensions (Unit: mm)



Mustang-V100-MX4



Feature

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

Introduction

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

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

Specifications

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

Ordering Information

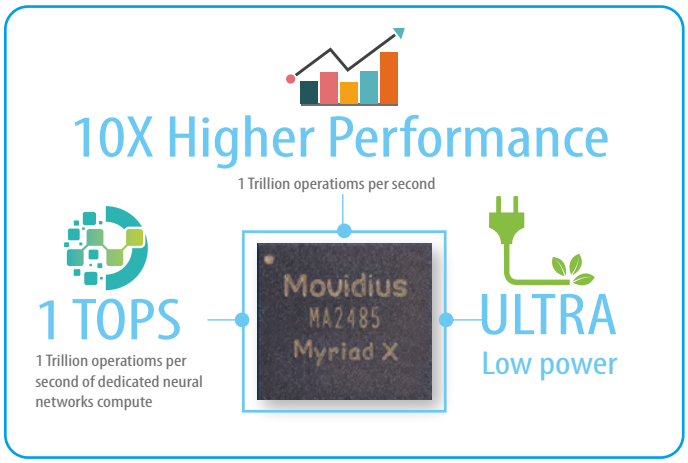
Part No.	Description
Mustang-V100-MX4-R10	Computing Accelerator Card with 4x Intel® Movidius™ Myriad™ X MA2485 VPU, PCIe Gen 2 x 2 interface, RoHS

Packing List

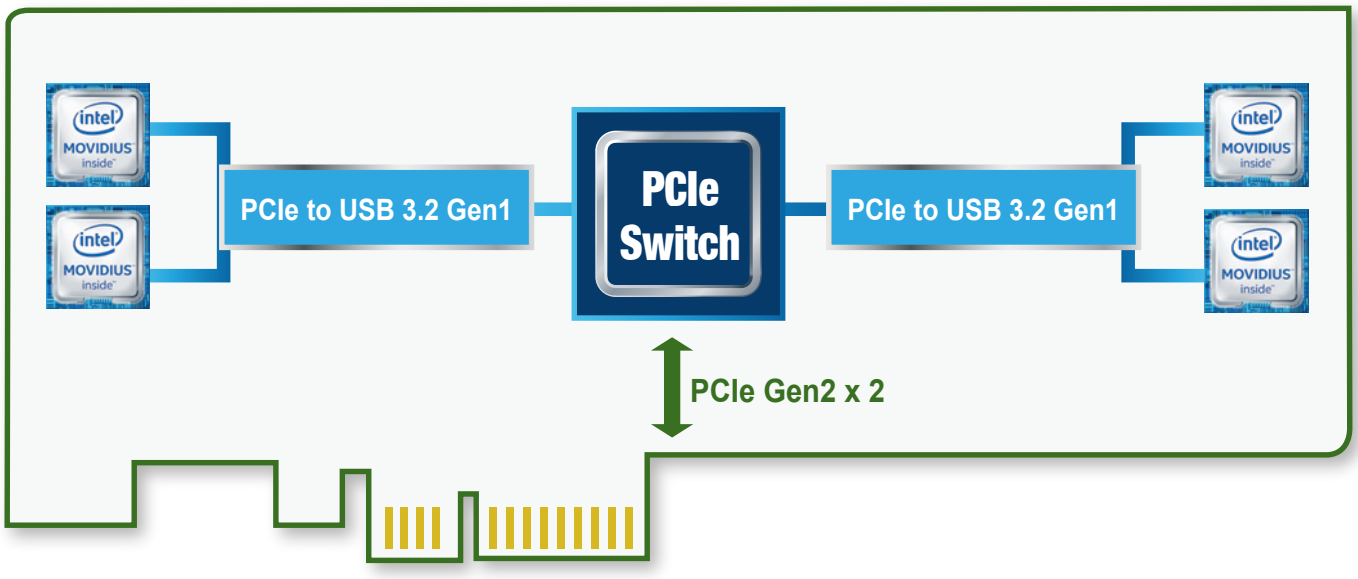
1 x Full height bracket

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

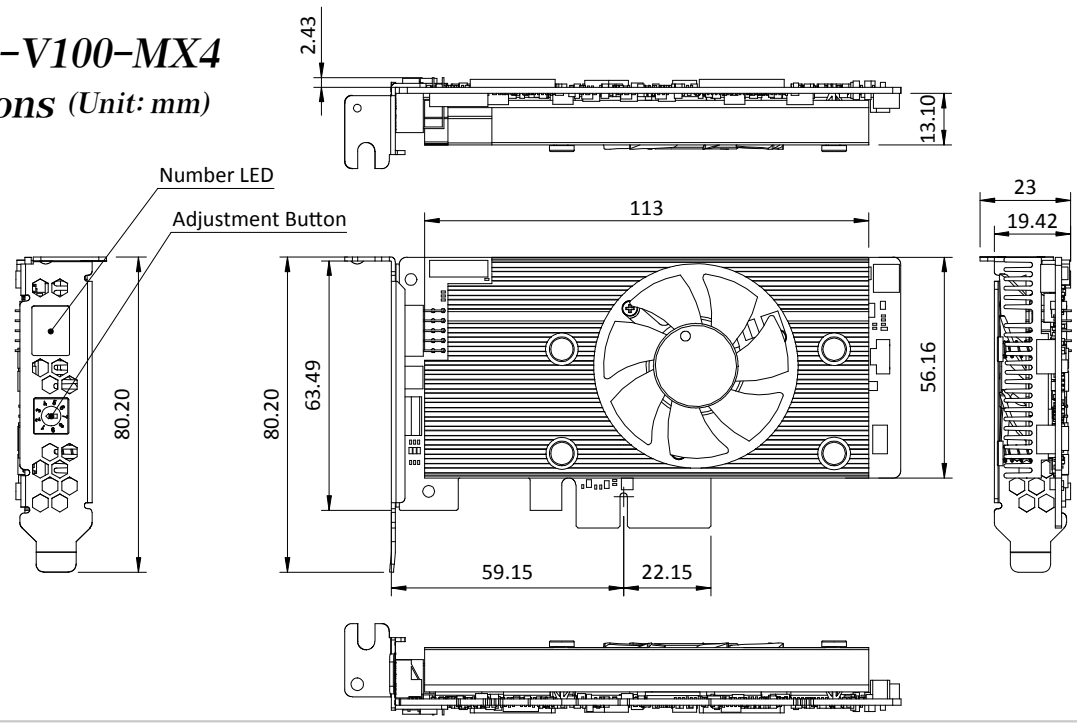
- Native FP16 support
- Rapidly port and deploy neural networks in Caffe and Tensorflow formats
- End-to-End acceleration for many common deep neural networks
- Industry-leading Inferences/S/Watt performance



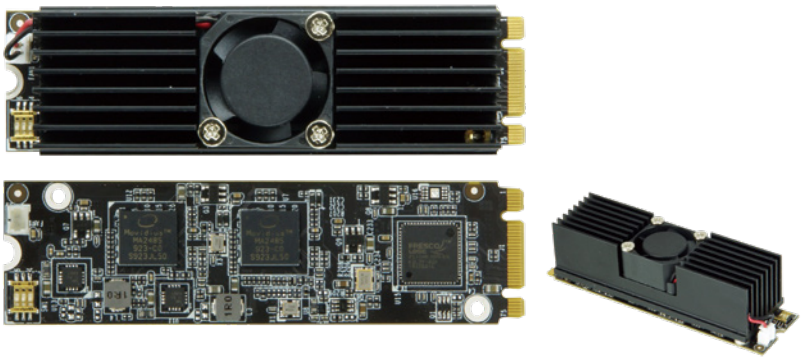
Mustang-V100-MX4 Block Diagram



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
- Operating Temperature -20°C~60°C
- Powered by Intel's OpenVINO™ toolkit

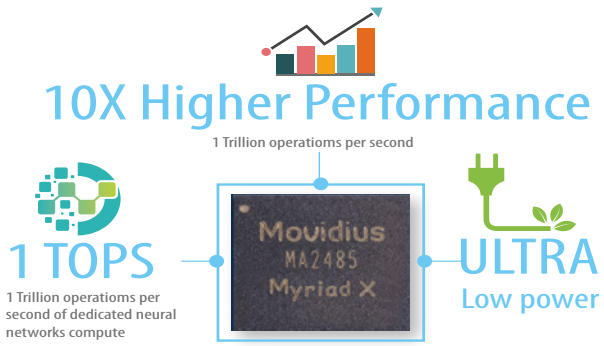
Introduction

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

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

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

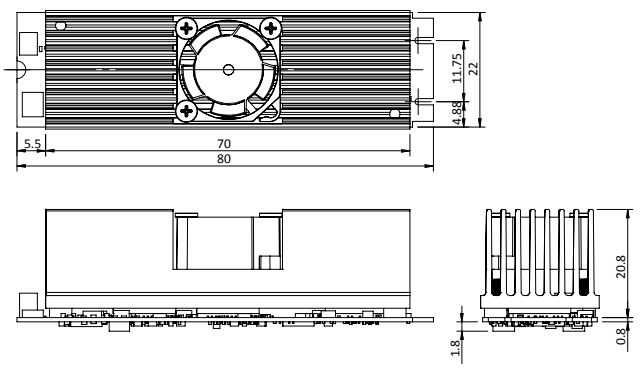
- Native FP16 support
- Rapidly port and deploy neural networks in Caffe and Tensorflow formats
- End-to-End acceleration for many common deep neural networks
- Industry-leading Inferences/S/Watt performance



Specifications

Model Name	Mustang-M2BM-MX2
Main Chip	2x Intel® Movidius™ Myriad™ X MA2485 VPU
Operating Systems	Ubuntu 18.04.x 16.04.x LTS 64bit, CentOS 7.4 64bit, Windows® 10 64bit
Dataplane Interface	M.2 BM Key
Power Consumption	Approximate 7W
Operating Temperature	-20°C ~ 60°C (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

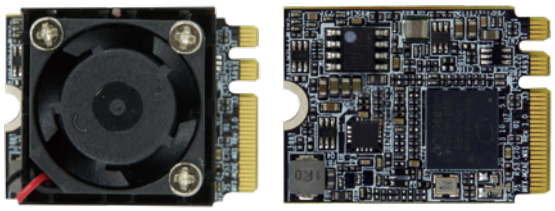
Dimensions (Unit: mm)



Ordering Information

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

Mustang-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

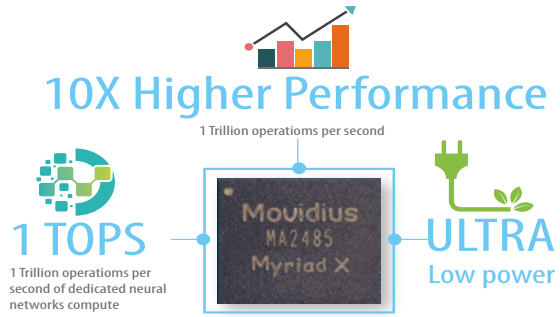
Introduction

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

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

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

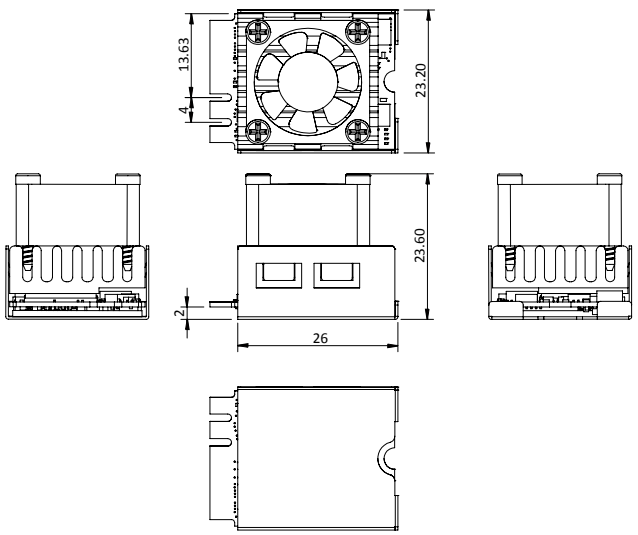
- Native FP16 support
- Rapidly port and deploy neural networks in Caffe and Tensorflow formats
- End-to-End acceleration for many common deep neural networks
- Industry-leading Inferences/S/Watt performance



Specifications

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

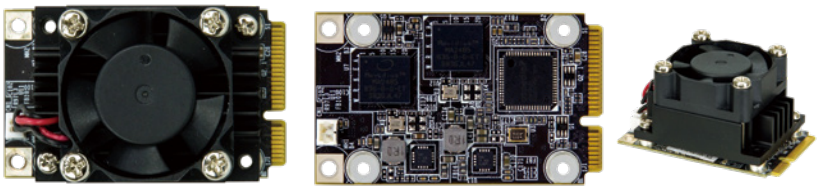
Dimensions (Unit: mm)



Ordering Information

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

Mustang-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

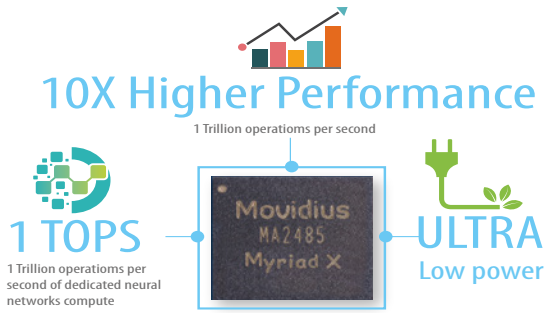
Introduction

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

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

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

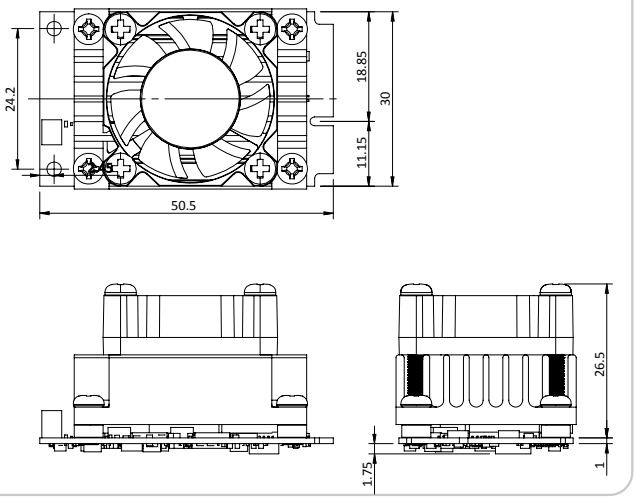
- Native FP16 support
- Rapidly port and deploy neural networks in Caffe and Tensorflow formats
- End-to-End acceleration for many common deep neural networks
- Industry-leading Inferences/S/Watt performance



Specifications

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

Dimensions (Unit: mm)

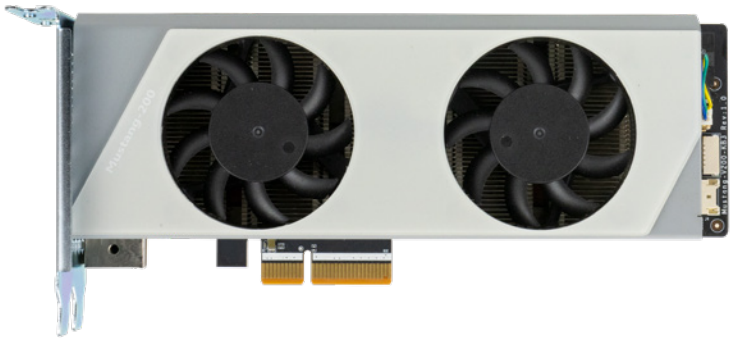


Ordering Information

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

Mustang-V200-KB3

Preliminary



Feature

- 3 x Gen 3 Intel® Movidius™ VPU: Keembay
- Standard Low-profile form factor
- Supported OpenVINO™ toolkit, AI edge computing ready device
- Power consumption approximate 50W

Specifications

Model Name	Mustang-V200-KB3
Main Chip	3 x Intel® Movidius™ Keem Bay™
Embedded CPU	3 x 4 cores ARM A53 1.5GHz
Memory	6 x 2GB LPDDR4
Storage	3 x 16GB eMMC
TPM data protection	Yes
Dimension	Standard Half-Height, Half-length, Double slot
Interface	PCIe Gen3 x 4
Operating Temperature	-20°C ~ 60°C
Power Consumption	Estimated 55W
Cooling	Active (single slot with Fan) / Passive (single slot)
External Power	Preserved power connector
Computation Capability	Up to 15 TOPS (5.1TOPS per 3400 VE)
	Up to 21 TOPS (7.1TOPS per 3700 VE)

Ordering Information

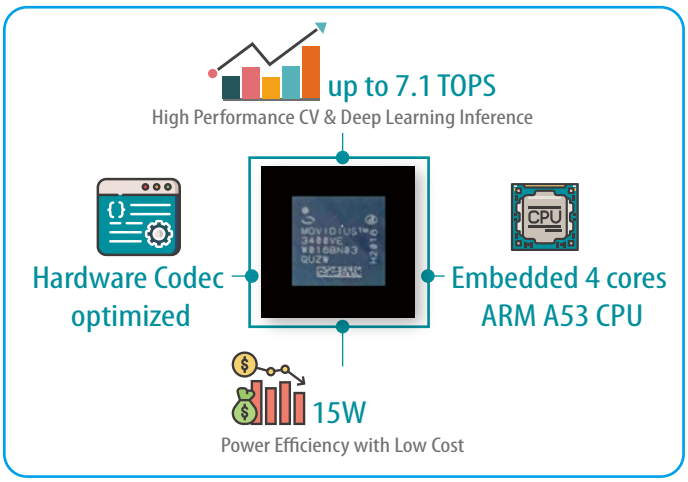
Part No.	Description
Mustang-V200-KB3-R10	Deep learning inference acceleration card with 3 MA2095 Intel® Keem Bay Vision Processing Unit , PCIe Gen 3.0 x 4 interface , RoHS

Packing List

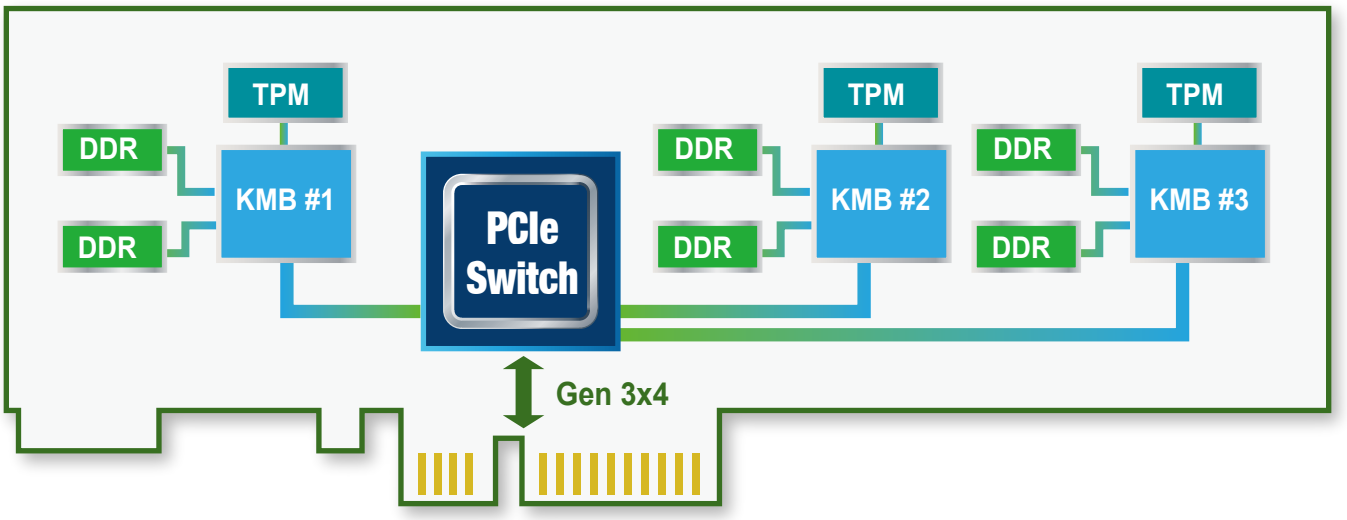
1 x Full height bracket
1 x External power cable
1 x QIG

Introducing Gen 3 Intel® Movidius™ VPU:A Compute-efficient SoC for Edge AI

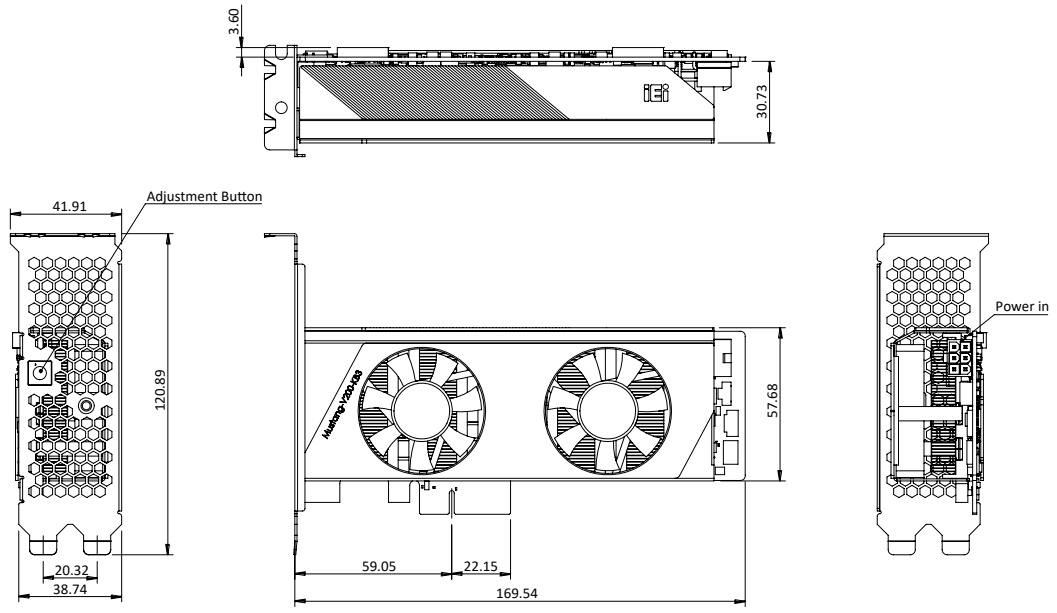
- High Performance CV & Deep Learning Inference - up to 7.1 TOPS
- You Can Build Stand-alone, Single-chip System - Embedded 4 cores ARM A53 CPU
- Power Efficiency with Low Cost - 15W
- Simultaneous Video Decode/Analytics/Encodeon One Chip - Hardware Codec optimized



Mustang-V200-KB3 Block Diagram

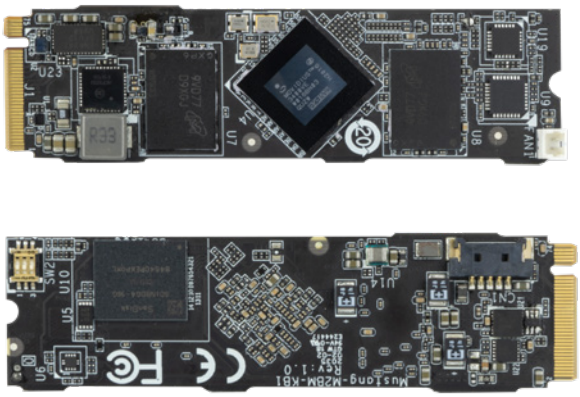


Mustang-V200-KB3 Dimensions (Unit: mm)



Mustang-M2BM-KB1

Preliminary



Feature

- 1 x Gen 3 Intel® Movidius™ VPU: Keembay
- Standard M.2 Mkey form factor
- Supported OpenVINO™ toolkit, AI edge computing ready device
- Power consumption approximate 15W

Specifications

Model Name	Mustang-M2BM-KB1
Main Chip	1 x Intel® Movidius™ Keem Bay™
Embedded CPU	4 cores ARM A53 1.5GHz
Memory	2 x 2GB LPDDR4
Storage	16GB eMMC
TPM data protection	Yes
Dimension	Standard Half-Height, Half-length, Double slot
Interface	PCIe Gen3 x 2
Operating Temperature	-20 ~ 60 degree C
Power Consumption	Estimated 15W
Cooling	Active(single slot with Fan) / Passive(single slot)
External Power	Preserved power connector
Computation Capability	Up to 5 .1TOPS per 3400 VE
	Up to 7 .1TOPS per 3700 VE

Ordering Information

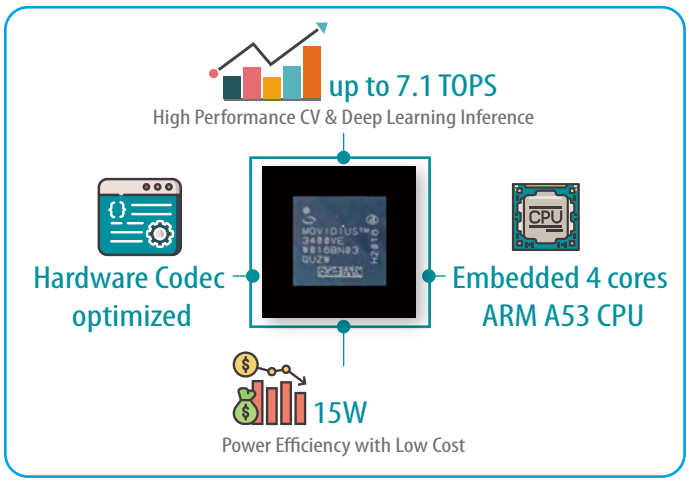
Part No.	Description
Mustang-M2BM-KB1-R10	Deep learning inference acceleration card with 1 x MA2095 Intel® Keem Bay Vision Processing Unit , M.2 Mkey PCIe Gen3 x2 interface , RoHS

Packing List

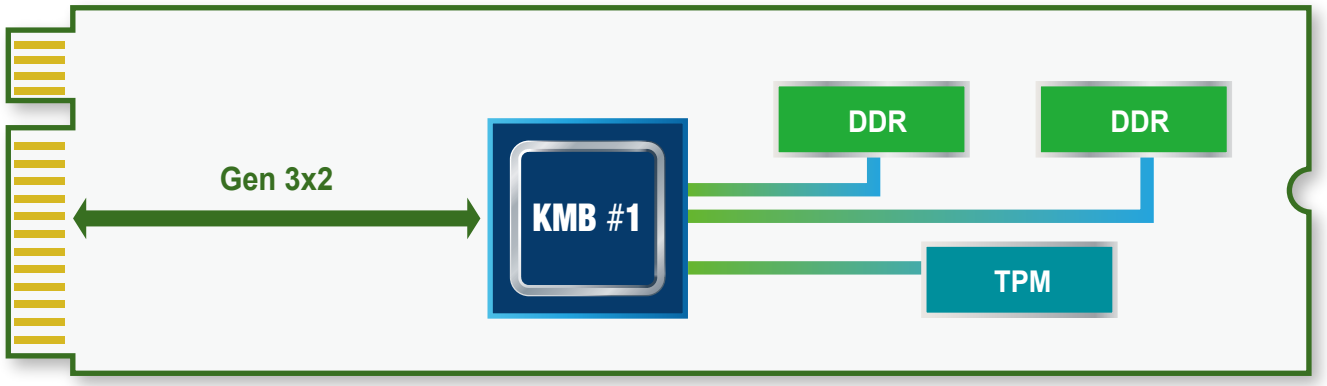
1 x Full height bracket
1 x QIG

Introducing Gen 3 Intel® Movidius™ VPU:A Compute-efficient SoC for Edge AI

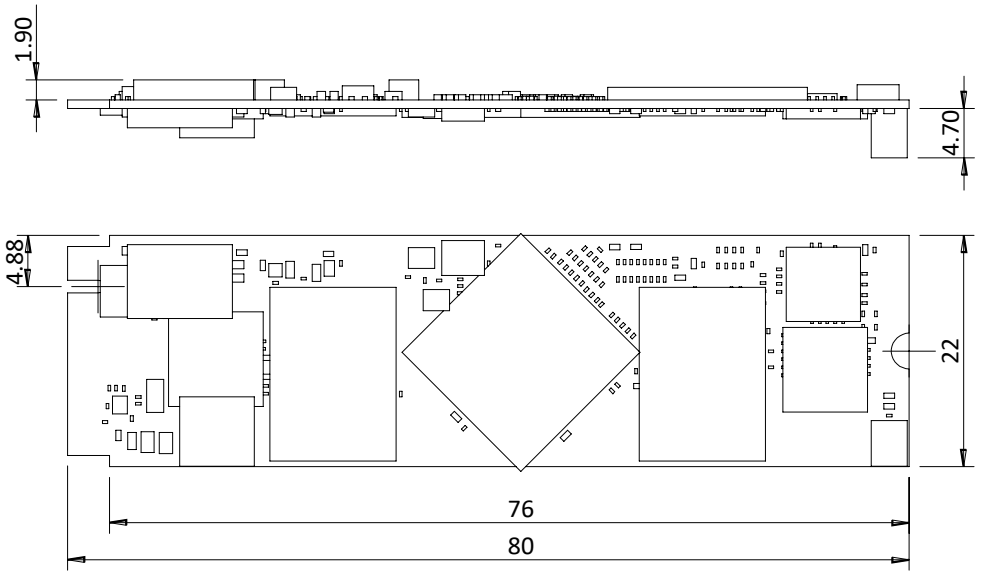
- High Performance CV & Deep Learning Inference - up to 7.1 TOPS
- You Can Build Stand-alone, Single-chip System - Embedded 4 cores ARM A53 CPU
- Power Efficiency with Low Cost - 15W
- Simultaneous Video Decode/Analytics/Encodeon One Chip - Hardware Codec optimized



Mustang-M2BM-KB1 Block Diagram



Mustang-M2BM-KB1 Dimensions (Unit: mm)



Mustang-T100-T5

Preliminary



Feature

- 5 x Google Edge TPU ML accelerator
- 20 TOPS peak performance (int8)
- Host interface PCIe Gen2 x 4
- Low-profile PCIe form factor
- Approximate 15W
- RoHS compliants

With Coral intelligence
Google

Specifications

Model Name	Mustang-T100-T5
Main Chip	Five Google Coral Edge TPU Accelerator Module
Operating Systems	Linux: 64-bit version of Debian 10 or Ubuntu 16.04 (or newer), and an x86-64 or ARMv8 system architecture
	Windows: 64-bit version of Windows 10, and x86-64 system architecture
Dataplane Interface	PCI Express Gen2x4
Power Consumption	Approximate 15W
Operating Temperature	-20°C~60°C
Cooling Solution	Active/Passive
Dimensions	Standard half-height, half-length, single-slot PCIe card
Dip Switch/LED indicator	Identify card number
Support Framwork	Tensorflow Lite
Precision	INT8
INT8 Perforamnce	Up to 20 TOPS, each TPU module up to 4 TOPS.
	Five TPU modules can provide 20 TOPS.
	Please refer to Google Coral official website for more information.
	https://coral.ai/docs/module/datasheet/
Supported Topology	Image classification, Object detection, Image segmentation
	Please refer to Google Coral official website for more information.
	https://coral.ai/models/

Ordering Information

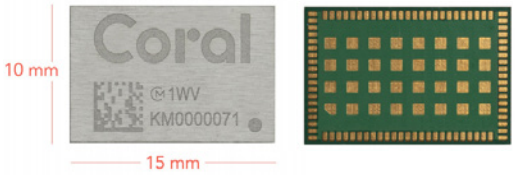
Part No.	Description
Mustang-T100-T5	Computing Accelerator Card with 5 x Google Coral edge TPU, PCIe Gen2 x4 interface, RoHS

Packing List

1 x Full height bracket
1 x QIG

Accelerator Module datasheet

- 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
- **Support ARM (Linux) & X86(Windows & Linux)**
- Weight: 0.67 g
- Operating temp: -40~85 °C
- RoHS compliant

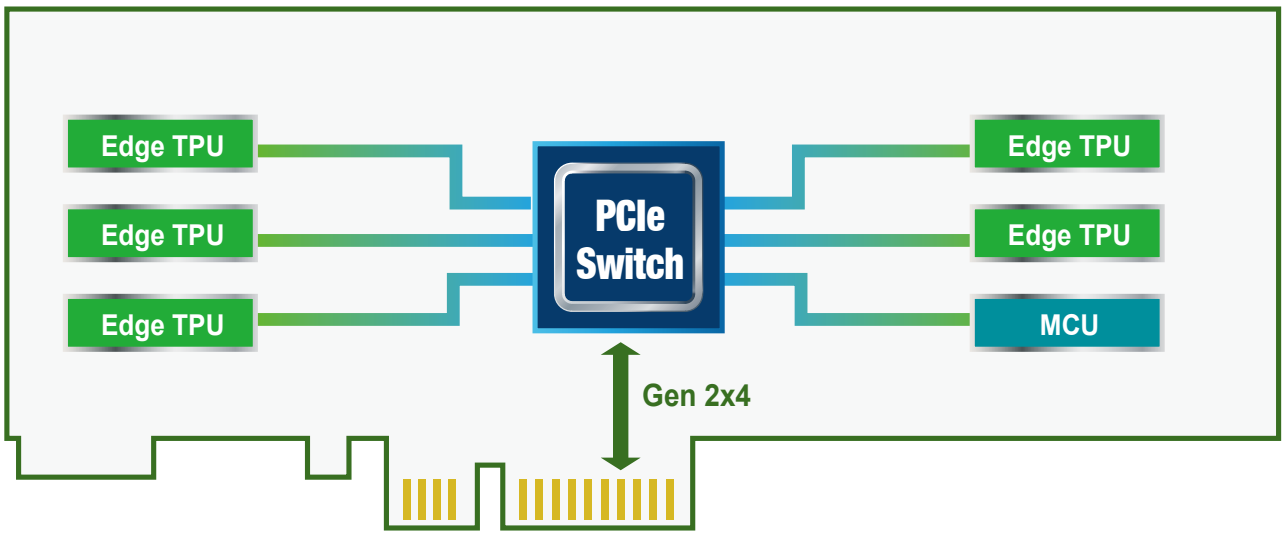


Introduction

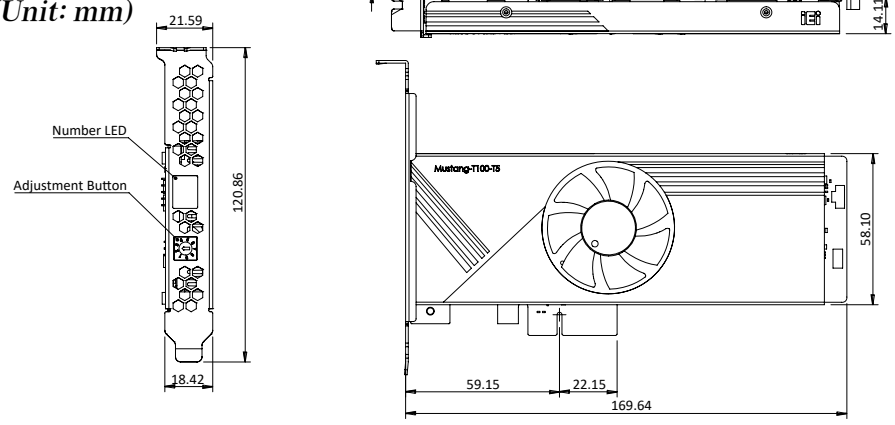
Coral is a hardware and software platform for building intelligent devices with fast neural network inferencing.
At the heart of our devices is the Edge TPU coprocessor. This is a small ASIC built by Google that's specially-designed to execute state-of-the-art neural networks at high speed, with a low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



HTB-300-XA

Nvidia Jetson AGX Xavier 8GB/32GB processor

NEW



Feature

- Medical grade fan-less embedded system
- Nvidia Jetson AGX Xavier 32GB processor
- Modularized high speed ground plane header (SSD/ SDI input/ HDMI input)
- Integrated AI Box PC bundle with Linux Ubuntu 18.04
- PCIe x [8] expansion (option)
- Support TPM 2.0
- Edge AI inference device

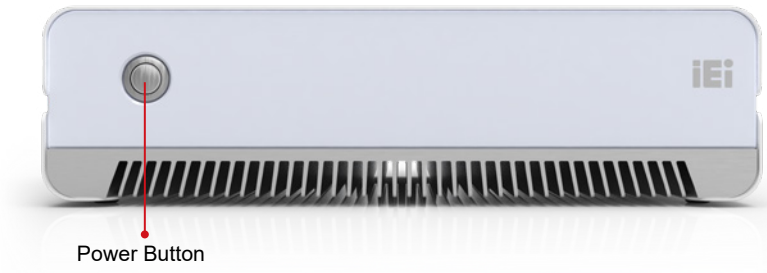
Specifications

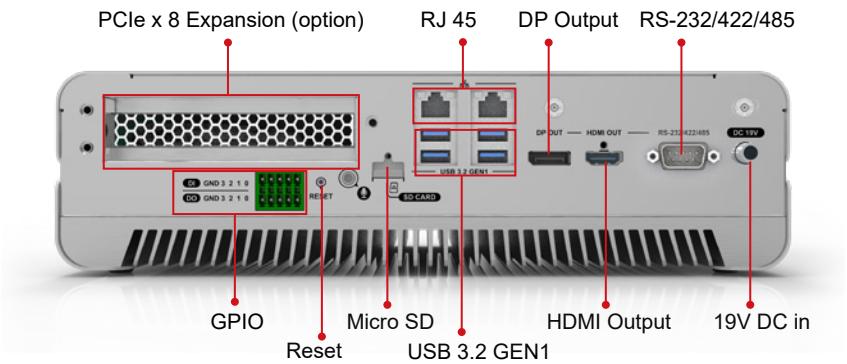
Model Name	HTB-300-XA
Processor	8-core ARM v8.2 64-bit CPU, 8MB L2 + 4MB L3
GPU	NVIDIA Volta™ architecture with 512 NVIDIA CUDA cores and 64 Tensor cores 11 TFLOPS (FP16) 22 TOPS (INT8)
Memory	32 GB 256-bit LPDDR4x 2133MHz - 137GB/s
Networking	2 x RJ 45 LAN Chip: Marvell 88E1512
GPIO	GPIO 4x in, 4x out
Storage	32GB eMMC 5.1 Support NVMe SSD by M.2 interface 1 x SD card slot for data encryption
Expansion Slot	1 x Modularized high speed ground plane header (SSD/ SDI input/ HDMI input) 1 x PCIe Gen3 [x8] slot 1 x M.2 M key 2242/60/80 For SSD 1 x M.2 E key for WiFi & Bluetooth
Display	1 x HDMI (Max. 3840 x 2160 @ 60HZ) 1 x DP port (Max. 3840 x 2160 @ 60HZ)
Audio	1 x 3W speaker
USB	4 x USB 3.2 Gen1 1 x USB 2.0 Type A (internal) for storing encrypted AI model and programming internal flash 1 x USB 2.0 Type C (internal) UART debug port
Serial Port	1 x RS-232/422/485
TPM	Support TPM 2.0
Others	1 x Power Button (RGB color LED)
Power input	100 ~ 240 VAC
Type/Watt	65W medical adapter
Thermal	Fanless
Operating Temperature	0~40 °C (32~104 °F)
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 (with SSD)
Dimensions	293mm (L) x 209mm (W) x 82mm (H)
Weight	3.05 Kg
Certification	IEC 60601-1-2: 2014 (Edition 4.0) IEC 60601-1:2005+AMD1:2012 (Edition 3.1)
Operating System	Linux for Jetson AGX Xavier
	File system: Ubuntu 18.04, Kernel version:4.9

Ordering Information

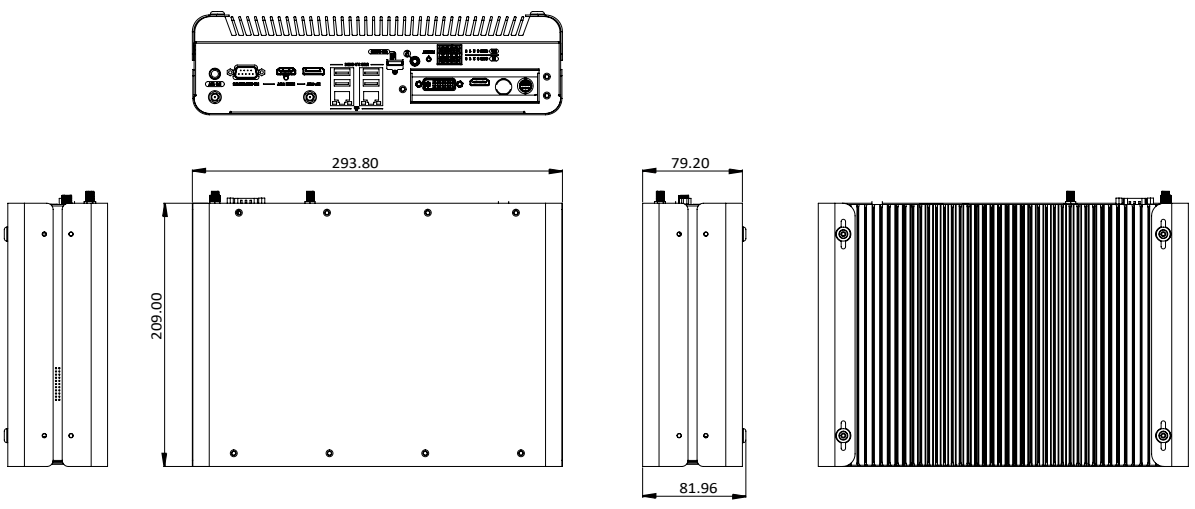
Part No.	Description
HTB-300-XA/32G-R10	AI box PC with NVIDIA Xavier module(8 core ARM CPU with 512 CUDA cores) , 32GB LPDDR4 memory,32GB eMMC 5.1, 1 x PCIe by 8 expansion, 19V/65W medical power adapter, white color, R10
HTB-300-XA/32G-SDI-R10	AI box PC with NVIDIA Xavier module(8 core ARM CPU with 512 CUDA cores) , 32GB LPDDR4 memory,32GB eMMC 5.1, with SDI input and PCIe by 8 expansion, 19V/65W medical power adapter, white color, R10
HTB-300-XA/32G-HDMI-R10	AI box PC with NVIDIA Xavier module(8 core ARM CPU with 512 CUDA cores) , 32GB LPDDR4 memory,32GB eMMC 5.1, with HDMI input and PCIe by 8 expansion, 19V/65W medical power adapter, white color, R10
HTB-300-XA/32G-SSD-R10	AI box PC with NVIDIA Xavier module(8 core ARM CPU with 512 CUDA cores) , 32GB LPDDR4 memory,32GB eMMC 5.1, with 2nd M.2 SSD slot and PCIe by 8 expansion, 19V/65W medical power adapter, white color, R10

Fully Integrated I/O





HTB-300-XA
Dimensions (Unit: mm)



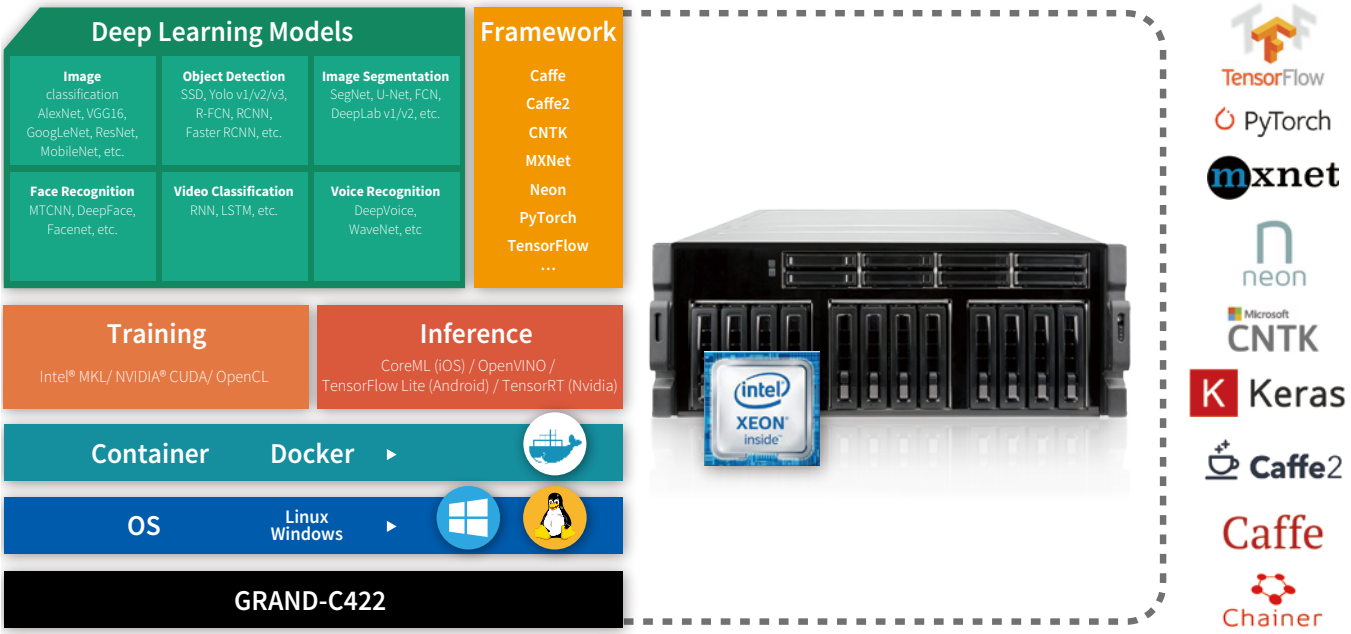
IEI GRAND AI Training Server System



AI Training System

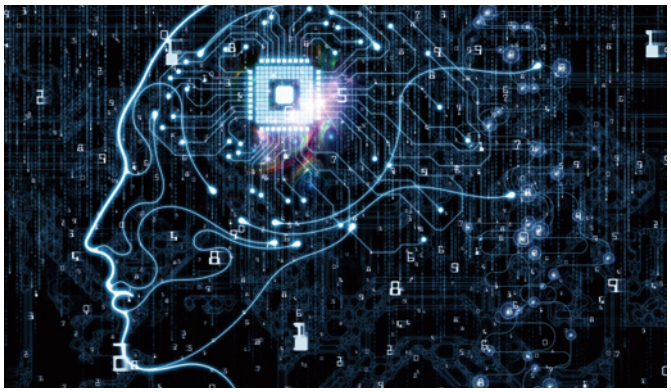
The AI training system GRAND-C442 is dedicated for these tasks because it offers a wide range of slots for storage expansion, acceleration cards and video capture, Thunderbolt™ or PoE add-on cards for unlimited data ac-quisition possibilities. In order to develop a useful training model, existing and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

Supported Software



Demand for AI computing is booming

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

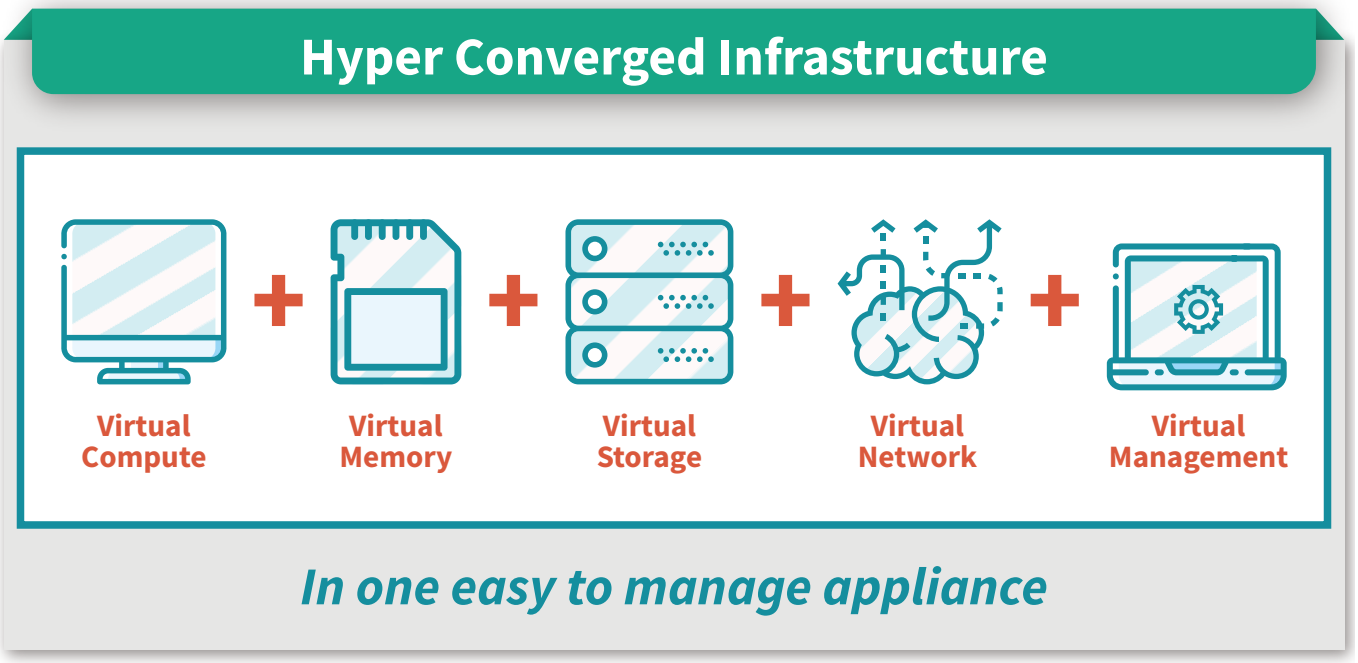




Hyper converged infrastructure

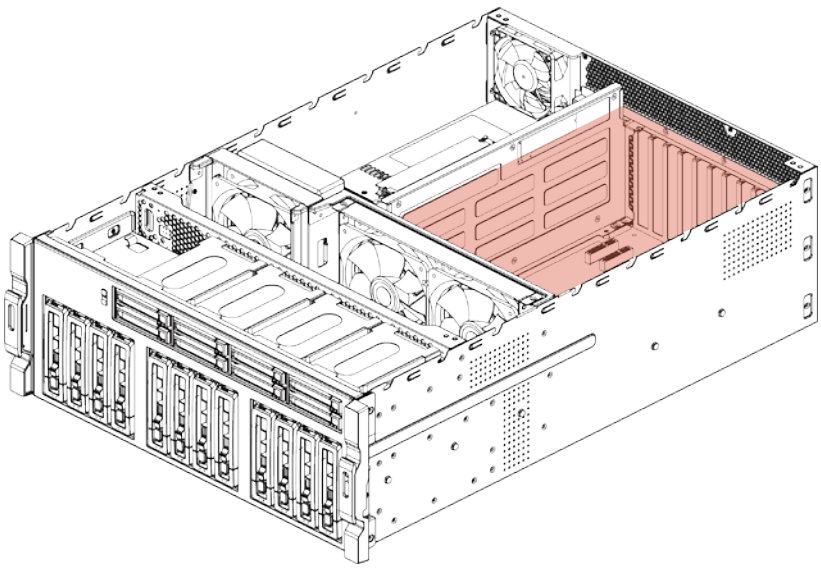
Hyper converged infrastructure (HCI) is scale-out software-defined infrastructure that converges core data services on flash-accelerated, industry-standard servers, delivering flexible and powerful building blocks under unified management.

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



Expandable to suit your needs

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



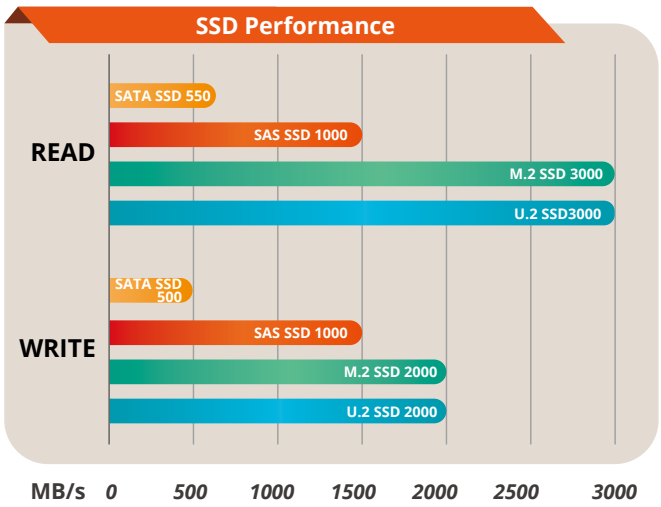
Model Name	PCIe	
GRAND-C422-20D-S1	6 Slots	4 PCIe Gen 3 x8
		2 PCIe Gen 3 x4
GRAND-C422-20D-H1	6 Slots	2 PCIe Gen 3 x16
		1 PCIe Gen 3 x8
		3 PCIe Gen 3 x4
GRAND-C422-20D-H2	7 Slots	5 PCIe Gen 3 x8
		2 PCIe Gen 3 x4

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

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

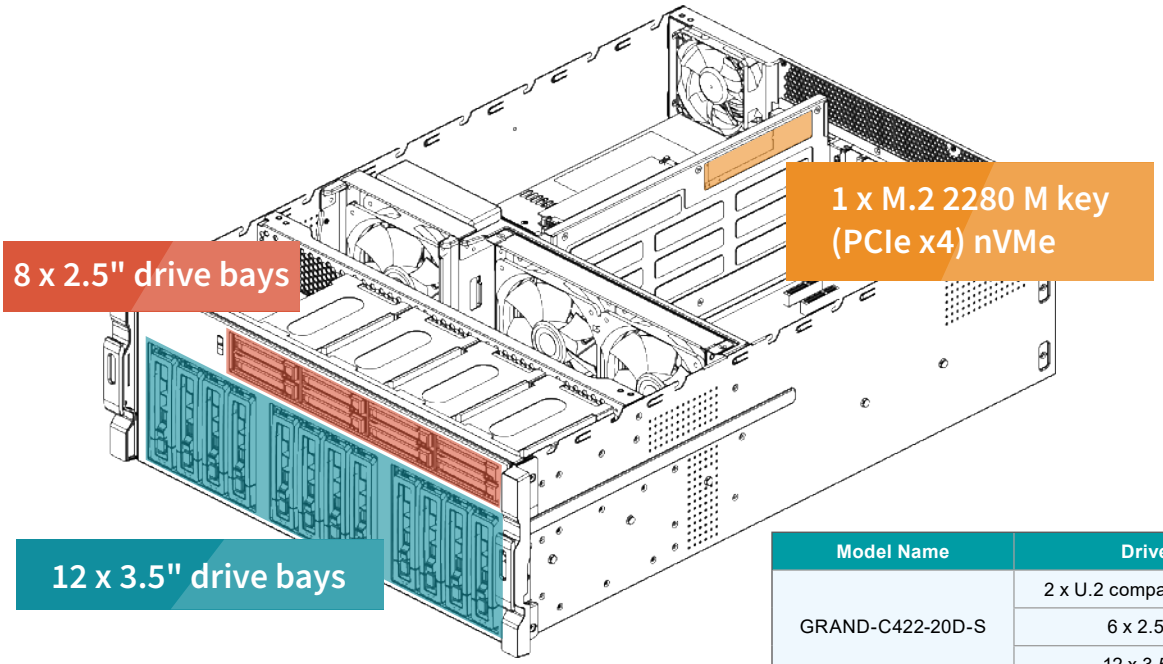
SAS HDD

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



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

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



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

Water Cooling System for CPU

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

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

GRAND-C422-20D-S

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



Feature

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

Specifications

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

Packing List

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

Options

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

Model Naming Convention

GRAND-C422-20D-S1A1

RAID type
- S : Software RAID
- H : Hardware RAID

Serial number

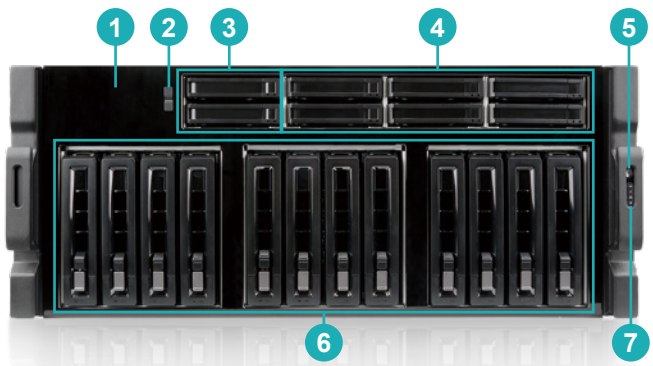
CPU
- A : W-2223
- B : W-2235
- C : W-2245
- D : W-2255
- E : W-2295

RAM
- 1 : 32GB (8GB x 4 = 32GB)
- 2 : 64GB (16GB x 4 = 64GB)
- 3 : 128GB (32GB x 4 = 128GB)
- 4 : 256GB (64GB x 4 = 256GB)

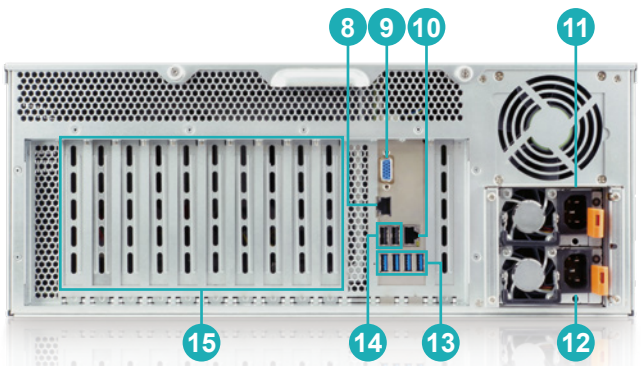
Ordering Information

Part No.	Description
GRAND-C422-20D-S1A1-R10	20-bay (12 x 3.5", 8 x 2.5") 4U Rackmount, Intel® Xeon® W-2223 with C422 chipset, 32G DDR4 w/ECC, 6 x PCIe expansion slot, and 1200W redundant PSU, RoHS
GRAND-C422-20D-S1B2-R10	20-bay (12 x 3.5", 8 x 2.5") 4U Rackmount, Intel® Xeon® W-2235 with C422 chipset, 64G DDR4 w/ECC, 6 x PCIe expansion slot, and 1200W redundant PSU, RoHS
GRAND-C422-20D-S1C3-R10	20-bay (12 x 3.5", 8 x 2.5") 4U Rackmount, Intel® Xeon® W-2245 with C422 chipset, 128G DDR4 w/ECC, 6 x PCIe expansion slot, and 1200W redundant PSU, RoHS
GRAND-C422-20D-S1D3-R10	20-bay (12 x 3.5", 8 x 2.5") 4U Rackmount, Intel® Xeon® W-2255 with C422 chipset, 128G DDR4 w/ECC, 6 x PCIe expansion slot, and 1200W redundant PSU, RoHS
GRAND-C422-20D-S1E4-R10	20-bay (12 x 3.5", 8 x 2.5") 4U Rackmount, Intel® Xeon® W-2295 with C422 chipset, 256G DDR4 w/ECC, 6 x PCIe expansion slot, and 1200W redundant PSU, RoHS

I/O Interface

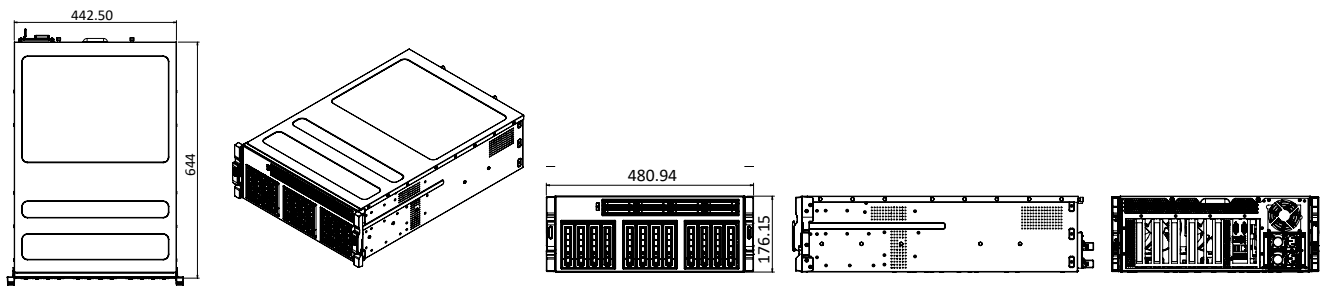


1. LCM
2. LCM control buttons
3. Two U.2 SSD drive bays compatible with SATA
4. Six 2.5" SATA 6Gb/s drive bays
5. Power button
6. Twelve 2.5"/3.5" SATA 6Gb/s drive bays
7. LED Indicator:
   - 10 10GbE
   - System status
   - LAN
   - Storage expansion port status



8. 10 Gigabit Ethernet port
9. IPMI VGA port
10. Gigabit Ethernet port with NCSI support
11. Power supply unit 1
12. Power supply unit 2
13. Four USB 3.1 Gen 1 ports
14. Two USB 2.0 ports
15. PCIe expansion slots

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



GRAND-C422-20D-H

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



Feature

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

Specifications

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

Packing List

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

Options

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

Model Naming Convention

GRAND-C422-20D-S1A1

RAID type
- S : Software RAID
- H : Hardware RAID

Serial number

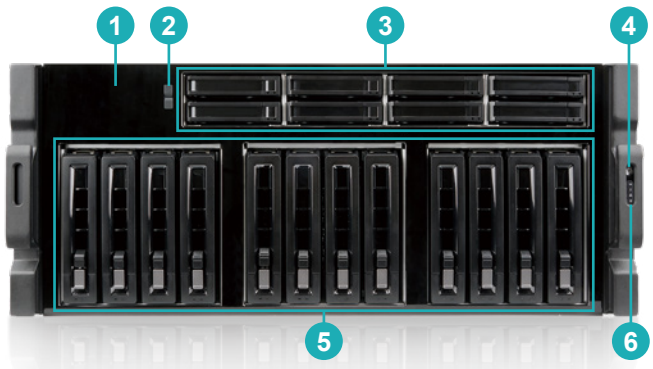
CPU
- A : W-2223
- B : W-2235
- C : W-2245
- D : W-2255
- E : W-2295

RAM
- 1 : 32GB (8GB x 4 = 32GB)
- 2 : 64GB (16GB x 4 = 64GB)
- 3 : 128GB (32GB x 4 = 128GB)
- 4 : 256GB (64GB x 4 = 256GB)

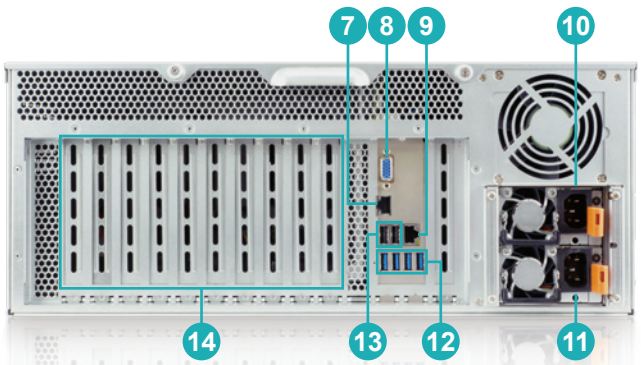
Ordering Information

Part No.	Description
GRAND-C422-20D-H1-R10	Barebone, 20-bay (12 x 3.5”, 8 x 2.5”) 4U Rackmount, support hardware RAID, Intel® Xeon W series with C422 chipset, 6 x PCIe expansion slot, and 1200W redundant PSU, RoHS
GRAND-C422-20D-H2-R10	Barebone, 20-bay (12 x 3.5”, 8 x 2.5”) 4U Rackmount, support hardware RAID, Intel® Xeon W series with C422 chipset, 7 x PCIe expansion slot, and 1200W redundant PSU, RoHS

I/O Interface

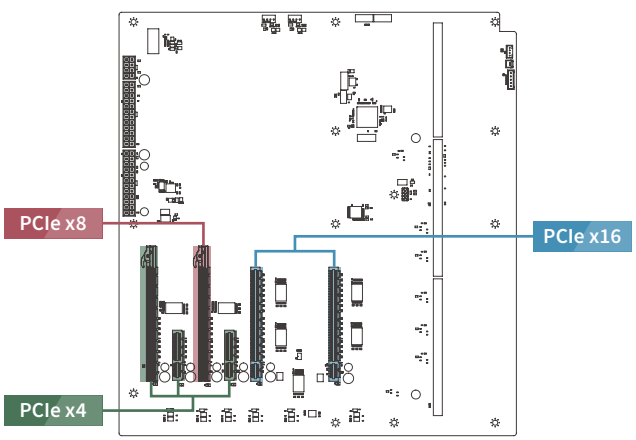


1. LCM
2. LCM control buttons
3. 2.5” SAS/SATA drive bays
4. Power button
5. Twelve 2.5”/3.5” SAS/SATA drive bays
6. LED Indicator:
   - 10 10GbE
   - i System status
   - LAN
   - Storage expansion port status

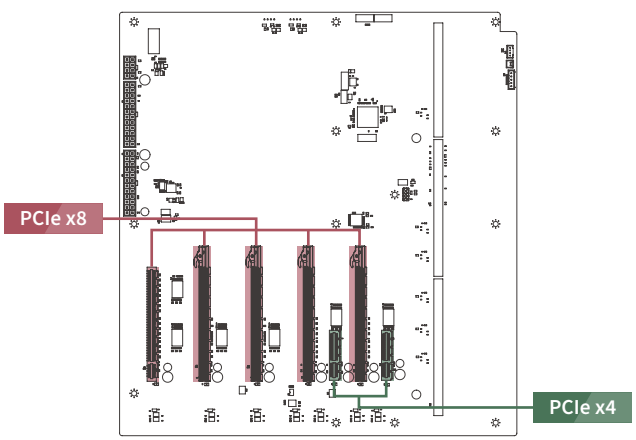


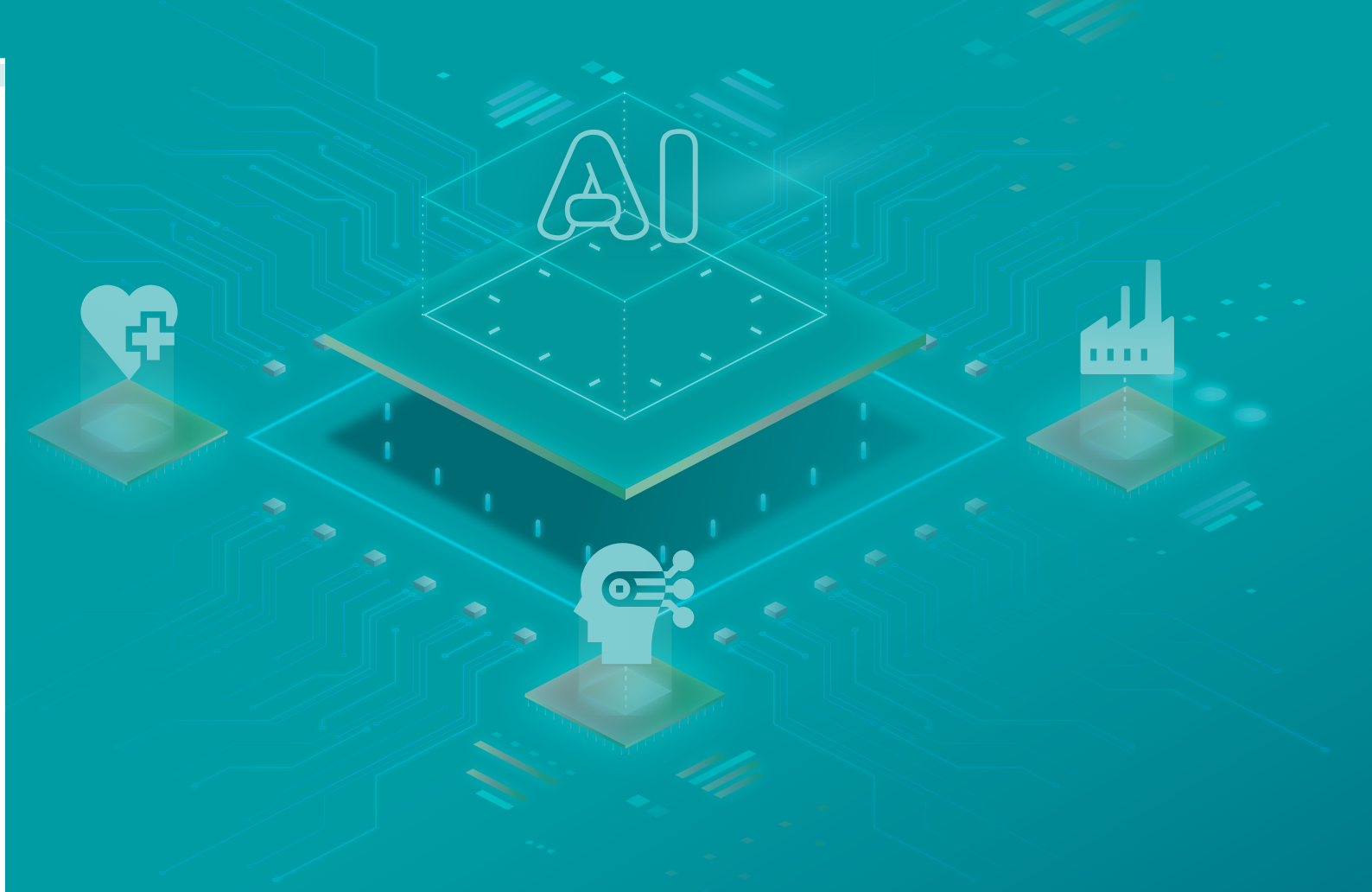
7. 10 Gigabit Ethernet port
8. IPMI VGA port
9. Gigabit Ethernet port with NCSI support
10. Power supply unit 1
11. Power supply unit 2
12. Four USB 3.1 Gen 1 ports
13. Two USB 2.0 ports
14. PCIe expansion slots

GRAND-C422-20D-H1



GRAND-C422-20D-H2





*Specifications are subject to change without prior notice.

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