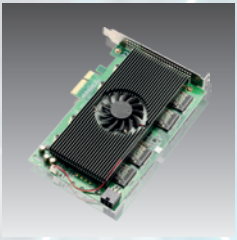
2020

AAEON

SELECTION GUIDE VOL.2



EMBEDDED PLATFORMS

Premier Source for Embedded Computing Products

AAEON® an ASUS assoc. co.

www.aaeon.com

Focus • Agility • Competitiveness

About Us

A Leader and Partner in Embedded Computing Platforms

We have a relentless drive for excellence and passion for unsurpassed service.

Established in 1992, AAEON is one of the leading designers and manufacturers of professional intelligent IoT solutions and advanced industrial computing platforms today. Committed to innovative engineering, AAEON provides integrated solutions including industrial motherboards and systems, industrial displays, rugged tablets, embedded controllers, network appliances and related accessories. We also work with premier OEM/ODMs and system integrators around the world. Offering x86-based platforms from Intel® Atom™ all the way to Intel® Xeon processors, and in desktop, 1U and 2U form factors, AAEON's team of experienced engineers has helped dozens of companies around the globe deploy reliable appliances with faster times to market and lower development costs based on state-of-the-art hardware platforms, unmatched service quality and long-term support.

As an Associate Member of the Intel® Internet of Things Solutions Alliance, AAEON offers customized end-to-end services from initial product conceptualization and board product development to mass manufacturing and after-sales service programs.

At AAEON, we take the environment seriously, and all of our products are compliant with RoHS regulations. We are dedicated to the sustainability of the Earth, and all of our products conform to applicable laws and regulations.

AAEON Core Values

Reliability:

Delivering dependable products in a timely manner

Integrity:

Valuing business integrity and ethics

Innovation:

Turning cutting-edge concepts into reality

Note: All specifications are subject to change without notice.

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AAEON's Q Service Plus

What is Q Service Plus?

Service Plus

Q Service is a Quick and Quality Service for reducing the time spent on trouble shooting and expediting the development process. With COM technology getting more and more complex and versatile, product failure can originate from numerous ways and may be difficult to identify. AAEON's Q Service Plus helps our customers to improve new product's time-to-market with AAEON's full support from Hardware, Software and Firmware R&D resources.

Q Service Plus Commitment:

- Quick carrier board schematic review within FIVE working days -Absolutely FREE!
- Quick bring up of BIOS within FIVE working days -Absolutely FREE!
- Quick compatibility and reliability debug services and feedback within 72 hours
- Quick arrangement for on-site service and consultation

Benefits:

- Worry-free upgrades
- Faster time-to-market
- Cost savings
- Reduced design risks
- Long-term support

AAEON Carrier Board Design Service

With over 20 years of quality design and manufacturing experience, AAEON provides professional carrier board design services according to the customer's specifications and passes all compatibility and functional tests required in the process. There are also default carrier boards available for evaluation purposes.


NanoCOM Module


COM Module

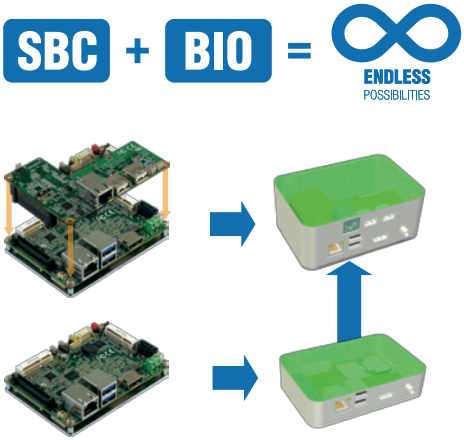

Carrier Board

Note: All specifications are subject to change without notice.

BIO Board Design Service

BIO Board Design Service

The BIO interface, or board-to-board I/O interface, is AAEON's latest innovation in product customization. The BIO board is designed with compactness in mind and is highly customizable for a plethora of add-on features such as MiniCards, USBs, COM, PoE (Power over Ethernet) ports, etc., for the perfect solution.



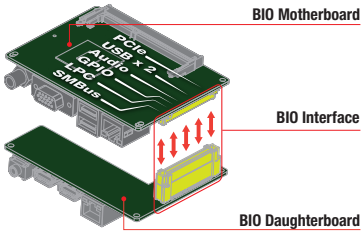
BIO Standardized Pin Definition

While there are many approaches to which a product can be customized,

AAEON recommends the BIO daughterboards, a series of daughterboards equipped with AAEON's Board-to-board Interface for AAEON's Standard Products. Simple in design and made-to-order, the board takes the time and effort out of customization by bypassing the traditional process of re-specifying, building, and testing. Just pick the features you want, build the board, connectit to the motherboard and your solution is ready. No fuss, no muss.

Some key features include:

- Universal screw holes on both the motherboard and daughterboard
- Flexible to demands of vertical markets
- Easy thermal and system assembly



Customization Made Easy

Note: All specifications are subject to change without notice.

AAEON's Embedded OS Solutions

AAEON provides Embedded OS Solutions to customers who are in need of OS customization. AAEON's Embedded OS Solutions are designed to shorten times to market and save our customers' time and R&D resources.

Windows® Embedded Products

Windows 10 IoT

- Windows® 10 IoT Enterprise 2016/2019

Windows Embedded 8

- Windows Embedded 8.1 Industry
- Windows Embedded 8 Standard
- Windows Embedded 8.1 Pro
- Windows Embedded 8.1 Handheld

Windows Embedded 7

- Windows Embedded Enterprise 7
- Windows Embedded POSReady 7
- Windows Embedded Standard 7

Windows Embedded Compact 7

- Windows Embedded Compact 7

AAEON Embedded OS Solutions

Chipset	Windows® Embedded Standard 2009 (Note 1)	Windows® Embedded Standard 7 (Note 2)	Windows® Embedded 8 Standard	Windows® CE 6.0	Windows® Embedded Compact 7	Windows® 10 IoT Enterprise
Intel® 7th KabyLake (Q170/H110/C236)	—	—	—	—	—	✓
Intel® 6th SkyLake (Q170/H110/C236)	—	✓	✓	—	—	✓
Intel® 5th Broadwell (5010U/5350U/5650U/D1548/D1518)	—	✓	✓	—	—	✓
Intel® 4th Hasewell (QM87/Q87/H81)	—	✓	✓	—	—	—
Intel® 3rd IvyBridge (QM77/Q77/HM76/B75)	✓	✓	✓	—	—	—
Intel® 2nd SandyBridge (QM67/Q67/H61/QM57/Q57)	✓	✓	✓	—	—	—
Intel® ApolloLake (N4200/N3350/E3930/E3940/E3950)	—	✓	✓	—	—	✓
Intel® Braswell (N3060/N3160/X5-E8000/N3710)	—	✓	✓	—	—	✓
Intel® Baytrail (J1900/N2000/E3800)	—	✓	✓	—	✓	—
Intel® TunnelCreek (E620/E640/E660/E680)	✓	✓	—	—	✓	—
Intel® Pinewview (N450/D410/D510/D525/N455/D425)	✓	✓	—	✓	—	—
Intel® Cedarview (D2550/N2800/N2600)	✓	✓	—	✓	—	—
AMD Geode (LX700/LX800/LX900)	—	✓	—	✓	—	—
AMD T56N/T40R/T40E/T16R	✓	✓	✓	✓	✓	—

Note 1: Former Windows® Embedded XP
Note 2: Former Windows® Embedded

Note: All specifications are subject to change without notice.

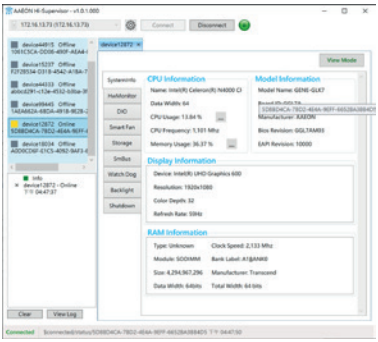
AAEON's Embedded OS Solutions

Embedded OS Main Features

OS Family	Windows® Embedded CE	Windows® Embedded Standard	Windows® Embedded POS Ready	Windows® Embedded Enterprise
Features	Simple Customization	Full Customization	Simple Installation	Full Function
Windows® Product Sku	Windows® CE 6.0 Windows® Embedded Compact 7	Windows® Embedded Standard 2009 Windows® Embedded Standard 7 Windows® Embedded Standard 8	WEPOS 1.1 POSReady 7 POSReady 2009 Windows® Embedded Industry 8.1 Pro Retail	Windows® 7 Professional Windows® 8.1 Professional Windows® 10 IoT Enterprise 2016/2019
CPU Type	ARM/ MIPS/ SH4/ X86	x86	x86	x86
Development Tool	Customization Image	Customization Image	CD Installation	CD Installation
Development Time	Long	Short	None	None
Maintenance Cost	High	Middle	Low	Low
Embedded Features	Custom Shell	Custom Shell/ EWF/ FBWF/ USB Boot/ HORM	Custom Shell/ FBWF/ USB Boot	Standard Shell UWF

AAEON Hi-Supervisor

Hi-Supervisor is a remote hardware monitor on Windows, and base on MQTT protocol. This allows users to catch devices' information and set hardware configuration like GPIO, FAN, Watch Dog, SMBus, reboot and shutdown.... Hi-Supervisor can be installed on all AAEON x86 platforms. Users can monitor the situation of devices or set warning conditions, acknowledge users by email. Hi-Supervisor is a UI terminal that cooperate with Hi-Agent which collects device's information then sends the payload and easy to control.



Hi-Supervisor Advantages

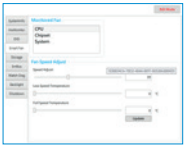
- **Hi-Safe full functions remotely**
- **Customized support**
- **Integrate Azure Iot Central and PNP**

Hardware Monitor:

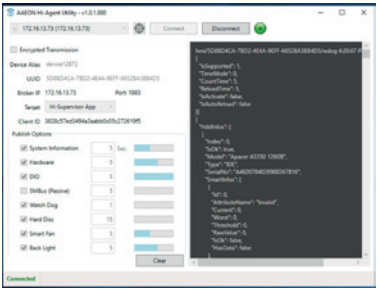
Retrieves fan, temperature and voltage data

Hard Disc:

obtain hard disc S.M.A.R.T information



Remote Control Fan



Note: All specifications are subject to change without notice.

AAEON Hi-Safe

Hi-Safe is a free and powerful program providing SDKs for UIs running Microsoft® Windows® operating systems. It allows end users to easily develop their own UI software to monitor vital systems such as the processor, RAM and VGA. It monitors received data about the Super I/O, fan, temperature and voltage, offers configuration options for Digital I/O pin direction and data patterns, provides watchdog timer and fan speed settings, SMBus base address detection and device ID settings. Hi-Safe also offers two modes for backlight display control if one uses the LVDS interface. Based on the user interface SDK, no coding is needed, and customers can create their own customized user interface by using the function codes provided by AAEON.

Hi-Safe Advantages

- **Faster time to market**
- **Easy to use**

System Information:
Receives CPU, VGA and RAM information

Smart Fan:
Receives fan and temperature data; sets the fan speed into the smart fan mode

Hardware Monitor:
Receives super I/O, fan, temperature and voltage data

SM Bus:
Reads and writes SMBus device, and detects SMBus base address automatically.

DIO:
Obtains DIO information: sets the pin direction and pin data

Backlight Controller:
Controls the backlight display; two modes

Watchdog:
Sets the system reboot timer

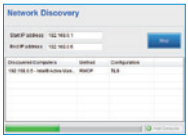
Note: All specifications are subject to change without notice.

AAEON Hi-Manager

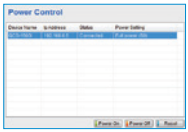
Hi-Manager is a tool based on the Intel® Active Management Technology 12.0 (iAMT 12.0) and has backward compatibility with earlier versions of iAMT. This allows users to locate all iAMT devices within the intranet, power On/Off target devices remotely, set power On/Off scheduling, arrange device groupings for better management, offer event logs and timer settings to wake up devices at specified times, recover systems that have crashed from virtual CD-ROM, remote KVM management and access to target device hardware information for asset management. Hi-Manager can be installed on all AAEON platforms and can remotely manage AAEON client devices that use Intel® M67/ Q77/ QM77/ HM76/ B75A/ Q87/QM87/QM170/Q370/C246 chipsets and run Microsoft® Windows® XP, Windows® 7, and Windows® 10 Operating Systems.

Hi-Manager Advantages

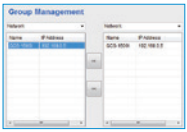
- **Easy-to-use and build custom applications**
- **Supports AAEON products with iAMT**
- **In-depth technical support**



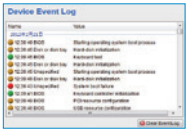
Network Discovery:
AMT device discovery



Power Control:
Powers On/Off the target device



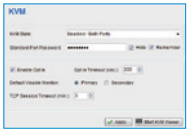
Group Management:
Arrange devices in this function



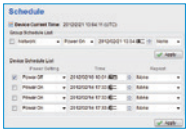
Event Log:
Logs boot records of the selected device

Alarm Clock:
Sets timer to wake up a sleeping device

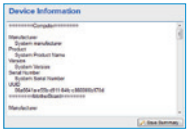
Remote Recovery:
Mounts boot image or physical CD-ROM to target device



KVM:
Controls remotely from the target device



Schedule:
Schedules the power On/ Off target devices



Device Information:
Shows target device assets

Intel® Active Management Technology Features

Intel® Chipset	QM67/ Q77/ QM77/ HM76/ B75A/ Q87/ QM87/QM170/Q370/C246
Intel® AMT Version	AMT 7.0/8.0/9.0/10.0/11.0/12.0
HW Inventory	✓
SW Inventory	✓
Power State Management	✓
System Defense	✓
Remote Configuration	✓
Remote Boot Option	✓
KVM Redirection	✓
KVM Remote Control	✓
ME Wake on LAN	✓
Proactive Security Block, HW-Based and Remote Management Recovery	✓
Host-Based Provisioning	✓
Enhanced System Defense Filters	✓

Note: All specifications are subject to change without notice.

Design Manufacturing Service (DMS)

The Design Manufacturing Service (DMS) offers exceptional end-to-end services from product conceptualization to product development and then manufacturing and service programs. All services are linked together through a comprehensive process and closely monitored by dedicated professionals to guarantee the highest level in product quality, reliability and durability.

- **Product Conceptualization**
- **Electronic Circuit Development**
- **PCB Layout**
- **Component Qualification**
- **Mechanical Design**
- **Prototype building**
- **Compatibility, Reliability and Qualification testing**
- **Certification and processing (Agency Approvals)**
- **Manufacturing Design**
- **Packaging and Enclosure Design**

- **Customer Service Management**
- **Customer and Channel Repair**
- **Logistics extension**
- **Refurbishment**
- **Return Processing**
- **Troubleshooting Support**
- **Upgrades**
- **Warranty Management**
- **Spare Parts Management**

- **PCBA Assembly**
- **System Manufacturing**
- **Component and Subsystem Assembly**
- **Functional Testing**
- **Engineering Change Management**
- **BTO (Build to Order)**
- **Supplier Qualification**
- **Warehousing**
- **Failure Analysis**

Collaboration Models

Customers can entrust AAEON with the manufacturing of their existing products, customize existing AAEON COTS (Commercial-off-the-Shelf) products, or jointly develop new products with the expertise of a dedicated project team that will oversee the project from product conceptualization to on-time delivery of the goods. AAEON DMS handles Large-Volume as well as Low-Volume-High-Mix projects, satisfying the needs of our customers for every kind of computing platform requirement.

Areas of Expertise

- Retail
- Transportation
- Energy
- Automation
- Medical & Healthcare
- Networking

Contract Manufacturing (CM)	Commercial off-the-Shelf (COTS)	Customized COTS	Joint Development (JDM)	Original Design Manufacturing (ODM)
• Customer-owned design • AAEON provides manufacturing and engineering service	• Based on AAEON standard product & technology roadmap • With optional minor change	• Based on AAEON standard product & technology roadmap • Modify according to customer's request	• Strategic Partnership • Co-architected design based on common IP from technology roadmap	• Customer driven design • Based on customer driven product and technology roadmap

Quality Manufacturing → **Collaborative Development**

Note: All specifications are subject to change without notice.

Network Security Platform

Based on Intel Xeon processor based server-grade/ workstation-grade motherboard, AAEON offers superb Network Appliance, up scaled to 40GbE Network Interface Module, and intelligent PoE supported Network Surveillance solutions.

Network Computing Platforms and Services

Network Workstation Platform

- Intel® 4th generation Core™ i processor to Xeon® processor
- Single or dual ATX power supply compatible

FWS-7831

Network Server Platform

- High density storage server
- SSD storage server
- Designed for Hadoop, Openstack and Object storage

FWS-8600

Surveillance Cloud Platform

- Fanless in-vehicle PoE video surveillance server box
- EMARK certifcated
- Wide Voltage; Wide Temperature

VPC-5600S

FWS-8600-AI

FWS-2360

Note: All specifications are subject to change without notice.

AAEON's IoT Solutions

IoT Introduction

AAEON IIoT is committed to the development and application of Industry 4.0 solutions in an IoT context, bringing customers a sustainable, connected and personal experience. Our services include smart city applications, intelligent fleet management and transportation solutions, smart agriculture network systems, and automation optimization platforms. We integrate versatility and flexibility in our solutions, customizing each and every one of our cases, and our systems are designed to integrate seamlessly into existing frameworks, lowering costs and enhancing efficiency. For end customers, the convenience of our designs facilitate easy operation and maintenance, eliminating bottlenecks and achieving maximum performance. As a committed service provider for smart city applications, our first priority is the development of safe, sustainable and reliable solutions. Our portfolio includes services in building management, logistics, fleet management, and agriculture, and we aim to provide for and consolidate a safer, globally connected and sustainable world.

Note: All specifications are subject to change without notice.

AAEON's IoT Solutions

Industry 4.0:

In a broader context, smart automation will facilitate the manufacturing process in becoming more cost effective, enhancing output and product quality and quantity. By collecting, collating and analyzing vast swathes of data, factories will be able to adapt to, and even predict future market trends, anticipating the needs of the customer.

Smart Logistics:

AAEON has optimized an asset tracking and maintenance system to rise to the challenges posed by the ever-changing landscape of the logistics industry by developing the CANBUS, a sensor which monitors tire wear and pressure, braking systems and engine output, and provides a real-time GPS tracking system which will be able to pinpoint the exact location of the car at any given time or location.

Building Management:

AAEON provides a centralized management system for smart thermostats, ventilation, humidity and lighting control, which will be able to detect the number of people in each room of a building, and adjust environment settings accordingly to accommodate the current occupants, offering maximum energy efficiency management.

Smart City:

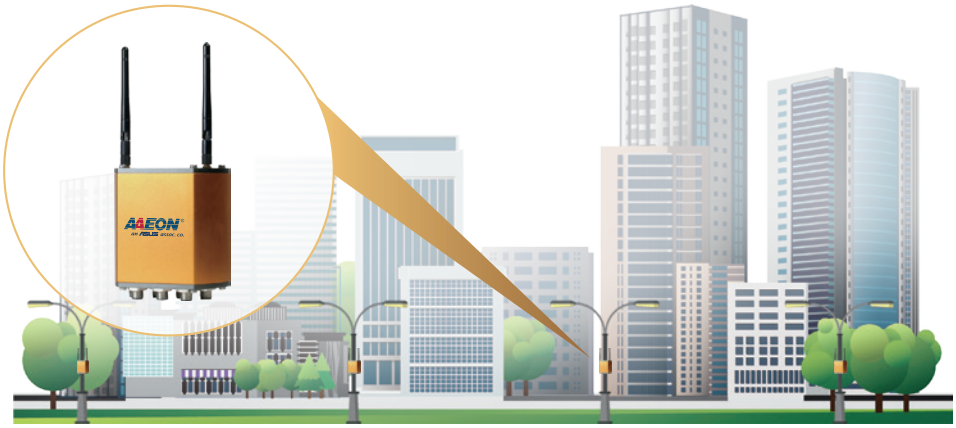
AAEON's Smart City Vision is to connect and improve the quality of communities through a tech-based, sustainable network aimed at eliminating factors that cause physical harm to the human body and immune system. Smart-city information and technology will enhance citizens' quality of life, as well as the infrastructure and socio-economic framework of the city.

AAEON's IoT Solutions

AirBox

AAEON's AirBoxes are an integral part of a smart-city embedded air-sensory network, collecting and relaying real-time environmental data to city agencies and the public. In the short term, the AirBox will enable long-distance data transmission and low-energy consumption by optimizing and enhancing the transition from episodic to continual data collection and assimilation, while in the long term, it will facilitate the development of a globally connected and sustainable network.

The second generation of Airboxes is designed to be fully customizable and easily integrated with existing frameworks and architecture, with minimum configuration and/or maintenance required.



Atlas, Connecting Smart Cities across the Globe

AAEON Atlas, powered by Intel® Movidius™ Myriad™ X vision processing unit (VPU). The Intel® Movidius™ Myriad™ X provides a low-power, high-performance solution for on-device AI inference. Atlas is compatible with the Intel® Distribution of OpenVINO™ toolkit, which includes built-in features such as model optimization, hardware acceleration and more designed to maximize the capabilities of the Intel® Movidius™ Myriad™ X VPU. Atlas is a powerful edge node that consolidates data streams from smart lighting, environmental monitoring, and video analytics. This AI Enabled Smart Device integrated with Camera, Air Sensing and Management System which works at the edge to allow city administrators to create a connected data hub.

Atlas can be deployed in a wide range of edge computing applications. As an edge gateway, Atlas can connect with up to 1000 smart street lighting controller or other IoT devices through proprietary wireless Sub-GHz, providing building blocks for Smart City solution deployment. With license plate recognition AI inference, Atlas can power applications such as Smart Street Parking or detecting traffic violations or accidents. With traffic and congestion monitoring, Atlas can optimize traffic signals in real time to help improve traffic flow. Atlas can also anonymously detect pedestrians in crowd control and flow monitoring applications.

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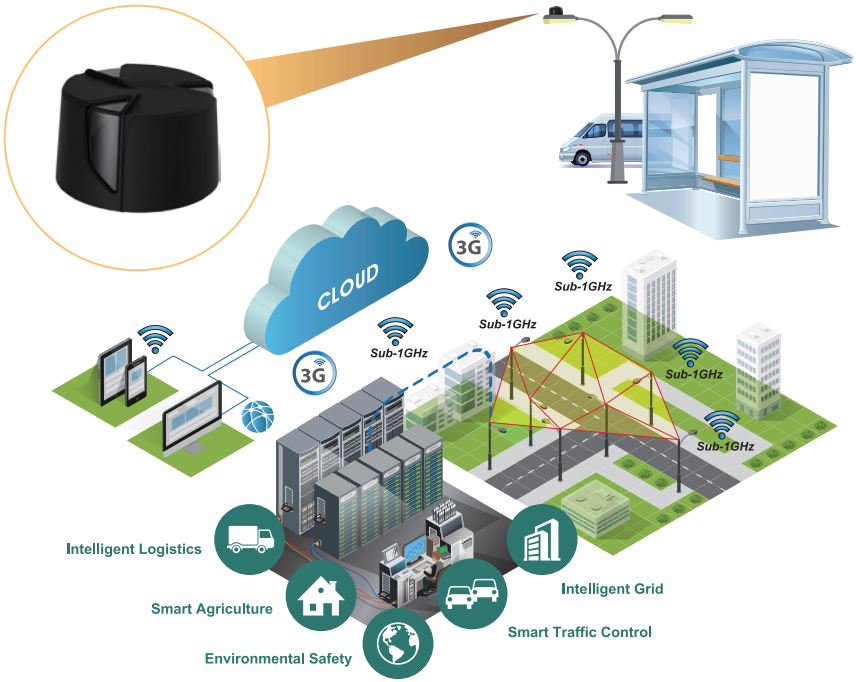
AAEON's IoT Solutions

Smart Street Light

AAEON's smart street light is designed to be one of the core features of IoT-based urban infrastructure, which utilizes smart technology to conserve and optimize energy efficiency, while eliminating emissions and the consumption of harmful gases. Each street light draws its energy source from a solar panel embedded at the top of the lamppost. The lampposts are integrated with the city's public WiFi network and are equipped with sensors that detect and collect detailed information on aerosols and then send these statistics back to a centralized cloud. All historical data is open sourced and can be accessed and downloaded by the general public.



Sub-1GHz

Wireless Communication

Low data cost, Low power consumption, Digital Sensory Network, Low signal interface

Centralized Management

Scheduled dimming, Early problem detection, Low maintenance, Improved efficiency

Energy Saving Report

Reality vs Expectations, Justified investment

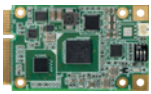
Note: All specifications are subject to change without notice.

AAEON® an ASUS assoc. co.

Focus • Agility • Competitiveness

Board Level Products

AI Edge Computing Solutions


Model	AI Core XM 2280	AI Core X	AI Core XP4/XP8
System			
IC	2 x Intel Movidius Myriad X VPU, MA2485	Intel Movidius Myriad X VPU, MA2485	Asmedia PCIe switch
Support frame work	Tensorflow, Caffe, MXNET		
Others			
Form Factor	M.2 2280 B+M KEY	Mini PCIe	PCIe x 4 card, full length, low profile
Dimension	80 x 22 mm	51 x 30 mm	111 x 167 mm
Certification	CE/FCC Class A		
Operating Temperature	0~50°C	0~60°C	0~50°C
Operating Humidity	10%~80%RH, non-condensing		
Note			



Model	M2AI-2242-520	M2AI-2280-520	Mini-AI-520
System			
IC	Kneron KL520		
Type	Integrated SoC		
Support Framework	ONNX, TensorFlow, Keras, Caffe		
Support Model	Vgg16, Resnet, GoogleNet, YOLO, Tiny YOLO, Lenet, MobileNet, DenseNet		
Memory Type	LPDDR2	LPDDR2	LPDDR2
NPU Power Efficiency	0.56TOPS/W	0.56TOPS/W	0.56TOPS/W
Overall Power Consumption	0.5W	0.5W	0.5W
Others			
Operating Temperature	32°F ~ 158°F (0°C ~ 70°C)		
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
Certification	CE/FCC Class A		
Note			

Note: All specifications are subject to change without notice.

AI Edge Computing Solutions

Model	PBA-TXN1	PBA-TXN2
System		
Accelerator	Nvidia Jetson Nano Ver.B	
I/O	USB 3.2 Gen1 x 4 LAN x 5 RS-232 x 2 HDMI x 1 Micro-USB for Flash OS x 1 DC Power Input x 1 Power Button x 1 Recovery Button x 1	USB 3.2 Gen 1 x 4 LAN x 1 RS-232 x 2 HDMI x 1 MicroSD x 1 DC Power Input x 1 Recovery Button x 1 Micro-USB for Flash OS x 1
Storage Device	Micro-SD	
Expansion	—	M.2 E-Key 2230 x 1(for WiFi)
OS Support	ACLinux 4.9 or above (Compatible with Ubuntu 18.04)	—
Power Supply		
Power Requirement	10-24Vdc w/2-pin terminal block	
Mechanical		
Dimensions (W x D x H)	5.43” x 3.62” (138mm x 92 mm)	3.11” x2.56” (79 mmx 65 mm)
Gross Weight	TBD	
Net Weight	TBD	
Environmental		
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C, according to IEC60068-2 with 0.5 m/s AirFlow)	
Storage Temperature	-49°F ~ 176°F (-45°C ~ 80°C)	
Storage Humidity	5 ~ 95% @40°C, non-condensing	95% @ 40°C, non-condensing
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation	
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

Pico-ITX Boards

Model	PICO-WHU4	PICO-KBU4
System		
Form Factor	PICO-ITX	
CPU	Intel® 8th Generation Core™ i7/i5/i3/Celeron SoC i7-8665UE (4C, 1.7GHz, up to 4.4GHz) i5-8365UE (4C, 1.6GHz, up to 4.1GHz) i3-8145UE (2C, 2.2GHz, up to 3.9GHz) 4305UE (2C, 2GHz)	7th Generation Intel® Core™ i processor U series, Intel® i7-7600U, i5-7300U, i3-7100U series & Celeron® 3965U(opt.)
CPU Frequency	Up to 4.4GHz	Up to 3.9/2.8 GHz
Chipset	Intel® Whiskey-U SoC Processor	7th Generation Intel® Core™ i processor U series, Intel® i7-7600U, i5-7300U, i3-7100U series & Celeron® 3965U(opt.)
Memory Type	DDR4 2400MHz SODIMM x 1, Max. 32 GB	DDR4 1866/2133MHz SODIMM x 1, Max. 16 GB
Max. Memory Capacity	Up to 32 GB	Up to 16GB
BIOS	UEFI only	AMI/SPI
Wake On LAN	Yes	
Watchdog Timer	255 Levels	
Power Requirement	+12V AT/ATX (default)	
Power Supply Type	Lockable & phoenix Terminal co-lay	AT/ATX (default)
Power Consumption(Typical)	TBD	i7-7600@DDR4 16GB, 12V@2.3A
System Cooling	Heat-spreader, heatsink & cooler optional	Heat-spreader, heatsink & cooler (Smart FAN) optional
Dimension	3.94" x 2.84" (100mm x 72mm)	
Gross Weight	TBD	0.55 lb (0.25 Kg)
Operating Temperature	32˚F ~ 140˚F (0˚C ~ 60˚C)	
Storage Temperature	-40˚F ~ 176˚F (-40˚C ~ 80˚C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	TBD	163,000
Certification	CE, FCC	
Display		
Chipset	Intel® 8th Generation Core™ i7/i5/i3/Celeron SoC i7-8665UE (4C, 1.7GHz, up to 4.4GHz) i5-8365UE (4C, 1.6GHz, up to 4.1GHz) i3-8145UE (2C, 2.2GHz, up to 3.9GHz) 4305UE (2C, 2GHz)	7th Generation Intel® Core™ i processor U series, Intel® i7-7600U, i5-7300U, i3-7100U series & Celeron® 3965U(opt.)
Resolution	HDMI 1.4b up to 3840 x 2160 x 2	LVDS (18/24-bit 2CH) 1920 x 1200, HDMI 1.4b up to 4096 x 2304 (4K), DDI (BIO)
LCD Interface	—	18/24-bit 2CH LVDS
I/O		
Storage/SSD	mini-PCIe(Full) x 1 (PCIe[x1]x1, USB 3.2 Gen 1/2.0,SATA) SATA 6.0Gb/s x 1, (5V Power)	SATA 6.0 Gb/s x 1, M.2 B-key (2242)
Ethernet	Realtek 8111G*2 10/100/1000Mbps	Realtek 8111G Gigabit Ethernet 10/100/1000Base-TX, RJ-45 x 2
USB Port	USB 3.2 Gen 2 x 2 (Rear) USB 2.0 x 2 Pin header"	USB 3.2 Gen 1 x 2 Rear I/O, USB 2.0 x 2 Pin header
Serial Port	RS-232/422/485 x 2	COM1: RS-232 x 1, COM2: RS-232/422/485 x 1(Ring/ +5V/ +12V)
Audio	—	Line-out x1
DIO	4-bit	4-bit (2-in, 2-out)
Expansion Slot	M.2 2230 E key x 1 (For WIFI/BT, PCIe/USB signal only) SMBUS/I2C/LPC/eSPI x 1	M.2 E-Key (2230), BIO (optional), I2C x 1 or Smbus x 1
SIM	—	
TPM	—	
Touch	—	

Note: All specifications are subject to change without notice.

Pico-ITX Boards

Model	PICO-APL1	PICO-APL3
System		
Form Factor	Pico-ITX	
CPU	Intel® Atom™ E3900 series/ Pentium® N4200/ Celeron® N3350 Processor SoC	Intel® Atom™ Processor SoC
CPU Frequency	Up to 2.0GHz	Up to 2.4 GHz
Chipset	Intel® Atom™ E3900 series/ Pentium® N4200/ Celeron® N3350 Processor SoC	Intel® Atom™ Processor SoC
Memory Type	204-pin DDR3L SODIMM x 1,DDR3L 1867MHz, Max. 8GB	Onboard DDR3L 2G (Optional to 4G)
Max. Memory Capacity	Up to 8GB	Up to 4GB
BIOS	AMI/SPI	
Wake On LAN	Yes	
Watchdog Timer	255 Levels	
Power Requirement	+12V AT/ATX (default)	+12V, AT/ATX
Power Supply Type	AT/ATX (default)	Lockable & phoenix Terminal co-lay
Power Consumption (Typical)	Intel® N3350 Processor, DDR3L 8GB 0.91A@+12V	Intel® N4200 processor, DDR3L 4GB, 1.1A@12V
System Cooling	Heat-spreader/ heatsink optional	Heat-spreader, heatsink & cooler (Optional)
Dimension	3.94" x 2.84" (100mm x 72mm)	
Gross Weight	0.55 lb (0.25 Kg)	
Operating Temperature	32˚F ~ 140˚F (0˚C ~ 60˚C)	
Storage Temperature	-40˚F ~ 176˚F (-40˚C ~ 80˚C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	170,000	110,000
Certification	CE, FCC	
Display		
Chipset	Intel® Atom™ E3900/ Pentium® N4200/ Celeron® N3350 Processor SoC	Intel® Atom™ Processor SoC
Resolution	LVDS (18/24bit 2CH) 1920 x 1200(opt.), HDMI 1.4b up to 3840 x 2160, DDI (BIO)	HDMI 1.4b: 3840 x 2160@30Hz Internal eDP: 3840 x 2160@60Hz(opt.) DDI (Optional from BIO)
LCD Interface	18/24-bit 2CH LVDS	eDP
I/O		
Storage/SSD	SATA 6.0Gb/s x 1, mSATA or Mini-PCIe by BOM (Full size) x 1	SATA 6.0Gb/s x 1, 5V/12V Power reserved M.2 2280 (B Key) x 1 eMMC 16GB (opt. to 32GB/64GB/128GB)
Ethernet	Intel® Gigabit Ethernet i210AT, 10/100/1000Base-TX, RJ-45 x 1	Realtek 8111G x 1
USB Port	USB 3.2 Gen 1 x 2, Rear IO, USB 2.0 x 1	USB 3.2 Gen 1 x 2 Rear IO USB 2.0 x 2 (Internal, co-use with FAN connector)
Serial Port	COM1: RS-232 x 1, COM2: RS-232/422/485 x 1(Ring/ +5V/ +12V)	COM1: RS-232 COM2: RS-232
Audio	Line-out x1	ALC269 (Included Amp)
DIO	4-bit (2-in, 2-out)	4-bit
Expansion Slot	Mini Card (Half-size) x 1, BIO (optional) x 1, I2C or SMBus x 1	M.2 2230 x 1 (E-Key), BIO x 1(opt.), I2C, Smbus, I2S, MIPI-CSI x 2 Lanes(opt.), MIPI-CSI x 4 Lanes(opt.)
SIM	—	
TPM	—	TPM2.0 (Optional)
Touch	—	
Note		

Note: All specifications are subject to change without notice.

Pico-ITX Boards

Model	PICO-APL4	PICO-BSW1
System		
Form Factor	Pico-ITX	
CPU	Intel® Pentium® N4200 (4C. 1.1 GHz, up to 2.5 GHz, TDP 6W) Intel® Celeron® N3350 (2C. 1.1 GHz, up to 2.4 GHz, TDP 6W) Intel® Atom® x7-Series (4C. 1.6GHz, up to 2.00 GHz, TDP 12W)	Intel® N3160 Quad Core 1.6GHz (6W), Intel® N3060 Dual Core 1.6GHz (6W), Intel® X5-E8000 Quad Core 1.04GHz (5W)
CPU Frequency	Up to 2.4 GHz	Up to 2.24 GHz
Chipset	Intel® SoC	Intel® N3160 Quad Core 1.6GHz (6W), Intel® N3060 Dual Core 1.6GHz (6W), Intel® X5-E8000 Quad Core 1.04GHz (5W)
Memory Type	Onboard DDR3L 2G (Optional to 4G)	204-pin DDR3L SODIMM x 1, DDR3L 1600, Max. 8GB
Max. Memory Capacity	Up to 4GB	Up to 8GB
BIOS	AMI/SPI	
Wake On LAN	Yes	
Watchdog Timer	255 Levels	
Power Requirement	+12V, AT/ATX	+12V DC
Power Supply Type	Lockable & phoenix Terminal co-lay	AT/ATX (default) optional lockable connector
Power Consumption (Typical)	Intel®Pentium®N4200@1.1GHz,DDR3L 4GB 1.43A@+12V	Intel® Pentium® N3160@ DDR3L-1600MHz 8GB, 0.91A@+12V
System Cooling	Heat-spreader, heatsink & cooler (Optional)	
Dimension	3.94" x 2.84" (100mm x 72mm)	
Gross Weight	0.55 lb (0.25 kg)	0.44 lb (0.2 kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C),	
Storage Temperature	-40˚F ~ 176˚F (-40˚C ~ 80˚C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	191,895	100,000
Certification	CE,FCC	
Display		
Chipset	Intel® Atom™ Processor SoC	Intel® N3160 Quad Core 1.6GHz (6W), Intel® N3060 Dual Core 1.6GHz (6W), Intel® X5-E8000 Quad Core 1.04GHz (5W)
Resolution	HDMI 1.4b: 3840 x 2160@30Hz Internal eDP: 3840 x 2160@60Hz(opt.) DDI (Optional from BIO)	LVDS (18/24bit 2CH) 1920 x 1200 HDMI up to 3840 x 2160 (4K) DDI (optional by BIO board)
LCD Interface	eDP	18/24-bit 2CH LVDS
I/O		
Storage/SSD	SATA 6.0Gb/s x 1, 5V Power reserved, M.2 2280 (B Key) x 1, eMMC 32GB (Optional to 16GB/64GB/128GB)	SATA 6.0Gb/s x 1, mSATA/MiniCard (Full size) x 1
Ethernet	Realtek 8111G x 2	Realtek RTL 8111E, 10/100/1000Base-TX, RJ-45 x 1
USB Port	USB 3.2 Gen 1 x 2 Rear IO USB 2.0 x 2 (Internal, co-use with FAN connector)	USB 3.2 Gen 1 x 2 Rear I/O
Serial Port	COM1: RS-232 x 1, COM2: RS-232/422/485 x 1	COM1: RS-232 x 1, COM2: RS-232/422/485 x 1 (Ring/ +5V/ +12V)
Audio	—	Line-out x 1
DIO	4-bit	4-bit (2-in, 2-out)
Expansion Slot	M.2 2230 x 1 (E-Key), BIO x 1 (optional), I2C, Smbus	Mini Card(Half-size) x 1, BIO x 1, I2C x 1 or Smbus x 1, LPC
SIM	—	
TPM	—	
Touch	—	
Note		

Note: All specifications are subject to change without notice.

Pico-ITX Boards

Model	PICO-BT01
System	
Form Factor	Pico-ITX
CPU	Onboard Intel® Atom™ E3845/ Celeron® J1900/N2807 Processor SoC
CPU Frequency	Up to 2.0 GHz
Chipset	Intel® E3845/J1900/N2807
Memory Type	204-pin DDR3L SODIMM x 1, DDR3L 1066/1333, Max. 8GB
Max. Memory Capacity	Up to 8GB
BIOS	AMI/SPI
Wake On LAN	Yes
Watchdog Timer	255 Levels
Power Requirement	+12V DC
Power Supply Type	AT/ATX (default) optional lockable connector
Power Consumption (Typical)	Intel® Celeron® J1900 2.0GHz ,DDR3L 1333 MHz 8 GB, 1.14A@+12V
System Cooling	Heat-spreader, heat-sink & cooler (optional)
Dimension	3.94" x 2.84" (100mm x 72mm)
Gross Weight	0.88lb (0.4 kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) or WiTAS 2 (-40˚C ~ 85˚C)
Storage Temperature	-40˚F ~ 176˚F (-40˚C ~ 80˚C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	80,000
Certification	CE,FCC
Display	
Chipset	Intel® E3845/J1900/N2807
Resolution	VGA up to 2048 x 1152 @60Hz or DP up to 2560 x 1400 @60Hz LVDS (18/24-bit) up to 1400 x 900 @60Hz
LCD Interface	18/24-bit Single LVDS
I/O	
Storage/SSD	SATA 3.0Gb/s x 1, Mini-Card(Full size)/mSATA(default) x 1
Ethernet	Intel Gigabit Ethernet, 10/100/1000Base-TX x 1 (Atom E series with I210IT, Celeron J/N series with I211AT)
USB Port	USB 3.2 Gen 1 x 1 Rear IO, USB 2.0 x 1 Rear IO and x 1 Pin header
Serial Port	RS-232 x 1, RS-232/422/485 x 1 (Ring /+5V/+12V)
Audio	Line-out x 1
DIO	4-bit (2-in, 2-out)
Expansion Slot	Mini-Card (Half-size) x 1, BIO x 1
SIM	Option by BIO Board
TPM	—
Touch	—
Note	TAIWAN EXCELLENCE 2015

Note: All specifications are subject to change without notice.

Pico-ITX Boards

Model	PICO-WHU4-SEMI	PICO-KBU4-SEMI
System		
Form Factor	PICO-ITX	
Processor	Intel® 8th Generation Core™ i7/i5/i3/Celeron SoC i7-8665UE (4C, 1.7GHz, up to 4.4GHz) i5-8365UE (4C, 1.6GHz, up to 4.1GHz) i3-8145UE (2C, 2.2GHz, up to 3.9GHz) Celeron® 4305UE (2C, 2GHz)	7th Gen Intel® Core™ i processor U series
System Memory	DDR4 2400MHz SODIMM x 1, Max. 32 GB	DDR4 SODIMM Slot x 1, up to 16 GB
Chipset	Intel® SOC	
Ethernet	Realtek 8111G Gigabit Ethernet 10/100/1000Mbps, RJ-45 x2	Realtek 8111G Gigabit Ethernet 10/100/1000Base, RJ-45 x2
BIOS	UEFI only	AMI BIOS
Wake on LAN	Yes	
Watchdog Timer	255 Level	
Expansion Interface	2230 M.2 E-Key x 1 (for WIFI/BT, PCIe/USB signal only) SMBUS/I2C/LPC/eSPI x 1	M.2 2230 E key (For WIFI/BT Module)
Power Requirement	Normal: +12V	
Power Supply Type	Lockable	
Power Consumption	i7-8665UE @ DDR4 16GB, 12V@2.23A	I7-7600 @ DDR4 16GB, 12V@2.3A
System Size	5.9" x 3.94" x 2.36" (150mm x 100mm x 60mm)	4.8" x 3.15" x 2" (122mm x 72mm x 50mm)
Gross Weight	982g (including packing) 635g (excluding packing)	0.88 lb (0.4 kg)
Operation Temp.	32°F ~ 122°F (0°C ~ 50°C) without airflow 0.5m/s for SSD SKU	32°F~ 122°F (0°C ~ 50°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	
Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF	298,762	163,000
Display		
Chipset	Intel® SoC	
Video Output	HDMI 1.4	
Touch	—	
I/O		
Storage	SATA 6.0Gb/s x 1, (5V Power) mini-PCIe(Full) x 1 (PCIe[x1]x1, USB3.2/2.0, SATA)	M.2 2242 B key
USB	USB 3.2 Gen 2 x 2 (Rear IO) USB 2.0 x 2 (Via cable to Rear IO)	USB 3.2 Gen 1 x 2 (Rear IO)
Audio	RS-232/422/485 x 2 (Optional)	Optional
TPM	—	
Serial Port	—	RS-232 x 1, RS-232422/485 x1 (Optional)
Certification		
Certification	CE, FCC	
Note		

Note: All specifications are subject to change without notice.

Model	PICO-APL1-SEMI	PICO-APL3-SEMI	PICO-APL4-SEMI
System			
Form Factor	PICO-ITX		
Processor	Intel® Pentium® N4200 (4C, 1.1 GHz, up to 2.5 GHz, TDP 6W) (optional) Intel® Celeron® N3350 (2C, 1.1 GHz, up to 2.4 GHz, TDP 6W) Intel® Atom™ x7-E3950 (4C, 1.6GHz, up to 2GHz, TDP 12W) Intel® Atom™ x5-E3940 (4C, 1.6GHz, up to 1.8GHz, TDP 9.5W) Intel® Atom™ x5-E3930 (2C, 1.3GHz, up to 1.8GHz, TDP 6.5W)	Intel® Pentium® N4200 (4C. 1.1 GHz, up to 2.5 GHz, TDP 6W) Intel® Celeron® N3350 (2C. 1.1 GHz, up to 2.4 GHz, TDP 6W) *Wait for E3900 series in 2019 within ATRF according	Intel Apollo Lake N Series Pentium N4200 (4C): 1.1GHz, up to 2.5GHz, TDP 6W Celeron N3350 (2C): 1.1GHz, up to 2.4GHz, TDP 6W *Wait for E3900 series in 2019 within ATRF according
System Memory	DDR3L SODIMM Slot x 1 ,Up to 8GB	DDR3L, memory down, up to 4GB	
Chipset	Intel® SOC	Intel® SOC	
Ethernet	Intel® Gigabit Ethernet i211AT, 10/100/1000Base, RJ-45 x1	Realtek 8111G*1 10/100/1000Mbps, RJ-45 x1	Realtek 8111G*2 10/100/1000Mbps, RJ-45 x2
BIOS	AMI BIOS		
Wake on LAN	Yes		
Watchdog Timer	255 Level		
Expansion Interface	miniCard (Half-Size) x 1	M.2 2230 E key (For WIFI/BT Module)	
Power Requirement	Normal: +12V		
Power Supply Type	Lockable		
Power Consumption	N4200 @ 4GB DRAM/eMMC 32GB, 12V @1.1A (Full Loading)		Intel®Pentium®N4200@ 1.1GHz,DDR3L 4GB 1.43A@+12V
System Size	4.8" x 3.15" x 1.73" (122 x 80 x 44 mm)	W/O heat sink: 4.8" x 3.15" x 1.18" (122 x 80 x 30 mm) W/ heat sink: 4.8" x 3.15" x 1.73" (122 x 80 x 44 mm)	4.8" x 3.15" x 2" (122mm x 72mm x 50mm)
Gross Weight	0.59 lb (0.27 kg)	W/O heat sink: 0.4 lb (165g) W/ heat sink: 0.89 lb (407g)	0.88 lb (0.4 kg)
Operation Temp.	32°F~ 122°F (0°C ~ 50°C), 0.5 m/s airflow		32°F~ 122°F (0°C ~ 50°C)
Storage Temperature	-40˚F ~ 176˚F (-40˚C ~ 80˚C)		
Humidity	0% ~ 90% relative humidity, non-condensing		
MTBF	170,000	110,000	191,000
Display			
Chipset	Intel® SOC		
Video Output	HDMI 1.4		
Touch	—		
I/O			
Storage	mSATA(Full size)x1	M.2 2280 x 1 (B-Key) eMMC 32GB, up to 128GB (optional)	
USB	USB 3.2 Gen 1 x 2 (Rear IO) USB2.0 x 1 (Internal option)	USB 3.2 Gen 1 x 2 (Rear IO) USB2.0 x 2 (Internal option)	
Audio	Optional		—
TPM	—	Optional	—
Serial Port	RS-232 x 1, RS-232/422/485 x1 (Optional)		
Certification			
Certification	CE, FCC		
Note			

Note: All specifications are subject to change without notice.

Pico-ITX Boards-BIO





Model	BIO-ST01-L1U2	BIO-ST01-M1U1	BIO-ST02-C4M1	BIO-ST03-P2U1	BIO-ST02-C14D32
System					
Form Factor	2.5" Board			3.5" Board	2.5" Board
BIO	80 Pin high speed board to board connector			—	BIO Pin high speed board to baord connector
Power Requirement	Power Supplied from MB via board to board connector			12V or +9 ~ 36V input (external power supply)	Power Supplied from MB via board to board connector
Board Size	3.94" x 2.84" (100mm x 72mm)			5.75" x 4" (146mm x 101.6mm)	3.94" x 2.84" (100mm x 72mm)
Gross Weight	0.44 lb (0.2 kg)				
Operating Temperature	32°F ~ 140°F(0°C ~ 60°C)				
Storage Temperature	-40 °F ~ 176°F (-40°C ~ 80°C)				
Operating Humidity	0% ~ 90% relative humidity, non-condensing				
Certification	—			CE,FCC	
I/O					
Ethernet	Realtek 8111E, 10/100/1000Base-TX, RJ-45 x 1	—		Intel® i210/i211, 10/100/1000Base-TX x 2 (support PoE 802.3af)	Intel® i211, 10/100/1000Base-TX x 1
USB	USB 2.0 x 2 on rear I/O	USB 2.0 x 1 on rear I/O		USB 3.2 Gen 1 x 1	USB 3.2 Gen 1 x 1 & USB 2.0 x 3 or USB 2.0 x5(for PICO-BT01)
Audio	Speaker Out with 2W Amp		—		Speaker output with 2W Amp.
Expansion Interface	SMbus x 1		—		PCIe [x1] x1 (optional), LPT x1
PCIe	—	Mini-Card x 1	Mini-Card x 1 (full size), SIM x 1	—	
Serial Port	—		COM1, COM2 RS-232 by Pin Header COM3, COM4 RS-232 on Rear I/O	—	COM x14,RS-232 by Pin Header
SIM	—	SIM Slot x 1	—		
DIO	—				32 bits
Note	TAIWAN EXCELLENCE 2015				

Note: All specifications are subject to change without notice.

COM Express CPU Modules



Model	COM-CFHB6	COM-KBHB6	COM-SKHB6
System			
Form Factor	COM Express Basic Size, Type 6	COM Express Basic Size	
CPU	Intel® 8th/9th Gen Intel® Core™ / Xeon™-E Series Processor (i7-8850H / i5- 8400H / i3-8100H / Xeon™-E2176M)	Onboard 7th Gen. Intel® XEON E3 v6 Series Processors, E3-1505M v6 4c/3.0 GHz	Onboard 6th Gen Intel® Core™ i-series Processor i7-6820EQ 4c/2.8 GHz i3-6100E 2c/2.7 GHz
CPU Frequency	Up to Xeon-E2176M, 6c/ 2.7GHz	Up to E3-1505M v6, 4.0 GHz	Up to i7-6820EQ 3.50 GHz
Chipset	Intel® QM370/CM246 PCH	Intel® PCH CM238	PCH QM170 or CM236 (by sku)
Memory Type	SODIMM DDR4 2666 Socket x 3	DDR4, SO-DIMMx2, ECC support, up to 2400	DDR4, SODIMM x 2, ECC Supports with CM236 sku only, up to 2133
Max. Memory Capacity	up to 48GB,ECC Support (only with CM246 PCH)	32GB	
BIOS	AMI BIOS, Legacy free BIOS	AMI BIOS, Legacy Free	
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Power Requirement	Standard: +12V		
Power Supply Type	AT/ATX Selection		
Power Consumption (Typical)	Intel® Xeon® E-2176M CPU @2.70GHz, DDR4 16GB x3, Full load: 62.4W, 5.2A@12V	E3-1505M v6 3.0 GHz, DDR4 16GB, 3.7A@12V (during full loading mode)	i7-6820EQ 2.8GHz, DDR4 16GB, 3.08A@12V (during full-loading mode)
Dimension (L x W)	4.92" x 3.75" (125mm x 95mm)		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) -4°F ~ 158°F (-20°C ~ 70°C) by screening	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)		
Operating Humidity	10% ~ 95% relative humidity, non-condensing	10% ~90% relative humidity, non-condensing	
MTBF (hours)	80,000		
Certification	CE/FCC Class A		
Display			
VGA/LCD Controller	Intel® GT2-P630 (E2176M) / GT2-630 (I7/I5/I3 Series)	Intel® HD Graphics P630	Intel® HD Graphics P530 / 530
Video Output	VGA, 18/24b 2ch LVDS/eDP, DDI x2 (3rd one can be added if VGA not require)	VGA, LVDS or eDP, DDI x2 (3rd DDI could be added if VGA no required)	
LVDS Interface	Supports 18bit and 24bit dual channel	—	
I/O			
Ethernet	Intel® Ethernet I219 GbE x 1	Intel® I219, Gigabit Ethernet	
Audio	HD Audio		
USB Port	USB 2.0 x 8 , USB 3.2 Gen 1 x 4	USB 2.0 x 8, USB 3.2 Gen 2 x 4	
Serial Port	2-wire UART(TX/RX) x 2	2-Wire UART (Tx/Rx) x 2	
HDD Interface	SATA III x 4	SATA 3 x 4	
Onboard Storage	—		
Expansion Slot	PCIe [x1] x 8 PCIe[x16] x1 LPC x1 SMBUS x 1 2-wire UART x2	PCIe[x16] x 1 PCIe[x1] x 8 I2C LPC SMBus	
GPIO	8-bit	GPIO 8-bit	
TPM	Support 1.2 / 2.0(Optional)	Optional	
Note			

Note: All specifications are subject to change without notice.

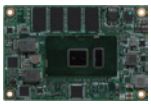
COM Express CPU Modules

Model	COM-WHUC6	COM-SKUC6/KBUC6
System		
Form Factor	COM Express Compact size, 95mm x 95mm	COM Express Compact Size, Type 6
CPU	8th Generation Intel® Core™ ULT Series Processor	Onboard 6th/7th Generation Intel® Core™/Celeron™ i3/i5/i7 U-series SoC Processor
CPU Frequency	—	Up to i7-7600U 2C/ 2.8 GHz
Chipset	Onboard 8th Generation Intel® Core™ SoC	Onboard 6th/7th Generation Intel® Core™/Celeron™ U-series SoC
Memory Type	SO-DIMM DDR4 2400 Socket x2	DDR3L 1600, SODIMM x 1
Max. Memory Capacity	Up to 64 GB	8 GB
BIOS	AMI BIOS, Legacy free BIOS	AMI BIOS, Legacy Free
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Power Requirement	Standard: +12V	
Power Supply Type	AT/ ATX Mode	AT/ATX
Power Consumption (Typical)	12V, estimate 18W with i7-8655UE @ 100% loading	i7-7600U, 8GB DDR3L, full loading 1.32A@12V during 100% loading burn in test
Dimension (L x W)	3.75" x 3.75" (95mm x 95mm)	
Operating Temperature	32°F~ 140°F (0°C ~ 60°C)	
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	10% ~80% relative humidity, non-condensing
MTBF (hours)	TBD	80,000
Certification	CE/FCC Class A	
Display		
VGA/LCD Controller	Intel® UHD Graphics 620 / 610	Onboard 6th Gen Intel® Core U-Series Processor, GT2-520/510 Onboard 7th Gen Intel® Core U-Series Processor, GT2-620/610
Video Output	DDI0: LVDS, (eDP by BOM change) DDI1: Display Port DDI2: Default VGA, (DP by SW1&2 selected)	VGA, LVDS (eDP Optional), DDI x 1 (up to 2)
LVDS Interface	Support 18-bit and 24-bit dual channel	
I/O		
Ethernet	Intel® I219 GbE x 1	Intel®PHY I219LM
Audio	HD Audio x 1	High Definition Audio Interface
USB Port	USB 2.0 x 8, USB 3.2 Gen 2 x 4	USB 2.0 x 8, USB 3.2 Gen 1 x 4
Serial Port	2-wire UART x 2 (TX/RX)	2-Wire UART (Tx/Rx) x 2
HDD Interface	SATA3 x 2 as default (up to 3)	SATA3 x 2 ; i5 & i7 up to 3
Onboard Storage	eMMC x 1 (up to 64GB)	—
Expansion Slot	PCIe[x1] x 4 + PCIe[x4] x 1 (default), I2C, LPC, SMBus	PCIe[x1] x8, I2C, LPC, SMBus
GPIO	8-bit	GPIO 8-bit
TPM	TPM 2.0 Optional	Optional
Note		

Note: All specifications are subject to change without notice.

COM Express CPU Modules

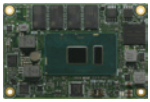




Model	COM-BT	COM-BYTC2	NanoCOM-SKU
System			
Form Factor	COM Express, Compact, Pin-out Type 6	COM Express Compact Size	COM Express Mini size, Type 10
CPU	Onboard Intel® Atom™ SoC	Onboard Intel® Atom™ Processor SoC	6th generation Intel® Core™ ULT SeriesProcessor
CPU Frequency	Intel® Atom™N2930 (1.83 GHz), N2807 (1.58 GHz), E3845 (1.91 GHz), E3827 (1.75 GHz), E3825 (1.33 GHz), J1900 (2.0 GHz)	Up to J1900 1.91 GHz, Quad core	Up to i7-6600U, 2c/4t, 2.6GHz up to 3.4GHz
Chipset	Intel® Atom™ SoC		Onboard 6th Generation Intel® Core™ U-series SoC
Memory Type	DDR3L 1066/1333 MHz SODIMM x 1	DDR3L 1066/1333, SODIMM x 1	Onboard Non-ECC DDR4-2133
Max. Memory Capacity	8 GB		4GB DDR4
BIOS	AMI BIOS	AMI BIOS, Legacy Free	
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Power Requirement	Standard: +12V		
Power Supply Type	AT/ ATX	AT/ATX Selection	AT/ATX
Power Consumption (Typical)	0.92A@12V, full load, J1900 0.48A@12V, full load, N2807	1A@ 12V with J1900, full load	i7-6600U, Onboard12V@1.5A during 100% loading burn in test.
Dimension (L x W)	3.74" x 3.74" (95mm x 95mm)	3.75" x 3.75" (95mm x 95mm)	3.31" x 2.17" (84mm x 55mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) -40°F ~ 185°F (-40°C ~ 85°C) optional	32°F ~ 140°F (0°C ~ 60°C)	32°F~ 140°F (0°C ~ 60°C) -40°F~ 185°F (-40°C ~ 85°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-4°F ~ 158°F (-20°C ~ 70°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	10% ~90% relative humidity, non-condensing	0% ~ 90% relative humidity, noncondensing
MTBF (hours)	80,000		
Certification	CE/FCC	CE/FCC Class A	
Display			
VGA/LCD Controller	Intel® Atom™ SoC	Intel® Atom™ SoC	Intel® HD Graphics 520/510
Video Output	CRT, LVDS LCD, DDI	VGA, LVDS, eDP	LVDS LCD (eDP Optional), DDI x 1
LVDS Interface	—		Supports 18-bit and 24-bit Single channel
I/O			
Ethernet	Intel® I211, Gigabit Ethernet	Intel® I210IT, Gigabit Ethernet	Intel® I219-LM
Audio	High Definition Audio Interface	HD Audio	High Definition Audio Interface
USB Port	USB 2.0 x 7, USB 3.2 Gen 1 x 1	USB 2.0 x 7	USB 2.0 x 8, USB 3.2 Gen 1 x 2
Serial Port	Tx/Rx x 2	—	2-Wire UART (TX/RX) x 2
HDD Interface	SATA x 2	SATA x 1, PATA x 1	SATA3 x 2
Onboard Storage	—		
Expansion Slot	PCI-Express[x1] x 3 (Gen 2.0), LPC Bus x 1, SMbus x 1	PCIe[x1] x 2, PCI x 4, I2C, LPC, SMBus	PCIe[x1] x4 (up to 4 devices) LPC, SMBus, I2C
GPIO	GPIO 8-bit		8-bit
TPM	—	Optional	fTPM optional
Note			

Note: All specifications are subject to change without notice.

COM Express CPU Modules



Model	NanoCOM-KBU-A20	NanoCOM-APL
System		
Form Factor	COM Express Mini size, Type 10	
CPU	Onboard 7th Generation Intel® Core™ U- Series SoC Processor	Onboard Intel® Atom™/Celeron®/Pentium® SoC
CPU Frequency	Up to i7-7600U 2C / 2.8 GHz	Up to 2.5 GHz
Chipset	Onboard 7th Generation Intel® Core™ U-series SoC	Intel® Atom™/Celeron®/Pentium® SoC
Memory Type	Onboard Non-ECC DDR4-2133	Onboard LPDDR4 4GB (Default) / 8GB (Optional)
Max. Memory Capacity	8GB DDR4	8GB LPDDR4 Onboard
BIOS	AMI BIOS, Legacy free	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Power Requirement	Standard: +12V	Standard : +12V, AT/ATX
Power Supply Type	AT/ATX	
Power Consumption (Typical)	i7-7600U, Onboard 8GB DDR4, full loading 1.83A@12V during 100% loading burn in test	Up to use E3950 TDP 12W CPU
Dimension (L x W)	3.31" x 2.17" (84 mm x 55 mm)	
Operating Temperature	32 °F ~ 140 °F (0 °C ~ 60 °C) -40 °F ~ 185 °F (-40 °C ~ 85 °C) Option for NANOCOM-SKU series	32 °F ~ 140 °F (0 °C ~ 60 °C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (hours)	80,000	
Certification	CE/FCC Class A	
Display		
VGA/LCD Controller	Intel® HD Graphics 620/610	Intel® HD Graphics 500 / 505
Video Output	LVDS LCD (eDP Optional), DDI x 1	LVDS LCD/eDP, DDI x 1
LVDS Interface	Supports 18-bit and 24-bit Single channel	
I/O		
Ethernet	Intel® I219-LM	Intel® I210IT
Audio	High Definition Audio Interface	
USB Port	USB 2.0 x 8, USB 3.2 Gen 1 x 2	USB 2.0 x 8, USB 3.2 Gen 1 x 2
Serial Port	2-Wire UART (TX/RX) x 2	TX/RX x 2
HDD Interface	SATA3 x 2	SATA III x 2
Onboard Storage	eMMC Optional	Optional onboard eMMC
Expansion Slot	PCIe [x1] x 4 (up to 4 devices) LPC SMBus I2C	PCI Express [x1], max 3 device, up to 4 lane available LPC Bus SM Bus I2C
GPIO	8-bit	GPIO 8-bit
TPM	fTPM Supported	—
Note		

Note: All specifications are subject to change without notice.

COM Express CPU Modules

Model	NanoCOM-BT	NanoCOM-WHU
System		
Form Factor	COM Express Mini size, Type 10	COM Express Mini size, 84mm x 55mm
CPU	Intel® Atom™/ Celeron® Processor SoC (M/I)	8th Generation Intel® Core™ ULT Series Processor
CPU Frequency	Up to E3845, 1.91 GHz	—
Chipset	Intel® Atom™/ Celeron® Processor SoC	Onboard 8th Generation Intel® Core™ SoC
Memory Type	Non-ECC DDR3L-1333	Onboard DDR4-2400/2133, non ECC support.
Max. Memory Capacity	2 GB DDR3L Onboard (up to 4 GB)	Up to 8GB
BIOS	AMI BIOS, Legacy free	AMI BIOS, Legacy free BIOS
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Power Requirement	Standard : +12V, AT/ATX Optional: +5V, AT/ATX	Standard: +12V
Power Supply Type	AT/ATX	AT Mode
Power Consumption (Typical)	0.7A@12V, full load, E3845	TBD
Dimension (L x W)	3.31" x 2.17" (84mm x 55mm)	
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) -40°F ~ 185°F (-40°C ~ 85°C) by E3800, 2GB SKU	32°F~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (hours)	90,000	TBD
Certification	CE/FCC Class A	
Display		
VGA/LCD Controller	Intel® HD Graphic	Intel® UHD Graphics 620 / 610
Video Output	LVDS LCD/eDP, DDI x 1	eDP, DDI x 1
LVDS Interface	Supports 18bit and 24bit Single channel	—
I/O		
Ethernet	Intel® I210IT	Intel® I219 GbE x 1
Audio	High Definition Audio Interface	HD Audio x 1
USB Port	USB 2.0 x 7, USB 3.2 Gen 1 x 1	USB 2.0 x 8, USB 3.2 x 2
Serial Port	TX/RX x 2	2-wire UART x 2 (TX/RX)
HDD Interface	SATA 2 x 2	SATA3 x 2
Onboard Storage	Optional for 8GB/16GB eMMC	eMMC
Expansion Slot	PCI Express [x1], max. 3 device, LPC Bus, Smbus, I2C	PCIe [x1] x4, I2C, LPC, SMBus
GPIO	GPIO 8-bit	8-bit
TPM	—	fTPM
Note		

Note: All specifications are subject to change without notice.

COM Carrier Boards

Model	ECB-916M Rev. B11	ECB-920A
System		
Form Factor	Micro-ATX	ATX
COM Express Connector	x 2	
I/O Chipset	Winbond W83627DHG	—
Front Panel Control	10-pin (5x2) header	10-pin (5x2) header
Ethernet	Intel® 82573L, 10/100/1000Base-TX, RJ-45 x 1 10/100 Base-TX or 10/100/1000Base-TX, RJ-45 x 1 (From CPU module)	10/1000/1000Base-TX, RJ-45 x 1 (From CPU module)
Expansion Interface	PCI-Express [x1] slot x 1 (additional 2 for test only) PCI-Express [x16] slot x 1 ==> Add a 3-pin header for SDVO enabled or disabled PCI slot x 1 Mini-PCI slot x 1 Mini-Card slot x 1 Express Card slot x 1	PCI-Express [x1] slot x 4 (3 by PCI-E[x1] x 1 pin-out, 1 by SIO pin-out) PCI-Express [x4] slot x 1 PCI-Express [x16] slot x 1 Mini-Card slot x 1
Power Supply Type	AT/ATX	ATX
CMOS Battery	RTC battery socket x 1	
BIOS	SPI x 1 Firmware Hub x 1 (with DIP Switch for BIOS Selection)	—
Board Size	9.6" x 9.6"(243.84mm x 243.84mm)	12" x 9.6"(304mm x 244mm)
Gross Weight	1.32 lb (0.6 kg)	
Operating Temperature	32˚F ~ 140˚F (0˚C ~ 60˚C)	
Storage Temperature	-40˚F ~ 176˚F (-40˚C ~ 80˚C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	77,000	75,000
Display		
DVI/CRT	DVI 29-pin + DB 15-pin stack-type connector	DB15 connector x 1
LVDS	30-pin (15 x 2) Dual-Channel LVDS connector x 1	
SDVO	40pin (20 x 2) SDVO connector x 1	—
DDI	—	DP connector x 4 (Dual x 1, Single x 2)
I/O		
Storage	40-pin PATA connectorx1 SATA 3.0 Gb/s x 3 CompactFlash™ Type 2 slot x 1	SATA x 4
Serial Port	RS-232 Port x 1 RS-232/422/485 Port x 1	2-wire RS-232 port x 2 (10-pin (5x2) box header x 2)
USB Support	Type-A connector x 4	Type A connector x 4 (USB 3.2 Gen 1) for Type 6, USB 2.0 port x 4
PS/2 Port	x 1	—
DIO	Supports 8-bit (Programmable)	GPIO 8bit
Audio	Audio jack x 6, Supports 7.1 channel audio Audio Codec: Realtek ALC888 Buzzer x 1	Audio Jack, supports Line-in, Line-out, Microphone
Switch/Button	Power button x 1 Reset button x 1	—
Debug LED	—	80 PORT
I2C	—	1
Note		

Note: All specifications are subject to change without notice.

UP Series

Model	UP Xtreme	UP Core Plus	UP Core
System			
Processor	8th generation Intel® Core i7/i5/i3/Celeron Processor SoC	Intel® Atom™ x5-E3930/x5-E3940/x7-E3950 Processor SoC	Intel® Atom™ x5-Z8350 Processor SoC
Graphics	Intel® Graphics , GEN 9	Intel® HD 500 Graphics / x5-3900 Series Intel® HD 505 Graphics / x7-3900 Series	Intel® HD 400 Graphics
I/O	RJ45 Ethernet Connector x 2, HDMI/DP STACK Connector x 1, Power Button / LED x 1, Audio Jack (Line out + MIC) x 1, DC connector (Lockable) x 1, STM32 connector x 1, eDP with Backlight control Header x 1, 10 pin USB2.0 x 1 / HSUART (TTL) x 1, SATA Connector with power connector (5V, GND) x 1, 4 pin Fan connector x 1, Power Button header x 1, Reset Pin header x 1, M.2 2230 E Key x 1, M.2 2280 B+M Key x 1, 40 pin HAT connector x 1, mPCIe slot x 1, 10 pin RS232/422/485 pin header x 2, 100pin connector x 1	eDP x 1 DP x 1 Audio Port via HDMI and I2S (from docking)	Full eDP x 1 HDMI x 1 Audio via HDMI and I2C (from docking)
Camera	—	CSI 2-Lane x 1, CSI 4-Lane x 1	MIPI-CSI (2 Lane) MIPI-CSI (4 Lane)
USB	USB 3.2 Gen 2 STACK Connector for 2 ports (Front) x 1 USB 3.2 Gen 2 STACK Connector for 2 ports (Rear) x 1	USB 2.0 pin header x 2, USB 3.2 Gen 1 OTG x 1, USB 3.2 Gen 1 x 1	USB 3.2 Gen 1 Host x 1 USB 2.0 pin header x 2
Expansion	M.2 2230 E Key x 1 M.2 2280 B+M Key x 1 mPCIe slot x 1 100pin connector x 1 40pin HAT	100pin docking connector x 2, including: USB 2.0, USB 3.2 Gen 1, 6 PCI-E Lane, SATA, I2C, I2S, SPI, PWM, LPC, SDIO, HSUART, ISH, GPIO	100 pin docking connector
RTC	RTC battery, CR2032 x 1	Yes	
Power	12V - 60VDC	12V DC-in @ 3A -5A 5.5/2.1mm jack	5V DC-in @ 4A 5.5/2.1mm jack
Dimension	4.8" x 4.72" (122 mm x 120 mm)	2.4" x 3.54" (56 mm x 90 mm)	2.22" x 2.6" (56.5 mm × 66 mm)
Memory	Onboard DDR4 memory, Max 16GB Single Channel: 4GB Dual Channel: 8GB, 16GB	2GB (single channel) LPDDR4 4GB/8GB (dual channel) LPDDR4	2GB/ 4GB DDR3L-1600
Storage	SATA3 (6Gb/s) x 3: a. SATA connector x 1 b. M.2 2280 SATA option (auto detect) x 1 c. minicard mSATA option (auto detect) x 1 eMMC 64GB	eMMC 32 GB / 64 GB/ 128GB	eMMC 16GB / 32GB/ 64GB
Display Interface	HDMI2.0 x 1 DP1.2 x 1 eDP x 1 CEC support with STM32 on HDMI x 1	eDP x 1, DP x 1	DSI/eDP x 1
Ethernet	i7/i5 SKU LAN (i210 AT) x 1, LAN (i219 LM) x 1 i3/Celeron® LAN (i210 AT) x 1, LAN (i219 V) x 1	—	
OS Support	Win 10 Linux Ubuntu 18.04 with Kernel 5.0 Linux Yocto 2.7 with Kernel 4.19	Microsoft Windows 10 Professional, Microsoft Windows 10, IoT Core, Linux (Ubuntu, Yocto), Android 7.0	Win 10 Linux (ubilinux, Ubuntu, Yocto) Android Marshmallow
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)		
Operation Humidity	0% ~ 90% relative humidity, non-condensing	10% ~ 80% relative humidity, non-condensing	10% ~ 80% relative humidity, non-condensing
Certification	CE/FCC class A, RoHS Compliant, REACH		
Note			

Note: All specifications are subject to change without notice.

Board Level Products

UP Series

Model	UP Squared	UP Board
System		
Processor	Intel® Pentium® N4200/ Celeron® N3350/ Atom™ E3940/ E3950 Processor SoC	Intel® Atom™ x5-Z8350 Processor SoC
Graphics	Intel® Gen 9 HD, supporting 4K Codec Decode and Encode for HEVC4, H.264, VP8	Intel® HD 400 Graphics, 12 EU GEN 8, up to 500MHz Support DX*11.1/12, Open GL*42, Open CL* 1.2 OGL ES3.0, H.264, HEVC(decode), VP8
I/O	HDMI x 1 DP x 1 I2S Audio Port	HDMI x 1 I2S Audio port x 1
Camera	CSI 2-Lane + CSI 4-Lane	MIPI-CSI (4 MEGA pixel)
USB	USB 2.0 x 2 USB 3.2 Gen 1 OTG x 1 USB 3.2 Gen 1 (Type A) x 3	USB 2.0 x 4 USB 2.0 pin header (10 pins in total) x 2 USB 3.2 Gen 1 OTG x 1
Expansion	40 pin GPIO x 1 Mini-PCIe x 1 M.2 2230 x 1 SATA3 x 1 60 pin EXHAT x 1	40 pin General Purpose bus, supported by Altera Max V. ADC 8-bit@188ksos
RTC	Yes	
Power	5V DC-in @ 4A-6A	5V DC-in @ 4A 5.5/2.1mm jack
Dimension	3.37" x 3.54" (85.6 mm × 90 mm)	3.37"x 2.22"(85.6mm x 56.5mm)
Memory	2GB (single channel) LPDDR4, 4GB/8GB (dual channel) LPDDR4)	1GB/ 2GB/ 4GB DDR3L-1600
Storage	eMMC 32 GB / 64 GB / 128 GB	eMMC 16GB / 32GB/ 64GB
Display Interface	eDP	DSI/eDP
Ethernet	Gb Ethernet (full speed) RJ-45 x 2	Gb Ethernet (full speed) RJ-45 x 1
OS Support	Microsoft Windows 10 (full), Windows IOT Core, Linux (ubilinux, Ubuntu, Yocto), Android Nougat	Win 10 Linux (ubilinux, Ubuntu, Yocto) Android Marshmallow
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Operation Humidity	0% ~ 90% relative humidity, non-condensing	10% ~ 80% relative humidity, non-condensing
Certification	CE/FCC Class A, RoHS Compliant, REACH	CE/FCC Class A, RoHS Compliant
Note		

Note: All specifications are subject to change without notice.

UP Series

Launching in Q4

Model	UPN-APL01	UP Xtreme Lite
System		
Processor	Intel® Pentium® N4200/ Celeron® N3350 Atom™ E3950 Processor SoC	8th generation Intel® Core i7/i5/i3/Celeron Processor SoC
Graphics	Intel® Gen 9 HD, supporting 4K Codec Decode and Encode for HEVC4, H.264, VP8	Intel® Graphics , GEN 9
I/O	HDMI x 1 DP x 1 Audio Jack x1 RS422/232/RS485 pin head x2	RJ45 Ethernet Connector x 2 HDMI/DP STACK Connector x 1 Power Button / LED x 1 Audio Jack (Line out + MIC) x 1 DC connector (Lockable) x 1 eDP with Backlight control Header x 1 10 pin 1xUSB2.0 x 1 / HSUART (TTL) x 1 SATA Connector with power connector (5V, GND) x 1 4 pin Fan connector x1 Power Button header x 1 Reset Pin header x 1 M.2 2230 E Key x 1 M.2 2280 B+M Key x 1 40 pin HAT connector x 1 M.2 3042/3052 B-key 10 pin RS232/422/485 pin header x 2
Camera	—	—
USB	USB2.0 x 2, USB3.2 Gen 1 x 3, USB3.2 Gen 1 OTG x 1 USB3.2 Gen1 (Type A) x 3	USB 3.2 Gen 2 STACK Connector for 2 ports (Front) x 1 USB 3.2 Gen 2 STACK Connector for 2 ports (Rear) x 1
Expansion	40 pin GPIO x 1 (keep CPLD) M.2230/M.2 2280 Colay x 1 SATA3 x 1 5G 3052/3042 module colay (support with SIM)	M.2 2230 E Key x 1 M.2 2280 B+M Key x 1 M.2 3042/3052 B Key x 1 40pin HAT
RTC	Yes	RTC battery, CR2032 x 1
Power	12V-24V DC-in (Lockable plug)/ Phoenix connector (optional)	12V - 24 VDC
Dimension	10.16cm x 10.16cm	122 x 120 mm
Memory	On board memory (2CH)	DDR4 SO-DIMM (optional), Max 16GB Single Channel: up to 16GB
Storage	eMMC 32 GB / 64 GB	SATA3 (6Gb/s) x 1: a. SATA connector x 1 b. M.2 2280 SATA option (auto detect) x 1 c. minicard mSATA option (auto detect) x 1
Display Interface	eDP	HDMI 1.4 x 1 DP 1.2 x 1 eDP x 1
Ethernet	Gb Ethernet (full speed) RJ-45 x 2	i7/i5 SKU i3/Celeron® LAN (I211) x 2
TPM	TPM 2.0	—
OS Support	Microsoft Windows 10 (full), Windows IOT Core Linux: Ubuntu 16.04.6 Ubuntu18.04.3 Yocto 2.5(Sumo)	Windows 10 Linux Ubuntu 18.04 with Kernel 5.0 Linux Yocto 2.7 with Kernel 4.19
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Operation Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
Certification	CE/FCC Class A, RoHS Compliant , REACH	CE/FCC class A, RoHS Compliant, REACH
Note		

Note: All specifications are subject to change without notice.

UP Series

Launching in Q4

Model	Vision Plus X	Net Plus	Connector Plus
System			
VPU	Intel® Movidius™ Myriad™ X VPU x 3 , MA2485	—	
Ethernet	Intel® WGI211AT PCI-E Gigabit Ethernet x 1	Intel I211-AT x 4 (A10-001) Intel I210-IT for wide temperature x 4 (A10-002)	3x Intel I211-AT (Optional with I210-IT for wide temperature)
Power Requirement	12V5A		
Power Supply Type	12VDC from M/B		
Power Consumption (Typical)	Max 25W	Max 10W	13.5W(Max) w/o 5G module
Dimensions (L x W)	3.54" x 2.2" (90 mm x 56 mm)		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)		
Operation Humidity	10 ~ 80% relative humidity, non-condensing		
Certification	CE/FCC Class B		
OS Support	Microsoft Windows 10 Linux: ubilinux, Ubuntu, Yocto Android-IA 9.0		
I/O			
Ethernet	RJ45 x 1 (Intel WGI211AT PCI-E Gigabit Ethernet)	001: Intel® I211-AT x 4 002: Intel® I210-IT x 4 for wide temperature	3x Intel I211-AT (Optional with I210-IT for wide temperature)
USB	USB 3.2 Gen 1 Type A x 2	USB 3.2 Gen 1 Type A x 1	
SATA	—	SATA x 1 (vertical)	—
Expansion Slot	mPCIe Slot (Full Size) (SATA/USB/PCIE) x 1 SIM Card Slot x 1 DOCKING I (2x I2C) DOCKING II (3x PCIe.G2, 1x USB 3.2 Gen 1, 1x SATA, 2x USB 2.0)	mPCIe Slot (Full Size) x 1 (SATA/USB/PCIE) SIM Card Slot x 1 DOCKING I DOCKING II	M.2 Key B x 1 Micro SIM CARD x 1 DOCKING I DOCKING II SPI Conn x1 Uart Conn x 1
Note			

Note: All specifications are subject to change without notice.

UP Series




Model	UP-3G HAT	UP-POE HAT	UPC-CRST02	UPC-CRST01
System				
IC	2-CH FULL-SPEED USB UART x 1 USB 2.0 Hub x 1 RS-232/RS-485/RS-422 transceiver x 2	LT4321I (PoE Ideal Diode Bridge Controller) x 1 LT4276B (PD Forward / Flyback Controller) x 1	MAX10 FPGA for 40pin setting x 1 2-CH FULL-SPEED USB UART x 1 RS-232/485/422 transceiver x 1 EEPROM on I2C0 4Kb with Jumper for A0~A2 address x 1	2 channel PCIe Switch x 1 Realtek RTL8111G-CG x 1 HSIC to USB to 3 USB ports (1 x minicard, 2 x connector) x 1 EEPROM on I2C0 4Kb with Jumper for A0~A2 address x 1
I/O Placements				
External Ports	RS-232/422/485 Connector (DB9) x 1	RJ45 input x 1 RJ45 output x 1	RS-232/422/485 Connector (DB9) x 1 12-24V Power input (+-10%) x 1	RJ45 Ethernet port x 1 USB 2.0 x 2 SD Card (Pluggable at back side) x 1
Internal connector	RS-232 wafer (RS-232/422/485) x 1 USB wafer x 1 Minicard x 1 uSIM Card Reader x 1 HAT 40 GPIO male (4x GPIO, 3.3V, 5V, GND) x 1 WIFI LED x 1 3G LED x 1 Power LED x 1	HAT 40 GPIO male (5V, GND) x 1	Jumper for RS-232/422/485 x 1 Power LED x 1 100PIN board-board connector(M) x 1 100PIN board-board connector(F) x 1 30 pin wafer box header for HAT 40 IO pins x 1 20 pin wafer box header for FPGA MAX10 reserved pins x 1	Power LED x 1 Minicard x 1 uSIM Card Reader x 1 100PIN board-board connector(M) x 1 100PIN board-board connector(F) x 1
Others				
Form Factor	2.56" x 2.2" (65 mm × 56 mm)	3.37" x 2.22" x 0.98" (85.6 mm x 56.5 mm x 25 mm)	2.22" x 2.6" (56.5 mm × 66 mm)	
Certification	CE/FCC Class A			
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)			
Operating Humidity	10%~80% RH, non-condensing	—	10%~80% RH, non-condensing	
OS Support	—	No OS limitation	—	
Optional				
WiFi Module	UP-WIFIMD-A20-7001 (WiFi module: 7M02) UP-WIFIMD-A20-4001 (WiFi module: 4M02)	—		
BT Module	UP-BTMD-A20-0001	—		
3G Module	9741UC20G0 (3G module: UC20-G)	—		
Note				

Note: All specifications are subject to change without notice.

Board Level Products

IoT Gateway / Node Boards

Model	SRT-3352	SRT-3352C
System		
Processor	ARM Cortex-A8 800 MHz RISC Processor	
System Memory	Onboard DDR3L 1GB	
RTC	Serial real time clock x 1	
Expansion Interface	3G/4G LTE mini PCIe connector; NB-IoT connector; SIM card socket	3G/4G LTE mini PCIe connector; NB-IoT connector; SIM card socket x 1
Battery	3V CR2032 Lithium battery for RTC	
Power Requirement	DC9-30V	DC10-30V
Power Consumption (Typical)	2.28 W	1.8 W
Board Size	3.66" x 5.35"(93mm x 136mm)	3.94" x 3.78" (100 x 96mm)
Gross Weight	88 g	70 g
Operation Temperature	32 °F ~ 140 °F (0 °C ~ 60 °C)	
Storage Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C)	
Operation Humidity	10% ~ 95% relative humidity, non-condensing	
MTBF (Hours)	855,890	
I/O		
Storage	eMMC 8G; Micro SD slot	
Serial Port	RS-485 x 2	
LAN	Gigabit Ethernet, RJ-45 x 2	
Universal Serial Bus	USB 2.0 x 2	
GPIO	4 LED control	
Note		

Model	AIOT-ILND01
System	
SIZE	3.35" x 2.56" (85 mm x 65 mm)
MCU	ST STM32L Semtech SX1276
I/O Placements	GROVE connectors x 3 - UART1 (RS-232/RS-485) x 1 - UART2 (TX/RX) x 1 - I2C x 1 Temperature & humidity sensor x 1 3-axis Accelerometer (2G/4G/8G/16G) x 1 Micro USB2.0 type B for power supply x 1 JTAG-debug port x 1 Battery connector x 2 for 14500 Lithium-ion battery x 2
Others	LED (GPIO control) x 4 3 buttons - boot select x 1 - User defined x 2 - Reset button x 1 SMA antenna connector x 1 IPEX antenna connector (Optional) x 1
Power Input	+5V (via Micro USB) 14500 Lithium-ion battery for external power x 2
Operating Temperature	32 °F ~ 140 °F (0 °C ~ 60 °C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
Certification	CE
Note	COMPUTEX d&i awards 2019

Note: All specifications are subject to change without notice.

IoT Gateway / Node Boards

Model	AIOT-MSSP01
External Connector	
USB	USB 2.0 type A connector x 5 (via USB HUB) USB 2.0 type B connector x 1 (USB HUB Host)
Internal Connector	
MDB	MDB x 1
1-Wire	1-WIRE x 1
DEX	DEX x 1
Protocol A	Protocol A (EXE) x 1
Keypad	8 Bit Keypad x 1 (subject to support 4 x 4 keypad)
LCD	LCD x 1
ADC	4-channel ADC x 1
Relay GPIO	4-channel Relay GPIO for 12V & 5V by switch x 1
GPIO	16 Bit GPIO x 2
24V GPI	8 Bit 24V GPI x 1
24V Analog Voltage Sense	24V Analog voltage sense x 1
Power Input	24V AC/DC Power Input x 1
Motor Switch	Select motor 24Vdc or 12Vdc switch (Motor supports GPIO, DC, PWM type) x 1
Full Bridge Motor	Full bridge motor control x 5
Low Side Motor	Low side motor control x 16
Expansion Header	2* 20 PIN header x 2
Others	
Form Factor	5.91" x 5.51" (150 mm x 140 mm)
Power Source	24V AC @ 50Hz, 24V DC
Operating Temperature	32 °F ~ 140 °F (0 °C ~ 60 °C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
Certification	CE, FCC
Note	

Model	SCA-M01
Board	
Micro controller	ARM-Cortex M4 MCU+FPU
Expansion interface	mini PCIe connector
Operating voltage	110 V~220V
Dimension	3.35" x 2.56" (85 mm x 65 mm)
Operation temperature	32 °F ~ 140 °F (0 °C ~ 60 °C)
Storage Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C)
MTBF (Hours)	1,299,248
I/O port	
Serial port	RS-485
LAN	10/100 Base-TX, RJ-45 x 1
GPIO	GPIO x 4
USB	Micro USB
AC relay	Relay output
Other Interface	UART; I2C; SPI
Wireless	Support 4G/WiFi via mini PCIe slot
Note	

Note: All specifications are subject to change without notice.

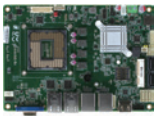
EPIC Boards

Model	EPIC-KBS9-PUC
System	
CPU	CPU Socket Type
CPU Frequency	7th Generation Intel® Core™ Processor family: Intel® Core™ i7-7700, 3.6 GHz(65W) Intel® Core™ i7-7700T, 2.9 GHz(35W) Intel® Core™ i5-7500, 3.4 GHz(65W) Intel® Core™ i5-7500T, 2.8 GHz(35W) Intel® Core™ i3-7101E, 3.9 GHz(54W) Intel® Core™ i3-7101TE, 3.4 GHz(35W) Intel® Celeron® G3930TE, 2.7 GHz(35W) 6th Generation Intel® Core™ Processor family: Intel® Core™ i7-6700, 3.4 GHz(65W) Intel® Core™ i7-6700TE, 2.4 GHz(35W) Intel® Core™ i5-6500, 3.2 GHz(65W) Intel® Core™ i5-6500TE, 2.3 GHz(35W) Intel® Core™ i3-6100, 3.7 GHz(65W) Intel® Core™ i3-6100TE, 2.7 GHz(35W) Intel® Celeron® G3900TE, 2.3 Ghz(35W) (Support 35-65W)
Chipset	H110/H170/Q170 (TDP: 6W)
System Memory	DDR4 (Non-ECC) Memory slot x 2, up to 32GB
Display Interface	HDMI x 1, VGA x 1
Storage Device	Full size mSATA x1 (Default) or 2.5" HDD x1 (Optional)
Ethernet	Intel® I211, 10/100/1000Base-TX x 4 (4 ports as default, 2 ports as option)
I/O	RS-232/422/485 x 1 + VGA x 1 as default (2 ports RS-232/422/485 as option), USB 3.2 Gen 1 x 2 (Real IO), USB 2.0 x 2 (From internal header) HDMI1.4 x 1 (Native), GbE LAN x 4 (4 ports as default, 2 ports as option), Power button x 1, Power DC input x 1
Expansion	Mini-PCIe slot (Share with mSATA as above) PCIe[x4] Slot x 1 (Q170 and H170 SKU)
Indicator	Power LED on power button
Power Requirement	12V with lockable DC jack
Mechanical	
Mounting	VESA Mount (100x100mm, 94x94mm)
Dimensions (W x H x D)	8.5" x 7.09" x 2.56" (216 x 180 x 65mm) (Unit size) 12.6" x 11.42" x 5.31"(320 x 290 x 135mm) (With Packing)
Gross Weight	6.6 lb (3 kg)
Net Weight	4.4 lb (2 kg)
Environmental	
Operating Temperature	32°F ~ 104°F (0°C ~ 50°C)
Storage Temperature	-4°F ~ 176°F (-20°C ~ 80°C)
Storage Humidity	0 ~ 90% @ 40°C, non-condensing
Anti-Vibration	1 Grms/ 5 ~ 500Hz/ operation – with mSATA
Certification	CE/FCC class A

Model	EPIC-CFS7
System	
Form Factor	4" EPIC Board
CPU	8th Generation Intel® Core™ Processor family
CPU Frequency	Up to 4.6GHz
Chipset	Intel® H310/Q370 (TDP: 6W)
Memory Type	SODIMM DDR4 (ECC) Memory slot x 2
Max. Memory Capacity	Up to 32GB
BIOS	UEFI only
Wake on LAN	Yes
Watchdog Timer	255 Levels
Power Requirement	+12V
Power Supply Type	AT/ATX (ATX mode for system level)
Power Consumption (Typical)	TBD
Dimension (L x W)	115 x 165mm (EPIC Board Level) 216 x 180 x 65mm (System level)
Operating Temperature	32°F ~ 122°F (0°C ~ 50°C)
Storage Temperature	-4°F ~ 176°F (-20°C ~ 80°C)
Operating Humidity	0 ~ 90% @ 40°C, non-condensing
MTBF (hours)	TBD
Certification	CE/FCC Class A
Display	
VGA/LCD Controller	8th Generation Intel® Core™ Processor family
Video Output	HDMI x 2
Backlight inverter supply	—
I/O	
Ethernet	Intel® I211 GbE x 4 (Support PoE 802.3af)
Audio	—
USB Port	USB 3.2/ USB2.0 x 4 (Rear I/O) USB 2.0 x 2 (Internal header)
Serial Port	RS-232/422/485 x 2 (Internal header)
Parallel Port	—
HDD Interface	SATA 3.0 x 1
SSD	—
Expansion Slot	PCIe[x4] FPC slot (For PoE card) Full Size mSATA/mPCIe slot x 1 LPC Bus SMBus (default) / I2C (option)
DIO	8-bit
TPM	—
Touch	—
Note	—

Note: All specifications are subject to change without notice.

EPIC Boards



Model	EPIC-KBS9	EPIC-KBS8	EPIC-KBS7
System			
Form Factor	4" EPIC Board		
CPU	CPU Socket Type		6th/7th Generation CPU (Socket Type, TDP 35W, 54W Only)
CPU Frequency	6th/7th Generation Intel® Core™ i3/i5/ i7/Celeron® (Support up to 65W SKU)	6th/7th Generation Intel® Core™ i3/i5/ i7/Celeron® (Support up to 54W SKU)	6th/7th Generation Intel® Core™ i3/i5/ i7/Celeron®
Chipset	H110/H170/Q170 (6W)	H110/Q170 (6W)	H110/Q170 (6W)
Memory Type	DDR4 (Non-ECC) SODIMM x 2, 2133MHz, up to 32GB	DDR4 (Non-ECC) SODIMM x 1, 2133MHz	DDR4 (Non-ECC), 2133MHz
Max. Memory Capacity	Up to 32GB	Up to 16GB	
BIOS	AMI		
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Power Requirement	+12V, AT/ATX	9-24V (Optional: 12V)	12V or 9-24V (Default)
Power Supply Type	AT/ ATX		
Power Consumption (Typical)	—		50W@Full loading
Dimension (L x W)	4.53" x 6.50" (115mm x 165mm)		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)		
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
MTBF (Hours)	—		110,000
Certification	CE/FCC		
Display			
VGA/LCD Controller	6th/7th Generation Intel® Core™ i3/i5/i7/Celeron®		
Video Output	HDMI (Rear), VGA (Internal Only)	VGA/LVDS1 (Optional: LVDS2/eDP)	CRT/LVDS/HDMI
Backlight Inverter Supply	—	Max 12V, 2A	Max. 12V
I/O			
Ethernet	Intel® i211 Gigabit Ethernet x 4	LAN x 2 (Rear IO)	LAN x 2 (Real IO) (i211 x 2)
Audio	ALC269 (With Amp)	REALTEK ALC892 (Optional: 2W Amp, I2S)	ALC892, no Amp
USB Port	USB 3.2 Gen 1 x 2 (Real IO) USB2.0 x 2 (Internal)	USB 3.2 Gen 1 x 2 (Rear I/O) USB2.0 x 10 (Internal, for Q170 SKU)	USB 3.2 Gen 1 x 4 (Real IO) USB2.0 x 2 (Internal)
Serial Port	COM x 2 (All Internal), RS-232/422/485	COM x 6 (All internal, COM2: RS-232/422/485, COM2-5 5V/12V/RI)	COM x 4 (COM2: RS-232/422/485)
Parallel Port	—		
HDD Interface	SATA 3.0 x 2	SATA 3.0 x 1	SATA 3.0 x 2, SATA Power (5V)
SSD	mSATA x 1 (Full size)	mSATA x 1 (Half size, optional for Mini-card)	mSATA x 1 (optional for mini-Card)
Expansion Slot	Mini-card x 1 (Full Size) (No SIM) PCIe[x4] Slot x 1	Mini-card x 1 (Full size)	Mini-card x 1, Micro SIM x 1 (Optional)
DIO	8-bit		
TPM	—		
Touch	—		
Note			

Note: All specifications are subject to change without notice.

EPIC Boards

Model	EPIC-SKH7	EPIC-BDU7
System		
Form Factor	4" EPIC Board	
CPU	6th/7th Generation Intel® Core™ i-H series Processor	5th Generation Intel® Core™ i3/i5/i7 ULT Processor SoC
CPU Frequency	i7-6822EQ (4C, 2GHz, up to 2.8GHz) i7-7820EQ (4C, 3.0GHz, up to 3.7GHz)	Up to 2.2 GHz
Chipset	Intel® QM170 (TDP: 2.6W)	5th Generation Intel® Core™ i series ULT Processor SoC
Memory Type	SODIMM DDR4 (ECC) Memory slot x 2	DDR3L 1333/1600, SODIMM x 1
Max. Memory Capacity	Up to 32GB	Up to 8GB
BIOS	UEFI/Legacy	UEFI
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Power Requirement	+9V ~ 36V	+12V or 9-24V AT/ATX (default)
Power Supply Type	AT/ATX	AT/ ATX
Power Consumption (Typical)	CPU 45W TDP	38.8W
Dimension (L x W)	4.53" x 6.5" (115 x 165 mm)	4.53" x 6.50" (115mm x 165mm)
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	TBD	63,000
Certification	CE/FCC Class A	CE/FCC
Display		
VGA/LCD Controller	Intel® HD Graphics 530 Intel® HD Graphics 630	5th Generation Intel® Core™ i series ULT Processor SoC
Video Output	LVDS x 2 HDMI 1.4 x 2	Triple independent Displays VGA, LVDS, DP, LVDS(Opt.), eDP(Opt.)
Backlight Inverter Supply	18/24bit (2CH)	Max. 12V
I/O		
Ethernet	Intel GbE i211	Intel® WGI211AT x 1/ WGI218LM x 1, RJ-45 x 2
Audio	ALC269 (With 2W Amp)	High Definition Audio Interface
USB Port	USB 3.2 Gen 1/2.0 x 2 (Rear I/O) USB 2.0 x 5 (Internal header)	USB2.0 x 4, USB 3.2 Gen 1 x 2
Serial Port	RS-232/422/485 x 2 (Internal header) RS-232 x 2 (Internal header)	COM: RS-232 x 4 COM2, COM3: RS-232/422/485 x 2 (Ring/+5V/+12V)
Parallel Port	—	SPP/EPP/ECP x 1
HDD Interface	SATA x 2	SATA 3.0 x 2
SSD	—	mSATA (Share with full-size Mini-Card by BIOS)
Expansion Slot	M.2 2280 Slot (B Key) x 1 M.2 2230 Slot (E Key) x 1 Mini-PCIe Slot (PCIe/USB2.0) x 1 Micro-SIM slot LPC Bus SMBus (default) / I2C (option)	Mini Card x 1 SIM x 1 PCI-104 (Optional) 16-bit DIO or LPT PS/2 x 1
DIO	8-bit	16-bit
TPM	—	Optional
Touch	—	Optional
Note		

Note: All specifications are subject to change without notice.

EPIC Boards

Model	EPIC-BT07
System	
Form Factor	4" EPIC Board
CPU	Intel® Atom™ E3845/Celeron® J1900/N2807
CPU Frequency	Up to 2.0 GHz
Chipset	Intel® Atom™/ Celeron® SOC
Memory Type	DDR3L 1333, SODIMM x 1
Max. Memory Capacity	Up to 8GB
BIOS	AMI
Wake on LAN	Yes
Watchdog Timer	255 Levels
Power Requirement	+12V or 9-24V AT/ATX (default)
Power Supply Type	AT/ ATX
Power Consumption (Typical)	11.8W
Dimension (L x W)	4.53" x 6.50" (115mm x 165mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	110,000
Certification	CE/FCC
Display	
VGA/LCD Controller	Intel® Atom™/ Celeron® SOC
Video Output	CRT, LVDS, HDMI
Backlight Inverter Supply	Max. 12V
I/O	
Ethernet	Intel® i211 Gigabit Ethernet, RJ-45 x 2
Audio	High Definition Audio Interface
USB Port	USB2.0 x 5 USB 3.2 Gen 1 x 1
Serial Port	COM1, 4, 5, 6 : RS-232 x 4 COM2, 3 : RS-232/422/485 x 1 (Ring/ +5V/ +12V)
Parallel Port	SPP/EPP/ECP x 1
HDD Interface	SATA 2.0 x 1
SSD	mSATA x 1 (Share with half-size Mini-Card by BOM)
Expansion Slot	Mini-Card x 1 Micro-SD x 1 (Only E3800 series) PCI-104 x 1 (optional) 16-bit DIO or LPT SMbus x 1 I2C x 1 (optional) PS/2 x 1
DIO	16-bit
TPM	Optional
Touch	Optional
Note	

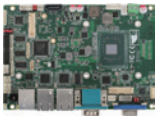
Note: All specifications are subject to change without notice.

SubCompact Boards

Model	GENE-WHU6	GENE-KBU6
System		
Form Factor	3.5'' SubCompact Board	
CPU	Intel® 8th Generation Core™ i7/i5/i3/Celeron SoC i7-8665UE (4C, 1.7GHz, up to 4.4GHz) i5-8365UE (4C, 1.6GHz, up to 4.1GHz) i3-8145UE (2C, 2.2GHz, up to 3.9GHz) 4305UE (2C, 2GHz)	7th Generation Intel® Core™ i7-7600U Processor SoC
CPU Frequency	Up to 4.4GHz	Up to 3.9GHz
Chipset	8th Generation Intel® Processor SoC	7th Generation Intel® Processor SoC
Memory Type	2400MHz Dual Channel DDR4 (Non-ECC) SODIMM x 2	DDR4 1866/2133, SODIMM x 1
Max. Memory Capacity	Up to 64GB	Up to 16GB
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Power Requirement	+9-36V (Optional: +12V)	+9 ~ 36V or +12V
Power Supply Type	AT/ATX	AT/ ATX
Power Consumption (Typical)	Intel® i7-8665UE, DDR4 2400 MHz 16GB, 2.8A@ +12V	Intel® i7-7600U, DDR4 2400MHz 16GB, 1.85A@ +12V
Dimension (L x W)	5.75" x 4" (146mm x 101.7mm)	
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~ 176°F (-40°C ~ 81°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	TBD	123,000
Certification	CE/FCC	
Display		
VGA/LCD Controller	Intel® 8th Generation Core™ i7/i5/i3/Celeron SoC	7th Generation Intel® Processor SoC
Video Output	LVDS/eDP x 1 (Default: LVDS), VGA x 1, HDMI 2.0 x 1	DVI-D, LVDS, DP (Default) DVI-I, LVDS (include VGA signal)
Backlight Inverter Supply	Yes	
I/O		
Ethernet	Intel® i210/i211 & i219, 10/100/1000Base, RJ 45 x 2	Intel® i210/i211, 10/100/1000Base-TX, RJ-45 x 2
Audio	High Definition Audio Interface	
USB Port	USB 3.2 Gen 2 x 4/2.0 x 2 (Up to Gen2)	USB 3.2 Gen 1 x 4, USB 2.0 x 2
Serial Port	RS-232/422/485 x 2	RS-232 x 1, RS-232/422/485 x 3
Parallel Port	—	
HDD Interface	SATA 3.0 x 1, +5V SATA power connector x 1	
FDD Interface	—	
SSD	Full size mSATA/mPCIe x 1 with NANO-SIM (mSATA as default, select by BIOS) M.2 2280 B key (PCI-e as default, SATA select by BIOS)	mSATA (Shared with half-size MiniCard and Selected by BIOS)
Expansion Slot	M.2 2230 E key x 1 (For WIFI/BT, PCIe/USB signal only) SMBUS/I2C/LPC/eSPI x 1	BIO x 1 Mini-Card x 2 and default is mSATA x 1 (Half-size), Mini-Card x 1 (Full-size)
DIO	8 Bit	
SIM	x 1(NANO-SIM)	x 1
TPM	—	TPM 2.0 x 1
Touch	x 1	
Note		

Note: All specifications are subject to change without notice.

SubCompact Boards



Model	GENE-SKU6	GENE-APL5	GENE-APL6
System			
Form Factor	3.5'' SubCompact Board		
CPU	6th Generation Intel® Core™ i7-6600U/ i5-6300U Processor SoC	Intel® Pentium® N4200/ Celeorn® N3350 Processor SoC	Intel® Pentium® N4200/ Celeron® N3350 Processor SoC
CPU Frequency	Up to 3.0Ghz	Up to 2.5 GHz	
Chipset	6th Generation Intel® Core™ i7-6600U/ i5-6300U Processor SoC	Intel® Pentium® N4200/ Celeron® N3350 Processor SoC	
Memory Type	DDR4 1866/2133, SODIMM x1	DDR3L 1866MHz, SODIMM x 1	
Max. Memory Capacity	Up to 16 GB	Up to 8GB	
BIOS	UEFI		
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Power Requirement	+9~36V or +12V	+12V OR +9~19V (optional)	+9~36V or +12V
Power Supply Type	AT/ ATX		
Power Consumption (Typical)	Intel® i7-6600U, DDR4 2133MHz 16GB, 1.75A@ +12V	Intel® N4200, DDR3L 1600MHz 8GB, 1.57A@ +12V	Intel® N4200, DDR3L 1600MHz 8G, 1.55A@ +12V
Dimension (L x W)	5.75" x 4" (146mm x 101.7mm)		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)		
Storage Temperature	-40°F ~ 176°F (-40°C ~ 81°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
MTBF (Hours)	123,000	128,000	128,793
Certification	CE/FCC		
Display			
VGA/LCD Controller	6th Generation Intel® Core™ Processor SoC	Intel® Atom™ N4200/ N3350 Processor SoC integrate	Intel® Pentium® N4200/ Celeron® N3350 Processor SoC
Video Output	DVI-D, LVDS, DP (Default) DVI-I, LVDS (include VGA signal)	VGA/LVDS/ LVDS2 (co-layout with HDMI, optional)	LVDS, LVDS2, VGA (HDMI is option, co-layout with LVDS2)
Backlight Inverter Supply	Yes		
I/O			
Ethernet	Intel® i210/i211, 10/100/1000Base-TX, RJ-45 x 2		
Audio	High Definition Audio Interface		
USB Port	USB 3.2 Gen 1 x 4, USB 2.0 x 2	USB 3.2 Gen 1 x 2, USB 2.0 x 4	USB 3.2 Gen 1 x 2, USB 2.0 x 2
Serial Port	RS-232 x 1, RS-232/422/485 x 3	RS-232 x 2 , RS-232/422/485 x 2	
Parallel Port	—	SPP/EPP/ECP x 1 (Option, Shared with DIO)	
HDD Interface	SATA 3.0 x 1 +5V SATA power connector x 1		
FDD Interface	—		
SSD	mSATA (Shared with Half-size Mini-Card and Selected by BIOS)	mSATA	eMMC 16G/32G/64G (optional)
Expansion Slot	BIO x 1, mSATA x 1(Half-size), Mini-Card x 1(Full-size)	mSATA x 1 (Full-size) MiniCard x 1 (Half-size)	Mini Card x 1 (Full-size) mSATA x 1 (Half-size)
DIO	8-bit		
SIM	x 1	x 1 (uSIM) (Optional)	x 1 (uSIM)
TPM	TPM2.0	TPM2.0 x 1 (Optional)	
Touch	x 1	x 1 (Optional)	
Note			

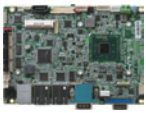
Note: All specifications are subject to change without notice.

SubCompact Boards

Model	GENE-APL7	GENE-BSW5	GENE-BT04
System			
Form Factor	3.5'' SubCompact Board		
CPU	Intel® Pentium® N4200/ Celeron® N3350 Processor SoC	Intel® Pentium® & Celeron® M/D Processor SoC	Intel® Celeron® J1900/ N2807 Processor SoC
CPU Frequency	Up to 2.5 GHz	Up to 2.6 GHz	Up to 2.0GHz
Chipset	Intel® Pentium® N4200/ Celeron® N3350 Processor SoC	Intel® Pentium® & Celeron® M/D Processor SoC	Intel® Celeron® J1900/ N2807 Processor SoC
Memory Type	DDR3L 1866MHz, SODIMM x 1	DDR3L 1600, SODIMM x 1	DDR3L 1333, SODIMM x 1
Max. Memory Capacity	Up to 8GB		
BIOS	UEFI		
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Power Requirement	12V Only	+12V	+12V ~ +24V
Power Supply Type	AT/ ATX		ATX mode
Power Consumption (Typical)	Intel® N4200,DDR3L 1600MHz 8GB,1.61A@+12V	Intel® Celeron® N3160 (2M Cache, up to 2.24 GHz, DDR3L 1600MHz, 8GB, 0.65A@ + 12V)	Intel® N2807, DDR3L 1600MHz 4G, 0.65A@ +12V
Dimension (L x W)	5.75" x 4" (146 mm x 101.7 mm)		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)		
Storage Temperature	-40°F ~ 176°F (-40°C ~ 85°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
MTBF (Hours)	126,000	81,000	155,000
Certification	CE/FCC		
Display			
VGA/LCD Controller	Intel® Pentium® N4200/ Celeron® N3350 Processor SoC	Intel® Pentium® & Celeron® M/D SoC	Intel® Celeron® J1900/ N2807 Processor SoC
Video Output	VGA/LVDS1 (Option: LVDS2/eDP)	LVDS x 2 + VGA, LVDS + HDMI + VGA	HDMI x 2: HDMI 1(w/Audio), HDMI 2(w/o Audio)
Backlight Inverter Supply	Max 12V, 2A	Up to 24-bit dual-channel LVDS	—
I/O			
Ethernet	Realtek RTL-8111E, RJ-45 x 2	Realtek RTL-8111E, 10/100/1000Base-TX, RJ-45 x2	Intel® I211AT(or 210), 10/100/1000Base-TX, RJ-45 x 4
Audio	High Definition Audio Interface (Option 2W Amp)	High Definition Audio Interface	
USB Port	Rear I/O: USB 3.2 Gen 1 x 2, Internal: USB2.0 x 8	USB 3.2 Gen 1 x 2 , USB2.0 x 3	USB2.0 x 2 , USB 3.2 Gen 1 x 1
Serial Port	Rear I/O: COM x 2 (COM2 is RS-232/422/485), Internal: COM x 4 (Option to COM x 10), COM2-5 support 5V/12V/RI	RS-232/422/485 x 2, RS-232 x 4	RS-232 x 1
Parallel Port	—	SPP/EPP/ECP x 1 (Option, Shared with DIO)	—
HDD Interface	SATA 3.0 x 1		SATA 2.0 x 1
FDD Interface	—		
SSD	mSATA x 1 (Full, optioal for mini-card)	mSATA x 1 (Half-size)	CFast™ x 1
Expansion Slot	Mini-card x 1 (Full size)		Mini-Card x 1 (for USB only)
DIO	8-bit		4 Bit
SIM	Micro SIM x 1 (Option)	x 1	
TPM	—		x 1
Touch	—	x 1 (USB interface)	—
Note			

Note: All specifications are subject to change without notice.

SubCompact Boards



Model	GENE-BT05	GENE-BT06	GENE-BT07
System			
Form Factor	3.5'' SubCompact Board		
CPU	Intel® N2930/N2807/J1900/E3845/ E3825	Intel® Atom™ E3845/E3825	Intel® Celeron® J1900 Processor SoC
CPU Frequency	Up to 2.0GHz		
Chipset	Intel® N2930/N2807/J1900/E3845/ E3825	Intel® Atom™ series Processor SoC	Intel® Celeron® J1900 Processor SoC
Memory Type	DDR3L 1066/1333, SODIMM x 1	Onboard DDR3L 1066/1333	DDR3L 1333MHz SODIMM x 1
Max. Memory Capacity	Up to 8G	Up to 4GB	Up to 8GB
BIOS	UEFI		
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Power Requirement	+12V	Wide DC support 9~24V	+12V
Power Supply Type	AT/ATX		AT/ ATX Mode
Power Consumption (Typical)	Intel® N2930, DDR3L 1600MHz 8G, 0.65A@+12V	Intel® E3845, Onboard DDR3L 1600MHz 4G, 0.64A@+12V	Intel® Celeron® J1900, DDR3L 1600MHz 8G, 1.06A@+12V
Dimension (L x W)	5.75" x 4" (146mm x 101.6mm)		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) or WiTAS 2 (E3825)	32°F ~ 140°F (0°C ~ 60°C) or WiTAS 2 (TBD)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
MTBF (Hours)	111,000	110,000	204,000
Certification	CE/FCC		
Display			
VGA/LCD Controller	Intel® N2930/N2807/J1900/E3845/ E3825	Intel® Atom™ Processor SoC	Intel® Celeron® J1900 Processor SoC
Video Output	CRT+LVDS, HDMI+LVDS , CRT+HDMI	CRT+LVDS, HDMI+LVDS , CRT+HDMI	VGA, LVDS, eDP (optional, support by BOM change)
Backlight Inverter Supply	Up to 24-bit dual-channel LVDS x 1	18/24-bit dual-channel LVDS LCD	18/24-bit dual channel LVDS LCDs
I/O			
Ethernet	Intel® I211 (or 210), 10/100/1000Base-TX, RJ-45 x 2		RTL8111E, RJ-45 x 2
Audio	High definition audio interface		Realtek ALC892 CODEC, MIC-In AMP TI3113, Support 8ohm/4W speaker
USB Port	USB2.0 x 3 , USB 3.2 Gen 1 x 1		USB2.0 x 9
Serial Port	RS-232 x 2 , RS-232/422/485 x 2		RS-232 x 6
Parallel Port	—	SPP/EPP/ECP x 1	—
HDD Interface	SATA 2.0 x 1		—
FDD Interface	—		
SSD	CFast™ (alternative with mSATA by BOM and also occupy one Mini-Card location)	mSATA (Half-size, shared with Mini-Card)	mSATA x 1 (half size)
Expansion Slot	Mini-Card x 2(Full-size x 1, Half-size x 1)	Mini-Card x 1 (Full-size)	
DIO	8-bit		—
SIM	x 1		—
TPM	x 1		—
Touch	x 1		Reserve USB2.0 x 1 connector to expand
Note			

Note: All specifications are subject to change without notice.

SubCompact Boards

Model	GENESYS-KBU6	GENESYS-APL7
System		
Form Factor	3.5" SubCompact Board System	
CPU	7th Generation Intel® Core™ i7/i5/i3/Celeron® Processor SoC	Intel® Pentium® N4200/ Celeron® N3350 Processor SoC
CPU Frequency	Up to 3.9GHz	Up to 2.5 GHz
Chipset	7th Generation Intel® Processor SoC	Intel® Pentium® N4200/ Celeron® N3350 Processor SoC
Memory Type	DDR4 1866/2133, SODIMM x 1	DDR3L 1866MHz, SODIMM x 1
Max. Memory Capacity	Up to 16GB	Up to 8GB
BIOS	UEFI	AMI
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Power Requirement	+9 ~ 36V or +12V	12V Only
Power Supply Type	ATX	
Power Consumption (Typical)	Intel® i7-7600U, DDR4 2400MHz 16GB, 1.85A@ +12V	Intel® N4200,DDR3L 1600MHz 8GB,1.61A@+12V
Dimension (L x W)	170mm x 137mm x 44.5mm	178mm x 134.1mm x 50mm
Operating Temperature	32°F ~ 122°F (0°C ~ 50°C)	
Storage Temperature	-40°F ~ 176°F (-40°C ~ 81°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	123,000	126,000
Certification	CE/FCC	
Display		
VGA/LCD Controller	7th Generation Intel® Processor SoC	Intel® Pentium® N4200/ Celeron® N3350 Processor SoC
Video Output	DVI-D, DP (Default)	VGA
Backlight Inverter Supply	Yes	—
I/O		
Ethernet	Intel® i210/i211, 10/100/1000Base-TX, RJ-45 x 2	Realtek RTL-8111E, RJ-45 x 2
Audio	—	
USB Port	USB 3.2 Gen 1 x 4, USB 2.0 x 2	Rear I/O: USB 3.2 Gen 1 x 2 Internal: USB2.0 x 2
Serial Port	RS-232 x 1, RS-232/422/485 x 1	Rear I/O: COM x 1 (RS-232) Internal: COM x 6 (RS-232)
Parallel Port	—	
HDD Interface	SATA 3.0 x 1, +5V SATA power connector x 1	SATA 3.0 x 1
FDD Interface	—	
SSD	mSATA (Shared with half-size MiniCard and Selected by BIOS)	mSATA x 1 (Full, optioal for mini-card)
Expansion Slot	Mini-Card mSATA x 1 (Half-size, default), Mini-Card x 1 (Full-size)	mSATA x 1 (Full size), Mini Card x 1 (Full size) with uSIM
DIO	—	
SIM	x 1	—
TPM	TPM 2.0 x 1	—
Touch	—	
Note		

Note: All specifications are subject to change without notice.

Launching in Q4

Model	GENESYS-WHU6
System	
Form Factor	3.5" SubCompact Board System
CPU	Intel® 8th Generation Core™ i7/i5/i3/Celeron SoC i7-8665UE (4C, 1.7GHz, up to 4.4GHz) i5-8365UE (4C, 1.6GHz, up to 4.1GHz) i3-8145UE (2C, 2.2GHz, up to 3.9GHz) 4305UE (2C, 2GHz)
CPU Frequency	Up to 4.4GHz
Chipset	8th Generation Intel® Processor SoC
Memory Type	2400 MHz Dual Channel DDR4 (Non-ECC) SODIMM x 2
Max. Memory Capacity	Up to 64GB
BIOS	UEFI
Wake on LAN	Yes
Watchdog Timer	255 Levels
Power Requirement	+9-36V (Optional: +12V)
Power Supply Type	ATX
Power Consumption (Typical)	Intel® i7-8665UE, DDR4 2400 MHz 16GB, 2.8A@ +12V
Dimension (L x W)	5.75" x 4" (146mm x 101.7mm)
Operating Temperature	32°F ~ 122°F (0°C ~ 50°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 81°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	354,194
Certification	CE/FCC
Display	
VGA/LCD Controller	Intel® 8th Generation Core™ i7/i5/i3/Celeron SoC
Video Output	VGA x 1, HDMI 2.0 x 1
Backlight Inverter Supply	—
I/O	
Ethernet	Intel® i210/i211 & i219, 10/100/1000Base, RJ 45 x2
Audio	—
USB Port	USB 3.2 Gen 2 x 4/2.0 x 2 (Up to Gen2)
Serial Port	RS-232/422/485 x 2
Parallel Port	—
HDD Interface	SATA 3.0 x 1, +5V SATA power connector x 1
FDD Interface	—
SSD	Full size mSATA/mPCIe x 1 with NANO-SIM (mSATA as default, select by BIOS) M.2 2280 B key (PCI-e as default, SATA select by BIOS)
Expansion Slot	M.2 2230 E key x 1 (For WIFI/BT, PCIe/USB signal only) SMBUS/I2C/LPC/eSPI x 1
DIO	—
SIM	x 1(NANO-SIM)
TPM	—
Touch	x 1
Note	

Note: All specifications are subject to change without notice.

Board Level Products

SubCompact Boards

Compact Board

Model	GENE-5315 Rev. A	GENE-5315 Rev. B	PCM-CFS
System			
Form Factor	3.5" SubCompact Board		5.25" Compact Board
CPU	Onboard AMD Geode™ LX 800		8th/9th Generation Intel® Core™ i7/i5/i3/ Celeron® Socket Type (Up to 95W)
CPU Frequency	500 MHz		Up to 5.0GHz
Chipset	AMD Geode™ LX		Intel® Q370 (TDP: 6W)
Memory Type	DDR333 SODIMM x 1 (DDR400 optional)		SODIMM DDR4 (ECC) Memory slot x 2
Max. Memory Capacity	1 GB		Up to 32GB
BIOS	Award 1 MB		UEFI only
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Power Requirement	+5V		ATX
Power Supply Type	AT/ ATX		ATX
Power Consumption (Typical)	LX 800 500 MHz, DDR400 1 GB, 1.17A@+5V		CPU 95W TDP
Dimension (L x W)	5.75" x 4" (146mm x 101.6mm)		203mm x 146mm
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C), -4°F ~ 158°F (-20°C ~ 70°C) for WiTAS 1		32°F ~ 122°F (0°C ~ 50°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)		-4°F ~ 176°F (-20°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing		0 ~ 90% @ 40°C, non-condensing
MTBF (Hours)	90,000		TBD
Certification	CE/FCC		CE/FCC Class A
Display			
VGA/LCD Controller	AMD Geode™		8th Generation Intel® Core™ Processor family
Video Output	CRT, TTL LCD, LVDS LCD		LVDS x 2, CRT x 1, DVI x 1
Backlight Inverter Supply	Up to 24-bit single channel TTL/LVDS		18/24bit (2CH)
I/O			
Ethernet	10/100Base-TX x 2, Realtek RTL 8139DL		Intel® GbE i219 x 1, Intel® GbE i211 x 1
Audio	High Definition Audio Interface		ALC269 (With Amplifier)
USB Port	USB2.0 x 4		USB 3.2 Gen 2 x 4, USB2.0 x 4 (All headers)
Serial Port	RS-232 x 1, RS-232/422/485 x 1	RS-232 x 4 & TTL UART x 1, RS-232/422/485 x 1	RS232 x 8 RS232/422/485 x 2 (All headers)
Parallel Port	SPP/EPP/ECP x 1		—
HDD Interface	UDMA33 x 1		SATA 6.0 Gb/s x 3
FDD Interface	FDD x 1		—
SSD	CompactFlash™		—
Expansion Slot	Mini-PCI, PC/104	Mini-PCI	M.2 3042/2280 Slot (B key) x 1 M.2 2280 Slot (M key) x 1 Half size mPCIe x 1 SMBus/I2C/LPC x 1
DIO	8-bit		16-bit
SIM	—		
TPM	—		
Touch	—		
Note			

Note: All specifications are subject to change without notice.

PC/104 Modules

Model	PFM-540I Rev. A
System	
Form Factor	PC/104
CPU	Onboard AMD Geode™ LX 800
CPU Frequency	500 MHz
Chipset	AMD Geode™ LX 800 + CS5536
Memory Type	DDR333/400, SODIMM x 1, (512 MB for DDR400)
Max. Memory Capacity	1 GB
BIOS	Award 512 KB
Wake on LAN	Yes
Watchdog Timer	255 Levels
Power Requirement	+5V
Power Supply Type	AT
Power Consumption (Typical)	AMD Geode™ LX 800 500 MHz, DDR400 512 MB, 1.53A@+5V
Dimension (L x W)	3.55" x 3.77" (90mm x 96mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	100,000
Certification	CE/FCC
Display	
VGA/LCD Controller	AMD Geode™ LX 800
Video Output	CRT, TTL LCD
Backlight Inverter Supply	—
I/O	
Ethernet	10/100Base-TX x 1, Realtek RTL 8139DL
Audio	—
USB Port	USB2.0 x 4
Serial Port	RS-232 x 1, RS-232/422/485 x 1
Parallel Port	SPP/EPP/ECP x 1
HDD Interface	UDMA33 x 1
FDD Interface	FDD x 1
SSD	CompactFlash™
Expansion Slot	PC/104
PWM LCD Support	—
DIO	—
TPM	—
Touch	—
Note	

Note: All specifications are subject to change without notice.

Smart Display Modules

Model	ASDM-L-CFS	ASDM-S-KBU
System		
Form Factor	Intel SDM-L Module	Intel SDM-S Module
CPU	8th/9th Generation Intel® Core™, Pentium®, and Celeron® processors (Coffee Lake S, Coffee Lake Refresh), TDP up to 35W	7th Generation Intel® Core™ i7-7600U/ i5-7300U/ i3-7100U/ Celeron® 3965U SoC
CPU Frequency	Up to 4.0 GHz	i7-7600U up to 3.9 GHz i5-7300U up to 3.5 GHz i3-7100U up to 2.4 GHz Celeron® 3965U up to 2.2 GHz
Chipset	Intel® Chipsets H310/ Q370	7th Generation Intel® Core™ i7-7600U/ i5-7300U/ i3-7100U/ Celeron® 3965U SoC
Memory Type	DDR4 2666 SO-DIMM x 2 (Non-ECC Support)	onboard DDR4
Max. Memory Capacity	Up to 32GB	Up to 8GB
BIOS	AMI BIOS	
Wake On LAN	Yes	
Watchdog Timer	255 Levels	
Power Requirement	12V DC from the Docking Board through the Edge Connector	
Power Supply Type	AT/ATX	
Power Consumption (Typical)	In12V, 6.08A, estimate 72.96W with i7-9700TE at 100% loading	Intel® Core™ i7-7600U, DDR4 4G, 64G eMMC, 2.4A @ 12V
Dimension (L x W x H)	100mm x 175mm x 20mm	100mm x 60mm x 20mm
Operating Temperature	32°F ~ 131°F (0°C ~ 55°C)	
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	TBD	
Certification	CE/FCC	
Display		
Controller	Intel® UHD Graphics 630/620/610	7th Generation Intel® Core™ : Intel® HD Graphics 620 Intel® Celeron: intel® HD Graphics 610
Video Output	HDMI 2.0 x 1 (through edge connector) DP1.2 x 1 (through Edge connector)	HDMI 1.4 x 1 (through Edge connector) DP1.2 x 1 (through Edge connector)
Audio	Through HDMI, DP by edge connector	
I/O		
Ethernet	Intel® I219 GbE x 1	Intel I211, RJ45 x 1
USB Port	USB3.2 Gen 1 x 2 / USB 3.2 Gen 2 support by Q370	USB 3.2 Gen 1 x 2
Storage	M.2 2242 B-Key	eMMC 32/64/128G
Expansion Slot	M.2 2230 (E-Key) TPM2.0(option)	M.2 2230 (E-Key)
Note	Follow the Intel® SDM SPEC 2.0	

Note: All specifications are subject to change without notice.

Smart Display Modules

Model	ASDM-CRB-A11
System	
Form Factor	AAEON SDM Carrier Board
Power Requirement	12V DC (through DC Jack x1)
Power Consumption	CPU 45W max TDP
Board Size	225mm x 140mm
Operation Temperature	0°C ~ 55°C
Storage Temperature	-40°C ~ 80°C
Operation Humidity	0% ~ 90% relative humidity, non-condensing
MTBF	TBD
Display	
Interface	HDMI x 1, DP x 1 (support version depends on SDM module boards' chipset original signal)
I/O	
Storage	Micro SD 3.0
USB	USB3.2 Gen 1 x 3
Audio	Through HDMI, DP by edge connector
GPIO	N/A
Serial Port	RS-232 x 1 (Tx/Rx ONLY)
Switch / Button	Power button x 1 Reset button x 1
Expansion	GSPI (Pin Header), Smart Fan (Pin Header), I2C (Pin Header) PCIe[x1] x1
Note	

Note: All specifications are subject to change without notice.

Board Level Products

Industrial Motherboards

Model	NITX-SKL1	EMB-APL1
System		
Processor	6th generation Intel® 14nm ULT Core™, BGA CPU, 15W TDP. i7-6600U 2C/4T GT2 2.6/3.4 GHz 4M/ i5-6300U 2C/4T GT2 2.4/3.0 GHz 3M/ i3-6100U 2C/4T GT2 2.3 GHz 3M/ Celeron® 3955U 2C/2T GT1 (f) 2.0 GHz 2M	N4200, (4C @ 2.50GHz CPU [Burst Mode], 750MHz GFX [Turbo], ~6W TDP) N3350, (2C @ 2.40GHz CPU [Burst Mode], 650MHz GFX [Turbo], ~6W TDP)
Chipset	Intergrated into SoC	
Memory	SODIMM x 2, max. 32 GB, DDR4 2133/1867 MHz non-ECC, un-buffered memory	DDR3L 1333/1600/1867MHz SODIMM x 2, max. 8GB, non-ECC, un-buffered memory
I/O Chipset	NCT5538D	NCT6116D
Ethernet	Realtek 8111G Giga LAN 10/100/1000Mb LAN x 2, RJ-45 x 2	Realtek PCIe Gb LAN 8111G x 2
Audio	Realtek® ALC887	Realtek® ALC3236-CG
TPM	—	Nuvoton NPCT652ABCYX TPM2.0 (default: No)
Expansion Slots	M.2 2280 M-Key slot x 1 (PCIe x4 + SATA) M.2 2230 E-Key slot x 1 (PCIe+USB)	PCIe2.0 [x1] x 1 M.2 M key (22 x 42mm) x 1, for SATA M.2 E Key (22 x 30mm) x 1, for PCIe
BIOS	128Mbit Flash ROM, AMI BIOS	128Mbit Flash ROM x 1, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/System Voltage Monitor on Vcore/5V/3.3V/12V Fan Monitor on Chassis	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	Chassis Fan	Chassis Fan (Fanless)
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Integrated Graphics	Intel® HD Graphics
Graphics Multi Display	HDMI + HDMI	Three Independent Display
VGA	—	Up to 1920 x 1200 @60Hz
DVI	—	
HDMI	HDMI 1.4 up to 4096 x 2160@24Hz	Up to 3840 x 2160 @ 30Hz
Display Port	—	
LVDS	—	Up to 1920 x 1200 @60Hz, Daul Channel 18/24 bit (via PS8625) (colay with eDP)
eDP	—	Up to 4096 x 2160 @60Hz
Backlight Control	—	Voltage/PWM
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	DC Power x 1 (DC: 12V~19V, wide rage:12V-5%~ 19V+10%)	12V~24V wide-range voltage input back panel DC jack x 1; 4-pin ATX Power connector x 1
Operation Temperature	FANLESS : 0°C~40°C, FAN : 0°C~50°C	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	—	-40°F ~ 185°F (-40°C ~ 85°C)
Operation Humidity	20%~90% R/H, non-condensing	0% ~ 90% RH, non-condensing
Certificate	CE & FCC class A	
Form Factor	NANO ITX: 4.72" x 4.72" (120mm x 120mm)	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
Weight	—	1.1 lb (0.5 Kg)
MTBF (Hours)	—	263,080
I/O		
Front Panel I/O Ports	USB 3.2 Gen 1 port x 2, Audio Jack x 2: Line-out (green), Mic-in(pink), On/ Off Button x 1, Power LED + HD LED x 1	—
Rear Panel I/O Ports	USB 3.2 Gen 1 port x 2, HDMI Connector x 2, RJ-45 connector x 2, Reset Switch x 1, DC power jack x 1	USB 3.2 Gen 1 (5 Gbps) x 2, USB 2.0 x 2, HDMI x 1, VGA x 1 Mic-in, Line-out, RJ-45 x 2, DC power jack x 1
Internal I/O Connectors	RS-232 9-pin 1.25mm Header M.2 2280 M-Key slot x 1 Chassis Fan connector x 1 (3-pin, p=2.00mm)	SATA 6.0Gb/s x 2(1 colay with M.2 M-key),M.2 M-key (22 x 42mm) x 1, USB 2.0 headers support additional 3 USB ports (2*5-pin, p=2.00mm) x 2, 40-pin LVDS/eDP connector x 1(default LVDS), RS-232/422/485 x 1, RS-232 x 5, 8-bit x 1 (In/Out programmable), 4-pin Chassis Fan x 1, Front panel header x 1, Clear CMOS jumper x 1, AT/ATX mode select jumper (optional) x 1, SATA power connector x 1, M.2 E key (22 x 30mm) for PCIe x 1
OS		
OS Support	WIndows® 7 32-bit, WIndows® 7 64-bit, WIndows® 8.1 64-bit, WIndows® 10 64-bit, Linux Fedora* 22 (64-bit)	WIndows® 10 64-bit, Ubuntu16.04.02/ Kernel4.8.0
Note		

Note: All specifications are subject to change without notice.

Industrial Motherboards

Model	EMB-APL3	EMB-BT1
System		
Processor	N4200, (4C @ 2.50GHz CPU [Burst Mode], 750MHz GFX [Turbo], ~6W TDP) N3350, (2C @ 2.40GHz CPU [Burst Mode], 650MHz GFX [Turbo], ~6W TDP)	Intel® Celeron® J1900 Processor (4C @ 2.00 GHz CPU, 688/854 MHz GFX, 10W TDP), Intel® Celeron® N2807 Processor (2C @ 1.58 GHz CPU, 313/750 MHz GFX, 4.3W TDP), Intel® Atom™ E3845 Processor (4C @ 1.91 GHz CPU, 542/792 MHz GFX, 10W TDP), Intel® Atom™ E3825 Processor (2C @ 1.33 GHz CPU, 533 MHz GFX, 6W TDP)
Chipset	Intergrated into SoC	—
Memory	DDR3L 1333/1600/1867MHz SODIMM x 2, max. 8GB, non-ECC, un-buffered memory	DDR3L 1333 MHz SODIMM x 2 up to 8 GB (for J1900 / E3845), DDR3L 1333 MHz SODIMM x 1 up to 4 GB (for N2807), DDR3L 1067 MHz SODIMM x 1 up to 4 GB (for E3825), Non-ECC, un-buffered memory, Dual-channel memory architecture flat type
I/O Chipset	NCT6116D	Fintech 81866D
Ethernet	Realtek PCIe Gb LAN 8111H x 2	Realtek PCIe Gb LAN 8111G x 2
Audio	Realtek® ALC3236-CG	Realtek® ALC887
TPM	Nuvoton NPCT652ABCYX TPM2.0 (default: No)	Infineon SLB9635 TT 1.2 (default : No)
Expansion Slots	PCIe2.0 [x1] x 1, M.2 M key (22 x 42mm) x 1, for SATA M.2 E Key (22 x 30mm) x 1, for PCIe	Full-size Mini-Card (mSATA default) (PCIe+USB optional) + SIM Card (default: No) x 1, Half-size Mini-Card (PCIe+USB) x 1, PCIe [x1] x 1
BIOS	128Mbit Flash ROM x 1, AMI BIOS	64 M bit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	Chassis Fan (Fanless)	
Wake On LAN/ PXE	Yes (WOL / PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® HD Graphics	
Graphics Multi Display	Three Independent Display	VGA+LVDS, VGA+HDMI, LVDS+HDMI
VGA	Up to 1920 x 1200 @ 60 Hz	
DVI	—	
HDMI	Up to 3840 x 2160 @30 Hz(HDMI 1.4b)	Up to 1920 x 1200 @60 Hz
Display Port	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz (Colay with VGA)	—
LVDS	Up to 1920 x 1200 @60Hz, Daul Channel 18/24 bit (via PS8625) (colay with eDP)	Up to 1920 x 1080 @60Hz, Dual Channel 18/24-bit (via CH7511)
eDP	Up to 4096 x 2160 @60Hz	—
Backlight Control	Voltage/PWM	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	12V DC jack (screw type), 4-pin internal power connector	12VDC
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	
Operation Humidity	0%~90% RH, non-condensing	
Certificate	CE & FCC	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	230,820	111,131
I/O		
Rear Panel I/O Ports	USB 3.2 Gen 1 (5 Gbps) x 4, VGA/DP x 1, HDMI x 1, Line-out x 1, LAN (RJ-45) port x 2, DC power jack x 1	USB 3.2 Gen 1/2.0 x 1, USB 2.0 x 2, VGA x 1, HDMI x 1, Line-out x 1 LAN (RJ-45) port x 2, COM (RS-232)(optional) x 1, DC port (12V) Screw type x 1
Internal I/O Connectors	SATA 6.0Gb/s x 2(1 colay with M.2 M-key), M.2 M-key (22 x 42mm) x 1 USB 2.0 headers support additional 6 USB ports (2*5-pin, p=2.00mm) x 3 40-pin LVDS/eDP connector x 1(default LVDS), AAFP, RS-232/422/485 x 1, RS-232 x 5, 8-bit x 1 (In/Out programmable), 4-pin Chassis Fan x 1, Front panel header x 1, Clear CMOS jumper x 1, AT/ATX mode select jumper (optional) x 1, SATA power connector x 1,d M.2 E key (22 x 30mm) for PCIe x 1	SATA3 (6.0Gb/s) x 2, SATA2 (3.0Gb/s) x 2 (1 colay with mSATA), SATA power connector x 1, Ful Size Mini-Card slot (mSATA) x 1, USB 2.0 (2 x 5-pin, 2.54mm) x 2 ports support additional 4 USB, USB 2.0 (1x 5-pin, 2.0mm) x 1 port supports additional 1 USB, LVDS connector x 1, LVDS 3V /5V jumper x 1, LCD DC / PWM mode jumper x 1, LCD backlight connector (inverter) x 1, LCD backlight 12V /5V jumper x 1, AAFP x 1, Boxer header for COM (RS-232) x 4, Boxer header for COM (RS-232/422/485) x 1, PS/2 Keyboard Mouse 6 PIN Connector x 1, SPP/EPP Mode, DIO (4in/4out) x 1, Chassis Fan connector x 1, 12V AUX Power Connector x 1, AT/ATX mode select jumper (default : No) x 1, Half-size Mini-Card (PCIe + USB) x 1, PCIe [x1] x 1, SIM Card Socket (default : No) x 1, LPT PIN header x 1, Front Panel connector x 1, CMOS jumper x 1
OS		
OS Support	WIndows® 10 64bit, Ubuntu16.04.02/Kernel4.8.0	Windows® 10 64-bit, Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora
Note		

Note: All specifications are subject to change without notice.

Board Level Products

Industrial Motherboards

Model	EMB-BT2	EMB-BT4
System		
Processor	Intel® Celeron® J1900 Processor (4C @ 2.00 GHz CPU, 688/854 MHz GFX, 10W TDP)	Intel® Celeron® J1900 Processor (4C @ 2.00 GHz CPU, 688/854 MHz GFX, 10W TDP), Intel® Celeron® N2807 Processor (2C @ 1.58 GHz CPU, 313/750 MHz GFX, 4.3W TDP)
Chipset	—	
Memory	DDR3L 1333 MHz SODIMM x 1 up to 8 GB, Non-ECC, un-buffered memory	DDR3L 1333 MHz SODIMM x 2 up to 8 GB (for J1900), DDR3L 1333 MHz SODIMM x 1 up to 4 GB (for N2807), Non-ECC, un-buffered memory, Dual-channel memory architecture flat type
I/O Chipset	Fintech 81866D	
Ethernet	Realtek PCIe Gb LAN 8111G x 2	Realtek PCIe Gb LAN 8111G x 1
Audio	Realtek® ALC887 (colay ALC892/886)	
TPM	Infineon SLB9635 TT 1.2 (default : No)	
Expansion Slots	Full-size Mini-Card (mSATA default PCIe+USB optional) x 1, PCIe [x1] x 1	Full-size Mini-Card (mSATA default) (PCIe+USB optional) + SIM Card (default: No) x 1, Half-size Mini-Card (PCIe+USB) x 1
BIOS	64 M bit Flash ROM, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	Chassis Fan (fanless)	
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® HD Graphics	
Graphics Multi Display	VGA+LVDS, Dual LVDS	VGA+LVDS, VGA+HDMI, LVDS+HDMI
VGA	Up to 1920 x 1200 @60 Hz	
DVI	—	
HDMI	—	Up to 1920 x 1200 @60 Hz
Display Port	—	
LVDS	Dual LVDS, Up to 1920 x 1080 @60Hz, Dual Channel 18/24-bit (via CH7511)	Up to 1920 x 1080 @60Hz, Dual Channel 18/24-bit (via CH7511)
eDP	—	
Backlight Control	Voltage/PWM	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	ATX	12VDC
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	
Operation Humidity	0% ~ 90% R/H, non-condensing	
Certificate	CE & FCC	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	290,990	295,750
I/O		
Rear Panel I/O Ports	USB 2.0 x 6, VGA x 1, Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 2, COM (RS-232/422/485) x 1, COM (RS-232) x 2, PS/2 Keyboard Mouse combo x 1	USB 3.2 Gen 1/2.0 x 1, USB 2.0 x 2, HDMI x 1, Line in x 1, Line-out x 1 LAN (RJ-45) port x 1, COM (RS-232) x 1, DC port (12V) Screw type x 1
Internal I/O Connectors	SATA2 (3.0Gb/s) x 2 (1 colay with mSATA), Ful Size Mini-Card slot (mSATA) x 1, USB 2.0 (2 x 5-pin, 2.54mm) x 2 ports support additional 4 USB, LVDS connector x 2, LVDS 3V /5V jumper x 2, LCD DC / PWM mode jumper x 2, LCD backlight connector (inverter) x 2, LCD backlight 12V /5V jumper x 2, LCD push button for backlight control (2PIN) x 2, AAFP x 1, Speaker x 1, Boxer header for COM (RS-232) x 3, DIO (4in/4out) x 1 Chassis Fan connector x 1, 24PIN ATX power connector x 1, AT/ATX mode select jumper (default : No) x 1, Front Panel connector x 1, CMOS jumper x 1	SATA3 (6.0Gb/s) x 2, SATA2 (3.0Gb/s) x 2 (1 colay with mSATA), SATA power connector x 1, Ful Size Mini-Card slot (mSATA) x 1, USB 2.0 (2 x 5-pin, 2.54mm) x 2 ports support additional 4 USB, USB 2.0 (1x 5-pin, 2.0mm) x 1 port supports additional 1 USB, VGA pin header x 1, LVDS connector x 1, LVDS 3V /5V jumper x 1, LCD DC / PWM mode jumper x 1, LCD backlight connector (inverter) x 1, LCD backlight 12V /5V jumper x 1 AAFP x 1, Boxer header for COM (RS-232) x 4, Boxer header for COM (RS-232/422/485) x 1, PS/2 Keyboard Mouse 6 PIN Connector x 1, SPP/ EPP Mode, DIO (4in/4out) x 1, Chassis Fan connector x 1, 12V AUX Power Connector x 1, AT/ATX mode select jumper (default : No) x 1, Half-size Mini-Card (PCIe + USB) x 1, SIM Card Socket(default : No) x 1, LPT PIN header x 1, Front Panel connector x 1, CMOS jumper x 1
OS		
OS Support	Windows® 10 64-bit, Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux	Windows® 10 64-bit, Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora
Note		

Note: All specifications are subject to change without notice.

Industrial Motherboards

Model	MIX-KLUD1	MIX-KLUW1
System		
Processor	Intel® 7th gen. 14nm KabyLake U, FCBGA1356 Core™ i7-7600U, 2C/4C, 2.8/3.9(turbo)GHz, 4M, 300MHz/1.15GHz (Turbo) GFX, ~15W TDP (Optional) Core™ i5-7300U, 2C/4C, 2.6/3.5(turbo)GHz, 3M, 300MHz/1.10GHz (Turbo) GFX, ~15W TDP(Optional) Core™ i3-7100U, 2C/4C, 2.4GHz, 3M, 300MHz/1.00GHz (Turbo) GFX, ~15W TDP Celeron® 3965U, 2C, 2.2GHz, 2M, 300MHz/900MHz (Turbo) GFX, ~15W TDP(Optional)	14nm 7th Gen. Intel® Core™ (formerly Kaby Lake-U), FCBGA1356 Core™ i7-7600U, 2C/4C, 2.8/3.9(turbo)GHz, 4M, 300MHz/1.15GHz (Turbo) GFX, ~15W TDP (Optional) Core™ i5-7300U, 2C/4C, 2.6/3.5(turbo)GHz, 3M, 300MHz/1.10GHz (Turbo) GFX, ~15W TDP (Optional) Core™ i3-7100U, 2C/4C, 2.4GHz, 3M, 300MHz/1.00GHz (Turbo) GFX, ~15W TDP Celeron® 3965U, 2C, 2.2GHz, 2M, 300MHz/900MHz (Turbo) GFX, ~15W TDP
Chipset	—	
Memory	SODIMM x 2, max. 32GB, DDR4-2133 non-ECC, un-buffered memory	
I/O Chipset	NCT6793D	
Ethernet	Intel® PCIe Gb LAN 219LM for vPro (i7-7600U/i5-7300U) x 1 Intel® PCIe Gb LAN 211AT x 1	Intel® PCIe Gb LAN 219LM for vPro (i7-7600U/i5-7300U) x 1 Intel® PCIe Gb LAN 211AT x 1
Audio	Realtek® ALC887 with Amp.	Realtek® ALC887
TPM	NPCT650ABBYX TPM2.0 onboard (default: No)	
Expansion Slots	PCIe 3.0 [x1] x 1, M.2 M key (22 x 80mm) x 1, SATA & PCIe [x4], M.2 E key (22 x 30mm) x 1 for Wireless-wifi module (PCIe+USB)	
BIOS	128Mbit Flash ROM, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on Chassis
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/Chassis Fan	
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® UHD Graphics	
Graphics Multi Display	HDMI x 2, eDP x 1 or LVDS x 1	Supports three display of LVDS+eDP+VGA or LVDS+eDP+HDMI (by SKU selection)
VGA	—	Up to 1920 x 1200 @60 Hz colay with HDMI (default: VGA)
DVI	—	
HDMI	HDMI 1.4 up to 4096 x 2340 @24Hz	HDMI 1.4 up to 4096 x 2340 @24Hz colay with VGA (default: VGA)
Display Port	—	
LVDS	Up to 1920 x 1200 @ 60 Hz, Dual Channel 18/24 bit	LVDS Up to 1920 x 1200 @60Hz, Daul Channel 18/24 bit (via CH7511)
eDP	UP to 4096 x 2304 @ 60Hz	eDP UP to 4096 x 2304 @ 60Hz
Backlight Control	Voltage/PWM; Max 1A	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	12V DC	12(-5%)~19V(+5%) DC
Operation Temperature	32°F ~ 131°F (0°C ~ 55°C)	
Storage Temperature	-40°F ~ 185°F (-40°C ~85°C)	
Operation Humidity	0% ~ 90%RH, non-condensing	
Certificate	CE & FCC (Class A)	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	400,330	275,650
I/O		
Rear Panel I/O Ports	USB 3.2 Gen 1 (5 Gbps) x 4, HMDI x 2, Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 2, DC Power Jack x 1	USB 3.2 Gen 1 (5 Gbps) x 4, VGA x 1, HMDI Colay (default: VGA x 1), Mic-in x 1, Line out x 1, LAN (RJ45) port x 2, DC Jack x 1
Internal I/O Connectors	M.2 M key (22 x 80mm) for PCIe [x4]/SATA storage x 1, SATA 6.0Gb/s x 2, 4-pin SATA power x 1, USB 2.0 pin header x 2 support additional 4 USB ports, 40-pin LVDS connector x 1, 40-pin eDP connector x 1, LCD backlight connector(inverter) x 1, Speaker for 2W@4Ω x 1, AAFP follow ASUS pin out x 1, Boxer header x 2 for COM (COM1: RS-232/422/485 supports 5V/12V/RI), 8-bit programmable (4-in/4-out) x 1, 4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1, Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, CMOS jumper x 1	M.2 M key (22 x 80mm) for PCIe [x4]/SATA storage x 1 SATA 6.0Gb/s x 2 4-pin SATA power x 1, USB 2.0 pin header x 2 support additional 4 USB ports, 40-pin LVDS connector x 1, 40-pin eDP connector x 1, LCD backlight connector (inverter) x 1, Speaker for 2W@4Ω x 1, AAFP follow ASUS pin out x 1, Boxer header x 2 for COM (COM1: RS-232/422/485 supports 5V/12V/RI), 8-bit programmable (4-in/4-out) x 1, 4-pin Chassis Fan connector x 1 4-pin CPU Fan connector x 1, 2x2 Pin DC-in 12~19V(-5%~+5%) x 1, Clear CMOS jumper x 1, AT/ATX mode select jumper x 1
OS		
OS Support	Windows® 10 64-bit	Windows 10 64 bit, Ubuntu 16.04.LTS

Note: All specifications are subject to change without notice.

Board Level Products

Industrial Motherboards

Model	MIX-H310A1	MIX-H310A2
System		
Processor	8th/9th Gen. Intel® Core™ LGA 1151 socket Processor (formerly Coffee Lake-S), Max. 65W TDP	
Chipset	Intel® H310 Express Chipset	
Memory	DDR4 2666/2400/2133 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture	
I/O Chipset	NCT6793D	
Ethernet	Intel® PCIe Gb LAN 219V x 1, Intel® PCIe Gb LAN i211AT x 3	Intel® PCIe Gb LAN 219V x 1, Intel® PCIe Gb LAN i211AT x 1
Audio	Realtek® ALC887 with Amp.	
TPM	NPCT650ABBYX TPM2.0 (default: No)	
Expansion Slots	PCIe3.0 [x16] x 1, M.2 M-key(22x80mm) at bottom side x 1 for SATA, M.2 E-key(22x30mm)	PCIe3.0 [x16] x 1
BIOS	128Mbit Flash ROM, AMI BIOS	256Mbit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/Chassis Fan	
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® UHD Graphics	
Graphics Multi Display	HDMI+VGA	HDMI+VGA+DP+LVDS
VGA	Up to 1920 x 1200 @ 60 Hz	
DVI	—	
HDMI	Up to 4096 x 2160 @30Hz(HDMI 1.4)	Up to 3840 x 2160 @30 Hz(HDMI 1.4b)
Display Port	—	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz
LVDS	LVDS Up to 1920 x 1200 @60Hz, Daul Channel 18/24 bit (via CH7511)	LVDS Up to 1920 x 1200 @60 Hz, Dual Channel 18/24 bit (1 x inverter)
eDP	eDP UP to 4096 x 2304 @ 60Hz	—
Backlight Control	Voltage/PWM; Max 1A	—
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	ATX	
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Operation Humidity	0% ~ 90% R/H, non-condensing	
Certificate	CE & FCC	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	288,900	333,520
I/O		
Rear Panel I/O Ports	USB 3.2 Gen 1 (5 Gbps) x 4, USB 2.0 x 2, VGA x 1, HDMI x 1, Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 4	USB 3.2 Gen 1 (5 Gbps) x 4, VGA x 1, HDMI x 1, DP x 1, Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 2, 1x COM(RS485/422/232)
Internal I/O Connectors	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 80mm) at bottom side x 1 USB 2.0 (2 x 5-pin, 2.00mm) x 1 ports support additional 2 USB, AAFP x 1, Speaker x 1, Boxer header for COM (RS-232/422/485) x 1, Boxer header for COM (RS-232) x 1, Digital I/O box header x 1, 4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1, Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, CMOS jumper x 1	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 80mm) x 1, USB 2.0 (2 x 5-pin, 2.00mm) x 1 port support additional 2 USB, LVDS x 1, AAFP x 1, Speaker x 1, Boxer header for COM (RS-232) x 1, Digital I/O box header x 1, 4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1, Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, CMOS jumper x 1
OS		
OS Support	Windows® 10 64-bit, ,Linux Ubuntu 18.04 LTS	
Note		

Note: All specifications are subject to change without notice.

Industrial Motherboards

Model	MIX-H310D1	MIX-Q370A1
System		
Processor	8th/9th Gen. Intel® Core™ LGA 1151 socket Processor (formerly Coffee Lake-S), Max. 65W TDPs	
Chipset	Intel® H310 Express Chipset	Intel® Q370 Express Chipset
Memory	DDR4 2400/2133 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture	DDR4 2666/2400/2133 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture
I/O Chipset	NCT6793D	
Ethernet	Realtek ® PCIe Gb LAN RTL8111H	Intel® PCIe Gb LAN 219LM x 1, Intel® PCIe Gb LAN i211AT x 3
Audio	Realtek® ALC887 with Amp.	
TPM	NPCT650ABBYX TPM2.0 (default: No)	
Expansion Slots	PCIe3.0 [x4] x 1 M.2 M-key(22 x 42mm) x1, SATA M.2 E-key(22 x 30 mm) x1 for Wireless-wifi module (PCIe+USB)	PCIe3.0 [x16] x 1, M.2 M-key(22x80mm) at bottom side x 1; M.2 E-key(22x30mm; Support CNVi)
BIOS	128Mbit Flash ROM, AMI BIOS	256Mbit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/ Chassis Fan	
Wake On LAN/ PXE	Yes (WOL / PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® UHD Graphics	
Graphics Multi Display	HDMI1+HDMI2, HDMI1+DP2, DP1+HDMI2, HDMI1+LVDS, HDMI2+LVDS, HDMI1+eDP, HDMI2+eDP, DP1+DP2, DP1+LVDS, DP2+LVDS, DP1+eDP, DP2+eDP	HDMI+VGA
VGA	—	Up to 1920 x 1200 @ 60 Hz
DVI	—	
HDMI	Up to 4096x2304@24Hz(HDMI 1.4b)	Up to 4096 x 2160 @30Hz(HDMI 1.4)
Display Port	Up to 4096x2304@60Hz	No
LVDS	Up to 1920 x 1200 @ 60 Hz, Dual Channel 18/24 bit (via CH 7511)	No
eDP	UP to 4096 x 2304 @ 60Hz	No
Backlight Control	Voltage/PWM	—
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	12V DC	ATX
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	
Operation Humidity	0%~90%RH, non-condensing	
Certificate	CE & FCC	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	—	
I/O		
Rear Panel I/O Ports	USB 3.2 Gen 1 (5 Gbps) x 4, DP x 1, HDMI x 1, Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 2, DC Jack	USB 3.2 Gen 2 (10 Gbps) x 4, USB 2.0 x 2, VGA x 1, HDMI x 1, Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 4
Internal I/O Connectors	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 42mm) x 1, USB 2.0 (2 x 5-pin, 2.00mm) x 3 ports support additional 5 USB, AAFP x 1, Speaker header x 1 , Boxer header for COM (RS-232/422/485) x 1, Boxer header for COM (RS-232) x 1, Digital I/O box header x 1, 4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1, Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, CMOS jumper x 1	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 80mm) at bottom side x 1(SATA only), USB 2.0 (2 x 5-pin, 2.00mm) x 1 ports support additional 2 USB, AAFP x 1, Speaker x 1, Boxer header for COM (RS-232/422/485) x 1, Boxer header for COM (RS-232) x 1, Digital I/O box header x 1, 4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1, Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, CMOS jumper x 1
OS		
OS Support	Windows® 10 64-bit, Linux Ubuntu 18.04 LTS	Windows® 10 64-bit, Linux Ubuntu 18.04 64bit
Note		

Note: All specifications are subject to change without notice.

Board Level Products

Industrial Motherboards

Model	MIX-Q370A2	MIX-Q370D1
System		
Processor	8th/9th Gen. Intel® Core™ LGA 1151 socket Processor (formerly Coffee Lake-S), Max. 65W TDPs	8th/9th Generation Intel® Core™ i7/ i5 /i3, Pentium® LGA 1151 socket Processor (Coffeelake-S), Max. 65W TDPs
Chipset	Intel® Q370 Express Chipset	
Memory	DDR4 2666/2400/2133 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture	SODIMM x 2, Max. 32GB, DDR4 2666/2400 MHz, Non-ECC, Un-buffered Memory, Dual channel
I/O Chipset	NCT6793D	
Ethernet	Intel® PCIe Gb LAN 219LM x 1, Intel® PCIe Gb LAN i211AT x 1	Intel® PHY i219LM Giga LAN (support Intel® AMT 12.0) x 1 Intel® i210AT Giga LAN x 1
Audio	Realtek® ALC887 with Amp.	Realtek® ALC887
TPM	NPCT650ABBYX TPM2.0 (default: No)	Nuvoton TPM version 2.0
Expansion Slots	PCIe3.0 [x16] x 1	PCIe 3.0 [x4] x 1, M.2 M key (22 x 80mm) x 1 at Bottom side, SATA & PCIe [x4], M.2 E key (22 x 30mm) x 1 for Wireless-wifi module (PCIe+USB)
BIOS	256Mbit Flash ROM, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on Chassis
WatchDog Timer	1~255 step by software program	
Smart Fan Control	CPU Fan/ Chassis Fan	
Wake On LAN/ PXE	Yes (WOL / PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® UHD Graphics	
Graphics Multi Display	HDMI+VGA+DP+LVDS	Three Independent Display
VGA	Up to 1920 x 1200 @ 60 Hz	—
DVI	—	
HDMI	Up to 3840 x 2160 @30 Hz(HDMI 1.4b)	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz, with Digital Audio, DP++ supported
Display Port	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz	LVDS Up to 1920 x 1200 @ 60 Hz, Dual Channel 18/24 bit (via Chrontel 7511)
LVDS	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24 bit (1 x inverter)	eDP UP to 4096 x 2304 @ 60Hz
eDP	—	Voltage/PWM
Backlight Control	—	Voltage/PWM
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	ATX	12V DC
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	
Operation Humidity	0%~90%RH, non-condensing	
Certificate	CE & FCC	CE & FCC (Class A)
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 kg)	
MTBF (Hours)	329,280	256,310
I/O		
Rear Panel I/O Ports	USB 3.2 Gen 2 (10 Gbps) x 4, USB2.0 x 4, VGA x 1, HDMI x 1, DP x 1, Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 2, 1x COM(RS485/422/232)	USB 3.2 Gen 2 (10 Gbps) x 4, DP x 2, Mic-in x 1, Line out x 1, LAN (RJ45) port x 2, DC Jack
Internal I/O Connectors Others	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 80mm) x 1, USB 2.0 (2 x 5-pin, 2.00mm) x 1 port support additional 2 USB, LVDS x 1, AAFP x 1, Speaker x 1, Boxer header for COM (RS-232) x 1, Digital I/O box header x 1, 4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1, Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, CMOS jumper x 1	SATA 6.0Gb/s x4 M.2 M key (22x80mm) x1 (Support Intel® NVMe M.2 SSD), 4-pin SATA power x 1, 3 x USB 2.0 pin header support additional 6 USB ports, 40-pin LVDS connector x 1, 40-pin eDP connector x 1, LCD backlight connector (inverter) x 1, Speaker for 2W/4Ω x 1, AAFP follow ASUS pin out x 1, Boxer header x 1 for COM (COM1: RS-232/422/485 supports 5V/12V/RI), 8-bit x 1 (In/Out programmable), 4-pin Chassis Fan connector x 1, 4-pin CPU Fan connector x 1,12V DC Power jack x 1, Front panel header x 1, Clear CMOS jumper x 1, AT/ATX select jumper x 1, Chassis Intrusion x 1
OS		
OS Support	Windows® 10 64-bit, Linux Ubuntu 18.04 LTS	
Note		

Note: All specifications are subject to change without notice.

Industrial Motherboards

Model	MIX-H310D2	MIX-Q370D2
System		
Processor	8th/9th Gen. Intel® Core™ LGA 1151 socket Processor (formerly Coffee Lake-S),Max. 65W TDPs	
Chipset	Intel® H310 Express Chipset	Intel® Q370 Express Chipset
Memory	DDR4 2666/2400/2133 MHz SODIMM x 2, Up to 64GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture	
I/O Chipset	NCT6793D	
Ethernet	Intel® GbE LAN i219V x 1, Intel® GbE LAN i211AT x 1	
Audio	Realtek® ALC887	
TPM	NPCT750AABYX TPM2.0 (default: No)	NPCT750AAAYX TPM2.0
Expansion Slots	PCIe3.0 [x16] x 1 M.2 E-key(22 x 30 mm) x1 for Wireless-wifi module (PCIe+USB; CNVi)	
BIOS	256Mbit Flash ROM, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/ Chassis Fan	
Wake On LAN/ PXE	Yes (WOL / PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® UHD Graphics	
Graphics Multi Display	HDMI+HDMI, HDMI+eDP, HDMI+VGA, VGA+eDP	HDMI x 2 + VGA + eDP
VGA	Up to 1920 x 1200 @ 60 Hz (Optional)	Up to 1920 x 1200 @ 60 Hz
DVI	—	
HDMI	Up to 3840 x 2160 @30 Hz(HDMI 1.4)	Up to 3840 x 2160 @30 Hz(HDMI 1.4b)
Display Port	—	
LVDS	—	
eDP	UP to 4096 x 2304 @ 60Hz	eDP UP to 4096 x 2304 @ 60Hz
Backlight Control	Support eDP	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	12V DC	
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	
Operation Humidity	0%~90%RH, non-condensing	
Certificate	CE & FCC	
Form Factor	Mini-ITX: 6.7" x 6.7" (170 mm x 170 mm)	
Weight	1.1 lb (0.5 kg)	
MTBF (Hours)	373,720	319,160
I/O		
Rear Panel I/O Ports	USB 3.2 Gen 1 x 4, USB 2.0 x 4, HDMI x 2, VGA x 1 (Optional), Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 2, 12V DC Jack (max:192W)	USB 3.2 Gen2 x 6, USB 2.0 x 4, VGA x 1, HDMI x 2, Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 2, 12V DC Jack (max:192W)
Internal I/O Connectors Others	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 42/80mm; PCIe) x 1, USB 2.0 (2 x 5-pin, 2.00mm) x 1 port support additional 1 USB, eDP x 1, AAFP x 1, Boxer header for COM (RS-232) x 1; RS-232/422/485 x 1, Digital I/O box header x 1, 4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1, Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, CMOS jumper x 1, ATX/AT mode select x 1, ME disable x 1, eDP Tcon IC voltage select x 1, eDP panel backlight voltage select x 1, COM RI select jumper x 1, SATA PWR x 1	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 42/80mm; NVME/SATA) x 1, USB 2.0 (2 x 5-pin, 2.00mm) x 1 port support additional 2 USB, eDP x 1, AAFP x 1, Boxer header for COM (RS-232) x 1; RS-232/422/485 x 1, Digital I/O box header x 1, 4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1, 12V ATX Power Connector x 1, Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, CMOS jumper x 1, SATA Power connector x 1, SPI ROM programming header x 1, ATX/AT mode jumper x 1, eDP backlight power jumper x 1, eDP T-con IC power jumper x 1
OS		
OS Support	Windows® 10 64-bit, Linux Ubuntu 18.04.2	
Note		

Note: All specifications are subject to change without notice.

Industrial Motherboards

Model	EMB-Q170A	EMB-Q170B
System		
Processor	6th/7th Generation Intel® Core™ i7/i5/i3, LGA1151 Socket Processor, Max. 65W TDPs	
Chipset	Intel® Q170	
Memory	DDR4 2133/1867 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture	
I/O Chipset	NCT6791D	
Ethernet	Intel® PCIe Gb LAN 219LM x 1, Intel® PCIe Gb LAN i211AT x 1	Intel® PCIe Gb LAN 219LM for vPro x 1, Intel® PCIe Gb LAN 211AT x 1
Audio	Realtek® ALC887	
TPM	Infineon SLB96XX TT 1.2/2.0 (default: No)	
Expansion Slots	PCIe3.0 [x16] x 1, M.2 M-key (22x80mm) at bottom side x 1	PCIe 3.0 [x4] x 1, M.2 M key (22 x 80mm) at Bottom side x 1, M.2 E key (22 x 30mm) at Top side x 1
BIOS	128M bit Flash ROM, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/Chassis, Voltage Monitor on VCore™ 5V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/Chassis Fan	
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® HD Graphics	
Graphics Multi Display	DP+DP, DP+VGA, DP+DP+VGA, DP+DP+DP	2DP + LVDS, DP + eDP + LVDS, 2DP + eDP
VGA	Up to 1920 x 1200 @60 Hz	—
DVI	—	
HDMI	—	
Display Port	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio	
LVDS	—	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit
eDP	—	UP to 4096 x 2340 @60Hz
Backlight Control	—	Voltage/PWM
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	ATX	12VDC
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Operation Humidity	0% ~ 90% R/H, non-condensing	
Certificate	CE & FCC	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	221,850	292,450
I/O		
Rear Panel I/O Ports	USB 3.2 Gen 1 (5 Gbps) x 4, USB 2.0 x 2, VGA x 1, DP x 3, Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 2, PS/2 for KB/MS x 1	USB 3.2 Gen 1 (5 Gbps) x 4, DP x 2, Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 2, DC Jack x 1
Internal I/O Connectors Others	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 80mm) at bottom side x 1, USB 2.0 (2 x 5-pin, 2.00mm) x 2 ports support additional 4 USB, Speaker x 1, Boxer header for COM (RS-232/422/485) x 1, Boxer header for COM (RS-232) x 1, Digital I/O box header x 1, 4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1, ATX Power Connector x 2, AT/ATX mode select jumper (optional) x 1, Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, CMOS jumper x 1	SATA3 (6.0Gb/s) x 4, SATA power connector x 1, M.2 M key (22 x 80mm) at Bottom side x 1, M.2 E key (22 x 30mm) at Top side x 1, USB 2.0 (2 x 5-pin, 2.00mm) x 3 ports support additional 6 USB, 40-pin LVDS connector x 1, 40-pin eDP connector x 1, LVDS 3.3V /5V jumper x 1, LCD DC / PWM mode jumper x 1, LCD backlight connector (inverter) x 1, LCD backlight 12V /5V jumper x 1, AAFP x 1, Speaker x 1 (pin out refer to manual), Boxer header for COM (RS-232/422/485) x 1, Digital I/O box header x 1, 4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1, 12V AUX Power Connector x 1, AT/ATX mode select jumper (optional) x 1, Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard (pin header) x 1, CMOS jumper x 1
OS		
OS Support	Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Windows® 10 64-bit, Ubuntu16.04.02/Kernel4.8.0	
Note		

Note: All specifications are subject to change without notice.

Industrial Motherboards

Model	EMB-Q170C	EMB-H110B
System		
Processor	6th/7th Generation Intel® Core™ i7/i5/i3, LGA1151 Socket Processor, Max. 65W TDPs	
Chipset	Intel® Q170	Intel® H110
Memory	DDR4 2133/1867 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture	
I/O Chipset	NCT6791D	
Ethernet	Intel® PCIe Gb LAN 219LM for vPro x 1, Intel® PCIe Gb LAN 211AT x 1	Realtek PCIe Gb LAN 8111G x 2
Audio	Realtek® ALC887 with Amp.	Realtek® ALC887
TPM	Infineon SLB9665 TT 2.0 (optional)	Infineon SLB96XX TT 1.2/2.0 (default: No)
Expansion Slots	PCIe 3.0 [x8] x 1, M.2 E-key (22x30mm) for PCIe x 1	PCIe2.0 [x1] x 1, Full-size Mini-Card (mSATA default) (PCIe+USB optional)x 1, Half-size Mini-Card (PCIe+USB) x 1
BIOS	128M bit Flash ROM, AMI BIOS	64 M bit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on VCore™ 5V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/ Chassis Fan	
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® HD Graphics	—
Graphics Multi Display	VGA + HDMI + HDMI	HDMI1+HDMI2, HDMI1+DP2, DP1+HDMI2, HDMI1+LVDS, HDMI2+LVDS, HDMI1+eDP, HDMI2+eDP, DP1+DP2, DP1+LVDS, DP2+LVDS, DP1+eDP, DP2+eDP
VGA	Up to 1920 x 1200 @ 60 Hz	—
DVI	—	
HDMI	Up to 4096 x 2160 @24 Hz ; 3840 x 2160 @60 Hz, with Digital Audio	Up to 4096 x 2160 @24 Hz / 2560 x 1600 @60 Hz, with Digital Audio (HDMI/DP Combo)
Display Port	—	Up to 1920 x 1200 @60 Hz, with Digital Audio (HDMI/DP Combo)
LVDS	—	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit colay
eDP	—	UP to 4096 x 2340 @60Hz
Backlight Control	—	Voltage/PWM
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	ATX	12VDC
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~ 185°F (-40°C ~85°C)	
Operation Humidity	0% ~ 90% RH, non-condensing	
Certificate	CE & FCC	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	282,880	315,210
I/O		
Rear Panel I/O Ports	USB 3.2 Gen 1 (5 Gbps) x 4, VGA x 1, HDMI x 2, Mic-in x 1, Line out x 1, LAN (RJ45) port x 2	USB 3.2 Gen 1 (5 Gbps) x 4, DP/HDMI (BOM Change) x 2, Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 2, DC Jack x 1
Internal I/O Connectors Others	SATA3 (6.0Gb/s) x 2, Full Size Mini-Card (mSATA) x 1, SATA power connector x 1, USB 2.0 (2 x 5-pin, 2.00mm) x 2 ports support additional 4 USB, 40-pin LVDS connector x 1, 40-pin eDP connector x 1, LVDS 3.3V /5V jumper x 1, LCD DC / PWM mode jumper x 1, LCD backlight connector (inverter) x 1, LCD backlight 12V /5V jumper x 1, AAFP x 1, Speaker x 1, Boxer header for COM (RS-232/422/485) x 1, Boxer header for COM (RS-232) x 1, Digital I/O box header x 1, 4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1, 12V AUX Power Connector x 1, AT/ATX mode select jumper (optional) x 1, Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard (pin header) x 1, CMOS jumper x 1	SATA3 (6.0Gb/s) x 4, SATA power connector x 1, Full Size Mini-Card (mSATA) x 1 ,USB 2.0 (2 x 5-pin, 2.00mm) x 3 ports support additional 6 USB VGA x 1, LVDS connector x 1, LVDS 3.3V /5V jumper x 1, LCD DC / PWM mode jumper x 1, LCD backlight connector (inverter) x 1, LCD backlight 12V /5V jumper x 1, AAFP x 1, Speaker x 1, DMIC (optional) x 1, Boxer header for COM (RS-232) x 2, PS/2 Keyboard Mouse 6 PIN Connector x 1, Digital I/O header x 1, 4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1, 12V AUX Power Connector x 1, AT/ATX mode select jumper (optional) x 1, Front Panel connector x 1, Chassis Intrusion x 1, CMOS jumper x 1
OS		
OS Support	Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Windows® 10 64-bit, Ubuntu16.04.02/Kernel4.8.0	Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Windows® 10 64-bit, Linux Fedora
Note		

Note: All specifications are subject to change without notice.

Board Level Products

Industrial Motherboards

Model	EMB-Q87A	EMB-H81A
System		
Processor	4th Generation Intel® Core™ i Series 22nm LGA1150 socket Processor, Max. 65W, TDPs	
Chipset	Intel® Q87	Intel® H81
Memory	DDR3 1333/1600 MHz SODIMM x 2, Up to 16GB, Non-ECC, Dual-channel memory architecture(flat type)	
I/O Chipset	NCT6791D	NCT6791D, NCT5104D
Ethernet	Intel® PHY I217LM Giga LAN x 1, Intel® I210AT Giga LAN x 1	Realtek PCIe Gb LAN 8111F x 2
Audio	Realtek® ALC887	
TPM	Infineon SLB96XX TT 1.2/2.0 (default: 1.2)	Infineon SLB9635 TT 1.2
Expansion Slots	PCIe [x4] x 1, Full-size Mini-Card x 1 (mSATA default) (PCIe+USB optional, selected by Jumper), Half-size Mini-Card x 1 (PCIe+USB default, selected by Jumper).	PCIe [x4] x 1, Full-size Mini-Card (PCIe+USB default) (mSATA Default) x 1,
BIOS	128M bit Flash ROM, AMI BIOS	64 M bit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on VCore™ 5V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/ Chassis Fan	
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® HD Graphics	
Graphics Multi Display	VGA+HDMI, VGA+DP, VGA+LVDS, HDMI+DP, HDMI+LVDS, DP+LVDS, VGA+HDMI+DP, VGA+HDMI+LVDS, HDMI+DP+LVDS, VGA+DP+LVDS	VGA + LVDS, VGA + DVI-I, LVDS + DVI-I
VGA	Up to 1920 x 1200 @60 Hz	
DVI	—	Up to 1920 x 1200 @60 Hz
HDMI	Up to 4096 x 2160 @24 Hz ; 3840 x 2160 @60 Hz, with Digital Audio	—
Display Port	Up to 4096 x 2160 @24 Hz ; 3840 x 2160 @60 Hz, with Digital Audio	—
LVDS	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit Supports LVDS
eDP	—	
Backlight Control	Voltage/PWM	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	12-24V DC (wide rage:12V-5%~ 24V+10%)	24pin ATX connector x 1, 4pin ATX 12V Power connector x 1
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	
Operation Humidity	0% ~ 90% R/H, non-condensing	
Certificate	CE & FCC	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	104,363	288,500
I/O		
Rear Panel I/O Ports	USB 3.2 Gen 1 (5 Gbps) x 4, HDMI x 1, DP x 1, Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 2, DC Jack x 1	USB 3.2 Gen 1 x 2, USB 2.0 x 4, VGA x 1, DVI-I x 1 Mic-in x 1, Line-out x 1, LAN (RJ-45) port x 2, COM (RS-232/422/485) x 1, COM (RS-232) x 2
Internal I/O Connectors Others	SATA3 (6.0Gb/s) x 4, SATA power connector x 1, Full Size Mini-Card (mSATA) x 1, USB 2.0 (2 x 5-pin, 2.00mm) x 3 ports support additional 6 USB VGA x 1, LVDS connector x 1, LVDS 3.3V /5V jumper x 1, LCD DC / PWM mode jumper x 1, LCD backlight connector (inverter) x 1, LCD backlight 12V /5V jumper x 1, AAFP x 1, Speaker x 1, DMIC (optional) x 1, Boxer header for COM (RS-232) x 2, PS/2 Keyboard Mouse 6 PIN Connector x 1, Digital I/ O header x 1, 4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1, 12V AUX Power Connector x 1, AT/ATX mode select jumper (optional) x 1 Front Panel connector x 1, Chassis Intrusion x 1, CMOS jumper x 1	SATA3 (6.0Gb/s) x 2, SATA2 (3.0Gb/s) x 2 (1 colay with mainboard), Full/ Half Size Mini-Card slot x 1, USB 2.0 connectors support additional 2 USB ports (2.54mm) x 1, USB 2.0 connectors support additional 1 USB ports (2.00mm) x 1, LVDS connector x 1, LCD Inverter connector x 1, AAFP x 1, Box header for COM (RS-232) x 4, SPP/EPP/ECP Mode, Digital I/O header x 1, CPU Fan connector x 1, Chassis Fan connector x 1, 12V AUX Power Connector x 1, 24-pin EATX Power connector x 1, Front Panel connector x 1
OS		
OS Support	Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Windows® 10 64-bit, Linux Fedora	WIndows® 10 64-bit, Windows® 7 32/64-bit, Windows® 8 32/64-bit, Linux Fedora
Note		

Note: All specifications are subject to change without notice.

Industrial Motherboards

Model	EMB-QM87A	EMB-QM77
System		
Processor	Onboard 4th generation Intel® BGA 1364 Processor	Socket 3rd Generation Intel® rPGA988 Processor
Chipset	Intel® QM87	Intel® QM77
Memory	Dual-Channel with 204-pin SDRAM x 2, DDR3L 1600/1333, up to 16GB	Dual-Channel with 204-pin SDRAM x 2, DDR3 1600/1333/1066, up to 16GB
I/O Chipset	Fintek F81866D-I	ITE IT8728F+Fintek F81216DG
Ethernet	Intel® I217-LM / Realtek RTL 8111E, Gigabit LAN x 2	Intel® PHY WG82579LM / Realtek RTL 8111E, Gigabit LAN x 2
Audio	Realtek® ALC892/886/662	
TPM	Infineon SLB9635TT 1.2(Optional)	Infineon SLB9635TT 1.2
Expansion Slots	PCIe [x16] x 1, Mini-PCIe x 1	PCIe [x16] x 1, Mini-PCIe x 1, CFast x 1
BIOS	AMI BIOS - 128MB ROM	
H/W Monitor	Supports System temperature, Voltage, and Cooling fan status monitoring	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/Chassis Fan	
Wake On LAN/ PXE	Yes	
Power State	S3,S4,S5	
Graphics		
Graphics Chipset	Intel® Core™i7/i5/i3 + QM87	Intel® Core™i7/i5/i3 + QM77
Graphics Multi Display	HDMIx3, HDMIx2+VGA, HDMIx2+LVDS, HDMI+VGA+LVDS	DP x 2+VGA, DP x 2+LVDS, HDMI+DP,HDMI+VGA, HDMI+LVDS
VGA	1	
DVI	—	1
HDMI	1	1 (by SKU)
Display Port	—	2 (by SKU)
LVDS	1	
eDP	—	
Backlight Control	Voltage/PWM	
Environment & Power & ME		
Battery	Lithium Battery	
Power Requirement	12V DC	
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C)	
Operation Humidity	0% ~ 90% R/H, non-condensing	
Certificate	CE/FCC	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.32 lb (0.6 kg)	
MTBF (Hours)	106,000	60,000
I/O		
Rear Panel I/O Ports	USB 3.2 Gen 1 x 4 HDMI x 3, VGA x 1 Line-in, Mic-in, Line-out RJ-45 x 2 RS-232/422/485 x 1 Mini-Din PS/2 K/B and Mouse x 1	USB 3.2 Gen 1 x 4 DP x 2 or DP x 1+HDMI x 1, DVI-D x 1 Line-in, Mic-in, Line-out RJ-45 x 2 RS-232/422/485 x 1 Mini-Din PS/2 K/B and Mouse x 1
Internal I/O Connectors	SATA 6.0 Gb/s x 4, SATA 3.0 Gb/s x 2, Supports RAID 0,1,5,10 USB 3.2 Gen 1 x 2, USB 2.0 x 4 LVDSx 1 RS-232 x 4 8-bit programmable (4-in/4-out) CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 1 8-pin connector x 1	SATA 6.0 Gb/s x 2, SATA 3.0 Gb/s x 2, Supports RAID 0,1,5,10 USB 2.0 x 6 VGAx 1, LVDS x 1 RS-232 x 1 8-bit programmable (4-in/4-out) CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 1 4-pin connector x 1
OS		
OS Support	Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora	Windows® XP, Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora
Note		

Note: All specifications are subject to change without notice.

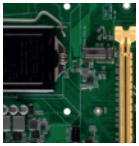
Board Level Products

Industrial Motherboards

Model	EMB-QM67	MAX-Q370A
System		
Processor	Socket 2nd Generation Intel® rPGA988 Processor	Intel® 8th/9th Generation (Coffee Lake-S) Core™ i9/ i7/ i5 /i3, Pentium™ 14nm LGA 1151 socket Processor, Max. 95W
Chipset	Intel® QM67	Intel® Q370 Express Chipset
Memory	Dual-Channel with 204-pin SDRAM x 2, DDR3 1600/1333/1066, up to 16GB	DIMM x 4, DDR4 (2666/2400/2133 MHz, max. 64GB) Non-ECC, un-buffered memory Dual channel memory architecture
I/O Chipset	ITE IT8728F+Fintek F81216DG	NCT6793D+ F81216HD
Ethernet	Intel® PHY WG82579LM / Realtek RTL 8111E, Gigabit LAN x 2	Intel® PHY i219LM Giga LAN (supports Intel® AMT 12.0) x 1, Intel® i211AT Giga LAN x 1, RJ45 x 2
Audio	Realtek® ALC892/886/662	Realtek® ALC887 6-Channel High Definition Audio CODEC
TPM	Infineon SLB9635TT 1.2(Optional)	Nuvoton NPCT750AAAYX TPM2.0 onboard
Expansion Slots	PCIe [x4] x 1, Mini-PCIe x 1, CFast x 1	PCIe 3.0[x16] Slot x 1 PCIe 3.0[x4] Slot (open edge) x 2 PCIe 3.0[x1] Slot (open edge) x 1 M.2 2230 E-key (PCIe+USB) x 1 M.2 2280 M-key (PCIex4/SATA3) x 1
BIOS	AMI BIOS - 64MB ROM	256Mbit Flash ROM, AMI BIOS
H/W Monitor	Supports System temperature, Voltage, and Cooling fan status monitoring	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/Chassis Fan	CPU Fan/ Chassis Fan x 2
Wake On LAN/ PXE	Yes	Yes (WOL / PXE)
Power State	S3,S4,S5	
Graphics		
Graphics Chipset	Intel® Core™i7/i5/Celeron® + QM67	Intel® UHD Graphics
Graphics Multi Display	VGA+HDMI, VGA + LVDS, VGA+DVI, HDMI+DVI, HDMI+LVDS, DVI+LVDS	HDMI+VGA+DP, HDMI+HDMI+VGA, HDMI+HDMI+DP
VGA	1	Up to 1920 x 1200 @60Hz (via IT6516B)
DVI	1	—
HDMI	1	Up to 4096 x 2160 @ 24 Hz / 2560 x 1600 @ 60 Hz, with Digital Audio
Display Port	—	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz, with Digital Audio
LVDS	1	—
eDP	—	
Backlight Control	Voltage	—
Environment & Power & ME		
Battery	Lithium Battery	
Power Requirement	12V DC	24-pin ATX connector x 1, 8-pin (2x4) ATX 12V Power connector x 1
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C)	-40°F ~185°F (-40°C ~85°C)
Operation Humidity	0% ~ 90% R/H, non-condensing	
Certificate	CE/FCC	CE & FCC Class A
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	Micro-ATX Form Factor, 9.6"x9.6" (244mmx244mm)
Weight	1.32 lb (0.6 kg)	1.76 lb (0.8 Kg)
MTBF (Hours)	70,000	264,820
I/O		
Rear Panel I/O Ports	USB 2.0 x 4, HDMI x 1, DVI-D x 1, VGA x 1, Line-in, Mic-in, Line-out, RJ-45 x 2, RS-232/422/485 x 1, Mini-Din PS/2 K/B and Mouse x 1	USB 3.2 Gen 2 ports (10 Gbps) x 6, USB 3.2 Gen 2 ports (5 Gbps) x 4, DP x 1, VGA x 1, HDMI x 2, Audio Jack x 3: Line-in, Mic-in, Line-out, LAN (RJ45) ports x 2, PS/2 combo Port (Keyboard & Mouse) x 1
Internal I/O Connectors	SATA 3.0 Gb/s x 2, Supports RAID 0,1,5,10, USB 2.0 x 4, LVDS x 1, RS-232 x 5, 8-bit programmable (4-in/4-out), CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 1, 4-pin connector x 1	SATA III (6.0Gb/s) ports x 4, support RAID 0/1/5/10, M.2 2280 M-key (PCIex4/SATA3) x 1, USB 2.0 headers support additional 3 USB ports (2x5PIN, p=2.54mm) x 2, Speaker for 2W@4Ω x 1, RS-232 Boxer headers x 5, RS-232/422/485 Boxer header (COM1, Pin9 supports 5V/12V/RI optional) x 1, 8-bit Digital I/O interface (In/Out programmable) x 1, CPU Fan connector (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 2, Chassis intrusion x 1, AT/ATX mode select jumper x 1, Front panel header x 1, Clear CMOS jumper x 1
OS		
OS Support	Windows® XP, Windows® 7 32/64-bit, Linux Fedora	Windows® 10 64bit, Linux Ubuntu 64bit (18.04.1/Kernal4.8.0)
Note		

Note: All specifications are subject to change without notice.

Industrial Motherboards



Model	MAX-Q370C	MAX-C246A
System		
Processor	Intel® 8th/9th Generation (Coffee Lake-S/Coffee Lake-S Refresh) Core™ i9 /i7/ i5 /i3, Pentium 14nm LGA 1151 socket Processor, Max. 6 Core 95W	8th/9th Generation Intel® (Coffee Lake-S) Core™ i9/ i7/ i5 /i3, Pentium™ 14nm, Celeron™, Xeon™ E-2200/2100, LGA 1151 socket Processor, Max. 95W (E-2278GE, 8C16T)
Chipset	Intel® Q370 Express Chipset	Intel® C246 Express Chipset
Memory	DIMM x 4, DDR4 (2666/2400/2133 MHz, max. 64GB) non-ECC, un-buffered memory Dual channel memory architecture	DIMM x 4, DDR4 (2666/2400/2133 MHz, max. 64GB), ECC, un-buffered memory, Dual channel memory architecture
I/O Chipset	NCT6793D+ F81216HD	NCT6793D+ F81216HD
Ethernet	Intel® PHY i219LM Giga LAN (supports Intel® AMT 12.0) x 1 Intel® i211AT Giga LAN x 1, RJ45 x 2	Intel® PHY i219LM Giga LAN (supports Intel® AMT 12.0) x 1 Intel® i211AT Giga LAN x 1, RJ45 x 2
Audio	Realtek® ALC887 6-Channel High Definition Audio CODEC	
TPM	Nuvoton NPCT750ABBYX TPM2.0 onboard (optional, default: N/A)	Nuvoton NPCT750AAAYX TPM2.0 onboard
Expansion Slots	PCIe 3.0[x16] Slot x 1 PCIe 3.0[x4] Slot (open edge) x 3 M.2 2280/2242 M-key (PCIe x 2) x 1	PCIe 3.0[x16] Slot x 1, PCIe 3.0[x4] Slot x 2(open edge) PCIe 3.0[x1] Slot x 1(open edge), M.2 2230 E-key x 1(PCIe+USB), M.2 2280 M-key x 1(PCIex4/ SATA3)
BIOS	256 Mbit Flash ROM x 1, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/ Chassis Fan x 2	
Wake On LAN/ PXE	Yes (WOL / PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® Graphics Media Accelerator	Intel® UHD Graphics
Graphics Multi Display	HDMI+VGA+DP, HDMI+HDMI+VGA, HDMI+HDMI+DP	
VGA	Up to 1920 x 1200 @60Hz (via IT6516B)	
DVI	—	
HDMI	Up to 4096 x 2160 @ 24 Hz / 2560 x 1600 @ 60 Hz, with Digital Audio	
Display Port	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz, with Digital Audio	
LVDS	—	
eDP	—	
Backlight Control	—	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	24-pin ATX connector x 1, 8-pin (2x4) ATX 12V Power connector x 1	
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	
Operation Humidity	0%~90%RH, non-condensing	
Certificate	CE & FCC Class A	
Form Factor	Micro-ATX Form Factor, 9.6"x9.6" (244 mm x 244 mm)	
Weight	1.76 lb (0.8 Kg)	
MTBF (Hours)	—	264,820
I/O		
Rear Panel I/O Ports	USB 3.2 Gen 1 ports (5 Gbps) x 6, USB 2.0 ports x 4, DP x 1, VGA x 1, HDMI x 2, Audio Jack x 3: Line-in, Mic-in, Line-out, LAN (RJ45) ports x 2, PS/2 combo Port (Keyboard & Mouse) x 1	USB 3.2 Gen 2 ports (10 Gbps) x 6, USB 3.2 Gen 1 ports (5 Gbps) x 4, DP x 1, VGA x 1, HDMI x 2, Audio Jack x 3: Line-in, Mic-in, Line-out, LAN (RJ45) ports x 2, PS/2 combo port (Keyboard & Mouse) x 1
Internal I/O Connectors	SATA III (6.0Gb/s) ports x 4, support RAID 0/1/5/10 M.2 2280/2242 M-key (PCIe x 2) x 1, USB 3.2 Gen 1 box header x 1, USB 3.2 Gen 1 Type A (vertical) connector x 1, speaker header (Line-out) x 1, AAFP x 1, RS-232 headers x 5, RS-232/422/485 (COM1, supports 5V/12V/RI optional) x 1, 8-bit Digital I/O interface (In/Out programmable) x 1, CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 2, Chassis Intrusion x 1, AT/ATX mode select jumper x 1, Front panel header x 1, Clear CMOS jumper x 1, 3-pin ME lock header x 1	SATA III (6.0Gb/s) ports x 4, support RAID 0/1/5/10, M.2 2280 M-key (PCIex4/SATA3) x 1, USB 2.0 headers support additional 3 USB ports (2x5PIN, p=2.54mm) x 2, Speaker for 2W@4Ω x 1, RS-232 Boxer headers x 5, RS-232/422/485 Boxer header (COM1, Pin9 supports 5V/12V/RI optional) x 1, 8-bit Digital I/O interface (In/Out programmable) x 1, CPU Fan connector (4-pin) x 1 Chassis Fan connector(s) (4-pin) x 2, Chassis Intrusion x 1, AT/ATX mode select jumper x 1 Front panel header x 1 Clear CMOS jumper x 1
OS		
OS Support	Windows® 10 64bit, Linux Ubuntu 64bit (18.04.1/Kernal4.8.0)	
Note		

Note: All specifications are subject to change without notice.

Board Level Products

Industrial Motherboards

Model	MAX-H310A	IMBM-Q170A
System		
Processor	Intel® 8th Generation(Coffee Lake-S) Core™ i7/ i5 /i3, Pentium 14nm LGA 1151 socket Processor	7th/6th Generation Intel® Core™ i7/i5/i3/Pentium®/ Celeron® 14nm LGA1151 Socket Processor
Chipset	Intel® H310 Express Chipset	Intel® Q170 Express Chipset
Memory	DIMM x 2, DDR4 (2666/2400/2133 MHz, max. 32GB) non-ECC, un-buffered memory Dual channel memory architecture	288-pin DIMM x 4, max. 64GB, DDR4 2133/1867 MHz, non-ECC, un-buffered memory, Dual channel memory architecture
I/O Chipset	NCT6793D+ F81216HD	NCT6791D, F81216HD
Ethernet	Intel® PHY i219V Giga LAN x 1 Intel® i211AT Giga LAN x 1 RJ45 x 2	LAN 1: Intel® PHY i219LM Giga LAN (supports iAMT 11.0) x 1 LAN 2: Intel® i211AT Giga LAN x 1, RJ-45 x 2
Audio	Realtek® ALC887 6-Channel High Definition Audio CODEC	Realtek® ALC887 (Colay with ALC886)
TPM	Nuvoton NPCT650ABBYX TPM2.0 onboard (default: No)	20-1 PIN header for TPM1.2/FW3.19
Expansion Slots	PCIe 3.0[x16] Slot x 1, PCIe 2.0[x1] Slot (open edge) x 3, M.2 2280 M-key (BOM option: PCIe or SATA; default: SATA) x 1	PCIe 3.0/2.0[x16] Slot x 1, PCIe 3.0/2.0[x4] Slot (open edge) x 1, PCIe 3.0/2.0[x1] Slot (open edge) x 1, PCI x 1
BIOS	128Mbit Flash ROM, AMI BIOS	128M bit Flash ROM x 1, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan x 1, Chassis Fan x 2	CPU Fan/ Chassis Fan x 2
Wake On LAN/ PXE	Yes (WOL / PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® UHD Graphics	Intel® HD Graphics
Graphics Multi Display	VGA+DP; VGA+HDMI; DP+HDMI	DVI-I+HDMI, HDMI+HDMI
VGA	Up to 1920 x 1200 @60Hz (via IT6516B)	Up to 1920 x 1200 @60Hz
DVI	—	Up to 1920 x 1200 @60Hz
HDMI	Up to 4096 x 2160 @ 24 Hz / 2560 x 1600 @ 60 Hz, with Digital Audio	HDMI 1.4 up to 4096 x 2304 @30Hz
Display Port	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz, with Digital Audio	—
LVDS	—	
eDP	—	
Backlight Control	—	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	24-pin ATX connector x 1, 8-pin (2x4) ATX 12V Power connector x 1	24-pin ATX connector x 1, 8-pin ATX 12V Power connector x 1
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	
Operation Humidity	0%~90%RH, non-condensing	
Certificate	CE & FCC Class A	
Form Factor	Micro-ATX Form Factor, 9.6"x9.6" (244mmx244mm)	
Weight	1.76 lb (0.8 Kg)	
MTBF (Hours)	261,090	193,470
I/O		
Rear Panel I/O Ports	USB 3.2 Gen 1 ports (5 Gbps) x 4, USB 2.0 ports x 4, DP x 1, VGA x 1, HDMI x 1, Audio Jack x 3: Line-in, Mic-in, Line-out, LAN (RJ45) ports x 2, PS/2 stack Port (Keyboard & Mouse) x 1	USB 3.2 Gen 1 x 10, DVI-I x 1, HDMI x 2, Audio Jack x 3: Line-in, Mic-in, Line-out, LAN (RJ-45) port x 2, RS-232/422/485 DB-9 connector x 1 (COM1, supports 5/12V on RI pin), PS/2 Combo Port (Keyboard & Mouse) x 1
Internal I/O Connectors	SATA III (6.0Gb/s) ports (BOM option: additional 2 SATA) x 3, M.2 2280 M-key (BOM option: PCIex1 or SATA; default: SATA) x 1, USB 2.0 header support additional 2 USB ports (2x5PIN, p=2.54mm) x 1, speaker header (Line-out) x 1, RS-232 Boxer headers x 5, RS-232/422/485 Boxer header (COM1, Pin9 supports 5V/12V/RI optional) x 1, 8-bit Digital I/O interface (In/Out programmable) x 1, CPU Fan connector (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 2, Chassis intrusion x 1, AT/ATX mode select jumper x 1, Front panel header x 1, Clear CMOS jumper x 1, LPC boxer header x 1	SATA3 (6.0Gb/s) port x 6, supports RAID 0/1/5/10 USB 2.0 connector x 2 supports additional USB port x 4 Speaker header x 1 (Line-out) RS-232 header x 5 8-bit Digital I/O interface x 1 (In/Out programmable) CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 2 Front panel header x 1, Clear CMOS jumper x 1, TPM header x 1, BIOS flash header (2[x4]P p=1.27mm) x 1, Chassis Intrusion x 1
OS		
OS Support	Windows® 10 64bit, Linux Ubuntu 64bit (18.04.1/Kernal4.8.0)	Windows® 7 32/64-bit, Windows® 8.1 64-bit, Windows® 10 64-bit, , Linux Fedora 64bit
Note		

Note: All specifications are subject to change without notice.

Industrial Motherboards

Model	IMBM-H110A	IMBM-Q87A
System		
Processor	7th/6th Generation Intel® Core™ i7/i5/i3/Pentium®/ Celeron® 14nm LGA1151 Socket Processor	4th Generation Intel® Core™ i7/i5/i3/Pentium®/ Celeron® 22nm LGA 1150 socket Processor
Chipset	Intel® H110	Intel® Q87 Express Chipset
Memory	288-pin DIMM x 2, max. 32GB, DDR4 2400/2133/1867, Dual channel	240-pin DIMM x 4, max. 32GB, DDR3 1600/1333 MHz, non-ECC, un-buffered memory, Dual channel memory architecture
I/O Chipset	NCT6791D, F81216HD	NCT6791D, F81216HD
Ethernet	Intel® I211AT Giga LAN x 2	Intel® PHY I217LM Giga LAN (supports iAMT 9.0) x 1, Intel® I210AT Giga LAN x 1, RJ-45 x 2
Audio	Realtek® ALC887 (Colay with ALC886)	
TPM	Nuvoton NPCT650ABBYX TPM2.0 (default : No)	20-1 PIN header for TPM1.2/FW3.19
Expansion Slots	PCIe [x16] x 1, PCIe [x1] (open edge) x 2, PCI x 1, M.2 M key (22 x 42mm) x 1	PCIe 3.0/2.0[x16] Slot x 1, PCIe 2.0 [x4] Slot x 1, PCI x 2, Half size Mini-Card x 1 (PCIe + USB) or mSATA optional
BIOS	128M bit Flash ROM x 1, AMI BIOS	64Mbit Flash ROM x 2, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V/ 3VSB/VBAT, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan x 1, Chassis Fan x 2	CPU Fan/ Chassis Fan
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® HD Graphics	
Graphics Multi Display	DVI-D+HDMI, HDMI+HDMI, VGA+HDMI, DVI-D+VGA	DVI-D+DP, DP+DP, VGA+DVI-D, VGA+DP, DVI-D+DP+DP, VGA+DP+DP
VGA	Up to 1920 x 1200 @60Hz	
DVI	Up to 1920 x 1200 @60Hz	
HDMI	HDMI 1.4 up to 4096 x 2304 @24Hz	—
Display Port	—	DP 1.2, up to 3840 x 2160 @60Hz
LVDS	—	
eDP	—	
Backlight Control	—	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	24-pin ATX connector x 1, 8-pin ATX 12V Power connector x 1	
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Operation Humidity	0% ~ 90% RH, non-condensing	
Certificate	CE & FCC Class A	
Form Factor	Micro-ATX, 9.6" x 9.6" (244mm x 244mm)	
Weight	1.76 lb (0.8 Kg)	
MTBF (Hours)	245,250	100,000
I/O		
Rear Panel I/O Ports	USB 3.2 Gen 1 x 4, HDMI x 2, VGA x 1, DVI-D x 1, Line-in, Mic-in, Line-out, RJ-45 x 2, DB-9 COM x 1 (supports RS-232/422/485) Stack Port (Keyboard & Mouse) x 1	USB 3.2 Gen 1 port x 4, USB 2.0 port x 6, DVI-D x 1, DP x 2, VGA x 1, Audio Jack x 3: Line-in, Mic-in, Line-out, LAN (RJ-45) port x 2, PS/2 Combo Port (Keyboard & Mouse) x 1
Internal I/O Connectors	SATA 6.0Gb/s x 5, M.2 M key (22 x 42mm) x 1 USB 2.0 x 6 AMP speaker header x 1 (Line-out) RS-232 header x 5 8-bit x 1 (In/Out programmable) 4-pin CPU Fan x 1, 4-pin Chassis Fan x 2 Front panel header x 1, Clear CMOS jumper x 1, BIOS flash header (2[x4]P p=1.27mm) x 1, Chassis Intrusion x 1, AT/ATX mode select jumper x 1	SATA3 (6.0Gb/s) port x 5, supports RAID 0/1/5/10; Half size Mini-Card (PCIe + USB,or mSATA optional) x 1, USB 2.0 connector x 1 supports additional 2 USB ports, RS-232 header x 5, RS-232/422/485 DB-9 connector x 1 (COM1, supports 5/12V on RI pin), 8-bit Digital I/O interface x 1 (In/Out programmable), CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 2, Front panel header x 1, Clear CMOS jumper x 1, TPM header x 1, BIOS flash header (2[x4]P p=1.27mm) x 1, Chassis Intrusion x 1
OS		
OS Support	Windows® 7 32/64-bit (not supported when a Kaby Lake processor is used), Windows® 8.1 64-bit (not supported when a Kaby Lake processor is used), Windows® 10 64-bit, ,Linux Fedora 64bit	Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Windows® 10 32/64-bit, Linux Fedora
Note		

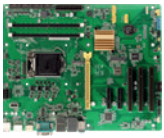
Note: All specifications are subject to change without notice.

Industrial Motherboards

Model	ATX-Q370A	ATX-C246A
System		
Processor	Intel® 8th/9th Generation (Coffee Lake-S/Coffee Lake-S Refresh) Core™ i9/ i7/ i5 /i3, Pentium 14nm LGA 1151 socket Processor, Max. 95W	Intel® 8th/9th Generation (Coffee Lake-S/Coffee Lake-S Refresh) Core™ i9/ i7/ i5 /i3, Pentium 14nm, Celeron™, Xeon E-2200/2100, LGA 1151 socket Processor, Max. 95W (E-2278GE, 8C16T)
Chipset	Intel® Q370 Express Chipset	Intel® C246 Express Chipset
Memory	DIMM x 4, DDR4 (2666/2400/2133 MHz, max. 64GB) Non-ECC, un-buffered memory Dual channel memory architecture	DIMM x 4, DDR4 (2666/2400/2133 MHz, max. 64GB) ECC, un-buffered memory Dual channel memory architecture
I/O Chipset	NCT6793D + F81216HD	
Ethernet	Intel® PHY i219LM Giga LAN x 1 (supports Intel® AMT 12.0) Intel® i211AT Giga LAN x 1 (BOM option: i211AT x 2) RJ45 x 2 (BOM option: RJ45 x 3)	Intel® PHY i219LM Giga LAN x 1 (supports Intel® AMT 12.0) Intel® i211AT Giga LAN x 1 (BOM option: i211AT x 2) RJ45 x 2 (BOM option: RJ45 x 3)
Audio	Realtek® ALC887 6-Channel High Definition Audio CODEC	
TPM	Nuvoton NPCT750ABBYX TPM2.0 onboard (optional)	
Expansion Slots	PCIe 3.0[x16] Slot x 1, PCIe 3.0[x4] Slot (open edge) x 2, PCIe 3.0[x1] Slot (open edge) x 2, PCI x 2, M.2 2230 E-key (PCIex1/USB2.0/CNVi) x 1, M.2 2280 M-key (PCIex4/SATA3) x 1	PCIe 3.0[x16] Slot x 1, PCIe 3.0[x4] Slot (open edge) x 2, PCIe 3.0[x1] Slot (open edge) x 2, PCI x 2, M.2 2230 E-key (PCIex1/USB2.0/CNVi) x 1, M.2 2280 M-key (PCIex4/SATA3) x 1
BIOS	256Mbit Flash ROM x 1, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/ Chassis Fan x 2	
Wake On LAN/ PXE	Yes (WOL / PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® Graphics Media Accelerator	
Graphics Multi Display	HDMI+VGA+DP (BOM option: USB 3.2 Gen 2 -10Gbps Type-C connector (Alternate Mode: USB+DP) x 1)	
VGA	Up to 1920 x 1200 @60Hz (via IT6516B)	
DVI	—	
HDMI	Up to 4096 x 2160 @ 24 Hz / 2560 x 1600 @ 60 Hz, with Digital Audio	
Display Port	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz, with Digital Audio	
LVDS	—	
eDP	—	
Backlight Control	—	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	24-pin ATX connector x 1, 8-pin (2x4) ATX 12V Power connector x 1	
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	
Operation Humidity	0%~90%RH, non-condensing	
Certificate	CE & FCC Class A	
Form Factor	ATX Form Factor, 12"x9.6" (305mm x 244mm)	
Weight	1.76 lb (0.8 Kg)	
MTBF (Hours)	281,410	
I/O		
Rear Panel I/O Ports	USB 3.2 Gen 2 ports (10 Gbps) x 4, USB 3.2 Gen 1 ports (5 Gbps) x 2, USB 2.0 ports x 4, HDMI x 1, VGA x 1, DP x 1, USB Type-C x 1 (optional), Audio Jack x 3: Line-in, Mic-in, Line-out, LAN (RJ45) ports x 2 (BOM option: RJ45 x 3)	
Internal I/O Connectors	SATA III (6.0Gb/s) ports x 4, support RAID 0/1/5/10, M.2 2280 M-key (PCIex4/SATA3) x 1, USB 2.0 headers x 1 support additional 2 USB ports (2x5PIN, p=2.54mm), 1 x speaker header (Line-out), 5 x RS-232 headers 1 x RS-232/422/485 (COM1, supports 5V/12V/RI optional), 8-bit Digital I/O interface (In/Out programmable) x 1, CPU Fan connector(s) (4-pin) x 1 Chassis Fan connector(s) (4-pin) x 2, Chassis Intrusion x 1, AT/ATX mode select jumper x 1, Front panel header x 1, Clear CMOS jumper x 1	
OS		
OS Support	Windows® 10 64bit, Linux Ubuntu 64bit (18.04.1/Kernal4.8.0)	
Note		

Note: All specifications are subject to change without notice.

Industrial Motherboards

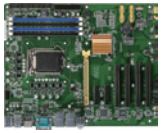


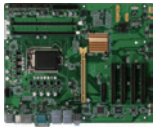
Model	ATX-H310A
System	
Processor	Intel® 8th/9th Generation (Coffee Lake-S/Coffee Lake-S Refresh) Core™ i9/ i7/ i5 /i3, Pentium 14nm LGA 1151 socket Processor, Max. 6 Core 95W
Chipset	Intel® H310 Express Chipset
Memory	DIMM x 2, DDR4 (2666/2400/2133 MHz, max. 64GB) non-ECC, un-buffered memory Dual channel memory architecture
I/O Chipset	NCT6793D+ F81216HD
Ethernet	Intel® PHY i219V Giga LAN x 1 Intel® i211AT Giga LAN x 1 RJ45 x 2
Audio	Realtek® ALC887 6-Channel High Definition Audio CODEC
TPM	Nuvoton NPCT750AABYX TPM2.0 onboard (optional, default: N/A)
Expansion Slots	PCIe 3.0[x16] Slot x 1, PCIe 2.0[x4] Slot (open edge) x 2 (#1: 1Lane #2: Default: 2Lanes, only support 1Lane when Mini PCIe slot is installed.), PCI x 3, M.2 2280/2242 M-key (PCIex1/SATA3) x 1, Mini PCIe + Micro SIM card Slot (optional, default: N/A)
BIOS	128Mbit Flash ROM x 1, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program
Smart Fan Control	CPU Fan/ Chassis Fan x 2
Wake On LAN/ PXE	Yes (WOL / PXE)
Power State	S3, S4, S5
Graphics	
Graphics Chipset	Intel® Graphics Media Accelerator
Graphics Multi Display	HDMI+VGA+DP
VGA	Up to 1920 x 1200 @60Hz (via IT6516B)
DVI	—
HDMI	Up to 4096 x 2160 @ 30 Hz
Display Port	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz, with Digital Audio
LVDS	—
eDP	—
Backlight Control	—
Environment & Power & ME	
Battery	Lithium battery
Power Requirement	24-pin ATX connector x 1, 8-pin (2x4) ATX 12V Power connector x 1
Operation Temperature	32°F ~ 131°F (0°C ~ 55°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~85°C)
Operation Humidity	0% ~ 90%RH, non-condensing
Certificate	CE & FCC Class A
Form Factor	ATX Form Factor, 12" x 9.6" (305mm x 244mm)
Weight	1.76 lb (0.8 Kg)
MTBF (Hours)	285,600
I/O	
Rear Panel I/O Ports	USB 3.2 Gen 1 ports x 2, USB 2.0 ports x 4, HDMI x 1, VGA x 1, DP x 1, Audio Jack x 3: Line-in, Mic-in, Line-out, LAN (RJ45) ports x 2, DB-9 COM x 1 (supports RS-232/422/485, 5V/12V/RI),
Internal I/O Connectors	SATA III (6.0Gb/s) ports x 3, support RAID 0/1/5/10, M.2 2280/2242 M-key (PCIex1/SATA3) x 1, USB 3.0 headers support additional 2 USB ports (2x5PIN, p=2.54mm) x 1, USB 2.0 Type A (vertical) x 1, Speaker header (Line-out) x 1, AAFP x 1, RS-232 headers x 5, 8-bit Digital I/O interface (In/Out programmable) x 1, CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 2, Chassis Intrusion x 1, AT/ATX mode select jumper x 1, Front panel header x 1, Clear CMOS jumper x 1
OS	
OS Support	Windows® 10 64bit, Linux Ubuntu 64 bit (18.04.3/Kernal5)
Note	

Note: All specifications are subject to change without notice.

Board Level Products

Industrial Motherboards





Model	IMBA-Q170A	IMBA-H110A
System		
Processor	Intel® 7th/ 6th Generation(Kaby Lake-S/ Skylake-S) Core™ i7/i5/i3/ Pentium®/ Celeron® 14nm LGA1151 Socket Processor	7th/6th Generation Intel® Core™ i7/i5/i3/Pentium®/ Celeron® 14nm LGA1151 Socket Processor
Chipset	Intel® Q170	Intel® H110
Memory	288-pin DIMM x 4, max. 64GB, DDR4 2400/2133/1867, Dual channel	288-pin DIMM x 2, max. 32GB, DDR4 2400/2133/1867, Dual channel
I/O Chipset	NCT6791D, F81216HD	
Ethernet	LAN1: Intel® PHY I219LM Giga LAN (supports iAMT 11.0), LAN2: Intel® I211AT Giga LAN	LAN1: Intel® PHY I219V Giga LAN, LAN2: Intel® I211AT Giga LAN
Audio	Realtek® ALC887 (Colay with ALC886)	
TPM	Nuvoton NPCT6xx TPM2.0 (Optional)	Nuvoton NPCT650ABBYX TPM2.0 (default : No)
Expansion Slots	SKU1: PCIe [x16] x 1, PCIe [x4] (open edge) x 2, PCI x 3, M.2 E key (22 x 30mm) x 1, M.2 M key (22 x 80mm, for SATA) x 1 SKU2: PCIe [x16] x 1, PCIe [x4] (open edge) x 1, PCI x 3, M.2 E key x 1, M.2 M key (for SATA & PCIex4) x 1	PCIe [x16] x 1, PCIe [x4] (open edge) x 1, PCI x 4, M.2 M key (22 x 80mm) x 1
BIOS	128M bit Flash ROM x 1, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan x1, Chassis Fan x 2	
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3,S4,S5	
Graphics		
Graphics Chipset	Intel® HD Graphics	
Graphics Multi Display	VGA+HDMI, HDMI+HDMI, VGA+HDMI+HDMI	VGA+HDMI, VGA+DP, HDMI+DP
VGA	Up to 1920 x 1200 @60Hz	
DVI	—	
HDMI	HDMI 1.4 up to 4096 x 2304 @24Hz	HDMI 1.4 up to 4096 x 2304 @24 Hz
Display Port	—	DP 1.2, up to 4096 x 2304 @60 Hz
LVDS	—	
eDP	—	
Backlight Control	—	
Environment & Power & ME		
Battery	Lithium Battery	
Power Requirement	24-pin ATX connector x 1, 8-pin ATX 12V Power connector x 1	
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Operation Humidity	0% ~ 90% R/H, non-condensing	
Certificate	CE & FCC Class A	
Form Factor	ATX, 12" x 9.6" (305 mm x 244 mm)	
Weight	1.76 lb (0.8 Kg)	
MTBF (Hours)	219,970	244,580
I/O		
Rear Panel I/O Ports	USB 3.2 Gen 1 x 10, VGA x 1, HDMI x 2, Line-in, Mic-in, Line-out, RJ-45 x 2, DB-9 COM x 1 (support RS-232/422/485), Combo Port (Keyboard & Mouse) x 1	USB 3.2 Gen 1 x 4, USB 2.0 x 2 HDMI x 1, DP x 1, VGA x 1, Line-in, Mic-in, Line-out, RJ-45 x 2 DB-9 COM x 1 (supports RS-232/422/485) Stack Port (Keyboard & Mouse) x 1
Internal I/O Connectors	SATA 6.0Gb/s x 3, Supports RAID 0/1/5M.2 M key (22 x 80mm) x 1, USB 2.0 x 3, Speaker header x 1 (Line-out), RS-232 header x 5, 8-bit x 1 (In/ Out programmable), 4 pin CPU Fan x 1, 4-pin Chassis Fan x 2, 24-pin EATX Power header x 1, 8-pin EATX 12V Power connector x 1, Front panel header x 1, Clear CMOS jumper x 1, AT/ATX select jumper x 1, BIOS flash header (2[x4]P p=1.27mm) x 1, Chassis Intrusion x 1	SATA 6.0Gb/s x 3, M.2 M key (22 x 80mm) x 1, USB 2.0 x 4, Speaker header x 1 (Line-out), RS-232 header x 5, 8-bit x 1 (In/Out programmable) 4-pin CPU Fan x 1, 4-pin Chassis Fan x 2, Front panel header x 1, Clear CMOS jumper x 1, BIOS flash header (2[x4]P p=1.27mm) x 1, Chassis Intrusion x 1, AT/ATX mode select jumper x 1
OS		
OS Support	Windows® 7 32/64-bit (not supported when a Kaby Lake processor is used) Windows® 8.1 64-bit(not supported when a Kaby Lake processor is used) Windows® 10 64-bit, Linux Fedora 64bit	
Note		

Note: All specifications are subject to change without notice.

Industrial Motherboards

Model	IMBA-Q87A
System	
Processor	4th Generation Intel® Core™ i7/i5/i3/Pentium®/ Celeron® 22nm LGA 1150 socket Processor
Chipset	Intel® Q87 Express Chipset
Memory	240-pin DIMM x 4, max. 32GB, DDR3 1600/1333 MHz, non-ECC, un-buffered memory, Dual channel memory architecture
I/O Chipset	NCT6791D, F81216HD
Ethernet	LAN1: Intel® PHY I217LM Giga LAN (supports iAMT 9.0) x 1 LAN2: Intel® I210AT Giga LAN x 1, RJ-45 x 2
Audio	Realtek® ALC887 (Colay with ALC886)
TPM	20-1 PIN header for TPM1.2/FW3.19
Expansion Slots	PCIe 3.0/2.0 [x16] Slot x 1, PCIe 2.0 [x4] Slot x 1, PCI x 5
BIOS	64Mbit Flash ROM x 2, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program
Smart Fan Control	CPU Fan/ Chassis Fan
Wake On LAN/ PXE	Yes (WOL/PXE)
Power State	S3, S4, S5
Graphics	
Graphics Chipset	Intel® HD Graphics
Graphics Multi Display	SKU1 (VGA/ DVI/ HDMI/ DP): VGA+DVI, VGA+HDMI, VGA+DP, DVI+HDMI, DVI+DP, HDMI+DP, VGA+DVI+HDMI, VGA+DVI+DP, HDMI+DP+VGA; SKU2 (VGA/ DVI/ 2xHDMI): VGA+DVI, VGA+HDMI1, VGA+HDMI2, DVI+HDMI1, DVI+HDMI2, HDMI1+HDMI2, VGA+HDMI1+HDMI2, VGA+HDMI1+DVI, VGA+HDMI2+DVI
VGA	Up to 1920 x 1200 @60Hz
DVI	Up to 1920 x 1200 @60Hz
HDMI	HDMI 1.4 up to 4096 x 2304 @24 Hz
Display Port	DP 1.2, up to 4096 x 2304 @60 Hz
LVDS	—
eDP	—
Backlight Control	—
Environment & Power & ME	
Battery	Lithium battery
Power Requirement	24-pin ATX connector x 1, 8-pin ATX 12V Power connector x 1
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)
Operation Humidity	0% ~ 90% RH, non-condensing
Certificate	CE & FCC Class A
Form Factor	ATX Form Factor, 12" x 9.6" (305 mm x 244 mm)
Weight	1.76 lb (0.8 Kg)
MTBF (Hours)	86,000
I/O	
Rear Panel I/O Ports	USB 3.2 Gen 1 port x 4, USB 2.0 port x 2, DVI-D x 1, HDMI x 1 (Dual HDMI optional), DP x 1 (will disable if choose 2 HDMI), Audio Jack x 3: Line-in, Mic-in, Line-out, LAN (RJ-45) port x 2, RS-232/422/485 DB-9 connector x 1 (COM1, supports 5/12V on RI pin), PS/2 Combo Port (Keyboard & Mouse) x 1
Internal I/O Connectors	SATA3 (6.0Gb/s) port x 6, supports RAID 0/1/5/10, USB 2.0 connector x 4 supports additional 8 USB ports, VGA x 1, RS-232 header x 5, LPT connector x 1, 8-bit Digital I/O interface x 1 (In/Out programmable) CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 2 Front panel header x 1, Clear CMOS jumper x 1, BIOS flash header (2[x4]P p=1.27mm) x 1
OS	
OS Support	Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Windows® 10 32/64-bit, Linux Fedora
Note	

Note: All specifications are subject to change without notice.

RISC Boards

Model	RICO-3288	RICO-3399
System		
Form Factor	Pico-ITX (100mm x 72mm)	Pico-ITX
CPU	Rockchip RK3288 ARM Cortex™-A17 Quad-core 1.6 GHz	Rockchip RK3399 Cortex™-A72 Dual-core 1.8GHz and Cortex™-A53 Quad-core 1.4GHz
GPU	Mali-T764	Mali-T864
Graphics	Video Decode: MPEG-1, MPEG-2, MPEG-4, H.263, H.264, AVS, VC-1, VP8, MVC Video Encode: H.264 (BP@level4.0, MP@level4.0, HP@level4.0), MVC and VP8	Video Decode: MPEG-1, MPEG-2, MPEG-4, H.263, H.264, H.265, VC-1, VP8, VP9, MVC Video Encode: H.264 UP to HP@level4.1, MVC and VP8
Memory Capacity	Onboard DDR3L 2GB	Onboard LPDDR3 2GB/4GB (Optional)
Storage/SSD	16GB eMMC and Micro-SD card	
Operating System	Android 6.0	Android 8.1
Kernel	Kernal 4.4	
Watchdog Timer	Integrated	
Power Requirement	+12V DC input, Optional 7.4V battery	+12V DC input
Power Consumption (Typical)	0.6A@12V, full load, Quad-core CPU	0.6A@12V, full load, Hexa-core CPU
Dimension	3.94" x 2.84" (100mm x 72mm)	
Gross Weight	0.44 lb (0.2 Kg)	
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40˚F ~ 176˚F (-40˚C ~ 80˚C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	80,000	
Certification	CE/FCC	
Display		
HDMI	HDMI (1.4) up to 4K x 2K @60Hz	HDMI (2.0) up to 4K x 2K @60Hz
eDP	Up to 2560 x 1440 @60Hz	Up to 4K x 2K @60Hz
LVDS	Support 18/24-bit up to 1920 x 1080 @60Hz	—
MIPI	Up to 2560 x 1440 @60Hz	—
RF Function		
WiFi	802.11 a/b/g/n/ac	
BT	Bluetooth V4.2 + EDR	
I/O		
Ethernet	GbE x 1	
USB Port	Micro-USB OTG x 1 USB 2.0 Type A x 2 USB2.0 Pin header x 1 (Integrated)	USB 3.2 Gen 1 Type C OTG x 1 USB 3.2 Gen 1 (Bottom)/USB 2.0 (Top) dual port x 1 USB 2.0 Pin Header x 1 (Integrated)
Serial Port	RS-232/422/485 x 1 RS-232 Pin header x 1 Debug port pin header x 1	
Audio	2.5W (by 4Ω) Speaker/ Microphone/ Earphone	
GPIO	8-bit (4-in, 4-out)	
Expansion Slot	Full-size mini-PCIe slot x 1 (For 3G/4G card)	
SIM Slot	Nano-SIM	
SD Socket	Support Micro-SD card	
Camera	—	
Note		

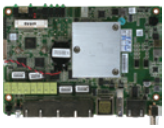
Note: All specifications are subject to change without notice.

RISC Boards

Model	RICO-3288MINI
System	
Form Factor	Pico-ITX (100mm x 72mm)
CPU	Rockchip RK3288 ARM Cortex™-A17 Quad-core 1.6 GHz
GPU	Mali-T764
Graphics	Video Decode: MPEG-1, MPEG-2, MPEG-4, H.263, H.264, AVS, VC-1, VP8, MVC Video Encode: H.264 (BP@level4.0, MP@level4.0, HP@level4.0), MVC and VP8
Memory Capacity	Onboard DDR3L 2GB
Storage/SSD	16GB eMMC
Operating System	Android 9.0
Kernel	Kernal 4.4
Watchdog Timer	Integrated
Power Requirement	+12V DC input
Power Consumption (Typical)	0.6A@12V, full load, Quad-core CPU
Dimension	3.94" x 2.84" (100mm x 72mm)
Gross Weight	0.22 lb (0.1 Kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40˚F ~ 176˚F (-40˚C ~ 80˚C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	80,000
Certification	CE/FCC
Display	
HDMI	HDMI (1.4) up to 4K x 2K @60Hz
eDP	—
LVDS	—
MIPI	—
RF Function	
WiFi	—
BT	—
I/O	
Ethernet	GbE x 1
USB Port	Micro-USB OTG x 1 USB 2.0 Type A x 2
Serial Port	—
Audio	—
GPIO	8-bit (4-in, 4-out)
Expansion Slot	—
SIM Slot	—
SD Socket	—
Camera	—
Note	

Note: All specifications are subject to change without notice.

Networking Motherboards



Model	FWB-2250	FWB-7250
System		
Form Factor	Networking Motherboard	Mini-ITX / Networking Motherboard
Processor	Intel® Atom™ E3815 processor SoC	Intel® Celeron® J1900 2.0 GHz
System Memory	204-pin DDR3L 1066/1333 MHz SODIMM x 2, up to 8 GB	204-pin DDR3L 1333MHz SODIMM x 2, up to 8GB
Chipset	—	
Ethernet	Intel® Ethernet Controller I211-AT, Gigabit Ethernet x 4	Intel® I210-AT (Co-lay with Intel® I211-AT), Gigabit Ethernet x 4
Bypass Function	1 Pair (Optional)	Supports up to 2 Pair (optional)
BIOS	AMI BIOS	
Serial ATA	SATA 3.0 Gb/s Connector x 1 (CompactFlash™ Socket x 1)	CompactFlash Socket x 1, SATA II connector x 1 (Optional SATA II connector x 2)
Expansion Interface	Mini-Card Socket x 1(Optional)	Mini-Card socket w/ SIM card socket x 1 (optional)
Power Requirement	40W, 12V DC-in power connector	ATX 100W PSU
Power Consumption	Intel® Celeron® J1900 2.0 GHz, DDR3L 1333 2GB 0.39A@ 100VAC, 1.21A@12V	Intel® Celeron® J1900 2.4 GH, DDR3L 1600 4GB, 0.26A@ 100VAC
Board Size	5.67" x 3.94" (114 mm x 100 mm)	6.7" x 6.7" (170mm x 170mm)
Watchdog Timer	1~255 steps by software programming	
MTBF (Hours)	90,630	110,571
OS Support	Windows® 7 or above, Linux	
Display		
Chipset	Intel® Atom™ E3815	Intel® Celeron® J1900, Intel® Atom™ E3845 (optional)
Graphic Engine	Intel® HD	Intel HD Graphic
Resolution	2560 x 1600	
Outer Interface	Reserved VGA Internal box header	Reserved Pin Header for Graphic Integrated Proccessor
I/O		
LAN Port	RJ-45 Port x 4	
Serial Port	RJ-45 Console x 1	
USB	USB 2.0 x 2, USB 3.2 Gen 1 x 1	USB 2.0 x 2
LED	Power LED x 1, HDD Active x 1, LAN LED x 8 (Optional Status LED x 1, Bypass LED x 1)	Power LED x 1, Status LED x 1, HDD Active x 1, Bypass LED x 2
Others	Power Button x 1, Software Programmable Reset Button x 1	Software Programmable Reset Button x 1
Environment		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0%~90% @RH, non-condensing	0%~90% relative humidity, non-condensing
Note		

Note: All specifications are subject to change without notice.

Half-size SBC — ISA

Model	HSB-800I
System	
Form Factor	Half-size CPU Card
Bus Interface	ISA
CPU	Onboard AMD Geode™ LX800
Memory Type	Onboard 128 MB (DDR 400)
Chipset	AMD Geode™ LX800 + CS 5536
BIOS	Award
Wake on LAN	No
Watchdog Timer	255 Levels
Power Requirement	ATX 2.1
Power Consumption (Typical)	AMD LX800, DDR400 128MB 0.19A@+12V, 1.51A@+5V, 9.83W
Power Supply Type	+5V, +12V operation
Dimension (L x W)	7.3" x 4.8" (185mm x 122mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (hours)	85,000
Certification	CE/FCC, Class A
Display	
VGA/LCD Controller	AMD Geode™ LX800
Video Output	1600 x 1200@32bpp at 100 MHz for CRT 1600 x 1200@24bpp for LCD
Backlight Inverter Supply	5V/12V
I/O	
Ethernet	10/100 or 10/100/1000Base-TX (optional)
Audio	Yes
USB Port	USB 2.0 x 4
Serial Port	RS-232 x 3 RS-232/422/485 x 1
Parallel Port	1
HDD Interface	IDE x 1
FDD Interface	1
SSD	CompactFlash™
Expansion Slot	ISA, PC/104
DIO	8-bit Programmable (4-in/4-out)
TPM	—
Note	

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System Level Products

System Level Products

AI@Edge Solutions



Model	BOXER-8110AI	BOXER-8120AI	BOXER-8130AI
System			
AI Accelerator	Nvidia Jetson TX2		
CPU	HMP Dual Denver 2 + Quad ARM A57		HMP Dual Denver 2/2 MB L2 + Quad ARM® A57/2 MB L2
System Memory	8GB LPDDR4		
Storage Device	32GB eMMC 5.1, MicroSD		
Display Interface	HDMI 2.0		HDMI 2.0 x 1
Ethernet	10/100/1000Base-TX x 1	10/100/1000Base-TX x 4	10/100/1000Base-TX x 1
I/O	USB 3.2 Gen 1 x 2, HDMI x 1, LAN x 1, MicroSD x 1, OTG x 1, Antenna Holes x 1, DC Power Input x 1, 2 channel CANBUS x 1, DB-9 RS-232 x 1	USB 3.2 Gen 1 x 2, HDMI x 1, LAN x 4, COM x 2, OTG x 1, Power Button x 1, SMA Antenna Holes x 2, 10~24V DC-In Power input x 1, Remote Power On/Off x 1	USB Type A x 2 for USB 3.2 Gen 1, RJ-45 x 1 for GbE LAN Ethernet, DB-9 x 1 for RS-232, Remote on/off switch x 1, Antenna Holes x 2, MicroSD x 1, OTG x 1
Expansion	—	MicroSD x1 SATA x1 (option) USB 2 x 3 (option)	SATA x1 (option) USB 2 x 3 (option) MIPI-CSI2 board to board connector x1 (The connector used on the carrier board is a Samtec QSH-060-01-H-D-A. The mating connector is a Samtec QTH-060-01-H-D-A.)
Indicator	—	Power LED	
OS support	AAEON ACLinux 4.9, Compliance with Ubantu 18.04		
Power Supply			
Power Requirement	12V with 2-pin temincal block	10~24V DC-In with DC Jack	10~24V with 2-pin terminal block
Mechanical			
Mounting	Wallmount		
Dimensions (W x H x D)	4.33" x 1.57" x 2.56" (110mm x 40mm x 65mm)	6.02" x 1.18" x 3.98" (153mm x 30mm x 101mm) 6.02" x 1.79" x 3.98" (153mm x 45.5mm x 101mm) for CS-N0001	6.02" x 1.18" x 3.98" (153mm x 30mm x 101mm)
Gross Weight	2.20 lb (1 Kg)	4.40 lb (2Kg) 5.51 lb (2.5Kg) for CS-N0001	4.40 lb (2 Kg)
Net Weight	1.10 lb (0.5 Kg)	2.20 lb (1Kg) 3.31 lb (1.5Kg) for CS-N0001	2.20 lb (1 Kg)
Environmental			
Operating Temperature	Operating Temperature -4°F ~122°F (-20°C ~ 50°C, according to IEC60068-2 with 0.5 m/s AirFlow; with Industrial Device)	-4°F ~ 122°F (-20°C ~ 50°C, according to IEC682-14 with 0.5 m/s AirFlow; with industrial Devices) for BOXER-8120AI-A1-1010 -4°F ~ 131°F (-20°C ~ 55°C, according to IEC682-14 with 0.5 m/s AirFlow; with industrial Devices) for BOXER-8120AI-A1-CS-N0001	-4°F ~ 122°F(-20°C ~ 50°C,with 0.5 m/s AirFlow)
Storage Temperature	-49°F ~176°F (-45°C ~ 80°C)	-13°F ~ 176°F (-25°C ~ 80°C)	
Storage Humidity	95% @ 40°C, non-condensing		
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation – eMMC	Random, 5 Grms/ 5 ~ 500Hz/ operation	Random, 5 Grm, 5~500Hz
Certification	CE/FCC class A		
Note	COMPUTEX d&i awards 2019 TAIWAN EXCELLENCE 2020	COMPUTEX d&i awards 2020 by JP	

Note: All specifications are subject to change without notice.

AI@Edge Solutions

Model	BOXER-8150AI	BOXER-8170AI	BOXER-8220AI
System			
AI Accelerator	Nvidia Jetson TX2		Nvidia Jetson Nano
CPU	HMP Dual Denver 2 + Quad ARM A57		Quad Core ARM® Cortex®-A57 MPCore Proccessor
System Memory	8GB LPDDR4		4GB LPDDR4
Storage Device	32GB eMMC 5.1, MicroSD		16GB Micro-SD or eMMC
Display Interface	HDMI 2.0 x 2	HDMI 2.0	
Ethernet	10/100/1000 Base-TX x 1	10/100/1000 Base-TX x 1 IEEE 802.3 af PoE LAN x 4	10/100/1000Base-TX x 5
I/O	USB Type A x 8 for USB 3.2 Gen 1 DB-9 x1 for RS-232 HDMI 2.0 x 2 Power Switch 2-pin 10~24V DC-in Connector RJ-45 x1 for GbE LAN Ethernet Antenna Holes x 2 MicroSD x 1 OTG x 1	RJ-45 x 1 for GbE LAN IEEE 802.3af PoE x4 (60W total power budget) HDMI Type A x2 for HDMI 2.0 USB Type A x 4 for USB 3.2 Gen 1 DB-9 RS-232/422/485 x 2 Power On/Off Button x 1 DC-In 2-pin terminal block x1 USB OTG x 1 12~24V DC-in Power Input x1 SMA Antenna Holes x 2	USB 3.2 Gen 1 x 4 LAN x 5 RS-232 x 2 HDMI x 1 Micro-USB for Flash OS x 1 DC Power Input x 1 Power Button x 1 Recovery Button x 1
Expansion	SATA x 1 (optional) DB-9 RS-232 x 1 (optional) 2 channel CANBUS x 1 (optional)	SATA x 1 (optional) USB 2 x 1 (optional) 2 Channel CANBUS x 1 (optional)	—
Indicator	Power LED		Power LED x 1
OS support	AAEON ACLinux 4.9, Compliance with Ubantu 18.04		ACLinux 4.9 or above (Compatible with Ubuntu 18.04)
Power Supply			
Power Requirement	10~24V with 2-pin terminal block	12~24V with 2-pin terminal block	10 ~ 24V DC with 2-pin terminal block
Mechanical			
Mounting	Wallmount		
Dimensions (W x H x D)	6.02" x 1.77" x 3.98" (153mm x 45mm x 101mm)	7.09" x 1.89" x 5.35" (180 mm x 48 mm x 136 mm)	6.06" x 3.98" x 1.18" (154 mm x 101 mm x 30 mm)
Gross Weight	4.40 lb (2 Kg)	6.39 lb (2.9 Kg)	4.40 lbs (2 Kg)
Net Weight	2.2 lb (1 Kg)	4.73 lb (2.15 Kg)	2.20 lbs (1 Kg)
Environmental			
Operating Temperature	Operating Temperature -4°F ~122°F (-20°C ~ 50°C, according to IEC60068-2 with 0.5 m/s AirFlow; with Industrial Device)	-4°F ~ 122°F (-20°C ~ 50°C, according to IEC682-14 with 0.5 m/s AirFlow; with industrial Devices)	-4°F ~ 140°F (-20°C ~ 60°C, according to IEC60068-2 with 0.5 m/s AirFlow)
Storage Temperature	-13°F ~176 °F (-25°C ~ 80°C)	-40°F ~176 °F (-40°C ~ 80°C)	-49°F ~ 176°F (-45°C ~ 80°C)
Storage Humidity	95% @ 40°C, non-condensing	5~95% @ 40°C, non-condensing	95% @ 40°C, non-condensing
Anti-Vibration	Random, 3 Grms, 5~500Hz	3 Grms/ 5 ~ 500Hz/ operation	3 Grms/ 5 ~ 500Hz/ operation – MicroSD or eMMC
Certification	CE/FCC class A		
Note			

Note: All specifications are subject to change without notice.

AI@Edge Solutions

Launching in Q4

Launching in Q4

Model	BOXER-8221AI	BOXER-8222AI	BOXER-8223AI
System			
AI Accelerator	Nvidia Jetson Nano		
CPU	Quad Core ARM® Cortex®-A57 MPCore Proccessor		
System Memory	4GB LPDDR4		
Storage Device	16GB Micro-SD or eMMC	32GB SD card + Minicard full size	32GB SD card
Display Interface	HDMI 2.0	HDMI 2.0 x 1	HDMI Type A 2.0 *1 (Output) HDMI Type A 1.4 *1 (Input via MIPI CSI)
Ethernet	10/100/1000Base-TX x 1	10/100/1000Base-TX x 2	POE PSE LAN x 2 (802.3af)
I/O	USB 3.2 Gen 1 x 4 LAN x 1 RS-232 x 2 HDMI x 1 MicroSD x 1 DC Power Input x 1 Recovery Button x 1 Micro-USB for Flash OS x 1	USB Type A x 4 for USB 3.2 Gen 1 GbE LAN x 2 (GbE PD x 1 + GbE LAN x 1) 40-pin I/O x 1 (GPIO/I2S/I2C/Audio/SPI/UART) HDMI Type A x 1 for HDMI 2.0 a/b DB-9 (RS232&485) x 1 O.S Flash port x 1 Recovery port x1 Antenna opening x 2	USB Type A x 4 for USB 3.2 Gen 1 GbE LAN with LED Indicator (via PHY) POE PSE LAN x 2 (802.3af) DB-9 x 1 for RS-232/485 DB15 x1 Female for 12 Channel DIO O.S Flash port x 1 Recovery port x 1 Antenna opening x 2 HDMI Type A 2.0 x 1 (Output) HDMI Type A 1.4 x 1 (Input via MIPI CSI) Power bottom x 1
Expansion	M.2 E-Key 2230 x 1 (for WiFi)	Antenna x 2 M.2 E-Key 2230 x 1(for WiFi)	Minicard x 1 w/ SIM slot M.2 E-Key 2230 x 1 (for WiFi) CANBUS (only for Jetson Xavier NX, BOM option) Antenna x 2
Indicator	Power LED x 1	—	Power LED x 1
OS support	Linux (AAEON ACLinux 4.9, Compliance with Ubuntu 18.04)	AAEON ACLinux 4.9, Compliance with Ubantu 18.04	
Power Supply			
Power Requirement	12Vdc w/ 2-pin terminal block	DC 12V~24V 2 pin terminal	DC 12V~24V with 2-pin terminal block ATX mode
Mechanical			
Mounting	Wallmount	Wall mount kit (default)	
Dimensions (W x H x D)	3.39" x 2.87" x 1.3" (88mm x 75mm x 39mm)	TBD	
Gross Weight	2.20 lb (1 Kg)	TBD	
Net Weight	0.88 lb (0.4 Kg)	TBD	
Environmental			
Operating Temperature	-4°F ~ 122°F (-20°C ~ 50°C, according to IEC60068-2 with 0.5 m/s AirFlow)	-20°C ~ 60°C with 0.5m/s airflow	
Storage Temperature	-49°F ~176°F (-45°C ~ 80°C)	-4°F ~ 158°F (-40°C ~ 70°C)	
Storage Humidity	95% @ 40°C, non-condensing	5 ~ 95% @ 40°C, non-condensing	
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation – MicroSD or eMMC	Random, 3 Grms, 5~500Hz	
Certification	CE/FCC class A		
Note			

Note: All specifications are subject to change without notice.

AI@Edge Solutions

Launching in Q4

Model	BOXER-8240AI	BOXER-8250AI	BOXER-8251AI
System			
AI Accelerator	Nvidia AGX Xavier	Nvidia Jetson Xavier NX	
CPU	8-core ARM v8.2 64bit CPU, 8MB L2 + 4MB L3	6 Core ARM® Carmel®V8.2 64bit CPU 6MB L2 + 4MB L3	
System Memory	32 GB 256-Bit LPDDR4x | 137 GB/s	8GB LPDDR4	
Storage Device	32GB eMMC +M.2 Key M 2280 x1 (PCIe[x4]) +SD/UFS slot	16GB eMMC + SD card expasion	16GB eMMC + MicroSD
Display Interface	HDMI 2.0	HDMI 2.0 x 1	HDMI 2.0
Ethernet	10/100/1000 Base-TX x 1 IEEE 802.11 af PoE LAN x 4	10/100/1000Base-TX x 5	10/100/1000Base-TX x 1
I/O	RJ-45 x 4 for PoE (802.11af, total 60W) USB type C x 2 for USB 3.2 Gen 1 USB type A x 1 for USB 3.2 Gen 1 USB Type A x 1 for USB 2.0 Line-in x 1 Line-out x 1 HDMI type A for HDMI v2.0 x 1 DisplayPort v1.4 x 1 DB-9 x 2 for RS-232/422/485 (By jumper) UFS/SD card slot x 1 2-pin terminal block for 12~24V power input Power ON/OFF switch x 1	Power Button x 1 (Front) USB Type A x 4 for USB 3.0 (Front) RJ-45 x 1 for GbE LAN with LED Indicator RJ-45 x 4 for GbE LAN with LED Indicator DB-9 x 2 for RS-232 (Front) HDMI Type A x 1 for HDMI 2.0 a/b (vertical type) (back)	USB 3.2 Gen 1 x 4 LAN x 1 RS-232 x 2 HDMI x 1 MicroSD x 1 DC Power Input x 1 Recovery Button x 1 Micro-USB for Flash OS x 1
Expansion	Expansion header 40-pin (UART + SPI + CAN + I2C + I2S + DMIC + GPIOs) USB 2.0 header x 1 (Optional, circuit reserved) M.2 Key E 2230 x1 for WiFi/Bluetooth (PCIe[x1] + USB) M.2 Key M 2280 x1 (PCIe[x4]) JTAG Connector	—	M.2 E-Key 2230 x 1(for WiFi)
Indicator	Power LED x 1		
OS support	Linux (AAEON ACLinux 4.9, Compliance with Ubuntu 18.04	AAEON ACLinux 4.9, Compliance with Ubantu 18.04	Linux (AAEON ACLinux 4.9, Compliance with Ubuntu 18.04)
Power Supply			
Power Requirement	DC-in 12~24V with 2-pin terminal block	Lockable DC-in 10V~24V	12Vdc w/ 2-pin terminal block
Mechanical			
Mounting	Wall mount kit (default)		Wallmount
Dimensions (W x H x D)	8.26'' x 6.45'' x 2.36'' (210mm x 164mm x60mm)	TBD	3.46" x 2.95" x 1.53" (88mm x 75mm x 39mm)
Gross Weight	TBD		1.10 lb (0.5 kg)
Net Weight	4.4 lb (2kg)	TBD	0.66 lb (0.3 kg)
Environmental			
Operating Temperature	-13°F ~ 131°F (-25°C ~ 55°C, according to IEC60068-2 with 0.5 m/s AirFlow)	-20°C ~ 50°C with 0.5m/s airflow	15W, 6 Core, 1.4GHz, -20°C ~ 40°C
Storage Temperature	-4°F ~ 158°F (-40°C ~ 70°C)		
Storage Humidity	95% @ 40°C, non-condensing	5 ~ 95% @ 40°C, non-condensing	95% @ 40°C, non-condensing
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation – MicroSD or eMMC	Random, 3 Grms, 5~500Hz	3 Grms/ 5 ~ 500Hz/ operation – MicroSD or eMMC
Certification	CE/FCC class A		
Note			

Note: All specifications are subject to change without notice.

Launching in Q4 Launching in Q4

Model	BOXER-8252AI	BOXER-8253AI	BOXER-8310AI
System			
AI Accelerator	Nvidia Jetson Xavier NX		Intel® Movidius™ Myriad™ X x 1
CPU	6 Core ARM® Carmel®V8.2 64bit CPU 6MB L2 + 4MB L3		Intel® Pentium® N4200 Intel® Celeron® N3350
System Memory	8GB LPDDR4		DDR3L SO-DIMM slot x 1 Supports 1867 MHz and up to 8GB
Storage Device	16GB eMMC +Mini card expansion	16GB eMMC + SD card expasion	mSATA
Display Interface	HDMI 2.0 x 1	HDMI Type A 2.0 *1 (Output) HDMI Type A 1.4 *1 (Input via MIPI CSI)	HDMI 1.4, VGA
Ethernet	10/100/1000Base-TX x 2	POE PSE LAN x 2 (802.3af)	10/100/1000 Base-TX x2
I/O	USB Type A x 4 for USB 3.2 Gen 1 GbE LAN x 2 (GbE PD x 1 + GbE LAN x 1) 40-pin I/O x 1 (GPIO/I2S/I2C/Audio/SPI/ UART) HDMI Type A x 1 for HDMI 2.0 a/b DB-9 (RS232&485) x 1 O.S Flash port x 1 Recovery port x1 Antenna opening x 2	USB Type A x 4 for USB 3.2 Gen 1 GbE LAN with LED Indicator (via PHY) POE PSE LAN x2 (802.3af) DB-9 x 1 for RS-232/485 DB15 x1 Female for 12 Channel DIO O.S Flash port x 1 Recovery port x1 Antenna opening x 2 HDMI Type A 2.0 *1 (Output) HDMI Type A 1.4 *1 (Input via MIPI CSI) Power bottom *1	Power Button x 1 USB Type A x 4 for USB 3.2 Gen 1 HDMI type A x 1 for HDMI v1.4b RJ45 x 2 for GbE LAN with LED indicator (i211-AT x2) Power Input x 1 3-pin terminal block in default (+, - , GND) Co-layout Mic-in x 1, Line-out x 1 DB-9 x 3 for RS-242/422/485 (Switch by BIOS) DB-15 x1 for VGA Remote On/Off Antenna Holes x 2 DC-in 3-pin terminal block(9~24V) x1
Expansion	Antenna x 2 M.2 E-Key 2230 x 1(for WiFi)	Minicard x 1 w/ SIM slot M.2 E-Key 2230 x 1(for WiFi) CANBUS (only for Jetson Xavier NX, BOM option) Antenna x 2	Half-size Minicard slot x 1 (mSATA only)
Indicator	—	Power LED x 1	Power LED x1, HDD active LED x1
OS support	AAEON ACLinux 4.9, Compliance with Ubantu 18.04		Linux (Debian 9.8)
Power Supply			
Power Requirement	DC 12V~24V 2 pin terminal	DC 12V~24V with 2-pin terminal block ATX mode	3 Pin 9-24V DC-in terminal block
Mechanical			
Mounting	Wall mount kit (default)		Wallmount
Dimensions (W x H x D)	TBD		6.54" x 4.2" x 1.38" (166mm x 106.6mm x 35mm)
Gross Weight	TBD		3.6 lb (1.6kg)
Net Weight	TBD		1.3 lb (0.6 kg)
Environmental			
Operating Temperature	-20°C ~ 50°C with 0.5m/s airflow	-20°C ~ 55°C with 0.5m/s airflow	-13°F ~ 131°F (-25°C ~ 55°C) with W.T. SSD (according to IEC68-2-14 with 0.5 m/s airFlow ; with industrial devices)
Storage Temperature	-4°F ~ 158°F (-40°C ~ 70°C)		-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing		95% @ 40°C, non-condensing
Anti-Vibration	Random, 3 Grms, 5~500Hz		3 Grms/ 5 ~ 500Hz/ operation – mSATA
Certification	CE / FCC class A		
Note			

Note: All specifications are subject to change without notice.

AI@Edge Solutions

Model	BOXER-8320AI	BOXER-8331AI
System		
AI Accelerator	Intel® Movidius™ Myriad™ X x 2	Nvidia RTX Graphic Card
CPU	Intel® Core™ i3-6100U	6th / 7th Gen Intel® Core™ i desktop and Xeon® server grade processor -Intel® Core™ i7-6700TE, 2.4 GHz -Intel® Core™ i5-6500TE, 2.3 GHz -Intel® Core™ i3-6100TE, 2.7 GHz -Intel® Core™ i7-7700T, 2.9 GHz -Intel® Core™ i7-7700, 3.6 Ghz -Intel® Core™ i3-7101TE, 3.4 GHz -Intel® Xeon® E3-1268L v5, 2.40 GHz -Intel® Xeon® E3-1275 v6, 3.80 GHz
System Memory	DDR4 2133MHz SODIMM slot x 1, up to 16GB	DDR4 ECC or Non-ECC SODIMM, up to 32GB
Storage Device	HDD/SSD	2 x 2.5" Drive Bay
Display Interface	HDMI, VGA	System : HDMI 1.4b (Debug Mode Only) Nvidia RTX Graphic Card Display
Ethernet	10/100/1000 Base-TX x 2	10/100/1000 Base-TX x 5
I/O	DB-9 x4 for RS-232/422/485 RJ-45 x 2 for GbE (i210IT x 2) USB 3.2 Gen 1 x 4 VGA x 1 HDMI x 1 Antenna Holes x 2 Power Button Power Input	2 pin Remote Power on/off connector Power ON/OFF Switch x 1 HDMI type A x 2 for HDMI v1.4b Audio x 2 (MIC-in, Line-out) USB 3.2 Gen 1 x 4 DB-9 x 1 for RS-232/422/485 3 pin DC Power input x 1 (+, - , GND) RJ-45 x5 for GbE LAN (Intel i211AT x 4, i219LM x 1)
Expansion	—	Full-size Mini card x 2 (USB/miniPCIe, w/ 1 SIM slot), Bulit in RTX-2060 Super GPU Card (A1), Built in RTX-2080Ti GPU Card (A2), 1 x PCIe[x1]
Indicator	Power LED	Power LED x 1, HDD active LED x 1
OS support	Linux (Debian 9.8)	Skylake S Windows® 10, Windows® 10 IoT, Windows® 8 .1, Windows® Embedded Standard 8, Windows® 7, Windows® Embedded Standard 7, Ubuntu 16.04.2 Kabylake Windows® 10, Windows® 10 IoT, Ubuntu 16.04.2
Power Supply		
Power Requirement	9~30V 3 pin DC-in terminal block	System Power DC 12~24V 240W x1 Graphic Card Power DC 12V 240W x1
Mechanical		
Mounting	DIN Rail Mount, Wallmount (Monting kit is optional)	Wallmount
Dimensions (W x H x D)	2.68" x 7.33" x 5.96" (67mm x 186.2mm x 151.5 mm)	6.10" x 7.87" x 15.75" (155mm x 200mm x 400mm)
Gross Weight	6.1 lb (2.8kg)	18.29 lb (8.3 Kg)
Net Weight	3.9 lb (1.8kg)	14.53 lb (7 Kg)
Environmental		
Operating Temperature	-13°F ~140°F (-25°C ~ 60°C) with W.T. SSD (according to IEC68-2-14 with 0.5 m/s airFlow ; with industrial devices)	0°C ~ 40°C according to IEC60068-2 with 0.5 m/s AirFlow ; with industrial devices
Storage Temperature	-49°F ~ 176°F (-45°C ~ 80°C)	-4°F ~ 176°F (-40°C ~ 80°C)
Storage Humidity	95% @ 40°C, non-condensing	5 ~ 95% @ 40C, non-condensing
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation - SSD 1 Grms/ 5~ 500Hz/ operation - HDD	Random, 1Grm, 5~500Hz, anti-vibration design
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

AI@Edge Solutions

Model	BOXER-8410AI	BOXER-8521AI
System		
AI Accelerator	Hi3559A	Google Edge TPU ML accelerator coprocessor
CPU	Dual-core ARM Cortex A73@1.8 GHz Dual-core ARM Cortex A53@1.2 GHz Single-core ARM Cortex A53@1 GHz Neon acceleration and integrated FPU	NXP i.MX 8M SoC (Quad-core Cortex-A53, plus Cortex-M4F)
System Memory	4GB/8GB LPDDR4	1GB LPDDR4x
Storage Device	Onboard 32GB/64GB eMMC Micro-SD slot x 1 SATA III (6.0 Gbps) Port x 1	8GB eMMC
Display Interface	HDMI 2.0 x 1	
Ethernet	10/100/1000Base-TX x 2	10/100/1000Base-TX x 1
I/O	Power Button with LED indicator x 1 USB 3.2 Gen 1 Type A x 1 USB 2.0 Type A x 1 Micro USB Type B (USB 2.0) x 1 (for flash image) RJ-45 GbE LAN x 2 DB-9 RS-232 x 2 DB-9 Console Port x 1 Audio in x 1 Line out x 1 2-pin terminal block +12V DC-in x 1 MicroSD x 1 Remote Power On/Off	HDMI 2.0a x 1 USB typeA x 2 for USB3.2 Gen 1 USB type A x 2 for USB2.0 RJ-45 x 1 for 10/100/1000 base-T & Powered Device (802.3at) 12Vdc (DC Jack w/lockable) Mic –in x 1 Line-out x 1 40-pin connector DB-9 x 1 for RS-232/485 OTG x 1 Micro-SD slot x 1
Expansion	—	—
Indicator	Power LED x 1	Power LED x 1
OS Support	HiLinux	Mendel Linux (derivative of Debian)
Power Supply		
Power Requirement	12VDC-in with 2-pin terminal block	Powered Device (802.3at) 12Vdc (DC Jack w/lockable)
Mechanical		
Mounting	Wallmount kit (default)	Wallmount
Dimensions (W x H x D)	150 mm(W) x 96 mm(D) x 56 mm(H)	TBD
Gross Weight	2.20 lbs. (1 kg)	TBD
Net Weight	1.10 lbs. (0.5 kg)	TBD
Environmental		
Operating Temperature	-4°F ~ 131°F (-20°C ~ 55°C, according to IEC60068-2 with 0.5 m/s AirFlow)	-4°F ~ 140°F (-20°C ~ 60°C, according to IEC60068-2 with 0.5 m/s AirFlow)
Storage Temperature	-4°F ~176 °F (-40°C ~ 80°C)	-49°F ~ 176°F (-45°C ~ 80°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	95% @ 40°C, non-condensing
Anti-Vibration	Random, 1Grm, 5 ~ 500Hz	1 Grms/5-500Hz/operation
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

IoT Gateway/Node Systems



Model	UP-GWS01	UPS-GWS01	UPC-GWS01
System			
CPU	Intel® Atom™ x5-Z8350 Processor (2M Cache, 1.44 GHz up to 1.92 GHz) CPU with 64 bit architecture; Quad Core	Intel® Pentium® N4200/ Celeron® N3350 Processor SoC/Atom® E3950	Intel® Atom™ x5-Z8350 Processor
Memory	Onboard DDR3L memory	Onboard Single/ Dual Channel LPDDR4 memory, Max. 8GB	1GB/ 2GB/ 4GB onboard DDR3L-1600
Graphics	Intel® HD 400 Graphics ,12 EU GEN 8, up to 500MHz Support DX*11.1/12, Open GL*4.2, Open CL*1.2 OGL, ES3.0, H.264, HEVC (decode), VP8	Intel® Graphics, GEN 9	Intel® HD 400 Graphics
Storage	Onboard eMMC	eMMC ver 5.0 x 1, Max. 128G	16GB/32GB/64GB eMMC
Ethernet	Giga LAN x 1	Realtek 8111G x 2	Realtek 8111G x 1
WiFi/BT	Optional	—	WIFI802.11 b/g/n @2.4 GHz, Bluetooth 4.0
Audio	HDMI x 1	HDMI x 1, DP x 1	HDMI x 1
USB	USB2.0 x 4, USB 3.2 Gen 1 OTG x 1	USB 3.2 Gen 1 x 3	USB 3.2 Gen 1 Host x 1
Expansion Slot	—	Minicard (MINI card with SIM) socket x 1	
I/O Placements			
Power	DC-in Jack x 1	DC-in Jack x 1, Power Button x 1	5V DC x 1
USB	USB2.0 x 4, USB 3.2 Gen 1 OTG x 1	USB 3.2 Gen 1 x 2, USB 3.2 Gen 1 OTG x 1/ USB 3.2 Gen 1 x 1	USB 3.2 Gen 1 x 1
Display Port	HDMI x 1	HDMI x 1, DP x 1	HDMI x 1
Ethernet	Giga LAN x 1	Realtek 8111G x 2	RJ-45 x 1
COM	—		RS-232/422/485 x 1
Environment			
Power	5V/4A DC Only	5V DC Only	5V/4A DC Only
Form Factor	3.74" x 3.58" x 1.46" (95mm x 91mm x 37mm)	3.74" x 3.74" x 1.97" (95mm x 95mm x 50mm)	3.58" x 2.63" x 2.17" (91mm x 67mm x 55.2mm)
Gross Weight	—		0.77 lb (0.35 kg)
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 113°F (0°C ~ 45°C)	32°F ~ 104°F (0°C ~ 40°C)
Operating Humidity	0% ~ 90% relative humidity non-condensing		10% ~ 80% relative humidity, non-condensing
Certification	CE/FCC Class A	CE, FCC Class A, UL	CE, FCC Class A
OS Support	Windows® 10, Linux, Android 6.0, Windows® 10 IoT core	Windows® 10, Linux, Android 7.0, Windows® 10 IoT core	Windows® 10, Linux (UbiLinux, Ubuntu, Yocto), Android 6.0, Windows® 10 IoT core
Note			

Note: All specifications are subject to change without notice.

System Level Products

IoT Gateway/Node Systems

Launching in Q4

Model	UPX-Edge	UPX-Edge Lite
System		
CPU	8th generation Intel® Core™ i7/i5/i3/Celeron Processor SoC	
Memory	Onboard DDR4 memory, Max 16GB, Single Channel: 4GB, Dual Channel: 8GB, 16GB	DDR4 SO DIMM slot x 1, Max 16GB
Graphics	Intel® Graphics, GEN 9	
Storage	eMMC 64GB	SATA3 (6Gb/s) x 3: a. SATA connector x 1 b. M.2 2280 SATA option (auto detect) x 1
Ethernet	i7/i5 SKU LAN (i210 AT) x 1 LAN (i219 LM) x 1 i3/Celeron® LAN (i210 AT) x 1 LAN (i219 V) x 1	Intel i211 GbE port x 2
WiFi/BT	Optional	
Audio	Line out + MIC x 1	
USB	USB 3.2 Gen 2 x 4	
Expansion Slot	M.2 2230 E Key x 1 M.2 2280 B+M Key x 1 mPCIe slot x 1 100pin connector x 1 40 pin HAT x 1 SATA3 connector x 1 (support 2.5" HDD/SSD expansion)	M.2 2230 E Key x 1 M.2 2280 B+M Key x 1 M.2 3042/3052 B Key x 1 40pin HAT
I/O Placements		
Power	DC-in Jack x 1, Power Button x 1	
USB	USB 3.2 Gen 2 STACK Connector for 2 ports (Front) x 1 USB 3.2 Gen 2 STACK Connector for 2 ports (Rear) x 1	
Display Port	HDMI 2.0 x 1 (Support 4K at 60 Hz), DP 1.2 x 1, 16pin GPIO connectors (1 x GPIO for SMT32, 1 x GPIO for 40pin HAT)	HDMI 1.4 x 1 DP 1.2 x 1 eDP x 1
Ethernet	RJ45 connector x 2	
COM	RS-232/422/485 x 2	
Environment		
Power	12V - 60VDC	12V - 24VDC
Form Factor	7.48" x 5.12" x 3.1" (190mm x 130mm x 78.6mm)	5.59" x 4.89" x 1.8" (142mm x 124mm x 45.7mm)
Gross Weight	6.61lbs (3kg)	—
Operating Temperature	eMMC: -32°F ~ 158°F (0°C ~ 70°C), SATA: -4°F ~ 158°F (-20°C ~ 70°C)	32°F ~ 140°F (0°C ~ 60°C)
Operating Humidity	0% ~ 90% relative humidity non-condensing	
Certification	CE/FCC Class A, RoHS Compliant, REACH	
OS Support	Win 10, Linux Ubuntu 18.04 with Kernel 5.0, Linux Yocto 2.7 with Kernel 4.19	
Note		

Note: All specifications are subject to change without notice.

IoT Gateway/Node Systems

Model	AIOT-ILRA01	AIOT-IGWS01
System		
CPU	Intel® Atom™ x5-z8350 SoC	
Chipset	Intel® System on Chip	
Memory	Onboard 2GB/4GB DDR3L - 1600 memory	Onboard 2GB DDR3L-1600 memory
Storage	32GB/64GB eMMC on board	32GB eMMC on board
Display	HDMI	
Ethernet	8111G x 1	
USB	USB2.0 x 4, USB 3.2 Gen 1 OTG x 1	
COM	—	RS-232/422/485 x 2
Digital I/O	—	6 pin block connector x 1 (8-bit ADC x 1, GPIO x 3, GND x 2)
Expansion Slot	—	USB interface for WiFi Module x 1 (IEEE 802.11a/b/g/n/ac) USB interface for Bluetooth module x 1 (Bluetooth 4.0) Mini PCIe slot for 3G or 4G LTE module x 1 (USB interface) Micro SIM Socket x 1
Indicator	—	
WI-FI	—	IEEE 802.11 a/b/g/n/ac (Optional)
Bluetooth	—	BT4.0 (Optional)
LORA	Frequency band 868MHz, Sensitivity down to -138 dBm, Tx/Rx front-ends x 2, RF interface optimized to 50Ω, Output power level up to 20 dBm, Range up to 15 km (Line of Sight)	—
PoE	—	
OS Support	Ubilinux	Microsoft Windows 10 IOT, Ubuntu 16.04, Android 6.0
I/O Placements		
Front I/O	DC connector x 1, Antenna hole x 1, HDMI Connector x 1, USB 3.2 Gen 1 OTG x 1, Power button x 1	DC connector x 1, Antenna hole x 1, HDMI Connector x 1, USB 3.2 Gen 1 OTG x 1, Power button x 1
Rear I/O	Antenna hole x 1	COM x 1 (RS-232/422/485 x 1), Antenna hole x 2
Right side I/O	RJ45 Connector x 1, USB 2.0 Stack Connector x 2, Antenna hole x 1	RJ45 Connector x 1, USB 2.0 Stack Connector x 2, Antenna hole x 2, 6 pin block connector x 1 (8-bit ADC x 1, GPIO x 3, GND x 2)
Left side I/O	Antenna hole x 1	COM x 1 (RS-232/422/485 x 1)
Power		
Power Requirement	5V DC in	
Mechanical		
IP	—	
Dimesion	5.12" x 3.74" x 1.74" (130mm x 95mm x 44.2mm)	
Mounting	VESA Mount (optional)	VESA mount, DinRail (Optional)
Gross Weight	7.8lb (3.5kg)	
Net Weight	5.6lb (2.5kg)	
Environment		
Operating Temperature	0°C ~ 50°C	
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	
Storage Humidity	0% ~ 90% relative humidity, non-condensing	
Anti-Vibration	3 Grms /5 ~500Hz/Operation	
Certification	CE	CE, FCC Class A
Note	TAIWAN EXCELLENCE 2018	

Note: All specifications are subject to change without notice.

System Level Products

IoT Gateway/Node Systems

Model	AIOT-IP6801	AIOT-AIVD
System		
CPU	Intel® Atom™ E3940 Processor Intel® Celeron® N3350 Processor	Intel® Pentium® N4200 Processor
Chipset	Intel® System on Chip	
Memory	Onboard 4GB/ 2GB LPDDR4 memory	Onboard 8GB LPDDR4 memory
Storage	32GB eMMC on board	64GB eMMC on board 500GB HDD x 1 (Optional)
Display	HDMI	HDMI x 1, DP x 1
Ethernet	Standard: Realtek 8111G x 1 Wide temperature: Intel i211 x 1	Realtek® 8111G x 2
USB	USB 3.2 Gen 1 x 1	USB 3.2 Gen 1 x 3
COM	RS-232/422/485 x 2	—
Digital I/O	—	
Expansion Slot	Mini Pcie card x 1 Sim Card x 1	AI core X mini card module x 1 M.2 2230 E-Key x 1
Indicator	—	
WI-FI	801.11ac	801.11ac (Optional)
Bluetooth	BT4.0	BT4.0 (Optional)
LORA	868/915 MHz (Optional)	—
PoE	IEEE802.3 AT Standard, Max 25W Power Supply	—
OS Support	Microsoft Windows 10 (full), Windows IOT Core, Linux ubilinux, Ubuntu, Yocto	Windows® 10, Linux Ubuntu, OpenVino
I/O Placements		
Front I/O	M12 Connector x 1 (RS-232), Reset button x 1, GND Screw x 1, Antenna connector x 1, Antenna x 1	RJ45 Connector x 2, Power button x 1, HDMI x 1, DP x 1, USB3.0 x 2, Power input x 1, Power button x 1
Rear I/O	RJ45 Connector x 1, HDMI Connector x 1, USB 3.2 Gen 1 Connector x 1, M12 Connector x 1 (RS-232), Antenna connector x 1, Antenna x 1	USB 3.2 Gen 1 x 1 Antenna connector x 1 (Optional)
Right side I/O	—	Antenna connector x 1 (Optional)
Left side I/O	—	Antenna connector x 1 (Optional)
Power		
Power Requirement	5V DC in	
Mechanical		
IP	IP68	—
Dimesion	9.43" x 6.28" x 2.73" (239.4 mm x 159.4 mm x 69.4 mm)	4.96" x 3.74" x 2.28" (126 mm x 95 mm x 58 mm)
Mounting	Wallmount	VESA Mount
Gross Weight	7.8lb (3.5kg)	2.4lb (1.1 kg)
Net Weight	5.6lb (2.5kg)	1.5lb (0.7 kg)
Environment		
Operating Temperature	-4°F ~ 158°F (-20°C ~ 70°C) (E3940) 32°F ~ 122°F (0°C ~ 50°C) (N3350)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	
Storage Humidity	5~95% @ 40°C, non-condensing	
Anti-Vibration	3 Grms /5 ~500Hz/Operation	3 Grms/ 5 ~ 500Hz/ operation – eMMC 1 Grms/ 5~ 500Hz/ operation – HDD
Certification	CE, FCC Class A	
Note		

Note: All specifications are subject to change without notice.

IoT Gateway/Node Systems

Model	SRG-3352	SRG-3352C	SCA-MSN
System			
Processor	ARM Cortex-A8 800 MHz RISC Processor		ARM-Cortex M4 MCU + FPU
System Memory	Onboard DDR3L 1GB		—
RTC	Serial real time clock x 1		
Expansion Interface	3G/4G LTE mini PCIe connector; NB-IoT connector; SIM card socket x 1		3G/4G LTE mini PCIe connector
Battery	3V CR2032 Lithium battery for RTC		—
Power Requirement	DC9-30V	DC10-30V	AC 110-220V
Power Consumption	2.28 W	1.8 W	—
Dimension	5.67" x 3.94" x 1.73"(144 x 100 x 44mm)	4.3" x 4.33" x 1.54"(109 x 110 x 39 mm)	59.05" x 49.21" x 17.32"(150 x 125 x 44 mm)
Gross Weight	512 g	430 g	480 g
Operation Temperature	32 °F ~ 140 °F (0 °C ~ 60 °C)		
Storage Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C)		
Operation Humidity	10% ~ 95% relative humidity, non-condensing		
MTBF (Hours)	855,890		1,299,248
Wireless	—	On board WiFi/Bluetooth Module x 1	Supports 4G/ NB-IoT/ Wifi via Mini PCIe slot
I/O			
Storage	eMMC 8G; Micro SD slot		—
Serial Port	RS-485 x 2		RS-485 x 1
LAN	Gigabit Ethernet, RJ-45 x 2		10/100 Mb/s Ethernet, RJ-45 x 1
Universal Serial Bus	USB 2.0 x 2		micro USB debug x 1
GPIO	4 LED control		GPIO x 4
Other Interface	—		UART; I2C; SPI
Note			

Note: All specifications are subject to change without notice.

Vision System BOX PC Solutions

Model	BOXER-6405M	BOXER-6404M
System		
CPU	Intel® Celeron®/Pentium® processor	Intel® Celeron™ J1900, 2.0 GHz Intel® Celeron™ N2807, 1.58 GHz
Chipset	Intel® System on Chip	
System memory	DDR3L SO-DIMM slot x 1 Supports 1867MHz and up to 8GB	DDR3L 1333 SODIMM slot x 1, up to 8 GB (J1900) or 4 GB (N2807)
Display Interface	HDMI type A x 1 for HDMI v1.4b VGA x 1	HDMI
Storage Device	HDD/SSD, (mSATA BOM option)	CFast™, HDD/SSD
Ethernet	Intel® i211-AT x 2	Intel® I211, 10/100/1000Base-TX x 4
I/O	Power Button x 1 USB Type A x 4 for USB 3.2 Gen 1 HDMI type A x 1 for HDMI v1.4b RJ-45 x 2 for GbE LAN with LED indicator (i211-AT x 2) Power input x 1 3-pin terminal block in default (+, - , GND) Co-layout 3-pin terminal block & lockable DC-in jack,) Co-layout internal DC Mic-in x 1, Line-out x 1 RS-232/422/485 x 4 with automatic flow control (switch by BIOS) VGA x 1 Remote On/Off Antenna opening x 2	RS-232 x 1 USB 2.0 x 2 USB 3.2 Gen 1 x 1 HDMI x 2 LAN x 4 CFast slot x 1 Antenna holes x 1 Power button Power input
Expansion	Full-size Mini PCIe slot x 1 (PCIe/USB/SIM slot), one screw Half-size Minicard slot x 1 (optional for mSATA,PCIE/mSATA)	Full-size Mini-Card (USB interface only) x 1
Indicator	Power LED x1, HDD active LED x1	Power LED on power button
OS Support	Windows® 10, Windows® 10 IoT, Linux	Windows® 10, Windows® 8.1, Windows® 7, Windows® Embedded 8, Windows® Embedded 7, Linux Fedora
Power Supply		
Power Requirement	3-pin Phoenix DC Input 9~24V without power protection	12V - 24V with lockable DC jack
Mechanical		
Mounting	Wallmount	VESA (Mounting kit is optional), DIN rail (Mounting kit is optional)
Dimensions (W x H x D)	6.54" x 4.2" x 1.65" (166mm x 106.6mm x 42mm)	6.53" x 4.20" x 2.05" (166mm x 106.6mm x 52mm)
Gross Weight	3.6 lb (1.6kg)	3.81 lb (1.73 kg)
Net Weight	1.7 lb (0.8 kg)	2.8 lb (1.27 kg)
Environmental		
Operating Temperature	-22°F ~ 140°F (-30°C ~ 60°C) with W.T. mSATA (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial decives)	-22°F ~ 167°F (-30°C ~ 75°C) with wide temperature CFast™ card (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-22°F ~ 140°F (-30°C ~ 60°C)	-22°F ~ 176°F (-30°C ~ 80°C)
Storage Humidity	95% @ 40°C, non-condensing	
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation – mSATA 1 Grms /5 ~ 500Hz/ operation - HDD	5 Grms/ 5 ~ 500Hz/ operation –CFast™ card or SSD 1 Grms/ 5 ~ 500Hz/ operation –HDD
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

Vision System BOX PC Solutions

Model	BOXER-6841M-A1	BOXER-6841M-A2
System		
CPU	Intel Core-i 6th / 7th desktop Processor -Intel Core i7-6700TE, 2.4 GHz -Intel Core i5-6500TE, 2.3 GHz -Intel Core i3-6100TE, 2.7 GHz -Intel Core i7-7700, 3.6 GHz -Intel Core i7-7700T, 2.9 GHz -Intel Core i3-7101TE, 3.4 GHz	
Chipset	Intel® H110 PCH	
System memory	DDR4 ECC or Non-ECC SODIMM, up to 32GB	
Display Interface	HDMI type A x 2 for HDMI v1.4b	
Storage Device	2 x 2.5" Drive Bay	
Ethernet	RJ-45 x 5 for GbE (Intel i211AT x4, i219LM x1)	
I/O	2 pin Remote Power on/off connector Power ON/OFF Switch x 1 HDMI 1.4b x2 Audio x 2 (MIC-in, Line-out) USB 3.2 Gen 1 x 4 DB-9 x 1 for RS-232/422/485 3 pin DC Power input x 1 (+, - , GND)	
Expansion	Full-size Mini card x2 (USB, w/ 1 SIM slot) 1 x PCIe[x16], max support 180W graphic card - Graphic card size limit: 114.55mm(H) x 350mm (L) 1 x PCIe[x1]	Full-size Mini card x2 (USB, w/ 1 SIM slot) 1 x PCIe[x16], max support 250W graphic card - Extension card size limit: 114.55mm(H) x 350mm (L) 1 x PCIe[x1]
Indicator	Power LED x1, HDD active LED x1	
OS Support	Skylake S Windows® 10, Windows® 10 IoT, Windows® 8 .1, Windows® Embedded Standard 8, Windows® 7, Windows® Embedded Standard 7, Ubuntu 16.04.2 Kabylake Windows® 10, Windows® 10 IoT, Ubuntu 16.04.2	
Power Supply		
Power Requirement	DC-In 12~24V - CPU < 65W, No Graphic Card: 120W Adapter - CPU ≤ 65W, 180W Graphic Card: 330W Adapter	DC-In 12~24V For System power, 12V only for Graphic Card - CPU < 65W, No Graphic Card: 120W Adapter - CPU ≤ 65W, 180W < Graphic Card < 250W: 240W Adapter x 2
Mechanical		
Mounting	Wallmount	
Dimensions (W x H x D)	6.10" x 7.87" x 15.75" (155mm x 200mm x 400mm)	
Gross Weight	18.29 lb (8.3 Kg)	
Net Weight	14.53 lb (7 Kg)	
Environmental		
Operating Temperature	-4°F ~ 131°F (-20°C ~ 55°C) according to IEC60068-2 with 0.5m/s airflow (TDP 35W Processor)	
Storage Temperature	-4°F ~ 176°F (-40°C ~ 80°C)	
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	
Anti-Vibration	Random, 1Grm, 5~500Hz, Anti-vibration design	
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

System Level Products

Vision System BOX PC Solutions



Model	BOXER-6841M-A3	BOXER-6841M-A4	BOXER-6841M-A5
System			
CPU	Intel Core-i 6th / 7th desktop and Xeon® server grade processor -Intel Core i7-6700TE, 2.4 GHz -Intel Core i5-6500TE, 2.3 GHz -Intel Core i3-6100TE, 2.7 GHz -Intel Core i7-7700, 3.6 GHz -Intel Core i7-7700T, 2.9 GHz -Intel Core i3-7101TE, 3.4 GHz -Intel Xeon® E3-1268L v5, 2.40 GHz -Intel Xeon® E3-1275 v6, 3.80 GHz		
Chipset	Intel® C236 PCH		
System memory	DDR4 ECC or Non-ECC SODIMM, up to 32GB		
Display Interface	HDMI type A x 2 for HDMI v1.4b		
Storage Device	2 x 2.5" Drive Bay		
Ethernet	RJ-45 x 5 for GbE (Intel i211AT x4, i219LM x1)		
I/O	2 pin Remote Power on/off connector, Power ON/OFF Switch x 1, HDMI 1.4b x2, Audio x 2 (MIC-in, Line-out), USB 3.2 Gen 1 x 4, DB-9 x 1 for RS-232/422/485, 3 pin DC Power input x 1 (+, - , GND)		
Expansion	Full-size Mini card x2 (USB, w/ 1 SIM slot) 1 x PCIe[x16], max support 180W graphic card - Extension card size limit: 114.55mm(H) x 350mm (L) 1 x PCIe[x1]	Full-size Mini card x2 (USB, w/ 1 SIM slot) 1 x PCIe[x16], max support 250W graphic card - Extension card size limit: 114.55mm(H) x 350mm (L) 1 x PCIe[x1]	Full-size Mini card x2 (USB, w/ 1 SIM slot) 2 x PCIe[x8] - Extension card size limit: 114.55mm(H) x 192mm (L) 1 x PCIe[x1]
Indicator	Power LED x1, HDD active LED x1		Power LED x1, HDD active LED x1
OS Support	Skylake S Windows® 10, Windows® 10 IoT, Windows® 8 .1, Windows® Embedded Standard 8, Windows® 7, Windows® Embedded Standard 7, Ubuntu 16.04.2 Kabylake Windows® 10, Windows® 10 IoT, Ubuntu 16.04.2		
Power Supply			
Power Requirement	DC-In 12~24V - CPU < 73W, No Graphic Card: 120W Adapter - CPU ≤ 73W, 180W Graphic Card: 330W Adapter	DC-In 12~24V For System Power, 12V only for Graphic Card - CPU < 73W, No Graphic Card: 120W Adapter - CPU ≤ 73W, 250W Graphic Card: 240W Adapter x 2	DC-In 12~24V - CPU = 35W: 120W Adapter - 35W < CPU ≤ 73W: 240W Adapter
Mechanical			
Mounting	Wallmount		
Dimensions (W x H x D)	6.10" x 7.87" x 15.75" (155mm x 200mm x 400mm)		6.10" x 7.87" x 10.24" (155mm x 200mm x 260mm)
Gross Weight	18.29 lb (8.3 Kg)		12.75 lb (5.8 kg)
Net Weight	14.53 lb (7 Kg)		9.9 lb (4.5 Kg)
Environmental			
Operating Temperature	-4°F ~131°F (-20°C ~ 55°C) according to IEC60068-2 with 0.5m/s airflow (TDP 35W Processor) -4°F ~113°F (-20°C ~ 45°C) according to IEC60068-2 with 0.5m/s airflow (TDP 73W Processor)		
Storage Temperature	-4°F ~ 176°F (-40°C ~ 80°C)		
Storage Humidity	5 ~ 95% @ 40°C, non-condensing		
Anti-Vibration	Random, 1Grm, 5~500Hz, Anti-vibration design		
Certification	CE/FCC class A		
Note			

Note: All specifications are subject to change without notice.

Vision System BOX PC Solutions

Model	BOXER-6841M-A6	BOXER-6841M-A7
System		
CPU	Intel Core-i 6th / 7th desktop and Xeon® server grade processor -Intel Core i7-6700TE, 2.4 GHz -Intel Core i5-6500TE, 2.3 GHz -Intel Core i3-6100TE, 2.7 GHz -Intel Core i7-7700, 3.6 GHz -Intel Core i7-7700T, 2.9 GHz -Intel Core i3-7101TE, 3.4 GHz -Intel Xeon® E3-1268L v5, 2.40 GHz -Intel Xeon® E3-1275 v6, 3.80 GHz	
Chipset	Intel® C236 PCH	
System memory	DDR4 ECC or Non-ECC SODIMM, up to 32GB	
Display Interface	HDMI type A x 2 for HDMI v1.4b, VGA x 1	HDMI 1.4b
Storage Device	2 x 2.5" Drive Bay	
Ethernet	RJ-45 x 5 for GbE (Intel i211AT x4, i219LM x1)	
I/O	2 pin Remote Power on/off connector, Power ON/OFF Switch x 1 , HDMI 1.4b x2, VGA x 1, Audio x 2 (MIC-in, Line-out), USB 3.2 Gen 1 x 4, DB-9 x 1 for RS-232/422/485, DB-9 x 4 for RS-232, 3 pin DC Power input x 1 (+, - , GND)	Audio x 2 (MIC-in, Line-out) RJ-45 x 5 for GbE LAN USB Type A x4 for USB 3.2 Gen 1 DB-9 x1 for RS-232/422/485 HDMI type A x2 for HDMI v1.4b Power ON/OFF Switch x 1 2 pin Remote Power on/off connector x1 Power input x 1
Expansion	Full-size Mini card x2 (USB, w/ 1 SIM slot) 2 x PCIe[x8] - Extension card size limit: 114.55mm(H) x 192mm (L) 1 x PCIe[x1]	Full-size Mini card x2 (USB, w/ 1 SIM slot) 1 x PCIe[x16], max support 180W graphic card - Extension card size limit: 114.55mm(H) x 192mm (L) 1 x PCIe[x1]
Indicator	Power LED x1, HDD active LED x1	
OS Support	Skylake S Windows® 10, Windows® 10 IoT, Windows® 8 .1, Windows® Embedded Standard 8, Windows® 7, Windows® Embedded Standard 7, Ubuntu 16.04.2 Kabylake Windows® 10, Windows® 10 IoT, Ubuntu 16.04.2	
Power Supply		
Power Requirement	DC-In 12~24V, - CPU = 35W: 120W Adapter - 35W < CPU ≤ 73W: 240W Adapter	DC-In 12~24V - CPU < 73W, No Graphic Card: 120W Adapter - CPU ≤ 73W, 180W Graphic Card: 330W Adapter
Mechanical		
Mounting	Wallmount	
Dimensions (W x H x D)	6.10" x 7.87" x 10.24" (155mm x 200mm x 260mm)	
Gross Weight	12.75 lb (5.8 kg)	
Net Weight	9.9 lb (4.5 Kg)	
Environmental		
Operating Temperature	-4°F ~131°F (-20°C ~ 55°C) according to IEC60068-2 with 0.5m/s airflow (TDP 35W Processor) -4°F ~113°F (-20°C ~ 45°C) according to IEC60068-2 with 0.5m/s airflow (TDP 73W Processor)	
Storage Temperature	-4°F ~ 176°F (-40°C ~ 80°C)	
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	
Anti-Vibration	Random, 1Grm, 5~500Hz, Anti-vibration design	
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

System Level Products

Vision System BOX PC Solutions

Model	BOXER-6842M
System	
CPU	Intel® Xeon® E-2124G Intel® i9-9900T Intel® i7-8700T Intel® i5-8500T Intel® i3-8100T Pentium® G5400T Celeron® G4900T Note: Support max. TPD 71W Processor
Chipset	C246, No H310 downward support
System memory	DDR4 SO-DIMM socket x4 (double deck) Support max. 2666MHz up to 128GB Support un-buffered and ECC / non-ECC type SODIMM
Display Interface	HDMI x 2 Support Dual Independent Display, 4K Ultra HD displays
Storage Device	2.5" SATA Drive Bay x2 (4 SATA Port w/ RAID Function) mSATA x 1 (optional) M.2 2280 NVMe SSD slot x 1
Ethernet	RJ-45 x 3 for GbE (Intel i211AT x 2, i219LM x 1)
I/O	HDMI x 2 Audio (Mic-in, Line-out) USB 3.2 Gen1 x 6 DB-9 x4 for RS-232/422/485 with automatic flow control 3 pin DC Power input x 1 (+, - , GND) Power ON/OFF switch x 1 2 pin Remote power on/off connector Reset switch
Expansion	A1/A2 Full-size Minicard x 1 (PCIE + USB with 1 SIM Slot) Half-size Minicard x 1 (PCIE + USB, optional for mSATA) M.2 M key (2280) x 1 (PCIEx4) PCIE [x4] x 1 PCIE [x16] x 1 - Max. Power Consumption of GPU card 250W - Max. Size of GPU card 280mm x150mm x 40mm A3 Full-size Minicard x1 (PCIE + USB with 1 SIM Slot) Half-size Minicard x 1 (PCIE + USB, optional for mSATA) M.2 M key (2280) x 1 (PCIEx4) PCIE [x4] x 1 PCIE [x8] (in x16 slot) x 2 Note: A1 & A3 is fanless system. A2 is fan system with PWM function (Recommend for users need install GPU card).
Reserved Connector	Internal, SATA x 2 Internal, 8bit DIO x 1 Internal, USB 2.0 x 4 Internal, LPC x 1 Internal, Secondary System Fan Connector x1
Indicator	System Power LED x 1 (Green) Storage Active LED x 1 (Red)
OS Support	Windows® 10 Enterprise 64 bit Ubuntu 18.04.4
Power Supply	
Power Requirement	DC In 12~24V with 3-pin terminal block
Mechanical	
Mounting	Wallmount
Dimensions (W x H x D)	6.17" x 8.92" x 12.8" (156.7mm x 226.5mm x 325mm)
Gross Weight	18.52 lb (8.4 Kg)
Net Weight	15.65 lb (7.1 Kg)
Environmental	
Operating Temperature	-4°F ~ 149°F (-20°C ~ 65°C) with 0.5m/s airflow
Storage Temperature	-49°F ~ 176°F (-45°C ~ 80°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing
Anti-Vibration	HDD: Random, 1Grm, 5~500Hz
Certification	CE / FCC class A
Note	

Note: All specifications are subject to change without notice.

Vision System BOX PC Solutions

Model	BOXER-6640M	BOXER-6639M
System		
CPU	**7th Generation Intel® Core™ Processor family:** Intel® Core™ i7-7700T, 2.9 GHz / Intel® Core™ i5-7500T, 2.8 GHz / Intel® Core™ i3-7101TE, 3.4 GHz / Intel® Pentium® G4560T, 2.9 GHz **6th Generation Intel® Core™ Processor family:** Intel® Core™ i7-6700TE, 2.4 GHz / Intel® Core™ i5-6500TE, 2.3 GHz / Intel® Core™ i3-6100TE, 2.7 GHz / Intel® Pentium® G4500T, 3.0 GHz / Intel® Pentium® G4400TE, 2.9 GHz	**7th Generation Intel® Core™ Processor family:** Intel® Core™ i7-7700T, 2.9 GHz / Intel® Core™ i5-7500T, 2.8 GHz / Intel® Core™ i3-7101TE, 3.4 GHz / Intel® Pentium® G4600T, 3.0 GHz / Intel® Pentium® G4560T, 2.9 GHz / Intel® Celeron® G3930T, 2.7 GHz **6th Generation Intel® Core™ Processor family:** Intel® Core™ i7-6700TE, 2.4 GHz / Intel® Core™ i5-6500TE, 2.3 GHz / Intel® Core™ i3-6100TE, 2.7 GHz / Intel® Pentium® G4500T, 3.0 GHz / Intel® Pentium® G4400T, 2.9 GHz / Intel® Celeron® G3900T, 2.6 GHz
Chipset	Intel® H170	Intel® Q170
System memory	DDR4 1866/2133 SODIMM slot x 2, up to 32 GB, ECC or Non-ECC support	DDR4 1866/2133 SODIMM slot x 2, up to 32GB
Display Interface	HDMI, VGA	
Storage Device	mSATA, HDD/SSD	CFast™, HDD/SSD
Ethernet	Intel®I210, 10/100/1000Base-TX x 9	Intel® I210, 10/100/1000Base-TX x 3
I/O	RS-232/422/485 x 1 isolation, USB Type A x 8 for USB 3.2 Gen 1, USB Type A x 2 for USB 2.0, RJ-45 x 9 for GbE LAN, Power On/Off Button x 1, 2 pin Remote power on/off, VGA x 1, Mic-in x 1, Line-out x 1, Antenna opening x 1, SYS LED indicator x 1, HDD LED indicator x 1, DB-15 x 1 for VGA, HDMI v1.3 x 2, DC-in 3-pin terminal block (9~36V)	RS-232/422/485 x 6, USB Type A x 6 for USB 3.2 Gen 1, USB Type A x 2 for USB 2.0, RJ-45 x 3 for GbE LAN, RJ-45 x 4 for PoE (802.3at, max. 80W in total), DB-44 for 34-bit Digital I/O (5V), CFast™ slot x 1, SIM card slot x 1, Power On/Off Button x 1, 2 pin Remote power on/off, Reset switch, Mic-in x 1, Line-out x 1, Antenna opening x 2, SYS LED indicator x 1, HDD LED indicator x 1, DB-15 x 1 for VGA, HDMI v1.3 x 2, DC-in 3-pin terminal block (12~36V)
Expansion	Full-size Mini card x 1 (PCI-E + USB, w/ SIM slot) Full-size Mini card x 1 (PCIE, BOM optional mSATA + USB)	Full-size Mini-Card x 1 (PCI-E + USB, w/ SIM slot), Full-size Mini-Card x 1 (PCI-E + USB, Optional for mSATA and SIM Slot)
Indicator	—	Power LED, HDD active LED
OS Support	**7th Generation Intel® Core™ Processor family:** Windows® 10 IOT (64bit), Ubuntu 16.04 above, Fedora 25 above, CentOS 7.3 above **6th Generation Intel® Core™ Processor family:** Windows® 10 IOT (64bit), Windows® 8.1 (64bit), Windows® embedded 8 standard (64bit), Windows® 7 (32bit/64bit), Windows® embedded standard 7 (32/64bit) Ubuntu 16.04 above, Fedora 25 above, CentOS 7.3 above	
Power Supply		
Power Requirement	9 - 36V with 3-pin terminal block	12 - 36V with 3-pin terminal block
Mechanical		
Mounting	Wallmount	
Dimensions (W x H x D)	10.40" x 3.80" x 7.33" (264.2mm x 96.4mm x 186.2mm)	10.4" x 3.8" x 6.1" (264.2mm x 96.4mm x 154.2mm)
Gross Weight	12.8 lb (5.8 kg)	13.0 lb (5.9 kg)
Net Weight	9.9 lb (4.5 Kg)	8.8 lb (4.0 kg)
Environmental		
Operating Temperature	-4°F ~ 122°F (-20°C ~ 50°C) (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-13°F ~ 131°F (-25°C ~ 55°C)(according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-49°F ~ 158°F (-45°C ~ 70°C)	-49°F ~ 176°F (-45°C ~ 80°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	
Anti-Vibration	2 Grms/ 5 ~ 500Hz/ operation – SSD 1 Grms/ 5 ~ 500Hz/ operation – HDD	5 Grms/ 5 ~ 500Hz/ operation – SSD/CFast™ card 1 Grms/ 5~ 500Hz/ operation – HDD
Certification	CE/FCC class A	
Note	TAIWAN EXCELLENCE 2018	

Note: All specifications are subject to change without notice.

Compact Fanless BOX PC Solutions



Model	BOXER-6616	BOXER-6615	BOXER-6614
System			
CPU	Intel® Pentium® N4200, 2.5 GHz Intel® Celeron® N3350, 2.4 GHz	Intel® Pentium® N3710 1.6GHz	Intel® Celeron® N2930, 1.83 GHz Intel® Celeron® N2807, 1.58GHz
Chipset	Intel® System on Chip		
System memory	DDR3L 1866 SODIMM slot x 1, up to 8GB	204-pin 1600 DDR3L SODIMM x 1, up to 8GB	DDR3L 1333 SODIMM slot x 1, up to 8 GB (N2930) or 4 GB (N2807)
Display Interface	HDMI (max. 2048 x 1152) VGA (max. 2048 x 1152)	VGA, HDMI	
Storage Device	mSATA, HDD/SSD	mSATA, 2.5" HDD/SSD	CFast™, HDD/SSD
Ethernet	Intel® I211, 10/100/1000Base-TX x 2	Realtek RTL-8111E, 10/100/1000Base x2	Intel® I210/I211, 10/100/1000Base-TX x 2
I/O	RS-232/422/485 x 2, RS-232 x 4, USB 3.2 Gen 1 x 4, VGA x 1, HDMI x 1, LAN x 2, Remote On/Off x 1, Reset Button x 1, AT/ATX DIP Switch, Mic-In x 1, Line-Out x 1, Antenna holes x 1, Power button, Power input	RS-232/422/485 x 2, RS-232 x 4, USB 3.2 Gen 1 x 2, USB2.0 x 2, VGA x 1, HDMI x 1, DIO x 1, Line-Out x 1, Antenna holes x 2, Power switch, Power input	RS-232/422/485 x 2, RS-232 x 2, USB 2.0 x 3, USB 3.2 Gen 1 x 1, VGA x 1, HDMI x 1, Line-out x 1, LAN x 2, CFast slot x 1, Antenna holes x 2, Power switch, Power input
Expansion	Full-size Mini-Card x 1 (PCI-E + USB, w/ SIM slot) Half-size Mini-Card x 1 (A1:PCI-E + USB, A2: mSATA + USB)	Full-size Mini-Card x 1 (PCI-E + USB, w/ SIM slot) Half-size Mini-Card x 1 (mSATA + USB)	Full-size Mini-Card x 1 (PCI-E + USB, w/ SIM slot) Half-size Mini-Card x 1 (PCI-E + USB)
Indicator	Power LED HDD active LED		
OS Support	Windows® 10 Windows® 10 IOT Linux	Windows® 10, Windows® 8.1 (32/64-bit), Windows® 7 (32/64-bit), WES7/WES8, Windows® 10 IOT, Linux	Windows® 10, Windows® 8.1 (32/64-bit), Windows® 7 (32/64-bit), WES7/WES8, Linux Ubuntu 14.04/ Kernel 3.13.0
Power Supply			
Power Requirement	9-24V with 3-pin terminal block	9 - 30V with 3-pin terminal block (A2M) 12V with lockable DC jack (A2)	9 - 30V with 3-pin terminal block 12V with lockable DC jack
Mechanical			
Mounting	Wallmount DIN Rail (Mounting kit is optional)		
Dimensions (W x H x D)	7.76" x 2.17" x 4.33" (197mm x 55mm x 110mm)	7.76" x 2.17" x 4.33" (197mm x 55mm x 110mm)	8.35" x 4.21" x 2.53" (212.15mm x 107mm x 64.2mm)
Gross Weight	6.6 lb (2.8 kg)		
Net Weight	4.4 lb (2 kg)		
Environmental			
Operating Temperature	-4°F ~ 158°F (-20°C ~ 70°C) with W.T. SSD/HDD/mSATA (according to IEC682-14 with 0.5 m/s AirFlow; with industrial devices)	-4°F ~ 140°F (-20°C ~ 60°C) with W.T. SSD/HDD/mSATA (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-4°F ~ 131°F (-20°C ~ 55°C) with wide temperature CFast™ card -4°F ~ 140°F (-20°C ~ 60°C) with wide temperature HDD (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)		
Storage Humidity	95% @ 40°C, non-condensing		
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation – mSATA/SSD 1 Grms/ 5~ 500Hz/ operation – HDD	5 Grms/ 5 ~ 500Hz/ operation –mSATA/ SSD 1 Grms/ 5~ 500Hz/ operation – HDD	5 Grms/ 5 ~ 500Hz/ operation –CFast™ card 1 Grms/ 5~ 500Hz/ operation – HDD
Certification	CE/FCC class A		CE/FCC class A, UL
Note	TAIWAN EXCELLENCE 2018		

Note: All specifications are subject to change without notice.

Compact Fanless BOX PC Solutions

Model	BOXER-6641	BOXER-6640
System		
CPU	IIntel® Xeon® E-2124G (for A2 model only) Intel® i9-9900T Intel® i7-9700TE Intel® i7-8700T Intel® i5-8500T Intel® i3-8100T Pentium® G5400T Celeron® G4900T	Intel® Core™ i7-7700T, Quad Core, 2.9 GHz, Intel® Core™ i5-7600T, Quad Core, 2.8 GHz, Intel® Core™ i3-7300T, Dual Core, 3.5 GHz, Intel® Core™ i7-6700TE, Quad Core, 2.4 GHz, Intel® Core™ i5-6500TE, Quad Core, 2.3 GHz, Intel® Core™ i3-6100TE, Dual Core, 2.7 GHz
Chipset	Intel® C246/H310	Intel® H110
System memory	DDR4-2666 SO-DIMM slot x 2, Up to 64GB, ECC or Non-ECC Support	DDR4 SODIMM socket (double deck) x 2 Supports 1866/2133MHz DDR4 and up to 32GB, Supports un-buffered and ECC / non-ECC type SODIMM
Display Interface	HDMI x 2	VGA x 1, HDMI x 2 (Combo DP x 2) - A1 Sku VGA x 1 - A2 Sku
Storage Device	2.5" SATA HDD/SSD Bay x 1 (Optional x 2)	mSATA, SATA HDD/SSD
Ethernet	Intel® i211 x 3, i219 x 1	Intel® I211AT x 1, I219LM x 1
I/O	HDMI x 2 RJ-45 x 4 for GbE LAN (i211 x 3, i219 x 1) USB 3.2 Gen 1 x 4, USB2.0 x 4 (A1 model) USB 3.2 Gen 1 x 8 (A2 model) DB-9 x 6 for RS-232/422/485 Audio x 1 (MIC-in, Line-out) 3 pin 10~35V Power Input x 1 Power Button x 1 Remote Power switch x 1 Reset Button x 1 HDD LED x 1 SYS LED x 1	2 pin Remote power on/off connector, Audio x1 (MIC-in, Line-out), USB 2.0 x 3, DB-9 x 3 for RS-232, 8-bit DIO, DB-9 x 1 for RS-232/422/485 with auto flow control, Power ON/OFF switch x 1, 3 pin 9~36V DC Power input x 1 (+, - , GND), VGA x 1, HDMI x 2 (Combo DP x 2), USB 3.2 Gen 1 x 4, RJ-45 x 2 for GbE (i211AT x 1, i219LM x 1)
Expansion	Full-size Mini card x 2 (w/ SIM Slot x 1, optional for mSATA x 1)	Full-size Mini-Card x 1 (PCI-E + USB, w/ SIM slot), Full-size Mini-Card x 1 (mSATA + USB), LPC x 1
Indicator	HDD LED x 1 SYS LED x 1	Power LED, HDD active LED
OS Support	Windows® 10 64-bit Linux Ubuntu 18.04	Windows® 10 64 bit (Kabylake, Skylake CPU), Windows® 8.1 64 bit (Skylake CPU only), Windows® embedded 8 standard 64 bit (Skylake CPU only)
Power Supply		
Power Requirement	3-pin DC Input 10~35V	3-pin Phoenix DC Input 9~36V
Mechanical		
Mounting	Wallmount	
Dimensions (W x H x D)	10.4" x 3.19" x 6.15" (264.2mm x 80.92mm x 156.2mm)	10.39" x 3.8" x 7.33" (264mm x 96.4mm x 186.2mm)
Gross Weight	16.4lb (7.0kg)	12.76 lb (5.8 kg)
Net Weight	13.716lb (6.2kg)	9.9 lb (4.5 kg)
Environmental		
Operating Temperature	-4°F ~ 131°F (-20°C ~ 55°C) with 0.5 m/s airflow – with TDP ≦ 35W CPU -4°F ~ 113°F (-20°C ~ 45°C) with 0.5 m/s airflow – with TDP >35W CPU	-4°F ~ 131°F (-20°C ~ 55°C) (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-49 °F ~ 176°F (-45°C ~ 80°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	
Anti-Vibration	2 Grms/ 5 ~ 500Hz/ operation – SSD/mSATA 1 Grms/ 5 ~ 500Hz/ operation – HDD	2 Grms/ 5 ~ 500Hz/ operation – SSD 1 Grms/ 5 ~ 500Hz/ operation – HDD
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

Compact Fanless BOX PC Solutions

Model	BOXER-6639	BOXER-6638U
System		
CPU	Intel® Core™ i7-7700T, 2.9 GHz, Intel® Core™ i5-7500T, 2.7 GHz, Intel® Core™ i7-6700TE, 2.4 GHz, Intel® Core™ i5-6500TE, 2.3 GHz, Intel® Core™ i3-6100TE, 2.7 GHz, Intel® Pentium® G4400TE, 2.4 GHz, Intel® Celeron® G3900TE, 2.3 GHz	5th Generation Intel® Core™ i3-5010U, 2.1 GHz
Chipset	Q170	Intel® System on Chip
System memory	DDR4 1866/2133 SODIMM slot x 2, up to 32 GB, ECC or Non-ECC support	DDR3L 1600 SODIMM slot x 1, up to 8 GB
Display Interface	VGA, HDMI	VGA, DP
Storage Device	CFast, SATA HDD/SSD (Optional: x2)	mSATA, HDD/SSD
Ethernet	Intel® i210, 10/100/1000Base-TX x 3	Intel® WGI211AT, 10/100/1000Base-TX x 1 Intel® WGI218LM, 10/100/1000Base-TX x 1
I/O	RS-232/422/485 x 6, USB 3.2 Gen 1 x 4, USB 2.0 x 2, VGA x 1, HDMI x 2, Line-out x 1, Mic-in x 1, LAN x 3, CFast slot x 1, SIM slot x 1, Antenna holes x 2, 34bit DIO x 1(A2 & A4 SKU), Power switch, Power input, Remote power switch, Reset Button	RS-232/422/485 x 2, RS-232 x 2, USB 2.0 x 2 (A2M), USB 3.2 Gen 1 x 2, VGA x 1 DP x 1, Line-out x 1, LAN x 2, Antenna holes x 2, Power switch, Power input
Expansion	Full-size Mini-Card x 1 (PCI-E + USB, w/ SIM slot), Full-size Mini-Card x 1 (PCI-E + USB, Optional for mSATA and SIM Slot)	Full-size Mini-Card x 1 (mSATA + USB, w/ SIM slot, optional for PCI-E) Half-size Mini-Card x 1 (PCI-E + USB)
Indicator	Power LED, HDD active LED	
OS Support	Windows® 7 (32/64-bit), Windows® 8/8.1 (64-bit) , Windows® 10 (64-bit)	Windows® 10 (64 bit), Windows® 8.1(32/64-bit), Windows® 7 (32/64-bit), Linux Ubuntu 14.10
Power Supply		
Power Requirement	9 - 36V with 3-pin terminal block	9 - 24V with lockable DC jack
Mechanical		
Mounting	Wallmount, DIN Rail (Mounting Kit is opt.)	Wallmount
Dimensions (W x H x D)	10.4" x 2.6" x 6.1" (264.2mm x 66.5mm x 156.2mm)	7.76" x 2.17" x 5.63" (197mm x 55mm x 143mm)
Gross Weight	7.7 lb (3.5 kg)	5.5 lb (2.5kg)
Net Weight	6.6 lb (3 kg)	3.3 lb (1.5 kg)
Environmental		
Operating Temperature	-4°F ~ 131°F (-20°C ~ 55°C) (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-4°F ~ 140°F (-20°C ~ 60°C) with wide temperature HDD (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-49 °F ~ 176°F (-45°C ~ 80°C)	
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	
Anti-Vibration	2 Grms/ 5 ~ 500Hz/ operation –CFast™ card, 1 Grms/ 5~ 500Hz/ operation – HDD	5 Grms/ 5 ~ 500Hz/ operation –mSATA / SSD 1 Grms/ 5~ 500Hz/ operation – HDD
Certification	CE/FCC class A	
Note	TAIWAN EXCELLENCE 2017	

Note: All specifications are subject to change without notice.

Ultra Slim Fanless BOX PC Solutions

Model	BOXER-6405	BOXER-6404U
System		
CPU	Intel® Celeron/Pentium™ processor	Intel® Celeron™ J1900, 2.0 GHz Intel® Celeron™ N2807, 1.58 GHz
Chipset	Intel® System on Chip	
System Memory	DDR3L SO-DIMM slot x 1 Supports 1867 MHz and up to 8GB	DDR3L 1333 SODIMM slot x 1, up to 8 GB (J1900) or 4 GB (N2807)
Display Interface	HDMI (max. 1920 x 1080)	VGA
Storage Device	mSATA	mSATA, HDD/SSD
Ethernet	Intel® i211-AT x 2	REALTEK. RTL8111E-VL-CG, 10/100/1000Base-TX x 2
I/O	Power Button x 1 USB Type A x 4 for USB 3.2 Gen 1 HDMI type A x 1 for HDMI v1.4b RJ-45 x 2 for GbE LAN with LED indicator (i211-AT x 2) Power input x 1 3-pin terminal block in default (+, - , GND) Co-layout 3-pin terminal block & lockable DC-in jack,) Co-layout internal DC Mic-in x 1, Line-out x 1 RS-232/422/485 x 3 with automatic flow control (switch by BIOS) VGA x 1 Remote On/Off Antenna opening x 2 DC-in 3-pin terminal block(9~24V) x 1	RS-232 x 1 USB 2.0 x 1 USB 3.2 Gen 1 x 1 VGA x 1 LAN x 2 Digital I/O x 8 bit Antenna holes x 3 Power switch Power input
Expansion	Full-size Mini PCIe slot x 1 (PCIe/USB/SIM slot), one screw Half-size Minicard slot x 1 (mSATA only)	Full-size Mini-Card x 1 Half Mini-Card x 1 (for mSATA) SIM card slot x 1
Indicator	Power LED x1, HDD active LED x 1	Power LED, HDD active LED
OS Support	Windows® 10 Windows® 10 IoT Linux	Windows® 10 Windows® 8.1 Windows® 7 Windows® Embedded 8 Windows® Embedded 7 Linux Fedora
Power Supply		
Power Requirement	9-24V with 3-pin terminal block	12 - 24V with 3-pin terminal block
Mechanical		
Mounting	Wallmount	Wallmount VESA (Mounting kit is optional) DIN rail (Mounting kit is optional)
Dimensions (W x H x D)	6.54" x 4.2" x 1.45" (166mm x 106.6mm x 37mm)	6.53" x 4.20" x 1.63" (166 mm x 106.6 mm x 41.5 mm)
Gross Weight	3.6 lb (1.6kg)	
Net Weight	1.76 lb (0.8 kg)	
Environmental		
Operating Temperature	-22°F ~ 140°F (-30°C ~ 60°C) with W.T. mSATA (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial decives)	-13°F ~ 140°F (-25°C ~ 60°C) with wide temperature HDD/ mSATA (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-22°F ~ 140°F (-30°C ~ 60°C)	-22°F ~ 176°F (-30°C ~ 80°C)
Storage Humidity	95% @ 40°C, non-condensing	
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation – mSATA 1 Grms/ 5 ~ 500Hz/ operation - HDD	5 Grms/ 5 ~ 500Hz/ operation –mSATA
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

Ultra Slim Fanless BOX PC Solutions

Model	BOXER-6404	BOXER-6404WT
System		
CPU	Intel® Celeron™ J1900, 2.0 GHz Intel® Celeron™ N2807, 1.58 GHz	
Chipset	Intel® System on Chip	
System Memory	DDR3L 1333 SODIMM slot x 1, up to 8 GB (J1900) or 4 GB (N2807)	
Display Interface	HDMI (max. 1920 x 1080)	HDMI
Storage Device	CFast™	
Ethernet	Intel® I211, 10/100/1000Base-TX x 4	
I/O	RS-232 x 1 USB 2.0 x 2 USB 3.2 Gen 1 x 1 HDMI x 2 LAN x 4 CFast slot x 1 Antenna holes x 1 Power button Power input	
Expansion	Full-size Mini-Card (USB interface only) x 1	
Indicator	Power LED on power button	
OS Support	Windows® 10 Windows® 8.1 Windows® 7 Windows® Embedded 8 Windows® Embedded 7 Linux Fedora	
Power Supply		
Power Requirement	12V - 24V with lockable DC jack	
Mechanical		
Mounting	VESA (Mounting kit is optional) DIN rail (Mounting kit is optional)	
Dimensions (W x H x D)	6.53" x 4.20" x 1.18" (166 mm x 106.6 mm x 30 mm)	6.53" x 4.20" x 1.59" (166mm x 106.6mm x 40.5mm)
Gross Weight	2.9 lb (1.3 kg)	3.59 lb (1.63 kg)
Net Weight	1.9 lb (0.86 kg)	2.6 lb (1.17 kg)
Environmental		
Operating Temperature	-22°F ~ 149°F (-30°C ~ 65°C) with wide temperature CFast™ card (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-22°F ~ 167°F (-30°C ~ 75°C) with wide temperature CFast™ card (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-22°F ~ 176°F (-30°C ~ 80°C)	
Storage Humidity	95% @ 40°C, non-condensing	
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation –CFast™ card	
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

Din Rail Fanless BOX PC

Model	BOXER-6750	BOXER-6710
System		
CPU	Intel® Core™ i3-6100U Intel® Celeron® 3955U	Intel® Pentium® processor N4200 Intel® Celeron® processor N3350
Chipset	Intel® System on Chip	
System memory	DDR4 2133MHz SODIMM slot x 1, up to 16GB	DDR3L 1866 SODIMM slot x 1, up to 8GB
Display Interface	HDMI x 1, VGA x 1	HDMI, VGA
Storage Device	mSATA, HDD/SSD	HDD/SSD, optional mSATA
Ethernet	Intel® i210-IT x 2	Intel® i211-AT x 1 Intel® i219-LM x 1
I/O	RS-232/422/485 x 4 RJ-45 x 2 for GbE (i210IT x 2) USB 3.2 Gen 1 x 4 VGA x 1 HDMI x 1 Antenna Holes x 2 Power Switch Power Input	VGA x 1 HDMI x 1 RJ-45 x 2 for GbE LAN USB Type A x 4 for USB 3.2 Gen 1 Mic-in x 1 Line-out x 1 RS-232/422/485 x 3 with automatic flow control Power On/Off Button x 1 DC-in 3-pin terminal block (9~24V) x 1
Expansion	Full-size minicard x 1 (PCIe+USB with SIM slot, optional for mSATA) Full-size minicard x 1 (PCIe+USB)	Full-size Minicard x 1 w/ SIM Slot Half-size Minicard x 1 (optional for mSATA)
Indicator	Power LED on power button	
OS Support	Windows® 10 (64 bit) Windows® 8.1 (64 bit) Windows® 7 (32/64 bit) Linux	Windows® 10 64 bit Windows® 10 IoT 64 bit Linux Ubuntu 16.04.4
Power Supply		
Power Requirement	9 - 30V with 3-pin terminal block	
Mechanical		
Mounting	DIN Rail Mount Wallmount (Monting kit is optional)	DIN Rail Mount
Dimensions (W x H x D)	2.72" x 7.2" x 6.1" (69mm x 183mm x 155mm)	1.73" x 6.54" x 4.17" (44mm x 166mm x 106mm)
Gross Weight	6.1 lb (2.8kg)	3.08lb (1.4kg)
Net Weight	3.9 lb (1.8kg)	1.32lb (0.6kg)
Environmental		
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C) with W.T. SSD/HDD/mSATA (according to IEC68-2-14 with 0.5 m/s AirFlow ; with industrial devices)	-22°F ~ 140°F (-30°C ~ 60°C) with W.T. SSD/HDD/mSATA (according to IEC68-2-14 with 0.5 m/s AirFlow ; with industrial devices)
Storage Temperature	-49°F ~ 176°F (-45°C ~ 80°C)	
Storage Humidity	95% @ 40°C, non-condensing	
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation – mSATA/SSD 1 Grms/ 5~ 500Hz/ operation – HDD	
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

Expandable Fanless BOX PC Solutions

Model	BOXER-6839
System	
CPU	7th Generation Intel® Core™ Processor family: Intel® Core™ i7-7700T, 2.9 GHz / Intel® Core™ i5-7500T, 2.8 GHz / Intel® Core™ i3-7101TE, 3.4 GHz / Intel® Pentium® G4600T, 3.0 GHz / Intel® Pentium® G4560T, 2.9 GHz / Intel® Celeron® G3930T, 2.7 GHz 6th Generation Intel® Core™ Processor family: Intel® Core™ i7-6700TE, 2.4 GHz / Intel® Core™ i5-6500TE, 2.3 GHz / Intel® Core™ i3-6100TE, 2.7 GHz / Intel® Pentium® G4500T, 3.0 GHz / Intel® Pentium® G4400T, 2.9 GHz / Intel® Celeron® G3900T, 2.6 GHz
Chipset	Intel® Q170
System Memory	DDR4 1866/2133 SODIMM slot x 2, up to 32GB
Display Interface	HDMI, VGA
Storage Device	CFast™, HDD/SSD
Network	Intel® I210, 10/100/1000Base-TX x 3
I/O	RS-232/422/485 x 6, USB Type A x 6 for USB 3.2 Gen 1, USB Type A x 2 for USB 2.0, RJ-45 x 3 for GbE LAN, DB-44 for 34-bit Digital I/O (5V), CFast™ slot x 1, SIM card slot x 1, Power On/Off Button x 1, 2 pin Remote power on/off, Reset switch, Mic-in x 1, Line-out x 1, Antenna opening x 2, SYS LED indicator x 1, HDD LED indicator x 1, DB-15 x 1 for VGA, HDMI v1.3 x 2, DC-in 3-pin terminal block (9~36V)
Expansion	Full-size Mini-Card x 2, PCIe [x4] x 1 & PCIe [x1] x 1 (for A1), PCIe [x4] x 1 & PCI x 1 (for A2), PCI x 2 (for A3)
Indicator	Power LED, HDD active LED
OS Support	7th Generation Intel® Core™ Processor family: Windows® 10 IOT (64bit), Ubantu 16.04 above, Fedora 25 above, CentOS 7.3 above 6th Generation Intel® Core™ Processor family: Windows® 10 IOT (64bit), Windows® 8.1 (64bit), Windows® embedded 8 standard (64bit), Windows® 7 (64bit/32bit), Windows® embedded standard 7 (32/64bit), Ubantu 16.04 above, Fedora 25 above, CentOS 7.3 above
Power Supply	
Power Requirement	9 - 36V with 3-pin terminal block
Mechanical	
Mounting	Wallmount
Dimensions (W x H x D)	10.40" x 4.90" x 6.15" (264.2mm x 124.5mm x 156.2mm)
Gross Weight	13.2 lb (6.0 kg)
Net Weight	9.9 lb (4.5kg)
Environmental	
Operating Temperature	-4°F ~ 131°F (-20°C ~ 55°C) (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-49°F ~ 176°F (-45°C ~ 80°C)
Storage Humidity	5~95% @ 40°C, non-condensing
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation – SSD/CFast™ card 1 Grms/ 5~ 500Hz/ operation – HDD
Certification	CE/FCC class A
Note	

Note: All specifications are subject to change without notice.

Transportation BOX PC Solutions

Model	BOXER-6313U
System	
CPU	Intel® Atom™ E3845, 1.91 GHz
Chipset	Intel® System on Chip
System Memory	DDR3L 1066/1333 SODIMM slot x 1, up to 8 GB
Display Interface	HDMI, VGA
Storage Device	2.5" HDD bay x 2
Ethernet	Intel® I211, 10/100/1000Base-TX x 2
I/O	RS-232/422/485 x 2 isolated RS-232 x 2 USB 3.2 Gen 1 x 1 USB 2.0 x 3 HDMI x 1 VGA x 1 LAN x 2 2 Channel CANBUS x 1 Mic-in x 1 Line-out x 1 Antenna hole x 4 Power on/off LED button x 1 Power input
Expansion	Full-size Mini-Card x 3 with SIM slot x 3
Indicator	Power LED on power button HDD active LED
OS support	Windows® 10, Windows® 8.1, Windows® 7, Linux Fedora
Power Supply	
Power Requirement	9 - 30V with 3-pin terminal block
Mechanical	
Mounting	Wallmount
Dimensions (W x H x D)	10.55" x 6.48" x 2.00" (268mm x 164.6mm x 51mm)
Gross Weight	9.0 lb (4.1 kg)
Net Weight	6.6 lb (3.1 kg)
Environmental	
Operating Temperature	5°F ~ 149°F (-15°C ~ 65°C)(according to IEC60068-2, with 0.5m/s AirFlow)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Storage Humidity	95% @ 40°C, non-condensing
Anti-Vibration	3 Grms/ 5~ 500Hz/ operation – CFast™
Certification	CE/FCC class A, E13, ISO7637
Note	

Note: All specifications are subject to change without notice.

System Level Products

Network Video Recorder & Mobile NVR

Model	VPC-5600S	VPC-3350S
System		
Form Factor	In-Vehicle NVR	Mobile NVR
Processor	Intel® 7th Gen. Core™ i3/i5/i7 Processor (Default: i3-7100U; Project base: i5-7300U, i7-7600U)	Intel® Pentium®/ Celeron®/ Atom™ Processor (Default: E3940; Project base: N4200/N3350, or E3950 w/ customized chassis)
Chipset	—	
Main Memory	Up to 32GB, DDR4 260-pin SODIMM	Up to 8GB, DDR3L 204-pin SODIMM
Display	HDMI x 1, DP x 1	
Ethernet	LAN x 2 + 4 PoE Ports (Up to 8 PoE ports), RTL8111E 10/100/1000 Base	Intel® i211 (colay i210)
PoE Ethernet Port	4 ports (Max. 8 ports), sharing 60W of power budget for every four PoE ports.	4 ports, sharing 60W of power budget for every four PoE ports
RAID support	0/1	—
Expansion Slot	Mini-Card slot x 3 (USB2.0 x 2 + PCIe & USB 2.0 x 1) Built-in CAN 2.0B x 1	Mini-Card slot x 2 (USB2.0 + PCIe, full size), up to 4 slots (in-vehicle config., optional) SATA x 1 Built-in CANBus (In-vehicle config. by project base)
GPS, G-Sensor	On board (GPS/GLONASS), G Sensor	Built-in GPS & G-Sensor (In-vehicle config. by project base)
Front I/O Panel	Power Button x 1, 3G/4G/WIFI LED x 3, USB 3.2 Gen 1 x 4, GbE port (RJ-45) x 2 , PoE LAN x 4 (IEEE 802.3 at/af), Max. 8 ports, DP x 1, Reset Button x 1	Power Button x 1, Reset Button x 1, Power/HDD, LED x 2, USB 3.2 Gen 1 x 2, GbE port (RJ-45) x 1, PoE LAN x 4 (IEEE 802.3 at/af) HDMI x 1, CanBus connector x 1 (In-vehicle config. by project base), RS-232 x 3 (In-vehicle config. by project base)
Rear I/O Panel	DC-In power x 1 Remote Power x 1 8-bit DIO x 1, 4-ch digital input (Wet/dry contact with Isolation Protection 3,000 VDC) , 4-ch digital output (Compatible 5 V/TTL, 31 mA max. per channel) DC 12V/1A Output x 1 RS-232/422/485 x 2 HDMI x 1 CanBus connector x 1, Audio Line-out x 1, Mic-In x 1 SIM slot x 2	DC-In power x 1 8-bit DIO x 1, 4-ch digital input , 4-ch digital output RS-232/422/485 x 2 DP x 1 Audio Line-out x 1, Mic-In x 1 Micro SIM slot x 2
Storage		
HDD Tray	2.5" SSD x 2	2.5" HDD/SSD Bay x 1
CF/CFast/mSATA Slot	mSATA Slot x 1 (If mSATA x 1 used, then only one SATA available)	—
Environmental		
Operating Temperature	-4°F ~ 158°F (-20°C ~ 70°C); Project base, -40°C ~ 85°C	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Storage Humidity	10%~80% @40°C, non-condensing	
Vibration/Shock	MIL-STD-810G	
Certification	CE & FCC Class A, EMARK	CE & FCC Class A, E-Mark (In-vehicle config. by project base)
Power Requirement		
Power Supply	DC 10-36V, with ignition pin	DC 12-24V; DC9-36V with power ignition (In-vehicle config. by project base)
Mechanical		
Removable HDD Tray	Hot swappable 2.5'' SSD x 2 (Project base) via extension module	—
Internal System HDD Bay	2.5" HDD x 2	—
Dimension	6.85" x 7.87" x 2.52" (174mm x 200mm x 64mm)	6.3" x 5.28" x 2.44" (160mm x 134mm x 62mm)
Gross Weight	5.7 lb (2.6 kg)	3.96 lb (1.8 kg)
Note		

Note: All specifications are subject to change without notice.

Network Video Recorder & Mobile NVR

Model	VPC-3300S	VPC-3350AI
System		
Form Factor	In-Vehicle NVR	Mobile NVR
Processor	Intel® Celeron® J1900 Processor	Intel® Pentium®/ Celeron®/ Atom™ Processor (Default: E3940; Project base: N4200/N3350, or E3950 w/ customized chassis)
Chipset	Quad Core SoC	2 x Intel® Myriad™ X, up to 4 Myriad™ X (Project base)
Main Memory	Up to 8GB, DDR3L 204-pin SODIMM	Up to 8GB, DDR3L 204-pin SODIMM
Display	VGA x 1, HDMI x 1	HDMI x 1, DP x 1
Ethernet	10/100/1000Base-TX x 6	Intel® i211 (colay i210)
PoE Ethernet Port	4 ports, RJ-45 ports support IEEE 802.3 at/af with total PoE Power budget of 60W	4 ports, sharing 60W of power budget for every four PoE ports
RAID support	—	
Expansion Slot	Mini-Card x 3, Built-in CAN 2.0B x 1	SATA x 1
GPS	On board (GPS/GLONASS)	—
Front I/O Panel	Power Button x 1, Power Input x 1, Remote Power x 1, 3G/4G/ WIFI LED x 3, SIM slot x 2, HDD LED x 1, CanBus connector x 1, 8bit DIO x 1, 4-ch digital input (Wet/dry contact with Isolation Protection 3,000 VDC), 4-ch digital output (Compatible 5 V/TTL, 31 mA max. per channel)	Power Button x 1, Reset Button x 1, Power/HDD, LED x 2, USB 3.2 Gen 1 x 2, GbE port (RJ-45) x 1, PoE LAN x 4 (IEEE 802.3 at/ af), HDMI x 1
Rear I/O Panel	VGA out x 1, HDMI x 1, GbE port (RJ-45) x 2, PoE LAN x 4, USB2.0 x 2, USB 3.2 Gen 1 x 1, Audio Line-out x 1, Mic-In x 1	DC-In power x 1, 8-bit DIO x 1, 4-ch digital input , 4-ch digital output RS-232/422/485 x 2, DP x 1, Audio Line-out x 1, Mic-In x 1 Micro SIM slot x 2
Storage		
HDD Tray	2.5" HDD/SSD Bay x 1	
CF/CFast/mSATA Slot	mSATA Slot x 1 (deafult; colay w/ 2.5" HDD x 1)	—
Environmental		
Operating Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Storage Humidity	10%~80% @40°C, non-condensing	
Vibration/Shock	MIL-STD-810G	
Certification	CE & FCC Class A, EMARK	CE & FCC Class A
Power Requirement		
Power Supply	DC 9-36V, with Ignition Pin	DC 12-24V
Mechanical		
Removable HDD Tray	2.5" HDD x 2 (Optional, MOQ apply)	—
Internal System HDD Bay	2.5" HDD x 1 (Optional SKU if support HDD x 2)	—
Dimension	6.85" x 7.87" x 2.36" (174mm x 200mm x 60mm)	6.3" x 5.28" x 2.44" (160mm x 134mm x 62mm)
Gross Weight	5.7 lb (2.6 kg)	5.07 lb (2.3 kg)
Note		

Note: All specifications are subject to change without notice.

	Launching in Q4	Launching in Q4
Model	**VPC-5620S**	**VPC-5620AI**
System		
Form Factor	Mobile NVR	
Processor	Intel® Whisky Lake Processor (Default: i7-8665UE; Project base: i5-8365UE, i3-8145UE or 4305UE)	
Chipset	—	1 x Intel® Keembay M.2 2280 M key
Main Memory	Up to 32GB, DDR4 260-pin SODIMM	
Display	HDMI x 1, DP x 1	
Ethernet	Intel® i211 (colay i210)	
PoE Ethernet Port	5 ports, sharing 60W of power budget for every four PoE ports	
RAID support	0/1	
Expansion Slot	Mini-Card slot x 2 (USB2.0 + PCIe, USB2.0 + SATA), up to 4 slots (in-vehicle config., optional), M.2 2280 slot x 1, SATA x 2, Built-in CANBus (In-vehicle config. by project base)	Mini-Card slot x 2 (USB2.0 + PCIe, USB2.0 + SATA) SATA x 2
GPS	Built-in GPS & G-Sensor (In-vehicle config. by project base)	—
Front I/O Panel	Power Button x 1, Reset Button x 1, Power/HDD, LED x 2, USB 3.2 Gen 1 x 4, GbE port (RJ-45) x 1, PoE LAN x 4 (IEEE 802.3 at/af), DP x 1	
Rear I/O Panel	DC-In power x 1, 8-bit DIO x 1, 4-ch digital input, 4-ch digital output, RS-232/422/485 x 2, HDMI x 1 Audio Line-out x 1, Mic-In x 1, Micro SIM slot x 3	
Storage		
HDD Tray	2.5" HDD/SSD Bay x 2	
CF/CFast/mSATA Slot	—	
Environmental		
Operating Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Storage Humidity	10%~80% @40°C, non-condensing	
Vibration/Shock	MIL-STD-810G	
Certification	CE & FCC Class A	
Power Requirement		
Power Supply	DC 12-24V; DC9-36V with power ignition (In-vehicle config. by project base)	DC 12-24V
Mechanical		
Removable HDD Tray	Hot swappable 2.5" SSD x 2 (Project base) via extension module	—
Internal System HDD Bay	2.5" HDD x 2	—
Dimension	6.3" x 5.87" x 2.16" (180mm x 149mm x 55mm)	6.3" x 5.87" x 2.36" (180mm x 149mm x 60mm)
Gross Weight	TBD	
Note		

Note: All specifications are subject to change without notice.

	Launching in Q4	Launching in Q4
Model	**VPC-N400AI**	**VPC-N600AI**
System		
Form Factor	Mobile NVR	
Processor	Quad-core ARM® Cortex®-A57 MPCore processor	6-core NVIDIA Carmel ARM® v8.2 64-bit CPU 6MB L2 + 4MB L3 processor
Chipset	—	
Main Memory	Onboard 4 GB LPDDR4	8 GB 128-bit LPDDR4
Display	1x HDMI 2.0 a/b maximum 3840 x 2160, VGA x 1 (optional)	
Ethernet	10/100 Base-TX x 8, 10/100/1000 Base-Tx x 1	
PoE Ethernet Port	8 ports, sharing 75W of power budget.	
RAID support	—	
Expansion Slot	Mini PCIe x 2 (full-size USB2.0 x 1, half-size USB2.0 x 1)	
GPS	Onboard G-Sensor, GPS (optional)	
Front I/O Panel	Power button x 1 IR receiver x 1 USB 2.0 x 1 GbE port x 1; PoE port x 8	
Rear I/O Panel	Audio input x 1 Audio output x 1 USB 3.0 x 1 RS-232 x 1 RS485 x 1 HDMI x 1	
Storage		
HDD Tray	2.5" HDD/SSD Bay x 1	
CF/CFast/mSATA Slot	—	
Environmental		
Operating Temperature	-4°F ~149°F (-20°C ~+65°C)	
Storage Temperature	-4°F ~185°F (-20°C ~+85°C)	
Storage Humidity	95% @ 40 °C (non-condensing)	
Vibration/Shock	MIL-STD-810G	
Certification	CE, FCC certified; (EN50155, E-Mark project-based)	
Power Requirement		
Power Supply	DC 9-36V, with Ignition Pin	
Mechanical		
Removable HDD Tray	1 x 2.5" SATA	
Internal System HDD Bay	—	
Dimension	6.9" x 7.2" x 2" (175.6mm x 183.3mm x 50.5mm)	
Gross Weight	4 lb (1.8 kg)	
Note		

Note: All specifications are subject to change without notice.

Rugged Tablet Computers

Model	RTC-710RK	RTC-710AP
System Architecture		
Processor	Rockchip RK3399 Processor (Quad-Core A53 1.6GHz & Dual-Core A72 2.0GHz)	Intel® Celeron™ N3350 1.1GHz Dual core up to 2.4GHz Intel® Pentium™ N4200 1.1GHz Quad core up to 2.5GHz
Operating System	Android 8.1	Windows® 10 IOT Enterprise SAC
Memory	Onboard LPDDR4 2GB (Default) / 4GB	Onboard LPDDR4 4GB (Default) / 8GB
Storage	eMMC 16GB (Default) / 32GB	eMMC 64GB (Default) / 128GB
Display	7" WXGA (1280x800) 700-nit / 300-nit TFT LCD	
I/O Ports	SIM card slot x 1, USB 3.2 Gen 1 Type-C x 1, Audio jack x 1 (3.5mm), DC-in jack x 1, Micro-SD card slot x 1, USB 2.0 Type-A x 1, UART Port x 1 (Via I/O Module), 10/100/1000 Base-T RJ45 x 1 (Via I/O Module)	
Communication	Wi-Fi 802.11 b/g/n, Bluetooth v4.2 (EDR + BLE)	Wi-Fi 802.11 b/g/n, Bluetooth v4.2
Navigation	Up to 3 GNSS, GPS + Galileo (Default), GLONASS, BeiDou (Optional) External Antenna	
WWAN (Optional)	LTE via M.2 slot (Optional)	
Camera	8MP front camera, 8MP rear camera with flash	2MP front camera, 8MP rear camera with flash
Sensors	G-sensor, E-Compass, Gyroscope, Light-sensor	
Expansion Slot	M.2 slot x 1, Docking connector: USB 3.2 Gen 1 x 1	
Barcode Code Scanner (Optional)	2D Barcode scanner, OPTICON MDI-4100-USB via I/O module (Optional)	
HF RFID (Optional)	ISO 15693 (R/W), ISO 18092 (R/W), ISO 14443-A (R/W), ISO 14443-B (Only Read UID), Depend on card type	
Physical Key	F1(Barcode Scanner Trigger), F2 (Screenprint), F3 (Audio on/off), Volume Up, Volume Down	F1(Barcode Scanner Trigger), F2 (Screenprint), F3 (Ctrl+Alt+Del as Soft Reboot), Volume Up, Volume Down
Mechanical		
Color	Dark Grey	
Dimension (W x H x D)	219.8 x 138.8 x 20.4 mm (8.65" x 5.46" x 0.80")	
Gross Weight	1.54 lb (0.64 Kg) based on configurations	
Environmental		
Operating Temperature	-20°C ~ 60°C (-4°F ~ 140°F) for high-brightness version	
Storage Temperature	-55°C ~ 70°C (-67°F ~ 158°F)	
Humidity	0% ~ 90% relative humidity, non-condensing	
Environmental Sealing	IP65	
Vibration	MIL-STD-810G Method 514.6 Procedure I, Cat. 24, Fig. 514.6E-1 & E-2	
Drop	MIL-STD-810G Method 516.6 Procedure IV - Height of Drop: 122cm (48 inch; 4ft), - Number of Drop: 26 times - Floor: Two inch plywood backed by concrete - For all surfaces, edges and corners	
ESD	Air charge: +/- 8KV, Contact charge: +/- 4KV	
Certifications and Standards	UL62368, CE, FCC	
Power Supply		
AC / DC Adapter	AC 100 ~ 240 V, 50 ~ 60 Hz, Output: 12V/ 3.34A/ 40W	
Battery Life	Li-ion Battery 8-hour battery life based on test configurations	Li-ion Battery 5-hour battery life based on test configurations
Master Battery	Hot-swappable battery: 7.4V, 1530mAh, 11.3W	
Slave Battery	7.4V, 1530mAh, 11.3W	
Display		
LCD	7" TFT-LCD Display	
Resolution	1280 x 800	
Maximum Color	N/A	
Dot Size	0.03925(H) X 0.11775(V) mm	
Brightness	700 / 300 nits	
Viewing Angle	Horizontal: 178°, Vertical: 178° (Typical)	
Touch Screen		
Touch Type	7" Projected Capacitive Multi-Touch Screen (700 nits with 10 points / 300 nits with 5 points)	
Light Transmission	Min. 85%	
Note		

Note: All specifications are subject to change without notice.

Rugged Tablet Computers

Model	RTC-1010	RTC-1010M
System Architecture		
Processor	Intel® Celeron® N3350 1.1GHz Dual core up to 2.4GHz, Intel® Pentium® N4200 1.1GHz Quad core up to 2.5GHz	
Operating System	Windows® 10 IOT Enterprise SAC	
Memory	Onboard DDR3L 4GB (Default)	Onboard DDR3L 4GB (Default)
Storage	eMMC 64GB (mSATA III up to 512GB via inside mini-card slot, Optional)	
Display	10.1" WXGA (1280x800) 800-nit / 300-nit TFT LCD With Projected Capacitive Multi-Touch Screen	
I/O Port	Micro-HDMI port x 1, SIM card slot x 1, Micro-SD card slot x 1, Audio jack x 1, USB 3.2 Gen 1 x 2 (USB Type-C x 1), USB 2.0 x 2, DC-in jack x 1, RS-232/422/485 COM Port x 1, 10/100/1000 Base-T RJ45 x 1, Smart card reader x 1 (Optional, Without IP protection)	Micro-HDMI port x 1, SIM card slot x 1, Micro-SD card slot x 1, Audio jack x 1, USB 3.2 Gen 1 x 2 (USB Type-C x 1), USB 2.0 x 2, DC-in jack x 1, RS-232/422/485 COM Port x 1 (Optional), 10/100/1000 Base-T RJ45 x 1 (Optional), Smart card reader x 1 (Optional, Without IP protection), MSR reader x 1 (Optional, Without IP protection)
Communication	Wi-Fi 802.11 b/g/n, Bluetooth v4.2 (EDR+BLE)	
Navigation	Up to 3 GNSS, GPS + Galileo (Default), GLONASS or BeiDou (Optional)	
WWAN (optional)	LTE via mini-card slot (Optional)	
Camera	2MP front camera, 8MP rear camera with flash	
Sensor	G-sensor, E-compass, Gyro-sensor, Light-sensor	
Expansion Slot	Inside mini-card slot x 1, Mini-card slot x 1, Docking connector: USB 2.0 x 1	
Barcode Scanner (Optional)	2D Barcode scanner, OPTICON MDI-4100-USB (Optional)	
HF RFID (Optional)	ISO 15693 (R/W), ISO 18092 (R/W), ISO 14443-A (R/W), ISO 14443-B (Only Read UID), Depend on card type	
Physical Key	F0 or Windows (Windows Start Key), F1(BCR Trigger Button (When BCR is enabled)), F2(Screenprint), F3(Ctrl+Alt+Del as Soft Reboot), Volume Up, Volume Down	
Mechanical		
Color	Black & Dark Gray	
Dimension (W x H x D)	10.71" x 7.48" x 0.80" (272.0 mm x 190.0 mm x 20.4 mm)	
Gross Weight	2.2 lb (1.0 Kg) based on configurations	2.1 lb (0.95 Kg) based on configurations
Environmental		
Operating Temperature	-4°F ~ 122°F (-20°C ~ 50°C)	
Storage Temperature	-67°F ~ 158°F (-55°C ~ 70°C)	
Humidity	0% ~ 90% relative humidity, non-condensing	
Environmental Sealing	IP65	IP54
Vibration	MIL-STD-810G-514.6 Procedure I Cat.24, Fig 514.6E-1 & 514.6E-2 (Unit is non-operating) ASTM 4169-99 Truck Assurance Level II, Schedule E (Unit is non-operating)	—
Drop	MIL-STD-810G-516.6, Procedure IV Drop height: 122 cm Number of Drop: 26 times, for all surfaces, edges and corners Condition: Based on 2" plywood over concrete	Drop height: 76 cm Condition: Based on 2" plywood over concrete
ESD	Air charge: +/- 8KV, Contact charge: +/- 4KV	
Certifications and Standards	UL60950-1, CE, FCC	
Power Supply		
AC / DC Adapter	AC 100 ~ 240 V, 50 ~ 60 Hz, Output: 12V/ 3A/ 36W	
Battery Life	Li-ion Battery 8-hour battery life based on test configurations	
Master Battery	Hot-swappable battery: 14.4V, 2270mAh, 32.7W	
Slave Battery	7.4V, 1530mAh, 11.3W	
Display		
LCD	10.1" TFT-LCD/ 16:10 with LED backlight	
Resolution	1280 x 800	
Max. Colors	N/A	
Dot Size	0.1692 (H) x 0.1692 (V) mm	
Brightness	300 nit (800 nits optional)	
Viewing Angle	Horizontal: 170° (Typ.), Vertical: 170° (Typ.)	
Touch Screen		
Touchscreen Type	Projected capacitive multi-touch screen (PCT)	
Light Transmission	Min 85%	
Note		

Note: All specifications are subject to change without notice.

Rugged Tablet Computers

Model	RTC-1200	RTC-700B
System Architecture		
Processor	Intel® Core™ i 7100U / 7300U Dual Core up to 3.9GHz, Intel® Celeron® 3965U Dual Core 2.2GHz Processor	Intel® Atom™ X5-Z8350 CHT-T3 Quad Core 1.92 GHz Processor
Operating System	Windows® 10 IoT Enerprise 64bit (Default), Windows® 7 for Skylake (Optional)	Windows® 10, Android™ 5.1/6.0
Memory	DDR3L SODIMM Socket x 1, up to 8GB, DDR4 SODIMM Socket (Optional)	Onboard 2GB DDR3L (4G Optional)
Storage	M.2 (NGFF) SSD, 64GB (Default)	Onboard 64GB eMMC
Display	11.6" FHD (1920x1080) 300-nit / 1000-nit TFT-LCD With Projected Capacitive Multi-Touch Screen	7" TFT-LCD/ 16:10, with Projected Capacitive Multi-Touch screen
I/O Ports	HDMI port x 1, SIM card slot x 1, Micro-SD card slot x 1, Audio jack x 1 (3.5mm), USB 3.2 Gen 1 x 1 (Type A), USB 3.2 Gen 1 x 1 (Type C) (Optional), USB 2.0 x 2 (Type A), DC-in Jack x 1, RS-232/422/485 COM Port x 1, 10/100/1000 Base-T RJ45 x 1	DC-in jack x 1, MicroSD Card x 1, SIM card slot x 1, USB 2.0 x 2 (A Type x 1, Mini USB x 1), USB 3.2 Gen 1 x 1 (Type C), Built-in Speaker & Microphone x 1, 3.5mm stereo headphone jack x 1, 1D/2D Barcode scanner x 1 (Optional), Magnetic Stripe Reader x 1 (Optional), COM port x 1 + Ethernet x 1 (Optional)
Communication	Wi-Fi 802.11 b/g/n, Bluetooth v4.1	Bluetooth v4.0, Wi-Fi (802.11 b/g/n), NFC/ RFID (13.56MHz), 3G (Optional)
Navigation	GPS, Glonass	
WWAN (Optional)	LTE via mini-card slot (Optional)	3G: WCDMA
Camera	2 MP front camera, 5 MP auto-focus rear camera with flash	2 MP front camera, 8 MP auto-focus rear camera with flash
Sensors	G-sensor, E-compass, Gyro-sensor, Light-sensor	G-sensor, E-Compass, Gyroscope, Light-sensor
Expansion Slot	Docking connector x 1, GNSS antenna Pass-through connector x 1, WWAN antenna Pass-through connector x 1	Docking
Barcode Code Scanner (Optional)	2D Barcode scanner, OPTICON MDI-4100-USB (Optional)	1D Scanner support CMOS engine (Optional), 2D Scanner support LED engine
HF RFID (Optional)	ISO 15693 (R/W), ISO 18092 (R/W), ISO 14443-A (R/W), ISO 14443-B (Only Read UID), Depend on card type	ISO 15693 (R/W), ISO 18092 (R/W), ISO 14443-A (R/W), ISO 14443-B (Only Read UID), Depend on card type
Physical Key	F0 or Windows (Windows Start Key), F1(Ctrl+Alt+Del & Barcode Scanner Trigger), F2 (Touch Mode Switch), F3 (PrtSc/printscreen), Volume Up, Volume Down	—
Mechanical		
Color	Gray & Black	Black
Dimension (W x H x D)	12.36" x 7.87" x 0.96" (310.4mm x 200mm x 24.5mm)	5.38" x 8.58" x 0.83" (136.6mm x 219mm x 21mm)
Gross Weight	3.3 lbs (1.5 kg)	1.254 lb (0.57 kg)
Environmental		
Operating Temperature	-4°F ~ 122°F (-20°C ~ 50°C)	
Storage Temperature	-67°F ~ 158°F (-55°C ~ 70°C)	
Humidity	50°C; 5% ~ 90% R/H; 120 hours, non-condensing	
Environmental Sealing	IP65	
Vibration	MIL-STD-810G Method 514.6 Procedure I, Cat. 24, Fig. 514.6E-1 & E-2	MIL-STD-810G Method 514.6 Procedure I, Cat. 24, Fig. 514.6E-1 & E-2
Drop	MIL-STD-810G Method 516.6 Procedure IV Height of Drop: 122cm (48 inch; 4ft), Number of Drop: 26 times, Floor: Twoinch plywood backed by concrete, For all surfaces, edges and corners	MIL-STD-810G Method 516.6 Procedure IV - Height of Drop: 122cm (48 inch; 4ft), - Number of Drop: 26 times, - Floor: Twoinch plywood backed by concrete, - For all surfaces, edges and corners
ESD	Air charge: +/- 8KV, Contact charge: +/- 4KV	Up to Air charge: +/- 15KV, Contact charge: +/- 8KV
Certifications and Standards	UL: UL60950-1, CE/LVD: EN60950-1, FCC, CE	
Power Supply		
AC / DC Adapter	AC 100~240V, 50~60Hz ; DC 19V/3.42A (65W)	AC 100~240V, 50~60Hz ; DC 12V/3A (36W)
Battery Life	Dual Li-ion High Capacity Batteries, up to 10 Hours Battery Life	Dual Li-polymer High Capacity Batteries, up to 5 Hours Battery Life
Master Battery	Hot-swappable battery: 14.4V, 2270mAh, 32.7W	External Battery: 7.4V 1530mAh
Slave Battery	Hot-swappable battery: 14.4V, 2270mAh, 32.7W	Removable Battery: 7.4V 1530mAh
Display		
LCD	11.6" TFT-LCD/ 16:9, with LED backlight	7" TFT-LCD / 16:10, with LED backlight
Resolution	1920 x 1080 pixel	1280 x 800 pixel
Maximum Color	16.7M	
Dot Size	0.117 x 0.117(H)	
Brightness	1000 nits; 300 nits (Optional)	400 nits; Sunlight Readable (Optional)*
Viewing Angle	Horizontal: 178° (Typ.), Vertical: 178° (Typ.)	
Touch Screen		
Touch Type	11.6" Projected Capacitive Multi-Touch Screen Gloves / Finger Switchable by F2	Projected capacitive multi-touch screen (PCT)
Light Transmission	Min 87% (ASTM D1003; Wavelength = 550nm)	
Note		

Note: All specifications are subject to change without notice.

Ultra-Slim Multi-Touch Panel Solutions

Model	ACP-1106	ACP-1104
System		
Processor	Intel® Pentium® N4200 processor, 1.1 GHz (Quad-Core), Burst frequency 2.5GHz Intel® Celeron® N3350 processor, 1.1 GHz (Dual-Core), Burst frequency 2.4GHz	Intel® Celeron® J1900 processor, 2 GHz Intel® N2807 processor, 1.58 GHz
System Memory	204-pin DDR3L SODIMM x 1, Build-in 4GB, Max. 8GB	204-pin DDR3L 1333MHz SODIMM x 1, default 2 GB, up to 8 GB (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, default 2 GB, up to 4 GB (N2807)
LCD/CRT Controller	Integrated in processor	—
Ethernet	10/100/1000Base-TX, RJ-45 x 2	
I/O Port	Bottom: DB9 Type RS-232 x 1, USB 3.2 Gen 1 x 2, HDMI x 1, RJ-45 10/100/1000 LAN x 2, 2 Pin terminal block for power input Top: Power Button x 1, Type A USB 2.0 x 1, Expansion I/O Slot	RS-232/422/485 x 2 (RJ-45 connector) USB 2.0 type A x 3 USB 3.2 Gen 1 type A x 1 HDMI x 1 DI/O (4 DI, 2 DO) BIOS selection Power button x 1 Lockable power connector x 1
Storage Disk Drive	Full Size mSATA x 1	Half size mSATA x 1 (Installation by AAEON recommeded)
Expansion Slot	Half size mini card x 1(Internal)	Full size Mini-Card x 1
OS support	Windows® 10, Linux Kernal 4.4.0 or higher	Windows® 7, Windows® 8.1, Windows® 10, Linux kernel 2.6.3 or higher, Android 4.4.4
Mechanical		
Construction	Aluminum Front Bezel + Metal Chassis	Aluminum Design
Mounting	VESA 75, Panel Mount	VESA 75/ Panel mount/ Stand
Dimension	10.47" x 7.24 x 1.89" (266 x 184 x 48mm)	10.47" x 7.22" x 1.81" (266 x 183.5 x 30mm)
Carton Dimension	13.38" x 7.64 x 9.96" (340 x 194 x 253mm)	13.58" x 7.87" x 9.65" (345 x 200 x 245mm)
Gross Weight	6.38 lb (2.9 kg)	5.5 lb (2.5 kg)
Environmental		
Operating Temperature	23°F ~ 122°F (-5°C ~ 50°C) with 0.5 m/s airflow	32°F ~ 113°F (0°C ~ 45°C) without airflow 32°F ~ 122°F (0°C ~ 50°C) with airflow
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	
Storage Humidity	90% @40°C; non-condensing	5%~90% @40°C, non-condensing
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation
Shock	—	15 G peak acceleration (11 msec. duration)
EMC	CE/FCC Class A	
Power Supply		
DC Input	DC 9~30V	DC 12V with lockable power adapter
LCD		
Display Type	10.1" TFT-LCD, LED	
Max. Resolution	1280 x 800	
Max. Colors	262K colors (6 bit for R,G,B)	262k
Luminance	300 cd/m^2	
Viewing Angle	170°(H), 170°(V)	
Back Light	LED	
Back Light MTBF (hours)	—	
Touchscreen		
Type	P-CAP Touchscreen	Projected capacitive multi-touch
Light Transmission	90%	—
Note		

Note: All specifications are subject to change without notice.

Ultra-Slim Multi-Touch Panel Solutions

Model	ACP-1076	ACP-1074
System		
Processor	Intel® Pentium®N4200 processor, 1.1 GHz (Quad-Core), Burst frequency 2.5GHz Intel® Celeron® N3350 processor, 1.1 GHz (Dual-Core), Burst frequency 2.4GHz	Intel® N2807 processor, 1.58 GHz Intel® Celeron® J1900 processor, 2 GHz
System Memory	204-pin DDR3L SODIMM x 1, Build-in 4GB, Max. 8GB	204-Pin DDR3L SODIMM x 1, default 2GB, up to 8 GB (J1900) 204-Pin DDR3L SODIMM x 1, default 2GB, up to 4 GB (N2807)
LCD/CRT Controller	Integrated in processor	
Ethernet	10/100/1000Base-TX, RJ-45 x 2	
I/O Port	Bottom: DB9 Type RS-232 x 1, USB 3.2 Gen 1 x 2, HDMI x 1, RJ-45 10/100/1000 LAN x 2, 2 Pin terminal block for power input Top: Power Button x 1, Type A USB 2.0 x 1, Expansion I/O Slot	RJ-45 type RS-232/422/485 x 2 USB 2.0 x 3 USB 3.2 Gen 1 x 1 HDMI x 1 RJ-45 10/100/1000 LAN x 2 DI/O (4DI, 2DO) BIOS Selection Lockable power input connector Power switch x 1
Storage Disk Drive	Full Size mSATA x 1	Half size mSATA storage x 1 (Installation by AAEON recommeded)
Expansion Slot	Half size mini card x 1(Internal)	Full size Mini-Card x 1
OS support	Windows® 10, Linux Kernal 4.4.0 or higher	Windows® 7, Windows® 8.1, Windows® 10, Linux kernel 2.6.3 or higher
Mechanical		
Construction	Aluminum Front Bezel + Metal Chassis	Aluminum Design
Mounting	VESA 75, Panel Mount	VESA 75/ Panel mount/ Stand
Dimension	7.72" x 5.28" x 1.89" (196 x 134 x 48 mm)	7.71" x 5.27" x 1.18" (196mm x 134mm x 30mm)
Carton Dimension	10.87" x 9.41" x 6.69" (276 x 239 x 170 mm)	13.58" x 7.87" x 9.64" (345mm x 200mm x 245mm)
Gross Weight	4.62 lb (2.1 Kg)	5.5 lb (2.5 kg)
Environmental		
Operating Temperature	23°F ~ 122°F (-5°C ~ 50°C) with 0.5 m/s airflow	32°F ~ 122°F (0°C ~ 50°C) without airflow 23°F ~ 131°F (-5°C ~ 55°C) with airflow
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	
Storage Humidity	90% @40°C; non-condensing	5%~90% @40°C, non-condensing
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	
Shock	15 G peak acceleration (11 msec. duration) – with HDD	
EMC	CE/FCC Class A	
Power Supply		
DC Input	DC 9~30V	DC12V, with lockable power adapter
LCD		
Display Type	7" TFT-LCD, LED	
Max. Resolution	1024 x 600	
Max. Colors	16.7M	
Luminance	320 cd/m^2	
Viewing Angle	150°(H), 145°(V)	
Back Light	LED	
Back Light MTBF (hours)	20,000	
Touchscreen		
Type	P-CAP Touchscreen	Projected capacitive multi-touch (2-point)
Light Transmission	90%	
Note		

Note: All specifications are subject to change without notice.

OMNI Series : Modular Builder - Panel Kit



Model	OMNI-215D	OMNI-221D	OMNI-310D
Mechanical			
Construction	Aluminum Front Bezel		
Mounting	—		Panel Mount
Dimension	16.54" x 10.39" x 1.14" (420mm x 264mm x 29mm)	21.61" x 14.65" x 0.87" (549mm x 372mm x 22mm)	11.02" x 9.41" x 1.1" (280mm x 239mm x 28mm)
Carton Dimension	20.47" x 17.13" x 7.09" (520mm x 435mm x 180mm)	26.38" x 7.87" x 20.67" (670mm x 200mm x 525mm)	16.34" x 7.05" x 15.39" (415mm x 179mm x 391mm)
Gross Weight	11 lb (5 kg)		3.08 lb (1.4 kg)
Environmental			
Operating Temperature	14°F ~ 131°F (-10°C ~ 55°C) with 0.5 m/s airflow		
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)		
Storage Humidity	90% @40°C; non-condensing		
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD		
Shock	15G peak acceleration (11 msec. duration) – with HDD		
EMC	CE/FCC Class A		
Power Supply			
DC input	—		
LCD			
Display Type	15.6" TFT-LCD, LED	21.5" TFT-LCD, LED	10.4" TFT-LCD, LED
Max Resolution	1366 x 768	1920 x 1080	800 x 600
Max. Colors	16.2M colors	16.7M colors	16.2M colors
Luminance	400 cd/m²	250 cd/m²	230 cd/m²
Viewing Angle	160°(H), 140°(V)	178°(H), 178°(V)	120°(H), 100°(V)
Back Light	LED		
Back Light MTBF (hours)	50,000		
Touch Screen			
Type	P-CAP/ Full-flap resistive		
Light Transmission	90%		
Note	1. Connect with OMNI-Box Kit 2. Connect with LVDS/USB Type Touch		1. Connect with OMNI-Box Kit 2. Connect with LVDS/USB Type Touch

Note: All specifications are subject to change without notice.

OMNI Series : Modular Builder - Panel Kit



Model	OMNI-312D	OMNI-315D	OMNI-317D
Mechanical			
Construction	Aluminum Front Bezel		
Mounting	Panel Mount		
Dimension	12.95" x 11.34" x 0.98" (329mm x 288mm x 25mm)	14.53" x 12.36" x 1.06" (369mm x 314mm x 27mm)	16.14" x 14.57" x 1.1" (410mm x 370mm x 28mm)
Carton Dimension	20.87" x 17.52" x 7.87" (530mm x 445mm x 200mm)	20.08" x 9.84" x 18.11" (510mm x 250mm x 460mm)	20.47" x 10.32" x 19.29" (522mm x 262mm x 490mm)
Gross Weight	4.4 lb (2 kg)	11.66 lb (5.3 kg)	8.8 lb(4 kg)
Environmental			
Operating Temperature	14°F ~ 131°F (-10°C ~ 55°C) with 0.5 m/s airflow		
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)		
Storage Humidity	90% @40°C; non-condensing		
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD		
Shock	15G peak acceleration (11 msec. duration) – with HDD		
EMC	CE/FCC Class A		
Power Supply			
DC input	—		
LCD			
Display Type	12.1" TFT-LCD, LED	15" TFT-LCD, LED	17" TFT-LCD, LED
Max Resolution	1024 x 768		1280 x 1024
Max. Colors	16.2M colors	16.2M (8bit/color)	16.7M colors
Luminance	500 cd/m²	300 cd/m²	350 cd/m²
Viewing Angle	160°(H), 160°(V)	176° (H), 176° (V)	170°(H), 160°(V)
Back Light	LED		
Back Light MTBF (hours)	50,000	70,000	50,000
Touch Screen			
Type	P-CAP/ Full-flap resistive		
Light Transmission	90%		
Note	1. Connect with OMNI-Box Kit 2. Connect with LVDS/USB Type Touch		

Note: All specifications are subject to change without notice.

OMNI Series : Modular Builder - Panel Kit



Model	OMNI-319D	OMNI-3120PD	OMNI-3150PD
Mechanical			
Construction	Aluminum Front Bezel	Open Frame LCD Kit	
Mounting	Panel Mount		
Dimension	18.13" x 16.12" x 1.1" (460.4mm x 409.4mm x 28mm)	13.2" x 10.8" x 1.04" (335.2mm x 274.2mm x 26.5mm)	15.08" x 12.05" x 1.04" (383mm x 306mm x 26.5mm)
Carton Dimension	26.02" x 8.11" x 19.53" (661mm x 206mm x 496mm)	20.87" x 17.52" x 7.87" (530mm x 445mm x 200mm)	20.08" x 9.84" x 18.11" (510mm x 250mm x 460mm)
Gross Weight	11 lb (5 kg)	4.4 lb (2 kg)	8.8 lb (4 kg)
Environmental			
Operating Temperature	14°F ~ 131°F (-10°C ~ 55°C) with 0.5 m/s airflow		
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)		
Storage Humidity	90% @40°C; non-condensing		
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD		
Shock	15G peak acceleration (11 msec. duration) – with HDD		
EMC	CE/FCC Class A		
Power Supply			
DC input	—		
LCD			
Display Type	19" TFT-LCD, LED	12.1" TFT-LCD, LED	15" TFT-LCD, LED
Max Resolution	1280 x 1024	1024 x 768	
Max. Colors	16.7M colors	16.2M colors	16.2M (8bit/color)
Luminance	350 cd/m²	500 cd/m²	300 cd/m²
Viewing Angle	170°(H), 160°(V)	160°(H), 160°(V)	176° (H), 176° (V)
Back Light	LED		
Back Light MTBF (hours)	50,000		70,000
Touch Screen			
Type	P-CAP/ Full-flap resistive	Projected Capacitive Multi Touch or Full Flat Resistive Touch Screen or 5-wire Resistive Touch Screen	
Light Transmission	90%		
Note	1. Connect with OMNI-Box Kit 2. Connect with LVDS/USB Type Touch		

Note: All specifications are subject to change without notice.

OMNI Series : Modular Builder - BOX Kit



Model	OMNI-BT CPU BOX	OMNI-SKU CPU BOX
System		
Processor	Intel® N2807 processor, 1.58 GHz Intel® Celeron® J1900 processor, 2 GHz	Intel® Core™ i7-6600U, i5-6300U, i3-6100U, Celeron® 3995 Processor
System Memory	204-pin DDR3L 1333MHz SODIMM x 1, up to 8 GB, (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, up to 4 GB, (N2807)	260-pin DDR4 SODIMM x 1, Max. 16GB
LCD CRT Controller	Integrated in processor	
Ethernet	Intel® I211, 10/100/1000Base-TX x 2	Gigabit Ethernet, RJ-45 x 1
IO Port	USB 2.0 Type A x 3, USB 3.2 Gen 1 Type A x 1, SMA Antenna hole x 1, HDMI x 1, CFast™ x 1, DB-9 x 1 for RS-232/422/485, RJ-45 x 2 for 10/100/1000 Base-TX, DB-15 x 1 for VGA, 3-pin terminal block x 1 for 9~30 Vdc power input LED Power on/off switch x 1 (Power on = Orange, Power off =N/A)	USB Type A x 4 for USB 3.2 Gen 1 RJ-45 x1 for GbE LAN DB-9 x 2 for RS-232, DB-9 x 1 for RS-232/422/485 Power input connector, Power ON/ OFF Switch x 1, antenna hole HDMI x 1 3-pin terminal Power input x 1
Storage Disk Drive	CFast™ x 1, 2.5" SATA HDD bay x 1	2.5" SATA HDD bay x 1
Expansion Slot	Mini card x 2 (Full size x 2) SIM card x 1 OMNI I/O connector x 1	Full size mini card x 1 SIM card x 1 OMNI I/O connector x 1
OS Support	Windows® 7, Windows® 8, Windows® 10, Linux Kernal 2.6.x or higher	Windows® 10 (64 bit), Linux kernal 2.6.3 or above
Construction	Aluminum design	
Mounting	Wallmount	Wallmount (with optional Bottom cover: M0421550A0) / with OMNI-Panel Kits
Dimension	7.2" x 6.38" x 1.1" (183mm x 162mm x 28mm)	7.2" x 6.38" x 1.77" (183mm x 162mm x 45mm)
Gross Weight	3.96 lb (1.8 kg)	
Operating Temperature	14°F ~ 131°F (-10°C ~ 55°C) (J1900) 14°F ~ 140°F (-10°C ~ 60°C) (N2807) with 0.5 m/s airflow (CF & HDD)	-4°F ~ 131°F (-20°C ~ 55°C)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	
Storage Humidity	90% @40°C; non-condensing	
Anti Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	
Anti-Shock	15 G peak acceleration (11 msec. duration) – HDD	
Certification	CE/FCC class A	
DC Input	DC 9 (min.) ~ 30 (max.) V w/3-pin terminal block, ATX Power function	
Display Type	HDMI x 1, VGA	HDMI x 1
Note	Box Bottom Chassis Cover (optional): M0421550A0	

Model	OMNI-ADB-KIT
System	
Input Signal	VGA / HDMI
On Screen Display Control	5 keys OSD keypad (Up, Down, Menu, Auto, Power)
I/O Port	DB-15 x 1 for VGA HDMI x 1 USB Type A x 1 (For Enable T/S Function) Line in x 1 (For optional internal Speaker) Power Input x 1(Default Terminal Block 3pin)
OS Support	Windows® 7 32/64 bit, Windows® 8 32/64 bit, Windows® 10 64 bit, Linux Ubuntu 16.04
Mechanical	
Construction	Metal chassis
Mounting	Must be assembled with "OMNI-Series Modules-Panels"
Dimension	5.1" x 6.4" x 1.2" (128.6mm x 161.5mm x 30.7mm)
Carton Dimension	12.3" x 10.1" x 7.6" (312mm x 257mm x 194mm)
Gross Weight	5.5 lb (2.5 kg)
Net Weight	2.6 lb (1.2 kg)
Environmental	
Operating Temperature	14°F ~ 131°F (-10°C ~ 55°C) With 0.5m/s Airflow
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)
Storage Humidity	10%~90% @104°F (40°C); non-condensing
Anti-Vibration	1 Grms / 5~500Hz/random Operation
Anti-Shock	—
EMC	CE/FCC, Class A
Power Supply	
DC Input	DC 12~30V Power Input with 3 Pin Terminal Block
LCD	
Display Type	Depends on your OMNI Panel Modules
Max Resolution	
Max. Colors	
Luminance	
Viewing Angle	
Back Light	
Back Light MTBF (hours)	
Touch Screen	
Type	Depends on your OMNI Panel Modules
Light Transmission	
Life Time	
Note	

Note: All specifications are subject to change without notice.

OMNI Series : Modular Builder - I/O Modules

Model	9741215501 - Mini Card x 2 & SIM Card x 2 Module	9741215502 - Dual LAN Module
Product Description	Mini PCIe Slot x 2, for OMNI Panel PC Only	Gigabit Ethernet x 2, for OMNI Panel PC only
Features	Full-size Mini-Card Slot x 2 SIM Card Slot x 2	Gigabit Ethernet x 2 Intel® i2l Chipset
Os Support	Window® 7 Window® 10 Linux Kernal 2.6.x or above	
Construction	SECC Design	
Dimension	161 x 80 x 31 mm	
Note		

Model	9741215506 - DIO Module	9741215508 - Audio Module
Product Description	DIO without Isolation x 8, for OMNI Panel PC only	MIC-In x 1, Line-out x 1, for OMNI Panel PC only
Features	DIO x 8 (3.3Vac)	Mic-in x 1 Line-out x 1
Os Support	Window® 7 Window® 10 Linux Kernal 2.6.x or above	
Construction	SECC Design	
Dimension	161 x 80 x 31 mm	
Note		

Model	9741215510 - HMS Kit	9741215512
Product Description	10/100 Ethernet x 2, for OMNI Panel PC Only	WiFi 802.11 b/g/n Module
Features	10/100 Ethernet x 2, Anybus Support All Major Industrial Ethernet and Fieldbus Networks * Due to communication protocol limit, only for EU region	Supports 802.11b/g/n Supports BT 4.0
Os Support	Window® 7 Window® 10 Linux Kernal 2.6.x or above	
Construction	SECC Design	
Dimension	161 x 80 x 42 mm	161 x 80 x 31 mm
Note		

Note: All specifications are subject to change without notice.

OMNI Series : Modular Builder - I/O Modules

Model	9741215513	9741215515
Product Description	RS-485/422/232 Module	OMNI USB/COM/LAN Module
Features	RS-232/422/485 x 2 Selection by Jumper	USB 2.0 x 2 RS-232/422/485 x 2 (Selection by External Switch) Gigabit Ethernet x 1
Os Support	Window® 7 Window® 10 Linux Kernal 2.6.x or above	
Construction	SECC Design	
Dimension	161x 99 x 42 mm	161x 99 x 56 mm
Note		

Model	9741215516	9741215517
Product Description	OMNI COM x 4 Module	OMNI Isolated COM Module
Features	RS-232/422/485 x 4 Selection by internal jumper	Isolated RS-232/422/485 x 4 2K Vdc Isolation Selection by internal jumper
Os Support	Window® 7 Window® 10 Linux Kernal 2.6.x or above	
Construction	SECC Design	
Dimension	161 x 99 x 56 mm	
Note		

Model	9741215518
Product Description	OMNI COM, DIO Module
Features	DB9 Isolated RS-232/422/485 x 4 DIO x 16
Os Support	Window® 7 Window® 10 Linux Kernal 2.6.x or above
Construction	SECC Design
Dimension	161 x 99 x 55 mm
Note	

Note: All specifications are subject to change without notice.

OMNI Series : Modular Touch Panel Solutions

Model	OMNI-2155-BT	OMNI-3105-BT
System		
Processor	Intel® Celeron® J1900, 2.0 GHz/ N2807, 1.58 GHz	Intel® N2807 processor, 1.58 GHz, Intel® Celeron® J1900 processor, 2 GHz
System Memory	204-pin DDR3L 1333MHz SODIMM x 1, up to 8 GB (J1900), 4 GB (N2807)	204-pin DDR3L 1333MHz SODIMM x 1, up to 8 GB, (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, up to 4 GB, (N2807)
LCD/CRT Controller	Integrated in Processor	
Ethernet	10/100/1000Base-TX, RJ-45 x 2	Intel® I211, 10/100/1000Base-TX x 2
I/O Port	USB Type A x 1 for USB 3.2 Gen 1, USB Type A x 3 for USB 2.0, SMA antenna hole x 1, HDMI x 1, CFast™ x 1, DB-9 for RS-232/422/485 x 1, RJ-45 x 2 for 10/100/1000Base-TX, DB-15 x 1 for VGA, 3-pin terminal block x 1 for 9~30 V DC power input, LED Power On/Off Switch x 1 (Power on = orange, Power off =N/A)	USB 2.0 Type A x 3 USB 3.2 Gen 1 Type A x 1 SMA Antenna hole x 1 HDMI x 1 CFast™ x 1 DB-9 x 1 for RS-232/422/485 RJ-45 x 2 for GbE LAN DB-15 x 1 for VGA 3-pin terminal block x1 for 9~30 Vdc power input LED Power on/off switch x 1 (Power on = Orange, Power off =N/A)
Storage Disk Drive	CFast™ socket x 1, SATA 2.5" HDD bay x 1	CFast™ x 1, 2.5" SATA HDD bay x 1
Expansion Slot	Mini-Card x 2 (Full Size), OMNI I/O Connector x 1, SIM x 2	Full Size Mini card x 2, SIM card x 1, OMNI I/O connector x 1
OS support	Windows® 7, Windows® 8, Windows® 10, Linux kernel 2.6.x or higher	
Mechanical		
Construction	Aluminum front bezel + metal chassis	Aluminum design (IP65 Front Frame)
Mounting	VESA 100/ Panel mount	
Dimension	16.54" x 10.43" x 2.36" (420mm x 265mm x 60mm)	11.02" x 9.41" x 2.32" (280 mm x 239 mm x 59 mm)
Carton Dimension	20.87" x 17.52" x 7.87" (530mm x 445mm x 200mm)	16.34" x 7.05" x 15.39" (415mm x 179mm x 391mm)
Gross Weight	14.1 lb (6.4kg)	7.92 lb (3.6 kg)
Environmental		
Operating Temperature	-20°C~60°C with industrial grade device (with 0.5 m/s air flow, according to IEC68-2-14, CPU: N2807) -20°C~55°C with industrial grade device (with 0.5 m/s air flow, according to IEC68-2-14, CPU: J1900)	14°F ~ 131°F (-10°C ~ 55°C) (J1900), 14°F ~ 140°F (-10°C ~ 60°C) (N2807) with 0.5 m/s airflow (CF & HDD)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	
Storage Humidity	90% @40°C, non-condensing	
Anti-Vibration	1 Grms/ 5 ~ 500 Hz/ Operation (HDD)	1 Grms/ 5~ 500Hz/ operation – with HDD
Anti-Shock	15 G peak acceleration (11 msec. duration)	15 G peak acceleration (11 msec. duration) – with HDD
EMC	CE/FCC class A	
Power Supply		
DC Input	DC 9 (min.) ~ 30 (max.) V w/ 3-pin terminal block, ATX Power function	
LCD		
Display Type	15.6" TFT-LCD, LED backlight	10.4" TFT-LCD, LED
Max Resolution	1366 x 768	800 (H) x 600 (V)
Max. Colors	16.7M colors (8-bit for R,G,B)	16.2M colors
Luminance	400 cd/m2	230 cd/m^2
Viewing Angle	160°(H), 140°(V)	120° (H), 100° (V)
Back Light	LED	
Back Light MTBF (Hours)	50,000	
Touchscreen		
Type	P-CAP/ 5-wire resistive	
Light Transmission	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)	
Note		Not support OMNI I/O Modules due to chassis limitation

Note: All specifications are subject to change without notice.

OMNI Series : Modular Touch Panel Solutions

Model	OMNI-3125-BT	OMNI-3155-BT
System		
Processor	Intel® N2807 processor, 1.58 GHz Intel® Celeron® J1900 processor, 2 GHz	
System Memory	204-pin DDR3L 1333MHz SODIMM x 1, up to 8 GB, (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, up to 4 GB, (N2807)	
LCD/CRT Controller	Integrated in processor	
Ethernet	Intel® I211, 10/100/1000Base-TX x 2	
I/O Port	USB 2.0 Type A x 3 USB 3.2 Gen 1 Type A x 1 SMA Antenna hole x 1 HDMI x 1 CFast™ x 1 DB-9 Type RS-232/422/485 x 1 RJ-45 Type for 10/100/1000Base-TX x 2 DB-15 x 1 for VGA 3-pin terminal block x1 for 9~30 Vdc power input LED Power on/off switch x 1 (Power on = Orange, Power off =N/A)	
Storage Disk Drive	CFast™ x 1, 2.5" SATA HDD bay x 1	
Expansion Slot	Full Size Mini card x 2, SIM card x 1, OMNI I/O connector x 1	
OS support	Windows® 7, Windows® 8, Windows® 10, Linux Kernal 2.6.x or higher	
Mechanical		
Construction	Aluminum design (IP65 Front Frame)	
Mounting	VESA 100 / Panel Mount	
Dimension	12.95" x 11.34" x 2.2" (329 mm x 288 mm x 56 mm)	14.53" x 12.36" x 2.28" (369 mm x 314 mm x 58 mm)
Carton Dimension	20.87" x 17.52" x 7.87" (530mm x 445mm x 200mm)	20.08" x 9.84" x 18.11" (510mm x 250mm x 460mm)
Gross Weight	11 lb (5.0 kg)	13.97 lb (6.35 kg)
Environmental		
Operating Temperature	14°F ~ 131°F (-10°C ~ 55°C) (J1900), 14°F ~ 140°F (-10°C ~ 60°C) (N2807) with 0.5 m/s airflow (CF & HDD)	
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	
Storage Humidity	90% @40°C; non-condensing	
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	
Shock	15 G peak acceleration (11 msec. duration) – with HDD	
EMC	CE/FCC class A	
Power Supply		
DC Input	DC 9 (min.) ~ 30 (max.) V w/ 3-pin terminal block, ATX Power function	
LCD		
Display type	12.1" TFT-LCD, LED	15" TFT-LCD, LED
Max Resolution	1024(H) x 768(V)	
Max. Colors	16.2M colors	16.2M (8bit/color)
Luminance	500 cd/m2	300 cd/m2
Viewing Angle	160° (H), 160° (V)	176° (H), 176° (V)
Back Light	LED	
Back Light MTBF (Hours)	50,000	70,000
Touchscreen		
Type	P-CAP/ 5-wire resistive	
Light Transmission	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)	P-CAP (90%± 2%), 5-wire Resistive (80% ± 2%)
Note	Not support OMNI I/O Modules due to chassis limitation	Support OMNI I/O Modules

Note: All specifications are subject to change without notice.

OMNI Series : Modular Touch Panel Solutions

Model	OMNI-3175-BT	OMNI-3195-BT
System		
Processor	Intel® N2807 processor, 1.58 GHz Intel® Celeron® J1900 processor, 2 GHz	
System Memory	204-pin DDR3L 1333MHz SODIMM x 1, up to 8 GB, (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, up to 4 GB, (N2807)	
LCD/CRT Controller	Integrated in processor	
Ethernet	Intel® I211, 10/100/1000Base-TX x 2	
I/O Port	USB 2.0 Type A x 3 USB 3.2 Gen 1 Type A x 1 SMA Antenna hole x 1 HDMI x 1 CFast™ x 1 DB-9 Type RS-232/422/485 x 1 RJ-45 Type for 10/100/1000Base-TX x 2 DB-15 x 1 for VGA 3-pin terminal block x1 for 9~30 Vdc power input LED Power on/off switch x 1 (Power on = Orange, Power off =N/A)	
Storage Disk Drive	CFast™ x 1, 2.5" SATA HDD bay x 1	
Expansion Slot	Full Size Mini card x 2, SIM card x 1, OMNI I/O connector x 1	
OS support	Windows® 7, Windows® 8, Windows® 10, Linux kernel 2.6.x or higher	
Mechanical		
Construction	Aluminum design (IP65 Front Frame)	
Mounting	VESA 100 / Panel Mount	
Dimension	16.14" x 14.57" x 2.32" (410mm x 370mm x 59mm)	18.15" x 16.14" x 2.32" (461 mm x 410 mm x 59 mm)
Carton Dimension	20.55" x 10.31" x19.29"(522mm x 262mm x 490mm)	26.02" x 8.11" x 19.53" (661mm x 206mm x 496mm)
Gross Weight	15.84 lb (7.2 kg)	19.36 lb (8.8 kg)
Environmental		
Operating Temperature	14°F ~ 131°F (-10°C ~ 55°C) (J1900), 14°F ~ 140°F (-10°C ~ 60°C) (N2807) with 0.5 m/s airflow (CF & HDD)	
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	
Storage Humidity	90% @40°C; non-condensing	
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	
Shock	15 G peak acceleration (11 msec. duration) – with HDD	
EMC	CE/FCC class A	
Power Supply		
DC Input	DC 9 (min.) ~ 30 (max.) V w/3-pin terminal block, ATX Power function	
LCD		
Display type	17" TFT-LCD, LED	19" TFT-LCD, LED
Max Resolution	1280(H) x 1024(V)	
Max. Colors	16.7M colors (RGB 6-bits + Hi-FRC data)	16.7M colors
Luminance	350 cd/m2	
Viewing Angle	170°(H), 160°(V)	
Back Light	LED	
Back Light MTBF (Hours)	50,000	
Touchscreen		
Type	P-CAP/ 5-wire resistive	
Light Transmission	P-CAP (≥85%), 5-wire Resistive (80% ± 5%)	
Note	Support OMNI I/O Modules	

Note: All specifications are subject to change without notice.

OMNI Series : Modular Touch Panel Solutions

Model	OMNI-2155-SKU	OMNI-2215-SKU
System		
Processor	Intel® i5-6300U processor, 2.4 GHz Intel® Celeron® 3955U processor, 2.0 GHz	Intel® Core™ i5-6300U processor, 2.4 GHz Intel® Celeron® 3955U processor, 2.0 GHz
System Memory	260-pin DDR4 SODIMM x 1, up to 16 GB	
LCD/CRT Controller	Integrated in processor	
Ethernet	Intel® I211, 10/100/1000Base-TX x 1	
I/O Port	USB 3.2 Gen 1 Type A x 4 SMA Antenna hole x 1 HDMI x 1 DB-9 Type RS-232/422/485 x 2 RJ-45 Type 10/100/1000Base-TX x 1 3-pin terminal block x1 for 9~30 Vdc power input LED Power on/off switch x1 (Power on = Orange, Power off =N/A)	
Storage Disk Drive	2.5" SATA HDD bay x 1	
Expansion Slot	Full Size Mini card x 1 SIM card x 1 OMNI I/O connector x 1	
OS support	Windows® 8.1, Windows® 10 (64 bit), Linux Kernal 2.6.x or higher	
Mechanical		
Construction	Aluminum design (IP65 Front Frame)	
Mounting	VESA 100/Panel mount	
Dimension	16.54" x 10.43" x 2.87" (420 mm x 265 mm x 73 mm)	21.7" x 14.7" x 2.6" (550mm x 373mm x 66mm)
Carton Dimension	20.87" x 17.52" x 7.87" (530mm x 445mm x 200mm)	26.38" x 7.87" x 20.67" (670mm x 200mm x 525mm)
Gross Weight	14.96 lb (6.8 kg)	20.02 lb (9.1 Kg)
Environmental		
Operating Temperature	-4°F ~ 131°F (-20°C ~ 55°C) with 0.5 m/s airflow (Industrial Grade HDD)	
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	
Storage Humidity	90% @40°C; non-condensing	
Anti-Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	
Anti-Shock	15 G peak acceleration (11 msec. duration) – with HDD	
EMC	CE/FCC class A	
Power Supply		
DC Input	DC 9 (min.) ~ 30 (max.) V w/3-pin terminal block, ATX Power function	
LCD		
Display type	15.6" TFT-LCD, LED	21.5" TFT-LCD, LED
Max Resolution	1366(H) x 768(V)	1920(H) x 1080(V)
Max. Colors	16.7M (8 bit/color)	16.7M colors
Luminance	400 cd/m2	250 cd/m2
Viewing Angle	160 (H), 140 (V)	178 (H), 178 (V)
Back Light	LED	
Back Light MTBF (Hours)	50,000	
Touchscreen		
Type	P-CAP/ 5-wire resistive	
Light Transmission	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 2%)	P-CAP (≥85%), 5-wire Resistive (80% ± 5%)
Note	Support OMNI I/O Modules	

Note: All specifications are subject to change without notice.

OMNI Series : Modular Touch Panel Solutions

Model	OMNI-3125-SKU	OMNI-3155-SKU
System		
Processor	Intel® i5-6300U processor, 2.4 GHz Intel® Celeron® 3955U processor, 2.0 GHz	
System Memory	260-pin DDR4 SODIMM x 1, up to 16 GB	
LCD/CRT Controller	Integrated in processor	
Ethernet	Intel® I211, 10/100/1000Base-TX x 1	
I/O Port	USB 3.2 Gen 1 Type A x 4 SMA Antenna hole x 1 HDMI x 1 DB-9 Type RS-232/422/485 x 2 RJ-45 Type 10/100/1000Base-TX x 1 3-pin terminal block x1 for 9~30 Vdc power input LED Power on/off switch x1 (Power on = Orange, Power off =N/A)	
Storage Disk Drive	2.5" SATA HDD bay x 1	
Expansion Slot	Full Size Mini card x 1 SIM card x 1 OMNI I/O connector x 1	
OS support	Windows® 8.1, Windows® 10 (64 bit), Linux Kernal 2.6.x or higher	
Mechanical		
Construction	Aluminum design (IP65 Front Frame)	
Mounting	VESA 100 / Panel Mount	
Dimension	12.95" x 11.34" x 2.72" (329mm x 28mm x 69 mm)	14.53" x 12.36" x 2.79" (369mm x 314mm x 71 mm)
Carton Dimension	20.87" x 17.52" x 7.87" (530mm x 445mm x 200mm)	20.08" x 9.84" x 18.11" (510mm x 250mm x 460mm)
Gross Weight	12.34 lb (5.6 kg)	14.3 lb (6.5 kg)
Environmental		
Operating Temperature	-4°F ~ 131°F (-20°C ~ 55°C) with 0.5 m/s airflow (Industrial Grade HDD)	
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	
Storage Humidity	90% @40°C; non-condensing	
Anti-Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	
Anti-Shock	15 G peak acceleration (11 msec. duration) – with HDD	
EMC	CE/FCC class A	
Power Supply		
DC Input	DC 9 (min.) ~ 30 (max.) V w/3-pin terminal block, ATX Power function	
LCD		
Display type	12.1" TFT-LCD, LED	15" TFT-LCD, LED
Max Resolution	1024(H) x 768(V)	
Max. Colors	16.2M colors	16.2M (8bit/color)
Luminance	500 cd/m^2	300 cd/m^2
Viewing Angle	160° (H), 160° (V)	176° (H), 176° (V)
Back Light	LED	
Back Light MTBF (Hours)	50,000	70,000
Touchscreen		
Type	P-CAP/ 5-wire resistive	
Light Transmission	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)	P-CAP (90%± 2%), 5-wire Resistive (80% ± 2%)
Note	Not support OMNI I/O Modules due to chassis limitation	Support OMNI I/O Modules

Note: All specifications are subject to change without notice.

OMNI Series : Modular Touch Panel Solutions

Model	OMNI-3175-SKU	OMNI-3195-SKU
System		
Processor	Intel® i5-6300U processor, 2.4 GHz Intel® Celeron® 3955U processor, 2.0 GHz	
System Memory	260-pin DDR4 SODIMM x 1, up to 16 GB	
LCD/CRT Controller	Integrated in processor	
Ethernet	Intel® I211, 10/100/1000Base-TX x 1	
I/O Port	USB 3.2 Gen 1 Type A x 4 SMA Antenna hole x 1 HDMI x 1 DB-9 Type RS-232/422/485 x 2 RJ-45 Type 10/100/1000Base-TX x 1 3-pin terminal block x1 for 9~30 Vdc power input LED Power on/off switch x1 (Power on = Orange, Power off =N/A)	
Storage Disk Drive	2.5" SATA HDD bay x 1	
Expansion Slot	Full Size Mini card x 1 SIM card x 1 OMNI I/O connector x 1	
OS support	Windows® 8.1, Windows® 10 (64 bit), Linux kernel 2.6.x or higher	
Mechanical		
Construction	Aluminum design (IP65 Front Frame)	
Mounting	VESA 100 / Panel Mount	
Dimension	16.14" x 14.57" x 2.32" (410mm x 370mm x 59mm)	18.14" x 16.14" x 2.83" (460.8mm x 410mm x 72 mm)
Carton Dimension	20.55" x 10.31" x19.29"(522mm x 262mm x 490mm)	26.02" x 8.11" x 19.53" (661mm x 206mm x 496mm)
Gross Weight	16.28 lb (7.4 kg)	20.06 lb (9.1 kg)
Environmental		
Operating Temperature	-4°F ~ 131°F (-20°C ~ 55°C) with 0.5 m/s airflow (Industrial Grade HDD)	
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	
Storage Humidity	90% @40°C; non-condensing	
Anti-Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	
Anti-Shock	15 G peak acceleration (11 msec. duration) – with HDD	
EMC	CE/FCC class A	
Power Supply		
DC Input	DC 9 (min.) ~ 30 (max.) V w/3-pin terminal block, ATX Power function	
LCD		
Display type	17" TFT-LCD, LED	
Max Resolution	1280(H) x 1024(V)	
Max. Colors	16.7M colors (RGB 6-bits + Hi-FRC data)	
Luminance	350 cd/m^2	
Viewing Angle	170 (H), 160 (V)	
Back Light	LED	
Back Light MTBF (Hours)	50,000	
Touchscreen		
Type	P-CAP/ 5-wire resistive	
Light Transmission	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)	
Note	Support OMNI I/O Modules	

Note: All specifications are subject to change without notice.

OMNI Series : Modular Display Solutions

Model	OMNI-5155L
System	
Processor	Intel® Celeron® J1900 Processor 2.00 GHz
System Memory	DDR3L 1333 MHz SODIMM x 2 up to 8 GB
LCD/CRT Controller	—
Ethernet	Realtek PCIe Gb LAN 8111G x 2
I/O Port	USB 2.0 Type A x 2 USB 3.2 Gen 1 Type A x 1 DB-9 Type RS-232/422/485 x 1 DB-9 Type RS-232 x 1 RJ-45 Type for 10/100/1000Base-TX x 2 DB-15 x 1 for VGA HDMI x 1 Audio Jack x 1 for Line out DC Jack x1 for 12 Vdc power input
Storage Disk Drive	2.5" SATA HDD bay x 1
Expansion Slot	Internal Full-size Mini-Card x 1 / Half-size Mini-Card x 1
OS Support	Windows® 7, Windows® 8, Windows® 10, Linux kernel 2.6.x or higher
Mechanical	
Construction	
Mounting	VESA 100x100 / Panel Mount
Dimension	14.53" x 12" x 2.63" (369mm x 304mm x 67mm)
Carton Dimension	20.08" x 9.84" x 18.11" (510mm x 250mm x 460mm)
Gross Weight	12.12 lb (5.5 kg)
Environmental	
Operating Temperature	
Storage Temperature	
Storage Humidity	
Anti-Vibration	1g ram/ 5~500Hz/random Operation
Anti-Shock	
EMC	
Power Supply	
DC Input	12V DC in
LCD	
Display Type	
Max Resolution	
Max. Colors	16.2M color
Luminance	
Viewing Angle	
Back Light	
Back Light MTBF (Hours)	
Touchscreen	
Type	5-wire resistive
Light Transmission	80% ± 2%
Note	

Model	OMNI-215M
System	
Input Signal	VGA/HDMI
On Screen Display Control	5 keys OSD keypad (Up, Down, Menu, Auto, Power)
I/O Port	DB-15 VGA x 1 HDMI x 1 USB x 1 (For Enable T/S Function) Line in x 1 (For optional internal Speaker) Power Input x 1(Terminal Block 3pin)
Os Support	Windows® 7 32/64 bit, Windows® 8 32/64 bit, Windows® 10 64 bit, Linux Ubuntu 16.04
Mechanical	
Construction	IP65 aluminum front bezel & SGCC chassis
Mounting	Panel Mount / VESA 100x100 / Stand
Dimension	16.5" x 10.4" x 2.4" (420.2mm x 264.5mm x 60.2mm)
Carton Dimension	20.9" x 17.5" x 7.9" (530mm x 445mm x 200mm)
Gross Weight	14.1 lbs (6.4 kg)
Net Weight	11.2 lbs (5.1 kg)
Environmental	
Operating Temperature	14°F ~ 131°F (-10°C ~ 55°C) With 0.5m/s Airflow
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)
Storage Humidity	10%~90% @104°F (40°C); non-condensing
Anti-Vibration	1 Grms / 5~500Hz/random Operation
Anti-Shock	—
EMC	CE/FCC, Class A
Power Supply	
DC Input	DC 12~30V Power Input with 3 Pin Terminal Block
LCD	
Display Type	15.6" TFT-LCD
Max Resolution	1366 x 768
Max. Colors	16.7M
Luminance	400 cd/m²
Viewing Angle	170°(H), 160°(V)
Back Light	LED
Back Light MTBF (hours)	50,000
Touch Screen	
Type	Projective Capacitive Multi Touch or 5 Wire Resistive Touch Screen (By Model)
Light Transmission	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)
Life Time	—
Note	

Note: All specifications are subject to change without notice.

OMNI Series : Modular Display Solutions



Model	OMNI-221M	OMNI-310M	OMNI-312M
System			
Input Signal	VGA/HDMI		
On Screen Display Control	5 keys OSD keypad (Up, Down, Menu, Auto, Power)		
I/O Port	DB-15 VGA x 1 HDMI x 1 USB x 1 (For Enable T/S Function) Line in x 1 (For optional internal Speaker) Power Input x 1(Terminal Block 3pin)		
Os Support	Windows® 7 32/64 bit, Windows® 8 32/64 bit, Windows® 10 64 bit, Linux Ubuntu 16.04		
Mechanical			
Construction	IP65 aluminum front bezel & SGCC chassis		
Mounting	Panel Mount / VESA 100x100 / Stand		
Dimension	21.6" x 14.6" x 2.1" (549mm x 372mm x 53mm)	11.0" x 9.4" x 2.33" (280mm x 239.3mm x 59.1mm)	12.9" x 11.3" x 2.2" (328.5mm x 288.1mm x 55.9mm)
Carton Dimension	26.4" x 20.7" x 7.9" (670mm x 525mm x 200mm)	16.3" x 15.4" x 7.04" (415mm x 391mm x 179mm)	20.9" x 17.5" x 7.9" (530mm x 445mm x 200mm)
Gross Weight	18.5 lbs (8.4 kg)	7.9 lbs (3.6 kg)	10.4 lbs (4.7 kg)
Net Weight	15.4 lbs (7.0 kg)	1.1 lbs (2.4 kg)	7.7 lbs (3.5 kg)
Environmental			
Operating Temperature	14°F ~ 131°F (-10°C ~ 55°C) With 0.5m/s Airflow		
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)		
Storage Humidity	10%~90% @104°F (40°C); non-condensing		
Anti-Vibration	1 Grms / 5~500Hz/random Operation		
Anti-Shock	—		
EMC	CE/FCC, Class A		
Power Supply			
DC Input	DC 12~30V Power Input with 3 Pin Terminal Block		
LCD			
Display Type	21.5" TFT-LCD	10.4" TFT-LCD	12.1" TFT-LCD
Max Resolution	1920 x 1080	800 x 600	1024 x 768
Max. Colors	16.7M	16.2M	
Luminance	250 cd/m^2	230 cd/m^2	500 cd/m^2
Viewing Angle	178°(H), 178°(V)	160°(H), 130°(V)	160°(H), 160°(V)
Back Light	LED		
Back Light MTBF (hours)	50,000	30,000	50,000
Touch Screen			
Type	Projective Capacitive Multi Touch or 5 Wire Resistive Touch Screen (By Model)		
Light Transmission	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)		
Life Time	—		
Note			

Note: All specifications are subject to change without notice.

OMNI Series : Modular Display Solutions



Model	OMNI-315M	OMNI-317M	OMNI-319M
System			
Input Signal	VGA / HDMI		
On Screen Display Control	5 keys OSD keypad (Up, Down, Menu, Auto, Power)		
I/O Port	DB-15 VGA x 1 HDMI x 1 USB x 1 (For Enable T/S Function) Line in x 1 (For optional internal Speaker) Power Input x 1(Terminal Block 3pin)		
Os Support	Windows® 7 32/64 bit, Windows® 8 32/64 bit, Windows® 10 64 bit, Linux Ubuntu 16.04		
Mechanical			
Construction	IP65 aluminum front bezel & SGCC chassis		
Mounting	Panel Mount / VESA 100x100 / Stand		
Dimension	14.5" x 12.4" x 2.3" (369mm x 314mm x 58mm)	16.1" x 14.6" x 2.3" (410mm x 370mm x 59.1mm)	18.1" x 16.1" x 2.3" (460.8mm x 410mm x 59.1mm)
Carton Dimension	20.1" x 18.1" x 9.8" (510mm x 460mm x 250mm)	20.6" x 19.3" x 10.3" (522mm x 490mm x 262mm)	26.0" x 19.5" x 8.1 (661mm x 496mm x 206mm)
Gross Weight	14 lbs (6.35 kg)	14.8 lbs (6.7 kg)	18.1 lbs (8.2 kg)
Net Weight	11.2 lbs (5.1 kg)	11.7 lbs (5.3 kg)	15.2 lbs (6.9 kg)
Environmental			
Operating Temperature	14°F ~ 131°F (-10°C ~ 55°C) With 0.5m/s Airflow		
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)		
Storage Humidity	10%~90% @104°F (40°C); non-condensing		
Anti-Vibration	1 Grms / 5~500Hz/random Operation		
Anti-Shock	—		
EMC	CE/FCC, Class A		
Power Supply			
DC Input	DC 12~30V Power Input with 3 Pin Terminal Block		
LCD			
Display Type	15" TFT-LCD	17" TFT-LCD	19" TFT-LCD
Max Resolution	1024 x 768	1028 x 1024	
Max. Colors	16.2M (8bit/color)	16.7M	16.7M
Luminance	300 cd/m²	350 cd/m²	
Viewing Angle	176° (H), 176° (V)	160° (H), 140° (V)	170°(H), 160°(V)
Back Light	LED		
Back Light MTBF (hours)	70,000	50,000	
Touch Screen			
Type	Projective Capacitive Multi Touch or 5 Wire Resistive Touch Screen (By Model)		
Light Transmission	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)		
Life Time	—		
Note			

Note: All specifications are subject to change without notice.

Industrial Touch Display Solutions

Model	ACD-515D
System	
Input Signal	VGA, DVI-D
On Screen Display Control	Auto, Menu, Up, Down, LCD On/Off
I/O Connector	USB x 3 (2 on side; 1 on rear), VGA/DVI x 1, Mini-USB x 1 (for T/S), Line-out x 1, 2W speaker x 2
OS Support	Windows® XP (T/S: single point), Linux Fedora (T/S: single point), Windows® 7 (T/S: multi-point)
Mechanical	
Construction	IP65/ NEMA4 for plastic front bezel, IPX1 for plastic chassis
Mounting	VESA 75/100
Dimension	15.51" x 10.71" x 2.32" (394mm x 272mm x 59mm)
Carton Dimension	20.47" x 18.5" x 9.06" (520mm x 470mm x 230mm)
Gross Weight	11.02 lb (5 kg)
Net Weight	6.6 lb (3 kg)
Environmental	
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)
Storage Humidity	10~95% @ 40°C, non-condensing
Vibration	1 Grms/ 5~500Hz/ random operation
Shock	15 G peak acceleration (11 msec. duration)
EMC	CE/FCC class A
Power Supply	
DC Input	DC 12V with Lockable Power adapter
LCD	
Display Type	15.6" TFT-LCD, LED type
Max. Resolution	1366 x 768
Max. Colors	16.7M colors (6/8-bit for R,G,B)
Luminance	400 cd/m2
Viewing Angle	160°(H)/140°(V)
Back Light	LED
Back Light MTBF (Hours)	50,000
Touchscreen	
Type	Projected capacitive multi-touch (2-point)
Light Transmission	90%
Lifetime (Times)	—
Note	

Note: All specifications are subject to change without notice.

Network Appliances

Model	FWS-2360	FWS-2276
System		
Form Factor	Desktop Intel® Atom® Processor C3000 Series	Desktop Network Appliance
Processor	Intel® Atom™ Processor Supports Dual and Quad core	Intel® Celeron® N3350 Processor SoC
Chipset	SoC	
System Memory	DDR4 SODIMM ECC DIMM (Dual core 1 slot Quad core 2 Slot) Up to 32GB	Onboard LPDDR4 2GB memory
Network		
Ethernet	Intel® X553 (Marvell 88E1543) RJ45 x 4 Default Intel® i211 GbE x 2 (Intel® i210 SFP x 2 Optional)	Intel® i211 GbE x 4
Bypass	Supports up to 2 pairs bypass function	1 pair bypass function
Display		
Graphic Controller	—	Intel® Integrated
Connector	—	
Storage		
HDD	2.5" HDD Bay x 1	
CF/CFast/MSATA	SATA 6.0 Gb/s port x 1(Onboard eMMC up to 16GB optional)	Onboard 8GB eMMC, SATA 6.0 Gb/s port x 1
Internal/ Expansion Interface		
PCIe Slot	—	
Mini-PCIe Slot	Mini-Card socket (full-size) x 2 (1 with SIM socket)	—
KB Mouse	Reserve pin-header	—
USB	Dual Core: USB 3.2 Gen 1 x 1 + USB2.0 x 1	USB 3.2 Gen 1 x 2
Miscellaneous		
RTC	Internal RTC	
Watchdog Timer	1~255 steps by software programmable	
Software Button	—	
TPM	(TPM v1.2 9660/TPM2.0 9665 Optional)	
GPIO	(4 bits input, 4bits output optional)	
Fan	System Fan x 1	1
MTBF (Hours)	149683 Hours	166,000
Color	Black	
Environmental Parameters and Dimension		
Power Requirement	12V DC Power in connector	12V DC Power
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)	
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)	
Operating Humidity	10%~80% relative humidity, non-condensing	
Storage Humidity	10%~80% @40°C, non-condensing	
Vibration	0.5 Grms/ 5 ~ 500Hz/ operation (2.5" Hard Disk Drive) 1.5 Grms/ 5 ~ 500Hz/ non-operation	0.5 Grms/ 5 ~ 500Hz / operation (2.5" HDD) 1.5 Grms/ 5 ~ 500Hz / non operation
Shock	10 G peak acceleration (11 m sec. duration), operation, 20 G peak acceleration (11 m sec. duration), non-operation	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non operation
Dimension (W X D X H)	8.66" x 4.13" x 1.73" (220mm x 105mm x 44mm)	6.5" x 3.62" x 1.57" (165mm x 92mm x 40mm)
I/O		
Front Panel	Power LED x 1, Status LED x 1, Storage Active LED x 1, Bypass LED x 2, LAN LED x 12	Power LED x 1, Status LED x 1, HDD Active LED x 1, Bypass LED x 1, LAN LEDs x 8
Rear Panel	USB 3.2 Gen 1 Port x 2, RJ-45 Port x 6 (Optional RJ-45 x 4 + SFP x 2), RJ-45 Console x 1, 12V DC Power Input x 1, Software Reset Button x 1, Power Button x 1, (Antenna Hole x 4 Optional)	USB 3.2 Gen 1 Port x 2, RJ-45 Port x 4, RJ-45 Console x 1, 12V DC Power Input x 1, Software Programmable Button x 1, Antenna Hole x 2 Optional
Note		

Note: All specifications are subject to change without notice.

System Level Products

Network Appliances

Model	FWS-2275	FWS-2273
System		
Form Factor	Desktop Network Appliance	
Processor	Intel® Celeron® N3350 Processor SoC	
Chipset	SoC	Intel® Celeron® N3350 Processor SoC
System Memory	Onboard LPDDR4, 2GB	204-pin DDR3L SODIMM x 1, up to 8GB
Network		
Ethernet	Intel® i211 GbE x 3	Intel® i211, Gigabit Ethernet x 4 Intel® i210, SFP x 2
Bypass	—	Supports up to 2 pairs bypass function
Display		
Graphic Controller	Intel® HD graphics integrated	Intel® HD Graphics 505 Intergrated
Connector	(HDMI Connector x 1 Optional)	HDMI x 1
Storage		
HDD	—	2.5" HDD Bay x 1
CF/CFast/MSATA	Onboard eMMC 16GB (Optional up to 32GB) SATA III Port x 1 for SATA DOM Micro SD card Reader x 1	CompactFlash™ socket x 1 (Co-lay for BOM Optional CFast™ socket x 1) SATA 6.0 Gb/s port x 1
Internal/ Expansion Interface		
PCIe Slot	—	
Mini-PCIe Slot	Mini-Card Full Size Slot with SIM Socket x 1 (USB 2.0; PCIe co-lay with LAN 3)	Mini-Card socket (full-size) with SIM socket x 2
KB Mouse	—	Reserve pin-header
USB	USB 3.2 Gen 1 x 2	
Miscellaneous		
RTC	Internal RTC	
Watchdog Timer	1~255 steps by software programmable	
Software Button	GPIO Programmable push button x 1	—
TPM	(TPM2.0 9665 Optional)	(TPM v1.2 9660/TPM2.0 9665 Optional)
GPIO	4 bits input, 4bits output	Reserve internal pin header 8-bit Digital I/O interface (4-in /4-out)
Fan	—	Fanless, reserved pin header for system fan
MTBF (Hours)	550,521 Hours	109,725
Color	Black	
Environmental Parameters and Dimension		
Power Requirement	9~24 V DC Power	12V DC Power in connector
Operating Temperature	32°F ~ 122°F (0°C ~ 50°C)	32°F ~ 104°F (0°C ~ 40°C)
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)	
Operating Humidity	10%~80% relative humidity, non-condensing	
Storage Humidity	10%~80% @40°C; non-condensing	
Vibration	0.5 Grms/ 5 ~ 500Hz / operation 1.5 Grms/ 5 ~ 500Hz / non operation	0.5 Grms/ 5 ~ 500Hz / operation (2.5" HDD) 1.5 Grms/ 5 ~ 500Hz / non operation
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non operation	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non operation
Dimension (W X D X H)	4.53" x 4.53" x 1.73 " (115mm x 115mm x 44mm)	8.66" x 4.13" x 1.73" (220mm x 105mm x 44mm)
I/O		
Front Panel	USB 3.2 Gen 1 Ports x 2, LED's (3 x TOP Row, 2 x Bottom Row) x 6, Power Button with LED integrated x 1, Micro-USB Console Port x 1, RS-232/422/485 x 1, GPIO 8 bits, 4-bits input, 4-bits output Reset button x 1	Power LED x 1, Status LED x 1, Storage Active LED x 1, Bypass LED x 2, LAN LED x 12
Rear Panel	1GbE RJ45 Ports x 3, Power Input connector, lockable x 1	USB 3.2 Gen 1 Port x 2, RJ-45 Port x 4, SFP x 2, RJ-45 Console x 1, 12V DC Power Input x 1, Software Reset Button x 1, Power Button x 1, HDMI x 1, Antenna Hole x 2
Left I/O	SIM Slot x 1 + Micro-SD Slot with Cover x 1 WiFi Antenna Connector x 1 LTE Antenna Connector	—
Right I/O	WiFi Antenna Connector x 1 LTE Antenna Connector	—
Note		

Note: All specifications are subject to change without notice.

Network Appliances

Model	FWS-2272	FWS-2271
System		
Form Factor	Desktop Network Appliance	Desktop 6-port Network Appliance
Processor	Intel® Celeron® N3350 Processor SoC	Onboard Intel® N3350 processor SoC
Chipset	Intel® Celeron® N3350 Processor SoC	Integrated
System Memory	Onboard LPDDR4 1GB memory. Optional BOM SKU supports 204-pin DDR3L SODIMM x 1, up to 8GB	204-pin DDR3L 1867MHz SODIMM Up to 1, 8 GB
Network		
Ethernet	Intel® i211, Gigabit Ethernet x 4	Intel® i211 (Co-lay with Intel® i210), Gigabit Ethernet x 6 (BOM Optional 4 Ports)
Bypass	—	Supports up to 2 pairs bypass function
Display		
Graphic Controller	Intel® HD Graphics 505 Intergrated	
Connector	—	HDMI x 1
Storage		
HDD	—	2.5" HDD Bay x 1
CF/CFast/MSATA	Onboard 8GB eMMC, SATA 6.0 Gb/s port x 1, for SATA DOM	CFast™ socket x 1 (Co-lay for BOM Optional CompactFlash™ socket x 1)
Internal/ Expansion Interface		
PCIe Slot	—	
Mini-PCIe Slot	Mini-Card socket (full-size) with SIM socket x 1	Mini-Card socket (full-size) with SIM socket x 2
KB Mouse	—	Reserve pin-header
USB	USB 3.2 Gen 1 x 2	USB 3.2 Gen 1 Type A on I/O side x 2
Miscellaneous		
RTC	Internal RTC	
Watchdog Timer	1~255 steps by software programmable	
Software Button	—	GPIO Programmable push button x 1
TPM	(TPM v1.2 9660/TPM2.0 9665 Optional)	Optional TPM v1.2 9660/TPM2.0 9665
GPIO	Reserve internal pin header 8-bit Digital I/O interface (4-in /4-out)	Reserve internal pin header 8-bit Digital I/O interface (4-in /4-out)
Fan	Fanless	System Fan x 1
MTBF (Hours)	162,469	118,725
Color	Silver	White
Environmental Parameters and Dimension		
Power Requirement	12V DC Power in connector	12V DC In/ 40W power adapter x 1
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)	
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)	
Operating Humidity	10%~80% relative humidity, non-condensing	
Storage Humidity	10%~80% @40°C; non-condensing	
Vibration	0.5 Grms/ 5 ~ 500Hz / operation (2.5" HDD) 1.5 Grms/ 5 ~ 500Hz / non operation	0.5 Grms/ 5 ~ 500Hz/ operation (2.5" Hard Disk Drive) 1.5 Grms/ 5 ~ 500Hz/ non-operation
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non operation	
Dimension (W X D X H)	6.1" x 3.62" x 1.26" (155mm x 92mm x 32mm)	7.87" x 4.13" x 1.73"(200mm x 105mm x 44 mm)
I/O		
Front Panel	Power LED x 1, Status LED x 1, Storage Active LED x 1, LAN LED x 8	Bypass LED x 2, Power LED x 1, Status LED x 1, HDD Active LED x 1, LAN LED x 12
Rear Panel	USB 3.2 Gen 1 Port x 2, RJ-45 Port x 4, RJ-45 Console x 1, 12V DC Power Input x 1, Software Reset Button x 1, Power Button x 1, Antenna Hole x 2	USB 3.2 Gen 1 Port x 2, RJ-45 Port x 6 (BOM Optional RJ-45 Port x 4), RJ-45 Console x 1, 12V DC Power Input x 1, Software Programmable button x1, HDMI x 1, Power Button x 1
Note		

Note: All specifications are subject to change without notice.

System Level Products

Network Appliances

Model	FWS-7360	FWS-7830
System		
Form Factor	1U Rackmount Network Platform	
Processor	Intel® C3758 SoC Processor, optional support up to 16 core	Intel® 8th Generation Core™/ Xeon® Processors
Chipset	SoC	Intel® C246
System Memory	DDR4 1866/2133/2400 ECC Up to 64GB 218-pin DIMM/RDIMM X4	DDR4 2133/2400/2666 UDIMM Up to 64GB 288-pin DIMM x 4
Network		
Ethernet	Intel®X553 RJ45 x 2, Intel® i211 GbE x 3, SFP+ x 2 from CPU	Intel® I350 AM2 Gigabit Ethernet x 2
Bypass	Onboard 2 pairs bypass, others depend on NIM module	Depend on NIM module
NIM Slot	1	NIM Slot x3
Display		
Graphic Controller	—	Intel® Integrated
Connector	—	VGA cable (Optional)
Storage		
HDDs	2.5" HDD Bay x 2	Internal 2.5" SATA HDD x 2 or 3.5" SATA HDD x 1 (Optional)
CF/CFast/mSATA	Default SATA port x 2 (MSATA Slot X 2 Optional)	Default mSATA Slot (Optional CFast™ Socket)
Internal/ Expansion Interface		
PCIe slot	PCIe [x8] slot x 1, cannot use w/ NIM	NIM x 3 Mini PCIe Slot x 1 or mSATA x 1
Mini-PCIe slot	Default Mini-Card socket (full-size) x1 (Mini-Card socket, (full-size) with SIM socket x 1 Optional)	Mini Card x 1
IPMI	—	
Keyboard and Mouse	—	Pin-header
Universal Serial Bus	USB 3.2 Gen 1 x 2	USB 3.2 Gen 1 x 2, Box Header (2.0mm)
Miscellaneous		
RTC	Internal RTC	
Watchdog Timer	1~255 steps by software programmable	1~255 steps by software programmable, 1 sec per step
Software Button	GPIO Programmable Button x 1	GPIO Programmable push button x 1
TPM	Optional TPM v1.2 / TPM v2.0	Optional TPM v2.0
GPIO	4 bits input, 4bits output	8bits, BIOS default 4 bits input, 4bits output.
FAN	System Fan x 1	2
MTBF (Hours)	142412 Hours	TBD
Color	Black	
Environmental Parameters and Dimension		
Power Requirement	100W Flex ATX PSU	220W ATX PSU
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)	
Storage Temp.	-4°F ~ 140°F (-20°C ~ 60°C)	
Operating Humidity	10%~80% relative humidity, non-condensing	10% ~ 80%
Storage Humidity	10%~80% @40°C; non-condensing	
Vibration	0.5 Grms/ 5 ~ 500Hz / operation (2.5" HDD) 1.5 Grms/ 5 ~ 500Hz / non operation	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non operation	10G peak acceleration (11 m sec. duration), operation 20G peak acceleration (11 m sec. duration), non-operation
Dimension (W X D X H)	16.93" x 12.01" x 1.73" (430mm x 305mm x 44mm)	16.93" x 18.7" x1.73"(430mm x 475mm x 44mm)
I/O		
Front Panel	SFP+ with LED x 2, RJ45 Ethernet Port with LED x 5, USB 3.2 Gen 1 x 2, RJ45 Console x 1, Software Programmable Button x 1, Parallel LCM Display and 4 Keypad x 1, LED for Power/HDD/ Status/ Bypass x 5, NIM Slot x 1, Bypass LED x 2, Power LED x1, HDD LED x1, Status LED x1	Power LED x 1, Status LED x 1, HDD Active LED x 1, USB 3.2 Gen 1 Ports x 2, RJ-45 Console x 1, Parallel LCM display and 4 keypad x 1 (Optional w/ NIM slot), Software Programmable Switch x 1
Rear Panel	Power Switch x 1, AC Power Input x 1, Rear Expansion Slot x 1	AC Power Input x 1, Power Switch x 1, VGA port (Optional)
Note		

Note: All specifications are subject to change without notice.

Network Appliances

Model	FWS-7831	FWS-7821
System		
Form Factor	1U Rackmount Network Platform	
Processor	Intel® Xeon® processor E-2100 family for Intel® C246 Chipset Intel® Core™/ Celeron® processor for Intel® H310 Chipset	Intel® 6th/7th Generation Core™/ Xeon Processors
Chipset	Intel®C246/H310	Intel® C236
System Memory	2 x DDR4 SO DIMM/ECC Up to 32GB DDR4 1600/1866/2133 SO DIMM/ECC Up to 32GB 260-pin DIMM x 2	DDR4 1600/1866/2133/2400 UDIMM/ECC Up to 64GB 288-pin DIMM x 4
Network		
Ethernet	Intel® i211 Gigabit Ethernet x 8 or Intel® i211 Gigabit Ethernet x 6 + SFP Ethernet ports x2 (C246) Intel ® i211 Gigabit Ethernet x 6 (H310)	Intel® i211 GbE x 6 + Intel® i210 GbE x 2 (SFP) + NIM x 1(Or i211 GbE x8 +NIMx1)UDIMM/ECC
Bypass	2 Pairs	Onboard 2 pairs bypass, others depend on NIM module
NIM Slot	See the note	1
Display		
Graphic Controller	Intel® UHD Graphics 630	Intel® Integrated
Connector	(HDMI x1 Optional)	VGA cable (Optional)
Storage		
HDDs	Internal 2.5" HDD bay x 2 or (3.5" HDD bay x 1 can't use with NIM Optional)	Internal 2.5" SATA HDD x 2 or 3.5" SATA HDD x 1 (optional)
CF/CFast/mSATA	mSATA	Optional BOM CFast™ socket or mSATA slot or CF™ socket (optional)
Internal/ Expansion Interface		
PCIe slot	NIM Slot x1	Up to PCIe x 2 [x8] slots
Mini-PCIe slot	Mini-Card X 1 (PCIe[x1]+mSATA)	Mini Card x 1
IPMI	—	
Keyboard and Mouse	NA	Pin-header
Universal Serial Bus	USB 3.2 Gen 1 x 2	USB 3.2 Gen 1 x 2, Box Header (2.0mm)
Miscellaneous		
RTC	Internal RTC	
Watchdog Timer	1~255 steps by software programmable	1~255 steps by software programmable, 1 sec per step
Software Button	GPIO Programmable push button x 1	
TPM	TPM2.0 9665 (TPM v1.2 9660 optional)	TPM v1.2 9660 (TPM2.0 9665 optional)
GPIO	(4 bits input, 4 bits output optional)	4 bits input, 4bits output
FAN	2	
MTBF (Hours)	362,825	94,241
Color	Black	
Environmental Parameters and Dimension		
Power Requirement	220W ATX PSU	250W ATX PSU
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)	
Storage Temp.	-4°F ~ 140°F (-20°C ~ 60°C)	
Operating Humidity	10%~80% relative humidity, non-condensing	
Storage Humidity	10% ~ 80% @ 40°C, non-condensing	
Vibration	0.5 g rms/ 5 ~ 500Hz / operation (2.5" Hard Disk Drive) 1.5 g rms/ 5 ~ 500Hz / non operation	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation
Shock	TBD	10G peak acceleration (11 m sec. duration), operation 20G peak acceleration (11 m sec. duration), non-operation
Dimension (W X D X H)	16.93" x 7.87" x1.73"(430mm x 200mm x 44mm)	16.93" x 12.01" x 1.73" (430mm x 305mm x 44mm)
I/O		
Front Panel	Power LED x 1, Status LED x 1, HDD Active LED x 1 ,USB 3.2 Gen 1 Ports x 2 - RJ-45 Console x 1	Power LED x 1, Status LED x 1, HDD Active LED x 1, USB 3.2 Gen 1 Ports x 2, RJ-45 Console x 1, Parallel LCM display and 4 keypad x 1 (Optional w/ NIM slot), Software Programmable Switch x 1, Bypass LED X2, RJ45 X8 or RJ45 X6+SFPX 2
Rear Panel	AC Power Input x 1, Power Switch x 1, (Rear Expansion Slot x 1 Optional)	AC Power Input x 1, Power Switch x 1, VGA port (Optional), Rear Expansion Slot x 2 (2 x PCIe [x8] slots, NIM slot will be disabled if PCIe Riser supported)
Note	* Please contact AAEON for other optional specifications. Note : Need to configure riser card.	

Note: All specifications are subject to change without notice.

System Level Products

Network Appliances

Model	FWS-7820	FWS-8600
System		
Form Factor	1U Rackmount Network Platform	2U Rackmount Network Platform
Processor	Intel® 6th Generation Core™/ Xeon Processors	Dual 2nd Gen Intel® Xeon® Scalable Processors, up to 56 cores, 112 threads
Chipset	Intel® C236	Intel® C621 Chipset
System Memory	- DDR4 1600/1866/2133 UDIMM/ECC - Up to 64GB - 288-pin DIMM x 4	DDR4 2133/2400/2666 R-DIMM x 16 (8 DIMM per CPU), Up to 512 GB
Network		
Ethernet	Intel® i210 GbE x 2, Intel® 82580 x4	Intel® i211 Gigabit Ethernet x 2
Bypass	Onboard 2 pairs bypass, others depend on NIM module	Depend on NIM module
NIM Slot	4 (Max. 5 slots by project base)	NIM x 4 (Project based up to 8 slots)
Display		
Graphic Controller	Intel® Integrated	Optional support via Mini-PCIe module or IPMI
Connector	VGA cable (Optional)	Optional VGA port via module
Storage		
HDDs	Internal 3.5" SATA HDD x 1 or 2.5" SATA HDD x 2 (Optional)* *(mSATA/ CF/ CFast will be disabled if 2nd SATA HDD is used)	SATA III Port x 6 External Hotswappable 3.5" HDD Bay x 4 Internal 3.5" HDD Bay x 1, option with 2.5" HDD Bay x 2
CF/CFast/mSATA	CF socket x 1 (Optional BOM CFast™ socket or mSATA slot)	M.2 2260 M-key x 1 mSATA slot x 1 (share same slot with Mini-Card)
Internal/ Expansion Interface		
PCIe slot	PCIe [x4] signal use [x8] slot (3rd NIM slot will be disabled if PCIe Riser supported)	Optional PCIe [x16] slots x 2, via riser card
Mini-PCIe slot	—	Mini Card slot (full-size) x 1 (PCIe/SATA, USB2.0)
IPMI	—	Optional IPMI via AAEON Module (Project based)
Keyboard and Mouse	Pin-header	—
Universal Serial Bus	USB 3.2 Gen 1 x 2, Box Header (2.0mm)	USB 3.2 Gen 1 x 2 (Optional 2*10 pin USB 3.2 Gen1 x 2 Box Header 2.0mm)
Miscellaneous		
RTC	Internal RTC	
Watchdog Timer	1~255 steps by software programmable, 1 sec per step	1~255 steps by software programmable
Software Button	GPIO Programmable push button x 1	
TPM	TPM2.0 9665 (TPM v1.2 9660 optional)	(Optional TPM 2.0 9665 on board)
GPIO	8bits, BIOS default 4 bits input, 4bits output.	(4 bits input, 4bits output optional)
FAN	2	5 x Hotswappable FAN
MTBF (Hours)	71,852	192,691 Hours
Color	Black	
Environmental Parameters and Dimension		
Power Requirement	250W ATX PSU	550 ~ 600W Redundant Power
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)	
Storage Temp.	-4°F ~ 140°F (-20°C ~ 60°C)	
Operating Humidity	10% ~ 80% relative humidity, non-condensing	
Storage Humidity	10% ~ 80% @ 40°C, non-condensing	
Vibration	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation	0.5 Grms/ 5 ~ 500Hz / operation (3.5" Hard Disk Drive x 5) 1.5 Grms/ 5 ~ 500Hz / non operation
Shock	10G peak acceleration (11 m sec. duration), operation 20G peak acceleration (11 m sec. duration), non-operation	
Dimension (W X D X H)	16.93" x 18.7" x 1.73" (430mm x 475mm x 44mm)	17.48" x 22.83" x 3.46"(444mm x 580mm x 88mm)
I/O		
Front Panel	Power LED x 1, Status LED x 1, HDD Active LED x 1, USB 3.2 Gen 1 Ports x 2, RJ-45 Console x 1, Parallel LCM display and 4 keypad x 1 (Optional w/ NIM slot), Software Programmable Switch x 1, Bypass LED x 2	Power LED x 1, Status LED x 1, HDD Active LED x 1, USB 3.2 Gen 1 Ports x 2, RJ-45 Console x 1, Parallel LCM display and 4 keypad x 1, Software Programmable Button x1, RJ-45 LAN x 2, IPMI x 1 (Project based)
Rear Panel	AC Power Input x 1, Power Switch x 1, VGA port (Optional), Rear Expansion Slot x 1 (Optional PCIe [x4] signal use [x8] slot, 3rd NIM slot will be disabled if PCIe Riser supported)	AC Power Input x 2, Power Switch x 1, VGA port (Optional), Rear Expansion Slot x 2 (PCIe x [16] Option)
Note	TAIWAN EXCELLENCE 2017	

Note: All specifications are subject to change without notice.

Network Appliances

Model	ICS-6270
System	
Form Factor	DIN Rail/ Desktop
Processor	Intel® Celeron® Processor N3350 SoC
System Memory	204-pin DDR3L 1866MHz x 1, SODIMM Up to 8GB
Chipset	—
Ethernet	Intel® i211, Gigabit Ethernet x 6
Bypass	Supports up to 2 pairs
BIOS	AMI SPI Flash BIOS
Serial ATA	SATA 6.0 Gb/s port x 1, for 2.5" HDD/SSD
CFast/mSATA	CFast™ socket x 1 (co-lay mSATA)
Expansion Interface	Supports Mini-Card slot x 1 with SIM socket
USB	USB 3.2 Gen 1 x 2
Serial Port	Supports up to RS-232/422/485 COM Port x 2
Watchdog Timer	1~255 steps by software programmable
RTC	Internal RTC
System Fan	Fanless
Color	Dark Grey
Power Supply	2 Pin Terminal Block
Dimension	4.96" x 2.93" x 5.74" (126 x 74.5 x 146mm)
Power Requirement	+9 ~ 36V, 2-pin terminal block
MTBF (Hours)	101,292
Display	
Chipset	Intel® HD Graphics 500
Interface	VGA port x 1
I/O	
Front I/O Panel	RJ-45 GbE x 6, RS-232/422/485 COM Port x 2, VGA port x 1, USB 3.2 Gen 1 x 2, Software programmable button x 1, Power LED x 1, HDD LED x 1, Status LED x 1, Bypass LED x 2
Rear I/O Panel	DIN Rail/ Wallmount Lock
Top Panel	2-Pin Terminal Block +9~36VDC x 1
Environmental	
Operating Temperature	-40°F ~ 156°F (-40°C ~ 75°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	10% ~ 80% relative humidity, non-condensing
Storage Humidity	10% ~ 80% @40°C; non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz / operation (SSD) 1.5 Grms/ 5 ~ 500Hz / non operation
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non operation
Note	

Model	ZEUS-PUR0
System	
Form Factor	4U Rackmount Server System
Processor	Intel® Xeon® Skylake-SP and Cascade Lake-SP Processors
System Memory	DDR4 2133/2400/2666 R-DIMM, Up to 512 GB
Chipset	Intel® C621
Ethernet	Intel® i211 Gigabit Ethernet x 2
Bypass	Depend on NIM module
BIOS	AMI BIOS
Serial ATA	SATA II port x 6
Storage	2.5" HDD x 6 or 3.5" HDD x 6, M.2 x 1
Expansion Interface	NIM slot x 4 (Project Base NIM Slot x 8) Option front PCIe [x16] slots x 2 Option rear side PCIe [x4] x 4 (or PCIe [x8] x 2) + PCIe [x8] x 2 (Or PCIe [x16] x 1) M.2 Slot x 1 Mini PCIe x 1
Watchdog Timer	1~255 steps by software programmable
RTC	Internal RTC
System Fan	5
Front I/O Panel	Power LED x 1, Status LED x 1, HDD Active LED x 1
Rear I/O Panel	AC Power Input x 1, Power Switch x 1, VGA port (Optional), Rear Expansion Slot (Option)
Color	Black
Power Supply	800 ~1600W Redundant PSU
Dimension	(480mm x 600mm x 176mm)
Power Consumption	TBD
MTBF (Hours)	TBD
Display	
Chipset	Intel® C621
Interface	From IPMI or Mini PCIE Option
Resolution	—
Connector	VGA Option
I/O	
Serial Port	RJ-45 Console x 1
K/B and Mouse	N/A
USB	USB 3.0 x 2
Environmental	
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)
Operating Humidity	10% ~ 80% relative humidity, non-condensing
Storage Humidity	10% ~ 80% @40°C; non-condensing
Vibration	0.5 g rms/ 5 ~ 500Hz / operation (2.5" Hard Disk Drive) 1.5 g rms/ 5 ~ 500Hz / non operation
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non operation
Note	

Note: All specifications are subject to change without notice.

Turn-Key Chassis Solutions

Model	NANO-002N	NANO-002F
System		
CPU	6th gen. Intel® 14nm ULT Core™, BGA CPU, 15W TDP. i7-6600U 2C/4T GT2 2.6/3.4 GHz 4M/ i5-6300U 2C/4T GT2 2.4/3.0 GHz 3M/ i3-6100U 2C/4T GT2 2.3 GHz 3M/ Celeron® 3955U 2C/2T GT1 (f) 2.0 GHz 2M	
Chipset	Intergrated into SoC	
System Memory	SODIMM x 2, max. 32 GB, DDR4 2133/1867 MHz non-ECC, un-buffered memory	
I/O Chipset	NCT5538D	
Storage Devices	M.2 2280 M-Key slot (PCIe[x4]+SATA) x 1	
Ethernet	Realtek 8111G Giga LAN 10/100/1000Mb LAN x 2, RJ-45 x 2	
Audio	Realtek® ALC887	
Expansion Slots	M.2 2230 E-Key slot (PCIe+USB) x 1	
BIOS	128Mbit Flash ROM, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	Chassis Fan	
Wake On LAN / PXE	Yes (WOL / PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Integrated Graphics	
Resolution	HDMI 1.4 up to 4096 x 2160@24Hz	
Graphics Multi Display	HDMI+HDMI	
Environement & Power & ME		
Battery	Lithium battery	
Power Requirement	DC Power x 1 (DC: 12V~19V, wide rage:12V-5%~ 19V+10%)	
Operating Temperature	FANLESS : 0°C~40°C	FAN: 0°C ~ 50°C
Operating Humidity	20%~90%RH, non-condensing	
Certificate	CE & FCC class A	
Form Factor	NANO ITX: 4.72" x 4.72" (120mm x 120mm)	
Weight	—	
I/O		
Front I/O	USB 3.2 Gen 1 port x 2 Audio Jack x 2: Line-out (green), Mic-in (pink) COM port RS-232 On/Off Button x 1 Power LED + HD LED x1	
Rear I/O	USB 3.2 Gen 1 port x 2 HDMI Connector x 2 RJ-45 Connector x 2 Reset Button x 1, DC Power Jack x 1	
Internal I/O	M.2 2280 M-Key slot x 1 Chassis Fan connector x 1 (3-pin, p=2.00mm) Reset Switch 2-pin header x 1, power button 2-pin header x 1, M.2 2230 E-Key slot x 1	
Operating System		
OS	Windows® 7 32 bit, Windows® 7 64 bit, Windows® 8.1 64 bit, Windows® 10 64 bit, Linux Fedora* 22 (64b)	
Note		

Note: All specifications are subject to change without notice.

Turn-Key Chassis Solutions

Model	ACS-1U01-BT4	ACS-1U01-H81B
System		
CPU	Intel® Atom™ J1900 Processor (4C @ 2.00 GHz CPU, 688/854 MHz GFX, 10W TDP), Intel® Atom™ N2807 Processor (2C @ 1.58 GHz CPU, 313/750 MHz GFX, 4.3W TDP)	Intel® Haswell 22nm LGA 1150 socket Processor, Max. 65W TDPs (follow thin mini-ITX)
Chipset	—	—
System Memory	204-pin SODIMM x 2 up to 8 GB (for J1900) 204-pin SODIMM x 1 up to 4 GB (for N2807) DDR3L 1333 MHz , Non-ECC, un-buffered memory, Dual-channel memory architecture	204-pin SODIMM x 2, Max. 16GB, DDR3 1600/1333 MHz Non-ECC, un-buffered memory, Dual-channel memory architecture
I/O Chipset	Fintech 81866D	NCT6791D
Display Interface		
Chipset	Intel® Graphics Media Accelerator	
DP	VGA x 1, Up to 1920 x 1200 @60 Hz ; HDMI x 1, Up to 1920 x 1200 @60 Hz	HDMI1.4 x 1, Up to 4096 x 2160 @ 24 Hz / 2560 x 1600 @ 60 Hz DP1.2 x 1,Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz VGA x 1, Up to 1920 x 1200 @60 Hz
Storage Devices	2.5" HDD, Full-Size Mini-Card (optional)	
Network		
LAN	Realtek PCIe Gb LAN 8111G x 1	Realtek PCIe Gb LAN 8111G x 2
IO		
Front I/O	USB 2.0 port x 4 VGA x 1 On/Off Button x 1, Power LED + HD LED x 1 (COM port optional if not use VGA port)	
Rear I/O	USB 3.2 Gen 1/2.0 port x 1, USB 2.0 port x 2, Line-out (green) x 1, Line-in (blue) x 1, HDMI x 1, RJ-45 connector x 1, DC Power x 1, RS-232 connector x 1	USB 3.2 Gen 1 port x 2, USB 2.0 port x 2, Line-out (green) x 1, Mic-in (pink) x 1, HDMI x 1, DP x 1, RJ-45 connector x 2, DC Power x 1
Expansion	Full-size Mini-Card (PCIe +USB or mSATA) + SIM Card (mSATA default) x 1, Half-size Mini-Card (PCIe +USB) x 1 Full-size Mini-Card slot (mSATA default) x 1, SATA3 (6.0Gb/s) x 1, SATA2 (3.0Gb/s) x 1, SATA power connector x 1 RS-232 9-pin int. box header x 1, RS-232/422/485 9-pin box header x 1, 5-pin USB 2.0 header(p=2.00mm) x 2	Half size Mini-Card (PCIe+USB) x 1 Full-Size Mini-Card x 1, SATA3 (6.0Gb/s) x 1, SATA2 (3.0Gb/s)x 1, SATA power connector x 1 RS-232 9-pin int. box header x 1, RS/232/422/485 9-pin box header x 1, 5-pin USB 2.0 header(p=2.00mm) x 2
Indicator	Power LED x 1, HDD Active LED x 1	
Power		
Battery	Lithium battery	
Power Requirement	DC: 12V	DC: 12V~24V (± 5% wide range voltage input)
Mechanical		
Dimension (WxHxD)	8" x 8" x 1.75" (203.20mm x 203.20mm x 44.45mm)	
VESA Mounting	Wallmount	
Anti-Vibration	0.5 Grms/ 5~ 500Hz/ operation – HDD	
Anti-Shock	10 G peak acceleration (11 msec. duration)	
Environmental		
Operating temperature	32°F ~ 122°F (0°C ~ 50°C)	
Certificate	CE & FCC Class A	
Operating System		
MS Windows	Windows® 7 32/64 bit, Windows® 8.1 32/64 bit	Windows® 10 32/64 bit, Windows® 7 32/64 bit, Windows® 8.1 32/64 bit
Linux	Fedora	
Note		

Note: All specifications are subject to change without notice.

Turn-Key Chassis Solutions

Model	ACS-1U01-H110B
System	
CPU	Intel® Skylake 14nm LGA 1151 socket Processor, Max. 65W TDPs (follow thin mini-ITX)
Chipset	Intel® H110
System Memory	2 x SODIMM, Max. 32GB, DDR4 2133/1867 MHz, Non-ECC, Un-buffered
I/O Chipset	NCT6791D
Display Interface	
Chipset	Intel® HD Graphics
DP	VGA x 1, Up to 1920 x 1200 @60 Hz ; HDMI x 1, Up to 1920 x 1200 @60 Hz
Storage Devices	2.5" HDD, Full-Size Mini-Card (optional)
Network	
LAN	Realtek PCIe Gb LAN 8111G x 1
IO	
Front I/O	USB 2.0 port x 4 VGA x 1 On/Off Button x 1, Power LED + HD LED x 1, (COM port optional if not use VGA port)
Rear I/O	USB 3.2 Gen 1/2.0 port x 1, USB 2.0 port x 2, Line-out (green) x 1, Line-in (blue) x 1, HDMI x 1, RJ-45 connector x 1, DC Power x 1, RS-232 connector x 1
Expansion	Mini PCIe : Half-Size Mini-Card slot (PCIe + USB) x 1, Full-Size Mini-Card (Default mSATA, PCIe + USB optional) x 1 Storage : Full-size Mini-Card slot (mSATA default) x 1, SATA3(6.0Gb/s) x 1, SATA power connector x 1 Others : RS-232 9-pin int. box header x 1, RS/232/422/485 9-pin box header x 1, 5-pin USB 2.0 header(p=2.00mm) x 2
Indicator	Power LED x 1, HDD Active LED x 1
Power	
Battery	Lithium battery
Power Requirement	DC: 12V
Mechanical	
Dimension (WxHxD)	8" x 8" x 1.75" (203.20mm x 203.20mm x 44.45mm)
VESA Mounting	Wallmount
Anti-Vibration	0.5 Grms/ 5~ 500Hz/ operation – HDD
Anti-Shock	10 G peak acceleration (11 msec. duration)
Environmental	
Operating temperature	32°F ~ 122°F (0°C ~ 50°C)
Certificate	CE & FCC Class A
Operating System	
MS Windows	Windows® 7 32/64 bit, Windows® 8.1 32/64 bit
Linux	Fedora
Note	

Model	ACS-1U01
System	
M/B	Mini-ITX
Dimension (W x D x H)	8" x 8" x 1.75" (203.20mm x 203.20mm x 44.45mm)
Color	Black
Processor Support	TDP < 65W
Drive Bay	2.5" internal HDD bracket x 1
Front I/O	USB 2.0 Port x 4 COM/VGA Port
Button	Power Switch x 1
LED	Power LED x 1 HDD LED x 1
Other	Antenna Hole x 4
Environmental	
Operating temperature	32°F~122°F (0°C~50°C)
Note	

Note: All specifications are subject to change without notice.

Industrial Chassis — Rackmount

Model	ARC-645	ARC-645M	ARC-625M
System			
Construction	1.2 mm SECC Zinc-coated Steel	1.2mm SECC Zinc-coated Steel (Japanese Manufactured)	1.2mm SECC Zinc-Coated Steel
Storage	External: 3.5" Drive Bay x 1, 5.25" Drive Bay x 4 Internal: 3.5" Drive Bay x 2		External: 3.5" Disk Drive x 1, 5.25" CD-ROM or Removable Hard Disk Drive x 1 Internal: 3.5" Hard Disk Drive Bay x 2
System Fan	12 cm Ball Bearing Fan with Removable Filter x 1	12 cm Fan on Front Panel x 1, 8 cm Fan On Rear Side x 1	8cm Ball Bearing Fan with Removable Filter x 1
Front Panel	Power ON/OFF Switch x 1 Reset Button x 1 Power ON LED x 1 Hard Disk Drive Active LED x 1 USB Port x 4		Power ON/OFF Switch x 1 Reset Button x 1 Power ON LED x 1 Hard Disk Drive Active LED x 1 USB x 2
Rear Panel	AT Keyboard Cut-out x 1 14 Slots (including system slot), supports max. 339 mm (length) for expansion card	AT Keyboard Cut-out x 1 Reserved Cut-out for DB Connector x 4 7 Slots, supports max. 312 mm (length) for expansion card	PCI via riser card x 3, supports max. 167 mm (length) for expansion card
Color	Black		
Dimensions	19" (W) x 20.8" (D) x 7" (H) (482mm x 528mm x 177mm)	19" (W) x 7" (H) x 20.8" (D) (482mm x 177mm x 528mm)	19" (W) x 20.8" (D) x 3.5" (H) (482mm x 528mm x 88.2mm)
Carton Size	21.6" (W) x 27" (D) x 12.4" (H) (548mm x 685mm x 315mm)	21.6" (W) x 12.4" (H) x 27" (D) (548mm x 315mm x 685mm)	21.6" (W) x 27" (D) x 8.8" (H) (548mm x 685mm x 224mm)
Net Weight	26.4 lb (12 kg)		22 lb (10 kg)
Gross Weight	30.8 lb (14 kg)		26.4 lb (12 kg)
Environmental			
Operating Temperature	32°F ~ 122°F (0°C ~ 50°C)		
Storage Temperature	-4°F ~ 176°F (-20°C ~ 80°C)		
Storage Humidity	10 ~ 90% @ 40°C, non-condensing		
Vibration	0.5 Grms/ 5 ~ 500Hz/ operation (2.5" Hard Disk Drive) 1.5 Grms/ 5 ~ 500Hz/ non operation		
Shock	15 G peak acceleration (11 m sec. duration), operation 30 G peak acceleration (11 m sec. duration), non operation		
EMC	CE/FCC Class A		
Note			

Note: All specifications are subject to change without notice.

Industrial Chassis — Wallmount

Model	AMC-280M	AEC-206
System		
Construction	Heavy-duty Steel	
Storage	External: 5.25" External Drive Bay x 2 Internal: Up to 3.5" Drive Bay x 1 Optional: Two 3.5 HDD Bay Cage	External: 5.25" Drive Bay x 1 (Front Accessible) 3.5"" Drive Bay x 1 (Front Accessible) Internal: 3.5"" Drive Bay x 2
System Fan	12cm Ball Bearing Fan with Removable Filter x 1	12cm Ball Bearing Fan with Removable Filter (Flow-in) x 1
Front Panel	Power ON/OFF Switch x 1 Reset Button x 1 Power ON LED x 1 Hard Disk Drive Active LED x 1 PS/2 Keyboard Connector x 1 USB x 2	Power On/ Off Switch with LED x 1 Reset Button x 1 Hard Disk Drive Active LED x 1 USB x 2
Rear Panel	I/O Bracket provided by motherboard mfg 7 slots, supports max. 312 mm (length) for expansion card	COM x 1 Parallel x 1 Reserved Cut-out for LVDS Connector x 1 6 slots (including system slot), supports max. 339 mm (length) for expansion card
Color	White	Black
Dimensions	7.7" (W) x 17.7" (D) x 13" (H) (196mm x 450mm x 330mm)	7.7" (W) x 15.55" (D) x 8.5" (H) (196mm x 395mm x 216mm)
Carton Size	11.1" (W) x 20.3" (D) x 18" (H) (281mm x 515mm x 457mm)	12.2" (W) x 13.2" (D) x 20" (H) (310mm x 335mm x 510mm)
Net Weight	19.8 lb (9 kg)	17 lb (7.8 kg)
Gross Weight	22 lb (10 kg)	20 lb (9.2 kg)
Environmental		
Operating Temperature	32°F ~ 122°F (0°C ~ 50°C)	
Storage Temperature	-4°F ~ 176°F (-20°C ~ 80°C)	32°F ~ 167°F (0°C ~ 75°C)
Storage Humidity	10 ~ 90% @ 40°C, non-condensing	5 ~ 95%@40°C, non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz/ operation	1 Grms/ 5 ~ 500Hz/ random operation
Shock	15 G peak acceleration (11 m sec. duration), operation	15 G peak acceleration (11 msec. duration)
EMC	CE/ FCC Class A	
Note		

Note: All specifications are subject to change without notice.

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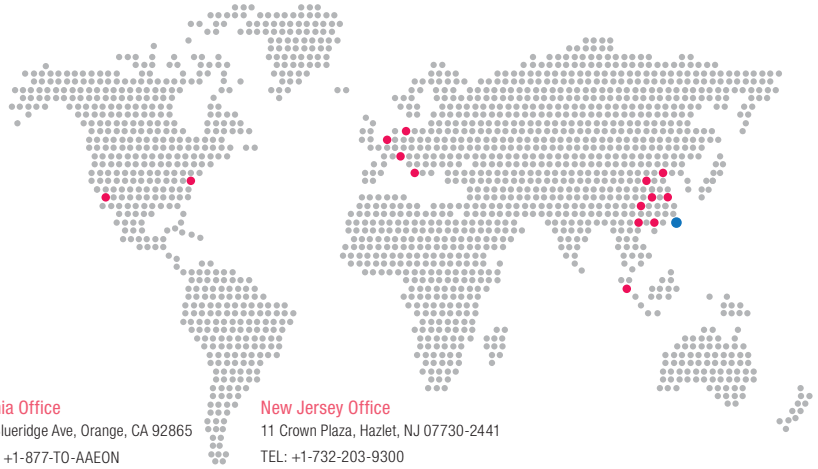

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