AAEON®
an ASUS assoc. co.
www.aaeon.com

Your Smart Computing Partner

EDGE READY PLATFORMS

2021 SELECTION GUIDE 1ST ED.

Table of Contents

Table of Contents

Table of Contents

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

Operation Strength

A member of the ASUS Group: A strong high-tech conglomerate

ASUS Technology and Financing

AAEON Design Flexibility and Domain Know-how

OEM/ODM Capability

The OEM/ODM service has been a key factor in AAEON's phenomenal growth over the past 10 years. AAEON offers design services for full custom requirements as well as modification services for its off-the-shelf products. Whatever you need, AAEON has the experience and expertise to help you create or modify products to perfectly fit your requirements.

AAEON AI Website

Introduction

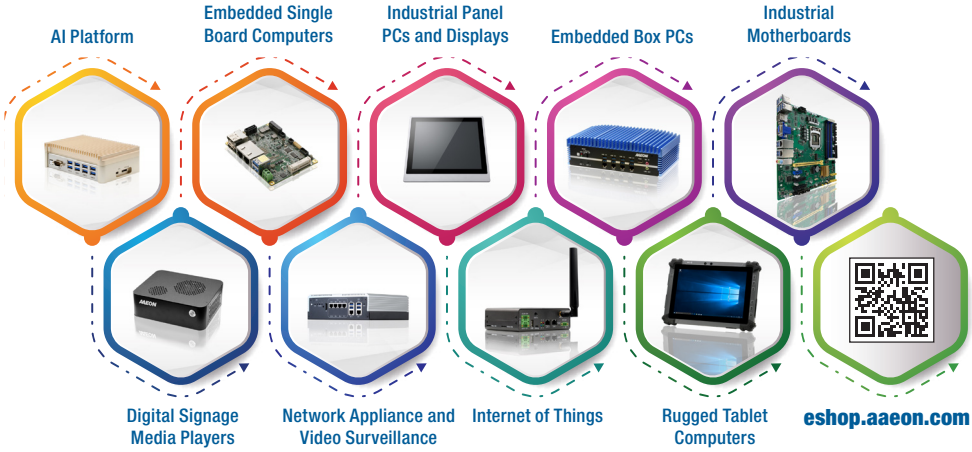
To keep ahead of the ever-growing markets and demand for AI hardware solutions, AAEON is pleased to announce our new webpage, AAEON.ai. AAEON.ai offers developers and systems integrators a centralized resource for finding the latest AI edge computing technology from AAEON.

Market analysts have consistently pointed to expanded growth and deployment of Industry 4.0 technologies, especially AI edge computing, in various vertical markets. AAEON.ai collects all of AAEON's rugged, compact, industrial grade AI edge solutions in one convenient location. From boards and systems to AI accelerator modules, AI developers and systems integrators can easily find the platforms that meet their project, budget and performance needs. AAEON.ai will also feature solutions partners, allowing visitors to connect with local vendors and software providers, and building an AI ecosystem designed to make creating and deploying AI applications easier than ever. Visitors to AAEON.ai will also have a chance to learn about the latest news and browse a library of application stories and white papers of real-world applications using AAEON technology.

Visit AAEON.ai today and explore the latest in AI Edge technology from AAEON!

Shop Online for Prompt Global Service

AAEON eShop offers customers a convenient way to quickly place orders from a selection of our latest and most popular IPC, AI and Edge Computing platforms. Orders are processed and shipped within two working days on all in stock items, with 50% off worldwide shipping on all orders over US$500. Customers can also order any accessories or configurations listed on the AAEON.com product page through eShop. Registering an account on eShop allows customers access to benefits including managing multiple shipping addresses, order tracking, price drop and in stock notifications and more! Visit AAEON eShop today at eshop.aaeon.com.



AAEON eShop Benefits

Fast Processing

eShop brings you the convenience of fast order processing. Orders are processed and shipped within two working days for all in-stock items.

Easy Payment

eShop supports payment options including credit card, PayPal™ and even wire transfer. (Advanced notification is needed when using wire transfer.)

50% off Shipping

Save more when you shop more with eShop! Receive 50% off global shipping on all eShop orders over US$500.

Official Warranty

All products sold on eShop are backed by the same official warranty and industry leading support offered on every AAEON product.

Flexible Service

Purchase any product accessory or configuration listed on the AAEON.com product page, including processor, memory, storage and more. Contact AAEON eShop service representatives for more details.(eShop@aaeon.com)

Join Us Now, Enjoy Regular Promotions.
https://eshop.aaeon.com/

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

AAEON Embedded OS Solutions

Chipset	Windows® Embedded Standard 2009 (Note 1)	Windows® Embedded Standard 7 (Note 2)	Windows® Embedded 8 Standard	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

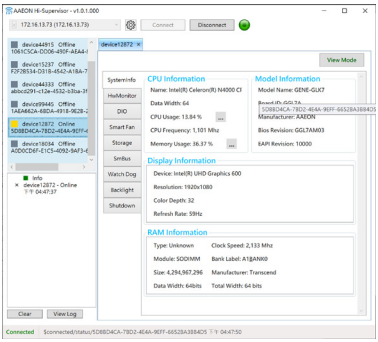
AAEON's Embedded OS Solution/Hi-Supervisor

Embedded OS Main Features

OS Family	Windows® Embedded Standard	Windows® Embedded POS Ready	Windows® Embedded Enterprise
Features	Full Customization	Simple Installation	Full Function
Windows® Product Sku	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 LTSC 1607/1809/ 2021
CPU Type	x86	x86	x86
Development Tool	Customization Image	CD Installation	CD Installation
Development Time	Short	None	None
Maintenance Cost	Middle	Low	Low
Embedded Features	Custom Shell/ EWF/ FBWF/ USB Boot/ HORM	Custom Shell/ FBWF/ USB Boot	Standard Shell UWF

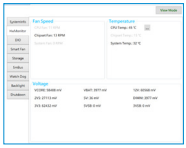
AAEON Hi-Supervisor

Hi-Supervisor is a remote hardware monitor application for Windows based on MQTT protocol. This software allows users to get device status and set device configurations like GPIO, Fan, Watch Dog Timer, SMBus, .., etc. It supports remote reboot and shutdown, too. Hi-Supervisor supports AAEON Windows platforms which support Hi-Safe. Users can set warning thresholds to acknowledge users abnormal conditions by e-mail.



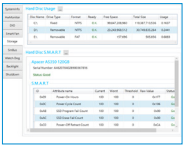
Hi-Supervisor Advantages

- **Support Hi-Safe full functions remotely**
- **Customized support**
- **Support Azure IoT Central**



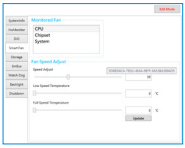
Hardware Monitor:

Retrieves fan, temperature and voltage data

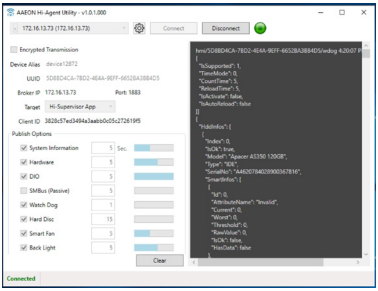


Hard Disc:

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

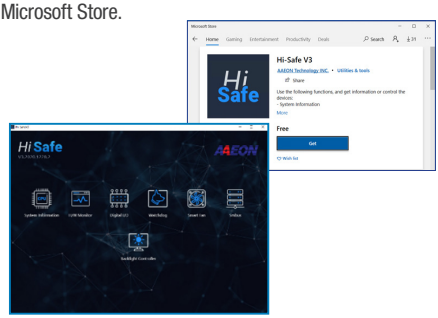


Remote Control Fan



AAEON Hi-Safe

Hi-Safe is a powerful, free program which provides SDKs for systems and UIs running Microsoft® Windows® operating systems. Hi-Safe controls system hardware by utilizing the Windows Management Interface, providing a safe and standard interface for Windows machines. Hi-Safe allows end users to easily develop their own UI software to monitor vital system components such as the processor, RAM and display. It also provides interface and functionality for Hardware Monitor, Digital I/O, Watchdog timer, Smart Fan settings, SM Bus, and backlight controller for LVDS and eDP. With the SDK user interface, no coding is needed, and customers can create their own user interface by using the function codes provided by AAEON. Customers can download the Hi-Safe V3 application directly from the Microsoft Store.



Hi-Safe V3 Advantages

- Modern and Flexible User Interface
- Easy and Friendly to Use
- Safe Operation Control for Windows

System Information:

Receives CPU, display and RAM information

Smart Fan:

Supports multi-stage adjustment of temperature and speed controls

Hardware Monitor:

Receives super I/O, fan, temperature and voltage data

SM Bus:

Reads and writes to SMBus device and detects SMBus base address automatically

DIO:

Obtains DIO information: sets the pin direction and pin data

Backlight Controller:

Controls LVDS or eDP display

Watchdog:

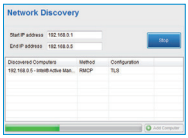
Sets the system reboot timer

AAEON Hi-Manager

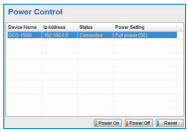
Hi-Manager is a tool based on the Intel® Active Management Technology 12.0 (iAMT 12.0) and has backward compatibility with earlier versions of iAMT. This allows users to locate all iAMT devices within the intranet, power On/Off target devices remotely, set power On/Off scheduling, arrange device groupings 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

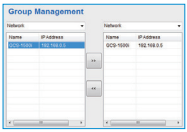
- Easy-to-use and build custom applications
- Supports AAEON products with iAMT
- In-depth technical support



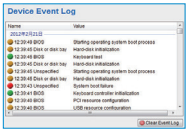
Network Discovery:
AMT device discovery



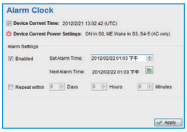
Power Control:
Powers On/Off the target device



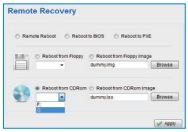
Group Management:
Arrange devices in this function



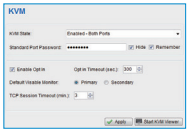
Event Log:
Logs boot records of the selected device



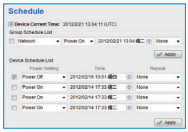
Alarm Clock:
Sets timer to wake up a sleeping device



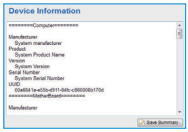
Remote Recovery:
Mounts boot image or physical CD-ROM to target device



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	M67/ Q77/ QM77/ HM76/ B75A/ Q87/ QM87/QM170/Q170/Q370/ Q470/C246
Intel® AMT Version	7.0/8.0/9.0/10.0/11.0/12.0/14.0
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	✓

AAEON HERO Software Solutions

AAEON continues to innovate in providing end-to-end solutions for industrial computing and network applications with our High Efficiency, Reliable and Optimal (HERO) software solutions. HERO software solutions leverage our expertise and experience with our containerized web app, the HERO Device Management Center (HERO DMC), and native edge device software, the HERO Agent, HERO SDK, and HERO Gateway. Available pre-loaded on a selection of AAEON platforms, this software infrastructure allows users to monitor several devices and sensors from anywhere thanks to cloud-based technology and edge computing.

Benefits

- Easy to use Web Based Client Dashboard Graphic Interface
- Account Management support
- Device and Group Management support
- MQTT protocol and RESTful API for reliable cloud connectivity
- Event based alerts sent out by email or messenger service
- Easy to deploy and manage
- Factory Configured to work with your devices from Day 1
- Transport Encryption with TLS/SSL
- Remote Device Control Support
- On-Line Device Status Report
- Export Report Support

HERO Agent and SDK

At the center of the AAEON HERO Device Management Center, HERO Agent and SDK is the software powering HERO Gateway, providing the link between edge and cloud. HERO Agent provides data collection from edge devices and external sensors connected with the gateway and sends that information securely to the HERO DMC service. AAEON offers the HERO Agent and SDK software pre-loaded on specially selected AAEON embedded platforms as the HERO Gateway solution, configurable to work with the devices and sensors your facility uses. HERO Agent and SDK software is also available separately to be installed by the user.

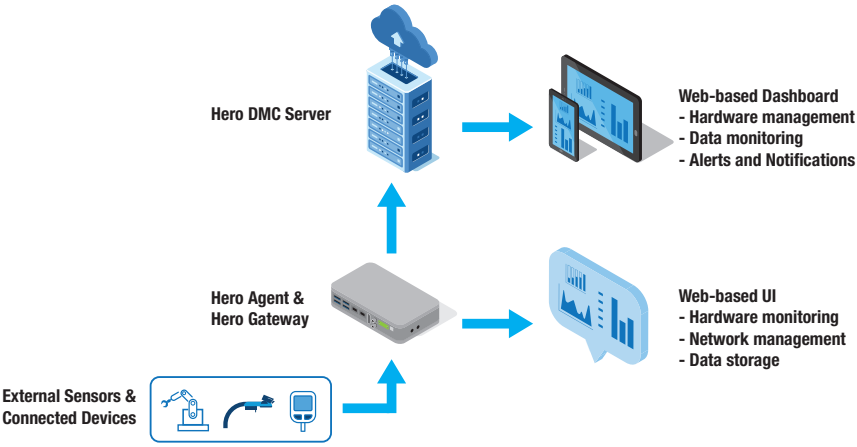
HERO Gateway

AAEON HERO Gateway is the total hardware solution utilizing AAEON embedded hardware with HERO Agent pre-installed. HERO Gateway utilizes protocols such as MQTT and OPC UA to send data securely to HERO DMC, and integrates easily with public cloud services including Microsoft Azure and AWS IoT Core. HERO Gateway devices are 4G-LTE compatible, allowing flexible connectivity with HERO DMC. With HERO Agent, the device is easily managed through the Dashboard, a web-based interface which features tools such as Device Map and Data Visualization, node device management, database and network management. Data stored on HERO Gateway can also be accessed and managed securely through the Dashboard. AAEON can also provide service for adding customized RESTful API to assist customers who wish to implement an app to manage their HERO Gateway.

HERO Device Management Center

The AAEON HERO Device Management Center (DMC) is a dockerized web application which can be deployed on Linux-based and Windows-based environments. Receiving information from HERO Agent and the HERO Gateway, HERO DMC provides a feature-rich web-based dashboard for managing devices, sensors and nodes connected to HERO Gateway as well as managing the gateway itself. Utilizing M2M technology such as MQTT, HERO DMC allows users to monitor conditions live, or set up event alerts sent out via email or messenger services to stay ahead of any situation. If you want to keep your data on your local storage device, HERO Device Management Center can also be deployed to your private cloud without problem.

AAEON HERO Software Solutions



Use Case: Smart Manufacturing

AAEON's HERO DMC and HERO Gateway are real world proven technologies, having been deployed in applications such as Smart Factory Monitoring. Connecting with machine controllers and environmental monitors, the HERO Gateway can provide raw data locally, while the web-based monitor provides a simple interface to check the status of manufacturing equipment as well as provide alerts for temperature and humidity abnormalities, helping to maintain a controlled environment for sensitive processes.

Supported OS

HERO Agent and SDK: Debian 9, Ubuntu 16.04, CentOS 7, OpenSUSE Leap, Fedora 21 and above

HERO Gateway: Debian 9 and above

HERO DMC: Linux-based server with container support, Windows Server 2016 and above

Supported Products

Board:

- AAEON COM Express Modules
- AAEON GENE Boards
- AAEON PICO Boards
- AAEON EPIC boards
- AAEON Industrial Motherboards

System:

- BOXER-6405, BOXER-6841M, BOXER-6842M, BOXER-6450-TGU, BOXER-8000 series

UP Board:

- UP Xtreme, UP Xtreme Lite, UPX-Edge, UPX-TGL01, UP-APL03

HERO DMC Edge Server

Introduction

As AIOT deployment often requires connecting hundreds of thousands of devices spread over multiple sites, it is essential to track, monitor, and manage connected industrial AIOT devices. Users need to ensure devices work properly and securely after they have been deployed without physical site visits. Secure device access is essential for monitoring, detection, management, and remotely performing critical actions.

HERO DMC Server makes it easy to onboard, visualize, operate, and manage your AIOT devices. With DMC's friendly GUI, users can monitor device health and take real-time actions to reboot/ power off, and send app updates on-site and remotely.

Features

Cloud-Native Application:

HERO DMC Edge Server is a combination of many Cloud-Native applications. It uses Kubernetes[1] as its kernel for automating deployment, scaling, and management of containerized applications. For MLOps supprt, Kubeflow is built in HERO DMC Edge Server.

Kubeflow is dedicated to making deployments of machine learning (ML) workflows on Kubernetes simple, portable and scalable. To ensure the correctness of application, the other 2 famous open source projects, Harbor and Notary, are also included. Based on this design, users can use HERO DMC Edge Server to do model training, conversion, and application encapsulation easily. It also can deploy AI applications to all the edge devices at once. All steps in the pipeline are programmable by using Kubeflow API. In terms of Cloud-Native technology, AAEON perfectly integrates the relevant technologies required by the AI application market.

Web-based Operation:

HERO DMC Edge Server provides a Web UI to manage devices and deploy applications. The Web UI supports HTTPS for security.

Management Capability:

HERO DMC Edge Server can manage up to 1000 devices. Each device has a software agent installed. The agent will send different messages like the heartbeat, System Information, and Hardware Monitor Data to the Edge Server periodically. The intervals of sending messages can be customized. The minimum interval can be 1 second. The Edge Server can handle 3000 messages/second, and the size of each message is less than 1 KB.

Role-based Access Control:

The RBAC significantly reduces the risk of accidental and unauthorized management, changements, and deployments. Admin users of the HERO HDMC can assign Roles with limited access, based on the responsibility of the user and required tasks. Role assignments reduce the risk of accidents, such as deploying beta software to production devices.

HERO DMC supports different types of user roles: "HDMC Admin" and "Normal User". The "HDMC Admin" account has the highest permission level and can create "Organization Admin".

Hardware Monitor:

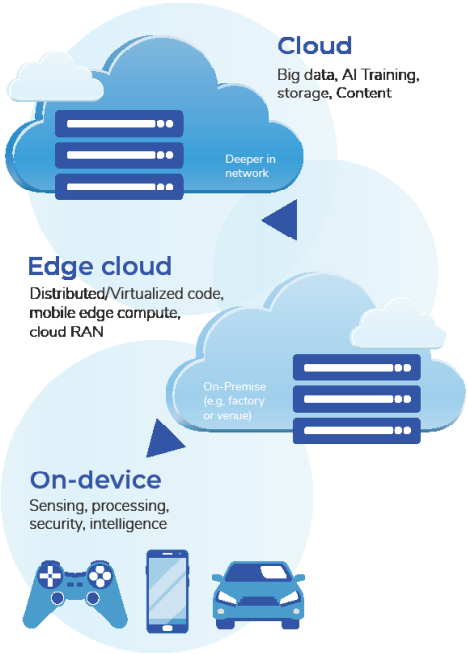
The built-in dashboard supports several types of UI including gauge, progress bar, HTML, picture, to present live and statistical device data on the dashboard. The data was collected by HERO Agent.

Remote Device Control:

HERO DMC provies an in-band control to reboot or power off the devices from the Web UI.

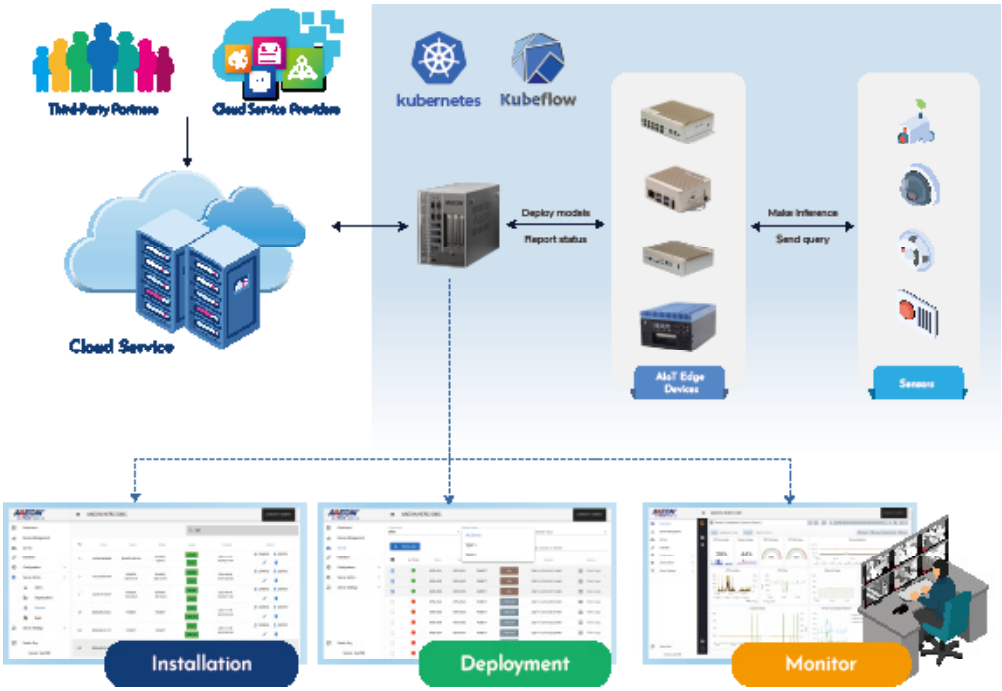
Application Deployment:

HERO DMC Edge Server applies the cloud-native application technology designed for a cloud computing architecture to provide users the ability to deploy/update applications from HERO DMC Edge Server without really touching the device.



[1] Kubernetes is an open-source system maintained by the Linux Foundation

HERO DMC Edge Server



Expandability of Application Registry:

HERO DMC Edge Server has integrated Harbor[2] as the private docker registry. Harbor is an open-source registry to store Docker images and is easy to integrate and expand the cloud-native applications from other sources. All the applications to be deployed to devices should be uploaded to the Harbor in Docker image format. Harbor also provides a Web interface for users to manage Docker images.

Secure Enhanced Application:

When deploying Docker images through the network, content trust is a central concern about security. The devices on the network need to verify the integrity and publisher of the image from HERO DMC Edge Server. HERO DMC Edge Server also has a built-in Notary server[3] to handle Docker Content Trust.

Storage:

To access a physical storage in Kubernetes clusters, the user needs to declare the storage as a PV and create a PVC to match it. To lower the effort on declaring physical storages, the HERO DMC Edge Server provides a default PV to specify the physical storage in the built-in NFS server. The user can easily use the physical storage for machine learning.

Hardware Requirement

Minimum:

- Intel® Core™ i5 CPU @ 2.10GHz
- 24 GB RAM or more
- 256 GB Storage (Hard Drive or Solid State Driver)

Common:

- Intel® Core™ i7 CPU @ 3.20GHz or above
- 32 GB Ram or more
- 512 GB Storage or more (Hard Drive or Solid State Driver)

[2] Harbor is an open-source registry software maintained by the Linux Foundation.

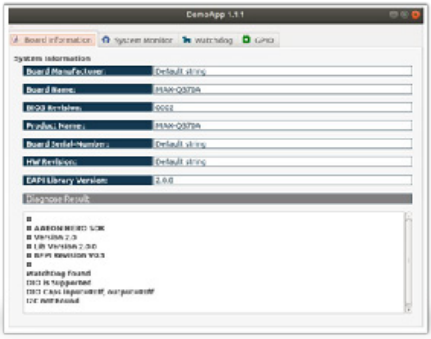
[3] Notary server is the content trust machism maintained by Docker, Inc.

HERO SDK

HERO SDK from AAEON is an innovative new toolkit designed to help developers with monitoring and controlling hardware on AAEON platforms. HERO SDK helps speed up development time and enable developers to easily migrate their application between AAEON platforms. This is achieved through leveraging powerful features and supporting compatibility with technologies including EAPI (Embedded Application Programming Interface) and WMI (Windows Management Instrumentation). AAEON HERO SDK is available in three packages: HERO SDK Basic, HERO SDK Standard, and HERO SDK Standard+.

HERO SDK provides developers with a powerful set of functions:

- Initialization Functions
- Hardware Monitoring Functions
- Backlight Settings and Configuration
- Storage Settings and Configuration
- I2C Bus Functions
- WATCHDOG Timer Control and Settings
- GPIO Functions
- Smart Fan Controls
- WMI Compatibility
- Network Management APIs
  - Network Device Monitoring: Destination IP, Destination MAC, Port Traffic statistics
  - Ethernet Port Control: PoE Power Cycle, Network Interface, IP/MAC Binding/Filtering



HERO SDK Benefits:

Easy Installation

Easy to set up and install with Linux OS.

Less Workload

Allow Hardware Control without having to study system specs.

Flexible Compatibility

Compatible with EAPI (Embedded Application Programming Interface) and deployable on AAEON products running Debian, Ubuntu, CentOS, openSUSE, and Fedora distributions of Linux.

Jump Start

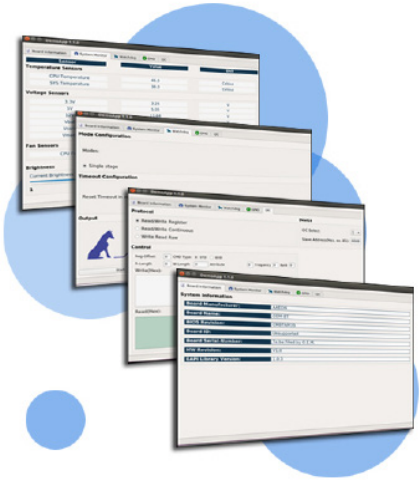
Demo Apps, CLI Test Tool, and Easy to use Documentation to help get you started quickly.

HERO SDK is available in three packages, designed to provide you with flexible options to best suit the needs of your application.

HERO SDK Basic

Available for free, HERO SDK Basic is compatible with Ubuntu 16.04 and features the CLI Tool for testing basic functions. HERO SDK Basic also features the following:

- Hardware Monitor
- WatchDog Timer
- DIO, SM Bus, Fan, and Backlight Control



HERO SDK Standard

HERO SDK Standard includes all the features of HERO SDK Basic, and expands them with support for multiple Linux distributions as well as the following:

- Free 24-hour technical support
- Demo Apps with source code
- Multi Linux Support
- And more features…

HERO SDK Standard+

HERO SDK Standard+ expands on the HERO SDK Standard product to provide even greater functionality and value. Included are:

- Complete custom SDK
- Extended Warranty Service

HERO SDK is available by request for AAEON platforms with Android OS. Please contact your AAEON sales rep or supplier for more details. Please note, HERO SDK for systems other than the above mentioned is only supported for Debian, Ubuntu, CentOS, openSUSE, Fedora and Yocto distributions of Linux..

Support Platforms

Intel® 6th-11th Generation Processors :

- Apollo Lake
- Bay Trail
- Sky Lake
- Kaby Lake
- Gemini Lake
- Whiskey Lake
- Coffee Lake Refresh

Note: HERO SDK Basic version is available to download for free. Driver installation is required and the device drivers are not included in the HERO SDK. Please contact your representative to get per-project device drivers.

Note: Please contact your representative for the detailed HERO SDK platform support list

AAEON Customized Linux(ACLinux) Service

AAEON Customized Linux(ACLinux) Service

AAEON provides Linux customization services for customers to accelerate time-to-market and reduce the cost of development time. System and multimedia performance are also improved in ACLinux. AAEON also works with global partners to design and develop security solutions into ACLinux for helping customers to protect data assets easily.

Features

- Support Secure Boot
- Storage Space Optimization
- Support Data Encryption on storage
- Support Mender OTA
- Enhance System Performance
- Enhance Multimedia Performance
- Support Trust Computing Technology
- Support HERO SDK for controlling and monitoring hardware & I/O status

Customized Linux on Multiple OS

AAEON helps customers to customize Linux based on different distributions, ex. Debian, Ubuntu, CentOS, openSUSE, Fedora, Yocto distributions of Linux and Nvidia Jetpack SDK.

OTA

OTA function is an important feature in the IoT Industry. AAEON works with partners to integrate OTA functions for customers who need to update OS remotely. Currently the Nvidia Jetpack SDK and Yocto Linux can be supported.

AAEON Customized Linux(ACLinux) Service

Security

Secure Boot:

AAEON works with SoC vendors to help customers to enable Secure Boot on AAEON devices for preventing execution of unauthorized boot codes.

Disk Encrytion:

AAEON helps customers to encrypt a whole disk or partition to protect the data it contains via LUKS before shipping.

Trust Computing Technology:

Security is an important feature in the IoT Industry. AAEON works with partners to integrate Trust Computing Technology for increasing the privacy and safety of customers' data.

- Secure Data Collection
- Sensitive Data Encryption
- Confidential AI Model Protection
- Application Isolation via Sandboxing
- Zero Trusted Secure Communication
- Cloud Native Computing Compliant

Supported SoC vendor & Platform

NVIDIA:

- NVIDIA Jeston - Nano,TX2, TX2 NX, Xavier NX, AGX Xavier

Intel:

- Elkhart Lake, Tiger Lake, Comet Lake, Coffee Lake, Whiskey Lake, Apollo Lake, Cherry Trail and Bay Trail

TI:

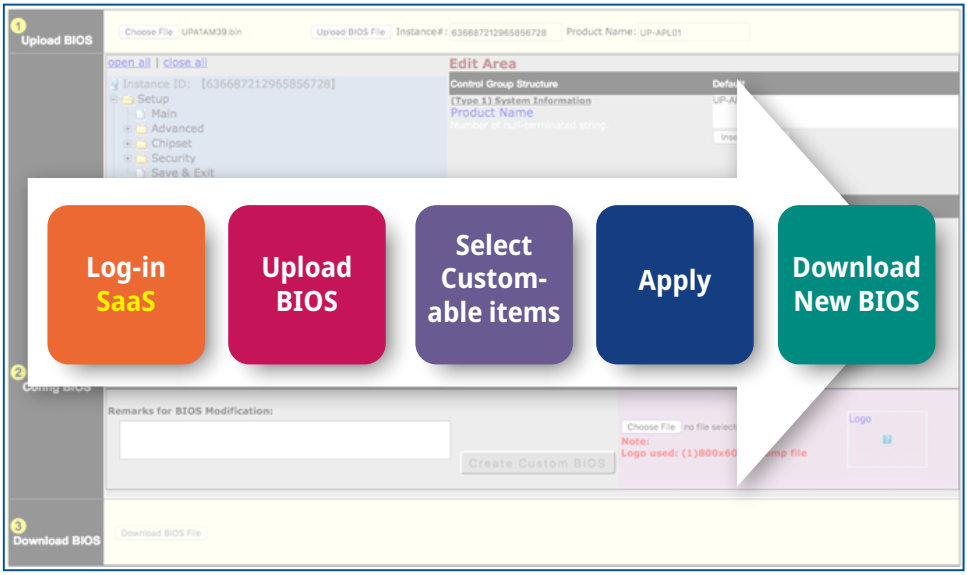
- AM335X

NXP:

- i.MX8MQ, i.MX8MM

AAEON BIOX

BIOX is a BIOS customization SaaS solution for AAEON products. Most field applications and deployments require BIOS customization for platforms and systems to meet a customer's requirements. Often this requires constant communication with vendors, possibly delaying deployment or slowing down maintenance. With BIOX, the end user can customize the BIOS on their own, anytime, in five simple steps, without the need to contact a service rep.



BIOX Advantages

Modern and Flexible User Interface

- Logo
- Boot Order
- Setup Values
- SMBIOS Strings
- Password Management

Version Control Access

- Retrievable
- Re-customizable
- History Traceable

AAEON Software Support Portal:

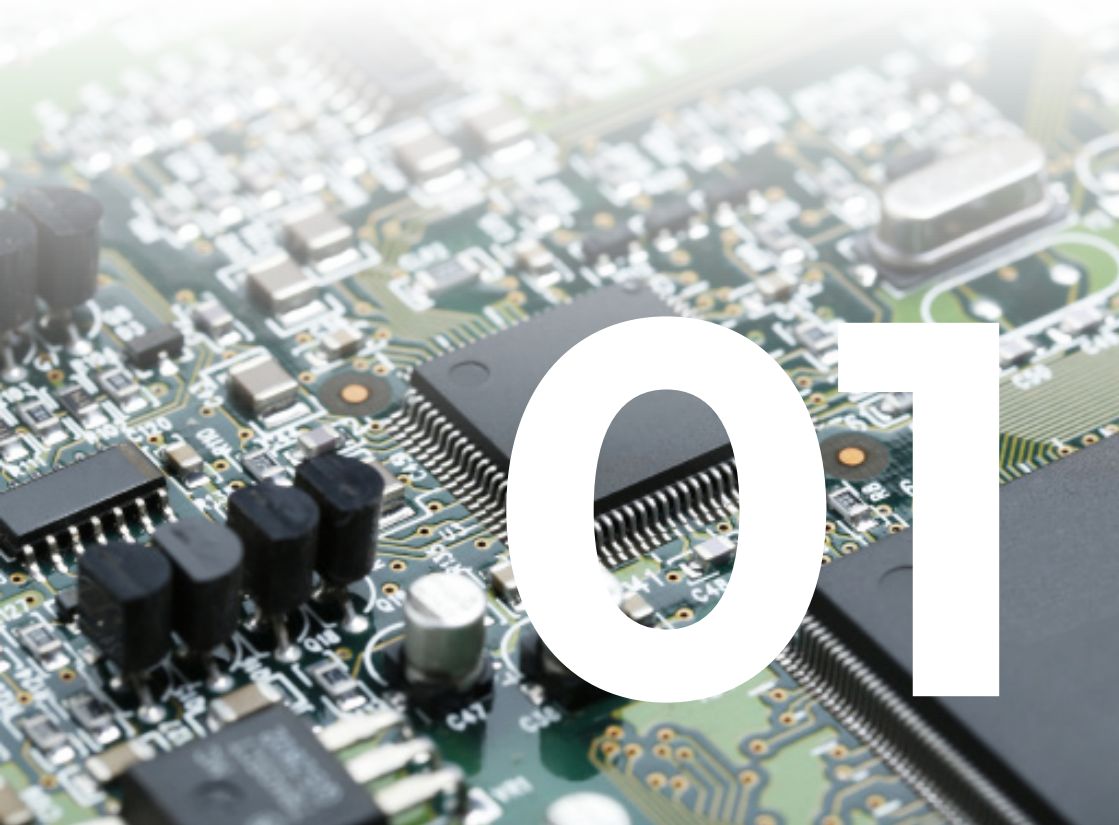
https://aaeoncm.github.io/

Focus · Agility · Competitiveness

www.aaeon.com

01

Embedded Platforms



AI Edge Computing Solutions



Model	PICO-APL3-A10-FAI1
System	
Form Factor	Pico-ITX
CPU	Intel® Atom™ Processor SoC
CPU Frequency	Up to 2.4 GHz
Chipset	Intel® Atom™ Processor SoC
Memory Type	Onboard DDR3L 4GB
Max. Memory Capacity	4GB
BIOS	AMI/SPI
Wake On LAN	Yes
Watchdog Timer	255 Levels
Power Requirement	+12V, AT/ATX
Power Supply Type	Lockable
Power Consumption (Typical)	Intel® N4200 processor, DDR3L 4GB, 1.1A@12V
System Cooling	Heatsink
Dimension	3.94" x 2.84" (100 mm x 72 mm)
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)	110,000
Certification	CE,FCC
Display	
Chipset	Intel® Atom™ Processor SoC
Resolution	HDMI 1.4b: 3840 x 2160@30Hz
LCD Interface	—
I/O	
Storage/SSD	SATA 6.0Gb/s x 1, 5V/12V Power reserved M.2 2280 (B Key) x 1 eMMC 32GB
Ethernet	Realtek 8111G x 1
USB Port	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
Audio	—
DIO	4-bit
Expansion Slot	M.2 2230 x 1 (E-Key) I2C, Smbus
SIM	—
TPM	—
Touch	—
Note	

Note: All specifications are subject to change without notice.

AI Edge Computing Solutions



Model	AI Core XM 2280	AI Core X	AI Core XP4/XP8
System			
IC	Intel® Movidius™ Myriad™ X VPU x 2, MA2485	Intel® Movidius™ Myriad™ X VPU, MA2485	Asmedia PCIe switch, Intel® Movidius™ Myriad™ X VPU
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	3.15" x 0.87" (80 mm x 22 mm)	2.01" x 1.18" (51 mm x 30 mm)	4.37" x 6.57" (111 mm x 167 mm)
Certification	CE/FCC Class A		
Operating Temperature	32°F ~ 122°F (0°C ~ 50°C)	32 °F ~ 140 °F (0 °C ~ 60 °C)	32°F ~ 122°F (0°C ~ 50°C)
Operating Humidity	10% ~ 80% relative humidity, 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		
NPU Performance	0.35 TOPS		
Overall Power Consumption	0.5 W		
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: All specifications are subject to change without notice.



Model	M2AI-2242-720	M2AI-2280-720	Mini-AI-720
System			
IC	Kneron KL720		
Type	ARM CM & DSP		
Support Framework	Pytorch, ONNX, TensorFlow 1.6, Tensorflow lite, Keras, Caffe		
Support Model	Resnet, GoogleNet, YOLO, Tiny YOLO, MobileNet-SSD, DenseNet, RNN, LSTM		
Memory Type	LPDDR3		
NPU Performance	1.4 TOPS		
Overall Power Consumption	0.9 W		
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.

Gateway Board & Expansion Board

Model	AIOT-ILND01
System	
Dimension	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

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	
Dimension	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	

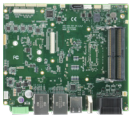
Note: All specifications are subject to change without notice.

Gateway Board & Expansion Board

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 x 1	
Battery	3V CR2032 Lithium battery for RTC	
Power Requirement	DC9-30V	DC9-30V
Power Consumption (Typical)	2.28 W	1.8 W
Dimension	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 1	USB 2.0 x 2
GPIO	4 LED control	
Note		

Note: All specifications are subject to change without notice.

Gateway Board & Expansion Board



Model	SRT-IMX8P	SRT-TG01	SRT-APLC
System			
Processor	ARM NXP i.MX8M Plus Quad-Core Cortex-A53 1.6GHz Processor	11th Generation Core Intel® i7-1185G7E SoC 11th Generation Core Inte® i5-1145G7E SoC 11th Generation Core Inte® i3-1115G4E SoC 11th Generation Core Inte® Celeron 6305E SoC	Intel Atom X5-E3940 Processor SoC / Intel HD 500 Graphics
Memory	Onboard DDR4L 2GB (Optional 4GB)	2 x DDR4 3200MHz, SO-DIMM Up to 64GB	Onboard LPDDR4 1866MHz 4GB / 8GB (Optional)
Storage	eMMC 16G (Optional 32GB)	M.2 2280 M Key slot x 1 (PCIex4) 2.5"" SATA SSD/HDD bay x 1	eMMC 5.1 32GB / 64GB (Optional)
Real Time Clock	RTC x 1, with 3V CR2032 Lithium battery	RTC x 1, with 3V CR2032 Lithium battery	RTC x 1, with 3V CR2032 Lithium battery
Security	TPM 2.0		—
Indicators	Programmable LED control x 7	—	
Cellular	Mini PCIe Connector x 1 (USB signal)	M.2 3052 B Key slot x 1 (4G/5G)	—
Wireless Lan	Mini PCIe Connector x 1 (USB signal)	M.2 2230 E Key slot x 1 (Wifi 802.11 ac/b/g/n, BT 5.0)	—
Operating System	Debian 10	Windows 10 IoT Enterprise / Linux (by request)	
Support Protocol	Modbus / MQTT Library (by request)	—	
I/O Interfaces			
Serial Port	RS-232/422/485 switchable x 2, Phoenix Connector	RS-232/422/485 x 4, Wafer Box	—
Ethernet	Gigabit Ethernet x 2, RJ-45	Intel ®i211-LM,10/100/1000Base x 1,RJ45 Intel ®i219-LM,10/100/1000Base x 1,RJ45 Intel ®i225-LM,10/100/1000Base x 1,RJ45 (Support Vpro)	Gigabit Ethernet x 1, RJ-45
USB	USB 3.0 Type-A x 2	USB3.1 Gen 2 x 1, Type A USB3.1 Gen 1 x 3, Type A	USB 3.0 x 1, Type A
ADC	—		
DI/DO	—	8 bit, Phoenix Connector	—
CAN Bus	CAN-FD x 2 CH, Phoenix Connector	CAN 2.0 B x 2 CH, Phoenix Connector	—
Display	HDMI x1 (Output)	HDMI 2.0b x 1 Dual Channel 18/24bit LVDS/eDP x 1	HDMI 1.4 x 1 (Output)
Power Connector	2 Pin 3.81mm Pitch Phoenix Connector	2 Pin Phoenix Connector	DC Jack
Debug Port	Micro USB x 1	—	—
Expansion Slot	SIM card slot x 1 Micro SD slot x 1	Micro SIM slot x 1 SATA 3.0 x 1 SATA Power connector x 1 (5V) 100 pin board to board connector x 2 PCIE, USB3.0, USB2.0, UART, GPIO, I2C, DDI, SPI	Micro SD slot x 1 100 pin board to board connector x 2 PCIE, USB3.0, USB2.0, UART, GPIO, I2C, DDI, SPI
Other Interface	60 pin Connector USB3.0 x 1, PCIE x 1, I2C x 1, GPIO x 4	—	Power switch button x 1 Reset switch button x 1
Power Supply			
Power Requirement	DC 9-36V	DC 9 ~ 36V (Optional DC12V), AT Type	12V DC-In @ 3A-5A 5.5/2.5 mm
Power Consumption	TBD	TBD	20 W (Full Loading)
MTBF (Hours)	TBD	TBD	826,592826,592
Environmental and Mechanical			
Dimension	5.9" x 4.15" x 0.96" (151 x 105.6 x 24.5 mm)	6.64" x 5.8" x 1.67" (168.7 x 148 x 42.6 mm)	3.54" x 2.9" x 0.85" (90 x 74 x 21.5 mm)
Weight	350 g	650g	200 g
Mount Options	—		
Operation Temperature	-4 °F ~ 158 °F (-20 °C ~ 70 °C)	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		
Note			

Note: All specifications are subject to change without notice.

Launching in Q1

Moder	PICO-V2K4	PICO-TGU4
System		
Form Factor	PICO-ITX	
CPU	AMD RYZEN™ V2000 embedded Processor Family V2718 (8C, 1.7~4.15 GHz, 10~25W) V2516 (6C, 2.1~3.95 GHz, 10~25W)	Intel® 11th Generation Core™ i7/i5/i3/Celeron SoC i7-1185G7E (4C, 1.8GHz, up to 4.4GHz, TDP-up 28W) i5-1145G7E (4C, 1.5GHz, up to 4.1GHz, TDP-up 28W) i3-1115G4E (2C, 2.2GHz, up to 3.9GHz, TDP-up 28W) Celeron® 6305E (2C, 1.8GHz,TDP 15W) (i7-1185GRE/i5-1145GRE/i3-1115GRE by customer's request)
CPU Frequency	Up to 4.15 GHz	Up to 4.4GHz
Chipset	Intel® Tiger Lake-UP3 SoC Processor	
Memory Type	LPDDR4x on board memory, dual channel	LPDDR4x 3200 MHz on board memory, In-Band ECC (select SKUs)
Max. Memory Capacity	Up to 32GB	
BIOS	AMI UEFI	
Wake On LAN	Yes	
Watchdog Timer	255 Level	
Power Requirement	+12V AT/ATX(default)	
Power Supply Type	Lockable & phoenix Terminal co-lay	
Power Consumption (Typical)	TBD	Intel® i7-1185G7E, LPDDR4x on board 32GB, 2.89A@ +12V
System Cooling	Heat-spreader, heatsink & cooler optional	Heat-spreader and 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)	TBD	424,208
Certification	CE/FCC Class A	
OS support	Windows 10 (64bit)	Windows 10 (64bit) Linux Ubuntu 20.04.2/Kernel 5.8
Display		
Chipset	AMD RYZEN™ V2000 embedded Processor SoC	11th Generation Intel® Core™ i7/i5/i3/Celeron SoC
Resolution	HDMI x 2 + eDP/LVDS x 1 (TBD) HDMI2.0b x1, 4Kx2K(4096x2160) 60Hz HDMI1.4 x1, 4Kx2K(4096x2160@24Hz or 3840x2160@30Hz)	HDMI2.0b x 1, 4Kx2K 60Hz eDP x 1, up to HBR3, 8Kx4K 30Hz
LCD Interface	eDP or LVDS (optional,TBD)	—
I/O		
Storage/SSD	SATA x 1 SATA Power (5V) x 1	
Ethernet	GbE x 2, Intel i211-AT	Intel® i225, 10/100/1000/2500Base, RJ45 x1 Intel® i219, 10/100/1000Base, RJ45 x1
USB Port	USB3.2 GEN2 Type C x 1 /rear IO USB3.2 GEN2 x 2 /rear IO USB2.0 x 4 /header	2 x USB3.2 Gen 2/rear IO 2 x USB3.2 Gen 1/header 4 x USB2.0/header
Serial Port	RS-232/422/485 x 4	RS-232/422/485 x 2
Audio	Line-in/Line-out/MIC	High Definition Audio Interface, Line-in/Line-out/MIC (optional)
DIO	8-bit	
Expansion Slot	M.2 2280 M-key(PCIE GEN3 x4 as default, SATA selected by BIOS) x 1 mini-PCIe(Full) x 1 (PCIe[x1]x1/ USB2.0 as default, mSATA select by HW BOM) SMBUS as default, I2C selected by HW BOM x 1	M.2 M key 2280 x 1 (PCIE GEN4 as default, SATA select by HW BOM) Full size mPCIe/mSATA or USB2.0 x 1 (PCIe as default, SATA select by BIOS) SMBUS/I2C and eSPI x 1 (SMBUS as default, I2C select by HW BOM)
SIM	—	
TPM	2.0 (optional)	
Note		

Note: All specifications are subject to change without notice.

Moder	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 (optional)
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 (optional)
Memory Type	DDR4 2400MHz SODIMM x 1, Max. 32GB	DDR4 1866/2133MHz SODIMM x 1, Max. 16 GB
Max. Memory Capacity	Up to 32GB	Up to 16 GB
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, 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	
OS support	Windows 10 (64 bit) Ubuntu 18.04.3/Kernel 5.0	Windows 10 (64 bit)
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 (Optional)
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	Full size mSATA/mPCIe or USB2.0 x 1 (PCIe as default, mSATA selected by BIOS) SATA 6.0Gb/s x 1, (5V Power)	SATA 6.0 Gb/s x 1, M.2 B-key (2242)
Ethernet	Realtek 8111 x 2 10/100/1000Mbps	Realtek 8111 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), Smbus x 1
SIM	—	
TPM	TPM2.0 (Optional via LPC cable)	—
Note		

Note: All specifications are subject to change without notice.

Moder	PICO-EHL4	PICO-APL1
System		
Form Factor	Pico-ITX	
CPU	Intel® Atom™ x6000E series, Intel® Pentium®, and Celeron® N and J series processors Intel® Atom™ x6425RE (4C, 1.9GHz, TDP-up 12W) Intel® Atom™ x6414RE (4C, 1.5GHz, TDP-up 9W) Intel® Atom™ x6212RE (2C, 1.2GHz, TDP-up 6W) Intel® Atom™ x6425E (4C, 1.8GHz, up to 3GHz, TDP-up 12W) Intel® Atom™ x6413E (4C, 1.5GHz, up to 3GHz,TDP-up 9W) Intel® Atom™ x6211E (2C, 1.2GHz, up to 3GHz, TDP-up 6W) Intel® Pentium® J6426 (4C, 1.8GHz, up to 3GHz, TDP-up 10W) Intel® Pentium® N6415 (4C, 1.2GHz, up to 3GHz, TDP-up 6.5W) Intel® Celeron® J6412 (4C, 1.8GHz, up to 3GHz, TDP-up 10W) Intel® Celeron® N6210 (2C, 1.2GHz, up to 3GHz, TDP-up 6.5W) (Intel® Atom™ x6427FE/x6200FE by customer's request)	Intel Atom® x7-E3950 (4C, 1.6~2GHz, 12W) Intel Atom® x5-E3940 (4C, 1.6~1.8GHz, 9.5W) Intel Atom® x5-E3930 (2C, 1.3~1.8GHz, 6.5W) Intel® Pentium® N4200 (4C, 1.1~2.5GHz, 6W) Intel® Celeron® N3350 (2C, 1.1~2.4GHz, 6W)
CPU Frequency	Up to 3GHz	Up to 2.5GHz
Chipset	Intel® Elkhart Lake SoC Processor	Intel® Atom™ E3900 series/ Pentium® N4200/ Celeron® N3350 Processor SoC
Memory Type	LPDDR4x 3200 MHz on board memory	204-pin DDR3L SODIMM x 1,DDR3L 1867MHz, Max. 8GB
Max. Memory Capacity	Up to 16 GB	Up to 8GB
BIOS	AMI UEFI	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)	Intel® Pentium® J6426, LPDDR4x on board 8GB, 2.36A@ +12V(balance), 2.81A@ +12V(Max) Intel® AtomTM x6425E, LPDDR4x on board 16GB, 2.56A@ +12V(balance), 2.81A@ +12V(Max)	Intel® N3350 Processor, DDR3L 8GB 0.91A@+12V
System Cooling	Heat-spreader, heatsink & cooler optional	Heat-spreader/ heatsink 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)	461744	170,000
Certification	CE/FCC Class A	CE,FCC
OS support	Windows 10 (64bit) Ubuntu Linux (Version: TBC)	Windows 10 (64 bit) Ubuntu 21.04.0/Kernel 5.10
Display		
Chipset	Intel Atom® x6000E Series, and Intel® Pentium® and Celeron® N and J Series Processors SoC	Intel® Atom™ E3900/ Pentium® N4200/ Celeron® N3350 Processor SoC
Resolution	HDMI2.0b x 2, 4K, 60Hz Single channel 12V/3.3V, 18-24 bit LVDS/ eDP 1.3 up to 4K	LVDS (18/24bit 2CH) 1920 x 1200 (optional) HDMI 1.4b up to 3840 x 2160 DDI (BIO)
LCD Interface	18/24bit Single LVDS	18/24bit 2CH LVDS
I/O		
Storage/SSD	eMMC x 1 (32/64/128GB) SATA 6.0Gb/s x 1 SATA Power (5V) x 1	SATA 6.0Gb/s x 1
Ethernet	RTL8111H, 10/100/1000Base, RJ45 x 2 (Compatible with RJ45 x 1)	Intel® Gigabit Ethernet i211AT/i210IT, 10/100/1000Base-TX, RJ-45 x 1
USB Port	2 x USB 3.2 GEN2/rear IO 2 x USB 2.0/header	USB 3.2 Gen 1 x 2, Rear IO, USB 2.0 x 1
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) mini-PCIe(Full) x 1 (Default mSATA or USB 2.0, PCIe[x1]x1 by BIOS) SMBUS/I2C + eSPI x 1 (SMBUS as default, I2C selected by HW BOM) CANBUS x 2 (J6412/N6210 not support CANBUS)	Mini Card (Half-size) x 1, BIO (optional) x 1, I2C or SMBus x 1 Full size mPCIe/mSATA or USB2.0 x 1 (SATA as default, PCIe selected by HW BOM)
SIM	—	
TPM	Intel® PTT (Integrated TPM)	TPM2.0 (Optional via LPC cable)

Note: All specifications are subject to change without notice.

Moder	PICO-APL3	PICO-APL4
System		
Form Factor	Pico-ITX	
CPU	Intel® Atom™ Processor SoC	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)
CPU Frequency	Up to 2.4 GHz	
Chipset	Intel® Atom™ Processor SoC	Intel® SoC
Memory Type	Onboard DDR3L 2GB (Optional to 4GB)	Onboard DDR3L 2GB (Optional to 4GB)
Max. Memory Capacity	Up to 4GB	
BIOS	AMI/SPI	
Wake On LAN	Yes	
Watchdog Timer	255 Levels	
Power Requirement	+12V, AT/ATX	
Power Supply Type	Lockable & phoenix Terminal co-lay	
Power Consumption (Typical)	Intel® N4200 processor, DDR3L 4GB, 1.1A@12V	Intel®Pentium®N4200@1.1GHz,DDR3L 4GB 1.43A@+12V
System Cooling	Heat-spreader, heatsink & cooler (Optional)	Heat-spreader, heatsink & cooler (Optional)
Dimension	3.94" x 2.84" (100 mm x 72 mm)	
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)	110,000	191,895
Certification	CE,FCC	
OS support	Windows 10 (64 bit)	
Display		
Chipset	Intel® Atom™ Processor SoC	Intel® SoC
Resolution	HDMI 1.4b: 3840 x 2160@30Hz Internal eDP: 3840 x 2160@60Hz (Optional) DDI (Optional from BIO)	
LCD Interface	eDP	
I/O		
Storage/SSD	SATA 6.0Gb/s x 1, 5V/12V Power reserved M.2 2280 (B Key) x 1 eMMC 16GB (optional to 32GB/64GB/128GB)	SATA 6.0Gb/s x 1, 5V Power reserved M.2 2280 (B Key) x 1 eMMC 32GB (Optional to 16GB/64GB/128GB)
Ethernet	Realtek 8111 x 1	Realtek 8111 x 2
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 IO USB 2.0 x 2 (Internal, co-use with FAN connector)
Serial Port	COM1: RS-232 COM2: RS-232	COM1: RS-232 x 1 COM2: RS-232/422/485 x 1
Audio	ALC269 (Included Amp)	—
DIO	4-bit	
Expansion Slot	M.2 2230 x 1 (E-Key) BIO x 1 (Optional) I2C, Smbus, I2S MIPI-CSI x 2 Lanes (Optional) MIPI-CSI x 4 Lanes (Optional)	M.2 2230 x 1 (E-Key) BIO x 1 (optional) I2C, Smbus
SIM	—	
TPM	TPM2.0 (Optional)	—
Note		

Model	PICO-BT01
System	
Form Factor	Pico-ITX
CPU	Intel® Celeron® Processor J1900 (4C, 2GHz, up to 2.42GHz, TDP 10W) Intel® Celeron® Processor N2807 (2C, 1.58GHz, up to 2.16GHz, TDP 4.3W) Intel Atom® Processor E3845 (4C, 1.91GHz, TDP 10W) Intel Atom® Processor E3825 (2C, 1.33GHz, TDP 6W)
CPU Frequency	Up to 2.42GHz
Chipset	Onboard Intel Atom® E3845/E3825, and Celeron® J1900/N2807 Processor SoC
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	+12VDC
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, heatsink or cooler optional
Dimension	3.94" x 2.84" (100 mm x 72 mm)
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
OS support	Windows 10 (64 bit) Windows 7 (64 bit) Ubuntu 21.04.0/Kernel 5.10
Display	
Chipset	Onboard Intel Atom® E3845/E3825, and Celeron® J1900/N2807 Processor SoC
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, Full size mPCIe/mSATA or USB2.0 x 1 (SATA as default, PCIe selected by HW BOM)
Ethernet	Intel Gigabit Ethernet, 10/100/1000Base-TX x 1 (Witas with i210IT, the others 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	—
Note	

Note: All specifications are subject to change without notice.

Model	PICO-TGU4-SEMI	PICO-WHU4-SEMI
System		
Form Factor	Pico-ITX	
Processor	Intel® 11th Generation Core™ i7/i5/i3/Celeron SoC i7-1185G7E (4C, 1.8GHz, up to 4.4GHz, TDP-up 28W) i5-1145G7E (4C, 1.5GHz, up to 4.1GHz, TDP-up 28W) i3-1115G4E (2C, 2.2GHz, up to 3.9GHz, TDP-up 28W) Celeron® 6305E (2C, 1.8GHz,TDP 15W) (i7-1185GRE/i5-1145GRE/i3-1115GRE by customer's request)	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)
System Memory	LPDDR4x 3200 MHz on board memory, In-Band ECC (select SKUs)	DDR4 2400MHz SODIMM x 1, Max. 32 GB
Chipset	Intel® Tiger Lake-UP3 SoC Processor	Intel® SOC
Ethernet	Intel® i225, 10/100/1000/2500Base, RJ45 x1 Intel® i219, 10/100/1000Base, RJ45 x1	Realtek 8111 Gigabit Ethernet 10/100/1000Mbps, RJ-45 x2
BIOS	AMI UEFI	UEFI only
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Expansion Interface	—	2230 M.2 E-Key x 1 (for WIFI/BT, PCIe/USB signal only) SMBUS/I2C/LPC/eSPI x 1
Power Requirement	+12V ATX	Normal: +12V
Power Supply Type	Lockable	
Power Consumption	Intel® i7-1185G7E, LPDDR4x on board 32GB, 2.89A@ +12V	i7-8665UE @ DDR4 16GB, 12V@2.23A
System Size	Lite: 122mm x 80.8mm x 50.4 mm Full: 122 x 100mm x 50mm	5.9" x 3.94" x 2.36" (150mm x 100mm x 60mm)
Gross Weight	TBD	982g (including packing) 635g (excluding packing)
Operation Temp.	32°F ~ 122°F (0°C ~ 50°C) without airflow 0.5m/s	32°F ~ 140°F (0°C ~ 60°C) without airflow 0.5m/s for SSD SKU
Storage Temperature	-40˚F ~ 176˚F (-40˚C ~ 80˚C)	
Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF	170,000	298,762
OS support	Windows 10 (64 bit)	Windows 10 (64 bit) Ubuntu 18.04.3/Kernel 5.0
Display		
Chipset	11th Generation Intel® Core™ i7/i5/i3/Celeron SoC	Intel® SoC
Video Output	—	HDMI 1.4
I/O		
Storage/SSD	SATA x 1 (optional) SATA Power (5V) x 1 (optional)	Full size mSATA/mPCIe or USB2.0 x 1 (PCIe as default, mSATA selected by BIOS) SATA 6.0Gb/s x 1, (5V Power)
USB Port	2 x USB3.2 Gen 2/rear IO 2 x USB3.2 Gen 1/header (optional) 4 x USB2.0/header (optional)	USB 3.2 Gen 2 x 2 (Rear IO) USB 2.0 x 2 (Via cable to Rear IO)
Serial Port	RS-232/422/485 x 2 (optional)	
Audio	High Definition Audio Interface, Line-in/Line-out/MIC (optional)	—
Expansion Slot	M.2 M key 2280 x 1 (PCIE GEN4 as default, SATA select by HW BOM) Full size mPCIe/mSATA or USB2.0 x 1 (PCIe as default, SATA select by BIOS)	—
Certification		
Certification	CE, FCC	
Note		

Model	PICO-KBU4-SEMI	PICO-APL4-SEMI
System		
Form Factor	Pico-ITX	
Processor	7th Gen Intel® Core™ i processor U series	Intel® Pentium® N4200 (4C): 1.1GHz, up to 2.5GHz, TDP 6W Intel® Celeron® N3350 (2C): 1.1GHz, up to 2.4GHz, TDP 6W *Wait for E3900 series in 2019 within ATRF according
System Memory	DDR4 SODIMM Slot x 1,Up to 16 GB	DDR3L, memory down, up to 4GB
Chipset	Intel® SoC	
Ethernet	Realtek 8111 Gigabit Ethernet 10/100/1000Base, RJ-45 x 2	Realtek 8111 x 2 10/100/1000Mbps, RJ-45 x 2
BIOS	AMI BIOS	
Wake on LAN	Yes	
Watchdog Timer	255 Level	255 Levels
Expansion Interface	M.2 2230 E key (For WIFI/BT Module)	
Power Requirement	Normal: +12V	
Power Supply Type	Lockable	
Power Consumption	I7-7600 @ DDR4 16GB, 12V@2.3A	Intel®Pentium®N4200@ 1.1GHz,DDR3L 4GB 1.43A@+12V
System Size	4.8" x 3.15" x 2" (122 mm x 72 mm x 50 mm)	
Gross Weight	0.88 lb (0.4 kg)	
Operation Temp.	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	163,000	191,000
OS support	Windows 10 (64 bit)	
Display		
Chipset	Intel® SoC	
Video Output	HDMI 1.4	
I/O		
Storage/SSD	M.2 2242 B key	M.2 2280 (B Key) x 1 eMMC 32GB, up to 128GB (optional)
USB Port	USB 3.2 Gen 1 x 2 (Rear IO)	USB 3.2 Gen 1 x 2 (Rear IO) USB2.0 x 2 (Internal option)
Serial Port	Optional	—
Audio	—	
Expansion Slot	RS-232 x 1, RS-232/422/485 x1 (Optional)	
Certification		
Certification	CE, FCC	
Note		

Note: All specifications are subject to change without notice.

Model	PICO-APL3-SEMI	PICO-APL1-SEMI
System		
Form Factor	Pico-ITX	
Processor	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® 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)
System Memory	DDR3L, memory down, up to 4GB	DDR3L SODIMM Slot x 1, Up to 8GB
Chipset	Intel® SoC	
Ethernet	Realtek 8111 x 1 10/100/1000Mbps, RJ-45 x 1	Intel® Gigabit Ethernet i211AT, 10/100/1000Base, RJ-45 x 1
BIOS	AMI BIOS	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Expansion Interface	M.2 2230 E key (For WIFI/BT Module)	miniCard (Half-Size) x 1
Power Requirement	Normal: +12V	
Power Supply Type	Lockable	
Power Consumption	N4200 @ 4GB DRAM/eMMC 32GB, 12V @1.1A (Full Loading)	N4200 @ 4GB DRAM/eMMC 32GB, 12V @1.1A (Full Loading)
System Size	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 1.73" (122 x 80 x 44 mm)
Gross Weight	W/O heat sink: 0.4 lb (165g) W/ heat sink: 0.89 lb (407g)	0.59 lb (0.27 kg)
Operation Temp.	32°F~ 122°F (0°C ~ 50°C), 0.5 m/s airflow	
Storage Temperature	-40˚F ~ 176˚F (-40˚C ~ 80˚C)	
Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF	110,000	170,000
OS support	Windows 10 (64 bit)	
Display		
Chipset	Intel® SoC	
Video Output	HDMI 1.4	
I/O		
Storage/SSD	M.2 2280 x 1 (B-Key) eMMC 32GB, up to 128GB (optional)	mSATA(Full size) x 1
USB Port	USB 3.2 Gen 1 x 2 (Rear IO) USB2.0 x 2 (Internal option)	USB 3.2 Gen 1 x 2 (Rear IO) USB2.0 x 1 (Internal option)
Serial Port	Optional	
Audio	Optional	—
Expansion Slot	RS-232 x 1, RS-232/422/485 x 1 (Optional)	
Certification		
Certification	CE, FCC	
Note	TAIWAN EXCELLENCE 2018	

Note: All specifications are subject to change without notice.



Model	BIO-ST01-L1U2	BIO-ST01-M1U1	BIO-ST02-C4M1
System			
Form Factor	2.5" Board		
BIO	80-Pin high speed board to board connector		
Power Requirement	Power Supplied from MB via board to board connector		
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		
Certification	—		
OS support	Windows 10 (64 bit)		
I/O			
Ethernet	Realtek 8111E, 10/100/1000Base-TX, RJ-45 x 1	—	
USB	USB 2.0 x 2 on rear I/O		
Audio	Speaker Out with 2W Amp		—
Expansion Interface	SMbus x 1		—
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
SIM	—	SIM Slot x 1	—
DIO	—		


Model	BIO-ST03-P2U1	BIO-ST02-C14D32
System		
Form Factor	3.5" Board	2.5" Board
BIO	—	80-Pin high speed board to board connector
Power Requirement	12V or +9 ~ 36V input (external power supply)	Power Supplied from MB via board to board connector
Dimension	5.25" 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	
OS support	Windows 10 (64 bit)	
I/O		
Ethernet	Intel® i210/i211, 10/100/1000Base-TX x 2 (support PoE 802.3af)	Intel® i211, 10/100/1000Base-TX x 1
USB	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 output with 2W Amp.
Expansion Interface	—	PCIe [x1] x1 (optional), LPT x1
PCIe	—	
Serial Port	—	COM x14, RS-232 by Pin Header
SIM	—	
DIO	—	32 bits

Note: All specifications are subject to change without notice.

COM Express CPU Modules

Launching in Q4

Model	COM-TGHB6	COM-CFHB6	COM-KBHB6
System			
Form Factor	COM Express Basic Size 125mm x 95mm	COM Express Basic Size, Type 6	COM Express Basic Size
CPU	11th Generation Intel® Xeon/Core™ (formerly Tiger Lake-H) Processor Up to 8 Core, TDP 45W (form XEON to i3)	8th/9th Gen Intel® Core™/ Xeon™-E Series Processor	Onboard 7th Gen. Intel® XEON E3 v6 Series Processors, E3-1505M v6 4c/3.0 GHz
CPU Frequency	—	Up to E-2276ME (2.8 GHz)	Up to E3-1505M v6, 4.0 GHz
Chipset	Intel 500 series PCH	Intel® QM370/CM246 PCH	Intel® PCH CM238
Memory Type	DDR4 Socket x4, up to 128GB, ECC supported by sku	SODIMM DDR4 2666 Socket x 3	DDR4, SO-DIMMx2, ECC support, up to 2400
Max. Memory Capacity	up to 128GB	up to 64 GB,ECC Support (only with CM246 PCH)	32GB
BIOS	AMI UEFI	AMI BIOS, Legacy free BIOS	AMI BIOS, Legacy Free
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Power Requirement	Normal: +12V	Standard: +12V	Standard: +12V
Power Supply Type	AT/ATX	AT/ATX Selection	AT/ATX Selection
Power Consumption (Typical)	TBD	Intel ® Xeon ® E-2276ME CPU , 12V@4.65A , Full load: 55.8W	E3-1505M v6 3.0 GHz, DDR4 16GB, 3.7A@12V (during full loading mode)
Dimension (L x W)	4.92" x 3.75" (125 mm x 95 mm)		
Operating Temperature	32°F~ 140°F (0°C ~ 60°C) Option : -40°C ~ +85°C (-40°C ~ +85°C)	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)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-40°F ~ 185°F (-40°C ~ 85°C)	-4˚F ~ 158˚F (-20˚C ~ 70˚C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing		10% ~90% relative humidity, non-condensing
MTBF (Hours)	TBD	464,349 Hours	80,000
Certification	CE/FCC	CE/FCC Class A	
Display			
VGA/LCD Controller	Intel Xe Graphic	Intel® GT2-P630 (Xeon series)/ GT2-630 (Core I series)	Intel® HD Graphics P630
Video Output	LVDS or eDP x1 ,VGA x1, DDI x3	VGA, 18/24b 2ch LVDS/eDP, DDI x 2 (3rd one can be added if VGA not require)	VGA, LVDS or eDP, DDI x2 (3rd DDI could be added if VGA no required)
I/O			
Ethernet	Intel® I225LM Gigabit Ethernet x 1	Intel® Ethernet I219 GbE x1	Intel® I219, Gigabit Ethernet
Audio	High Definition Audio Interface	HD Audio	
USB Port	USB 2.0 x 8, USB 3.2 x 4 (Up to Gen2 support)	USB 2.0 x 8 , USB 3.2 Gen 2 x 4	
Serial Port	2-wire UART x 2 (TX/RX)	2-wire UART(TX/RX) x 2	
HDD Interface	SATA3.0 x 4	SATA3 x 4	
Onboard Storage	PEG[x16] x1 (Gen4) , PCIe [x1] x 8, LPC/ e-SPI, I2C, SMBus	—	
Expansion	Onboard PCIe Gen4 [x4] NVMe SSD x 1	PCIe[x16] x 1 PCIe[x1] x 8 I2C LPC SMBus	
GPIO	NVMe	8-bit	GPIO 8-bit
TPM	2.0 (Optional)		Optional
Note			

Note: All specifications are subject to change without notice.

COM Express CPU Modules



Model	COM-SKHB6	COM-TGUC6	COM-WHUC6
System			
Form Factor	COM Express Basic Size	COM Express Compact size, Type 6	COM Express Compact size, 95mm x 95mm
CPU	Onboard 6th Gen Intel® Core™ i-series Processor i7-6820EQ 4c/2.8 GHz i3-6100E 2c/2.7 GHz	11th Generation Intel® Core™ Processor Family (formerly Tiger Lake UP3)	8th Generation Intel® Core™ ULT Series Processor
CPU Frequency	Up to i7-6820EQ 3.50 GHz	Up to 1.8 GHz, i7-1185GRE	—
Chipset	PCH QM170 or CM236 (by sku)	11th Gen Intel® Core™ Series Processor	Onboard 8th Generation Intel® Core™ SoC
Memory Type	DDR4, SODIMM x 2, ECC Supports with CM236 sku only, up to 2133	DDR4 3200 MHz SODIMM x2 (Dual Channel) in-band ECC supported by SoC	SO-DIMM DDR4 2400 Socket x2
Max. Memory Capacity	32GB	Up to 32 GB	Up to 64GB
BIOS	AMI BIOS, Legacy Free	AMI UEFI	AMI BIOS, Legacy free BIOS
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Power Requirement	Standard: +12V		
Power Supply Type	AT/ATX Selection	—	AT/ ATX Mode
Power Consumption (Typical)	i7-6820EQ 2.8GHz, DDR4 16GB, 3.08A@12V (during full-loading mode)	12Vin, TDP up to 15~36W with i7 @ max loading, stable status	12V, estimate 18W with i7-8655UE @ 100% loading
Dimension (L x W)	4.92" x 3.75" (125 mm x 95 mm)	3.75" x 3.75" (95mm x 95mm)	
Operating Temperature	32˚F ~ 140˚F (0˚C ~ 60˚C)	32°F~ 140°F (0°C ~ 60°C) Option : -40°C ~ +85°C (-40°C ~ +85°C)	32°F~ 140°F (0°C ~ 60°C)
Storage Temperature	-4˚F ~ 158˚F (-20˚C ~ 70˚C)		
Operating Humidity	10% ~90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	80,000	TBD	
Certification	CE/FCC Class A	CE/FCC	CE/FCC Class A
Display			
VGA/LCD Controller	Intel® HD Graphics P530 / 530	Intel® Iris® Xe Graphics Intel® UHD Graphics for 11th Gen Intel® Processors	Intel® UHD Graphics 620 / 610
Video Output	VGA, LVDS or eDP, DDI x 2 (3rd DDI could be added if VGA no required)	LVDS/eDP x 1 (Default : LVDS) , DDI x 3, VGA x 1	DDI0: LVDS, (eDP by BOM change) DDI1: Display Port DDI2: Default VGA, (DP by SW1&2 selected)
I/O			
Ethernet	Intel® I219, Gigabit Ethernet	Intel® I225LM Gigabit Ethernet x 1	Intel® I219 GbE x 1
Audio	HD Audio	High Definition Audio Interface x 1	HD Audio x 1
USB Port	USB2.0 x 8, USB3.2 Gen 2 x 4	USB3.2 Gen 2 x 4 USB2.0 x 8	USB 2.0 x 8, USB 3.2 Gen 2 x 4
Serial Port	2-Wire UART (Tx/Rx) x 2		
HDD Interface	SATA 3 x 4	SATA 3.0 x 2	SATA3 x 2 as default (up to 3)
Onboard Storage	—	—	eMMC x 1 (up to 64GB)
Expansion	PCIe[x16] x 1 PCIe[x1] x 8 I2C LPC SMBus	PCIe 5 lanes, [x1] x5 PEG[x4], I2C, LPC, SMBus	PCIe[x1] x 4 + PCIe[x4] x 1 (default), I2C, LPC, SMBus
GPIO	8-bit		
TPM	Optional	TPM 2.0 Optional	
Note			

Note: All specifications are subject to change without notice.

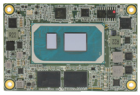
COM Express CPU Modules



Model	COM-SKUC6/KBUC6	COM-BT	COM-ICDB7
System			
Form Factor	COM Express Compact Size, Type 6		COM Express Basic Size 125mm x 95mm
CPU	6th/7th Generation Intel® Core™ U-series Processor	Intel® Atom™/ Celeron® Processor	Intel® XEON-D, LCC, up to 10c/20t, CPU TDP up to 75W
CPU Frequency	Up to i7-7600U (2.8 GHz)	Up to J1900 (2.0 GHz)	—
Chipset	6th/7th Generation Intel® Core™ U-series SoC	Intel® Atom™/ Celeron® SoC	SoC
Memory Type	DDR3L 1600 SODIMM x 1	DDR3L 1066/1333 MHz SODIMM x 1	DDR4 Socket x4, up to 128GB, ECC supported
Max. Memory Capacity	Up to 8GB		up to 128GB
BIOS	AMI BIOS, Legacy Free	AMI BIOS	AMI UEFI
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Power Requirement	Standard: +12V		Normal: +12V
Power Supply Type	AT/ ATX		—
Power Consumption (Typical)	12V@1.32A, full load, i7-7600U	0.92A@12V, full load, J1900 0.48A@12V, full load, N2807	TBD
Dimension (L x W)	3.74" x 3.74" (95mm x 95mm)	3.74" x 3.74" (95mm x 95mm)	125mm x 95mm
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)
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)	189,243 Hours		TBD
Certification	CE/FCC Class A		CE/FCC
Display			
VGA/LCD Controller	Intel® HD Graphics 520/510 (6th Gen Intel Core U Series Processor) Intel® HD Graphics 620/610 (7th Gen Intel Core U Series Processor)	Intel® HD Graphic	—
Video Output	3 Simutaneous Display : Single/Dual Channel LVDS (18/24bit) or eDP, VGA x 1, DDI x 1 (Up to 2x DDI shared with LVDS/eDP)	Dual Display : Single/Dual Channel LVDS (18/24bit) or eDP, VGA, DDI (Up to 2x DDI shared with LVDS/eDP)	—
I/O			
Ethernet	Intel® I219LM Gigabit Ethernet x 1	Intel® I211AT GbE x 1	1GbE: Intel® I210 GbE 10GbE: via carrier board 10GbE Phy
Audio	High Definition Audio Interface		—
USB Port	USB 2.0 x 8, USB 3.2 Gen 1 x 4	USB 2.0 x 7, USB 3.2 Gen 1 x 1	USB3.2 / USB2.0 x 4
Serial Port	2Wire UART(Tx/Rx) x 2		2-wire UART x 2 (TX/RX)
HDD Interface	SATA3 x 2 (Up to 3 for i5 & i7 only)	SATA2 x 2	SATA 3.0 x 2
Expansion	PCIe [x1] x5 (Up to 8 lanes by custom BIOS) LPC SMbus I2C	PCIe [x1] x 3 (up to 3 devices) LPC SMbus I2C	PCIe [x16] x1, PCIe [x8] x1, PCIe [x1] x8 I2C, LPC, SMBus, NCSI
GPIO	8bit		
Onboard Storage	—		
TPM	Optional	—	
Note			

Note: All specifications are subject to change without notice.

Embedded Platforms ▸
COM Express CPU Modules



Model	NanoCOM-TGU	NanoCOM-WHU	NanoCOM-WHU Rev.B
System			
Form Factor	COM Express Mini size, 84mm x 55mm	COM Express Mini size, Type 10	
CPU	11th Generation Intel® Core™ Processor Family (formerly Tiger Lake UP3)	8th Generation Intel® Core™/Celeron™ U Series Processor	
CPU Frequency	Up to i7-1185G7E (1.8 GHz)	Up to i5-8365UE, 1.60GHz	Up to i7-8665UE, 1.70GHz
Chipset	11th Generation Intel® Core™ SoC	8th Generation Intel® Core™/Celeron™ U Series SoC	
Memory Type	Onboard LPDDR4x 4266 memory (in-band ECC supported by SoC)	Onboard DDR4-2133	
Max. Memory Capacity	Up to 16 GB	Up to 8GB	
BIOS	AMI UEFI	AMI BIOS, Legacy free	
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Power Requirement	Standard: +12V		
Power Supply Type	AT/ATX		
Power Consumption (Typical)	12V @2.75A , full loading (stable) with i7-1185GRE	—	12V@3.38A, full load, i7-8665UE (Max Current) 12V@2.10A, full load, i7-8665UE (Balance Current)
Dimension (L x W)	3.31" x 2.17" (84 mm x 55 mm)		
Operating Temperature	32°F~ 140°F (0°C ~ 60°C) Option : -40°F ~ 185°F (-40°C ~ 85°C) Optional	32°F ~ 140°F (0°C ~ 60°C) -40°F ~ 185°F (-40°C ~ 85°C) Optional	
Storage Temperature	0% ~ 90% relative humidity, non-condensing (40°C at 90% Humidity RH, non-condensing with onboard NVMe)	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
MTBF (Hours)	741,857	717,282	660,756
Certification	CE/FCC	CE/FCC Class A	
Display			
VGA/LCD Controller	Intel® UHD Graphics for 11th Gen Intel® Processors	Intel® UHD Graphics 620/610	
Video Output	eDP x 1, DDI x 1		Dual Display : LVDS LCD/eDP, DDI x 1 Single Channel LVDS (18/24 bit)
I/O			
Ethernet	Intel® I225-LM Gigabit Ethernet x 1	Intel® I219LM GbE x 1	
Audio	High Definition Audio Interface		
USB Port	USB 2.0 x 8, USB 3.2 Gen 2 x 2		
Serial Port	2-Wire UART (Tx/Rx) x 2		
HDD Interface	SATA 3.0 x 2	SATA 3 x 2	
Expansion	PCIe [x1] x 4 LPC SMBus I2C		
GPIO	8-bit		
Onboard Storage	Onboard PCIe NVMe SSD x1, up to 256GB	eMMC up to 64GB (Optional)	—
TPM	fTPM		
Note			

Note: All specifications are subject to change without notice.

COM Express CPU Modules



Model	NanoCOM-KBU-A20	NanoCOM-KBU	NanoCOM-SKU
System			
Form Factor	COM Express Mini size, Type 10		
CPU	6th/7th Generation Intel® Core™/Celeron™ U Series Processor	7th Generation Intel® Core™/Celeron™ U Series Processor	6th Generation Intel® Core™/Celeron™ U Series Processor
CPU Frequency	Up to i7-7600U, 2.60GHz		
Chipset	6th/7th Generation Intel® Core™/Celeron™ U Series SoC	7th Generation Intel® Core™/Celeron™ U Series SoC	6th Generation Intel® Core™/Celeron™ U Series SoC
Memory Type	Onboard DDR4-2133		
Max. Memory Capacity	Up to 8GB	Up to 4GB	
BIOS	AMI BIOS, Legacy free		
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Power Requirement	Standard : +12V		
Power Supply Type	AT/ATX		
Power Consumption (Typical)	12V@1.83A, full load, i7-7600U	—	1.52A@12V, full load, i7-6600U (CPU set as 15W, CPU Frequency may be changed accordingly.)
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) Optional		
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
MTBF (Hours)	221,018	108,671	
Certification	CE/FCC Class A		
Display			
VGA/LCD Controller	Intel® HD Graphics 620/610/520/510	Intel® HD Graphics 520/510	
Video Output	Dual Display : LVDS LCD/eDP, DDI x 1 Single Channel LVDS (18/24 bit)		
I/O			
Ethernet	Intel® I219LM GbE x 1		
Audio	High Definition Audio Interface		
USB Port	USB 2.0 x 8, USB 3.2 Gen 1 x 2		
Serial Port	2Wire UART(Tx/Rx) x 2		
HDD Interface	SATA 3 x 2		
Expansion	PCIe [x1] x 4 (up to 4 devices) LPC SMBus I2C		
GPIO	8-bit		
Onboard Storage	eMMC up to 64GB (Optional)	—	
TPM	fTPM		
Note			

COM Express CPU Modules

Model	NanoCOM-APL	NanoCOM-BT
System		
Form Factor	COM Express Mini Size, Type 10	
CPU	Intel® Atom™/Celeron®/Pentium® Processor	Intel® Atom™/ Celeron® Processor SoC (M/I)
CPU Frequency	Up to J1900, 2.00GHz	Up to E3845, 1.91 GHz
Chipset	Intel® Atom™/Celeron®/Pentium® SoC	Intel® Atom™/ Celeron® Processor SoC
Memory Type	Onboard LPDDR4 up to 2400 MT/s	Non-ECC DDR3L-1333
Max. Memory Capacity	Up to 8GB	2 GB DDR3L Onboard (up to 4 GB)
BIOS	AMI BIOS, Legacy Free	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Power Requirement	Standard: +12V	Standard : +12V, AT/ATX, Optional: +5V, AT/ATX
Power Supply Type	AT/ ATX	
Power Consumption (Typical)	0.82A@12V, full load, E3950	0.7A@12V, full load, E3845
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) optional	32°F ~ 140°F (0°C ~ 60°C) -40°F ~ 185°F (-40°C ~ 85°C) by E3800, 2GB SKU
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	885,779 Hours	90,000
Certification	CE/FCC Class A	
Display		
VGA/LCD Controller	Intel® HD Graphic 505/500	Intel® HD Graphic
Video Output	Dual Display : Single Channel LVDS (18/24bit) or eDP, DDI x 1	LVDS LCD/eDP, DDI x 1
I/O		
Ethernet	Intel® I211AT GbE x 1	Intel® I210IT
Audio	High Definition Audio Interface	High Definition Audio Interface
USB Port	USB 2.0 x 8, USB 3.2 Gen 1 x 2	USB 2.0 x 7, USB 3.2 Gen 1 x 1
Serial Port	2Wire UART(Tx/Rx) x 2	Tx/Rx x 2
HDD Interface	SATA3 x 2	SATA 2 x 2
Expansion	PCIe [x1] x 4 (up to 3 devices) LPC SMbus I2C	PCIe [x1] x 3 (up to 3 devices) LPC SMBus I2C
GPIO	GPIO 8-bit	
Onboard Storage	Onboard eMMC (Up to 64GB, optional)	Optional for 8GB/16GB eMMC
TPM	—	
Note		

Note: All specifications are subject to change without notice.

COM Express Carrier Boards

Model	ECB-920A-A11
System	
Form Factor	ATX
COM Express Connector	x 2 (Row A,B & Row C,D)
I/O Chipset	—
Front Panel Control	10-pin (5x2) header
Ethernet	10/100/1000/2500 Base-TX, RJ45 x 1 (From CPU Module)
Expansion Interface	PCIe[x4] slot x 2 PCIe[x16] slot x 1
Power Supply Type	ATX
CMOS Battery	RTC battery socket x 1
BIOS	—
Board Size	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 ~ 185°F (-40°C ~ 85°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	—
Display	
DVT/CRT/VGA	D-SUB15 connector x 1
LVDS / eDP	LVDS : 40pin (20x2) Dual Channel LVDS connector eDP : 30pin board wire connector
SDVO	—
DDI	Display Port x 3 (Dual x1, Single x 1)
I/O	
Storage	SATA3 x 4
Serial Port	COM Port (2-Wire UART Tx/Rx) x 2
USB	Type A connector x 8 (USB2.0 x 4 , USB 3.2/2.0 x 4)
Audio	Audio Jack, supports Line-in, Line-out, Microphone
PS/2 Port	—
GPIO	8-bit Programmable
Switch/Button	Power Button x 1 / Reset Button x 1
Debug LED	80 PORT
I2C	1
Expansion Interface	LPC, I2C, SMBus, eSPI, CAN Bus, 4 pin fan connector, Micro SD Card Slot x 1
Note	

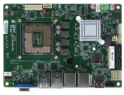
Note: All specifications are subject to change without notice.

Model	EPIC-ADS7	EPIC-TGH7
System		
Form Factor	4" EPIC Board	
CPU	Intel® 12th Generation Core™ SoC	Intel® 11th Generation Core™ SoC
CPU Frequency	TBD	Xeon W-11865MRE (8C/16T, 2.60GHz, up to 4.70GHz) i7-11850HE (8C/16T, 2.60GHz, up to 4.70GHz) i5-11500HE (6C/12T, 2.60GHz, up to 4.50GHz) i3-11100HE (4C/8T, 2.40GHz, up to 4.40GHz) Celeron 6600HE (2C/2T, 2.60GHz)
Chipset	Intel® R680E/H610E	Intel®RM590E/HM570E
Memory Type	DDR5 4800MGz, SODIMM x 2 (ECC)	DDR4 3200MHz, SODIMM x 2 (ECC)
Max. Memory Capacity	Up to 64GB	
BIOS	AMI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Power Requirement	+12V	+9-24V
Power Supply Type	AT/ ATX	
Power Consumption (Typical)	TBD	TBD
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)	TBD	TBD
Certification	CE/FCC ClassA	
Display		
VGA/LCD Controller	Intel® UHD graphics	Intel® 11th Generation UHD Graphics
Video Output	eDP1.4b/LVDS x 1 (default LVDS) HDMI2.0 x 1 DP1.4a x 2	LVDS Dual Channel 18/24bit x 1 HDMI2.0 x 1 DP1.4a x 2 (colay VGA)
Backlight Inverter Supply	—	
I/O		
Ethernet	Intel® i225, 10/100/1000/2500Base, RJ-45 x 1 Intel® i219, 10/100/1000Base, RJ-45 x 1	
Audio	Realtek ALC269 (2W Amplifier)	Realtek ALC269 (2W Amplifier)
USB Port	USB4 x 1 (Type C) USB3.2 Gen 2 x 4 USB2.0 x 2	USB3.2 Gen 2 x 4 USB2.0 x 4
Serial Port	RS-232/422/485 x 4	RS-232 x 4 RS-232/422/485 x 2
Parallel Port	—	
HDD Interface	SATA III x 2 +5V SATA Power Connector x 1	
SSD	—	Half size mSATA/mPCIe x 1 (Default mPCIe, select by BIOS)
Expansion Slot	M.2 B key 3052 (PCIe/SATA/USB) M.2 M key 2280 (PCIex4 Gen4) M.2 E key 2230 (PCIe/USB) PCI express x8 (Gen5) board to board connector _FPC slot x 1 (PCIex4)	M.2 B key 3052 (PCIe/SATA/USB) M.2 M key 2280 (PCIex4 Gen4) PCI express x8 (Gen4) board to board connector _FPC slot x 1 (PCIex4)
DIO	8-bit	16-bit
TPM	TPM2.0 (Optional)	
Touch	—	
SIM	Nano SIM (optional)	
Others	SMBUS x 1, LPC	—
Note		

Note: All specifications are subject to change without notice.

Model	EPIC-CFS7	EPIC-KBS9
System		
Form Factor	4" EPIC Board	
CPU	8th Generation Intel® Core™ Processor family	CPU Socket Type
CPU Frequency	Up to 4.6GHz	6th/7th Generation Intel® Core™ i3/i5/i7/Celeron® (Support up to 65W SKU)
Chipset	Intel® H310/Q370 (TDP: 6W)	H110/Q170 (6W)
Memory Type	DDR4 2666 MHz SODIMM x 2 (Dual Channel, Non-ECC)	DDR4 (Non-ECC) SODIMM x 2, 2133MHz, up to 32GB
Max. Memory Capacity	Up to 32GB	Up to 32GB
BIOS	AMI UEFI	AMI
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Power Requirement	+12V	+12V, AT/ATX
Power Supply Type	AT/ATX (ATX mode for system level)	AT/ ATX
Power Consumption (Typical)	TBD	—
Dimension (L x W)	4.53" x 6.5" (115mm x 165mm)	
Operating Temperature	32°F ~ 122°F (0°C ~ 50°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-4°F ~ 176°F (-20°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0 ~ 90% @ 40°C, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	TBD	—
Certification	CE/FCC Class A	CE/FCC
Display		
VGA/LCD Controller	8th Generation Intel® Core™ Processor family	6th/7th Generation Intel® Core™ i3/i5/i7/Celeron®
Video Output	HDMI x 2	HDMI (Rear), VGA (Internal Only)
Backlight Inverter Supply	—	
I/O		
Ethernet	Intel® I211, 10/100/1000Base, RJ45 x 2 (Support PoE 802.3af)	Intel® i211 Gigabit Ethernet x 4
Audio	—	ALC269 (With Amp)
USB Port	USB 3.2 Gen 2/ USB2.0 x 4 (Rear I/O) USB 2.0 x 2 (Internal header)	USB 3.2 Gen 1 x 2 (Real IO) USB2.0 x 2 (Internal)
Serial Port	RS-232/422/485 x 2 (Internal header)	COM x 2 (All Internal), RS-232/422/485
Parallel Port	—	
HDD Interface	SATA 3.0 x 1	SATA 3.0 x 2
SSD	—	mSATA x 1 (Full size)
Expansion Slot	PCIe[x4] FPC slot (For PoE card) Full Size mSATA/mPCIe slot x 1 LPC Bus SMBus (default) / I2C (option)	Mini-card x 1 (Full Size) (No SIM) PCIe[x4] Slot x 1
DIO	Isolated DIO 32 bits (16 bits in/16 bits out) *optional function from daughter board	8-bit
TPM	—	
Touch	—	
SIM	—	
Others	—	
Note		

Note: All specifications are subject to change without notice.



Model	EPIC-KBS7	EPIC-SKH7
System		
Form Factor	4" EPIC Board	
CPU	6th/7th Generation CPU (Socket Type, TDP 35W, 54W Only)	6th/7th Generation Intel® Core™ i-H series Processor
CPU Frequency	6th/7th Generation Intel® Core™ i3/i5/i7/Celeron®	i7-6822EQ (4C, 2GHz, up to 2.8GHz) i7-7820EQ (4C, 3.0GHz, up to 3.7GHz)
Chipset	H110, Q170 (6W)	Intel® QM170 (TDP: 2.6W)
Memory Type	DDR4 (Non-ECC), 2133MHz	SODIMM DDR4 memory slot x 2
Max. Memory Capacity	Up to 16GB	Up to 32GB
BIOS	AMI	UEFI/Legacy
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Power Requirement	12V or 9-24V (Default)	+9V ~ 36V
Power Supply Type	AT/ ATX	
Power Consumption (Typical)	50W@Full loading	CPU 45W TDP
Dimension (L x W)	4.53" x 6.50" (115mm x 165mm)	
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	-4°F ~ 140°F (-20°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	TBD
Certification	CE/FCC	CE/FCC Class A
Display		
VGA/LCD Controller	6th/7th Generation Intel® Core™ i3/i5/i7/Celeron®	Intel® HD Graphics 530 Intel® HD Graphics 630
Video Output	CRT/LVDS/HDMI	LVDS x 2 HDMI 1.4 x 2
Backlight Inverter Supply	Max. 12V	18/24bit (2CH)
I/O		
Ethernet	LAN x 2 (Real IO) (i211 x 2)	Intel GbE i211
Audio	ALC892, no Amp	ALC269 (With 2W Amp)
USB Port	USB 3.2 Gen 1 x 4 (Real IO) USB2.0 x 2 (Internal)	USB 3.2 Gen 1/2.0 x 2 (Rear I/O) USB 2.0 x 5 (Internal header)
Serial Port	COM x 4 (COM2: RS-232/422/485)	RS-232/422/485 x 2 (Internal header) RS-232 x 2 (Internal header)
Parallel Port	—	
HDD Interface	SATA 3.0 x 2, SATA Power (5V)	SATA x 2
SSD	mSATA x 1 (optional for mini-Card)	—
Expansion Slot	Mini-card x 1, Micro SIM x 1 (Optional)	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)
DIO	8-bit	
TPM	—	
Touch	—	
SIM	—	Micro SIM
Others	—	
Note		

Note: All specifications are subject to change without notice.

Model	EPIC-SKU7	EPIC-BT07
System		
Form Factor	4" EPIC Board	
CPU	Intel® 6/7th Generation Core™ i5/Celeron SoC i5-6200U(15W) Celeron-3855U(15W)	Intel® Atom™ E3845/Celeron® J1900/N2807
CPU Frequency	Up to 2.8GHz	Up to 2.0 GHz
Chipset	Integrated SoC	Intel® Atom™/ Celeron® SoC
Memory Type	DDR4-1866/2133 Dual Channel DDR4 (Non-ECC) onboard	DDR3L 1333, SODIMM x 1
Max. Memory Capacity	Up to 8GB	
BIOS	UEFI only	AMI
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Power Requirement	+9V ~ 36V	DC 9-24V input
Power Supply Type	AT/ATX (Default: AT)	AT/ ATX
Power Consumption (Typical)	23.4W (Full loading mode)	12W
Dimension (L x W)	6.89" x 4.45" (175mm x 113mm)	4.53" x 6.50" (115mm x 165mm)
Operating Temperature	32°F ~ 122°F (0°C ~ 50°C)	32°F ~ 140°F (0°C ~ 60°C) or WiTAS 2 (E3845)
Storage Temperature	-4°F ~ 176°F (-20°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0-90% @ 40°C, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	TBD	358,806 hrs
Certification	CE/FCC Class A	CE/FCC
Display		
VGA/LCD Controller	Intel® HD Graphics 510 Intel® HD Graphics 520	Intel® Atom™/ Celeron® SoC
Video Output	LVDS/eDP x 1 (Default: LVDS) HDMI1.4 x 1	CRT, LVDS, HDMI
Backlight Inverter Supply	Max 12V, 2A	Max. 12V
I/O		
Ethernet	i210IT, 10/100/1000 Base, RJ45 x 2	Intel® i211 Gigabit Ethernet, RJ-45 x 2
Audio	High Definition Audio Interface,Line-in/Line-out/MIC (w/ 3W, 4 Ohm Amplifier)	High Definition Audio Interface
USB Port	USB 3.0 x 4 (Rear I/O) USB 2.0 x 5 (Header x 1, rests in EXT I/O)	USB 2.0 x 5 USB 3.2 Gen 1 x 1
Serial Port	RS-232/422/485 x 2 (Rear I/O x 2) RS-232 x 4 (In EXT I/O)	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	1. SATA3 x 1 (7+15P connector) 2. Full size mSATA/mPCIe x 1 with Micro-SIM (mSATA as default) -Celeron 3855U: mSATA/mPCIe selected by BOM -I5-6200U: mSATA/mPCIe selected by BIOS 3. M.2 2280 M key x 1 (PCIe[x4] as default)	mSATA x 1 (Share with half-size Mini-Card by BOM)
Expansion Slot	External port: USB2.0 x 4 COM x 4 PCIex1 x 3	Full-size mPCIe x 1 Full size mSATA/mPCIe x 1 (Default mSATA, select by BIOS) Micro-SD x 1 (Optional, only E3800 series) PCI-104 x 1 (Optional, only E3800 series) 16-bit DIO or LPT SMbus x 1, I2C x 1 (optional), PS/2 x 1
DIO	—	16-bit
TPM	—	Optional
Touch	Yes (co-lay with USB2.0)	Optional
SIM	Micro SIM	SIM
Others	SMBUS x 1, LPC	—
Note		

Note: All specifications are subject to change without notice.

Model	EPIC-CFS7-PUC
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	DDR4 2666 MHz SODIMM x 2 (Dual Channel, Non-ECC)
Max. Memory Capacity	Up to 32GB
BIOS	AMI UEFI
Wake on LAN	Yes
Watchdog Timer	255 Levels
Power Requirement	+12V
Power Supply Type	AT/ATX (ATX mode for system level)
Power Consumption (Typical)	95.04W (System level)
Dimension (L x W)	4.53" x 6.5" (115mm x 165mm)
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, 10/100/1000Base, RJ45 x 4 (Support PoE 802.3af)
Audio	—
USB Port	USB 3.2 Gen 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 (printer 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	Isolated DIO 32 bits (16 bits in/16 bits out) *optional function from daughter board
TPM	—
Touch	—
SIM	—
Note	

Model	GENE-EHL5	GENE-TGU6
SYSTEM		
FORM FACTOR	3.5" SubCompact Board	
CPU	Intel® Atom™ x6000E series, Intel® Pentium®, and Celeron® N and J series processors:Intel® Atom™ x6425RE (4C, 1.9GHz, TDP-up 12W), Intel® Atom™ x6414RE (4C, 1.5GHz, TDP-up 9W), Intel® Atom™ x6212RE (2C, 1.2GHz, TDP-up 6W), Intel® Atom™ x6425E (4C, 1.8GHz, up to 3GHz, TDP-up 12W), Intel® Atom™ x6413E (4C, 1.5GHz, up to 3GHz,TDP-up 9W), Intel® Atom™ x6211E (2C, 1.2GHz, up to 3GHz, TDP-up 6W), Intel® Pentium® J6426 (4C, 1.8GHz, up to 3GHz, TDP-up 10W), Intel® Pentium® N6415 (4C, 1.2GHz, up to 3GHz, TDP-up 6.5W), Intel® Celeron® J6412 (4C, 1.8GHz, up to 3GHz, TDP-up 10W), Intel® Celeron® N6210 (2C, 1.2GHz, up to 3GHz, TDP-up 6.5W) (Intel® Atom™ x6427FE/x6200FE by customer's request)	Intel® 11th Generation Core™/Celeron CPU i7-1185G7E (4C/8T, 1.80GHz, up to 4.40Ghz) i5-1145G7E (4C/8T, 1.50GHz, up to 4.10Ghz) i3-1115G4E (2C/4T, 2.20GHz, up to 3.90GHz) Celeron® 6305E (2C/2T, 1.80GHz)
CPU TDP	Same as above	15W, TDP-up 28W: i7-1185G7E/i5-1145G7E/i3-1115G4E 15W only: Celeron® 6305E
CHIPSET	Integrated with Intel® SoC	
MEMORY TYPE	DDR4 up to 3200 Hz, SODIMM x 1,up to 32GB,in band ECC	DDR4 3200MHz, Dual Channel SODIMM x 2,up to 64GB,Support IBECC (select SKUs)
BIOS	UEFI	
WAKE ON LAN	Yes	
WATCHDOG TIMER	255 Levels	
SECURITY	TPM2.0	
RTC Battery	Lithium Battery 3V/240mAh	
DIMENSION (L X W)	5.75" x 4" (146mm x 101.7mm)	
POWER		
POWER REQUIREMENT	+9-36V (Optional: +12V)	
POWER SUPPLY TYPE	AT/ATX	
CONNECTOR	Phoenix 2-pin Connector	
POWER CONSUMPTION	Intel® AtomTM x6425E, DDR4 32GB, 3.26A@ +12V(balance), 3.42A@ +12V(Max)	Intel® i7-1185G7E, DDR4 3200MHz 32GB x2, 4.96A@ +12V(TYPICAL) Intel® i7-1185G7E, DDR4 3200MHz 32GB x2, 7.32A@ +12V(MAX)
DISPLAY		
CONTROLLER	Intel® UHD Graphics for 10th Gen Intel® Processors	Intel® Iris® Xe GraphicsIntel® UHD Graphics
LVDS/eDP	LVDS Dual Channel 18/24bit x 1	LVDS Dual Channel 18/24bit x 1 (Option: eDP1.4b)
Display Interface	HDMI 2.0b x 1,DP1.4a x 1 (Optional VGA x 1)	HDMI 2.0b x 1,DP1.4a x 2,Type C DP1.4 x 1
Multiple Display	3 Simultaneous Displays	Up to 4 Simultaneous Displays
AUDIO		
CODEC	REALTEK ALC269	Realtek ALC897/892
AUDIO INTERFACE	Line-in/Line-out/MIC	
Speaker	—	—
EXTERNAL I/O		
ETHERNET	Intel® i210, 10/100/1000Base x 2	Intel® i219LM, 10/100/1000Base,RJ-45 x1 Intel® i225LM, 10/100/2500Base,RJ-45 x1
USB	USB3.2 Gen 2 x 2	USB3.2 Gen 2 x 4, USB3.2 Gen 2 Type C x 1 (PD 5V/3A)
SERIAL PORT	—	
VIDEO	HDMI 2.0b x 1, DP1.4 x 1 (Optional VGA x 1)	HDMI 2.0b x 1,DP1.4a x 2,Type C DP1.4 x 1
INTERNAL I/O		
USB	USB 2.0 x 4	USB2.0 x 2
SERIAL PORT	RS-232/422/485 x 4	COM1,COM3,COM4(RS232/422/485), COM2 (RS232/422/485,supports 5V/12V/RI)
VIDEO	LVDS/eDP x 1	LVDS/eDP x 1(Default: LVDS) , eDP: up to 1080P@60Hz
SATA	SATA3.0 x 1,+5V SATA Power Connector x 1	SATA III x 1, +5V SATA Power Connector x 1
AUDIO	Audio Header x 1	
DIO/GPIO	16 Bits (8 In/8 Out)	8-Bit
SMBus/I2C	SMBus/I2C x1	SMBus/I2C x1(Default: SMBus)
Touch	4/5/8-wire Touch Controller x 1 (optional)	
FAN	4 wire Smart Fan x 1	Smart Fan x1
SIM	Nano SIM x 1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	eMMC5.1 32GB, CANBUS x 2, TX/RX (Celeron J6412 and Celeron N6210 don't support CANBUS)	—
EXPANSION		
Mini PCI-E/mSATA	—	Full-Sized mSATA/mPCIe x 1 (default: mSATA, select with BIOS)
M.2	E-Key 2230 x 1 (PCIe, USB2.0); B-Key 2242 x 1 (PCIe x2/PCIe x 1, USB2.0)Default: PCIe x2, optional: SATA; B-Key 2280 x 1 (PCIe x1/PCIe x 2, USB2.0)Default: PCIe x1) B-Key 3052 x 1 (USB3.2 Gen2, USB2.0)	M-Key 2280 x 1 (PCIex4) E-Key 2230 x 1 (PCIe, USB2.0)
Others	—	
ENVIRONMENT & CERTIFICATION		
OPERATING TEMP	32°F ~ 140°F (0°C ~ 60°C)	
STORAGE TEMP	-40°F ~ 176°F (-40°C ~ 80°C)	
OPERATING HUMIDITY	0% ~ 90% relative humidity, non-condensing	
MTBF (HOURS)	335,427	329,884
EMC	CE/FCC Class A	
Note		

Note: All specifications are subject to change without notice.

Model	GENE-CML5	GENE-WHU6
SYSTEM		
FORM FACTOR	3.5" SubCompact Board	
CPU	Intel® 10th Generation Core™/Pentium/Celeron processor i7-10700TE (8C/16T, 2.00 GHz, up to 4.40 GHz) i5-10500TE (6C/12T, 2.30 GHz, up to 3.70 GHz) i3-10100TE (4C/8T, 2.30 GHz, up to 3.60 GHz) G6400TE (2C/4T, 3.20 GHz) G5900TE (2C/2T, 3.00 GHz)	Intel® 8th Generation Core™ /Celeron Processor: Core i7-8665UE (4C/8T, 1.7GHz, up to 4.40GHz) Core i5-8365UE (4C/8T, 1.6GHz, up to 4.10GHz) Core i3-8145UE (2C/4T, 2.2GHz, up to 3.90GHz) Celeron 4305UE (2C/2T, 2.00GHz)
CPU TDP	35W: i7-10700TE/i5-10500TE/i3-10100TE/G6400TE/G5900TE	15W, TDP-up 25W: i7-8665UE/i5-8365UE/i3-8145UE 15W: 4305UE
CHIPSET	Intel® Q470E / H420E / Q470	Integrated with Intel® SoC
MEMORY TYPE	DDR4 up to 2933MHz Dual Channel,SODIMM x 2,up to 64GB,Non-ECC	DDR4 up to 2400MHz Dual Channel,SODIMM x 2,up to 64GB,Non-ECC
BIOS	UEFI	
WAKE ON LAN	Yes	
WATCHDOG TIMER	255 Levels	
SECURITY	TPM2.0	—
RTC Battery	Lithium Battery 3V/240mAH	Lithium Battery 3V/240mAh
DIMENSION (L X W)	5.75" x 4" (146mm x 101.7mm)	5.75" x 4" (146mm x 101.7mm)
POWER		
POWER REQUIREMENT	+12V	+9-36V (Optional: +12V)
POWER SUPPLY TYPE	AT/ATX	
CONNECTOR	Phoenix 2-pin Connector	
POWER CONSUMPTION	Intel® i7-10700TE, DDR4 3200Mhz 32GB x2, 5.64A @ +12V(Typical) Intel® i7-10700TE, DDR4 3200Mhz 32GB x2, 10.63A @ +12V(Max)	Intel® i7-8665UE, DDR4 2400MHz 16GB x2, 4.83A@ +12V(TYPICAL) Intel® i7-8665UE, DDR4 2400MHz 16GB x2, 7.3A@ +12V(MAX)
DISPLAY		
CONTROLLER	Intel® HD Graphics 610/630	Intel® UHD Graphics 610/620
LVDS/eDP	LVDS Dual Channel 18/24bit x 1	LVDS Dual Channel 18/24bit x 1(Optional: eDP1.4)
Display Interface	DP++ x 1 VGA x 1	HDMI2.0a x 1 VGA x 1
Multiple Display	3 Simultaneous Displays	Up to 3 Simultaneous Displays
AUDIO		
CODEC	Realtek ALC897/892	
AUDIO INTERFACE	Line-in/Line-out/MIC	
Speaker	—	
EXTERNAL I/O		
ETHERNET	Intel® i210/i211,10/100/1000Base, RJ45 x1 Intel® i219,10/100/1000Base, RJ45 x1 (Support Vpro only with i5/i7 + Q470/Q470E variant)	Intel® i210/i211 & i219, 10/100/1000Base, RJ-45 x2
USB	USB3.2 Gen 2 x 2 (Gen 2 for Q470/Q470E only)	USB 3.2 Gen2 x4
SERIAL PORT	—	—
VIDEO	DP++ x 1,VGA x 1	HDMI2.0a x 1,VGA x 1
INTERNAL I/O		
USB	USB2.0 x 4	USB 2.0 x 2
SERIAL PORT	COM1, COM2 (RS232/422/485, supports 5V/12V/RI)	COM1(RS232/422/485, supports RI) COM2 (RS232/422/485, supports 5V/12V/RI)
VIDEO	LVDS x 1	LVDS/eDP x 1 (Default: LVDS)
SATA	SATA III x 2 +5V SATA Power Connector x 1	SATA III x 1 +5V SATA Power Connector x 1
AUDIO	Audio Header x 1	
DIO/GPIO	8-bit	
SMBus/I2C	I2C/SMbus x 1 (Default: I2C)	
Touch	—	4/5/8-wire Touch Controller x 1 (optional)
FAN	4pins Smart Fan x1	DC Fan x 1 (optional: Smart Fan)
SIM	—	Nano SIM x 1
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	FPC x 1 (For Q470/Q 470E only)	—
EXPANSION		
Mini PCI-E/mSATA	—	Full-size mSATA/mPCIe x 1 (Default mSATA, select by BIOS)
M.2	M-Key 2280 x 1 (PCIe x4,SATA)	B-Key 2280 x1 (PCIe x 2, SATA, USB2.0, selected by BIOS) E-Key 2230 x 1 (PCIe, USB2.0)
Others	—	
ENVIRONMENT & CERTIFICATION		
OPERATING TEMP	32°F ~ 140°F (0°C ~ 60°C)	
STORAGE TEMP	-40°F ~ 176°F (-40°C ~ 80°C)	
OPERATING HUMIDITY	0% ~ 90% relative humidity, non-condensing	
MTBF (HOURS)	380,571	354,194
EMC	CE/FCC Class A	
Note		

Model	GENE-KBU6	GENE-SKU6 Rev. B
SYSTEM		
FORM FACTOR	3.5" SubCompact Board	
CPU	Intel® 7th Generation Core™ /Celeron Processor: Intel® i7-7600U (2C/4T, 2.80GHz, up to 3.90GHz) Intel® i5-7300U (2C/4T, 2.60GHz, up to 3.50GHz) Intel® i3-7100U (2C/4T, 2.40GHz) Intel® Celeron 3965U (2C/2T, 2.20GHz)	Intel® 6th Generation Core™ /Celeron Processor: Intel® i7-6600U (2C/4T, 2.60GHz, up to 3.40GHz) Intel® i5-6300U (2C/4T, 2.40GHz, up to 3.00GHz) Intel® i3-6100U (2C/4T, 2.30GHz) Intel® Celeron 3955U (2C/2T, 2.00GHz)
CPU TDP	15W, TDP-up 25W: i7-7600U/i5-7300U 15W: i3-7100U/Celeron 3955U	15W, TDP-up 25W: i7-6600U/i5-6300U 15W: i3-6100U/Celeron 3955U
CHIPSET	Integrated with Intel® SoC	
MEMORY TYPE	DDR4 up to 2133MHz, SODIMM x 1,up to 16GB,Non-ECC	
BIOS	UEFI	
WAKE ON LAN	Yes	
WATCHDOG TIMER	255 Levels	
SECURITY	TPM 2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAh	
DIMENSION (L X W)	5.75" x 4" (146mm x 101.7mm)	
POWER		
POWER REQUIREMENT	Intel® HD Graphics 510/620	+9-36V (Optional: +12V)
POWER SUPPLY TYPE	LVDS Dual Channel 18/24bit x 1	AT/ATX
CONNECTOR	Default: DP1.2 x 1 + DVI-D x 1 Optional: DVI-I x 1(with VGA signal)	Phoenix 2-pin Connector
POWER CONSUMPTION	Up to 3 Simultaneous Displays	Intel® i7-6600U, 6600U, DDR4 2400MHz 16GB, 0.73A at +36V
DISPLAY		
CONTROLLER	Intel® HD Graphics for Intel® Celeron® Processor N3000 Series	Intel® HD Graphics 520/610
LVDS/eDP	LVDS1 Dual Channel 18/24bit x 1 LVDS2 Dual Channel 18/24bit x 1(Optional: HDMI1.4b)	LVDS Dual Channel 18/24bit x 1
Display Interface	VGA x 1	VGA x1 HDMI1.4 x1
Multiple Display	Up to 3 Simultaneous Displays	Up to 3 Simultaneous Displays
AUDIO		
CODEC	Realtek ALC897/892	Realtek ALC892
AUDIO INTERFACE	Line-in/Line-out/MIC	
Speaker	—	3W Amplifier(Optional)
EXTERNAL I/O		
ETHERNET	Intel® i210/i211, 10/100/1000Base-TX, RJ-45 x 2	Intel® i210, 10/100/1000Base-TX, RJ-45 x 2
USB	USB 3.2 Gen 1 x 4	
SERIAL PORT	—	
VIDEO	DP1.2 x 1,DVI-D x 1	HDMI x 1 VGA x 1
INTERNAL I/O		
USB	USB 2.0 x 2	
SERIAL PORT	COM1(RS232),COM2,COM3,COM4(RS232/422/485, support 5V/12V/RI)	COM1(RS232) COM2,COM3,COM4(RS232/422/485, support 5V/12V/RI)
VIDEO	LVDS x 1	
SATA	SATA III x 1,+5V SATA Power Connector x 1	
AUDIO	Audio Header x 1	
DIO/GPIO	8-bit	
SMBus/I2C	SMBus x1	I2C/SMBus x 1 (Default: SMBus)
Touch	4/5/8-wire Touch Controller x 1 (optional)	
FAN	DC Fan x 1 (optional: Smart Fan)	
SIM	Micro SIM x 1 (Optional)	—
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
EXPANSION		
Mini PCI-E/mSATA	Full-size mPCIe x 1 Half size mSATA/mPCIe x 1(Default mSATA, select by BIOS)	Full-size mSATA/mPCIe x 1 (Default mPCIe, select by BIOS) Half size mSATA/mPCIe x 1(Default mSATA, select by BIOS)
M.2	—	
Others	BIO x 1	
ENVIRONMENT & CERTIFICATION		
OPERATING TEMP	32°F ~ 140°F (0°C ~ 60°C)	
STORAGE TEMP	-40°F ~ 176°F (-40°C ~ 80°C)	
OPERATING HUMIDITY	0% ~ 90% relative humidity, non-condensing	
MTBF (HOURS)	375,577	371,039
EMC	CE/FCC Class A	
Note		

Note: All specifications are subject to change without notice.

Embedded Platforms ▸
SubCompact Boards

Model	GENE-SKU6	GENE-APL5
SYSTEM		
FORM FACTOR	3.5" SubCompact Board	
CPU	6th Generation Intel® Core™ i Processor Intel® i3-6100U (2C/4T, 2.3GHz) Intel® i5-6300U (2C/4T, 2.4GHz, up to 3.0GHz) Intel® i7-6600U (2C/4T, 2.6GHz, up to 3.4GHz) Intel® Celeron 3955U (2C/2T, 2.20GHz)	Intel® Atom™/Celeron®/Pentium® Processor Pentium N4200 (4C/4T,1.10GHz,up to 2.50GHz) Celeron N3350 (2C/2T,1.10GHz,up to 2.40GHz) Atom E3950 (4C/4T,1.6GGHz,up to 2.00GHz) Atom E3940 (4C/4T,1.60GHz,up to 1.80GHz) Atom E3930 (2C/2T,1.30GHz,up to 1.80GHz)
CPU TDP	15W, TDP-up 25W: i7-6600U/i5-6300U 15W: i3-6100U/Celeron 3955U(15W)	6W: N4200, N3350 12W: Atom® E3950 9.5W: Atom® E3940 6.5W: Atom® E3930
CHIPSET	Integrated with Intel® SoC	
MEMORY TYPE	DDR4 up to 2133MHz, SODIMM x 1,up to 16GB,Non-ECC	DDR3L up to 1866MHz, SODIMM x 1,up to 8GB,Non-ECC
BIOS	UEFI	
WAKE ON LAN	Yes	
WATCHDOG TIMER	255 Levels	
SECURITY	TPM 2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAh	
DIMENSION (L X W)	5.75" x 4" (146mm x 101.7mm)	
POWER		
POWER REQUIREMENT	+9-36V (Optional: +12V)	+12V (Optional: +9-19V)
POWER SUPPLY TYPE	AT/ATX	
CONNECTOR	Phoenix 2-pin Connector	
POWER CONSUMPTION	Intel® i7-6600U, DDR4 2666MHz 32GB, 3.42A@ +12V(TYPICAL) Intel® i7-6600U, DDR4 2666MHz 32GB, 4.24A@ +12V(MAX)	Intel® E3950,DDR3L 1866MHz 8GB,2.03A @+12V(TYPICAL) Intel® E3950,DDR3L 1866MHz 8GB,2.45A @+12V(MAX)
DISPLAY		
CONTROLLER	Intel® HD Graphics 510/620	Intel® HD Graphics 500/505
LVDS/eDP	LVDS Dual Channel 18/24bit x 1	LVDS1 Dual Channel 18/24bit x 1 LVDS2 Dual Channel 18/24bit x 1 (Optional: HDMI1.4b)
Display Interface	Default: DP1.2 x 1 + DVI-D x 1 Optional: DVI-I x 1(with VGA signal)	VGA x 1
Multiple Display	Up to 3 Simultaneous Displays	
AUDIO		
CODEC	Realtek ALC897/892	
AUDIO INTERFACE	Line-in/Line-out/MIC	
Speaker	—	
EXTERNAL I/O		
ETHERNET	Intel® i210/i211, 10/100/1000Base-TX, RJ-45 x 2	Intel® i210/i211, 10/100/1000Base, RJ-45 x 2
USB	USB 3.2 Gen 1 x 4	USB3.2 Gen 1 x 2
SERIAL PORT	—	COM1 (RS232, supports RI)
VIDEO	DP1.2 x 1,DVI-D x 1	VGA x 1
INTERNAL I/O		
USB	USB 2.0 x 2	USB2.0 x 4
SERIAL PORT	COM1(RS232),COM2,COM3,COM4(RS232/422/485, support 5V/12V/RI)	COM2, COM3 (RS232/422/485, supports 5V/12V/RI),COM4 (RS232, supports RI)
VIDEO	LVDS x 1	LVDS1 x 1,LVDS2/HDMI x 1(Default: LVDS2)
SATA	SATA III x 1,+5V SATA Power Connector x 1	
AUDIO	Audio Header x 1	
DIO/GPIO	8-bit	
SMBus/I2C	SMBus x1	I2C x1,SMBus x 1
Touch	4/5/8-wire Touch Controller x 1 (optional)	
FAN	DC Fan x 1 (optional: Smart Fan)	
SIM	Micro SIM x 1 (Optional)	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	Parallel Port(SPP/EPP/ECP) x 1 (optional, select by BIOS)
EXPANSION		
Mini PCI-E/mSATA	Full-size mPCIe x 1 Half size mSATA/mPCIe x 1(Default mSATA, select by BIOS)	mSATA x 1 (Full-Size),Mini Card x 1 (Half-Size)
M.2	—	
Others	BIO x 1	—
ENVIRONMENT & CERTIFICATION		
OPERATING TEMP	32°F ~ 140°F (0°C ~ 60°C)	
STORAGE TEMP	-40°F ~ 176°F (-40°C ~ 80°C)	
OPERATING HUMIDITY	0% ~ 90% relative humidity, non-condensing	
MTBF (HOURS)	375,577	365,976
EMC	CE/FCC Class A	
Note		

Note: All specifications are subject to change without notice.

Model	GENE-APL6	GENE-APL7
SYSTEM		
FORM FACTOR	3.5" SubCompact Board	
CPU	Intel ® Atom™/Celeron®/Pentium® Processor: Pentium N4200 (4C/4T,1.10GHz,up to 2.50GHz) Celeron N3350 (2C/2T,1.10GHz,up to 2.40GHz) Atom E3950 (4C/4T,1.6GGHz,up to 2.00GHz) Atom E3940 (4C/4T,1.60GHz,up to 1.80GHz) Atom E3930 (2C/2T,1.30GHz,up to 1.80GHz)	
CPU TDP	6W: N4200, N3350/12W: Atom® E3950/9.5W: Atom® E3940/6.5W: Atom® E3930	
CHIPSET	Integrated with Intel® SoC	
MEMORY TYPE	DDR3L up to 1866MHz, SODIMM x 1	DDR3L up to 1866MHz, SODIMM x 1,up to 8GB,Non-ECC
BIOS	UEFI	
WAKE ON LAN	Yes	
WATCHDOG TIMER	255 Levels	
SECURITY	TPM 2.0 (Optional)	—
RTC Battery	Lithium Battery 3V/240mAH	
DIMENSION (L X W)	5.75" x 4" (146mm x 101.7mm)	
POWER		
POWER REQUIREMENT	+9-36V (Optional: +12V)	12V Only
POWER SUPPLY TYPE	AT/ATX	
CONNECTOR	Phoenix 2-pin Connector	
POWER CONSUMPTION	Intel® E3950, DDR3L 1866MHz 8G, 2.36A @+12V(TYPICAL) Intel® E3950, DDR3L 1866MHz 8G, 2.41A @+12V(MAX)	Intel® E3950,DDR3L 1866MHz 8GB,4.15A @+12V(TYPICAL) Intel® E3950,DDR3L 1866MHz 8GB,4.29A @+12V(MAX)
DISPLAY		
CONTROLLER	Intel® HD Graphics 500/505	
LVDS/eDP	LVDS1 Dual Channel 18/24bit x 1 LVDS2 Dual Channel 18/24bit x 1 (Optional: HDMI1.4b)	LVDS1 Dual Channel 18/24bit x 1(Optional: eDP1.3) LVDS2 Dual Channel 18/24bit x 1
Display Interface	VGA x 1	
Multiple Display	Up to 3 Simultaneous Displays	
AUDIO		
CODEC	Realtek ALC897/892	
AUDIO INTERFACE	Line-in/Line-out/MIC	
Speaker	—	2W Amplifier(Optional)
EXTERNAL I/O		
ETHERNET	Intel® i210/i211, 10/100/1000Base, RJ-45 x 2	Realtek RTL8119-CG,10/100/1000Base, RJ-45 x 2
USB	USB3.2 Gen 1 x 2	
SERIAL PORT	COM1 (RS232)	COM1 (RS232) COM2 (RS232/422/485, support 5V/12V/RI)
VIDEO	VGA x 1	
INTERNAL I/O		
USB	USB 2.0 x 2	USB2.0 x 8
SERIAL PORT	COM2, COM3 (RS232/422/485, support 5V/12V/RI) COM4 (RS232)	COM3~COM6 (RS232, COM3~COM5 support 5V/12V/RI) Optional: COM3~COM12
VIDEO	LVDS1 x 1 LVDS2/HDMI x 1(Default: LVDS2)	LVDS1/eDP (Default: LVDS1) LVDS2
SATA	SATA III x 1 +5V SATA Power Connector x 1	
AUDIO	Audio Header x 1	Audio Header x 1 Speaker Header x 2 (optional)
DIO/GPIO	8-bit	
SMBus/I2C	I2C/SMBus x 1 (Default: I2C)	I2C/SMBus x1 (Default: SMBus)
Touch	4/5/8-wire Touch Controller x 1 (optional)	—
FAN	DC Fan x 1 (optional: Smart Fan)	
SIM	Micro SIM x 1 (Optional)	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	eMMC 16G/32G/64G (optional) Parallel Port(SPP/EPP/ECP) x 1 (optional, select by BIOS)	—
EXPANSION		
Mini PCI-E/mSATA	Full-size mPCIe x 1 Half-size mSATA x 1	Full-size mPCIe x 1 Full-Size mSATA/mPCIe x 1 (Default mSATA, BOM Option: mPCIe)
M.2	—	
Others	—	
ENVIRONMENT & CERTIFICATION		
OPERATING TEMP	32°F ~ 140°F (0°C ~ 60°C)	
STORAGE TEMP	-40°F ~ 176°F (-40°C ~ 80°C)	
OPERATING HUMIDITY	0% ~ 90% relative humidity, non-condensing	
MTBF (HOURS)	374,567	409,108
EMC	CE/FCC Class A	
Note		

Note: All specifications are subject to change without notice.

Model	GENE-BSW5	GENE-BT04
SYSTEM		
FORM FACTOR	3.5" SubCompact Board	
CPU	Intel® Celeron® N Processor: Intel® Celeron® N3160 (4C/4T,1.60GHz,up to 2.24GHz)	Intel® Atom™/ Celeron® Processor: Celeron® J1900 (4C/4T, 2.00GHz, up to 2.42GHz) Celeron® N2807 (2C/2T, 1.58GHz, up to 2.16GHz)
CPU TDP	6W: N3160	Celeron® J1900 10W Celeron® N2807 4.3W
CHIPSET	Integrated with Intel® SoC	
MEMORY TYPE	DDR3L up to1600MHz,SODIMM x 1,up to 8GB,Non-ECC	DDR3L up to 1333MHz, SODIMM x 1,up to 8GB,Non-ECC
BIOS	UEFI	
WAKE ON LAN	Yes	
WATCHDOG TIMER	255 Levels	
SECURITY	—	
RTC Battery	Lithium Battery 3V/240mAh	
DIMENSION (L X W)	5.75" x 4" (146mm x 101.7mm)	
POWER		
POWER REQUIREMENT	+12V Only	+12~24V
POWER SUPPLY TYPE	AT/ATX	
CONNECTOR	Phoenix 2-pin Connector	DC Jack Connector
POWER CONSUMPTION	Intel®N3160,DDR3L 1600MHz 8GB,1.63A @+12V(TYPICAL) Intel®N3160,DDR3L 1600MHz 8GB,1.95A @+12V(MAX)	Intel® N2807, DDR3L 1600MHz 4G, 0.65A@ +12V(TYPICAL)
DISPLAY		
CONTROLLER	Intel® HD Graphics for Intel® Celeron® Processor N3000 Series	Intel® HD Graphics for Intel Atom® Processor Z3700 Series
LVDS/eDP	LVDS1 Dual Channel 18/24bit x 1 LVDS2 Dual Channel 18/24bit x 1(Optional: HDMI1.4b)	—
Display Interface	VGA x 1	HDMI x 2: HDMI 1(w/Audio), HDMI 2(w/o Audio)
Multiple Display	Up to 3 Simultaneous Displays	Up to 2 Simultaneous Displays
AUDIO		
CODEC	Realtek ALC897/892	—
AUDIO INTERFACE	Line-in/Line-out/MIC	—
Speaker	—	
EXTERNAL I/O		
ETHERNET	Realtek RTL8119-CG, 10/100/1000Base-TX, RJ-45 x2	Intel® i210/i211, 10/100/1000Base, RJ-45 x 4
USB	USB 3.2 Gen1 x 2	USB 2.0 x 2, USB 3.2 Gen 1 x 1
SERIAL PORT	COM1 (RS232)	COM1 (RS232)
VIDEO	VGA x 1 HDMI x1(optional)	HDMI x2
INTERNAL I/O		
USB	USB2.0 x 3	—
SERIAL PORT	COM2,COM3 (RS232/422/485, supports 5V/12V/RI) COM4,COM5,COM6 (RS232)	—
VIDEO	LVDS1 x 1 LVDS2/HDMI x 1(Default: LVDS2)	—
SATA	SATA III x 1 +5V SATA Power Connector x 1	
AUDIO	Audio Header x 1	—
DIO/GPIO	8-bit	4-bit
SMBus/I2C	I2C/SMBus x1 (Default: SMBus)	—
Touch	4/5/8-wire Touch Controller x 1 (optional)	—
FAN	DC Fan x 1 (optional: Smart Fan)	—
SIM	—	SIM X1
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	CFast™ x 1
EXPANSION		
Mini PCI-E/mSATA	Full-size mPCIe x 1 Half size mPCIe/mSATA x 1(Default mSATA, BOM Option: mPCIe)	Mini-Card x 1 (for USB only)
M.2	—	
Others	—	
ENVIRONMENT & CERTIFICATION		
OPERATING TEMP	32°F ~ 140°F (0°C ~ 60°C)	
STORAGE TEMP	-40°F ~ 176°F (-40°C ~ 80°C)	
OPERATING HUMIDITY	0% ~ 90% relative humidity, non-condensing	
MTBF (HOURS)	325,391	155,000
EMC	CE/FCC Class A	
Note		

Note: All specifications are subject to change without notice.

Model	GENE-BT05	GENE-BT06
SYSTEM		
FORM FACTOR	3.5" SubCompact Board	
CPU	Intel® Atom™/ Celeron® Processor: Celeron® J1900 (4C/4T, 2.00GHz, up to 2.42GHz) Celeron® N2930 (4C/4T, 1.83GHz, up to 2.16GHz) Celeron® N2807 (2C/2T, 1.58GHz, up to 2.16GHz) Atom™ E3845 (4C/4T, 1.91 GHz) Atom™ E3825 (2C/2T, 1.33 GHz)	
CPU TDP	Celeron® J1900 10W/Celeron® N2930 7.5W/Celeron® N2807 4.3W /Atom™ E3845 10W/Atom™ E3825 6.0W	Celeron® J1900 10W Celeron® N2930 7.5W Celeron® N2807 4.3W Atom™ E3845 10W Atom™ E3825 6.0W
CHIPSET	Integrated with Intel ® SoC	
MEMORY TYPE	DDR3L up to 1333MHz, SODIMM x 1,up to 8GB,Non-ECC	On Board DDR3L 1066/1333MHz,up to 4GB,Non-ECC
BIOS	UEFI	
WAKE ON LAN	Yes	
WATCHDOG TIMER	255 Levels	
SECURITY	TPM 1.2(Optional)	TPM 1.2 (BOM optional)
RTC Battery	Lithium Battery 3V/240mAh	
DIMENSION (L X W)	5.75" x 4" (146mm x 101.7mm)	
POWER		
POWER REQUIREMENT	+12V Only	+9~24V
POWER SUPPLY TYPE	AT/ATX	
CONNECTOR	Phoenix 2-pin Connector	
POWER CONSUMPTION	Intel® J1900, DDR3L 1600MHz 8GB,1.73A @ +12V(TYPICAL) Intel® J1900, DDR3L 1600MHz 8GB,1.88A @ +12V(MAX)	Intel® E3845,DDR3L on board RAM 4GB,2.10A @ +12V(TYPICAL) Intel® E3845,DDR3L on board RAM 4GB,2.26A @ +12V(MAX)
DISPLAY		
CONTROLLER	Intel® HD Graphics for Intel Atom® Processor Z3700 Series	
LVDS/eDP	LVDS Dual Channel 18/24bit x 1	
Display Interface	HDMI 1.4a x 1,VGA x 1	HDMI 1.4a (Opctional: DP1.1a),VGA x 1
Multiple Display	Up to 3 Simultaneous Displays	
AUDIO		
CODEC	Realtek ALC897/892	
AUDIO INTERFACE	Line-in/Line-out/MIC	
Speaker	—	2W Amplifier(Optional)
EXTERNAL I/O		
ETHERNET	Intel® i210/i211, 10/100/1000Base, RJ-45 x 2	
USB	USB 3.2 Gen 1 x 1,USB 2.0 x 1	
SERIAL PORT	COM1 (RS232)	
VIDEO	VGA x 1,HDMI 1.4a x 1	VGA x 1,HDMI 1.4a x 1(Optional)
INTERNAL I/O		
USB	USB2.0 x 2	
SERIAL PORT	COM2, COM3 (RS232/422/485, supports 5V/12V/RI),COM4 (RS232)	
VIDEO	LVDS x 1	
SATA	SATA III x 1,+5V SATA Power Connector x 1	
AUDIO	Audio Header x 1	
DIO/GPIO	8-bit	
SMBus/I2C	I2C/SMBus x1 (Default: SMBus)	SMBus x 1
Touch	4/5/8-wire Touch Controller x 1 (optional)	
FAN	DC Fan x 1 (optional: Smart Fan)	
SIM	SIM X1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	CFast™ (option with mSATA by BOM, occupies one Mini Card location)	—
EXPANSION		
Mini PCI-E/mSATA	Full-Size mPCIe/ USB2.0 x 1 Half-Size mSATA/ mPCIe x 1 (BOM optional)	
M.2	—	
Others	—	
ENVIRONMENT & CERTIFICATION		
OPERATING TEMP	32°F ~ 140°F (0°C ~ 60°C) or WiTAS 2 (E3825)	32°F ~ 140°F (0°C ~ 60°C) or WiTAS 2 -40°F ~ 185°F (-40°C ~ 85°C)
STORAGE TEMP	-40°F ~ 176°F (-40°C ~ 80°C)	
OPERATING HUMIDITY	0% ~ 90% relative humidity, non-condensing	
MTBF (HOURS)	344,859	403,079
EMC	CE/FCC Class A	
Note		

Embedded Platforms ▸
SubCompact Boards

Model	GENE-5315 Rev. A	GENE-5315 Rev. B
SYSTEM		
FORM FACTOR	3.5" SubCompact Board	
CPU	AMD Geode™ LX800 Processor AMD Geode™ LX 800(500MHz)	AMD Geode™ LX800 Processor Onboard AMD Geode™ LX 800
CPU TDP	3.6W: LX 800	
CHIPSET	CS5536	
MEMORY TYPE	DDR333 SODIMM x 1 (DDR400 optional),up to 1GB	
BIOS	Award 1MB	
WAKE ON LAN	Yes	
WATCHDOG TIMER	255 Levels	
SECURITY	—	
RTC Battery	Lithium Battery 3V/240mAh	
DIMENSION (L X W)	5.75" x 4" (146mm x 101.7mm)	
POWER		
POWER REQUIREMENT	+5V	
POWER SUPPLY TYPE	AT/ATX	
CONNECTOR	4Pin Connector	
POWER CONSUMPTION	LX 800 500 MHz, DDR400 1 GB, 1.17A@+5V(Typical)	
DISPLAY		
CONTROLLER	AMD Geode™	
LVDS/eDP	Up to 24-bit Single Channel LVDS/ TTL LCD	
Display Interface	VGA x1	
Multiple Display	Up to 2 Simultaneous Displays	
AUDIO		
CODEC	High Definition Audio Interface	
AUDIO INTERFACE	Line-in/Line-out/MIC/CD-in	
Speaker	—	
EXTERNAL I/O		
ETHERNET	10/100Base-TX x 2, Realtek RTL 8139DL	
USB	—	
SERIAL PORT	COM1(RS-232)	
VIDEO	VGA x1	
INTERNAL I/O		
USB	USB2.0 x 4	
SERIAL PORT	COM2(RS-232/422/485)	COM2,COM3,COM4(RS-232/422/485)
VIDEO	TTL LCD x1 LVDS LCD x1	
SATA	—	
AUDIO	Audio Header x 1	
DIO/GPIO	8-bit	
SMBus/I2C	—	
Touch	—	
FAN	System Fan x1	
SIM	—	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	SPP/EPP/ECP x 1,CompactFlash™ x1,UDMA33 x 1	
EXPANSION		
Mini PCI-E/mSATA	—	
M.2	—	
Others	Mini-PCI x1,PC/104 x1,Floppy Disk Drive x 1	Mini-PCI x1,Floppy Disk Drive x 1
ENVIRONMENT & CERTIFICATION		
OPERATING TEMP	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C),-4°F ~ 158°F (-20°C ~ 70°C) for WiTAS 1
STORAGE TEMP	-40°F ~ 176°F (-40°C ~ 80°C)	
OPERATING HUMIDITY	0% ~ 90% relative humidity, non-condensing	
MTBF (HOURS)	90,000	
EMC	CE/FCC Class A	
Note		

Note: All specifications are subject to change without notice.

Model	GENESYS-CML5	GENESYS-WHU6
SYSTEM		
FORM FACTOR	3.5" SubCompact Board System	
CPU	Intel® 10th Generation Core™/Pentium/Celeron SoC i7-10700TE (8C/16T, 2.00 GHz, up to 4.40 GHz) i5-10500TE (6C/12T, 2.30 GHz, up to 3.70 GHz) i3-10100TE (4C/8T, 2.30 GHz, up to 3.60 GHz) G6400TE (2C/4T, 3.20 GHz) G5900TE (2C/2T, 3.00 GHz)	Intel® 8th Generation Core™ /Celeron Processor: Core i7-8665UE (4C/8T, 1.7GHz, up to 4.40GHz) Core i5-8365UE (4C/8T, 1.6GHz, up to 4.10GHz) Core i3-8145UE (2C/4T, 2.2GHz, up to 3.90GHz) Celeron 4305UE (2C/2T, 2.00GHz)
CPU TDP	35W: i7-10700TE/i5-10500TE/i3-10100TE/G6400TE/G5900TE	15W, TDP-up 25W: i7-8665UE/i5-8365UE/i3-8145UE 15W: 4305UE"
CHIPSET	Intel® Q470E / H420E / Q470	Integrated with Intel® SoC
MEMORY TYPE	DDR4 up to 2933MHz Dual Channel,SODIMM x 2,up to 64GB,Non-ECC	DDR4 up to 2400MHz Dual Channel,SODIMM x 2,up to 64GB,Non-ECC
BIOS	UEFI	
WAKE ON LAN	Yes	
WATCHDOG TIMER	255 Levels	
SECURITY	TPM2.0	—
RTC Battery	Lithium Battery 3V/240mAH	
DIMENSION (L X W)	210mm x 134mm x 82mm	178mm x 134.1mm x 43mm
POWER		
POWER REQUIREMENT	+12V	+9-36V (Optional: +12V)
POWER SUPPLY TYPE	ATX	
CONNECTOR	DC Jack Connector	
POWER CONSUMPTION	Intel® i7-10700TE, DDR4 3200Mhz 32GB x2, 5.64A @ +12V(Typical) Intel® i7-10700TE, DDR4 3200Mhz 32GB x2, 10.63A @ +12V(Max)	Intel® i7-8665UE, DDR4 2400 MHz 16GB, 2.8A@ +12V(Typical)
DISPLAY		
CONTROLLER	Intel® HD Graphics 610/630	Intel® UHD Graphics 610/620
LVDS/eDP	—	
Display Interface	DP++ x 1 VGA x 1	HDMI2.0a x 1 VGA x 1
Multiple Display	3 Simultaneous Displays	Up to 2 Simultaneous Displays
AUDIO		
CODEC	—	Realtek ALC897/892
AUDIO INTERFACE	—	Line-in/Line-out/MIC(Optional)
Speaker	—	
EXTERNAL I/O		
ETHERNET	Intel® i210/i211,10/100/1000Base, RJ45 x1 Intel® i219,10/100/1000Base, RJ45 x1 (Support Vpro only with i5/i7 + Q470/Q470E variant)	Intel® i210/i211 & i219, 10/100/1000Base, RJ-45 x2
USB	USB3.2 Gen 2 x 2 (Gen 2 for Q470/Q470E only)	USB 3.2 Gen2 x4
SERIAL PORT	—	
VIDEO	DP++ x 1,VGA x 1	HDMI2.0a x 1,VGA x 1
INTERNAL I/O		
USB	USB2.0 x 4	USB 2.0 x 2
SERIAL PORT	COM1, COM2 (RS232/422/485, supports 5V/12V/RI)	COM1(RS232/422/485, supports RI) COM2 (RS232/422/485, supports 5V/12V/RI)
VIDEO	—	
SATA	SATA III x 2 +5V SATA Power Connector x 1	SATA III x 1 +5V SATA Power Connector x 1
AUDIO	—	Audio Header x 1 (optional)
DIO/GPIO	—	
SMBus/I2C	I2C/SMbus x 1 (Default: I2C)	
Touch	—	
FAN	4pins Smart Fan x1	DC Fan x 1 (optional: Smart Fan)
SIM	—	Nano SIM x 1
Front Panel	PWR LED, Power Button	
Others	FPC x 1 (For Q470/Q470E only)	—
EXPANSION		
Mini PCI-E/mSATA	—	Full-size mSATA/mPCIe x 1 (Default mSATA, select by BIOS)
M.2	M-Key 2280 x 1 (PCIe x4,SATA)	B-Key 2280 x1 (PCIe x 2, SATA, USB2.0, selected by BIOS) E-Key 2230 x 1 (PCIe, USB2.0)
Others	—	
ENVIRONMENT & CERTIFICATION		
OPERATING TEMP	32°F ~ 122°F (0°C ~ 50°C)	
STORAGE TEMP	-40°F ~ 176°F (-40°C ~ 80°C)	
OPERATING HUMIDITY	0% ~ 90% relative humidity, non-condensing	
MTBF (HOURS)	380,571	354,194
EMC	CE/FCC Class A	
Note		

Note: All specifications are subject to change without notice.

Model	GENESYS-KBU6	GENESYS-APL7
SYSTEM		
FORM FACTOR	3.5" SubCompact Board System	
CPU	Intel® 7th Generation Core™ /Celeron Processor: Intel® i7-7600U (2C/4T, 2.80GHz, up to 3.90GHz) Intel® i5-7300U (2C/4T, 2.60GHz, up to 3.50GHz) Intel® i3-7100U (2C/4T, 2.40GHz) Intel® Celeron 3965U (2C/2T, 2.20GHz)	Intel ® Atom™/Celeron®/Pentium® Processor: Pentium N4200 (4C/4T, 1.10 GHz, up to 2.50 GHz) Celeron N3350 (2C/2T,1.10GHz,up to 2.40GHz)
CPU TDP	15W, TDP-up 25W: i7-7600U/i5-7300U 15W: i3-7100U/Celeron 3965U(15W)	6W: N4200, N3350
CHIPSET	Integrated with Intel® SoC	
MEMORY TYPE	DDR4 up to 2133MHz, SODIMM x 1,up to 16GB,Non-ECC	DDR3L up to 1866MHz, SODIMM x 1,up to 8GB,Non-ECC
BIOS	UEFI	
WAKE ON LAN	Yes	
WATCHDOG TIMER	255 Levels	
SECURITY	TPM 2.0 (Optional)	—
RTC Battery	Lithium Battery 3V/240mAh	
DIMENSION (L X W)	170mm x 137mm x 48.5mm	178mm x 134.1mm x 43mm
POWER		
POWER REQUIREMENT	+9-36V (Optional: +12V)	+12V
POWER SUPPLY TYPE	ATX	
CONNECTOR	DC Jack Connector	
POWER CONSUMPTION	Intel® i7-7600U, DDR4 2400MHz 16GB, 1.85A@ +12V(Typical)	Intel® N4200,DDR3L 1600MHz 8GB,1.61A@+12V(Typical)
DISPLAY		
CONTROLLER	Intel® HD Graphics 510/620	Intel® HD Graphics 500/505
LVDS/eDP	—	
Display Interface	DP1.2 x 1 + DVI-D x 1	VGA x 1
Multiple Display	Up to 2 Simultaneous Displays	—
AUDIO		
CODEC	—	
AUDIO INTERFACE	—	
Speaker	—	
EXTERNAL I/O		
ETHERNET	Intel® i210/i211, 10/100/1000Base-TX, RJ-45 x 2	Realtek RTL8119-CG,10/100/1000Base, RJ-45 x 2
USB	USB 3.2 Gen 1 x 4	USB 3.2 Gen1 x 2
SERIAL PORT	—	COM1 (RS232)
VIDEO	DP1.2 x 1 DVI-D x 1	VGA x 1
INTERNAL I/O		
USB	USB 2.0 x 2	
SERIAL PORT	COM1(RS232) COM2,(RS232/422/485, support 5V/12V/RI)	Optional: COM3,COM4(RS232, COM3~COM5 support 5V/12V/RI) Optional: COM9~COM12
VIDEO	—	
SATA	SATA III x 1 +5V SATA Power Connector x 1	
AUDIO	—	
DIO/GPIO	—	
SMBus/I2C	SMBus x1	I2C/SMBus x1 (Default: SMBus)
Touch	—	
FAN	Fanless	DC Fan x 1 (optional: Smart Fan)
SIM	Micro SIM x 1 (Optional)	
Front Panel	HDD LED, PWR LED, Power Button	PWR LED, Power Button
Others	—	
EXPANSION		
Mini PCI-E/mSATA	Full-size mPCIe x 1 Half size mSATA/mPCIe x 1(Default mSATA, select by BIOS)	Full-size mPCIe x 1 Full-Size mSATA/mPCIe x 1 (Default mSATA, BOM Option: mPCIe)
M.2	—	
Others	—	
ENVIRONMENT & CERTIFICATION		
OPERATING TEMP	32°F ~ 122°F (0°C ~ 50°C)	
STORAGE TEMP	-40°F ~ 176°F (-40°C ~ 80°C)	
OPERATING HUMIDITY	0% ~ 90% relative humidity, non-condensing	
MTBF (HOURS)	123,000	126,000
EMC	CE/FCC Class A	
Note		

Note: All specifications are subject to change without notice.

Model	PCM-CFS
System	
Form Factor	5.25" Compact Board
CPU	8th/9th Generation Intel® Core™ i7/i5/i3/Celeron® Socket Type (Up to 65W)
CPU Frequency	Up to 5.0GHz
Chipset	Intel® Q370 (TDP: 6W)
Memory Type	SODIMM DDR4 Memory Slot x 2
Max. Memory Capacity	Up to 32GB
BIOS	UEFI only
Wake on LAN	Yes
Watchdog Timer	255 Levels
Power Requirement	ATX
Power Supply Type	ATX
Power Consumption (Typical)	CPU 65W TDP
Dimension (L x W)	203mm x 146mm
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	LVDS x 2, CRT x 1, DVI x 1
Backlight inverter supply	18/24bit (2CH)
I/O	
Ethernet	Intel® GbE i219 x 1, Intel® GbE i211 x 1
Audio	ALC269 (With Amplifier)
USB Port	USB 3.2 Gen 1 x 4, USB 2.0 x 4 (All headers)
Serial Port	RS232 x 8, RS232/422/485 x 2 (All headers)
Parallel Port	—
HDD Interface	SATA 6.0 Gb/s x 3
FDD Interface	—
SSD	—
Expansion Slot	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	16-bit
SIM	—
TPM	TPM 2.0
Touch	—
Note	

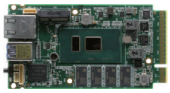
Note: All specifications are subject to change without notice.

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 Module



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)	12V, 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)	3.94" x 6.89" x 0.79" (100 mm x 175 mm x 20 mm)	3.94" x 2.36" x 0.79" (100 mm x 60 mm x 20 mm)
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)	—	
Certification	CE/FCC (Class B)	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	LAN I219, RJ45 x 1	Intel I211, RJ45 x 1
USB Port	USB 3.2 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(optional)	M.2 2230 (E-Key)
Note		

Embedded Platforms ▸
UP Boards

Model	UP Board	UP 4000
System		
Processor	Intel® Atom™ x5-Z8350 Processor SoC	Intel® Pentium® N4200/ Celeron® N3350/ Atom E3950 ™ Processor SoC
Graphics	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	Intel® Gen 9 HD, supporting 4K Codec Decode and Encode for HEVC4, H.264,VP8
I/O	HDMI x 1 I2S Audio port x 1	HDMI x 1
Camera	MIPI-CSI (4 MEGA pixel)	—
USB	USB 2.0 x4 USB 2.0 pin header (10 pins in total) x 2 USB3.0 OTG x 1	USB 3.2 Gen 1 (Type A) x 3 USB 2.0 pin header (10 pins in total) x 2 1x USB3.0 OTG via USB type C
Expansion	40 pin General Purpose bus, supported by Altera Max V. ADC 8-bit@188ksos	40 pin GPIO x 1 M.2 2230 x 1
RTC	Yes	
Power	5V DC-in @ 4A 5.5/2.1mm jack	12V DC-in @5A
Dimension	3.37"x 2.22"(85.6mm x 56.5mm)	
Memory	1GB/ 2GB/ 4GB DDR3L-1600	onboard LPDDR4 max to 8GB
Storage	eMMC 16GB / 32GB/ 64GB	eMMC 32GB/ 64GB
Display Interface	DSI/eDP	HDMI 1.4bx 1 DP 1.2 via USB TYPE C Connector
Ethernet	Gb Ethernet (full speed) RJ-45 x 1	
OS Support	Win 10 Linux (ubilinux, Ubuntu, Yocto)	Microsoft Windows 10 (full), Windows IOT Core Yocto project 3.1 Kernel 5.4 Ubuntu 20.04 Kernel 5.4
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Operation Humidity	10% ~ 80% relative humidity, non-condensing	
Certification	CE/FCC Class A, RoHS Compliant	
Note		

Note: All specifications are subject to change without notice.

Model	UP Squared	UP Squared Pro
System		
Processor	Intel® Pentium® N4200/ Celeron® N3350/ Atom™ E3940/ E3950 Processor SoC	Intel® Pentium® N4200/ Celeron® N3350/ Atom™ E3950 Processor SoC
Graphics	Intel® Gen 9 HD, supporting 4K Codec Decode and Encode for HEVC4, H.264, VP8	
I/O	HDMI x 1 DP x 1 I2S Audio Port	HDMI x 1 DP x 1 COM port (RS422/RS232/RS485) x 2 Audio Jack x 1
Camera	CSI 2-Lane + CSI 4-Lane	—
USB	USB 2.0 x 2 USB3.0 OTG x 1 USB3.0 (Type A) x 3	USB 2.0 x 2 USB 3.2 Gen 1 OTG x 1 USB 3.2 Gen 1 (Type A) x 3
Expansion	40 pin GPIO x 1 Full-sized Mini-PCIe x 1 (PCIe & SATA + USB2.0) M.2 2230 x 1 SATA3 x 1 60 pin EXHAT x 1	40 pin GPIO x 1 M.2 2230 E-key x 1 M.2 2280 M-key x 1 SATA3 x 1 M.2 3042/3052 B-key x 1
RTC	Yes	
Power	5V DC-in @ 4A-6A	12V-24V DC-in (Lockable plug)/ Phoenix connector (optional)
Dimension	3.37" x 3.54" (85.6 mm × 90 mm)	10.16cm x 10.16cm
Memory	2GB (single channel) LPDDR4 4GB/8GB (dual channel) LPDDR4)	2GB (single channel) LPDDR4 4GB/8GB (dual channel) LPDDR4
Storage	eMMC 32 GB / 64 GB / 128 GB	eMMC 32 GB / 64 GB
Display Interface	eDP	HDMI1.4 x 1 DP1.2 x 1 eDP x 1
Ethernet	Gb Ethernet (full speed) RJ-45 x 2	
OS Support	Microsoft Windows 10 (full), Windows IOT Core, Linux (ubilinux, Ubuntu, Yocto), Android Nougat	Microsoft Windows 10 (full), Windows IOT Core Linux: Ubuntu 18.04.5, Ubuntu 20.04.1, Yocto 3.1
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	with Fan: 32°F ~ 140°F (0°C ~ 60°C, with airflow 0.5m/s) with Heatsink: 32°F ~ 122°F (0°C ~ 50°C, with airflow 0.5m/s)
Operation Humidity	0% ~ 90% relative humidity, non-condensing	
Certification	CE/FCC Class A, RoHS Compliant, REACH	
Note		

Note: All specifications are subject to change without notice.

UP Boards

Model	UP Squared 6000	UP Xtreme
System		
Processor	Intel® Atom® X6413E / X6425RE, Celeron® N6210 (no PSE), Pentium® J6426 Processor SoC	8th generation Intel® Core i7/i5/i3/Celeron® Processor SoC
Graphics	Intel® UHD Graphics	Intel® Graphics , GEN 9
I/O	HDMI 2.0b x 1 DP 1.2 x 1 eDP x 1 (Limited to Atom series) Audio wafer x 1 RS-232/422 x 1 (Limited to Atom series)	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 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 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
Camera	—	
USB	USB 2.0 x 2 (from wafer x 1) USB 3.2 Gen 2 Type A x 2 USB 3.2 Gen 2 Type C (support OTG) x 1 (Limited to Atom series)	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 M.2 2230 E-key x 1 M.2 2280 PCIe Gen3.0x2 M-key x 1 SATA3 x 1 M.2 3052 B-key x 1 Micro SIM slot x 1 100 pin high speed board-board connector x 1 (Limited to Atom series) TPM 2.0 (Limited to Atom series)	M.2 2230 E Key x 1 M.2 2280 M key x 1 mPCIe slot x 1 100pin connector x 1 40pin HAT
RTC	Yes	RTC battery, CR2032 x 1
Power	12V DC-in (Lockable plug)	12V - 60VDC
Dimension	4" x 4" (101.6mm x 101.6mm)	122 x 120 mm
Memory	Up to 8GB DDR4	Onboard DDR4 memory, Max 16GB Single Channel: 4GB Dual Channel: 8GB, 16GB
Storage	UP to 64GB eMMC	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
Display Interface	HDMI 2.0b x 1, DP 1.2 x 1, eDP x 1 (Limited to Atom series)	HDMI2.0 x 1, DP1.2 x 1, eDP x 1, CEC support with STM32 on HDMI x 1
Ethernet	GbE x 1, 2.5GbE x 1 Atom: Intel® i210-IT, i225-IT PC Client: Intel® i211-AT, i225-V	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	Microsoft Windows 10 (full), Windows IOT Core Linux: Ubuntu 20.04 LTS, Yocto 3.1	Win 10 Linux Ubuntu 18.04 with Kernel 5.0 Linux Yocto 2.7 with Kernel 4.19
Operating Temperature	With Heatsink: 32°F ~ 140°F (0°C ~ 60°) / 0.5 airflow	32°F ~ 140°F (0°C ~ 60°C)
Operation Humidity	0% ~ 90% relative humidity, non-condensing	
Certification	CE/FCC Class A, RoHS Compliant, REACH	
Note		

Note: All specifications are subject to change without notice.

Launching in Q1

Model	UP Xtreme i11	UP Xtreme i12
System		
Processor	11th Gen Intel® Core™ Processor SoC Core i7-1185G7E Core i7-1185GRE Core i5-1145 G7E Core i5-1145GRE Core i3-1115GRE Celeron® 6305E	12th generation Intel® Core™ i7/i5/i3/Celeron Processor SoC (Alder Lake-P)
Graphics	Intel® Iris® Xe graphics	
I/O	RJ45 Ethernet Connector x 2 HDMI/DP Stack Connector x 1 Power Button / LED x 1 DC Connector (Lockable) x 1 10-pin USB 2.0 x 2 / HSUART x 1 SATA Connector with Power Connector (5V, GND) x 1 4pin Fan Connector x1 6pin Front Panel Header M.2 2230 E Key x 1 M.2 2280 M Key x 1 USB 4.0 40-pin HAT Connector x 1 M.2 3052 B Key x 1 with SIM 10-pin RS232/422/485 Pin Header x 2 Alternative 4pin ATX Connector Behind DC Connector	RJ45 Ethernet Connector x 2 HDMI/DP Stack Connector x 1 Power Button / LED x 1 DC Connector (Lockable) x 1 10-pin USB 2.0 x 2 / HSUART x 1 SATA Connector with Power Connector (5V, GND) x 1 4pin Fan Connector x1 6pin Front Panel Header x 1 M.2 2230 E Key x 1 M.2 2280 M Key x 2 USB 4.0 x 1 40-pin HAT Connector x 1 M.2 3052 B Key x 1 with SIM x 1 10-pin RS232/422/485 Pin Header x 2 Alternative 4pin ATX Connector Behind DC Connector x 1
Camera	—	Mipi CSI*2 via (61pin header)
USB	USB 3.2 Gen 2 Type A x 3 USB 2.0 x 1 USB4.0 x 1 Type-C	USB 3.2 ports with STACK Connector x 2 (USB 3.2 + USB2.0) STACK Connector for 2 ports USB4.0/Thunderbolt Type-C x 1
Expansion	M.2 2230 E Key x 1 M.2 2280 M Key x 1 M.2 3052 B Key x 1 40-pin HAT Connector x 1 PCIe x 4 Slot	M.2 2230 E Key x 1 M.2 2280 M Key x 2 M.2 3052 B Key x 1 40-pin HAT Connector x 1
RTC	RTC battery, CR2032 x 1	RTC battery, CR2032 x 1
Power	12V	12-36V
Dimension	120.35 x 122.5 mm	
Memory	DDR4 SO-DIMM Slot x 2 (up to 64GB 3200Mhz)	On board LPDDR5 up to 32GB
Storage	SATA3 (6Gb/s) x 1: a. SATA Connector x 1 b. M.2 2280 M Key NVMe(PCIe [x2])	SATA3 (6Gb/s) x 1: M.2 2280 M Key NVMe(PCIe [x4])
Display Interface	HDMI 2.0 x 1 DP 1.4 x 1 + eDP x 1, 4K at 60hz internal panel	HDMI 2.0 x 1 DP 1.4 x 1 + eDP x 1, 4K at 60hz internal panel DP 1.4 via USB type C
Ethernet	Intel® i225IT x 1, Intel® i219 (vPRO) x 1	Intel® i225IT (TSN) x 1, Intel® i219 (vPRO) x 1
OS Support	Win 10/IOT Linux Ubuntu 20.04.02 Linux Yocto 3.1	Win 10/IOT Linux Ubuntu, Yocto
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Operation Humidity	0% ~ 90% relative humidity, non-condensing	
Certification	CE/FCC class A, RoHS Compliant, REACH	
Note		

Note: All specifications are subject to change without notice.

Embedded Platforms ▸

UP Boards

Model	UP Core	UP Core Plus
System		
Processor	Intel® Atom™ x5-Z8350 Processor SoC	Intel® Atom™ x5-E3930/x5-E3940/x7-E3950 Processor SoC
Graphics	Intel® HD 400 Graphics	Intel® HD 500 Graphics / x5-3900 Series Intel® HD 505 Graphics / x7-3900 Series
I/O	Full eDP x 1 HDMI x 1 Audio via HDMI and I2C (from docking)	eDP x 1, DP x 1 Audio Port via HDMI and I2S (from docking)
Camera	MIPI-CSI (2 Lane) MIPI-CSI (4 Lane)	CSI 2-Lane x 1 CSI 4-Lane x 1
USB	USB 3.0 Host x 1 USB 2.0 pin header x 2	USB 2.0 pin header x 2 USB3.0 OTG x 1 USB3.0 x 1
Expansion	100 pin docking connector	100pin docking connector x 2 including: USB 2.0, USB 3.0, 6 PCI-E Lane, SATA, I2C, I2S, SPI, PWM, LPC, SDIO, HSUART, ISH, GPIO
RTC	Yes	
Power	5V DC-in @ 4A 5.5/2.1mm jack	12V DC-in @ 3A -5A 5.5/2.1mm jack
Dimension	56.5 mm × 66 mm	2.4" x 3.54" (56 mm x 90 mm)
Memory	2GB/ 4GB DDR3L-1600	2GB (single channel) LPDDR4 4GB/8GB (dual channel) LPDDR4
Storage	eMMC 16GB / 32GB/ 64GB	eMMC 32 GB / 64 GB/ 128GB
Display Interface	DSI/eDP x 1	eDP x 1, DP x 1
Ethernet	—	
OS Support	Win 10 Linux (ubilinux, Ubuntu, Yocto) Android Marshmallow	Microsoft Windows 10 Professional, Microsoft Windows 10, IoT Core, Linux (Ubuntu, Yocto), Android 7.0
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Operation Humidity	10% ~ 80% relative humidity, non-condensing	
Certification	CE/FCC Class A, RoHS Compliant, REACH	
Note		

Note: All specifications are subject to change without notice.

UP Expansion Modules

Model	Connect Plus
System	
VPU	—
Ethernet	Intel I211-AT x 3 (A10-001) Intel I210-IT for wide temperature x 3 (A10-002)
Power Requirement	12V5A
Power Supply Type	12VDC from M/B
Power Consumption (Typical)	Max 13.5W 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 A
OS Support	Microsoft Windows 10 Linux: ubilinux, Ubuntu, Yocto Android-IA 9.0
I/O	
Ethernet	001: Intel® I211-AT x 3 002: Intel® I210-IT for wide temperature
USB	USB 3.0 Type A x 1
SATA	—
Expansion Slot	M.2 3042/3052 B-key DOCKING I DOCKING II UART x 1 SPI x 1
Note	

Model	UP-3G HAT
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
I/O Placements	
External Ports	RS-232/422/485 Connector (DB9) 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
Others	
Form Factor	2.56" x 2.2" (65 mm × 56 mm)
Certification	CE/FCC Class A
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Operating Humidity	10%~80% RH, non-condensing
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.

Model	EMB-APL1	EMB-APL3
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)	
Chipset	Intergrated into SoC	
Memory	DDR3L 1333/1600/1867MHz SODIMM x 2, max. 8GB, non-ECC, un-buffered memory	
I/O Chipset	NCT6116D	
Ethernet	Realtek® PCIe Gb LAN 8111H x 2	
Audio	Realtek® ALC897	
TPM	Nuvoton NPCT652ABCYX TPM2.0 (default: No)	Nuvoton NPCT652 TPM2.0 (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	
BIOS	128Mbit Flash ROM x 1, 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	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	Up to 1920 x 1200 @60Hz	
DVI	—	
HDMI	Up to 3840 x 2160 @ 30Hz	Up to 3840 x 2160 @30 Hz(HDMI 1.4b)
Display Port	—	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz (Colay with VGA)
LVDS	Up to 1920 x 1200 @60Hz, dual-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	12V~24V wide-range voltage input back panel DC jack x 1; 4-pin ATX Power connector x 1	12V DC jack (screw type) 4-pin internal power connector
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	CE & FCC
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	263,080	230,820
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 (5 Gbps) x 2, USB 2.0 x 2	USB 3.2 Gen 1 (5 Gbps) x 4
Display I/O	HDMI x 1, VGA x 1	VGA/DP x 1, HDMI x 1
Audio I/O	Mic-in, Line-out	Line-out x 1
LAN I/O	RJ-45 x 2	LAN (RJ-45) port x 2
Serial Port	—	
PS/2 Port	—	
Others	DC power jack x 1	
Internal I/O Connectors		
Storage	SATA 6.0Gb/s x 2(1 colay with M.2 M-key), M.2 M-key (22 x 42mm) x 1	SATA 6.0Gb/s x 2(1 colay with M.2 M-key), M.2 M-key (22 x 42mm) x 1
USB	USB 2.0 headers support additional 3 USB ports (2*5-pin, p=2.00mm) x 2	USB 2.0 headers support additional 6 USB ports (2*5-pin, p=2.00mm) x 3
Display I/O	40-pin LVDS/eDP connector x 1 (default LVDS)	
Audio I/O	—	AAFP
Serial Port	RS-232/422/485 x 1, RS-232 x 5	
PS/2 Port	—	
Parallel Port	—	
DIO	8-bit x 1 (In/Out programmable)	
FAN	4-pin Chassis Fan x 1	
Power	—	
Others	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	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
OS		
OS Support	Windows® 10 64bit, Ubuntu16.04.02/Kernel4.8.0	
Note		

Note: All specifications are subject to change without notice.

Model	EMB-BT1	EMB-BT2
System		
Processor	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® Celeron® J1900 Processor (4C @ 2.00 GHz CPU, 688/854 MHz GFX, 10W TDP)
Chipset	—	
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), Non-ECC, un-buffered memory, Dual-channel memory architecture flat type	DDR3L 1333 MHz SODIMM x 1 up to 8 GB, Non-ECC, un-buffered memory
I/O Chipset	Fintech 81866D	
Ethernet	Realtek® PCIe Gb LAN 8111H x 2	
Audio	Realtek® ALC897	
TPM	Infineon SLB9635 TT 1.2 (default : No)	
Expansion Slots	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	Full-size Mini-Card (mSATA default PCIe+USB optional) x 1, PCIe [x1] 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, VGA+HDMI, LVDS+HDMI	VGA+LVDS, Dual LVDS
VGA	Up to 1920 x 1200 @60 Hz	
DVI	—	
HDMI	Up to 1920 x 1200 @60 Hz	—
Display Port	—	
LVDS	Up to 1920 x 1080 @60Hz, dual-channel 18/24-bit (via CH7511)	Dual LVDS, 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	12VDC	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)	111,131	290,990
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 (5 Gbps)/2.0 x 1, USB 2.0 x 2	USB 2.0 x 6
Display I/O	VGA x 1, HDMI x 1	VGA x 1
Audio I/O	Line-out x 1	Mic-in x 1, Line-out x 1
LAN I/O	LAN (RJ-45) port x 2	
Serial Port	COM (RS-232) (optional) x 1	COM (RS-232/422/485) x 1, COM (RS-232) x 2
PS/2 Port	—	PS/2 Keyboard Mouse combo x 1
Others	DC port (12V) Screw type x 1	—
Internal I/O Connectors		
Storage	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	SATA2 (3.0Gb/s) x 2 (1 colay with mSATA), Ful Size Mini-Card slot (mSATA) x 1
USB	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	USB 2.0 (2 x 5-pin, 2.54mm) x 2 ports support additional 4 USB
Display I/O	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	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
Audio I/O	AAFP x 1	AAFP x 1, Speaker x 1
Serial Port	Box header for COM (RS-232) x 4, Box header for COM (RS-232/422/485) x 1	Box header for COM (RS-232) x 3
PS/2 Port	PS/2 Keyboard Mouse 6 PIN Connector x 1	—
Parallel Port	SPP/EPP Mode	—
DIO	DIO (4in/4out) x 1	
FAN	Chassis Fan connector x 1	
Power	12V AUX Power Connector x 1, AT/ATX mode select jumper (default : No) x 1	24PIN ATX power connector x 1, AT/ATX mode select jumper (default : No) x 1
Others	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	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 Fedora	
Note		

Embedded Platforms ▸
Industrial Motherboards

Model	EMB-BT4	MIX-EHLD1
System		
Processor	Intel® Celeron® J1900 Processor (4C @ 2.00 GHz CPU, 688/854 MHz GFX, 10W TDP)	Intel® Elkhart LAKE Processor Max. 12W TDPs
Chipset	—	
Memory	DDR3L 1333 MHz SODIMM x 2 up to 8 GB (for J1900), Non-ECC, un-buffered memory, Dual-channel memory architecture flat type	SO-DIMM, max. 32GB , DDR4 3200MTS x 2
I/O Chipset	Fintech 81866D	NCT6126D
Ethernet	Realtek PCIe Gb LAN 8111Hx 1	RTL8111H x 2
Audio	Realtek® ALC897	
TPM	Infineon SLB9635 TT 1.2 (default : No)	Nuvoton NPCT750 TPM2.0 onboard
Expansion Slots	Full-size Mini-Card (mSATA default) (PCIe+USB optional) + SIM Card (default: No) x 1, Half-size Mini-Card (PCIe+USB) x 1	M.2 Slot (B key; 3042/3052) x1 mini-PCIe(Full/Half)) x 1 SIM socket x 1(default for B-key)
BIOS	64 M bit Flash ROM, AMI BIOS	256Mbit 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	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on Chassis
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	Chassis Fan (fanless)	Chassis Fan
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® HD Graphics	Intel® UHD Graphics
Graphics Multi Display	VGA+LVDS, VGA+HDMI, LVDS+HDMI	3 Independent Display(1xVGA+1x HDMI + 1x LVDS/eDP)
VGA	Up to 1920 x 1200 @60 Hz	
DVI	—	
HDMI	Up to 1920 x 1200 @60 Hz	Up to 4096 x 2160 @ 60Hz
Display Port	—	
LVDS	Up to 1920 x 1080 @60Hz, dual-channel 18/24-bit (via CH7511)	Up to 1920 x 1080 @60Hz, Daul Channel 18/24 bit (via CH7513) co-layout eDP (default LVDS)
eDP	—	Up to 3840 x 2160 @ 30Hz
Backlight Control	Voltage/PWM	Voltage / PWM, use HW control
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	12VDC	12(+/-5%) 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% R/H, 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)	295,750	—
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1/2.0 x 1, USB 2.0 x 2	USB 3.2(Gne1) ports x 2 USB 2.0 ports x 4 (upper 2 ports by BOM Optional)
Display I/O	HDMI x 1	HDMI x 1, VGA x 1
Audio I/O	Line in x 1, Line-out x 1	Mic-in x 1, Line out x 1
LAN I/O	LAN (RJ-45) port x 1	1GbE x 2
Serial Port	COM (RS-232) x 1	RS232 by BOM Optional
PS/2 Port	—	
Others	DC port (12V) Screw type x 1	DC Jack x 1
Internal I/O Connectors		
Storage	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	M.2 Slot (M key; 2280;PCIex2) SATA 6Gb/s x 1 SATA power connector (5V / 12V @1A) x 1
USB	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	USB2.0 ports x 2
Display I/O	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	40-pin LVDS / eDP connector x 1
Audio I/O	AAFP x 1	AAFP follow ASUS pin out x 1
Serial Port	Box header for COM (RS-232) x 4, Box header for COM (RS-232/422/485) x 1	Box header x 5 for COM (COM1: RS-232/422/485 supports 5V/12V/RI; COM2~6: RS-232)
PS/2 Port	PS/2 Keyboard Mouse 6 PIN Connector x 1	—
Parallel Port	SPP/EPP Mode	—
DIO	DIO (4in/4out) x 1	Digital I/O box header x 1
FAN	Chassis Fan connector x 1	4-pin Chassis Fan connector x 1
Power	12V AUX Power Connector x 1, AT/ATX mode select jumper (default : No) x 1	—
Others	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	Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, Clear CMOS jumper x 1, AT/ATX mode select jumper x 1
OS		
OS Support	Windows® 10 64-bit, Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora	Windows® 10 64-bit, Linux Ubuntu 64 bit (20.04.2/Kernel 5.4)
Note		

Note: All specifications are subject to change without notice.

Model	MIX-KLUD1	MIX-TLUD1
System		
Processor	Core™ i3-7100U, 2C/4C, 2.4GHz, 3M, 300MHz/1.00GHz (Turbo) GFX, ~15W TDP	Intel® 11th Gen (Tiger Lake-UP3) Core™ Processors, up to 28W TDPs - i7-1185G7E, QC, Max Speed up to 4.4GHz - i5-1145G7E, QC, Max Speed up to 4.1GHz - i3-1115G4E, DC, Max Speed up to 3.9GHz - Celeron 6305E, DC, 1.8GHz
Chipset	—	
Memory	SODIMM x 2, max. 32GB, DDR4-2133 non-ECC, un-buffered memory	DDR4 2666/3200 MHz SODIMM x 2, Up to 64GB
I/O Chipset	NCT6793D	IT5121E
Ethernet	Intel® PCIe Gb LAN 219LM (vPro for i7-7600U/i5-7300U) x 1 Intel® PCIe Gb LAN 210AT x 1	Intel® PCIe Gb LAN 219LM x 1 Intel® PCIe Gb LAN 225LM x 1
Audio	Realtek® ALC897 with Amp.	Realtek® ALC897
TPM	NPCT650 TPM2.0 onboard (default: No)	Nuvoton NPCT750 TPM2.0 onboard
Expansion Slots	PCIe 3.0 [x1] x 1 M.2 M key (22 x 80 mm) x 1, SATA & PCIe [x4] M.2 E key (22 x 30 mm) x 1 for Wireless-wifi module (PCIe+USB)	PCIe 3.0 [x4] x 1, mini-card x 1(PCIe/SATA; BOM Optional)
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	Intel® Xe(Gen 12) Graphics
Graphics Multi Display	HDMI x 2, eDP x 1 or LVDS x 1	Quad Display
VGA	—	
DVI	—	
HDMI	HDMI 1.4 up to 4096 x 2340 @24Hz	HDMI 2.0
Display Port	—	DP1.4
LVDS	Up to 1920 x 1200 @ 60 Hz, Dual Channel 18/24 bit	Up to 1920 x 1200 @60Hz, Dual Channel 18/24 bit (via CH7511B)
eDP	UP to 4096 x 2304 @ 60Hz	eDP1.4b
Backlight Control	Voltage/PWM; Max 1A	—
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	12V DC	12(+/-5%) DC
Operation Temperature	32°F ~ 131°F (0°C ~ 55°C)	32°F ~122°F (0°C ~ 50°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" (170 mm x 170 mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	400,330	—
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 (5 Gbps) x 4	USB 3.2 Gen2 x 2, USB2.0 x 4
Display I/O	HMDI x 2	HDMI x 2, DP++ x 2
Audio I/O	Mic-in x 1, Line-out x 1	
LAN I/O	LAN (RJ-45) port x 2	1GbE x 1, 2.5GbE x 1
Serial Port	—	
PS/2 Port	—	
Others	DC Power Jack x 1	—
Internal I/O Connectors		
Storage	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	M.2 M key (2280) for (NVMe;PCIex4) storage x 1 SATA 6.0Gb/s x 1
USB	USB 2.0 pin header x 2 support additional 4 USB ports	USB 3.0 Box header x 1 (support additional USB3.2 Gen1 x 2ports)
Display I/O	40-pin LVDS connector x 1, 40-pin eDP connector x 1, LCD backlight connector(inverter) x 1	40-pin LVDS connector x 1, 40-pin eDP connector x 1
Audio I/O	Speaker for 2W@4Ω x 1, AAFP follow ASUS pin out x 1	AAFP follow ASUS pin out x 1
Serial Port	Box header x 2 for COM (COM1: RS-232/422/485 supports 5V/12V/RI)	Box header x 2 for COM (COM1/2: RS-232)
PS/2 Port	—	
Parallel Port	—	
DIO	8-bit programmable (4-in/4-out) x 1	Digital I/O box header x 1
FAN	4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1	4-pin CPU Fan connector x 1 4-pin Chassis Fan connector x 1
Power	—	
Others	Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, CMOS jumper x 1	Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, Clear CMOS jumper x 1, AT/ATX mode select jumper x 1; SIM socket x 1
OS		
OS Support	Windows® 10 64-bit	Windows® 10 64-bit, 20.04.2/Kernel 5.8
Note		

Model	MIX-H310A1	MIX-H310A2
System		
Processor	8th/9th Gen. Intel® Core™ LGA 1151 socket Processor (formerly Coffee Lake-S), Max. 65W TDPs	8th/9th Gen. Intel® Core™ LGA 1151 socket Processor (formerly Coffee Lake-S), Max. 65W TDPs
Chipset	Intel® H310 Express 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	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 i210AT x 3	Intel® PCIe Gb LAN 219V x 1, Intel® PCIe Gb LAN i210AT x 1
Audio	Realtek® ALC897 with Amp.	
TPM	NPCT650 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	Intel® UHD Graphics
Graphics Multi Display	HDMI+VGA	HDMI+VGA, HDMI+DP, HDMI+LVDS, VGA+DP, VGA+LVDS, 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 @60 Hz, Dual Channel 18/24 bit (1 x inverter)
eDP	—	
Backlight Control	—	
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%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)	288,900	333,520
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 (5 Gbps) x 4, USB 2.0 x 2	USB 3.2 Gen 1 (5 Gbps) x 4
Display I/O	VGA x 1, HDMI x 1	VGA x 1, HDMI x 1, DP x 1
Audio I/O	Mic-in x 1, Line-out x 1	
LAN I/O	LAN (RJ-45) port x 4	LAN (RJ-45) port x 2
Serial Port	—	1x COM(RS485/422/232)
PS/2 Port	—	
Others	—	
Internal I/O Connectors		
Storage	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 80mm) at bottom side x 1 (SATA only)	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 80mm) x 1
USB	USB 2.0 (2 x 5-pin, 2.00mm) x 1 ports support additional 2 USB.	USB 2.0 (2 x 5-pin, 2.00mm) x 1 port support additional 2 USB.
Display I/O	—	LVDS x 1
Audio I/O	AAFP x 1, Speaker x 1	
Serial Port	Box header for COM (RS-232/422/485) x 1, Box header for COM (RS-232) x 1	Box header for COM (RS-232) x 1
PS/2 Port	—	
Parallel Port	—	
DIO	Digital I/O box head x 1	Digital I/O box header x 1
FAN	4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1	
Power	—	
Others	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		

Model	MIX-H310D1	MIX-H310D2
System		
Processor	8th/9th Gen. Intel® Core™ LGA 1151 socket Processor (formerly Coffee Lake-S), Max. 65W TDPs	
Chipset	Intel® H310 Express Chipset	
Memory	DDR4 2666 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 64GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture
I/O Chipset	NCT6793D	
Ethernet	Realtek ® PCIe Gb LAN RTL8111H	Intel® GbE LAN i219V x 1, Intel® GbE LAN i210AT x 1
Audio	Realtek® ALC897	
TPM	NPCT650 TPM2.0 (default: No)	NPCT750 TPM2.0 (default: No)
Expansion Slots	PCIe3.0 [x4] x 1 M.2 E-key(22 x 30 mm) x 1 for Wireless-wifi module (PCIe+USB)	PCIe3.0 [x16] x 1 M.2 E-key(22 x 30 mm) x1 for Wireless-wifi module (PCIe+USB; 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+HDMI, HDMI+eDP, HDMI+VGA, VGA+eDP
VGA	—	Up to 1920 x 1200 @ 60 Hz (Optional)
DVI	—	
HDMI	Up to 4096 x 2304@24Hz (HDMI 1.4b)	Up to 3840 x 2160 @30 Hz(HDMI 1.4)
Display Port	Up to 4096 x 2304@60Hz	—
LVDS	Up to 1920 x 1200 @ 60 Hz, dual-channel 18/24 bit (via CH 7511)	—
eDP	UP to 4096 x 2304 @ 60Hz	
Backlight Control	Voltage/PWM	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)	246,210	373,720
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 (5 Gbps) x 4	USB 3.2 Gen 1 x 4, USB 2.0 x 4
Display I/O	HDMI x 2, DP x 1 + HDMI x 1 (Optional), DP x 2 (Optional)	HDMI x 2, VGA x 1 (Optional)
Audio I/O	Mic-in x 1, Line-out x 1	
LAN I/O	LAN (RJ-45) port x 2	
Serial Port	—	
PS/2 Port	—	
Others	DC Jack	12V DC Jack (max:192W)
Internal I/O Connectors		
Storage	SATA3.0 (6.0Gb/s) x 2 M.2 M-key (SATA) (22 x 42mm) x 1	SATA3.0 (6.0Gb/s) x 2 M.2 M-key (22 x 42/80mm; PCIe) x 1
USB	USB 2.0 (2 x 5-pin, 2.00mm) x 3 ports support additional 5 USB.	USB 2.0 (2 x 5-pin, 2.00mm) x 1 port support additional 1 USB
Display I/O	—	eDP x 1
Audio I/O	AAFP x 1, Speaker header x 1	AAFP x 1
Serial Port	Box header for COM (RS-232/422/485) x 1 Box header for COM (RS-232) x 1	Box header for COM (RS-232) x 1; RS-232/422/485 x 1
PS/2 Port	—	
Parallel Port	—	
DIO	Digital I/O box header x 1	
FAN	4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1	
Power	—	
Others	Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, CMOS jumper 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
OS		
OS Support	Windows® 10 64-bit Linux Ubuntu 18.04 LTS	Windows® 10 64-bit, Linux Ubuntu 18.04.2
Note		

Note: All specifications are subject to change without notice.

Model	MIX-Q370A1	MIX-Q370A2
System		
Processor	8th/9th Gen. Intel® Core™ LGA 1151 socket Processor (formerly Coffee Lake-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	
I/O Chipset	NCT6793D	
Ethernet	Intel® PCIe Gb LAN 219LM x 1, Intel® PCIe Gb LAN i210AT x 3	Intel® PCIe Gb LAN 219LM x 1, Intel® PCIe Gb LAN i210AT x 1
Audio	Realtek® ALC897 with Amp.	
TPM	NPCT650 TPM2.0 (default: No)	
Expansion Slots	PCIe3.0 [x16] x 1 M.2 E-key (22 x 30mm; Support CNVi)	PCIe3.0 [x16] x 1
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,HDMI+VGA+LVDS,HDMI+DP+LVDS,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	—	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24 bit (1 x inverter)
eDP	—	
Backlight Control	—	
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%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)	—	329,280
Rear Panel I/O Ports		
USB	USB 3.2 Gen 2 (10 Gbps) x 4, USB 2.0 x 2	USB 3.2 Gen 2 (10 Gbps) x 4, USB2.0 x 4
Display I/O	VGA x 1, HDMI x 1	VGA x 1, HDMI x 1, DP x 1
Audio I/O	Mic-in x 1, Line-out x 1	
LAN I/O	LAN (RJ-45) port x 4	LAN (RJ-45) port x 2
Serial Port	—	1x COM(RS485/422/232)
PS/2 Port	—	
Others	—	
Internal I/O Connectors		
Storage	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 80mm) at bottom side x 1(SATA only)	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 80mm) x 1
USB	USB 2.0 (2 x 5-pin, 2.00mm) x 1 ports support additional 2 USB	
Display I/O	—	LVDS x 1
Audio I/O	AAFP x 1, Speaker x 1	
Serial Port	Box header for COM (RS-232/422/485) x 1 Box header for COM (RS-232) x 1	Box header for COM (RS-232) x 1
PS/2 Port	—	
Parallel Port	—	
DIO	Digital I/O box header x 1	
FAN	4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1	
Power	—	
Others	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. 64-bit	Windows® 10 64-bit, Linux Ubuntu 18.04 LTS
Note		

Note: All specifications are subject to change without notice.

Model	MIX-Q370D1	MIX-Q370D2
System		
Processor	8th/9th Generation Intel® Core™ i7/ i5 /i3, Pentium® LGA 1151 socket Processor (formerly Coffee Lake-S), Max. 65W TDPs	8th/9th Gen. Intel® Core™ LGA 1151 socket Processor (formerly Coffee Lake-S), Max. 65W TDPs
Chipset	Intel® Q370 Express Chipset	
Memory	SODIMM x 2, Max. 32GB, DDR4 2666/2400 MHz, Non-ECC, Un-buffered Memory, Dual channel	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® PHY i219LM Giga LAN (support Intel® AMT 12.0) x 1 Intel® i210AT Giga LAN x 1	Intel® GbE LAN i219V x 1, Intel® GbE LAN i210AT x 1
Audio	Realtek® ALC897	
TPM	Nuvoton TPM version 2.0	NPCT750 TPM2.0
Expansion Slots	PCIe 3.0 [x4] x 1 M.2 M key (22 x 80 mm) x 1 at Bottom side, SATA & PCIe [x4] M.2 E key (22 x 30 mm) x 1 for Wireless-wifi module (PCIe+USB)	PCIe3.0 [x16] x 1 M.2 E-key(22 x 30 mm) x1 for Wireless-wifi module (PCIe+USB; CNVi)
BIOS	256M bit Flash ROM, 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/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	Three Independent Display	HDMI+VGA+eDP, HDMI+HDMI+VGA,HDMI+HDMI+eDP
VGA	—	Up to 1920 x 1200 @ 60 Hz
DVI	—	
HDMI	—	Up to 3840 x 2160 @30 Hz(HDMI 1.4b)
Display Port	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz, with Digital Audio, DP++ supported	—
LVDS	LVDS Up to 1920 x 1200 @ 60 Hz, dual-channel 18/24 bit (via Chrontel 7511)	—
eDP	eDP UP to 4096 x 2304 @ 60Hz	
Backlight Control	Voltage/PWM	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% R/H, non-condensing	
Certificate	CE & FCC (Class A)	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)	256,310	319,160
Rear Panel I/O Ports		
USB	USB 3.2 Gen 2 (10 Gbps) x 4	USB 3.2 Gen2 x 6, USB2.0 x 4
Display I/O	DP x 2	VGA x 1, HDMI x 2
Audio I/O	Mic-in x 1, Line out x 1	
LAN I/O	LAN (RJ-45) port x 2	
Serial Port	—	
PS/2 Port	—	
Others	DC Jack	12V DC Jack (max:192W)
Internal I/O Connectors		
Storage	SATA 6.0Gb/s x4 M.2 M key (22 x 80 mm) x1 (Support Intel® NVMe M.2 SSD)	SATA3.0 (6.0Gb/s) x 2 M.2 M-key (22 x 42/80mm; NVME/SATA) x 1
USB	3 x USB 2.0 pin header support additional 6 USB ports	USB 2.0 (2 x 5-pin, 2.00mm) x 1 port support additional 2 USB
Display I/O	40-pin LVDS connector x 1, 40-pin eDP connector x 1 LCD backlight connector (inverter) x 1	eDP x 1
Audio I/O	Speaker for 2W/4Ω x 1, AAFP follow ASUS pin out x 1	AAFP x 1
Serial Port	Box header x 1 for COM (COM1: RS-232/422/485 supports 5V/12V/RI)	Box header for COM (RS-232) x 1; RS-232/422/485 x 1
PS/2 Port	—	
Parallel Port	—	
DIO	8-bit x 1 (In/Out programmable)	Digital I/O box header x 1
FAN	4-pin Chassis Fan connector x 1 4-pin CPU Fan connector x 1	4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1
Power	12V DC Power jack x 1	12V ATX Power Connector x 1
Others	Front panel header x 1, Clear CMOS jumper x 1, AT/ATX select jumper x 1 Chassis Intrusion x 1, 4-pin SATA power 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, Ubuntu 16.04 LTS	Windows® 10 64-bit, Linux Ubuntu 18.04.2
Note		

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 i210AT x 1	Intel® PCIe Gb LAN 219LM for vPro x 1, Intel® PCIe Gb LAN 210AT x 1
Audio	Realtek® ALC897	
TPM	Infineon SLB96XX TT 1.2/2.0 (default: No)	
Expansion Slots	PCIe3.0 [x16] x 1, M.2 M-key(22 x 80 mm) at bottom side x 1	PCIe 3.0 [x4] x 1 M.2 M key (22 x 80 mm) at Bottom side x 1 M.2 E key (22 x 30 mm) 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	1~255 steps by software program
Smart Fan Control	CPU Fan/ Chassis Fan	CPU Fan/ Chassis Fan
Wake On LAN/ PXE	Yes (WOL/PXE)	Yes (WOL/PXE)
Power State	S3, S4, S5	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" (170 mm x 170 mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	221,850	292,450
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 (5 Gbps) x 4, USB 2.0 x 2	USB 3.2 Gen 1 x 4
Display I/O	VGA x 1, DP x 3	DP x 2
Audio I/O	Mic-in x 1, Line-out x 1	
LAN I/O	LAN (RJ-45) port x 2	
Serial Port	—	
PS/2 Port	PS/2 for KB/MS x 1	—
Others	—	DC Jack x 1
Internal I/O Connectors		
Storage	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 80 mm) at bottom side 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	USB 2.0 (2 x 5-pin, 2.00mm) x 2 ports support additional 4 USB.	USB 2.0 (2 x 5-pin, 2.00mm) x 3 ports support additional 6 USB.
Display I/O	—	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
Audio I/O	Speaker x 1	AAFP x 1, Speaker x 1 (pin out refer to manual)
Serial Port	Box head for COM (RS-232/422/485) x 1, Box head for COM (RS-232) x 1	Box header for COM (RS-232/422/485) x 1
PS/2 Port	—	
Parallel Port	—	
DIO	Digital I/O box head x 1	
FAN	4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1	
Power	ATX Power Connector x 2, AT/ATX mode select jumper (optional) x 1	12V AUX Power Connector x 1, AT/ATX mode select jumper (optional) x 1
Others	Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, CMOS jumper 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.

Model	EMB-H110B	MAX-Q470A
System		
Processor	6th/7th Generation Intel® Core™ i7/i5/i3, LGA1151 Socket Processor, Max. 65W TDPs	Intel® 10th Generation (Comet Lake-S) Core™ i9 /i7/ i5 /i3, Pentium 14nm LGA 1200 socket Processor, Max. 10 Core 80W
Chipset	Intel® H110	Intel® Q470E Express Chipset
Memory	DDR4 2133/1867 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture	DIMM x 4, DDR4 (2933/2666/2400 MHz, max. 128GB) non-ECC, un-buffered memory Dual channel memory architecture
I/O Chipset	NCT6791D	IT5121E + F81216HD
Ethernet	Realtek® PCIe Gb LAN 8111H x 2	Intel® PHY i219LM Giga LAN (supports Intel® AMT 12.0) x 1, Intel® i210AT Giga LAN x 1, RJ45 x 2
Audio	Realtek® ALC897	Realtek® ALC897 6-Channel High Definition Audio CODEC
TPM	Infineon SLB96XX TT 1.2/2.0 (default: No)	Nuvoton NPCT750AADYX TPM2.0 onboard (optional; default: onboard)
Expansion Slots	PCIe2.0 [x1] x 1, Full-size Mini-Card (mSATA default) (PCIe+USB optional)x 1, Half-size Mini-Card (PCIe+USB) x 1	PCIe 3.0[x16] Slot (16 lanes) (8 lanes when dual use PCIe[x16]) x 1, PCIe 3.0[x16] (8 lanes) x 1,PCIe 3.0[x4] Slot x 1, PCIe 3.0[x4] Slot (2 lanes) x 1, M.2 2230 E-key (PCIe/CNVI) x 1, M.2 2280/2242 M-key (PCIex4) x 1, M.2 3042/3052/2242 B-key (PCIe/USB/SATA) x 1, Micro SIM card Slot x 1
BIOS	64 M bit 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	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	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	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+HDMI+VGA, HDMI+HDMI+LVDS, HDMI+VGA+LVDS, HDMI+HDMI+HDMI
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 (HDMI/DP Combo)	Up to 4096 x 2160 @ 60 / 30 Hz, with Digital Audio
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	Up to 1920 x 1200 @ 60 Hz, Dual Channel 18/24 bit
eDP	UP to 4096 x 2340 @60Hz	—
Backlight Control	Voltage/PWM	Yes
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	12VDC	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% 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" (244 mm x 244 mm)
Weight	1.1 lb (0.5 Kg)	1.76 lb (0.8 Kg)
MTBF (Hours)	315,210	259,360 Hrs
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 x 4	USB 3.2 Gen2 ports (10 Gbps) x 2, USB 3.2 Gen1 ports (5 Gbps) x 4
Display I/O	DP/HDMI (BOM Change) x 2	VGA x 1, HDMI x 3 (2.0 x 1, 1.4 x 2)
Audio I/O	Mic-in x 1, Line-out x 1	Audio Jack x 3: Line-in, Mic-in, Line-out
LAN I/O	LAN (RJ-45) port x 2	
Serial Port	—	DB-9 COM (supports RS-232/422/485, 5V/12V/RI) x 1
PS/2 Port	—	
Others	DC Jack x 1	BIOS recovery button
Internal I/O Connectors		
Storage	SATA3 (6.0Gb/s) x 2, Full Size Mini-Card (mSATA) x 1, SATA power connector x 1	SATA III (6.0Gb/s) ports x 4, support RAID 0/1/5/10M.2 2280/2242 M-key (PCIex4) x 1
USB	USB 2.0 (2 x 5-pin, 2.00mm) x 2 ports support additional 4 USB.	USB3.2 Gen1 box header support additional 2 USB ports (2x5PIN, p=2.54mm) x 1, USB3.2 Gen1 Type A (vertical) connector x 1, USB 2.0 header support additional 2 USB ports (2x5PIN, p=2.54mm) x 1
Display I/O	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	40-pin LVDS connector x 1
Audio I/O	AAFP x 1, Speaker x 1	speaker header (Line-out) x 1, AAFP x 1
Serial Port	Box header for COM (RS-232/422/485) x 1, Box header for COM (RS-232) x 1	RS-232 headers x 3
PS/2 Port	—	
Parallel Port	—	—
DIO	Digital I/O box header x 1	8-bit Digital I/O interface (In/Out programmable) x 1
FAN	4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1	CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 2
Power	12V AUX Power Connector x 1, AT/ATX mode select jumper (optional) x 1	24-pin EATX Power header x 1, 8-pin EATX 12V Power connector x 1
Others	Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard (pin header) x 1, CMOS jumper x 1	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, Buzzer on board 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® 10 64bit, Linux Ubuntu 64bit (20.04.0/Kernel 5.4)

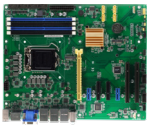
Model	MAX-Q370A	MAX-Q370C
System		
Processor	8th/9th Generation Intel® (Coffee Lake-S/Coffee Lake-S Refresh) Core™ i9/ i7/ i5 /i3, Pentium™ 14nm LGA 1151 socket processor, max. TDP 8 Core 95W	Intel® 8th/9th Generation (Coffee Lake-S/Coffee Lake-S Refresh) Core™ i9 /i7/ i5 /i3, Pentium 14nm LGA 1151 socket Processor, Max. 6 Core 95W
Chipset	Intel® Q370 Express Chipset	
Memory	DIMM x 4, DDR4 (2666/2400/2133 MHz, max. 128GB) Non-ECC, un-buffered memory Dual-channel memory architecture	
I/O Chipset	NCT6793D+ F81216HD	
Ethernet	Intel® PHY i219LM Gb LAN (supports Intel® AMT 12.0) x 1 Intel® i210AT Gb LAN x 1 RJ45 x 2	
Audio	Realtek® ALC897 6-Channel High Definition Audio CODEC	
TPM	Nuvoton NPCT750 TPM2.0 onboard	
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 1, M.2 2230 E-key (PCIe/USB) 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 3 M.2 2280/2242 M-key (PCIe SSD (Ideal speed: 800MB/S)) x 1
BIOS	256Mbit Flash ROM, AMI BIOS	256 Mbit 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/ Chassis Fan x 2	
Wake On LAN/ PXE	Yes (WOL / PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® UHD Graphics	Intel® Graphics Media Accelerator
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	
Rear Panel I/O Ports		
USB	USB 3.2 Gen 2 ports (10 Gbps) x 6, USB 3.2 Gen 1 ports (5 Gbps) x 4	USB 3.2 Gen 1 ports (5 Gbps) x 6, USB 2.0 ports x 4
Display I/O	DP x 1, VGA x 1, HDMI x 2	
Audio I/O	Audio Jack x 3: Line-in, Mic-in, Line-out	
LAN I/O	LAN (RJ45) ports x 2	
Serial Port	—	
PS/2 Port	PS/2 combo Port (Keyboard & Mouse) x 1	
Others	—	
Internal I/O Connectors		
Storage	SATA3 (6.0Gb/s) ports x 4, support RAID 0/1/5/10 M.2 2280 M-key (PCIex4/SATA3) x 1	SATA III (6.0Gb/s) ports x 4, support RAID 0/1/5/10 M.2 2280/2242 M-key (PCIe SSD (Ideal speed: 800MB/S)) x 1
USB	USB 2.0 headers support additional 3 USB ports (2x5PIN, p=2.54mm)	USB 3.2 Gen 1 box header x 1, support additional 2 ports (2x5PIN, p=2.54mm), USB 3.2 Gen 1 Type A (vertical) connector x 1
Display I/O	—	
Audio I/O	Speaker for 2W@4Ω x 1	speaker header (Line-out) x 1, AAFP x 1
Serial Port	RS-232 Box headers x 5 RS-232/422/485 Box header (COM1, Pin9 supports 5V/12V/RI optional) x 1	RS-232 headers x 5 RS-232/422/485 (COM1, supports 5V/12V/RI optional) x 1
PS/2 Port	—	
Parallel Port	—	
DIO	8-bit Digital I/O interface (In/Out programmable) x 1	
FAN	CPU Fan connector (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 2	CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 2
Power	—	
Others	Chassis intrusion x 1 AT/ATX mode select jumper x 1 Front panel header x 1 Clear CMOS jumper x 1	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
OS		
OS Support	Windows® 10 64bit, Linux Ubuntu 64bit (18.04.1/Kernal4.8.0)	
Note		

Industrial Motherboards

Model	MAX-C246A	MAX-H310A
System		
Processor	8th/9th Generation Intel® (Coffee Lake-S/Coffee Lake-S Refresh) Core™ i9/ i7/ i5 /i3, Pentium™ 14nm, Celeron™, Xeon™ E-2200/2100, LGA 1151 socket Processor, max. TDP 8 Core 95W	8th/9th Generation Intel® (Coffee Lake-S/Coffee Lake-S Refresh) Core™ i9/ i7/ i5 /i3, Pentium 14nm LGA 1151 socket Processor
Chipset	Intel® C246 Express Chipset	Intel® H310 Express Chipset
Memory	DIMM x 4, DDR4 (2666/2400/2133 MHz, max. 128GB) ECC, un-buffered memory Dual-channel memory architecture	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 i219LM Gb LAN (supports Intel® AMT 12.0) x 1 Intel® i210AT Gb LAN x 1, RJ45 x 2	Intel® PHY i219V Gb LAN x 1, Intel® i210AT Gb LAN x 1, RJ45 x 2
Audio	Realtek® ALC897 6-Channel High Definition Audio CODEC	
TPM	Nuvoton NPCT750 TPM2.0 onboard	
Expansion Slots	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)	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
BIOS	256Mbit Flash ROM, AMI 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 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	CPU Fan/ Chassis Fan x 2	CPU Fan x 1, Chassis Fan x 2
Wake On LAN/ PXE	Yes (WOL / PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® UHD Graphics	
Graphics Multi Display	HDMI+VGA+DP, HDMI+HDMI+VGA, HDMI+HDMI+DP	VGA+DP; VGA+HDMI; DP+HDMI
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" (244mmx244mm)	
Weight	1.76 lb (0.8 Kg)	
MTBF (Hours)	264,820	261,090
Rear Panel I/O Ports		
USB	USB 3.2 Gen 2 ports (10 Gbps) x 6, USB 3.2 Gen 1 ports (5 Gbps) x 4	USB 3.2 Gen 1 ports (5 Gbps) x 4, USB 2.0 ports x 4
Display I/O	DP x 1, VGA x 1, HDMI x 2	DP x 1, VGA x 1, HDMI x 1
Audio I/O	Audio Jack x 3: Line-in, Mic-in, Line-out	Audio Jack x 3: Line-in, Mic-in, Line-out
LAN I/O	LAN (RJ45) ports x 2	
Serial Port	—	
PS/2 Port	PS/2 combo port (Keyboard & Mouse) x 1	PS/2 stack Port (Keyboard & Mouse) x 1
Others	—	
Internal I/O Connectors		
Storage	SATA3 (6.0Gb/s) ports x 4, support RAID 0/1/5/10 M.2 2280 M-key (PCIex4/SATA3) x 1	SATA III (6.0Gb/s) ports x 3; BOM option: can support additional 2 SATA M.2 2280 M-key (BOM option: PCIex1 or SATA; default: SATA) x 1
USB	USB 2.0 headers support additional 3 USB ports (2x5PIN, p=2.54mm)	USB 2.0 header support additional 2 USB ports (2x5PIN, p=2.54mm) x 1
Display I/O	—	
Audio I/O	Speaker for 2W@4Ω x 1	Speaker header (Line-out) x 1, AAFP x 1
Serial Port	RS-232 Box headers x 5 RS-232/422/485 Box header (COM1, Pin9 supports 5V/12V/RI optional) x 1	RS-232Box headers x 5 RS-232/422/485Box header (COM1, Pin9 supports 5V/12V/RI optional) x 1
PS/2 Port	—	
Parallel Port	—	
DIO	8-bit Digital I/O interface (In/Out programmable) x 1	
FAN	CPU Fan connector (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 2	
Power	—	
Others	Chassis Intrusion x 1, AT/ATX mode select jumper x 1 Front panel header x 1, Clear CMOS jumper x 1	Chassis intrusion x 1, AT/ATX mode select jumper x 1 Front panel header x 1, Clear CMOS jumper x 1, LPC box header x 1
OS		
OS Support	Windows® 10 64-bit, Linux Ubuntu 64-bit (18.04.1/Kernal4.8.0)	
Note		

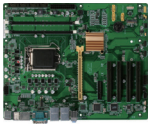
Model	IMBM-Q170A	IMBM-H110A
System		
Processor	7th/6th Generation Intel® Core™ i7/i5/i3/Pentium®/ Celeron® 14nm LGA1151 Socket Processor	
Chipset	Intel® Q170 Express Chipset	Intel® H110
Memory	288-pin DIMM x 4, max. 64GB, DDR4 2133/1867 MHz, non-ECC, un-buffered memory, dual-channel memory architecture	288-pin DIMM x 2, max. 32GB, DDR4 2400/2133/1867, dual-channel
I/O Chipset	NCT6791D, F81216HD	
Ethernet	LAN 1: Intel® PHY i219LM Gb LAN (supports iAMT 11.0) x 1 LAN 2: Intel® i210AT Gb LAN x 1 ,RJ-45 x 2	Intel® i210AT Gb LAN x 2
Audio	Realtek® ALC897 6-Channel High Definition Audio CODEC	
TPM	Nuvoton NPCT750 TPM2.0 onboard (optional; default: not onboard)	Nuvoton NPCT650 TPM2.0 (default : No)
Expansion Slots	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	PCIe [x16] x 1, PCIe [x1] (open edge) x 2, PCI x 1, M.2 M key (22 x 42mm) x 1
BIOS	128M bit Flash ROM x 1, AMI 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	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V/ 3VSB/VBAT, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/ Chassis Fan x 2	CPU Fan x 1, 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	DVI-I+HDMI, HDMI+HDMI	DVI-D+HDMI, HDMI+HDMI, VGA+HDMI, DVI-D+VGA
VGA	Up to 1920 x 1200 @60Hz	
DVI	Up to 1920 x 1200 @60Hz	
HDMI	HDMI 1.4 up to 4096 x 2304 @30Hz	HDMI 1.4 up to 4096 x 2304 @24Hz
Display Port	—	
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 Form Factor, 9.6" x 9.6" (244mm x 244mm)	Micro-ATX, 9.6" x 9.6" (244mm x 244mm)
Weight	1.76 lb (0.8 Kg)	
MTBF (Hours)	193,470	245,250
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 port x 10	USB 3.2 Gen 1 x 4
Display I/O	DVI-I x 1, HDMI x 2	HDMI x 2, VGA x 1, DVI-D x 1
Audio I/O	Audio Jack x 3: Line-in, Mic-in, Line-out	Line-in, Mic-in, Line-out
LAN I/O	LAN (RJ-45) port x 2	RJ-45 x 2
Serial Port	RS-232/422/485 DB-9 connector x 1 (COM1, supports 5/12V on RI pin)	DB-9 COM x 1 (supports RS-232/422/485)
PS/2 Port	PS/2 Combo Port (Keyboard & Mouse) x 1	Stack Port (Keyboard & Mouse) x 1
Others	—	
Internal I/O Connectors		
Storage	SATA3 (6.0Gb/s) port x 6, supports RAID 0/1/5/10	SATA 6.0Gb/s x 5, M.2 M key (22 x 42mm) x 1
USB	USB 2.0 header supports additional 2 USB ports x 2	USB 2.0 x 6
Display I/O	—	
Audio I/O	Speaker header x 1 (Line-out)	AMP speaker header x 1 (Line-out)
Serial Port	RS-232 header x 5	RS-232 header x 5
PS/2 Port	—	
Parallel Port	—	
DIO	8-bit Digital I/O interface x 1 (In/Out programmable)	8-bit x 1 (In/Out programmable)
FAN	CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 2	4-pin CPU Fan x 1, 4-pin Chassis Fan x 2
Power	—	
Others	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	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, Windows® 8.1 64-bit, Windows® 10 64-bit, ,Linux Fedora 64bit	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.

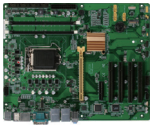


Model	ATX-Q370A	ATX-C246A
System		
Processor	Intel® 8th/9th Generation (Coffee Lake-S/Coffee Lake-S Refresh) Core™ i9/ i7/ i5 /i3, Pentium 14nm LGA 1151 socket Processor, max. TDP 8 Core 95W	Intel® 8th/9th Generation (Coffee Lake-S/Coffee Lake-S Refresh) Core™ i9/ i7/ i5 /i3, Pentium 14nm, Celeron™, Xeon E-2200/2100, LGA 1151 socket Processor, max. TDP 8 Core 95W
Chipset	Intel® Q370 Express Chipset	Intel® C246 Express Chipset
Memory	DIMM x 4, DDR4 (2666/2400/2133 MHz, max. 128GB) Non-ECC, un-buffered memory Dual channel memory architecture	DIMM x 4, DDR4 (2666/2400/2133 MHz, max. 128GB) 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® i210AT Giga LAN x 1 (BOM option: i210AT x 2) RJ45 x 2 (BOM option: RJ45 x 3)	
Audio	Realtek® ALC897 6-Channel High Definition Audio CODEC	
TPM	Nuvoton NPCT750 TPM2.0 onboard	
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	
Rear Panel I/O Ports		
USB	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	
Display I/O	HDMI x 1, VGA x 1, DP x 1, USB Type-C x 1 (optional)	
Audio I/O	Audio Jack x 3: Line-in, Mic-in, Line-out	
LAN I/O	LAN (RJ45) ports x 2 (BOM option: RJ45 x 3)	
Serial Port	—	
PS/2 Port	—	
Others	—	
Internal I/O Connectors		
Storage	SATA III (6.0Gb/s) ports x 4, support RAID 0/1/5/10 M.2 2280 M-key (PCIex4/SATA3) x 1	
USB	USB 2.0 headers x 1 support additional 2 USB ports (2x5PIN, p=2.54mm)	
Display I/O	—	
Audio I/O	1 x speaker header (Line-out)	
Serial Port	5 x RS-232 headers 1 x RS-232/422/485 (COM1, supports 5V/12V/RI optional)	
PS/2 Port	—	
Parallel Port	—	
DIO	8-bit Digital I/O interface (In/Out programmable) x 1	
FAN	CPU Fan connector(s) (4-pin) x 1 Chassis Fan connector(s) (4-pin) x 2	
Power	—	
Others	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.



Model	ATX-H310A	IMBA-Q170A
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	Intel® 7th/ 6th Generation(Kaby Lake-S/ Skylake-S) Core™ i7/i5/i3/Pentium®/ Celeron® 14nm LGA1151 Socket Processor
Chipset	Intel® H310 Express Chipset	Intel® Q170
Memory	DIMM x 2, DDR4 (2666/2400/2133 MHz, max. 64GB) non-ECC, un-buffered memory Dual channel memory architecture	288-pin DIMM x 4, max. 64GB, DDR4 2400/2133/1867, dual-channel
I/O Chipset	NCT6793D+ F81216HD	NCT6791D, F81216HD
Ethernet	Intel® PHY i219V Giga LAN x 1 Intel® i210AT Giga LAN x 1 RJ45 x 2	LAN1: Intel® PHY I219LM Gb LAN (supports iAMT 11.0), LAN2: Intel® I210AT Gb LAN
Audio	Realtek® ALC897 6-Channel High Definition Audio CODEC	
TPM	Nuvoton NPCT750 TPM2.0 onboard (optional, default: on-board)	Nuvoton NPCT750AADYX TPM2.0 onboard (optional; default: onboard)
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)	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
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	CPU Fan x1, Chassis Fan x 2
Wake On LAN/ PXE	Yes (WOL / PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® Graphics Media Accelerator	Intel® HD Graphics
Graphics Multi Display	HDMI+VGA, HDMI+DP, VGA+DP	VGA+HDMI, HDMI+HDMI, VGA+HDMI+HDMI
VGA	Up to 1920 x 1200 @60Hz (via IT6516B)	Up to 1920 x 1200 @60Hz
DVI	—	
HDMI	Up to 4096 x 2160 @ 30 Hz	HDMI 1.4 up to 4096 x 2304 @24Hz
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	ATX Form Factor, 12" x 9.6" (305mm x 244mm)	ATX, 12" x 9.6" (305 mm x 244 mm)
Weight	1.76 lb (0.8 Kg)	
MTBF (Hours)	285,600	219,970
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 ports x 2, USB 2.0 ports x 4	USB 3.2 Gen 1 x 10
Display I/O	HDMI x 1, VGA x 1, DP x 1	HDMI x 2, VGA x 1
Audio I/O	Audio Jack x 3: Line-in, Mic-in, Line-out	Line-in, Mic-in, Line-out
LAN I/O	LAN (RJ45) ports x 2	RJ-45 x 2
Serial Port	DB-9 COM x 1 (supports RS-232/422/485, 5V/12V/RI)	
PS/2 Port	—	Stack Port (Keyboard & Mouse) x 1
Others	—	
Internal I/O Connectors		
Storage	SATA III (6.0Gb/s) ports x 3 M.2 2280/2242 M-key (PCIex1/SATA3) x 1	Supports RAID 0/1/5/10 SKU1: SATA 6.0Gb/s x 3, M.2 M key (SATA) x 1 SKU2: SATA 6.0Gb/s x 4, M.2 M key (PCIex4) x 1
USB	USB 3.2 Gen 1 headers support additional 2 USB ports (2x5PIN, p=2.54mm) x 1, USB 2.0 Type A (vertical) x 1	USB 2.0 x 3
Display I/O	—	
Audio I/O	AAFP x 1	Speaker header x 1 (Line-out)
Serial Port	RS-232 header x 5	
PS/2 Port	—	
Parallel Port	—	
DIO	8-bit Digital I/O interface (In/Out programmable) x 1	8-bit DIO x 1 (In/Out programmable)
FAN	CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 2	4-pin CPU Fan x 1, 4-pin Chassis Fan x 2
Power	—	
Others	Chassis Intrusion x 1, AT/ATX mode select jumper x 1, Front panel header x 1, Clear CMOS jumper x 1	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® 10 64bit, Linux Ubuntu 64 bit (18.04.3/Kernal5)	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		



Model	IMBA-H110A
System	
Processor	7th/6th Generation Intel® Core™ i7/i5/i3/Pentium®/ Celeron® 14nm LGA1151 Socket Processor
Chipset	Intel® H110
Memory	288-pin DIMM x 2, max. 32GB, DDR4 2400/2133/1867, dual-channel
I/O Chipset	NCT6791D, F81216HD
Ethernet	LAN1: Intel® PHY I219V Gb LAN, LAN2: Intel® i210AT Gb LAN
Audio	Realtek® ALC897
TPM	Nuvoton NPCT750 TPM2.0
Expansion Slots	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 x 1, 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, VGA+DP, HDMI+DP
VGA	Up to 1920 x 1200 @60Hz
DVI	—
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, 12" x 9.6" (305 mm x 244 mm)
Weight	1.76 lb (0.8 Kg)
MTBF (Hours)	244,580
Rear Panel I/O Ports	
USB	USB 3.2 Gen 1 x 4, USB 2.0 x 2
Display I/O	HDMI x 1, DP x 1, VGA x 1
Audio I/O	Line-in, Mic-in, Line-out
LAN I/O	RJ-45 x 2
Serial Port	DB-9 COM x 1 (supports RS-232/422/485)
PS/2 Port	Stack Port (Keyboard & Mouse) x 1
Others	—
Internal I/O Connectors	
Storage	SATA 6.0Gb/s x 3, M.2 M key (22 x 80mm) x 1
USB	USB 2.0 x 4
Display I/O	—
Audio I/O	Speaker header x 1 (Line-out)
Serial Port	RS-232 header x 5
PS/2 Port	—
Parallel Port	—
DIO	8-bit x 1 (In/Out programmable)
FAN	4-pin CPU Fan x 1, 4-pin Chassis Fan x 2
Power	—
Others	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	

Half-size SBC - ISA

Model	HSB-800I-A11
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	USB2.0 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	

Note: All specifications are subject to change without notice.

Focus · Agility · Competitiveness

www.aaeon.com

02

AIOT SOLUTIONS

AI@Edge Solutions



Model	BOXER-8120AI	BOXER-8221AI	BOXER-8222AI
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 x 1	32GB Micro-SD (A version) or 16GB eMMC (B version)	32 GB MicroSD Card (Version A) 16 GB eMMC (Version B) Mini-Card (Full Size) x 1 (PCIE+SATA+USB)
Display Interface	HDMI 2.0		HDMI 2.0 x 1
Ethernet	10/100/1000Base-TX x 4	10/100/1000Base-TX x 1	10/100/1000Base-TX x 2
I/O	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 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 3.2 Gen 1 x 4 LAN x 1 PD x1 (Powered Device) 40-pin I/O x 1 (GPIO/I2S/I2C/Audio/SPI/UART) RS-232 x 1 HDMI x 1 Mico-USB x 1 for Flash OS DC Power Input x 1 Recovery Button x 1 Micro-USB for Flash OS x 1
Expansion	MicroSD x1 SATA x1 (optional) USB 2.0 x 3 (optional)	M.2 E-Key 2230 x 1(for WiFi)	Antenna x 2 M.2 2230 E Key x 1 (for Wi-Fi)
Indicator	Power LED	Power LED x 1	
OS Support	AAEON ACLinux 4.9, Compliance with Ubuntu 18.04	Linux (AAEON ACLinux 4.9) Linux (NVIDIA Jetpack 4.5)	
Power Supply			
Power Requirement	10~24V DC-In with DC Jack	12Vdc w/ 2-pin terminal block	DC 12V~24V 2-pin terminal
Mechanical			
Mounting	Wallmount		
Dimensions (W x H x D)	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	3.39" x 2.87" x 1.3" (88mm x 75mm x 39mm)	6.92" x 3.94" x 1.54" (175.8 mm x 100.0 mm x 39.0 mm)
Gross Weight	4.40 lb (2 Kg) 5.51 lb (2.5 Kg) for CS-N0001	1.10 lb (0.5 Kg)	2.31 lbs (1.05 kg)
Net Weight	2.20 lb (1 Kg) 3.31 lb (1.5 Kg) for CS-N0001	0.66 lb (0.3 Kg)	1.28 lbs (0.58 kg)
Environmental			
Operating Temperature	-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, according to IEC60068-2 with 0.5 m/s AirFlow)	14°F ~ 158°F (-10°C ~ 70°C, according to IEC60068-2 with 0.5 m/s AirFlow)
Storage Temperature	-13°F ~ 176°F (-25°C ~ 80°C)	-49°F ~176°F (-45°C ~ 80°C)	-40 °F ~ 176°F(-40°C ~ 80°C)
Storage Humidity	95% @ 40°C, non-condensing		
Anti-Vibration	Random, 5 Grms/ 5 ~ 500Hz/ operation	3 Grms/ 5 ~ 500Hz/ operation – MicroSD or eMMC	Random, 3.5Grm, 5~500Hz
Anti-Shock	—		
Certification	CE/FCC class A		
Note	TAIWAN EXCELLENCE 2019 COMPUTEX d&i awards 2019 by TAITRA	TAIWAN EXCELLENCE 2021	

Note: All specifications are subject to change without notice.

AI@Edge Solutions



Model	BOXER-8223AI	BOXER-8230AI	BOXER-8231AI
System			
AI Accelerator	Nvidia Jetson Nano	NVIDIA® Jetson™ TX2 NX	
CPU	Quad Core ARM® Cortex®-A57 MPCore Proccessor	NVIDIA® Denver 2 (Dual-Core) Processor & ARM® Cortex® -A57 MPCore (Quad-Core) Processor	4 Core ARM A57 Complex and 2 core NVIDIA Denver2 64-bit CPU
System Memory	4GB LPDDR4	4GB 128-bit LPDDR4 @ 1600 MHz	4GB LPDDR4
Storage Device	16GB eMMC + Micro SD card slot	eMMC 5.1 16GB MicroSD card slot x 1 2.5" SATA drive bay x 1 (A4 only)	16GB eMMC + MicroSD
Display Interface	HDMI Type A 2.0 *1 (Output) HDMI Type A 1.4 *1 (Input)	HDMI Type A x 1 for HDMI 2.0	HDMI 2.0
Ethernet	POE PSE LAN x2 (802.3at)	RJ-45 x 5 for GbE LAN	10/100/1000Base-TX x 1
I/O	USB Type A x 4 for USB 3.2 Gen1 GbE LAN with LED Indicator POE PSE LAN x2 (802.3at) DB-9 x 1 for RS-232/485 DB15 x 1 Female for 13 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	USB Type A x 4 for USB 3.2 Gen 1 DB-9 x 2 for RS-232 HDMI Type A x 1 for HDMI 2.0 MicroSD slot x 1 Micro USB x 1 for O.S Flash Recovery button x 1 Power button with power LED 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
Expansion	Minicard*1 w/ SIM slot M.2 E-Key 2230 x 1(for WiFi)	SATA III Port x 1 for 2.5" SATA drive (A4 only)	M.2 E-Key 2230 x 1(for WiFi)
Indicator	Power LED x 1		
OS Support	Nvidia Jetpack 4.5 or above	Ubuntu 18.04	Linux (AAEON ACLinux 4.9) Linux (NVIDIA Jetpack 4.5 and above)
Power Supply			
Power Requirement	DC 12V~24V with 2-pin terminal block ATX mode	DC-in 10V~24V with 2-pin terminal block ATX mode	12Vdc w/ 2-pin terminal block
Mechanical			
Mounting	Wall mount kit (default)	Wall mount kit	Wallmount
Dimensions (W x H x D)	7.09" x 5.35" x 2.41" (180.0 mm x 136 .0 mm x 61.1 mm)	A3 : 6.92" x 3.94" x 1.54"(175.8mm x 100.0mm x 39.0mm) A4 : 6.92" x 3.94" x 2.41"(175.8mm x 100.0mm x 61.3mm)	3.46" x 2.95" x 1.53" (88mm x 75mm x 39mm)
Gross Weight	4.63 lbs. (2.1 kg)	A3 : 2.91lbs (1.3kg) A4 : 3.5lbs (1.6kg)	1.10 lb (0.5 kg)
Net Weight	2.87 lbs. (1.3 kg)	A3 : 1.51lbs (0.67kg) A4 : 2.0lbs (0.91kg)	0.66 lb (0.3 kg)
Environmental			
Operating Temperature	14°F ~ 158°F (-10°C ~ 70°C), with 0.5m/s airflow	A3 : -13°F ~ 149°F(-25°C ~ 65°C,according to IEC60068-2 with 0.5 m/s AirFlow) A4 : -13°F ~ 167°F(-25°C ~ 75°C,according to IEC60068-2 with 0.5 m/s AirFlow)	-25°C ~ 45°C, according to IEC60068-2 with 0.5 m/s AirFlow
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)		
Storage Humidity	5 ~ 95% @ 40°C, non-condensing		95% @ 40°C, non-condensing
Anti-Vibration	Random, 3 Grms, 5~500Hz	3.5Grm / 5~500Hz / operation (eMMC, MicroSD, or SSD)	3.5 Grms/ 5 ~ 500Hz/ operation – eMMC
Anti-Shock	50G peak acceleration (11 msec. duration,eMMC)	50G peak acceleration (11 msec. duration, eMMC, microSD, or SSD)	50G peak acceleration (11 msec. duration) – eMMC
Certification	CE / FCC class A / UKCA	CE / FCC class A	
Note			

Note: All specifications are subject to change without notice.

Model	BOXER-8233AI	BOXER-8240AI
System		
AI Accelerator	NVIDIA® Jetson™ TX2 NX	NVidia® AGX Xavier
CPU	NVIDIA® Denver 2 (Dual-Core) Processor & ARM® Cortex® -A57 MPCore (Quad-Core) Processor	8-core ARM v8.2 64bit CPU, 8MB L2 + 4MB L3
System Memory	4GB 128-bit LPDDR4	32 GB 256-Bit LPDDR4 x 1 137 GB/s
Storage Device	eMMC 16GB MicroSD slot x 1 Full-size mSATA (sharing slot with Full-size minicard module) 2.5" SATA drive bay x 1	32GB eMMC 5.1 Micro SD card slot 2.5" SATA drive bay M.2 Key M 2280
Display Interface	HDMI Type A x 1 for HDMI 2.0	HDMI 2.0 x 1
Ethernet	RJ-45 x 2 for GbE PoE/PSE (802.3at) RJ-45 x 1 for GbE LAN	10/100/1000 Base-TX with IEEE 802.11 af PoE LAN x 4
I/O	USB Type A x 4 for USB 3.2 Gen 1 USB Micro A/B x 1 for OS Flash RJ45 x 2 for GbE PoE/PSE x 2 (802.3at) (Total 60W) RJ-45 x 1 for GbE LAN DB-9 x 1 for RS-232/485 & CANbus DB15 x1 for Digital I/O 13-Channel (programmable) Recovery port x1 MicroSD slot x 1 Antenna opening x 4 HDMI Type A for HDMI 2.0 output x 1 HDMI Type A for HDMI 1.4 input x 1 Power Button x 1	PoE x 4 (IEEE 802.af, total 60W) USB Type A x 1 for USB 3.2 Gen 1 USB Type C x 2 for USB 3.2 Gen 1 USB Type A x 1 for USB 2.0 RS-232/422/485 x1 CANBUS x 1 HDMI 2.0 x1 DP 1.4 x 1 Mic-in x 1 Line-out x 1 MicroSD slot x 1 Micro USB x 1 for O.S Flash Recovery button x 1 Power button x 1
Expansion	Full-size minicard slot x1 (PCIe/USB/mSATA, default PCIe) M.2 E-Key 2230 x 1 (for WiFi) SIM socket x 1 SATA III (6.0 Gbps) port x 1 for 2.5" drive	Expansion header 40-pin GPIO compliance with Nvidia Dev Kit 40 pins (4 pins CANBUS occupied) USB 2.0 header x 1 (Optional, circuit reserved) M.2 Key E 2230 x 1 for WiFi/Bluetooth (PCIe[x1] + USB) M.2 Key M 2280 x 1 (PCIe[x4]) SATA x 1 RS-232/422/485 pin header x 1
Indicator	Power LED x 1	
OS Support	Linux (NVIDIA Jetpack 4.5.1)	Linux (AAEON ACLinux 4.9) Linux (NVIDIA Jetpack 4.5)
Power Supply		
Power Requirement	DC 12V~24V with 2-pin terminal block ATX mode	DC 12V~24V 2-pin terminal
Mechanical		
Mounting	Wall mount kit	Wallmount
Dimensions (W x H x D)	7.09" x 5.35" x 2.41" (180.0 mm x 136 .0 mm x 61.1 mm)	8.26" x 6.46" x 2.32" (210mm x 164.2mm x 59mm)
Gross Weight	4.63 lbs. (2.1kg)	6 lbs (2.72kg)
Net Weight	2.87 lbs. (1.3kb)	4.23 lbs (1.92kg)
Environmental		
Operating Temperature	5°F ~ 131°F (-15°C ~ 55°C, according to IEC60068-2 with 0.5 m/s airflow)	14°F ~ 131°F (-10°C ~ 55°C, according to IEC60068-2 with 0.5 m/s AirFlow)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40 °F ~ 158°F(-40°C ~ 70°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	95% @ 40°C, non-condensing
Anti-Vibration	3.5Grm / 5~500Hz / operation (eMMC, MicroSD, mSATA, or SSD)	Random, 3 Grms, 5 ~ 500Hz
Anti-Shock	50G peak acceleration (11 msec. duration, eMMC, microSD, mSATA, or SSD)	—
Certification	CE / FCC class A / UKCA	CE/FCC class A
Note		TAIWAN EXCELLENCE 2022

Note: All specifications are subject to change without notice.

Model	BOXER-8250AI	BOXER-8251AI
System		
AI Accelerator	Nvidia Jetson Xavier NX	
CPU	6-core NVIDIA Carmel ARM® v8.2 64-bit CP	6 Core ARM® Carmel®V8.2 64bit CPU 6MB L2 + 4MB L3
System Memory	8GB LPDDR4x	8GB LPDDR4
Storage Device	16 eMMC and MicroSD card slot (A1, A3) 16 eMMC and MicroSD card slot and 2.5" HDD drive(A4)	16GB eMMC + MicroSD
Display Interface	HDMI 2.0	
Ethernet	10/100/1000Base-TX x 5	10/100/1000Base-TX x 1
I/O	USB Type A x 4 for USB 3.2 Gen 1 RJ-45 x 5 for GbE LAN DB-9 x 2 for RS-232 HDMI Type A x 1 for HDMI 2.0 MicroSD slot x 1 Micro USB x 1 for O.S Flash Recovery button x 1 Power button with power LED 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
Expansion	—	M.2 E-Key 2230 x 1(for WiFi)
Indicator	Power LED x 1	
OS Support	Linux (AAEON ACLinux 4.9) Linux (NVIDIA Jetpack 4.5)	
Power Supply		
Power Requirement	10 ~ 24V DC with 2-pin terminal block	12Vdc w/ 2-pin terminal block
Mechanical		
Mounting	Wallmount	Wallmount
Dimensions (W x H x D)	A1, A3 : 6.92" x 3.94" x 1.54"(175.8mm x 100.0mm x 39.0mm) A4 : 6.92" x 3.94" x 2.41"(175.8mm x 100.0mm x 61.3mm)	3.46" x 2.95" x 1.53" (88mm x 75mm x 39mm)
Gross Weight	A1, A3 : 2.48 lbs (1.12 kg) A4 : 3.5lbs (1.6kg)	1.10 lb (0.5 kg)
Net Weight	A1, A3 : 1.46 lbs (0.66 kg) A4 : 2.0lbs (0.91kg)	0.66 lb (0.3 kg)
Environmental		
Operating Temperature	A1, A3 : 14°F ~ 149°F (-10°C ~ 65°C, according to IEC60068-2 with 0.5 m/s AirFlow) A4 : -13°F ~ 158°F (-25°C ~ 70°C, according to IEC60068-2 with 0.5 m/s AirFlow)	—
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 158°F (-40°C ~ 70°C)
Storage Humidity	95% @ 40°C, non-condensing	
Anti-Vibration	3.5Grm / 5~500Hz / operation (eMMC, MicroSD, or SSD)	3 Grms/ 5 ~ 500Hz/ operation – MicroSD or eMMC
Anti-Shock	—	
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

Model	BOXER-8253AI	BOXER-8254AI
System		
AI Accelerator	NVIDIA® Jetson Xavier™ NX	
CPU	6 Core ARM® Carmel®V8.2 64bit CPU 6MB L2 + 4MB L3	
System Memory	8GB LPDDR4x	
Storage Device	eMMC 16GB MicroSD slot x 1 Full-size mSATA (sharing slot with Full-size minicard module) 2.5" SATA drive bay x 1	16GB eMMC MicroSD slot x 1 Full-size minicard slot x1 for mSATA (share with LTE slot) SATA III port x 1 for 2.5" drive
Display Interface	HDMI Type A for HDMI 2.0 x 1	HDMI 2.0
Ethernet	RJ-45 x 2 For GbE PoE/PSE (802.3at) RJ-45 x 1 For GbE LAN	10/100/1000Base-TX x 2, GbE POE x 8
I/O	USB Type A x 4 for USB 3.2 Gen 1 USB Micro A/B x 1 for OS Flash RJ-45 x 2 for PoE/PSE (802.3at) (Total 60W) RJ-45 x 1 for GbE LAN DB-9 x 1 for RS-232/485 & CANbus DB15 x1 for Digital I/O 13-Channel (programmable) Recovery Button x 1 MicroSD card slot x 1 Antenna opening x 4 HDMI Type A for HDMI 2.0 output x 1 HDMI Type A for HDMI 1.4 input x 1 Power Button x 1	RJ-45 x 8 for GbE PoE (802.11af, total 120W) RJ-45 x 2 for GbE LAN USB Type A x 1 for USB 3.2 Gen 2 USB Type A x 3 for USB 2.0 USB Micro A/B x 1 for OS Flash HDMI type A x1 for HDMI 2.0 a/b DB-9 x 1 for RS-232/485 COM switch x 1 for RS-232/485 DB-9 x 1 for CANbus DB-9 x 1 for Digital I/O 6-channel (programmable) MicroSD slot x 1 2-pin terminal block for 24V power input Power ON/OFF switch x 1 Recovery button x 1 Reset button x 1 SMA Antenna Opening x 4
Expansion	Full-size minicard slot x1 (PCIe/USB/mSATA, default PCIe) M.2 E-Key 2230 x 1 (for WiFi) SIM socket x 1 SATA III (6.0 Gbps) port x 1 for 2.5" drive	Full-Size Mini-card slot (PCIe/USB/mSATA, default PCIe) M.2 E-Key 2230 for WiFi SATA III port x 1 for 2.5" drive Header x 1 for RS-232 x1 Header x 1 for USB2.0 x 1 Wafer x 1 for Mic-in x 1 & Lin-out x 1 SIM socket x 1
Indicator	Power LED x 1	
OS Support	Linux (AAEON ACLinux4.9) Linux (NVIDA Jetpack 4.5)	Linux (AAEON ACLinux 4.9, Compliance with Ubuntu 18.04)
Power Supply		
Power Requirement	12~24V DC with 2-pin terminal block	DC 24V with 2-pin terminal block
Mechanical		
Mounting	Wall mount kit	Wall-mount
Dimensions (W x H x D)	7.09 " x 5.35 " x 2.41" (180.0 mm x 136 .0 mm x 61.1 mm)	8.27 " x 6.46 " x 2.95" (210mmx 164.2mm x 75mm)
Gross Weight	4.63 lbs. (2.1 kg)	7.5 lbs (3.4kg)
Net Weight	2.87 lbs. (1.3 kg)	5.51 lbs (2.5kg)
Environmental		
Operating Temperature	5°F ~ 131°F (-15°C ~ 55°C with 0.5 m/s airflow)	5 °F ~ 140 °F (-15°C 60 °C according to IEC60068-2 with 0.5 m/s AirFlow)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	95% @ 40°C, non-condensing
Anti-Vibration	3.5Grm / 5~500Hz / operation-eMMC,MicroSD or mSATA	3.5 Grms/ 5 ~ 500Hz/ operation – MicroSD or eMMC
Anti-Shock	50G peak acceleration (11 msec. duration,eMMC,microSD,or mSATA)	50G peak acceleration (11 msec. duration, eMMC, microSD, SATA, or SSD)
Certification	CE / FCC class A	
Note	TAIWAN EXCELLENCE 2022	

Model	BOXER-8320AI	BOXER-8521AI
System		
AI Accelerator	Intel® Movidius™ Myriad™ X x 2	Google Edge TPU ML accelerator coprocessor
CPU	Intel® Core™ i3-6100U	NXP i.MX 8M SoC (Quad-core Cortex-A53, plus Cortex-M4F)
System Memory	DDR4 SO-DIMM slot x 1, Support 2133MHz and up to 16GB	1GB LPDDR4x
Storage Device	HDD/SSD	8GB eMMC
Display Interface	HDMI, VGA	HDMI 2.0 x 1
Ethernet	10/100/1000 Base-TX x 2	10/100/1000Base-TX x 1
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	HDMI 2.0a x 1 USB Type A x 2 for USB3.2 Gen 1 USB Type A x 2 for USB2.0 RJ-45 x 1 for GbE LAN & PoE/PD(802.3at) 12Vdc (DC Jack w/lockable) Mic –in x 1 Line-out x 1 40-pin I/O x 1 (GPIO/I2C/SAI/SPI/UART/PWM) DB-9 x 1 for RS-232/485 OS Flash port x 1 (Micro USB) Micro-SD slot x 1
Expansion	—	
Indicator	Power LED	Power LED x 1
OS Support	Linux (Debian 9.8)	ACLinux 4.0 (Compatible with Debian 10)
Power Supply		
Power Requirement	9~30V with 3-pin terminal block	PoE/PD (802.3at) 12Vdc (DC Jack w/lockable)
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)	6.92" x 3.94" x 1.54" (175 .8 mm x 100 .0 mm x 39 .0 mm)
Gross Weight	6.1 lb (2.8 kg)	2.31 lbs. (1.05 kg)
Net Weight	3.9 lb (1.8 kg)	1.28 lbs. (0.58 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)	23°F ~ 122°F (-5°C ~ 50°C, according to IEC60068-2 with 0.5 m/s airflow)
Storage Temperature	-49°F ~ 176°F (-45°C ~ 80°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Storage Humidity	95% @ 40°C, non-condensing	
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation - SSD	Random, 3.5Grm, 5~500Hz
Anti-Shock	—	50G peak acceleration (11 msec. duration,eMMC,microSD)
Certification	CE/FCC class A	
Note		TAIWAN EXCELLENCE 2021

Note: All specifications are subject to change without notice.

Model	BOXER-8332AI-CFL
System	
CPU	Intel® Xeon® E-2124G Intel® Core™ i9-9900T Intel® Core™ i7-8700T Intel® Core™ i5-8500T Intel® Core™ i3-8100T Intel® Pentium® G5400T Intel® 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
Storage Device	HDMI 1.4 x2 Support Dual Independent Display, 4K Ultra HD displays
Display Interface	2.5" SATA Drive Bay x2 (4 SATA Port w/ RAID Function) Half-size Minicard x1 for mSATA (optional) M.2 2280 NVMe slot x1
Ethernet	RJ-45 x3 for GbE LAN (Intel i211AT x2, i219LM x1)
I/O	USB Type-A x6 for USB3.2 Gen1 DB9 x4 For RS-232/422/485 Mic-in x1, Line-out x1 Power ON/OFF switch x1 Remote power on/off connector x1 Reset switch x1 SMA Antenna Holes x3
Expansion	Full-size Minicard x1 (PCIE + USB with 1 SIM Slot) Half-size Minicard x1 (PCIE + USB, optional for mSATA) M.2 M key (2280) x1 (PCIEx4) Built in Nvidia T4 x1 (The Cover of T4 has two colors black and silver) PCIE [x4] x1
Indicator	System Power LED x1 (Green) Storage Active LED x1 (Red)
OS Support	Windows® 10 Enterprise 64 bit Ubuntu 20.04.1/Kernel 5.4
Power Supply	
Power Requirement	DC In 12~24V x1 for 3-pin Terminal block
Mechanical	
Mounting	Wallmount
Dimensions (W x D x H)	8.66" x 5.91" x 11.02" (220 mm x 150 mm x 280 mm)
Gross Weight	17.64 lb (8 kg)
Net Weight	15.43 lb (7 kg)
Environmental	
Operating Temperature	32°F~104°F (0°C ~ 40°C) IEC68-2 with 0.5 m/s AirFlow
Storage Temperature	-49°F~176°F (-45°C ~ 80°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing
Anti-Vibration	SSD : Random, 1Grms, 5~500Hz
Anti-Shock	SSD : 5G @ wallmount, Half-sine, 11ms
Certification	CE/FCC class A , UKCA
Note	

Model	VPC-3350AI
System	
Form Factor	Multi-PoE & Fanless Appliance
Processor	Intel® Pentium®/ Celeron®/ Atom™ Processor (Default: E3940; Project base: N4200/N3350, or E3950 w/ customized chassis)
AI Accelerator	2 x Intel® Myriad™ X, up to 4 Myriad™ X (Project base)
Main Memory	Up to 8GB, DDR3L 204-pin SODIMM
Display	HDMI x 1, DP x 1
Ethernet	Intel® i211 (colay i210)
Smart PoE	4 ports, sharing 60W of power budget for every four PoE ports
RAID support	—
Expansion Slot	SATA x 1
GPS, G-Sensor	—
Front I/O Panel	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	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	—
Environmental	
Operating Temperature	-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
Mechanical	
Removable HDD Tray	—
Internal System HDD Bay	—
Dimension	6.3" x 5.28" x 2.44" (160mm x 134mm x 62mm)
Gross Weight	5.07 lb (2.3 kg)
Note	

Note: All specifications are subject to change without notice.

IoT Gateway & Protocol Expansion

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 onboard	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 3.0 x 1	USB 3.0 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	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 3.0 Connector x 1 M12 Connector x 1 (RS-232) Antenna connector x 1 Antenna x 1	USB 3.0 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	—
Dimension	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	7.8 lb (3.5 kg)	2.4lb (1.1 kg)
Net Weight	5.6 lb (2.5 kg)	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	COMPUTEX d&i awards 2019 by JETRO TAIWAN EXCELLENCE 2019	

Note: All specifications are subject to change without notice.

IoT Gateway & Protocol Expansion

Model	SRG-3352	SRG-3352C
System		
Processor	ARM Cortex-A8 800 MHz RISC Processor	
Memory	Onboard DDR3L 1GB	
Storage	eMMC 8G	
Real Time Clock	RTC, with 3V CR2032 Lithium battery x 1	
Security	—	
Indicators	Programmable LED control x 4	
Cellular	Mini PCIe Connector x 1	
Wireless Lan	—	Onboard WiFi 802.11 b/g/n, Bluetooth4.2 / BLE
Operating System	Debian 9	Debian 10
Support Protocol	Modbus / MQTT Library(by requset)	
I/O Interfaces		
Serial Port	RS-485, Phoenix Connector x 2	RS-485, DB9 Connector x 2
Ethernet	Gigabit Ethernet, RJ-45 x 2	
USB	USB 2.0, Type A x 1	USB 2.0, Type A x 2
ADC	—	
DI/DO	—	
CAN Bus	—	
Display	—	
Power Connector	3 Pin Phoenix Connector	Lockable DC Jack
Debug Port	Micro USB x 1	
Expansion Slot	SIM card slot x 1 Micro SD slot x 1	
Other Interface	—	
Power Supply		
Power Requirement	DC9-30V	
Power Consumption	2.28 W (Full Loading)	3.36 W (Full Loading)
MTBF (Hours)	855590	
Environmental and Mechanical		
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)
Weight	512 g	430 g
Mount Options	Wallmount, Din Rail (Optional)	
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	
Note		

Note: All specifications are subject to change without notice.



Model	SRG-IMX8P	SRG-ADIO	SRG-ACAN
System			
Processor	ARM NXP i.MX8M Plus Quad-Core Cortex-A53 1.6GHz Processor	ARM Cortex-A8 800 MHz RISC Processor	
Memory	Onboard DDR4L 2GB (Optional 4GB)	Onboard DDR3L 1GB	
Storage	eMMC 16G (Optional 32GB)	eMMC 8G	
Real Time Clock	RTC x 1, with 3V CR2032 Lithium battery		
Security	TPM 2.0		
Indicators	Programmable LED control x 7	Programmable LED control x 4	
Cellular	Mini PCIe Connector x 1 (USB signal)	Mini PCIe Connector x 1	
Wireless Lan	Mini PCIe Connector x 1 (USB signal)	Onboard WiFi 802.11 b/g/n, Bluetooth 4.2 / BLE	
Operating System	Debian 10		
Support Protocol	Modbus / MQTT Library (by request)		
I/O Interfaces			
Serial Port	RS-232/422/485 switchable x 2, Phoenix Connector	—	Switchable RS232/422/485 x 2, DB9 Connector (Optional)
Ethernet	Gigabit Ethernet x 2, RJ-45		
USB	USB 3.0 Type-A x 2	USB 2.0 x 2, Type A	
ADC	—	Differential x 2 CH or Single-End x 4 CH, Phoenix Connector Input Range: 0~15V, 0~20mA Resolution: 16 bit	Differential x 2 CH or Single-End x 4 CH, DB9 Connector (Optional) Input Range: 0~15V, 0~20mA Resolution: 16 bit
DI/DO	—	Isolation DI x 4 CH, Phoenix Connector Voltage Level: ON:9~24V, OFF:0~8V Isolation DO x 4 CH, Phoenix Connector Load Voltage: DC 24V Max Load Current: 100mA/ channel	—
CAN Bus	CAN-FD x 2 CH, Phoenix Connector	—	CAN Bus x 2 CH, DB9 Connector (Optional)
Display	HDMI x1 (Output)	—	
Power Connector	2 Pin 3.81mm Pitch Phoenix Connector	Lockable DC jack	
Debug Port	Micro USB x 1		
Expansion Slot	SIM card slot x 1 Micro SD slot x 1		
Other Interface	—		
Power Supply			
Power Requirement	DC 9-36V	DC9-30V	
Power Consumption	TBD	3.36 W (Full Loading)	
MTBF (Hours)	TBD	855590	
Environmental and Mechanical			
Dimension	6'' x 4.5" x 2.17" (152.7 x 114.5 x 55.2 mm)	4.3" x 4.33" x 1.54" (109 x 110 x 39 mm)	
Weight	450 g	430 g	
Mount Options	Wall Mount, Din Rail (Optional)		
Operation Temperature	-4 °F ~ 158 °F (-20 °C ~ 70 °C)	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		
Note			

Note: All specifications are subject to change without notice.

IoT Gateway & Protocol Expansion

Model	SRG-TG01	SRG-APL
System		
Processor	11th Generation Core Intel® i7-1185G7E SoC 11th Generation Core Inte® i5-1145G7E SoC 11th Generation Core Inte® i3-1115G4E SoC 11th Generation Core Inte® Celeron 6305E SoC	Intel Atom X5-E3940 Processor SoC / Intel HD 500 Graphics
Memory	DDR4 3200MHz, SO-DIMM x 2, Up to 64GB	Onboard LPDDR4 1866MHz 4GB / 8GB (Optional)
Storage	M.2 2280 M Key slot x 1 (PCIex4) 2.5" SATA SSD/HDD bay x 1	eMMC 5.1 32GB / 64GB (Optional)
Real Time Clock	RTC x 1, with 3V CR2032 Lithium battery	
Security	TPM 2.0	—
Indicators	—	
Cellular	M.2 3052 B Key slot x 1 (4G/5G)	Mini PCIe Connector x 1
Wireless Lan	M.2 2230 E Key slot x 1 (Wifi 802.11 ac/b/g/n, BT 5.0)	M.2 2230 E Key slot x 1
Operating System	Windows 10 IoT Enterprise /Linux (by request)	
Support Protocol	—	—
I/O Interfaces		
Serial Port	RS-232/422/485 x 4, DB9 (Optional)	—
Ethernet	Intel ®i211-LM,10/100/1000Base x 1,RJ45 Intel ®i219-LM,10/100/1000Base x 1,RJ45 Intel ®i225-LM,10/100/1000Base x 1,RJ45 (Support Vpro)	Gigabit Ethernet x 2, RJ-45
USB	USB3.1 Gen 2 x 1, Type A USB3.1 Gen 1 x 3, Type A	USB 3.0 x 4, Type A
ADC	—	
DI/DO	8 bit, Phoenix Connector	—
CAN Bus	CAN 2.0 B x 2 CH, Phoenix Connector	—
Display	HDMI 2.0b x 1	HDMI 1.4 x 1
Power Connector	2 Pin Phoenix Connector	DC Jack
Debug Port	—	
Expansion Slot	Micro SIM slot x 1	SIM card slot x 1 Micro SD slot x 1
Other Interface	SATA 3.0 x 1 SATA Power connector x 1 (5V)	Power switch button x 1 Reset switch button x 1
Power Supply		
Power Requirement	DC 9 ~ 36V (Optional DC12V), AT Type	12V DC-In @ 3A-5A 5.5/2.5 mm
Power Consumption	TBD	20 W (Full Loading)
MTBF (Hours)	TBD	516,789
Environmental and Mechanical		
Dimension	8.1" x 6.1" x 2.8" (207 x 155 x 72 mm)	3.16" x 3.7" x 2.5" (80.28 x 95 x 63.6 mm)
Weight	1500g	880g
Mount Options	Wall Mount (Optional)	Wall Mount, Din Rail (Optional)
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	
Note		

Note: All specifications are subject to change without notice.

Model	SRG-M041	SRG-CM4
System		
Processor	ARM Cortex M4F	Broadcom BCM2711 quad-core Cortex-A72 SoC @ 1.5GHz
Memory	128 M-bit Flash	Onboard DDR4L 1GB (Optional 2GB)
Storage	External Micro SD slot, Max. 32GB	eMMC 8GB (Optional 16GB)
Real Time Clock	RTC x 1, with 3V CR2032 Lithium battery	RTC x 1, with 3V CR2032 Lithium battery
Security	—	TPM 2.0
Indicators	10 LED indicator for Power/Serial port/DI/RF activity/Wireless strength	Programmable LED control x 3
Cellular	Mini PCIe Connector x 1 (UART Signal)	M.2 3042/3052 B Key x1 (USB Signal)
Wireless Lan	Follow AAEON Pin Define Slot for WiFi and BT 5.0	Onboard Wifi 802.11 b/g/n/ac, BT 5.0 (optional)
Operating System	Non-OS	Debian 10 / Raspberry Pi OS (by request)
Support Protocol	Modbus RTU to MQTT	Modbus / MQTT Library (by request)
I/O Interfaces		
Serial Port	RS-232/485 (2W/3W) x 2	RS-232/422/485 switchable x 2 RS-485 with isolation x 2(Optional)
Ethernet	10/100 Ethernet x 2, RJ-45	Gigabit Ethernet x 2, RJ-45
USB	—	USB 3.0 Type-A x 2 Micro USB 2.0 OTG x1
ADC	—	Analog Input x 4 (optional)
DI/DO	DI x 4 Relay output x 1	DI x 4 / DO x 4 with Isolation
CAN Bus	—	CAN-FD x1
Display	—	HDMI x1
Power Connector	Terminal Block Type	2 Pin 3.81mm pitch phoenix connector
Debug Port	Micro USB x 1	—
Expansion Slot	SIM card slot x 2 Micro SD slot x 1	SIM card slot x 1 Micro SD slot x 1(Optional)
Other Interface	—	
Power Supply		
Power Requirement	12/24 VDC	DC 9-24V
Power Consumption	TBD	TBD
MTBF (Hours)	—	TBD
Environmental and Mechanical		
Dimension	6.3" x 4.18" x 1.07" (160 x 106 x 27 mm)	4.1"x 4.13"x 1.9" (104.4x105x50mm)
Weight	670 g	0.99 lb (450g)
Mount Options	Din Rail	Wall Mount, Din Rail (Optional)
Operation Temperature	-4 °F ~ 158 °F (-20 °C ~ 70 °C)	
Storage Temperature	-40 °F ~ 176 °F (-40 °C ~ 85 °C)	
Operation Humidity	5% ~ 95% relative humidity, non-condensing	10% ~ 95% relative humidity, non-condensing
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 SODIMM 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 hole 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 x 1, HDD active LED x 1	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	-4°F ~ 140°F (-20°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)	
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
Anti - Shock	—	
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	6th / 7th Generation Intel® Core™-i 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	2.5" Drive Bay x 2	
Ethernet	RJ-45 x 5 for GbE (Intel i211AT x 4, i219LM x 1)	
I/O	2 pin Remote Power on/off connector Power ON/OFF Switch x 1 HDMI 1.4b x 2 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 x 2 (USB, w/ 1 SIM slot) PCIe [x1] x 1 PCIe [x16] x 1 - Power Consumption of GPU card max. 180W - Max. size of GPU card 312 x 113 x 40 mm (Option) Max. size of GPU card 312 x 113 x 60 mm (Riser Card: 9697T50300)	Full-size Mini card x 2 (USB, w/ 1 SIM slot) PCIe [x1] x 1 PCIe [x16] x 1 - Power Consumption of GPU card max. 250W - Max. size of GPU card 312 x 113 x 40 mm (Option) Max. size of GPU card 312 x 113 x 60 mm (Riser Card: 9697T50300)
Indicator	Power LED x 1, HDD active LED x 1	
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, 1 Grms, 5~500Hz, Anti-vibration design	
Anti - Shock	—	
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

Vision System BOX PC Solutions



Model	BOXER-6841M-A3	BOXER-6841M-A4	BOXER-6841M-A5
System			
CPU	6th / 7th Generation 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™ i7-7700, 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	2.5" Drive Bay x 2		
Ethernet	RJ-45 x 5 for GbE (Intel i211AT x 4, i219LM x 1)		
I/O	2 pin Remote Power on/off connector Power ON/OFF Switch x 1 HDMI 1.4b x 2 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 x 2 (USB, w/ 1 SIM slot) PCIe [x1] x 1 PCIe [x16] x 1 - Power Consumption of GPU card max. 180W - Max. size of GPU card 312 x 113 x 40 mm (Option) Max. size of GPU card 312 x 113 x 60 mm (Riser Card: 9697T50300)	Full-size Mini card x 2 (USB, w/ 1 SIM slot) PCIe [x1] x 1 PCIe [x16] x 1 - Power Consumption of GPU card max. 250W - Max. size of GPU card 312 x 113 x 40 mm (Option) Max. size of GPU card 312 x 113 x 60 mm (Riser Card: 9697T50300)	Full-size Mini card x 2 (USB, w/ 1 SIM slot) PCIe [x8] x 2 Extension card size limit: 114.55mm(H) x 192mm (L) PCIe [x1] x 1
Indicator	Power LED x 1, HDD active LED x 1		
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, 1 Grms, 5~500Hz, Anti-vibration design		
Anti - Shock	—		
Certification	CE/FCC class A		
Note			

Note: All specifications are subject to change without notice.

Model	BOXER-6841M-A6	BOXER-6841M-A7
System		
CPU	6th / 7th Generation 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™ i7-7700, 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	2.5" Drive Bay x 2	
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 x 2 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 x 4 for USB 3.2 Gen 1 DB-9 x 1 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 x 2 (USB, w/ 1 SIM slot) PCIe[x8] x 2 Extension card size limit: 114.55mm(H) x 192mm (L) PCIe[x1] x 1	Full-size Mini card x2 (USB, w/ 1 SIM slot) PCIe [x1] x 1 PCIe [x16] x 1 - Power Consumption of GPU card max. 180W - Max. size of GPU card 190 x 113 x 40 mm (Option) Max. size of GPU card 190 x 113 x 60 mm (Riser Card: 9697T50300)
Indicator	Power LED x 1, HDD active LED x 1	
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, 1 Grms, 5~500Hz, Anti-vibration design	
Anti - Shock	—	
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

Vision System BOX PC Solutions

Model	BOXER-6842M
System	
CPU	Intel® Xeon® E-2124G; Intel® Core™ i9-9900T; Intel® Core™ i7-8700T; Intel® Core™ i5-8500T; Intel® Core™ i3-8100T; Intel® Pentium® G5400T; Intel® 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	A2/A3/A4/A5 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) - Max. Power Consumption of GPU card 250W - Max. Size of GPU card 280mm x150mm x 40mm A2 PCIE [x4] x 1 + PCIE [x16] x 1 A3 PCIE [x4] x1 + PCIE [x8] (in x16 slot) x 2 A4 PCIE [x4] x1 + PCIE [x8] (in x16 slot) x2 Support dual Graphics Cards with two power inputs A5 Built in Nvidia Tesla T4 x1 PCIE [x4] x 1 + PCIE [x8] x 1 (in x16 slot) Note: A3 is fanless system. A2 & A4 & A5 is fan system with PWM function.
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 x 1
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	A2/A3/A4 DC In 12~24V with 3-pin terminal block No Graphics Card: CPU 35W->120W Adapter x 1, CPU 71W->240W Adapter x 1 With 250W Graphics Card x1: 480W Adapter x 1 A4 DC In 12~24V with 3-pin terminal block With 250W Graphics Card x2: 330W Adapter x 1 + 480W Adapter x 1 A5 DC In 12~24V with 3-pin terminal block With T4 x 1: 240W Power Adapter x 1 With T4 x 2: 330W Power Adapter x 1
Mechanical	
Mounting	Wallmount
Dimensions (W x H x D)	A2/A3/A5: 6.17" x 8.92" x 12.8" (156.7mm x 226.5mm x 325mm) A4: 7.77" x 8.92" x 12.8" (197.3mm x 226.5mm x 325mm)
Gross Weight	A2/A3: 18.52 lb (8.4 Kg); A4: 20.72 lb (9.4 Kg); A5: 20.5 lb (9.3 Kg)
Net Weight	A2/A3: 15.65 lb (7.1 Kg); A4: 17.86 lb (8.1 Kg); A5: 17.64 (8 Kg)
Environmental	
Operating Temperature	Without Graphics Cards: -4°F ~ 149°F (-20°C ~ 65°C) with 0.5m/s airflow With 250W Graphics Card: 32°F ~ 113°F (0°C ~ 45°C) with 0.5m/s airflow A5: 32°F ~ 113°F (0°C ~ 40°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
Anti - Shock	—
Certification	CE / FCC class A
Note	

Note: All specifications are subject to change without notice.

Model	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® 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
Ethernet	Intel® I210, 10/100/1000 Base-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, 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 (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 (32/64bit), Windows® Embedded Standard 7 (32/64bit), Ubuntu 16.04 above, Fedora 25 above, CentOS 7.3 above
Power Supply	
Power Requirement	12 - 36V with 3-pin terminal block
Mechanical	
Mounting	Wallmount
Dimensions (W x H x D)	10.4" x 3.8" x 6.1" (264.2mm x 96.4mm x 154.2mm)
Gross Weight	13.0 lb (5.9 kg)
Net Weight	8.8 lb (4.0 kg)
Environmental	
Operating Temperature	-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 ~ 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
Anti - Shock	—
Certification	CE/FCC class A
Note	

Note: All specifications are subject to change without notice.

Vision System BOX PC Solutions

Model	PER-T481	PER-T514
System		
Bus Interface	PCI-Express® [x4], Gen 2 PCI-Express Specification Revision 2.0 at 5GT/s	PCI-Express® [x4], Gen 2 PCI-Express Specification Revision 2.1 at 5GT/s
USB	—	
USB Connector	—	
Ethernet	LAN: Intel® i211AT Ethernet Controller x 4 (A10) Intel® i211AT Ethernet Controller x 2 (A20) Fully compliant with IEEE 802.3 and IEEE 802.3u Support IEEE 1588 precision time synchronization POE: Intel® i211AT Ethernet Controller x 4 (A30) Intel® i211AT Ethernet Controller x 2 (A40) Fully compliant with IEEE 802.3 and IEEE 802.3u Support IEEE 1588 precision time synchronization Support IEEE 802.3 at	2 Ports 10GbE Ethernet w/ Intel X550 Controller Fully compliant with IEEE 802.3 and IEEE 802.3u Support IEEE 1588 precision time synchronization Support 15.5 KB Jumbo Frame, teaming Support IEEE 802.3 Ethernet interface for 10GBASE-T (IEEE 802.3an) Support NBASE-T (IEEE 802.3bz) and 1000BASE-T (IEEE 802.3ab)
OS Support	LAN: Windows® 10(32/64-bit), Windows® 8.1 (32/64-bit), Windows® 7(32/64-bit), Linux POE: Windows® 10(32/64-bit), Windows® 8.1 (32/64-bit), Windows® 7(32/64-bit) (Linux not Supported)	Windows® 10(64-bit), Windows® 8.1 (64-bit), Windows® 7(64-bit), Linux 18.04.1
Power Supply		
Power Requirement	LAN: Max. 10W POE: 4POE DUAL SATA Power (15 pin) DC Input 12~24V,Max. 90W for 4ports (A30) 2POE DUAL SATA Power (15 pin) DC Input 12~24V,Max. 60W for 2ports (A40)	Max. 7.84W
Mechanical		
Dimensions (W x D)	LAN: 4.33" x 5.35" (110mm x 136mm) POE: 4.41" x 5.91" (112mm x 150mm)	3.94" x 5.35" (100mm x 136mm)
Environmental		
Operating Temperature	LAN: -4°F ~ 140°F(-20°C ~ 60°C) (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices) POE: -4°F ~ 131°F(-20°C ~ 55°C) (according to IEC68-2-14 with 0.5 m/s AirFlow; 90W loading) (A30) -4°F ~ 131°F(-20°C ~ 55°C) (according to IEC68-2-14 with 0.5 m/s AirFlow; 60W loading) (A40)	32°F ~ 140°F(0°C ~ 60°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	

Model	PER-T479	PER-T499	PER-T500
System			
Bus Interface	PCI-Express® [x4], Gen 2 PCI-Express Specification Revision 2.1 at 5GT/s	PCI-Express® [x4], Gen 3 PCI-Express Specification Revision 3.0 at 8GT/s	PCI-Express® [x1], Gen 2
USB	4 independent USB 3.2 Gen 1 host controllers 900mA @ 5V for each port Compliant with USB 3.2 Gen 1 Specification Revision 1.0 4 downstream USB ports support SS/HS/FS/LS data rates (5Gbps/480Mbps/12Mbps/1.5Mbps)	1 independent USB 3.2 Gen 2 host controllers 900mA @ 5V for each port Compliant with USB 3.2 Gen 2 specification Revision 1.0	1 independent USB 3.2 Gen 1 host controller 900mA @ 5V for each port Compliant with USB 3.2 Gen 1 Specification Revision 1.0
USB Connector	4 USB 3.2 Gen 1 Type-A connectors with lockable screw threads	2 USB 3.2 Gen 2 Type-A connectors with lockable screw threads	2 USB 3.2 Gen 1 Type-A connectors with lockable screw threads
OS Support	Windows® 10, Windows® 8.1 (32/64-bit), Windows® 7(32/64-bit) Linux		
Power Supply			
Power Requirement	12V from external IDE 4-pin power connector	From PCIe bus	
Mechanical			
Dimensions (W x D)	4.72" x 4.21" (120mm x 107mm)	3.94" x 2.8" (100mm x 71mm)	3.07" x 2.8" (78mm x 71mm)
Environmental			
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) (according to IEC68-2-14 with 0.5 m/s AirFlow ; with industrial devices)	32°F ~ 140°F (0°C ~ 60°C) (according to IEC68-2-14 with 0.5 m/s AirFlow ; with industrial devices)	32°F ~ 122°F(0°C ~ 50°C)(according to IEC68-2-14 with 0.5 m/s with air-flow; with industrial devices)
Storage Temperature	-49°F ~ 176°F (-45°C ~ 80°C)		
Storage Humidity	5 ~ 95% @ 40°C, non-condensing		

Note: All specifications are subject to change without notice.

Model	BOXER-6616	BOXER-6615
System		
CPU	Intel® Pentium® N4200, 2.5 GHz Intel® Celeron® N3350, 2.4 GHz	Intel® Pentium® N3710 1.6GHz
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
Display Interface	HDMI (max. 2048 x 1152) VGA (max. 2048 x 1152)	VGA, HDMI
Storage Device	mSATA, HDD/SSD	mSATA, 2.5" HDD/SSD
Ethernet	Intel® I211, 10/100/1000 Base-TX x 2	Realtek® RTL-8111E, 10/100/1000 Base x2
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
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)
Indicator	Power LED HDD active LED	
OS Support	Windows® 10 Pro 64 bit Windows® 10 IoT Ent LTSC 2019 64 bit Ubuntu 16.04 above	Windows® 10, Windows® 8.1 (32/64-bit), Windows® 7 (32/64-bit), WES7/WES8, Windows® 10 IOT, Linux
Power Supply		
Power Requirement	9-24V with 3-pin terminal block	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)	
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)
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
Anti-Shock	—	
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-6614	BOXER-6643-TGU
System		
CPU	Intel® Celeron® N2930, 1.83 GHz Intel® Celeron® N2807, 1.58GHz	Intel® Core™ i7-1185G7E Intel® Core™ i5-1145G7E Intel® Core™ i3-1115G4E
Chipset	Intel® System on Chip	Intel® SoC
System memory	DDR3L 1333 SODIMM slot x 1, up to 8 GB (N2930) or 4 GB (N2807)	DDR4 3200MHz SO-DIMM x 2, max 64GB
Display Interface	VGA, HDMI	HDMI 2.0 x 2
Storage Device	CFast™, HDD/SSD	M.2 2280 M Key NVMe Slot x1 (PCIex4) 2.5" SATA Drive Bay x1
Ethernet	Intel® I210/I211, 10/100/1000 Base-TX x 2	RJ-45 x 2 for 1G/2.5GbE LAN (i219x1, i225x1)
I/O	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	HDMI 2.0 x 2 RJ-45 x 2 for 1G/2.5GbE LAN (i219 x 1, i225 x 1) USB Type-A x3 for USB3.2 Gen2 USB Type-A x1 for USB 2.0 DB-9 x 2 for RS-232/422/485 DB15 x1 Male for Digital I/O 8-channel Line out x 1 3 pin 9~36V Power Input x 1 Power Button with LED x 1
Expansion	Full-size Mini-Card x 1 (PCI-E + USB, w/ SIM slot) Half-size Mini-Card x 1 (PCI-E + USB)	M.2 3052 B Key x 1 (for 5G module) Full-Size Minicard x1 (PCIe + USB / SATA, Default PCIe + USB) SIM Slot x 1
Indicator	Power LED HDD active LED	Power / System LED
OS Support	Windows® 10, Windows® 8.1 (32/64-bit), Windows® 7 (32/64-bit), WES7/WES8, Linux Ubuntu 14.04/ Kernel 3.13.0	Windows® 10 IoT 64-bit Window 10 Pro Linux Ubuntu 20.04.2
Power Supply		
Power Requirement	9 - 30V with 3-pin terminal block, 12V with lockable DC jack	DC-in 9-36V x1 for 3-pin Terminal Block
Mechanical		
Mounting	Wallmount DIN Rail (Mounting kit is optional)	Wallmount
Dimensions (W x H x D)	8.35" x 4.21" x 2.53" (212.15mm x 107mm x 64.2mm)	9.84" x 5.62" x 2.03" (250 x 143 x 51.5) with bracket 7.87" x 5.62" x 1.75" (200 x 143 x 44.5) w/o bracket
Gross Weight	6.6 lb (2.8 kg)	3.3 lb (1.5 kg)
Net Weight	4.4 lb (2 kg)	4.4 lb (2.0 kg)
Environmental		
Operating Temperature	-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)	-4°F ~ 140°F (-20°C ~ 60°C), according to IEC68-2 with 0.5 m/s AirFlow (w/ Industrial wide Temp. SSD/RAM)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Storage Humidity	95% @ 40°C, non-condensing	5 ~ 95% @ 40°C, non-condensing
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation –CFast™ card 1 Grms/ 5~ 500Hz/ operation – HDD	3 Grms/ 5 ~ 500Hz/ operation (with SSD)
Anti-Shock	—	50G, IEC 68-2-27, half sine, 11 ms duration (with SSD)
Certification	CE/FCC class A, UL	CE/FCC class A
Note		

Note: All specifications are subject to change without notice.

Compact Fanless BOX PC Solutions

Model	BOXER-6642-CML	BOXER-6641
System		
CPU	Intel® Core™ i9-10900TE Intel® Core™ i7-10700TE Intel® Core™ i5-10500TE Intel® Core™ i3-10100TE Intel® Celeron® G5900TE	Intel® Xeon® E-2124G (for A2 & A6 model only) Intel® i9-9900T Intel® i7-9700TE Intel® i7-8700T Intel® i5-8500T Intel® i3-8100T Pentium® G5400T Celeron® G4900T
Chipset	Intel® Q470E	Intel® C246/H310
System memory	DDR4 SO-DIMM x 2, up to 64GB	DDR4-2666 SO-DIMM slot x 2, Up to 64GB, ECC or Non-ECC Support
Display Interface	HDMI 1.4 x 1	HDMI x 2
Storage Device	M.2 2280 slot x 1 (PCIex4), 2.5" SATA SSD/HDD bay x 1	2.5" SATA HDD/SSD Bay x 1 (x 2 for A5 & A6 model, A6 supports RAID 0/1)
Ethernet	Intel® i211-AT x 1, i219-LM x 1	Intel® i211 x 3, i219 x 1
I/O	HDMI x 1 RJ-45 x 2 for GbE LAN (i211-AT x 1, i219-LM x 1) USB 3.2 Gen 2 x 4 USB 2.0 x 2 DB-9 x 4 for RS-232/422/485 DB15 x 1 for 8 channel DIO Line out x 1 3 pin 10~35V Power Input x 1 Power Button with LED x 1	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 & A5 model) USB 3.2 Gen 1 x 8 (A2 & A6 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
Expansion	M.2 2230 E Key x 1 M.2 2280 M Key x 1 Full-Size Mini Card x1 (mSATA/PCIe switch by BIOS, default PCIe) SIM x 1	Full-size Mini PCIe x 1 Full-size Mini PCIe x 1 (PCIe/mSATA switch by BIOS, Default: mSATA) SIM slot x 1
Indicator	Power LED	HDD LED x 1 SYS LED x 1
OS Support	Windows® 10 IoT Enterprise 64-bit Linux Ubuntu 20.04.2	Windows® 10 64-bit Linux Ubuntu 20.04
Power Supply		
Power Requirement	10-35V DC-in with 3-pin terminal block	3-pin DC Input 10~35V
Mechanical		
Mounting	Wallmount	
Dimensions (W x H x D)	11.58" x 5.98" x 2.11" (292.4mm x 152mm x 53.5mm)	10.4" x 3.19" x 6.15" (264.2mm x 80.92mm x 156.2mm)
Gross Weight	8.4lb (3.8kg)	10.4 lb (4.7 kg)
Net Weight	6.2lb (2.8kg)	8.2 lb (3.7 kg)
Environmental		
Operating Temperature	32°F ~ 113°F (0°C ~ 45°C) (35W CPU), according to IEC68-2-14 with 0.5 m/s AirFlow	-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
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	
Anti-Vibration	2 Grms/5 ~ 500Hz/operation (with SSD)	2 Grms/ 5 ~ 500Hz/ operation – SSD/mSATA 1 Grms/ 5 ~ 500Hz/ operation – HDD
Anti-Shock	50G peak acceleration (11msec) (with SSD)	—
Certification	CE/FCC class A	
Note		TAIWAN EXCELLENCE 2021

Note: All specifications are subject to change without notice.

Compact Fanless BOX PC Solutions

Model	BOXER-6640	BOXER-6639
System		
CPU	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	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
Chipset	Intel® H110	Q170
System memory	DDR4 SODIMM socket (double deck) x 2 Supports 1866/2133MHz DDR4 and up to 32GB Supports un-buffered and ECC / non-ECC type SODIMM	DDR4 1866/2133 SODIMM slot x 2, up to 32 GB, ECC or Non-ECC support
Display Interface	VGA x 1, HDMI x 2 (Combo DP x 2) - A1 Sku VGA x 1 - A2 Sku	VGA, HDMI
Storage Device	mSATA, SATA HDD/SSD	CFast, SATA HDD/SSD (Optional: x2)
Ethernet	Intel® I211AT x 1, I219LM x 1	Intel® i210, 10/100/1000Base-TX x 3
I/O	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)	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
Expansion	Full-size Mini-Card x 1 (PCI-E + USB, w/ SIM slot) Full-size Mini-Card x 1 (mSATA + USB) LPC x 1	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	Windows® 10 64-bit (Kabylake, Skylake CPU) Windows® 8.1 64-bit (Skylake CPU only) Windows® embedded 8 standard 64-bit (Skylake CPU only)	Windows® 7 (32/64-bit), Windows® 8/8.1 (64-bit) , Windows® 10 (64-bit)
Power Supply		
Power Requirement	3-pin Phoenix DC Input 9~36V	9 - 36V with 3-pin terminal block
Mechanical		
Mounting	Wallmount	Wallmount, DIN Rail (Mounting Kit is optional)
Dimensions (W x H x D)	10.39" x 3.8" x 7.33" (264mm x 96.4mm x 186.2mm)	10.4" x 2.6" x 6.1" (264.2mm x 66.5mm x 156.2mm)
Gross Weight	12.76 lb (5.8 kg)	7.7 lb (3.5 kg)
Net Weight	9.9 lb (4.5 kg)	6.6 lb (3 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)	
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 – SSD 1 Grms/ 5 ~ 500Hz/ operation – HDD	2 Grms/ 5 ~ 500Hz/ operation –CFast™ card 1 Grms/ 5~ 500Hz/ operation – HDD
Anti-Shock	—	
Certification	CE/FCC class A	
Note		TAIWAN EXCELLENCE 2017

Note: All specifications are subject to change without notice.

Launching in Q1

Model	BOXER-6638U	BOXER-6645-ADS
System		
CPU	5th Generation Intel® Core™ i3-5010U, 2.1 GHz	i9-xxxxxE i9-xxxxxTE i7-xxxxxE i7-xxxxxTE i5-xxxxxE i5-xxxxxTE i3-xxxxxE i3-xxxxxTE GxxE GxxTE
Chipset	Intel® System on Chip	Intel H610E/Q670E
System memory	DDR3L 1600 SODIMM slot x 1, up to 8 GB	DDR5 4800MHz Slot x2, max up to 64GB
Display Interface	VGA, DP	HDMI Type A x2 for HDMI 1.4b DisplayPort x2 for DP1.4a"
Storage Device	mSATA, HDD/SSD	2.5" SATA-III Drive Bay x1 M.2 2280 M Key x1 (A2 Only)
Ethernet	Intel® WGI211AT, 10/100/1000 Base-TX x 1 Intel® WGI218LM, 10/100/1000 Base-TX x 1	Intel® WGI211AT, 10/100/1000 Base-TX x 1 Intel® WGI218LM, 10/100/1000 Base-TX x 1
I/O	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	USB 3.2 Gen1x1 (5G) x4 (A1 sku) USB 3.2 Gen2x1 (10G) x8 (A2 sku) USB2.0 x 4 (A1 sku) Audio x 1 (MIC-in, Line-out) DB-9 x 4 for RS-232/422/485 SMA Antenna Hole x6
Expansion	Full-size Mini-Card x 1 (mSATA + USB, w/ SIM slot, optional for PCI-E) Half-size Mini-Card x 1 (PCI-E + USB)	M.2 E-Key 2230 x1 M.2 B-Key 3052 x1 (A2 sku) M.2 2280 NVMe x1
Indicator	Power LED HDD active LED	System LED x 1 HDD LED x 1
OS Support	Windows® 10 (64-bit), Windows® 8.1(32/64-bit), Windows® 7 (32/64-bit), Linux Ubuntu 14.10	Windows® 10 64-bit Windows® 11 64-bit Linux Ubuntu 21.04
Power Supply		
Power Requirement	9 - 24V with lockable DC jack	3-pin DC Input 12~24V
Mechanical		
Mounting	Wallmount	
Dimensions (W x H x D)	7.76" x 2.17" x 5.63" (197mm x 55mm x 143mm)	10.39" x 3.8" x 7.33" (264mm x 96.4mm x 186.2mm)
Gross Weight	5.5 lb (2.5 kg)	12.76 lb (5.8 kg)
Net Weight	3.3 lb (1.5 kg)	9.9 lb (4.5 kg)
Environmental		
Operating Temperature	-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)	-4 F ~131°F (-20°C ~ 55°C), IEC68-2 with 0.5 m/s AirFlow, extended temperature Storage
Storage Temperature	-49°F ~ 176°F (-45°C ~ 80°C)	
Storage Humidity	95% @ 40°C, non-condensing	5 ~ 95% @ 40°C, non-condensing
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation –mSATA / SSD 1 Grms/ 5~ 500Hz/ operation – HDD	2 Grms/ 5 ~ 500Hz/ operation – SSD 1 Grms/ 5 ~ 500Hz/ operation – HDD
Anti-Shock	—	
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

Ultra Slim Fanless BOX PC Solutions



Model	BOXER-6405	BOXER-6404U	BOXER-6404
System			
CPU	Intel® Celeron/Pentium™ processor	Intel® Celeron™ J1900, 2.0 GHz Intel® Celeron™ N2807, 1.58 GHz	Intel® Celeron™ J1900, 2.0 GHz Intel® Celeron™ N2807, 1.58 GHz
Chipset	Intel® System on Chip		
System Memory	DDR3L SODIMM 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	HDMI (max. 1920 x 1080)
Storage Device	mSATA	mSATA, HDD/SSD	CFast™
Ethernet	Intel® i211-AT x 2	Realtek® RTL8111E-VL-CG, 10/100/1000Base-TX 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 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	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 (mSATA only)	Full-size Mini-Card x 1 Half Mini-Card x 1 (for mSATA) SIM card slot x 1	Full-size Mini-Card (USB interface only) x 1
Indicator	Power LED x1, HDD active LED x1	Power LED HDD active LED	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	9-24V with 3-pin terminal block	12 - 24V with 3-pin terminal block	12V - 24V with lockable DC jack
Mechanical			
Mounting	Wallmount	Wallmount VESA (Mounting kit is optional) DIN rail (Mounting kit is optional)	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)	6.53" x 4.20" x 1.18" (166 mm x 106.6 mm x 30 mm)
Gross Weight	3.6 lb (1.6kg)		2.9 lb (1.3 kg)
Net Weight	1.76 lb (0.8 kg)		1.9 lb (0.86 kg)
Environmental			
Operating Temperature	-4°F ~ 140°F (-20°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)	-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)
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	5 Grms/ 5 ~ 500Hz/ operation –CFast™ card
Anti-Shock	—		
Certification	CE/FCC class A		
Note			

Note: All specifications are subject to change without notice.

Model	BOXER-6404WT	BOXER-6450-TGU
System		
CPU	Intel® Celeron™ J1900, 2.0 GHz Intel® Celeron™ N2807, 1.58 GHz	Intel® Core™ i7-1185G7E, 1.80 GHz Intel® Core™ i5-1145G7E, 1.50 GHz Intel® Core™ i3-1115G4E, 2.20 GHz Intel® Celeron® 6305E Processor,1.80 GHz
Chipset	Intel® System on Chip	
System Memory	DDR3L 1333 SODIMM slot x 1, up to 8 GB (J1900) or 4 GB (N2807)	LPDDR4x max 3200 MHz on board memory up to 32GB
Display Interface	HDMI	HDMI2.0b x 1, 4Kx2K 60Hz
Storage Device	CFast™	2.5" SATA Drive Bay x 1 Full-size Minicard x 1 for mSATA (optional) M.2 2280 NVMe Slot x 1
Ethernet	Intel® I211, 10/100/1000Base-TX x 4	RJ-45 x 1 for 2.5GbE LAN i225-LM x 1 RJ-45 x 1 for GbE LAN i219-LM x 1
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	USB Type-A x 2 for USB3.2 Gen2 USB Type-A x 4 for USB 2.0 DB-9 x 2 for RS-232/422/485 SMA Antenna Holes x 2 DB-9 for DIO 4 bit x 1 Power Button x 1
Expansion	Full-size Mini-Card (USB interface only) x 1	M.2 M key 2280 x 1 (PCIE + SATA, PCIE Gen4 default) Full-size Minicard x 1 (PCIE + USB + SATA)
Indicator	Power LED on power button	System Power LED x 1 (Green)
OS support	Windows® 10, Windows® 8.1, Windows® 7, Windows® Embedded 8, Windows® Embedded 7, Linux Fedora	Windows® 10, Windows® 10 IoT, Ubuntu 20.04.2
Power Supply		
Power Requirement	12V - 24V with lockable DC jack	DC-in 12V x 1 for Lockable DC Jack
Mechanical		
Mounting	VESA (Mounting kit is optional) DIN rail (Mounting kit is optional)	Wallmount
Dimensions (W x H x D)	6.53" x 4.20" x 1.59" (166mm x 106.6mm x 40.5mm)	6.54"x 4.65" x 2.2" (166 mm x 118 mm x 56 mm)
Gross Weight	3.59 lb (1.63 kg)	3,3 lb (1.5Kg)
Net Weight	2.6 lb (1.17 kg)	2.20 lb (1Kg)
Environmental		
Operating Temperature	-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)	14°F ~131°F (-10°C ~ 55°C), IEC68-2 with 0.5 m/s AirFlow (Turbo boost off)
Storage Temperature	-22°F ~ 176°F (-30°C ~ 80°C)	-40˚F ~ 176˚F (-40˚C ~ 80˚C)
Storage Humidity	95% @ 40°C, non-condensing	5 ~ 95% @ 40˚C, non-condensing
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation –CFast™ card	SSD: Random, 3.5Grms, 5~500Hz
Anti-Shock	—	SSD: 50G @ wallmount, Half-sine, 11ms
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® Core™ i3-7100U Intel® Core™ i5-7200U Intel® Core™ i5-6200U	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 2
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	9 - 24V 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)	
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	BOXER-6839-CFL
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	Intel® Xeon® E-2124G Intel® i9-9900T Intel® i7-9700TE Intel® i7-8700T Intel® i5-8500T Intel® i3-8100T Pentium® G5400T Celeron® G4900T
Chipset	Intel® Q170	C246
System Memory	DDR4 1866/2133 SODIMM slot x 2, up to 32GB	DDR4-2666 SO-DIMM slot x 2 Up to 64GB, ECC or Non-ECC Support
Display Interface	HDMI, VGA	HDMI x 2
Storage Device	CFast™, HDD/SSD	2.5" SATA HDD/SSD Bay x 2
Ethernet	Intel® I210, 10/100/1000 Base-TX x 3	RJ-45 x 4 for GbE LAN (i211-AT x 3, i219-LM x 1)
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)	HDMI x 2 RJ-45 x 4 for GbE LAN (i211 x 3, i219 x 1) USB 3.2 Gen 1 x 8 DB-9 x 6 for RS-232/422/485 Audio x 1 (MIC-in, Line-out) DB-15 for DIO 8 bit x 1 3 pin 10~35V Power Input x 1 Power Button x 1 Remote Power switch x 1 Reset Button x 1
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)	Full-size Mini card x 1 (PCIe) Full-size Mini card x 1 ((PCIe/mSATA switch by BIOS, Default: mSATA) SIM slot x 1 PCIE slot : Riser card type 1: PCIe[x4] slot x 1 & PCIe[x1] x 1 (A1) Riser card type 2: PCIe[x4] slot x 1 & PCI x 1 (A2) Riser card type 3: PCI x 2 (A3) Max. size of expansion card 150 x 105 x 40 mm
Indicator	Power LED, HDD active LED	HDD LED x 1, System LED x 1
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 (64bit/32bit) Windows® embedded standard 7 (32/64bit) Ubuntu 16.04 above, Fedora 25 above, CentOS 7.3 above	Windows® 10 64-bit, Linux Ubuntu 20.04
Power Supply		
Power Requirement	9 - 36V with 3-pin terminal block	3-pin Phoenix DC Input 10~35V
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)	264mm x 156mm x 125mm
Gross Weight	13.2 lb (6.0 kg)	
Net Weight	9.9 lb (4.5 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 ~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)
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	5 Grms/ 5 ~ 500Hz/ operation –SSD
Anti-Shock	—	SSD: 50G @ wallmount, Half-sine, 11ms
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

Expandable Fanless BOX PC Solutions

Model	BOXER-6840-CFL
System	
CPU	Intel® Xeon® E-2124G Intel® Core™ i9-9900T Intel® Core™ i7-8700T Intel® Core™ i5-8500T Intel® Core™ i3-8100T Intel® Pentium® G5400T Intel® 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 1.4 x2 Support Dual Independent Display, 4K Ultra HD displays
Storage Device	2.5" SATA Drive Bay x2 (4 SATA Port w/ RAID Function) Half-size Minicard x1 for mSATA (optional) M.2 2280 NVMe slot x1
Ethernet	RJ-45 x3 for GbE LAN (Intel i211AT x2, i219LM x1)
I/O	USB Type-A x6 for USB3.2 Gen1 DB9 x4 For RS-232/422/485 Mic-in x1, Line-out x1 Power ON/OFF switch x1 Remote power on/off connector x1 Reset switch x1 SMA Antenna Holes x3
Expansion	Full-size Minicard x1 (PCIE + USB with 1 SIM Slot) Half-size Minicard x1 (PCIE + USB, optional for mSATA) M.2 M key (2280) x1 (PCIEx4) PCIE [x4] x1 PCIE [x16] x1 - Max. Power Consumption of GPU card 250W - Max. Size of GPU card 250mm x 125mm x 20mm Note: If the GPU card dimension is 250mm x 125mm x 40mm, we can change the riser card inside to support.
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 x 1
Indicator	System Power LED x1 (Green) Storage Active LED x1 (Red)
OS Support	Windows® 10 Enterprise 64 bit Ubuntu 20.04.1/Kernel 5.4
Power Supply	
Power Requirement	DC In 12~24V x1 for 3-pin Terminal block
Mechanical	
Mounting	Wallmount
Dimensions (W x H x D)	8.66" x 5.91" x 12.6" (220 mm x 150 mm x 320 mm)
Gross Weight	17.64 lb (8 kg)
Net Weight	15.43 lb (7 kg)
Environmental	
Operating Temperature	-4°F~140°F (-20°C ~ 60°C) IEC68-2 with 0.5 m/s AirFlow
Storage Temperature	-49°F ~ 176°F (-45°C ~ 80°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing
Anti-Vibration	SSD: Random, 1Grm,5~500Hz
Anti - Shock	SSD: 50G @ wallmount, Half-sine, 11ms
Certification	CE/FCC class A , UKCA
Note	

Note: All specifications are subject to change without notice.

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, 10/100/1000 Base-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	

Multi-PoE & Fanless Appliance



Model	VPC-5600S	VPC-3350S	VPC-3300S
System			
Form Factor	Multi-PoE & Fanless Appliance		
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)	Intel® Celeron® J1900 Processor
Chipset	—		Quad Core SoC
Main Memory	Up to 32GB, DDR4 260-pin SODIMM	Up to 8GB, DDR3L 204-pin SODIMM	Up to 8GB, DDR3L 204-pin SODIMM
Display	HDMI x 1, DP x 1		VGA x 1, HDMI x 1
Ethernet	LAN x 2 + 4 PoE Ports (Up to 8 PoE ports), RTL8111E 10/100/1000 Base	Intel® i211 (colay i210)	10/100/1000Base-TX x 6
Smart PoE	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	4 ports, RJ-45 ports support IEEE 802.3 at/af with total PoE Power budget of 60W
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 (USB 2.0 + PCIe, full size), up to 4 slots (In-vehicle platform) SATA x 1 Built-in CANBus (In-vehicle platform)	Mini-Card x 3, Built-in CAN 2.0B x 1
GPS, G-Sensor	On board (GPS/GLONASS), G Sensor	Built-in GPS & G-Sensor (In-vehicle platform)	On board (GPS/GLONASS)
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 platform) RS-232 x 3 (In-vehicle platform)	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)
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	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
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)	—	mSATA Slot x 1 (deafult; colay w/ 2.5" HDD x 1)
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, eMark Compliance Available Per Project Basis	CE & FCC Class A, EMARK
Power Requirement			
Power Supply	DC 10-36V, with ignition pin	DC 12-24V; DC9-36V with power ignition (In-vehicle platform)	DC 9-36V, with Ignition Pin
Mechanical			
Removable HDD Tray	Hot swappable 2.5" SSD x 2 (Project base) via extension module	—	2.5" HDD x 2 (Optional, MOQ apply)
Internal System HDD Bay	2.5" HDD x 2	—	2.5" HDD x 1 (Optional SKU if support 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) 6.3" x 5.28" x 2.95" (160mm x 134mm x 75mm), In-vehicle platform.	6.85" x 7.87" x 2.36" (174mm x 200mm x 60mm)
Gross Weight	5.7 lb (2.6 kg)	3.96 lb (1.8 kg)	5.7 lb (2.6 kg)
Note	TAIWAN EXCELLENCE 2018 COMPUTEX d&i award 2017 by JETRO		

Note: All specifications are subject to change without notice.

Multi-PoE & Fanless Appliance

Launching in Q1

Model	VPC-5620S	VPC-5630S
System		
Form Factor	Multi-PoE & Fanless Appliance	
Processor	Intel® Whisky Lake Processor (Default: i7-8665UE; Project base: i5-8365UE, i3-8145UE or 4305UE)	Intel® 11th Gen. Core™ i3/i5/i7 Processor (Default: i7-8665UE; Project base: i5-8365UE, i3-8145UE, Celeron 4305UE)
Chipset	—	
Main Memory	Up to 64GB, DDR4 260-pin SODIMM	Up to 64GB, DDR4-3200 260-pin SODIMM
Display	HDMI x 1, DP x 1	HDMI x 1, DP x 1, VGA
Ethernet	1x GbE, Intel i211, support Wake on LAN and PXE supported	GbE, Intel i210, support Wake on LAN and PXE supported
Smart PoE	4 ports (Max. 8 ports by project base), IEEE 802.3 at/af, sharing 60W of power budget for every four PoE ports. Able to power management in each independent PoE port (SDK available)	4 ports (Max. 8 ports by project base), IEEE 802.3 at/af, sharing 60W of power budget for every four PoE ports. Able to power management in each independent PoE port (SDK available)
RAID support	0/1	
Expansion Slot	IS: mPCIe Full-Size (USB+PCIe) x 1 mPCIe Full-Size (USB+SATA) colay SATA x 1 M.2 2280 (USB+PCIe), support NVME PCIe [x4] SSD x 1 VS: mPCIe Full-Size (USB+PCIe) x 3 mPCIe Full-Size (USB+SATA) colay SATA x 1 M.2 2280 (USB+PCIe), support NVME PCIe [x4] SSD x 1	mPCIe Full-Size x 2 M.2 B (USB3.2+SATA) x 1, M.2 B (PCIe[x1] + USB) x 1
GPS, G-Sensor	VS:Built-in GPS, Gyro & G-Sensor	Built-in GPS, Gyro & G-Sensor
Front I/O Panel	RJ45 Smart PoE Port (60W) x 4,USB 3.2 Gen 1 x 4, Giga LAN x 1, DP x 1, Power button, Status LED, HDD LED, Wireless LED, Micro SIM slots(IS) x 2, Micro SIM slots(VS) x 4, Antenna holes x 2, CANbus (VS) x 1, RS-232 (VS) x 3	RJ45 Smart PoE Port (60W) x 4 USB 3.0 Ports x 3, Giga LAN x 1 CANBus 2.0B x 1; DP x 1 Power button HDD LED, Wireless LED Antenna holes x 2
Rear I/O Panel	jack for Line out & MIC in x 1 HDMI x 1 RS-232/422/485 (Isolated by BOM option) x 2 HW Reset x 1, 3pin Power input x 1 8 bits DIO (Isolated 4DI & 4DO / 8DI/ 8DO by BOM option) Antenna holes x 2	jack for Line out & MIC in x 1 HDMI x 1, VGA x 1 RS-232/422/485 (Isolated by BOM option) x 2 HW Reset x 1, 3pin Power input x 1 8 bit DIO Connector (Isolated 4DI & 4DO or Isolated 8DI by BOM option) x 1 Micro SIM slots x 2 Antenna holes x 2
Storage		
HDD Tray	IS:2.5" HDD/SSD Bay x 2 VS:2.5" HDD/SSD Bay x 1	2.5" HDD/SSD Bay x 2
CF/CFast/mSATA Slot	—	
Environmental		
Operating Temperature	-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	CE & FCC Class A, E13
Power Requirement		
Power Supply	IS:DC 12-24V; VS:DC10-36V with power ignition	DC9-36V with power ignition
Mechanical		
Removable HDD Tray	—	
Internal System HDD Bay	IS:2.5" HDD/SSD Bay x 2 VS:2.5" HDD/SSD Bay x 1	2.5" HDD/SSD Bay x 2
Dimension	IS:6.3" x 5.87" x 2.16" (180mm x 149mm x 55mm) VS:6.3" x 5.87" x 2.95" (180mm x 149mm x 75mm)	TBD
Gross Weight	TBD	
Note		

Note: All specifications are subject to change without notice.

Ultra-Slim Multi-Touch Panel Solutions

Launching in Q1

Model	ACP-1106	ACP-1104	ACP-1107
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	Intel ® Elkhart Lake Platform Celeron N6000 Series SOC Pentium J6000 Series SOC
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)	DDR4 3200 Hz, SODIMM x1
LCD/CRT controller	Integrated in processor	—	Integrated Intel® SOC
Ethernet	10/100/1000 Base-TX, RJ-45 x 2		Intel® i210/i211 x2
I/O Port	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 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	HDMI Type A x2 for HDMI 2.0b x1 DisplayPort x2 for DP1.4a USB 3.2 Gen2 x2 USB 2.0 x2 DB9 RS-232/422/425 x1 RJ-45 LAN x2 2 Pin terminal block for power input SMA Antenna Hole x2
Storage Disk Drive	Full Size mSATA x 1	Half size mSATA x 1 (Installation by AAEON recommeded)	B Key M.2 2242 x1 (SATA Interace) B Key M.2 2280 x1 (PCIe Interface)
Expansion Slot	Half size mini card x 1(Internal)	Full size Mini-Card x 1	E Key M.2 2230 x1 (PCIe / USB) B Key M.2 3052 x1 (USB 3.1/USB2)
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	Windows® 10 64-bit Linux Ubuntu 20.04.1 Kernel 5.4
Mechanical			
Construction	Aluminum Front Bezel + Metal Chassis	Aluminum Design	Wallmount
Mounting	VESA 75, Panel Mount	VESA 75/ Panel mount/ Stand	TBD
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)	TBD
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)	TBD
Gross Weight	6.38 lb (2.9 kg)	5.5 lb (2.5 kg)	TBD
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	23 F ~131°F (-5°C ~ 50°C), with 0.5 m/s AirFlow
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)		-4°F ~ 140°F (-20°C ~ 60°C)
Storage Humidity	90% @40°C; non-condensing	5%~90% @40°C, non-condensing	5%~95% @40°C, non-condensing
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation	1 Grms/ 5 ~ 500Hz/ operation – HDD
Shock	—	15 G peak acceleration (11 msec. duration)	—
EMC	CE/FCC Class A		CE/FCC class A Compatible
Power Supply			
DC input	DC 9~30V	DC 12V with lockable power adapter	DC 10~30V
LCD			
Display Type	10.1" TFT-LCD, LED		
Max Resolution	1280 x 800		
Max. Colors	262K colors (6 bit for R,G,B)	262k	262K colors (6 bit for R,G,B)
Luminance	300 cd/m2		
Viewing Angle	170° (H), 170° (V)		
Back Light	LED		
Back Light MTBF (Hours)	—		25,000
Touch Screen			
Type	P-CAP Touchscreen	Projected capacitive multi-touch	P-CAP Touchscreen
Light Transmission	90%	—	90%
Note			

Note: All specifications are subject to change without notice.

Ultra-Slim Multi-Touch Panel Solutions

Launching in Q1

Model	ACP-1108	ACP-1076	ACP-1074
System			
Processor	Quad Core ARM® Cortex®-A57 MPCore Proccessor	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	4GB LPDDR4	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	10/100/1000 Base-TX x1	10/100/1000 Base-TX, RJ-45 x 2	10/100/1000 Base-TX, RJ-45 x 2
I/O Port	HDMI 2.0 x1 USB Type-A x2 for USB3.2 Gen2 RJ-45 x1 for GbE LAN DB-9 x1 for RS-232 Recovery Button x1 USB Micro A/B x1 for OS Flash Sim card Slot x1 MicroSD Slot x1	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 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	16GB eMMC	Full Size mSATA x 1	Half size mSATA storage x 1 (Installation by AAEON recommeded)
Expansion Slot	Full-size Minicard x1 for LTE I2C (SDA+SCL) x1 GPIO x4	Half size mini card x 1(Internal)	Full size Mini-Card x 1
OS support	Linux (AAEON ACLinux 4.9) Linux (NVIDIA Jetpack 4.5)	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	Wallmount	Aluminum Front Bezel + Metal Chassis	Aluminum Design
Mounting	TBD	VESA 75, Panel Mount	VESA 75/ Panel mount/ Stand
Dimension	TBD	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	TBD	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	TBD	4.62 lb (2.1 Kg)	5.5 lb (2.5 kg)
Environmental			
Operating Temperature	23°F ~131°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 ~ 140°F (-20°C ~ 60°C)	-4°F ~ 158°F (-20°C ~ 70°C)	
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	90% @40°C; non-condensing	5%~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 Compatible	CE/FCC Class A	
Power Supply			
DC input	DC 12~24V	DC 9~30V	DC12V, with lockable power adapter
LCD			
Display Type	10.1" TFT-LCD, LED	7" TFT-LCD, LED	
Max Resolution	1280 x 800	1024 x 600	
Max. Colors	262K colors (6 bit for R,G,B)	16.7M	
Luminance	300 cd/m2	320 cd/m2	
Viewing Angle	170° (H), 170° (V)	150° (H), 145° (V)	
Back Light	LED		
Back Light MTBF (Hours)	25,000	20,000	
Touch Screen			
Type	P-CAP Touchscreen		Projected capacitive multi-touch (2-point)
Light Transmission	90%		
Note			

Note: All specifications are subject to change without notice.

Ultra-Slim Multi-Touch Panel Solutions

Model	OMNI-2155-CML
System	
Processor	Intel® Core™ i9-10900TE Intel® Core™ i7-10700TE Intel® Core™ i5-10500TE Intel® Core™ i3-10100TE Intel® Celeron® G5900TE
System Memory	DDR4 SO-DIMM x 2, up to 64GB
LCD/CRT Controller	—
Ethernet	Intel® i211 x 1, i219 x 1
I/O Port	USB 3.2 Gen 2 x 4 RJ-45 x 2 for GbE LAN (i211-AT x 1, i219-LM x 1) HDMI x 1 Line out x 1 DB-9 x 2 for RS-232/422/485 3 pin 10~35V Power Input x 1 Power Button with LED x 1
Storage Disk Drive	M.2 2280 slot x 1 (PCIex4), 2.5" SATA SSD/HDD bay x 1
Expansion Slot	M.2 2230 E Key x 1, M.2 2280 B Key x 1 Full-Size Mini Card x 1 (mSATA/PCIe switch by BIOS, default PCIe), SIM x 1
OS Support	Windows® 10 IoT Enterprise 64-bit, Linux Ubuntu 20.04
Mechanical	
Construction	Aluminum Design (IP65 Front Frame)
Mounting	VESA 100 / Panel Mount
Dimension	420.14mm x 264.47mm x 73.2 mm
Carton Dimension	530mm x 445mm x 200mm
Gross Weight	6.75 kg
Environmental	
Operating Temperature	32°F ~ 113°F (0°C ~ 45°C) (35W CPU), according to IEC68-2-14 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/random operation
Shock	15 G peak acceleration (11 msec. duration
EMC	CE/FCC class A
Power Supply	
DC input	10-35V DC-in with 3-pin terminal block
LCD	
Display Type	15.6" TFT-LCD, LED
Max Resolution	1366 (H) x 768 (V)
Max. Colors	16.7M (8 bit/color)
Luminance	400 cd/m2
Viewing Angle	170° (H), 130° (V)
Back Light	LED
Back Light MTBF (Hours)	50,000
Touchscreen	
Type	Flat 5-wire Resistive / P-CAP Multi Touch
Light Transmission	80% ± 3% / 88%± 2%
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%		
Others	1. Connect with OMNI-Box Kit 2. Connect with LVDS/USB Type Touch		
Note			

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%		
Others	1. Connect with OMNI-Box Kit 2. Connect with LVDS/USB Type Touch		
Note			

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%		
Others	1. Connect with OMNI-Box Kit 2. Connect with LVDS/USB Type Touch		
Note			

Note: All specifications are subject to change without notice.

OMNI Series : Modular Builder - BOX Kit



Model	OMNI-BT CPU BOX Kit	OMNI-SKU CPU-BOX Kit
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, 10/100/1000 Base-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
Others	Box Bottom Chassis Cover (optional): M0421550A0	
Note		

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
Vibration	1 Grms / 5~500Hz/random Operation
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)	
Touchscreen	
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	

OMNI Series : Modular Touch Panel Solutions



Model	OMNI-2155-BT	OMNI-3105-BT	OMNI-3125-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, 10/100/1000 Base-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)	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 x1 (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)	12.95" x 11.34" x 2.2" (329 mm x 288 mm x 56 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)	20.87" x 17.52" x 7.87" (530mm x 445mm x 200mm)
Gross Weight	14.1 lb (6.4kg)	7.92 lb (3.6 kg)	11 lb (5.0 kg)
Environmental			
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C) with industrial grade device (with 0.5 m/s air flow, according to IEC68-2-14, CPU: N2807) -4°F ~ 131°F (-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)	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 ~ 500 Hz/ Operation (HDD)	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD
Shock	15 G peak acceleration (11 msec. duration)	15 G peak acceleration (11 msec. duration) – with HDD	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	12.1" TFT-LCD, LED
Max Resolution	1366 x 768	800 (H) x 600 (V)	1024 (H) x 768 (V)
Max. Colors	16.7M colors (8-bit for R,G,B)	16.2M colors	
Luminance	400 cd/m2	230 cd/m2	500 cd/m2
Viewing Angle	160° (H), 140° (V)	120° (H), 100° (V)	160° (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			

Note: All specifications are subject to change without notice.

OMNI Series : Modular Touch Panel Solutions



Model	OMNI-3155-BT	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, 10/100/1000 Base-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 x1 (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 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 x1 (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 Type RS-232/422/485 x 1 RJ-45 Type for 10/100/1000 Base-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 x1 (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	Mini card x 2, SIM card x 1, OMNI I/O connector x 1	Full Size Mini card x 2, SIM card x 2, 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	14.53" x 12.36" x 2.28" (369 mm x 314 mm x 58 mm)	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	20.08" x 9.84" x 18.11" (510mm x 250mm x 460mm)	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	13.97 lb (6.35 kg)	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	15" TFT-LCD, LED	17" TFT-LCD, LED	19" TFT-LCD, LED
Max Resolution	1024 (H) x 768 (V)	1280 (H) x 1024 (V)	1280 (H) x 1024 (V)
Max. Colors	16.2M (8bit/color)	16.7M colors (RGB 6-bits + Hi-FRC data)	16.7M colors
Luminance	300 cd/m2	350 cd/m2	
Viewing Angle	176° (H), 176° (V)	170° (H), 160° (V)	
Back Light	LED		
Back Light MTBF (Hours)	70,000	50,000	
Touchscreen			
Type	P-CAP/ 5-wire resistive		
Light Transmission	P-CAP (90%± 2%), 5-wire Resistive (80% ± 2%)	P-CAP (≥85%), 5-wire Resistive (80% ± 5%)	
Note			

Note: All specifications are subject to change without notice.

OMNI Series : Modular Touch Panel Solutions



Model	OMNI-2155-SKU	OMNI-2215-SKU	OMNI-3125-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	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, 10/100/1000 Base-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 10/100/1000 Base-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)	12.95" x 11.34" x 2.72" (329mm x 28mm x 69 mm)
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)	20.87" x 17.52" x 7.87" (530mm x 445mm x 200mm)
Gross Weight	14.96 lb (6.8 kg)	20.02 lb (9.1 Kg)	12.34 lb (5.6 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		
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	15.6" TFT-LCD, LED	21.5" TFT-LCD, LED	12.1" TFT-LCD, LED
Max Resolution	1366 (H) x 768 (V)	1920 (H) x 1080 (V)	1024 (H) x 768 (V)
Max. Colors	16.7M (8 bit/color)	16.7M colors	16.2M colors
Luminance	400 cd/m2	250 cd/m2	500 cd/m2
Viewing Angle	160 (H), 140 (V)	178 (H), 178 (V)	160° (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% ± 2%)	P-CAP (≥85%), 5-wire Resistive (80% ± 5%)	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)
Note			

Note: All specifications are subject to change without notice.

OMNI Series : Modular Touch Panel Solutions



Model	OMNI-3155-SKU	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, 10/100/1000 Base-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 10/100/1000 Base-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	14.53" x 12.36" x 2.79" (369mm x 314mm x 71 mm)	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	20.08" x 9.84" x 18.11" (510mm x 250mm x 460mm)	20.55" x 10.31" x 19.29"(522mm x 262mm x 490mm)	26.02" x 8.11" x 19.53" (661mm x 206mm x 496mm)
Gross Weight	14.3 lb (6.5 kg)	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		
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	15" TFT-LCD, LED	17" TFT-LCD, LED	17" TFT-LCD, LED
Max Resolution	1024 (H) x 768 (V)	1280 (H) x 1024 (V)	
Max. Colors	16.2M (8bit/color)	16.7M colors (RGB 6-bits + Hi-FRC data)	
Luminance	300 cd/m^2	350 cd/m^2	
Viewing Angle	176° (H), 176° (V)	170° (H), 160° (V)	
Back Light	LED		
Back Light MTBF (Hours)	70,000	50,000	
Touchscreen			
Type	P-CAP/ 5-wire resistive		
Light Transmission	P-CAP (90%± 2%), 5-wire Resistive (80% ± 2%)	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)	
Note			

Note: All specifications are subject to change without notice.

OMNI Series : Modular Display Solutions



Model	OMNI-215M	OMNI-221M	OMNI-310M
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)	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)
Carton Dimension	20.9" x 17.5" x 7.9" (530mm x 445mm x 200mm)	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)
Gross Weight	14.1 lbs (6.4 kg)	18.5 lbs (8.4 kg)	7.9 lbs (3.6 kg)
Net Weight	11.2 lbs (5.1 kg)	15.4 lbs (7.0 kg)	1.1 lbs (2.4 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		
Vibration	1 Grms / 5~500Hz/random Operation		
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	21.5" TFT-LCD	10.4" TFT-LCD
Max. Resolution	1366 x 768	1920 x 1080	800 x 600
Max. Colors	16.7M		16.2M
Luminance	400 cd/m2	250 cd/m2	230 cd/m2
Viewing Angle	170° (H), 160° (V)	178° (H), 178° (V)	160° (H), 130° (V)
Back Light	LED		
Back Light MTBF (Hours)	50,000		30,000
Touchscreen			
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-312M	OMNI-315M
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 100 x 100 / Stand	
Dimension	12.9" x 11.3" x 2.2" (328.5mm x 288.1mm x 55.9mm)	14.5" x 12.4" x 2.3" (369mm x 314mm x 58mm)
Carton Dimension	20.9" x 17.5" x 7.9" (530mm x 445mm x 200mm)	20.1" x 18.1" x 9.8" (510mm x 460mm x 250mm)
Gross Weight	10.4 lbs (4.7 kg)	14 lbs (6.35 kg)
Net Weight	7.7 lbs (3.5 kg)	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	
Vibration	1 Grms / 5~500Hz/random Operation	
Shock	—	
EMC	CE/FCC, Class A	
Power Supply		
Dc Input	DC 12~30V Power Input with 3 Pin Terminal Block	
LCD		
Display Type	12.1" TFT-LCD	15" TFT-LCD
Max. Resolution	1024 x 768	
Max. Colors	16.2M	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	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.

Model	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 100 x 100 / Stand	
Dimension	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	20.6" 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	14.8 lbs (6.7 kg)	18.1 lbs (8.2 kg)
Net Weight	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	
Vibration	1 Grms / 5~500Hz/random Operation	
Shock	—	
EMC	CE/FCC, Class A	
Power Supply		
Dc Input	DC 12~30V Power Input with 3 Pin Terminal Block	
LCD		
Display Type	17" TFT-LCD	19" TFT-LCD
Max. Resolution	1280 x 1024	
Max. Colors	16.7M	
Luminance	350 cd/m2	
Viewing Angle	160° (H), 140° (V)	170° (H), 160° (V)
Back Light	LED	
Back Light MTBF (Hours)	50,000	
Touchscreen		
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.

Model	UP-GWS01	UPS-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
Memory	Onboard DDR3L memory	Onboard Single/ Dual Channel LPDDR4 memory, Max. 8GB
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
Storage	Onboard eMMC	eMMC ver 5.0 x 1, Max. 128G
Ethernet	Gb LAN x 1	Realtek® 8111G x 2
WIFI/BT	Optional	—
Audio	HDMI x 1	HDMI x 1, DP x 1
USB	USB2.0 x 4, USB3.0 OTG x 1	USB3.0 x 3
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
USB	USB2.0 x 4, USB3.0 OTG x 1	USB3.0 x 2, USB3.0 OTG x 1/ USB3.0 x 1
Display Port	HDMI x 1	HDMI x 1, DP x 1
Ethernet	Gb LAN x 1	Realtek® 8111G x 2
COM	—	
Environment		
Power	5V/4A DC Only	5V 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)
Gross Weight	—	
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 113°F (0°C ~ 45°C)
Operating Humidity	0% ~ 90% relative humidity non-condensing	
Certification	CE/FCC Class A	CE, FCC Class A, UL
OS Support	Windows® 10, Linux, Windows® 10 IoT core	Windows® 10, Linux, Android 7.0, Windows® 10 IoT core
Note		

Note: All specifications are subject to change without notice.

Model	UPX-Edge	UP Xtreme i11 EDGE
System		
CPU	8th generation Intel® Core™ i7/i5/i3/Celeron Processor SoC	11th Gen Intel® Core™ Processor SoC Core i7-1185G7E Core i7-1185GRE Core i5-1145G7E Core i5-1145GRE Core i3-1115GRE Celeron® 6305E
Memory	Onboard DDR4 memory, Max 16GB Single Channel: 4GB Dual Channel: 8GB, 16GB	DDR4 SO-DIMM Slot x 2 (up to 64GB 3200Mhz)
Graphics	Intel® Graphics, GEN 9	Intel® Iris® Xe graphics
Storage	eMMC 64GB	SATA CONN x 1 with POWER CONN M.2 2280 M Key NVMe(PCIe [x2])
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® i225IT x 1, Intel® i219 (vPRO) x 1
WIFI/BT	Optional	
Audio	Line out + MIC x 1	Realtek ALC888s x 1 (Mic /Line out)
USB	USB 3.2 Gen 2 x 4	USB 3.2 Gen2 x 3 USB 2.0 x 1 (Type A) USB 4.0 via USB type C
Expansion Slot	M.2 2230 E Key x 1 M.2 2280 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 M-Key x 1 M.2 3052 B-Key x 1 with SIM SATA3.0 with power connector x 1 PCIe x 4 slot (Optional)
I/O Placements		
Power	DC-in Jack x 1, Power Button x 1	12V DC-in (Lockable plug)/ Phoenix connector
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	USB3.2 Gen2 x 3 USB2.0 x 1 (Type A) USB4.0 via USB type C
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)	HDM 2.0 x 1 /DP 1.4 x 1 eDP x 1, 4K at 60hz panel
Ethernet	RJ45 connector x 2	Intel® i225IT x 1, Intel® i219 (vPRO) x 1
COM	RS-232/422/485 x 2	
Environment		
Power	12V - 60VDC	12V (AT & ATX)
Form Factor	7.48" x 5.12" x 3.1" (190mm x 130mm x 78.6mm)	124mm x 152mm x 66.5mm
Gross Weight	6.61lbs (3kg)	GW: 2.3kg
Operating Temperature	eMMC: 32°F ~ 140°F (0°C ~ 60°C) SATA: -4°F ~ 158°F (-20°C ~ 70°C) With AI module: 32°F ~ 140°F (0°C ~ 60°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	CE,FCC Class A
OS Support	Win 10, Linux Ubuntu 18.04 with Kernel 5.0, Linux Yocto 2.7 with Kernel 4.19	Windows 10 /IOT, Yocto 3.1, Ubuntu 20.04.02
Note		

Note: All specifications are subject to change without notice.

Model	UPN-Edge Pro	UP Squared 6000 Edge
System		
CPU	Intel® Apollo Lake N4200/N3350/E3950 Processor SoC	Intel® Atom® X6413E / X6425RE, Celeron® N6210 (no PSE), Pentium® J6426 Processor SoC
Memory	onboard DDR4, Max 8GB Single Channel:2GB Dual Channel:4GB,8GB	
Graphics	Intel® Graphic ,Gen 9	Intel® UHD Graphics
Storage	Emmc 32G/64G	Onboard eMMC 32G/64G Optional with M.2 2280 M-key x 1, SATA3 x 1
Ethernet	Intel i210 x2	GbE x 1, 2.5GbE x 1 Atom: Intel® i210-IT, i225-IT PC Client: Intel® i211-AT, i225-V
WIFI/BT	Optional	Optional with M.2 2230 E-key x 1
Audio	Line out+mic in x1	Line out x 1 Mic in x 1
USB	USB 3.2 Gen 1 OTG x 1 USB 3.2 Gen 1 (Type A) x 3	USB 3.2 Gen 2 Type A x 2 USB 3.2 Gen 2 Type C (support OTG) x 1 (Limited to Atom series)
Expansion Slot	40 pin GPIO x 1 M.2 2230 E-key x 1 M.2 2280 M-key x 1 M.2 3052/3042 B-key x 1 (support with SIM) SATA3 connector x 1 (support 2.5" HDD/SSD expansion)	40 pin GPIO x 1 M.2 2230 E-key x 1 M.2 2280 PCIe Gen3.0x2 M-key x 1 SATA3 x 1 M.2 3052 B-key x 1 Micro SIM slot x 1 TPM 2.0 (Limited to Atom series)
I/O Placements		
Power	DC-in Jack x 1, Power Button x 1	
USB	USB3.2 Gen1 OTG x 1 USB3.2 Gen1 (Type A) x 3	USB 3.2 Gen 2 Type A x 2 USB 3.2 Gen 2 Type C (support OTG) x 1 (Limited to Atom series)
Display Port	HDMIx1, DP x1	HDMI 2.0b x 1 DP 1.2 x 1
Ethernet	Gb Ethernet (full speed) RJ-45 x 2 (Intel i210)	RJ45 x 2
COM	RS422/RS232/RS485 x 2	RS232/RS422 x 1 (Limited to Atom series)
Environment		
Power	12-24VDC	12V DC-in (Lockable plug)
Form Factor	4.61" x4.19" x3.5" (117mm x 106.5mm x 88.8mm)	4.6" x 4.2" x 2.8" (11.7 x 10.6 x 7 cm)
Gross Weight	2.17 lb (982.5g)	TBD
Operating Temperature	32°F ~ 140°F (0°C ~ 55°C) with air flow 0.5m/s	With Heatsink: 32°F ~ 140°F (0°C ~ 60°) with air flow 0.5m/s
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
Certification	CE/FCC Class A, RoHS Compliant , REACH	
OS Support	Microsoft Windows 10 (full), Windows IOT Core Linux: Ubuntu 18.04.5 & Ubuntu 20.04.1 Yocto 3.1	Microsoft Windows 10 (full), Windows IOT Core Linux: Ubuntu 20.04 LTS, Yocto 3.1
Note		

Note: All specifications are subject to change without notice.

Turn-Key Chassis Solutions

Model	ACS-1U01-BT4
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)
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
I/O Chipset	Fintech 81866D
Display Interface	Intel® Graphics Media Accelerator 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	Realtek® PCIe Gb LAN 8111G x 1
I/O	
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	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
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	

Note: All specifications are subject to change without notice.

Turn-Key Chassis Solutions

Model	ACS-1U01-H110B
System	
CPU Board	EMB-H110B-A10-HH
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	Intel® HD Graphics DP(BOM Change, default HDMI): Up to 1920 x 1200 @60Hz, with Digital Audio HDMI: Up to 4096 x 2304 @24Hz / 2560 x 1600 @60Hz, with Digital Audio LVDS: Up to 1920 x 1200 @60Hz, Dual Channel 18/24-bit colay eDP: Up to 4096 x 2304 @60Hz
Storage Devices	2.5" HDD x 1, Full-Size Mini-Card(mSATA default, PCIe + USB optional) x 1
LAN	Realtek® PCIe Gb LAN 8111G x 2
I/O	
Front I/O Ports	USB 2.0 port x 4 Power S/W x 1 COM port x 1 HDD LED x 1 POWER LED x 1
Rear I/O Ports	USB 3.2 Gen 1 port x 4 Mic-In (pink) x 1 Line-Out (green) x 1 HDMI x 2 (BOM Changeable to DP) RJ-45 Connector x 2 DC Power jack x 1
Expansion	Half-Size Mini-Card slot (PCIe + USB) x 1, Full-Size Mini-Card (Default mSATA, PCIe + USB optional) x 1 Full-size Mini-Card slot (mSATA default) x 1, SATA3(6.0Gb/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
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, WIndows® 10 32 / 64-bit
Linux	Ubuntu 16.04.02/Kernal 4.8.0
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	32ºF~122ºF (0ºC~50ºC)
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.

03

Network Platform Solutions

Desktop Network Appliances

Model	FWS-2365	FWS-2360
System		
Form Factor	Desktop Network Appliance	
Processor	Intel® Atom® Processor C3000 series (4~16 cores)	Intel® Atom™ Processor C3000 Series supports dual and quad core
Chipset	SoC	
System Memory	DDR4 SODIMM socket x 2	DDR4 SODIMM ECC DIMM (Dual core 1 slot Quad core 2 Slot) Up to 32GB
Network		
Ethernet	1GbE RJ-45 x 6 (2 ports co-lay SFP) 10G SFP+ x 4 (4 cores only support 2 port)	Intel® X553 (Marvell 88E1543) RJ45 x 4 Default Intel® i211 GbE x 2 (Intel® i210 SFP x 2 Optional)
Bypass	Supports 1 pairs on LAN 3-4	Supports up to 2 pairs bypass function
Display		
Graphics Controller	—	
Connector	—	
Storage		
HDD	SATA III port x 2, 2.5" HDD/SSD up to 2	2.5" HDD Bay x 1
CF/CFast/mSATA	On board 16GB eMMC, up to 128GB optional mSATA slot x 1 (co-lay with M.2 slot)	SATA 6.0 Gb/s port x 1(Onboard eMMC up to 16GB optional)
Internal/ Expansion Interface		
PCIe Slot	—	
Mini-PCIe Slot	Mini-card slot x 1 (Half-size, PCIe) Mini-card slot x 1 (Full-size, PCIe + USB2.0) with SIM slot M.2 B key 3052 x 1 (USB3.0) with SIM slot	Mini-Card socket (full-size) x 2 (1 with SIM socket)
Keyboard and Mouse	Reserved pin-header	
USB	USB 3.0 x 2 (1 Port only support USB2.0 signal)	Dual Core: USB 3.2 Gen 1 x 1 + USB2.0 x 1
Miscellaneous		
RTC	Internal RTC	
Watchdog Timer	1~255 steps by software programmable	
Software Button	GPIO programmable push button x 1	—
TPM	TPM v2.0 9665	(TPM v1.2 9660/TPM2.0 9665 Optional)
GPIO	4 bits input/ 4 bits output	(4 bits input, 4bits output optional)
Fan	System Fan x 1	System fan x 1
MTBF (Hours)	TBD	149683 Hours
Color	Black	Black
Environmental Parameters and Dimension		
Power Consumption	12V DC Power in connector 4 Cores: 40W Power Adapter 8 Cores and above: 60W Power Adapter	12V DC Power in connector
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	
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)	260mm x 178mm x 44mm	8.66" x 4.13" x 1.73" (220mm x 105mm x 44mm)
I/O		
Front Panel	Power LED x 1 Status LED x 1 Storage Active LED x 1 Bypass LED x 1 Ethernet LED x 20 Antenna Hole x 2 Accessible SIM slot x 2	Power LED x 1, Status LED x 1, Storage Active LED x 1, Bypass LED x 2, LAN LED x 12, (Antenna Hole x 2 Optional)
Rear Panel	USB 3.0 Port x 2 RJ-45 Port x 6 SFP+ Port 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	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 2 Optional)
Note		

Note: All specifications are subject to change without notice.

Desktop Network Appliances

Model	FWS-2280	FWS-2276
System		
Form Factor	Desktop Network Appliance	
Processor	Intel Elkhart lake SoC Processor 2~4 cores	Intel® Celeron® Processor N3350 SoC
Chipset	SoC	
System Memory	260-pin DDR4 SO-DIMM x 1, 3200MHz	Onboard LPDDR4 2GB memory
Network		
Ethernet	Intel® i211, Gigabit Ethernet x 4 Intel® i210, SFP x 1	Intel® i211 GbE x 4
Bypass	—	1 pair bypass function
Display		
Graphics Controller	Intel® UHD Graphics	Intel® HD graphics integrated
Connector	HDMI x 1	—
Storage		
HDD	—	2.5" HDD Bay x 1
CF/CFast/mSATA	mSATA slot x 1 SATA III port x 1	Onboard 8GB eMMC, SATA 6.0 Gb/s port x 1
Internal/ Expansion Interface		
PCIe Slot	—	
Mini-PCIe Slot	Mini Card Socket (PCIe + USB 2.0, full size) with SIM x1 Mini Card Socket (PCIe, half size) x1 M.2 B key 3052 (USB 3.0, full size) with SIM x1(Optional)	—
Keyboard and Mouse	—	
USB	USB 2.0 Type A x 2	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	(TPM SLB9670 VQ2.0 FW7.85 Optional)	(TPM v1.2 9660/TPM2.0 9665 Optional)
GPIO	(4 bits input, 4bits output optional)	4 bits input, 4bits output optional
Fan	Fan-less	1
MTBF (Hours)	TBD	166,000
Color	Black	
Environmental Parameters and Dimension		
Power Consumption	2 x 12V DC Power Input Connector Lockable, 40W power adapter	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 (mSATA) 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	
Dimension (W x D x H)	8.27" x 4.09" x 1.73" (210mm x 105mm x 44mm)	6.5" x 3.62" x 1.57" (165mm x 92mm x 40mm)
I/O		
Front Panel	LEDs (Power, Status, Storage) x 3 Micro-SIM x 1 Antenna Hole x 2	Power LED x 1 Status LED x 1 HDD Active LED x 1 Bypass LED x 1 LAN LEDs x 8
Rear Panel	DC Power Input Connector Lockable x 2 Power Button x 1 USB2.0 Ports x 2 1GbE RJ45 Ports x 4 ,1 SFP RJ-45 console x 1 Reset Button x 1 Antenna Hole x 3	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		

Desktop Network Appliances

Model	FWS-2275	FWS-2273
System		
Form Factor	Desktop Network Appliance	
Processor	Intel® Celeron® Processor N3350 SoC	Intel® Celeron® N3350 Processor
Chipset	SoC	Intel® Celeron® N3350 Processor
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		
Graphics Controller	Intel® HD graphics integrated	Intel® HD Graphics 505 Intergrated
Connector	(HDMI Connector x1 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 x1	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
Keyboard and Mouse	—	Reserved 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	Reserved 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 Consumption	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	
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
Note	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: All specifications are subject to change without notice.

Desktop Network Appliances

Model	FWS-2272	FWS-2271
System		
Form Factor	Desktop Network Appliance	Desktop 6-port Network Appliance
Processor	Intel® Celeron® N3350 Processor	Onboard Intel® Celeron® processor N3350
Chipset	Intel® Celeron® N3350 Processor	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		
Graphics 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
Keyboard and Mouse	—	Reserved 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	Reserved 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 Consumption	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 (SATA DOM) 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.

Desktop Network Appliances

Model	FWS-2277
System	
Form Factor	Desktop Network Appliance
Processor	Intel® Celeron® Processor N3350 SoC
Chipset	SoC
System Memory	Onboard LPDDR4, 4GB
Network	
Ethernet	Intel® i211, Gigabit Ethernet x 2
Bypass	—
Display	
Graphics Controller	Intel® UHD Graphics
Connector	HDMI x 1
Storage	
HDD	—
CF/CFast/mSATA	—
Internal/ Expansion Interface	
PCIe Slot	—
Mini-PCIe Slot	Mini-Card Full Size Slot x1
Keyboard and Mouse	—
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	(TPM SLB9670 VQ2.0 FW7.85 Optional)
GPIO	(4 bits input, 4bits output optional)
Fan	Fan-less
MTBF (Hours)	TBD
Color	Black
Environmental Parameters and Dimension	
Power Consumption	12V DC Power Input Connector Lockable, 40W power adapter
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 (mSATA) 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)	4.53" x4.53" x 1.26"(115mm x115mm x 32mm)
I/O	
Front Panel	USB 3.2 Gen 1 x 2 Power Button x 1 Reset Button x 1
Rear Panel	DC Power Input Connector non-lock x 1 1GbE RJ45 Ports x 2 HDMI x 1
Note	

Note: All specifications are subject to change without notice.

Rackmount Network Appliances

Launching in Q2

Model	FWS-8600	FWS-7541
System		
Form Factor	2U Rackmount Network Platform	1U Rackmount ICE-Lake-D LCC Platform Network Appliance
Processor	Dual 2nd Gen Intel® Xeon® Scalable Processors, up to 56 cores, 112 threads	Intel® Xeon® ICE-Lake-D LCC Processors
Chipset	Intel® C621 Chipset	SoC
System Memory	DDR4 2133/2400/2666 R-DIMM x 16 (8 DIMM per CPU), Up to 512 GB	DDR4 SO-DIMM ECC DIMM slots x 2
Network		
Ethernet	Intel® i211 Gigabit Ethernet x 2	Intel® i350-AM4 Gigabit Ethernet x 12 and SFP+ x 4 from CPU
Bypass	Depend on NIM module	2 pairs
NIM Slot	NIM x 4 (Project based up to 8 slots)	NIM Slot x 1 (Option)
Display		
Graphic Controller	Optional support via Mini-PCIe module or IPMI	—
Connector	Optional VGA port via module	—
Storage		
HDDs	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	2.5" HDD x 2
CF/CFast/mSATA	M.2 2260 M-key x 1 mSATA slot x 1 (share same slot with Mini-Card)	—
Internal/ Expansion Interface		
PCIe slot	Optional PCIe [x16] slots x 2, via riser card	Rear Expansion PCIe x 16 Slot x 1(Option)
Mini-Card slot	Mini Card slot (full-size) x 1 (PCIe/SATA, USB2.0)	M.2 B-Key Slot x 1(Option Mini PCIe slot) M.2 E-Key Slot x 1(Option Mini PCIe slot)
IPMI	Optional IPMI via AAEON Module (Project based)	Option
Keyboard and Mouse	—	—
USB	USB 3.2 Gen1 x 2 (Optional 2*10 pin USB 3.2 Gen1 x 2 Box Header 2.0mm)	USB 3.0 x 2
Miscellaneous		
RTC	Internal RTC	—
Watchdog Timer	1~255 steps by software programmable	1~255
Software Button	GPIO Programmable push button x 1	1
TPM	(Optional TPM2.0 9665 on board)	2
GPIO	(4 bits input, 4 bits output optional)	8Pin
FAN	5 x Hotswappable FAN	2
MTBF (Hours)	192,691 Hours	—
Color	Black	Fan
Environmental Parameters and Dimension		
Power Requirement	550 ~ 600W Redundant 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	0%~80% @40°C; non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz / operation (3.5" Hard Disk Drive x 5) 1.5 Grms/ 5 ~ 500Hz / non operation	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	
Dimension (W X D X H)	17.48" x 22.83" x3.46" (444mm x 580mm x 88mm)	16.93" x 7.87" x1.73"(430mm x 200mm x 44mm)
I/O Interfaces		
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 Software Programmable Button x1 RJ-45 LAN x 2 IPMI x 1 (Project based)	Power LED x 1 Status LED x 1 HDD Active LED x 1 USB 3.1Ports x 2 RJ-45 Console x 1 RJ-45 IPMI Port x 1 parallel LCM display and 4 keypad Software Programmable Button x 1 SFP x 4+ Port4x SFP+ (from CPU) RJ45 Port x 12
Rear Panel	AC Power Input x 2, Power Switch x 1, VGA port (Optional), Rear Expansion Slot x 2 (PCIe [x16] Optional)	AC Power Input x 1 Power Switch x1 Rear Expansion Slot (Optional PCIe [x8 or x16]) x 1
Note		

Note: All specifications are subject to change without notice.

Rackmount Network Appliances

Launching in Q2

Model	FWS-7540	FWS-7840
System		
Form Factor	1U Rackmount ICE-Lake-D HCC Platform Network Appliance	1U Rackmount Network Platform
Processor	Intel® Xeon® ICE-Lake-D HCC Processors	10th Generation Intel® Core™/ Xeon® processor
Chipset	SoC	Intel® W480E
System Memory	DDR4 U-DIMM R-DIMM slots x 4	2 x DDR4 2666MHz U-DIMM ECC DIMM slots up to 64G
Network		
Ethernet	Intel® i350-AM4 Gigabit Ethernet x 8 and SFP+ x 4 from CPU	8 x 1Gb RJ45 Port or 6 x 1Gb RJ45 + 2 x 1Gb SFP , with 2 xi350AM4 LAN chips 2 x 10Gb SFP+ with XL710 AM2 LAN chip (Option)
Bypass	—	2 Pairs
NIM Slot	NIM Slot x 2	
Display		
Graphic Controller	—	Intel® UHD Graphics
Connector	—	(HDMI x1 Optional)
Storage		
HDDs	2.5" HDD x 2	SATA III port x 2, 2.5" HDD/SSD up to 2
CF/CFast/mSATA	M.2 M-Key 2280	1 x Mini card socket (Option mSATA)
Internal/ Expansion Interface		
PCIe slot	Rear Expansion PCIe x 16 Slot x 1(Option)	Optional PCIe [x8] slot x 1, via riser card
Mini-Card slot	Mini PCIe slot with SIM(Option M.2 B-Key) x 1 Mini PCIe slot with SIM(Option M.2 E-Key) x 1	Mini Card x 1
IPMI	Option	—
Keyboard and Mouse	—	
USB	USB 3.0 x 2	USB 3.2 Gen1 x 2
Miscellaneous		
RTC	—	Internal RTC
Watchdog Timer	1~255	1~255 steps by software programmable
Software Button	1	GPIO Programmable push button x 1
TPM	2	TPM v2.0 9665
GPIO	8Pin	4 bits input/4 bits output
FAN	2	System Fan x 2
MTBF (Hours)	—	TBD
Color	Fan	Black
Environmental Parameters and Dimension		
Power Requirement	—	220W ATX PSU or 250W ATX PSU
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	0%~80% @40°C; non-condensing	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	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)	16.93" x 7.87" x1.73"(430mm x 200mm x 44mm)	430mm x 305mm x 44mm
I/O Interfaces		
Front Panel	Power LED x 1 Status LED x 1 HDD Active LED x 1 USB 3.1Ports x 2 RJ-45 Console option Micro USB console x 1 RJ-45 IPMI Port When install the IPMI card (NC-SI interface or IPMI Module LAN) x 1 Software Programmable Button x 1 SFP+ Port (from CPU) x 8 8+2 x RJ45 Port w/o IPMI with IPMI 8+1 x RJ45 2 NIM Slot	Power LED x 1 Status LED x 1 Storage Active LED x 1 Bypass LED x 2 Ethernet LED x 16 USB 3.2 Type A port x 2 Parallel LCM display and 4 keypad x 1 Software Programmable Switch x 1 1 GbE RJ-45 x 8 or 1 GbE RJ45 x 6 + SFP x 2 10 GbE SFP+ x 2LAN port (Option by module) NIM Slot x 2
Rear Panel	AC Power Input x 1 Power Switch x 1 Rear Expansion Slot (Optional PCIe [x8 or x16]) x 1 If with NIM only PCIe x 8 (PER-R30X or TBD) If No NIM PCIe x 16 (Create new Riser card)	AC Power Input x 1, Power Switch x 1, (Rear Expansion Slot x 1 Optional)
Note		

Note: All specifications are subject to change without notice.

Rackmount Network Appliances

Model	FWS-7830	FWS-7831
System		
Form Factor	1U Rackmount Network Platform	
Processor	8th Generation Intel® Core™/ Xeon® processor	Intel® Xeon® processor E-2100 family for Intel® C246 Chipset Intel® Core™/ Celeron® processor for Intel® H310 Chipset
Chipset	Intel® C246	Intel®C246/H310
System Memory	DDR4 2133/2400/2666 UDIMM Up to 64GB 288-pin DIMM x 4	DDR4 SODIMM x 2/ECC Up to 32GB DDR4 1600/1866/2133 SODIMM/ECC up to 32GB 260-pin DIMM x 2
Network		
Ethernet	Intel® I350 AM2 Gigabit Ethernet x 2	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)
Bypass	Depend on NIM module	2 Pairs
NIM Slot	NIM Slot x 3	Need to configure riser card
Display		
Graphic Controller	Intel® HD graphics integrated	Intel® UHD Graphics 630
Connector	VGA cable (Optional)	(HDMI x1 Optional)
Storage		
HDDs	Internal 2.5" SATA HDD x 2 or 3.5" SATA HDD x 1 (Optional)	Internal 2.5" HDD bay x 2 or (3.5" HDD bay x 1 can't use with NIM Optional)
CF/CFast/mSATA	Default mSATA Slot (Optional CFast™ Socket)	mSATA
Internal/ Expansion Interface		
PCIe slot	Optional PCIe [x8] slot x 1, via riser card	—
Mini-Card slot	Mini Card x 1	Mini-Card x 1 (PCIe[x1] + mSATA)
IPMI	—	
Keyboard and Mouse	Pin-header	NA
USB	USB 3.2 Gen 1 x 2, Box Header (2.0mm)	USB 3.2 Gen 1 x 2
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	GPIO Programmable push button x 1
TPM	Optional TPM v2.0	(TPM2.0 9665/TPM v1.2 9660 optional)
GPIO	8bits, BIOS default 4 bits input, 4bits output.	4 bits input, 4 bits output
FAN	2	
MTBF (Hours)	TBD	362,825 Hours
Color	Black	
Environmental Parameters and Dimension		
Power Requirement	220W ATX PSU or 250W ATX PSU	220W ATX PSU
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)	
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)	
Operating Humidity	10% ~ 80%	10%~80% relative humidity, non-condensing
Storage Humidity	10% ~ 80% @ 40°C, non-condensing	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 (2.5" Hard Disk Drive) 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	TBD
Dimension (W X D X H)	16.93" x 18.7" x1.73"(430mm x 475mm x 44mm)	16.93" x 7.87" x1.73"(430mm x 200mm x 44mm)
I/O Interfaces		
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 Software Programmable Switch 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
Rear Panel	AC Power Input x 1 Power Switch x 1 VGA port (Optional)	AC Power Input x 1, Power Switch x 1, (Rear Expansion Slot x 1 Optional)
Note		

Note: All specifications are subject to change without notice.

Rackmount Network Appliances

Model	FWS-7820	FWS-7821
System		
Form Factor	1U Rackmount Network Platform	
Processor	6th Generation Intel® Core™/ Xeon® processors	6th/7th Generation Intel® Core™/ Xeon® processors
Chipset	Intel® C236	Intel® C236
System Memory	- DDR4 1600/1866/2133 UDIMM/ECC - Up to 64GB - 288-pin DIMM x 4	DDR4 1600/1866/2133/2400 UDIMM/ECC Up to 64GB 288-pin DIMM x 4
Network		
Ethernet	Intel® i210 GbE x 2, Intel® 82580 x4	Intel® i211 GbE x 6 + Intel® i210 GbE x 2 (SFP) + NIM x 1(Or i211 GbE x8 +NIMx1)UDIMM/ECC
Bypass	Onboard 2 pairs bypass, others depend on NIM module	
NIM Slot	4 (Max. 5 slots by project base)	1
Display		
Graphic Controller	Intel® HD graphics integrated	
Connector	VGA cable (Optional)	
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)	Internal 2.5" SATA HDD x 2 or 3.5" SATA HDD x 1 (optional)
CF/CFast/mSATA	CF socket x 1 (Optional BOM CFast™ socket or mSATA slot)	Optional BOM CFast™ socket or mSATA slot or CF™ socket (optional)
Internal/ Expansion Interface		
PCIe slot	PCIe [x4] signal use [x8] slot (3rd NIM slot will be disabled if PCIe Riser supported)	Up to PCIe[x8] slot x 2
Mini-Card slot	—	Mini Card x 1
IPMI	—	
Keyboard and Mouse	Pin-header	
USB	USB 3.2 Gen 1 x 2, Box Header (2.0mm)	
Miscellaneous		
RTC	Internal RTC	
Watchdog Timer	1~255 steps by software programmable, 1 sec per step	
Software Button	GPIO Programmable push button x 1	GPIO Programmable push button x 1
TPM	TPM2.0 9665 (TPM v1.2 9660 optional)	TPM v1.2 9660 (TPM2.0 9665 optional)
GPIO	8 bits, BIOS default 4 bits input, 4 bits output.	4 bits input, 4 bits output
FAN	2	
MTBF (Hours)	71,852	94,241
Color	Black	
Environmental Parameters and Dimension		
Power Requirement	220W ATX PSU	250W ATX PSU or 220W ATX PSU
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 (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no 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)	16.93" x 12.01" x 1.73" (430mm x 305mm x 44mm)
I/O Interfaces		
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 (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 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 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		

Rackmount Network Appliances

Model	FWS-7360
System	
Form Factor	1U Rackmount Network Platform
Processor	Intel® C3758 processor SoC, optional support up to 16 core
Chipset	SoC
System Memory	DDR4 Slot x 4, Support ECC UDIMM/RDIMM upto 256GB
Network	
Ethernet	Intel®X553 RJ45 x 2, Intel® i211 GbE x 3, SFP+ x 2 from CPU
Bypass	Onboard 2 pairs bypass, others depend on NIM module
NIM Slot	1
Display	
Graphic Controller	—
Connector	—
Storage	
HDDs	2.5" HDD Bay x 2
CF/CFast/mSATA	Default SATA III port x 2 (MSATA Slot X 2 Optional)
Internal/ Expansion Interface	
PCIe slot	PCIe [x8] slot x 1, cannot use w/ NIM
Mini-Card slot	Default Mini-Card socket (full-size) x1 (Mini-Card socket (full-size) with SIM socket x 1 Optional)
IPMI	—
Keyboard and Mouse	—
USB	USB 3.2 Gen 1 x 2
Miscellaneous	
RTC	Internal RTC
Watchdog Timer	1~255 steps by software programmable
Software Button	GPIO Programmable Button x 1
TPM	Optional TPM v1.2 / TPM v2.0
GPIO	4 bits input, 4bits output
FAN	System Fan x 1
MTBF (Hours)	142,412
Color	Black
Environmental Parameters and Dimension	
Power Requirement	150W Flex ATX PSU
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
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)	16.93" x 12.01" x 1.73" (430mm x 305mm x 44mm)
I/O Interfaces	
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
Rear Panel	Power Switch x 1 AC Power Input x 1 Rear Expansion Slot x 1
Note	

Note: All specifications are subject to change without notice.




Model	NIM-S13B	NIM-S13D	NIM-S13E	NIM-C13B
Main Specification				
Form Factor	1G Fiber Module			1G LAN Module
Main Chipset	Intel® 82580EB (i350-AM4; Optional by request) Ethernet Controller x 2	Intel® 82580EB (i350-AM4; Optional by request) Ethernet Controller x 1		Intel® 82580EB (i350-AM4; Optional by request) Ethernet Controller x 2
Bypass	—		2	—
Host Interface	PCI-Express [x4]			PCI-Express [x8] (x4 + x4)
LAN Port	SFP 1GbE Connector x 8	SFP 1GbE Connector x 4		1GbE Connector x 8
Indicator	LED x 8 for Active/Link	LED x 4 for Active/Link		LED x 8 for Active/Link
Qualification	CE/FCC Class A			
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)			
Dimension	5.71" x 3.03" (145mm x 77mm)			
Note				




Model	NIM-C13D	NIM-S26B	NIM-S26C	NIM-S26D
Main Specification				
Form Factor	1G Copper Module	40G Fiber Module	10G Fiber Module	10GbE Fiber LAN Module
Main Chipset	Intel® 82580EB (i350-AM4; Optional by request) Ethernet Controller x 1	Intel® Fortville XL710 Ethernet Controller x 1	Intel® XL710 Ethernet Controller x 1	Intel® XL710-BM1 Ethernet Controller x 1
Bypass	2	—		2
Host Interface	PCI-Express [x4]	PCI-Express [x8]		PCI-Express [x8]
LAN Port	1GbE Connector x 4	QSFP 40GbE Connector x 2	SFP+ 10 GbE Connector x 4	SFP+ 10 GbE Connector x 4 SR
Indicator	LED x 4 for Active/Link	LED x 2 for Active/Link	LED x 4 for Active/Link	
Qualification	CE/FCC Class A			
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)			
Dimension	5.71" x 3.03" (145mm x 77mm)			
Note				

Note: All specifications are subject to change without notice.

Industrial Network Appliances

Model	ICS-6270	ICS-6280
System		
Form Factor	DIN Rail/ Desktop	
Processor	Intel® Celeron® Processor N3350 SoC	Onboard Intel® Elkhart lake SoC
System Memory	204-pin DDR3L 1866MHz x 1, SODIMM Up to 8GB	204-pin DDR4 2133/2400MHz, SODIMM Up to 32GB with IBECC support
Chipset	—	
Ethernet	Intel® i211, Gigabit Ethernet x 6	Intel® i225 Gigabit Ethernet x 4
Bypass	Supports up to 2 pairs	1 pair , support up to 2 pairs (Optional)
BIOS	AMI SPI Flash BIOS	
Serial ATA	SATA 6.0 Gb/s port x 1, for 2.5" HDD/SSD	SATA III port x 1 for 2.5"SSD support
CFast/mSATA	CFast™ socket x 1 (co-lay mSATA)	mSATA (Full size) socket colay SATAIII port x 1
Expansion Interface	Supports Mini-Card slot x 1 with SIM socket	Supports Mini-card slot x 1 with Micro 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	Black
Power Supply	2 Pin Terminal Block	Dual 2-Pin Phoenix terminal block
Dimension	4.96" x 2.93" x 5.74" (126 x 74.5 x 146mm)	5.12" x 4.96" x 2.83" (130mm x 126mm x 72mm)
Power Requirement	+9 ~ 36V, 2-pin terminal block	Redundant 9~48Vdc power input
MTBF (Hours)	101,292	TBD
Display		
Chipset	Intel® HD Graphics 500	Intel® HD Graphics
Interface	VGA port x 1	HDMI port x 1, 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	RJ-45 GbE x 4 RS-232/422/485 COM Ports x 2 HDMI portx1 VGA port x 1 USB 3.2 Gen 1 x 2 Micro SIM slot x 1 Software programmable button x 1 Power LED x 1 HDD LED x 1 Status LED x 1 Bypass LED x 1 (Optional x 2)
Rear I/O Panel	DIN Rail/ Wallmount Lock	
Top Panel	2-Pin Terminal Block +9~36VDC x 1	2-Pin Terminal Block +9~46VDC x 2
Environmental Parameters and Dimension		
Operating Temperature	-40°F ~ 156°F (-40°C ~ 75°C)	-40°F ~ 167°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	0.5 g rms/ 5 ~ 500Hz / operation (2.5" SSD) 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		

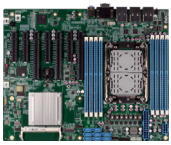
Note: All specifications are subject to change without notice.

Network Platform Solutions ▸

Industrial Servers

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
Graphic Engine	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.



Model	ARES-WHI0
System	
Form Factor	ATX Sever Board Whitely Platform
Processor	Single Intel® Xeon® ICE LAKE-SP Processors
System Memory	8 x DDR4 2133/2400/2666 R-DIMM Slot
Chipset	Intel®C621A
Ethernet	Intel® i210 Gigabit Ethernet x 2
COM	1 x Pin header
BIOS	AMI BIOS
Serial ATA	SATA II port x 8
Audio and VGA	1
Expansion Interface	3 x [PCI-E 3.0 x 16], 3 x [PCI-E 3.0 x 4]use [PCI x 8 Slot], 1 x [PCIE-3.0 x 8]
Watchdog Timer	1~255 steps by software programming
RTC	Internal RTC
System Fan	5x 4-pin fan headers (up to 5 fans)
Front I/O Panel	USB 3.0 x 2 1 Gb RJ45 LAN x 2 AUDIO in and out x 1, VGA x 1
Rear I/O Panel	N/A
Color	N/A
Power Supply	
Dimension	305 × 244 mm
Power Consumption	TBD
MTBF (Hours)	TBD
Display	
Chipset	Intel C621A
Graphic Engine	TBD
Resolution	TBD
Connector	VGA
I/O	
Serial Port	COM x 1 Pin Header
K/B and Mouse	N/A
USB	USB 3.0 x 2
Environment	
Operating Temperature	0°C ~ 50°C (32°F ~ 122°F)
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.

04

Rugged Mobile Solutions

Model	RTC-710RK	RTC-710AP
System Architecture		
Processor	Rockchip RK3399K 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 / 64GB	eMMC 64GB (Default) / 128GB
Display	7" WXGA (1280x800) 300-nit / 700-nit TFT LCD With Projected Capacitive Multi-Touch Screen	7" WXGA (1280x800) 300-nit / 700-nit TFT LCD With Projected Capacitive Multi-Touch Screen
I/O Port	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)	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 RS-232 COM 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 v5.1
Navigation	GPS + GLONASS (Default), BeiDou (Optional), External Antenna (Optional)	Up to 3 GNSS, GPS + Galileo (Default), GLONASS, BeiDou (Optional) External Antenna (Optional)
WWAN(optional)	LTE via M.2 slot (Optional) Hot-swappable Battery can not be used when LTE module is installed.	
Camera	8MP front camera 8MP rear camera with flash	2MP front camera, 8MP rear camera with flash
Sensor	G-sensor, E-compass, Gyro-sensor, Light-sensor	
Expansion Slot	M.2 slot x 1 Docking connector: USB 3.2 Gen 1 x 1	M.2 slot x 1, Docking connector: USB 3.2 Gen 1 x 1
Barcode 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 (R/W), 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
Audio	Speaker x 1	
Physical Key	F1 (Audio On/Off), F2 (Screenprint), F3 (Barcode Scanner Trigger), Volume Up, Volume Down	F1 (Ctrl+Alt+Del as Soft Reboot), F2 (Screenprint), F3 (Barcode Scanner Trigger), Volume Up, Volume Down
Mechanical		
Color	Dark Gray	
Dimension (W x H x D)	8.65" x 5.46" x 0.94" (219.8 x 138.8 x 23.9 mm)	
Gross Weight	1.54 lb (0.7 Kg) based on configurations	
Environmental		
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C) for high-brightness version	
Storage Temperature	-22°F ~ 158°F (-30°C ~ 70°C)	
Humidity	MIL-STD-810G Method 507.5	
Environmental Sealing	IP65	
Vibration	MIL-STD-810G Method 514.6	
Drop	MIL-STD-810G Method 516.6 Procedure IV Height of Drop: 122 cm (48 inch; 4 ft)	
Shock	MIL-STD-810G	
ESD	Air charge: +/- 8KV, Contact charge: +/- 4KV	
Certifications and Standards	UL62368-1, CE, FCC, IC	
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	
Master Battery	7.2V, 4540mAh, 32.7W	
Slave Battery	Hot-swappable battery: 7.4V, 1530mAh, 11.3W (Optional)	
Display		
LCD	7" TFT-LCD / 16:10, with LED backlight	
Resolution	1280 x 800	
Maximum Color	—	
Dot Size	0.03925(H) X 0.11775(V) mm	
Brightness	700 / 300 nits	
Viewing Angle	Horizontal: 178° (Typ.), Vertical: 178° (Typ.)	
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) / 8GB	
Storage	eMMC 64GB (Up to 256GB, 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 (3.5mm) 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 (3.5mm), 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 v5.1 (EDR + BLE), Intel AC9260	
Navigation	Up to 3 GNSS, GPS + Galileo (Default), GLONASS, 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 M.2 slot x 1 (For WiFi module) Mini-card slot x 1 (For LTE module) 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	
Audio	Speaker x 1	
Physical Key	F0 or Windows (Windows Start Key), F1 (BCR Trigger Butten (When BCR is enabled)), F2 (Screenprint), F3 (Ctrl+Alt+Del as Soft Reboot), Volume Up (Speaker Volume Up), Volume Down (Speaker Volume Down)	
Mechanical		
Color	Black & Dark Grey	
Dimension (W x H x D)	10.71" x 7.48" x 0.80" (272.0 x 190.0 x 20.4 mm)	
Gross Weight	1.0 Kg (2.2 lb) 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	-22°F ~ 158°F (-30°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
Shock	—	
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 Display	
Resolution	1280 x 800	
Maximum Color	16.7M	
Dot Size	0.1692 (H) x 0.1692 (V) mm	
Brightness	300 nits (800 nits, Optional)	
Viewing Angle	Horizontal: 170°, Vertical: 170° (Typical)	
Touch Screen		
Touch Type	Projected Capacitive Multi-Touch Screen (PCT)	
Light Transmission	Min. 85%	
Note		

Note: All specifications are subject to change without notice.

Rugged Mobile Solutions ▸
Rugged Tablet Computers

Model	RTC-1020	RTC-1200
System Architecture		
Processor	Intel® Core™ i Tiger Lake UP3 processor i5-1145G7E / i3-1115G4E / Celeron 6305E	Intel® Core™ i 7100U / 7300U Dual Core up to 3.9Ghz Intel® Celeron® 3965U Dual Core 2.2GHz Processor
Operating System	Windows® 10 IOT Enterprise SAC (Default), Ubuntu	Windows® 10 IoT Enerprise 64bit (Default)
Memory	Onboard LPDDR4X, 8GB (Default) / 16GB	DDR4 SO-DIMM Socket x 1, up to 16GB
Storage	M.2 SSD, 64GB (Default) / 128GB / 256GB	M.2 (NGFF) SSD, 64GB (Default) / 128GB / 256GB
Display	10.1" FHD (1920x1200) 450-nit / 850-nit TFT-LCD With Projected Capacitive Multi-Touch Screen	11.6" FHD (1920x1080) 500-nit / 850-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 (3.5mm), 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	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 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
Communication	Wi-Fi 802.11 b/g/n , Bluetooth v5.1 (EDR + BLE), Intel AC9260	Wi-Fi 802.11 b/g/n, Bluetooth v5.1
Navigation	Up to 3 GNSS, GPS + Galileo (Default), GLONASS, BeiDou (Optional)	GPS, GLONASS ==> Located in I/O board, PER-T407 143NEOM8Q0: u-blox NEO-M8Q-0
WWAN(optional)	LTE via M.2 slot (Optional)	LTE via mini-card slot (Optional)
Camera	5MP front camera, 8MP rear camera with flash	2MP front camera, 5MP auto-focus rear camera with flash
Sensor	G-sensor, E-compass, Gyro-sensor, Light-sensor	
Expansion Slot	M.2 slot x 3 (One for SSD, One for WiFi module, One for LTE module) Docking connector x 1: USB 3.2 Gen 1 x 1	Mini-card slot x 1 (For LTE module), Docking connector x 1 GNSS antenna Pass-through connector x 1 WWAN antenna Pass-through connector 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	
Audio	Speaker x 1	
Physical Key	F0 or Windows (Windows Start Key), F1 (BCR Trigger Butten (When BCR is enabled)), F2 (Screenprint), F3 (Ctrl+Alt+Del as Soft Reboot), Volume Up (Speaker Volume Up), Volume Down (Speaker Volume Down)	F0 or Windows (Windows Start Key), F1 (Ctrl+Atl+Del & BCR Trigger Butten (When BCR is enabled)), F2 (Touch Mode Switch), F3 (Screenprint), Volume Up (Speaker Volume Up), Volume Down (Speaker Volume Down)
Mechanical		
Color	Black & Dark Grey	Gray & Black
Dimension (W x H x D)	10.71" x 7.48" x 0.94" (272.0 x 190.0 x 24.0 mm)	12.36" x 7.87" x 0.96" (310.4 mm x 200.0 mm x 24.5 mm)
Gross Weight	1.5 Kg (3.3 lbs) based on configurations	3.3 lbs (1.5 Kg)
Environmental		
Operating Temperature	-4°F ~ 122°F (-20°C ~ 50°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Storage Temperature	-22°F ~ 158°F (-30°C ~ 70°C)	
Humidity	0% ~ 90% relative humidity, non-condensing	5% ~ 90% relative humidity, non-condensing
Environmental Sealing	IP65	
Vibration	MIL-STD-810G-514.6 Procedure I Cat.24, Fig 514.6E-1 & 514.6E-2 (Unit is non-operating)	MIL-STD-810G-514.6 Procedure I Cat.24, Fig 514.6E-1 & 514.6E-2
Drop	MIL-STD-810G-516.6 Procedure IV Drop height: 122cm Number of Drop: 26 times, for all surfaces, edges and corners Condition: Based on 2" plywood over concrete	MIL-STD-810G Method 516.6 Procedure IV -Height of Drop: 122cm (48 inch; 4ft) -Number of Drop: 26 times, for all surfaces, edges and corners Condition: Based on 2" plywood over concrete
Shock	—	
ESD	Air charge: +/- 8KV, Contact charge: +/- 4KV	
Certifications and Standards	UL62368, CE, FCC, IC	UL60950-1, CE/LVD: EN60950-1, CE, FCC
Power Supply		
AC / DC Adapter	AC 100 ~ 240 V, 50 ~ 60 Hz, Output: 19V/ 3.42A/ 65W	
Battery Life	Li-ion Battery 6-hour battery life based on test configurations	
Master Battery	Hot-swappable battery: 14.4V, 2270mAh, 32.7W 14.8V, 3450mAh, 51.1W (Optional)	Hot-swappable battery: 14.4V, 2270mAh, 32.7W
Slave Battery	Hot-swappable battery: 14.4V, 2270mAh, 32.7W 14.8V, 3450mAh, 51.1W (Optional)	Hot-swappable battery: 14.4V, 2270mAh, 32.7W
Display		
LCD	10.1" TFT-LCD Display	11.6" TFT-LCD Display
Resolution	1920 x 1200	1920 x 1080
Maximum Color	16.7M	
Dot Size	—	0.117 (H) x 0.117 (V) mm
Brightness	450 nits (850 nits, Optional)	500 nits (850 nits, Optional)
Viewing Angle	Horizontal: 160°, Vertical: 160° (Typical)	Horizontal: 178°, Vertical: 178° (Typical)
Touch Screen		
Touch Type	Projected Capacitive Multi-Touch Screen (PCT)	Projected Capacitive Multi-Touch Screen (PCT) Gloves / Finger mode Switchable by F2
Light Transmission	Min. 85%	Min. 87% (ASTM D1003; Wavelength = 550 nm)
Note		

Note: All specifications are subject to change without notice.

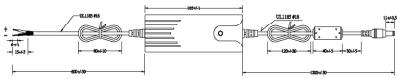
Rugged Tablet Computers : Accessories



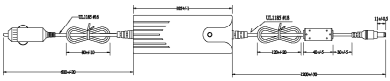
Model	RDS-0710	RDS-411	RDS-241V
System			
I/O	Front-facing I/Os: USB 2.0 x 2 Downward-facing I/Os: USB 3.2 Gen 1 x 2 RS-232 x 1 RJ45 GbE x 1	Front-facing I/Os: USB 2.0 x 2 with protection cover Downward-facing I/Os: USB 2.0 x 2 RS-232 x 1 (Two: Optional) RJ45 GbE x 1	Front-facing I/Os: USB 2.0 x 2 with protection cover Downward-facing I/Os: USB 3.2 Gen 1 x 2 RS-232 x 2 (One with 5V in Pin 9 & the Other with GPIO x 8) RJ45 GbE x 1 M12 DC-in x 1 External GPS and WWAN SMA connectors
DC Input	Phoenix connector: DINKLE ECH381H-03P Wide Voltage Input: DC 9V to 36V Mating connector: DINKLE EC381V-03P		M12 5P Female (DC 9V to 36V)
LED Indicator	Orange: DC in w/o Tablet Blue: DC in w/ Tablet		
Others	Anti-theft lock with key & VESA mount support (75x75)	Anti-theft lock with key & VESA mount support	
Mechanical			
Color	Black		
Construction	Metal	PC	
Dimensions (W x H x D)	8.07" x 4.96" x 2.96" (205 x 126 x 75 mm)	10.08" x 7.28" x 2.96" (256 x 185 x 75 mm)	10.28'' x 6.50'' x 2.96'' (261 x 165 x 75 mm)
Gross Weight	1.8 lb (820g)	6.17 lb (2.8 Kg)	6.44 lb (2.92 Kg)
Environmental			
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C)	32°F ~ 122°F (0°C ~ 50°C)	32°F ~ 104°F (0°C ~ 40°C)
Storage Temperature	-22°F ~ 158°F (-30°C ~ 70°C)	14°F ~ 140°F (-10°C ~ 60°C)	14°F ~ 122°F (-10°C ~ 50°C)
ESD	Air charge: +/- 8KV Contact charge: +/- 4KV		
EMC/ Safety	CE / FCC Class A / UL	CE / FCC Class B / UL	
Power Supply			
AC/DC Adapter	AC 100 ~ 240 V, 50 ~ 60 Hz, Output: 12V/ 3.34A/ 40W DC connector: DINKLE EC381V-03P		AC 100 ~ 240 V, 47 ~ 63 Hz Output: 19V/ 4.74A/ 90W
DC/DC Adapter	—		
Note			

Note: All specifications are subject to change without notice.

Model	RTC-1010-HS-000	RTC-1010-SB-000
Description	Hand Strap for RTC-1010/ RTC-1010M	Shoulder Belt for RTC-1010/ RTC-1010M
Mechanical		
Color	Black	
Dimensions (W x H x D)	232 x 92 x 30 mm	1050 x 65 x 5 mm
Note		



Model	RTC-1010-VMP-000	1255900363
Description	VESA Mount Plate for RTC-1010M	DC-To-DC Power Adapter, Flying Wires for RTC-1010/ RTC-1010M
Mechanical		
Color	Black	
Dimensions (W x H x D)	275.6 x 191.7 x 25 mm	Adapter case: 40 x 105 x 26.5 mm Plug side length: 1200 ± 30 mm Flying Wires side length: 600 ± 30 mm Total length: 1905 ± 60 mm
Note		



Model	1255900364	RTC-1200HSP01-000
Description	DC-To-DC Power Adapter, Cigarette Plug for RTC-1010/ RTC-1010M	Hand Strap for RTC-1200
Mechanical		
Color	Black	
Dimensions (W x H x D)	Adapter case: 40 x 105 x 26.5 mm Plug side length: 1200 ± 30 mm Cigarette Plug side length: 600 ± 50 mm Total length: 1905 ± 50 mm	260 x 92 x 30 mm
Note		

Note: All specifications are subject to change without notice.

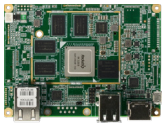
Rugged Tablet Computers : Accessories

Model	RTC-1200BLT01-000	RTC-1200BLT02-000
Description	Shoulder Belt for RTC-1200	Shoulder Belt for RTC-1200
Mechanical		
Color	Black	
Dimensions (W x H x D)	1050 x 65 x 5 mm	450 x 350 x 50 mm
Note		

Model	RTC-1200BKT01-000	RTC-1200SPC01-000
Description	VESA Mount Bracket for RTC-1200	2-in-1 Protective Case for RTC-1200
Mechanical		
Color	Black	
Dimensions (W x H x D)	180 x 203.3 x 45.4 mm	310.3 x 204 x 36.5 mm
Note		

Model	RBC-1200-000
Description	4-bay Battery Charger for RTC-1010/ RTC-1010M, RTC-1200
Mechanical	
Color	Black
Dimensions (W x H x D)	140.5 x 68.4 x 121.87 mm
Power Supply	
AC/DC Adapter	AC power input:100-240V, 50Hz-60Hz, 65W, DC power output: 19V/3.42A
Note	

Model	RTC-1200BAT01-000
Description	Battery Pack for RTC-1010/ RTC-1010M, RTC-1200
Mechanical	
Color	Black
Dimensions (W x H x D)	71.5 x 110 x 13.3 mm
Capacity	
Capacity	14.4V, 2270mAh, 32.7W
Note	


Model	RICO-3288	RICO-3288MINI	RICO-3399
System			
Form Factor	Pico-ITX (100mm x 72mm)		
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/4GB (Optional)	Onboard DDR3L 2GB	Onboard LPDDR3 2GB/4GB (Optional)
Storage/SSD	16GB eMMC and Micro-SD card	16GB eMMC	16GB eMMC and Micro-SD card
Operating System	Android 9.0 / Debian		Android 8.1 / Debian
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)	0.22 lb (0.1 Kg)	0.44 lb (0.2 Kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)(-20°C~60°C: Optional)	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	—	802.11 a/b/g/n/ac
BT	Bluetooth V4.2 + EDR	—	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)	Micro-USB OTG x 1 USB 2.0 Type A x 2	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	—	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	—	2.5W (by 4Ω) Speaker/ Microphone/ Earphone
GPIO	8-bit (4-in, 4-out)	8-bit (4-in, 4-out)	8-bit (4-in, 4-out)
Expansion Slot	Full-size mini-PCIe slot x 1 (For 3G/4G card)	—	Full-size mini-PCIe slot x 1 (For 3G/4G card)
SIM Slot	Nano-SIM	—	Nano-SIM
SD Socket	Support Micro-SD card	—	Support Micro-SD card
Camera	—		
Note			

Note: All specifications are subject to change without notice.

Model	BOXER-RK88	BOXER-RK99
System		
CPU	Rockchip RK3288 ARM Cortex™-A17 Quad-core 1.6GHz	Rockchip RK3399 ARM Cortex™-A72 Dual-core 1.8GHz and Cortex™-A53 Quad-core 1.4GHz
GPU	Mali-T764	Mali-T864
Chipset	—	
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
System Memory	DDR3L 2GB/4GB (Optional)	LPDDR3 2GB/4GB (Optional)
Display Interface	HDMI (1.4)	HDMI (2.0) up to 4K x 2K @ 60Hz
Storage/SSD	16GB eMMC and Micro-SD card	
I/O	Micro-SD Card Slot x 1 HDMI (1.4) Port x 1 Antenna Connector for WiFi 802.11 b/g/n, BT V4.2 Antenna Connector for LTE (Optional) GbE: RJ45 x 1 USB 2.0: Micro-USB OTG x 1, Type A x 2 RS-232/422/485 x 1, RS-232 x 1 (Optional)	Micro-SD Card Slot x 1 HDMI (2.0) Port x 1 Antenna Connector for WiFi 802.11 b/g/n, BT V4.2 Antenna Connector for LTE (Optional) GbE: RJ45 x 1 USB 3.2 Gen 1: Type C OTG x 1, Type A x 1 USB 2.0: Type A x 1 RS-232/422/485 x 1, RS-232 x 1 (Optional)
Expansion	mPCIe Slot x 1 for LTE module	
Indicator	Power LED x 1	
OS Support	Android 9.0	Android 8.1
Power Supply		
Power Requirement	+12V DC input	
Mechanical		
Mounting	VESA mount, 75mm x 75mm	
Dimension (W x D x H)	4.07" x 3.78" x 1.97" (103.4 mm x 96 mm x 50 mm)	
Gross Weight	1.1 lb (0.5 Kg)	
Net Weight	0.66 lb (0.3 Kg)	
Environmental		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40˚F ~ 176˚F (-40˚C ~ 80˚C)	
Storage Humidity	0% ~ 90% relative humidity, non-condensing	
Anti-Vibration	—	
Certification	CE/FCC/IC	
Note		

Note: All specifications are subject to change without notice.

Memo

Note: All specifications are subject to change without notice.

Memo

MKT-2202104

2022

Focus • Agility • Competitiveness

AAEON Technology Inc.

5F, No. 135, Lane 235, Pao Chiao Rd., Hsin-Tien Dist, New Taipei City, 231, Taiwan, R.O.C.

Tel: +886-2-8919-1234 Fax: +886-2-8919-1056 E-mail: sales@aaeon.com.tw URL: http://www.aaeon.com

LITERATURE ORDERING

Contact local office for literature requests.

USA

USA

California Office

324 W. Blueridge Ave, Orange, CA 92865

Toll Free: +1-877-TO-AAEON (1-877-862-2366)

TEL: +1-714-996-1800

FAX: +1-714-996-1811

E-mail: sales@aaeon.com

Tech Support: tech@aaeon.com

New Jersey Office

11 Crown Plaza, Hazlet, NJ 07730-2441

TEL: +1-732-203-9300

FAX: +1-732-203-9311

E-mail: sales@aaeon.com

Tech Support: tech@aaeon.com

EUR

Netherlands

AAEON EUROPE

Ekkersrijt 4090, 5692 DA Son, Science Park, Eindhoven

TEL: +31(0)499-745200

FAX: +31(0)499-462010

E-mail: sales@aaeon.eu

Germany

AAEON Technology GmbH

Monzastrasse 4e, 63225 Langen

TEL: +49(0)61033 74 79 00

FAX: +49(0)61033 74 79 49

E-mail: sales@aaeon.eu

France

AAEON France Office

Gare de Lyon, 37/39 Avenue Ledru-Rollin, CS 11237, 75012 Paris Cedex 12

TEL: +33 (0) 156 95 16 40

E-mail: sales@aaeon.eu

Italy

AAEON Italy Office

Viale Masini 12/14, 40126 Bologna

TEL: + 39 051 0923582

E-mail: sales@aaeon.eu

ASIA

China

AAEON Technology (Su Zhou) Inc.

Room 12, 2F, Building B, No.5 Xing Han Street, Suzhou Industrial Park, Jiang Su Province

TEL: +86-512-6762-5700

FAX: +86-512-6761-7337

E-mail: sales@aaeon.com.cn

Shanghai Branch Office

20F, Unit D, GEM Building, No.487 Tianlin Road, Xuhui District, Shanghai

TEL: +86-21-3367-5511

FAX: +86-21-3367-4238

E-mail: sales@aaeon.com.cn

Beijing Branch Office

Room 606-608 Block D, Jiahua Building, No.9, Shanghai 3rd Street, Haidian District, Beijing

TEL: +86-10-8278-0904

FAX: +86-10-8278-0214

E-mail: sales@aaeon.com.cn

Wuhan Branch Office

B1501, 111 Guangu Time Squre Guanshan st. Wuhan Hubei Province

TEL: +86-27-87606090

E-mail: sales@aaeon.com.cn

China

Chengdu Branch Office

Room 2204, 22F, Building6, No.666 JinCheng Avenue, GaoXin District, Chengdu City

TEL: +86-28-85120523

E-mail: sales@aaeon.com.cn

Guangzhou Branch Office

Room 1505,B2,No.122-124 kexue Road, High-Tech Development Zone, Guangzhou

TEL: +86-13534236621

E-mail: sales@aaeon.com.cn

Shenzhen Branch Office

Room 602,6th Floor,Building J, Zhongli Entrepreneurial Community, Liuxian 2 Road, Xinan Street, Baoan District, Shenzhen

TEL: +86-755-8304-7277

FAX: +86-755-8304-7272

E-mail: sales@aaeon.com.cn

Singapore

AAEON Technology Singapore PTE LTD.

57 Genting Lane, #07-00, Singapore 349564

TEL: +65-6749-8749

FAX: +65-6746-1595

E-mail: sales@aaeon.com.sg