



Always Agile, Always Ahead.

2025 SELECTION GUIDE 2ND ED.



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The Trusted Innovation Partner

We have the drive to provide innovative, trusted solutions tailored to benefit our customers.



Established in 1992, AAEON stands at the forefront of industrial IoT and AI Edge solutions, renowned for its commitment to continual innovation. As a leading designer and manufacturer, AAEON specializes in delivering reliable, high-quality computing platforms and offers comprehensive OEM/ODM services on a global scale. Collaborating with businesses, AAEON goes beyond providing individual platforms, extending its expertise to offer end-to-end solutions that prioritize technological innovation and design excellence, fostering a reputation for delivering a trusted, customer-centric, and high standard of service.

Working closely with premier chip designers, AAEON ensures the creation of stable and reliable platforms, showcasing an innovative approach to product development and operational flexibility that solidifies its standing as a provider synonymous with demonstrated quality and dependability. The experienced engineering team at AAEON has played a pivotal role in assisting numerous companies worldwide, guiding them through product launches with solutions tailored to their specific needs. AAEON's customer-centric approach is underscored by expedited, localized technical support and meticulous attention to detail, reinforcing its dedication to delivering unparalleled service.

AAEON Core Values

Innovation:

Technological Innovation – continually seeking to bring new and exciting technologies to market for our customers

Product Innovation – evolving with our customer's needs to maximize the utility of embedded solutions

Innovative Business Model – maintaining a worldwide community model for peer-to-peer collaboration and expert technical support

Trusted Quality:

Design Quality – rigorously monitoring standards to ensure continual improvement

Advanced Manufacturing – integrating AI, automation, and new technologies into our processes

Higher Standard Of Service – building industry trust in our abilities through external endorsements from premier organizations

Flexibility:

Low Total Cost Of Ownership (TCO) – adopting a modular design process for streamlined customization to lower the cost of entry

Fast Service – faster troubleshooting for issue resolution, straightforward after-sales care

Customer Focus – provide localized solutions for even the most complex customer needs through regional RD & design center

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

Connecting You
with AI at the Edge



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.

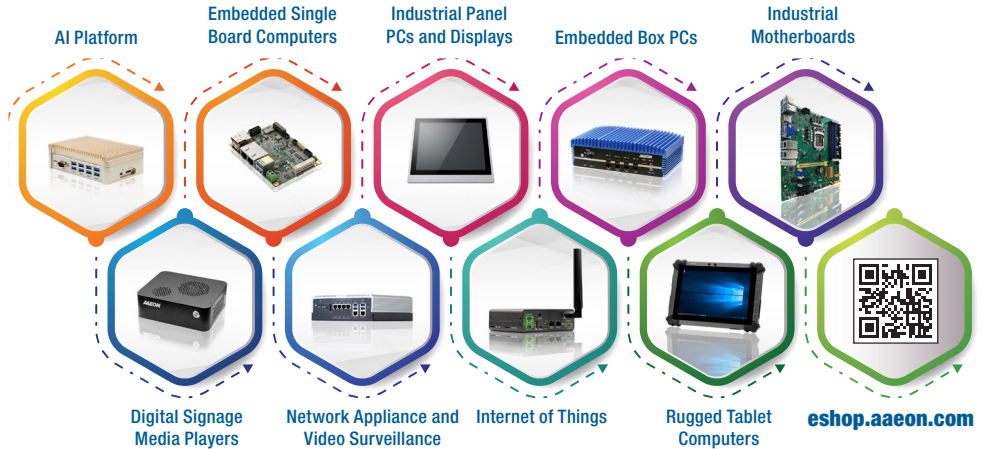
Market analysts have consistently pointed to expanded growth and deployment of Industry 4.0 technologies, especially AI edge computing, in various vertical markets. AAEON.ai collects all of AAEON's rugged, compact, industrial grade AI edge solutions in one convenient location. From boards and systems 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.



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explore the latest in AI Edge
technology from AAEON!**

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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.



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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)

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an ASUS[®] ASSOC. CO.

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00 AAEON's Embedded OS Solutions

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

Windows® Embedded Products

 Windows 10 IoT

Windows® 10 IoT Enterprise LTSC 1607/1809

 Windows Embedded 8

Windows Embedded 8.1
Industry

Windows Embedded 8
Standard

Windows Embedded 8.1
Pro

Windows Embedded 8.1
Handheld

 Windows Embedded 7

Windows Embedded
Enterprise 7

Windows Embedded
POSReady 7

Windows Embedded
Standard 7

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 Haswell (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

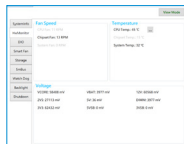
OS Family	Windows® Embedded Standard	Windows® Embedded POS Ready	Windows® Embedded Enterprise
Features	Full Customization	Simple Installation	Full Function
Windows® Product Sku	Windows® Embedded Standard 2009 Windows® Embedded Standard 7 Windows® Embedded Standard 8	WEPOS 1.1 POSReady 7 POSReady 2009 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



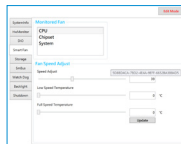
Hardware Monitor:

Retrieves fan, temperature and voltage data

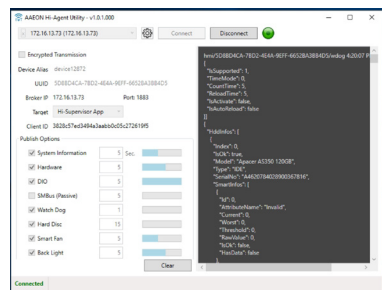
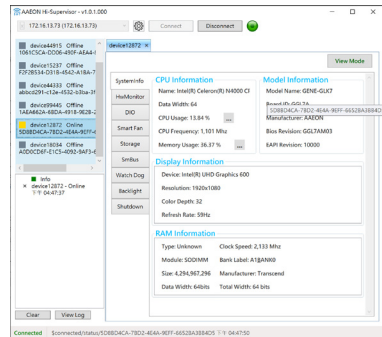


Hard Disc:

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



Remote Control Fan

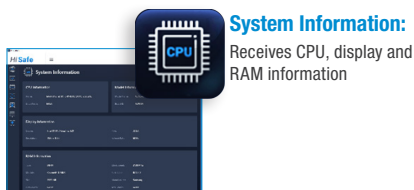
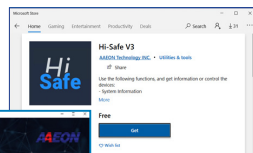


AAEON Hi-Safe

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.

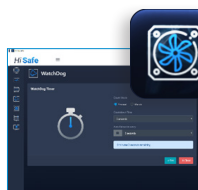
Hi-Safe V3 Advantages

- ▶ **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



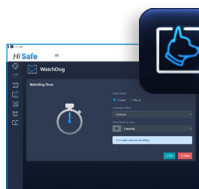
DIO:

Obtains DIO information: sets the pin direction and pin data



Backlight Controller:

Controls LVDS or eDP display



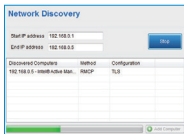
Watchdog:

Sets the system reboot timer

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.

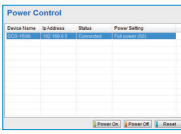
Hi-Manager Advantages

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



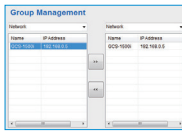
Network Discovery:

AMT device discovery



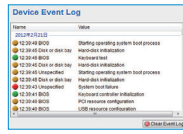
Power Control:

Powers On/Off the target device



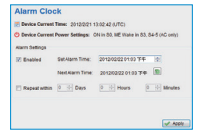
Group Management:

Arrange devices in this function



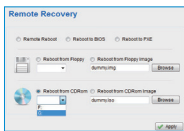
Event Log:

Logs boot records of the selected device



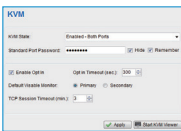
Alarm Clock:

Sets timer to wake up a sleeping device



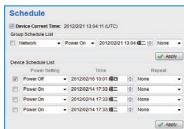
Remote Recovery:

Mounts boot image or physical CD-ROM to target device



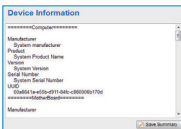
KVM:

Controls remotely from the target device



Schedule:

Schedules the power On/Off target devices



Device Information:

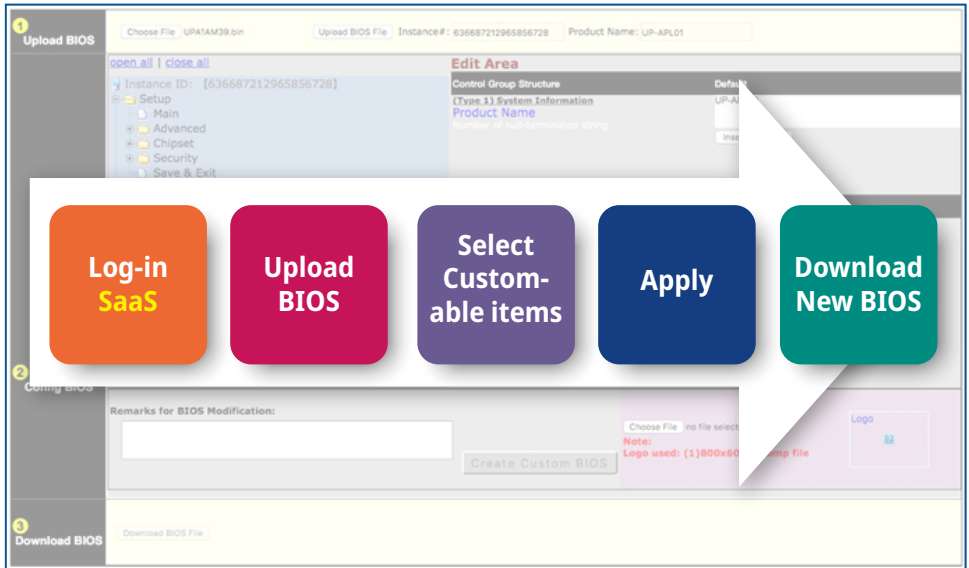
Shows target device assets

Intel® Active Management Technology Features

Intel® Chipset	M67/ Q77/ QM77/ HM76/ B75A/ Q87/ QM87/QM170/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 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

01



► Board Level Products

01



Model	PICO-APL3-A10-FAI1
SYSTEM	
FORM FACTOR	PICO-ITX
CPU	Intel® Celeron® Processor: Pentium N4200 (4C/4T, 1.10GHz, up to 2.50GHz, TDP 6W)
CHIPSET	Integrated with Intel® SoC
MEMORY TYPE	Onboard DDR3L 4GB
BIOS	UEFI
WAKE ON LAN	Yes
WATCHDOG TIMER	255 Levels
SECURITY	
RTC Battery	Lithium Battery 3V/240mAh
DIMENSION	3.94" x 2.84" (100mm x 72mm)
Gross Weight	0.18 lbs. (0.08 kg)
OS Support	Windows 10 (64 bit)
POWER	
POWER REQUIREMENT	+12V
POWER SUPPLY TYPE	AT/ATX
CONNECTOR	Lockable DC Jack Connector
POWER CONSUMPTION	Intel® N4200 processor, DDR3L 4GB, 1.1A@12V
DISPLAY	
CONTROLLER	Intel® HD Graphics 505
LVDS/eDP	—
Display Interface	HDMI 1.4b x 1 (up to 3840 x 2160@30Hz)
Multiple Display	1 Simultaneous Displays
AUDIO	
CODEC	—
AUDIO INTERFACE	—
Speaker	—
EXTERNAL I/O	
ETHERNET	Realtek 8111 Gigabit Ethernet 10/100/1000Base, RJ-45 x 1
USB	USB 3.2 Gen 1 x 2
SERIAL PORT	—
VIDEO	HDMI 1.4b x 1 (up to 3840 x 2160@30Hz)
INTERNAL I/O	
USB	USB 2.0 x 2 (Internal, co-use with FAN connector)
SERIAL PORT	COM1 (RS232)
VIDEO	eDP x 1 (up to 3840x2160@60Hz, Optional)
SATA	SATA III x 1 +5V SATA Power Connector x 1 eMMC 32GB
AUDIO	—
DIO/GPIO	4-bit
SMBus/I2C	I2C/SMBus x 1 (I2C as default)
Touch	—
FAN	—
SIM	—
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset
Others	—
EXPANSION	
Mini PCI-E/mSATA	—
M.2	M.2 E-Key 2230 x 1 (PCIe/USB) M.2 B-Key 2280 x 1 (SATA/USB)
Others	—
ENVIRONMENT & CERTIFICATION	
OPERATING TEMP	32°F ~ 140°F (0°C ~ 60°C)
STORAGE TEMP	-40°F ~ 185°F (-40°C ~ 85°C)
OPERATING HUMIDITY	0% ~ 90% relative humidity, non-condensing
MTBF (HOURS)	110,000
EMC	CE/FCC Class A
Note	



Model	GAR-A750E
System	
Graphics High Frequency	2050MHz
Graphics Turbo Frequency	2400MHz
Xe-Core	28
Render Slices	7
Ray Tracing Units	28
Intel® XMN Engines	448
Xe Vector Engines	448
Memory Size	16GB GDDR6
Graphics Memory Interface	256 bit
Graphics Memory Bandwidth	512 GB/s
Graphics Memory Speed	16 Gbps
Bus Type	PCI Express 4.0 x16
TBP	225W
Display output	DP 2.0 x 4 up to UHBR 10
Resolution	DP: 7680 x 4320@60Hz
H.264 Hardware Encode/Decode	Yes
H.265 (HEVC) Hardware Encode/Decode	Yes
AV1 Encode/Decode	Yes
VP9 Bitstream & Decoding	Yes
Features	
Ray Tracing	Yes
Variable Rate Shading (VSR)	Yes
DirectX Support	DirectX 12 Ultimate
Vulkan	1.3
OpenGL	Up to 4.6
OpenCL	3.0
Adaptive Sync	Yes
AV1 Encode / Decode	Yes
VP9 Bistream & Decoding	Yes
Intel Deep Link Hyper Compute	Yes
Intel Deep Link Hyper Encode	Yes
Intel Deep Link Stream Assist	Yes
Mechanical	
Dimension	236mm x 109mm x 42mm
Requirement	
Minimum recommended PSU	550 Watt or greater (for single graphics card configuration)
PCle power connector	Two available 8-pin or 6+2pin
OS	Windows 11, Windows 10, Ubuntu* 22.04.
Graphics slot	PCI Express 3.0, 4.0 or 5.0 compliant motherboard with one
Note	

Note: All specifications are subject to change without notice.

Board Level Products

Gateway Board



Model	SRT-IMX8P
System	
Processor	ARM NXP i.MX8M Plus Quad-Core Cortex-A53 1.6GHz Processor (NPU Optional)
Memory	Onboard LPDDR4 2GB (Optional 4GB)
Storage	eMMC 5.1 16GB (Optional 32GB)
Real Time Clock	RTC x 1, with 3V CR2032H Lithium battery
Security	TPM 2.0
Indicators	Programmable LED control x 7
Cellular	Mini PCIe Connector x 1 (USB signal)
Wireless Lan	Mini PCIe Connector x 1 (USB signal)
Operating System	Debian 11(Default, GUI is optional) Android 13 Win 10 IoT Yocto
Support Protocol	—
I/O Interfaces	
Serial Port	RS-232/422/485 switchable x 2, Phoenix Connector
Ethernet	Gigabit Ethernet x 2, RJ-45
USB	USB 3.0 Type-A x 2
ADC	—
DI/DO	—
CAN Bus	CAN-FD x 2 CH, Phoenix Connector
Display	HDMI 2.0a x 1
Power Connector	2 Pin 3.81mm Pitch Phoenix Connector
Debug Port	Micro USB x 1
Expansion Slot	SIM card slot x 1 Micro SD slot x 1
Other Interface	Board to board connector to ODM board (PCIe Gen3 x 1, USB 3.0 x 1, I2C x 2, GPIO x 4)
Power Supply	
Power Requirement	DC 9-36V
Power Consumption	9.36W (Full Loading)
MTBF (Hours)	479,374
Environmental and Mechanical	
Dimension	3.66" x 5.43" (93 x 138mm)
Weight	0.7lb (350 g)
Mount Options	—
Operation Temperature	-4 °F ~ 158 °F (-20 °C ~ 70 °C)
Storage Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C)
Operation Humidity	10% ~ 95% relative humidity, non-condensing
Certification	CE/FCC Class A UL61010/IEC61000-6-2/IEC61000-6-4/IEC61131-2
Note	



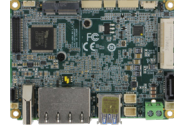
Model	PICO-IMX8PL	PICO-AM62
System		
Form Factor	PICO-ITX, 2.5" SBC	
Processor	ARM NXP i.MX8M Plus Quad-Core Cortex-A53 1.6GHz Processor (Default w/NPU, optional w/o NPU)	ARM TI AM62x, up to Quad 64-bit Arm® Cortex®-A53
Memory	Onboard LPDDR4 up to 4GB	Onboard DDR4 16 bit, up to 4 GB
Storage	eMMC 5.1 16/32GB (Optional 64/128 GB) Micro SD Card slot x1	eMMC 5.1 16 GB (Optional 32/64/128 GB) Micro SD Card slot x1
Real Time Clock	RTC x 1, with 3V CR2032H Lithium battery	
Security	TPM 2.0 (optional)	TPM 2.0 (optional)
Indicators	Programmable LED control x 3	
Cellular	Full Size Mini Card x 1 (USB signal)	
Wireless Lan	M.2 2230 E-key x 1 (USB, PCIe)	Half Size Mini Card x 1 (USB signal)
Operating System	Debian 11(Default, GUI is optional) Android 13 Yocto	Debian 12 (w/ GUI)
Support Protocol	Modbus, MQTT, OPCUA	—
I/O Interfaces		
Serial Port	RS-232/422/485 switchable x 2, Phoenix Connector	RS-232/422/485 switchable x 4, 2 by Phoenix Connector, 2 by pin header
Ethernet	Gigabit Ethernet x 2, RJ-45 support IEEE 1588, TSN, integrated RGMII	Gigabit Ethernet x 2, RJ-45 support IEEE 1588, TSN, integrated RGMII
Audio	Line in / Line Out / Mic x 1 (optional)	
USB	USB 3.0 Gen1 x 2 (rear I/O) USB 2.0 x 1 (pin header)	USB 2.0 Gen1 x 2 (rear I/O) -Host/device by image option, default: host x 1 -Host x 1 USB2.0 (Pin Header) x 1
ADC	—	
DI/DO	—	
CAN Bus	CAN-FD x 2 CH, Phoenix Connector	CAN-FD x 2 CH, Phoenix Connector (optional)
Display	HDMI 2.0 x 1 LVDS x 1, dual channel, 18/24bit	HDMI 1.4b up to 1080p x 1 LVDS x 1, dual channel, 18/24bit
Power Connector	2 Pin 3.81mm Pitch Phoenix Connector	
Debug Port	Micro USB x 1	
Expansion Slot	M.2 2230 E-key x 1, support Wifi/BT module, etc Full Size Mini Card x 1, support 4G module, etc Power control available by software Nano SIM card slot x 1 (optional)	Half Size Mini Card (USB2.0) x 1, power control available by software Full Size Mini Card (USB2.0) x 1, power control available by software SPI x 4 (optional) I2C x 2 (optional) UART x 2 (optional)
Other Interface	GPIO x 8 (w/o TPM: include SPI x1, I2C x1, GPIO x2, w/TPM: I2C x1, GPIO x2) UART x 1 (optional w/o debug port)	GPIO x 1, I2C x 1, SPI x 1 (CSx2)
Power Supply		
Power Requirement	DC 9-36V (Optional: 12V)	
Power Consumption	14.8W (Full Loading)	5.76W (Full Loading)
MTBF (Hours)	1,699,754 Hours	1,279,408 Hours
Environmental and Mechanical		
Dimension	3.94" x 2.84"(100mm x 72mm)	
Weight	0.18 lbs (0.08 kg)	
Mount Options	—	
Operation Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C) (Option: 0°C ~ 60°C)	-40 °F ~ 185 °F (-40 °C ~ 85 °C) (Option: 0°C ~ 60°C)
Storage Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C)	-40 °F ~ 185 °F (-40 °C ~ 85 °C)
Operation Humidity	0% ~ 90% relative humidity, non-condensing	
Certification	CE/FCC Class A	
Note		

Board Level Products

Pico-ITX Boards



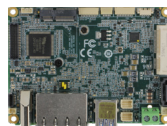
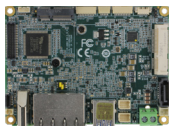
Model	PICO-MTU4	PICO-MTU4-SEMI
System Form Factor	PICO-ITX	PICO-SEMI
CPU	Intel® Core™ Ultra 7 Processor 165U (2PC+10EC/14T, P-core 1.70 GHz, E-core 1.20 GHz, 15W) Intel® Core™ Ultra 7 Processor 155U (2PC+10EC/14T, P-core 1.70 GHz, E-core 1.20 GHz, 15W) Intel® Core™ Ultra 5 Processor 135U (2PC+10EC/14T, P-core 1.60 GHz, E-core 1.10 GHz, 15W) Intel® Core™ Ultra 5 Processor 125U (2PC+10EC/14T, P-core 1.30 GHz, E-core 0.80 GHz, 15W)	Intel® Core™ Ultra 5 Processor 125U (2PC+10EC/14T, P core 1.30 GHz, E core 0.80 GHz, 15W)
Chipset	Integrated with Intel® SoC	
Memory Type	Single-Channel LPDDR5 6400, up to 32GB	
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0	
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	3.94" x 2.84" (100mm x 72mm)	4.25" x 3.74" x 1.69" (108mm x 95mm x 43mm)
Gross Weight	0.18 lbs (0.08 kg)	1.10 lbs (0.60 kg)
OS Support	Windows 10/11 (64bit) Linux Ubuntu 22.04.2 kernel 5.19.0 32 generic	
Power		
Power Requirement	12V only	+12V
Power Supply Type	AT/ATX	ATX
Connector	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (Optional)	Lockable DC Jack Connector
Power Consumption	Intel® Core™ Ultra 7 Processor 165U, DDR5 32GB x1, 2.94A@+12V (Typical) Intel® Core™ Ultra 7 Processor 165U, DDR5 32GB x1, 5.13A@+12V (Max)	Intel® Core™ Ultra 7 Processor 165U, DDR5 32GB x 1, 2.94A@+12V (Typical) Intel® Core™ Ultra 7 Processor 165U, DDR5 32GB x 1, 5.13A@+12V (Max)
Display	Intel® Graphics	
Controller	—	
LVDS/eDP	eDP 1.4 x 1	—
Display Interface	HDMI 1.4 x 1, 3840 x 2160 @30Hz	
Multiple Display	Up to 2 Simultaneous Displays	1 Display
Audio	—	
Codec	—	
Audio Interface	—	
Speaker	—	
External I/O		
Ethernet	Intel® Ethernet Controller I226 2.5GbE, RJ-45 x 1 Intel® Ethernet Connection I219, 1GbE, RJ-45 x 1	Intel® Ethernet Controller I226, 2.5GbE, RJ 45 x 1 Intel® Ethernet Connection I219, 1GbE, RJ 45 x 1
USB	USB 3.2 Gen 2 x 2	
Serial Port	—	COM 1~2 (RS-232/422/485, support 5V/12V/Ri, Optional)
Video	HDMI 1.4 x 1	
Internal I/O		
USB	USB 2.0 x 2	—
Serial Port	COM 1 ~ 2 (RS-232/422/485, supports 5V/12V/Ri)	—
Video	—	
SATA	SATA 6Gb/s x 1 +5V SATA Power Connector x 1	—
Audio	—	
DIO/GPIO	GPIO 4-bit	GPIO 4-bit (Optional)
SMBus/I2C	I2C/SMBus (Default: SMBus)	—
Fan	4pins Smart Fan x1	—
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
Expansion	—	
Mini PCIe/mSATA	—	
M.2	M.2 2280 M-Key x 1 (PCIe 4.0 [x4] / SATA, Default: PCIe [x4], select by BOM) M.2 2230 E-Key x 1 (PCIe 4.0 [x1] + USB 2.0)	M.2 2280 M-Key x 1 (PCIe 4.0 [x4]/SATA, Default: PCIe [x4], select by BOM) M.2 2230 E-Key x 1 (PCIe 4.0 [x1] + USB 2.0)
Others	—	
Environment & Certification		
Operating Temp	-4°F ~ 158°F (-20°C ~ 70°C)	14°F ~ 122°F (-10°C ~ 50°C) with 0.7m/s air flow
Storage Temp	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	1,063,716	
EMC	CE/FCC Class A	
Note		



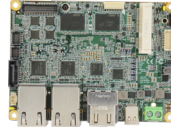
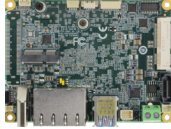
Model	PICO-RAP4	PICO-TWL4 Rev.B
System Form Factor	PICO-ITX	
CPU	13th Generation Intel® Core™/U series Processors: Intel® Core™ i7-1360P (4P+8E/16T, 2.20 GHz, 28W) Intel® Core™ i7-1370PE (6P+8E/20T, 1.90 GHz, 28W) Intel® Core™ i7-1370PRE (6P+8E/20T, 1.90 GHz, 28W) Intel® Core™ i5-1340PE (4P+8E/16T, 1.80 GHz, 28W) Intel® Core™ i3-1320PE (4P+4E/12T, 1.70 GHz, 28W) Intel® Processor U300E (1P+4E/6T, 1.10 GHz, 15W)	Intel® Processor N150 (4C, 0.80GHz, 6W) Intel® Core™ 3 Processor N355 (8C, 1.90GHz, 15W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR5 5200, SODIMM x 1, Non-ECC (Max. 32GB)	DDR5 4800, Single Channel SODIMM x 1, Max.16GB, Non-ECC
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM2.0	
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	3.94" x 2.84" (100mm x 72mm)	
Gross Weight	0.18 lbs (0.08 kg)	
OS Support	Windows 10 (64 bit) Ubuntu 22.04.2 (eDP is verified on Ubuntu 23.10.1)	Windows 10/11 (64-bit) Ubuntu 22.04.2/Kernel 5.19
Power		
Power Requirement	12V only	+12V (Optional: +9 ~ 36V, support by power adapter card)
Power Supply Type	AT/ATX	
Connector	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (Optional)	
Power Consumption	Intel® Core™ i7-1370PE, DDR5 32GB, 4.51A@ +12V (TYPICAL) Intel® Core™ i7-1370PE, DDR5 32GB, 7.46A@ +12V (MAX)	Intel® Core™ 3 Processor N355, DDR5 16GB x 1, 3.53A @+12V (Typical) Intel® Core™ 3 Processor N355, DDR5 16GB x 1, 5.25A @+12V (Max)
Display		
Controller	Intel® UHD Graphics	Intel® UHD Graphics for 12th Gen Intel® Processors
LVDS/eDP	LVDS x 1 (18/24bit 2CH) 1920 x 1200 @60Hz eDP 1.4 x 1, up to 3840 x 2160 (Optional)	LVDS x 1 (18/24bit 2CH) 1920 x 1200 @60Hz eDP 1.4 x 1, 3840 x 2160 @60Hz (Optional)
Display Interface	HDMI 1.4 x 1, 3840 x 2160 @30Hz	
Multiple Display	Up to 2 Simultaneous Displays	
Audio		
Codec	Realtek ALC256 (Optional)	
Audio Interface	Line-in/Line-out/Mic (Optional, Audio function not available for WiTAS SKU)	Line-out (Optional, audio function not available for WiTAS SKU)
Speaker		
External I/O		
Ethernet	Intel® i226 2.5GbE, RJ-45 x 1 Intel® i219, 1GbE, RJ-45 x 1	Intel® Ethernet Controller I226, 2.5GbE, RJ-45 x 1 Realtek RTL8111H-CG, 1GbE, RJ-45 x 1
USB	USB 3.2 Gen2 x 2	USB 3.2 Gen2[x1] x 2 ports
Serial Port		
Video	HDMI 1.4 x 1	
Internal I/O		
USB	USB 2.0 x 2	USB 2.0 x 4
Serial Port	COM1~2 (RS232/422/485, supports 5V/12V/RI)	COM 1~2 (RS-232/422/485, supports 5V/12V/RI) COM 3~4 (RS-232)
Video	LVDS/eDP x 1(Default: LVDS) Inverter x 1 (12V/2A)	
SATA	SATA 6.0 Gb/s x 1 +5V SATA Power Connector x 1	
Audio	Audio Header x 1 (Optional, Audio function not available for WiTAS SKU)	Line-out header x 1 (Optional, audio function not available for WiTAS SKU)
DIO/GPIO	GPIO 8-bit	GPIO 4-bit
SMBus/I2C	SMBus/ I2C x 1 (Default: SMBus)	
Fan	4pins Smart Fan x1	4-pin Smart Fan x 1
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others		
Expansion		
Mini PCIe/mSATA	Half Size mSATA/mPCIe x 1 (default: mSATA, select with BIOS)	Full-size mSATA/mPCIe x 1 (default: mSATA, select with BIOS)
M.2	M.2 2280 M-Key x 1 (PCIe 4.0 [x4])	M.2 2230 E-Key x 1
Others	MIPI-CSI via 61-Pin FPC Connector	
Environment & Certification		
Operating Temp	32°F ~ 140°F (0°C ~ 60°C) WiTAS 2: -40°F ~ 185°F (-40°C ~ 85°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temp	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	1,087,053	2,219,397
EMC	CE/FCC Class A	
Note		

Board Level Products

Pico-ITX Boards



Model	PICO-ASL4 Rev.B	PICO-ADN4 Rev.B
System Form Factor	PICO-ITX	
CPU	Intel Atom® x7000E Series Atom® x7433RE(4C, 1.5GHz, 9W) Atom® x7835RE(8C, 1.3GHz, 12W)	Intel Atom® x7000E Series, Intel® Processor N-series, and Intel® Core™ i3 Processor N-series Processors: Intel® Processor N97 (4C/4T, 2.00 GHz, 12W) Intel® Core™ i3-N305 Processor (8C/8T, 1.80 GHz, 15W) Intel Atom® x7425E Processor (4C/4T, 1.50 GHz, 12W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR5 4800, Single Channel SODIMM x 1, Max.16GB, Non-ECC	
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM2.0	
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	3.94" x 2.84" (100mm x 72mm)	
Gross Weight	0.18 lbs (0.08 kg)	
OS Support	Windows 10/11 (64 bit) Ubuntu 22.04.2/Kernel 5.19	
Power		
Power Requirement	+12V (Optional: +9 ~ 36V, support by power adapter card)	
Power Supply Type	AT/ATX	
Connector	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (Optional)	
Power Consumption	Intel® x7835RE, DDR5 16GB x1, 3.06A@ +12V (TYPICAL) Intel® x7835RE, DDR5 16GB x1, 4.21A@ +12V (MAX)	
Display		
Controller	Intel® UHD Graphics for 12th Gen Intel® Processors	
LVDS/eDP	LVDS x 1 (18/24bit 2CH) 1920 x 1200 @60Hz eDP 1.4 x 1, 3840 x 2160 @60Hz (Optional)	
Display Interface	HDMI 1.4 x 1, 3840 x 2160 @30Hz	
Multiple Display	Up to 2 Simultaneous Displays	
Audio		
Codem	Realtek ALC256 (Optional)	
Audio Interface	Line-out (Optional, audio function not available for WITAS SKU)	Line-out (Optional, no audio function in WITAS 2)
Speaker		
External I/O		
Ethernet	Intel® i226 2.5GbE, RJ-45 x 1 Realtek, RTL8111H-CG, 1GbE, RJ-45 x 1	Intel® Ethernet Controller I226 2.5GbE, RJ-45 x 1 Realtek RTL8111H-CG, 1GbE, RJ-45 x 1,
USB	USB 3.2 Gen2[x1] x 2 ports	
Serial Port		
Video	HDMI 1.4 x 1	
Internal I/O		
USB	USB 2.0 x 4	
Serial Port	COM1~2 (RS232/422/485, supports 5V/12V/Ri) COM3~4 (RS232)	
Video	LVDS/eDP x 1(Default: LVDS) Inverter x 1 (12V/2A)	
SATA	SATA 6.0Gbps x 1 +5V SATA Power Connector x 1	
Audio	Line-out header x 1 (Optional, audio function not available for WITAS SKU)	Line-out header x 1 (Optional, no audio function in WITAS 2)
DIO/GPIO	GPIO 4-bit	
SMBus/I2C	SMBus/ I2C x 1 (Default: SMBus)	
Fan	4pins Smart Fan x1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others		
Expansion		
Mini PCIe/mSATA	Full-Sized mSATA/mPCIe x 1 (default: mSATA, select with BIOS)	
M.2	M.2 2230 E-Key x 1	
Others		
Environment & Certification		
Operating Temp	WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Temp	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	2,219,397	
EMC	CE/FCC Class A	
Note		



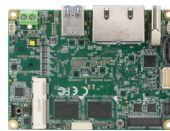
Model	PICO-ADN4	PICO-V2K4
System Form Factor	PICO-ITX	
CPU	Intel Atom® x7000E Series, Intel® Processor N-series, and Intel® Core™ i3 Processor N-series Processors: Intel® Processor N50 (2C/2T, 1.00 GHz, 6W) Intel® Processor N97 (4C/4T, 2.00 GHz, 12W) Intel® Core™ i3-N305 (8C/8T, 1.80 GHz, 15W) Intel Atom™ x7425E (4C/4T, 1.50 GHz, 12W)	AMD RYZEN™ V2000 embedded Processor Family V2718 (8C/16T, 1.70GHz, 25W) V2516 (6C/12T, 2.10GHz, 25W)
Chipset	Integrated with Intel® SoC	Integrated with AMD RYZEN™ V2000 embedded Processor
Memory Type	Onboard LPDDR5, Single Channel (Max. 16GB)	Onboard LPDDR4x 3733, Dual Channel, Non-ECC (Max.32GB)
BIOS		UEFI
Wake on LAN		Yes
Watchdog Timer		255 Levels
Security	TPM 2.0	TPM2.0
RTC Battery		Lithium Battery 3V/240mAh
Dimension		3.94" x 2.84" (100mm x 72mm)
Gross Weight		0.18 lbs (0.08 kg)
OS Support	Windows 10/11 (64 bit) Ubuntu 22.04.2/Kernel 5.19	Windows 10 (64 bit) Linux Ubuntu 20.04.3/Kernel 5.18.0-4449-amd+
Power		+12V
Power Requirement		AT/ATX
Power Supply Type		
Connector	2-pin Phoenix Connector (Default) Lockable DC Jack Connector (Optional)	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (colay)
Power Consumption	Intel® Core™ i3-N305, LPDDR5 16GB x1, 2.97A@ +12V (TYPICAL) Intel® Core™ i3-N305, LPDDR5 16GB x1, 4.46A@ +12V (MAX)	V2718, LPDDR4x 32GB, NVMe64GB 4.24A @ +12V(TYPICAL) V2718, LPDDR4x 32GB, NVMe64GB, 4.82A @ +12V(MAX)
Display Controller	Intel® UHD Graphics	AMD Radeon 6, 7 Graphics (Renoir)
LVDS/eDP	LVDS x1 (18/24bit 2CH) 1920 x 1200 @60Hz eDP 1.4 x 1, 7680 x 4320 (Optional)	LVDS x1 (18/24bit) 1024 x 768 @60Hz eDP1.3 x 1, 3840 x 2160 @60Hz (Optional)
Display Interface	HDMI 1.4 x 1, 3840 x 2160 @30Hz DDI (Via BIO, Optional)	Type C to DP x 1, 3480 x 2160 @60Hz HDMI 2.0 x 1, 3480 x 2160 @60Hz HDMI 1.4 x 1, 3480 x 2160 @30Hz
Multiple Display	Up to 3 Simultaneous Displays	Up to 4 Simultaneous Displays
Audio		
Codec	Realtek ALC256 (Optional)	Realtek ALC269 (Optional)
Audio Interface	Line-Out (Audio function not available for WiTAS SKU)	Line-In / Line-Out / Mic (Optional, audio function not available for WiTAS SKU)
Speaker		
External I/O		
Ethernet	Intel® i226 2.5GbE, RJ-45 x 1 Realtek RTL8111H-CG, 1GbE, RJ-45 x 1	Intel® i225/i226 2.5GbE, RJ-45 x 1 Intel® i210 1GbE, RJ-45 x 1
USB	USB 3.2 Gen 2 x 2	USB3.2 Gen2 Type C x 1; USB3.2 Gen2 x 2
Serial Port		
Video	HDMI 1.4 x 1	DP x 1 (Via Type C) HDMI 2.0 x 1, HDMI 1.4 x 1
Internal I/O		
USB	USB 2.0 x 2	USB2.0 x 4
Serial Port	COM 1~2 (RS-232/422/485, supports 5V/12V/RI)	COM1~4 (RS232/422/485, support 5V/12V/RI)
Video	LVDS/eDP x 1 (Default: LVDS) Inverter x 1 (12V/2A)	LVDS/eDP x 1(Default: LVDS)
SATA	SATA 6Gb/s x 1 +5V SATA Power Connector x 1	SATA 6.0 Gb/s x 1, +5V SATA Power Connector x 1 Onboard NVME SSD (Optional, up to 128GB, PCIe(x2))
Audio	Line-out header x 1 (Optional, audio function not available for WiTAS SKU)	Audio Header (Optional, audio function not available for WiTAS SKU)
DIO/GPIO	GPIO 4-bit	GPIO 8-bit
SMBus/I2C	SMBus/I2C x 1 (Default: SMBus)	I2C/SMBus x 1 (Default: SMBus)
Fan	4pins Smart Fan x1	4pins Smart Fan x 1
Front Panel		HDD LED, PWR LED, Power Button, Buzzer, Reset
Others		
Expansion		
Mini PCIe/mSATA	Full-Size mSATA/mPCIe x 1 (default: mSATA, select with BIOS)	Full-Size mSATA/mPCIe x 1 (Default: mPCIe, select with HW BOM)
M.2	M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0)	M.2 2280 M-Key x 1 (PCIe 4.0 [x4]/SATA, Default: PCIe [x4], select with BIOS)
Others	BIO (Optional, need customized BIOS, USB2.0, SMBUS, DDI, LPC, PCIe [x1] x 1)	
Environment & Certification		
Operating Temp	-4°F ~ 158°F (-20°C ~ 70°C), WiTAS 2: -40°F ~ 185°F (-40°C ~ 85°C)	32°F ~ 140°F (0°C ~ 60°C), WiTAS 2 -40°F ~ 185°F (-40°C ~ 85°C)
Storage Temp		-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity		0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	1,087,822	407,784
EMC	CE/FCC Class A	CE/FCC Class A
Note		

Note: All specifications are subject to change without notice.

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Board Level Products

Pico-ITX Boards



Model	PICO-V2K4-SEMI	PICO-TGU4
System Form Factor	PICO-SEMI	PICO-ITX
CPU	AMD RYZEN™ V2000 embedded Processor Family V2718 (8C/16T, 1.70GHz, 25W) V2516 (6C/12T, 2.10GHz, 25W)	Intel® 11th Generation Core™ / Celeron Processors: i7-1185G7E (4C/8T, 1.80GHz, 15W) i5-1145G7E (4C/8T, 1.5GHz, 15W) i3-1115G4E (2C/4T, 2.20GHz, 15W) 6305E (2C/2T, 1.80GHz, 15W)
Chipset	Integrated with AMD RYZEN™ V2000 embedded Processor	Integrated with Intel® SoC
Memory Type	Onboard LPDDR4x 3733, Dual Channel, Non-ECC (Max.32GB)	Onboard LPDDR4x 3200, Dual Channel, In-Band ECC (select SKUs, Max.32GB)
BIOS		UEFI
Wake on LAN		Yes
Watchdog Timer		255 Levels
Security	TPM2.0	TPM2.0 (Optional)
RTC Battery		Lithium Battery 3V/240mAh
Dimension	4.80" x 3.18" x 2.13" (122mm x 80.8mm x 54 mm)	3.94" x 2.84" (100mm x 72mm)
Gross Weight	0.84 lbs (0.38 kg)	0.18 lbs (0.08 kg)
OS Support	Windows 10 (64 bit) Linux Ubuntu 20.04.3/Kernel 5.18.0-4449-amd+	Windows 10 (64bit) Linux Ubuntu 20.10.2/Kernel 5.8.0-33-generic
Power		+12V
Power Requirement		AT/ATX
Power Supply Type	ATX	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (colay)
Connector	DC Jack Connector	
Power Consumption	V2718, LPDDR4x 32GB, NVMe64GB 4.24A @ +12V(TYPICAL) V2718, LPDDR4x 32GB, NVMe64GB, 4.82A @ +12V(MAX)	Intel® i7-1185G7E, LPDDR4x 32GB, 2.89A @ +12V (TYPICAL)
Display		
Controller	AMD Radeon 6, 7 Graphics (Renoir)	Intel® Iris® Xe (5/17 support) Intel® UHD Graphics (i3/Celeron support)
LVDS/eDP	—	eDP1.3 x 1, 3840 x 2160@60Hz
Display Interface	Type C to DP x 1, 3480 x 2160 @60Hz HDMI 2.0 x 1, 3480 x 2160 @60Hz HDMI 1.4 x 1, 3480 x 2160 @30Hz	HDMI2.0 x 1, 3840 x 2160 @60Hz
Multiple Display	Up to 3 Simultaneous Displays	Up to 2 Simultaneous Displays
Audio		
Codec		Realtek ALC269 (Optional)
Audio Interface	Line-out (Optional)	Line-In / Line-Out / Mic (Optional, audio function not available for WITAS SKU)
Speaker		—
External I/O		
Ethernet	Intel® i225/i226 2.5GbE, RJ-45 x 1 Intel® i210 1GbE, RJ-45 x 1	Intel® i225/226, 2.5GbE, RJ-45 x 1 Intel® i219, 1GbE, RJ-45 x 1
USB	USB3.2 Gen2 Type C x 1 USB3.2 Gen2 x 2 USB2.0 x 2 (Optional)	USB3.2 Gen2 x 2
Serial Port	COM1~2 (RS232/422/485, support 5V/12V/Ri, Optional)	—
Video	DP x 1 (Via Type C) HDMI 2.0 x 1 HDMI 1.4 x 1	HDMI2.0 x 1
Internal I/O		
USB	—	USB3.2 Gen1 x 2 USB2.0 x 4
Serial Port	—	COM1~2 (RS232/422/485, support 5V/12V/Ri)
Video	—	eDP x 1
SATA	Onboard NVME SSD (Optional, up to 128GB, PCIe[x2])	SATA 6.0 Gb/s x 1, +5V SATA Power Connector x 1
Audio	Line-out (Optional)	Audio Header (Optional, audio function not available for WITAS SKU)
DIO/GPIO	—	GPIO 8-bit
SMBus/I2C	—	I2C/SMBus x1 (Default: SMBus)
Fan	—	4pins Smart Fan x1
Front Panel		HDD LED, PWR LED, Power Button, Buzzer, Reset
Others		—
Expansion		
Mini PCIe/mSATA	Full-Size mSATA/mPCIe x 1 (Default: mPCIe, select with HW BOM)	Full-Size mSATA/mPCIe x 1 (Default: mPCIe, select with BIOS)
M.2	M.2 2280 M-Key x 1 (PCIe 4.0 [x4]/SATA, Default: PCIe [x4], select with BIOS)	M.2 2280 M-Key x 1 (PCIe 4.0 [x4]/SATA, Default: PCIe [x4], select with HW BOM)
Others		
Environment & Certification		
Operating Temp	32°F ~ 122°F (0°C ~ 50°C) with 0.2 m/s airflow	32°F ~ 140°F (0°C ~ 60°C) WITAS1 -4°F ~ 158°F (-20°C ~ 70°C)
Storage Temp		-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity		0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	407,784	424,208
EMC		CE/FCC Class A



Model	PICO-TGU4-SEMI	PICO-WHU4
System Form Factor	PICO-SEMI	PICO-ITX
CPU	Intel® 11th Generation Core™ / Celeron Processors: i7-1185G7E (4C/8T, 1.80GHz, 15W) i5-1145G7E (4C/8T, 1.5GHz, 15W) i3-1115G4E (2C/4T, 2.20GHz, 15W) 6305E (2C/2T, 1.80GHz, 15W)	Intel® 8th Generation Core™ / Celeron Processors: i7-8665UE (4C/8T, 1.70GHz, 15W) i5-8365UE (4C/8T, 1.60GHz, 15W) i3-8145UE (2C/4T, 2.20GHz, 15W) 4305UE (2C/2T, 2.00GHz, 15W)
Chipset	Integrated with Intel® SoC	
Memory Type	Onboard LPDDR4x 3200, Dual Channel, In-Band ECC (select SKUs, Max.32GB)	DDR4 2400, SODIMM x 1, Non-ECC (Max. 32GB)
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	4.80" x 3.18" x 1.98" (122mm x 80.8mm x 50.4 mm)	3.94" x 2.84" (100mm x 72mm)
Gross Weight	0.84 lbs (0.38 kg)	0.18 lbs (0.08 kg)
OS Support	Windows 10 (64bit) Linux Ubuntu 20.10.2/Kernel 5.8.0-33-generic	Windows 10 (64 bit) Linux Ubuntu 18.04.3/Kernel 5.3.0-51-generic
Power		
Power Requirement	+12V	
Power Supply Type	ATX	
Connector	DC Jack Connector	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (colay)
Power Consumption	Intel® i7-1185G7E, LPDDR4x 32GB, 2.89A@ +12V (TYPICAL)	Intel® i7-8665UE @ DDR4 16GB, 2.23A@ +12V(TYPICAL)
Display		
Controller	Intel® Iris® Xe (i5/i7 support) Intel® UHD Graphics (i3/Celeron support)	Intel® UHD Graphics 610/620
LVDS/eDP		
Display Interface	HDMI2.0 x 1, 3840 x 2160 @60Hz	HDMI 1.4 x 2, up to 3840 x 2160 @30Hz
Multiple Display	Single display	Up to 2 Simultaneous Displays
Audio		
Codec	Realtek ALC269 (By request)	—
Audio Interface	Line-out (By request)	—
Speaker		
External I/O		
Ethernet	Intel® i225/226, 2.5GbE, RJ-45 x 1 Intel® i219, 1GbE, RJ-45 x 1	Realtek 8111 1GbE, RJ45 x 2
USB	USB3.2 Gen 2 x 2	
Serial Port	COM1~2 (RS232/422/485, support 5V/12V/Ri, Optional)	—
Video	HDMI2.0 x 1	HDMI 1.4 x 2
Internal I/O		
USB	USB2.0 x 2	
Serial Port	COM1~2 (RS232/422/485, support 5V/12V/Ri)	
Video		
SATA	SATA 6.0 Gb/s x 1, +5V SATA Power Connector x 1	
Audio	Line-out (By request)	—
DIO/GPIO	—	GPIO 4-bit
SMBus/I2C	—	I2C/SMBus x1 (Default: SMBus)
Fan	4pins Smart Fan x 1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others		
Expansion		
Mini PCIe/msATA	Full-Size mSATA/mPCIe x 1 (Default: mPCIe, select with BIOS)	
M.2	M.2 2280 M-Key x 1 (PCIe 4.0 [x4]/SATA, Default: PCIe [x4], select with HW BOM)	M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB2.0)
Others		
Environment & Certification		
Operating Temp	32°F ~ 122°F (0°C ~ 50°C)	32°F ~ 140°F (0°C ~ 60°C) WiTAS 2 -40°F ~ 185°F (-40°C ~ 85°C)
Storage Temp	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	424,208	298,762
EMC	CE/FCC Class A	
Note		

Board Level Products

Pico-ITX Boards



Model	PICO-WHU4-SEMI	PICO-KBU4
System		
Form Factor	PICO-SEMI	PICO-ITX
CPU	Intel® 8th Generation Core™ / Celeron Processors: i7-8665UE (4C/8T, 1.70GHz, 15W) i5-8365UE (4C/8T, 1.60GHz, 15W) i3-8145UE (2C/4T, 2.20GHz, 15W) 4305UE (2C/2T, 2.00GHz, 15W)	7th Generation Intel® Core™/Celeron® Processors: Intel® Core™ i7-7600U (2C/4T, 2.80GHz, 15W) Intel® Core™ i5-7300U (2C/4T, 2.60GHz, 15W) Intel® Core™ i3-7100U (2C/4T, 2.40GHz, 15W) Intel® Celeron® Processor 3965U (2C/2T, 2.20GHz, 15W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR4 2400, SODIMM x 1, Non-ECC (Max. 32GB)	DDR4 2133, SODIMM x 1, Non-ECC (Max. 16GB)
BIOS		UEFI
Wake on LAN		Yes
Watchdog Timer		255 Levels
Security		
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	5.9" x 3.94" x 2.36" (150mm x 100mm x 60mm)	3.94" x 2.84" (100mm x 72mm)
Gross Weight	1.41 lbs (0.64 kg)	0.18 lbs (0.08 kg)
OS Support	Windows 10 (64 bit) Linux Ubuntu 18.04.3/Kernel 5.3.0-51-generic	Windows 10 (64 bit) Linux Ubuntu 16.04.3/Kernel 4.10.0
Power		
Power Requirement		+12V
Power Supply Type	ATX	AT/ATX
Connector	DC Jack Connector	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (colay)
Power Consumption	Intel® i7-8665UE, DDR4 16GB, 2.23A@ +12V(TYPICAL)	Intel® Core™ i7-7600U, DDR4 16GB, 1.53A@ +12V(TYPICAL)
Display		
Controller	Intel® UHD Graphics 610/620	Intel® HD Graphics 510/620
LVDS/eDP	—	LVDS x 1 (18/24bit 2CH) 1920 x 1200 @60Hz
Display Interface	HDMI 1.4 x 2, up to 3840 x 2160 @30Hz	HDMI 1.4 x 1, 3840 x 2160 @30Hz DDI (Via BIO, Optional)
Multiple Display	2 Simultaneous Displays	Up to 3 Simultaneous Displays
Audio		
Codec	—	Realtek ALC269
Audio Interface	—	Line-Out (Audio function not available for WITAS SKU)
Speaker		—
External I/O		
Ethernet		Realtek 8111 1GbE, RJ45 x 2
USB	USB 3.2 Gen2 x 2 USB 2.0 x 2	USB 3.2 Gen1 x 2
Serial Port	COM1~2 (RS232/422/485, support 5V/12V/RI, Optional)	—
Video	HDMI 1.4 x 2	HDMI 1.4 x 1
Internal I/O		
USB	—	USB 2.0 x 2
Serial Port	—	COM1 (RS232) COM2 (RS232/422/485, support 5V/12V/RI)
Video	—	LVDS x 1
SATA	SATA 6.0 Gb/s x 1(Optional) +5V SATA Power Connector x 1	SATA 6.0 Gb/s x 1, +5V SATA Power Connector x 1
Audio	—	Line-out header x 1 (Audio function not available for WITAS SKU)
DIO/GPIO	—	GPIO 4-bit
SMBus/I2C	—	I2C/SMBus x1 (Default: SMBus)
Fan		4pins Smart Fan x1
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others		—
Expansion		
Mini PCIe/mSATA	Full-Size mSATA/mPCIe x 1 (Default: mPCIe, select with BIOS)	—
M.2	M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB2.0)	M.2 2242 B-Key x 1 (PCIe 3.0 [x1]/SATA, Default: mSATA, select with BIOS) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB2.0)
Others	—	BIO x 1 (Optional, supports PCIe [x1] x 2, line out, DDI, GPIO, LPC, SMBUS/I2C, USB 3.0/2.0)
Environment & Certification		
Operating Temp	32°F ~ 122°F (0°C ~ 50°C) with airflow 0.5m/s for 2.5" SSD SKU	32°F ~ 140°F (0°C ~ 60°C) WITAS1 -4°F ~ 158°F (-20°C ~ 70°C)
Storage Temp		-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity		0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	298,762	163,000
EMC		CE/FCC Class A
Note		



Model	PICO-KBU4-SEMI	PICO-EHL1
System Form Factor	PICO-SEMI	PICO-ITX
CPU	7th Generation Intel® Core™/Celeron® Processors: Intel® Core™ i7-7600U (2C/4T, 2.80GHz, 15W) Intel® Core™ i5-7300U (2C/4T, 2.60GHz, 15W) Intel® Core™ i3-7100U (2C/4T, 2.40GHz, 15W) Intel® Celeron® Processor 3965U (2C/2T, 2.20GHz, 15W)	Intel® Atom® x6000E series, Pentium®, and Celeron® N and J series Processors: J6412 (4C/4T, 2.00GHz, 10W) N6210 (2C/2T, 1.20GHz, 6.5W) x6425E (4C/4T, 2.0GHz, 12W) x6211E (2C/2T, 1.3GHz, 6W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR4 2133, SODIMM x 1, Non-ECC (Max. 16GB)	DDR4 3200, SODIMM x 1, Non-ECC (Max.32GB)
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	4.80" x 3.18" x 1.98" (122 mm x 80.8 mm x 50.4 mm)	3.94" x 2.84" (100mm x 72mm)
Gross Weight	0.88 lb (0.4 kg)	0.18 lbs (0.08 kg)
OS Support	Windows 10 (64 bit) Linux Ubuntu 16.04.3/Kernel 4.10.0	Windows® 10 (64-bit) Ubuntu 20.04.5/Kernel 5.15
Power		
Power Requirement	+12V	
Power Supply Type	AT/ATX	
Connector	Lockable DC Jack Connector	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (colay)
Power Consumption	Intel® i7-7600, DDR4 16GB, 1.53A@ +12V(TYPICAL)	Intel Atom® x6425E, DDR4 32GB, 2.67A@ +12V (TYPICAL) Intel Atom® x6425E, DDR4 32GB, 2.84A@ +12V (MAX)
Display		
Controller	Intel® HD Graphics 510/620	Intel® UHD Graphics for 10th Gen Intel® Processors
LVDS/eDP		
Display Interface	HDMI 1.4 x 1, 3840 x 2160 @30Hz	LVDS x 1 (18/24bit 2CH) 1920 x 1200 @60Hz eDP1.3 x 1, 3840 x 2160 @60Hz (Optional)
Multiple Display	1 Simultaneous Display	HDMI 1.4 x 1, 3480 x 2160 @30Hz Up to 2 Simultaneous Displays
Audio		
Codec	Realtek ALC269 (Optional)	
Audio Interface	Line-out (Optional)	Line-In / Line-Out / Mic (Optional, audio function not available for WITAS SKU)
Speaker		
External I/O		
Ethernet	Realtek 8111 1GbE, RJ45 x 2	Realtek 8111H-CG 1GbE, RJ45 x 1
USB	USB 3.2 Gen1 x 2	USB 3.2 Gen2 x 2
Serial Port	COM1 (RS232, Optional) COM2 (RS232/422/485, support 5V/12V/RI, Optional)	—
Video	HDMI 1.4 x 1	
Internal I/O		
USB	USB 2.0 x 2	
Serial Port	COM1~2 (RS232/422/485, support 5V/12V/RI)	
Video	LVDS/eDP x 1(Default: LVDS)	
SATA	SATA 6.0 Gb/s x 1, +5V SATA Power Connector x 1	
Audio	Line-out (Optional)	Audio Header x 1 (Optional, audio function not available for WITAS SKU)
DIO/GPIO	GPIO 4-bit	
SMBus/I2C	I2C/SMBus x1 (Default: SMBus)	
Fan	4pins Smart Fan x1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others		
Expansion		
Mini PCIe/mSATA	Full-Size mSATA/mPCIe x 1 (Default: mSATA, select with BIOS)	
M.2	M.2 2242 B-Key x 1 (PCIe 3.0 [x1]/SATA, Default: mSATA, select with BIOS) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB2.0)	M.2 2242 B-key x 1 (PCIe [x2] as default, USB2.0 is optional)
Others	BIO x 1 (Optional, supports PCIe [x1] x 2, line out, DDI, GPIO, LPC, SMBUS, USB.3.0/2.0)	
Environment & Certification		
Operating Temp	32°F ~ 122°F (0°C ~ 50°C)	32°F ~ 140°F (0°C ~ 60°C) WITAS 2 -40°F ~ 185°F (-40°C ~ 85°C)
Storage Temp	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	163,000	489,989
EMC	CE/FCC Class A	
Note		

Board Level Products

Pico-ITX Boards



Model	PICO-EHL4	PICO-EHL4-SEMI
System Form Factor	PICO-ITX	PICO-SEMI
CPU	Intel® Atom® x6000E series, Pentium®, and Celeron® N and J series Processors: J6412 (4C/4T, 2.00GHz, 10W) N6210 (2C/2T, 1.20GHz, 6.5W) x6425E (4C/4T, 2.0GHz, 12W) x6211E (2C/2T, 1.3GHz, 6W)	Intel® Celeron® Processor J6412 (4C/4T, 2.00 GHz, 10W) Intel® Celeron® Processor N6210 (2C/2T, 1.20 GHz, 6.5W)
Chipset	Integrated with Intel® SoC	
Memory Type	Onboard LPDDR4x 3200, Single Channel, Non-ECC (Max. 16GB)	Onboard Single-Channel LPDDR4x 3200MHz (Max. 16GB, Non ECC)
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	Intel® PTT (Integrated TPM)	
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	3.94" x 2.84" (100mm x 72mm)	4.80" x 3.18" x 1.75" (122mm x 80.8mm x 44.4mm)
Gross Weight	0.18 lbs (0.08 kg)	0.88 lb. (0.40kg)
OS Support	Windows 10 (64 bit) Ubuntu 20.04/Kernel 5.13.0-30-generic	Windows 10 (64 bit) Ubuntu 20.04.3(0T)/Kernel 5.13
Power		
Power Requirement	+12V	12V only
Power Supply Type	AT/ATX	ATX
Connector	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (colay)	DC Jack Connector
Power Consumption	Intel® Atom™ x6425E, LPDDR4x onboard 16GB, 2.48A@ +12V(TYPICAL) Intel® Atom™ x6425E, LPDDR4x onboard 16GB, 2.62A@ +12V(MAX)	Intel® Pentium® J6426, LPDDR4x onboard 16GB, 1.43A@ +12V(TYPICAL) Intel® Pentium® J6426, LPDDR4x onboard 16GB, 1.78A@ +12V(MAX)
Display Controller	Intel® UHD Graphics for 10th Gen Intel® Processors	
LVDS/eDP	LVDS x1 (18/24bit 2CH) 1920 x 1200 @60Hz eDP 1.3 x 1, 3840 x 2160 @60Hz (Optional)	—
Display Interface	HDMI 2.0 x 2, 3840 x 2160 @60Hz	HDMI 2.0 x 1, 3840 x 2160 @60Hz
Multiple Display	Up to 3 Simultaneous Displays	Up to 1 Display
Audio		
Codec	—	
Audio Interface	—	
Speaker	—	
External I/O		
Ethernet	Realtek 8111 1GbE, RJ45 x 2	RTL8111H-CG 1GbE, RJ45 x 2
USB	USB 3.2 Gen2 x 2	USB 3.2 Gen 2 x 2
Serial Port	—	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RI, Optional)
Video	HDMI 2.0 x 2	HDMI 2.0 x 1
Internal I/O		
USB	USB 2.0 x 2	—
Serial Port	COM1~2 (RS232/422/485, support 5V/12V/RI)	—
Video	LVDS/eDP x 1(Default: LVDS)	—
SATA	SATA 6.0 Gb/s x 1, +5V SATA Power Connector x 1 eMMC5.1 32GB (Optional to 16/64/128GB)	32GB eMMC 5.1 (Optional: 64GB/128GB)
Audio	—	
DIO/GPIO	GPIO 4-bit	
SMBus/I2C	I2C/SMBus x1 (Default: SMBus)	
Fan	4pins Smart Fan x1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
Expansion		
Mini PCIe/mSATA	Full size mPCIe/mSATA x 1 (SATA as default, PCIe selected by BIOS)	
M.2	M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB2.0)	M.2 2230 E-Key x 1 (PCIe [x1]/USB 2.0)
Others	CANBUS x 2 (Optional, N6210/J6412 not support, support up to 5Mbit/s)	
Environment & Certification		
Operating Temp	32°F ~ 140°F (0°C ~ 60°C) WITAS 2 -40°F ~ 185°F (-40°C ~ 85°C)	32°F ~ 122°F (0°C ~ 50°C) with 0.5m/s air flow
Storage Temp	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	489,989	
EMC	CE/FCC Class A	
Note		



Model	PICO-APL1	PICO-APL1-SEMI
System		
Form Factor	PICO-ITX	PICO-SEMI
CPU	Intel® Atom® / Celeron® / Pentium® Processors: N4200 (4C/4T, 1.10GHz, 6W) N3350 (2C/2T, 1.10GHz, 6W) E3950 (4C/4T, 1.60GHz, 12W) E3940 (4C/4T, 1.60GHz, 9.5W) E3930 (2C/2T, 1.306GHz, 6.5W)	Intel® Celeron® Processor: N3350 (2C/2T, 1.10GHz, 6W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR3L 1866, Single Channel SODIMM x 1, Non-ECC (Max.8GB, up to 1600MHz)	
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	—	
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	3.94" x 2.84" (100mm x 72mm)	4.8" x 3.18" x 1.75" (122mm x 80.8mm x 44.4 mm)
Gross Weight	0.18 lbs (0.08 kg)	0.59 lb (0.27 kg)
OS Support	Windows 10 (64 bit) Linux Ubuntu 20.04.4/ Kernel 5.11.0-13-generic	
Power		
Power Requirement	+12V	
Power Supply Type	ATX	
Connector	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (colay)	Lockable DC Jack Connector
Power Consumption	Intel® E3940 Processor, DDR3L 8GB x 1, 1.11A@+12V(TYPICAL)	Intel® N3350 Processor, DDR3L 8GB x 1, 0.91A@+12V(TYPICAL)
Display		
Controller	Intel® HD Graphics 500/505	Intel® HD Graphics 500
LVDS/eDP	LVDS x 1 (18/24bit 2CH) 1920 x 1200 @60Hz (Optional)	—
Display Interface	HDMI 1.4 x 1, 3840 x 2160 @30Hz DDI (Via BIO, Optional)	HDMI 1.4 x 1, 3840 x 2160 @30Hz
Multiple Display	Up to 3 Simultaneous Displays	1 Simultaneous Display
Audio		
Codec	Realtek ALC897/892	Realtek ALC897/892 (Optional)
Audio Interface	Line-Out (Audio function not available for WITAS SKU)	Line-out (Optional)
Speaker	—	
External I/O		
Ethernet	Intel® i210 1GbE, RJ45 x 1	
USB	USB 3.2 Gen1 x 2	
Serial Port	—	COM1 (RS232, Optional) COM2 (RS232/422/485, support 5V/12V/R, Optional)
Video	HDMI 1.4 x 1	
Internal I/O		
USB	USB 2.0 x 1	—
Serial Port	COM1 (RS232) COM2 (RS232/422/485, support 5V/12V/Ri)	—
Video	LVDS x 1	—
SATA	SATA 6.0 Gb/s x 1, +5V SATA Power Connector x 1	—
Audio	Line-out header x 1 (Audio function not available for WITAS SKU)	Line-out (Optional)
DIO/GPIO	GPIO 4-bit	—
SMBus/I2C	I2C/SMBus x1 (Default: SMBus)	—
Fan	—	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
Expansion		
Mini PCIe/mSATA	Full-Size mSATA/mPCIe x 1 (Default: mSATA, select with HW BOM) Half-Sized mPCIe x 1	
M.2	—	
Others	BIO x 1 (Optional, supports PCIe [x1] x 2, line out, DDI, GPIO, LPC, SMBUS, USB3.0/2.0)	—
Environment & Certification		
Operating Temp	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 122°F (0°C ~ 50°C) with 0.5 m/s airflow
Storage Temp	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	170,000	
EMC	CE/FCC Class A	
Note		

Board Level Products

Pico-ITX Boards



Model	PICO-APL2	PICO-APL3
System Form Factor	PICO-ITX	
CPU	Intel® Atom® / Celeron® / Pentium® Processors: N3350 (2C/2T, 1.10GHz, 6W) N4200 (4C/4T, 1.10GHz, 6W) E3950 (4C/4T, 1.60GHz, 12W) E3940 (4C/4T, 1.60GHz, 9.5W) E3930 (2C/2T, 1.306GHz, 6.5W)	Intel® Atom® / Celeron® / Pentium® Processors: N4200 (4C/4T, 1.10GHz, 6W) N3350 (2C/2T, 1.10GHz, 6W) E3950 (4C/4T, 1.60GHz, 12W) E3940 (4C/4T, 1.60GHz, 9.5W) E3930 (2C/2T, 1.306GHz, 6.5W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR3L 1866, Single Channel SODIMM x 1, Non-ECC (Max.8GB, up to 1600MHz)	Onboard DDR3L 1866, Single Channel, Non-ECC (Max.4GB)
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	3.94" x 2.84" (100mm x 72mm)	
Gross Weight	0.18 lbs (0.08 kg)	
OS Support	Windows 10 (64 bit) Linux Ubuntu 20.04.4/ Kernel 5.11.0-30-generic	Windows 10 (64 bit) Linux Ubuntu 16.04.2/ Kernel 4.8.0-36
Power		
Power Requirement	+12V	
Power Supply Type	AT/ATX	
Connector	Line-Out (Audio function not available for WITAS SKU)	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (colay)
Power Consumption	Intel® N4200, DDR3L 8GB x 1, 2.16A@ +12V(TYPICAL) Intel® N4200, DDR3L 8GB x 1, 2.28A@ +12V(MAX)	Intel® E3950, DDR3L 4GB x 1, 2.20A, @ +12V(TYPICAL) Intel® E3950, DDR3L 4GB x 1, 2.37A, @ +12V(Max)
Display Controller	Intel® HD Graphics 500/505	
LVDS/eDP	LVDS x 1 (18/24bit 2CH) 1920 x 1200 @60Hz	eDP x 1, 1920 x1080 @60Hz (Optional)
Display Interface	HDMI 1.4 x 1, 3840 x 2160 @30Hz DDI (Via Bio, Optional)	
Multiple Display	Up to 3 Simultaneous Displays	
Audio		
Codec	Realtek ALC897/888	Realtek ALC256
Audio Interface	Line-Out (Audio function not available for WITAS SKU)	Line-In / Line-Out / Mic (Audio function not available for WITAS SKU)
Speaker	Amplifier Header	
External I/O		
Ethernet	Intel® i210 1GbE, RJ45 x 1	Realtek 8111 1GbE, RJ45 x 1
USB	USB 3.2 Gen1 x 2	
Serial Port	—	
Video	HDMI 1.4 x 1	
Internal I/O		
USB	USB 2.0 x 1	USB 2.0 x 2
Serial Port	COM1 (RS232) COM2 (RS232/422/485, support 5V/12V/Rt)	COM1~2 (RS232)
Video	LVDS x 1	eDP x 1 (Optional)
SATA	SATA 6.0 Gb/s x 1, +5V SATA Power Connector x 1	SATA 6.0 Gb/s x 1, +5V SATA Power Connector x 1 eMMC5.1 32GB (Optional to 16/64GB)
Audio	Line-out header x 1 (Audio function not available for WITAS SKU)	Audio Header(Audio function not available for WITAS SKU)
DIO/GPIO	GPIO 4-bit	
SMBus/I2C	I2C/SMBus x1 (Default: SMBus)	I2C/I2S x 1 (Default: I2C)
Fan	—	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
Expansion		
Mini PCIe/mSATA	Full-Size mSATA/mPCIe x 1 (Default: mSATA, select with HW BOM) Half-Sized mPCIe x 1	—
M.2	—	M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB2.0) M.2 2280 B-Key x 1 (SATA + USB2.0)
Others	BIO x 1 (Optional, supports PCIe [x1] x 2, line out, DDI, GPIO, LPC, SMBUS, USB3.0/2.0)	BIO x 1 (Optional, supports PCIe [x1] x 2, DDI, LPC, SMBUS, USB3.0/2.0)
Environment & Certification		
Operating Temp	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temp	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	525,137	110,000
EMC	CE/FCC Class A	
Note		



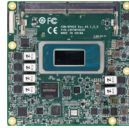
Model	PICO-APL3-SEMI	PICO-APL4
System Form Factor	PICO-SEMI	PICO-ITX
CPU	Intel® Atom® / Celeron® / Pentium® Processors: N4200 (4C/4T, 1.10GHz, 6W) N3350 (2C/2T, 1.10GHz, 6W)	Intel® Atom® / Celeron® / Pentium® Processors: N4200 (4C/4T, 1.10GHz, 6W) N3350 (2C/2T, 1.10GHz, 6W) E3950 (4C/4T, 1.60GHz, 12W) E3940 (4C/4T, 1.60GHz, 9.5W) E3930 (2C/2T, 1.306GHz, 6.5W)
Chipset	Integrated with Intel® SoC	
Memory Type	Onboard DDR3L 1866, Single Channel, Non-ECC (Max. 4GB)	
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	W/O heat sink: 4.80" x 3.18" x 1.18" (122mm x 80.8mm x 30mm) W/ heat sink: 4.80" x 3.18" x 1.75" (122mm x 80.8mm x 44.4mm)	3.94" x 2.84" (100mm x 72mm)
Gross Weight	W/O heat sink: 0.38 lb (0.17 kg) W/ heat sink: 0.91 lb (0.41 kg)	0.18 lbs (0.08 kg)
OS Support	Windows 10 (64 bit) Linux Ubuntu 16.04.2/ Kernel 4.8.0-36	
Power	+12V	
Power Requirement	AT/ATX	
Power Supply Type	ATX	
Connector	DC Jack Connector	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (colay)
Power Consumption	Intel® N4200, DDR3L 8GB x 1, 1.08A, eMMC 32GB@ +12V(TYPICAL)	Intel® N4200, DDR3L 4GB, 1.43A@+12V(TYPICAL)
Display	Intel® HD Graphics 500/505	
Controller	—	
LVDS/eDP	—	
Display Interface	HDMI 1.4 x 1, 3840 x 2160 @30Hz	eDP x 1, 1920x1080 @60Hz (Optional) HDMI 1.4 x 1, 3840 x 2160 @30Hz DDI (Via BIO, Optional)
Multiple Display	1 Simultaneous Display	Up to 3 Simultaneous Displays
Audio	—	
Codec	Realtek ALC269 (Optional)	—
Audio Interface	Line-out (Optional)	—
Speaker	—	
External I/O	—	
Ethernet	Realtek 8111 1GbE, RJ45 x 1	Realtek 8111 1GbE, RJ45 x 2
USB	USB 3.2 Gen1 x 2	
Serial Port	COM1~2 (RS232, Optional)	—
Video	HDMI 1.4 x 1	
Internal I/O	—	
USB	—	USB 2.0 x 2 (Internal, co-use with FAN connector)
Serial Port	—	COM1 (RS232) COM2 (RS232/422/485, support 5V/12V/Ri)
Video	—	eDP x 1
SATA	eMMC5.1 32GB (Optional to 16/64GB)	SATA 6.0 Gb/s x 1, +5V SATA Power Connector x 1 eMMC5.1 32GB (Optional to 16/64GB)
Audio	Line-out (Optional)	—
DIO/GPIO	—	GPIO 4-bit
SMBus/I2C	—	I2C/SMBus x1 (Default: SMBus)
Fan	—	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
Expansion	—	
Mini PCIe/mSATA	—	
M.2	M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB2.0) M.2 2280 B-Key x 1 (SATA + USB2.0)	
Others	—	BIO x 1 (Optional, supports PCIe [x1] x 2, DDI, LPC, USB3.0/2.0)
Environment & Certification	—	
Operating Temp	32°F ~ 122°F (0°C ~ 50°C) with 0.5 m/s airflow	32°F ~ 140°F (0°C ~ 60°C)
Storage Temp	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	110,000	191,895
EMC	CE/FCC Class A	
Note		

Board Level Products

Pico-ITX Boards



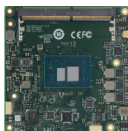
Model	PICO-APL4-SEMI	PICO-BT01	Model	PER-P30D
System Form Factor	PICO-SEMI	PICO-ITX	System	
CPU	Intel® Atom® / Celeron® / Pentium® Processors: N4200 (4C/4T, 1.10GHz, 6W) N3350 (2C/2T, 1.10GHz, 6W)	Intel® Atom® / Celeron® Processors: J1900 (4C/4T, 2.00GHz, 10W) N2930 (4C/4T, 1.83GHz, 7.5W) N2807 (2C/2T, 1.58GHz, 4.3W) E3845 (4C/4T, 1.91GHz, 10W) E3825 (2C/2T, 1.33GHz, 6W)	Power input	DC 9~36V
Chipset	Integrated with Intel® SoC	Integrated with Intel® SoC	Power output	DC 5V + DC 12V / max.120W
Memory Type	Onboard DDR3L 1866, Single Channel, Non-ECC (Max.4GB)	DDR3L 1333, SODIMM x 1, Non-ECC (Max. 8GB)	Voltage tolerance	±5%
BIOS	UEFI		Dimension	1.18" x 2.84" (30mm x 72mm)
Wake on LAN	Yes		Gross Weight	0.07 lbs (0.03 kg)
Watchdog Timer	255 Levels		Input Connector	2-pin Phoenix Connector.180D (Default) 3-pin Phoenix Connector.90D (colay)
Security	—		Output Connector	2-pin Phoenix Connector.90D (Default)
RTC Battery	Lithium Battery 3V/240mAh		Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Dimension	4.80" x 3.18" x 1.98" (122 mm x 80.8 mm x 50.4 mm)	3.94" x 2.84" (100mm x 72mm)	Note	
Gross Weight	0.88 lb (0.4 kg)	0.18 lbs (0.08 kg)		
OS Support	Windows 10 (64 bit) Linux Ubuntu 16.04.2/ Kernel 4.8.0-36	Windows 7/10 (64 bit) Linux Ubuntu 21.04.0/ Kernel 5.11.0-13-generic		
Power				
Power Requirement		+12V		
Power Supply Type	ATX	AT/ATX		
Connector	DC Jack Connector	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (colay)		
Power Consumption	Intel® N4200, DDR3L 4GB, 1.18A@+12V(TYPICAL)	Intel® J1900, DDR3L 1333MHz 8GB x 1, 1.14A@+12V(TYPICAL)		
Display				
Controller	Intel® HD Graphics 500/505	Intel® HD Graphics for Intel Atom® Processor Z3700 Series		
LVDS/eDP	—	LVDS x 1 (18/24-bit 2CH) 1400 x 900 @60Hz		
Display Interface	HDMI 1.4 x 1, 3840 x 2160 @30Hz	VGA x 1, 2048 x 1152 @60Hz DP x 1, 2560 x 1400 @60Hz (Optional)		
Multiple Display	1 Simultaneous Display	Up to 2 Simultaneous Displays		
Audio				
Codec	—	Realtek ALC897/892		
Audio Interface	—	Line-Out (Audio function not available for WiTAS SKU)		
Speaker	—	—		
External I/O				
Ethernet	Realtek 8111 1GbE, RJ45 x 2	Intel® i210 1GbE, RJ45 x 1		
USB	USB 3.2 Gen1 x 2	USB 3.2 Gen1 x 1; USB 2.0 x 1		
Serial Port	COM1 (RS232, Optional) COM2 (RS232/422/485, support 5V/12V/RI, Optional)	—		
Video	HDMI 1.4 x 1	VGA x 1 DP x 1 (Optional)		
Internal I/O				
USB	—	USB 2.0 x 1		
Serial Port	—	COM1 (RS232); COM2 (RS232/422/485, support 5V/12V/RI)		
Video	—	LVDS x 1		
SATA	eMMC5.1 32GB (Optional to 16/64GB)	SATA 3.0 Gb/s x 1, +5V SATA Power Connector x 1		
Audio	—	Line-out header x 1 (Audio function not available for WiTAS SKU)		
DIO/GPIO	—	GPIO 4-bit		
SMBus/I2C	—	I2C/SMBus x1 (Default: SMBus)		
Fan	—	—		
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset			
Others	—			
Expansion				
Mini PCIe/mSATA	—	Full-Size mSATA/mPCIe x 1 (Default: mSATA, select with HW BOM) Half-Sized mPCIe x 1		
M.2	M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB2.0) M.2 2280 B-Key x 1 (SATA + USB2.0)	—		
Others	—	BIO x 1 (Optional, supports PCIe [x1], line out, GPIO, LPC, SMBUS/I2C, USB3.0/2.0)		
Environment & Certification				
Operating Temp	32°F ~ 122°F (0°C ~ 50°C) with 0.5 m/s airflow	32°F ~ 140°F (0°C ~ 60°C) WiTAS 2 -40°F ~ 185°F (-40°C ~ 85°C)		
Storage Temp	—	-40°F ~ 185°F (-40°C ~ 85°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing			
MTBF (Hours)	191,895	80,000		
EMC		CE/FCC Class A		



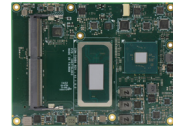
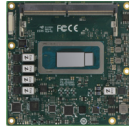
Model	COM-MTHC6	COM-ASLC6
System		
Form Factor	COM Express Compact Size, Type 6	
CPU	Intel® Core™ Ultra Processors: Intel® Core™ Ultra 9 Processor 185H (16C/22T, up to 5.1 GHz, 45W) Intel® Core™ Ultra 7 Processor 155H (16C/22T, up to 4.8 GHz, 28W) Intel® Core™ Ultra 5 Processor 125H (14C/18T, up to 4.5 GHz, 28W)	Intel Atom® X Series CPU Intel Atom® x7835RE (8C, up to 3.6 GHz, 12W) Intel Atom® x7433RE (4C, up to 3.4 GHz, 9W) Intel Atom® x7213RE (2C, up to 3.4 GHz, 9W) Intel Atom® x7211RE (2C, up to 3.2 GHz, 6W)
Chipset	Integrated with Intel® SoC	
Memory	DDR5 5600MHz Dual Channel SODIMM x 2, non-ECC, up to 96GB	DDR5 4800MHz Single Channel , SODIMM x1, up to 16GB
Onboard Storage	NVMe, up to 256GB, via last PEG [x4] bus (Option)	—
BIOS	AMI UEFI	AMI BIOS (UEFI)
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Dimension	3.75" x 3.75" (95mm x 95mm)	3.74" x 3.74" (95mm x 95mm)
Security	TPM / dTPM (default)	TPM 2.0
Power		
Power Requirement	+9V-16V and +5VSB for ATX, +9V-16V for AT	+12V and +5VSB for ATX, +12V for AT
Power Type	AT/ATX	AT (default)/ATX, switch by BIOS
Power Consumption (Typical)	Intel® Core™ Ultra 9 Processor 185H, 9.13A@+12V	Intel Atom® x7835RE, 1.94A@+12V
Display		
Graphics Controller	Intel® Arc™ graphics	Intel® UHD Graphics
Video Output	4 Simultaneous Displays: LVDS: up to 1920 x 1080 (default) / eDP: up to 3840 x 2160, switch by BOM DDI 1: DP, up to 3840 x 2160 DDI 2: DP, up to 3840 x 2160 DDI 3: DP, up to 3840 x 2160 , co-lay with VGA, auto switch VGA: up to 1920 x 1080, co-lay with DDI 3, auto switch	3 Displays: 18/24-bit Single/Dual-Channel LVDS/eDP x 1, up to 1920 x 1080/ 3840 x 2160 DP x 2, up to 3840 x 2160
I/O		
Ethernet	Intel® Ethernet Controller I226, 2.5GbE x 1	Intel® Ethernet Controller I226-V or I226-IT 2.5GbE x 1
Audio	High Definition Audio Interface	
USB Port	USB 2.0 x 8, USB 3.2 Gen 2 x 4	USB 2.0 x 8, USB 3.2 Gen 2 x 2
Serial Port	2-Wire UART x 2 (Tx/Rx)	
HDD Interface	SATA 6.0Gbps x 2	SATA 6Gb/s x 2
Expansion	PEG 4.0 [x8] + [x4] + [x4],last PEG [x4] option to be onboard NVMe SSD PCIe 4.0 [x1] x 4 + PCIe [x4] MIPI CSI x 2	PCIe [x1] x 4 or [x2] x 2, LPC, WDT, HWM
GPIO	8-bit	
SMBus/I2C	I2C x 1, from EC (default) or CPU, switch by BIOS SMBus x 1, from CPU	I2C x 1, SMBus x 1
Environment		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
EMC	CE/FCC Class A	
OS Support	Windows® 11 (64-bit) Linux Ubuntu 24.04/Kernel 6.8	Windows® 11 (64-bit) Linux Ubuntu 22.04.02/Kernel 5.19
Weight	0.25 lb. (0.12Kg)	0.26 lb. (0.12Kg)
Note		

Board Level Products

Computing On Module



Model	COM-ADNC6	COM-R2KC6
System		
Form Factor	COM Express Type 6, Compact Size	
CPU	Intel Atom® X Series/N-series/Core™ i3-N305 CPU Intel® Core™ i3-N305 (8C, up to 3.8 GHz, 15W) Intel Atom™ x7425E (4C, up to 3.4 GHz, 12W) Intel Atom™ x7211E (2C, up to 3.2 GHz, 6W) Intel® Processor N97 (4C, up to 3.6 GHz, 12W) Intel® Processor N50 (2C, up to 3.4 GHz, 6W)	AMD Ryzen™ Embedded R2000 Series Processors: AMD Ryzen™ Embedded R2544 (4C/8T, 3.35 GHz, 45W) AMD Ryzen™ Embedded R2514 (4C/8T, 2.10 GHz, 15W) AMD Ryzen™ Embedded R2314 (4C/4T, 2.10 GHz, 15W)
Chipset	Integrated with Intel® SoC	
Memory	DDR5 4800MHz Single Channel , SODIMM x1, up to 16GB	DDR4 3200MHz SODIMM x 2, up to 32GB
Onboard Storage	—	
BIOS	AMI BIOS (UEFI)	AMI UEFI
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Dimension	3.74" x 3.74" (95mm x 95mm)	
Security	TPM 2.0	
Power		
Power Requirement	+12V and +5VSB for ATX, +12V for AT	
Power Type	AT (default)/ATX, switch by BIOS	AT/ATX
Power Consumption (Typical)	Intel® Core™ i3-N305, 1.57A @+12V	AMD Ryzen™ R2544, 4.8A @+12V
Display		
Graphics Controller	Intel® UHD Graphics	AMD Radeon™ Vega 8 Graphics / AMD Radeon™ Vega 6 Graphics
Video Output	3 Displays: 18/24-bit Single/Dual-Channel LVDS/eDP x 1, up to 1920 x 1080/ 3840 x 2160 DP x 2, up to 3840 x 2160	4 Simultaneous Displays: eDP x 1, up to 3840 x 2160 DDI x 3, up to 3840 x 2160
I/O		
Ethernet	Intel® Ethernet Controller I226-V or I226-IT 2.5GbE x 1	Intel® I226-LM/IT 2.5GbE x 1
Audio	High Definition Audio Interface	
USB Port	USB 2.0 x 8, USB 3.2 Gen 2 x 2	USB 2.0 x 8, USB3.2 10Gbps x2, USB3.2 5Gbps x1
Serial Port	2-Wire UART x 2 (Tx/Rx)	
HDD Interface	SATA 6Gb/s x 2	
Expansion	PCIe [x1] x 4 or [x2] x 2, LPC, WDT, HWM	PEG [x4] PCIe Gen3[x1] x4 (0–3) PCIe Gen3[x4] x1 (4–7) LPC
GPIO	8-bit	
SMBus/I2C	I2C x 1, SMBus x 1	
Environment		
Operating Temperature	-4°F ~ 158°F (-20°C ~ 70°C) -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU	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	
EMC	CE/FCC Class A	
OS Support	Windows® 10 (64-bit) Linux Ubuntu 22.04.02/Kernel 5.19	Windows® 10 (64-bit) Linux Ubuntu 22.04.2/Kernel 5.19.0-32
Weight	0.26 lb. (0.12Kg)	0.44 lb. (0.20Kg)
Note		



Model	COM-RAPC6	COM-TGHB6
System		
Form Factor	COM Express, Type 6	COM Express Basic Size, Type 6
CPU	13th Intel® Core™ Processor: Intel® Core™ i7-13800HRE Processor (14C/20T, 2.5GHz, 45W, In-Band ECC) Intel® Core™ i7-13800HE Processor (14C/20T, 2.5GHz, 45W) Intel® Core™ i5-13600HE Processor (12C/16T, 2.7GHz, 45W) Intel® Core™ i3-13300HE Processor (8C/12T, 2.1GHz, 45W) Intel® Core™ i7-1370PE Processor (14C/20T, 1.9GHz, 28W) Intel® Core™ i5-1340PE Processor (14C/16T, 1.8GHz, 28W) Intel® Core™ i3-1320PE Processor (8C/12T, 1.7GHz, 28W) Intel® Core™ i3-1315UE Processor (6C/8T, 1.2GHz, 15W) Intel® Core™ U300 Processor (5C/6T, 1.1GHz, 15W)	11th Generation Intel® Core™ Processors: Intel® Core™ i7-11850HE (8C/16T, 2.1 GHz, 35W) Intel® Core™ i5-11500HE (6C/12T, 2.1 GHz, 35W) Intel® Core™ i3-11100HE (4C/8T, 1.9 GHz, 35W) Intel® Xeon® W Processors: Intel® Xeon® W-11865MRE (8C/16T, 2.1 GHz, 35W) Intel® Xeon® W-11865MLE (8C/16T, 1.5 GHz, 25W)
Chipset	Integrated with Intel® SoC	Intel® QM580E Intel® RM590E
Memory	DDR5 Dual channel, SODIMM Socket x 2, non-ECC, up to 64GB (U Processor up to 4800MT/s, H/P Processor up to 5200 MT/s)	DDR4 3200MHz Dual Channel, SODIMM x 2, up to 64GB
Onboard Storage	—	
BIOS	AMI UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Dimension	3.75" x 3.75" (95mm x 95mm)	4.92" x 3.75" (125mm x 95mm)
Security	TPM 2.0	
Power		
Power Requirement	+12V and +5VSB for ATX, +12V for AT	
Power Type	AT/ATX	
Power Consumption (Typical)	Intel® Core™ i7-13800HE, DDR5 32GB x 2, 8.30A@ +12V	Intel® Xeon® W-11865MRE, 5.26A @+12V
Display		
Graphics Controller	Intel® Iris® Xe Graphics Intel® UHD Graphics	Intel® UHD Graphics
Video Output	4 Simultaneous Displays: DDI x 3, up to 3840 x 2160 18/24-bit Single/Dual-Channel LVDS/eDP x 1, up to 1920 x 1080 / 3840 x 2160 @60Hz VGA x 1, up to 1920 x 1080	4 Simultaneous Displays: DDI x 3, up to 3840 x 2160 LVDS/eDP x 1, up to 1920 x 1080 VGA x 1, up to 1920 x 1080
I/O		
Ethernet	Intel® Ethernet Controller I226, 2.5GbE x 1	Intel® I226-LM 2.5GbE x 1
Audio	High Definition Audio Interface	
USB Port	USB 2.0 x 8, USB 3.2 Gen 2 x 4	
Serial Port	2-Wire UART x 2 (Tx/Rx)	
HDD Interface	SATA 6.0Gbps x 2	SATA 6.0Gbps x 4
Expansion	PCIe[x1] x 4 (Configurable by BIOS)+ PCIe[x4] x 1+PCIe[x8] x 1 (PCIe[x8] for H series CPU only)	PEG 4.0 [x16] x 1 PCIe 3.0 [x1] x 8 LPC x 1
GPIO	8-bit	
SMBus/I2C	I2C x 1, SMBus x 1	
Environment		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) WiTAS 2: -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU	32°F ~ 140°F (0°C ~ 60°C) -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
EMC	CE/FCC Class A	
OS Support	Windows® 10 / 11 (64-bit) Linux Ubuntu 24.04/Kernel 6.8	Windows® 10 (64-bit) Linux Ubuntu 20.04.4/Kernel 5.13
Weight	0.25 lb. (0.12Kg)	0.33 lb. (0.15Kg)
Note		

Board Level Products

Computing On Module



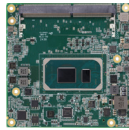
Model	COM-CFHB6	COM-T6UC6
System		
Form Factor	COM Express Basic Size, Type 6	COM Express Compact Size, Type 6
CPU	9th Generation Intel® Core™ Processors: Intel® Core™ i7-9850H (6C/12T, 1.90 GHz, 25W) Intel® Core™ i7-9850HE (6C/12T, 2.70 GHz, 45W) 8th Generation Intel® Core™ Processors: Intel® Core™ i7-8850H (6C/12T, 2.60 GHz, 45W) Intel® Core™ i5-8400H (4C/8T, 2.50 GHz, 45W) Intel® Core™ i3-8100H (4C/4T, 3.00 GHz, 45W) Intel® Xeon® E Processors: Intel® Xeon® E-2176M (6C/12T, 2.70 GHz, 45W) Intel® Xeon® E-2276ME Processor (6C/12T, 2.80 GHz, 45W)	11th Generation Intel® Core™ Processors: Intel® Core™ i7-1185G7E (4C/8T, 1.8 GHz, 15W) Intel® Core™ i7-1185GRE (4C/8T, 1.80 GHz, 15W, In-Band ECC) Intel® Core™ i5-1145G7E (4C/8T, 1.5 GHz, 15W) Intel® Core™ i5-1145GRE (4C/8T, 1.50 GHz, 15W, In-Band ECC) Intel® Core™ i3-1115G4E (2C/4T, 2.20 GHz, 15W) Intel® Core™ i3-1115GRE (2C/4T, 2.20 GHz, 15W, In-Band ECC) Intel® Celeron® Processor 6000 Series: Intel® Celeron® 6305E Processor (2C/2T 1.80 GHz, 15W)
Chipset	Intel® QM370 Intel® CM246	Integrated with Intel® SoC
Memory	DDR4 2666MHz SODIMM x 3, up to 96GB (ECC by SKU)	DDR4 3200MHz Dual Channel SODIMM x 2, up to 64GB (In-Band ECC by SKU)
Onboard Storage	—	
BIOS	AMI UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Dimension	4.92" x 3.75" (125mm x 95mm)	3.74" x 3.74" (95mm x 95mm)
Security	TPM 2.0 (Optional)	
Power		
Power Requirement	+12V and +5VSB for ATX, +12V for AT	
Power Type	AT/ATX	
Power Consumption (Typical)	Intel® Xeon® E-2276ME, 4.65A @+12V	Intel® Core™ i7-1185GRE, 3.5A @+12V
Display		
Graphics Controller	Intel® UHD Graphics 630 Intel® UHD Graphics P630	Intel® Iris® Xe Graphics Intel® UHD Graphics
Video Output	3 Simultaneous Displays: 18/24-bit Single/Dual-Channel LVDS x 1, up to 1920 x 1080 DDI x 2, up to 3840 x 2160 VGA x 1, up to 1920 x 1080	4 Simultaneous Displays: DDI x 3, up to 3840 x 2160 18/24-bit Single/Dual-Channel LVDS/eDP x 1, up to 1920 x 1080/3840 x 2160 VGA x 1, up to 1920 x 1080
I/O		
Ethernet	Intel® I219-LM GbE x 1	Intel® Ethernet Controller i225/i226-LM 2.5GbE x 1
Audio	High Definition Audio Interface	
USB Port	USB 2.0 x 8, USB 3.2 Gen 2 x 4	
Serial Port	2-Wire UART x 2 (Tx/Rx)	
HDD Interface	SATA III x 4	SATA III x 2
Expansion	PEG 3.0 [x16] x 1 PCIe 3.0 [x1] x 8 LPC x 1	PEG 4.0 [x4] x 1 PCIe 3.0 [x1] x 5 LPC x 1
GPIO	8-bit	
SMBus/I2C	I2C x 1, SMBus x 1	
Environment		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C) -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
EMC	CE/FCC Class A	
OS Support	Windows® 10 (64-bit) Linux Ubuntu 18.04.3/Kernel 5.0	Windows® 10 (64-bit) Linux Ubuntu 20.04.2/Kernel 5.8
Weight	0.44 lb. (0.20Kg)	
Note		

Board Level Products

COM Express CPU Modules

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COM Express CPU Modules/COM Express CPU Modules

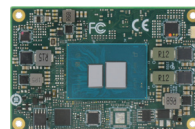


Model	COM-TGUC6 Rev.C		COM-WHUC6	COM-ICDB7
System				
Form Factor	COM Express Compact Size, Type 6			COM Express R3.0, Basic Size, Type 7
CPU	11th Generation Intel® Core™ Processors: Intel® Core™ i7-1185G7E (4C/8T, 1.8 GHz, 15W) Intel® Core™ i3-1115G4E (2C/4T, 2.20 GHz, 15W) Intel® Core™ i7-1185GRE (4C/8T, 1.8 GHz, 15W)	8th Generation Intel® Core™ Processors: Intel® Core™ i7-8665UE (4C/8T, 1.70 GHz, 15W) Intel® Core™ i5-8365UE (4C/8T, 1.60 GHz, 15W) Intel® Core™ i3-8145UE (2C/4T, 2.20 GHz, 15W) Intel® Celeron® Processor 4000 Series: Intel® Celeron® Processor 4305UE (2C/2T, 2.00 GHz, 15W)	Intel® Xeon® D-1848TER (10C/20T, 2.00 GHz, 57W) Intel® Xeon® D-1746TER (10C/20T, 2.00 GHz, 67W) Intel® Xeon® D-1735TR (8C/16T, 2.20 GHz, 59W) Intel® Xeon® D-1712TR (4C/4T, 2.00 GHz, 40W)	
Chipset	Integrated with Intel® SoC			
Memory	DDR4 3200MHz Dual channel , SODIMM x 2, up to 64GB	DDR4 2400MHz SODIMM x 2, up to 64GB (non-ECC)	DDR4 2400MHz SODIMM x 4, Dual Channel, up to 128GB	
Onboard Storage	—		eMMC, up to 64GB (Optional)	
BIOS	AMI UEFI			
Wake on LAN	Yes			
Watchdog Timer	255 Levels			
Dimension	3.74" x 3.74" (95mm x 95mm)			4.92" x 3.75" (125mm x 95mm)
Security	TPM 2.0	TPM 2.0 (Optional)		TPM 2.0
Power				
Power Requirement	+12V and +5VSB for ATX, +12V for AT			+12V and +5VSB for ATX, +12V and +5V for AT
Power Type	AT/ATX			AT/ATX(default)
Power Consumption (Typical)	Intel® Core™ i7-1185G7E, 3.22A @+12V	Intel® Core™ i7-8665UE, 2.61A @+12V		Intel® Xeon® D-1746TER, 7.75A @+12V
Display				
Graphics Controller	Intel® Iris® Xe Graphics Intel® UHD Graphics	Intel® UHD Graphics 620 Intel® UHD Graphics 610		—
Video Output	4 Simultaneous Displays: DDI x 3, up to 3840 x 2160 18/24-bit Single/Dual-Channel LVDS/eDP x 1, up to 1920 x 1080 / 3840 x 2160 VGA x 1, up to 1920 x 1080	3 Simultaneous Displays: DDI x 1, up to 3840 x 2160 18/24-bit Single/Dual-Channel LVDS/eDP x 1, up to 1920 x 1080 VGA x 1, up to 2048 x 1152		—
I/O				
Ethernet	Intel® Ethernet Controller I226, 2.5GbE x 1	Intel® I219-LM GbE x 1		Intel® I210-IT GbE x 1 10GbE x 4, support x557(default) or SFP+
Audio	High Definition Audio Interface			—
USB Port	USB 2.0 x 8, USB 3.2 Gen 2 x 4			USB 2.0 x 4, USB 3.2 Gen 1 x 4
Serial Port	2-Wire UART x 2 (Tx/Rx)			
HDD Interface	SATA 6Gb/s x 2			
Expansion	PEG 3.0 [x4] x 1 PCIe 3.0 [x1] x 5 LPC x 1	PCIe 3.0 [x1] x 4 PCIe 3.0 [x4] x 1 LPC x 1		PEG 4.0 [x16] x 1 PCIe 3.0 [x2] x 8 LPC x 1
GPIO	8-bit			
SMBus/I2C	I2C x 1, SMBus x 1			I2C x 1 (Windows® 10 Ready), SMBus x 1
Environment				
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU	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			
EMC	CE/FCC Class A			
OS Support	Windows® 10 (64-bit)	Windows® 10 (64-bit) Linux Ubuntu 18.04.2/Kernel 4.18		Windows® 10 (64-bit) Linux Ubuntu 20.04/Kernel 5.4
Weight	0.44 lb. (0.20Kg)			
Note				

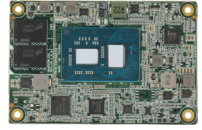
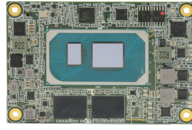
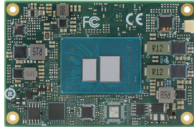
Note: All specifications are subject to change without notice.

www.aaeon.com

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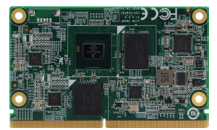
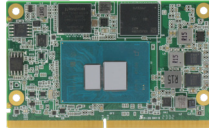
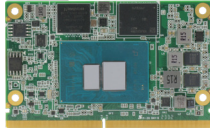
Model	NanoCOM-MTU	NanoCOM-RAP	NanoCOM-ASL
System			
Form Factor	COM Express Mini Size, Type 10		
CPU	Intel® Core™ Ultra Processors: Intel® Core™ Ultra 7 Processor 155H (16C/22T, up to 4.8 GHz, 28W) Intel® Core™ Ultra 5 Processor 125H (14C/18T, up to 4.5 GHz, 28W)	13th Generation Intel® Core™ U-series Processors: Intel® Core™ i7-1365UE (10C/12T, 1.70 GHz, 15W) Intel® Core™ i5-1335UE (10C/12T, 1.30 GHz, 15W) Intel® Core™ i3-1315UE (6C/8T, 1.20 GHz, 15W) Intel® Processor U300E (5C/6T, 1.10 GHz, 15W)	Intel Atom® x7835RE (8C, 1.30 GHz, 12W) Intel Atom® x7433RE (4C, 1.50 GHz, 9W) Intel Atom® x7213RE (2C, 2.00 GHz, 9W) Intel Atom® x7211RE (2C, 1.00 GHz, 6W)
Chipset	Integrated with Intel® SoC	Integrated with Intel® SoC	
Memory	onboard LPDDR5(X) 6400MHz, up to 32GB	Onboard LPDDR5, up to 16GB	Onboard LPDDR5x 4800MHz, 4 Channel , up to 16GB
Onboard Storage	NVMe, up to 256GB	NVMe, up to 128GB (Optional)	eMMC, up to 64GB
BIOS	AMI UEFI		
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Dimension	3.31" x 2.17" (84mm x 55mm)		
Security	fTPM / dTPM (Default)	TPM2.0	
Power			
Power Requirement	+9V-19V and +5VSB for ATX, +9-19V for AT	+9V-15V and +5VSB for ATX, +9-15V for AT	+12V and +5VSB for ATX, +12V for AT
Power Type	AT/ATX, switch by BIOS	AT/ATX	AT/ATX, switch by BIOS
Power Consumption (Typical)	Intel® Core™ Ultra 7 Processor 155H, 2.06A@+19V	Intel® Core™ i7-1365UE, LPDDR5 16GB, 2.82A@ +12V	TBD
Display			
Graphics Controller	Intel® Arc™ Graphics	Intel® UHD Graphics for 13th Gen Intel® Processors	Intel® UHD Graphics
Video Output	Dual Display: DDI x 1, up to 3840 x 2160 eDP x 1, up to 3840 x 2160 @60Hz	Dual Display: DDI x 1, up to 3840 x 2160 eDP x 1, up to 3840 x 2160 @60Hz	Dual Display: DDI x 1, up to 3840 x 2160 18/24-bit Single-Channel LVDS x 1, up to 1024 x 768
I/O			
Ethernet	Intel® Ethernet Controller I226, 2.5GbE x 1	Intel® I226-IT 2.5GbE 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 x 2 (Tx/Rx)		
HDD Interface	SATA 6Gb/s x 2		
Expansion	PCIe 4.0 [x1] x 4 MIPI CSI x 2 LPC x 1	PCIe [x1] x 4 LPC x 1	PCIe 3.0 [x1] x 4 LPC x 1
GPIO	8-bit		
SMBus/I2C	I2C x 1, from EC (default) or CPU, switch by BIOS SMBus x 1, from CPU	I2C x 1, SMBus x 1	
Environment			
Operating Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	32°F ~ 140°F (0°C ~ 60°C) WiTAS 2: -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU	-40°F ~ 185°F (-40°C ~ 85°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
EMC	CE/FCC Class A		
OS Support	Windows® 11 (64-bit) Linux Ubuntu 24.04.1/Kernel 6.8	Windows® 10 (64-bit) Linux Ubuntu 22.04.2/Kernel 5.19	Windows® 10 / 11 (64-bit) Linux Ubuntu 22.04.4/Kernel 6.5
Weight	0.15 lb. (0.07Kg)		
Note			



Model	NanoCOM-ADN	NanoCOM-TGU	NanoCOM-EHL
System			
Form Factor	COM Express Mini Size, Type 10		
CPU	Intel Atom® x7000E Series: Intel Atom® x7425E (4C, 1.50 GHz, 12W) Intel® Processor N-series: Intel® Core™ i3-N305 (8C, up to 3.8 GHz, 15W) Intel® Processor N97 (4C, 2.00 GHz, 12W) Intel® Processor N50 (2C, 1.00 GHz, 6W)	11th Generation Intel® Core™ Processors: Intel® Core™ i7-1185G7E (4C/8T, 1.80 GHz, 15W) Intel® Core™ i5-1145G7E (4C/8T, 1.50 GHz, 15W) Intel® Core™ i3-1115G4E (2C/4T, 2.20 GHz, 15W) Intel® Core™ i7-1185GRE (4C/8T, 1.80 GHz, 15W) Intel® Core™ i5-1145GRE (4C/8T, 1.80 GHz, 15W) Intel® Core™ i3-1115GRE (2C/4T, 2.20 GHz, 15W)	Intel Atom® Processor X Series: Intel Atom® x6413E (4C/4T, 1.50 GHz, 9W) Intel Atom® x6425E (4C/4T, 2.20 GHz, 12W) Intel Atom® x6425RE (4C/4T, 1.90 GHz, 12W) Intel® Celeron® Processor J & N Series: Intel® Celeron® Processor J6412 (4C/4T, 2.00 GHz, 10W) Intel® Celeron® Processor N6211 (2C/2T, 1.20 GHz, 6.5W) Intel® Pentium® Processor J Series: Intel® Pentium® Processor J6426 (4C/4T, 2.00 GHz, 10W)
Chipset	Integrated with Intel® SoC		
Memory	Onboard LPDDR5x 4000MHz, up to 16GB	Onboard LPDDR4 4267MHz, up to 16GB	Onboard LPDDR4 3733MHz, up to 16GB
Onboard Storage	eMMC, up to 64GB	NVMe, up to 256GB (Optional)	eMMC, up to 64GB (Optional)
BIOS	AMI UEFI		
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Dimension	3.31" x 2.17" (84mm x 55mm)		
Security	TPM2.0	fTPM	
Power			
Power Requirement	+12V and +5VSB for ATX, +12V for AT		
Power Type	AT/ATX, switch by BIOS	AT/ATX	
Power Consumption (Typical)	Intel® Core™ i3-N305, 2.32A @+12V	Intel® Core™ i7-1185G7E, 2.75A @+12V	Intel Atom® x6425E, 1.44A @+12V
Display			
Graphics Controller	Intel® UHD Graphics	Intel® UHD Graphics for 11th Gen Intel® Processors	Intel® UHD Graphics for 10th Gen Intel® Processors
Video Output	Dual Display: DDI x 1, up to 3840 x 2160 18/24-bit Single-Channel LVDS x 1, up to 1024 x 768	Dual Display: DP x 1, up to 3840 x 2160 eDP x 1, up to 3840 x 2160	Dual Display: DDI x 1, up to 3840 x 2160 18/24-bit Single-Channel LVDS x 1, up to 1920 x 1080 or eDP x 1, up to 3840 X 2160
I/O			
Ethernet	Intel® Ethernet Controller I226-V 2.5GbE x 1	Intel® I225-LM/IT 2.5GbE x 1	Intel® I226-IT 2.5GbE 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 x 2 (Tx/Rx)		
HDD Interface	SATA 6Gb/s x 2		
Expansion	PCIe 3.0 [x1] x 4 LPC x 1		
GPIO	8-bit		
SMBus/I2C	I2C x 1, SMBus x 1		
Environment			
Operating Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	32°F ~ 140°F (0°C ~ 60°C) WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU	32°F ~ 140°F (0°C ~ 60°C) WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
EMC	CE/FCC Class A		
OS Support	Windows® 10 / 11 (64-bit) Linux Ubuntu 22.04.4/Kernel 6.5	Windows® 10 (64-bit) Linux Ubuntu 20.04.4/Kernel 5.13.0	Windows® 10 (64-bit) Linux Ubuntu 20.04.3/Kernel 5.13.0
Weight	0.15 lb. (0.07Kg)		
Note			



Model	HPC-RPSC	HPC-ARHm
System		
Form Factor	COM HPC Client Size C	COM-HPC R1.2 size mini
CPU	14th Generation Intel® Core™ Processors: Intel® Core™ i9-14900 (24C/32T, P-core 2.00 GHz, E-core 1.50 GHz, 65W) Intel® Core™ i7-14700 (20C/28T, P-core 2.10 GHz, E-core 1.50 GHz, 65W) Intel® Core™ i5-14500 (14C/20T, P-core 2.60 GHz, E-core 1.90 GHz, 65W) 13th Generation Intel® Core™ Processors: Intel® Core™ i9-13900E (24C/32T, P-core 1.80 GHz, E-core 1.30 GHz, 65W) Intel® Core™ i9-13900 (24C/32T, P-core 2.00 GHz, E-core 1.50 GHz, 65W) Intel® Core™ i7-13700E (16C/24T, P-core 1.90 GHz, E-core 1.30 GHz, 65W) Intel® Core™ i5-13500E (14C/20T, P-core 2.40 GHz, E-core 1.50 GHz, 65W) 12th Generation Intel® Core™ Processors: Intel® Core™ i9-12900E (16C/24T, P-core 2.30 GHz, E-core 1.70 GHz, 65W) Intel® Core™ i7-12700E (12C/20T, P-core 2.10 GHz, E-core 1.60 GHz, 65W) Intel® Core™ i7-12700 (12C/20T, P-core 2.10 GHz, E-core 1.60 GHz, 65W)	Intel® Core™ Ultra Processors: Intel® Core™ Ultra 7 Processor 255H (16C/16T, 2.0GHz, 28W) Intel® Core™ Ultra 5 Processor 225H (14C/14T, 1.7GHz, 28W) Intel® Core™ Ultra 7 Processor 155H (16C/22T, 1.4 GHz, 28W) Intel® Core™ Ultra 5 Processor 125H (14C/18T, 1.2 GHz, 28W)
Chipset	Intel® R680E	SoC
Memory	DDR5 5600 MHz, Dual Channel SODIMM x 2, up to 64GB(ECC)	Onboard LPDDR5x, up to 64GB
Onboard Storage	—	Onboard NVMe, up to 256GB
BIOS	AMI UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Dimension	6.30" x 4.72" (160mm x 120mm)	3.74" x 2.76" (95mm x 70mm)
Security	TPM 2.0	dTPM / fTPM
Power		
Power Requirement	+12V and +5VSB for ATX, +12V for AT	+12V for ATX / AT
Power Type	AT/ATX	
Power Consumption (Typical)	Intel® Core™ i9-13900E, 7.13A @+12V	Intel® Core™ Ultra 7 265H , 4.13 @+12V
Display		
Graphics Controller	Intel® UHD Graphics 770	Intel® Arc™ 140T GPU
Video Output	4 Simultaneous Displays: eDP x 1, up to 3840 x 2160 @60Hz DDI x 3, up to 3840 x 2160 @144Hz	DDI x 2 eDP x 1
I/O		
Ethernet	Intel® Ethernet Controller I226-LM 2.5GbE x 2	Intel® Ethernet Controller I226 2.5GbE x 2
Audio	High Definition Audio Interface	
USB Port	USB 2.0 x 8 USB 3.2 Type-C x 2 (20Gbps x 2) USB 3.2 Type-A x 4 (10Gbps)	USB3.2 10Gbps x 4 USB2.0 x 8
Serial Port	4-Wire UART x 2 (Tx/Rx)	4-Wire UART x 2 (Tx/Rx/RTS/CTS)
HDD Interface	SATA 6Gb/s x 2	Option: SATA 6Gb/s x 2, via PCIe lane 6 and lane 7 *BIOS and BOM change required to enable SATA
Expansion	PEG 5.0 [x16] x 1 PCIe 4.0 [x4] x 3 PCIe 3.0 [x1] x 8 eSPI x 1 LPC x 1 M.2 2280 M-Key x 1	PCIe 4.0[x8] PCIe 3.0[x1] x 4 PCIe 3.0[x4] (lane 6 and lane 7 colay with SATA)
GPIO	12-bit	
SMBus/I2C	I2C x 2, SMBus x 1	
Environment		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
EMC	CE/FCC Class A	
OS Support	Windows® 10 (64-bit) Linux Ubuntu 20.04.1/Kernel 5.15	Windows 11 Ubuntu 24.04/Kernel 6.11
Weight	0.66 lb. (0.30kg)	0.17lb (0.08kg)
Note		



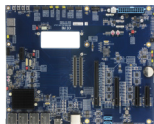
Model	uCOM-ASL	uCOM-ADN	uCOM-IMX8P
System	SMARC Module		SMARC 2.1 Compliant
Form Factor			
CPU	Intel Atom® x7835RE Processor (8C, up to 3.6 GHz, 12W) Intel Atom® x7433RE Processor (4C, up to 3.4 GHz, 9W) Intel Atom® x7213RE Processor (2C, up to 3.4 GHz, 9W) Intel Atom® x7211RE Processor (2C, up to 3.2 GHz, 6W)	Intel® Core™ i3-N305 Processor (8C/8T, 1.8 GHz, 15W) Intel Atom® x7425E Processor (4C, up to 1.5 GHz, 12W) Intel® Processor N97 (4C, up to 2.0 GHz, 12W)	NXP i.MX 8M Plus – Quad-Core Arm® Cortex®-A53 Processor, 1.6GHz (Default w/NPU, optional w/o NPU)
Chipset	Integrated with Intel® SoC		—
Memory	Onboard LPDDR5(x) 4800MHz, up to 16GB	Onboard LPDDR5x 4800MHz, up to 8GB	Onboard LPDDR4 up to 4GB
Storage	eMMC, up to 64GB		eMMC 5.1, 16/32GB (Optional: 64/128 GB)
BIOS	AMI UEFI		—
MTBF (Hours)	2,614,335		3,780,780
Wake On LAN	Yes		—
Watchdog Timer	255 Levels		Yes
Real Time Clock	RTC x 1		
Boot Select	Module eMMC Flash, SATA, USB	Module eMMC Flash	Carrier SD Card Module eMMC Flash
Security	TPM 2.0		TPM 2.0 (optional)
Display			
Graphics Controller	Intel® UHD Graphics		2D: Vivante GC520L 3D: Vivante GC7000UL
Video Output	Display: DP++ x 2, up to 3840 x 2160 eDP x 1, up to 3840 x 2160		HDMI 2.0a x 1 LVDS (2 CH, 4 Lane) x 1 MIPI-DSI 4 Lane x 1 (By request)
I/O Interfaces			
Ethernet	Intel® Ethernet Controller I226-V/IT 2.5GbE x 2		Gigabit Ethernet x 2 (TSN x 1)
USB	USB 2.0 x 6, USB 3.2 x 2		USB 3.0 Gen 1 + USB 2.0 x 2 (Host) USB 2.0 x 2 (Host) USB 2.0 x 1 (OTG)
Serial Port	2-Wire UART x 2 (Tx/Rx) 4-Wire UART x 2 (Tx/Rx/RTS/CTS)		UART x 4 (2-wire x 2, one for debug port, 4-wire x 2)
Audio	High Definition Audio Interface		I2S x 1
PCIe	PCIe Gen 3 [x1] x 3 (Max PCIe [x2] x 1)		PCIe Gen 3.0 x 1
CANBus	—		CAN 2.0 FD x 2 (1.8V)
MIPI-CSI	MIPI CSI x 2		MIPI CSI 2 Lane x 1 MIPI CSI 4 Lane x 1
GPIO	7-bit (up to 14-bit by customization)		14 bits (one for PWM)
Other Interfaces	SATA 6Gb/s x 1 GP. I2C x 1 SMBus x 1		SPI x 2 (SPI x 1, QSPI x 1) I2C x 5 (Power Management x 1, Camera x 2, LCD Display x 1, General Purpose x 1)
Power			
Power Requirement	+5V for ATX / AT		DC 3.3 V ~ 5.25 V
Power Consumption	Intel® Core™ x7835RE, 5.03A @+12V	Intel® Core™ i3-N305, 4.23A @+5V	3.45 W (Full loading)
Environmental And Mechanical			
Dimensions	3.23" x 1.97" (82mm x 50mm)		
Weight	0.14 lb. (0.06kg)		0.03 lb. (0.013kg)
Operating Temperature	-4°F ~ 158°F (-20°C ~ 70°C) -40°F ~ 185°F (-40°C ~ 85°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)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
Certification	CE/FCC Class A		
OS Support	Windows® 10 (64-bit) / Windows 11(Enterprise) Linux Ubuntu 22.04.2/Kernel 5.19	Windows® 10 (64-bit) / Windows 11(enterprise) Linux Ubuntu 22.04.2/Kernel 5.19	Debian 12 (default) Win 10 IoT (by request) Yocto (by request)
Support Protocol	—		Modbus, MQTT, OPCUA (by request)
Note			



Model	uCOM-IMX93	uCOM-M700/M510	uCOM-3588
System Form Factor	SMARC 2.1 Compliant		
CPU	NXP i.MX 93 ~ Dual-Core Arm® Cortex®-A55 + Arm Cortex®-M33 Processor, 0.5 TOPs Cortex-A55: 1.7 GHz, Cortex-M33: 250 MHz (Default w/NPU, optional w/o NPU)	MediaTek Genio 700 (MT8390): Cortex-A78 x 2 + Cortex-A55 x 6, 4 TOPs, Cortex-A78 2.2GHz, Cortex-A55 2.0GHz MediaTek Genio 510 (MT8370): Cortex-A78 x 2 + Cortex-A55 x 4, 3.2 TOPs Cortex-A78 2.0GHz, Cortex-A55 2.0GHz	Rockchip RK3588 Arm Quad Cortex-A76 2.4 GHz and Quad Cortex-A55 1.8 GHz Up to 6.0 TOPs.
Chipset	—		
Memory	Onboard LPDDR4, up to 2GB	Onboard LPDDR4, up to 8 GB	
Storage	eMMC 5.1, 16GB (Optional: 32GB/64GB/128GB) SDIO 3.0 x 1 (for SD Card)		eMMC 5.1, up to 128 GB SDIO 3.0 x 1 (for SD Card)
BIOS	—		
MTBF (Hours)	3,896,445	3,092,590	TBD
Wake On LAN	—		
Watchdog Timer	Yes		
Real Time Clock	RTC x 1		
Boot Select	Carrier SD Card Module eMMC Flash Universal Update Utility (UUU) Serial Download Mode	Module eMMC Flash	
Security	TPM 2.0 (optional)		—
Display			
Graphics Controller	NXP integrated 2D Graphic Acceleration	ARM Mali-G57 MC2/3, OpenGL ES 1.1/2.0/3.2, Vulkan 1.0/1.1 (700: MC3, 510: MC2)	Arm Mali-G610 MP4 GPU, high-performance OpenGL ES 1.1, 2.0 and 3.2, OpenCL 2.2, Vulkan 1.2
Video Output	HDMI x 1, 1920 x 1080, 1280 x 720 (optional w/ I2S) LVDS 4-Lane x 1 (18/24bit) MIPI-DSI 4-Lane x 1 (by request)	HDMI 2.0 x 1 DP 1.4 x 1 (4k2k @ 60Hz) eDP 1.2 2-Lane x 1 MIPI-DSI 4-Lane x 1 (by request) *Support up to dual display (4K x 1 + 2K x 1)	HDMI x 1 MIPI-DSI 4-Lane x 1 eDP 4-Lane x 1
I/O Interfaces			
Ethernet	Gigabit Ethernet x 2 (TSN x 1)	Gigabit Ethernet x 1 (support TSN)	Gigabit Ethernet x 2
USB	USB 2.0 x 4 (Host) USB 2.0 x 1 (OTG)	USB 3.0+2.0 x1 USB 2.0 x 5	USB 3.0+2.0 x 2 (Host) USB 2.0 x 2 (Host x 1, OTG x 1)
Serial Port	UART x 4 (2-wire x 2, SER1 for A55 debug port, 4-wire x 2)	UART x 2 (4-wire, 1.8V) UART x 2 (2-wire, 1.8V, one for debug port)	UART x 4 (2-wire)
Audio	I2S x 1 (optional w/HDMI) x 1	I2S x 1	
PCIe	—	PCIe 2.0 x 1	PCIe 3.0 x 4
CANBus	CAN 2.0 FD x 2 (1.8V)	—	CAN x 2
MIPI-CSI	MIPI CSI 2 Lane x 1	MIPI CSI 4 Lane x 1 + 2 Lane x 1 (by request)	MIPI-CSI x 2
GPIO	8 bits (one for PWM)	12 bits	13 bits
Other Interfaces	SPI x 2 (SPI1 colay with TPM) I2C x 4	SPI x 1 I2C x 5	SPI x 1, I2C x 3
Power			
Power Requirement	DC 3.3V ~ 5.25V	DC 3~5.25 V, AT (Option: ATX for Yocto)	DC 3~5.25 V, AT
Power Consumption	13.8W (Full Loading)	4.25W	TBD
Environmental And Mechanical			
Dimensions	3.23" x 1.97" (82mm x 50mm)		
Weight	0.03 lb (0.016Kg)	0.0374 lb (0.017kg)	TBD
Operating Temperature	-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) (Option: 0°C ~ 60°C)	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		
Certification	CE/FCC Class A		
OS Support	Yocto 5.0 (kernel 6.6.23) Ubuntu 22.04 (kernel 6.6.23-LTS-next, by request) Windows 11 IOT (by request)	Yocto 4.0 (Kernel 5.15) Ubuntu, Debian 13, Android 14 (by request)	Android
Support Protocol	By request		
Note			



Model	AQ7-ADN
System	
Form Factor	Qseven Module
CPU	Intel Atom® X Series/N-series/Core™ i3-N305 CPU Intel® Core™ i3-N305 (8C, 1.8 GHz, 15W) Intel Atom® x7425E (4C, 1.5 GHz, 12W) Intel® Processor N200 (4C, 1.0 GHz, 6W) Intel® Processor N97 (4C, 2.0 GHz, 12W) Intel® Processor N50 (2C, 1.0 GHz, 6W)
Chipset	Integrated with Intel® SoC
Memory	LPDDR5x up to 4800MT/s, up to 8GB
Onboard Storage	eMMC up to 64GB
BIOS	AMI UEFI
Wake on LAN	Yes
Watchdog Timer	255 Levels
Dimension	2.76" x 2.76" (70mm x 70mm)
Security	TPM 2.0 (Optional)
Power	
Power Requirement	+5V +/- 50mV, +3Vrtc
Power Type	AT (default) / ATX, switch by BIOS
Power Consumption (Typical)	Intel® Core™ i3-N305, LPDDR5x 8GB x1, 4.5A@ +5V
Display	
Graphics Controller	Intel® UHD Graphics
Video Output	Dual Display: DP 1.4 x 1, up to 3840 x 2160 144Hz eDP x 1, up to 3840 x 2160 60Hz or LVDS x 1, Dual Channel 18/24 bit, up to 1920 x 1080 (Change by BOM)
I/O	
Ethernet	Realtek RTL8111H-CG 1GbE x 1
Audio	High Definition Audio Interface
USB Port	USB 2.0 x 6, USB 3.2 Gen 2 x 2
Serial Port	4-Wire UART x 1 (Tx/Rx/CSR/RTS)
HDD Interface	SATA 6Gb/s x 1
Expansion	PCIe [x1] x 4 4-lane MIPI-CSI x 1
GPIO	8-bit (Change by BOM)
SMBus/I2C	I2C x 1, SMBus x 1
Environment	
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
EMC	CE/FCC Class A
OS Support	Windows® 10 (64-bit) Linux Ubuntu 22.04.x/Kernel 5.19.0
Weight	0.26 lb. (0.12Kg)
Note	



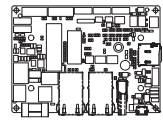
Model	ECB-920A-A11	ECB-927A	ECB-980A
System			
Form Factor	ATX Form Factor	COM Express Basic Size Type 7 Carrier Board in ATX Form Factor	COM HPC Client Size A/B/C
COM Express Connector	x 2 (Row A,B & Row C,D)	x 2 (Row AB and Row CD, Type 7 pin-out)	x 2 (J1 and J2)
I/O Chipset	—		
Front Panel Control	10-pin Header (5x2)		
Ethernet	10/100/1000/2500 Base-TX, RJ45 x 1 (From CPU Module)	10GbE Base-T x 4 (Intel® Ethernet Connection X557-AT4) GbE x 1 (from Module)	2.5 GbE x 1 10 GbE x 1
Expansion Interface	PCIe [x4] x 2 PCIe [x16] x 1	PCIe [x4] x 2 PCIe [x8] x 1 PCIe [x16] x 1 (PEG port)	PCIe [x4] x 2 (Group 0, Lane 0 ~ 7) PCIe [x16] x 2 (one PCIe [x16] only supports PCIe [x4])
Power Supply Type	ATX	Standard 24-pin ATX + 4-pin 12V	Standard 24-pin ATX + 8-pin 12V
CMOS Battery	RTC Battery Socket x 1	CR2032 Holder x 1	RTC battery socket x 1
BIOS	—		Yes
Board Size	12" x 9.6" (304mm x 244mm)	12" x 9.6" (305mm x 244mm)	12" x 9.6" (305mm x 244mm)
Gross Weight	1.32 lb. (0.6Kg)	1.54 lb. (0.7Kg)	
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)		
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)		-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
Display			
LCD	LVDS: 40-pin Dual-Channel LVDS Connector (20x2) eDP: 30-pin Board Wire Connector	N/A. via PCIe Graphic card	eDP x 1
Display interface	Display Port x 3 (Dual x 1, Single x 1) D-SUB15 Connector x 1	N/A. via PCIe Graphic card	Display Port x 2 HDMI x 1
I/O			
Storage	SATA III x 4	SATA x 2	SATA x 2 M.2 2280 M-Key x 2 (PCIe Gen 4 [x4] for NVMe)
Serial Port	COM Port x 2 (2-Wire UART Tx/Rx)	2-wire UART x 2 (TX/RX)	4-wire UART x 2
USB	USB 2.0 x 4 (Type-A), USB 3.2/2.0 x 4 (Type-A)	USB 3.2 x 4	USB 3.2 x 2 (20Gbps, up to Gen 2 x 2 support) USB 3.2 x 1 (10Gbps, up to Gen 2 x 1 support) USB 3.2 x 2 (5Gbps, up to Gen 1 x 1 support) USB 2.0 x 8
Audio	Audio Jack, supports Line-in, Line-out, Microphone	N/A	Audio Jack, supports Line-in, Line-out, Microphone
GPIO	8-bit Programmable	8-bit	12 bit
Switch/Button	Power Button x 1 / Reset Button x 1		
Debug LED	80 Port	7-seg LED x2 80 Port Post code indicator	7-Segment Display LED x 2 (80 Port Post Code Indicator)
I2C	x 1		
Expansion Interface	LPC, SMBus, eSPI, CAN Bus, 4 pin fan connector, Micro SD Card Slot x 1	SMBus, LPC/eSPI slot	
Note			

Board Level Products

Computing On Module: Carrier Boards

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Computing On Module: Carrier Boards

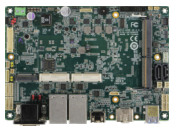


Model	ECB-970G	ECB-960T-A15	ECB-960P
System			
Form Factor	3.5" Form Factor	Mini-ITX form Factor	2.5" PICO-ITX
COM Express Connector	MXM 230pin		
I/O Chipset		—	
Front Panel Control	10-pin Header (2x5P) Including: power button and LED, reset button, STATUS LED		—
Ethernet	10/100/1000M, RJ-45 x 1 (From CPU module)	10/100/1000/2500 Base-TX RJ45 x 2	Gigabit Ethernet x 2, RJ-45
Expansion Interface	—	PCIe lane[x4] x 1	—
Power Supply Type	+12V DC-in	AT / ATX Depends on module	
CMOS Battery		RTC battery socket x 1	RTC x 1, with 3V CR2032H Lithium battery
BIOS	SPI socket x1		—
Board Size	5.75" x 4" (146mm x 101.7mm)	6.69" x 6.69" (170mm x 170mm)	3.94" x 2.84"(100mm x 72mm)
Gross Weight	1.32 lb (0.6 kg)	1.54 lb. (0.7Kg)	TBD
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	-40°F ~ 185°F (-40°C ~ 85°C)	
Storage Temperature		-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity		0% ~ 90% relative humidity, non-condensing	0% ~ 95% relative humidity, non-condensing
Display			
LCD	Dual Channel LVDS x 1 or eDP x 2	LCD connectors x 2 for LVDS, eDP, DSI(4 lane), support by module features	—
Display interface	Display Port x 1	DDI2: HDMI or DP++ (Optional, by BOM) DDI1: DP++	HDMI x 1
I/O			
Storage	SATA x 2 Micro SD Card x 1	SATA 6Gb/s x 1 (Optional, by BOM)	Optional by module
Serial Port	4-wire UART	RS-232 x 2 (Tx/Rx) + RS-232 x 2 (Tx/Rx/RTS/CTS) or 4-wire UART x 2 + 2-wire UART x 2 (Optional, by BOM)	RS232 x 2, RS485 x 1
USB	USB2.0(Type-A) x 2 USB3.2(Type-A) x 2 USB2.0(Wafer) x 1 or Micro USB x 1	Type A connector x 6 (USB 2.0 x 4 , USB 3.2/2.0 x 2) OTG x 1 (Client Mode Only) co-lay USB 2.0 x 1	USB 3.0 Type-A x 2 USB 2.0 OTG x 1
Audio	Audio Jack, supports Line-in, Line-out, Microphone	High Definition Audio (pin header) x 1 or I2S x 1 (Optional, by BOM)	—
GPIO	8-bit (LPC colay GPIO by switch)	7 bit (up to 14 bit ,optional by BOM)	GPIO x 14
Switch/Button	Power Button x 1 / Reset Button x 1	Power Button x 1/Reset Button x 1/Sleep Button x 1	—
Debug LED	7-Segment Display LED x 2 (80 Port Post code indicator)	7-Segment Display LED x 1 (80 Port Post Code Indicator) for x86	—
I2C		x 1	
Expansion Interface	SMBus, WDT M.2 2230 E-Key x 1 (PCIe 3.0 [x1], USB 2.0) M.2 2280 B-Key (PCIe 3.0 [x2]) PCIe [x1] Slot (PCIe Lane 4)	microSD card x 1 (Optional, by BOM) MIPI CSI x 2 (4 lane + 2 lane) CANBUS 2.0 A/B x 2 (Optional, by BOM) 3 pin Fan connector x 1 4 pin Fan connector x 1 SMBus x 1 SPI x 1 (Optional, by BOM)	M.2 2230 E-key x 1 Full Size Mini Card x 1 Micro SD card slot x 1 Micro SIM card slot x 1 Debug Port (Micro USB) x 1 (UART) MIPI-CSI 2L x 1, MIPI-CSI 4L x 1 CANBUS x 2
Note			

Note: All specifications are subject to change without notice.

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Model	EPIC-ASL9	EPIC-RPS9
System Form Factor	4" EPIC Board	
CPU	Intel Atom [®] Processors x7000RE Series Processors: x7213RE (2C, 2.0 GHz, 9W); x7433RE (4C, 1.5 GHz, 9W); x7835RE (8C, 1.3 GHz, 12W)	13th Generation Intel [®] Core™ Processor (up to 35W/65W) 12th Generation Intel [®] Core™ Processor (up to 35W/65W)
Chipset	Integrated with Intel [®] SoC	Intel 600 Series Chipset (R680E/Q670E/H610E)
Memory Type	DDR4 3200MHz Single-Channel SODIMM x 1, up to 16GB	DDR5 4800 Dual Channel SODIMM x 2, up to 64GB (ECC support only for R680E)
BIOS	UEFI	
Wake On Lan	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	4.53" x 6.50" (115mm x 165mm)	
OS Support	Windows [®] 10 (64-bit); Ubuntu 22.04.2 LTS/Kernel 5.19	Windows 10 (64bit); Ubuntu 22.04.2/kernel 5.19.0-32-generic #33
Power		
Power Requirement	+9-24V or +12V	+12V (Note: To achieve stable performance, using the power supply unit rated 22A@12V DC output, to meet the potential maximum peak requirement is recommended)
Power Supply Type	AT/ATX	
Connector	2-Pin Phoenix Connector	6-Pin Connector
Power Consumption	Intel [®] Core™ i3-N305, DDR4 16GB, 1.87A+24V (Typical) Intel [®] Core™ i3-N305, DDR4 16GB, 2.66A +24V (Max)	Intel [®] Core™ i9-13900E, DDR5 32GB x2, 7.73A @+12V (Typical) Intel [®] Core™ i9-13900E, DDR5 32GB x2, 21.39A @+12V (Max)
Display		
Controller	Intel [®] UHD Graphics	Intel [®] UHD Graphics 770 (i5 SKU and above); Intel [®] UHD Graphics 730 (i3 SKU); Intel [®] UHD Graphics 710 (Intel [®] Celeron [®] G6900TE SKU)
LVDS/eDP	24/48-bit Dual-Channel LVDS x 1, up to 1920 x 1080 eDP 1.4 x 1, up to 1920 x 1080 (Optional)	eDP 1.4 x 1, up to 3840 x 2160
Display Interface	HDMI 1.4 x 1, up to 3840 x 2160 @30Hz DP 1.2 x 1, up to 3840 x 2160 @144Hz or VGA x 1, up to 1920 x 1080	HDMI 2.0 x 1, up to 3840 x 2160 @60Hz VGA x 1, up to 1920 x 1080
Multiple Display	Up to 3 Simultaneous Displays	
Audio		
CODEC	Realtek ALC897	
Audio Interface	Line-In/Line-Out/MIC	
Speaker	5W Speaker (Optional)	—
External I/O		
Ethernet	RJ-45 for Intel [®] I226-V 2.5GbE x 2 (Standard: 2 Ports, Advanced: 4 Ports)	Intel [®] I226, 2.5GbE RJ-45 x 3, Intel [®] I219, GbE RJ-45 x 1 (R680E & Q670E sku) Intel [®] I226, 2.5GbE RJ-45 x 1 + Intel [®] I219, GbE RJ-45 x 1 (H610E sku only)
USB	USB 3.2 Gen 2 x 2	
Serial Port	COM 1, COM 2 (RS-232/422/485, support 5V/12V/RI)	—
Video	HDMI 1.4 x 1; DP 1.2 x 1	HDMI 2.0 x 1 up to 3840 x 2160 @60Hz
Internal I/O		
USB	USB 2.0 x 4	USB 2.0 x 2
Serial Port	COM 3, COM 4, COM 5, COM 6 (RS-232, support RI only)	COM 1 (RS-232/422/485, supports RI only) COM 2 (RS-232/422/485, supports 12V/5V/RI)
Video	LVDS / eDP x 1 (Default : LVDS); Inverter x 1 (5V/12V@2A)	eDP 1.4 x 1, up to 3840 x 2160; VGA x 1, up to 1920 x 1080
SATA	SATA 6.0Gbps x 1 (Default) (up to SATA x 2 shared with mSATA, BOM Optional)	SATA 6Gb/s x 2 +5V SATA Power Connector x 2
Audio	Audio Header x 1	
DIO/GPIO	GPIO 16-bits	GPIO 8-bits
SMBus/I2C	SMBus / I2C (Default : SMBus)	SMBus /I2C (change by BOM, i2C only for Windows 10)
Touch	—	
Fan	4 Pin Smart Fan	
SIM	Nano SIM x 1	
Front Panel	Power Button, Reset Button, Power LED, SATA LED, Buzzer	
Others	TCC x 1 (R680E sku only)	
Expansion		
Mini PCI-E/mSATA	Full Sized mPCIe x 1, Full Sized mSATA x 1	—
M.2	M.2 2242 B-Key x 1 (PCIe 2.0 [x1] + USB 2.0)	M.2 2280 M-Key x 1 (PCIe 4.0 [x4] x 1, R680E & Q670E support) M.2 3052 B-Key x 1 (PCIe 3.0 [x1] + USB 3.0) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0)
Others	—	
Environment & Certification		
Operating Temperature	WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C)	32°F ~ 140°F (0°C ~ 60°C) (Note: To achieve the best performance, keeping the EPIC-RPS9 operating with 0.5m/sec airflow when DDR5 SODIMM1 installed on bottom side is recommended)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	364,565	353,666
EMC	CE/FCC Class A	



Model	EPIC-RPS7	EPIC-ADN9
System Form Factor	4" EPIC Board	
CPU	14th Generation Intel® Core™ Processor (up to 35W/65W) 13th Generation Intel® Core™ Processor (up to 35W/65W) 12th Generation Intel® Core™ Processor (up to 35W/65W)	Intel Atom® x7000E Series/Intel® Processor N Series/Intel® Core™ i3-N305 Processors: Intel® Core™ i3-N305 (8C/8T, up to 3.8 GHz, TDP 15W) Intel Atom® x7425E (4C/4T, up to 3.4 GHz, TDP 12W) Intel® Processor N97 (4C/4T, up to 3.6 GHz, TDP 12W) Intel® Processor N50 (2C/2T, up to 3.4 GHz, TDP 6W)
Chipset	Intel® H610E Chipset	Integrated with Intel® SoC
Memory Type	DDR5 4800/5200, Dual-Channel SODIMM x 2, up to 64GB (DDR Speed dependent on CPU SKU)	DDR4 3200MHz Single-Channel SODIMM x 1, up to 16GB
BIOS	UEFI	
Wake On Lan	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	4.53" x 6.50" (115mm x 165mm)	
OS Support	Windows 10 (64bit); Ubuntu 22.04.2/kernel 5.19.0	Windows® 10 (64-bit); Ubuntu 22.04.2 LTS/Kernel 5.19
Power		
Power Requirement	DC 19Vin ~ 24Vin DC 12Vin (Note: For stable performance, it is recommended to use a power supply unit rated at 22A @12V DC output to accommodate potential maximum peak power requirements.)	+9-24V or +12V
Power Supply Type	AT/ATX	
Connector	8-Pin Connector	2-Pin Phoenix Connector
Power Consumption	Intel® Core™ i9-13900E, DDR5 32GB x2, 7.73A @+12V (Typical) Intel® Core™ i9-13900E, DDR5 32GB x2, 21.39A @+12V (Max)	Intel® Core™ i3-N305, DDR4 16GB, 1.87A+24V (Typical) Intel® Core™ i3-N305, DDR4 16GB, 2.66A +24V (Max)
Display		
Controller	Intel® UHD Graphics 770 (i5 SKU and above) Intel® UHD Graphics 730 (i3 SKU) Intel® UHD Graphics 710 (Intel® Celeron® G6900TE SKU)	Intel® UHD Graphics
LVDS/eDP	Dual Channel 18/24bit LVDS x 1	24/48-bit Dual-Channel LVDS x 1, up to 1920 x 1080 eDP 1.4 x 1, up to 1920 x 1080 (Optional)
Display Interface	DP 1.2 x 1, up to 3840 x 2160 @60Hz VGA x 1, up to 1920 x 1080	HDMI 1.4 x 1, up to 3840 x 2160 @30Hz DP 1.2 x 1, up to 3840 x 2160 @144Hz or VGA x 1, up to 1920 x 1080
Multiple Display	Up to 3 Simultaneous Displays	
Audio		
CODEC	Realtek ALC897	
Audio Interface	Line-In/Line-Out/Mic	
Speaker	5W Speaker (Optional)	
External I/O		
Ethernet	Intel® Ethernet Controller I226, 2.5GbE RJ-45 x 1 Intel® Ethernet Connection I219, GbE RJ-45 x 1	RJ-45 for Intel® I226-V 2.5GbE x 2 (Standard: 2 Ports, Advanced: 4 Ports)
USB	USB 3.2 Gen 2 (Type-A) x 2; USB3.2 Gen 1 (Type-A) x 2	USB 3.2 Gen 2 x 2
Serial Port	COM 1, COM 2 (RS-232/422/485, support 5V/12V/RI)	
Video	DP 1.2 x 1	HDMI 1.4 x 1; DP 1.2 x 1
Internal I/O		
USB	USB2.0 x 4 (Pin Header)	USB 2.0 x 4
Serial Port	RS-232/422/285 x 2; RS-232 x 2 (Pin Header)	COM 3, COM 4, COM 5, COM 6 (RS-232, support RI only)
Video	VGA x 1, LVDS x 1	LVDS / eDP x 1 (Default : LVDS); Inverter x 1 (5V/12V@2A)
SATA	SATA 6Gb/s x 2; +5V SATA Power Connector x 2	SATA 6.0Gbps x 1 (Default); (up to SATA x 2 shared with mSATA, BOM Optional)
Audio	Audio Header x 1	
DIO/GPIO	GPIO 16-bits	
SMBus/I2C	SMBus/I2C (change by BOM, I2C only for Windows 10)	SMBus / I2C (Default : SMBus)
Touch		
Fan	4 Pin Smart Fan	
SIM	Nano SIM x 1	
Front Panel	Power Button, Reset Button, Power LED, SATA LED, Buzzer	
Others		
Expansion		
Mini PCI-E/mSATA	Full-size mSATA/Mini Card (Default: Mini PCIe, SATA configuration subject to BOM change)	Full Sized mPCIe x 1; Full Sized mSATA x 1
M.2	M.2 2280 M-Key x 1 (PCIe 3.0 [x4]) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0)	M.2 2242 B-Key x 1 (PCIe 2.0 [x1] + USB 2.0)
Others		
Environment & Certification		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) (Note: To achieve the best performance, keeping the EPIC-RPS7 operating with 0.5m/sec airflow when DDR5 SODIMM1 installed on bottom side is recommended)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	353,666	364,565
EMC	CE/FCC Class A	

Note: All specifications are subject to change without notice.

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Board Level Products

EPIC Boards



Model	EPIC-TGH7	EPIC-TGH7-PUC
System Form Factor	4" EPIC Board	EPIC System
CPU	Onboard 11th Generation Intel® Core™/Xeon® Processors: Intel® Xeon® W-11865MRE (8C/16T, 2.60 GHz, 45W) Intel® Core™ i7-11850HE (8C/16T, 2.60 GHz, 45W) Intel® Core™ i5-11500HE (8C/12T, 2.60 GHz, 45W) Intel® Core™ i3-11100HE (4C/8T, 2.40 GHz, 45W) Intel® Celeron® 6600HE (2C/2T, 2.60 GHz, 35W)	11th Generation Intel® Xeon/Core™ Processor : Intel® Core™ i7-11850HE (8C/16T, 2.60GHz, 45W) Intel® Xeon® W-11865MRE (8C/16T, 2.60GHz, 45W)
Chipset	Intel® 500 Series Mobile Chipset (RM590E/HM570E)	Intel® 500 Series Mobile Chipsets (RM590E/HM570E)
Memory Type	DDR4 3200, Dual Channel SODIMM x 2, Max 64GB (ECC supported by Xeon only with DDR4 2666)	DDR4 3200, Dual-Channel SODIMM x 2, Max 64GB (ECC supported by Intel® Xeon® only)
BIOS		UEFI
Wake On Lan		Yes
Watchdog Timer		255 Levels
Security		TPM 2.0 (Optional)
RTC Battery		Lithium Battery 3V/240mAh
Dimension	4.53" x 6.50" (115mm x 165mm)	10.2" x 6.3" x 1.9" (260mm x 160mm x 50mm)
OS Support	Windows 10 (64bit) Ubuntu 20.04.3/Kernel 5.11.0-27-generic x86_64 or above	Windows 10 (64bit); Ubuntu20.04.5 / Kernel 5.15.0-46-generic x86_64
Power		
Power Requirement	+9V to +24V (Optional: +12V)	+9V to +24V
Power Supply Type		AT/ATX
Connector	ATX 4-Pin connector + Phoenix 2-Pin Connector	DC Jack Connector
Power Consumption	Xeon® W-11865MRE, DDR4 32GB x 2, 8.32A@12V, 99.84W (TYPICAL) Xeon® W-11865MRE, DDR4 32GB x 2, 12.52A@12V, 150.24W (MAX)	Intel® Xeon® W-11865MRE, DDR4 32GB x 2, 8.32A@12V, 99.84W (Typical) Intel® Xeon® W-11865MRE, DDR4 32GB x 2, 12.52A@12V, 150.24W (Max)
Display		
Controller	Intel® UHD Graphics for 11th Gen Intel® Processors	
LVDS/eDP	LVDS x 1, Dual Channel 24/48bit, up to 1920 x 1080 eDP 1.4 x 1, up to 1920 x 1089	—
Display Interface	VGA x 1, up to 1920 x 1080; DP++ 1.2 x 2, up to 3840 x 2160 @60Hz; HDMI 2.0 x 1, up to 3840 x 2160 @60Hz	VGA x 1, up to 1920 x 1080; DP++ 1.2 x 2, up to 3840 x 2160 @60Hz; HDMI 2.0 x 1, up to 3840 x 2160 @60Hz
Multiple Display	Up to 4 Simultaneous Displays	
Audio		
CODEC	Realtek ALC269	—
Audio Interface	Line-In/Line-Out/Mic	—
Speaker	2W Amp.	—
External I/O		
Ethernet	Intel® I225/I226, 2.5GbE RJ-45 x 1 Intel® I219, 1GbE RJ-45 x 1	Intel® I226, 2.5GbE RJ-45 x 2; Intel® I225, 2.5GbE RJ-45 x 1; Intel® I219, GbE RJ-45 x 1 (Wake on LAN support for Intel® I219 x 1 + Intel® I225 x 1)
USB	USB 3.2 Gen 2 x 4	USB 3.2 Gen 2 x 4; USB 2.0 x 2
Serial Port	—	COM 1 – COM 2 (RS-232/422/485, RI as default, 5V/12V selected by BOM change)
Video	VGA x 1 DP 1.2 x 2 HDMI 2.0 x 1	VGA x 1, up to 1920 x 1080; DP++ 1.2a x 2, up to 3840 x 2160 @60Hz; HDMI 2.0b x 1, up to 3840 x 2160 @60Hz
Internal I/O		
USB	USB 2.0 x 4	—
Serial Port	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RI) COM 3, COM 4, COM 5, COM 6 (RS-232 only, supports RI only)	—
Video	LVDS or eDP x 1 (Default: LVDS); LVDS Inverter 5V/12V @2A; VGA x 1	—
SATA	SATA 6Gb/s x 2 +5V SATA Power Connector x 1 (Total up to 5V@2A) (Up to 5V@1A, shared with 2 x 2.5"SSD as limitation with 170X000592)	SATA III x 2; +5V SATA Power Connector x 1 (Total up to 5V @2A, up to 5V @1A, shared with 2.5"SSD x 2 as limitation with 170X000592)
Audio	Audio Header x 1	—
DIO/GPIO		GPIO-16 bits
SMBus/I2C	SMBus/I2C (Default : SMBus)	—
Touch	4/5/8-wire Touch Controller x 1	—
Fan		4 Pin Smart Fan
SIM		Nano SIM x 1
Front Panel	Power Button, Reset Button, Power LED, SATA LED, Buzzer	Power Button, Power LED
Others		
Expansion		
Mini PCI-E/mSATA	Half Size mSATA/mPCIe x 1 (Default: mPCIe, selected by BIOS)	
M.2	M.2 2280 M-Key x 1 (PCIe 4.0 [x4] x 1) M.2 3052 B-Key x 1 (PCIe 3.0 [x2]) + USB 3.2 + USB 2.0)	M.2 2280 M-Key x 1 (PCIe 4.0 [x4] x 1) M.2 3052 B-Key x 1 (PCIe 3.0 [x2] + USB 3.2 + USB 2.0)
Others	PCIe 4.0 [x8] Slot x 1 (Supply maximum 25W to the PCIe peripheral) FPC Connector x 1 (PCIe3.0 [x4] x 1)	—
Environment & Certification		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) (Note: To achieve the best performance, installing SODIMM heatsink for EPIC-TGH7 DIMM1 at the bottom side is recommended.)	32°F ~ 122°F (0°C ~ 50°C) with 0.5m/sec air flow
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	274,169	250,817
EMC	CE/FCC Class A	CE/FCC Class A
Note		



Model	EPIC-BT07
System	
Form Factor	4" EPIC Board
CPU	Onboard Intel Atom®/Celeron® Processors: Intel® Celeron® Processor J1900 (4C/4T, 2.00GHz, 10W) Intel® Celeron® Processor N2930 (4C/4T, 1.83GHz, 7.5W) Intel® Celeron® Processor N2807 (2C/2T, 1.58GHz, 4.3W) Intel Atom® Processor E3845 (4C/4T, 1.91 GHz, 10W)
Chipset	Integrated with Intel® SoC
Memory Type	DDR3L 1333, Single Channel SODIMM x 1 , up to 8GB
BIOS	UEFI
Wake On Lan	Yes
Watchdog Timer	255 Levels
Security	TPM 2.0 (Optional)
RTC Battery	Battery Lithium Battery 3V/240mAh
Dimension	4.53" x 6.50" (115mm x 165mm)
OS Support	Windows 7/10 (64bit) Ubuntu 21.04 / kernel 5.11.0-13-generic #14
Power	
Power Requirement	+9V to +24V (Optional : +12V)
Power Supply Type	AT/ATX
Connector	ATX 4-Pin connector or Phoenix 2-Pin Connector
Power Consumption	Intel® Celeron® Processor J1900, DDR3L 8GB, 0.99A@12V, 11.88W
Display	
Controller	Intel® HD Graphics for Intel Atom® Processor Z3700 Series
LVDS/eDP	LVDS x 1, Dual Channel 24/48bit, up to 1920 x 1080
Display Interface	VGA x 1, up to 1920 x 1080 HDMI x 1, up to 1920 x 1080
Multiple Display	Up to 2 Simultaneous Displays
Audio	
CODEC	Realtek ALC897
Audio Interface	Line-In / Line-Out / Mic (Audio function not available for WITAS SKU)
Speaker	2W Amp.(Audio function not available for WITAS SKU)
External I/O	
Ethernet	Intel® I210, 1GbE RJ-45 x 2
USB	USB 3.2 Gen 1 x 1 USB 2.0 x 1
Serial Port	COM 2, COM 3 (RS-232/422/485, supports 5V/12V/RI)
Video	HDMI x 1
Internal I/O	
USB	USB 2.0 x 4
Serial Port	COM 1, COM 4, COM 5, COM 6 (RS-232, supports RI only)
Video	LVDS x 1 LVDS Inverter 5V/12V@2A VGA x 1
SATA	SATA 3Gb/s x 1 (Default) (up to SATA x 2 shared with mSATA, BOM Optional)
Audio	Audio Header x 1 (Optional, Audio function not available for WITAS SKU)
DIO/GPIO	GPIO 16-bits
SMBus/I2C	SMBus/I2C (Default: SMBus)
Touch	4/5/8-wire Touch Controller x 1 (Optional)
Fan	DC Fan x 1
SIM	SIM x 1
Front Panel	Power Button, Reset Button, Power LED, SATA LED, Buzzer
Others	Micro-SD x 1 (Optional, only E3800 series) PCI-104 x 1 (Optional, only E3800 series) LPT (SPP/EPP/ECP) x 1 (Optional, co-lay with GPIO, selected by BIOS)
Expansion	
Mini PCI-E/mSATA	Full Size mPCIe x 1 Full Size mSATA x 1
M.2	—
Others	—
Environment & Certification	
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) 32°F ~ 185°F (-40°C ~ 85°C) W2 Support (E3845 SKU only)
Storage Temperature	32°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	358,806
EMC	CE/FCC Class A
Note	

Note: All specifications are subject to change without notice.

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Board Level Products

SubCompact Boards



Model	GENE-MTH6	GENE-ARH6
System Form Factor	3.5" SubCompact Board	
CPU	Intel® Core™ Ultra Processors: Intel® Core™ Ultra 7 Processor 155H (16C/22T, up to 4.8 GHz, 28W) Intel® Core™ Ultra 5 Processor 125H (14C/18T, up to 4.5 GHz, 28W) Intel® Core™ Ultra 7 Processor 155U (12C/14T, up to 4.8 GHz, 15W) Intel® Core™ Ultra 5 Processor 125U (12C/14T, up to 4.3 GHz, 15W)	Intel® Core™ Ultra Processors (Series 2): Intel® Core™ Ultra 7 Processor 255H (16C/16T, up to 5.1 GHz, 28W) Intel® Core™ Ultra 5 Processor 225H (14C/14T, up to 4.9 GHz, 28W) Intel® Core™ Ultra 7 Processor 255U (12C/14T, up to 5.2 GHz, 15W) Intel® Core™ Ultra 5 Processor 225U (12C/14T, up to 4.8 GHz, 15W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR5 5600, Dual Channel SODIMM x 2 Max. 96GB, Non-ECC	DDR5 6400, Dual Channel SODIMM x 2 Max. 96GB, Non-ECC Note: Max capacity up to 2x 48GB DDR5 SODIMM up to 5600 MT/s
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM2.0	
RTC Battery	Lithium Battery 3V/240mAH	
Dimensions	5.75" x 4" (146mm x 101.7mm), 0.88 lb. (0.4Kg)	
OS Support	Windows® 10 (64-bit), Windows® 11 (64-bit) Linux Ubuntu 22.04.3 (kernel 6.2.0-26-generic)	Windows® 10 (64-bit), Windows® 11 (64-bit) Linux Ubuntu 24.04.2 (Kernel 6.11.0-25-generic)
Power	+9-36V (Optional: +12V), support ERP	
Power Requirement	AT/ATX, support 3pin ATX	
Power Supply Type	Phoenix 2-pin Connector (Colay 4 pin connector)	
Connector	Phoenix 2-pin Connector (Colay 4 pin connector)	
Power Consumption	Intel® Core™ Ultra 7, DDR5 32GB x 2, 5.78A @+12V (Typical) Intel® Core™ Ultra 7, DDR5 32GB x 1, 8.42A @+12V (Max)	Intel® Core™ Ultra 7, DDR5 48GB x 2, 5.44A @+12V (Typical) Intel® Core™ Ultra 7, DDR5 48GB x 1, 9.56A @+12V (Max)
Display	Intel® Arc™ Graphics, Intel® Graphics	
Controller	LVDS x 1, Dual-Channel 18/24-bit, up to 1920 x 1080 eDP 1.4b HBR3 x 1, up to 3840 x 2160 @60Hz	
LVDS/eDP	HDMI 2.1 x 1, up to 8K x 4K@60Hz or 4K x 2K@120Hz DP 2.0 x 1, up to 7680 x 4320@60Hz 30bpp (support DP++)	
Display Interface	Up to 4 Simultaneous Displays	
Multiple Display		
Audio	Realtek ALC897	
Codec	Line-in/Line-out/MIC (Audio function not available for WITAS SKU)	
Audio Interface		
Speaker		
External I/O		
Ethernet	Intel® Ethernet Connection I219 1GbE, RJ-45 x 1 Intel® Ethernet Controller I226 2.5GbE, RJ-45 x 2, support PEX (Support Vpro only with Intel® Core™ Ultra 7 Processor 165U/165H, Intel® Core™ Ultra 5 Processor 135U/135H)	Intel® Ethernet Connection I219 1GbE, RJ-45 x 1 Intel® Ethernet Controller I226 2.5GbE, RJ-45 x 2, support PEX (Intel vPro® support with Intel® Core™ Ultra 7 Processor 265H)
USB	USB 3.2 Gen 2 x 2	
Serial Port		
Video	HDMI 2.1 x 1, DP 2.0++ x 1	
Internal I/O		
USB	USB 2.0 x 4	
Serial Port	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RJ); COM 3, COM 4 (RS-232)	
Video	LVDS x 1, Inverter x 1 (12V/2A), eDP x 1	
SATA	SATA 6.0 Gb/s x 1, +5V SATA Power Connector x 1	
Audio	Audio Header x 1 (Optional, Audio function not available for WITAS SKU)	
DIO/GPIO	GPIO 8-bit	
SMBus/I2C	SMBus/I2C x 1 (Default: SMBus)	
Touch		
Fan	4 wire Smart Fan x 1	
Sim	Nano SIM x 1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others		
Expansion		
Mini PCIe/mSATA		
M.2	M.2 2280 M-Key x 1 (PCIe 4.0 [x4]/SATA) Default: PCIe 4.0 [x4] (selected by BOM) M.2 3052 B-Key x 1 (PCIe 3.0 [x1] + USB 3.2/PCIe 3.0 [x2]) Default: PCIe 3.0 [x1] (selected by BOM) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0), supports Wi-Fi 6E CNVi (RAID 0, RAID 1 support on PCIe storage)	
Others	FPC2 x 1 (PCIe Gen4 [x4] x 2), Support RAID 0, RAID 1	
Environment & Certification		
Operating Temp.	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	753,493	
EMC	CE/FCC Class A	



Model	GENE-ASL5	GENE-ADN5
System Form Factor	3.5" SubCompact Board	
CPU	Intel Atom® Processors x7000RE Series for the Edge: Intel Atom™ x7213RE (2C, 2.0 GHz, 9W) Intel Atom™ x7433RE (4C, 1.5 GHz, 9W) Intel Atom™ x7835RE (8C, 1.3 GHz, 12W)	Intel® Processor N-series: Intel® Core™ i3-N305 (8C/8T, 3.8 GHz, 15W) Intel® Processor N97 (4C/4T, 3.6 GHz, 12W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR5 4800, Single Channel SODIMM x 1, Max.16GB, Non-ECC	
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0	
RTC Battery	Lithium Battery 3V/240mAH	
Dimensions	5.75" x 4" (146mm x 101.7mm), 1.1 lb. (0.5Kg)	
OS Support	Windows 10 (64bit), Windows 11 (64bit), Ubuntu 22.04 / Kernel 5.15.0-25-generic	
Power		
Power Requirement	+9V~36V (Optional: +12V), support ERP	
Power Supply Type	AT/ATX, support 3pin ATX	
Connector	Phoenix 2-pin Connector (Colay 4 pin connector)	
Power Consumption	Intel Atom™ x7835RE, DDR5 16GB x 1, 3.23A @+12V (Typical) Intel Atom™ x7835RE, DDR5 16GB x 1, 4.76A @+12V (Max)	Intel Atom™ Core™ i3-N305, DDR5 16GB x 1, 4.05A @+12V (Typical) Intel Atom™ Core™ i3-N305, DDR5 16GB x 1, 5.05A @+12V (Max)
Display	Intel® UHD Graphics	
Controller	LVDS x 1, Dual-Channel 18/24-bit, up to 1920 x 1080 eDP HBR3 x 1, up to 1920 x 1200 (Optional)	
Display Interface	HDMI 1.4 x 1, up to 3840 x 2160 @30Hz VGA x 1, up to 1920 x 1080	
Multiple Display	Up to 3 Simultaneous Displays	
Audio	Realtek ALC897	
Codec	Line-In / Line-Out / Mic (Audio function not available for WiTAS SKU)	
Audio Interface		
Speaker	—	
External I/O		
Ethernet	Intel® Ethernet Controller I226, 2.5GbE x 2	
USB	USB 3.2 Gen 2 x 2	
Serial Port	—	
Video	HDMI 1.4 x 1, VGA x 1	
Internal I/O		
USB	USB 2.0 x 4	
Serial Port	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RI) COM 3, COM 4 (RS-232)	
Video	LVDS x 1 eDP x 1 Inverter x 1 (12V/2A)	
SATA	SATA 6.0 Gb/s x 1 +5V SATA Power Connector x 1	
Audio	Audio Header x 1 (Audio function not available for WiTAS SKU)	
DIO/GPIO	GPIO 8-bit	
SMBus/I2C	SMBus / I2C x 1 (Default: SMBus)	
Touch	4/5/8 wire Touch Controller x 1	
Fan	4pins Smart Fan x 1	
Sim	Nano SIM x 1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
Expansion		
Mini PCIe/mSATA	Full-size mSATA / mPCIe x 1 (Default: mPCIe, select by BIOS)	
M.2	M.2 3052 B-Key x 1 (PCIe 3.0 [x1] + USB 3.2 Gen 2/PCIe 3.0 [x2] + USB 2.0, default: PCIe [x1] + USB 3.2 Gen 2, selected by BIOS) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0, support CNVi)	
Others	—	
Environment & Certification		
Operating Temp.	WiTAS 2: -40°F ~ 185°F (-40°C ~ 85°C)	32°F ~ 140°F (0°C ~ 60°C) or -4°F ~ 158°F (-20°C ~ 70°C)
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	1,284,701	
EMC	CE/FCC Class A	
Note		

Board Level Products

SubCompact Boards



Model	GENE-ADN6	GENESYSM-ADN6
System Form Factor	3.5" SubCompact Board	3.5" SubCompact Board System
CPU	Intel Atom™ x7000E Series, Intel® Processor N Series, Intel® Core™ i3-N305 Processors: Intel® Core™ i3-N305 (8C/8T, up to 3.8 GHz, 15W) Intel Atom™ x7425E (4C/4T, up to 3.4 GHz, 12W) Intel® Processor N97 (4C/4T, up to 3.6 GHz, 12W) Intel® Processor N50 (2C/2T, up to 3.4 GHz, 6W)	Intel® Processor N Series, Intel® Core™ i3-N305 Processors: Intel® Core™ i3-N305 (8C/8T, up to 3.8 GHz, 15W) Intel® Processor N97 (4C/4T, up to 3.6 GHz, 12W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR5 4800, Single Channel SODIMM x 1, Max.16GB, Non-ECC	
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAH	
Dimensions	5.75" x 4" (146mm x 101.7mm), 0.94 lbs (0.43 kg)	7.00" x 5.28" x 1.69" (178mm x 134.1mm x 43mm)
OS Support	Windows 10 (64bit) Ubuntu 22.04 / Kernel 5.15.0-25-generic	
Power		
Power Requirement	+9V~36V (Optional: +12V)	+9~36V
Power Supply Type	AT/ATX	ATX
Connector	Phoenix 2-pin Connector	DC Jack Connector
Power Consumption	Intel® Core™ i3-N305, 16GB x 1, 3.80A@ +12V (TYPICAL) Intel® Core™ i3-N305, 16GB x 1, 5.48A@ +12V (MAX)	Intel® Core™ i3-N305, DDR5 16GB x 1, 3.4A @+12V(Typical) Intel® Core™ i3-N305, DDR5 16GB x 1, 5.24A @+12V(Max)
Display		
Controller	Intel® UHD Graphics	
LVDS/eDP	LVDS x 1, Dual Channel 18/24bit, up to 1920 x1080	—
Display Interface	HDMI 1.4 x 1, up to 3840 x 2160 @30Hz VGA x 1, up to 1920 x1080	
Multiple Display	Up to 3 Simultaneous Displays	Up to 2 Simultaneous Displays
Audio		
Codec	Realtek ALC897	
Audio Interface	Line-In / Line-Out / Mic (Audio function not available for WITAS SKU)	Line-In/Line-Out/MIC
Speaker	—	
External I/O		
Ethernet	Intel® i226 2.5G, RJ-45 x 3	
USB	USB3.2 Gen 2 x 2	USB3.2 Gen 2 x 2 ports USB2.0 x 4
Serial Port	—	COM1, COM2 (RS232/422/485, supports 5V/12V/RI) COM3, COM4 (RS-232 x 2, optional)
Video	HDMI 1.4 x 1, VGA x 1	
Internal I/O		
USB	USB2.0 x 4	—
Serial Port	COM1, COM2 (RS232/422/485, supports 5V/12V/RI) COM3, COM4 (RS232)	—
Video	LVDS x 1, Inverter x 1 (12V/2A)	—
SATA	SATA 6.0 Gb/s x 1 +5V SATA Power Connector x 1	
Audio	Audio Header x 1 (Optional, Audio function not available for WITAS SKU)	Audio Header x 1
DIO/GPIO	GPIO 8-bit	
SMBus/I2C	SMBus / I2C x 1 (Default: SMBus)	SMBus/I2C x1 (Default: SMBus)
Touch	—	
Fan	4pins Smart Fan x 1	—
Sim	Nano SIM x 1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
Expansion		
Mini PCIe/mSATA	Full-size mSATA / mPCIe x 1 (Default: mSATA, select by BIOS)	
M.2	M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB2.0) M.2 3052 B-Key x 1 (USB3.2 Gen2 + USB2.0)	
Others	—	
Environment & Certification		
Operating Temp.	-4°F ~ 158°F (-20°C ~ 70°C) WITAS2: -40°F ~ 185°F (-40°C ~ 85°C)	14°F ~ 140°F (-10°C ~ 60°C) 0.5m/s air flow
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	337,963	
EMC	CE/FCC Class A	
Note		



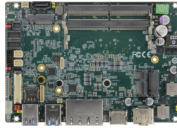
Model	GENE-ASL6	GENE-TWL6
System Form Factor	3.5" SubCompact Board	
CPU	Intel Atom® Processors x7000RE Series Processors: Intel Atom® x7213RE (2C, 2.0 GHz, 9W) Intel Atom® x7433RE (4C, 1.5 GHz, 9W) Intel Atom® x7835RE (8C, 1.3 GHz, 12W)	Intel® Processor N250 (4C/4T, up to 3.8 GHz, 6W) Intel® Core™ 3 Processor N355 (8C/8T, up to 3.90GHz, 15W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR5 4800, Single Channel SODIMM x 1, Max.16GB, Non-ECC	
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAH	
Dimensions	5.75" x 4" (146mm x 101.7mm), 0.94 lbs (0.43 kg)	
OS Support	Windows 10 (64bit) Ubuntu 22.04 / Kernel 5.15.0-25-generic	
Power		
Power Requirement	+12V (Optional: +9V~36V)	+9V~36V (Optional: +12V), Support ERP
Power Supply Type	AT/ATX	
Connector	Phoenix 2-pin Connector	
Power Consumption	Intel® Atom x7835RE, DDR5 16GB x1, 3.20A@ +12V (TYPICAL) Intel® Atom x7835RE, DDR5 16GB x1, 4.80A@ +12V (MAX)	Intel® Core™ N355, DDR5 16GB x1, 4.15A@ +12V (TYPICAL) Intel® Core™ N355, DDR5 16GB x1, 5.06A@ +12V (MAX)
Display		
Controller	Intel® UHD Graphics	
LVDS/eDP	LVDS x 1, Dual Channel 18/24bit, up to 1920 x1080	
Display Interface	HDMI 1.4 x 1, up to 3840 x2160 @30Hz VGA x 1, up to 1920 x1080	
Multiple Display	Up to 3 Simultaneous Displays	
Audio		
Codec	Realtek ALC897	
Audio Interface	Line-In / Line-Out / Mic (Audio function not available for WiTAS SKU)	
Speaker		
External I/O		
Ethernet	Intel® I226 2.5G, RJ-45 x 3	
USB	USB3.2 Gen 2 x 2	
Serial Port		
Video	HDMI 1.4 x 1, VGA x 1	
Internal I/O		
USB	USB 2.0 x 4	
Serial Port	COM1 , COM2 (RS232/422/485, supports 5V/12V/RI) COM3, COM4 (RS232)	
Video	LVDS x 1, Inverter x 1 (12V/2A)	
SATA	SATA 6.0 Gb/s x 1 +5V SATA Power Connector x 1	
Audio	Audio Header x 1 (Optional, Audio function not available for WiTAS SKU)	
DIO/GPIO	GPIO 8-bit	
SMBus/I2C	SMBus / I2C x 1 (Default: SMBus)	
Touch		
Fan	4pins Smart Fan x 1	
Sim	Nano SIM x 1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others		
Expansion		
Mini PCIe/mSATA	Full-size mSATA / mPCIe x 1 (Default: mSATA, select by BIOS)	
M.2	M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB2.0) M.2 3052 B-Key x 1 (USB3.2 Gen2 + USB2.0)	
Others		
Environment & Certification		
Operating Temp.	WiTAS 2: -40°F ~ 185°F (-40°C ~ 85°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	333,008	337,963
EMC	CE/FCC Class A	
Note		

Board Level Products

SubCompact Boards



Model	GENE-RAP6	GENESYSM-RAP6
System	3.5" SubCompact Board System	
Form Factor	3.5" SubCompact Board	
CPU	13th Generation Intel® Core™/U-series Processors: Intel® Core™ i7-1370PE (6PC+8EC/20T, 1.90 GHz, 28W) Intel® Core™ i7-1370PRE (6PC+8EC/20T, 1.90 GHz, 28W) Intel® Core™ i5-1340PE (4PC+8EC/16T, 1.80 GHz, 28W) Intel® Core™ i5-1335UE (2PC+8EC/12T, 1.30 GHz, 15W) Intel® Core™ i3-1320PE (4PC+4EC/12T, 1.70 GHz, 28W) Intel® Processor U300E (1PC+4EC/6T, 1.10 GHz, 15W)	13th Generation Intel® Core™/U-series Processors: Intel® Core™ i7-1370PE (6PC+8EC/20T, 1.90 GHz, 28W) Intel® Core™ i5-1340PE (4PC+8EC/16T, 1.80 GHz, 28W) Intel® Core™ i3-1320PE (4PC+4EC/12T, 1.70 GHz, 28W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR5 4800, Dual Channel SODIMM x 2, Max. 64GB, Non-ECC	
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAh	
Dimensions	5.75" x 4" (146mm x 101.7mm), 0.94 lbs (0.43 kg)	7.00" x 5.28" x 1.69" (178mm x 134.1mm x 43mm)
OS Support	Windows 10/11 (64bit) Ubuntu 22.04.2/5.19.0-32-generic	
Power		
Power Requirement	+9V~36V (Optional: +12V)	+9-36V
Power Supply Type	AT/ATX	ATX
Connector	Phoenix 2-pin Connector	DC Jack Connector
Power Consumption	Intel® Core™ i7-1370PE, DDR5 32GB x 2, 5.33A@ +12V (TYPICAL) Intel® Core™ i7-1370PE, DDR5 32GB x 2, 8.55A@ +12V (MAX)	
Display		
Controller	Intel® Iris® Xe Graphics Intel® UHD Graphics	
LVDS/eDP	LVDS x 1, Dual Channel 18/24bit, up to 1920 x 1080 eDP 1.4 x 1, up to 3840 x 2160 (Optional)	—
Display Interface	HDMI 2.1 x 1, up to 8K x 4K@60Hz or 4K x 2K@120Hz DP 1.4 x 1, up to 7680 x 4320@60Hz 30bpps (support DP++)	HDMI 2.1 x 1, up to 8K x 4K@60Hz or 4K x 2K@120Hz DP 1.4 x 1, up to 7680 x 4320@60Hz 30bpps (support DP++) Type-C x 1 (USB 3.2 Gen 2, DP 1.4, PD 5V/3A)
Multiple Display	Up to 4 Simultaneous Displays	Up to 3 Simultaneous Displays
Audio		
Codec	Realtek ALC897	
Audio Interface	Line-In/Line-Out/Mic (Audio function not available for WITAS SKU)	Line-in/Line-out/MIC
Speaker	—	
External I/O		
Ethernet	Intel® i219 1GbE, RJ-45 x 1 Intel® i226 2.5GbE, RJ-45 x 1	
USB	USB 3.2 Gen 2 x 3 USB Type-C x 1 (USB 3.2 Gen 2, DP 1.4, PD 5V/3A)	USB 3.2 Gen 2 x 3 USB Type-C x 1 (USB 3.2 Gen 2, DP 1.4, PD 5V/3A) USB2.0 x 2
Serial Port	—	COM1, COM2 (RS232/422/485, supports 5V/12V/RI)
Video	HDMI 2.1 x 1, DP 1.4 x 1	HDMI 2.1 x 1, DP 1.4 x 1
Internal I/O		
USB	USB 2.0 x 4	—
Serial Port	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RI) COM 3, COM 4 (RS-232/422/485)	—
Video	LVDS x 1 eDP x 1 Inverter x 1 (12V/2A)	—
SATA	SATA 6.0 Gb/s x 1 +5V SATA Power Connector x 1	
Audio	Audio Header x 1 (Optional, Audio function not available for WITAS SKU)	Audio Header x 1
DIO/GPIO	GPIO 8-bit	
SMBus/I2C	SMBus/I2C x 1 (Default: SMBus)	SMBus/I2C x 1 (Default: SMBus)
Touch	—	
Fan	4pins Smart Fan x 1	4pins Smart Fan x 1
Sim	Nano SIM x 1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
Expansion	—	
Mini PCIe/mSATA		
M.2	M.2 2280 M-Key x 1 (PCIe 4.0 [x4] x 1) M.2 3052/3042/2242 B-Key x 1 (PCIe 3.0 [x2]/SATA + USB3.2), Default: SATA (selected by BOM) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB2.0) M.2 2230 E-Key x 1 (PCIe 4.0 [x4] x1), Only support Graphic or NVME	M.2 2280 M-Key x 1 (PCIe 4.0 [x4] x 1) M.2 3052/3042/2242 B-Key x 1 (PCIe 3.0 [x2]/SATA + USB3.2), Default: SATA(selected by BOM) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB2.0)
Others	—	
Environment & Certification		
Operating Temp.	32°F ~ 140°F (0°C ~ 60°C) WITAS2: -40°F ~ 185°F (-40°C ~ 85°C)	32°F ~ 122°F (0°C ~ 50°C) 0.5 m/s air flow
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	338,172	
EMC	CE/FCC Class A	
Note		



Model	GENE-ADP6	GENESYSM-ADP6
System Form Factor	3.5" SubCompact Board	3.5" SubCompact Board System
CPU	12th Generation Intel® Core™/Celeron® Processors: Intel® Core™ i7-1270PE (4PC+8EC/16T, 1.80 GHz, 28W) Intel® Core™ i7-1265UE (2PC+8EC/12T, 1.70 GHz, 15W) Intel® Core™ i5-1250PE (4PC+8EC/16T, 1.70 GHz, 28W) Intel® Core™ i3-1220PE (4PC+4EC/12T, 1.50 GHz, 28W) Intel® Celeron® Processor 7305E (1PC+4EC/5T, 1.00 GHz, 15W)	Intel® 12th Generation Core™/Celeron CPU Intel® Core™ i7-1270PE (4PC+8EC/16T, 1.80 GHz, 28W) Intel® Core™ i5-1250PE (4PC+8EC/16T, 1.70 GHz, 28W) Intel® Core™ i3-1220PE (4PC+4EC/12T, 1.50 GHz, 28W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR5 4800, Dual Channel SODIMM x 2, Max.64GB, Non-ECC	DDR5 4800 MHz, Dual Channel SODIMM x 2, up to 64GB
BIOS		UEFI
Wake on LAN		Yes
Watchdog Timer		255 Levels
Security	TPM 2.0 (Optional)	TPM2.0 (NPCT750AABYX)
RTC Battery		Lithium Battery 3V/240mAh
Dimensions	5.75" x 4" (146mm x 101.7mm), 0.94 lbs (0.43 kg)	7.00" x 5.28" x 1.69" (178mm x 134.1mm x 43mm)
OS Support	Windows 10/11 (64bit) Ubuntu 22.04/Kernel 5.15.0~25-generic	Windows 10/11 (64bit) Linux Ubuntu 20.04/Kernel 5.15
Power		
Power Requirement	+9V~36V (Optional: +12V)	+9~36V
Power Supply Type	AT/ATX	ATX
Connector	Phoenix 2-pin Connector	DC Jack Connector
Power Consumption	Intel® Core™ i7-1270PE, DDR5 32GB x 2, 5.72A @+12V (Typical) Intel® Core™ i7-1270PE, DDR5 32GB x 2, 7.95A @+12V (Max)	Intel® Core™ i7-1270 PE, DDR5 32GB x 2, 5.72A@ +12V(TYPICAL) Intel® Core™ i7-1270 PE, DDR5 32GB x 2, 7.95A@ +12V(MAX)
Display		
Controller		Intel® Iris® Xe Graphics Intel® UHD Graphics
LVDS/eDP	LVDS x 1, Dual Channel 18/24bit, up to 1920 x 1080 eDP 1.4 x 1, up to 3840 x 2160 (Optional)	—
Display Interface	HDMI 2.1 x 1, up to 8K x 4K@60Hz or 4K x 2K@120Hz DP 1.4 x 1, up to 7680 x 4320@60Hz 30bpp (support DP++)	HDMI 2.1 x 1, up to 8K x 4K@60Hz or 4K2K 120Hz DP 1.4 x 1, up to 7680 x 4320@60Hz 30bpp (support DP++) Type-C x 1 (USB 3.2 Gen 2, DP 1.4, PD 5V/3A)
Multiple Display	Up to 4 Simultaneous Displays	Up to 3 Simultaneous Displays
Audio		
Codec		Realtek ALC897
Audio Interface	Line-In / Line-Out / Mic (Audio function not available for WITAS SKU)	Line-in/Line-out/MIC
Speaker		—
External I/O		
Ethernet	Intel® i219 1GbE, RJ-45 x 1 Intel® i226 2.5GbE, RJ-45 x 1	Intel® i219, 10/100/1000Base Intel® i226, 10/100/2500Base
USB	USB 3.2 Gen 2 x 3 USB Type-C x 1 (USB 3.2 Gen 2, DP 1.4, PD 5V/3A)	USB3.2 Gen 2 x 3 USB Type-C x 1 (USB 3.2 Gen 2, DP 1.4, PD 5V/3A) USB2.0 x 2
Serial Port	—	COM1, COM2 (RS232/422/485, supports 5V/12V/RI)
Video	HDMI 2.1 x 1, DP 1.4 x 1	HDMI 2.1 x 1 DP 1.4 x 1
Internal I/O		
USB	USB 2.0 x 4	—
Serial Port	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RI) COM 3, COM 4 (RS-232/422/485)	—
Video	LVDS x 1 eDP x 1 Inverter x 1 (12V/2A)	—
SATA		SATA 6.0 Gb/s x 1 +5V SATA Power Connector x 1
Audio	Audio Header x 1 (Optional, Audio function not available for WITAS SKU)	Audio Header x 1
DIO/GPIO		GPIO 8-bit
SMBus/I2C	SMBus/I2C x 1 (Default: SMBus)	SMBus/I2C x 1 (Default: SMBus)
Touch		—
Fan		4pins Smart Fan x 1
Sim		Nano SIM x 1
Front Panel		HDD LED, PWR LED, Power Button, Buzzer, Reset
Others		—
Expansion		—
Mini PCIe/mSATA		—
M.2	M.2 2280 M-Key x 1 (PCIe 4.0 [x4] x 1) M.2 3052/3042/2242 B-Key x 1 (PCIe 3.0 [x2]/SATA + USB 3.2), Default: SATA (selected by BOM) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0)	M.2 2280 M-Key x 1 (PCIe 4.0 [x4] x 1) M.2 3052/3042/2242 B-Key x 1 (PCIe 3.0 [x2]/SATA + USB 3.2), Default: SATA (selected by BOM) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0)
Others	FPC x 1 (PCIe 4.0 [x4] x 1), Only support Graphic or NVME	—
Environment & Certification		
Operating Temp.	32°F ~ 140°F (0°C ~ 60°C) WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU	32°F ~ 122°F (0°C ~ 50°C) 0.5 m/s air flow
Storage Temp.		-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity		0% ~ 90% relative humidity, non-condensing
MTBF (Hours)		344,735
EMC		CE/FCC Class A
Note		

Note: All specifications are subject to change without notice.

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Board Level Products

SubCompact Boards



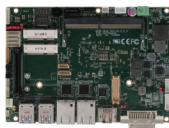
Model	GENE-TGU6	GENESYSM-TGU6
System	3.5" SubCompact Board System	
Form Factor	3.5" SubCompact Board System	
CPU	11th Generation Intel® Core™/Celeron® Processors: Intel® Core™ i7-1185G7E (4C/8T, 1.80 GHz, 15W) Intel® Core™ i5-1145G7E (4C/8T, 1.5 GHz, 15W) Intel® Core™ i3-1115G4E (2C/4T, 2.20 GHz, 15W) Intel® Celeron® 6305E (2C/2T, 1.80 GHz, 15W) Intel® Core™ i7-1185G7E (4C/8T, 1.80 GHz, 15W)	Intel® 11th Generation Core™/Celeron CPU i7-1185G7E (4C/8T, 1.80GHz, up to 4.40GHz, TDP-up 28W) i5-1145G7E (4C/8T, 1.50GHz, up to 4.10GHz, TDP-up 28W) i3-1115G4E (2C/4T, 2.20GHz, up to 3.90GHz, TDP-up 28W) Celeron® 6305E (2C/2T, 1.80GHz, TDP 15W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR4 3200, Dual Channel SODIMM x 2, Max.64GB, Non-ECC	DDR4 up to 3200MHz, Dual Channel SODIMM x 2, up to 64GB, Support IBEC (select SKUs)
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAh	
Dimensions	5.75" x 4" (146mm x 101.7mm)	7.00" x 5.28" x 1.97" (178.0mm x 134.1mm x 50.0mm)
OS Support	Windows 10 (64bit) Linux Ubuntu 20.04.2/Kernel 5.8	Windows 10 (64bit) Linux Ubuntu 20.04.3(OT)/Kernel 5.13
Power		
Power Requirement	+9V~36V (Optional: +12V)	+9-36V (Optional: +12V)
Power Supply Type	AT/ATX	ATX
Connector	Phoenix 2-pin Connector	DC Jack Connector
Power Consumption	Intel® Core™ i7-1185G7E, DDR4 3200MHz 32GB x 2, 4.96A @+12V (Typical) Intel® Core™ i7-1185G7E, DDR4 3200MHz 32GB x 2, 7.32A @+12V (Max)	Intel® i7-1185G7E, DDR4 3200MHz 32GB x 2, 4.96A@ +12V(TYPICAL) Intel® i7-1185G7E, DDR4 3200MHz 32GB x 2, 7.32A@ +12V(MAX)
Display		
Controller	Intel® Iris® Xe Graphics Intel® UHD Graphics	
LVDS/eDP	LVDS x 1, Dual Channel 18/24bit, up to 1920 x 1080 eDP 1.4 x 1, up to 3840 x 2160 (Optional)	—
Display Interface	HDMI 2.0 x 1, up to 4K x 2K@60Hz DP 1.4 x 2, up to 4K x 2K@60Hz DP 1.4 x 1 (via USB Type-C), up to 4K x 2K@60Hz	HDMI 2.0b x 1 DP1.4 x 2 Type-C DP1.4 x 1
Multiple Display	Up to 4 Simultaneous Displays	
Audio		
Codec	Realtek ALC897	Realtek ALC897/892
Audio Interface	Line-In / Line-Out / Mic (Audio function not available for WITAS SKU)	Line-in/Line-out/MIC (Optional)
Speaker		
External I/O		
Ethernet	Intel® i219 1GbE, RJ-45 x1 Intel® i225/i226 2.5GbE, RJ-45 x1	Intel® i219, 10/100/1000Base, RJ-45 x 1 Intel® i225/i226, 10/100/2500Base, RJ-45 x 1
USB	USB 3.2 Gen 2 x 4 USB Type-C x 1 (USB 3.2 Gen 2, DP 1.4, PD 5V/3A)	USB3.2 Gen 2 x 4 USB3.2 Gen 2 Type C x 1 (PD 5V/3A) USB2.0 x 2
Serial Port	—	COM1 (RS232/422/485) COM2 (RS232/422/485, supports 5V/12V/R)
Video	HDMI 2.0 x 1, DP 1.4 x 2, Type-C DP 1.4 x 1	HDMI 2.0b x 1, DP1.4 x 2, Type-C DP1.4 x 1
Internal I/O		
USB	USB 2.0 x 2	—
Serial Port	COM 1, COM 3, COM 4 (RS-232/422/485) COM 2 (RS-232/422/485, supports 5V/12V/R)	—
Video	LVDS/eDP x 1 (Default: LVDS) Inverter x 1 (12V/2A)	—
SATA	SATA 6.0 Gb/s x 1 +5V SATA Power Connector x 1	
Audio	Audio Header x 1 (Optional, Audio function not available for WITAS SKU)	Audio Header x 1
DIO/GPIO	GPIO 8-bit	—
SMBus/I2C	SMBus/I2C x 1 (Default: SMBus)	
Touch	4/5/8-wire Touch Controller x 1 (Optional)	—
Fan	4pins Smart Fan x 1	
Sim	Nano SIM x 1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others		
Expansion		
Mini PCIe/mSATA	Full-size mSATA / mPCIe x 1 (Default: mSATA, select by BIOS)	Full-Sized mSATA/mPCIe x 1 (default: mSATA, select with BIOS)
M.2	M.2 2280 M-Key x 1 (PCIe 4.0 [x4] x 1) M.2 2230 E-Key x 1 (PCIe 3.0 [x1], USB 2.0)	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) WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU	32°F ~ 122°F (0°C ~ 50°C)
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	329,884	
EMC	CE/FCC Class A	
Note		



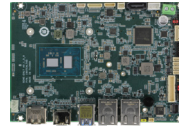
Model	GENE-WHU6	GENESYS-WHU6	GENE-KBU6
System Form Factor	3.5" SubCompact Board	3.5" SubCompact Board System	3.5" SubCompact Board
CPU	Intel® 8th Generation Core™ / Celeron® Processors: i7-8665UE (4C/8T, 1.70GHz, 15W) i5-8365UE (4C/8T, 1.60GHz, 15W) i3-8145UE (2C/4T, 2.20GHz, 15W) 4305UE (2C/2T, 2.00GHz, 15W)	Intel® 8th Generation Core™ i7/i5/i3/Celeron SoC i7-8665UE (4C/8T, 1.7GHz, up to 4.4GHz, TDP 15W) i5-8365UE (4C/8T, 1.6GHz, up to 4.1GHz, TDP 15W) i3-8145UE (2C/4T, 2.2GHz, up to 3.9GHz, TDP 15W) Celeron® 4305UE (2C/2T, 2GHz, TDP 15W)	Intel® 7th Generation Core™ /Celeron Processor: Intel® i7-7600U (2C/4T, 2.80GHz, up to 3.90GHz, TDP-up 25W) Intel® i5-7300U (2C/4T, 2.60GHz, up to 3.50GHz, TDP-up 25W) Intel® i3-7100U (2C/4T, 2.40GHz, TDP-up 25W) Intel® Celeron 3965U (2C/2T, 2.20GHz, TDP-up 15W)
Chipset	Integrated with Intel® SoC		
Memory Type	DDR4 up to 2400MHz Dual Channel,SODIMM x 2,up to 64GB,Non-ECC		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		
Dimensions	5.75" x 4" (146mm x 101.7mm)	7.00" x 5.28" x 1.69" (178mm x 134.1mm x 43mm)	5.75" x 4" (146mm x 101.7mm)
OS Support	Windows 10 (64bit); Linux Ubuntu 21.04.0/Kernel 5.10		
Power Requirement	+9V~36V (Optional: +12V)	+9-36V (Optional: +12V)	
Power Supply Type	AT/ATX	AT/ATX	
Connector	Phoenix 2-pin Connector	DC Jack Connector	
Power Consumption	Intel® i7-8665UE, DDR4 2400MHz 16GB x2, 4.83A@+12V (TYPICAL) Intel® i7-8665UE, DDR4 2400MHz 16GB x2, 7.3A@+12V (MAX)	Intel® i7-8665UE, DDR4 2400 MHz 16GB, 2.8A@+12V(Typical) Intel® i7-7600U, DDR4 2666MHz 32GB, 4.22A@+12V(MAX)	
Display Controller	Intel® UHD Graphics 610/620		Intel® HD Graphics 610/620
LVDS/eDP	LVDS x 1, Dual Channel 18/24bit, up to 1920 x 1080 eDP 1.4 x 1, up to 1920 X 1200 (Optional)	—	
Display Interface	HDMI 2.0 x 1, up to 3840 x 2160 VGA x 1, up to 2560 x 1440	LVDS Dual Channel 18/24bit x 1, up to 1920 x 1080	
Multiple Display	Up to 3 Simultaneous Displays	Default: DP1.2 x 1 (up to 3840 x 2160) + DVI-D x 1 Optional: DVI-I x 1 (with VGA signal) Up to 3 Simultaneous Displays	
Audio Codec	Realtek ALC897	Realtek ALC897/892	
Audio Interface	Line-In / Line-Out / Mic (Audio function not available for WITAS SKU)	Line-In / Line-Out / Mic (Audio function not available for WITAS SKU)	
Speaker	—		
External I/O	—		
Ethernet	Intel® i210 1GbE, RJ45 x1 Intel® i219, 1GbE, RJ45 x1	Intel® i210/i211 & i219, 10/100/1000Base, RJ-45 x2	Intel® i210/i211, 10/100/1000Base-TX, RJ-45 x 2
USB	USB 3.2 Gen2 x 4		USB 3.2 Gen 1 x 4
Serial Port	—		
Video	HDMI 2.0 x 1, VGA x 1	HDMI2.0a x 1,VGA x 1	DP1.2 x 1, DVI-D x 1
Internal I/O	—		
USB	USB 2.0 x 2		
Serial Port	COM1 (RS232/422/485, support Ri) COM2 (RS232/422/485, support 5V/12V/Ri)	COM1(RS232/422/485, supports Ri) (Optional) COM2 (RS232/422/485, supports 5V/12V/Ri) (Optional)	COM1(RS232), COM2, COM3, COM4(RS232/422/485, support 5V/12V/Ri)
Video	LVDS / eDP x 1 (Default: LVDS)	—	
SATA	SATA 6.0 Gb/s x 1; +5V SATA Power Connector x 1		
Audio	Audio Header x 1 (Optional, Audio function not available for WITAS SKU)	Audio Header x 1 (optional)	
DIO/GPIO	GPIO 8-bit	—	
SMBus/I2C	SMBus / I2C x 1 (Default: I2C)	I2C/ SMBus x 1 (Default: I2C)	
Touch	4/5/8 wire Touch Controller x 1 (Optional)	—	
Fan	DC Fan x 1 (Option: Smart Fan x 1)	DC Fan x 1 (optional: Smart Fan)	
Sim	Nano SIM x 1		
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	PWR LED, Power Button	
Others	—		
Expansion	—		
Mini PCIe/mSATA	Full-size mSATA / mPCIe x 1 (Default: mSATA, select by BIOS)	Full-size mPCIe x 1 Half size mSATA/mPCIe x 1(Default mSATA, select by BIOS)	
M.2	M.2 2280 B-Key x1 (PCIe 3.0 [x2], SATA, USB2.0), Default: selected by BIOS) M.2 2230 E-Key x 1 (PCIe 3.0 [x1], USB2.0)	M.2 2280 B-Key x1 (PCIe x 2, SATA, USB2.0, selected by BIOS) M.2 2230 E-Key x 1 (PCIe, USB2.0)	
Others	—		BIO x 1
Environment & Certification	—		
Operating Temp.	32°F ~ 140°F (0°C ~ 60°C) WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU	32°F ~ 122°F (0°C ~ 50°C)	
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
MTBF (Hours)	354,194		375,577
EMC	CE/FCC Class A		

Board Level Products

SubCompact Boards



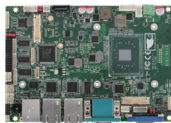
Model	GENE-SKU6	GENE-EHL5
System Form Factor	3.5" SubCompact Board	
CPU	Intel® 6th Generation Core™ / Celeron Processor: Intel® i7-6600U (2C/4T, 2.6GHz, up to 3.4GHz, TDP-up 25W) Intel® i5-6300U (2C/4T, 2.4GHz, up to 3.0GHz, TDP-up 25W) Intel® i3-6100U (2C/4T, 2.3GHz, TDP-up 25W) Intel® Celeron 3955U (2C/2T, 2.20GHz, TDP-up 15W)	Intel Atom® x6000E series, Pentium®, and Celeron® N and J series Processors: Intel Atom® x6425RE (4C/4T, 1.90 GHz, 12W) Intel Atom® x6425E (4C/4T, 2.00 GHz, 12W) Intel Atom® x6211E (2C/2T, 1.30 GHz, 6W) Intel® Pentium® Processor J6426 (4C/4T, 2.00 GHz, 10W) Intel® Celeron® Processor J6412 (4C/4T, 2.00 GHz, 10W) Intel® Celeron® Processor N6210 (2C/2T, 1.20 GHz, 6.5W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR4 up to 2133MHz, SODIMM x 1, up to 16GB, Non-ECC	DDR4 3200, Single Channel SODIMM x 1, Max. 32GB, Non-ECC *iBECG supported by selected CPU SKU
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAh	
Dimensions	5.75" x 4" (146mm x 101.7mm)	5.75" x 4" (146mm x 101.7mm), 1.10 lbs (0.50 kg)
OS Support	Windows 7/10 (64bit) Linux Ubuntu 21.04.0/Kernel 5.10	Windows 10 (64bit) Windows® 11 (64-bit) Linux Ubuntu 20.04.3(OT)/Kernel 5.13
Power		
Power Requirement	+9-36V (Optional: +12V)	+9V~36V (Optional: +12V)
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 Atom® x6425E, DDR4 32GB, 3.26A @+12V (Typical) Intel Atom® x6425E, DDR4 32GB, 3.42A @+12V (Max)
Display		
Controller	Intel® HD Graphics 510/520	Intel® UHD Graphics for 10th Gen Intel® Processors
LVDS/eDP	LVDS Dual Channel 18/24bit x 1, up to 1920 x 1080	LVDS x 1, Dual Channel 18/24bit, up to 1920 x 1080 eDP 1.3 x 1, up to 1920 x 1200 (Optional) HDMI 2.0 x 1, up to 3840 x 2160@60Hz DP 1.4 x 1, up to 3840 x 2160@120Hz (support DP++) VGA x 1, up to 2560 x 1440 (Optional)
Display Interface	Default: DP1.2 x 1 (up to 3840 x 2160)+ DVI-D x 1 Optional: DVI-I x 1 (with VGA signal)	
Multiple Display	Up to 3 Simultaneous Displays	
Audio		
Codec	Realtek ALC897/892	Realtek ALC256
Audio Interface	Line-In / Line-Out / Mic (Audio function not available for WITAS SKU)	
Speaker	2W Speaker (Audio function not available for WITAS SKU)	
External I/O		
Ethernet	Intel® i210/i211, 10/100/1000Base-TX, RJ-45 x 2	Intel® I210 1GbE, RJ45 x 2
USB	USB 3.2 Gen 1 x 4	USB 3.2 Gen 2 x 2
Serial Port		
Video	DP1.2 x 1, DVI-D x 1	HDMI 2.0 x 1, DP 1.4 x 1 (Optional: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)	COM 1, COM 4 (RS-232/422/485) COM 2, COM 3 (RS-232/422/485, supports 5V/12V/RI)
Video	LVDS x 1	LVDS/eDP x 1 (Default: LVDS); Inverter x 1 (12V/2A)
SATA	SATA 6.0 Gb/s x 1, +5V SATA Power Connector x 1	
Audio	Audio Header x 1 (Audio function not available for WITAS SKU)	Audio Header x 1 (Optional, Audio function not available for WITAS SKU) Speaker Header x 2 (Optional, Audio function not available for WITAS SKU)
DIO/GPIO	8-bit	GPIO 16-bits (8 In / 8 Out)
SMBus/I2C	SMBus x 1	SMBus/I2C x 1 (Default: SMBus)
Touch	4/5/8-wire Touch Controller x 1 (optional)	4/5/8 wire Touch Controller x 1 (Optional)
Fan	DC Fan x 1 (optional: Smart Fan)/Micro SIM x 1 (Optional)	4pins Smart Fan x 1
Sim	Micro SIM x 1 (Optional)	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 PCIe/msATA	Full-size mPCIe x 1 Half size mSATA/mPCIe x 1 (Default mSATA, select by BIOS)	—
M.2	—	M.2 2230 E-Key x 1 (PCIe 3.0 [x1], USB 2.0) M.2 2242 B-Key x 1 (PCIe 3.0 [x2]/SATA, Default: PCIe [x2]) M.2 2280 B-Key x 1 (PCIe 3.0 [x1], USB 2.0, PCIe 3.0 [x2] select by BIOS) M.2 3052 B-Key x 1 (USB 3.2 Gen 2, USB2.0)
Others	BIO x 1	—
Environment & Certification		
Operating Temp.	32°F ~ 140°F (0°C ~ 60°C), WITAS1 -4°F ~ 158°F (-20°C ~70°C)	32°F ~ 140°F (0°C ~ 60°C) WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	375,577	335,427
EMC	CE/FCC Class A	



Model	GENESYSM-EHL5	GENE-EHL7
System Form Factor	3.5" SubCompact Board System	3.5" SubCompact Board
CPU	Intel Atom™ x6000E series, Pentium®, and Celeron® N and J series Processors: Intel Atom™ x6425E (4C/4T, 2.00 GHz, 12W) Intel™ Celeron® Processor J6412 (4C/4T, 2.00 GHz, 10W) Intel™ Celeron® Processor N6210 (2C/2T, 1.20 GHz, 6.5W)	Intel Atom™ x6000E series, Pentium®, and Celeron® N and J series Processors: x6413E (4C/4T, 1.50GHz, 9W) J6412 (4C/4T, 2.00GHz, 10W) N6210 (2C/2T, 1.20GHz, 6.5W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR4 up to 3200, Single Channel SODIMM x 1, Max. 32GB, Non-ECC *IB ECC supported by selected SOC	Single-Channel DDR4 3200MHz SODIMM x 1, Max. 32GB, Non-ECC *IB ECC supported by selected CPU SKU
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0	TPM 2.0 (Optional)
RTC Battery	Lithium Battery 3V/240mAh	
Dimensions	7.00" x 5.28" x 2.08" (178mm x 134.1mm x 53mm), Weight 1 kg	5.75" x 4" (146mm x 101.7mm), 0.83 lbs (0.38 kg)
OS Support	Windows 10 (64bit) Linux Ubuntu 20.04.3(IOT)/Kernel 5.13	Windows 10 (64bit) Linux Ubuntu 20.04.5 / 5.15.0-46-generic
Power		
Power Requirement	+12V/+9-36V	+12V
Power Supply Type	ATX	AT/ATX
Connector	DC Jack Connector	Phoenix 2-pin Connector
Power Consumption	Intel Atom™ x6425E, DDR4 32GB, 3.26A @+12V (Typical) Intel Atom™ x6425E, DDR4 32GB, 3.42A @+12V (Max)	Intel Atom™ x6413E, DDR4 32GB, 2.17A @+12V (Typical) Intel Atom™ x6413E, DDR4 32GB, 2.72A @+12V (Max)
Display		
Controller	Intel® UHD Graphics for 10th Gen Intel® Processors	
LVDS/eDP	—	Dual-Channel 18/24-bit LVDS x 1, up to 1920 x 1080 eDP 1.3 x 1, up to 1920 x 1200 (Optional)
Display Interface	HDMI 2.0 x 1, up to 4K@60Hz VGA x 1, up to 2560 x 1440	HDMI 1.4 x 1, up to 3840 x 2160 @ 30Hz DP 1.4 x 1, up to 3840 x 2160 @ 120Hz
Multiple Display	Up to 2 Simultaneous Displays	Up to 3 Simultaneous Displays
Audio		
Codec	—	Realtek ALC897
Audio Interface	—	Line-In / Line-Out / Mic
Speaker	—	
External I/O		
Ethernet	Intel® I210 1GbE, RJ45 x 2	Realtek RTL8111H 1GbE, RJ-45 x 2
USB	USB 3.2 Gen 2 x 2 USB 2.0 x 2	USB 3.2 Gen2 x 2
Serial Port	COM 1 (RS-232/422/485) COM 2 (RS-232/422/485, supports 5V/12V/RI)	—
Video	HDMI 2.0 x 1 VGA x 1	HDMI 1.4 x 1 DP 1.4 x 1
Internal I/O		
USB	—	USB 2.0 x 4
Serial Port	—	COM1 (RS232/422/485, supports 5V/12V/RI) COM2 (RS232)
Video	—	LVDS / eDP x 1 (Default: LVDS) Inverter x 1 (12V/2A)
SATA	SATA 6Gb/s x 1 +5V SATA Power Connector x 1	
Audio	Audio Header x 1	
DIO/GPIO	GPIO 16-bit (Optional: with E-Base)	GPIO 8-bits
SMBus/I2C	SMBus/I2C x 1 (Default: SMBus)	SMBus / I2C x 1 (Default: SMBus)
Touch	—	
Fan	4pins Smart Fan x 1	
Sim	Nano SIM x 1	—
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	eMMC5.1 32GB	—
Expansion		
Mini PCIe/msATA	—	Full-size mPCIe x 1
M.2	M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0) M.2 2242 B-Key x 1 (PCIe 3.0 [x2]/SATA), Default: PCIe [x2] M.2 2280 B-Key x 1 (PCIe 3.0 [x1] + USB 2.0) M.2 3052 B-Key x 1 (USB 3.2 Gen 2)	M.2 2230 E-Key x 1 (PCIe 3.0 [x1], USB2.0) M.2 2280 M-Key x 1 (PCIe 3.0 [x2] / SATA), SATA select by BOM
Others	—	
Environment & Certification		
Operating Temp.	32°F ~ 122°F (0°C ~ 50°C) with 0.5 m/s air flow	32°F ~ 140°F (0°C ~ 60°C)
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	335,427	484,355
EMC	CE/FCC Class A	
Note		

Board Level Products

SubCompact Boards



Model	GENE-APL5	GENE-APL6
System Form Factor	3.5" SubCompact Board	
CPU	Intel® Atom™/Celeron™/Pentium® Processor: Pentium N4200 (4C/4T, 1.10GHz, up to 2.50GHz, 6W) Celeron N3350 (2C/2T, 1.10GHz, up to 2.40GHz, 6W) Atom E3950 (4C/4T, 1.60GHz, up to 2.00GHz, 9.5W) Atom E3940 (4C/4T, 1.60GHz, up to 1.80GHz, 9.5W) Atom E3930 (2C/2T, 1.30GHz, up to 1.80GHz, 6.5W)	
Chipset	Integrated with Intel® SoC	
Memory Type	DDR3L 1866, Single Channel SODIMM x 1, Non-ECC (Max.8GB, up to 1600MHz)	
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAh	Lithium Battery 3V/240mAh
Dimensions	5.75" x 4" (146mm x 101.7mm)	
OS Support	Windows 10 (64bit) Linux Ubuntu 21.04.0/Kernel 5.10	
Power		
Power Requirement	+12V (Optional: +9-19V)	+9-36V (Optional: +12V)
Power Supply Type	AT/ATX	
Connector	Phoenix 2-pin Connector	
Power Consumption	Intel® E3950,DDR3L 1866MHz 8GB,2.03A @+12V(TYPICAL) Intel® E3950,DDR3L 1866MHz 8GB,2.45A @+12V(MAX)	Intel® E3950, DDR3L 1866MHz 8G, 2.36A @+12V(TYPICAL) Intel® E3950, DDR3L 1866MHz 8G, 2.41A @+12V(MAX)
Display		
Controller	Intel® HD Graphics 500/505	
LVDS/eDP	LVDS1 Dual Channel 18/24bit x 1, up to 1920 x 1080 LVDS2 Dual Channel 18/24bit x 1 (Optional: HDMI1.4b, up to 3840 x 2160)	
Display Interface	VGA x 1, up to 1920 x 1200	
Multiple Display	Up to 3 Simultaneous Displays	
Audio		
Codec	Realtek ALC897/892	
Audio Interface	Line-In / Line-Out / Mic (Audio function not available for WiTAS SKU)	
Speaker	—	
External I/O		
Ethernet	Intel® i210/i211, 10/100/1000Base, RJ-45 x 2	
USB	USB3.2 Gen 1 x 2	
Serial Port	COM1 (RS232, supports RI)	COM1 (RS232)
Video	VGA x 1	
Internal I/O		
USB	USB2.0 x 4	USB 2.0 x 2
Serial Port	COM2, COM3 (RS232/422/485, supports 5V/12V/RI), COM4 (RS232, supports RI)	COM2, COM3 (RS232/422/485, support 5V/12V/RI) COM4 (RS232)
Video	LVDS1 x 1, LVDS2/HDMI x 1 (Default: LVDS2)	LVDS1 x 1 LVDS2/HDMI x 1 (Default: LVDS2)
SATA	6Gb/s x 1	
Audio	+5V SATA Power Connector x 1	
DIO/GPIO	Audio Header x 1 (Audio function not available for WiTAS SKU)	
SMBus/I2C	I2C x1, SMBus x 1	I2C/SMBus x 1 (Default: I2C)
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)	eMMC 16G/32G/64G (optional) Parallel Port(SPP/EPP/ECP) x 1 (optional, select by BIOS)
Expansion		
Mini PCIe/mSATA	mSATA x 1 (Full-Size), Mini Card x 1 (Half-Size)	Full-size mPCIe x 1 Half-size mSATA x 1
M.2	—	—
Others	—	—
Environment & Certification		
Operating Temp.	32°F ~ 140°F (0°C ~ 60°C), WiTAS2 -40°F ~ 185°F (-40°C ~ 85°C)	
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	365,976	374,567
EMC	CE/FCC Class A	
Note		



Model	GENE-APL7	GENE-BT05
System Form Factor	3.5" SubCompact Board	
CPU	Intel® Atom™/Celeron®/Pentium® Processor: Pentium N4200 (4C/4T, 1.10GHz, up to 2.50GHz, 6W) Celeron N3350 (2C/2T, 1.10GHz, up to 2.40GHz, 6W) Atom E3950 (4C/4T, 1.66GHz, up to 2.00GHz, 9.5W) Atom E3940 (4C/4T, 1.60GHz, up to 1.80GHz, 9.5W) Atom E3930 (2C/2T, 1.30GHz, up to 1.80GHz, 6.5W)	Intel® Atom™/Celeron® Processor: Celeron® J1900 (4C/4T, 2.00GHz, up to 2.42GHz, 10W) Celeron® N2930 (4C/4T, 1.83GHz, up to 2.16GHz, 7.5W) Celeron® N2807 (2C/2T, 1.58GHz, up to 2.16GHz, 4.3W) Atom® E3845 (4C/4T, 1.91 GHz, 10W) Atom® E3825 (2C/2T, 1.33 GHz, 6W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR3L 1866, Single Channel SODIMM x 1, Non-ECC (Max.8GB, up to 1600MHz)	DDR3L up to 1333MHz, SODIMM x 1, up to 8GB, Non-ECC
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 1.2(Optional)	
RTC Battery	Lithium Battery 3V/240mAh	
Dimensions	5.75" x 4" (146mm x 101.7mm)	
OS Support	Windows 10 (64bit) Linux Ubuntu 21.04.0/Kernel 5.10	Windows 7/10 (64bit) Linux Ubuntu 20.04.3/Kernel 5.11
Power	+12V Only	
Power Requirement	12V Only	
Power Supply Type	AT/ATX	
Connector	Phoenix 2-pin Connector	
Power Consumption	Intel® E3950, DDR3L 1866MHz 8GB, 4.15A @ +12V(TYPICAL) Intel® E3950, DDR3L 1866MHz 8GB, 4.29A @ +12V(MAX)	Intel® J1900, DDR3L 1600MHz 8GB, 1.73A @ +12V(TYPICAL) Intel® J1900, DDR3L 1600MHz 8GB, 1.88A @ +12V(MAX)
Display Controller	Intel® HD Graphics 500/505	Intel® HD Graphics for Intel Atom™ Processor Z3700 Series
LVDS/eDP	LVDS1 Dual Channel 18/24bit x 1 (Optional: eDP1.3, up to 3840 x 2160) LVDS2 Dual Channel 18/24bit x 1, up to 1920 x 1080	LVDS Dual Channel 18/24bit x 1, up to 1920 x 1080
Display Interface	VGA x 1, up to 1920 x 1200	HDMI 1.4a x 1, up to 3840 x 2160 VGA x 1, up to 1920 x 1200
Multiple Display	Up to 3 Simultaneous Displays	
Audio Codec	Realtek ALC897/892	
Audio Interface	Line-in/Line-out/MIC	Line-In / Line-Out / Mic (Audio function not available for WITAS SKU)
Speaker	2W Amplifier(Optional)	—
External I/O		
Ethernet	Realtek RTL8119-CG, 10/100/1000Base, RJ-45 x 2	Intel® i210/i211, 10/100/1000Base, RJ-45 x 2
USB	USB 3.2 Gen1 x 2	USB 3.2 Gen1 x 1, USB 2.0 x 1
Serial Port	COM1 (RS232) COM2 (RS232/422/485, support 5V/12V/Ri)	COM1 (RS232)
Video	VGA x 1	VGA x 1, HDMI 1.4a x 1
Internal I/O		
USB	USB2.0 x 8	USB2.0 x 2
Serial Port	COM3~COM6 (RS232, COM3~COM5 support 5V/12V/Ri) Optional: COM3~COM12	COM2, COM3 (RS232/422/485, supports 5V/12V/Ri), COM4 (RS232)
Video	LVDS1/eDP (Default: LVDS1) LVDS2	LVDS x 1
SATA	SATA III x 1, +5V SATA Power Connector x 1	
Audio	Audio Header x 1 Speaker Header x 2 (optional)	Audio Header x 1 (Audio function not available for WITAS SKU)
DIO/GPIO	8-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	Micro SIM x 1 (Optional)	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 PCIe/mSATA	Full-size mPCIe x 1 Full-Size mSATA/mPCIe x 1 (Default mSATA, BOM Option: mPCIe)	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)	32°F ~ 140°F (0°C ~ 60°C) or WITAS 2 (E3825)
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	409,108	344,859
EMC	CE/FCC Class A	
Note		



Model	GENE-BT06
System	
Form Factor	3.5" SubCompact Board
CPU	Intel® Atom®/ Celeron® Processor: Celeron® J1900 (4C/4T, 2.00GHz, up to 2.42GHz, 10W) Celeron® N2930 (4C/4T, 1.83GHz, up to 2.16GHz, 7.5W) Celeron® N2807 (2C/2T, 1.58GHz, up to 2.16GHz, 4.3W) Atom® E3845 (4C/4T, 1.91 GHz, 10W) Atom® E3825 (2C/2T, 1.33 GHz, 6W)
Chipset	Integrated with Intel® SoC
Memory Type	On Board DDR3L 1066/1333MHz, up to 4GB, Non-ECC
BIOS	UEFI
Wake on LAN	Yes
Watchdog Timer	255 Levels
Security	TPM 2.0 (BOM optional)
RTC Battery	Lithium Battery 3V/240mAh
Dimensions	5.75" x 4" (146mm x 101.7mm)
OS Support	Windows 7/10 (64bit) Linux Ubuntu 20.04.0/Kernel 5.11
Power	
Power Requirement	+9~24V
Power Supply Type	AT/ATX
Connector	Phoenix 2-pin Connector
Power Consumption	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, up to 1920 x 1080
Display Interface	HDMI 1.4a, up to 3840 x 2160 (Optional: DP1.1a) VGA x 1, up to 1920 x 1200
Multiple Display	Up to 3 Simultaneous Displays
Audio	
Codec	Realtek ALC897/892
Audio Interface	Line-In / Line-Out / Mic (Audio function not available for WiTAS SKU)
Speaker	2W Amplifier (Optional, audio function not available for WiTAS SKU)
External I/O	
Ethernet	Intel® i210, 10/100/1000Base, RJ-45 x 2
USB	USB 3.2 Gen1 x 1, USB2.0 x 1
Serial Port	COM1(RS232)
Video	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 x1
SATA	SATA II x 1, +5V SATA Power Connector x 1
Audio	Audio Header x 1 (Audio function not available for WiTAS SKU)
DIO/GPIO	8-bit
SMBus/I2C	SMBus x 1
Touch	4/5/8 wire Touch Controller x 1 (Optional)
Fan	DC Fan x 1 (optional: Smart Fan)
Sim	SIM x 1
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset
Others	—
Expansion	
Mini PCIe/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 -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)	403,079
EMC	CE/FCC Class A
Note	



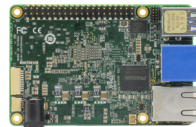
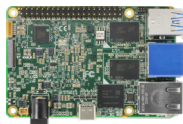
Model	de next-RAP8	de next-TGU8
System Form Factor	86mm x 55mm, Single Board Computer	
CPU	13th Generation Intel® Core™ Processors: Intel® Core™ i7-1365UE (10C/12T, 1.70 GHz, up to 15W) Intel® Core™ i5-1335UE (10C/12T, 1.30 GHz, up to 15W) Intel® Core™ i3-1315UE (6C/8T, 1.20 GHz, up to 15W)	Onboard 11th Gen. Intel® Core™ Processor i7-1185G7E (4C/8T, 1.80GHz,15W) i5-1145G7E (4C/8T, 1.50GHz,15W) i3-1115G4E (2C/4T, 2.20GHz, 15W)
Chipset	Integrated with Intel® SoC	
Memory Type	Onboard LPDDR5x, up to 16GB	Onboard LPDDR4x 3733, up to 16GB
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	fTPM	
RTC Battery	Lithium Battery 3V/240mAh	
Dimensions	3.38" x 2.17" (86mm x 55mm)	
OS Support	Windows 10 (64-bit) Ubuntu 22.04.3 (Kernel 6.2)	Windows 10 (64bit) Ubuntu 20.04.4 (Kernel 5.13)
Power		
Power Requirement	+12V	
Power Supply Type	AT/ATX (Default : AT mode)	AT/ATX
Connector	DC Jack Connector	DC Jack Connector (Optional : Phoenix 2-Pin Connector)
Power Consumption	Intel® Core™ i7-1365UE, LPDDR4x 16GB, 3.18A @12V, 38.16W (Typical) Intel® Core™ i7-1365UE, LPDDR4x 16GB, 3.36A @12V, 39.16W (Max)	i7-1185G7E, LPDDR4x 16GB, 4.58A@12V, 55W (TYPICAL) i7-1185G7E, LPDDR4x 16GB, 7A@12V, 84W (MAX)
Display		
Controller	Intel® Iris® Xe	Intel® UHD Graphics for 11th Gen Intel® Processors
LVDS/eDP	eDP 1.4 x 1, up to 3840 x 2160	
Display Interface	HDMI 1.2a x 1, up to 1920 x 1080 @60Hz	HDMI 1.4 x 1, up to 3840 x 2160@30Hz
Multiple Display	Up to Dual Displays	2 Simultaneous Displays
Audio		
Codec	---	
Audio Interface	---	
Speaker	---	
External I/O		
Ethernet	Intel® Ethernet Connection I219-LM, GbE RJ-45 x 1 Intel® Ethernet Controller I226-LM, 2.5GbE x 1	Intel® i225, 2.5GbE RJ-45 x 1 Intel® i219, 1GbE RJ-45 x 1
USB	Rear I/O : USB3.2 Gen2 Type A x 2	USB 3.2 Gen 2 x 2
Serial Port	---	
Video	HDMI 1.4b x 1	
Internal I/O		
USB	USB 2.0 x 4 (Pin Header)	USB 2.0 x 4 Note : USB2.0 x 2 shared with adapter card PER-T642 / PER-T643
Serial Port	RS-232/422/285 x 2 (Pin Header)	COM1, COM2 (RS232/422/485, support 5V/R)
Video	eDP x 1	eDP 1.4 x 1
SATA	SATA 6Gb/s x 1 +5V SATA Power Connector x 1	SATA 6.0 Gbps x 1 with +5V SATA Power Connector x 1
Audio		
DIO/GPIO	8-Bit	GPIO 8 bits
SMBus/I2C	Optional	
Touch	---	
Fan	4 Pin Smart Fan (with Cooler version only)	4 Pin Smart Fan
Sim		
Front Panel	PowerLED, Power Button, Buzzer, Reset Button	Power Button, Reset Button, Power LED, SATA LED, Buzzer
Others		
Expansion		
Mini PCIe/msATA		
M.2	M.2 2280 M-Key x 1 (PCIe [x2]) PCIe Gen 3 [x4] via FPC x 1	M.2 2280 M-key x 1 (PCIe[x2] x 1 or PCIe[x1] x 2, selected by BIOS)
Others	FPC Connector x 1 (PCIe 3.0 [x4] x 1)	
Environment & Certification		
Operating Temp.	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C), -40°F ~ 185°F (-40°C ~ 85°C) by sku support
Storage Temp.	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	1,679,950	609,263
EMC	CE/FCC Class A	
Note		

Board Level Products

de next



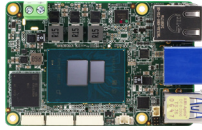
Model	de next-V2K8	de next-TGU8-EZBOX
System Form Factor	86mm x 55mm, Single Board Computer	de next System
CPU	AMD Ryzen™ Embedded V2000 Series Processor AMD Ryzen™ Embedded V2718 with Radeon™ Graphics (8C/16T, 1.7GHz, 25W) AMD Ryzen™ Embedded V2516 with Radeon™ Graphics (6C/16T, 2.1GHz, 25W)	Onboard 11th Gen Intel® Core™ Processors Intel® Core™ i7-1185G7E (4C/8T, 1.80 GHz, 15W), with Cooler Version Only Intel® Core™ i5-1145G7E (4C/8T, 1.50 GHz, 15W), with Cooler Version Only Intel® Core™ i3-1115G4E (2C/4T, 2.20 GHz, 15W), with Cooler Version & Heatsink Version
Chipset	Integrated with AMD SoC	Integrated with Intel® SoC
Memory Type	Onboard LPDDR4x 3200 , up to 16GB	Onboard LPDDR4x 3733, up to 16GB
BIOS		UEFI
Wake on LAN		Yes
Watchdog Timer		255 Levels
Security		TPM
RTC Battery		Lithium Battery 3V/240mAh
Dimensions	3.38" x 2.17" (86mm x 55mm)	3.75" x 2.73" x 1.78" (95.5mm x 69.5mm x 45.4mm), with Cooler Version 3.75" x 2.73" x 1.67" (95.5mm x 69.5mm x 42.5mm), with Heatsink Version
OS Support	Windows 10 (64bit) Ubuntu 22.04 (kernel 5.15)	Windows 10 (64bit) Ubuntu 20.04.4 (Kernel 5.13)
Power		+12V
Power Requirement		AT/ATX
Power Supply Type		
Connector	DC Jack Connector (Optional : Phoenix 2-Pin Connector)	DC Jack Connector
Power Consumption	V2718 , LPDDR4 16GB, 3.07A @12V, 36.84W (TYPICAL) V2718 , LPDDR4 16GB, 3.92A @12V, 47.04W (MAX)	Intel® Core™ i7-1185G7E, LPDDR4x 16GB, 4.58A@12V, 55W (Typical) Intel® Core™ i7-1185G7E, LPDDR4x 16GB, 7A@12V, 84W (Max)
Display		
Controller	AMD V-Series V2000 with Radeon™ Graphics	Intel® UHD Graphics for 11th Gen Intel® Processors
LVDS/eDP	eDP 1.4 x 1 , up to 3840 x 2160	—
Display Interface	HDMI 1.4 x 1 , up to 3840 x 2160@30Hz	HDMI 1.4b x 1, up to 3840 x 2160 @30Hz
Multiple Display	2 Simultaneous Displays	Single Display
Audio		
Codec		—
Audio Interface		—
Speaker		—
External I/O		
Ethernet	Realtek RTL8111, 1GbE RJ-45 x 1 Intel® i226, 2.5GbE RJ-45 x 1	Intel® Ethernet Controller I225/I226, 2.5GbE RJ-45 x 1 Intel® Ethernet Connection I219, 1GbE RJ-45 x 1
USB		USB 3.2 Gen 2 x 2
Serial Port		—
Video	HDMI 1.4b x 1	HDMI 1.4b x 1, up to 3840 x 2160 @30Hz
Internal I/O		
USB	USB 2.0 x 4 Note : USB2.0 x 2 shared with adapter card PER-T642 / PER-T643. (de next-V2K8-A11 only)	—
Serial Port	COM1 , COM2 (RS232/422/485, support 5V/R)	—
Video	eDP 1.4 x 1	—
SATA	SATA 6.0 Gbps x 1 with +5V SATA Power Connector x 1	—
Audio		—
DIO/GPIO	GPIO 8 bits	—
SMBus/I2C	Optional	—
Touch		—
Fan	4 Pin Smart Fan	4 Pin Smart Fan (with Cooler version only)
Sim		—
Front Panel	Power Button, Reset Button, Power LED, SATA LED, Buzzer	—
Others		—
Expansion		
Mini PCIe/msATA		—
M.2	M.2 2280 M-key x 1 (PCIe[x2] x 1 or PCIe[x1] x 2, selected by BIOS)	M.2 2280 M-Key x 1 (PCIe 4.0 [x2] x 1)
Others	FPC Connector x 1 (PCIe 3.0 [x4] x 1)	—
Environment & Certification		
Operating Temp.	32°F ~ 140°F (0°C ~ 60°C)	14°F ~ 122°F (-10°C ~ 50°C) with 0.7m/sec air flow
Storage Temp.		-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity		0% ~ 90% relative humidity, non-condensing
MTBF (Hours)		609,263
EMC		CE/FCC Class A
Note		



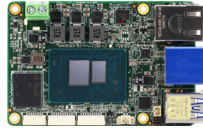
Model	UP 4000	UP 7000
System		
Processor	Intel® Celeron® Processor N3350 Intel® Pentium® Processor N4200 Intel Atom® x7-E3950	Intel® Processor N200 Intel® Processor N97 Intel® Processor N100 Intel® Processor N50 Intel Atom® x7433RE Intel Atom® x7835RE
Graphics	Intel® HD Graphics	Intel® UHD Graphics
Memory	Up to 8GB onboard LPDDR4	Dual-Channel LPDDR5, up to 8GB
Storage	Up to 64GB onboard eMMC	Up to 64GB eMMC
I/O	HDMI 1.4b x 1 DP 1.4a x 1 (via USB Type-C) 41-pin FPC connector for high speed expend x 1 6-pin Audio wafer x 1 (Mic-In+Line-out)	HDMI 1.4b/USB 3.2 Gen 2 STACK Connector x 1 (Type-A) 4-pin Front Panel x 1 2-pin Fan Wafer x 1 (12V) 2-pin RTC Battery Wafer x 1
Camera		—
USB	USB 2.0 x 2 (from 10-pin header x 1) USB 3.2 Gen 1 (Type A) x 3 USB 3.2 Gen 1 OTG (USB Type-C) x 1	USB 3.2 Gen 2 (Type-A) x 3 10-pin USB 2.0 x 2/UART x 1
Expansion	40-pin GPIO x 1 Via carrier board: M.2 2230 E-Key x 1 M.2 2280 M-Key x 1 M.2 3052/3042 B-Key x 1	40-pin GPIO x 1
Display Interface	HDMI 1.4b x 1 DP 1.4a x 1 (via USB Type-C)	HDMI 1.4b x 1
Ethernet	1GbE RJ-45 x 1 (Realtek RTL8111H CG)	
Security	Onboard TPM 2.0	
RTC	Yes	
OS Support	Windows 10 and Windows IoT Linux Ubuntu 22.04 Linux Yocto 4.0	Windows® 10 Enterprise LTSC 2021 Linux: Ubuntu 22.04 LTS/Kernel 5.15, Yocto 4.0
Power Requirement		
Power	12V DC-in	12V DC-in, 5A
Power Supply Type	AT/ATX (Default: AT)	
Power Consumption (Typical)	19W~25W	30~36W
Mechanical		
Dimension	3.34" x 2.20" (85mm x 56mm)	
Net Weight	4.63 lbs (2.10kg)	0.33 lb. (0.15Kg)
Gross Weight	6.39 lbs (2.90kg)	0.44 lb. (0.20Kg)
Environment		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow, WiTAS1 -4°F ~ 158°F (-20°C ~ 70°C) with active cooler
Operation Humidity	10% ~ 80% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF(Hours)	538,629	685,218
Certification	CE/FCC Class A, RoHS Compliant, REACH	
Note		

Board Level Products

UP Boards



Model	UP 710S	UP TWL
System		
Processor	Intel® Processor N200 Intel® Processor N97 Intel® Processor N100 Intel® Processor N50	Intel® Core™ 3 Processor N355 Intel® Processor N250 Intel® Processor N150 (formerly Twin Lake)
Graphics	Intel® UHD Graphics for 12th Gen Intel® Processors	Intel® UHD Graphics
Memory	Up to 8GB LPDDR5	Dual-Channel LPDDR5, up to 8GB
Storage	Up to 128GB eMMC	Up to 64GB eMMC
I/O	HDMI 1.4b 3.3V I2C x 2 + PWM x 2 via 8-Pin Wafer 3.3V SPI x 2 via 10-Pin Wafer GPIO x 8 via 10-Pin wafer RS-232/422/485 x 1 via 10-Pin Wafer	HDMI 1.4b/USB 3.2 Gen 2 STACK Connector x 1 (Type-A) 4-pin Front Panel x 1 2-pin Fan Wafer x 1 (12V) 2-pin RTC Battery Wafer x 1
Camera		—
USB	10-pin USB 2.0 x 2/UART x 1 USB 3.2 Gen 2 Type A x 3	USB 3.2 Gen 2 (Type-A) x 3 10-pin USB 2.0 x 2/UART x 1
Expansion	M.2 2230 E-Key x 1	40-pin GPIO x 1
Display Interface		HDMI 1.4b x 1
Ethernet	GbE, RJ-45 x 1	1GbE RJ-45 x 1 (Realtek RTL8111H CG)
Security		Onboard TPM 2.0
RTC		Yes
OS Support	Windows 10/11 Ubuntu 22.04 LTS Yocto 5.1	Windows® 10 Enterprise LTSC 2021 Linux: Ubuntu 22.04 LTS/Kernel 5.15, Yocto 4.0
Power Requirement		
Power		12V DC-in, 5A
Power Supply Type	AT/ATX	AT (default) /ATX
Power Consumption (Typical)		30~36W
Mechanical		
Dimension		3.34" x 2.20" (85mm x 56mm)
Net Weight		0.33 lb. (0.15Kg)
Gross Weight		0.44 lb. (0.20Kg)
Environment		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow, WITAS1 -4°F ~ 158°F (-20°C ~ 70°C) with active cooler
Operation Humidity		0% ~ 90% relative humidity, non-condensing
MTBF (Hours)		685,218
Certification		CE/FCC Class A, RoHS Compliant, REACH
Note		



Model	UP TWLS	UP Squared
System		
Processor	Intel® Core™ 3 Processor N355 Intel® Processor N250 Intel® Processor N150 (formerly Twin Lake)	Intel® Celeron® Processor N3350 Intel® Pentium® Processor N4200 Intel Atom® x7-E3950 Intel Atom® x5-E3940
Graphics	Intel® UHD Graphics for 12th Gen Intel® Processors	Intel® HD Graphics
Memory	Up to 8GB LPDDR5	Up to 8GB onboard LPDDR4
Storage	Up to 128GB eMMC	Up to 128GB onboard eMMC
I/O	HDMI 1.4b 3.3V I2C x 2 + PWM x 2 via 8-Pin Wafer 3.3V SPI x 2 via 10-Pin Wafer GPIO x 8 via 10-Pin wafer RS-232/422/485 x 1 via 10-Pin Wafer	HDMI 1.4b x 1 DP 1.2 x 1
Camera	—	MIPI-CSI via 21 Pin FPC connector x 1 MIPI-CSI via 31 Pin FPC connector x 1
USB	10-pin USB 2.0 x 2/UART x 1 USB 3.2 Gen 2 Type A x 3	USB 2.0 x 2 (via 10 Pin Header x 1) USB 3.2 Gen 1 x 3 (Type-A) USB 3.2 Gen 1 OTG x 1 (Micro B)
Expansion	M.2 2230 E-Key x 1	40-pin GPIO x 1 Full-sized mPCIe x 1 (PCIe & SATA [x1] , USB2.0 [x1]) M.2 2230 E-Key x 1 (PCIe [x1], USB2.0 [x1]) SATA 6Gb/s x 1 60 Pin EXHAT x 1
Display Interface	HDMI 1.4b x 1	HDMI 1.4b x 1 DP 1.2 x 1 eDP 1.3 x 1
Ethernet	GbE, RJ-45 x 1	GbE x 2 (Realtek 8111H CG)
Security	Onboard TPM 2.0	fTPM
RTC		Yes
OS Support	Windows 10/11 Ubuntu 22.04 LTS Yocto 5.1	Windows® 10 IoT Enterprise LTSC 2021 Windows IoT Core Linux Ubuntu 20.04 LTS Linux Yocto 3.1
Power Requirement		
Power	12V DC-in, 5A	5V DC-in
Power Supply Type	AT/ATX	AT/ATX (Default: AT)
Power Consumption (Typical)	30~36W	15.05W
Mechanical		
Dimension	3.34" x 2.20" (85mm x 56mm)	3.37" x 3.54" (85.6 mm x 90 mm)
Net Weight	0.33 lb. (0.15Kg)	0.463 lbs (0.21kg)
Gross Weight	0.44 lb. (0.20Kg)	0.639 lbs (0.29kg)
Environment		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow, WITAS1 -4°F ~ 158°F (-20°C ~ 70°C) with active cooler	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow
Operation Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	685,218	173,446
Certification	CE/FCC Class A, RoHS Compliant, REACH	
Note		



Model	UP Squared V2	UP Squared i12
System		
Processor	Intel® Celeron® N6210 Processor SoC Intel® Celeron® J6412 Processor SoC Intel® Pentium® J6426 Processor SoC	12th Gen Intel® Core™ Processor SoC Intel® Core i7-1270PE Intel® Core i7-1260P Intel® Core i5-1250PE Intel® Core i5-1240P Intel® Core i3-1220PE Intel® Celeron® 7305E 13th Gen Intel® Core™ Processor SoC Intel® Core™ i7-1370PE Intel® Core™ i7-1360P Intel® Core™ i5-1340PE Intel® Core™ i3-1320PE
Graphics	Intel® UHD Graphics	
Memory	Up to 16GB LPDDR4	Up to 16GB Onboard LPDDR5
Storage	Up to 64GB eMMC	Up to 128GB Onboard SSD M.2 2280 M-Key NVMe x 1 (PCIe Gen 4.0 [x4]) SATA 6Gb/s x 1
I/O	HDMI 1.4b x 1 DP 1.2 x 1 eDP 1.3 x 1 Audio 6 pin wafer (Line out + MIC in) x 1 RS-232/422 6 pin header x 1	HDMI 1.4b/DP 1.2 STACK Connector x 1 DP 1.4a x 1 (via USB Type-C) 6-pin Audio Wafer x 1 (Line out + MIC in) 6-pin Front Panel x 1 2-pin Fan Wafer x 1 (12V) 2-pin RTC Battery Wafer x 1
Camera	—	MIPI CSI camera via 61pin wafer w/carrier board HDMI-in via 61pin wafer w/carrier board
USB	USB 2.0 x 2 (from 10 pin wafer x 1) USB 3.2 Gen 2 Type A x 3	10-pin USB 2.0 x 2/UART x 1 USB 3.2 Gen 2 (Type-A) x 2 USB 3.2 Gen 2 (Type-C for DP 1.4) x 1
Expansion	40 pin GPIO x 1 M.2 2230 E-Key x 1 (PCIe x2, USB2.0 x1) M.2 2280 M-key x 1 (PCIe x2) SATA3 x 1	40-pin GPIO x 1 M.2 2230 E-Key x 1 (CNVI & PCIe Gen 3.0 [x1]) M.2 2280 M-Key NVMe x 1 (PCIe Gen 4.0 [x4]) SATA 6Gb/s x 1
Display Interface	HDMI 1.4b x 1 DP 1.2 x 1 eDP 1.3 x 1	HDMI 1.4b/DP 1.2 STACK Connector x 1 DP 1.4a x 1 (via USB Type-C)
Ethernet	Gb Ethernet (full speed) RJ-45 x 2	1GbE RJ45 x 2 (Dual Stacked) (Realtek 8111H CG)
Security	Onboard TPM 2.0	
RTC	Yes	
OS Support	Windows 10 (full) Windows IOT Core Ubuntu 20.04 LTS Yocto 3.1	Windows®10 IoT Enterprise LTSC 2021, Ubuntu 22.04, Yocto 4.0
Power Requirement		
Power	12V DC-in, 5A	12V DC-in
Power Supply Type	AT/ATX	AT/ATX (Default: AT)
Power Consumption (Typical)	30~38W	26W~39W
Mechanical		
Dimension	3.37" x 3.54" (85.6 mm × 90 mm)	3.37" x 3.54" (85.6mm × 90mm)
Net Weight	0.41 lbs (0.19kg)	0.59 lbs (0.27kg)
Gross Weight	0.66 lbs (0.3kg)	0.84 lbs (0.38kg)
Environment		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow	
Operation Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF(Hours)	465,586	522,716
Certification	CE/FCC Class A, RoHS Compliant, REACH	
Note		



Model	UP Squared 7100	UP Squared TWL
System		
Processor	Intel® Processor N97 Intel® Processor N100 Intel Atom® x7433RE Intel Atom® x7835RE	Intel® Core™ 3 Processor N355 Intel® Processor N250 Intel® Processor N150 (formerly Twin Lake)
Graphics	Intel® UHD Graphics for 12th Gen Intel® Processors	
Memory	Up to 16GB LPDDR5	
Storage	Up to 128GB eMMC	
I/O	HDMI 2.0b x 1 DP 1.2 x 1 eDP 1.3 x 1 Audio wafer (Line out + MIC in) x 1 RS-232/422/485 via wafer x 2	
Camera	—	
USB	USB 2.0 x 2 (from 10 pin wafer x 1) USB 3.2 Gen 2 Type A x 3	
Expansion	40 pin GPIO x 1 M.2 2230 E-Key x 1 (PCIe [x1], USB 2.0) M.2 2280 M-Key x 1 (PCIe [x2])	
Display Interface	HDMI 2.0b x 1 DP 1.2 x 1 eDP 1.3 x 1	
Ethernet	Gb Ethernet (full speed) RJ-45 x 2	
Security	Onboard TPM 2.0	
RTC	Yes	
OS Support	Windows 10/11 Ubuntu 22.04 LTS Yocto 5.1	
Power Requirement		
Power	12V DC-in	
Power Supply Type	AT/ ATX (Default: ATX)	
Power Consumption (Typical)	15W~37W	
Mechanical		
Dimension	3.37" x 3.54" (85.6 mm × 90 mm)	
Net Weight	0.41 lbs (0.19kg)	
Gross Weight	0.66 lbs (0.3kg)	
Environment		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow, WiTAS1 -4°F ~ 158°F (-20°C ~ 70°C) with active cooler	
Operation Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF(Hours)	1,224,238	
Certification	CE/FCC Class A, RoHS Compliant, REACH	
Note		

Note: All specifications are subject to change without notice.



Model	UP Squared Pro 7000		UP Squared Pro TWL	UP Squared Pro 710H
System				
Processor	Intel® Core™ i3-N305 Intel Atom® x7425E Intel Atom® x7433RE Intel Atom® x7835RE Intel® Processor N97 Intel® Processor N50		Intel® Core3 N355 Intel® Processor N150	Intel® Core™ i3-N305 (8C, 1.80 GHz, 15W) Intel® Processor N97 (4C, 2.00 GHz, 12W) Onboard Hailo-8™ edge AI processor
Graphics	Intel® UHD Graphics for 12th Gen Intel® Processors		Intel® Graphics up to 32EU w/ INT8 extension	Intel® UHD Graphics for 12th Gen Intel® Processors
Memory	Up to 16GB onboard LPDDR5			
Storage	Up to 64GB onboard eMMC			Up to 128GB onboard eMMC
I/O	HDMI 2.0b x 1 DP 1.2 x 1 DP 1.4a via USB Type C Audio Jack x 1 (Mic-in+Line-out) RS-232/422/485 via 10 Pin header x 2			HDMI 2.0b x 1 DP 1.4 x 1 RS-232/422/485 from 10 pin header x 2
Camera	MIPI-CSI via 61-Pin FPC Connector x 1			
USB	USB 2.0 x 2 (via 10 Pin Header x 1) USB 3.2 Gen 2 (Type-A) x 2 USB 3.2 Gen 2 (Type-C) x 1			USB 2.0 x 2 (from 10 pin header x 1) USB 3.2 Gen 2 (Type-A) x 2
Expansion	40 Pin GPIO x 1 M.2 2230 E-Key x 1 (CNVI, PCIe Gen 3 [x1], USB 2.0) M.2 2280 M-Key x 1 (PCIe Gen 3 [x2]) M.2 3052 B-Key x 1 (USB 3.2 Gen 2 only) with Nano SIM slot (USB 3.0) SATA 6Gb/s x 1			40-pin GPIO x 1 M.2 2230 E-Key x 1 (CNVI, PCIe Gen 3 [x1], USB 2.0) M.2 2280 M-Key x 1 (PCIe Gen 3 [x2], colay with M.2 3052 B-Key x 1) M.2 3052 B-Key x 1 (USB 3.2 Gen 2 only) (Optional)
Display Interface	HDMI 2.0b x 1 DP 1.2 x 1 DP 1.4a via USB Type C			HDMI 2.0b x 1 DP 1.4 x 1
Ethernet	2.5GbE x 2 (Intel® I226-IT)			2.5GbE x 2 (Intel® Ethernet Controller I226-IT)
Security	Onboard TPM 2.0			
RTC	Yes			
OS Support	Windows 10 IoT Enterprise Ubuntu 22.04 LTS Yocto 4.0	Windows 11 LTSC Ubuntu 22.04/kernel 6.11+, ubuntu 24.04/ kernel 6.11+, Yocto 5+ Yocto 5+		Windows 10 IoT Enterprise Ubuntu 22.04 LTS Yocto 4.0
Power Requirement				
Power	12V DC-in			12V-36V DC-in Phoenix connector (Optional: Lockable plug)
Power Supply Type	AT/ATX (Default: ATX)			AT/ATX
Power Consumption (Typical)	26W~35W			50W~55W
Mechanical				
Dimension	4" x 4" (101.6mm × 101.6mm)			
Net Weight	0.44 lbs (0.20kg)			
Gross Weight	0.77 lbs (0.35kg)			
Environment				
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow, WITAS1 -4°F ~ 158°F (-20°C ~ 70°C)	32°F ~ 140°F (0°C ~ 60°C)		32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow
Operation Humidity	0% ~ 90% relative humidity, non-condensing			
MTBF(Hours)	422,053	857,310		422,053
Certification	CE/FCC Class A, RoHS Compliant, REACH			
Note				



Model	UP Xtreme i11	UP Xtreme i12
System		
Processor	Intel® Core™ i3-N305 (8C, 1.80 GHz, 15W) Intel® Processor N97 (4C, 2.00 GHz, 12W) Onboard Hailo-8™ edge AI processor	12th Gen Intel® Core™ Processor SoC Intel® Core™ i7-1270PE Intel® Core™ i7-1260P Intel® Core™ i5-1250PE Intel® Core™ i5-1240P Intel® Core™ i3-1220PE Intel® Celeron® Processor 7305E 13th Gen Intel® Core™ Processor SoC Intel® Core™ i7-1370PE Intel® Core™ i7-1360P Intel® Core™ i5-1340PE Intel® Core™ i3-1320PE
Graphics	Intel® UHD Graphics for 12th Gen Intel® Processors	Intel® Iris® Xe graphics
Memory	Up to 16GB onboard LPDDR5	Up to 32GB onboard LPDDR5
Storage	Up to 128GB onboard eMMC	M.2 2280 M-Key x 2 (PCIe Gen 4.0 [x4]), SATA 6Gb/s x 1
I/O	HDMI 2.0b x 1 DP 1.4 x 1 RS-232/422/485 from 10 pin header x 2	HDMI 2.0b x 1 DP 1.4a x 1 DP 1.4a x 1 (via USB Type-C) eDP 1.4b x 1 Audio Jack x 1 (Mic-in+Line-out) RS-232/422/485 10-pin header x 2
Camera	MIPI-CSI via 61-Pin FPC Connector x 1	MIPI CSI camera via 61pin wafer w/carrier board (optional for 13th Gen) HDMI-in via 61pin wafer w/carrier board (optional for 13th Gen)
USB	USB 2.0 x 2 (from 10 pin header x 1) USB 3.2 Gen 2 (Type-A) x 2	USB 2.0 x 2 (from 10 pin header x 1) USB 2.0 (Type-A) x 1 USB 3.2 Gen 2 (Type-A) x 3 USB 4.0 (Type-C) x 1
Expansion	40-pin GPIO x 1 M.2 2230 E-Key x 1 (CNV1, PCIe Gen 3 [x1], USB 2.0) M.2 2280 M-Key x 1 (PCIe Gen 3 [x2], colay with M.2 3052 B-Key x 1) M.2 3052 B-Key x 1 (USB 3.2 Gen 2 only) (Optional)	40-pin GPIO x 1 M.2 2230 E-Key x 1 M.2 2280 M-Key x 2 (PCIe Gen 4.0 [x4]) SATA 6Gb/s x 1 M.2 3052 B-Key x 1 Nano SIM Slot x 1
Display Interface	HDMI 2.0b x 1 DP 1.4 x 1	HDMI 2.0b x 1, DP 1.4a x 1, DP 1.4a x 1 (via USB Type-C), eDP 1.4b x 1
Ethernet	2.5GbE x 2 (Intel® Ethernet Controller I226-IT)	Intel® I226-IT x 1 (TSN), Intel® I219 x 1 (vPRO)
Security	Onboard TPM 2.0	
RTC	Yes	
OS Support	Windows 10 IoT Enterprise, Ubuntu 22.04 LTS, Yocto 4.0	Windows® 10 Enterprise 2021 LTSC, Ubuntu 22.04, Yocto 4.0
Power Requirement		
Power	12V-36V DC-in Phoenix connector (Optional: Lockable plug)	12-36V DC-in (Lockable plug)
Power Supply Type	AT/ATX	AT/ATX (Default: ATX)
Power Consumption (Typical)	50W~55W	Intel® Core™ i7-1270PE, LPDDR5 4800MHz 16GB, 5.86A@+ 12V (Typical) Intel® Core™ i7-1270PE, LPDDR5 4800MHz 16GB, 8.05A@+ 12V (Max)
Mechanical		
Dimension	4" x 4" (101.6mm x 101.6mm)	4.74" x 4.82" (120.35mm x 122.5mm)
Net Weight	0.44 lbs (0.20kg)	0.88lb (0.4kg)
Gross Weight	0.77 lbs (0.35kg)	1.32lb (0.6kg)
Environment		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow, WiTAS1 -4°F ~ 140 °F (-20°C ~ 60°C)
Operation Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF(Hours)	422,053	362,068
Certification	CE/FCC Class A, RoHS Compliant, REACH	
Note		



Model	UP Xtreme i14		UP Xtreme ARL	
System				
Processor	Intel® Core™ Ultra 5 processor 125U (12M Cache, up to 4.30 GHz) Intel® Core™ Ultra 5 processor 125H (18M Cache, up to 4.50 GHz) Intel® Core™ Ultra 7 processor 155H (24M Cache, up to 4.80 GHz) Intel® Core™ Ultra 7 processor 165H (24M Cache, up to 5.00 GHz)		Intel® Core™ Ultra 5 processor 225H (18M Cache, up to 4.90 GHz) Intel® Core™ Ultra 7 processor 255H (24M Cache, up to 5.10 GHz) Intel® Core™ Ultra 7 processor 265H (24M Cache, up to 5.30 GHz)	
Graphics	Intel® Arc™ graphics			
Memory	Up to 64GB onboard LPDDR5 (Dual-Channel)			
Storage	M.2 2280 M-Key x 2 SATA 6Gb/s x 1			
I/O	HDMI 2.1 x 2 DP 2.1 x 1 DP 1.4 via USB Type-C x 1 Audio Jack x 1 (Mic-in+Line-out) RS-232/422/485 10-pin header x 2			
Camera	MIPI-CSI via 61-Pin FPC Connector x 1			
USB	USB 2.0 x 2 (from 10 pin header x 1) USB 2.0 (Type-A) x 1 USB 3.2 Gen 2 (Type-A) x 2 USB 3.2 Gen 2 (Type-C) x 1			
Expansion	40-pin GPIO x 1 M.2 2230 E-Key x 1 (PCIe Gen 3 [x1], USB 2.0) M.2 2280 M-Key x 2 (PCIe Gen 4 [x4]) M.2 3052 B-Key x 1 (PCIe Gen 3 [x1], USB 3.2 Gen 2 [x1]) with Nano SIM slot (USB 3.0) SATA 6Gb/s x 1			
Display Interface	HDMI 2.1 x 2 DP 2.1 x 1 DP 1.4 via USB Type-C x 1			
Ethernet	2.5GbE x 1 (via Intel® Ethernet Controller I226-IT), GbE x 1 (Intel® Ethernet Connection I219)			
Security	Onboard TPM 2.0			
RTC	Yes			
OS Support	Windows 10/11 (64bit) Ubuntu 22.04/Kernel 6.5 up		Windows 11 LTSC/ 10 LTSC Linux: Ubuntu 24.04 LTS, Yocto 5+	
Power Requirement				
Power	9-36V DC-in (Lockable plug)			
Power Supply Type	AT/ATX (ATX as default)			
Power Consumption (Typical)	67-80W		TBD	
Mechanical				
Dimension	4.74" x 4.82" (120.35mm x 122.5mm)			
Net Weight	12.7 lb. (0.36Kg)			
Gross Weight	1.32lb (0.6kg)			
Environment				
Operating Temperature	With Cooler: 32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow		WiTAS1 -4°F ~ 158°F (-20°C ~ 70°C) with active cooler	
Operation Humidity	0% ~ 90% relative humidity, non-condensing			
MTBF (Hours)	1,014,016		TBD	
Certification	CE/FCC Class A, RoHS Compliant, REACH			
Note				



Model	UP Xtreme 7100
System	
Processor	Intel® Processor N97 Intel® Core™ i3-N305
Graphics	Intel® UHD Graphics Gen 12
Memory	Up to 16GB LPDDR5
Storage	Up to 64GB onboard eMMC M.2 2280 M-Key x 1 (PCIe Gen 3 [x2]) SATA 6Gb/s x 1
I/O	RS-232/422/485 x 1 (Terminal Block) (Default RS232) 30pin board-to-board Connector x 1 UART x 1 (via 10 Pin Header x 1)
Camera	—
USB	USB 2.0 (Type A) x 2 USB 3.2 Gen 2 (Type A) x 2 USB 3.2 Gen 2 (Type C) x 1 (Supports DP alt mode)
Expansion	M.2 3052 B-Key x 1 with Nano SIM slot (USB 3.0) M.2 2230 E-Key x 1 (USB 2.0/PCIe) M.2 2280 M-Key x 1 (PCIe Gen 3 [x2]) 24V 8-in/8-out Digital I/O x 1 via Terminal Block (Output current: 500mA per channel) 6 pin GPIO x 1 via Terminal Block 6 pin 2-channel CAN 2.0B x 1 via Terminal Block (10 ~ 1000 kbps) DIP Switch for CANBus function x 1 CAN LED indicator x 2 SATA 6Gb/s x 1
Display Interface	DP 1.4a x 1 (via USB Type-C) eDP 1.3 x 1
Ethernet	2.5GbE x 2 (Intel® I226-IT)
Security	Onboard TPM 2.0
RTC	Yes
OS Support	Ubuntu 22.04 LTS (kernel 5.15 and kernel 5.19)
Power Requirement	
Power	9-36V
Power Supply Type	AT/ATX (Default: AT)
Power Consumption (Typical)	52W~55W
Mechanical	
Dimension	4.74" x 4.82" (120.35mm x 122.5mm)
Net Weight	1.11.lb (0.5kg)
Gross Weight	1.76 lb (0.8kg)
Environment	
Operating Temperature	With Heatsink: -4°F ~ 158°F (0°C ~ 60°C)/0.5m/s airflow
Operation Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	421,998
Certification	CE/FCC Class A, RoHS Compliant, REACH
Note	

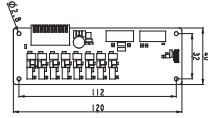
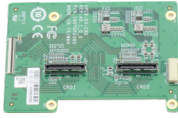
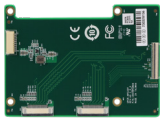
Note: All specifications are subject to change without notice.

Board Level Products

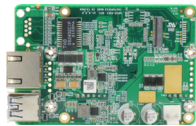
UP Boards



Model	UP Squared Pro
System	
Processor	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 COM port (RS422/RS232/RS485) x 2 Audio Jack x 1
Camera	—
USB	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 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	12V-24V DC-in (Lockable plug)/ Phoenix connector (optional)
Dimension	10.16cm x 10.16cm
Memory	2GB (single channel) LPDDR4 4GB/8GB (dual channel) LPDDR4
Storage	eMMC 32 GB / 64 GB
Display Interface	HDMI1.4 x 1 DP1.2 x 1 eDP x 1
Ethernet	Gb Ethernet (full speed) RJ-45 x 2
OS Support	Windows 10 (full), Windows IOT Core Linux: Ubuntu 18.04.5, Ubuntu 20.04.1, Yocto 3.1
Operating Temperature	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	



Model	MIPICSI Camera RPI Converter Kit	MIPICSI Camera RVP Converter Kit	UP Xtreme 7100 DIO Carrier Board
System			
I/O	Power: 5V/2A In from Wafer MIPI-CSI In: 4-Lane + Clock from Camera Module Connector x 2 MIPI-CSI Out: 61-pin FPC Connector x 1	Power: 5V/2A In from Wafer MIPI-CSI In: 4-Lane + Clock from Camera Module Connector x 2 MIPI-CSI Out: 61-pin FPC Connector x 1	Digital Input: Channel: Isolated Digital Input x 8 Type: Dry contact (Source), Wet contact (Sink/Source) Digital Output: Channel: Isolated Digital Output x 8 Type: Sink (Max load current 500mA per channel) 7 pin SPI wafer x 1 20-pin DIO Phoenix Connector x 1 30-pin Wafer Box x 1
Dimension	3.3" x 2.4" (85mm x 61mm)		4.72" x 1.57" (120mm x 40mm)
Net Weight	0.1 lb. (0.04Kg)		0.17 lb. (0.08Kg)
Gross Weight	0.13 lb. (0.06Kg)		0.3 lb. (0.14Kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow		32°F ~ 140°F (0°C ~ 60°C)
Operation Humidity	10% ~ 90% relative humidity, non-condensing		0% ~ 90% relative humidity, non-condensing
Certification	—		CE/FCC Class A



Model	UP 4000 M.2 Plus	UP POE V2 Expansion Board
System		
I/O	UP-APL03CB-A10-0001: M.2 3052/3042 B Key x1 (USB3.0) M.2 2230 E Key x1 (PCIe x1) (w/o Bluetooth) Push-push Nano SIM card x1 41pin FPC connector x1 UP-APL03CB-A10-0002: M.2 2280 M Key x1 (PCIe x1) 41pin FPC connector x1 UP-APL03CB-A10-0003: M.2 2230 E Key x1 (PCIe x1, USB 2.0 x1) 41pin FPC connector x1	UP-POEV2-30W-A10-0001: RJ-45 Input x 1 (10/100/1000M Gigabit Ethernet) USB 3.2 Gen 1 x 1 41-Pin FPC Connector x 1 UP-POEV2-30W-A10-0002: RJ-45 Input x 1 (10/100M) 10-Pin Wafer x 1
Dimension	UP-APL03CB-A10-0001: 2" x 2.36" (51mm x 60mm) UP-APL03CB-A10-0002: 2" x 3.5" (51mm x 89 mm) UP-APL03CB-A10-0003: 2" x 2.36" (51mm x 60mm)	3.37" x 2.22" (85mm x 56mm)
Net Weight	UP-APL03CB-A10-0001: 16g UP-APL03CB-A10-0002: 19g UP-APL03CB-A10-0003: 15g	0.1 lb. (0.04Kg)
Gross Weight	UP-APL03CB-A10-0001: 55g UP-APL03CB-A10-0002: 58g UP-APL03CB-A10-0003: 54g	0.13 lb. (0.06Kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow	32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow
Operation Humidity	10% ~ 80% relative humidity, non-condensing	10% ~ 80% relative humidity, non-condensing
Certification	CE/FCC Class A, RoHS Compliant	CE/FCC Class A, RoHS Compliant, REACH

Board Level Products

UP Boards: UP Expansion Modules



Model	UP 4000 M.2 Plus	CAN Bus Carrier Board
System		
I/O	FPC 61-pin MIPI CSI x 1 (Lontium.LT6911UXC) 2-pin Power Wafer x 2 HDMI 2.0 x 1 Color Format: CSC disabled: RGB565/666/888, YUV422 8/10-bit, Legacy YUV420 8-bit CSC enabled: RGB565/666/888, YUV422 8-bit Video Resolutions 3840×2160p@30fps 1920×1200@30fps 1920×1080@30fps 1680×1050@30fps 1440×900@30fps 1366×768p@30fps 1280×1024p@30fps 1280×960p@30fps 1280×800p@30fps 1280×768p@30fps 1280×720p@30fps 1280×600p@30fps 1152×864p@30fps 1024×768p@30fps 800×600p@30fps 720×576i@60fps *Once change resolution or frequency please reboot or unplug and plug in HDMI In carrier board	UP Board Connector x 1 6 pin terminal block x 1 6 pin LED Wafer x 1 Termination Resistor DIP Switch x 1 Reset Button x 1
Dimension	1.9" x 0.9" (49mm x 23mm)	2.56" x 2.20" (65 mm x 56 mm)
Net Weight	0.44 lb. (0.2Kg)	0.066 lb. (0.03Kg)
Gross Weight	0.88 lb. (0.4Kg)	0.13 lb. (0.06Kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow	32°F ~ 140°F (0°C ~ 60°)
Operation Humidity	10% ~ 80% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
Certification	—	CE/FCC Class A
Note		



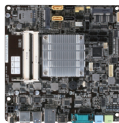
Model	EMB-APL1	EMB-APL3
System		
Processor	Intel Atom® x6000E Series/Intel® Pentium®/Celeron® N & J Series Processors (12W)	N4200, (4C @ 2.50GHz CPU [Burst Mode] 750MHz GFX (Turbo), ~6W TDP) N3350, (2C @ 2.40GHz CPU [Burst Mode], 650MHz GFX (Turbo), ~6W TDP)
Chipset	—	Integrated into SoC
Memory	Dual-Channel DDR4 3200 SODIMM x 2, up to 32GB, Non-ECC	DDR3L 1866, Single Channel SODIMM x 2, Non-ECC (Max.8GB, up to 1600MHz)
I/O Chipset	Nuvoton NCT6126D	
Ethernet	Realtek RTL8111H, GbE x 2	
Audio	Realtek® ALC897	
TPM	TPM 2.0	Nuvoton NPCT652 TPM2.0 (default: No)
Expansion Slots	M.2 3042/3052 B-Key x 1	PCIe2.0 [x1] x 1
	Full/Half-size mPCIe x 1	M.2 M key (22 x 42mm) x 1, for SATA
	SIM Socket x 1 (default: B-key)	M.2 E Key (22 x 30mm) x 1, for PCIe
BIOS	256Mbit Flash ROM, AMI BIOS	128Mbit Flash ROM x 1, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/SV/12V, Fan Monitor on Chassis	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/SV/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® UHD Graphics	Intel® HD Graphics
Graphics Multi Display	3 Independent Display(1xVGA+1x HDMI + 1x LVDS/eDP)	Three Independent Display
VGA	Up to 1920 x 1200 @60 Hz	Up to 1920 x 1200 @ 60 Hz
DVI	—	—
HDMI	Up to 4096 x 2160 @ 60Hz	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 1080 @60Hz, Dual Channel 18/24 bit (via CH7513) co-layout eDP (default LVDS)	Up to 1920 x 1200 @60Hz, dual-channel 18/24 bit (via PS8625) (colay with eDP)
eDP	Up to 3840 x 2160 @ 30Hz	Up to 4096 x 2160 @60Hz
Backlight Control	Voltage / PWM, use HW control	Voltage/PWM
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	DC 12V	12V DC jack (screw type)
	Power consumption 60W	4-pin internal power connector Power consumption: 84W
Operating Temperature	32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Certificate	CE & FCC Class A	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	230,820	
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 x 2 USB 2.0 x 4 (upper 2 ports by BOM Optional)	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 x 1, Line out x 1	Line-out x 1
LAN I/O	1GbE x 2	LAN (RJ-45) port x 2
Serial Port	RS232 by BOM Optional	—
PS/2 Port	—	—
Others	DC Jack x 1	DC power jack x 1
Internal I/O Connectors		
Storage	M.2 2280 M-Key x 1(PCle [x2])	SATA 6.0Gb/s x 2(1 colay with M.2 M-key),
	SATA 6Gb/s x 1 SATA Power Connector x 1 (5V/12V @1A)	M.2 M-key (22 x 42mm) x 1
USB	USB 2.0 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	40-pin LVDS/eDP connector x 1(default LVDS)
Audio I/O	AAFP follow ASUS pin out x 1	AAFP
Serial Port	Box header x 5 for COM (COM1: RS-232/422/485 supports 5V/12V/Ri; COM2~6: RS-232)	RS-232/422/485 x 1, RS-232 x 5
PS/2 Port	—	—
Parallel Port	—	—
DIO	Digital I/O box header x 1	8-bit x 1 (In/Out programmable)
FAN	4-pin Chassis Fan connector x 1	
Power		
Others	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	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 64-bit, Linux Ubuntu 64 bit (20.04.2/Kernel 5.4)	Windows® 10 64bit Ubuntu16.04.02/Kernel4.8.0
Note		

Board Level Products

Industrial Motherboards



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	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
Operating Temperature	32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	
Storage Temperature		
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	SATA 6Gb/s x 2, SATA2 (3.0Gb/s) x 2 (1 colay with mSATA), SATA power connector x 1, Full Size Mini-Card slot (mSATA) x 1	SATA2 (3.0Gb/s) x 2 (1 colay with mSATA), Full 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		



Model	EMB-BT4	MIX-EHLD1
System		
Processor	Intel® Celeron® J1900 Processor (4C @ 2.00 GHz CPU, 688/854 MHz GFX, 10W TDP)	Intel Atom® x6000E Series/Intel® Pentium®/Celeron® N & J Series Processors (12W)
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	Dual-Channel DDR4 3200 SODIMM x 2, up to 32GB, Non-ECC
I/O Chipset	Fintech 81866D	Nuvoton NCT6126D
Ethernet	Realtek PCIe Gb LAN 8111Hx 1	Realtek RTL8111H, GbE x 2
Audio		Realtek® ALC897
TPM	Infineon SLB9635 TT 1.2 (default : No)	TPM 2.0
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 3042/3052 B-Key x 1 Full/Half-size mPCIe x 1 SIM Socket x 1 (default: 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, Dual 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	DC 12V Power consumption 60W
Operating Temperature		32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)
Storage Temperature		-40°F ~ 185°F (-40°C ~ 85°C)
Certificate		CE & FCC Class A
Form Factor		Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
Weight		1.1 lb (0.5 Kg)
MTBF (Hours)	295,750	399,940
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 1/2.0 x 1, USB 2.0 x 2	USB 3.2 Gen 1 x 2 USB 2.0 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	SATA 6Gb/s x 2, SATA2 (3.0Gb/s) x 2 (1 colay with mSATA), SATA power connector x 1, Full Size Mini-Card slot (mSATA) x 1	M.2 2280 M-Key x 1 (PCIe [x2]) SATA 6Gb/s x 1 SATA Power Connector x 1 (5V/12V @1A)
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 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		

Board Level Products

Industrial Motherboards



Model	MIX-TLUD1	MIX-H310A1
System		
Processor	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	8th/9th Gen. Intel® Core™ LGA 1151 socket Processor (formerly Coffee Lake-S), Max. 65W TDPs
Chipset	—	Intel® H310 Express Chipset
Memory	DDR4 2666/3200 MHz SODIMM x 2, Up to 64GB	DDR4 2666/2400/2133 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture
I/O Chipset	IT5121E	NCT6793D
Ethernet	Intel® PCIe Gb LAN 219LM x 1 Intel® PCIe Gb LAN i226LM x 1	Intel® PCIe Gb LAN 219V x 1, Intel® PCIe Gb LAN i210AT x 3
Audio	Realtek® ALC897	Realtek® ALC897 with Amp.
TPM	Nuvoton NPCT750 TPM2.0 onboard	Firmware TPM
Expansion Slots	PCIe 3.0 [x4] x 1, mini-card x 1 (PCIe/SATA; BOM Optional)	PCIe3.0 [x16] x 1, M.2 M-key(22x80mm) at bottom side x 1 for SATA, M.2 E-key(22x30mm)
BIOS	256Mbit Flash ROM, AMI BIOS	128Mbit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/SV/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® Xe(Gen 12) Graphics	Intel® UHD Graphics
Graphics Multi Display	Quad Display	HDMI+VGA
VGA	—	Up to 1920 x 1200 @ 60 Hz
DVI	—	—
HDMI	HDMI 2.0	Up to 4096 x 2160 @30Hz(HDMI 1.4)
Display Port	DP1.4	—
LVDS	Up to 1920 x 1200 @60Hz, Dual Channel 18/24 bit (via CH7511B)	—
eDP	eDP1.4b	—
Backlight Control	Voltage/PWM (Max. current: 1A)	—
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	12(+/-5%) DC	ATX
Operating Temperature	32°F ~ 122°F(0 ~ 50°C) (Operational humidity: 50°C @ 90% RH Non-Condensing)	32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	—
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)	288,900	
Rear Panel I/O Ports		
USB	USB 3.2 Gen2 x 2, USB2.0 x 4	USB 3.2 Gen 1 (5 Gbps) x 4, USB 2.0 x 2
Display I/O	HDMI x 2, DP++ x 2	VGA x 1, HDMI x 1
Audio I/O	Mic-in x 1, Line out x 1	Mic-in x 1, Line-out x 1
LAN I/O	1GbE x 1, 2.5GbE x 1	LAN (RJ-45) port x 4
Serial Port	—	—
PS/2 Port	—	—
Others	—	—
Internal I/O Connectors		
Storage	M.2 M key (2280) for (NVMe; PCIe x4) storage x 1 SATA 6.0Gb/s x 1	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 80mm) at bottom side x 1 (SATA only)
USB	USB 3.0 Box header x 1 (support additional USB3.2 Gen1 x 2ports)	USB 2.0 (2 x 5-pin, 2.00mm) x 1 ports support additional 2 USB.
Display I/O	40-pin LVDS connector x 1, 40-pin eDP connector x 1	—
Audio I/O	AAFP Follow ASUS pin out x 1	AAFP x 1, Speaker x 1
Serial Port	Box header x 2 for COM (COM1/2: RS-232)	Box header for COM (RS-232/422/485) x 1, Box header for COM (RS-232) x 1
PS/2 Port	—	—
Parallel Port	—	—
DIO	Digital I/O box header x 1	Digital I/O box head 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, Clear CMOS jumper x 1, AT/ATX mode select jumper x 1; SIM socket x 1	Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, CMOS jumper x 1
OS		
OS Support	Windows® 10 64-bit, 20.04.2/Kernel 5.8	Windows® 10 64-bit, Linux Ubuntu 18.04 LTS
Note		



Model	MIX-H310A2	MIX-H310D1
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 2666/2400/2133 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture	DDR4 2666 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 1	Realtek® PCIe Gb LAN RTL8111H
Audio	Realtek® ALC897 with Amp.	Realtek® ALC897
TPM	Firmware TPM	
Expansion Slots	PCIe3.0 [x16] x 1	PCIe3.0 [x4] x 1 M.2 E-key(22 x 30 mm) x 1 for Wireless-wifi module (PCIe+USB)
BIOS	256Mbit Flash ROM, AMI BIOS	128Mbit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/SV/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	Intel® UHD Graphics	
Graphics Chipset	Intel® UHD Graphics	
Graphics Multi Display	HDMI+VGA, HDMI+DP, HDMI+LVDS, VGA+DP, VGA+LVDS, DP+LVDS	HDMI1+HDMI2, HDMI1+DP2, DP1+HDMI2, HDMI1+LVDS, HDMI2+LVDS, HDMI1+eDP, HDMI2+eDP, DP1+DP2, DP1+LVDS, DP2+LVDS, DP1+eDP, DP2+eDP
VGA	Up to 1920 x 1200 @ 60 Hz	—
DVI	—	—
HDMI	Up to 3840 x 2160 @30 Hz(HDMI 1.4b)	Up to 4096 x 2304@24Hz (HDMI 1.4b)
Display Port	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz	Up to 4096 x 2304@60Hz
LVDS	LVDS Up to 1920 x 1200 @60 Hz, Dual Channel 18/24 bit (1 x inverter)	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
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	ATX	12V DC Power consumption: [Typical: 120W]
Operating Temperature	32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	
Storage Temperature	—	
Certificate	CE & FCC	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	333,520	246,210
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 (5 Gbps) x 4	
Display I/O	VGA x 1, HDMI x 1, DP x 1	HDMI x 2, DP x 1 + HDMI x 1 (Optional), DP x 2 (Optional)
Audio I/O	Mic-in x 1, Line-out x 1	
LAN I/O	LAN (RJ-45) port x 2	
Serial Port	1x COM(RS485/422/232)	—
PS/2 Port	—	—
Others	—	DC Jack
Internal I/O Connectors		
Storage	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 80mm) x 1	SATA3.0 (6.0Gb/s) x 2 M.2 M-key (SATA) (22 x 42mm) x 1
USB	USB 2.0 (2 x 5-pin, 2.00mm) x 1 port support additional 2 USB.	USB 2.0 (2 x 5-pin, 2.00mm) x 3 ports support additional 5 USB.
Display I/O	LVDS x 1	—
Audio I/O	AAFP x 1, Speaker x 1	
Serial Port	Box header for COM (RS-232) x 1	Box header for COM (RS-232/422/485) 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 LTS	
Note		

Board Level Products

Industrial Motherboards



Model	MIX-H310D2	MIX-H610A1
System		
Processor	8th/9th Gen. Intel® Core™ LGA 1151 socket Processor (formerly Coffee Lake-S), Max. 65W TDPs	12th/13th/14th Generation Intel® Core™ LGA1700 Socket Processor, Max. 65W
Chipset	Intel® H310 Express Chipset	Intel® H610E Chipset
Memory	DDR4 2666/2400/2133 MHz SODIMM x 2, Up to 64GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture	Dual-Channel DDR4 3200MHz SODIMM x 2, Max 64GB
I/O Chipset	NCT6793D	NCT6126D
Ethernet	Intel® GbE LAN i219V x 1, Intel® GbE LAN i210AT x 1	Intel® Ethernet Connection I219-V x 1 Realtek RTL8111H x 3
Audio	Realtek® ALC897	Realtek® ALC897 with Amp.
TPM	NPCT750 TPM2.0 (default: No)	TPM2.0 IC on board
Expansion Slots	PCIe3.0 [x16] x 1 M.2 E-key(22 x 30 mm) x1 for Wireless-wifi module (PCIe+USB; CNVi)	PCIe Gen 4 [x16] x 1, M.2 2230 E-Key x 1 (PCIe [x1]/CNVi/USB)
BIOS		256Mbit Flash ROM, AMI BIOS
H/W Monitor		Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/SV/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		Intel® UHD Graphics
Graphics Chipset		Intel® UHD Graphics
Graphics Multi Display	HDMI+HDMI, HDMI+eDP, HDMI+VGA, VGA+eDP	HDMI x 2 + DP x 1, HDMI x 1 + DP x 2, HDMI x 1 + DP x 1 + LVDS x 1, HDMI x 1 + DP x 1 + eDP x 1
VGA	Up to 1920 x 1200 @ 60 Hz (Optional)	—
DVI	—	—
HDMI	Up to 3840 x 2160 @30 Hz(HDMI 1.4)	HDMI 2.0, up to 3840 x 2160 @60Hz
Display Port	—	DP 1.2, up to 3840 x 2160 @60Hz
LVDS	—	18/24-bit Dual-Channel LVDS, up to 1920 x 1080 @60Hz (co-lay eDP, default LVDS)
eDP	UP to 4096 x 2304 @ 60Hz	eDP, Up to 1920 x 1080 @60Hz
Backlight Control	Support eDP	—
Environment & Power & ME		
Battery		Lithium battery
Power Requirement	12V DC	ATX; [330 Watt or greater power supply] Voltage/Current(A) requirement:+3.3V/0.05A;+5V/6.07A;+12V/17.3A
Operating Temperature	—	32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)
Storage Temperature	—	-40°F ~ 185°F (-40°C ~ 85°C)
Certificate		CE & FCC
Form Factor		Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
Weight		1.1 lb (0.5 kg)
MTBF (Hours)	373,720	357,180
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 x 4, USB 2.0 x 4	USB 3.2 Gen 2 x 2, USB 2.0 x 4
Display I/O	HDMI x 2, VGA x 1 (Optional)	HDMI 2.0 x 2, DP 1.2 x 2
Audio I/O		Mic-in x 1, Line-out x 1
LAN I/O	LAN (RJ-45) port x 2	RJ-45 LAN x 4
Serial Port		—
PS/2 Port		—
Others	12V DC Jack (max:192W)	—
Internal I/O Connectors		
Storage	SATA3.0 (6.0Gb/s) x 2 M.2 M-key (22 x 42/80mm; PCIe) x 1	SATA 6Gb/s x 2, M.2 2280 M-Key x 1
USB	USB 2.0 (2 x 5-pin, 2.00mm) x 1 port support additional 1 USB	USB 3.2 Pin Header x 1 (USB 3.2 Gen 1 x 2)
Display I/O	eDP x 1	40-pin LVDS/eDP connector x 1 with Inverter
Audio I/O	AAFP x 1	AAFP x 1, Speaker x 1
Serial Port	Box header for COM (RS-232) x 1; RS-232/422/485 x 1	Box Header for COM (RS-232/422/485) x 1, Box Header for COM (RS-232) x 1
PS/2 Port		—
Parallel Port		—
DIO	Digital I/O box header x 1	8-bit Programmable connector x 1
FAN		4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1
Power		1x24-pin EATX Power connector, 1x8-pin EATX 12V Power connector
Others	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	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 18.04.2	Windows® 10 64-bit, Windows® 11 64bit
Note		



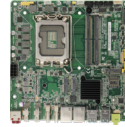
Model	MIX-H610A2	MIX-Q370A1
System		
Processor	12th/13th/14th Generation Intel® Core™ LGA1700 Socket Processors	8th/9th Gen. Intel® Core™ LGA 1151 socket Processor (formerly Coffee Lake-S), Max. 65W TDPs
Chipset	Intel® H610E Chipset	Intel® Q370 Express Chipset
Memory	Dual Channel DDR4 3200MHz U-DIMM x 2 (Max. 32GB)	DDR4 2666/2400/2133 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, dual-channel memory architecture
I/O Chipset	NCT5525D	NCT6793D
Ethernet	Realtek® RTL8111H x 1	Intel® PCIe Gb LAN 219LM x 1, Intel® PCIe Gb LAN i210AT x 3
Audio	Realtek® ALC897	Realtek® ALC897 with Amp.
TPM	fTPM	Firmware TPM
Expansion Slots	M.2 2230 E-Key x 1 (PCIe [x1], USB 2.0) PCIe Gen 5 [x16] x 1	PCIe3.0 [x16] x 1 M.2 E-key (22 x 30mm; Support CNVi)
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 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	Intel® UHD Graphics	
Graphics Chipset	Intel® UHD Graphics	
Graphics Multi Display	Triple Independent Display	HDMI+VGA
VGA	—	Up to 1920 x 1200 @ 60 Hz
DVI	—	—
HDMI	HDMI 1.4, Up to 4096 x 2160 @30Hz/2560 x 1600 @60Hz, with Digital Audio	Up to 4096 x 2160 @30Hz (HDMI 1.4)
Display Port	DP 1.4a, up to 4096 x 2160 @60Hz	—
LVDS	Dual-Channel 18/24 bit, up to 1920 x 1080 @60Hz	—
eDP	Up to 4096 x 2340 @60Hz	—
Backlight Control	PWM	—
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	ATX Voltage/Current(A) requirement: +3.3V/1.45A; +5V/7.63A; +12V/18.08A; +5VS B/O.24A	ATX
Operating Temperature	32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	—
Certificate	CE & FCC (Class A)	CE & FCC
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb. (0.5kg)	
MTBF (Hours)	422,390	—
Rear Panel I/O Ports		
USB	USB 3.2 Gen 2 x 2 + USB 2.0 x 2	USB 3.2 Gen 2 (10 Gbps) x 4, USB 2.0 x 2
Display I/O	HDMI 1.4 x 1, DP 1.4 x 1	VGA x 1, HDMI x 1
Audio I/O	Line-out x 1, MIC-in x 1	Mic-in x 1, Line-out x 1
LAN I/O	RJ-45 LAN Port x1	LAN (RJ-45) port x 4
Serial Port	—	—
PS/2 Port	—	—
Others	—	—
Internal I/O Connectors		
Storage	SATA 6Gb/s x 2 M.2 2280 M-Key x 1 (PCIe [x4]/NVMe)	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 80mm) at bottom side x 1(SATA only)
USB	USB 2.0 x 2 via Pin Header x 1 USB 3.2 Gen 1 x 2 via Box Header x 1	USB 2.0 (2 x 5-pin, 2.00mm) x 1 ports support additional 2 USB
Display I/O	40-pin LVDS/eDP Connector x 1 (Default: LVDS)	—
Audio I/O	HD Audio x 1 via Pin Header	AAFP x 1, Speaker x 1 Box header for COM (RS-232/422/485) x 1 Box header for COM (RS-232) x 1
Serial Port	—	—
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 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	ATX	—
Others	Clear CMOS jumper x 1, Front Panel connector x 1, ATX/AT mode select x 1, ME disable x 1, eDP/LVDS Tcon IC voltage select x 1, Backlight Voltage Select x 1	Front Panel connector x 1 Chassis Intrusion x 1 Buzzer onboard x 1 CMOS jumper x 1
OS		
OS Support	Windows® 10 64-bit, Windows® 11 64-bit	Windows® 10 64-bit, Linux Ubuntu 18.04. 64-bit
Note		

Board Level Products

Industrial Motherboards



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	256Mbit 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 Chronitel 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 Power consumption: [Typical:120W]	12V DC
Operating Temperature	32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	—
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	Mic-in x 1, Line-out x 1
LAN I/O	LAN (RJ45) port x 2	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	USB 2.0 pin header x 3 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 I-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



Model	MIX-Q670A1	MIX-Q670D1
System		
Processor	12th/13th/14th Gen Intel® Core™ Processors	
Chipset	Intel® Q670E Chipset	
Memory	Dual-Channel DDR5 4800MHz SODIMM x 2, Max. 64GB	Dual-Channel DDR5 4800MHz SODIMM x 2 (Non-ECC, Max. 64GB)
I/O Chipset	Intel® UHD Graphics	NCT6126D
Ethernet	Intel® Ethernet Connection I219-LM x 1 Intel® Ethernet Controller I210-AT x 1	
Audio	Realtek® ALC897 with Amp	
TPM	Onboard TPM 2.0 IC	
Expansion Slots	PCIe Gen 5 [x16] x 1 A10/A13-AN: M.2 3042/3052 B-Key x 1 A11-EK: M.2 2230 E-Key x 1	M.2 3042/3052 B-Key x 1 (PCIe [x1], USB 3.2 Gen 1/USB 2.0) M.2 2230 E-Key x 1 (PCIe [x1], Optional: dual PCIe [x1], USB 2.0)
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, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/Chassis Fan	CPU Fan/ System Fan
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® UHD Graphics	
Graphics Multi Display	HDMI x 2 + DP x 2, HDMI x 2 + DP x 1 + LVDS x 1, HDMI x 2 + DP x 1 + eDP x 1, HDMI x 1 + DP x 2 + LVDS x 1, HDMI x 1 + DP x 2 + eDP x 1	HDMI x 2 + DP x 2, HDMI x 2 + DP x 1 + LVDS x 1, HDMI x 2 + DP x 1 + eDP x 1, HDMI x 1 + DP x 2 + LVDS x 1, HDMI x 1 + DP x 2 + eDP x 1
VGA	—	
DVI	—	
HDMI	Up to 3840 x 2160 @60Hz (HDMI 2.0)	HDMI 2.0, Up to 3840 x 2160 @60Hz
Display Port	Up to 3840 x 2160 @60Hz	DP 1.2, Up to 3840 x 2160 @60Hz
LVDS	Up to 1920 x 1080 @60Hz, Dual-Channel 18/24 bit	Dual-Channel 18/24 bit LVDS via CH7513, up to 1920 x 1080 @60Hz, colay eDP
eDP	Up to 1920 x 1080 @60Hz (via CH7513), co-layout LVDS	Up to 1920 x 1080 @60Hz
Backlight Control	PWM	
Environment & Power & ME		
Battery	Lithium Battery	
Power Requirement	ATX Voltage/Current(A) requirement: +3.3V/0.06A; +5V/11.65A; +12V/17.68A; +5V SB/0.14A	DC 12V Power consumption: Peak 330W; Typical 150W
Operating Temperature	32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Certificate	CE & FCC	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb. (0.5Kg)	1.1 lb (0.5 Kg)
MTBF (Hours)	366,590	368,780
Rear Panel I/O Ports		
USB	A10: USB 3.2 Gen 2 x 8 + USB 2.0 x 4 A11-EK: USB 3.2 Gen 2 x 8 + USB 2.0 x 2 A13-AN: USB 3.2 Gen 2 x 4 (available by request)	USB 3.2 Gen 2 x 4
Display I/O	HDMI x 2, DP x 2	
Audio I/O	Line-out x 1	
LAN I/O	LAN Port x 2 (RJ-45)	
Serial Port	—	
PS/2 Port	—	
Others	—	
Internal I/O Connectors		
Storage	SATA 6Gb/s x 2 (6.0Gb/s), M.2 2280 M-Key	SATA 6Gb/s x 2 with SATA Power Connector x 2 (1A) M.2 2280 M-Key (PCIe [x4]/NVMe) x 1
USB	A10/A11-EK: USB 3.2 Gen 1 x 2 ports A13-AN: USB 3.2 Gen 1 x 2 ports + USB 2.0 x 8 ports (available by request)	USB 2.0 x 4 via 2x5P Header x 2
Display I/O	40-pin LVDS/eDP connector x 1 with Inverter	
Audio I/O	AAFP x 1, Speaker x 1	HD Audio x 1 (via AAFP Header), Internal Speaker x 1 (2W/40hmΩ)
Serial Port	Box Header for COM x 1 (RS-232/422/485) Box Header for COM x 1 (RS-232)	
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, Onboard Buzzer x 1, CMOS Jumper x 1	
OS		
OS Support	Windows® 10 64-bit, Windows® 11 64-bit	
Note		

Note: All specifications are subject to change without notice.

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Board Level Products

Industrial Motherboards



Model	MIX-ALND1	MIX-ASLD1
System		
Processor	Intel® Processor N-series: Intel® Processor N97 Intel® Processor N50 *For additional compatible CPUs, please contact regional sales	Intel® Processor N97, 4C, TDP: 12W
Chipset	SoC	—
Memory	Single-Channel DDR5 4800MHz SODIMM x 1 (Non-ECC, Max. 16GB)	DDR5 4800MHz SODIMM x 1, Max 16GB (Non-ECC, Un-buffered memory)
I/O Chipset	NCT6126D	Nuvoton NCT6126D
Ethernet	Realtek 8111H x 2	PoE x 1 (Intel® Ethernet Controller I210-AT) 1GbE LAN x 7 (LAN Controller: Intel® Ethernet Controller I350-AM4 x 1 + Intel® Ethernet Controller I210-AT x 3)
Audio	Realtek® ALC897 with Amp.	—
TPM	TPM (TPM chip by BOM optional)	Onboard TPM 2.0 (Infineon SLB9672)
Expansion Slots	M.2 3042/3052 B-Key x 1 (PCIe [x1], SATA, USB 3.2 Gen 1/USB 2.0) with SIM socket M.2 2230 E-Key x 1 (PCIe [x1], USB 2.0)	M.2 3042/3052 B-Key x 1 (PCIe 3.0 x1, USB 3.2) for 5G/LTE M.2 2230 E-Key x 1 (PCIe 3.0 x1, USB 2.0, CNV) for WiFi/Bluetooth Nano SIM Card x 1 (B-Key, push type)
BIOS	256Mbit Flash ROM, AMI BIOS	256Mbit Flash ROM, AMI BIOS, UEFI
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on Chassis
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/Chassis Fan	Chassis Fan
Wake On LAN/ PXE	Yes (WOL/PXE)	Yes (WOL with i210 ports/PXE)
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® UHD Graphics	Integrated Graphics
Graphics Multi Display	HDMI x 2 + DP x 1, HDMI x 2 + LVDS x 1, HDMI x 2 + eDP x 1, HDMI x 1 + DP x 1 + LVDS x 1, HDMI x 1 + DP x 1 + eDP x 1	—
VGA	—	—
DVI	—	—
HDMI	HDMI 2.0, Up to 4096 x 2160 @60Hz	—
Display Port	DP 1.4, Up to 4096 x 2160 @60Hz	Up to 3840 x 2160 @60/30Hz (internal)
LVDS	18/24-bit Dual-Channel LVDS via CH7513, up to 1920 x 1080 @60Hz, colay eDP	—
eDP	Up to 1920 x 1080 @60Hz	—
Backlight Control	PWM	—
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	DC 12V Power consumption: [Peak: 100W; Typical: 60W]	DC 12V Power consumption: 80W
Operating Temperature	32°F ~ 140°F (0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Certificate	CE & FCC class A	CE & FCC (Class A)
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb. (0.5Kg)	
MTBF (Hours)	—	
Rear Panel I/O Ports		
USB	USB 3.2 Gen 2 x 2; USB 2.0 x 2	USB 3.2 Gen 1 x 1 (Vertical)
Display I/O	HDMI x 2, DP x 1	—
Audio I/O	Line-out x 1	—
LAN I/O	RJ-45 LAN Port x 2	PoE x 1 (Type 1 IEEE 802.3AT, 30W x 1, for 1G PoE/PSE); RJ-45 LAN x 7 (1G)
Serial Port	—	—
PS/2 Port	—	—
Others	—	Nano SIM Slot x 1, Software Reset Button x 1, Console Port x 1, DC Jack x1
Internal I/O Connectors		
Storage	SATA 6Gb/s x 1 with SATA Power Connector (1A) M.2 2280 M-Key x 1 (PCIe [x1]/NVMe/SATA)	SATA 6Gb/s x 1 M.2 2280 M-Key slot x 1 (Auto Detect, PCIe [x1] & SATA Mode)
USB	USB 2.0 x 4 via 2x5P Headers x 2	USB 2.0 x 2 (2.54mm pitch, 2x5-pin Header) support for 4 USB 2.0 ports
Display I/O	40-pin LVDS/eDP Connector x 1 with Inverter	—
Audio I/O	HD Audio x 1 (via AAFP Header), Internal Speaker x 1 (2W/4Ω)	—
Serial Port	COM Box Header x 2 (RS-232/422/485); COM Box Header x 4 (RS-232)	—
PS/2 Port	—	—
Parallel Port	—	—
DIO	Digital I/O Box Header x 1	8-bit Digital I/O interface x 1 (In/Out programmable)
FAN	4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1	Chassis Fan connectors (4-pin) x 1
Power		
Others	Front Panel Connector x 1, Chassis Intrusion x 1, Onboard Buzzer 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; Buzzer Onboard x 1; 1x3-pin ME Lock Header; OOB Chip Onboard x 1 (by BOM optional); DP Connector x 1 (Vertical) (by BOM optional); 1x5-pin I2C Header (Reserve); 1x5-pin SMBus Header
OS		
OS Support	Windows® 10 64-bit, Windows® 11 64-bit	Windows® 10 64-bit, Windows® 11 64-bit, Linux Ubuntu 22.04
Note		



Model	MIX-MTLD1	MIX-H810WV1
System		
Processor	Intel® Core™ Ultra processors (H-series & U-series support) TDP: 15W (U-series)/28W (H-series)	Intel® Arrow lake-S Ultra Core™ Processors, 65W, LGA1851 socket; up to 24C (8+16) 24T
Chipset	—	H810
Memory	Dual Channel DDR5 5600MHz SODIMM x 2, Max 96GB	SODIMM/ CSODIMM x 2, max. 96GB, Dual Channel DDR5 up to 6400 MHz
I/O Chipset	Nuvoton NCT6126D	NCT6126D
Ethernet	Intel® Ethernet Controller I210-AT x 1 Intel® Ethernet Controller I226-V x 1	Intel® PCIe 2.5Gb LAN i226V x 2 Intel® PCIe 1Gb LAN i210AT x 1
Audio	—	Realtek® ALC897
TPM	Onboard TPM 2.0	Infineon SLB9672 TPM2.0 onboard (BOM option; default: no)
Expansion Slots	M.2 2230 E-Key x 1 (one pair PCIe [x1], USB 2.0, CNVi) M.2 3042/52 B-Key x 1 (PCIe [x1], USB 3.2 Gen 1) with Nano SIM socket (Default 3052 by BOM) PCIe Gen 5 [x8], H-series only: Open edge	PCIe x4 (close edge) M.2 B-key (3042/52) x 1 [PCIex1 with SIM socket or SATAx1 by BOM optional]
BIOS	256Mbit Flash ROM, AMI BIOS	256Mbit Flash ROM
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on Chassis	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V, Fan Monitor on Chassis
WatchDog Timer	—	1~255 steps by software program
Smart Fan Control	CPU Fan	CPU Fan/Chassis Fan
Wake On LAN/ PXE	—	Yes (WOL/PXE)
Power State	S4, S5	S3, S4, S5
Graphics		
Graphics Chipset	Intel® Arc™ Graphics	Intel® UHD Graphics
Graphics Multi Display	Quad Display	Triple Independent Display
VGA	—	—
DVI	—	—
HDMI	HDMI 2.0, up to 4096 x 2160 @60Hz, with Digital Audio	Up to 4096 x 2160 @ 60 Hz, with Digital Audio
Display Port	—	Up to 4096 x 2160 @ 60 Hz
LVDS	Dual-Channel 18/24 bit, up to 1920 x 1080 @60Hz (Co-layout eDP header; default: LVDS)	Up to 1920 x 1080 @60Hz, Dual Channel 18/24 bit co-layout eDP (default LVDS)
eDP	Up to 4096 x 2160 @60Hz (4ch; Co-layout LVDS by BOM optional)	Up to 1920 x 1080 @ 60Hz (co-layout LVDS)
Backlight Control	—	Voltage/PWM
Environment & Power & ME		
Battery	—	Lithium battery
Power Requirement	DC 12V±5% Power consumption: Peak 150W	19V~24V(±5%)
Operating Temperature	32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	—
Storage Temperature	—	-40°F ~ 185°F (-40°C ~ 85°C)
Certificate	—	CE & FCC (Class A)
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
Weight	1.1 lb. (0.5kg)	1.1 lb (0.5 Kg)
MTBF (Hours)	—	—
Rear Panel I/O Ports		
USB	USB 3.2 Gen 2 (Type-A) x 1, USB 2.0 x 3, USB 3.2 Gen 1 (Type-C) x 1 (5Gbps)	USB 3.2 Gen2 x 2 ports, USB 2.0 x 4 ports
Display I/O	HDMI 2.0 x 4	HDMI2.0 x 2, DP1.4 x 1
Audio I/O	Line-out x 1, MIC-in x 1	Line out x 1 + MIC-IN x 1
LAN I/O	RJ-45 LAN Port x 2	LAN (RJ45) port x 3
Serial Port	—	—
PS/2 Port	—	—
Others	Power DIN x 1	phoenix connector 19V~24V
Internal I/O Connectors		
Storage	SATA 6Gb/s x 2 with SATA power Connector x 1 (2A), RAID 0,1 support M.2 2280 M-Key x 1 (PCIe Gen 4 [x4], NVMe)	SATA 6.0Gb/s x 2 with SATA power conn x 2 (1A) M.2-1A M key (2280) x 1 [PCIex4/NVMe:Gen3]
USB	USB 3.2 Gen 1 x 1 (2x10-pin, 2.0mm Header) additional 2 USB port interface USB 2.0 x 1 (2x5-pin, 2.00mm Header) additional 2 USB port interface	USB 3.2 Gen1 x 2 ports (using 2 x 10-pin header) USB 2.0 x 2 ports (using 2 x 5-pin header)
Display I/O	LVDS/eDP Header x 1	40-pin LVDS/eDP connector x 1 with Inverter(Default LVDS)
Audio I/O	Pin header (1x4-pin) Support 2W/4ohm x 1	HD Audio using AAFP x 1, Speaker header x 1
Serial Port	Box Header x 1 for RS-232/422/485, Box Header x 3 for RS-232	RS-232/422/485 (supports 5V/12V/Ri option) x2+ RS-232 x2
PS/2 Port	—	—
Parallel Port	—	—
DIO	—	8-bit programmable (4-in/4-out) x 1
FAN	4-pin CPU Fan connector x 1	4-pin Chassis Fan connector x 1, 4-pin CPU Fan connector x 1
Power	—	phoenix connector x1
Others	Clear CMOS Jumper x 1; Front Panel Connector x 1; Buzzer Header x 1; ATX/AT Mode Select x 1; ME Disable x 1; eDP/LVDS Tcon IC Voltage Select x 1 eDP/LVDS Panel Backlight Voltage Select x 1; SATA PWR Connector x 1 LVDS Inverter Connector x 1; 1x3-pin ME Lock Header; NCSD Header x 1 for OOB Module: MOD-RMB (via Intel® Ethernet Controller I210-AT)	Clear CMOS jumper x 1, Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, ATX/AT mode select x 1, ME disable x 1, eDP/LVDS Tcon IC voltage select x 1, eDP/LVDS panel backlight voltage select x 1 SATA PWR x 2, LVDS inverter x 1 (5V/3.3V) SIM socket x 1
OS		
OS Support	Windows® 10 64-bit, Windows® 11 64-bit, Ubuntu 24.04, Kernel 6.8	Windows 10/11 64 bit; Linux Ubuntu 22.04

Board Level Products

Industrial Motherboards



Model	MIX-Q870A1	MAX-Q670A
System		
Processor	Intel® Core™ Ultra 200S Series Processors, 65W, LGA1851 Socket	12th/13th/14th Generation Intel® Core™ LGA1700 Socket Processors (formerly Alder Lake/Raptor Lake), TDP Max 125W
Chipset	Intel® Q870 Chipset	Intel® Q670 Express Chipset
Memory	CSODIMM/SODIMM x 2, Max 96GB, Dual-Channel DDR5, up to 6400MHz	DDR5 4000MHz DIMM x 4, Up to 192GB Non-ECC, Un-buffered Memory, Dual-Channel Memory Architecture
I/O Chipset	Nuvoton NCT5525D	NCT6126D
Ethernet	Intel® Ethernet Connection I219-LM, 1GbE LAN x 1 Intel® Ethernet Controller I226-LM, 2.5GbE LAN x 1	RJ-45 GbE LAN x 1 (Intel® PHY I219-LM, supports Intel® AMT 12.0) RJ-45 GbE LAN x 1 (Intel® I210-AT) RJ-45 2.5GbE LAN x 2 (Intel® I226-LM, Optional)
Audio	Realtek® ALC897 (with audio AMP)	Realtek ALC897 6-Channel High Definition Audio CODEC
TPM	TPM 2.0	TPM 2.0 onboard
Expansion Slots	PCIe Gen 5 [x16] x 1 (Jumper for Bifurcation selection ([x16] x 1 or [x8] + [x8] or [x8] + [x4] + [x4])) M.2 2230 E-Key x 1 (PCIe [x1]/NVMe)	PCIe Gen 5 [x16] x 1 (8 Lanes/8 Lanes when dual-use PCIe [x16] slot) PCIe Gen 3 [x4] x 1 (2 Lanes, Open Slot) PCIe Gen 5 [x16] x 1 (8 Lanes) PCIe Gen 4 [x4] x 1 (4 Lanes) M.2 3042/3052/2242 B-Key x 1 (PCIe 3.0 [x1]/USB 3.2 Gen 1) + Micro SIM Slot x 1 M.2 2230 E-Key x 1 (PCIe 3.0 [x1]/USB 2.0)
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 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 x 1/Chassis Fan x 2 (3rd Chassis Fan is DC Fan)
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	Quad Independent Display	HDMI + VGA + DP + LVDS/eDP
VGA		Up to 1920 x 1200 @60Hz (via IT6516B)
DVI		
HDMI	HDMI 2.0: Up to 4096 x 2160 @60Hz/2560 x 1600 @60Hz, with Digital Audio	HDMI 2.0 x 1, up to 4096 x 2160 @60/30 Hz, with Digital Audio
Display Port	DP 1.4: Up to 4096 x 2160 @120 Hz (HBR2)	DP 1.4 x 1, up to 4096 x 2160 @24 Hz or 3840 x 2160 @60 Hz, with Digital Audio
LVDS	Up to 1920 x 1080 @60Hz, Dual-Channel 18/24 bit, co-layout eDP (default LVDS)	18/24-bit Dual-Channel LVDS x 1, up to 1920 x 1080 @60 Hz
eDP	Up to 1920 x 1080 @60Hz	eDP x 1, up to 3840 x 2160 @30 Hz
Backlight Control	PWM	Yes
Environment & Power & ME		
Battery		Lithium battery
Power Requirement	ATX	24-pin ATX connector x 1, 8-pin 12V ATX Power Connector x 1 [Voltage/Current(A) requirement: +3.3V/1.4A; +5V/10.55A; +12V/13.89A; +5VSB/0.24A]
Operating Temperature	32°F ~ 140°F (0 ~ 60°C) (Operational humidity: 60°C @90% RH Non-Condensing)	32°F ~ 140°F (0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)
Storage Temperature		-40°F ~ 185°F (-40°C ~ 85°C)
Certificate	CE & FCC (Class A)	CE & FCC Class A
Form Factor	6.7" x 6.7" (170mm x 170mm)	Micro-ATX Form Factor, 9.6" x 9.6" (244mm x 244mm)
Weight	1.1 lb. (0.5Kg)	1.76 lb. (0.8Kg)
MTBF (Hours)	—	267,950
Rear Panel I/O Ports		
USB	USB 3.2 Gen 2 x 8	USB 3.2 Gen 2 x 4 (10Gbps) USB Type-C x 1 (Optional, 20Gbps, 5V, 3A) (All ports are bootable, can be deactivated per BIOS function; USB Power switchable feature)
Display I/O	HDMI 2.0 x 2, DP 1.4 x 2	HDMI 2.0 x 1, VGA x 1, DP 1.4 x 1
Audio I/O	Line Out x 1, Mic x 1	Audio Jack x 3: Line-in, Mic-in, Line-out
LAN I/O	RJ-45 x 2	RJ-45 LAN x 2 (Optional: RJ-45 x 4)
Serial Port	—	DB-9 x 1 (Supports RS-232/422/485, 5V/12V/RI)
PS/2 Port	—	—
Others	—	—
Internal I/O Connectors		
Storage	SATA 6Gb/s x 2 M.2-1A 2280 M-key x 1 (PCIe [x4]/NVMe) M.2 2242 M-Key x 1 (SATA)	SATA 6Gb/s x 8, supports RAID 0, 1, 5, 10 M.2 2242/2280 M-Key x 2 (PCIe Gen 4.0, 4 Lanes, supports RAID 0, 1, 5, 10)
USB	USB 3.0 pin header x 1 (supports additional USB 3.2 Gen 1 x 2)	USB 3.2 x 1 (2x5P 2.54mm Pitch Box Header, supports USB 3.2 Gen 1 x 2) USB 2.0 Header x 1 (2x5P 2.54mm Pitch Box Header, supports USB 2.0 x 2) USB 3.2 Gen 1 x 1 (Type-A, vertical) (All Headers support USB Power switchable feature)
Display I/O	40-pin LVDS/eDP connector x 1 with Inverter (Default LVDS)	—
Audio I/O	AAFP follows ASUS pin out x 1	Speaker header x 1 (Line-out), AAFP x 1
Serial Port	—	RS-232 x 5 (via 1x9P Header)
PS/2 Port	—	—
Parallel Port	—	—
DIO	8-bit programmable (4-in/4-out) x 1	8-bit Digital I/O Interface x 1
FAN	4-pin Chassis Fan Connector x 1 4-pin CPU Fan Connector x 1	4-pin CPU Fan Connector x 1 (PWM Mode), 4-pin Chassis Fan connector x 2 (PWM Mode), 3-pin Chassis Fan connector x 1 (DC Mode)
Power	ATX Clear CMOS Jumper x 1, Front Panel Connector x 1	Chassis Intrusion x 1, AT/ATX Mode Select Jumper x 1 Front Panel Header x 1, Clear CMOS Jumper x 1
Others	Chassis Intrusion x 1, Buzzer Onboard x 1, ATX/AT Mode Select x 1 ME Disable x 1, eDP/LVDS Icon IC Voltage Select x 1 Backlight Voltage Select x 1, Additional MCIO Connector (75pin) for BMC Card	Onboard Buzzer x 1, 3-pin ME Lock Header x 1 LED Header for Ethernet x 2 (Optional: LED Header x 4 when RJ-45 x 4)
OS		
OS Support	Windows 11 64-bit; Linux Ubuntu 24.04 (TBD)	Windows® 10 64-bit, Windows® 11 64-bit



Model	MAX-Q470A	MAX-Q370A
System		
Processor	Intel® 10th Generation (Comet Lake-S) Core™ i9 / i7 / i5 / i3, Pentium 14nm LGA 1200 socket Processor, Max. 10 Core 80W	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
Chipset	Intel® Q470E Express Chipset	Intel® Q370 Express Chipset
Memory	DIMM x 4, DDR4 (2933/2666/2400 MHz, max. 128GB) non-ECC, un-buffered memory Dual channel memory architecture	DIMM x 4, DDR4 (2666/2400/2133 MHz, max. 128GB) Non-ECC, un-buffered memory Dual-channel memory architecture
I/O Chipset	IT5121E + F81216HD	NCT6793D + F81216HD
Ethernet	Intel® PHY i219LM Giga LAN (supports Intel® AMT 12.0) x 1; Intel® i210AT Giga LAN x 1; RJ45 x 2	
Audio	Realtek® ALC897 6-Channel High Definition Audio CODEC	
TPM	Nuvoton NPCT750AADYX TPM2.0 onboard (optional: default: onboard)	Nuvoton NPCT750 TPM2.0 onboard
Expansion Slots	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/CNVl) x 1, M.2 3042/3052/2242 B-key (PCIe/USB/SATA) x 1, Micro SIM card Slot x 1	PCIe 3.0[x16] Slot x 1, PCIe 3.0[x4] Slot (open edge) x 2 PCIe 3.0[x1] Slot (open edge) x 1 M.2 2230 E-key (PCIe/USB) x 1, M.2 2280 M-key (PCIex4/SATA3) x 1
BIOS	256Mbit Flash ROM, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/ Chassis Fan x 2	
Wake On LAN/ PXE	Yes (WOL / PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® Graphics Media Accelerator	Intel® UHD Graphics
Graphics Multi Display	HDMI+HDMI+VGA, HDMI+HDMI+LVDS, HDMI+VGA+LVDS, HDMI+HDMI+HDMI	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 @ 60 / 30 Hz, with Digital Audio	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	Up to 1920 x 1200 @ 60 Hz, Dual Channel 18/24 bit	—
eDP	—	—
Backlight Control	Yes	—
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	24-pin ATX connector x 1, 8-pin (2x4) ATX 12V Power connector x 1	
Operating Temperature	32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	
Storage Temperature	—	
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)	259,360 Hrs	264,820
Rear Panel I/O Ports		
USB	USB 3.2 Gen2 ports (10 Gbps) x 2, USB 3.2 Gen1 ports (5 Gbps) x 4	USB 3.2 Gen 2 ports (10 Gbps) x 6, USB 3.2 Gen 1 ports (5 Gbps) x 4
Display I/O	VGA x 1, HDMI x 3 (2.0 x 1, 1.4 x 2)	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	DB-9 COM (supports RS-232/422/485, 5V/12V/RI) x 1	—
PS/2 Port	—	PS/2 combo Port (Keyboard & Mouse) x 1
Others	BIOS recovery button	—
Internal I/O Connectors		
Storage	SATA 6Gb/s ports x 4, support RAID 0/1/5/10 M.2 2280/2242 M-key (PCIex4) x 1	SATA 6Gb/s x 4, support RAID 0/1/5/10 M.2 2280 M-key (PCIex4/SATA3) x 1
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	USB 2.0 headers support additional 3 USB ports (2x5PIN, p=2.54mm)
Display I/O	40-pin LVDS connector x 1	—
Audio I/O	speaker header (Line-out) x 1, AAFP x 1	—
Serial Port	RS-232 headers x 3	RS-232 Box headers x 5 RS-232/422/485 Box 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(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 2	CPU Fan connector (4-pin) x 1 Chassis Fan connector(s) (4-pin) x 2
Power	24-pin EATX Power header x 1, 8-pin EATX 12V Power connector x 1	—
Others	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	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 x1, Buzzer on-board x1
OS		
OS Support	Windows® 10 64bit, Windows® 11 64bit, Linux Ubuntu 64bit (20.04.0/Kernel 5.4)	Windows® 10 64bit, Windows® 11 64bit, Linux Ubuntu 64bit (18.04.1/Kernel4.8.0)
Note		

Board Level Products

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™ T44m, 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(PCIe4/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	
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	Intel® UHD 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	
Operating Temperature	32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60% @ 90% RH Non-Condensing)	
Storage Temperature	---	
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	
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	SATA 6Gb/s x 4, support RAID 0/1/5/10 M.2 2280 M-key (PCIe4/SATA3) x 1	SATA 6Gb/s x 3; BOM option: can support additional 2 SATA M.2 2280 M-key (BOM option: PCIe1 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	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 3-pin ME lock header x 1 Buzzer on-board 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 3-pin ME lock header x 1 Buzzer on-board x 1
OS		
OS Support	Windows® 10 64bit, Windows® 11 64bit, Linux Ubuntu 64-bit (18.04.1/Kernel4.8.0)	Windows® 10 64bit, Windows® 11 64bit, Linux Ubuntu 64bit (18.04.1/Kernel4.8.0)
Note		



Model	ATX-Q670A	ATX-Q370A
System	12th/13th/14th Generation Intel® Core™ LGA1700 Socket Processors (formerly Alder Lake/Raptor Lake), TDP Max 125W	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
Processor	Intel® Q670E Chipset	Intel® Q370 Express Chipset
Chipset	DDR5 4000MHz DIMM x 4, up to 128GB	DIMM x 4, DDR4 (2666/2400/2133 MHz, max. 128GB)
Memory	Non-ECC, Unbuffered Memory, Dual-Channel Memory Architecture	Non-ECC, un-buffered memory, Dual channel memory architecture
I/O Chipset	NCT6126Dx	NCT6793D + F81216HD
Ethernet	Intel® PHY I219-LM Giga LAN x 1 (supports Intel® AMT 12.0) Intel® I210-AT Giga LAN x 1 Intel® I225-LM Giga LAN x 1 (Optional) RJ-45 x 2 (Optional: RJ-45 x 3, LAN 3 with USB 3.2 Gen 2 x 1)	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	Realtek® ALC897 6-Channel High Definition Audio CODEC
TPM	TPM 2.0 onboard	Novoton NPC1750 TPM2.0 onboard
Expansion Slots	PCIe Gen 5 [x16] x 1 (16 Lanes) PCIe Gen 3 [x1] x 1 (1 Lane, Open Slot) PCIe Gen 4 [x4] x 1 (4 Lanes, Open Slot) PCIe Gen 4 [x16] x 1 (4 Lanes) PCI Slot x 3 M.2 3042/3052 B-Key x 1 (PCIe 3.0 [x1]/USB 3.2 Gen 1) Mini PCIe Slot x 1 (PCIe 3.0/USB 2.0) Micro SIM Card Slot x 1 (M.2 B-Key or Mini PCIe Slot)	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/CNV) x 1, M.2 2280 M-key (PCIex4/SATA3) x 1
BIOS	256Mbit Flash ROM, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/SV/3.3V/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 x 1/Chassis Fan x 3	CPU Fan/ Chassis Fan x 2
Wake On LAN/ PXE	Yes (WOL/PXE)	Yes (WOL / PXE)
Power State	S3, S4, S5	
Graphics	Intel® Graphics Media Accelerator	
Graphics Chipset		
Graphics Multi Display	HDMI+HDMI+DP+DP, HDMI+HDMI+DP+VGA, HDMI+VGA+DP+DP	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 IT6156B)	
DVI		
HDMI	HDMI 2.0, up to 4096 x 2160 @60/30Hz, with Digital Audio	Up to 4096 x 2160 @ 24 Hz / 2560 x 1600 @ 60 Hz, with Digital Audio
Display Port	DP 1.4, up to 4096 x 2160 @24Hz or 3840 x 2160 @60 Hz, with Digital Audio	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 ATX 12V Power Connector x 1	24-pin ATX connector x 1, 8-pin (2x4) ATX 12V Power connector x 1
Operating Temperature	32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Certificate	CE & FCC Class A	
Form Factor	ATX Form Factor, 12" x 9.6" (305mm x 244mm)	
Weight	1.76 lb (0.8 Kg)	
MTBF (Hours)	281,760	281,410
Rear Panel I/O Ports		
USB	USB 3.2 Gen 2 x 2 (10Gbps, Optional: x 3 units if with LAN 3 I225-LM); USB 3.2 Gen 1 x 2 (5Gbps); USB Type C x 1 (5Gbps, 5V, 1.5A, Optional) (All ports are bootable, can be deactivated per BIOS function; USB Power switchable feature)	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 2.0 x 2, DP 1.4 x 2	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	Audio Jack x 3: Line-in, Mic-in, Line-out
LAN I/O	RJ-45 LAN x 2 (Optional: RJ-45 x 3)	LAN (RJ45) ports x 2 (BOM option: RJ45 x 3)
Serial Port	DB-9 COM x 1 (supports RS-232/422/485, 5V/12V/RI)	
PS/2 Port		
Others		
Internal I/O Connectors		
Storage	SATA 6Gb/s x 8, supports RAID 0/1/5/10 M.2 2280 M-Key x 1 (PCIe Gen 4.0, 4 Lanes) M.2 2242/80 M-Key x 1 (PCIe Gen 3.0 1 Lane)	SATA 6Gb/s ports x 4, support RAID 0/1/5/10 M.2 2280 M-key (PCIex4/SATA3) x 1
USB	USB 3.0 Box Header x 1 (2x5P, p=2.54mm), supports USB 3.2 Gen 1 x 2 (USB Power switchable feature) USB 2.0 Header x 1 (2x5P, p=2.54mm) supports USB 2.0 x 2 (USB Power switchable feature) USB 2.0 x 1 (Vertical Type-A)	USB 2.0 headers x 1 support additional 2 USB ports (2x5PIN, p=2.54mm)
Display I/O	VGA Header x 1	
Audio I/O	Speaker Header (Line-out), AAFP x 1	
Serial Port	RS-232 Header x 5	RS-232 headers x 5, RS-232/422/485 x 1 (COM1, supports 5V/12V/RI optional)
PS/2 Port		
Parallel Port		
DIO	8-bit Digital I/O Interface x 1 (In/Out Programmable)	8-bit Digital I/O interface (In/Out programmable) x 1
FAN	4-pin CPU Fan Connector x 1 (PWM Mode) 4-pin Chassis Fan Connector x 3 (PWM Mode)	CPU Fan connector(s) (4-pin) x 1 Chassis Fan connector(s) (4-pin) x 2
Power	Chassis Intrusion x 1, AT/ATX Mode Select Jumper x 1, Front Panel Header x 1	Chassis Intrusion x 1; AT/ATX mode select jumper x 1; Front panel header x 1;
Others	Clear CMOS Jumper x 1, Buzzer Onboard x 1, 3-pin ME Lock Header x 1	Clear CMOS jumper x 1; 3-pin ME lock header x 1; Buzzer on-board x1
OS	Windows® 10 64-bit, Windows® 11 64-bit	Windows® 10 64bit, Windows® 11 64bit; Linux Ubuntu 64bit (18.04.1/Kernal4.8.0)
OS Support		

Note: All specifications are subject to change without notice.

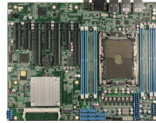
www.aaeon.com

Board Level Products

Industrial Motherboards



Model	ATX-C246A	ATX-H310A
System		
Processor	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	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® 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	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)	Intel® PHY i219V Giga LAN x 1 Intel® i210AT Giga LAN x 1 RJ45 x 2
Audio	Realtek® ALC897 6-Channel	High Definition Audio CODEC
TPM	Nuvoton NPC750 TPM2.0 onboard	Nuvoton NPC750 TPM2.0 onboard (optional, default: on-board)
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/CNV) x 1, M.2 2280 M-key (PCIex4/SATA3) x 1	PCIe 3.0(x16) Slot x 1, PCIe 2.0(x4) Slot (open edge) x 2 (#1: 1Lane #2: Default: 2Lanes, only support 1Lane when Mini PCIe slot is installed.), PCI x 3, M.2 2280/2242 M-key (PCIex1/SATA3) x 1, Mini PCIe + Micro SIM card Slot (optional, default: N/A)
BIOS	256Mbit Flash ROM x 1, AMI BIOS	128Mbit Flash ROM x 1, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/ Chassis Fan x 2	
Wake On LAN/ PXE	Yes (WOL / PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® Graphics Media Accelerator	
Graphics Multi Display	HDMI+VGA+DP (BOM option: USB 3.2 Gen 2-10Gbps Type-C connector (Alternate Mode: USB+DP) x 1)	HDMI+VGA, HDMI+DP, VGA+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	Up to 4096 x 2160 @ 30 Hz
Display Port	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz, with Digital Audio	
LVDS	—	
eDP	—	
Backlight Control	—	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	24-pin ATX connector x 1, 8-pin (2x4) ATX 12V Power connector x 1	
Operating Temperature	32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	
Storage Temperature	—	
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	285,600
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	USB 3.2 Gen 1 ports 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)	HDMI x 1, VGA x 1, DP x 1
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)	LAN (RJ45) ports x 2
Serial Port	DB-9 COM x 1 (supports RS-232/422/485, 5V/12V/RI)	
PS/2 Port	—	
Others	—	
Internal I/O Connectors		
Storage	SATA 6Gb/s ports x 4, support RAID 0/1/5/10 M.2 2280 M-key (PCIex4/SATA3) x 1	SATA 6Gb/s ports x 3 M.2 2280/2242 M-key (PCIex1/SATA3) x 1
USB	USB 2.0 headers x 1 support additional 2 USB ports (2x5PIN, p=2.54mm)	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
Display I/O	—	
Audio I/O	AAFP x 1	
Serial Port	5 x RS-232 headers 1 x RS-232/422/485 (COM1, supports 5V/12V/RI optional)	RS-232 headers x 5
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	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 3-pin ME lock header x 1 Buzzer on-board 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® 10 64bit, Windows® 11 64bit, Linux Ubuntu 64bit (18.04.1/Kernal4.8.0)	Windows® 10 64bit, Windows® 11 64bit, Linux Ubuntu 64 bit (18.04.3/Kernal5)
Note		



Model	ARES-WHIO	ARES-EAGO
System		
Form Factor	ATX Sever Board Whitely Platform	EATX Sever Board Eagle Stream Platform
Processor	Single Intel® Xeon® Processor Ice Lake-SP processor, supports up to 270W	Dual 4th Generation Intel® Xeon® Scalable Processors (formerly Sapphire Rapids-SP), TDP Max. 350W
System Memory	DDR4 2666MHz R-DIMM Slot x 6, supports up to 192GB (32GB per DIMM)	DDR5 4800 MHz R-DIMM Slot x 12
Chipset	Intel® C621A	Intel® Emmitsburg PCH
Ethernet	Intel® i210 Gigabit Ethernet x 2	Intel® i226LM LAN controller x 1, Intel® X550-AT2 x 1
COM	RS-232 x 1	Pin header x 1
BIOS	AMI BIOS	
Serial ATA	SATA 6Gb/s port x 8	SATA 6Gb/s port x 2, miniSAS x 1 (up to 4x SATA)
Audio and VGA	1	VGA x 1, Audio In Out (Optional)
Expansion Interface	PCIe 1: 1 x PCIe x16 (Gen4 x16) slot PCIe 2: 1 x PCIe x8 (Gen3 x4) slot PCIe 3: 1 x PCIe x16 (Gen4 x16) slot PCIe 4: 1 x PCIe x8 (Gen4 x4) slot PCIe 5: 1 x PCIe x16 (Gen4 x16) slot PCIe 6: 1 x PCIe x8 (Gen3 x4) slot PCIe 7: 1 x PCIe x8 (Gen4 x8) slot	PCIe 1: PCIe Gen 5 [x16] x 1 PCIe 2: PCIe Gen 5 [x16] x 1 PCIe 3: PCIe Gen 5 [x16] x 1 PCIe 4: PCIe Gen 5 [x16] x 1 PCIe 5: PCIe Gen 5 [x16] x 1 PCIe 6: PCIe Gen 5 [x16] x 1
Watchdog Timer	1~255 steps by software programming	
RTC	Internal RTC	
System Fan	4-pin fan headers x 5 (up to 5 fans)	
Front I/O Panel		
Rear I/O Panel	USB 3.0 x 6, 1Gb RJ45 LAN x 2, AUDIO in and out x 1, VGA x 1	USB 3.2 Gen 1 x 4 2.5GbE LAN x 1 10GbE LAN x 2 VGA x 1 COM x 1
Color		
Power Supply	ATX	
Dimension	12.0" x 9.6" (305mm x 244 mm)	12" x 13" (305mm x 330mm)
Power Consumption	269W (Based on Intel® Xeon® Platinum 8352S)	TBD
MTBF (Hours)	292,321	TBD
Display		
Chipset	SM750	AST2510
Graphic Engine	N/A	
Resolution	1920x1080 (WIN Server 2019); 800x600 (CentOS 7.3)	TBD
Connector	VGA	
I/O		
Serial Port	COM x 1 Pin	
K/B and Mouse		
USB	USB 3.0 x 6	USB 3.2 Gen. 1 x 4
Environment		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°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		

Board Level Products

Industrial Server



Model	ZEUS-PUR0	ZEUS-WHIO
System Form Factor	4U Rackmount Server System	
Processor	Intel® Xeon® Skylake-SP and Cascade Lake-SP Processors	Single Intel® Xeon® Processor Ice Lake-SP processor, supports up to 205W
System Memory	DDR4 2133/2400/2666 R-DIMM, Up to 512 GB	DDR4 2666MHz R-DIMM Slot x 6, supports up to 192GB (32GB per DIMM)
Chipset	Intel® C621	Intel® C621A
Ethernet	Intel® i211 Gigabit Ethernet x 2	Intel® i210 Gigabit Ethernet x 2
BIOS	AMI BIOS	
Serial ATA	SATA II port x 6	SATA 6Gb/s port x 8
Storage	2.5" HDD x 6 or 3.5" HDD x 6, M.2 x 1	2.5" HDD x 8 or 3.5" HDD x 8, M.2 2280 M key socket 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	PCIe 1: 1 x PCIe x16 (Gen4 x16) slot PCIe 2: 1 x PCIe x8 (Gen3 x4) slot PCIe 3: 1 x PCIe x16 (Gen4 x16) slot PCIe 4: 1 x PCIe x8 (Gen4 x4) slot PCIe 5: 1 x PCIe x16 (Gen4 x16) slot PCIe 6: 1 x PCIe x8 (Gen3 x4) slot PCIe 7: 1 x PCIe x8 (Gen4 x8) slot
Watchdog Timer	1~255 steps by software programmable	
RTC	Internal RTC	
System Fan	5	Middle Fan x 3 (Default), Rear Fan x 2 (Optional)
Front I/O Panel	Power LED x 1, Status LED x 1, HDD Active LED x 1	Power 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)	AC Power Input x 1, Power Switch button x 1, USB 3.1 Gen 1 x 6 (Type-A), 1Gb RJ45 LAN x 2, AUDIO in and out x 1, VGA x 1, Rear Expansion Slots x 7
Color	Black	
Power Supply	800 ~1600W Redundant PSU	800 mini redundant PSU; 1600W CRPS PSU, optional
Dimension	(480mm x 600mm x 176mm)	23.5" x 17" x 6.88" (597.2mm x 430mm x 174.8mm)
Power Consumption	TBD	—
MTBF (Hours)	TBD	—
Display		
Chipset	AST2500	SM750
Graphic Engine	From IPMI or Mini PCIe Option	—
Resolution	—	1920x1080 (WIN Server 2019); 800x600 (CentOS 7.3)
Connector	VGA Option	VGA
I/O		
Serial Port	RJ-45 Console x 1	COM x 1
K/B and Mouse	—	—
USB	USB 3.0 x 2	USB 3.1 Gen 1 x 6 (Type-A)
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	0.5 g rms/ 5 ~ 500Hz / operation (3.5" 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		

A4EON

02

► System Level Products





Model	BOXER-8221AI	BOXER-8223AI	BOXER-8224AI
System	NVIDIA® Jetson Nano™		
AI Accelerator			
CPU	Quad Core ARM® Cortex®-A57 MPCore Processor		ARM® Cortex® -A57 Quad-Core Processor
System Memory	4GB LPDDR4		
Storage Device	32GB Micro-SD (A version) or 16GB eMMC (B version)	16GB eMMC + Micro SD Card Slot 2.5" SATA Drive Bay x 1	16GB eMMC 5.1 x 1 MicroSD slot x 1
Display Interface	HDMI 2.0	HDMI 2.0 (Type-A) x 1 (Output) HDMI 1.4 (Type-A) x 1 (Input)	Mini HDMI x 1 for HDMI 2.0
Ethernet	10/100/1000Base-TX x 1	PoE/PSE LAN x 2 (IEEE 802.3at)	Wafer connector x 2 for Giga LAN
I/O	USB 3.2 Gen 1 x 4 LAN x 1 RS-232 x 2 HDMI x 1 MicroSD x 1 DC Power Input x 1 Recovery Button x 1 Micro-USB for Flash OS x 1	USB 3.2 Gen 1 (Type-A) x 4 GbE LAN with LED Indicator PoE/PSE LAN x 2 (IEEE 802.3at) DB-9 x 1 for RS-232/485 DB-15 x 1 Female for 13-Channel DIO O.S Flash Port x 1 Recovery Port x1 Antenna Opening x 2 HDMI 2.0 (Type-A) x 1 (Output) HDMI 1.4 (Type-A) x 1 (Input via MIPI CSI) Power Bottom x 1	USB 3.2 Gen 1 x 4 (via 2x19-Pin Wafer) Mini HDMI x 1 for HDMI 2.0 RS-232/485 x 2 (via 1x9-Pin Wafer) UART x 1 and I2C x 2 (via 1x9-Pin Wafer) 5V Output (via 1x2-Pin Wafer) GPIO x 6 (via 1x9-Pin Wafer) MIPI Connector x 2 for MIPI Camera LAN LED x 2 (via 2x6-Pin Wafer) Micro USB for Flash OS x 1 Recovery Button x 1 Reset Button x 1 and Power Button x 1 (via Pin Header)
Expansion	M.2 E-Key 2230 x 1(for WiFi)	Mini Card x 1 w/ SIM Slot M.2 2230 E-Key x 1 (for Wi-Fi)	M.2 2230 E Key x 1 for Wifi/BT Mini Card x 1 (LTE) Micro SD x 1 SIM card slot x 1
Indicator	Power LED x 1		—
OS Support	Linux (AAEON ACLinux 4.9) Linux (NVIDIA Jetpack 4.5)	NVIDIA Jetpack™ 4.5 or above	Linux (NVIDIA Jetpack™ 4.6 and above)
Power Supply			
Power Requirement	12Vdc w/ 2-pin terminal block	DC 12V~24V with 2-pin terminal block ATX mode	Wafer connector x 1 for 12V ~ 24V DC
Mechanical			
Mounting	Wallmount		—
Dimensions (W x D x H)	3.39" x 2.87" x 1.3" (88mm x 75mm x 39mm)	7.09" x 5.35" x 2.41" (180.0mm x 136.0mm x 61.1mm)	4.72" x 3.1" x 0.76" (120mm x 80mm x 19.7mm), SOM + Carrier Board Only
Gross Weight	1.10 lb (0.5 Kg)	4.63 lb. (2.1Kg)	0.45lb (0.2Kg)
Net Weight	0.66 lb (0.3 Kg)	2.87 lb. (1.3Kg)	0.23lb (0.1Kg)
Environmental			
Operating Temperature	-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), with 0.5m/s airflow	-4°F ~ 140°F (-20°C ~ 60°C with 0.5 m/s airflow)
Storage Temperature	-49°F ~176°F (-45°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)	-49°F ~ 176°F (-45°C ~ 80°C)
Storage Humidity	95% @ 40°C, non-condensing	5 ~ 95% @ 40°C, non-condensing	
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation – MicroSD or eMMC	Random, 3 Grms, 5~500Hz	3.5Grms / 5~500Hz / X/Y/Z axis, random (by M.2 storage)
Anti-Shock	—	50G peak acceleration (11 msec. duration,eMMC)	—
Certification	CE/FCC class A	CE/FCC Class A/UKCA	CE/FCC Class A
Note			



Model	BOXER-8240AI	BOXER-8251AI	BOXER-8253AI
System	NVIDIA® Jetson Xavier™ NX		
AI Accelerator	NVIDIA® AGX Xavier		
CPU	8-core ARM v8.2 64bit CPU, 8MB L2 + 4MB L3		
System Memory	32GB 256-Bit LPDDR4x 137GB/s		
Storage Device	32GB eMMC 5.1 Micro SD card slot 2.5" SATA drive bay M.2 Key M 2280	16GB eMMC + MicroSD	eMMC 16GB MicroSD slot x 1 Full-size mSATA (sharing slot with Full-size minicard module) 2.5" SATA drive bay x 1
Display Interface	HDMI 2.0 x 1	HDMI 2.0	HDMI Type A for HDMI 2.0 x 1
Ethernet	10/100/1000 Base-TX with IEEE 802.3af PoE LAN x 4	10/100/1000Base-TX x 1	RJ-45 x 2 For GbE PoE/PSE (802.3at) RJ-45 x 1 For GbE LAN
I/O	PoE x 4 (IEEE 802.3af, 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 OS Flash Recovery button x 1 Power button x 1 40-pin header compliance with NVIDIA Dev Kit 40 pins (4 pins CANBUS occupied)	USB 3.2 Gen 1 x 4 LAN x 1 RS-232 x 2 HDMI x 1 MicroSD x 1 DC Power Input x 1 Recovery Button x 1 Micro-USB for Flash OS x 1	USB Type A x 4 for USB 3.2 Gen 1 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
Expansion	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	M.2 E-Key 2230 x 1(for WiFi)	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
Indicator	Power LED x 1	Power LED x 1	
OS Support	Linux (NVIDIA Jetpack 4.5 and above)	Linux (AAEON ACLinux 4.9) Linux (NVIDIA Jetpack 4.5) Ubuntu18.04	Linux (AAEON ACLinux4.9) Linux (NVIDA Jetpack 4.5)
Power Supply			
Power Requirement	DC 12V~24V 2-pin terminal	12Vdc w/ 2-pin terminal block	12~24V DC with 2-pin terminal block
Mechanical			
Mounting	Wallmount		
Dimensions (W x D x H)	8.26" x 6.46" x 2.32" (210mm x 164.2mm x 59mm)	Standard: 3.46" x 2.95" x 1.53" (88mm x 75mm x 39mm) High heatsink Dimension: 3.54" x 3.30" x 2.04"(90mm x 84mm x 52mm)	7.09 " x 5.35 " x 2.41" (180.0 mm x 136.0 mm x 61.1 mm)
Gross Weight	6 lb (2.72kg)	Standard: 1.10 lb (0.5 kg) High heatsink: 1.76lb(0.8kg)	4.63 lb. (2.1 kg)
Net Weight	4.23 lb (1.92kg)	Standard: 0.66 lb (0.3 kg) High heatsink: 1.3lb(0.6kg)	2.87 lb. (1.3 kg)
Environmental			
Operating Temperature	14°F ~ 131°F (-10°C ~ 55°C, according to IEC60068-2 with 0.5 m/s AirFlow)	-4°F ~ 140°F (-20°C ~ 60°C) (varies depending on selected power model)	5°F ~ 131°F (-15°C ~ 55°C with 0.5 m/s airflow)
Storage Temperature	-40 °F ~ 158°F (-40°C ~ 70°C)		
Storage Humidity	95% @ 40°C, non-condensing		
Anti-Vibration	Random, 3 Grms, 5 ~ 500Hz	3 Grms/ 5 ~ 500Hz/ operation – MicroSD or eMMC	3.5Grms / 5~500Hz / operation-eMMC, MicroSD or mSATA
Anti-Shock	—		
Certification	CE/FCC class A		



Model	BOXER-8256AI	BOXER-8621AI	BOXER-8622AI
System			
AI Accelerator	NVIDIA® Jetson Xavier™ NX	NVIDIA® Jetson Orin Nano™ NVIDIA® Jetson Orin Nano™ with Super Mode	
CPU	6-core NVIDIA Carmel Arm®v8.2 64-bit CPU	6-core Arm® Cortex®-A78AE ARMv8.2 64-bit CPU	
System Memory	8GB LPDDR4x	4GB/8GB LPDDR5	
Storage Device	16GB eMMC x 1 MicroSD Slot x 1 M.2 M-Key 2280 x 1 (PCIEx4]) 2.5" SATA x 1	M.2 3052 B-Key x 1 for M.2 2242 B+M Key SSD (Default Storage) M.2 2230 E-Key x 1 (Optional)	M.2 2280 M-Key x 1
Display Interface	HDMI 2.0 x 2	HDMI 1.4 (Type-A) x 1	
Ethernet	RJ-45 x 1 for GbE LAN		RJ-45 x 2 for 10/100/1000 Base-T
I/O	USB Type A x 3 for USB 3.2 Gen 1 DB9 for RS-232/422/485 (By switch) and CANbus x1 HDMI x 2 for Video Display 2.0 HDMI x 4 for Video Input 1.4 (Limitation have stated in User manual) Mic-in x 1, Line-Out x 1 Micro USB for OS Flash x 1 Power ON/OFF switch x 1 Recovery button x 1 SMA Antenna hole x 2	USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 (Type-A) x 2 DB-9 for RS-232 (Rx/Tx/CTS/RTS)/485 x 1 and CANbus FD x 1 DB-15 for RS-232 (Rx/Tx)/422/485 x 1 and DIO x 8 Micro USB x 1 for OS Flash Recovery Button x 1 Antenna x 2	USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 (Type-A) x 2 Micro USB x 1 for OS Flash DB-9 x 1 for CANbus DB-9 x 1 for RS-232/422/485 DB-15 x 1 for 13-bit DIO Power ON/OFF switch x 1 Recovery button x 1 Antenna Hole x 6
Expansion	M.2 B-Key 3042/3052 x 1 (PCIEx2] + USB 3.0) M.2 E-key x 1(PCIEx1] + USB 2.0)	M.2 3042/3052 B Key x 1 (4G/5G/M.2 2242 B+M Key storage) M.2 2230 E Key x 1 (Wifi/BT/Storage) SIM Slot x 1	M.2 2230 E-Key x 1 (Wi-Fi/Bluetooth) M.2 3042/3052 B-Key x 1 (4G/5G) M.2 2280 M-Key x 1
Indicator	Power LED x 1		
OS Support	Linux (NVIDIA Jetpack 4.6.2 or above)	Linux (NVIDIA Jetpack™ 5.0 and up)	
Power Supply			
Power Requirement	DC-in 12-24V with 2-pin terminal block	12V~24V DC in with 2 pins terminal block x 1	DC-in 12-24V with 2-pin terminal block
Mechanical			
Mounting	Wallmount		
Dimensions (W x D x H)	7.09" x 5.35" x 2.64" (180 mm x 136 mm x 67 mm)	4.13" x 3.54" x 2.05" (105mm x 90mm x 52mm), w/o bracket	5.98" x 3.78" x 2.42" (152mm x 96 mm x 61.5mm)
Gross Weight	4.23 lb (1.92 kg)	2.4 lb. (1.1Kg)	3.97lb (1.8kg)
Net Weight	2.87 lb (1.3 kg)	1.58 lb. (0.7Kg)	2.65lb (1.2kg)
Environmental			
Operating Temperature	-5°F ~ 140°F (-15°C ~ 60°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	-5°F ~ 149°F (-15°C ~ 65°C with 0.5 m/s airflow)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 185°F (-40°C ~ 85°C)	
Storage Humidity	5 ~ 95% @ 40°C, non-condensing		
Anti-Vibration	3.5 Grms/ 5 ~ 500Hz/ operation – eMMC	3.5Grm / 5~500Hz / Operation	3.5Grm / 5~500Hz
Anti-Shock	50G, IEC 60068-2-27, half sine, 11 ms duration – eMMC	50G peak acceleration	
Certification	CE/FCC class A		
Note			



Model	BOXER-8623AI	BOXER-8640AI	BOXER-8641AI
System	NVIDIA® Jetson AGX Orin™		
AI Accelerator	NVIDIA® Jetson Orin Nano™		
CPU	AGX Orin 32GB: 8-core Arm® Cortex®-A78AE CPU AGX Orin 64GB: 12-core Arm® Cortex®-A78AE CPU		
System Memory	32GB LPDDR5 64GB LPDDR5		
Storage Device	M.2 2280 M Key x 1	64GB eMMC 5.1 Micro SD Card Slot x 1 2.5" SATA Drive Bay x 1 M.2 2280 M-Key x 1	64GB eMMC 5.1 x 1 MicroSD slot x 1 SATA drive bay x 1
Display Interface	HDMI 1.4 (Type-A) x 1	HDMI 2.0 x 1	HDMI Type A for HDMI 2.0 x 1
Ethernet	RJ-45 x 1 for GbE LAN RJ-45 x 4 for GbE PoE/PSE 802.3af/at (Max.60W)	RJ-45 for GbE PoE/PSE 802.3af x 4 (Max. 60W)	RJ-45 for GbE LAN x 2
I/O	USB 3.2 Gen 2 (Type-A) x 4 DB-9 x 1 for RS-232 (Rx/Tx/CTS/RTS) x 1 and CANBus FD x 1 DB-15 x 1 for RS-232(Rx/Tx)/422/485 x 1 and DIO x 8 Micro USB x 1 for OS Flash Power Button x 1 Recovery Button x 1 Antenna Hole x 6	USB 3.2 Gen 2 (Type-A) x 2 USB 3.2 Gen 2 (Type-C) x 2 RS-232/422/485 x 1 CANBus x 1 Mic-in x 1 Line-out x 1 MicroSD Slot x 1 Micro USB x 1 for OS Flash Recovery Button x 1 Power Button x 1 40-pin Header compliant with NVIDIA Jetson Orin Nano Developer Kit (without CANBus)	USB Type A for USB 3.2 Gen 2 x 2 USB Type C for USB 3.2 Gen 2 x 1 USB Type A for USB 2.0 x 1 Micro USB x 1 for OS Flash Mic in and Line out x1 Reset Button x 1 Recovery Button x 1 MicroSD card slot x 1 Antenna opening x 4 Power Button x 1 DB-9 x 2 for RS-232/422/485 DB-9 x 1 for DIO x 8
Expansion	M.2 2280 M-Key x 1 (NVMe) M.2 3042/3052 B-Key x 1 M.2 2230 E-Key x 1 SIM Slot x 1	USB 2.0 Header x 1 (Optional, Circuit Reserved) M.2 2230 E-Key x 1 (Wifi/BT) M.2 2280 M-Key x 1 (NVMe) 2.5" SATA Drive Bay x 1 RS-232/422/485 Pin Header x 1	M.2 E-Key 2230 (for Wifi/BT) x 1 M.2 B-Key 3052 x 1 M.2 M-Key 2280 (NVMe) x 1 2.5" SATA drive bay SIM Slot x 1
Indicator	Power LED x 1		
OS Support	Linux (NVIDIA Jetpack™ 5.0 or above)		Linux (NVIDIA Jetpack 5.0 or above)
Power Supply			
Power Requirement	12V ~ 24V DC in with 2-pin Terminal Block x 1	DC 12V ~ 24V 2-pin terminal	12V DC with lockable DC Jack
Mechanical			
Mounting	Wallmount		
Dimensions (W x D x H)	7.09" x 5.35" x 2.95" (180mm x 136mm x 75mm)	8.26" x 6.46" x 2.91" (210mm x 164.2mm x 74mm)	7.09 " x 5.35 " x 3.11" (180.0 mm x 136.0 mm x 79.1 mm)
Gross Weight	7.7 lb (3.5kg)	8.3 lb. (3.76Kg)	7.8lb (3.55kg)
Net Weight	5.5 lb (2.5kg)	6.4 lb. (2.9Kg)	5.5lb (2.5kg)
Environmental			
Operating Temperature	5°F ~ 149°F (-15°C ~ 65°C), according to IEC60068-2 with 0.5 m/s AirFlow	-4°F ~ 131°F (-20°C ~ 55°C, according to IEC60068-2 with 0.5 m/s AirFlow)	-4°F ~ 131°F (-20°C ~ 55°C with 0.5 m/s airflow)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 158°F (-40°C ~ 70°C)	
Storage Humidity	5% ~ 95% @ 40°C, non-condensing		
Anti-Vibration	3.5Grm / 5~500Hz / Operation	Random, 3.5 Grms, 5 ~ 500Hz	3.5Grm / 5~500Hz / operation-eMMC, MicroSD or SSD
Anti-Shock	50G Peak Acceleration		50G peak acceleration (11 msec. duration,eMMC,microSD,or SSD)
Certification	CE/FCC class A		CE / FCC Class B
Note			



Model	BOXER-8641AI-PLUS	BOXER-8642AI	BOXER-8645AI
System	NVIDIA® Jetson AGX Orin™		
AI Accelerator			
CPU	AGX Orin 32GB: 8-core Arm® Cortex®-A78AE CPU AGX Orin 64GB: 12-core Arm® Cortex®-A78AE CPU		AGX Orin 32GB: 8-core Arm® Cortex®-A78AE CPU AGX Orin 64GB: 12-core Arm® Cortex®-A78AE CPU
System Memory	32GB LPDDR5, 64GB LPDDR5		
Storage Device	64GB eMMC 5.1 x 1 MicroSD slot x 1 2.5" SATA drive bay x 1	64GB eMMC 5.1 x 1 2.5" SATA SSD drive bay x 1	64GB eMMC 5.1 x 1 M.2 2280 M-Key x 1 (NVMe) 2.5" SATA x 2
Display Interface	HDMI Type A for HDMI 2.0 x 1	HDMI 2.0 x 1	HDMI 2.0 x 1 (Type-A)
Ethernet	RJ-45 for Giga LAN x 1 RJ-45 for 10G LAN x 1	RJ-45 x 2 for GbE LAN	RJ-45 for 10G LAN x 1 RJ-45 for Giga LAN x 1 Additional LAN x 8 (By request)
I/O	USB 3.2 Gen 2 (Type-A) x 2 (from SoM) USB 3.2 Gen 2 (Type-A) x 2 (from Hub) DB-9 x 2 for RS-232/422/485(Rx/Tx/RTS/CTS) DB-9 x 1 for DIO x 8 Micro USB x 1 for OS Flash Mic In and Line out x 1 MicroSD Card Slot x 1 Antenna Opening x 6 Reset Button x 1 Recovery Button x 1 Power Button x 1 OOB Connector x 1 TPM 2.0 x 1	USB 3.2 Gen 2 (Type-A) x 8 (Independent 10Gbps) DB-9 x 2 for RS-232/422/485(Rx/Tx) & CANBus FD Mic-in x 1 Line-Out x 1 Power Button x 1 Recovery Button x 1 Micro USB x 1 for OS Flash SMA Antenna Hole x 2	GMSL2 with FAKRA x 8 USB 3.2 Gen 2 x 4 (Type-A) Micro USB x 1 for OS Flash Line-Out x 1 DB-9 x 1 for Isolated CANBus x 2 DB-9 x 2 for RS-232 (Rx/Tx/CTS/RTS)/RS-485 x 2 DB-9 x 1 for DIO x 8 Switch x 2 for Ignition Delay On/Off 3-pin Terminal Block x 1 for Power Input Power Button x 1 Recovery Button x 1 Antenna Hole x 7 TPM Support GNSS Support 9-Axis Sensor Support
Expansion	M.2 2230 E-Key x 1 M.2 3052 B-Key x 1 M.2 2280 M-Key x 1 2.5" SATA Drive Bay x 1 SIM Slot x 1	M.2 2230 E-Key x 1 (Wi-Fi/BT) 2.5" SATA SSD Bay x 1	M.2 2230 E-Key x 1 (Wifi/BT) M.2 3052 B-Key x 1 (LTE) M.2 2280 M-Key x 1 (NVMe) 2.5" SATA x 2 SIM Slot x 2 MicroSD Slot x 1
Indicator	Power LED x 1		
OS Support	Linux (NVIDIA Jetpack 6.0 and above)	Linux (NVIDIA Jetpack™ 5.1.2 and above)	Linux (NVIDIA JetPack™ 5.0 and above)
Power Supply			
Power Requirement	12~19VDC 2-pin Terminal Block	12V ~ 24V DC-in with 2-pin Terminal Block x 1	3-pin Terminal Block x 1 for 9V ~ 36V ACC Ignition Delay On/Off
Mechanical			
Mounting	Wallmount		Wallmount (default)
Dimensions (W x D x H)	7.09 " x 5.35 " x 3.11" (180mm x 136mm x 79.1mm)	7.09 " x 5.35 " x 3.07" (180.0 mm x 136.0 mm x 78 mm)	11.26 " x 7.95 " x 3.54" (286mm x 202mm x 90mm)
Gross Weight	7.8 lb. (3.55kg)	7.8lb (3.55kg)	13 lb. (5.9Kg)
Net Weight	5.5 lb. (2.5kg)	5.5lb (2.5kg)	11 lb. (5Kg)
Environmental			
Operating Temperature	-13°F ~ 131°F (-25°C ~ 55°C) with 0.7 m/s airflow	-13°F ~ 131°F (-25°C ~ 55°C), according to IEC60068-2 with 0.7 m/s AirFlow (w/ Industrial wide Temp. SSD)	-13°F ~ 149°F (-25°C ~ 65°C with 0.5 m/s airflow)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)		
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	5 ~ 95% @ 40°C, non-condensing, non-operation	5 ~ 95% @ 40°C, non-condensing
Anti-Vibration	3.5 Grms, 5~500Hz with SSD	3.5 Grms/ 5 ~ 500Hz/ operating	MIL-STD-810G, 514.6C Procedure 1, Category 4 Trucker/Semitrailer on US highway (Figure 514.6C-1-Category 4-Common carrier)
Anti-Shock	50G peak acceleration		MIL-STD-810G, Method 516.6, Procedure I, flight vehicle equipment
Certification	CE / FCC class B	CE/FCC Class A	E-Mark, CE/FCC Class A



Model	BOXER-8646AI	BOXER-8651AI	BOXER-8651AI-PLUS
System			
AI Accelerator	NVIDIA® Jetson AGX Orin™	NVIDIA® Jetson Orin NX	NVIDIA® Jetson Orin™ NX
CPU	8-core ARM v8.2 64bit CPU, 2MB L2 + 4MB L3	6-core Arm® Cortex®-A78AE ARMv8.2 64-bit CPU	Orin NX 8GB: 6-core Arm® Cortex®-A78AE v8.2 64-bit CPU Orin NX 16GB: 8-core Arm® Cortex®-A78AE v8.2 64-bit CPU
System Memory	32GB LPDDR5	8GB/16GB LPDDR5	Orin NX 8GB: 8GB LPDDR5 Orin NX 16GB: 16GB LPDDR5
Storage Device	64GB eMMC 5.1 x 1 M.2 2280 NVMe M Key x 1	M.2 3052 B-Key x 1 for M.2 2242 B+M Key SSD (Default Storage) M.2 2230 E-Key x 1 (Optional)	M.2 3052 B-Key x 1 for M.2 2242 B+M Key SSD (Default Storage) M.2 2230 E-Key x 1 (Optional)
Display Interface	HDMI Type A x 1 for HDMI 2.0	HDMI 2.1 (Type-A) x 1	
Ethernet	RJ-45 x 12 for GbE PoE/PSE (802.3af/at, MAX.:120W) RJ-45 x 1 for 10G LAN RJ-45 x 1 for Giga LAN	RJ-45 x 1 for GbE LAN	
I/O	USB Type A for USB 3.2 Gen 1 x 2 USB Type A for USB 2.0 x 2 Micro USB x 1 for OS Flash Mic-in x 1 Line-out x 1 DB-9 x 1 for CANbus FD x 2 DB-9 x 2 for RS-232/422/485 DB-9 x 1 for DIO x 8 3-pin terminal block x 1 for power input Power button x 1 Recovery button x 1 Antenna hole x 6	USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 (Type-A) x 2 DB-9 for RS-232 (Rx/Tx/CTS/RTS)/485 x 1 and CANBus FD x 1 DB-15 for RS-232 (Rx/Tx)/422/485 x 1 and DIO x 8 Micro USB x 1 for OS Flash Recovery Button x 1 Antenna x 2	USB 3.2 Gen 2 (Type-A) x 4 DB-9 for RS-232 (Rx/Tx/CTS/RTS) & CANBus FD x 1 10-Pin header for DIO x 8 Micro USB x 1 for OS Flash Recovery Button x 1 Antenna x 6
Expansion	M.2 2230 E Key x 1 (Wifi/BT) M.2 3052 B Key x 1 (LTE) M.2 2280 NVMe M Key x 1 SIM Slot x 1	M.2 3042/3052 B Key x 1 (4G/5G/M.2 2242 B+M Key storage) M.2 2230 E Key x 1 (Wifi/BT/Storage) SIM Slot x 1	M.2 3042/3052 B Key x 1 (4G/5G/M.2 2242 B+M Key storage) M.2 2230 E Key x 1 (Wifi/BT) SIM Slot x 1
Indicator	Power LED x 1		
OS Support	Linux (NVIDIA Jetpack™ 5.0 up)		Linux (NVIDA Jetpack 6.2 and above)
Power Supply			
Power Requirement	3-pin terminal block x 1 for 19V~24V	12V~24V DC in with 2 pins terminal block x 1	12~24VDC 2-pin Terminal Block
Mechanical			
Mounting	Wallmount		
Dimensions (W x D x H)	10.42 " x 7.24 " x 3.67" (264.76 mm x 184.00 mm x 93.30 mm)	4.13" x 3.54" x 2.05" (105mm x 90mm x 52mm), w/o bracket	4.92 " x 3.54 " x 2.2" (125 mm x 90 mm x 56 mm)
Gross Weight	12.13lb (5.5kg)	2.4 lb. (1.1Kg)	3.13lb (1.42kg)
Net Weight	9.92lb (4.5kg)	1.58 lb. (0.7Kg)	1.85lb (0.84kg)
Environmental			
Operating Temperature	-4°F ~ 122°F (-20°C ~ 50°C with 0.5 m/s airflow)	-5°F ~ 131°F (-15°C ~ 55°C), according to IEC60068-2 with 0.5 m/s AirFlow	-13°F ~ 131°F (-25°C ~ 55°C with 0.7m/s airflow)
Storage Temperature	-40°F ~ 158°F (-40°C ~ 70°C)	-40°F ~ 185°F (-40°C ~ 85°C)	
Storage Humidity	5% ~ 95% @ 40C, non-condensing		
Anti-Vibration	3.5Grm / 5~500Hz	3.5Grm / 5~500Hz / Operation	3.5 Grms, 5~500Hz with SSD
Anti-Shock	50G peak acceleration		
Certification	CE/FCC class A		
Note			



Model	BOXER-8652AI	BOXER-8653AI	BOXER-8654AI-KIT
System	NVIDIA® Jetson Orin™ NX		
AI Accelerator			
CPU	6-core Arm® Cortex®-A78AE v8.2 64-bit CPU	6-core Arm® Cortex®-A78AE ARMv8.2 64-bit CPU 8-core Arm® Cortex®-A78AE ARMv8.2 64-bit CPU	Orin NX 16GB: 8-core Arm® Cortex®-A78AE ARMv8.2 64-bit CPU Orin NX 8GB: 6-core Arm® Cortex®-A78AE ARMv8.2 64-bit CPU
System Memory	8GB/16GB LPDDR5		16GB LPDDR5 8GB LPDDR5
Storage Device	M.2 2280 M Key x 1		M.2 M-Key 2280 x 1 (NVMe)
Display Interface	HDMI 2.0 (Type-A) x 1		HDMI Type A for HDMI 1.4 x 1
Ethernet	RJ-45 x 2 for 10/100/1000 Base-T	RJ-45 x 1 for GbE LAN RJ-45 x 4 for GbE PoE/PSE 802.3af/at (Max.60W)	RJ-45 x 4 for GbE LAN (optional: power module for PoE (25.6W each port))
I/O	USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 (Type-A) x 2 Micro USB x 1 for OS Flash DB-9 x 1 for CANbus DB-9 x 1 for RS-232/422/485 DB-15 x 1 for 13-bit DIO Power ON/OFF switch x 1 Recovery button x 1 Antenna Hole x 6	USB 3.2 Gen 2 (Type-A) x 4 DB-9 x 1 for RS-232 (Rx/Tx/CTS/RTS)/RS485 x 1 and CANbus FD x 1 DB-15 x 1 for RS-232(Rx/Tx)/422/485 x 1 and DIO x 8 Micro USB x 1 for OS Flash Power Button x 1 Recovery Button x 1 Antenna Hole x 6	MIPI Connector x 2 (4 lanes for each MIPI connector, Default IMX219) DB-9 x 1 for RS-232(RX/TX/GND)/422/485 DB-9 x 1 for CANBus USB Type A x 6 for USB 3.2 Gen 2 Micro USB for image flash x 1 Power Button with LED Indicator x 1 2-pin Phoenix Type x 1 for Power Input Recovery Button x 1 40-pin Header compliant with NVIDIA Jetson Orin Nano Developer Kit Pin Header x 1 for RS/232/422/485 by jump select UART to 40-pin Box Header x 1 for OOB SATA Connector x 1 SATA power Connector x 1
Expansion	M.2 2230 E-Key x 1 (Wi-Fi/Bluetooth) M.2 3042/3052 B-Key x 1 (4G/5G) M.2 2280 M-Key x 1	M.2 2280 M-Key x 1 (NVMe) M.2 3042/3052 B-Key x 1 M.2 2230 E-Key x 1 SIM Slot x 1	M.2 2230 E-Key x 1 M.2 2242/3042/3052 B-Key x 1 (SIM onboard) M.2 2280 M-Key x 1
Indicator	Power LED x 1		
OS Support	Linux (NVIDIA Jetpack™ 5.0 and up)		Linux (NVIDIA Jetpack™ 6.0 and above)
Power Supply			
Power Requirement	12V ~ 24V DC in with 2-pin Terminal Block x 1		
Mechanical			
Mounting	Wallmount		—
Dimensions (W x D x H)	5.98" x 3.78" x 2.42" (152mm x 96 mm x 61.5mm)	7.09" x 5.35" x 2.95" (180mm x 136mm x 75mm)	6.53" x 5.24" (166mm x 133mm)
Gross Weight	3.97lb (1.8kg)	7.7 lb (3.5kg)	0.79 lb (0.36 Kg)
Net Weight	2.65lb (1.2kg)	5.5 lb (2.5kg)	0.42 lb (0.19 Kg)
Environmental			
Operating Temperature	-5°F ~ 140°F (-15°C ~ 60°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	-13°F ~ 158°F (-25°C ~ 70°C) w/ Fan Kit, according to IEC60068-2 with 0.5 m/s AirFlow
Storage Temperature	-40°F ~ 176°F (-40°C ~ 85°C)		
Storage Humidity	5% ~ 95% @ 40°C, non-condensing		
Anti-Vibration	3.5Grms / 5~500Hz	3.5Grms / 5~500Hz / Operation	—
Anti-Shock	50G peak acceleration		
Certification	CE/FCC class A		
Note			



Model	BOXER-8655AI	BOXER-8658AI
System	NVIDIA® Jetson Orin™ NX	
AI Accelerator	NVIDIA® Jetson Orin™ NX	
CPU	Orin NX 8GB : 6-core Arm® Cortex®-A78AE v8.2 64-bit CPU 1.5MB L2 + 4MB L3 Orin NX 16GB : 8-core Arm® Cortex®-A78AE v8.2 64-bit CPU 2MB L2 + 4MB L3	Orin NX 8GB: 6-core Arm® Cortex®-A78AE v8.2 64-bit CPU Orin NX 16GB: 8-core Arm® Cortex®-A78AE v8.2 64-bit CPU
System Memory	Orin NX 8GB : 8GB LPDDR5 Orin NX 16GB : 16GB LPDDR5	8GB LPDDR5 16GB LPDDR5
Storage Device	2.5" SATA Drive Bay x 1 M.2 2280 NVMe M Key x 1	
Display Interface	HDMI 2.1 x 1	HDMI 2.0 type A x 1
Ethernet	RJ-45 for GbE LAN x 5	RJ-45 x 2 for Giga LAN RJ-45 x 8 for GbE PoE/PSE (802.3af/at, MAX.:120W) *4 PoE ports sharing one MAC address and one Giga bandwidth. Supports total 120W PoE when input voltage is at or over 24V. Supports total 80W PoE when input voltage is between 12~24V. Supports total 30W PoE when input voltage is below 12V.
I/O	GMSL2 x 8 with Fakra connectors DB-9 x 1 for CANBus FD DB-15 for RS232 (Rx/Tx)/RS422/RS485 x 1, programmable DIO x 8 External SMA antenna x 7 Power button x 1 Recovery button x 1 Micro USB x 1 for OS Flash Mic in and Line out x1 Reset button x1 USB Type A for USB 3.2 Gen 2 x 4	USB 3.2 Gen 2 type A x 4 DB-9 x 1 for CANBus FD x 1 DB-15 x 1 for RS232/422/485 x 1 and DIO x 8 Line out x 1 Micro USB x 1 for OS Flash Power button x 1 Recovery button x 1 Switch x 2 for ACC Ignition Delay On/Off Antenna x 7 TPM Support GNSS Support 9-Axis Sensor Support
Expansion	M.2 2230 E-Key x 1 (Wifi/BT) M.2 3042/3052 B-Key x 1 (LTE/5G) (USB 2.0,USB3.0) M.2 2280 M-Key x 1 (NVMe) 2.5" SATA x 1	M.2 2230 E Key x 1 (Wifi/BT) M.2 3052 B Key x 1 (LTE) M.2 2280 NVMe M Key x 1 2.5" SATA x 1 SIM Slot x 2
Indicator	Power LED	Power LED x 1
OS Support	Linux (NVIDIA JetPack™ 5.1 and above)	Linux (NVIDIA JetPack™ 6.0 and above)
Power Supply	3-pin Terminal Block x 1 for 9V ~ 48V ACC Ignition Delay On/Off	
Power Requirement	3-pin Terminal Block x 1 for 9V ~ 48V ACC Ignition Delay On/Off	
Mechanical	Wallmount	
Mounting	Wallmount	
Dimensions (W x D x H)	9.68 " x 6.46 " x 3.49" (246.0 mm x 164 .2 mm x 88.8 mm)	8.27" x 6.46" x 2.99" (210 x 164.2 x 76 mm) (Without Bracket) 9.69" x 6.46" x 3.27" (246 x 164.2 x 83 mm) (With Bracket)
Gross Weight	TBD	8.6 lb (3.9Kg)
Net Weight	TBD	6.7 lb (3Kg)
Environmental		
Operating Temperature	5°F ~ 158°F (-15°C ~ 70°C with 0.7 m/s airflow)	5°F ~ 140°F (-15°C ~ 60°C with 0.7 m/s airflow, with Industrial wide Temp. SSD)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	5 ~ 95% @ 40°C, non-condensing
Anti-Vibration	MIL-STD-810G, 514.6C Procedure 1, Category 4 Trucker/ Semitrailer on US highway (Figure 514.6C-1-Category 4-Common carrier)	MIL-STD-810G, 514.6C Procedure 1, Category 4 Trucker/ Semitrailer on US highway (Figure 514.6C-1-Category 4-Common carrier)
Anti-Shock	MIL-STD-810G, Method 516.6, Procedure 1, flight vehicle equipment	
Certification	E-Mark, CE/FCC Class A	CE / FCC class A, E-Mark Compliance
Note		



Model	MAXER-2100	MAXER-5100
System		
CPU	A2: Please select required CPU before shipping A3: Intel® Core™ i9-13900	12th/13th/14th Generation Intel® Core™ LGA1700 Socket Processors
GPU	A2: PCIe Gen 4 [x16] x 1 for GPU card. A3: NVIDIA RTX™ 6000 Ada	NVIDIA RTX™ 2000 Ada GPU x 2 (Selected SKUs)
Chipset	Intel Q670	Intel® Q670 Chipset
System Memory	DDR5 4000MHz DIMM x 4, Up to 128GB Non-ECC, Un-buffered Memory, Dual-Channel Memory Architecture	DDR5 4800MHz DIMM x 4, Up to 128GB
Display Interface	HDMI 2.0 x 1, DP 1.4 x 1, VGA x1	VGA x 1 HDMI 2.0 x 2 DP 1.4 x 1
Storage Device	2.5" SATA-III Drive Bay x 2 (Swappable, RAID 0/1) M.2 2280 M key for NVMe SSD x 1	2.5" SSD x 1 3.5" HDD x 1
Ethernet	RJ-45 GbE LAN x 1 (supports Intel® AMT 12.0) RJ-45 GbE LAN x 1 RJ-45 2.5GbE LAN x 2	RJ-45, 1GbE x 1 RJ-45, 2.5GbE x 1
USB	USB 3.2 Gen2 x 4 (10Gbps)	USB 2.0 x 2 USB 3.2 x 6
Serial Port	DB-9 x 1 for RS-232/422/485	DB-9 for COM Port (RS-232/422/485 & RI/5V/12V)
Audio	Audio (Mic-in/Line-out/Line-In)	Audio Jack x 5 (Line-in, Mic-in x 2, Line-out x 2)
Expansion	M.2 3042/3052 B-Key x 1 + MicroSIM Slot M.2 2230 E-Key x 1	PCIe Gen 4 [x16] x 1 PCIe Gen 4 [x8] x 1 PCIe Gen 3 [x1] x 1 PCIe Gen 3 [x4] x 1 M.2 2230 E-Key x 1 M.2 2280/2242 M-Key x 1 (PCIe Gen 4 [x4], SATA 6Gb/s)
TPM	TPM 2.0 Onboard	TPM 2.0 Onboard
Indicator	System LED x 1, HDD Activity x 1	—
OS support	Windows® 10 IoT Enterprise 64-bit Windows® 11 PRO 64-bit Ubuntu 22.04.3 and above	Windows® 10 64-bit
Drive Bay	2.5" SATA-III Drive Bay x 2 (Swappable, RAID 0/1)	2.5" SATA 6Gb/s Drive Bay x 1 3.5" SATA 6Gb/s Drive Bay x 1
Front Control	Power On/Off, System Reset	—
Power Supply		
Power Requirement	Build in 1000W power supply	ATX 450W AC/DC Power supply
Mechanical		
Mounting	Rack Mount	Wallmount
Dimensions (W x H x D)	17" x 3.46" x 17.6" (431.8mm x 88mm x 448mm)	12" x 3.7" x 10.9" (305mm x 95mm x 276mm)
Gross Weight	31.52 lb (14.3kg)	12 lb. (5.6Kg)
Net Weight	24.25 lb (11kg)	11 lb. (5Kg)
Environmental		
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C), according to IEC68-2 with 0.5 m/s AirFlow	32°F ~ 113°F (0°C ~ 45°C), according to IEC68-2 with 0.5 m/s AirFlow
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 185°F (-25°C ~ 85°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	
Certification	CE/FCC class A	
Note		

RISC Gateway Solutions - RISC Gateway & Expansion

System Level Products

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RISC Gateway Solutions - RISC Gateway & Expansion

Model	SRG-IMX8P	SRG-IMX8PL
System		
Processor	ARM NXP i.MX8M Plus Quad-Core Cortex-A53 1.6GHz Processor	ARM NXP i.MX8M Plus Quad-Core Cortex-A53 1.6GHz Processor (Default w/NPU, optional w/o NPU)
Memory	Onboard LPDDR4 2GB (Optional 4GB)	Onboard LPDDR4 up to 4GB (8GB by request)
Storage	eMMC 5.1 16GB (Optional 32GB)	eMMC 5.1 16/32GB (Optional 64/128 GB) Micro SD Card slot x 1
Real Time Clock	RTC x 1, with 3V CR2032H Lithium battery	RTC x 1, with 3V CR2032H Lithium battery
Security	TPM 2.0	TPM 2.0 (optional)
Indicators	Programmable LED control x 7	Programmable LED control x 3
Cellular	Mini PCIe Connector x 1 (USB signal)	Full Size Mini Card x 1 (USB signal)
Wireless Lan	Mini PCIe Connector x 1 (USB signal)	M.2 2230 E-key x 1 (USB, PCIe)
Operating System	Debian 11(Default, GUI is optional) Android 13 Win 10 IoT Yocto	Debian 11 (Default, GUI is optional) Android 13 Yocto 4.0
Support Protocol	Modbus / MQTT Library (by request)	Modbus, MQTT, OPCUA
I/O Interfaces		
Serial Port	RS-232/422/485 switchable x 2, Phoenix Connector	RS-232/422/485 switchable x 2, Phoenix Connector
Ethernet	Gigabit Ethernet x 2, RJ-45	Gigabit Ethernet x 2, RJ-45 support IEEE 1588, TSN, integrated RGMII
Audio	—	Line Out x 1 (optional)
USB	USB 3.0 Type-A x 2	
ADC	—	
DI/DO	—	
CAN Bus	CAN-FD x 2 CH, Phoenix Connector	
Display	HDMI 2.0 x 1	
Power Connector	2 Pin 3.81mm Pitch Phoenix Connector	
Debug Port	Micro USB x 1	
Expansion Slot	SIM card slot x 1 Micro SD slot x 1	M.2 2230 E-key x 1, support Wifi/BT module Full Size Mini Card x 1, support 4G module, etc) Power control available by software Nano SIM card slot x 1 (optional)
Other Interface	—	
Power Supply		
Power Requirement	DC 9-36V	DC 9-36V (Optional: 12V)
Power Consumption	9.36W (Full Loading)	14.8W (Full Loading)
MTBF (Hours)	479,374	1,699,754
Environmental and Mechanical		
Dimension	5.54" x 3.86" x 1.89" (140.76 x 98.2 x 48 mm)	4.25" x 3.12" x 1.69" (108mm x 79.5mm x 43mm)
Weight	2.6lb (1.18kg)	1.01 lb (0.46kg)
Mount Options	Wallmount, Din Rail (Optional)	
Operation Temperature	-4 °F ~ 158 °F (-20 °C ~ 70 °C)	-40 °F ~ 176 °F (-40 °C ~ 80 °C), IEC60068-2 with 0.7 m/s AirFlow, with wide temperature Memory/Storage
Storage Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C)	
Operation Humidity	10% ~ 95% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
Certification	CE/FCC Class A UL61010/IEC61000-6-2/IEC61000-6-4/IEC61131-2	CE/FCC Class A
Note		

Note: All specifications are subject to change without notice.

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RISC Gateway Solutions - RISC Gateway & Expansion



Model	SRG-AM62	SRG-CM4
System		
Processor	ARM TI AM62x, up to Quad 64-bit Arm® Cortex®-A53	Broadcom BCM2711 Quad-Core Cortex-A72 SoC @1.5 GHz
Memory	Onboard DDR4 16 bit, up to 4 GB	Onboard LPDDR4, up to 8 GB
Storage	eMMC 5.1 16 GB (Optional 32/64/128 GB) Micro SD Card slot x1	eMMC 5.1, 8/16/32 GB (Optional) Micro SD Card x 1 (Optional w/o eMMC)
Real Time Clock	RTC x 1, with 3V CR2032H Lithium battery	
Security	TPM 2.0 (optional)	
Indicators	Programmable LED control x 3	
Cellular	Full Size Mini Card x 1 (USB signal)	—
Wireless Lan	Half Size Mini Card x 1 (USB signal)	—
Operating System	Debian 12 (w/ GUI)	Raspberry Pi Desktop Debian 11
Support Protocol	—	
I/O Interfaces		
Serial Port	RS-232/422/485 switchable x 2, Phoenix Connector	RS-232/422/485 switchable x 2 RS-485 with isolation x 1 (Optional)
Ethernet	Gigabit Ethernet x 2, RJ-45 support IEEE 1588, TSN, integrated RGMII	Gigabit Ethernet x 2, RJ45
Audio	Line Out x 1 (by request)	—
USB	USB 2.0 Gen1 x 2 -Host/device by image option, default: host x 1 -Host x 1	USB 2.0 x 2 USB 2.0 OTG x 1
ADC	—	
DI/DO	—	DI x 2 / DO x 2 with Isolation (optional)
CAN Bus	CAN-FD x 2 CH, Phoenix Connector	CAN 2.0 A/B x 2
Display	HDMI 1.4b up to 1080p x 1	HDMI 1.4, up to 4K30 (For SD card storage, up to 1080P)
Power Connector	2 Pin 3.81mm Pitch Phoenix Connector	
Debug Port	Micro USB x 1	UART x 1 (Internal Wafer Box)
Expansion Slot	Half Size Mini Card (USB2.0) x 1, support Wifi/BT module, etc Full Size Mini Card (USB2.0) x 1, support 4G module, etc Power control available by software	Full-sized mini card x 1 (USB signal)
Other Interface	—	Software button x 1 Power button x 1 Reset button x 1
Power Supply		
Power Requirement	DC 9-36V (Optional: 12V)	DC 9 ~36 V
Power Consumption	5.76W (Full Loading)	12.6 W
MTBF (Hours)	1,279,408	1,311,814
Environmental and Mechanical		
Dimension	4.25" x 3.13" x 1.29" (108mm x 79.5mm x 33mm)	4.11 " x 4.13" x 1.89" (104.4 x 105 x 41mm)
Weight	0.72 lb (0.33 kg)	1.08 lb (0.49 kg)
Mount Options	Wallmount, Din Rail (Optional)	
Operation Temperature	-40 °F ~ 185 °F (-40 °C ~ 85 °C) (Option: 0°C ~ 60°C)	-4°F ~ 158°F (-20 °C ~ 70°C)
Storage Temperature	-40 °F ~ 185 °F (-40 °C ~ 85 °C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operation Humidity	0% ~ 90% relative humidity, non-condensing	10% ~ 90% relative humidity, non-condensing
Certification	CE/FCC Class A	
Note		

System Level Products

Compact Fanless BOX PC Solutions

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Compact Fanless BOX PC Solutions



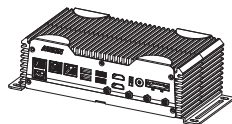
Model	BOXER-6614	BOXER-6615	BOXER-6616
System			
CPU	Intel® Celeron® N2930, 1.83 GHz Intel® Celeron® N2807, 1.58GHz	Intel® Pentium® N3710 1.6GHz	Intel® Pentium® N4200, 2.5 GHz Intel® Celeron® N3350, 2.4 GHz
Chipset	Intel® System on Chip		
System Memory	DDR3L 1333 SODIMM slot x 1, up to 8 GB (N2930) or 4 GB (N2807)	204-pin 1600 DDR3L SODIMM x 1, up to 8GB	DDR3L 1866, Single Channel SODIMM x 1, Non-ECC (Max.8GB, up to 1600MHz)
Display Interface	VGA, HDMI		HDMI (max. 2048 x 1152) VGA (max. 2048 x 1152)
Storage Device	CFast™, HDD/SSD	mSATA, 2.5" HDD/SSD	mSATA, HDD/SSD
Ethernet	Intel® I210/I211, 10/100/1000 Base-TX x 2	Realtek® RTL-8111E, 10/100/1000 Base x2	Intel® I211, 10/100/1000 Base-TX x 2
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	RS-232/422/485 x 2 RS-232 x 4 USB 3.2 Gen 1 x 2 USB2.0 x 2 VGA x 1 HDMI x 1 DIO x 1 Line-Out x 1 Antenna holes x 2 Power switch Power input	RS-232/422/485 x 2 RS-232 x 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
Expansion	Full-size Mini-Card x 1 (PCI-E + USB, w/ SIM slot) Half-size Mini-Card x 1 (PCI-E + USB)	Full-size Mini-Card x 1 (PCI-E + USB, w/ SIM slot) Half-size Mini-Card x 1 (mSATA + USB)	Full-size Mini-Card x 1 (PCI-E + USB, w/ SIM slot) Half-size Mini-Card x 1 (A1:PCI-E + USB, A2: mSATA + USB)
Indicator	Power LED HDD active 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, Ubuntu 15.04 Kernel 3.19 .0	Windows® 10 IoT Ent LTSC 2019 64 bit Ubuntu 16.04 above
Power Supply			
Power Requirement	9 - 30V with 3-pin terminal block, 12V with lockable DC jack		9-24V with 3-pin terminal block
Mechanical			
Mounting	Wallmount DIN Rail (Mounting kit is optional)		
Dimensions (W x H x D)	8.35" x 4.21" x 2.53" (212.15mm x 107mm x 64.2mm)	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 ~ 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) with W.T. SSD/HDD/mSATA (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-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)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)		
Storage Humidity	95% @ 40°C, non-condensing		
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation –CFast™ card 1 Grms/ 5~ 500Hz/ operation – HDD	5 Grms/ 5 ~ 500Hz/ operation –mSATA/ SSD 1 Grms/ 5~ 500Hz/ operation – HDD	3 Grms/ 5 ~ 500Hz/ operation – mSATA/ SSD 1 Grms/ 5~ 500Hz/ operation – HDD
Anti-Shock	—		
Certification	CE/FCC class A, UL	CE/FCC class A	
Note			

Note: All specifications are subject to change without notice.

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Compact Fanless BOX PC Solutions



Model	BOXER-6617-ADN	BOXER-6617-ASL	BOXER-6619-TWL
System			
CPU	Intel® Processor N50 Intel® Processor N97 Intel® Core™ i3-N305 Intel Atom® x7211E	Intel Atom® x7835RE Intel Atom® x7433RE Intel Atom® x7211RE	Intel® Processor Core™ 3 & N Series (formerly Twin Lake): N150 (4 cores/4 threads), TDP 6W Core™ 3 N355 (8 cores/5 threads), TDP 15W
Chipset	Intel® SoC		
System Memory	DDR5 4800MHz SODIMM x 1, up to 32GB		DDR5 SODIMM slot x1, up to 32GB
Display Interface	HDMI x 2		VGA x 1 (DB-15) HDMI x 2
Storage Device	M.2 2280 M-Key x 1 (PCIe [x2]) 2.5" SATA HDD/SSD x 1		Internal 2.5" SATA Drive Bay x1
Ethernet	RJ-45 x 2 for 2.5GbE LAN (Intel® I226)		RJ-45 for 2.5GbE LAN x3 (Intel® i226-LM) RJ-45 for GbE LAN x1 (Intel® i210-IT)
I/O	HDMI x 2 RJ-45 x 2 for 2.5GbE LAN (Intel® I226) USB 3.2 Gen 2 x 2 (Type-A) USB 2.0 x 4 (Type-A) DB-9 x 6 for RS-232/422/485 Mic-in/Line-out D-Sub connector for DIO 8 bit 3-Pin Terminal Block for DC In x 1 Reset Button x 1 Power Button with LED x 1		IEEE 802.3 at/af PoE x4 (total 80W, note: the system only supports total 20W PoE when input voltage is at or below 10V.) Type-A USB3.2 Gen1 x2 Type-A USB2.0 x2 (optional, extra USB2.0 x2 by wafer) DB-9 for RS-232/422/485 x6 Mic in / Line out x1 DB-15 for DIO 8bit x1 2-pin remote power switch x1 Power button with LED indicator x 1
Expansion	M.2 2280 M-Key x 1 (PCIe [x2]) M.2 2230 E-Key x 1 (for Wi-Fi) M.2 3052 B-Key x 1 (for 5G/LTE) SIM Slot x 1		M.2 E key 2230 x 1 (PCIe) M.2 B Key 3052 x 1 (USB3.2) Nano SIM slot x 1
Indicator	Sys LED Storage active LED		—
OS support	Windows® 10 IoT Enterprise Windows® 11 IoT Enterprise Windows® 11 PRO Linux Ubuntu 22.04		Windows® 11 IoT LTSC Ubuntu 24.04 above
Power Supply			
Power Requirement	DC-in 9-36V x 1 for 3-Pin Terminal Block		DC-in 9~36V 4-pin Terminal block connector With protection circuit
Mechanical			
Mounting	Wallmount (default), DIN Rail (mounting clip optional)		Wallmount (Optional, Din Rail mount)
Dimensions (W x H x D)	8.42" x 4.54" x 2.59" (214mm x 115.5mm x 65.8mm) without brackets		214 x 116 x 66mm (without brackets)
Gross Weight	6.17 lb. (2.8Kg)		TBD
Net Weight	4.4 lb. (2Kg)		TBD
Environmental			
Operating Temperature	-4°F ~ 158°F (-20°C ~ 70°C), according to IEC68-2 with 0.5 m/s AirFlow (w/ Industrial wide Temp. SSD/RAM)		-4°F ~140°F (-20°C ~ 60°C) with 0.7 m/s airflow (with wide temp. memory/storage)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)		
Storage Humidity	5 ~ 95% @ 40°C, non-condensing		
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation (with SSD)		With SSD: Random, 3Grms, 5~500Hz
Anti-Shock	50G, IEC 68-2-27, half sine, 11 ms duration (with SSD)		With SSD: 50G @ wallmount, half-sine, 11ms
Certification	CE/FCC Class A		
Note			

System Level Products

Compact Fanless BOX PC Solutions

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Compact Fanless BOX PC Solutions



Model	BOXER-6641	BOXER-6641-PRO	BOXER-6642-CML
System			
CPU	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	Intel® i7-9700TE Intel® i7-8700T Intel® i5-8500T Intel® i3-8100T Pentium® G5400T Celeron® G4900T	Intel® Core™ i9-10900TE Intel® Core™ i7-10700TE Intel® Core™ i5-10500TE Intel® Core™ i3-10100TE Intel® Celeron® G5900TE
Chipset	Intel® C246/H310		Intel® Q470E
System Memory	DDR4-2666 SODIMM slot x 2, Up to 64GB, ECC or Non-ECC Support		DDR4 SODIMM x 2, up to 64GB
Display Interface	HDMI x 2		HDMI 1.4 x 1
Storage Device	2.5" SATA HDD/SSD Bay x 1 (x 2 for A5 & A6 model, A6 supports RAID 0/1)	2.5" SATA HDD/SSD Bay x 2	M.2 2280 slot x 1 (PCIex4), 2.5" SATA SSD/HDD bay x 1
Ethernet	Intel® i211 x 3, i219 x 1		Intel® i211-AT x 1, i219-LM x 1
I/O	HDMI x 2 RJ-45 x 4 for GbE LAN (i211 x 3, i219 x 1) USB 3.2 Gen 1 x 4, USB2.0 x 4 (A1 & 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	HDMI x 2 RJ-45 x 4 for GbE LAN (i211 x 3, i219 x 1) USB 3.2 Gen 1 x 4, USB2.0 x 4 (A1 model) USB 3.2 Gen 1 x 8 (A2 model) DB-9 x 6 for RS-232/422/485 10 pin Terminal Block for 8-bit DIO 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	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
Expansion	Full-size Mini PCIe x 1 Full-size Mini PCIe x 1 (PCIe/mSATA switch by BIOS, default: mSATA) SIM slot x 1	Full-size Mini PCIe x 1 Full-size Mini Card x 1 (PCIe/mSATA switch by BIOS, Default: mSATA) SIM slot x 1	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
Indicator	HDD LED x 1 SYS LED x 1		Power LED
OS support	Windows® 10 64-bit Linux Ubuntu 20.04	Windows® 10 64-bit Linux Ubuntu 20.04.2	Windows® 10 IoT Enterprise 64-bit Linux Ubuntu 20.04.2
Power Supply			
Power Requirement	3-pin DC Input 10~35V		10-35V DC-in with 3-pin terminal block
Mechanical			
Mounting	Wallmount		
Dimensions (W x H x D)	10.4" x 3.19" x 6.15" (264.2mm x 80.92mm x 156.2mm)		11.58" x 5.98" x 2.11" (292.4mm x 152mm x 53.5mm)
Gross Weight	10.4 lb (4.7 kg)		8.4lb (3.8kg)
Net Weight	8.2 lb (3.7 kg)		6.2lb (2.8kg)
Environmental			
Operating Temperature	-4°F ~ 131°F (-20°C ~ 55°C) with 0.5 m/s airflow – with TDP ≤ 35W CPU -4°F ~ 113°F (-20°C ~ 45°C) with 0.5 m/s airflow – with TDP >35W CPU	-40°F ~ 158°F (-40°C ~ 70°C), according to IEC68-2-14 with 0.5 m/s AirFlow	32°F ~ 113°F (0°C ~ 45°C) (35W CPU), according to IEC68-2-14 with 0.5 m/s AirFlow
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 – SSD/ mSATA 1 Grms/ 5 ~ 500Hz/ operation – HDD	2 Grms/ 5 ~ 500Hz/ operation (with SSD)	
Anti-Shock	—		50G peak acceleration (11msec) (with SSD)
Certification	CE/FCC class A		
Note			

Note: All specifications are subject to change without notice.

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Compact Fanless BOX PC Solutions



Model	BOXER-6643-TGU	BOXER-6645-ADS	BOXER-6645U-RPL
System			
CPU	Intel® Core™ i7-1185G7E Intel® Core™ i5-1145G7E Intel® Core™ i3-1115G4E	13th Generation Intel® Core™ Processors: Intel® Core™ i9-13900TE, Intel® Core™ i9-13900E, Intel® Core™ i7-13700TE, Intel® Core™ i7-13700E, Intel® Core™ i5-13500TE, Intel® Core™ i5-13500E, Intel® Core™ i3-13100TE, Intel® Core™ i3-13100E 12th Generation Intel® Core™/Celeron® Processors: Intel® Core™ i9-12900E, Intel® Core™ i7-12700TE, Intel® Core™ i7-12700E, Intel® Core™ i5-12500TE, Intel® Core™ i5-12500E, Intel® Core™ i3-12100TE, Intel® Core™ i3-12100E, Intel® Celeron® Processor G6900TE, Intel® Celeron® Processor G6900E	12/13/14th Generation Intel® Core™ LGA 1700 socket-type Processor, Max TDP 65W 13th Generation Intel® Core™ Processors: Intel® Core™ i9-13900TE, Intel® Core™ i9-13900E, Intel® Core™ i7-13700TE, Intel® Core™ i7-13700E, Intel® Core™ i5-13500TE, Intel® Core™ i5-13500E, Intel® Core™ i3-13100TE, Intel® Core™ i3-13100E 14th Generation Intel® Core™ Processors: Intel® Core™ i9-14900, Intel® Core™ i9-14900T, Intel® Core™ i7-14700, Intel® Core™ i7-14700T, Intel® Core™ i5-14500, Intel® Core™ i5-14500T, Intel® Core™ i3-14100, Intel® Core™ i3-14100T
Chipset	Intel® SoC	Intel® H610E/Q670E	Intel® H610E
System Memory	DDR4 3200MHz SODIMM x 2, max 64GB	DDR5 4800MHz SODIMM x 2, up to 64GB	DDR5 SODIMM x 2, up to 64GB
Display Interface	HDMI 2.0 x 2	HDMI 1.4b (Type-A) x 2 DP 1.4a x 2 *A2 model supports four simultaneous display outputs *A1 model supports three simultaneous display outputs	HDMI x 2, 4K x 2K @30Hz
Storage Device	M.2 2280 M-Key NVMe Slot x1 (PCIe4) 2.5" SATA Drive Bay x1	2.5" SATA 6Gb/s Drive Bay x 2 (A2 SKU supports RAID 0, 1) M.2 2280 M-Key x 1 (NVMe, extra heatsink required, refer to optional accessories) (A2 Model)	2.5" SATA Drive Bay x 2 M.2 2280 M-Key x 1 (PCIe Gen 3 [x4]) for NVMe
Ethernet	RJ-45 x 2 for 1G/2.5GbE LAN (i219x1, i225x1)	Intel® i210-AT, 10/100/1000 Base-TX x 2 Intel® i219-LM, 10/100/1000 Base-TX x 1 Intel® i226-LM, 2.5GbE Base-TX x 1	Intel® i219-LM, GbE RJ-45 x 1 Intel® i226-LM, 2.5GbE RJ-45 x 1
I/O	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	USB 3.2 Gen 2 (5Gbps) x 4 (A1 Model) USB 3.2 Gen 2 (10Gbps) x 8 (A2 Model) USB 2.0 x 4 (A1 Model) Audio x 1 (MIC-in, Line-out) DB-9 x 6 for RS-232/422/485 SMA Antenna Hole x 6 DIO x 8	USB 3.2 Gen 2 x 4, USB 2.0 x 2 DB-9 x 2 for RS-232/422/485 Audio x 1 (Mic-in/Line-out) Power Button with power LED x 1 Remote Power On/Off x 1
Expansion	M.2 3052 B-Key x 1 (for 5G module) Full-Size M.2 MiniCard x1 (PCIe + USB / SATA, Default PCIe + USB) SIM Slot x 1	M.2 2230 E-Key x 1 for WiFi module M.2 3052 B-Key x 1 for 4G/5G module	M.2 2280 M-Key x 1 (For NVMe Storage) M.2 2230 E-Key x 1 (for Wi-Fi/Bluetooth) Full Size MiniPCIe x 1 (optional for mSATA) Onboard TPM 2.0
Indicator	Power / System LED	System LED x 1, HDD LED x 1	System / Storage
OS support	Windows® 10 IoT 64-bit Windows® 11 Pro 64-bit Linux Ubuntu 20.04.2	Windows® 10 IoT Enterprise 64-bit Windows® 11 Pro 64-bit Linux Ubuntu 20.04 (Kernel 15.5 or above)	Windows® 10 IoT Enterprise 64-bit Windows® 11 Pro 64-bit Linux Ubuntu 22.04
Power Supply			
Power Requirement	DC-in 9-36V x1 for 3-pin Terminal Block	3-pin DC Input 12~24V	3-pin DC Input 10~35V
Mechanical Mounting		Wallmount	
Dimensions (W x H x D)	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	10.39" x 3.8" x 7.33" (264mm x 80.92mm x 186.2mm)	7.09" x 3.04" x 8.66" (180mm x 77.2mm x 220mm) 8.43" x 3.31" x 8.66" (214mm x 84.2mm x 220mm) with brackets
Gross Weight	4.4 lb (2.0 kg)	11.7 lb (5.3 kg)	8.59 lb (3.9 kg)
Net Weight	3.3 lb (1.5 kg)	9.5 lb (4.3 kg)	6.39 lb (2.9 kg)
Environmental			
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C), according to IEC68-2 with 0.5 m/s AirFlow (w/ Industrial wide Temp. SSD/RAM)	-4°F ~ 122°F (-20°C ~ 50°C), IEC68-2 with 0.5 m/s AirFlow, with wide temperature memory/storage (TDP 65W CPU) -4°F ~ 140°F (-20°C ~ 60°C), IEC68-2 with 0.5 m/s AirFlow, with wide temperature memory (Max. 32GB)/Storage (TDP 35W CPU)	-13°F ~ 131°F (-25°C ~ 55°C), IEC60068-2 with 0.7 m/s AirFlow, with wide temperature memory/storage (TDP 65W CPU) -13°F ~ 158°F (-25°C ~ 70°C), IEC60068-2 with 0.7 m/s AirFlow, with wide temperature memory/storage (TDP 35W CPU)
Storage Temperature		-40°F ~ 176°F (-40°C ~ 80°C)	
Storage Humidity		5 ~ 95% @ 40°C, non-condensing	
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation (with SSD)	3 Grms/ 5 ~ 500Hz/ operation ~ SSD 1 Grms/ 5 ~ 500Hz/ operation ~ HDD	3 Grms/ 5 ~ 500Hz/ operation (with SSD)
Anti-Shock		50G, IEC60068-2-27, half sine, 11ms duration (with SSD)	
Certification		CE/FCC class A	
Note			

System Level Products

Compact Fanless BOX PC Solutions

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Compact Fanless BOX PC Solutions



Model	BOXER-6646-ADP	BOXER-6647-MTH	BOXER-6648-ARS
System			
CPU	13th Generation Intel® Core™ Processors: Intel® Core™ i7-1370PE Intel® Core™ i5-1350PE Intel® Core™ i3-1320PE 12th Generation Intel® Core™ Processors: Intel® Core™ i7-1270PE Intel® Core™ i5-1250PE Intel® Core™ i3-1220PE	Intel® Core™ Ultra 5 processor 125H Intel® Core™ Ultra 7 processor 155H	Intel® Core™ Ultra 9 Processor 285/285T Intel® Core™ Ultra 7 Processor 265/265T Intel® Core™ Ultra 5 Processor 225/225T
Chipset	Intel® SoC		A1 SKU: Intel® H810 Chipset A2 SKU: Intel® Q870 Chipset
System Memory	DDR5 SODIMM slot x 2, max. 64GB	DDR5 5600 MT/s SODIMM x2, up to 64GB *Note: One DIMM slot can be user-populated via rear chassis access. Second DIMM slot is not user-accessible, but module preinstallation is available upon request.	DDR5 SODIMM Slot x 2, up to 96GB
Display Interface	HDMI x2, Display Port x 2	HDMI x 2 (Support 4K @60Hz)	HDMI 2.0 x 2
Storage Device	Removable 2.5" SATA Drive Bay x 1 M.2 2280 M Key NVMe Slot x 1	M.2 2280 M-Key x 1 (NVMe PCIe SSD, quick access tray design) 2.5" SATA HDD/SSD x 1 (quick access tray design)	Internal 2.5" SATA Drive Bay x 2 M.2 2280 M-Key x 1 (PCIe Gen 4 [x4]) for NVMe
Ethernet	RJ-45 x 2 for 2.5GbE LAN I225-LM x 2 RJ-45 x 1 for GbE LAN I219-LM x 1	RJ-45 x 2 for 2.5GbE LAN (Intel® Ethernet Controller I226) RJ-45 x 1 for GbE LAN (Intel® Ethernet Connection I219)	Intel® Ethernet Controller I226-LM, 2.5GbE LAN x 2 / Intel® Ethernet Connection I219-LM, 1GbE LAN x 1 (Intel® Active Management Technology on 2.5GbE LAN on A2 Model SKU only)
I/O	USB Type-A x 3 for USB3.2 Gen2 (10Gbps) USB Type-A x 3 for USB 2.0 DB-9 x 4 for RS-232/422/485 Line out SMA Antenna Holes x 6 10-pin D-Sub connector for DIO 8 bit x 1 Power Button with LED indicator x 1 Remote Power on/off 2pin connector x 1	HDMI x 2 USB 3.2 Gen 2 (Type-A) x 4 USB 2.0 (Type-A) x 2 DB-9 Male x 2 for RS-232/422/485 3.5mm Jack x 1 for Mic-in/Line-out DB-15 male x 1 for 8-bit DIO Remote Power x 1 Power Button with LED x 1 Antenna holes x 6	A1 SKU: USB 3.2 Gen 1 (5Gbps) Type-A x 4, USB 2.0 x 4 A2 SKU: USB 3.2 Gen 2 (10Gbps) Type-A x 6, USB 2.0 x 2 DB-9 x 6 for RS-232/422/485 Mic-in / Line-out 10-pin Terminal Block for 8-bit DIO Power Button with LED Indicator x 1 2-pin Remote Power On/Off Connector x 1
Expansion	M.2 E key 2230 x 1 M.2 B Key 3052 x 1 (for 5G/LTE module)	M.2 2280 M-Key x 1 (PCIe [x4] for NVMe Storage) M.2 2230 E-Key x 1 (for Wi-Fi) M.2 3052 B-Key x 1 (for 5G/LTE) SIM Slot x 1	M.2 2230 E-Key x 1 (PCIe) M.2 2280 M-Key x 1 (PCIe Gen 4 [x4])
Indicator	System Power LED x 1	System LED, Storage active LED	
OS support	Windows® 10 IoT Ent LTSC, Windows® 11 PRO, Ubuntu 22.04	Windows® 11 Pro, Windows® 11 IoT Enterprise, Linux Ubuntu 24.04.01 and above	Windows® 11 Pro Windows® 11 IoT Enterprise LTSC 2024 Ubuntu 24.04 or later
Power Supply			
Power Requirement	DC-in 10~35V in 3pin Terminal block connector	DC-in ~36V in 3-pin Terminal block connector	DC-in 10V ~ 35V via 4-pin Terminal Block Connector
Mechanical			
Mounting	Wallmount		Wallmount, DIN Rail (optional)
Dimensions (W x H x D)	8.66" x 6.06" x 2.42" (220 mm x 154 mm x 61.6 mm)	8.66" x 6.06" x 2.42" (220mm x 154mm x 62.1mm) w/o bracket 10.7" x 6.1" x 3.0" (272mm x 154mm x 76.1mm) with bracket	10.39" x 3.2" x 6.1" (264mm x 81mm x 156mm)
Gross Weight	6.6 lb. (3.0 kg)	6.6 lb. (3.2 kg)	10.8 lb (4.9 Kg)
Net Weight	4.9 lb. (2.2 kg)	4.9 lb. (2.4 kg)	8.6 lb (3.9 Kg)
Environmental			
Operating Temperature	-4°F ~140°F (-20°C ~ 60°C), IEC68-2 with 0.5 m/s AirFlow, with wide temperature Memory/Storage	-4°F ~140°F (-20°C ~ 60°C), IEC60068-2 with 0.7 m/s AirFlow, with wide temperature Memory/Storage	-13°F ~ 140°F (-25°C ~ 60°C), IEC60068-2 with 0.7 m/s AirFlow, with wide temp. memory/storage
Storage Temperature			
Storage Humidity	5 ~ 95% @ 40°C, non-condensing		
Anti-Vibration	SSD: Random, 3Grms, 5~500Hz	2 Grms/ 5 ~ 500Hz/ operation (with SSD)	SSD: Random, 3Grms, 5~500Hz
Anti-Shock	SSD: 50G @ wallmount, Half-sine, 11ms	30G, IEC60068-2-27, half sine, 11 ms duration (with SSD)	SSD: 50G @ Wallmount, Half-sine, 11ms
Certification	CE/FCC class A		
Note			

Note: All specifications are subject to change without notice.

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System Level Products

Compact Fanless BOX PC Solutions

Compact Fanless BOX PC Solutions



Model	BOXER-6649-RAP
System	
CPU	Intel® 13th i3/i5/i7 processor (28W TDP): Intel® Core™ i3-1320PE Intel® Core™ i5-1340PE Intel® Core™ i7-1370PE
Chipset	Intel® SoC
System Memory	DDR5 SODIMM slot x 2, up to 96GB
Display Interface	HDMI x 2
Storage Device	Internal 2.5" SATA Drive Bay x 1 M.2 2280 NVMe Slot x 1 (PCIe Gen4x4)
Ethernet	RJ-45 for 2.5GbE LAN i226-LM x 5 (IEEE802.3 at PoE PSE x 4) *Note: PoE total support 20W while DC input ≤ 12V PoE total support 60W while DC input ≥ 12V
I/O	USB Type-A for USB3.2 Gen2 10G x 2 USB Type-A for USB2.0 x 4 DB-9 for RS-232/422/485 x 2 Mic in / Line out DB15 for DIO 8 bit Power Button with LED indicator x 1
Expansion	M.2 E key 2230 x 1 (PCIe) M.2 B Key 3052 x 1 (USB 3.2/USB 2.0) SIM slot x 1
Indicator	System Power
OS support	Windows® 10 IoT Enterprise LTSC 2021 Windows® 11 PRO Windows® 11 IoT Enterprise LTSC 2024 Ubuntu 24.04 above
Power Supply	
Power Requirement	DC-in 9~36V in 3pin Terminal block connector With protection circuit
Mechanical	
Mounting	Wallmount, optional Din Rail mount
Dimensions (W x H x D)	9.5" x 6.6" x 2.1" (242mm x 167mm x 53mm) w/o brackets
Gross Weight	7.1 lb (3.2 kg)
Net Weight	5.3 lb (2.4 kg)
Environmental	
Operating Temperature	-13°F ~149°F (-25°C ~ 60°C), IEC60068-2 with 0.7 m/s AirFlow, with wide temp. memory/storage
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing
Anti-Vibration	SSD: Random, 3Grms, 5~500Hz
Anti-Shock	SSD: 50G @ wallmount, Half-sine, 11ms
Certification	CE/FCC class A
Note	

Ultra Slim Fanless BOX PC Solutions

System Level Products

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Ultra Slim Fanless BOX PC Solutions

Model	BOXER-6404U		BOXER-6404	BOXER-6404WT
System				
CPU	Intel® Celeron® J1900, 2.0 GHz Intel® Celeron® N2807, 1.58 GHz			
Chipset	Intel® System on Chip			
System Memory	DDR3L 1333 SODIMM slot x 1, up to 8 GB (J1900) or 4 GB (N2807)			
Display Interface	VGA	HDMI (max. 1920 x 1080)		HDMI
Storage Device	mSATA, HDD/SSD		CFast™	
Ethernet	Intel® I211-AT x 2		Intel® I210AT, 10/100/1000Base-TX x 4	
I/O	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-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 HDD active LED		Power LED on power button	
OS support	Windows® 10, Windows® 8.1, Windows® 7, Windows® Embedded 8, Windows® Embedded 7, Linux Fedora			
Power Supply				
Power Requirement	12 - 24V with 3-pin terminal block		12V - 24V with lockable DC jack	
Mechanical				
Mounting	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)	6.53" 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)	6.53" x 4.20" x 1.59" (166mm x 106.6mm x 40.5mm)	
Gross Weight	3.6 lb (1.6 kg)	2.9 lb (1.3 kg)	3.59 lb (1.63 kg)	
Net Weight	1.76 lb (0.8 kg)	1.9 lb (0.86 kg)	2.6 lb (1.17 kg)	
Environmental				
Operating Temperature	-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)	-22°F ~ 167°F (-30°C ~ 75°C) with wide temperature CFast™ card (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	
Storage Temperature	-22°F ~ 176°F (-30°C ~ 80°C)			
Storage Humidity	95% @ 40°C, non-condensing			
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation –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.

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Ultra Slim Fanless BOX PC Solutions



Model	BOXER-6404M	BOXER-6405	BOXER-6405M
System			
CPU	Intel® Celeron® J1900, 2.0 GHz Intel® Celeron® N2807, 1.58 GHz	Intel® Celeron®/Pentium® processor	
Chipset		Intel® System on Chip	
System Memory	DDR3L 1333 SODIMM slot x 1, up to 8 GB (J1900) or 4 GB (N2807)	DDR3L 1866, Single Channel SODIMM x 1, Non-ECC (Max.8GB, up to 1600MHz)	
Display Interface	HDMI	HDMI (max. 1920 x 1080)	HDMI type A x 1 for HDMI v1.4b VGA x 1
Storage Device	CFast™, HDD/SSD	mSATA	HDD/SSD, (mSATA BOM option)
Ethernet	Intel® i210AT, 10/100/1000Base-TX x 4	Intel® i211-AT x 2	Intel® i211-AT x 2
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 hole x 1 Power button Power input	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	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
Expansion	Full-size Mini-Card (USB interface only) x 1	Full-size Mini PCIe slot x 1 (PCIe/USB/SIM slot), one screw Half-size Minicard slot x 1 (mSATA only)	Full-size Mini PCIe slot x 1 (PCIe/USB/SIM slot), one screw Half-size Minicard slot x 1 (optional for mSATA,PCIe/mSATA)
Indicator	Power LED on power button	Power LED x 1, HDD active LED x 1	
OS support	Windows® 10, Windows® 8.1, Windows® 7, Windows® Embedded 8, Windows® Embedded 7, Linux Fedora	Windows® 10, Windows® 10 IoT, Linux	
Power Supply			
Power Requirement	12V - 24V with lockable DC jack	9-24V with 3-pin terminal block	3-pin Phoenix DC Input 9~24V without power protection
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 2.05" (166mm x 106.6mm x 52mm)	6.54" x 4.2" x 1.45" (166mm x 106.6mm x 37mm)	6.54" x 4.2" x 1.65" (166mm x 106.6mm x 42mm)
Gross Weight	3.81 lb (1.73 kg)	3.6 lb (1.6kg)	
Net Weight	2.8 lb (1.27 kg)	1.76 lb (0.8 kg)	1.7 lb (0.8 kg)
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)	-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)	
Storage Temperature	-22°F ~ 176°F (-30°C ~ 80°C)	-22°F ~ 140°F (-30°C ~ 60°C)	
Storage Humidity		95% @ 40°C, non-condensing	
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation –CFast™ card or SSD 1 Grms/ 5 ~ 500Hz/ operation –HDD	3 Grms/ 5 ~ 500Hz/ operation – mSATA 1 Grms/ 5 ~ 500Hz/ operation - HDD	
Anti-Shock		—	
Certification		CE/FCC class A	
Note			

System Level Products

Ultra Slim Fanless BOX PC Solutions

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Ultra Slim Fanless BOX PC Solutions



Model	BOXER-6406-ADN	BOXER-6406-ASL	BOXER-6406U-ADN
System			
CPU	Intel® Processor N200 Intel® Processor N50 Intel Atom® x7211E	Intel Atom® x7433RE Intel Atom® x7213RE Intel Atom® x7211RE	Intel® Processor N200 Intel® Processor N50 Intel Atom® x7211E
Chipset	Intel® SoC		
System Memory	DDR5 4800MHz SODIMM x 1, up to 32GB		
Display Interface	HDMI x 2		
Storage Device	M.2 2280 M-Key x 1 (PCIe Gen 3 [x2]) 2.5" SATA HDD/SSD x 1		
Ethernet	RJ-45 x 2 for 2.5GbE LAN (Intel® Ethernet Controller I226-LM)		
I/O	HDMI x 2 RJ-45 x 2 for 2.5GbE LAN (Intel® I226-LM) USB 3.2 Gen 2 x 2 (Type-A) USB 2.0 x 2 (Type-A) DB-9 x 3 for RS-232/422/485 DB-15 x 1 Male for Digital I/O 8-Channel 3-pin Terminal Block for DC In x 1 Power Button with LED x 1		HDMI x 2 RJ-45 x 2 for 2.5GbE LAN (Intel® Ethernet Controller I226-LM) USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 (Type-A) x 2 DB-9 x 2 for RS-232/422/485 DB-15 x 1 Male for 8-Channel Digital I/O 12V DC Jack Input Power Button with LED x 1 Antenna Opening x 4
Expansion	M.2 2280 M-Key x 1 (PCIe [x2]) M.2 2230 E-Key x 1 Full-Size Mini Card x 1 (PCIe + USB) SIM Slot x 1		
Indicator	—		Power Button with LED
OS support	Windows® 10 IoT Enterprise Windows® 11 IoT Enterprise Windows® 11 Pro Linux Ubuntu 22.04		
Power Supply			
Power Requirement	9 ~ 36V DC-In x 1 for 3-pin Terminal Block		Lockable DC Jack x 1 for 12V DC-in
Mechanical			
Mounting	Wallmount		
Dimensions (W x H x D)	7.32" x 4.12" x 1.93" (186mm x 104.6mm x 49.1mm) without bracket 8.74" x 4.12" x 2.21" (222mm x 104.6mm x 56.1mm) with bracket		6.46" x 4.11" x 1.85" (164mm x 104.5mm x 47mm) without bracket 8.74" x 4.11" x 2.13" (222mm x 104.5mm x 54mm) with bracket
Gross Weight	4.32 lb (1.96 Kg)		3.8 lb. (1.73Kg)
Net Weight	2.56 lb (1.16 Kg)		2 lb. (0.93Kg)
Environmental			
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C), according to IEC68-2 with 0.5 m/s AirFlow (w/ Industrial wide Temp. SSD/RAM)		-4°F ~ 140°F (-20°C ~ 60°C), according to IEC68-2 with 0.7 m/s AirFlow (w/ Industrial wide Temp. SSD/RAM)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)		
Storage Humidity	5 ~ 95% @ 40°C, non-condensing		
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation (with SSD)		With SSD: Random, 3 Grms, 5~500Hz
Anti-Shock	50G, IEC 68-2-27, half sine, 11 ms duration (with SSD)		With SSD: 50 G, IEC 60068-2-27, half sine, 11 ms duration
Certification	CE/FCC Class A		
Note			

Note: All specifications are subject to change without notice.

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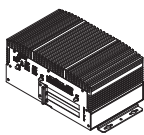


Model	BOXER-6406U-ASL	BOXER-6451-ADP
System		
CPU	Intel Atom® x7433RE Intel Atom® x7213RE Intel Atom® x7211RE	Intel® Core™ i7-1265UE Intel® Core™ i5-1245UE Intel® Core™ i3-1215UE
Chipset	Intel® SoC	
System Memory	DDR5 4800MHz SODIMM x 1, up to 32GB	DDR4 SODIMM x 1, up to 32GB
Display Interface	HDMI x 2	HDMI 1.4b x 2 (Type-A)
Storage Device	M.2 2280 M-Key x 1 (PCIe Gen 3 [x2]) 2.5" SATA HDD/SSD x 1	2.5" SATA Drive Bay x 1 M.2 2280 M-Key x 1 (PCIe [x4])
Ethernet	RJ-45 x 2 for 2.5GbE LAN (Intel® Ethernet Controller I226-LM)	RJ-45 x 1 for 2.5GbE (Intel® I226-LM) RJ-45 x 1 for GbE (Intel® I219-LM)
I/O	HDMI x 2 RJ-45 x 2 for 2.5GbE LAN (Intel® Ethernet Controller I226-LM) USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 (Type-A) x 2 DB-9 x 2 for RS-232/422/485 DB-15 x 1 Male for 8-Channel Digital I/O 12V DC Jack Input Power Button with LED x 1 Antenna Opening x 4	USB 3.2 Gen 2 x 3 (Type-A) USB 2.0 x 1 (Type-A) DB-9 x 4 for RS-232/422/485 HDMI 1.4b x 2 (Type-A) Power Button x 1 DC Jack 12V Input Antenna Opening x 6
Expansion	M.2 2280 M-Key x 1 (PCIe [x2]) M.2 2230 E-Key x 1 Full-Size Mini Card x 1 (PCIe + USB) SIM Slot x 1	M.2 2230 E-Key x 1 (Wi-Fi/BT) M.2 3052 B-Key w/ SIM x 1 (LTE/5G) M.2 2280 M-Key x 1 (NVMe)
Indicator	Power Button with LED	
OS support	Windows® 10 IoT Enterprise Windows® 11 IoT Enterprise Windows® 11 Pro Ubuntu 22.04	Windows® 10 IoT Ent LTSC Windows® 11 PRO Ubuntu 22.04
Power Supply		
Power Requirement	Lockable DC Jack x 1 for 12V DC-in	
Mechanical		
Mounting	Wallmount	
Dimensions (W x H x D)	6.46" x 4.11" x 1.85" (164mm x 104.5mm x 47mm) without bracket 8.74" x 4.11" x 2.13" (222mm x 104.5mm x 54mm) with bracket	7.68" x 4.37" x 2.5" (195mm x 111mm x 63.5mm) w/o bracket
Gross Weight	3.8 lb. (1.73Kg)	4.4 lb. (2Kg)
Net Weight	2 lb. (0.93Kg)	3.3 lb. (1.5Kg)
Environmental		
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C), according to IEC68-2 with 0.7 m/s AirFlow (w/ Industrial wide Temp. SSD/RAM)	-4°F ~ 140°F (-20°C ~ 60°C), IEC68-2 with 0.5 m/s AirFlow with Wide Temperature Memory/Storage
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	
Anti-Vibration	With SSD: Random, 3 Grms, 5~500Hz	
Anti-Shock	With SSD: 50 G, IEC 60068-2-27, half sine, 11 ms duration	SSD: 50G @ wallmount, Half-sine, 11ms
Certification	CE/FCC class A	
Note		



Model	BOXER-6751-ADP	BOXER-6711-ADN	BOXER-6710
System			
CPU	Intel® Core™ i7-1265UE Intel® Core™ i5-1245UE Intel® Core™ i3-1215UE	Intel Atom® x7211E Intel® Processor N200 Intel® Processor N50	Intel® Pentium® processor N4200 Intel® Celeron® processor N3350
Chipset	Intel® SoC		
System Memory	DDR4 SODIMM x 1, up to 32GB	DDR5 4800 MT/s SODIMM slot x 1, up to 32GB	DDR3L 1866, Single Channel SODIMM x 1, Non-ECC (Max.8GB, up to 1600MHz)
Display Interface	HDMI 1.4b (Type-A) x 2	HDMI 1.4 x 2	HDMI, VGA
Storage Device	2.5" SATA III Drive Bay x 1 M.2 2280 M-Key x 1 (PCIe [x4])	M.2 2280 M-Key x 1 (PCIe [x2]) 2.5" SATA HDD/SSD x 1	HDD/SSD, optional mSATA
Ethernet	RJ-45 x 1 for Intel® i226-LM, 2.5GbE RJ-45 x 1 for Intel® i219-LM, GbE	RJ-45 x 2 for 2.5GbE LAN (Intel® Ethernet Controller I226)	Intel® i211-AT x 2
I/O	USB 3.2 Gen 2 (Type-A) x 3 USB 2.0 (Type-A) x 3 DB-9 x 2 for RS-232/422/485 DB-15 x 1 for DIO 8-bit HDMI 1.4b (Type-A) x 2 Audio x 1 for Line-Out Power Button x 1 3-pin Terminal Block for DC-in x 1 Antenna Opening x 4	HDMI 1.4 x 2 RJ-45 x 2 for 2.5GbE LAN (Intel® Ethernet Controller I226) USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 (Type-A) x 2 DB-9 x 3 for RS-232/422/485 DB-15 x 1 for 8-bit DIO 3-pin Terminal Block for DC in x 1 Power Button with LED x 1	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	M.2 2230 E-Key x 1 (Wi-Fi/BT) M.2 3052 B-Key w/ SIM x 1 (LTE/5G) M.2 2280 M-Key x 1 (NVMe)	M.2 2280 M-Key x 1 (PCIe [x2]) M.2 2230 E-Key x 1 Full Size Mini Card x1 (PCIe + USB) SIM Slot x 1	Full-size Minicard x 1 w/ SIM Slot Half-size Minicard x 1 (optional for mSATA)
Indicator	Power Button with LED	—	Power LED on power button
OS support	Windows® 10 IoT Ent LTSC Windows® 11 PRO Ubuntu 22.04		Windows® 10 (64-bit) Windows® 10 IoT (64-bit) Linux Ubuntu 16.04.4
Power Supply			
Power Requirement	DC-in 9-36V x1 for 3-pin Terminal Block		9 - 24V with 3-pin terminal block
Mechanical			
Mounting	DIN Rail Mount Wallmount (Mounting kit is optional)	DIN Rail Mount	
Dimensions (W x H x D)	2.93" x 7.32" x 5.0" (74.3mm x 186mm x 127mm)	1.89" x 7.48" x 4.88" (48mm x 190mm x 124mm)	1.73" x 6.54" x 4.17" (44mm x 166mm x 106mm)
Gross Weight	5.3 lb (2.41 Kg)	3.50 lb (1.59 Kg)	3.08lb (1.4kg)
Net Weight	3.9 lb (1.77 Kg)	2.40 lb (1.09 Kg)	1.32lb (0.6kg)
Environmental			
Operating Temperature	-4°F ~140°F (-20°C ~ 60°C), IEC68-2 with 0.5 m/s AirFlow	-4°F ~ 140°F (-20°C ~ 60°C), according to IEC68-2 with 0.5 m/s AirFlow (w/ Industrial wide Temp. SSD/RAM)	-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	-40°F ~ 176°F (-40°C ~ 80°C)		-49°F ~ 176°F (-45°C ~ 80°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing		95% @ 40°C, non-condensing
Anti-Vibration	With SSD: Random, 3 Grms, 5~500Hz	3 Grms/ 5 ~ 500Hz/ operation (with SSD)	3 Grms/ 5 ~ 500Hz/ operation – mSATA/ SSD 1 Grms/ 5~ 500Hz/ operation – HDD
Certification	CE/FCC class A		
Note			

Expandable Fanless BOX PC Solutions



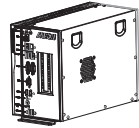
Model	BOXER-6801-RAP	BOXER-6839-CFL	BOXER-6842M
System			
CPU	13th Gen Intel® Core™ i7/i5/i3 mobile processors (formerly Raptor Lake-P series), support max. 28W: i7-1370PE i5-1340PE i3-1320PE	Intel® Xeon® E-2124G, Intel® i9-9900T, Intel® i7-9700TE, Intel® i7-8700T, Intel® i5-8500T, Intel® i3-8100T, Pentium® G5400T, Celeron® G4900T	Intel® Xeon® E-2124G; Intel® Core™ i9-9900T; Intel® Core™ i7-8700T; Intel® Core™ i5-9500TE; Intel® Core™ i5-8500T; Intel® Core™ i3-8100T; Intel® Pentium® G5400T; Intel® Celeron® G4900T Note: Support max. TPD 71W Processor
Chipset	Intel® SoC	C246	C246, No H310 downward support
System Memory	DDR5 SODIMM slot x2, up to 96GB	DDR4-2666 SODIMM slot x 2 Up to 64GB, ECC or Non-ECC Support	DDR4 SODIMM socket x4 (double deck) Support max. 2666MHz up to 128GB Support un-buffered and ECC / non-ECC type SODIMM
Display Interface	HDMI x 2		HDMI x 2 Support Dual Independent Display, 4K Ultra HD displays
Storage Device	2.5" SATA Drive Bay x 1 M.2 2280 M-key x 1 (PCIe Gen4x4)	2.5" SATA HDD/SSD Bay x 2	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	2.5GbE x 5 (Intel® i226-LM)	RJ-45 x 4 for GbE LAN (i211-AT x 3, i219-LM x 1)	RJ-45 x 3 for GbE (Intel i211AT x 2, i219LM x 1)
I/O	2.5GbE x 4 (IEEE802.3 at/af, Intel i226-LM x4 with PoE, sharing 60W in total for four ports) *Note: the system supports all PoE with only less than 20W when input voltage is at or below 12V USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 (Type-A) x 2 DB-9 x 2 for RS-232/422/485 DB-15 x 1 for DIO 8 bit Front-access SIM slot x 1 3.5 mm jack x 1 for Line-out/Mic-in Antenna opening x 6 Reset button x 1 Power button x 1	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	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	M.2 2280 M-key x 1 M.2 2230 E-key x 1 (PCIe) M.2 3052 B-Key x 1 (USB) with SIM slot PCIe[x1] slot x1 (Max size: 150x110x20 mm) PCI slot x1 (Max size: 150x110x20 mm)	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	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 + POE [x8] (in x16 slot) x 2 A4: PCIe [x4] x1 + POE [x8] (in x16 slot) x2; Support dual Graphics Cards with two power inputs A5: Built in Nvidia A2 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.
Indicator	—	HDD LED x 1 System LED x 1	System Power LED x 1 (Green), Storage Active LED x 1 (Red)
OS Support	Windows® 10 IoT 2021 LTSC Windows® 11 IoT LTSC Ubuntu 24.04 above	Windows® 10 64-bit, Linux Ubuntu 20.04	Windows® 10 Enterprise 64 bit, Ubuntu 18.04.4
Power Supply			
Power Requirement	DC-in 9~36V 3-pin terminal block connector With protection circuit	3-pin Phoenix DC Input 10~35V	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 A2 x 1: 240W Power Adapter x 1 With A2 x 2: 330W Power Adapter x 1
Mechanical			
Mounting	Wallmount (optional, Din-rail mount)	Wallmount	
Dimensions (W x H x D)	264 x 179 x 124 mm (without brackets)	264mm x 156mm x 125mm	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	TBD	13.2 lb (6.0 kg)	A2/A3: 18.52 lb (8.4 Kg); A4: 20.72 lb (9.4 Kg); A5: 20.5 lb (9.3 Kg)
Net Weight	TBD	9.9 lb (4.5 kg)	A2/A3: 15.65 lb (7.1 Kg); A4: 17.86 lb (8.1 Kg); A5: 17.64 (8 Kg)
Environmental			
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C) with 0.7 m/s airflow (with wide temp. memory/storage)	-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)	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	-40°F ~ 176°F (-40°C ~ 80°C)	-49°F ~ 176°F (-45°C ~ 80°C)	
Storage Humidity	5 ~ 95% @ 40°C, non-condensing		
Anti-Vibration	With SSD: Random, 3Grms, 5~500Hz	5 Grms/ 5 ~ 500Hz/ operation ~SSD	HDD: Random, 1Grm, 5~500Hz
Anti-Shock	With SSD: 50G @ wallmount, Half-sine, 11ms		
Certification	CE/FCC Class A		

System Level Products

Expandable Fanless BOX PC Solutions

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Expandable Fanless BOX PC Solutions



Model	BOXER-6843-ADS	BOXER-6845-BTL
System		
CPU	12th Generation Intel® Core™, TDP Max. 65W Intel® Core™ i9-12900TE/i9-12900E Intel® Core™ i7-12700TE/i7-12700E Intel® Core™ i5-12500TE/i5-12500E Intel® Core™ i3-12100TE/i3-12100E 13th Generation Intel® Core™, TDP Max. 65W Intel® Core™ i9-13900TE/i9-13900E Intel® Core™ i7-13700E Intel® Core™ i5-13500E Intel® Core™ i3-13100TE 14th Generation Intel® Core™, TDP Max. 65W Intel® Core™ i9 processor 14900/14900T Intel® Core™ i7 processor 14700/14700T Intel® Core™ i5 processor 14500 Intel® Core™ i3 processor 14100/14100T	Intel® Core™ processors (Series 2), TDP 65W
Chipset	Intel® Q670E Chipset	Intel® W680 Chipset
System Memory	DDR5 4800MHz U-DIMM x 4, up to 128GB	DDR5 ECC Unbuffered SODIMM x 2 up to 64GB
Display Interface	HDMI x 2 (Type-A), Display Port x 2	HDMI Type A x 2 (Lockable)
Storage Device	2.5" SATA Drive Bay x 2 (external, swappable) M.2 2280 M-Key x 2 (PCIe Gen 4 [x4]) 3.5" SATA Drive Bay (internal, non-swappable, optional)	2.5" SATA Drive Bay x 1 M.2 M-key 2280 x 2 (NVMe Gen 4)
Ethernet	2.5GbE x 3 (Intel® Ethernet Controller I226-IT), GbE x 1 with LED Indicator (Intel® Ethernet Connection I219-LM)	RJ-45 for GbE LAN x 3 (Lockable, i219-LM x1 & i210-IT x2)
I/O	HDMI x 2, Display Port x 2 RJ-45 x 4 3.2 Gen 2 x 8 (Type-A) DB-9 Male x 6 for RS-232/422/485 (Autoflow, Programmable) DB-15 Male x 1 for 8-bit DIO Audio (Mic-in/Line-out) DC 19 ~ 36V 3-pin Terminal Block Connector Power Button with LED x 1 Remote Power On/Off x 1 Reset Button x 1	Type A USB 3.2 (10Gbps) x 2 Type A USB 2.0 x 2 DB-9 for RS-232/422/485 x2 Mic-in/Line-out x1 DB-15 for DIO 8bit x1 Remote power switch x1 Power button with LED indicator x1 Antenna opening x 10 OOB function (optional) Reset button x1
Expansion	M.2 2230 E-Key x 1 M.2 3052 B-Key w/SIM x 1 M.2 2280 M-Key/B+ M-Key x 2 Full-Size Mini Card x 1 (PCIe + USB) A1: PCIe [x4] x 1 + PCIe [x16] x 1 A2: PCIe [x4] x 1 + PCIe [x8] (x16) slot x 2 Max. Power Consumption of GPU card 300W Max. Size of GPU card 305mm x 120mm x 50mm	M.2 E-key 2230 x 1 (for WiFi) M.2 B-Key 3052 x 2 (for LTE/5G) M.2 M-key 2280 x2 (NVMe Gen 4) Front-access Nano SIM slot x 1 with a cover Riser-card slot 1x PCIe[x16] (75W) & 1x PCIe[x4] (25W), max. size of GPU card: TBD, depth < 26cm
Indicator		
OS Support	Windows® 10 IoT Enterprise LTSC 2021 Windows® 11 Pro Linux Ubuntu 22.04	Windows® 10 IoT 2021 LTSC Windows® 11 IoT LTSC Linux Ubuntu 22.04
Power Supply		
Power Requirement	DC 19~36V 3-pin Terminal Block	DC-in 12~24V 4-pin terminal block connector With protection circuit
Mechanical		
Mounting	Wallmount	
Dimensions (W x H x D)	Without Brackets: 7.35" x 8.92" x 14.76" (186.8mm x 226.5mm x 375mm) With Brackets: 7.35" x 9.19" x 16.50" (186.8mm x 233.5mm x 419mm)	310 x 225 x 150mm (without brackets)
Gross Weight	20.9 lb. (9.5 Kg)	TBD
Net Weight	18.1 lb. (8.2 Kg)	TBD
Environmental		
Operating Temperature	-4°F ~ 113°F (-20°C ~ 45°C), according to IEC68-2 with 0.5 m/s AirFlow (w/ Industrial wide Temp. SSD/RAM)	-4°F ~113°F (-20°C ~ 45°C) with 0.7 m/s airflow (with industrial wide temp. memory/storage)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	5 ~ 95% @ 40°C, non-condensing
Anti-Vibration	3 Grms/ 5 ~ 500Hz operation (with SSD)	
Anti-Shock	50G, IEC 68-2-27, half sine, 11 ms duration (with SSD)	50G @ wallmount, half sine, 11 ms duration (with SSD)
Certification	CE/FCC Class A	
Note		

Note: All specifications are subject to change without notice.

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Expandable Fanless BOX PC Solutions: Frame Grabber Card



Model	PER-T479	PER-T481	PER-T514
System			
Bus Interface	PCI-Express® [x4], Gen 2 PCI-Express Specification Revision 2.1 at 5GT/s	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	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)	—	—
USB Connector	4 USB 3.2 Gen 1 Type-A connectors with lockable screw threads	—	—
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	Windows® 10, Windows® 8.1 (32/64-bit), Windows® 7(32/64-bit) Linux	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	12V from external IDE 4-pin power connector	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)	4.72" x 4.21" (120mm x 107mm)	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	32°F ~ 140°F (0°C ~ 60°C) (according to IEC68-2-14 with 0.5 m/s AirFlow ; with industrial devices)	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	
Note			

System Level Products

Smart In-vehicle & AMR BOX PC

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Smart In-vehicle & AMR BOX PC



Model	VPC-3350S	VPC-5600S	VPC-5640S
System Form Factor	Multi-PoE & Fanless Appliance		
Processor	Intel® Pentium®/ Celeron®/ Atom® Processor (Default: Intel Atom® x5-E3940 Processor)	7th Generation Intel® Core™ i3/i5/i7 Processors Default: Intel® Core™ i3-7100U Project Base: Intel® Core™ i5-7300U, Intel® Core™ i7-7600U	Default: 12th Generation Intel® Core™ i7-1265UE Processor Project Based: Intel® Core™ i5-1245UE Intel® Core™ i3-1215UE
Chipset	—		
Main Memory	DDR3L 1866, Single-Channel SODIMM x 1, Non-ECC (Max. 8GB, up to 1600MHz)	DDR4 2133MHz SODIMM x 2, up to 32GB	DDR5 SODIMM x 2, up to 64GB
Display	HDMI x 1, DP x 1		HDMI x 2
Ethernet	Intel® Ethernet Controller I211 (co-lay I210)	PoE x 4, LAN x 2, RTL8111E 10/100/1000 Base-T	2.5GbE x 1 (Intel® I226-LM)
Smart PoE	4 ports, sharing 60W of power budget for every four PoE ports		2.5GbE x 4 (Intel® Ethernet Controller I226-LM) (IEEE 802.3 at/af, sharing total 60W of power budget for all four PoE ports) *Note: The system only supports total 20W PoE when input voltage is at or below 10V
RAID support	—	RAID 0, RAID 1	—
Expansion Slot	Full-size Mini Card Slot x 2 (USB 2.0 + PCIe, up to 4 slots, in-vehicle platform) SATA x 1 Built-in CANBus (in-vehicle platform)	Mini-Card x 3 (USB 2.0 x 2 + PCIe + USB 2.0 x 1) Built-in CAN 2.0B x 1	M.2 2230 E-Key x 1 (PCIe [x1] + USB 2.0, for WiFi/Bluetooth Module) M.2 3052 B-Key w/ Dual-SIM x 2 (USB 3.0 + USB 2.0, for LTE/5G Module) M.2 2280 M-Key x 1 (PCIe [x4]), support NVME PCIe [x4] SSD)
GPS, G-Sensor	Built-in GPS & G-Sensor (In-vehicle platform)	Onboard (GPS/GLONASS), G Sensor	VS: Built-in GPS, NEO-M9V & 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 CanBus connector x 1 (In-vehicle platform) RS-232 x 3 (In-vehicle platform)	Power Button x 1 3G/4G/WiFi LED x 3 USB 3.2 Gen 1 x 4 RJ-45 x 2 for GbE PoE LAN x 4 (IEEE 802.3 at/af) DP x 1 Reset Button x 1	USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 (Type-A) x 2 2.5GbE LAN x 1 2.5GbE PoE LAN x 4 (IEEE802.3 at/af) Jack x 1 for Line-out & MIC-in Reset Button x 1 Power Button x 1
Rear I/O Panel	DC Power Input 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	DC-in Power x 1 Remote Power x 1 8-bit DIO x 1, 4-CH Digital Input (Wet/dry contact with Isolation Protection 3.00VDC), 4-CH Digital Output (Compatible 5 V/ TTL, 31mA Max. per Channel) 12V/1A DC Output x 1 RS-232/422/485 x 2 HDMI x 1 CanBus x 1, Audio Line-out x 1, Mic-In x 1 SIM Slot x 2	DB-9 Male x 2 for RS-232/422/485 DB-9 Male x 1 for Isolated CANBus FD x 2 DB-15 Male x 1 for DIO 8 bit HDMI 1.4b x 2 3-pin Terminal Block x 1 DIP Switch x 1 SIM Slot x 4
Storage	—		
HDD Tray	2.5" HDD/SSD Bay x 1	2.5" SATA SSD x 2	2.5" HDD/SSD Bay x 1
CF/CFast/mSATA Slot	—	mSATA Slot x 1 (Optional, If mSATA x 1 used, then only one SATA available)	—
Environmental	—		
Operating Temperature	-4°F ~ 158°F (-20°C ~ 70°C)		-40°F ~ 158°F (-40°C ~ 70°C), IEC68-2 with 0.5 m/s AirFlow
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)		-40°F ~ 176°F (-40°C ~ 80°C)
Storage Humidity	10%~80% @40°C, non-condensing		5 ~ 95% @ 40°C, non-condensing
Vibration/Shock	MIL-STD-810G		MIL-STD-810H
Certification	CE & FCC Class A	CE & FCC Class A, E-Mark	CE/FCC Class A, UKCA, E-Mark
Power Requirement	—		
Power Supply	DC 12V-24V, DC 9V-36V with power ignition (in-vehicle platform)	DC 10-36V, with ignition pin	IS: DC-in 9~36V x 1 for 3-pin Terminal Block VS: DC-in 9~36V x 1 for 3-pin Terminal Block with power ignition
Mechanical	—		
Removable HDD Tray	—	Hot swappable 2.5" SSD x 2 (Project base) via extension module	—
Internal System HDD Bay	—	2.5" HDD x 2	2.5" HDD/SSD Bay x 1
Dimension	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 2.52" (174mm x 200mm x 64mm)	9.45" x 6.58" x 2.99" (240mm x 167.1mm x 76mm) Without brackets 11.69" x 6.58" x 3.27" (297mm x 167.1mm x 83mm) With brackets
Gross Weight	3.96 lb. (1.8 Kg)	5.7 lb. (2.6 Kg)	7.93 lb (3.6 Kg)
Note	—		

Note: All specifications are subject to change without notice.

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Model	UP-GWS01	UP 4000 Edge	UP 7000 Edge
System			
CPU	Intel Atom® x5-Z8350 Processor SoC	Intel® Celeron® Processor N3350 Intel® Pentium® Processor N4200 Intel Atom® x7-E3950	Intel® Processor N200 Intel® Processor N97 Intel® Processor N100 Intel® Processor N50 (formerly Alder Lake-N)
Memory	Up to 4GB onboard DDR3L	Up to 8GB onboard LPDDR4	Up to 8GB LPDDR5
Graphics	Intel HD Graphics 400	Intel® HD Graphics	Intel® UHD Graphics for 12th Gen Intel® Processors
Storage	Up to 64GB onboard eMMC		Up to 64GB eMMC
Ethernet	1GbE RJ-45 x 1 (Realtek RTL8111H-CG)	1GbE RJ-45 x 1 (Realtek RTL8111-CG)	1GbE RJ-45 x 1 (Realtek RTL8111H CG)
WiFi/BT	Optional	—	
Expansion Slot	—		HDMI 1.4b/USB 3.2 Gen 2 STACK Connector x 1 (Type-A) Power Button x 1
Security	—	Onboard TPM 2.0	
OS Support	Windows 10 Windows IoT Core Linux Ubuntu 22.04 Linux Yocto 3.1	Windows 10 and Windows IoT Linux Ubuntu 22.04 Linux Yocto 4.0	Windows 10 LTSC 2021 Linux: Ubuntu 22.04 LTS/Kernel 5.15, Yocto 4.0
I/O Placements			
USB	USB 2.0 x 4 USB 3.0 OTG x 1	USB 3.2 Gen 1 (Type-A) x 3 USB 3.0 OTG (via USB Type-C) x1	USB 3.2 Gen 2 (Type-A) x 3
Display Port	HDMI x 1	HDMI 1.4b x 1 DP x 1 (via USB Type-C)	HDMI 1.4b x 1
Ethernet	RJ45 x1		1GbE RJ-45 x 1 (Realtek RTL8111H CG)
COM	—		
Audio	—	Audio wafer x 1 (Mic-in+Line-out)	—
GPIO	—		
Power Supply			
Power requirement	5V DC-in	12V DC-in	12V DC-in, 5A
Power supply type	AT/ATX (Default: AT)		AT/ATX (Default: ATX)
Power Consumption (Typical)	6.6W	19W~25W	30W~36W
Mechanical			
Mounting	—	VESA Mount/Wallmount(Optional)	VESA Mount (optional)
Dimensions (WxHxD)	3.74" x 3.58" x 1.46" (95mm x 91mm x 37mm)	3.62" x 2.52" x 1.78" (92mm x 64mm x 45.2mm)	
Net Weight	0.73 lb (0.33kg)	0.64lb (0.29kg)	0.68 lb (0.31kg)
Gross Weight	1.30 lb (0.59kg)	1.21lb (0.55kg)	1.04 lb (0.47kg)
Environment			
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 140°F (0°C ~ 60°C) with air flow 0.5m/s	32°F ~ 131°F (0°C ~ 55°C) with 0.5m/s air flow
Operating Humidity	0% ~ 90% relative humidity non-condensing	10% ~ 80% relative humidity, non-condensing	
Storage Temperature	—	-4°F ~ 158°F (-20°C ~ 70°C)	
MTBF(Hours)	270,599	538,629	685,218
Certification	CE/FCC Class A	CE/FCC Class A, RoHS Compliant, REACH	
Note			



Model	UP 710S Edge	UP TWL Edge	UP TWLS Edge
System			
CPU	Intel® Processor N200 Intel® Processor N97 Intel® Processor N100 Intel® Processor N50 (formerly Alder Lake-N)	Intel® Core™ 3 Processor N355 Intel® Processor N250 Intel® Processor N150 (formerly Twin Lake)	
Memory	Up to 8GB LPDDR5		
Graphics	Intel® UHD Graphics for 12th Gen Intel® Processors		
Storage	Up to 64GB eMMC		
Ethernet	1GbE RJ-45 x 1	1GbE RJ-45 x 1 (Realtek RTL8111H CG)	1GbE RJ-45 x 1
WIFI/BT	Optional with M.2 2230 E-key x 1	—	Optional with M.2 2230 E-key x 1
Expansion Slot	M.2 2230 E-Key x 1 (PCIe x1, USB2.0 x1)	HDMI 1.4b/USB 3.2 Gen 2 STACK Connector x 1 (Type-A) Power Button x 1	M.2 2230 E-Key x 1 (PCIe x1, USB2.0 x1)
Security	Onboard TPM 2.0		
OS Support	Windows 10/11 Ubuntu 22.04 LTS Yocto 5.1	Windows 10 LTSC 2021 Linux: Ubuntu 22.04 LTS/Kernel 5.15, Yocto 4.0	Windows 10/11 Ubuntu 22.04 LTS Yocto 5.1
I/O Placements			
USB	USB 3.2 Gen 2 (Type-A) x 3		
Display Port	HDMI 1.4b x 1		
Ethernet	1GbE RJ-45 x 1	1GbE RJ-45 x 1 (Realtek RTL8111H CG)	1GbE RJ-45 x 1
COM	RS-232/422/485 x 1	—	RS-232/422/485 x 1
Audio	—		
GPIO	GPIO x 8 (Optional: PWM x 1, I2C x 1, SPI x 1; by project base, please contact AAEON sales)	—	GPIO x 8 (Optional: PWM x 1, I2C x 1, SPI x 1; by project base, please contact AAEON sales)
Power Supply			
Power requirement	12V DC-in, 5A		
Power supply type	AT/ATX	AT/ATX (Default: ATX)	AT/ATX
Power Consumption (Typical)	30W~36W		
Mechanical			
Mounting	DIN Rail, VESA	VESA Mount (optional)	DIN Rail, VESA
Dimensions (WxHxD)	3.62" x 3.03" x 1.51" (92mm x 77mm x 38.5mm)	3.62" x 2.52" x 1.78" (92mm x 64mm x 45.2mm)	3.62" x 3.03" x 1.51" (92mm x 77mm x 38.5mm)
Net Weight	0.67 lb. (0.30Kg)	0.68 lb. (0.31Kg)	0.67 lb. (0.30Kg)
Gross Weight	0.78 lb. (0.35Kg)	1.04 lb. (0.47Kg)	0.78 lb. (0.35Kg)
Environment			
Operating Temperature	23°F ~ 140°F (-5°C ~ 60°C) with 0.5m/s air flow	32°F ~ 131°F (0°C ~ 55°C) with 0.5m/s air flow	23°F ~ 140°F (-5°C ~ 60°C) with 0.5m/s air flow
Operating Humidity	10% ~ 80% relative humidity, non-condensing		
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)		
MTBF(Hours)	685,218	685,218	685,218
Certification	CE/FCC Class A, RoHS Compliant, REACH		
Note			

Note: All specifications are subject to change without notice.

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02-28



Model	UPS-GWS01	UP Squared V2 Edge	UP Squared i12 Edge
System			
CPU	Intel® Celeron® Processor N3350 Intel® Pentium® Processor N4200 Intel Atom® x7-E3950	Intel® Celeron® N6210 Processor SoC Intel® Celeron® J6412 Processor SoC Intel® Pentium® J6426 Processor SoC	12th Gen Intel® Core™ Processor SoC Intel® Core™ i7-1270PE Intel® Core™ i7-1260P Intel® Core™ i5-1250PE Intel® Core™ i5-1240P Intel® Core™ i3-1220PE Intel® Celeron® Processor 7305E 13th Gen Intel® Core™ Processor SoC Intel® Core™ i7-1370PE Intel® Core™ i7-1360P Intel® Core™ i5-1340PE Intel® Core™ i3-1320PE
Memory	Up to 8GB onboard LPDDR4	Up to 16GB LPDDR4	Up to 16GB Onboard LPDDR5 (Single-Channel)
Graphics	Intel® HD Graphics	Intel® UHD Graphics	
Storage	Up to 128GB onboard eMMC	Up to 64GB eMMC	M.2 2280 M-Key NVMe x 1 (PCIe Gen 4.0 [x4]), SATA 6Gb/s x 1
Ethernet	GbE x 2 (Realtek 8111H CG)	Gb Ethernet (full speed) RJ-45 x 2	1GbE RJ-45 x 2 (Realtek RTL8111H-CG)
WIFI/BT	Optional with M.2 2230 E-key x 1		Optional: M.2 2230 E-Key
Expansion Slot	40-pin GPIO x 1 Full-sized mPCIe x 1 (PCIe & SATA [x1] , USB2.0 [x1]) M.2 2230 E-Key x 1 (PCIe [x1], USB2.0 [x1]) SATA III x 1	M.2 2230 E-Key x 1 (PCIe Gen 3.0 [x2], USB 2.0 [x1]) M.2 2280 M-key x 1 (PCIe Gen 3.0 [x2]) SATA 6Gb/s x 1	M.2 2230 E-Key x 1 (CNVI & PCIe Gen 3.0 [x1]) M.2 2280 M-Key NVMe x 1 (PCIe Gen 4.0 [x4]) SATA 6Gb/s x 1
Security	fTPM	Onboard TPM 2.0	
OS Support	Windows® 10 IoT Enterprise LTSC 2021, Windows IoT Core, Linux Ubuntu 20.04 LTS, Linux Yocto 3.1	Windows 10 (full), Windows IOT Core, Ubuntu 20.04 LTS Yocto 3.1	Windows® 10 IoT Enterprise, Ubuntu 22.04 LTS, Yocto 4
I/O Placements			
USB	USB 2.0 x 2 (via 10 Pin Header x 1) USB 3.2 Gen 1 x 3 (Type-A) USB 3.2 Gen 1 OTG x 1 (Micro B)	USB 2.0 x 2 (via 10 Pin Header x 1) USB 3.2 Gen 2 x 3 (Type-A)	USB 3.2 Gen 2 (Type A) x 2 USB 3.2 Gen2 (Type C) x 1
Display Port		HDMI 1.4b x 1 DP 1.2 x 1	HDMI 1.4b/DP 1.2 STACK Connector x 1 DP 1.4a x 1 (via USB Type-C)
Ethernet	Realtek® 8111G x 2	Gb Ethernet (full speed) RJ-45 x 2	1GbE RJ45 x 2 (Dual Stacked) (Realtek 8111H CG)
COM	—	RS-232/422 x 1	—
Audio	—	Line out x 1, Mic in x 1	Audio Jack (Line out + MIC in) x 1
GPIO		—	
Power Supply			
Power requirement	5V DC-in	12V DC-in, 5A	12V DC-in
Power supply type	AT/ATX (Default: AT)		
Power Consumption (Typical)	15.05W	30~38W	Intel® Core™ i7-1270PE, LPDDR5 4800MHz 16GB, 5.86A@+ 12V (Typical) Intel® Core™ i7-1270PE, LPDDR5 4800MHz 16GB, 8.05A@+ 12V (Max)
Mechanical			
Mounting	VESA Mounting		VESA Mount/Wallmount(Optional)
Dimensions (WxHxD)	3.74" x 3.58" x 1.46" (95mm x 91mm x 37mm)	3.74" x 3.74" x 2.16" (95 x 95 x 55 mm)	5.12" x 3.77" x 2.68" (130mm x 94mm x 68mm)
Net Weight		0.99 lb (0.45kg)	1.87 lb (0.85kg)
Gross Weight		1.32 lb (0.6kg)	2.36 lb (1.07kg)
Environment			
Operating Temperature	32°F ~ 113°F (0°C ~ 45°C)	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow	
Operating Humidity	0% ~ 90% relative humidity non-condensing		
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)		-4°F ~ 158°F (-20°C ~ 70°C)
MTBF(Hours)	179,902	465,586	522,716
Certification	CE, FCC Class A, UL	CE/FCC Class A, RoHS Compliant, REACH	



Model	UP Squared 7100 Edge	UP Squared TWL Edge	UP Squared Pro 7000 Edge
System			
CPU	Intel® Processor N97 Intel® Processor N100	Intel® Core™ 3 Processor N355 Intel® Processor N250 Intel® Processor N150 (formerly Twin Lake)	Intel® Core™ i3-N305 Intel Atom® x7425E Intel® Processor N97 Intel® Processor N50
Memory	Up to 16GB LPDDR5		Up to 16GB onboard LPDDR5
Graphics	Intel® UHD Graphics for 12th Gen Intel® Processors		Intel® UHD Graphics for 12th Gen Intel® Processors VPU: Hailo-8™ M.2 2280 B+M key AI module via m.2 2280 (Optional by SKU from ordering information)
Storage	Up to 128GB eMMC		Up to 64GB onboard eMMC
Ethernet	Gb Ethernet (full speed) RJ-45 x 2		2.5GbE x 2 (Intel® I226-IT)
WIFI/BT	Optional with M.2 2230 E-key x 1		
Expansion Slot	M.2 2230 E-Key x 1 (PCIe x1, USB2.0 x1) M.2 2280 M-key x 1 (PCIe x2)		M.2 2230 E-Key x 1 (CNVi, PCIe Gen 3 [x1], USB 2.0) M.2 2280 M-Key x 1 (PCIe Gen 3 [x2], USB 2.0) M.2 3052 B-Key x 1 (USB 3.2 Gen 2) with Nano SIM slot (USB 3.0) SATA 6Gb/s x 1
Security	Onboard TPM 2.0		
OS Support	Windows 10/11 Ubuntu 22.04 LTS Yocto 5.1		Windows® 10 IoT Enterprise Ubuntu 22.04 LTS Yocto 4.0
I/O Placements			
USB	USB 2.0 x 2 (via 10 Pin Header x 1) USB 3.2 Gen 2 x 3 (Type-A)		USB 3.2 Gen 2 x 2 (Type-A) USB 3.2 Gen 2 x 1 (Type-C)
Display Port	HDMI 2.0b x 1 DP 1.2 x 1		HDMI 2.0b x 1 DP 1.2 x 1 DP 1.4a via USB Type C
Ethernet	Gb Ethernet (full speed) RJ-45 x 2		2.5GbE x 2 (Intel® I226-IT)
COM	RS-232/422/485 x 2		
Audio	Line out x 1 Mic in x 1		Audio Jack x 1 (Mic-in+Line-out)
GPIO	—		40 Pin GPIO x 1
Power Supply			
Power requirement	12V DC-in, 5A		12V DC-in (Lockable plug)
Power supply type	AT/ATX		AT/ATX (Default: ATX)
Power Consumption (Typical)	15W~37W		26W~35W
Mechanical			
Mounting	VESA Mounting		—
Dimensions (WxHxD)	3.74" x 3.74" x 2.16" (95 x 95 x 55 mm)		5.27" x 4.13" x 2.56" (134mm x 105mm x 65mm)
Net Weight	0.99lb (450g)		2 lb (0.95kg)
Gross Weight	1.32lb (600g)		2.8 lb (1.3kg)
Environment			
Operating Temperature	32°F ~ 140°F (0°C ~ 60°) / 0.5 airflow		32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)		
MTBF(Hours)	1,224,238		422,053
Certification	CE/FCC Class A, RoHS Compliant, REACH		
Note			

System Level Products

UP Systems



Model	UP Squared Pro 710H Edge	UP Squared Pro TWL Edge	UP Xtreme i11 Edge
System			
CPU	Intel® Core™ i3-N305 (8C, 1.80 GHz, 15W) Intel® Processor N97 (4C, 2.00 GHz, 12W) Onboard Hailo-8™ edge AI processor	Intel® Core3 N355 Intel® Processor N150	11th Gen Intel® Core™/Celeron® Processor SoC Intel® Core™ i7-1185G7E Intel® Core™ i7-1185G7E Intel® Core™ i5-1145G7E Intel® Core™ i5-1145G7E Intel® Core™ i3-1115G7E Intel® Celeron® 6305E
Memory	Up to 16GB onboard LPDDR5		DDR4 SODIMM Slot x 2 (up to 64GB)
Graphics	Intel® UHD Graphics for 12th Gen Intel® Processors	Intel® UHD Graphics for 12th Gen Intel® Processors VPU: Hailo-8™ M.2 2280 B+M key AI module via m.2 2280 (Optional by SKU from ordering information)	Intel® UHD Intel® Iris® Xe graphics: i5/i7 sku with 128bit (dual channel) memory VPU: Hailo-8™ M.2 2280 B+M key AI module via m.2 2280 (Optional by SKU from ordering information)
Storage	Up to 128GB onboard eMMC	Up to 64GB onboard eMMC	M.2 2280 M-Key x 1 for NVMe (PCIe x [2]) SATA 6Gb/s x 1
Ethernet	2.5GbE x 2 (Intel® I226-IT)		Intel® I225-IT x 1 Intel® I219 x 1 (Intel vPro®)
WiFi/BT	Optional with M.2 2230 E-key x 1		
Expansion Slot	M.2 2230 E-Key x 1 (CNVI, PCIe Gen 3 [x1], USB 2.0) M.2 2280 M-Key x 1 (PCIe Gen 3 [x2]), Optional: M.2 3052 B-Key with Nano SIM slot (USB 3.0)	M.2 2230 E-Key x 1 (CNVI, PCIe Gen 3 [x1], USB 2.0) M.2 2280 M-Key x 1 (PCIe Gen 3 [x2], USB 2.0) M.2 3052 B-Key x 1 (USB 3.2 Gen 2) with Nano SIM slot (USB 3.0) SATA 6Gb/s x 1	40-pin GPIO x 1 M.2 2230 E-Key x 1 M.2 2280 M-Key x 1 M.2 3052 B-Key x 1 SATA 6Gb/s x 1 PCIe [x4] Slot
Security	Onboard TPM 2.0		
OS Support	Windows® 10 IoT Enterprise Ubuntu 22.04 LTS	Windows® 10 IoT Enterprise Ubuntu 22.04 LTS Yocto 4.0	Windows 10 and Windows IoT Linux Ubuntu 22.04 Linux Yocto 3.1
I/O Placements			
USB	USB 3.2 Gen 2 x 2 (Type-A)	USB 3.2 Gen 2 x 2 (Type-A) USB 3.2 Gen 2 x 1 (Type-C)	USB 2.0 (Type-A) x 1 USB 3.2 Gen 2 (Type-A) x 3 USB 4.0 (Type-C) x 1
Display Port	HDMI 2.0b x 1 DP 1.2 x 1	HDMI 2.0b x 1 DP 1.2 x 1 DP 1.4a via USB Type C	HDMI 2.0 x 1 DP 1.4 x 1 (via USB Type-C) eDP x 1
Ethernet	2.5GbE x 2 (Intel® I226-IT)		RJ45 x 2
COM	RS-232/422/485 x 2		
Audio	—	Audio Jack x 1 (Mic-in+Line-out)	
GPIO	40 Pin GPIO x 1		16-pin terminal block connector x1
Power Supply			
Power requirement	12V-36V DC-in Phoenix connector (Optional: Lockable plug)	12V DC-in (Lockable plug)	
Power supply type	AT/ATX (Default: AT)	AT/ATX (Default: ATX)	
Power Consumption (Typical)	50W~55W	26W~35W	Balance: 32.4W, Max current: 66W
Mechanical			
Mounting	VESA Mount/Wallmount/DIN RAIL (Optional)	—	VESA Mount/Wallmount (optional)
Dimensions (WxHxD)	5.28" x 4.13" x 2.36" (134mm x 105mm x 60mm)	5.27" x 4.13" x 2.56" (134mm x 105mm x 65mm)	5.98" x 4.88" x 2.62" (152mm x 123.9mm x 66.5mm)
Net Weight	1.8 lb (0.69kg)	2 lb (0.95kg)	2.76 lb (1.25kg)
Gross Weight	2.2 lb (0.97kg)	2.8 lb (1.3kg)	3.68 lb (1.67kg)
Environment			
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow		32°F ~ 140°F (0°C ~ 60°C) Fanless Sku memory and Storage requirement: DRAM Module : 0°C ~ 85°C, 2.5" SSD: -45°C ~ 85°C
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)		-40°F ~ 176°F (-40°C ~ 80°C)
MTBF(Hours)	422,053		372,419
Certification	CE/FCC Class A, RoHS Compliant, REACH		
Note			



Model	UP Xtreme i12 Edge	UP Xtreme i14 Edge	UP Xtreme 7100 Edge
System			
CPU	12th Gen Intel® Core™ Processor SoC Intel® Core™ i7-1270PE, Intel® Core™ i7-1260P, Intel® Core™ i5-1250PE, Intel® Core™ i5-1240P, Intel® Core™ i3-1220PE, Intel® Celeron® 7305E 13th Gen Intel® Core™ Processor SoC Intel® Core™ i7-1370PE, Intel® Core™ i7-1360P, Intel® Core™ i5-1340PE, Intel® Core™ i3-1320PE	Intel® Core™ Ultra 5 processor 125U (12M Cache, up to 4.30 GHz) Intel® Core™ Ultra 5 processor 125H (18M Cache, up to 4.50 GHz) Intel® Core™ Ultra 7 processor 155H (24M Cache, up to 4.80 GHz) Intel® Core™ Ultra 7 processor 165H (24M Cache, up to 5.00 GHz)	Intel® Core™ i3-N305 Intel® Processor N97
Memory	Up to 32GB onboard LPDDR5	Up to 64GB onboard LPDDR5 (Dual-Channel)	Up to 16GB LPDDR5
Graphics	Intel® Iris® Xe graphics VPU: Hailo-8™ M.2 2280 B+M key AI module via m.2 2280 (Optional by SKU from ordering information)	Intel® Arc™ graphics	Intel® UHD Graphics for 12th Gen Intel® Processors
Storage	M.2 2280 M-Key x 2 (PCIe Gen 4.0 [x4]) (an additional thermal kit is required when SSD is installed) SATA 6Gb/s x 1	M.2 2280 M-Key x 2 SATA 6Gb/s x 1	Up to 64GB eMMC
Ethernet	Intel® i226-IT x 1 (TSN), Intel® i219 x 1 (vPRO)	2.5GbE x 1 (via Intel® Ethernet Controller i226-IT) GbE x 1 (Intel® Ethernet Connection I219)	2.5GbE x 2 (Intel® i226-IT)
WIFI/BT	Optional with M.2 2230 E-key x 1	M.2 2230 E-key x 1	Optional with M.2 2230 E-key x 1
Expansion Slot	40-pin GPIO x 1 M.2 2230 E-Key x 1 M.2 2280 M-Key x 2 (PCIe Gen 4.0 [x4]) SATA 6Gb/s x 1 M.2 3052 B-Key x 1 (an additional thermal kit is required when 5G module is installed) Nano SIM Slot x 1	40-pin GPIO x 1 M.2 2230 E-Key x 1 (PCIe Gen 3 [x1], USB 2.0) M.2 2280 M-Key x 2 (PCIe Gen 4 [x4]) M.2 3052 B-Key x 1 (PCIe Gen 3 [x1], USB 3.2 Gen 2 [x1]) with Nano SIM slot (USB 3.0) SATA 6Gb/s x 1	M.2 3052 B-Key x 1 with Nano SIM slot (USB 3.0) M.2 2230 E-Key x 1 (USB 2.0/PCIe) M.2 2280 M-Key x 1 (PCIe Gen 3 [x2]) 24V 8-in/8-out Digital I/O x 1 via Terminal Block (Output current: 500mA per channel) 6 pin 2-channel CAN 2.0B x 1 via Terminal Block (10 ~ 1000 kbps) DIP Switch for CANBus function x 1 CAN LED indicator x 2 SATA III x 1
Security	Onboard TPM 2.0		
OS Support	Windows® 10 Enterprise 2021 LTSC, Ubuntu 22.04, Yocto 4.0	Windows 10/11 (64bit) Ubuntu 22.04/Kernel 6.5 up	Ubuntu 22.04 LTS (Kernel 5.15 and kernel 5.19)
I/O Placements			
USB	USB 2.0 (Type-A) x 1, USB 3.2 Gen 2 (Type-A) x 3, USB 4.0 (Type-C) x 1	USB 2.0 x 2 (from 10 pin header x 1) USB 2.0 (Type-A) x 1 USB 3.2 Gen 2 (Type-A) x 2 USB 3.2 Gen 2 (Type-C) x 1	USB 2.0 (Type-A) x 2 USB 3.2 (Type-A) x 2 USB 3.2 Gen 2 (Type-C) x 1 (Supports DP alt mode)
Display Port	HDMI 2.0b x 1 DP 1.4a x 1 DP 1.4a x 1 (via USB Type-C) eDP1.4b x 1	HDMI 2.1 x 2 DP 2.1 x 1 DP 1.4 via USB Type-C x 1	DP 1.4a x 1 (via USB Type-C)
Ethernet	RJ45 x 2	2.5GbE x 1 (via Intel® Ethernet Controller i226-IT), GbE x 1 (Intel® Ethernet Connection I219)	RJ45 x 2
COM	RS-232/422/485 x 2	RS-232/422/485 10-pin header x 2	RS-232/422/485 x 1 (Terminal Block) (Default RS232)
Audio	Audio Jack x 1 (Mic-in+Line-out)		
GPIO	16-pin terminal block connector x1		
Power Supply			
Power requirement	12-36V DC-in (Lockable plug)	9-36V DC-in (Lockable plug)	9-36V
Power supply type	AT/ATX (Default: ATX)		
Power Consumption (Typical)	Intel® Core™ i7-1270PE, LPDDR5 4800MHz 16GB, 5.86A@+ 12V (Typical) Intel® Core™ i7-1270PE, LPDDR5 4800MHz 16GB, 8.05A@+ 12V (Max)	67-80W	52W-55W
Mechanical Mounting	VESA Mount/Wallmount(optional)		
Dimensions (WxHxD)	5.98" x 4.87" x 2.81" (152mm x 123.8mm x 71.5mm)		
Net Weight	2.95 lb (1.34kg)		
Gross Weight	3.88 lb (1.76kg)		
Environment			
Operating Temperature	With Cooler: 32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow	32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow	32°F ~ 131°F (0°C ~ 55°C)/0.5m/s airflow
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)		
MTBF(Hours)	366,810	1,014,016	421,998
Certification	CE/FCC Class A, RoHS Compliant, REACH		
Note			

Note: All specifications are subject to change without notice.

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Model	UP Xtreme ARL Edge	Intelli i14 Edge
System		
CPU	Intel® Core™ Ultra 5 processor 225H (18M Cache, up to 4.90 GHz) Intel® Core™ Ultra 7 processor 255H (24M Cache, up to 5.10 GHz) Intel® Core™ Ultra 7 processor 265H (24M Cache, up to 5.30 GHz)	Intel® 14 Generation Intel® Core i9/i7/i5 Processor, 65W Max. Intel® R680E Chipset
Memory	Up to 64GB onboard LPDDR5 (Dual-Channel)	DDR5 SODIMM x 2 (Up to 32GB, 4800 MT/s), Support ECC memory
Graphics	Intel® Arc™ graphics	Support NVIDIA A2000 / A4500 MXM module & AAEON MXM-ACMA MXM with Intel® Arc™ A370/A350 GPU
Storage	M.2 2280 M-Key x 2 SATA 6Gb/s x 1	M.2 2280 NVMe x 2
Ethernet	2.5GbE x 1 (via Intel® Ethernet Controller I226-IT) GbE x 1 (Intel® Ethernet Connection I219)	2.5GbE (Intel® i226IT) x 1 1Gigabit Ethernet ports (Intel® i219LM) x 1
WIFI/BT	M.2 2230 E-key x 1	—
Expansion Slot	40-pin GPIO x 1 M.2 2230 E-Key x 1 (PCIe Gen 3 [x1], USB 2.0) M.2 2280 M-Key x 2 (PCIe Gen 4 [x4]) M.2 3052 B-Key x 1 (PCIe Gen 3 [x1], USB 3.2 Gen 2 [x1]) with Nano SIM slot (USB 3.0) SATA 6Gb/s x 1	M.2 2230 E-key x 1 M.2 2280 M-key x 2
Security	Onboard TPM 2.0	TPM 2.0
OS Support	Windows 10/11 (64bit) Ubuntu 22.04/Kernel 6.5 up	Windows 10 IOT
I/O Placements		
USB	USB 2.0 x 2 (from 10 pin header x 1) USB 2.0 (Type-A) x 1 USB 3.2 Gen 2 (Type-A) x 2 USB 3.2 Gen 2 (Type-C) x 1	USB 3.2 Gen 1 (Type A) x 5 USB 3.2 Gen 2 (Type C) x 1
Display Port	HDMI 2.1 x 2 DP 2.1 x 1 DP 1.4 via USB Type-C x 1	Display Port port x 2
Ethernet	2.5GbE x 1 (via Intel® Ethernet Controller I226-IT), GbE x 1 (Intel® Ethernet Connection I219)	Gigabit Ethernet port x 1 (INTEL I219LM) 2.5G Ethernet port x 1 (INTEL I226LM)
COM	RS-232/422/485 10-pin header x 2	—
Audio	Audio Jack x 1 (Mic-in+Line-out)	—
GPIO	16-pin terminal block connector x1	—
Power Supply		
Power requirement	9-36V DC-in (Lockable plug)	24V DC-in
Power supply type	AT/ATX (Default: ATX)	AT/ATX (Default: AT)
Power Consumption (Typical)	67-80W	TBD
Mechanical		
Mounting	VESA Mount/Wallmount(optional)	—
Dimensions (WxHxD)	5.98" x 4.87" x 2.81" (152mm x 123.8mm x 71.5mm)	8.07" x 7.48" x 2.76" (205mm x 190mm x 70mm)
Net Weight	2.95 lb (1.34kg)	6.57 lb (2.99 kg)
Gross Weight	3.88 lb (1.76kg)	6.72 lb (3.05 kg)
Environment		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow	32°F ~122°F (0°C ~ 50°)/0.5m/s airflow
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-4°F to 158°F(-20°C to 70°C)
MTBF(Hours)	1,014,016	TBD
Certification	CE/FCC Class A, RoHS Compliant, REACH	
Note		



Model	UPN-Edge Pro	UP Xtreme i11 Edge Compute Enabling Kit
System		
CPU	Intel® Apollo Lake N4200/N3350/E3950 Processor SoC	11th Gen Intel® Core™ Processor SoC Core i7-1185GRE Core i5-1145GRE
Memory	onboard DDR4, Max 8GB Single Channel:2GB Dual Channel:4GB,8GB	8GB 3200MHz SODIMM modules x 2
Graphics	Intel® Graphic ,Gen 9	Intel® Iris® Xe graphics
Storage	Emmc 32G/64G	128GB 2.5" SSD x 1
Ethernet	Intel i210 x2	Intel® i225IT (TSN) x 1, Intel® i219 (vPRO) x 1
WiFi/BT		Optional
Audio	Line out+mic in x1	Realtek ALC888s x 1 (Mic /Line out)
USB	USB 3.2 Gen 1 OTG x 1 USB 3.2 Gen 1 (Type A) x 3	USB 3.2 Gen2 x 3 USB 2.0 x 1 (Type A) USB 4.0 via USB type C
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)	M.2 2230 E-Key x 1 M.2 2280 M-Key x 1 M.2 3052 B-Key x 1 with SIM
I/O Placements		
Power	DC-in Jack x 1, Power Button x 1	12V DC-in (Lockable plug)/ Phoenix connector
USB	USB3.2 Gen1 OTG x 1 USB3.2 Gen1 (Type A) x 3	USB3.2 Gen2 x 3 USB2.0 x 1 (Type A) USB4.0 via USB type C
Display Port	HDMIx1, DP x1	HDM 2.0 x 1 /DP 1.4 x 1 eDP x 1, 4K at 60hz panel
Ethernet	Gb Ethernet (full speed) RJ-45 x 2 (Intel i210)	Intel® i225IT x 1, Intel® i219 (vPRO) x 1
COM		RS232/422/485 x 2
Environment		
Power	12-24VDC	12V (AT & ATX)
Form Factor	4.61" x4.19" x3.5" (117mm x 106.5mm x 88.8mm)	4.88"x 5.98" x 2.62" (124mm x 152mm x 66.5mm)
Gross Weight	2.17 lb (982.5g)	5.07 lb (2.3kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 55°C) with air flow 0.5m/s	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	Windows 10 (full), Windows IOT Core Linux: Ubuntu 18.04.5 & Ubuntu 20.04.1 Yocto 3.1	Preinstalled Software Ubuntu 20.04 LTS and 5.11 Kernel Intel® Distribution of OpenVINO™ toolkit 2021 R1 Intel® Media SDK Intel® Distribution for Python* MRAA and UPM I/O and sensor libraries for C++, Python*, Java*, and JavaScript* Docker-CE k3s Kubernetes ONNX AWS Greengrass SQLite 3 Node.js cmake gcc Openssl Openssh-server/client git vim tmux
Note		



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	Chipset	Intel® Graphics Media Accelerator
	DP	VGA x 1, Up to 1920 x 1200 @60 Hz ; HDMI x 1, Up to 1920 x 1200 @60 Hz
Storage Devices		2.5" HDD, Full-Size Mini-Card (optional)
Network	LAN	Realtek® PCIe Gb LAN 8111G x 1
I/O		
Front I/O	USB	USB 2.0 port x 4
	Audio	—
	Display	VGA x 1
	Others	On/Off Button x 1, Power LED + HD LED x 1, (COM port optional if not use VGA port)
Rear I/O	USB	USB 3.2 Gen 1/2.0 port x 1, USB 2.0 port x 2
	Audio	Line-out (green) x 1, Line-in (blue) x 1
	Display	HDMI x 1
	LAN	RJ-45 connector x 1
	Power	DC Power x 1
Expansion	Others	RS-232 connector x 1
	Mini PCIe	Full-size Mini-Card (PCIe +USB or mSATA) + SIM Card (mSATA default) x 1, Half-size Mini-Card (PCIe +USB) x 1
	Storage	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
	Others	RS-232 9-pin int. box header x 1, RS-232/422/485 9-pin box header x 1, 5-pin USB 2.0 header(p=2.00mm) x 2
Indicator	Front	Power LED x 1, HDD Active LED x 1
	Rear	—
Power		
Battery		Lithium battery
Power Requirement		DC: 12V
Mechanical		
Dimension (WxHxD)		8" x 8" x 1.75" (203.20mm x 203.20mm x 44.45mm)
VESA Mounting		Wallmount
Anti-Vibration		0.5 Grms/ 5~ 500Hz/ operation – HDD
Anti-Shock		10 G peak acceleration (11 msec. duration)
Environmental		
Operating temperature		32°F ~ 122°F (0°C ~ 50°C)
Certificate		CE & FCC Class A
Operating System		
MS Windows		Windows® 7 32/64-bit, Windows® 8.1 32/64-bit
Linux		Fedora
Note		



Model		ACS-1U01-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	Mini PCIe	Half-Size Mini-Card slot (PCIe + USB) x 1, Full-Size Mini-Card (Default mSATA, PCIe + USB optional) x 1
	Storage	Full-size Mini-Card slot (mSATA default) x 1, SATA3(6.0Gb/s) x 1, SATA power connector x 1
	Others	RS-232 9-pin int. box header x 1, RS/232/422/485 9-pin box header x 1, 5-pin USB 2.0 header(p=2.00mm) x 2
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		32°F~122°F (0°C~50°C)
Note		



Model	ARC-645
System	
Construction	1.2 mm 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
System Fan	12 cm 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
Rear Panel	AT Keyboard Cut-out x 1 14 Slots (including system slot), supports max. 339 mm (length) for expansion card
Color	Black
Dimensions	19" (W) x 20.8" (D) x 7" (H) (482mm x 528mm x 177mm)
Carton Size	21.6" (W) x 27" (D) x 12.4" (H) (548mm x 685mm x 315mm)
Net Weight	26.4 lb (12 kg)
Gross Weight	30.8 lb (14 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	

AEON

03

► Network Platform Solutions

A large, white, sans-serif number '03' is prominently displayed in the lower right quadrant of the image. It is superimposed over a background of a server room. The server racks are filled with various electronic components, and many of the indicator lights are glowing with different colors, primarily red and green. The perspective of the server room shows rows of racks receding into the distance towards a white door at the end of the aisle, which has a green exit sign above it. The floor is a light-colored, reflective tile. The overall lighting is dim, with the primary light sources being the server racks and the exit sign.

03

Desktop Network Appliances



Model	FWS-2365	FWS-2360
System		
Form Factor	Desktop Network Appliance	
Processor	Intel Atom® Processor C Series (4 ~ 16 cores)	Dual/Quad Core Intel Atom® Processor C Series Processors
Chipset	SoC	
System Memory	DDR4 SODIMM ECC x 2, up to 64GB	DDR4 SODIMM ECC DIMM (Dual core 1 slot Quad core 2 Slot) Up to 32GB
Network		
Ethernet	Intel® I210-AT, Gigabit Ethernet x 6 (2 ports co-lay SFP) 10G SFP+ x 4 (4 cores only support 2 port)	1GbE x 4 (Marvell® Alaska® 88E1543) 1GbE x 2 (Intel® Ethernet Controller I210-AT) (optional Intel® Ethernet Controller I210-IS SFP x 2)
Bypass	Supports 1 pair on LAN 3-4	Supports up to 2 Pair bypass function
Display		
Graphic Controller	—	
Connector	—	
Storage		
HDD	SATA 6Gb/s port x 2, 2.5" HDD/SSD up to 2	2.5" HDD Bay x 1
CF/CFast/MSATA	Onboard 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	
MTBF (Hours)	TBD	149683
Color	Black	
Environmental Parameters and Dimension		
Power Requirement	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)	10.24" x 7.01" x 1.73" (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		



Model	FWS-2280	FWS-2276
System	Desktop Network Appliance	
Form Factor	Desktop Network Appliance	
Processor	Intel® Celeron® Processor J Series/Intel® Pentium® Processor N Series/Intel Atom® Processor X Series	Intel® Celeron® Processor N3350 SoC
Chipset	SoC	
System Memory	260-pin DDR4 SODIMM x 1, 3200MT/s	Onboard LPDDR4, 2GB, Optional DDR3L 1866MHz Single-Channel SODIMM x 1 (Max 8GB, up to 1600MHz)
Network		
Ethernet	Intel® Ethernet Controller I210-AT GbE x 4 Intel® Ethernet Controller I210 SFP x 1	Intel® Ethernet Controller I210, GbE x 4
Bypass	—	1 pair bypass function
Display		
Graphic 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 6Gb/s 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	Smart fan x 1	1
MTBF (Hours)	TBD	166,000
Color	Black	
Environmental Parameters and Dimension		
Power Requirement	2 x 12V DC Power Input Connector Lockable, 40W power adapter	12V DC Power
Operating Temperature	32°F ~ 104°F (0°C ~ 40°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 (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 x 2 1GbE RJ-45 x 4, 1GbE SFP x 1 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



Model	FWS-2275	FWS-2273
System	Desktop Network Appliance	
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	DDR3L 1866, Single Channel SODIMM x 1 (Max.8GB, up to 1600MHz)
Network		
Ethernet	Intel® Ethernet Controller I210, GbE x 3 (co-lay with Mini PCIe)	Intel® Ethernet Controller I210, GbE x 4 Intel® Ethernet Controller I210, SFP x 2
Bypass	—	Supports up to 2 Pair bypass function
Display		
Graphic Controller	Intel® HD graphics integrated	Intel® HD Graphics 505 Intergrated
Connector	HDMI x 1 (optional)	HDMI x 1
Storage		
HDD	—	2.5" HDD Bay x 1
CF/CFast/MSATA	Onboard eMMC 16GB (Optional up to 32GB) SATA 6Gb/s 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 Requirement	9~24 V DC Power	12V DC Power in connector
Operating Temperature	32°F ~ 122°F (0°C ~ 50°C)	32°F ~ 104°F (0°C ~ 40°C)
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)	
Operating Humidity	10%~80% relative humidity, non-condensing	
Storage Humidity	10%~80% @40°C; non-condensing	
Vibration	0.5 Grms/ 5 ~ 500Hz / operation 1.5 Grms/ 5 ~ 500Hz / non operation	0.5 Grms/ 5 ~ 500Hz / operation (2.5" HDD) 1.5 Grms/ 5 ~ 500Hz / non operation
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non operation	
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	



Model	FWS-2272	FWS-2271
System	Desktop Network Appliance	Desktop 6-port Network Appliance
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, 2GB. Optional DDR3L 1866MHz Single-Channel SODIMM x 1 (Max 8GB, up to 1600MHz)	DDR3L 1866, Single Channel SODIMM x 1 (Max.8GB, up to 1600MHz)
Network		
Ethernet	Intel® Ethernet Controller I210, GbE x 4	Intel® Ethernet Controller I210, GbE x 6
Bypass	—	Supports up to 2 Pair bypass function
Display		
Graphic Controller	Intel® HD Graphics 505 Intergrated	
Connector	—	HDMI x 1
Storage		
HDD	—	2.5" HDD Bay x 1
CF/CFast/MSATA	Onboard 8GB eMMC; SATA 6.0 Gb/s port x 1, for SATA DOM	CFast™ socket x 1 (Co-lay for BOM Optional CompactFlash™ socket x 1)
Internal/ Expansion Interface		
PCIe Slot	—	—
Mini-PCIe Slot	Mini-Card socket (full-size) with SIM socket x 1	Mini-Card socket (full-size) with SIM socket x 2
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 Requirement	12V DC Power in connector	12V DC In/ 40W power adapter x 1
Operating Temperature	32°F ~ 104°F (0°C ~ 40°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	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		

Desktop Network Appliances



Model	FWS-2277	FWS-2370
System Form Factor	Desktop Network Appliance	
Processor	Intel® Celeron® Processor N3350 SoC	Intel Atom® Processor C Series/Intel Atom® Processor P Series Default: Intel Atom® Processor C5315
Chipset		SoC
System Memory	Onboard LPDDR4, 4GB	DDR4 SODIMM socket x 2, up to ECC/Non-ECC 64GB
Network		
Ethernet	Intel® Ethernet Controller I210, GbE x 2	Intel® Ethernet Controller I226-V 2.5GbE x 4 Marvell® Alaska® 88E1543 GbE x 4 10G SFP+ x 4 2 Pair
Bypass	—	
Display		
Graphic Controller	Intel® UHD Graphics	—
Connector	HDMI x 1	—
Storage		
HDD	—	SATA 6Gb/s x 2 (co-lay M.2 2242 M-Key x 1)
CF/CFast/MSATA	eMMC 16G	Default eMMC 32GB, support up to 128GB
Internal/ Expansion Interface		
PCIe Slot		—
Mini-PCIe Slot	Mini-Card Full Size Slot x1	M.2 2230 E-Key x 1 (PCIe) for Wi-Fi co-lay half-size Mini Card Slot x 1 (PCIe) M.2 3052 B-Key x 1 (USB 3.0) for 5G/LTE co-lay full-size Mini Card Slot with push-pin SIM Slot x 1 (PCIe + USB 2.0) M.2 3052 B-Key x 1 (USB 3.0 + USB 2.0) for 5G/LTE co-lay full-size Mini Card Slot with push-pin SIM Slot x 1 (USB 3.0 + USB 2.0)
Keyboard and Mouse		—
USB	USB 3.2 Gen 1 x 2	USB 3.0 x 2 (shared with PCIe Slot for PoE, default USB 2.0 x 2)
Miscellaneous		
RTC	Internal RTC	
Watchdog Timer	1~255 steps by software programmable	
Software Button	GPIO Programmable push button x 1	
TPM	Optional Infineon.SLB9665TT2.0(FW5.63)	TPM 2.0
GPIO	(4 bits input, 4bits output optional)	Reserve Internal Pin Header 8-bit Digital I/O Interface (4-in/4-out)
Fan	Fanless	Smart Fan x 1 (Default), Internal Smart Fan Pin Header x 1 (Reserve)
MTBF (Hours)		TBD
Color		Black
Environmental Parameters and Dimension		
Power Requirement	12V DC Power Input Connector non-lock, 24W power adapter	Dual in 12V 60W Adapter (w/o POE) Dual in 12V 90W Adapter (w/ POE)
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" x 4.53" x 1.26"(115mm x115mm x 32mm)	10.2" x 7" x 1.7" (260mm x 178mm x 44mm)
I/O		
Front Panel	USB 3.2 Gen 1 x 2 Power Button x 1 Reset Button x 1	Optional type c console x 1 Micro SIM socket x 2 Main board LAN LED x 24 Optional module LAN LED via cable x 4 Bypass LED x 2 Storage LED x 1 Status LED x 1 Power LED x 2 Antenna hole x 3
Rear Panel	DC Power Input Connector non-lock x 1 1GbE RJ45 Ports x 2 HDMI x 1	DC Power Input Connector Lockable x 2 RJ45 console x 1 USB 3.0 Port x 2 Power LED x 2 10G SFP+ x 4 1G Marvell RJ45 Port x 4 2.5G RJ45 Port x 4 SW reset button x 1 Power button x 1 Antenna hole x 4 Optional 2.5G LAN module x 2 (optional with POE at/at)
Note		



Model	FWS-2290		FWS-2291	FWS-2292
System Form Factor	Desktop Network Appliance			
Processor	Intel Atom® Processor C Series/Intel Atom® Processor P Series Default: Intel Atom® Processor C5315		Intel® Processor N-series SoC 2~8 cores	
Chipset	SoC			
System Memory	DDR4 SODIMM socket x 2, up to ECC/Non-ECC 64GB		DDR5 SODIMM x 1, up to 16GB (32GB for Intel Atom® x7000RE/C Series CPU SKUs)	
Network				
Ethernet	Intel® Ethernet Controller I226-V 2.5GbE x 4 Marvell® Alaska® 88E1543 GbE x 4 10G SFP+ x 4		Intel® Ethernet Controller I226-V, 2.5GbE x 4 Intel® Ethernet Controller I210-IS, SFP x 2 (co-lay with Intel® Ethernet Controller I210-AT Copper x 2) by PCIe Bridge	Intel® Ethernet Controller I226-V, 2.5GbE x 6
Bypass Display	2 Pair			
Graphic Controller	—			
Connector	—		HDMI x 1 (optional)	
Storage				
HDD	SATA 6Gb/s x 2 (co-lay M.2 2242 M-Key x 1)		2.5" HDD Bay x 1 M.2 2242 M-Key x 1	
CF/CFast/MSATA	Default eMMC 32GB, support up to 128GB		Onboard 32G eMMC, up to 128G	
Internal/ Expansion Interface	Default			
PCIe Slot	—			
Mini-PCIe Slot	M.2 2230 E-Key x 1 (PCIe) for Wi-Fi co-lay half-size Mini Card Slot x 1 (PCIe) M.2 3052 B-Key x 1 (USB 2.0) for 5G/LTE co-lay full-size Mini Card Slot with push-pin SIM Slot x 1 (PCIe + USB 2.0) M.2 3052 B-Key x 1 (USB 3.0 + USB 2.0) for 5G/ LTE co-lay full-size Mini Card Slot with push-pin SIM Slot x 1 (USB 3.0 + USB 2.0)		M.2 3052 B-Key (5G, Colay Mini Card with Push pin SIM for 4G LTE/Wi-Fi) M.2 2230 E-Key (Colay Mini Card slot for Wi-Fi)	
Keyboard and Mouse	—			
USB	USB 3.0 x 2 (shared with PCIe Slot for PoE, default USB 2.0 x 2)		USB 3.2 Gen 1 (Type-A) x 2, 4.5W per port, max. 5W total	
Miscellaneous				
RTC	Internal RTC			
Watchdog Timer	1~255 steps by software programmable		1~255 steps by software programmable	
Software Button	GPIO Programmable push button x 1			
TPM	TPM 2.0		TPM 2.0 (Optional)	
GPIO	Reserve Internal Pin Header 8-bit Digital I/O Interface (4-in/4-out)		Reserve internal Pin Header (8-bit Digital I/O Interface, 4-in/4-out)	
Fan	Smart Fan x 1 (Default), Internal Smart Fan Pin Header x 1 (Reserve)		Fanless/Fan (Default: Fan)	
MTBF (Hours)	TBD			
Color	Black			
Environmental Parameters and Dimension				
Power Requirement	Dual in 12V 60W Adapter (w/o POE) Dual in 12V 90W Adapter (w/ POE)		Dual 12V DC Lockable Power Input Connector, 40/60W Power Adapter Reserve 2.54 pin header for power button	
Operating Temperature	32°F ~ 122°F (0°C ~ 40°C)			
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)		-4°F ~ 158°F (-20°C ~ 70°C)	
Operating Humidity	10%~80% relative humidity, non-condensing		10%~90% 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		0.5G / 5 ~ 500Hz / operation 1.5G / 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) I/O	10.2" x 7" x 1.7" (260mm x 178mm x 44mm)		4.7" x 4.1" x 1.7" (220mm x 105mm x 44mm)	
Front Panel	Optional type c console x 1, Micro SIM socket x 2, Main board LAN LED x 24, Optional module LAN LED via cable x 4, Bypass LED x 2, Storage LED x 1, Status LED x 1, Power LED x 2, Antenna hole x 3		Power LED x 2 Status LED x 1 Bypass LED x 2 Storage Active LED x 1 Ethernet LED x 12 Antenna Hole x 2 Antenna Hole x 1 (Right Panel) Antenna Hole x 1 (Left Panel) Accessible SIM Slot x 1	Power LED x 2 Status LED x 1 Bypass LED x 2 Storage Active LED x 1 Ethernet LED x 12 Antenna Hole x 2 (Right Panel x 1, Left Panel x 1) Accessible SIM Slot x 1
Rear Panel	DC Power Input Connector Lockable x 2, RJ45 console x 1, USB 3.0 Port x 2 Power LED x 2, 10G SFP+ x 4, 1G Marvell RJ45 Port x 4, 2.5G RJ45 Port x 4, SW reset button x 1, Power button x 1, Antenna hole x 4, Optional 2.5G LAN module x 2 (optional with POE at/at)		Lockable DC Power Input Connector x 2 Power Button x 1 USB 3.2 Gen 1 x 2 RJ-45 x 4 Fiber x 2 RJ45 Console x 1 Antenna Hole x 2 Software Programmable Switch x 1	Lockable DC Power Input Connector x 2 Power Button x 1 USB 3.2 Gen 1 x 2 RJ-45 x 6 RJ-45 Console x 1 Antenna Hole x 2 Software Programmable Switch x 1

Network Appliances

Rackmount Network Appliances



Model	FWS-8600	FWS-7541
System		
Form Factor	2U Rackmount Network Platform	1U Rackmount Platform Network Appliance
Processor	Dual 2nd Gen Intel® Xeon® Scalable Processors, up to 56 cores, 112 threads	Processor Intel® Xeon® D-1700 & D-1800 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 SODIMM x 2 (ECC)
Network		
Ethernet	Intel® i210 Gigabit Ethernet x 2	1GbE RJ-45 x 12 (Intel® I350-AM4 x 3) + up to 10Gb SFP+ x 4 (see note 1)
Bypass	Depend on NIM module	2 Pair LAN Bypass 3.1
NIM Slot	NIM x 4 (Project based up to 8 slots)	NIM Slot x 1 (Optional)
Display		
Graphic Controller	Optional support via Mini-PCIe module or IPMI	—
Connector	Optional VGA port via module	VGA from IPMI x 1 (Optional by BOM SKU)
Storage		
HDDs	SATA 6Gb/s 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 (default) or 3.5" HDD x 1 (If no NIM module present)
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	—
Mini-Card slot	Mini Card slot (full-size) x 1 (PCIe/SATA, USB2.0)	M.2 3052 B-Key x 1 for 4G/5G (USB 3.0 + PCIe) with SIM M.2 2230 E-Key x 1 (PCIe)
IPMI	Optional IPMI via AAEON Module (Project based)	Project base
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 3.2 Gen 1 x 2
Miscellaneous		
RTC	Internal RTC	
Watchdog Timer	1~255 steps by software programmable	
Software Button	GPIO Programmable push button x 1	1
TPM	(Optional TPM2.0 9665 Onboard)	TPM 2.0 SPI
GPIO	(4 bits input, 4 bits output optional)	N/A, DIO pin header x 1 (4-in/4-out), optional by BOM SKU
FAN	5 x Hotswappable FAN	System Fan x 1
MTBF (Hours)	192,691	TBD
Color	Black	
Environmental Parameters and Dimension		
Power Requirement	550 ~ 600W Redundant Power	220W 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 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)	17.48" x 22.83" x3.46" (444mm x 580mm x 88mm)	16.93" x 7.87" x 1.73" (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)	1GbE RJ-45 x 12 (Intel® I350-AM4 x 3) + up to 10GbE SFP+ x 4 (SKU optional) Power LED x 1 Status LED x 1 HDD Active LED x 1 USB 3.2 Gen 1 x 2 RJ-45 Console x 1 LCM display with Keypad x 1 Software Programmable Button x 1
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 x 1
Note		



Model	FWS-7840	FWS-7830
System	1U Rackmount Network Platform	
Form Factor	1U Rackmount Network Platform	
Processor	10th Generation Intel® Core™/ Xeon® processor	8th Generation Intel® Core™/ Xeon® processor
Chipset	Intel® W480E	Intel® C246
System Memory	2 x DDR4 2666MHz U-DIMM ECC DIMM slots up to 64G	DDR4 2133/2400/2666 UDIMM Up to 128GB 288-pin DIMM x 4
Network		
Ethernet	1Gb RJ45 x 8 or 1Gb RJ45 x 6 +1Gb SFP x 2, with 2 x i350AM4 LAN chips 10Gb SFP x 2+ with XL710 AM2 LAN chip (Option)	Intel® I350 AM2 Gigabit Ethernet x 2
Bypass	2 Pair	Depend on NIM module
NIM Slot	NIM slot x 2	NIM Slot x 3
Display		
Graphic Controller	Intel® UHD Graphics	Intel® HD graphics integrated
Connector	HDMI x 1 (optional)	VGA cable (Optional)
Storage		
HDDs	SATA 6Gb/s port x 2, 2.5" HDD/SSD up to 2	Internal 2.5" SATA HDD x 2 or 3.5" SATA HDD x 1 (Optional)
CF/CFast/mSATA	Mini card socket (Option mSATA) x 1	Default mSATA Slot (Optional CFast™ Socket)
Internal/ Expansion Interface		
PCIe slot	Optional PCIe [x8] slot x 1, via riser card	
Mini-Card slot	Mini Card x 1	
IPMI	—	
Keyboard and Mouse	—	
USB	USB 3.2 Gen1 x 2	Pin-header USB 3.2 Gen 1 x 2, Box Header (2.0mm)
Miscellaneous		
RTC	Internal RTC	
Watchdog Timer	1~255 steps by software programmable	1~255 steps by software programmable, 1 sec per step
Software Button	GPIO Programmable push button x 1	
TPM	TPM v2.0 9665	Optional TPM v2.0
GPIO	4 bits input/4 bits output	8bits, BIOS default 4 bits input, 4bits output.
FAN	System Fan x 2	2
MTBF (Hours)	TBD	
Color	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	10% ~ 80% @ 40°C, non-condensing	
Vibration	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" 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 12.01" x 1.73" (430mm x 305mm x 44mm)	
I/O Interfaces		
Front Panel	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	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
Rear Panel	AC Power Input x 1, Power Switch x 1, (Rear Expansion Slot x 1 Optional)	AC Power Input x 1 Power Switch x 1 VGA port (Optional)
Note		

Rackmount Network Appliances



Model	FWS-7831	FWS-7360
System Form Factor	1U Rackmount Network Platform	
Processor	Intel® Xeon® processor E-2100 family for Intel® C246 Chipset Intel® Core™/ Celeron® processor for Intel® H310 Chipset	Intel® C3758 processor SoC, optional support up to 16 core
Chipset	Intel® C246/H310	SoC
System Memory	260-pin DDR4 1600/1866/2133 SODIMM/ECC x 2, upto 64GB	DDR4 Slot x 4, Support ECC UDIMM/RDIMM upto 256GB
Network	Intel® i210 Gigabit Ethernet x 8 or Intel® i210 Gigabit Ethernet x 6 + SFP Ethernet ports x2 (C246) Intel® i210 Gigabit Ethernet x 6 (H310)	Intel® X553 RJ45 x 2, Intel® i210 GbE x 3, SFP+ x 2 from CPU
Bypass	2 Pair	Onboard 2 Pair bypass, others depend on NIM module
NIM Slot	Need to configure riser card	1
Display		
Graphic Controller	Intel® UHD Graphics 630	—
Connector	HDMI x 1 (Optional)	—
Storage		
HDDs	2.5" HDD bay x 2 (Optional: 3.5" HDD bay x 1)	2.5" HDD Bay x 2
CF/CFast/mSATA	mSATA	Default SATA 6Gb/s 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	Mini-Card x 1 (PCIe[x1] + mSATA)	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 push button x 1	GPIO Programmable Button x 1
TPM	(TPM2.0 9665/TPM v1.2 9660 optional)	Optional TPM v1.2 / TPM v2.0
GPIO	4 bits input, 4 bits output	4 bits input, 4bits output
FAN	2	System Fan x 1
MTBF (Hours)	362,825	142,412
Color		Black
Environmental Parameters and Dimension		
Power Requirement	220W ATX PSU	150W Flex ATX PSU
Operating Temperature	32°F ~ 104°F (0°C ~ 40°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 (2.5" Hard Disk Drive) 1.5 Grms/ 5 ~ 500Hz / non operation	0.5 Grms/ 5 ~ 500Hz / operation (2.5" HDD) 1.5 Grms/ 5 ~ 500Hz / non operation
Shock	TBD	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" x 1.73" (430mm x 200mm 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	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	AC Power Input x 1, Power Switch x 1, (Rear Expansion Slot x 1 Optional)	Power Switch x 1 AC Power Input x 1 Rear Expansion Slot x 1
Note		



Model	FWS-7851	FWS-7850
System	1U Rackmount Network Appliance	
Form Factor	12th/13th Generation Intel® Core™ Processors	
Processor	Intel® W680 Chipset (Project Base: Intel® Q670, H610)	
Chipset	Intel® W680	Intel® W680
System Memory	DDR5 SODIMM slots x 2	DDR5 U-DIMM x 4, up to 128GB (ECC)
Network	Intel® I226-V 2.5GbE RJ-45 x 10 (Including 2 Pair Bypass) + Intel® I210-IS GbE SFP x 2, optional: 10GbE SFP+ x 2 (PCIe[x4] via PER-T639 Note: Intel® H610 Chipset SKU limited to 2.5GbE RJ-45 x 8)	10GbE SFP+ x 2 (Intel® X710-BM2 x 1)
Ethernet	2 Pair LAN Bypass 3.1 (LAN 3-4, LAN 5-6)	Dependent
Bypass	1	3
NIM Slot		
Display		
Graphic Controller		
Connector	HDMI port x 1	
Storage		
HDDs	2.5" HDD bay x 2 (Optional: 3.5" HDD bay x 1)	2.5" HDD Bay x 2
CF/CFast/mSATA		
Internal/ Expansion Interface		
PCIe slot		
Mini-Card slot	M.2 2242 M-Key (PCIe [x4]) x 1	M.2 2280 M-Key x 1 (PCIe [x4])
IPMI		
Keyboard and Mouse		
USB	USB 3.2 Gen 1 x 2	
Miscellaneous		
RTC	Internal RTC	
Watchdog Timer	1~255	
Software Button	1	
TPM	TPM2.0 SPI	TPM 2.0 SPI
GPIO	Reserved internal pin header 8-bit Digital I/O interface (4-in /4-out)	Reserve internal pin header 8-bit Digital I/O interface (4-in /4-out)
FAN	System Fan x 2	Smart Fan x 3, optional system fan x 1
MTBF (Hours)		TBD
Color	Black	
Environmental Parameters and Dimension		
Power Requirement	220W Power	1U 300W Redundant PSU x 1
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)
Storage Temperature	-4°F~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Operating Humidity	10%~80% relative humidity, non-condensing	
Storage Humidity	0%~80% @40°C; non-condensing	
Vibration	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)	16.93" x 7.87" x 1.73" (430mm x 200mm x 44mm)	16.93" x 15.75" x 1.73" (430mm x 400mm x 44mm)
I/O Interfaces		
Front Panel	Intel® I226-V 2.5GbE RJ-45 x 10 (Including 2 Pair Bypass) + Intel® I210-IS GbE SFP x 2, optional: 10GbE SFP+ x 2 (PCIe[x4] via PER-T639 Power LED x 1 Status LED x 1 HDD Active LED x 1 USB 3.2 Gen 1 x 2 HDMI x 1 RJ-45 Console x 1 LCM display with keypad x 1 Software Programmable Button x 1 NIM Slot x 1	10GbE SFP+ x 2 Power LED x 1 Status LED x 1 HDD Active LED x 1 USB 3.2 Gen 1 x 2 HDMI x 1 RJ-45 Console x 1 LCM display with keypad x 1 Software Programmable Button x 1 NIM Slot x 3
Rear Panel	AC Power Input x 1 Power Switch x1	AC Power Input x 1 Power Switch x1 Rear expansion slot x 1 (PCIe [x8]); Optional
Note		



Model	FWS-7370
System	
Form Factor	Rackmount Network Appliance
Processor	Intel Atom® P5300/C5000 Processors (Max 83W)
Chipset	SoC
System Memory	DDR4 SODIMM up to 64GB ECC/Non ECC
Network	
Ethernet	Intel® Ethernet Controller I226-V, 2.5GbE RJ-45 x 4 1GbE by Marvell® Alaska® 88E1543, 1GbE RJ-45 x 4 10GbE SFP+ x 4
Bypass	2 Pair
NIM Slot	NIM x 1 (Optional)
Display	
Graphic Controller	—
Connector	—
Storage	
HDDs	2.5" HDD Bay x 2 (1 SATA co-lay with M.2 2242 M-Key)
CF/CFast/mSATA	eMMC for optional, up to 128GB
Internal/ Expansion Interface	
PCIe slot	PCIe [x4] Slot x 1 (PCIe [x1] x 2 signal) M.2 3042/52 B-Key x 1 (5G)
Mini-Card slot	—
IPMI	—
Keyboard and Mouse	—
USB	USB 2.0 (Type-A) x 2
Miscellaneous	
RTC	Internal RTC
Watchdog Timer	1~255 steps by software programmable
Software Button	GPIO Programmable push button x 1
TPM	TPM 2.0 SPI
GPIO	DIO Pin Header x 1 (4-in/4-out) optional
FAN	System Fan x 2
MTBF (Hours)	30,480
Color	Black
Environmental Parameters and Dimension	
Power Requirement	AC/DC open frame 200W PSU
Operating Temperature	32°F ~ 122°F (0°C ~ 40°C) with 0.2m/s air flow
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)
Operating Humidity	10%~90% relative humidity, non-condensing
Storage Humidity	10 ~ 80% @ 40C, non-condensing
Vibration	0.5G / 5 ~ 500Hz / operation 1.5G / 5 ~ 500Hz / non-operation
Shock	10G peak acceleration (11 m sec. duration), operation 20G peak acceleration (11 m sec. duration), non-operation
Dimension (W X D X H)	16.9" x 7.8" x 1.7" (430mm x 200mm x 44mm)
I/O Interfaces	
Front Panel	Power LED x 1 Status LED x 1 Bypass LED x 2 Storage Active LED x 1 SW programmable button x 1 USB 2.0 type-A Port x 2 RJ-45 Console Port x 1
Rear Panel	AC Power Input Connector x 1 Power Button x 1
Note	



Model	NIM-S13B	NIM-S13D	NIM-S13E
Main Specification			
Form Factor	1G Fiber Module		
Main Chipset	Intel® 82580EB (i350-AM4; Optional by request) Ethernet Controller x 2		
Bypass	—	—	2
Host Interface	PCI-Express [x4]		
LAN Port	SFP 1GbE Connector x 8	SFP 1GbE Connector x 4	
Indicator	LED x 8 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)		



Model	NIM-C13B	NIM-C13D	NIM-S26B
Main Specification	1G LAN Module		
Form Factor	1G Copper 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® Fortville XL710 Ethernet Controller x 1
Bypass	—		
Host Interface	PCI-Express [x8] (x4 + x4)	PCI-Express [x4]	PCI-Express [x8]
LAN Port	1GbE Connector x 8	1GbE Connector x 4	QSFP 40GbE Connector x 2
Indicator	LED x 8 for Active/Link	LED x 4 for Active/Link	LED x 2 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)		



Launching in Q3

Model	NIM-S26C	NIM-S26D	NIM-C15A
Main Specification	10G Fiber Module		
Form Factor	2.5G Copper Module		
Main Chipset	Intel® XL710 Ethernet Controller x 1	Intel® XL710-BM1 Ethernet Controller x 1	Intel i226V by 2x ASM 1806 colay 2806
Bypass	—		
Host Interface	PCI-Express [x8]		
LAN Port	SFP+ 10 GbE Connector x 4	SFP+ 10 GbE Connector x 4 SR	2.5G GbE RJ45 x 8
Indicator	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)		

Network Appliances

Industrial Network Appliances



Model	ICS-6270	ICS-6280
System		
Form Factor	DIN Rail/ Desktop	
Processor	Intel® Celeron® Processor N3350 SoC	Intel Atom® x6000E Series Processor, 2~4 cores
System Memory	DDR3L 1866, Single Channel SODIMM x 1 (Max.8GB, up to 1600MHz)	260-pin DDR4 3200MT/s SODIMM with IBECC support x 1
Chipset	—	SoC
Ethernet	Intel® i210AT, Gigabit Ethernet x 6	Intel® i210AT Gigabit Ethernet x 4
Bypass	Supports up to 2 Pair	Supports upto 2 Pair LAN Bypass (Optional)
BIOS	AMI SPI Flash BIOS	
Serial ATA	SATA 6.0 Gb/s port x 1, for 2.5" HDD/SSD	SATA 6.0 Gb/s port x 1 for 2.5"SSD support
CFast/mSATA	CFast™ socket x 1	mSATA (Full size) socket colay SATA 6Gb/s 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	USB 3.2 Gen 1 x 2
Serial Port	Supports up to RS-232/422/485 COM Port x 2	Supports up to RS-232/422/485 COM Port x 2
Watchdog Timer	1~255 steps by software programmable	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
Rear I/O Panel	DIN Rail/ Wallmount Lock	
Top Panel	2-Pin Terminal Block +9~36VDC x 1	2-Pin Terminal Block +9~48VDC 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 Grms/ 5 ~ 500Hz / operation (2.5" SSD) 1.5 Grms/ 5 ~ 500Hz / non operation
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non operation	
Note		

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04



► Rugged Mobile and Panel PC Solutions

04

Rugged Mobile and Panel PC Solutions

Rugged Tablet Computers



Model	RTC-710RK	RTC-710AP
System Architecture		
Processor	Rockchip RK3399K Processor (Quad-Core A53 1.6GHz & Dual-Core A72 2.0GHz)	Intel® Celeron® Processor N3350 1.10 GHz, dual core, up to 2.4 GHz Intel® Pentium® Processor N4200 1.10 GHz, quad core, up to 2.5 GHz
Operating System	Android™ 11 (No NFC function)	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) 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 MicroSD Card Slot x 1 USB 2.0 (Type-A) x 1 RS-232 COM Port x 1 (via I/O Module)(Cannot co-use with HF RFID) 10/100/1000 Base-T RJ-45 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)
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	
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 (Only Read UID), dependent 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 S*Ft 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)	8.65" x 5.46" x 0.94" (219.8mm x 138.8mm x 23.9mm)
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	-4°F ~ 122°F (-20°C ~ 50°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 *F Drop: 150 cm 5 ft	MIL-STD-810G Method 516.6 Procedure IV Height *F Drop: 150 cm (5 ft)
Shock	MIL-STD-810G	
ESD	Air charge: +/- 8KV, Contact charge: +/- 4KV	
Certifications and Standards	UL62368-1, CE EMC, CE RED WIFI 2.4G+5G; CB; FCC EMC, FCC RF WIFI 2.4G; UKCA / UL; TELEC WIFI / LTE	CE EMC, CE RED WIFI 2.4G+5G / LTE; LVD; FCC EMC, FCC RF WIFI 2.4G; UKCA; TELEC WIFI / LTE
Power Supply		
AC / DC Adapter	AC 100V ~ 240 V, 50Hz ~ 60Hz, 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	0.03925mm (H) x 0.11775mm (V)
Brightness	700 / 300 nits	700 nits
Viewing Angle	Horizontal: 178° (Typ.), Vertical: 178° (Typ.)	
Touch Screen		
Touch Type	7" Projected Capacitive Multi-Touch Screen (700 nits with 10 points)	
Light Transmission	Min. 85%	
Note		



Model	RTC-1010	RTC-1010RK
System Architecture		
Processor	Intel® Celeron® Processor N3350 1.10 GHz, dual core, up to 2.4 GHz Intel® Pentium® Processor N4200 1.10 GHz, quad core, up to 2.5 GHz	Rockchip RK3399 Processor (Quad-Core Arm™ Cortex™-A53, 1.6 GHz & Dual-Core Arm™ Cortex™-A72, 2.0 GHz)
Operating System	Windows® 10 IOT Enterprise SAC	Android™ 11
Memory	Onboard DDR3L 4GB (Default)/8GB	Onboard LPDDR4 Memory, 2GB/4GB (Default)
Storage	eMMC 64GB (Up to 256GB, Optional)	eMMC 64GB (Default)/128GB
Display	10.1" WXGA (1280 x 800) 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 MicroSD 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 RJ-45 x 1 Smart Card Reader x 1 (Optional, Without IP protection)	Micro HDMI Port x 1 SIM Card Slot x 1 MicroSD 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 RJ-45 x 1
Communication	Wi-Fi 802.11 a/b/g/n/ac, Bluetooth v5.1 (EDR + BLE), Intel AC9260	Wi-Fi 802.11 a/b/g/n/ac, Bluetooth v5.2 (EDR + BLE)
Navigation	Up to 3 GNSS, GPS + Galileo (Default), GLONASS, BeiDou (Optional)	GPS + GLONASS (Default), BeiDou (Optional)
WWAN(optional)	LTE via Mini Card slot (Optional)	LTE via M.2 slot, B Key 3042 (Optional)
Camera	2MP Front Camera 8MP Rear Camera with flash	8MP 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	M.2 3042 B-Key (LTE) 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	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 Button (When BCR is enabled)), F2 (Screenprint), F3 (Ctrl+Alt+Del as S°Ft Reboot), Volume Up (Speaker Volume Up), Volume Down (Speaker Volume Down)	F0, F1 (BCR Trigger Button (When BCR is enabled)), F2 (Screenprint), F3 (Audio On/°F), Volume Up (Speaker Volume Up), Volume Down (Speaker Volume Down)
Mechanical	Black & Dark Grey	
Color		
Dimension (W x H x D)	10.71" x 7.48" x 0.80" (272.0mm x 190.0mm x 20.4mm)	272.0mm x 190.0mm x 20.4mm (10.71" x 7.48" x 0.80")
Gross Weight	2.2 lb. (1.0Kg) based on configurations	2.2 lb (1.0 Kg) based on configurations
Environmental		
Operating Temperature	-4°F ~ 122°F (-20°C ~ 50°C)	
Storage Temperature	-67°F ~ 158°F (-55°C ~ 70°C)	
Humidity	0% ~ 90% relative humidity, non-condensing	
Environmental Sealing	IP65	
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)	MIL-STD-810H: 2019, 514.8 Procedure I, Table 514.8C-1 Category 4 common carrier 5~500Hz X, Y, Z axes, 1-hour duration for each axis
Drop	MIL-STD-810G-516.6, Procedure IV Drop height: 122 cm Number °F Drop: 26 times, for all surfaces, edges and corners Condition: Based on 2" plywood over concrete	MIL-STD-810H: 2019, 516.8 Procedure IV Drop height: 122cm Number °F Drop: 26 times, for all surfaces, edges and corners Condition: Based on 2" plywood over concrete
Shock	MIL-STD-810H: 2019, 516.8 Procedure V	
ESD	Air charge: +/- 8KV Contact charge: +/- 4KV	
Certifications and Standards	CE EMC, CE RED WiFi 2.4G+5G / LTE, LVD, FCC EMC, FCC RF WiFi 2.4G+5G, IC / UKCA / UL, TELEC WiG	CE EMC, CE RED WiFi 2.4G+5G / LTE, LVD, FCC EMC, FCC RF WiFi 2.4G+5G, UKCA, TELEC WiG
Power Supply		
AC / DC Adapter	AC 100V ~ 240V, 50Hz ~ 60Hz, Output: 12V/3A/36W	AC 100V ~ 240 V, 50Hz ~ 60Hz, 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	0.1692mm (H) x 0.1692mm (V)	
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		

Rugged Mobile and Panel PC Solutions

Rugged Tablet Computers



Model	RTC-1020	RTC-1200
System Architecture		
Processor	11th Gen Intel® Core™/Celeron® Processor SoC Intel® Core™ i5-1145G7E Intel® Core™ i3-1115G4E Intel® Celeron® 6305E	Intel® Core™ i7100U / 7300U Dual Core up to 3.9GHz Intel® Celeron® 3965U Dual Core 2.2GHz Processor
Operating System	Windows® 10 IOT Enterprise SAC (Optional) / Windows® 11 IOT Enterprise GAC	Windows® 10 IoT Enterprise 64bit (Default)
Memory	Onboard LPDDR4X, 8GB (Default)/16GB/32GB	DDR4 SODIMM Socket x 1, up to 16GB
Storage	M.2 SSD, Up to 1TB (Default: 64GB)	M.2 (NGFF) SSD, 64GB (Default) / 128GB / 256GB
Display	10.1" FHD (1920 x 1200) 450 nit/800 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 2 x 2 (Type-C x 1, Type-A 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 a/b/g/n/ac 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
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, 8MP auto-focus rear camera with flash
Sensor	G-sensor, E-compass, Gyro-sensor, Light-sensor	
Expansion Slot	M.2 M-Key for SSD (PCIe [x4]/ SATA 6Gb/s) M.2 E-Key for WiFi/BT (PCIe [x1]/USB 2.0) M.2 B-Key for LTE (USB 2.0) Docking Connector: USB 3.2 Gen 2 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 Button (When BCR is enabled)), F2 (Screenprint), F3 (Ctrl+Alt+Del), Volume Up (Speaker Volume Up), Volume Down (Speaker Volume Down)	F0 or Windows (Windows Start Key), F1 (Ctrl+Atl+Del & BCR Trigger Button (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" (272.0mm x 190.0mm x 24.35mm)	12.36" x 7.87" x 0.96" (310.4 mm x 200.0 mm x 24.5 mm)
Gross Weight	3.3 lb. (1.5Kg) based on configurations	3.3 lb (1.5 Kg)
Environmental		
Operating Temperature	-4°F ~ 122°F (-20°C ~ 50°C)	-4°F ~ 140°F (-20°C ~ 60°C) Charging Temperature 50°F ~ 113°F (10°C ~ 45°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-810H: 2019, 514.8 Procedure I, Table 514.8C-I Category 4 common carrier	MIL-STD-810G-514.6 Procedure I Cat.24, Fig 514.6E-1 & 514.6E-2
Drop	MIL-STD-810H: 2019, 516.8 Procedure I Drop height: 122cm Number °F 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 °F Drop: 122cm (48 inch; 4ft) -Number °F Drop: 26 times, for all surfaces, edges and corners Condition: Based on 2" plywood over concrete
Shock	MIL-STD-810H: 2019, 516.8 Procedure I	—
ESD	Air charge: +/- 8KV, Contact charge: +/- 4KV	
Certifications and Standards	CE EMC, CE RED WIFI 2.4G+5G / LTE; LVD; FCC EMC, FCC RF WIFI 2.4G+5G; UKCA, TELEC WIFI	CE/LVD: EN60950-1, CE EMC, CE RED WIFI 2.4G+5G / LTE; LVD / CB; FCC EMC, FCC RF WIFI 2.4G; IC / UKCA / UL
Power Supply	AC 100 ~ 240 V, 50 ~ 60 Hz, Output: 19V/ 3.42A/ 65W	
AC / DC Adapter	Li-ion Battery 6-hour battery life based on test configurations	
Battery Life		
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 (800 nits, Optional)	500 nits (850 nits, Optional)
Viewing Angle	Horizontal: 170° (Typical), Vertical: 170° (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. 85% (ASTM D1003; Wavelength = 550 nm)
Note		



Model	RDS-0710	RDS-411
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
DC Input	Phoenix connector: DINKLE ECH381H-03P Wide Voltage Input: DC 9V to 36V Mating connector: DINKLE EC381V-03P	
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" (205mm x 126mm x 75mm)	10.08" x 7.28" x 2.96" (256mm x 185mm x 75mm)
Gross Weight	1.8 lb (0.82Kg)	6.17 lb (2.8 Kg)
Environmental		
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C)	32°F ~ 122°F (0°C ~ 50°C)
Storage Temperature	-22°F ~ 158°F (-30°C ~ 70°C)	14°F ~ 140°F (-10°C ~ 60°C)
ESD	Air charge: +/- 8KV Contact charge: +/- 4KV CE / FCC Class A	
EMC/ Safety		
Power Supply		
AC/DC Adapter	AC 100V ~ 240V, 50Hz ~ 60Hz, Output: 12V/3.34A/40W DC connector: DINKLE EC381V-03P	AC 100V ~ 240 V, 50Hz ~ 60Hz, Output: 12V/3.34A/40W DC connector: DINKLE EC381V-03P
DC/DC Adapter		

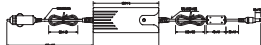
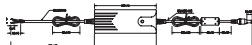


Model	RDS-241V	RDS-1020
System		
I/O	Front-facing I/Os: USB 2.0 x 2 with protection cover Downward-facing I/Os: USB 3.2 Gen 1 x 2 RS-232 x 2 (One with 5V in Pin 9 & the Other with GPIO x 8) RJ45 GbE x 1 M12 DC-in x 1	Front-facing I/Os: USB 2.0 x 2 Downward-facing I/Os: USB 3.2 Gen 1 x 2 RS-232 x 1 RJ45 GbE x 1
DC Input	M12 5P Female (DC 9V to 36V)	Phoenix connector: DINKLE ECH381H-03P Wide Voltage Input: DC 9V to 36V Mating connector: DINKLE EC381V-03P
LED Indicator	Orange: DC in w/o Tablet Blue: DC in w/ Tablet	
Others	Anti-theft lock with key & VESA mount support	Anti-theft lock with key & VESA mount support (75x75)
Mechanical		
Color		Black
Construction	PC	Metal
Dimensions (W x H x D)	10.28" x 6.50" x 2.96" (261mm x 165mm x 75mm)	3.18" x 10.12" x 2.96" (125mm x 257mm x 75mm)
Gross Weight	6.44 lb (2.92 Kg)	2.2 lb. (1Kg)
Environmental		
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)	0°C ~ 50°C (32°F ~ 122°F)
Storage Temperature	14°F ~ 122°F (-10°C ~ 50°C)	-10°C ~ 60°C (14°F ~ 140°F)
ESD	Air charge: +/- 8KV Contact charge: +/- 4KV CE / FCC Class B	
EMC/ Safety	CE/FCC Class A	CE / FCC Class B
Power Supply		
AC/DC Adapter	AC 100V ~ 240V, 47Hz ~ 63Hz Output: 19V/4.74A/90W	AC 100 ~ 240 V, Output: 19V/ 6.32A/ 120W DC connector: 3P phoenix.3.81mm
DC/DC Adapter		N/A

Rugged Tablet Computers : Accessories



Model	RTC-1010-HS-000	RTC-1010-SB-000	RTC-1010-VMP-000
Description	Hand Strap for RTC-1010, RTC-1010M, RTC-1010RK, RTC-1020	Shoulder Belt for RTC-1010, RTC-1010M, RTC-1010RK, RTC-1020	VESA Mount Plate for RTC-1010M
Mechanical			
Color	Black		
Dimensions (W x H x D)	9.13" x 3.62" x 1.18" (232mm x 92mm x 30mm)	41.34" x 2.56" x 0.20" (1050mm x 65mm x 5mm)	10.85" x 7.55" x 0.98" (275.6mm x 191.7mm x 25mm)



Model	RTC-1010-DTDP A-002	RTC-1010-DTDP A-001	RTC-1200HSP01-000
Description	DC-To-DC Power Adapter, Flying Wires for RTC-1010, RTC-1010M, RTC-1010RK	DC-To-DC Power Adapter, Cigarette Plug for RTC-1010, RTC-1010M, RTC-1010RK	Hand Strap for RTC-1200
Mechanical			
Color	Black		
Dimensions (W x H x D)	Adapter case: 1.57" x 4.13" x 1.04" (40mm x 105mm x 26.5mm) Plug side length: 47.24" ± 1.18" (1200mm ± 30mm) Flying Wires side length: 23.62" ± 1.18" (600mm ± 30mm) Total length: 75" ± 2.36" (1905mm ± 60mm)	1.57" x 4.13" x 1.04" (40mm x 105mm x 26.5mm) Plug side length: 47.24" ± 1.18" (1200mm ± 30mm) Cigarette Plug side length: 23.6" ± 1.9" (600mm ± 50mm) Total length: 75" ± 1.9" (1905mm ± 50mm)	10.24" x 3.62" x 1.18" (260mm x 92mm x 30mm)



Model	RTC-1200BLT01-000	RTC-1200BLT02-000	RTC-1200BKT01-000
Description	Shoulder Belt for RTC-1200		VESA Mount Bracket for RTC-1200
Mechanical			
Color	Black		
Dimensions (W x H x D)	1050 x 65 x 5 mm	450 x 350 x 50 mm	180 x 203.3 x 45.4 mm



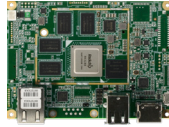
Model	RTC-1010BKT-000	RTC-1010-SBG-000
Description	Bracket for RTC-1010, RTC-1010M, RTC-1010RK	Shoulder Bag for RTC-1010, RTC-1020, RTC-1200, RTC-1010RK
Mechanical		
Color	Black	Black
Dimensions (W x H x D)	103.1 x 228.4 x 49 mm	Bag: 330 x 245 x 50 mm Shoulder strap: Length: 710 mm (Min) ~ 1310 mm (Max)



Model	RBC-1200-000	RTC-1200BAT01-000
Description	4-bay Battery Charger for RTC-1010, RTC-1010M, RTC-1010RK, RTC-1020, RTC-1200	Battery Pack for RTC-1010, RTC-1010M, RTC-1200, RTC-1010RK, RTC-1020
Mechanical		
Color		Black
Dimensions (W x H x D)	5.5" x 2.6" x 4.7" (140.5mm x 68.4mm x 121.87mm)	2.8" x 4.3" x 0.5" (71.5mm x 110mm x 13.3mm)
Power Supply		
AC/DC Adapter	AC power input:100-240V, 50Hz-60Hz, 65W, DC power output: 19V/3.42A	14.4V, 2270mAh, 32.7W

Rugged Mobile and Panel PC Solutions

RISC Boards



Model	RICO-3288		RICO-3288MINI	RICO-3399
System				
Form Factor	Pico-ITX			
CPU	Rockchip RK3288 ARM Cortex™-A17 Quad-core 1.6 GHz			Rockchip RK3399 Cortex™-A72 Dual-core 1.8GHz and Cortex™-A53 Quad-core 1.4GHz
GPU	Mali-T764			Mali-T864
Graphics	Video Decode: MPEG-1, MPEG-2, MPEG-4, H.263, H.264, AVS, VC-1, VP8, MVC Video Encode: H.264 (BP@level4.0, MP@level4.0, HP@level4.0), MVC and VP8			Video Decode: MPEG-1, MPEG-2, MPEG-4, H.263, H.264, H.265, VC-1, VP8, VP9, MVC Video Encode: H.264 UP to HP@level4.1, MVC and VP8
Memory Capacity	Onboard DDR3L 2GB/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 10		Android 9.0 / Debian 9.0	Android 8.1 / Debian 10
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)			3.94" x 2.84" (100 mm x 72 mm)
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 4c) Speaker/ Microphone/ Earphone	—	2.5W (by 4c) Speaker/ Microphone/ Earphone	
GPIO	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				



Model	RICO-3568	RICO-MX8P	RICO-3568 Developer Kit
System			
Form Factor	Pico-ITX Plus (100mm x 80mm)	Pico-ITX Plus (100mm x 80mm)	Pico-ITX Plus (100mm x 80mm)
CPU	Rockchip RK3568 Quad-Core Arm® Cortex®-A55 Processor NPU: 0.8 TOPS	NXP i.MX 8M Plus Quad-Core ARM® Cortex®-A53 Processor, 1.6GHz ARM® Cortex®-M7, 800MHz Processor for Low-Power Processing NPU: 2.3 TOPS (Optional)	Rockchip RK3568 Quad-Core Arm® Cortex®-A55 Processor NPU: 0.8 TOPS
GPU	Arm® Mali™-G52 GPU	GC7000 UltraLite: 3D GPU (2 shaders) OpenGL ES 3.1, Vulkan, OpenCL 1.2 GC520L: 2D GPU	Arm® Mali™-G52 GPU
Graphics	Video Encode: 1080P @60fps H.264/H.265 Video Decode: 4K@60fps H.264/H.265/AV1 4Kp60 AVS2/VP9 1080P MPEG1/VP8	Video Processing Unit (VPU): 720p60 H.265, VP9 decoder 720p60 H.264, VP8 decoder 720p60 H.265, H.264 encoder	Video Encode: 1080P @60fps H.264/H.265 Video Decode: 4K@60fps H.264/H.265/AV1 4Kp60 AVS2/VP9 1080P MPEG1/VP8
Memory Capacity	Onboard LPDDR4 2GB/4GB/8GB (Optional)	Onboard LPDDR4 2GB/4GB/8GB (Optional)	Onboard LPDDR4 4GB
Storage/SSD	16GB eMMC and Micro-SD card Full-size mini-PCIe slot x 1 (mSATA / USB)	16GB eMMC and Micro-SD card	16GB eMMC and Micro-SD card Full-size mini-PCIe slot x 1 (mSATA / USB)
Operating System	Android™ 12, Debian™ 10	Debian 11	Android™ 12, Debian™ 10
Kernel	Kernel 4.19.219 (Android 12)	Kernel 5.10 (Debian 11)	Kernel 4.19.219 (Android 12)
Watchdog Timer	Integrated	Integrated	Integrated
Power Requirement	+12V DC input AT: Default, ATX: Optional	+12V DC Input	+12V DC input AT: Default, ATX: Optional
Power Consumption (Typical)	0.96A @12V, full load, Quad-core CPU	0.93A@12V, full load, Quad-Core CPU	0.96A @12V, full load, Quad-core CPU
Dimension	3.94" x 3.15" (100mm x 80mm)	3.94" x 3.15" (100mm x 80mm)	3.94" x 3.15" (100mm x 80mm)
Gross Weight	0.44 lb (0.2 Kg)	0.44 lb (0.2Kg)	0.44 lb (0.2 Kg)
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C)	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)	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	100,000	100,000	100,000
Certification	CE/FCC	CE/FCC	CE/FCC
Display			
HDMI	HDMI 2.0, up to 4K x 2K @60Hz	HDMI 2.0 (Type-A)	HDMI 2.0, up to 4K x 2K @60Hz
eDP	eDP 1.3, up to 2560 x 1600 @60Hz	N/A	eDP 1.3, up to 2560 x 1600 @60Hz
LVDS	18/24-bit LVDS, up to 1280 x 800 @60Hz A1.0: Up to 1280 x 800 @60Hz B1.0: Up to 1920 x 1080 @60Hz JP2, 3.3V/5V: LVDS Power Selection JP3, 5V/12V: Backlight Power Selection LCD Backlight connector	4-Lane/8-Lane LVDS Interface JP2, 5V/12V: Backlight Power Selection JP3, 3.3V/5V: LVDS Power Selection LCD Backlight Connector	18/24-bit LVDS, up to 1280 x 800 @60Hz JP2, 3.3V/5V: LVDS Power Selection JP3, 5V/12V: Backlight Power Selection LCD Backlight connector
MIPI	For A1.0 only Up to 2048 x 1536 @60Hz for Dual-MIPI Mode	4-Lane MIPI DSI Interface	Up to 2048 x 1536 @60Hz for Dual-MIPI Mode
RF Function			
WiFi	Onboard 802.11 a/b/g/n/ac ANT1 for Antenna	Supported via M.2 2230 E-Key (Optional, PCIe 3.0 [x1] I/F)	Onboard 802.11 a/b/g/n/ac ANT1 for Antenna
BT	Bluetooth V5.2 + EDR	Supported via M.2 2230 E-Key (Optional, PCIe 3.0 [x1] I/F)	Bluetooth V5.0 + EDR
I/O			
Ethernet	GbE x 2 RJ-45 x 2 (Onboard x 1 + T650 Daughter Board RJ-45 Port or T650 Wide-Voltage Board RJ-45 Port)	Onboard RJ45 GbE Port x 1 RJ45 GbE Port x 1 (via Daughter Board, T650 or T668)	GbE x 2 RJ-45 x 2 (Onboard x 1 + T650 Daughter Board RJ-45 Port or T650 Wide-Voltage Board RJ-45 Port)
USB Port	USB 3.2 Gen 1 OTG (Type-C) x 1 USB 3.2 Gen 1 x 1 USB 2.0 x 2 (Type-A x 1, Pin Header with Integrated USB, I2C, 5V x 1)	USB 3.2 Gen 1 x 2 (Type-C OTG x 1, Type-A x 1) USB 2.0 x 1 (Type-A)	USB 3.2 Gen 1 OTG (Type-C) x 1 USB 3.2 Gen 1 x 1 USB 2.0 x 2 (Type-A x 1, Pin Header with Integrated USB, I2C, 5V x 1)
Serial Port	RS-232/422/485 x 1 JP1, 5V/12V: RS-232/422/485 Voltage Output Selection RS-232 / Debug port 7-pin wafer x 1 CN3: UART (Tx/Rx only), I2C, USB, Others	RS-232/422/485 x 1 JP1, 5V/12V: RS-232/422/485 Voltage Output Selection COM Port Setting via S/W RS-232 Pin Header x 1 Debug Port x 1; UART x 2 (Tx/Rx Only)	RS-232/422/485 x 1 JP1, 5V/12V: RS-232/422/485 Voltage Output Selection RS-232 / Debug port 7-pin wafer x 1 CN3: UART (Tx/Rx only), I2C, USB, Others
Audio	Microphone/ Earphone (3.5mm)	Audio Combo Jack x 1 (3.5mm)	Microphone/ Earphone (3.5mm)
GPIO	GPIO x 8, 2x6 Wafer x 1	GPIO x 8, 2x7P Wafer x 1	GPIO x 8, 2x6 Wafer x 1
Expansion Slot	Full-size mini-PCIe slot x 1 (mSATA / USB) Connect to Daughter board: 40-pin FPC connector x 1	Full Size Mini-PCIe Slot x 1 (For LTE, USB I/F) 40-Pin FPC Connector x 1 (Connect to Daughter Board)	Full-size mini-PCIe slot x 1 (mSATA / USB) Connect to Daughter board: 40-pin FPC connector x 1
SIM Slot	Nano-SIM, Push-Push type with tray	Push-Push Nano-SIM Slot with Tray	Nano-SIM, Push-Push type with tray
SD Socket	Micro-SD card, Push-Push type	Push-Push Micro-SD Card Slot x 1	Micro-SD card, Push-Push type
Camera	—	4-Lane MIPI CSI Interface	—

RISC Boxes



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 / Debian 10	Android 8.1 / Debian 10
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		



Model	BOXER-RK3568	BOXER-MX8P
System		
CPU	Rockchip RK3568 ARM Cortex™-A55 Quad-core	NXP i.MX 8M Plus Quad Cortex™-A53 1.6GHz Cortex™-M7 800MHz processor for low-power processing
GPU	Mali-G52	GC7000UltraLite: 3D GPU (2 shaders) OpenGL ES 3.1, Vulkan, OpenCL 1.2 GC520L: 2D GPU
Chipset	NPU: 0.8 TOPS	NPU: 2.3 TOPS
Graphics	Video Encode: 1080P@60fps H.264/H.265 Video Decode: 4K@60fps H.264/H.265/AV1 4KP60 AVS2/VP9 1080P MPEG1/VP8	Video Processing Unit (VPU): • 1080p60 H.265, VP9 decoder • 1080p60 H.264, VP8 decoder • 1080p60 H.265, H.264 encoder
System Memory	LPDDR4 2GB/4GB/8GB (Optional)	
Display Interface	HDMI (2.0)	
Storage/SSD	16GB eMMC and Micro-SD card	
I/O	Micro-SD Card Slot x 1 HDMI (2.0) Port x 1 Antenna Connector for WiFi 802.11 b/g/n, BT V5.0 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) SIM Card Slot x 1	
Expansion	mPCIe Slot x 1 (mSATA / USB) for LTE module	mPCIe Slot x 1 (USB) for LTE module
Indicator	Power LED x 1	
OS Support	Android 12, Debian 10 (Optional)	Debian 11, Android 13 (Optional)
Power Supply		
Power Requirement	+12V DC input	
Mechanical		
Mounting	VESA mount, 75mm x 75mm	
Dimension (W x D x H)	4.2" x 3.37" x 1.97" (106.5 mm x 85.6 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	
Note		

Note: All specifications are subject to change without notice.

All in One Panel PC Solutions: ACP Series



Model	ACP-2106		ACP-2076	ACP-1108
System				
Processor	Intel® Processor N50 Intel® Processor N97 *Turbo Mode is disabled by default. If enabling it, please ensure the system in a well-ventilated area.			Rockchip™ RK3568 Quad-Core Arm® Cortex®-A55 Processor
System Memory	DDR5 4800MHz SODIMM x 1, up to 32GB			LPDDR4 2GB/4GB (Optional)
LCD/CRT controller	CPU Integrated			—
Ethernet	Intel® Ethernet Controller I226 GbE x 2			10/100/1000 Base TX x 2
I/O Port	USB 3.2 x 2 USB 2.0 x 2 via Cables DB-9 x 2 for RS-232/422/485 (Set By BIOS) DB-9 x 2 for RS-232 (Optional) HDMI 1.4b x 1 2.5GbE x 2 12V DC Jack, 9–36V (Optional) Power on/off Switch with LED Light x 1			LAN x 2 COM x 2 USB 3.2 Gen 1 (Type-C OTG) x 1 (For System Recovery) USB 3.2 Gen 1 x 1 USB 2.0 x 3 HDMI x 1 Audio x 1
Storage Disk Drive	Full size mPCIe (PCIe [x1]/SATA)			16GB eMMC and Micro-SD card
Expansion Slot	M.2 3052 B-Key x 1 with Nano SIM M.2 2230 E-Key x 1			Full-size mini-PCIe slot x 1 (PCIe 3.0 [x1] or mSATA)
OS support	Windows® 10 IoT Enterprise LTSC 2021 Windows® 10/11			Android™ 12 / Debian
Mechanical				
Construction	Aluminum Front Bezel + Metal Chassis			
Mounting	Panel Mount/VESA Mount (VESA 100)			VESA / Panel Mount
Dimension	10.5" x 7.26" x 1.69" (266.9mm x184.5mm x 43 mm)	7.74" x 5.31" x 1.69" (196.5mm x 135mm x 43mm)	10.5" x 7.2" x 1.5" (266.9mm x 184.5mm x 40mm)	
Carton Dimension	13.3" x 10.2" x 5.9" (339mm x 260mm x 152mm)	11.0" x 8.7" x 6.1" (280mm x 220mm x 154mm)	13.3" x 10.2" x 5.9" (339mm x 260mm x 152mm)	
Gross Weight	3.3 lb. (1.5Kg)	2.1 lb. (0.95Kg)	3.5 lb. (1.6Kg)	
Environmental				
Operating Temperature	23°F ~ 122°F (-5°C ~ 50°C) with 0.5 m/s 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			
Vibration	1Grm s/5~500Hz/ operation - with mSATA			1Grms / 5~ 500Hz / operation
Shock	15 G peak acceleration (11 m sec. duration) with mSATA			15 G peak acceleration (11 msec. duration)
EMC	CE/FCC Class A Compatible			
Power Supply				
DC Input	DC 12V			DC 12~24V
LCD				
Display Type	10.1" TFT-LCD, LED	7" TFT LCD, LED	10.1" WXGA (1280 x 800) Color TFT LCD Display	
Max Resolution	1280 x 800	1024 x 600	1280 x 800	
Max. Colors	262k	16.7M	262K colors (6 bit for R,G,B)	
Luminance	300 cd/m²	320 cd/m²	300 nits	
Viewing Angle	170° (H), 170° (V)	145° (H) ; 150° (V)	170° (H) ; 170° (V)	
Back Light	LED			
Back Light MTBF (Hours)	25,000	20,000	25,000	
Touchscreen				
Type	Projected Capacitive Multi-Touch			
Light Transmission	90%			
Note				

Rugged Mobile and Panel PC Solutions

All in One Panel PC Solutions: ACP Series

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All in One Panel PC Solutions: ACP Series



Model	ACP-1106	ACP-1104	ACP-1078
System			
Processor	Intel® Pentium® N4200 processor, 1.1 GHz (Quad-Core), Burst frequency 2.5GHz Intel® Celeron® N3350 processor, 1.1 GHz (Dual-Core), Burst frequency 2.4GHz	Intel® Celeron® J1900 processor, 2 GHz Intel® N2807 processor, 1.58 GHz	
System Memory	DDR3L 1866, Single Channel SODIMM x 1, Non-ECC (Max.8GB, up to 1600MHz)	204-pin DDR3L 1333MHz SODIMM x 1, default 2 GB, up to 8 GB (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, default 2 GB, up to 4 GB (N2807)	
LCD/CRT controller	Integrated in processor		
Ethernet	10/100/1000 Base-TX, RJ-45 x 2		
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	
Storage Disk Drive	Full Size mSATA x 1	Half size mSATA x 1 (Installation by AAEON recommended)	
Expansion Slot	Half size mini card x 1(Internal)	Full size Mini-Card x 1	
OS support	Windows® 10	Windows® 7, Windows® 8.1, Windows® 10	
Mechanical			
Construction	Aluminum Front Bezel + Metal Chassis	Aluminum Design	
Mounting	VESA 75, Panel Mount	VESA 75/ Panel mount/ Stand	
Dimension	10.47" x 7.24 x 1.89" (266 x 184 x 48mm)	10.47" x 7.22" x 1.18" (266 x 183.5 x 30mm)	
Carton Dimension	13.38" x 7.64 x 9.96" (340 x 194 x 253mm)	13.58" x 7.87" x 9.65" (345 x 200 x 245mm)	
Gross Weight	6.38 lb (2.9 kg)	5.5 lb (2.5 kg)	
Environmental			
Operating Temperature	23°F ~ 122°F (-5°C ~ 50°C) with 0.5 m/s airflow	32°F ~ 113°F (0°C ~ 45°C) without airflow 32°F ~ 122°F (0°C ~ 50°C) with airflow	
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)		
Storage Humidity	90% @40°C; non-condensing	5%~90% @40°C, non-condensing	
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation	
Shock	15 G peak acceleration (11 msec. duration) – with HDD	15 G peak acceleration (11 msec. duration)	
EMC	CE/FCC Class A	CE/FCC class A	
Power Supply			
DC Input	DC 9~30V	DC 12V with lockable power adapter	
LCD			
Display Type	10.1" TFT-LCD, LED		
Max Resolution	1280 x 800		
Max. Colors	262K colors (6 bit for R,G,B)	262k	
Luminance	300 cd/m²		
Viewing Angle	170° (H), 170° (V)		
Back Light	LED		
Back Light MTBF (Hours)	—		
Touchscreen			
Type	P-CAP Touchscreen	Projected capacitive multi-touch	
Light Transmission	90%	—	
Note			

Note: All specifications are subject to change without notice.

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All in One Panel PC Solutions: ACP Series



Model	ACP-1076	ACP-1075	ACP-1074
System			
Processor	Intel® Pentium® N4200 processor, 1.1 GHz (Quad-Core), Burst frequency 2.5GHz Intel® Celeron® N3350 processor, 1.1 GHz (Dual-Core), Burst frequency 2.4GHz	Intel® Pentium® Processor N4200 Intel® Celeron® Processor N3350	Intel® N2807 processor, 1.58 GHz Intel® Celeron® J1900 processor, 2 GHz
System Memory	DDR3L 1866, Single Channel SODIMM x 1, Non-ECC (Max.8GB, up to 1600MHz)	Onboard LPDDR3L 4GB (2GB Optional)	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	—	Integrated in processor
Ethernet	10/100/1000 Base-TX, RJ-45 x 2	GbE x 1	10/100/1000 Base-TX, RJ-45 x 2
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	LAN x 1 COM x 2 USB 3.2 Gen 1 (Type-A) x 2 USB 2.0 x 1 HDMI x 1	RJ-45 type RS-232/422/485 x 2 USB 2.0 x 3 USB 3.2 Gen 1 x 1 HDMI x 1 DI/O (4DI, 2DO) BIOS Selection Lockable power input connector Power switch x 1
Storage Disk Drive	Full Size mSATA x 1	Onboard 64GB eMMC (Optional: 16GB/32GB)	Half size mSATA storage x 1 (Installation by AAEON recommended)
Expansion Slot	Half size mini card x 1 (Internal)	M.2 2280 B-Key x 1, M.2 2230 E-Key x 1	Full size Mini-Card x 1
OS support	Windows® 10	Windows® 10 (64-bit)	Windows® 7, Windows® 8.1, Windows® 10, Linux kernel 2.6.3 or higher
Mechanical			
Construction	Aluminum Front Bezel + Metal Chassis	SECC	Aluminum Design
Mounting	VESA 75, Panel Mount	—	VESA 75/ Panel mount/ Stand
Dimension	7.72" x 5.28" x 1.89" (196 x 134 x 48 mm)	7.18" x 4.73" x 2.09" (182.3mm x 120.1mm x 53.04mm)	7.71" x 5.27" x 1.18" (196mm x 134mm x 30mm)
Carton Dimension	10.87" x 9.41" x 6.69" (276 x 239 x 170 mm)	14.17" x 9.65" x 4.65" (360mm x 245mm x 118mm)	13.58" x 7.87" x 9.64" (345mm x 200mm x 245mm)
Gross Weight	4.62 lb (2.1 Kg)	1.9 lb. (0.88Kg)	4.8 lb (2.2 kg)
Environmental			
Operating Temperature	23°F ~ 122°F (-5°C ~ 50°C) with 0.5 m/s airflow	32°F ~ 131°F (0°C ~ 55°C) with 0.5 m/s airflow	32°F ~ 122°F (0°C ~ 50°C) without airflow 23°F ~ 131°F (-5°C ~ 55°C) with airflow
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	32°F ~ 149°F (0°C ~ 65°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	90% @40°C, non-condensing		5%~90% @40°C, non-condensing
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation –with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD
Shock	15 G peak acceleration (11 msec. duration) – with HDD	15 G peak acceleration (11 msec. duration) –with HDD	15G peak acceleration (11 msec. duration) – with HDD
EMC	CE/FCC Class A		
Power Supply			
DC Input	DC 9~30V	DC 12V	DC12V, with lockable power adapter
LCD			
Display Type	7" TFT-LCD, LED	7" WSVGA Color TFT LCD Display	7" TFT-LCD, LED
Max Resolution		1024 x 600	
Max. Colors		16.7M	
Luminance	320 cd/m²	320 nits	320 cd/m²
Viewing Angle	150° (H), 145° (V)	145° (H) ; 150° (V)	150° (H), 145° (V)
Back Light		LED	
Back Light MTBF (Hours)	20,000	20,000 Hrs	20,000
Touchscreen			
Type	P-CAP Touchscreen	Projected Capacitive Multi-Touch	Projected capacitive multi-touch (2-point)
Light Transmission	90%	≥86%	90%
Note			

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OMNI Series : Modular Builder - Panel Kit

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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	-4°F ~ 122°F (-20°C ~ 50°C) with 0.5 m/s airflow	14°F ~ 131°F (-10°C ~ 55°C) with 0.5 m/s airflow	
Storage Temperature	-4°F~140°F(-20°C~60°C)	-4°F ~ 158°F (-20°C ~ 70°C)	
Storage Humidity	90% @40°C; non-condensing	90% @40°C; non-condensing	90% @40°C; non-condensing
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD	1 Grms/ 5~ 500Hz/ operation – with HDD
Shock	15G peak acceleration (11 msec. duration) – with HDD	15G peak acceleration (11 msec. duration) – with HDD	15G peak acceleration (11 msec. duration) – with HDD
EMC	CE/FCC Class A	CE/FCC Class A	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	Regular 1366 (H) x 768 (V) Full HD 1920 (H) x 1080 (V)	1920 x 1080	800 x 600
Max. Colors	Regular :16.7M (8 bit/color) Full HD: 16.2M	16.7M colors	16.2M colors
Luminance	Regular : 400 cd/m² Full HD : 450 cd/m²	250 cd/m²	230 cd/m²
Viewing Angle	Regular : 170° (H) ; 130° (V) Full HD: 178° (H) ; 178° (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.

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OMNI Series : Modular Builder - Panel Kit



Model	OMNI-312D	OMNI-315D
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)
Carton Dimension	20.87" x 17.52" x 7.87" (530mm x 445mm x 200mm)	20.08" x 9.84" x 18.11" (510mm x 250mm x 460mm)
Gross Weight	4.4 lb (2 kg)	11.66 lb (5.3 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
Max Resolution	1024 x 768	
Max. Colors	16.2M colors	16.2M (8bit/color)
Luminance	500 cd/m ²	300 cd/m ²
Viewing Angle	160° (H), 160° (V)	176° (H), 176° (V)
Back Light	LED	
Back Light MTBF (hours)	50,000	70,000
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		

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OMNI Series : Modular Builder - Panel Kit

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OMNI Series : Modular Builder - Panel Kit



Model	OMNI-317D	OMNI-319D
Mechanical		
Construction	Aluminum Front Bezel	
Mounting	Panel Mount	
Dimension	16.14" x 14.57" x 1.1" (410mm x 370mm x 28mm)	18.13" x 16.12" x 1.1" (460.4mm x 409.4mm x 28mm)
Carton Dimension	20.47" x 10.32" x 19.29" (522mm x 262mm x 490mm)	26.02" x 8.11" x 19.53" (661mm x 206mm x 496mm)
Gross Weight	8.8 lb(4 kg)	11 lb (5 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	17" TFT-LCD, LED	19" TFT-LCD, LED
Max Resolution	1280 x 1024	
Max. Colors	16.7M colors	
Luminance	350 cd/m²	
Viewing Angle	170° (H), 160° (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.

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OMNI Series : Modular Builder - BOX Kit



Model	OMNI-BT CPU BOX Kit	OMNI-ADP CPU-BOX Kit
System		
Processor	Intel® N2807 processor, 1.58 GHz Intel® Celeron® J1900 processor, 2 GHz	Intel® Alder Lake-P i7/i5/i3/Celeron CPU
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)	DDR5 4800 MHz, Dual Channel SODIMM x 2
LCD CRT Controller	Integrated in processor	—
Ethernet	Intel® I211, 10/100/1000 Base-TX x 2	Intel® i219, 10/100/1000Base Intel® i226, 10/100/1000/2500Base
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 C-FAST™ 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)	LAN x2 USB Type A x3 USB Type C x1 HDMI x 1 Audio x1 COM x2
Storage Disk Drive	C-FAST™ x 1, 2.5" SATA HDD bay x 1	2.5" SATA-III x1 (6 Gb/s, for 2.5" SATA drive bay) M.2 2280 NVMe x1 (For PCIe4 NVMe Storage)
Expansion Slot	Mini card x 2 (Full size x 2) SIM card x 1 OMNI I/O connector x 1	B-Key 3052 x 1 (BOM Optional: PCIe x 2), default: USB3.2 Gne2+ SATA E-Key 2230 x 1 (PCIe, USB2.0)
OS Support	Windows® 7, Windows® 8, Windows® 10, Linux Kernel 2.6.x or higher	Windows 10/Windows 11/Linux
Construction	Aluminum design	
Mounting	Wallmount	TBD
Dimension	7.2" x 6.38" x 1.1" (183mm x 162mm x 28mm)	TBD
Gross Weight	3.96 lb (1.8 kg)	TBD
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)	23°F~122°F(-5°C ~ 50°C) with 0.5m/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	
Anti Vibration	1 Grms/ 5~ 500Hz/ operation ~ with HDD	1Grms / 5~ 500Hz / operation
Anti-Shock	15 G peak acceleration (11 msec. duration) ~ HDD	15 G peak acceleration (11 msec. duration)
Certification	CE/FCC class A	CE/FCC Class A Compatible
DC Input	DC 9 (min.) ~ 30 (max.) V w/3-pin terminal block, ATX Power function	DC 9~36V
Display Type	HDMI x 1, VGA	OMNI Series Panel Kit from 12.1 inches to 21.5 inch
Others	Box Bottom Chassis Cover (optional): M0421550A0	Flat 5-Wire Resistive / PCAP multitouch (Support Gloves)
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	
Max. Resolution	
Max. Colors	
Luminance	
Viewing Angle	
Back Light	
Back Light MTBF (Hours)	
Touchscreen	
Type	
Light Transmission	
Life Time	
Note	

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OMNI Series : Modular Touch Panel Solutions

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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	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 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/~Ff switch x 1 (Power on = Orange, Power ~Ff =N/A)		
Storage Disk Drive	CFAST™ socket x 1, SATA 2.5" 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)	
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)		
Shock	15 G peak acceleration (11 msec. duration)	15 G peak acceleration (11 msec. duration) – with HDD	
EMC	CE/FCC class A		
Power Supply			
DC input	DC 9 (min.) ~ 30 (max.) V w/ 3-pin terminal block, ATX Power function		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.

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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/°F switch x1 (Power on = Orange, Power °F = 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" x 19.29" (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)	
Max. Colors	16.2M (8bit/color)	16.7M colors (RGB 6-bits + Hi-FRC data)	16.7M colors	
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 (≥85%), 5-wire Resistive (80% ± 5%)		
Note				

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Model	OMNI-2155-ADP		OMNI-2215-ADP	OMNI-3105-ADP
System				
Processor	12th Generation Intel® Core™/Celeron® Processors: Intel® Core™ i7-1265UE Intel® Core™ i5-1245UE Intel® Core™ i3-1215UE Intel® Celeron® Processor 7305E	12th Generation Intel® Core™/Celeron® Processors		
System Memory	DDR5 4800 MHz, Dual Channel SODIMM x 2,up to 64GB			DDR5 4800MHz, Dual Channel SODIMM x 2
LCD/CRT Controller	—			
Ethernet	Intel® i219, 10/100/1000Base Intel® i226, 10/100/1000/2500Base			
I/O Port	RJ-45 LAN x 2 USB 3.2 Gen 2 (Type-A) x 3 USB (Type-C) x 1 HDMI 2.0b x 1 DB-9 x 2 (RS-232/422/485)			
Storage Disk Drive	2.5" HDD Bay for SATA 6Gb/s x 1 M.2 2280 M-Key x 1 (PCIe [x4] for NVMe Storage)			
Expansion Slot	M.2 3052 B-Key x 1 (Default: USB 3.2 Gen 2 + SATA, PCIe [x2] optional by BOM) M.2 2230 E-Key x 1 (PCIe, USB 2.0)	M.2 3052 B-Key x 1 (Default: USB 3.2 Gen 2 + SATA, PCIe [x2] optional by BOM) M.2 2230 E-Key x 1 (PCIe, USB 2.0)	M.2 3052 B-Key x 1 (BOM Optional: PCIe [x2], default: USB 3.2 Gen 2 + SATA) M.2 2230 E-Key x 1 (PCIe, USB 2.0)	
OS support	Windows® 10 IoT Enterprise LTSC 2021 Windows® 10/11	Windows® 10 IoT Enterprise LTSC 2021 Windows® 10/11		
Mechanical				
Construction	Aluminum Front Bezel + Metal Chassis			
Mounting	VESA / Panel Mount			
Dimension	16.5" x 10.41" x 2.9" (420.2mm x 264.5mm x 73.8mm)	21.63" x 14.66" x 2.64" (549.4mm x 372.4mm x 67mm)	11" x 9.4" x 2.8" (280mm x 239.3mm x 72.8mm)	
Carton Dimension	20.86" x 17.51" x 7.87" (530 mm x 445 mm x 200mm)	26.38" x 20.67" x 7.87" (670mm x 525mm x 200mm)	16.3" x 15.4" x 7" (415mm x 392mm x 180mm)	
Gross Weight	11.46 lb (5.2kg)	14.9 lb. (6.8Kg)	6.2 lb. (2.84Kg)	
Environmental				
Operating Temperature	-4°F ~ 122°F (-20°C ~ 50°C) with 0.5 m/s Airflow		-4°F~122°F (-20°C~50°C) with airflow	
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)			
Storage Humidity	90% @40°C; non-condensing			
Vibration	1Grms / 5~ 500Hz / operation			
Shock	15 G peak acceleration (11 msec. duration)			
EMC	CE/FCC Class A			
Power Supply				
DC input	DC 9~30V			
LCD				
Display Type	15.6" TFT-LCD, LED	21.5" TFT-LCD, LED	10.4" TFT-LCD, LED	
Max Resolution	Regular 1366 (H) x 768 (V) Full HD 1920 (H) x 1080 (V)	1920 x 1080	1024 (H) x 768 (V)	
Max. Colors	Regular :16.7M (8 bit/color) Full HD: 16.2M	16.7M colors	262K/16.7M	
Luminance	Regular : 400 cd/m ² Full HD : 450 cd/m ²	250 cd/m ²	500 cd/m ²	
Viewing Angle	Regular : 170° (H) ; 130° (V) Full HD: 178° (H) ; 178° (V)	178° (H) ; 178° (V)	176° (H) x 176° (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%)	P-CAP (≥85%), 5-wire Resistive (80% ± 3%)	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)	
Note				

Note: All specifications are subject to change without notice.

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OMNI Series : Modular Touch Panel Solutions



Model	OMNI-3125-ADP	OMNI-3155-ADP	OMNI-3175-ADP
System			
Processor	12th Generation Intel® Core™/Celeron® Processors		
System Memory	DDR5 4800 MHz, Dual Channel SODIMM x 2		
LCD/CRT Controller	—		
Ethernet	Intel® Ethernet Connection I219, 10/100/1000Base Intel® Ethernet Controller I226, 10/100/1000/2500Base		
I/O Port	RJ-45 LAN x 2 USB 3.2 Gen 2 (Type-A) x 3 USB (Type-C) x 1 HDMI 2.0b x 1 DB-9 x 2 (RS-232/422/485)		
Storage Disk Drive	2.5" HDD Bay for SATA 6Gb/s x 1 M.2 2280 M-Key x 1 (PCIe [x4] NVMe Storage)		
Expansion Slot	M.2 3052 B-Key x 1 (BOM Optional: PCIe [x2], default: USB 3.2 Gen 2 + SATA) M.2 2230 E-Key x 1 (PCIe, USB 2.0)		
OS support	Windows® 10 IoT Enterprise LTSC 2021 Windows® 10/11		
Mechanical			
Construction	Aluminum Front Bezel + Metal Chassis		
Mounting	VESA / Panel Mount		
Dimension	12.9" x 11.3" x 2.7" (328.5mm x 288mm x 69.7mm)	14.52" x 12.35" x 2.83" (368.9mm x 313.7mm x 72mm)	16.14" x 14.56" x 2.87" (409.9mm x 369.9mm x 73mm)
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	7.6 lb. (3.48Kg)	8.5 lb. (3.9Kg)	12.4 lb. (5.63Kg)
Environmental			
Operating Temperature	-4°F~122°F (-20°C~50°C) with airflow		
Storage Temperature	-4°F~140°F(-20°C~60°C)		
Storage Humidity	90% @40°C; non-condensing		
Vibration	1Grms / 5~ 500Hz / operation		
Shock	15 G peak acceleration (11 msec. duration)		
EMC	CE/FCC Class A Compatible		
Power Supply			
DC input	DC 9~30V		
LCD			
Display Type	12.1" TFT-LCD, LED	15" TFT-LCD, LED	17" TFT-LCD, LED
Max Resolution	1024(H) x 768(V)		1280(H) x 1024(V)
Max. Colors	16.2M colors	16.2M (8 bit/color)	16.7M colors (RGB 6-bits + Hi-FRC data)
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 Hrs	70,000	50,000
Touchscreen			
Type	P-CAP/ 5-wire resistive		
Light Transmission	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)	P-CAP (90% ± 2%), 5-wire Resistive (80% ± 2%)	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)
Note			



Model	OMNI-3195-ADP		OMNI-2245-ADP	OMNI-2275-ADP
System				
Processor	12th Generation Intel® Core™/Celeron® Processors			
System Memory	DDR5 4800 MHz, Dual Channel SODIMM x 2		DDR5 4800MHz, Dual Channel SODIMM x 2, up to 64GB	
LCD/CRT Controller	—			
Ethernet	Intel® Ethernet Connection I219, 10/100/1000Base Intel® Ethernet Controller I226, 10/100/1000/2500Base		Intel® Ethernet Connection I219, 10/100/1000Base Intel® Ethernet Controller I226, 10/100/1000/2500Base	
I/O Port	RJ-45 LAN x 2 USB 3.2 Gen 2 (Type-A) x 3 USB (Type-C) x 1 HDMI 2.0b x 1 DB-9 x 2 (RS-232/422/485)		RJ-45 LAN x 2 USB 3.2 Gen 2 (Type-A) x 3 USB 2.0 (Type-C) x 1 HDMI 2.0b x 1 DB-9 x 2 (RS-232/422/485)	
Storage Disk Drive	2.5" HDD Bay for SATA 6Gb/s x 1 M.2 2280 M-Key x 1 (PCIe [x4] NVMe Storage)		2.5" HDD Bay for SATA 6Gb/s x 1 M.2 2280 M-Key x 1 (PCIe [x4] NVMe Storage)	
Expansion Slot	M.2 3052 B-Key x 1 (BOM Optional: PCIe [x2], default: USB 3.2 Gen 2 + SATA) M.2 2230 E-Key x 1 (PCIe, USB 2.0)		M.2 3052 B-Key x 1 (Default: USB 3.2 Gen 2 + SATA, PCIe [x2] optional by BOM) M.2 2230 E-Key x 1 (PCIe, USB 2.0)	
OS support	Windows® 10 IoT Enterprise LTSC 2021 Windows® 10/11		Windows® 10 IoT Enterprise LTSC 2021 Windows® 10/11	
Mechanical				
Construction	Aluminum Front Bezel + Metal Chassis			
Mounting	VESA / Panel Mount			
Dimension	18.15" x 16.14" x 2.87" (460.8mm x 410mm x 72.8mm)	TBD	25.3" x 15.8" x 2.9" (641.6 mm x 402.5 mm x 74.7 mm)	
Carton Dimension	26.02" x 19.53" x 8.11" (661mm x 496mm x 206mm)	TBD	TBD	
Gross Weight	13.9 lb. (6.34Kg)	TBD	TBD	
Environmental				
Operating Temperature	-4°F~122°F (-20°C~50°C) with airflow	-4°F~122°F (-20°C~50°C) with airflow		32°F~113°F (0°C~45°C) with airflow
Storage Temperature	-4°F~140°F(-20°C~60°C)	-4°F~140°F(-20°C~60°C)		
Storage Humidity	90% @40°C; non-condensing			
Vibration	1Grms / 5~ 500Hz / operation			
Shock	15 G peak acceleration (11 msec. duration)			
EMC	CE/FCC Class A Compatible			
Power Supply				
DC input	DC 9~30V			
LCD				
Display Type	19" TFT-LCD, LED	23.8" TFT-LCD, LED	27" TFT-LCD, LED	
Max Resolution	1280(H) x 1024(V)	1920 x 1080		
Max. Colors	16.7M colors			
Luminance	350 cd/m²	450 cd/m²	300 cd/m²	
Viewing Angle	170° (H), 160° (V)	178o (H) ; 178o (V)		
Back Light	LED			
Back Light MTBF (Hours)	50,000	50,000 Hrs	30,000 Hrs	
Touchscreen				
Type	P-CAP/ 5-wire resistive	Projective Touch (Max. 10 Point)		
Light Transmission	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)	≥ 86%		
Note				

OMNI Series : Modular Touch Panel Solutions



Model	OMNI-2155-ADN	OMNI-2215-ADN	OMNI-3105-ADN
System			
Processor	Intel® Processor N50 Intel® Processor N97		
System Memory	DDR5 4800 MHz, up to 16GB SODIMM x 1		
LCD/CRT Controller	CPU Integrated		
Ethernet	Intel® Ethernet Controller I226, 2.5GbE LAN x 3		
I/O Port	USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 x 2 via Cables DB-9 x 2 (RS-232/422/485, set by BIOS) HDMI 1.4b x 1 2.5GbE RJ-45 x 3 9V ~ 30V 3-pin DC Terminal Block Connector Power on/off Switch with LED Light x 1		
Storage Disk Drive	2.5" SATA Drive Bay x 1 (SATA 6Gb/s) Full-size mPCIe (PCIe [x1]/SATA)		
Expansion Slot	M.2 3052 B-Key x 1 with Nano SIM M.2 2230 E-Key x 1		
OS support	Windows® 10 IoT Enterprise LTSC 2021 Windows® 10/11		
Mechanical			
Construction	Aluminum Front Bezel + Metal Chassis		
Mounting	Panel Mount/VESA Mount (VESA 100)		
Dimension	16.5" x 10.4" x 2.9" (420mm x 264mm x 73mm)	21.6" x 14.7" x 2.6" (549mm x 372mm x 67mm)	11" x 9.4" x 2.9" (280.01 mm x 239mm x 72.8mm)
Carton Dimension	20.9" x 17.5" x 7.9" (530mm x 445mm x 200mm)	26.4" x 7.9" x 20.7" (670mm x 200mm x 525mm)	16.3" x 7.1" x 15.4" (415mm x 180mm x 392mm)
Gross Weight	11.7 lb. (5.3Kg)	15.2 lb. (6.9Kg)	6.4 lb. (2.9Kg)
Environmental			
Operating Temperature	-4°F ~ 122°F (-20°C ~ 50°C) with 0.7m/s airflow		
Storage Temperature	-4°F~140°F (-20°C~60°C)		
Storage Humidity	90% @40°C; non-condensing		
Vibration	1Grms /5~500Hz/ operation - with mSATA		
Shock	15G peak acceleration (11 m sec. duration) with mSATA		
EMC	CE/FCC Class A		
Power Supply			
DC input	DC 9~30V		
LCD			
Display Type	15.6" TFT-LCD, LED	21.5" TFT-LCD, LED	10.4" TFT LCD, LED
Max Resolution	Regular 1366 (H) x 768 (V) Full HD 1920 (H) x 1080 (V)	1920 (H) x 1080 (V)	1024 (H) x 768 (V)
Max. Colors	Regular :16.7M (8 bit/color) Full HD: 16.2M	16.7M	
Luminance	Regular: 400 cd/m² Full HD: 450 cd/m²	250 cd/m²	500 cd/m²
Viewing Angle	Regular: 170° (H); 130° (V) Full HD: 178° (H); 178° (V)	178° (H) ; 178° (V)	176° (H) x 176° (V)
Back Light	LED		
Back Light MTBF (Hours)	50,000		
Touchscreen			
Type	Projected Capacitive Multi-Touch		
Light Transmission	90%		
Note			

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OMNI Series : Modular Touch Panel Solutions

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OMNI Series : Modular Touch Panel Solutions



Model	OMNI-3125-ADN	OMNI-3155-ADN	OMNI-2155-ML
System			
Processor	Intel® Processor N50 Intel® Processor N97		Intel® Core™ Ultra processors (Series 1)
System Memory	DDR5 4800 MHz, up to 16GB SODIMM x 1		DDR5 5600 MHz, Dual Channel SODIMM x 2, Up to 96GB
LCD/CRT Controller	CPU Integrated		TBD
Ethernet	Intel® Ethernet Controller I226, 2.5GbE LAN x 3		Intel® I226 2.5GbE, RJ-45 x 2 Intel® I219 1GbE, RJ-45 x 1 (219 Support Vpro only with ULTRA 7 165U/165H) ULTRA 5 135U/135H) LAN2,3 Support PEX
I/O Port	USB 3.2 x 2 USB 2.0 x 2 via Cables DB-9 RS-232/422/485 x 2 (Set By BIOS) HDMI 1.4b x 1 RJ-45 Type 2.5G x 3 DC 9~30V 3-pin Terminal Block Connector Power on/FI switch x1 with LED Light		USB 3.2 Gen2 x 2 HDMI 2.1 x1 USB 2.0 x2 RS-232/422/485 x2
Storage Disk Drive	2.5" SATA Drive Bay x 1 (SATA 6Gb/s) Full-size mPCIe (PCIe [x1]/SATA)		2.5" SATA
Expansion Slot	M.2 3052 B-Key x 1 with Nano SIM M.2 2230 E-Key x 1		M-Key 2280 x 1 (PCIe [x4], SATA) Select by BOM B-Key 3052 x 1 (PCIe [x2] / [x1], USB3.0). Default: PCIe 3.0 [x1] +USB3.0 (selected by BOM) E-Key 2230 x 1 (PCIe, USB2.0), support Wi-Fi 6E CNVI
OS support	Windows® 10 IoT Enterprise LTSC 2021 Windows® 10/11		Windows® 10 IoT Enterprise LTSC 2021 Windows® 10/11
Mechanical			
Construction	Aluminum Front Bezel + Metal Chassis		
Mounting	Panel Mount/VESA Mount (VESA 100)		VESA 100 / Panel Mount
Dimension	12.9" x 11.3" x 2.7" (328.5mm x 288mm x 69.7mm)	14.5" x 12.4" x 2.8" (368.9mm x 313.7mm x 72mm)	TBD
Carton Dimension	20.9" x 17.5" x 7.9" (530mm x 445mm x 200mm)	20.1" x 9.8" 18.1" (510mm x 250mm x 460mm)	TBD
Gross Weight	10.7 lb. (4.84Kg)	8.9lb (4.05Kg)	TBD
Environmental			
Operating Temperature	-4°F~-122°F (-20°C~50°C) with airflow	-4°F ~ 122°F (-20°C ~ 50°C) with 0.7m/s airflow	-4°F ~ 122°F (-20°C ~ 50°C) with 0.7 m/s Airflow
Storage Temperature	-4°F~-140°F (-20°C~60°C)		
Storage Humidity	90% @40°C; non-condensing		
Vibration	1Grm s/5~500Hz/ operation - with mSATA		1Grms / 5~ 500Hz / operation
Shock	15 G peak acceleration (11 m sec. duration) with mSATA	15G peak acceleration (11 m sec. duration) with mSATA	15 G peak acceleration (11 msec. duration)
EMC	CE/FCC Class A Compatible		CE/FCC Class A
Power Supply			
DC input	DC 9~30V		
LCD			
Display Type	12.1" TFT LCD, LED	15" TFT-LCD, LED	15.6" TFT-LCD, LED
Max Resolution	1024 (H) x 768 (V)		1920 (H) x 1080 (V)
Max. Colors	16.2M	16.2M (8 bit/color)	16.2M
Luminance	500 cd/m²	300 cd/m²	450 cd/m²
Viewing Angle	160° (H) ; 160° (V)	176° (H) x 176° (V)	178° (H) ; 178° (V)
Back Light	LED		
Back Light MTBF (Hours)	50,000	70,000	50,000
Touchscreen			
Type	P-CAP/ 5-wire resistive	Projected Capacitive Multi-Touch	P-CAP
Light Transmission	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)	90%	≥ 86%
Note			

Note: All specifications are subject to change without notice.

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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 lb (6.4 kg)	18.5 lb (8.4 kg)	7.9 lb (3.6 kg)
Net Weight	11.2 lb (5.1 kg)	15.4 lb (7.0 kg)	1.1 lb (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		
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		
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			

Rugged Mobile and Panel PC Solutions

OMNI Series : Modular Display Solutions

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OMNI Series : Modular Display Solutions



Model	OMNI-312M	OMNI-315M	OMNI-317M
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)	16.1" x 14.6" x 2.3" (410mm x 370mm x 59.1mm)
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)	20.6" x 19.3" x 10.3" (522mm x 490mm x 262mm)
Gross Weight	10.4 lb (4.7 kg)	14 lb (6.35 kg)	14.8 lb (6.7 kg)
Net Weight	7.7 lb (3.5 kg)	11.2 lb (5.1 kg)	11.7 lb (5.3 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	17" TFT-LCD
Max. Resolution	1024 x 768	1280 x 768	1280 x 1024
Max. Colors	16.2M	16.2M (8bit/color)	16.7M
Luminance	500 cd/m²	300 cd/m²	350 cd/m²
Viewing Angle	160° (H), 160° (V)	176° (H), 176° (V)	160° (H), 140° (V)
Back Light	LED		
Back Light MTBF (Hours)	50,000	70,000	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.

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OMNI Series : Modular Display Solutions



Model	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	18.1" x 16.1" x 2.3" (460.8mm x 410mm x 59.1mm)
Carton Dimension	26.0" x 19.5" x 8.1 (661mm x 496mm x 206mm)
Gross Weight	18.1 lb (8.2 kg)
Net Weight	15.2 lb (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	19" TFT-LCD
Max. Resolution	1280 x 1024
Max. Colors	16.7M
Luminance	350 cd/m ²
Viewing Angle	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	



Model	NIKY-2155-NX
System	
Processor	NVIDIA® Jetson Orin™ NX 6-core Arm® Cortex®-A78AE v8.2 64-bit CPU
System Memory	8GB LPDDR5
LCD/CRT controller	N/A
Ethernet	GbE LAN x 2
I/O Port	USB 3.2 Gen 2 (Type-A) x 4 GbE LAN x 2 Micro USB x 1 for OS Flash DB-9 x 1 for CANBus DB-9 x 1 for RS-232/422/485 DB-15 x 1 for 8-bit DIO Power ON/OFF Switch x 1 Recovery Button x 1 Antenna Hole x 6
Storage Disk Drive	M.2 2280 M-Key x 1 for Storage (Default: 128GB)
Expansion Slot	M.2 2230 E-Key x 1 M.2 3042/3052 B-Key x 1
OS support	Ubuntu 22.04
Mechanical	
Construction	Aluminum Front Bezel + Metal Chassis
Mounting	VESA 100 / Panel Mount
Dimension	15.2" x 9.3" x 2.6" (385.6mm x 235.0mm x 66.6mm)
Carton Dimension	20.3" x 15.2" x 7.8" (515mm x 385mm x 198mm)
Gross Weight	9.39 lb. (4.26Kg)
Environmental	
Operating Temperature	23°F ~ 131°F (-5°C ~ 55°C) with 0.7 m/s airflow
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)
Storage Humidity	90% @ 40°C, non-condensing
Vibration	1Grms / 5~ 500Hz / operation
Shock	15 G peak acceleration (11 msec. duration)
EMC	CE/FCC Class A
Power Supply	
DC Input	DC 12~24V
LCD	
Display Type	15.6" TFT-LCD, LED
Max Resolution	1920 (H) x 1080 (V)
Max. Colors	16.7M
Luminance	350 cd/m²
Viewing Angle	160° (H) / 160° (V)
Back Light	LED
Back Light MTBF (Hours)	35,000
Touchscreen	
Type	P-CAP
Light Transmission	≥ 85%
Note	

Rugged Mobile and Panel PC Solutions

Marine Panel PC



Model	AMPC-2245
System	
Processor	13th Generation Intel® Core™ i7/i5 Processor
System Memory	DDR5 SODIMM x2, up to max 64GB
LCD/CRT controller	—
Ethernet	Intel® Ethernet Connection I219, 10/100/1000 Base Intel® Ethernet Controller I226, 10/100/1000/2500 Base
I/O Port	Front Panel Touch (Menu / Brightness / Info / ECDIS) DB9 RS-232/422/485 x 2 Type A USB 3.2 Gen 2 x 3 Type C USB 3.2 Gen 2 x1 HDMI 2.1 x 1 RJ-45 LAN x 2 NMEA 0183 x 8 (Terminal Block) AC Power Input x 1 DC Power Input x 1
Storage Disk Drive	2.5" SATA SSD x1
Expansion Slot	M.2 2280 M-Key x 1 (PCIe 4.0 [x4] x 1) M.2 3052/3042/2242 B-Key x 1 (PCIe 3.0 [x2]/SATA + USB 3.2) Default: SATA (Selected by BOM) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0)
OS support	Windows 11
Mechanical	
Construction	Metal Chassis
Mounting	Panel Mount
Dimension	23.25" x 15.60" x 3.06" (590.6mm x 396.14mm x 77.7mm)
Carton Dimension	TBD
Gross Weight	TBD
Environmental	
Operating Temperature	5°F ~ 131°F (-15°C ~ 55°C) with 0.7 m/s airflow
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)
Storage Humidity	90% @40°C; non-condensing
Vibration	1Grms / 5~ 500Hz / operation
Shock	15 G peak acceleration (11 msec. duration)
EMC	CE/FCC Class A
Power Supply	
DC Input	DC 9 ~ 30V
LCD	
Display Type	23.8" Full HD (1920 x 1080) Color TFT LCD Display
Max Resolution	1920 (H) x 1080 (V)
Max. Colors	16.7M
Luminance	450 nits
Viewing Angle	178°(H), 178°(V)
Back Light	LED
Back Light MTBF (Hours)	50,000
Touchscreen	
Type	Projected Capacitive Multi-Touch, Max 10 point
Light Transmission	80% ± 5%
Note	

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