



2023 | SELECTION GUIDE 1ST ED.

Edge Ready Platforms

Your Smart Computing Partner

www.aaeon.com

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About Us

A Leader and Partner in Embedded Computing Platforms

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



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

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

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

AAEON Core Values

Reliability:

Delivering dependable products in a timely manner

Integrity:

Valuing business integrity and ethics

Innovation:

Turning cutting-edge concepts into reality

Operation Strength

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

ASUS Technology and Financing

AAEON Design Flexibility and Domain Know-how



OEM/ODM Capability

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

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AAEON AI Website

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.

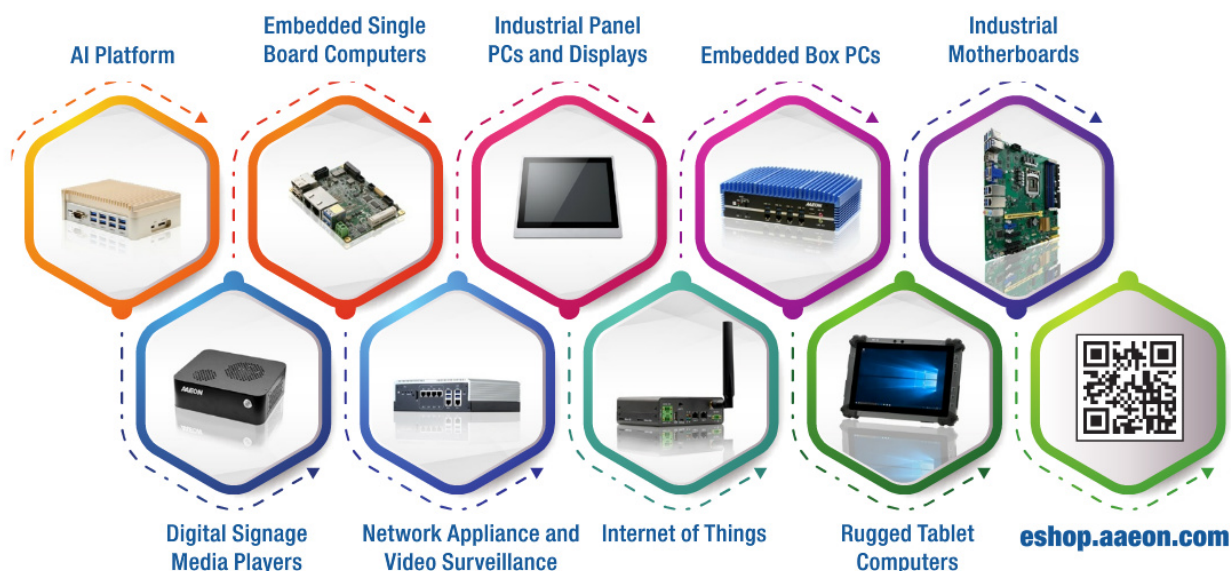
Market analysts have consistently pointed to expanded growth and deployment of Industry 4.0 technologies, especially AI edge computing, in various vertical markets. AAEON.ai collects all of AAEON's rugged, compact, industrial grade AI edge solutions in one convenient location. From boards and systems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

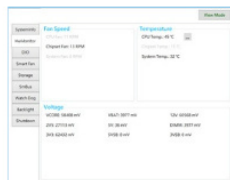
OS Family	Windows® Embedded Standard	Windows® Embedded POS Ready	Windows® Embedded Enterprise
Features	Full Customization	Simple Installation	Full Function
Windows® Product Sku	Windows® Embedded Standard 2009 Windows® Embedded Standard 7 Windows® Embedded Standard 8	WEPOS 1.1 POSReady 7 POSReady 2009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



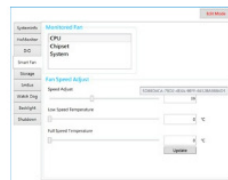
Hardware Monitor:

Retrieves fan, temperature and voltage data

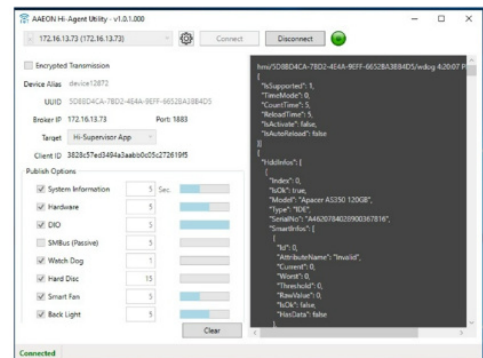
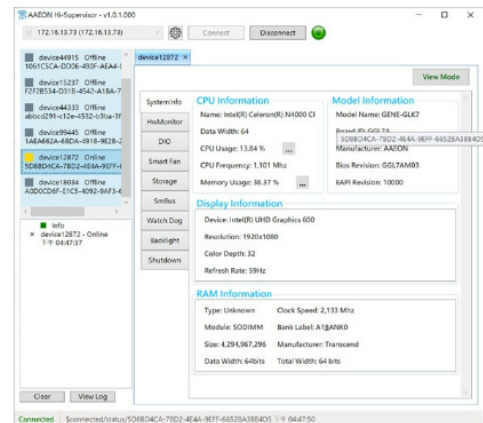


Hard Disc:

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



Remote Control Fan



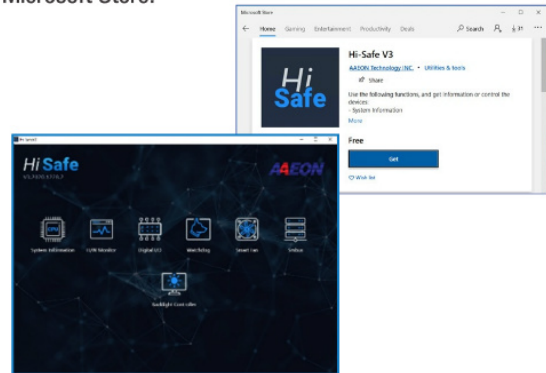
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AAEON Hi-Safe

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

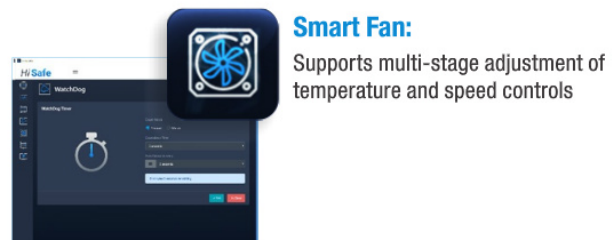
Hi-Safe V3 Advantages

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



System Information:

Receives CPU, display and RAM information



Smart Fan:

Supports multi-stage adjustment of temperature and speed controls



Hardware Monitor:

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



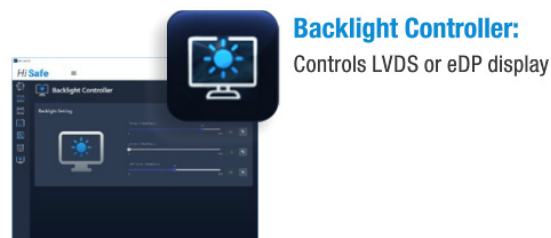
SM Bus:

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



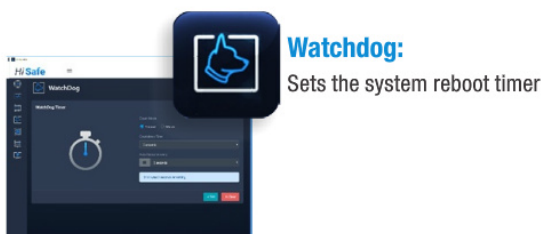
DIO:

Obtains DIO information: sets the pin direction and pin data



Backlight Controller:

Controls LVDS or eDP display



Watchdog:

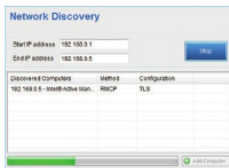
Sets the system reboot timer

AAEON Hi-Manager

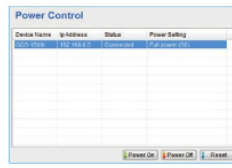
Hi-Manager is a tool based on the Intel® Active Management Technology 12.0 (iAMT 12.0) and has backward compatibility with earlier versions of iAMT. This allows users to locate all iAMT devices within the intranet, power On/Off target devices remotely, set power On/Off scheduling, arrange device groupings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

Hi-Manager Advantages

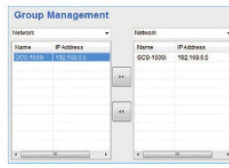
- ▶ Easy-to-use and build custom applications
- ▶ Supports AAEON products with iAMT
- ▶ In-depth technical support



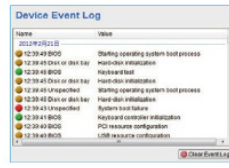
Network Discovery:
AMT device discovery



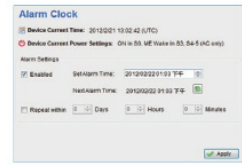
Power Control:
Powers On/Off the target device



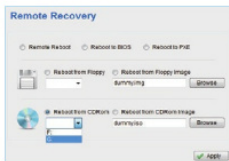
Group Management:
Arrange devices in this function



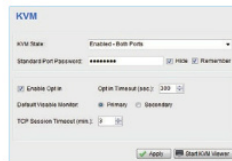
Event Log:
Logs boot records of the selected device



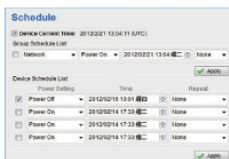
Alarm Clock:
Sets timer to wake up a sleeping device



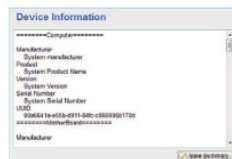
Remote Recovery:
Mounts boot image or physical CD-ROM to target device



KVM:
Controls remotely from the target device



Schedule:
Schedules the power On/Off target devices



Device Information:
Shows target device assets

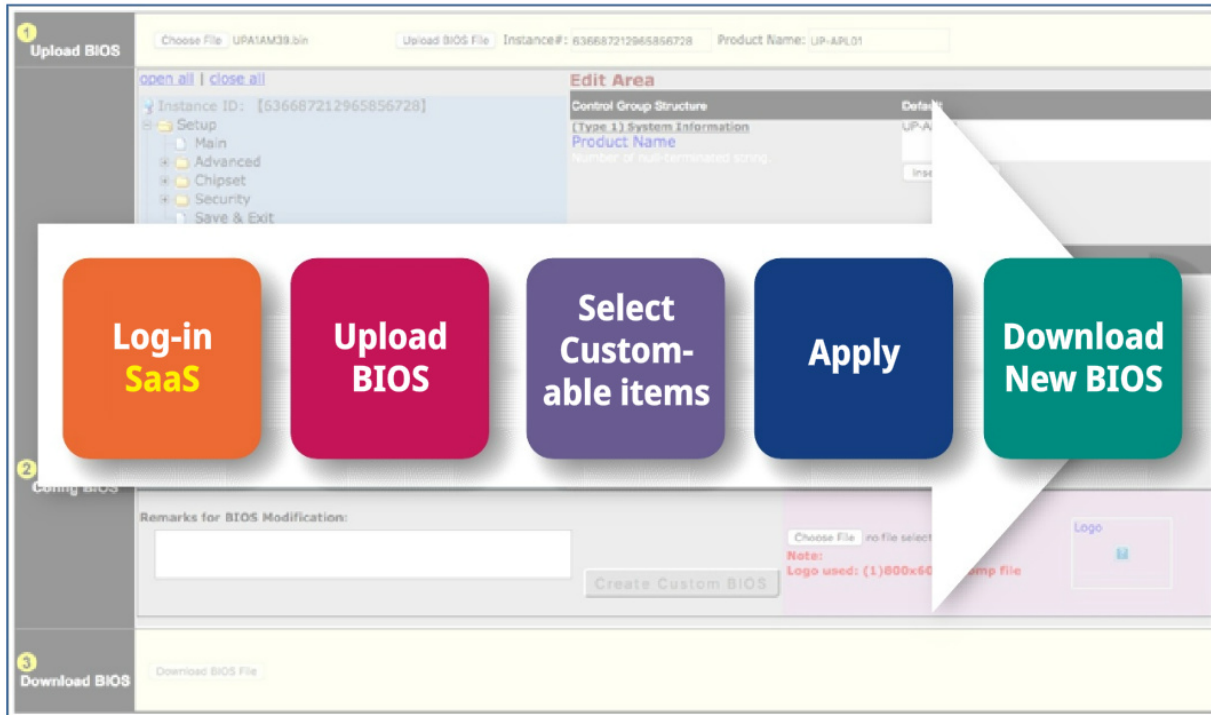
Intel® Active Management Technology Features

Intel® Chipset	M67/ Q77/ QM77/ HM76/ B75A/ Q87/ QM87/QM170/Q170/Q370/ Q470/C246
Intel® AMT Version	7.0/8.0/9.0/10.0/11.0/12.0/14.0
HW Inventory	✓
SW Inventory	✓
Power State Management	✓
System Defense	✓
Remote Configuration	✓
Remote Boot Option	✓
KVM Redirection	✓
KVM Remote Control	✓
ME Wake on LAN	✓
Proactive Security Block, HW-Based and Remote Management Recovery	✓
Host-Based Provisioning	✓
Enhanced System Defense Filters	✓

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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:**

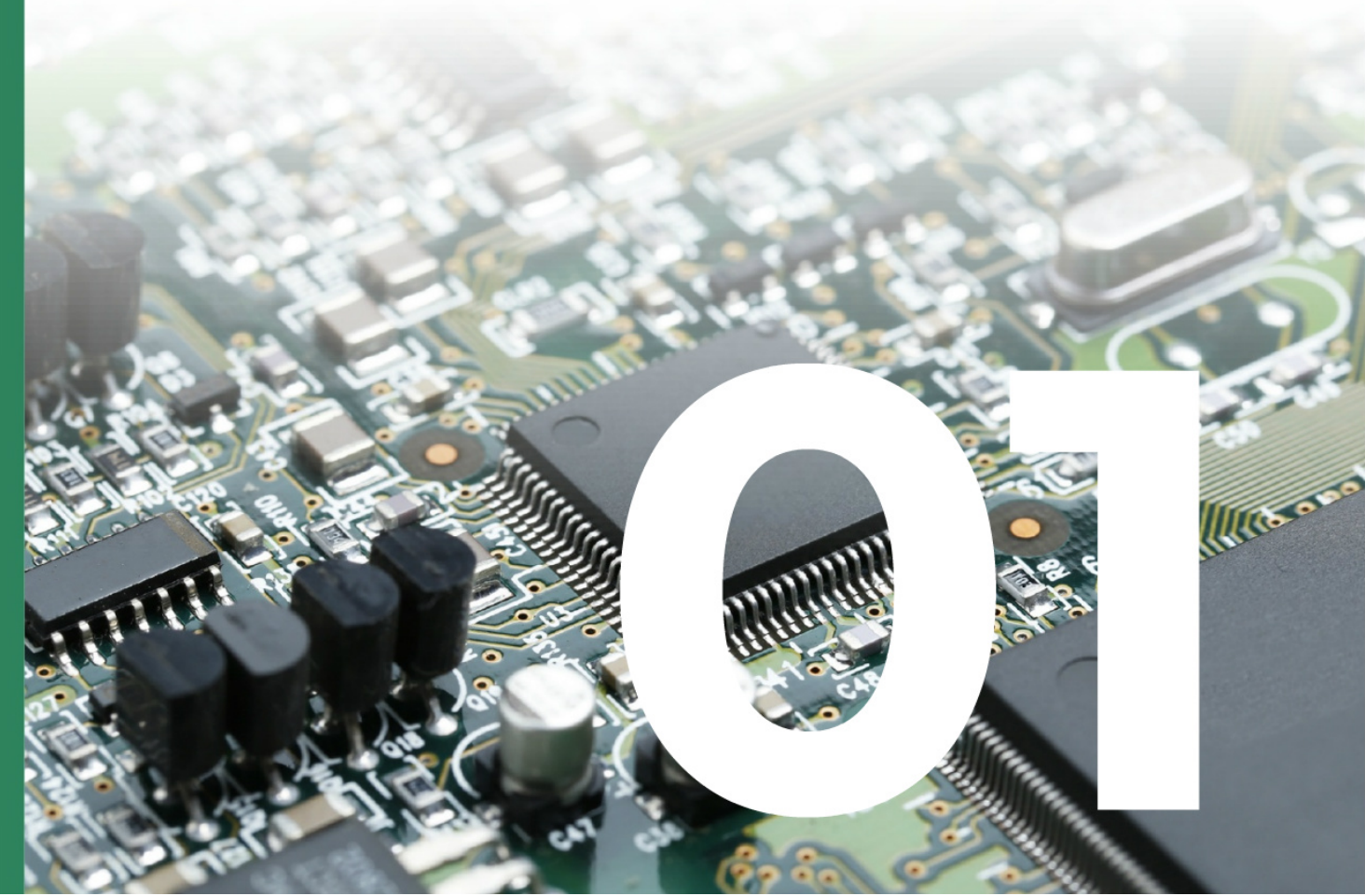
<https://aaeoncm.github.io/>

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► Board Level Products



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Board Level Products

AI Edge Computing Solutions

AI Edge Computing Solutions



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	

Note: All specifications are subject to change without notice.

Board Level Products

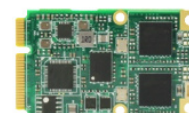
AI Edge Computing Solutions

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AI Edge Computing Solutions



Model	M2AI-2242-520	M2AI-2280-520	Mini-AI-520
System			
IC	Kneron KL520		
Type	Integrated SoC		
Support Framework	ONNX, TensorFlow, Keras, Caffe		
Support Model	Vgg16, Resnet, GoogleNet, YOLO, Tiny YOLO, Lenet, MobileNet, DenseNet		
Memory Type	LPDDR2		
NPU Performance	0.35 TOPS		
Overall Power Consumption	0.5 W		
Others			
Operating Temperature	32°F ~ 158°F (0°C ~ 70°C)		
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
Certification	CE/FCC Class A		

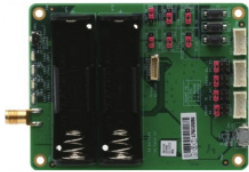


Model	M2AI-2242-720	M2AI-2280-720	Mini-AI-720
System			
IC	Kneron KL720	Dual Kneron KL720	Kneron KL720
Type	ARM CM & DSP		
Support Framework	Pytorch, ONNX, TensorFlow 1.6, Tensorflow lite, Keras, Caffe		
Support Model	Resnet, GoogleNet, YOLO, Tiny YOLO, MobileNet-SSD, DenseNet, RNN, LSTM		
Memory Type	128MB LPDDR3		LPDDR3
NPU Performance	1.4 TOP/s	1.4 TOP/s x2	1.4 TOPS
Overall Power Consumption	2.3W	5W	5W TDP
Others			
Operating Temperature	32°F~122°F(0°C ~ 50°C with cooler 5m/s)		
Storage Temperature	32°F~158°F(0°C ~ 70°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
Certification	CE/FCC Class A		

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Board Level Products
Gateway Board & Expansion Board

Gateway Board & Expansion Board



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

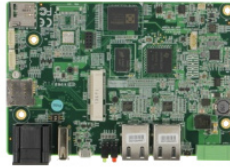
Model	AIOT-MSSP01
External Connector	
USB	USB 2.0 type A connector x 5 (via USB HUB) USB 2.0 type B connector x 1 (USB HUB Host)
Internal Connector	
MDB	MDB x 1
1-Wire	1-WIRE x 1
DEX	DEX x 1
Protocol A	Protocol A (EXE) x 1
Keypad	8 Bit Keypad x 1 (subject to support 4 x 4 keypad)
LCD	LCD x 1
ADC	4-channel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

Board Level Products

Gateway Board & Expansion Board

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Gateway Board & Expansion Board



Model	SRT-3352	SRT-3352C
System		
Processor	ARM Cortex-A8 800 MHz RISC Processor	
Memory	Onboard DDR3L 1GB	
Storage	eMMC 16G	
Real Time Clock	RTC, with 3V CR2032 Lithium battery x 1	
Security	—	
Indicators	Programmable LED control x 4	
Cellular	Mini PCIe Connector x 1	
Wireless Lan	—	Onboard WiFi 802.11 b/g/n, Bluetooth4.2 / BLE
Operating System	Debian 9	Debian 10
Support Protocol	—	
I/O Interfaces		
Serial Port	RS-485, Phoenix Connector x 2	RS-485 x 2, wafer box
Ethernet	Gigabit Ethernet, RJ-45 x 2	
USB	USB 2.0, Type A x 1	USB 2.0, Type A x 2
ADC	—	
DI/DO	—	
CAN Bus	—	
Display	—	
Power Connector	3 Pin Phoenix Connector	Lockable DC Jack
Debug Port	Micro USB x 1	
Expansion Slot	SIM card slot x 1 Micro SD slot x 1	
Other Interface	NB-IoT connector x1	NB-IoT connector x1 Board to Board connector x 1
Power Supply		
Power Requirement	DC9-30V	
Power Consumption	2.28 W(Full Loading)	3.36 W (Full Loading)
MTBF (Hours)	855590	
Environmental and Mechanical		
Dimension	3.66" x 5.35"(93mm x 136mm)	3.94" x 3.78" (100 x 96mm)
Weight	1.94lb (88 g)	1.54lb (70 g)
Mount Options	—	
Operation Temperature	32 °F ~ 140 °F (0 °C ~ 60 °C)	
Storage Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C)	
Operation Humidity	10% ~ 95% relative humidity, non-condensing	
Note		

Note: All specifications are subject to change without notice.

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Board Level Products

Gateway Board & Expansion Board

Gateway Board & Expansion Board



Model	SRT-IMX8P	SRT-TG01
System		
Processor	ARM NXP i.MX8M Plus Quad-Core Cortex-A53 1.6GHz Processor(NPU Optional)	11th Generation Core Intel® i7-1185G7E SoC 11th Generation Core Intel® i5-1145G7E SoC 11th Generation Core Intel® i3-1115G4E SoC 11th Generation Core Intel® Celeron 6305E SoC TDP 12W Only
Memory	Onboard DDR4L 2GB (Optional 4GB)	DDR4 3200MHz, SO-DIMM x 2, Up to 64GB
Storage	eMMC 16GB (Optional 32GB)	M.2 2280 M Key slot x 1 (PCIex4) 2.5" SATA SSD/HDD bay x 1
Real Time Clock	RTC x 1, with 3V CR2032 Lithium battery	
Security	TPM 2.0	
Indicators	Programmable LED control x 7	—
Cellular	Mini PCIe Connector x 1 (USB signal)	M.2 3052 B Key slot x 1 (4G/5G)
Wireless Lan	Mini PCIe Connector x 1 (USB signal)	M.2 2230 E Key slot x 1 (Wifi 802.11 ac/b/g/n, BT 5.0)
Operating System	Debian 10	Windows 10 IoT Enterprise / Linux (by request)
Support Protocol	—	
I/O Interfaces		
Serial Port	RS-232/422/485 switchable x 2, Phoenix Connector	RS-232/422/485 x 4, Wafer Box
Ethernet	Gigabit Ethernet x 2, RJ-45	Intel® i211-LM, 10/100/1000Base x 1, RJ45 Intel® i219-LM, 10/100/1000Base x 1, RJ45 Intel® i225-LM, 10/100/1000Base x 1, RJ45 (Support Vpro)
USB	USB 3.0 Type-A x 2	USB3.2 Gen 2 x 1, Type A USB3.2 Gen 1 x 3, Type A
ADC	—	
DI/DO	—	8 bit, Phoenix Connector
CAN Bus	CAN-FD x 2 CH, Phoenix Connector	CAN 2.0 B x 2 CH, Phoenix Connector
Display	HDMI x1 (Output)	HDMI 2.0b x 1
Power Connector	2 Pin 3.81mm Pitch Phoenix 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	Micro SIM slot x 1
Other Interface	—	SATA 3.0 x 1 SATA Power connector x 1 (5V) 100 pin board to board connector x 2 PCIe, USB3.0, USB2.0, UART, GPIO, I2C, DDI, SPI
Power Supply		
Power Requirement	DC 9-36V	DC 9 ~ 36V (Optional DC12V), AT Type
Power Consumption	9.36W (Full Loading)	67 W (Full Loading)
MTBF (Hours)	479,374	306,575
Environmental and Mechanical		
Dimension	3.66" x 5.43" (93 x 138mm)	6.69" x 5.74" (170 x 146 mm)
Weight	0.7lb (350 g)	1.4lb (650g)
Mount Options	—	
Operation Temperature	-4 °F ~ 158 °F (-20 °C ~ 70 °C)	32 °F ~ 122 °F (0 °C ~ 50 °C)
Storage Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C)	
Operation Humidity	10% ~ 95% relative humidity, non-condensing	
Note		

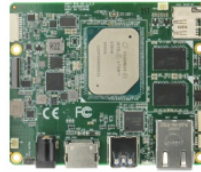
Note: All specifications are subject to change without notice.

Board Level Products

Gateway Board & Expansion Board

01

Gateway Board & Expansion Board



Model	SRT-APLC
System	
Processor	Intel Atom X5-E3940 Processor SoC / Intel HD 500 Graphics
Memory	Onboard LPDDR4 1866MHz 4GB / 8GB (Optional)
Storage	eMMC 5.1 32GB / 64GB (Optional)
Real Time Clock	RTC x 1, with 3V CR2032 Lithium battery
Security	—
Indicators	—
Cellular	—
Wireless Lan	—
Operating System	Windows 10 IoT Enterprise / Linux (by request)
Support Protocol	—
I/O Interfaces	
Serial Port	—
Ethernet	Gigabit Ethernet x 1, RJ-45
USB	USB 3.0 x 1, Type A
ADC	—
DI/DO	—
CAN Bus	—
Display	HDMI 1.4 x 1 (Output)
Power Connector	DC Jack
Debug Port	—
Expansion Slot	Micro SD slot x 1 100 pin board to board connector x 2 PCIe, USB3.0, USB2.0, UART, GPIO, I2C, DDI, SPI
Other Interface	Power switch button x 1 Reset switch button x 1
Power Supply	
Power Requirement	12V DC-In @ 3A-5A 5.5/2.5 mm
Power Consumption	20 W (Full Loading)
MTBF (Hours)	826,592
Environmental and Mechanical	
Dimension	3.54" x 2.9" x 0.85" (90 x 74 x 21.5 mm)
Weight	0.44lb (200 g)
Mount Options	—
Operation Temperature	32 °F ~ 140 °F (0 °C ~ 60 °C)
Storage Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C)
Operation Humidity	10% ~ 95% relative humidity, non-condensing
Note	

Note: All specifications are subject to change without notice.

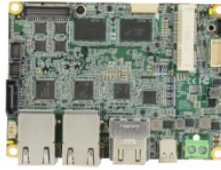
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Board Level Products
Pico-ITX Boards

Pico-ITX Boards



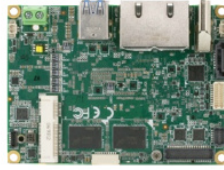
Model	PICO-V2K4	PICO-V2K4-SEMI
SYSTEM		
FORM FACTOR	PICO-ITX	PICO-SEMI
CPU	AMD RYZEN™ V2000 embedded Processor Family V2718 (8C/16T, 1.7~4.15 GHz,TDP 10-25W) V2516 (6C/12T, 2.1~3.95 GHz,TDP 10-25W)	
CHIPSET	AMD RYZEN™ V2000 embedded Processor Family	
MEMORY TYPE	LPDDR4x 3733 MHz onboard memory	
BIOS	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)	4.80" x 3.18" x 2.13" (122mm x 80.8mm x 54 mm)
Gross Weight	0.18 lbs (0.08 kg)	0.84 lbs (0.38 kg)
OS Support	Windows 10 (64 bit), Linux Ubuntu 20.04.3/Kernel 5.11	
POWER		
POWER REQUIREMENT	+12V	
POWER SUPPLY TYPE	AT/ATX	ATX
CONNECTOR	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (colay)	DC Jack Connector
POWER CONSUMPTION	V2718, LPDDR4x onboard 32GB, 4.24A @ +12V(TYPICAL) V2718, LPDDR4x onboard 32GB, 4.82A @ +12V(MAX)	
DISPLAY		
CONTROLLER	AMD Radeon 6, 7 Graphics (Renoir)	
LVDS/eDP	eDP or LVDS x 1 (eDP 1.4: 3840x2160, 60Hz; LVDS: 12V/3.3V, 18-24 bit, single channel)	—
Display Interface	Type C to DP x 1 HDMI 2.0b x 1, 4K x 2K 60Hz HDMI 1.4 x 1, 4K x 2K 30Hz (3840 x 2160)	
Multiple Display	Up to 4 Simultaneous Displays	Up to 3 Simultaneous Displays
AUDIO		
CODEC	Realtek ALC269 (Optional)	
AUDIO INTERFACE	High Definition Audio Interface, Line-in/Line-out/MIC (Optional)	Line-out (Optional)
Speaker	—	—
EXTERNAL I/O		
ETHERNET	Intel® I226, 10/100/2500Base x 1 Intel® I210, 10/100/1000Base x 1	
USB	USB3.2 Gen2 Type C x 1 USB3.2 Gen2 x 2	USB3.2 Gen2 Type C x 1 USB3.2 Gen2 x 2 USB2.0 x 2 (Optional)
SERIAL PORT	—	COM1, COM2 (RS232/422/485, supports 5V/12V/Rt)(Optional)
VIDEO	Type C to DP x 1 HDMI 2.0b x 1, 4K x 2K 60Hz HDMI 1.4 x 1, 4K x 2K 30Hz (3840 x 2160)	
INTERNAL I/O		
USB	USB2.0 x 4	—
SERIAL PORT	COM1~COM4 (RS232/422/485, supports 5V/12V/Rt)	—
VIDEO	eDP or LVDS x 1 (eDP 1.4: 3840x2160, 60Hz; LVDS: 12V/3.3V, 18-24 bit, single channel)	—
SATA	SATA III x 1 +5V SATA Power Connector x 1 Onboard NVME SSD (Optional, up to 64GB, PCIe x 2, by BOM)	Onboard NVME SSD 64GB
AUDIO	Audio Header x 1 (Optional)	
DIO/GPIO	8-bit	8-bit (Optional)
SMBus/I2C	SMBUS/I2C x 1 (SMBUS as default, I2C selected by HW BOM)	
Touch	—	
FAN	4pins Smart Fan x1	
SIM	—	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
EXPANSION		
Mini PCI-E/mSATA	mini-PCIe(Full) x 1 (PCIe [x1] x 1/ USB2.0 as default, mSATA selected by HW BOM)	
M.2	M.2 2280 M-key (PCIe Gen3 x 4 as default, SATA selected by BIOS) x 1	M.2 2280 M-key x 1 (PCIe Gen3 x 4 as default, SATA selected by BIOS)
Others	—	
ENVIRONMENT & CERTIFICATION		
OPERATING TEMP	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C) with 0.2 m/s airflow
STORAGE TEMP	-40°F ~ 185°F (-40°C ~ 85°C)	
OPERATING HUMIDITY	0% ~ 90% relative humidity, non-condensing	
MTBF (HOURS)	407,784	
EMC	CE/FCC Class A	

Board Level Products

Pico-ITX Boards

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Pico-ITX Boards



Model	PICO-TGU4	PICO-TGU4-SEMI
SYSTEM		
FORM FACTOR	PICO-ITX	PICO-SEMI
CPU	Intel® Core™/ Celeron® Processor: i7-1185G7E (4C/8T, 1.8GHz, up to 4.4GHz, TDP up to 28W) i5-1145G7E (4C/8T, 1.5GHz, up to 4.1GHz, TDP up to 28W) i3-1115G4E (2C/4T, 2.2GHz, up to 3.9GHz, TDP up to 28W) Celeron® 6305E (2C/2T, 1.8GHz, TDP 15W)	
CHIPSET	11th Generation Intel® Core™ i7/i5/i3/Celeron SoC	
MEMORY TYPE	Onboard LPDDR4x 3200MHz, up to 32GB, In-Band ECC (select SKUs)	
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)	4.80" x 3.18" x 1.98" (122mm x 80.8mm x 50.4 mm)
Gross Weight	0.18 lbs. (0.08 kg)	0.84 lbs. (0.38 kg)
OS Support	Windows 10 (64bit) Linux Ubuntu 20.04.2/Kernel 5.8	
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® i7-1185G7E, LPDDR4x onboard 32GB, 2.89A@ +12V (TYPICAL)	
DISPLAY		
CONTROLLER	Intel® Iris® Xe (i5/i7 support) Intel® UHD Graphics (i3/Celeron support)	
LVDS/eDP	eDP x 1 (up to HBR3, 8K x 4K 30Hz)	—
Display Interface	HDMI2.0b x 1 (4K x 2K 60Hz)	
Multiple Display	Up to 2 Simultaneous Displays	
AUDIO		
CODEC	Realtek ALC269 (Optional)	
AUDIO INTERFACE	Line-in/Line-out/MIC (Optional)	Line-out (Optional)
Speaker	—	
EXTERNAL I/O		
ETHERNET	Intel® i225, 10/100/1000/2500Base, RJ45 x 1 Intel® i219, 10/100/1000Base, RJ45 x 1	
USB	USB3.2 Gen 2 x 2	
SERIAL PORT	—	
VIDEO	HDMI2.0b x 1 (4K x 2K 60Hz)	
INTERNAL I/O		
USB	USB3.2 Gen 1 x 2 USB2.0 x 4	—
SERIAL PORT	COM1, COM2 (RS232/422/485, supports 5V/12V/Ri)	COM1, COM2 (RS232/422/485, supports 5V/12V/Ri)(Optional)
VIDEO	eDP x 1 (up to HBR3, 8Kx4K 30Hz)	—
SATA	SATA III x 1 +5V SATA Power Connector x 1	
AUDIO	Audio Header x 1 (Optional)	
DIO/GPIO	8-bit	—
SMBus/I2C	I2C/SMBus x1 (SMBus as default, I2C select by BOM)	
Touch	—	
FAN	4pins Smart Fan x1	
SIM	—	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
EXPANSION		
Mini PCI-E/mSATA	Full-size mSATA/mPCIe or USB2.0 x 1 (PCIe as default, select by BIOS option)	
M.2	M.2 M Key 2280 x 1 (PCIe Gen 4 [x4] as default, SATA select by HW BOM)	
Others	SMBUS/I2C/eSPI 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 ~ 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)	424,208	
EMC	CE/FCC Class A	
Note		

Note: All specifications are subject to change without notice.

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Board Level Products
Pico-ITX Boards

Pico-ITX Boards



Model	PICO-WHU4	PICO-WHU4-SEMI
SYSTEM		
FORM FACTOR	PICO-ITX	PICO-SEMI
CPU	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)	
CHIPSET	Intel® 8th Generation Core™ i7/i5/i3/Celeron SoC	
MEMORY TYPE	DDR4 up to 2400MHz SODIMM x 1, up to 32GB, Non-ECC	
BIOS	UEFI	
WAKE ON LAN	Yes	
WATCHDOG TIMER	255 Levels	
SECURITY	TPM2.0 (Optional by accessory card)	TPM2.0 (Optional)
RTC Battery	Lithium Battery 3V/240mAh	
DIMENSION	3.94" x 2.84" (100mm x 72mm)	5.90" x 3.94" x 2.36" (150mm x 100mm x 60mm)
Gross Weight	0.18 lbs. (0.08 kg)	1.41 lbs. (0.64 kg)
OS Support	Windows 10 (64 bit) Ubuntu 18.04.3/Kernel 5.0	
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® i7-8665UE @ DDR4 16GB, 2.23A@ +12V(TYPICAL)	
DISPLAY		
CONTROLLER	Intel® UHD Graphics 610/620	
LVDS/eDP	—	
Display Interface	HDMI 1.4b x 2 (up to 3840 x 2160)	
Multiple Display	Up to 2 Simultaneous Displays	
AUDIO		
CODEC	—	
AUDIO INTERFACE	—	
Speaker	—	
EXTERNAL I/O		
ETHERNET	Realtek 8111 Gigabit Ethernet 10/100/1000Base, RJ-45 x 2	
USB	USB 3.2 Gen 2 x 2	USB 3.2 Gen 2 x 2 USB 2.0 x 2
SERIAL PORT	—	
VIDEO	HDMI 1.4b x 2 (up to 3840 x 2160)	
INTERNAL I/O		
USB	USB2.0 x 2	—
SERIAL PORT	COM1, COM2 (RS232/422/485, supports 5V/12V/RI)	COM1, COM2 (RS232/422/485, supports 5V/12V/RI)(Optional)
VIDEO	—	
SATA	SATA III x 1 +5V SATA Power Connector x 1	
AUDIO	—	
DIO/GPIO	4-bit	
SMBus/I2C	I2C/SMBus x1 (SMBUS as default)	
Touch	—	
FAN	4pins Smart Fan x1	
SIM	—	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
EXPANSION		
Mini PCI-E/mSATA	Full size mSATA/mPCIe or USB2.0 x 1 (PCIe as default, mSATA selected by BIOS)	
M.2	M.2 E-Key 2230 x 1 (for WiFi/BT, PCIe/USB signal only)	
Others	SMBUS/I2C/LPC/eSPI x 1	
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 airflow 0.5m/s for SSD SKU
STORAGE TEMP	-40°F ~ 185°F (-40°C ~ 85°C)	
OPERATING HUMIDITY	0% ~ 90% relative humidity, non-condensing	
MTBF (HOURS)	298,762	
EMC	CE/FCC Class A	
Note		

Note: All specifications are subject to change without notice.

Board Level Products

Pico-ITX Boards

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Pico-ITX Boards



Model	PICO-KBU4	PICO-KBU4-SEMI
SYSTEM		
FORM FACTOR	PICO-ITX	PICO-SEMI
CPU	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 2133MHz, SODIMM x 1, up to 16GB,Non-ECC	
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)	4.80" x 3.18" x 1.98" (122 mm x 80.8 mm x 50.4 mm)
Gross Weight	0.18 lbs (0.08 kg)	0.88 lb (0.4 kg)
OS Support	Windows 10 (64 bit)	
POWER		
POWER REQUIREMENT	+12V	12V only
POWER SUPPLY TYPE	AT/ATX	ATX
CONNECTOR	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (colay)	Lockable DC Jack Connector
POWER CONSUMPTION	Intel® i7-7600, DDR4 16GB, 2.3A@ +12V(TYPICAL)	
DISPLAY		
CONTROLLER	Intel® HD Graphics 510/620	
LVDS/eDP	LVDS (18/24-bit 2CH) 1920 x 1200	—
Display Interface	HDMI 1.4b x 1 (up to 4096 x 2304) DDI (BIO, Optional)	HDMI 1.4b x 1 (up to 4096 x 2304)
Multiple Display	Up to 3 Simultaneous Displays	1 Simultaneous Display
AUDIO		
CODEC	Realtek ALC269	Realtek ALC269 (Optional)
AUDIO INTERFACE	Line-out	Line-out (Optional)
Speaker	—	
EXTERNAL I/O		
ETHERNET	Realtek 8111 Gigabit Ethernet 10/100/1000Base, RJ-45 x 2	Realtek 8111 Gigabit Ethernet 10/100/1000Base, RJ-45 x 2
USB	USB 3.2 Gen 1 x 2	USB 3.2 Gen 1 x 2
SERIAL PORT	—	COM1: RS-232 x 1 (Optional) COM2: RS-232/422/485 x 1 (Ring/ +5V/ +12V) (Optional)
VIDEO	HDMI 1.4b x 1 (up to 4096 x 2304)	
INTERNAL I/O		
USB	USB 2.0 x 2	—
SERIAL PORT	COM1: RS-232 x 1 COM2: RS-232/422/485 x 1 (Ring/ +5V/ +12V)	—
VIDEO	LVDS (18/24-bit 2CH) 1920 x 1200	—
SATA	SATA III x 1 +5V SATA Power Connector x 1	
AUDIO	Audio Header x 1	Audio Header x 1 (Optional)
DIO/GPIO	4-bit	4-bit (Optional)
SMBus/I2C	I2C/SMBus x1 (SMBUS as default)	I2C/SMBus x1 (SMBUS as default) (Optional)
Touch	—	
FAN	4pins Smart Fan x1	
SIM	—	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
EXPANSION		
Mini PCI-E/mSATA	—	
M.2	M.2 B-Key 2242 x 1 (PCIe[x1]/SATA select by BIOS) M.2 E-Key 2230 x 1 (PCIe/USB)	
Others	BIO (Optional)	—
ENVIRONMENT & CERTIFICATION		
OPERATING TEMP	32°F ~ 140°F (0°C ~ 60°C)	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)	163,000	
EMC	CE/FCC Class A	
Note		

Note: All specifications are subject to change without notice.

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Board Level Products
Pico-ITX Boards

Pico-ITX Boards



Launching in Q1

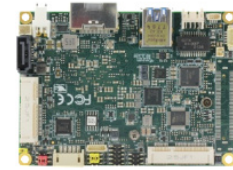
Model	PICO-EHL4	PICO-EHL4-SEMI
SYSTEM		
FORM FACTOR	PICO-ITX	PICO-SEMI
CPU	Intel® Atom™ x6000E series, Intel® Pentium and Celeron® N and J series processors, Intel® Atom™ x6425RE (4C, 1.9GHz, TDP 12W), Intel® Atom™ x6414RE (4C, 1.5GHz, TDP 9W), Intel® Atom™ x6212RE (2C, 1.2GHz, TDP 6W), Intel® Atom™ x6425E (4C, 2.0GHz, up to 3GHz, TDP 12W), Intel® Atom™ x6413E (4C, 1.5GHz, up to 3GHz, TDP 9W), Intel® Atom™ x6211E (2C, 1.2GHz, up to 3GHz, TDP 6W), Intel® Pentium® J6426 (4C, 1.8GHz, up to 3GHz, TDP 10W), Intel® Pentium® N6415 (4C, 1.2GHz, up to 3GHz, TDP-up 6.5W), Intel® Celeron® J6412 (4C, 1.8GHz, up to 3GHz, TDP 10W), Intel® Celeron® J6210 (2C, 1.2GHz, up to 3GHz, TDP 6.5W), (Intel® Atom™ x6427FE/x6200FE by request)	Intel® Atom™ x6000E series, Intel® Pentium®, and Celeron® N and J series processors: Intel® Atom™ x6425RE (4C, 1.9GHz, TDP-up 12W) Intel® Atom™ x6425E (4C, 2.0GHz, up to 3GHz, TDP-up 12W) Intel® Atom™ x6211E (2C, 1.2GHz, up to 3GHz, TDP-up 6W) Intel® Pentium® J6426 (4C, 2.0GHz, up to 3GHz, TDP-up 10W) Intel® Celeron® J6412 (4C, 2.0GHz, up to 3GHz, TDP-up 10W) Intel® Celeron® N6210 (2C, 1.2GHz, up to 3GHz, TDP-up 6.5W) (Intel® Atom™ x6414RE/x6413E/x6427FE/x6200FE/N6415 by customer's request)
CHIPSET	Intel® Elkhart Lake SoC Processor	
MEMORY TYPE	LPDDR4x up to 3200MHz, up to 16GB	
BIOS	UEFI	
WAKE ON LAN	Yes	
WATCHDOG TIMER	255Levels	
SECURITY	Intel® PTT (Integrated TPM)	—
RTC Battery	Lithium Battery 3V/240mAh	
DIMENSION	3.94" x 2.84" (100mm x 72mm)	TBD
Gross Weight	0.18 lbs. (0.08 kg)	TBD
OS Support	Windows 10 (64 bit), Ubuntu 20.04.3(OT)/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® Atom™ x6425E, LPDDR4x onboard 16GB, 2.48A@ +12V(TYPICAL) Intel® Atom™ x6425E, LPDDR4x onboard 16GB, 2.62A@ +12V(MAX)
DISPLAY		
CONTROLLER	Intel® Atom™ x6000E series, Intel® Pentium and Celeron® N and J series processors	Intel® UHD Graphics for 10th Gen Intel® Processors
LVDS/eDP	eDP (up to HBR3, 8K x 4K 30Hz)/LVDS (18/24bit 2CH) default: LVDS	—
Display Interface	HDMI 2.0b x 1 (4K x 2K 60Hz)	HDMI 2.0b x 2 (4K x 2K 60Hz)
Multiple Display	Up to 3 Simultaneous Displays	Up to 2 Simultaneous Displays
AUDIO		
CODEC		—
AUDIO INTERFACE		—
Speaker		—
EXTERNAL I/O		
ETHERNET	Realtek RTL8111H-CG, 10/100/1000Base-TX, RJ-45 x 2	Realtek 8111 Gigabit Ethernet 10/100/1000Base, RJ-45 x 2
USB		USB 3.2 Gen 2 x 2
SERIAL PORT	RS-232/422/485 x 2	COM1, COM2 (RS232/422/485, supports 5V/12V/RD)(Optional)
VIDEO		HDMI 2.0b x 2 (4K x 2K 60Hz)
INTERNAL I/O		
USB	USB2.0 x 2	—
SERIAL PORT	RS-232/422/485 x 2	—
VIDEO		—
SATA	SATA III x 1, +5V SATA Power Connector x 1	eMMC 5.1, up to 128GB (Optional)
AUDIO		—
DIO/GPIO	4-bit	4-bit (Optional)
SMBus/I2C	SMBus/I2C and eSPI x 1 (SMBus as default, I2C select by HW BOM)	SMBus x 1 (Optional)
Touch		—
FAN		4 pins Smart Fan x 1
SIM		—
Front Panel		HDD LED, PWR LED, Power Button, Buzzer, Reset
Others		—
EXPANSION		
Mini PCI-E/mSATA	Full size mPCIe/mSATA x 1 (SATA as default, PCIe selected by BIOS)	
M.2	M.2 E key 2230 x 1 (PCIe x 1/USB2.0)	
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)	32°F ~ 122°F (0°C ~ 50°C)
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)	489,989	
EMC	CE/FCC Class A	
Note		

Board Level Products

Pico-ITX Boards

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Pico-ITX Boards



Model	PICO-APL1	PICO-APL1-SEMI	PICO-APL2
SYSTEM			
FORM FACTOR	PICO-ITX	PICO-SEMI	Pico-ITX
CPU	Pentium N4200 (4C/4T,1.10GHz,up to 2.50GHz, TDP 6W) Celeron N3350 (2C/2T,1.10GHz,up to 2.40GHz, TDP 6W) Atom E3950 (4C/4T,1.60GHz,up to 2.00GHz, TDP 12W) Atom E3940 (4C/4T,1.60GHz,up to 1.80GHz, TDP 9.5W) Atom E3930 (2C/2T,1.30GHz,up to 1.80GHz, TDP 6.5W)	Intel® Celeron® Processor: Celeron N3350 (2C/2T,1.10GHz,up to 2.40GHz, TDP 6W)	Intel Atom® x7-E3950 (4C, 1.6GHz, up to 2GHz, TDP 12W), Intel Atom® x5-E3940 (4C, 1.6GHz, up to 1.8GHz, TDP 9.5W), Intel® Pentium® N4200 (4C, 1.1GHz, up to 2.5GHz, TDP 6W), Intel® Celeron® N3350 (2C, 1.1GHz, up to 2.4GHz, TDP 6W)
CHIPSET	Integrated with Intel® SoC		Intel Atom® E3900/ Pentium® N4200/ Celeron® N3350 Processor SoC
MEMORY TYPE	DDR3L 1600MHz (max.8GB)/1866MHz (max.4GB), SODIMM x 1, Non-ECC *1866MHz is limited to the verified DDR module in AAEON's Approved Vendor List	DDR3L up to 1866MHz, SODIMM x 1,up to 8GB, Non-ECC	DDR3L SODIMM up to 1600MHz, up to 8GB
BIOS	UEFI		
WAKE ON LAN	Yes		
WATCHDOG TIMER	255 Levels		
SECURITY	TPM2.0 (Optional via LPC cable)		—
RTC Battery	Lithium Battery 3V/240mAh		Lithium Battery 3V/240mAh
DIMENSION	3.94" x 2.84" (100mm x 72mm)	4.8" x 3.15" x 1.73" (122 x 80 x 44 mm)	3.94" x 2.84" (100mm x 72mm)
Gross Weight	0.18 lbs (0.08 kg)	0.59 lb (0.27 kg)	0.18 lbs (0.08 kg)
OS Support	Windows 10 (64 bit) Linux Ubuntu 21.04.0/Kernel 5.10	Windows 10 (64 bit)	Windows 10 (64 bit) Ubuntu 20.04.4 / 5.13.0
POWER	+12V		
POWER REQUIREMENT			
POWER SUPPLY TYPE	AT/ATX	ATX	AT/ATX (Pin header)
CONNECTOR	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (colay)	Lockable DC Jack Connector	2-pin Connector (Pin header)
POWER CONSUMPTION	Intel® N3350 Processor, DDR3L 8GB, 0.91A@+12V(TYPICAL)		Intel® Pentium® N4200, DDR3L 8GB x 1, 2.16A@ +12V(TYPICAL), Intel® Pentium® N4200, DDR3L 8GB x 1, 2.28A@ +12V(MAX)
DISPLAY			
CONTROLLER	Intel® HD Graphics 500/505	Intel® HD Graphics 500	Intel® HD Graphics 500/505
LVDS/eDP	LVDS (18/24bit 2CH) 1920 x 1200 (Optional)	—	LVDS (18/24bit 2CH)
Display Interface	HDMI 1.4b x 1 (up to 3840 x 2160) DDI (BIO, Optional)	HDMI 1.4b x 1 (up to 3840 x 2160)	HDMI 1.4 x 1 (2K @30Hz) (Pin header type) DDI (BIO, Optional)
Multiple Display	Up to 3 Simultaneous Displays	1 Simultaneous Display	Up to 2 Simultaneous Displays
AUDIO			
CODEC	Realtek ALC897/892	Realtek ALC897/892 (Optional)	Realtek 888/897
AUDIO INTERFACE	Line-out	Line-out (Optional)	Line out
Speaker	—		
EXTERNAL I/O			
ETHERNET	Intel® i210/i211, 10/100/1000Base, RJ-45 x 1	Intel® i210, 10/100/1000Base, RJ-45 x 1	Intel® i210AT/i210IT, 10/100/1000Base x 1 (Pin header) *LED in separated pin header
USB	USB 3.2 Gen 1 x 2		USB 3.2 Gen 1 x 2
SERIAL PORT	—	COM1: RS-232 x 1 (Optional) COM2: RS-232/422/485 x 1 (Ring/ +5V/ +12V) (Optional)	—
VIDEO	HDMI 1.4b x 1 (up to 3840 x 2160)		HDMI 1.4 x 1 (2K @30Hz) (Pin header type)
INTERNAL I/O			
USB	USB 2.0 x 1	—	USB2.0 x 1
SERIAL PORT	COM1: RS-232 x 1, COM2: RS-232/422/485 x 1 (Ring/ +5V/ +12V)	—	COM1: RS-232 x 1 COM2: RS-232/422/485 x 1 (Ring/ +5V/ +12V)
VIDEO	LVDS (18/24bit 2CH) 1920 x 1200 (Optional)	—	—
SATA	SATA III x 1, +5V SATA Power Connector x 1		SATA III x 1 +5 SATA Power Connector x 1
AUDIO	Line-out	Line-out (Optional)	Line-out x 1
DIO/GPIO	4-bit	4-bit (Optional)	4-bit
SMBus/I2C	SMBUS/I2C x 1 (SMBUS as default)	SMBUS/I2C x 1 (SMBUS as default) (Optional)	SMBus/I2C x 1 (SMBUS as default, I2C selected by HW BOM)
Touch	—		
FAN	—		
SIM	—		
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset		
Others	—		
EXPANSION			
Mini PCI-E/mSATA	Half-size Mini Card (mPCIe as default) x 1, Full size mPCIe/mSATA or USB2.0 x 1 (SATA as default, PCIe selected by HW BOM)		Full size Mini Card mPCIe/ mSATA or USB2.0 x 1 (SATA as default, mPCIe selected by HW BOM) Half-size Mini Card x 1 (mPCIe as default)
M.2	—		—
Others	BIO (Optional)	—	BIO x 1 (Optional) SMBus/I2C x 1 (SMBUS as default, I2C selected by HW BOM)
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	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)	170,000		525,137
EMC	CE/FCC Class A		
Note			

Note: All specifications are subject to change without notice.

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Board Level Products
Pico-ITX Boards

Pico-ITX Boards



Model	PICO-APL3	PICO-APL3-SEMI
SYSTEM		
FORM FACTOR	PICO-ITX	PICO-SEMI
CPU	Intel® Atom™/Celeron®/Pentium® Processor: Pentium N4200 (4C/4T, 1.10GHz, up to 2.50GHz, TDP 6W) Celeron N3350 (2C/2T, 1.10GHz, up to 2.40GHz, TDP 6W) Atom E3950 (4C/4T, 1.60GHz, up to 2.00GHz, TDP 12W) Atom E3940 (4C/4T, 1.60GHz, up to 1.80GHz, TDP 9.5W) Atom E3930 (2C/2T, 1.30GHz, up to 1.80GHz, TDP 6.5W)	Intel® Celeron®/Pentium® Processor: Pentium N4200 (4C/4T, 1.10GHz, up to 2.50GHz, TDP 6W) Celeron N3350 (2C/2T, 1.10GHz, up to 2.40GHz, TDP 6W)
CHIPSET	Integrated with Intel® SoC	
MEMORY TYPE	Onboard DDR3L 2GB (Optional to 4GB)	Onboard DDR3L up to 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)	W/O heat sink: 4.8" x 3.15" x 1.18" (122 x 80 x 30 mm) W/ heat sink: 4.8" x 3.15" x 1.73" (122 x 80 x 44 mm)
Gross Weight	0.18 lbs (0.08 kg)	W/O heat sink: 0.38 lb (0.17 kg) W/ heat sink: 0.91 lb (0.41 kg)
OS Support	Windows 10 (64 bit)	
POWER		
POWER REQUIREMENT	+12V	
POWER SUPPLY TYPE	ATX	
CONNECTOR	Phoenix 2-pin Connector (Default), Lockable DC Jack Connector (colay)	DC Jack Connector
POWER CONSUMPTION	Intel® N4200 processor, DDR3L 4GB, 1.1A@12V	Intel® N4200 processor, DDR3L 4GB, eMMC 32GB, 1.1A@+12V(TYPICAL)
DISPLAY		
CONTROLLER	Intel® HD Graphics 500/505	
LVDS/eDP	eDP x 1 (up to 3840x2160@60Hz, Optional)	—
Display Interface	HDMI 1.4b x 1 (up to 3840 x 2160@30Hz), DDI (BIO, Optional)	HDMI 1.4b x 1 (up to 3840 x 2160@30Hz)
Multiple Display	Up to 3 Simultaneous Displays	1 Simultaneous Display
AUDIO		
CODEC	Realtek ALC269	Realtek ALC269 (Optional)
AUDIO INTERFACE	Line-in/Line-out/MIC	Line-out (Optional)
Speaker	Amplifier Header	Amplifier Header (Optional)
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	—	COM1, COM2 (RS232) (Optional)
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, COM2 (RS232)	—
VIDEO	eDP x 1 (up to 3840x2160@60Hz, Optional)	—
SATA	SATA III x 1 +5V SATA Power Connector x 1 eMMC 16GB (Optional to 32GB/64GB/128GB)	SATA III x 1 +5V SATA Power Connector x 1 eMMC 32GB
AUDIO	Audio Header x 1	—
DIO/GPIO	4-bit	4-bit (Optional)
SMBus/I2C	I2C/I2S x 1 (I2C as default)	I2C/I2S x 1 (I2C as default) (Optional)
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	MIPI-CSI x 2 Lanes (Optional) MIPI-CSI x 4 Lanes (Optional) BIO (Optional)	—
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)	110,000	
EMC	CE/FCC Class A	
Note	 TAIWAN EXCELLENCE 2018	

Note: All specifications are subject to change without notice.

Board Level Products

Pico-ITX Boards

01

Pico-ITX Boards



Model	PICO-APL4	PICO-APL4-SEMI
SYSTEM		
FORM FACTOR	PICO-ITX	PICO-SEMI
CPU	Intel® Atom™/Celeron®/Pentium® Processor: Pentium N4200 (4C/4T, 1.10GHz, up to 2.50GHz, TDP 6W) Celeron N3350 (2C/2T, 1.10GHz, up to 2.40GHz, TDP 6W) Atom E3950 (4C/4T, 1.60GHz, up to 2.00GHz, TDP 12W) Atom E3940 (4C/4T, 1.60GHz, up to 1.80GHz, TDP 9.5W) Atom E3930 (2C/2T, 1.30GHz, up to 1.80GHz, TDP 6.5W)	Intel® Celeron®/Pentium® Processor: Pentium N4200 (4C/4T, 1.10GHz, up to 2.50GHz, TDP 6W) Celeron N3350 (2C/2T, 1.10GHz, up to 2.40GHz, TDP 6W)
CHIPSET	Integrated with Intel® SoC	
MEMORY TYPE	Onboard DDR3L 2GB (Optional to 4GB)	Onboard DDR3L up to 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)	4.80" x 3.15" x 1.97" (122 mm x 72 mm x 50 mm)
Gross Weight	0.18 lbs. (0.08 kg)	0.88 lb (0.4 kg)
OS Support	Windows 10 (64 bit)	
POWER		
POWER REQUIREMENT	+12V	
POWER SUPPLY TYPE	AT/ATX	ATX
CONNECTOR	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (colay)	DC Jack Connector
POWER CONSUMPTION	Intel®N4200 processor, DDR3L 4GB, 1.43A@12V	
DISPLAY		
CONTROLLER	Intel® HD Graphics 500/505	
LVDS/eDP	eDP x 1 (up to 3840x2160@60Hz, Optional)	—
Display Interface	HDMI 1.4b x 1 (up to 3840 x 2160@30Hz) DDI (BIO, Optional)	HDMI 1.4b x 1 (up to 3840 x 2160@30Hz)
Multiple Display	Up to 3 Simultaneous Displays	1 Simultaneous Display
AUDIO		
CODEC	—	
AUDIO INTERFACE	—	
Speaker	—	
EXTERNAL I/O		
ETHERNET	Realtek 8111 Gigabit Ethernet 10/100/1000Base, RJ-45 x 2	
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: RS-232 x 1, COM2: RS-232/422/485 x 1 (Ring/ +5V/ +12V)	COM1: RS-232 x 1 (Optional) COM2: RS-232/422/485 x 1 (Ring/ +5V/ +12V) (Optional)
VIDEO	eDP x 1 (up to 3840x2160@60Hz, Optional)	—
SATA	SATA III x 1 +5V SATA Power Connector x 1 eMMC 32GB (Optional to 16GB/64GB/128GB)	
AUDIO	—	
DIO/GPIO	4-bit	4-bit (Optional)
SMBus/I2C	I2C/SMBus x 1 (I2C as default)	I2C/SMBus x 1 (I2C as default) (Optional)
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	BIO (Optional)	—
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)	-40°F ~ 185°F (-40°C ~ 85°C)
OPERATING HUMIDITY	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (HOURS)	191,895	191,895
EMC	CE/FCC Class A	CE/FCC Class A
Note		

Note: All specifications are subject to change without notice.

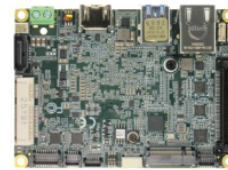
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Board Level Products
Pico-ITX Boards

Pico-ITX Boards



Model	PICO-BT01	PICO-EHL1
SYSTEM FORM FACTOR	PICO-ITX	
CPU	Intel® Atom™/ Celeron® Processor: Celeron® J1900 (4C/4T, 2.00GHz, up to 2.42GHz, TDP 10W) Celeron® N2807 (2C/2T, 1.58GHz, up to 2.16GHz, TDP 4.3W) Atom™ E3845 (4C/4T, 1.91 GHz, TDP 10W) Atom™ E3825 (2C/2T, 1.33 GHz, TDP 6W)	Intel® Atom™ x6000E series, Intel® Pentium®, and Celeron® N and J series processors: Intel® Atom™ x6425E (4C, 1.9GHz, TDP-up 12W) Intel® Atom™ x6425E (4C, 2.0GHz, up to 3GHz, TDP-up 12W) Intel® Atom™ x6211E (2C, 1.2GHz, up to 3GHz, TDP-up 6W) Intel® Pentium® J6426 (4C, 2.0GHz, up to 3GHz, TDP-up 10W) Intel® Celeron® J6412 (4C, 2.0GHz, up to 3GHz, TDP-up 10W) Intel® Celeron® N6210 (2C, 1.2GHz, up to 3GHz, TDP-up 6.5W) (Intel® Atom™ x6414RE/x6413E/x6427FE/x6200FE/N6415 by customer's request)
CHIPSET	Integrated with Intel® SoC	Intel® Elkhart Lake SoC Processor
MEMORY TYPE	DDR3L up to 2133MHz, SODIMM x 1, up to 8GB, Non-ECC	DDR4 up to 3200MHz, SODIMM x 1, up to 32GB, support IBEC (select SKUs)
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), Windows 7 (64 bit), Ubuntu 21.04.3/Kernel 5.11	Windows 10 (64 bit), Ubuntu 20.04.3(LTS)/Kernel 5.13
POWER		
POWER REQUIREMENT	+12V	
POWER SUPPLY TYPE	AT/ATX	
CONNECTOR	Phoenix 2-pin Connector (Default), Lockable DC Jack Connector (colay)	
POWER CONSUMPTION	Intel® J1900, DDR3L 1333MHz 8GB 1.14A@ +12V(TYPICAL)	TBD
DISPLAY		
CONTROLLER	Intel® HD Graphics for Intel Atom® Processor Z3700 Series	Intel® UHD Graphics for 10th Gen Intel® Processors
LVDS/eDP	LVDS (18/24-bit) up to 1400 x 900 @60Hz	eDP/LVDS (18/24bit 2CH) 1920 x 1200 (default: LVDS)
Display Interface	VGA (up to 2048 x 1152 @60Hz) or DP (up to 2560 x 1400 @60Hz)	HDMI 1.4b x1 (up to 3840 x 2160), DDI (BIO, Optional)
Multiple Display	Up to 2 Simultaneous Displays	Up to 3 Simultaneous Displays
AUDIO		
CODEC	Realtek ALC897/892	—
AUDIO INTERFACE	Line-out	—
Speaker	—	
EXTERNAL I/O		
ETHERNET	Intel® I210, 10/100/1000Base, RJ-45 x 1	Realtek 8111 Gigabit Ethernet 10/100/1000Base, RJ-45 x 1
USB	USB 3.2 Gen 1 x 1 USB 2.0 x 1	USB 3.2 Gen 2 x 2
SERIAL PORT	—	
VIDEO	VGA (up to 2048 x 1152 @60Hz) or DP (up to 2560 x 1400 @60Hz)	HDMI 1.4b x1 (up to 3840 x 2160)
INTERNAL I/O		
USB	USB 2.0 x 1	USB 2.0 x 2
SERIAL PORT	COM1: RS-232 x 1, COM2: RS-232/422/485 x 1 (Ring/ +5V/ +12V)	COM1, COM2 (RS232/422/485, supports 5V/12V/R)
VIDEO	LVDS (18/24-bit) up to 1400 x 900 @60Hz	eDP/LVDS (18/24bit 2CH) 1920 x 1200 (default: LVDS)
SATA	SATA II (3.0Gb/s) x 1, +5V SATA Power Connector x 1	SATA III x 1, +5V SATA Power Connector x 1
AUDIO	Line-out	—
DIO/GPIO	4-bit	4-bit
SMBus/I2C	I2C/SMBus x1 (SMBUS as default)	SMBUS/I2C x 1 (SMBUS as default)
Touch	—	
FAN	—	4pins Smart Fan x1
SIM	—	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
EXPANSION		
Mini PCI-E/mSATA	Full size mPCIe/mSATA or USB2.0 x 1 (SATA as default, PCIe selected by HW BOM)	Full size mPCIe/mSATA x 1 (SATA as default, PCIe selected by BIOS)
M.2	—	M.2 B key 2242 x 1 (PCIe[x2]/USB2.0)
Others	BIO (Optional)	
ENVIRONMENT & CERTIFICATION		
OPERATING TEMP	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)	80,000	TBD
EMC	CE/FCC Class A	
Note	 	

Note: All specifications are subject to change without notice.

Board Level Products

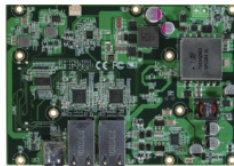
Pico-ITX Boards - BIO

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Pico-ITX Boards



Model	BIO-ST01-L1U2	BIO-ST01-M1U1	BIO-ST02-C4M1
System			
Form Factor	2.5" Board		
BIO	80-Pin high speed board to board connector		
Power Requirement	Power Supplied from MB via board to board connector		
Dimension	3.94" x 2.84" (100mm x 72mm)		
Gross Weight	0.44 lb (0.2 kg)		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)		
Storage Temperature	-40 °F ~ 176°F (-40°C ~ 80°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
Certification	—		
OS support	Windows 10 (64 bit)		
I/O			
Ethernet	Realtek 8111E, 10/100/1000Base-TX, RJ-45 x 1	—	
USB	USB 2.0 x 2 on rear I/O	USB 2.0 x 1 on rear I/O	
Audio	Speaker Out with 2W Amp	Speaker Out with 2W Amp	—
Expansion Interface	SMBus x 1		—
PCIe	—	Mini-Card x 1	Mini-Card x 1 (full size), SIM x 1
Serial Port	—		COM1, COM2 RS-232 by Pin Header COM3, COM4 RS-232 on Rear I/O
SIM	—	SIM Slot x 1	—
DIO	—		



Model	BIO-ST03-P2U1	BIO-ST02-C14-D32
System		
Form Factor	2.5" Board	
BIO	80-Pin high speed board to board connector	
Power Requirement	Power Supplied from MB via board to board connector	
Dimension	3.94" x 2.84" (100mm x 72mm)	
Gross Weight	0.44 lb (0.2 kg)	
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40 °F ~ 176°F (-40°C ~ 80°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
Certification	—	CE,FCC
OS support	Windows 10 (64 bit)	
I/O		
Ethernet	Realtek 8111E, 10/100/1000Base-TX, RJ-45 x 1	Intel® i211, 10/100/1000Base-TX x 1
USB	USB 2.0 x 2 on rear I/O	USB 3.2 Gen 1 x 1 & USB 2.0 x 3 or USB 2.0 x5(for PICO-BT01)
Audio	Speaker Out with 2W Amp	Speaker output with 2W Amp.
Expansion Interface	SMBus x 1	PCIe [x1] x1 (optional), LPT x1
PCIe	—	
Serial Port	—	COM x14, RS-232 by Pin Header
SIM	—	
DIO	—	32 bits

Note: All specifications are subject to change without notice.

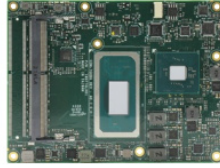
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Board Level Products

COM Express CPU Modules

COM Express CPU Modules



Model	COM-TGHB6		COM-CFHB6	COM-TGUC6
System				
Form Factor	COM Express Basic Size, Type 6			COM Express Mini size, Type 6
CPU	11th Generation Intel® Xeon/Core™ Processor	8th/9th Gen Intel® Core™/ Xeon™-E Series Processor	11th Generation Intel® Core™ Processor Family (formerly Tiger Lake UP3)	
CPU Frequency	Up to 2.6 GHz, 8 Core, W-11865MRE/ I7-11850HE	Up to E-2276ME (2.8 GHz)	Up to 1.8 GHz, i7-1185GRE	
Chipset	Intel 500 series PCH QM580E/RM590E	Intel® QM370/CM246 PCH	11th Gen Intel® Core™ Series Processor	
Memory Type	SODIMM DDR4 3200 Socket x 2	DDR4, SO-DIMM x 3	DDR4, SO-DIMM x 2	
Max. Memory Capacity	Up to 64 GB (ECC Support by SKU)	96GB, ECC Support (only with CM246 PCH)	32 GB	
BIOS	AMI BIOS (UEFI)	AMI UEFI		
Wake on LAN	Yes			
Watchdog Timer	255 Levels			
Power Requirement	+12 V and +5 VSB for ATX, +12V for AT			
Power Supply Type	AT/ATX			
Power Consumption (Typical)	5.26A@12V,W-11865MRE	12V@4.65A , full load, E-2276ME	3.5A@12V, full load, i7-1185GRE	
Dimension (L x W)	4.92" x 3.75" (125mm x 95mm)			3.75" x 3.75" (95mm x 95mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C),	32°F ~ 140°F (0°C ~ 60°C) -40°F ~ 185°F (-40°C ~ 85°C) Option	32°F ~ 140°F (0°C ~ 60°C) -40°F ~ 185°F (-40°C ~ 85°C) Option	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)			
Operating Humidity	0% ~ 90% relative humidity, non-condensing			
Certification	CE / FCC Class A			
Display				
Graphic Controller	Intel® UHD Graphics	Intel® GT2-P630 (Xeon series)/ GT2-630 (Core I series)	Intel® Iris® Xe Graphics Intel® UHD Graphics for 11th Gen Intel® Processors	
Video Output	DDI x 3 LVDS or eDP x 1 (Default: LVDS, 18/24b 2CH LVDS, or 4 lane eDP) VGA x 1	3 Simultaneous Displays: 18/24-bit 2 Channel LVDS/eDP x 1 (Default: LVDS), DDI x 2 (Up to 3x DDI shared with VGA), VGA x 1	4 Simultaneous Displays: Single/Dual Channel LVDS (18/24bit) or eDP, DDI x 3, VGA x 1	
I/O				
Ethernet	Intel® i225/i226LM/IT GbE x 1	Intel® i219 GbE x 1	Intel® i225LM GbE 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 (Tx/Rx) x 2			
HDD Interface	SATA3 x 4			SATA 3 x 2
Expansion Slot	PCIe 4.0 [x16] x 1, PCIe 3.0 [x1] x 8 LPC x 1 SMBus x 1 I2C x 1	PCIe[x1] x 8 PCIe[x16] x 1 LPC SMBus I2C	PCIe[x1] x 5 PEG[x4] x 1 LPC SMBus I2C	
GPIO	8-bit			
Onboard Storage	—			
TPM	TPM 2.0			
Note				

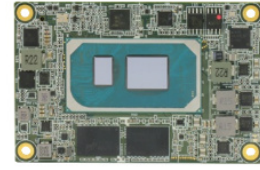
Note: All specifications are subject to change without notice.

Board Level Products

COM Express CPU Modules

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COM Express CPU Modules



Model	COM-WHUC6	COM-ICDB7	NanoCOM-TGU
System			
Form Factor	COM Express Compact size, Type 6	PICMG COM Express R3.0, Type 7	COM Express Mini size, Type 10
CPU	8th Generation Intel® Core™ ULT Series Processor	Intel® Idaville Platform XEON-D1700 LCC Processor	11th Generation IntelCore™ Processor
CPU Frequency	—	Up to D-1746TER (2.0 GHz)	Up to i7-1185G7E, 1.8GHz
Chipset	8th Generation Intel® Core™ SoC	SoC	11th Generation Intel® Core™ SoC
Memory Type	DDR4, SO-DIMM x 2	DDR4 SODIMM Socket x2	Onboard LPDDR4x
Max. Memory Capacity	64GB	Up to 64 GB (ECC Support by sku)	16 GB
BIOS	AMI UEFI	AMI BIOS (UEFI)	AMI UEFI
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Power Requirement	+12 V and +5 VSB for ATX, +12V for AT	+12 V and +5 VSB for ATX, +12V for AT	+12 V and +5 VSB for ATX, +12V for AT
Power Supply Type	AT/ ATX	AT (default) / ATX	AT/ATX
Power Consumption (Typical)	2.61A@12V, full load, i7-8665UE	7.75A @12V, D-1746TER	2.75A@12V, full load, i7-1185GRE
Dimension (L x W)	3.75" x 3.75" (95mm x 95mm)	4.92" x 3.75" (125mm x 95mm)	3.31" x 2.17" (84mm x 55mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C),	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C) Option
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
Certification	CE/FCC Class A	CE / FCC Class A (Pre-test with Class B standard)	CE/FCC
Display			
Graphic Controller	Intel® UHD Graphics 620 / 610	—	—
Video Output	3 Simutaneous Display : Single/Dual Channel LVDS (18/24bit) or eDP, DDI x 2 (Up to 2x DDI shared with VGA)	—	Dual Display: eDP, DDI x 1
I/O			
Ethernet	Intel® i219 GbE x 1	1GbE: Intel® i210IT GbE 10GbE: 4x10G Base-KR to carrier	Intel i225LM 2.5GbE x 1
Audio	High Definition Audio Interface	—	High Definition Audio Interface
USB Port	USB 2.0 x 8, USB 3.2 Gen 2 x 4	USB2.0 x 4, USB3.2 Gen1	USB 2.0 x 8, USB 3.2 10Gbps x 2
Serial Port	2-Wire UART (Tx/Rx) x 2		
HDD Interface	SATA 3 x 2		
Expansion Slot	PCIe[x1] x 4 PCIe[x4] x 1 (default) LPC SMBus I2C	PCIe [x16] x1, 4x PCIe [x4] I2C (Windows 10 Ready.) LPC SMBus	PCIe [x1] x 4 LPC x 1 SMBus x 1 I2C x 1
GPIO	8-bit		
Onboard Storage	eMMC up to 64GB (Optional)	—	NVMe, up to 256GB
TPM	TPM 2.0		
Note			

Note: All specifications are subject to change without notice.

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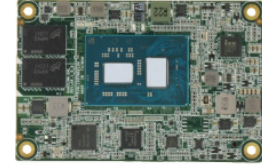
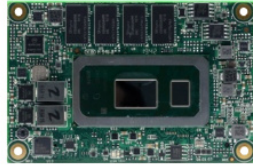
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Board Level Products

COM Express CPU Modules

COM Express CPU Modules



Model	NanoCOM-WHU	NanoCOM-WHU Rev.B	NanoCOM-EHL
System			
Form Factor	COM Express Mini size, Type 10		
CPU	8th Generation Intel® Core™/Celeron™ U Series Processor		Intel Atom® x6000E, Pentium® and Celeron® series Processor
CPU Frequency	Up to i5-8365UE, 1.60GHz	Up to i7-8665UE, 1.70GHz	Up to x6425E, 2.0GHz
Chipset	8th Generation Intel® Core™/Celeron™ U Series SoC		SoC
Memory Type	Onboard DDR4		Onboard LPDDR4
Max. Memory Capacity	8GB 8GB		16 GB
BIOS	AMI UEFI		
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Power Requirement	+12 V and +5 VSB for ATX, +12V for AT		
Power Supply Type	AT/ATX		
Power Consumption (Typical)	2.23A@12V, full load, i5-8365UE	2.10A@12V, full load, i7-8665UE	1.44A@12V, full load, x6425E
Dimension (L x W)	3.31" x 2.17" (84 mm x 55 mm)		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C), -40°F ~ 185°F (-40°C ~ 85°C) Option		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		
Display			
Graphic Controller	Intel® UHD Graphics 620 / 610	Intel® UHD Graphics 620 / 610	Intel® UHD Graphics for 10th Gen Intel® Processors
Video Output	Dual Display: eDP, DDI x1	Dual Display : LVDS LCD/eDP, DDI x 1 Single Channel LVDS (18/24 bit)	Dual Display : LVDS LCD/eDP, DDI x 1 Single Channel LVDS (18/24 bit)
I/O			
Ethernet	Intel® i219LM GbE x 1	Intel® i219 GbE x 1	Intel i226IT 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, USB 3.2 10Gbps x 2
Serial Port	2-Wire UART (Tx/Rx) x 2		2-Wire UART (Tx/Rx) x 2
HDD Interface	SATA 3 x 2		
Expansion Slot	PCIe[x1] x 4 LPC SMBus I2C		
GPIO	8-bit		
Onboard Storage	eMMC up to 64GB (Optional)	—	eMMC up to 64GB (Optional)
TPM	fTPM		
Note			

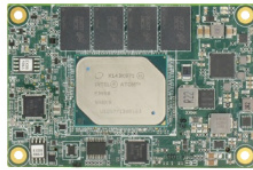
Note: All specifications are subject to change without notice.

Board Level Products

COM Express CPU Modules

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COM Express CPU Modules



Model	NanoCOM-APL-B10	NanoCOM-APL	HPC-ADSC / HPC-RDSC
System			
Form Factor	COM Express, Mini size, Type 10		COM-HPC R1.0 Client size C
CPU	Intel® Atom™/Celeron®/Pentium® Processor		12th/13th Gen Intel® Core™ Series Processor (Formerly Alder Lake-S & Raptor Lake-S)
CPU Frequency	Up to N4200, 2.00GHz	Up to J1900, 2.00GHz	TBD
Chipset	Intel® Atom™/Celeron®/Pentium® SoC		Intel® R680E
Memory Type	Onboard LPDDR4		SODIMM DDR5 4800MHz Socket x 2
Max. Memory Capacity	8GB		Up to 64GB (ECC)
BIOS	AMI UEFI		AMI BIOS (UEFI)
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Power Requirement	+12 V and +5 VSB for ATX, +12V for AT		
Power Supply Type	AT/ATX		
Power Consumption (Typical)	0.6A@12V, full load, N4200	0.82A@12V, full load, E3950	TBD
Dimension (L x W)	3.31" x 2.17" (84mm x 55mm)	3.31" x 2.17" (84mm x 55mm)	6.30" x 4.72" (160mm x 120mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) -40°F ~ 185°F (-40°C ~ 85°C) Option		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		
Display			
Graphic Controller	Intel® HD Graphic 505/500		Intel®UHD Graphics 770
Video Output	Dual Display : LVDS LCD/eDP, DDI x 1 Single Channel LVDS (18/24 bit)		eDP x 1, DDI x 3
I/O			
Ethernet	Intel® i226iT 2.5GbE x 1	Intel® i210AT GbE x 1	2.5GbE: Intel® i226LM x2
Audio	High Definition Audio Interface		Soundwire
USB Port	USB 2.0 x 8, USB 3.2 Gen 1 x 2		USB 2.0 x 8, USB 3.2 x 4 (Up to Gen2 support)
Serial Port	2-Wire UART (Tx/Rx) x 2		4-Wire UART (Tx/Rx) x2
HDD Interface	SATA3 x 2		
Expansion Slot	PCIe [x1] x 4 (up to 3 devices) LPC SMBus I2C		PEG[x16] x1 PCIe [x4] x3 PCIe [x1] x8 eSPI SPI I2C SMBus
GPIO	8-bit from PCH	8-bit	12-bit
Onboard Storage	eMMC up to 64GB (Optional)		M.2 2280M (NVMe x4)
TPM	fTPM	—	TPM 2.0
Note			

Note: All specifications are subject to change without notice.

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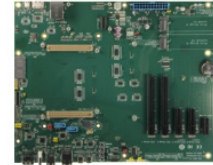
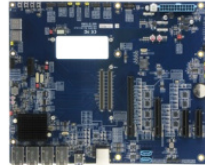
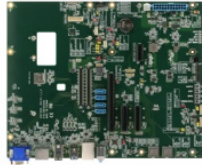
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Board Level Products

COM Express Carrier Boards

COM Express Carrier Boards



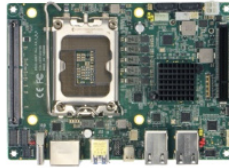
Model	ECB-920A-A11	ECB-927A	ECB-980A
System			
Form Factor	ATX	COM Express Basic size Type 7 Carrier board in ATX form factor	COM HPC Client sizeA/B/C
COM Express Connector	x 2 (Row A,B & Row C,D)	X 2 (Row AB and Row CD, Type 7 pin out)	X 2 (J1 and J2)
I/O Chipset	—		
Front Panel Control		10-pin (5x2) header	
Ethernet	10/100/1000/2500 Base-TX, RJ45 x 1 (From CPU Module)	Intel x557AT4: 4x 10G Base T 1x GbE (source from module)	2x 1G~2.5G 1x for 25G expansion
Expansion Interface	PCIe[x4] slot x 2 PCIe[x16] slot x 1	PCIe [x4] x 2 PCIe[x8] PCIe[x16] (PEG port)	PCIe [x1] x1 (for BMC) PCIe [x4] x2 (group 0 lane 0~7) PCIe [x16] x2 (group 1 and group 2)
Power Supply Type	ATX	Standard 24pin ATX + 4pin 12V	Standard 24pin ATX + 4pin 12V
CMOS Battery	RTC battery socket x 1		CR2032 Holder x 1
BIOS		—	
Board Size	12" x 9.6"(304mm x 244mm)		305mm x 244mm
Gross Weight	1.32 lb (0.6 kg)		0.7 kg
Operating Temperature		32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	-40°C ~ 80°C	-40°C ~ 80°C
Operating Humidity		0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)		—	CE/FCC Class A
Display			
DVT/CRT/VGA	D-SUB15 connector x 1	N/A. via PCIe Graphic card	HDMI x1, DP x2
LVDS / eDP	LVDS : 40pin (20x2) Dual Channel LVDS connector eDP : 30pin board wire connector	N/A. via PCIe Graphic card	eDP x1
SDVO	—	N/A. via PCIe Graphic card	—
DDI	Display Port x 3 (Dual x1, Single x 1)	N/A. via PCIe Graphic card	—
I/O			
Storage	SATA3 x 4	SATA x2	SATA x2 M.2 NVMe[x4] x2
Serial Port	COM Port (2-Wire UART Tx/Rx) x 2	2-wire UART x 2 (TX/RX)	4-wire UART x2
USB	Type A connector x 8 (USB2.0 x 4 , USB 3.2/2.0 x 4)	USB3.2 x 4	USB3.2 Gen2x2 Type C x2 USB3.2 Gen2 Type A x2
Audio	Audio Jack, supports Line-in, Line-out, Microphone	N/A	Board to board connector reserved
PS/2 Port		—	
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-seg LED x2 80 Port Post code indicator
I2C	1		
Expansion Interface	LPC, SMBus, eSPI, CAN Bus, 4 pin fan connector, Micro SD Card Slot x 1	SMBus, LPC/eSPI slot	I2C, SMBus, LPC/eSPI slot
Note			

Note: All specifications are subject to change without notice.

Board Level Products

EPIC Boards

EPIC Boards



Model	EPIC-ADS7	EPIC-ADS7-PUC
System		
Form Factor	4" EPIC Board	4" EPIC System
CPU	12th Generation Intel® Core™ Series Processor (TDP : 35W/65W)	12th Generation Intel® Core™ Series Processor
CPU Frequency	12C/20T (Up to 4.8 GHz)	—
Chipset	Intel® 600 Series Desktop Chipsets	Intel® 600 Series Desktop Chipsets
Memory Type	DDR5 SODIMM x 2 , up to 4800MT/s	DDR5 SODIMM x 2 (up to 4800MT/s)
Max. Memory Capacity	Up to 64GB	
BIOS	AMI	UEFI
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Power Requirement	+12V	
Power Supply Type	AT/ ATX	
Power Consumption (Typical)	TBD	TBD
Dimension (L x W)	4.53" x 6.50" (115mm x 165mm)	10.2" x 6.3" x 2.1" (260mm x 160mm x 55mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 122°F (0°C ~ 50°C) with 0.5 m/s airflow
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	TBD	TBD
Certification	CE/FCC ClassA	
Display		
VGA/LCD Controller	Intel® UHD Graphics 770 / Intel® UHD Graphics 730 (by CPU sku)	
Video Output	4 Display Simultaneously : Dual Channel (24/48bit) LVDS or eDP x 1 DP++ 1.4a x 2 HDMI 2.0b x 1	DP++ 1.4b x 2 , HDMI 2.0a x 1 3 Simultaneous Displays
Backlight Inverter Supply	12V	—
I/O		
Ethernet	Intel® i225, 10/100/1000/2500Base, RJ-45 x 1 Intel® i219, 10/100/1000Base, RJ-45 x 1	Intel® i211AT, 10/100/1000Base, RJ45 x2 Intel® i219LM, 10/100/1000Base, RJ45 x1 Intel® i225LM, 10/100/2500Base, RJ45 x1
Audio	Line in / Line Out / Mic (Pin header)	—
USB Port	USB3.2 Gen2x2 (Type C) x 1 USB3.2 Gen2 (Type A) x 4 USB 2.0 (Pin Header) x 4	USB3.2 Gen 2x 2 (Type C) x 1 USB3.2 Gen 2 (Type A) x 2 USB2.0 (Type A) x 2
Serial Port	COM RS232/422/485 (Pin Header) x 4	COM RS232/422/485 x 2
Parallel Port	—	
HDD Interface	SATA III x 2 , +5V SATA Power Connector x 2	—
SSD	The same as HDD Interface	SATA3 x 2 with +5V SATA power connector onboard
Expansion Slot	M.2 3052 B-key x 1 M.2 2280 M-key x 1 M.2 2230 E-key x 1 PCIe [x4] Gen3 FPC Connector x 1 PCIe [x8] Gen5 Slot x 1	M.2 3052 B key x 1 (PCIe + USB3.0/USB2.0) M.2 2280 M key x 1 (PCIe Gen4 [x4] x 1) M.2 2230 E key x 1 (PCIe + USB2.0) 3pin TCC/TSN x 1 (Optional)
DIO	8 bit (Pin Header)	DIO 8 bit x 1 (Front Panel),
TPM	TPM2.0 (Optional)	TPM 2.0
Touch	—	
SIM	Nano SIM (optional)	Nano SIM Slot x 1
Others	SMBUS x 1, LPC	—
Note		

Note: All specifications are subject to change without notice.

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Board Level Products
EPIC Boards

EPIC Boards



Model	EPIC-TGH7	EPIC-TGH7-PUC
System		
Form Factor	4" EPIC Board	4" EPIC System
CPU	11th Generation Intel® 11th Xeon™ / Core™ Processor	11th Generation Intel® Xeon / Core™ Processor Xeon W-11865MRE (8C/16T, 2.60GHz, up to 4.70GHz) i7-11850HE (8C/16T, 2.60GHz, up to 4.70GHz) i5-11500HE (6C/12T, 2.60GHz, up to 4.50GHz) i3-11100HE (4C/8T, 2.40GHz, up to 4.40GHz) Celeron 6600HE (2C/2T, 2.60GHz)
CPU Frequency	Xeon W-11865MRE (8C/16T, 2.60GHz, up to 4.70GHz) i7-11850HE (8C/16T, 2.60GHz, up to 4.70GHz) i5-11500HE (6C/12T, 2.60GHz, up to 4.50GHz) i3-11100HE (4C/8T, 2.40GHz, up to 4.40GHz) Celeron 6600HE (2C/2T, 2.60GHz)	Up to 4.70 GHz
Chipset	Intel® 500 Series Mobile Chipset (RM590E / HM570E)	Intel® 500 Series Chipsets
Memory Type	DDR4 3200 SODIMM x 2 (ECC supported by Xeon only)	DDR4 3200 SODIMM x 2
Max. Memory Capacity		Up to 64GB
BIOS	AMI	UEFI
Wake on LAN		Yes
Watchdog Timer		255 Levels
Power Requirement		+9-24V
Power Supply Type	AT/ ATX	AT/ATX, DC Jack Connector
Power Consumption (Typical)	12V@8.32A with Xeon W-11865MRE, with 100% full loading steady status.	TBD
Dimension (L x W)	4.53" x 6.50" (115mm x 165mm)	260 x 160 x 50 mm
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 122°F (-20°C ~ 55°C), with 0.5 m/sec air flow
Storage Temperature		-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	—	TBD
Certification		CE/FCC ClassA
Display		
VGA/LCD Controller	Intel® UHD Graphics for 11th Gen Intel® Processors	
Video Output	Dual Channel 24/48bit LVDS (Default) or eDP x 1 HDMI2.0b x 1, DP 1.2a (DP++) x 2, VGA x 1	DP++ x 1.2a x 2, HDMI 2.0b x 1, VGA x 1 4 Simultaneous Displays
Backlight Inverter Supply	12V/5V (Default : 5V)	—
I/O		
Ethernet	Intel® i225, 10/100/1000/2500Base, RJ-45 x 1 Intel® i219, 10/100/1000Base, RJ-45 x 1	Intel® I211AT, 10/100/1000Base, RJ45 x2 Intel® I219LM, 10/100/1000Base, RJ45 x1 Intel® I225LM, 10/100/2500Base, RJ45 x1
Audio	Realtek ALC269 (2W Amplifier)	—
USB Port	USB3.2 Gen 2 x 4 USB2.0 x 4	USB3.2 Gen 2 (Type A) x 4, USB2.0 (Type A) x 2
Serial Port	RS-232 x 4 RS-232/422/485 x 2	COM RS232/422/485 x 2
Parallel Port	—	—
HDD Interface	SATA III x 2 +5V SATA Power Connector x 1	—
SSD	Half size mSATA/mPCIe x 1 (Default mPCIe, select by BIOS)	SATA III x 2 (2.5" SSD x 2 containable) +5V SATA Power Connector x 1 (Total up to +5V@2A limitation for 2 SATA SSD use)
Expansion Slot	M.2 B key 3052 x 1 (Default PCIe[x1]+USB3.0+USB2.0, PCIe[x2]+ USB2.0 by BOM change) M.2 M key 2280 x 1 (PCIe 4.0[x4]) PCIe 4.0[x8] slot x 1 (Supply maximum 25W to the PCIe peripheral) Board to board FPC connector (PCIe[x4] x 1)	M.2 3052 B key x 1 M.2 2280 M key x 1 Mini Card (Half Size) x 1
DIO		16-bits
TPM	TPM2.0 (Optional)	TPM 2.0
Touch	Optional	—
SIM	Nano SIM	NanoSIM x 1
Others	SMBus / I2C (Supported by BOM Change)	—
Note		

Note: All specifications are subject to change without notice.

Board Level Products

EPIC Boards

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EPIC Boards



Model	EPIC-KBS9	EPIC-KBS7	EPIC-BT07
System	4" EPIC Board		
Form Factor	4" EPIC Board		
CPU	CPU Socket Type	6th/7th Generation CPU (Socket Type, TDP 35W, 54W Only)	Intel® Atom™ E3845/Celeron® J1900/N2807
CPU Frequency	6th/7th Generation Intel® Core™ i3/i5/i7/Celeron® (Support up to 65W SKU)	6th/7th Generation Intel® Core™ i3/i5/i7/Celeron®	Up to 2.0 GHz
Chipset	H110/Q170 (6W)	H110, Q170 (6W)	Intel® Atom™/ Celeron® SoC
Memory Type	DDR4 (Non-ECC) SODIMM x 2, 2133MHz, up to 32GB	DDR4 (Non-ECC), 2133MHz	DDR3L 1333, SODIMM x 1
Max. Memory Capacity	Up to 32GB	Up to 16GB	Up to 8GB
BIOS	AMI		
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Power Requirement	+12V, AT/ATX	12V or 9-24V (Default)	4 Pin Connector (Default) 2 Pin Phoenix Connector (Option)
Power Supply Type	AT/ ATX		
Power Consumption (Typical)	Power consumption : 12V@7.2A, total 86W (with i7-7700U, during 100% loading)	50W@Full loading	12W
Dimension (L x W)	4.53" x 6.50" (115 mm x 165 mm)		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)		
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)	32°F ~ 140°F (0°C ~ 60°C) or WITAS 2 (E3845 sku , -40°C ~ 85°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
MTBF (Hours)	135,399	110,000	358,806 hrs
Certification	CE/FCC		
Display	6th/7th Generation Intel® Core™ i3/i5/i7/Celeron®		
VGA/LCD Controller	6th/7th Generation Intel® Core™ i3/i5/i7/Celeron®		
Video Output	HDMI (Rear), VGA (Internal Only)	CRT/LVDS/HDMI	Intel® Atom™/ Celeron® SoC CRT, LVDS, HDMI
Backlight Inverter Supply	—	Max. 12V	Max. 12V
I/O	—		
Ethernet	Intel® i211 Gigabit Ethernet x 4	LAN x 2 (Real IO) (i211 x 2)	Intel® i211 Gigabit Ethernet, RJ-45 x 2
Audio	ALC269 (With Amp)	ALC892, no Amp	High Definition Audio Interface
USB Port	USB 3.2 Gen 1 x 2 (Real IO) USB2.0 x 2 (Internal)	USB 3.2 Gen 1 x 4 (Real IO) USB2.0 x 2 (Internal)	USB 2.0 x 5 USB 3.2 Gen 1 x 1
Serial Port	COM x 2 (All Internal), RS-232/422/485	COM x 4 (COM2: RS-232/422/485)	COM1, 4, 5, 6 : RS-232 x 4 COM2, 3 : RS-232/422/485 x 1 (Ring/ +5V/ +12V)
Parallel Port	—		
HDD Interface	SATA 3.0 x 2	SATA 3.0 x 2, SATA Power (5V)	SATA 2.0 x 1
SSD	mSATA x 1 (Full size)	mSATA x 1 (optional for mini-Card)	mSATA x 1 (Share with full-size Mini-Card by BOM)
Expansion Slot	Mini-card x 1 (Full Size) (No SIM) PCIe[x4] Slot x 1	Mini-card x 1, Micro SIM x 1 (Optional)	Full-size mPCIe x 1 Full size mSATA/mPCIe x 1 (Default mSATA, select by BOM Change) Micro-SD x 1 (Optional, only E3800 series) PCI-104 x 1 (Optional, only E3800 series) 16-bit DIO or LPT SMBus x 1, I2C x 1 (optional), PS/2 x 1
DIO	8-bit		
TPM	—		
Touch	—		
SIM	—		
Others	—		
Note			

Note: All specifications are subject to change without notice.

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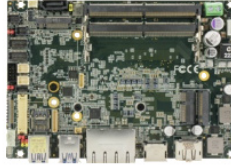
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Board Level Products

SubCompact Boards/Systems

SubCompact Boards/Systems



Model	GENE-APD6	GENESYSM-ADP6
SYSTEM		
FORM FACTOR	3.5" SubCompact Board	3.5" SubCompact Board System
CPU	Intel® 12th Generation Core™/Celeron CPU i7-1270PE (12C/16T, 3.30GHz, up to 4.50GHz, 28W, TDP-up 64W) i7-1265UE (10C/12T, 3.50GHz, up to 4.70GHz, 15W, TDP-up 55W) i5-1250PE (12C/16T, 3.20GHz, up to 4.40GHz, 28W, TDP-up 64W) i3-1220PE (8C/12T, 3.10GHz, up to 4.20GHz, 28W, TDP-up 64W) Celeron® 7305E (5C/5T, 1.00GHz, 15W)	Intel® 12th Generation Core™/Celeron CPU i7-1270PE (12C/16T, 3.30GHz, up to 4.50GHz, TDP 28W, up to 64W) i5-1250PE (12C/16T, 3.20GHz, up to 4.40GHz, TDP 28W, up to 64W) i3-1220PE (8C/12T, 3.10GHz, up to 4.20GHz, TDP 28W, up to 64W)
CHIPSET	Integrated with Intel® SoC	
MEMORY TYPE	DDR5 4800 MHz, Dual Channel SODIMM x 2, up to 64GB	
BIOS	UEFI	
WAKE ON LAN	Yes	
WATCHDOG TIMER	255 Levels	
SECURITY	TPM2.0 (NPCT750AABYX)	
RTC BATTERY	Lithium Battery 3V/240mAh	
DIMENSION	5.75" x 4" (146mm x 101.7mm)	7.00" x 5.28" x 1.69" (178mm x 134.1mm x 43mm)
OS SUPPORT	Windows 10/11 (64bit), Linux Ubuntu 22.04/Kernel 5.15	
POWER		
POWER REQUIREMENT	+9-36V or +12V	+9-36V
POWER SUPPLY TYPE	AT/ATX	ATX
CONNECTOR	Phoenix 2-pin Connector	DC Jack Connector
POWER CONSUMPTION	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 Dual Channel 18/24bit x 1, up to 1920 x 1080 eDP1.4b HBR3, up to 3840 x 2160	—
DISPLAY INTERFACE	HDMI 2.1 x 1, up to 8K x 4K@60Hz or 4K2K 120Hz DP1.4a x 1, up to 7680 x 4320 60Hz 30bpp	HDMI 2.1 x 1, up to 8K x 4K@60Hz or 4K2K 120Hz DP1.4a (Support DP++) x 1, up to 7680 x 4320 60Hz 30bpp Type C DP1.4a
MULTIPLE DISPLAY	Up to 4 Simultaneous Displays	Up to 3 Simultaneous Displays
AUDIO		
CODEC	Realtek ALC897	
AUDIO INTERFACE	Line-in/Line-out/MIC	
SPEAKER	—	
EXTERNAL I/O		
ETHERNET	Intel® i219, 10/100/1000Base Intel® i226, 10/100/1000/2500Base	Intel® i219, 10/100/1000Base Intel® i226, 10/100/2500Base
USB	USB3.2 Gen 2 x 3 USB Type C x 1 (DP1.4a, PD 5V/3A)	USB3.2 Gen 2 x 3 USB Type C x 1 (USB4.0, DP1.4a, PD 5V/3A) USB2.0 x 2
SERIAL PORT	—	COM1, COM2 (RS232/422/485, supports 5V/12V/RI)
VIDEO	HDMI 2.1 x 1, DP1.4a x 1	
INTERNAL I/O		
USB	USB2.0 x 4	—
SERIAL PORT	COM1, COM2 (RS232/422/485, supports 5V/12V/RI) COM3, COM4 (RS232/422/485)	—
VIDEO	LVDS/eDP x 1 Inverter x 1 (12V/2A)	—
SATA	SATA III x 1, +5V SATA Power Connector x 1	
AUDIO	Audio Header x 1	
DIO/GPIO	8-Bit	
SMBus/I2C	SMBus/I2C x1 (Default: SMBus)	
TOUCH	—	
FAN	Smart Fan x 1	4pins Smart Fan x 1
SIM	Nano SIM x 1	
FRONT PANEL	PWR LED, HDD LED, PWR button, HW Reset	HDD LED, PWR LED, Power Button, Buzzer, Reset
OTHERS	—	
EXPANSION		
Mini PCI-E/mSATA	—	—
M.2	M-Key 2280 x 1 (PCIe x4 Gen4) B-Key 3052/3042/2242 x 1 (PCIe x2, USB3.2+SATA, USB2.0, default: USB3.2+SATA) E-Key 2230 x 1 (PCIe, USB2.0)	M-Key 2280 x 1 (PCIe x4 Gen4) B-Key 3052/3042/2242 x 1 (PCIe x2, USB3.2+SATA, USB2.0, default: USB3.2+SATA) E-Key 2230 x 1 (PCIe, USB2.0)
OTHERS	FPC x1 (PCIe x4 Gen4, Only support Graphic or NVME)	—
ENVIRONMENT & CERTIFICATION		
OPERATING TEMP.	32°F ~ 140°F (0°C ~ 60°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)	344,735	
EMC	CE/FCC Class A	

Note: All specifications are subject to change without notice.

Board Level Products

SubCompact Boards/Systems

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SubCompact Boards/Systems



Model	GENE-TGU6	GENESYSM-TGU6
SYSTEM		
FORM FACTOR	3.5" SubCompact Board	3.5" SubCompact Board System
CPU	Intel® 11th Generation Core™/Celeron CPU: i7-1185G7E (4C, 1.8GHz, up to 4.4GHz, TDP-up 28W) i5-1145G7E (4C, 1.5GHz, up to 4.1GHz, TDP-up 28W) i3-1115G4E (2C, 2.2GHz, up to 3.9GHz, TDP-up 28W) Celeron® 6305E (2C, 1.8GHz, TDP 15W)	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 3200MHz, Dual Channel SODIMM x 2, up to 64GB, Support IBEC (select SKUs)	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	TPM2.0	
RTC BATTERY	Lithium Battery 3V/240mAh	
DIMENSION	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	+9-36V (Optional: +12V)	
POWER SUPPLY TYPE	AT/ATX	DC Jack Connector
CONNECTOR	Phoenix 2-pin Connector	DC Jack Connector
POWER CONSUMPTION	Intel® i7-1185G7E, DDR4 3200MHz 32GB x2, 4.96A@ +12V(TYPICAL) Intel® i7-1185G7E, DDR4 3200MHz 32GB x2, 7.32A@ +12V(MAX)	
DISPLAY		
CONTROLLER	Intel® Iris® Xe Graphics, Intel® UHD Graphics	
LVDS/eDP	LVDS Dual Channel 18/24bit x 1, up to 1920 x 1080 (Option: eDP1.4b up to 3840 x 2160)	—
DISPLAY INTERFACE	HDMI 2.0b x 1, up to 4K x 2K 60Hz DP1.4 x 2, up to 4K x 2K 60Hz Type C DP1.4a x 1, 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 ALC897/892	
AUDIO INTERFACE	Line-in/Line-out/MIC	Line-in/Line-out/MIC (Optional)
SPEAKER	—	
EXTERNAL I/O		
ETHERNET	Intel® i219LM, 10/100/1000Base, RJ-45 x1 Intel® i225LM, 10/100/2500Base, RJ-45 x1	Intel® i219, 10/100/1000Base, RJ-45 x1 Intel® i225/226, 10/100/2500Base, RJ-45 x1
USB	USB3.2 Gen 2 x 4 USB3.2 Gen 2 Type C x 1 (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/RI)
VIDEO	HDMI 2.0b x 1, DP1.4 x 2, Type C DP1.4a x 1	
INTERNAL I/O		
USB	USB2.0 x 2	—
SERIAL PORT	COM1, COM3, COM4 (RS232/422/485) COM2 (RS232/422/485, supports 5V/12V/RI)	—
VIDEO	LVDS/eDP x 1 (Default: LVDS) eDP: up to 1080P@60Hz	—
SATA	SATA III x 1, +5V SATA Power Connector x 1	
AUDIO	Audio Header x 1	
DIO/GPIO	8-Bit	—
SMBus/I2C	SMBus/I2C x 1 (Default: SMBus)	
TOUCH	4/5/8-wire Touch Controller x 1 (optional)	—
FAN	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 PCI-E/mSATA	Full-Sized mSATA/mPCIe x 1 (default: mSATA, select with BIOS)	
M.2	M-Key 2280 x 1 (PCIe x4), E-Key 2230 x 1 (PCIe, USB2.0)	
OTHERS	—	
ENVIRONMENT & CERTIFICATION		
OPERATING TEMP.	32°F ~ 140°F (0°C ~ 60°C), WITAS1 -4°F ~ 158 °F (-20°C ~70°C), WITAS2 -40°F ~ 185°F (-40°C ~ 85°C)	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: All specifications are subject to change without notice.

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Board Level Products

SubCompact Boards/Systems

SubCompact Boards/Systems



Model	GENE-CML5	GENESYS-CML5
SYSTEM		
FORM FACTOR	3.5" SubCompact Board	3.5" SubCompact Board System
CPU	Intel® 10th Generation Core™/Pentium/Celeron processor: i7-10700TE (8C/16T, 2.00 GHz, up to 4.40 GHz, TDP-up 35W) i5-10500TE (6C/12T, 2.30 GHz, up to 3.70 GHz, TDP-up 35W) i3-10100TE (4C/8T, 2.30 GHz, up to 3.60 GHz, TDP-up 35W) G6400TE (2C/4T, 3.20 GHz, TDP-up 35W) G5900TE (2C/2T, 3.00 GHz, TDP-up 35W)	
CHIPSET	Intel® Q470E / H420E / Q470	Integrated with Intel® SoC
MEMORY TYPE	DDR4 up to 2933MHz Dual Channel, SODIMM x 2, up to 64GB, Non-ECC	DDR4 up to 2933MHz Dual Channel, SODIMM x 2, up to 64GB, Non-ECC
BIOS		UEFI
WAKE ON LAN		Yes
WATCHDOG TIMER		255 Levels
SECURITY		TPM2.0
RTC BATTERY		Lithium Battery 3V/240mAh
DIMENSION	5.75" x 4" (146mm x 101.7mm)	8.27" x 5.28" x 3.23" (210mm x 134mm x 82mm)
OS SUPPORT		Windows 10 (64bit) Linux Ubuntu 20.04.1/Kernel 5.4
POWER		
POWER REQUIREMENT		+12V
POWER SUPPLY TYPE	AT/ATX	ATX
CONNECTOR	Phoenix 2-pin Connector	DC Jack Connector
POWER CONSUMPTION	Intel® i7-10700TE, DDR4 3200Mhz 32GB x2, 5.64A @ +12V(Typical) Intel® i7-10700TE, DDR4 3200Mhz 32GB x2, 10.63A @ +12V(Max)	
DISPLAY		
CONTROLLER		Intel® HD Graphics 610/630
LVDS/eDP	LVDS Dual Channel 18/24bit x 1, up to 1920 x 1080	—
DISPLAY INTERFACE	DP++ x 1, up to 4K x 2K VGA x 1, up to 1920 x 1200	DP++ x 1 VGA x 1
MULTIPLE DISPLAY	3 Simultaneous Displays	2 Simultaneous Displays
AUDIO		
CODEC	Realtek ALC897/892	—
AUDIO INTERFACE	Line-in/Line-out/MIC	—
SPEAKER		—
EXTERNAL I/O		
ETHERNET	Intel® i210/i211, 10/100/1000Base, RJ45 x1 Intel® i219, 10/100/1000Base, RJ45 x1 (Support vPro only with i5/i7 + Q470/Q470E variant)	Intel® i210, 10/100/1000Base, RJ45 x1 Intel® i219, 10/100/1000Base, RJ45 x1 (support vPro on i5/i7 processors with Q470E)
USB	USB3.2 Gen 2 x 2 (Gen 2 for Q470/Q470E only)	USB3.2 Gen 2 x 2 (Q470E) USB3.2 Gen1 x 2 (H420E)
SERIAL PORT	—	COM RS232/422/485 x 2 (Optional)
VIDEO	DP++ x 1, VGA x 1	DP++ x 1, VGA x 1
INTERNAL I/O		
USB	USB2.0 x 4	USB2.0 x 4 (Optional)
SERIAL PORT	COM1, COM2 (RS232/422/485, supports 5V/12V/RI)	—
VIDEO	LVDS x 1	—
SATA		SATA III x 2 +5V SATA Power Connector x 1
AUDIO	Audio Header x 1	—
DIO/GPIO	8-bit	—
SMBus/I2C	I2C/SMBus x 1 (Default: I2C)	I2C/SMBus x 1 (Optional)
TOUCH		—
FAN		4pins Smart Fan x1
SIM		—
FRONT PANEL	HDD LED, PWR LED, Power Button, Buzzer, Reset	PWR LED, Power Button
OTHERS	FPC x 1 (For Q470/Q 470E only)	FPC x 1 (Q470E only)
EXPANSION		
Mini PCI-E/mSATA		—
M.2		M-Key 2280 x 1 (PCIe x4, SATA)
OTHERS		—
ENVIRONMENT & CERTIFICATION		
OPERATING TEMP.	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 122°F (0°C ~ 50°C)
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)		380,571
EMC		CE/FCC Class A
Note		

Note: All specifications are subject to change without notice.

Board Level Products

SubCompact Boards/Systems

01

SubCompact Boards/Systems



Model	GENE-WHU6	GENESYS-WHU6
SYSTEM		
FORM FACTOR	3.5" SubCompact Board	3.5" SubCompact Board System
CPU	Intel® 8th Generation Core™ / Celeron Processor: Core i7-8665UE (4C/8T, 1.7GHz, up to 4.40GHz, TDP-up 25W) Core i5-8365UE (4C/8T, 1.6GHz, up to 4.10GHz, TDP-up 25W) Core i3-8145UE (2C/4T, 2.2GHz, up to 3.90GHz, TDP-up 25W) Celeron 4305UE (2C/2T, 2.00GHz, TDP-up 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)
CHIPSET	Integrated with Intel® SoC	
MEMORY TYPE	DDR4 up to 2400MHz Dual Channel, SODIMM x 2, up to 64GB, Non-ECC	
BIOS	UEFI	
WAKE ON LAN	Yes	
WATCHDOG TIMER	255 Levels	
SECURITY	—	
RTC BATTERY	Lithium Battery 3V/240mAh	
DIMENSION	5.75" x 4" (146mm x 101.7mm)	7.00" x 5.28" x 1.69" (178mm x 134.1mm x 43mm)
OS SUPPORT	Windows 10 (64bit) Linux Ubuntu 21.04.0/Kernel 5.10	
POWER		
POWER REQUIREMENT	+9-36V (Optional: +12V)	+9-36V (Optional: +12V)
POWER SUPPLY TYPE	AT/ATX	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)
DISPLAY		
CONTROLLER	Intel® UHD Graphics 610/620	
LVDS/eDP	LVDS Dual Channel 18/24bit x 1, up to 1920 x 1080 (Optional: eDP1.4, , up to 1920x1200)	—
DISPLAY INTERFACE	HDMI2.0a x 1, up to 3840 x 2160 VGA x 1, up to 1920 x 1200	HDMI2.0a x 1 VGA x 1
MULTIPLE DISPLAY	Up to 3 Simultaneous Displays	Up to 2 Simultaneous Displays
AUDIO		
CODEC	Realtek ALC897/892	
AUDIO INTERFACE	Line-in/Line-out/MIC	Line-in/Line-out/MIC(Optional)
SPEAKER	—	
EXTERNAL I/O		
ETHERNET	Intel® i210/i211 & i219, 10/100/1000Base, RJ-45 x2	
USB	USB 3.2 Gen2 x4	
SERIAL PORT	—	
VIDEO	HDMI2.0a x 1, VGA x 1	
INTERNAL I/O		
USB	USB 2.0 x 2	
SERIAL PORT	COM1 (RS232/422/485, supports RI) COM2 (RS232/422/485, supports 5V/12V/RI)	
VIDEO	LVDS/eDP x 1 (Default: LVDS)	—
SATA	SATA III x 1, +5V SATA Power Connector x 1	
AUDIO	Audio Header x 1	Audio Header x 1 (optional)
DIO/GPIO	8-bit	—
SMBus/I2C	I2C/ SMBus x 1 (Default: I2C)	
TOUCH	4/5/8-wire Touch Controller x 1 (optional)	—
FAN	DC Fan x 1 (optional: Smart Fan)	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 PCI-E/mSATA	Full-size mSATA/mPCIe x 1 (Default mSATA, select by BIOS)	
M.2	B-Key 2280 x1 (PCIe x 2, SATA, USB2.0, selected by BIOS) E-Key 2230 x 1 (PCIe, USB2.0)	
OTHERS	—	
ENVIRONMENT & CERTIFICATION		
OPERATING TEMP.	32°F ~ 140°F (0°C ~ 60°C), WITAS2 -40°F ~ 185°F (-40°C ~ 85°C)	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	
EMC	CE/FCC Class A	
Note		

Note: All specifications are subject to change without notice.

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Board Level Products

SubCompact Boards/Systems

SubCompact Boards/Systems



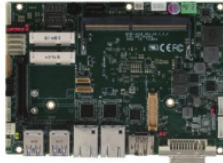
Model	GENE-KBU6	GENESYS-KBU6
SYSTEM		
FORM FACTOR	3.5" SubCompact Board	3.5" SubCompact Board System
CPU	Intel® 7th Generation Core™ /Celeron Processor: Intel® i7-7600U (2C/4T, 2.80GHz, up to 3.90GHz, TDP-up 25W) Intel® i5-7300U (2C/4T, 2.60GHz, up to 3.50GHz, TDP-up 25W) Intel® i3-7100U (2C/4T, 2.40GHz, TDP-up 25W) Intel® Celeron 3965U (2C/2T, 2.20GHz, TDP-up 15W) Integrated with Intel® SoC	
CHIPSET	Integrated with Intel® SoC	
MEMORY TYPE	DDR4 up to 2133MHz, SODIMM x 1, up to 16GB, Non-ECC	
BIOS	UEFI	
WAKE ON LAN	Yes	
WATCHDOG TIMER	255 Levels	
SECURITY	TPM 2.0 (Optional)	
RTC BATTERY	Lithium Battery 3V/240mAh	
DIMENSION	5.75" x 4" (146mm x 101.7mm)	6.69" x 5.39" x 1.91" (170mm x 137mm x 48.5mm)
OS SUPPORT	Windows 10 (64bit) Linux Ubuntu 21.04.0/Kernel 5.10	
POWER		
POWER REQUIREMENT	+9-36V (Optional: +12V)	+9-36V (Optional: +12V)
POWER SUPPLY TYPE	AT/ATX	ATX
CONNECTOR	Phoenix 2-pin Connector	DC Jack Connector
POWER CONSUMPTION	Intel® i7-7600U, DDR4 2666MHz 32GB, 3.26A@ +12V(TYPICAL) Intel® i7-7600U, DDR4 2666MHz 32GB, 4.22A@ +12V(MAX)	Intel® i7-7600U, DDR4 2400MHz 16GB, 1.85A@ +12V(Typical)
DISPLAY		
CONTROLLER	Intel® HD Graphics 610/620	
LVDS/eDP	LVDS Dual Channel 18/24bit x 1, up to 1920 x 1080	—
DISPLAY INTERFACE	Default: DP1.2 x 1 (up to 3840 x 2160) + DVI-D x 1 Optional: DVI-I x 1 (with VGA signal)	DP1.2 x 1 + DVI-D x 1
MULTIPLE DISPLAY	Up to 3 Simultaneous Displays	Up to 2 Simultaneous Displays
AUDIO		
CODEC	Realtek ALC897/892	—
AUDIO INTERFACE	Line-in/Line-out/MIC	—
SPEAKER	—	—
EXTERNAL I/O		
ETHERNET	Intel® i210/i211, 10/100/1000Base-TX, RJ-45 x 2	
USB	USB 3.2 Gen 1 x 4	
SERIAL PORT	—	
VIDEO	DP1.2 x 1, DVI-D x 1	
INTERNAL I/O		
USB	USB 2.0 x 2	
SERIAL PORT	COM1(RS232), COM2, COM3, COM4(RS232/422/485, support 5V/12V/RI)	
VIDEO	LVDS x 1	—
SATA	SATA III x 1, +5V SATA Power Connector x 1	
AUDIO	Audio Header x 1	—
DIO/GPIO	8-bit	—
SMBus/I2C	SMBus x 1	
TOUCH	4/5/8-wire Touch Controller x 1 (optional)	—
FAN	DC Fan x 1 (optional: Smart Fan)	Fanless
SIM	Micro SIM x 1 (Optional)	Micro SIM x 1 (Optional)
FRONT PANEL	HDD LED, PWR LED, Power Button, Buzzer, Reset	HDD LED, PWR LED, Power Button
OTHERS	—	
EXPANSION		
Mini PCI-E/mSATA	Full-size mPCIe x 1, Half size mSATA/mPCIe x 1(Default mSATA, select by BIOS)	
M.2	—	
OTHERS	BIO x 1	—
ENVIRONMENT & CERTIFICATION		
OPERATING TEMP.	32°F ~ 140°F (0°C ~ 60°C)	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)	375,577	123,000
EMC	CE/FCC Class A	
Note		

Note: All specifications are subject to change without notice.

Board Level Products

SubCompact Boards/Systems

SubCompact Boards/Systems



Model	GENE-SKU6	GENE-SKU6 Rev. B
SYSTEM	3.5" SubCompact Board	
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)	
CHIPSET	Integrated with Intel® SoC	
MEMORY TYPE	DDR4 up to 2133MHz, SODIMM x 1, up to 16GB, Non-ECC	
BIOS	UEFI	
WAKE ON LAN	Yes	
WATCHDOG TIMER	255 Levels	
SECURITY	TPM 2.0 (Optional)	
RTC BATTERY	Lithium Battery 3V/240mAh	
DIMENSION	5.75" x 4" (146mm x 101.7mm)	
OS SUPPORT	Windows 7/10 (64bit) Linux Ubuntu 21.04.0/Kernel 5.10	
POWER	+9-36V (Optional: +12V)	
POWER REQUIREMENT	AT/ATX	
POWER SUPPLY TYPE	Phoenix 2-pin Connector	
CONNECTION	Intel® i7-6600U, DDR4 2666MHz 32GB, 3.42A@ +12V(TYPICAL) Intel® i7-6600U, DDR4 2666MHz 32GB, 4.24A@ +12V(MAX)	
POWER CONSUMPTION	Intel® i7-6600U, 6600U, DDR4 2400MHz 16GB, 0.73A at +36V	
DISPLAY	Intel® HD Graphics 510/520	
CONTROLLER	LVDS Dual Channel 18/24bit x 1, up to 1920 x 1080	
LVDS/eDP	Default: DP1.2 x 1 (up to 3840 x 2160)+ DVI-D x 1 Optional: DVI-I x 1(with VGA signal)	
DISPLAY INTERFACE	VGA x1, Up to 1920 x 1200 HDMI1.4 x1, up to 4096 x 2304	
MULTIPLE DISPLAY	Up to 3 Simultaneous Displays	
AUDIO	Realtek ALC897/892	
CODEC	Line-in/Line-out/MIC	
AUDIO INTERFACE	3W Amplifier (Optional)	
SPEAKER	—	
EXTERNAL I/O	Intel® i210/i211, 10/100/1000Base-TX, RJ-45 x 2	
ETHERNET	Intel® i210, 10/100/1000Base-TX, RJ-45 x 2	
USB	USB 3.2 Gen 1 x 4	
SERIAL PORT	—	
VIDEO	DP1.2 x 1, DVI-D x 1	
INTERNAL I/O	HDMI 1.4 x 1 VGA x 1	
USB	USB 2.0 x 2	
SERIAL PORT	COM1(RS232), COM2, COM3, COM4(RS232/422/485, support 5V/12V/RI)	
VIDEO	LVDS x 1	
SATA	SATA III x 1, +5V SATA Power Connector x 1	
AUDIO	Audio Header x 1	
DIO/GPIO	8-bit	
SMBus/I2C	SMBus x 1	
TOUCH	I2C/SMBus x 1 (Default: SMBus)	
FAN	4/5/8-wire Touch Controller x 1 (optional)	
SIM	DC Fan x 1 (optional: Smart Fan)Micro SIM x 1 (Optional)	
FRONT PANEL	DC Fan x 1 (optional: Smart Fan)	
OTHERS	Micro SIM x 1 (Optional)	
EXPANSION	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Mini PCI-E/mSATA	Full-size mPCIe x 1 Half size mSATA/mPCIe x 1(Default mSATA, select by BIOS)	
M.2	Full-size mSATA/mPCIe x 1 (Default mPCIe, select by BIOS) Half size mSATA/mPCIe x 1 (Default mSATA, select by BIOS)	
OTHERS	—	
ENVIRONMENT & CERTIFICATION	BIO x 1	
OPERATING TEMP.	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)	375,577	
EMC	371,039	
Note	CE/FCC Class A	

Note: All specifications are subject to change without notice.

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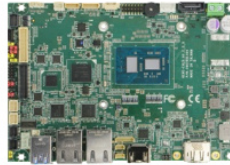
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Board Level Products

SubCompact Boards/Systems

SubCompact Boards/Systems



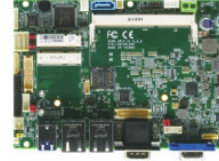
Model	GENE-EHL5	GENESYSM-EHL5
SYSTEM		
FORM FACTOR	3.5" SubCompact Board	3.5" SubCompact Board System
CPU	Intel® Atom™ x6000E series, Intel® Pentium®, and Celeron® N and J series processors: Intel® Atom™ x6425RE (4C, 1.9GHz, TDP-up 12W) Intel® Atom™ x6425E (4C, 2.0GHz, up to 3GHz, TDP-up 12W) Intel® Atom™ x6211E (2C, 1.2GHz, up to 3GHz, TDP-up 6W) Intel® Pentium® J6426 (4C, 2.0GHz, up to 3GHz, TDP-up 10W) Intel® Celeron® J6412 (4C, 2.0GHz, up to 3GHz, TDP-up 10W) Intel® Celeron® N6210 (2C, 1.2GHz, up to 3GHz, TDP-up 6.5W) (Intel® Atom™ x6414RE/x6413E/x6427FE/x6200FE/N6415 by customer's request)	Intel® Atom™ x6000E series, Intel® Pentium®, and Celeron® N and J series processors: Intel® Atom™ x6425E (4C, 2.0GHz, up to 3GHz, TDP-up 12W) Intel® Celeron® J6412 (4C, 2.0GHz, up to 3GHz, TDP-up 10W) Intel® Celeron® N6210 (2C, 1.2GHz, up to 3GHz, TDP-up 6.5W)
CHIPSET	Integrated with Intel® SoC	
MEMORY TYPE	DDR4 3200 MHz, SODIMM x 1, Up to 32GB, Support IBEC (select SKUs)	DDR4 up to 3200 Hz, SODIMM x 1, up to 32GB, in band ECC
BIOS	UEFI	
WAKE ON LAN	Yes	
WATCHDOG TIMER	255 Levels	
SECURITY	TPM 2.0	
RTC BATTERY	Lithium Battery 3V/240mAh	
DIMENSION	5.75" x 4" (146mm x 101.7mm)	7.00" x 5.28" x 2.08" (178mm x 134.1mm x 53mm)
OS SUPPORT	Windows 10 (64bit), Linux Ubuntu 20.04.3(LT)/Kernel 5.13	
POWER		
POWER REQUIREMENT	+9-36V (Optional: +12V)	+12V/+9-36V
POWER SUPPLY TYPE	AT/ATX	ATX
CONNECTOR	Phoenix 2-pin Connector	DC Jack Connector
POWER CONSUMPTION	Intel® Atom™ x6425E, DDR4 32GB, 3.26A@ +12V(balance), 3.26A@+12V(TYPICAL) Intel® Atom™ x6425E, DDR4 32GB, 3.26A@ +12V(balance), 3.42A@+12V(Max)	
DISPLAY		
CONTROLLER	Intel® UHD Graphics for 10th Gen Intel® Processors	
LVDS/eDP	LVDS Dual Channel 18/24bit x 1, up to 1920 x 1080 (Optional eDP 1.3, up to 1920X1200)	—
DISPLAY INTERFACE	HDMI2.0b x 1, up to 4K 60Hz DP1.4 x 1, up to 4K x 2K 60Hz (Optional: VGA x 1)	HDMI2.0b x 1, up to 4K 60Hz VGA x 1
MULTIPLE DISPLAY	3 Simultaneous Displays	Up to 2 Simultaneous Displays
AUDIO		
CODEC	REALTEK ALC269	Realtek ALC897
AUDIO INTERFACE	Line-in/Line-out/MIC	
SPEAKER	2W Speaker	
EXTERNAL I/O		
ETHERNET	Intel® I210, 10/100/1000Base x 2	
USB	USB3.2 Gen 2 x 2	USB3.2 Gen 2 x 2 USB2.0 x 2
SERIAL PORT	—	COM1, COM2 (RS232/422/485, supports 5V/12V/RI)
VIDEO	HDMI 2.0b x 1, DP1.4 x 1 (Optional VGA x 1)	HDMI 2.0b x 1 VGA x 1
INTERNAL I/O		
USB	USB2.0 x 4	—
SERIAL PORT	RS-232/422/485 x 4	—
VIDEO	LVDS/eDP x 1	—
SATA	SATA3.0 x 1, +5V SATA Power Connector x 1	SATA III x 1, +5V SATA Power Connector x 1, eMMC5.1 32GB
AUDIO	Audio Header x 1	
DIO/GPIO	16 Bits (8 In/8 Out)	16 Bits (Optional: with E-Base)
SMBus/I2C	SMBus/I2C x 1 (Default: SMBus)	
TOUCH	4/5/8-wire Touch Controller x 1 (optional)	—
FAN	4 wire Smart Fan x 1	4pins Smart Fan x1
SIM	Nano SIM x 1	
FRONT PANEL	HDD LED, PWR LED, Power Button, Buzzer, Reset	
OTHERS	eMMC5.1 32GB CANBUS x 2, TX/RX (Celeron J6412 and Celeron N6210 don't support CANBUS)	—
EXPANSION		
Mini PCI-E/mSATA	—	
M.2	E-Key 2230 x 1 (PCIe, USB2.0) B-Key 2242 x 1 (PCIe x 2/PCIe/SATA x 1, USB2.0) Default: PCIe x 2, PCIe x 1 select by BIOS, SATA select by BOM B-Key 2280 x 1 (PCIe x 1/PCIe x 2, USB2.0) Default: PCIe x 1, PCIe x 2 select by BIOS B-Key 3052 x 1 (USB3.2 Gen2)	
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) with 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)	335,427	
EMC	CE/FCC Class A	

Board Level Products

SubCompact Boards/Systems

01

SubCompact Boards/Systems



Model	GENE-APL5	GENE-APL6
SYSTEM	3.5" SubCompact Board	
FORM FACTOR		
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 up to 1866MHz, SODIMM x 1, up to 8GB, Non-ECC	DDR3L 1600MHz (max.8GB)/1866MHz (max.4GB), SODIMM x 1, Non-ECC *1866MHz is limited to the verified DDR module in AAEON's Approved Vendor List
BIOS	UEFI	
WAKE ON LAN	Yes	
WATCHDOG TIMER	255 Levels	
SECURITY	TPM 2.0 (Optional)	
RTC BATTERY	Lithium Battery 3V/240mAh	
DIMENSION	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	
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)	
SATA	SATA III x 1, +5V SATA Power Connector x 1	
AUDIO	Audio Header x 1	
DIO/GPIO	8-bit	
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 PCI-E/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		

Note: All specifications are subject to change without notice.

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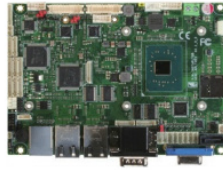
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Board Level Products

SubCompact Boards/Systems

SubCompact Boards/Systems



Model	GENE-APL7	GENESYS-APL7
SYSTEM		
FORM FACTOR	3.5" SubCompact Board	3.5" SubCompact Board System
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)	Intel® Atom™/Celeron®/Pentium® Processor: Pentium N4200 (4C/4T, 1.10GHz, up to 2.50GHz, TDP 6W) Celeron N3350 (2C/2T, 1.10GHz, up to 2.40GHz, TDP 6W)
CHIPSET	Integrated with Intel® SoC	
MEMORY TYPE	DDR3L 1600MHz (max.8GB)/1866MHz (max.4GB), SODIMM x 1, Non-ECC *1866MHz is limited to the verified DDR module in AAEON's Approved Vendor List	DDR3L up to 1866MHz, SODIMM x 1, up to 8GB, Non-ECC
BIOS	UEFI	
WAKE ON LAN	Yes	
WATCHDOG TIMER	255 Levels	
SECURITY	—	
RTC BATTERY	Lithium Battery 3V/240mAh	
DIMENSION	5.75" x 4" (146mm x 101.7mm)	7.00" x 5.28" x 1.69" (178mm x 134.1mm x 43mm)
OS SUPPORT	Windows 10 (64bit) Linux Ubuntu 21.04.0/Kernel 5.10	
POWER		
POWER REQUIREMENT	12V Only	+12V
POWER SUPPLY TYPE	AT/ATX	ATX
CONNECTOR	Phoenix 2-pin Connector	DC Jack Connector
POWER CONSUMPTION	Intel® E3950, DDR3L 1866MHz 8GB, 4.15A @+12V(TYPICAL) Intel® E3950, DDR3L 1866MHz 8GB, 4.29A @+12V(MAX)	Intel® N4200, DDR3L 1600MHz 8GB, 1.61A @+12V(Typical)
DISPLAY		
CONTROLLER	Intel® HD Graphics 500/505	Intel® HD Graphics 500/505
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	—
DISPLAY INTERFACE	VGA x 1, up to 1920 x 1200	VGA x 1
MULTIPLE DISPLAY	Up to 3 Simultaneous Displays	—
AUDIO		
CODEC	Realtek ALC897/892	—
AUDIO INTERFACE	Line-in/Line-out/MIC	—
SPEAKER	2W Amplifier(Optional)	—
EXTERNAL I/O		
ETHERNET	Realtek RTL8119-CG, 10/100/1000Base, RJ-45 x 2	
USB	USB 3.2 Gen1 x 2	USB 3.2 Gen1 x 2
SERIAL PORT	COM1 (RS232) COM2 (RS232/422/485, support 5V/12V/Ri)	COM1 (RS232)
VIDEO	VGA 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	Optional: COM3, COM4(RS232, COM3~COM5 support 5V/12V/Ri) Optional: COM9~COM12
VIDEO	LVDS1/eDP (Default: LVDS1) LVDS2	—
SATA	SATA III x 1 +5V SATA Power Connector x 1	
AUDIO	Audio Header x 1 Speaker Header x 2 (optional)	—
DIO/GPIO	8-bit	—
SMBus/I2C	I2C/SMBus x1 (Default: SMBus)	
TOUCH	—	
FAN	DC Fan x 1 (optional: Smart Fan)	
SIM	Micro SIM x 1 (Optional)	
FRONT PANEL	HDD LED, PWR LED, Power Button, Buzzer, Reset	PWR LED, Power Button
OTHERS	—	
EXPANSION		
Mini PCI-E/mSATA	Full-size mPCIe x 1 Full-Size mSATA/mPCIe x 1 (Default mSATA, BOM Option: mPCIe)	
M.2	—	
OTHERS	—	
ENVIRONMENT & CERTIFICATION		
OPERATING TEMP.	32°F ~ 140°F (0°C ~ 60°C)	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)	409,108	126,000
EMC	CE/FCC Class A	
Note		

Note: All specifications are subject to change without notice.

Board Level Products

SubCompact Boards/Systems

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SubCompact Boards/Systems



Model	GENE-BSW5	GENE-BT04
SYSTEM	3.5" SubCompact Board	
FORM FACTOR	3.5" SubCompact Board	
CPU	Intel® Celeron® N Processor: Intel® Celeron® N3160 (4C/4T, 1.60GHz, up to 2.24GHz)	Intel® Atom™/ Celeron® Processor: Celeron® J1900 (4C/4T, 2.00GHz, up to 2.42GHz, 10W) Celeron® N2807 (2C/2T, 1.58GHz, up to 2.16GHz, 4.3W)
CHIPSET	Integrated with Intel® SoC	
MEMORY TYPE	DDR3L up to 1600MHz, SODIMM x 1, up to 8GB, Non-ECC	DDR3L up to 1333MHz, SODIMM x 1, up to 8GB, Non-ECC
BIOS	UEFI	
WAKE ON LAN	Yes	
WATCHDOG TIMER	255 Levels	
SECURITY	—	
RTC BATTERY	Lithium Battery 3V/240mAh	
DIMENSION	5.75" x 4" (146mm x 101.7mm)	
OS SUPPORT	Windows 7/10 (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~24V	
POWER SUPPLY TYPE	AT/ATX	
CONNECTOR	Phoenix 2-pin Connector	DC Jack Connector
POWER CONSUMPTION	Intel® N3160, DDR3L 1600MHz 8GB, 1.63A @ +12V(TYPICAL) Intel® N3160, DDR3L 1600MHz 8GB, 1.95A @ +12V(MAX)	Intel® N2807, DDR3L 1600MHz 4G, 0.65A @ +12V(TYPICAL)
DISPLAY	Intel® HD Graphics for Intel® Celeron® Processor N3000 Series	
CONTROLLER	Intel® HD Graphics for Intel® Celeron® Processor N3000 Series	Intel® HD Graphics for Intel Atom® Processor Z3700 Series
LVDS/eDP	LVDS1 Dual Channel 18/24bit x 1, up to 1920 x 1080 LVDS2 Dual Channel 18/24bit x 1 (Optional: HDMI 1.4b)	—
DISPLAY INTERFACE	VGA x 1, up to 1920 x 1200	HDMI x 2: HDMI 1 (w/Audio), HDMI 2 (w/o Audio)
MULTIPLE DISPLAY	Up to 3 Simultaneous Displays	Up to 2 Simultaneous Displays
AUDIO	Realtek ALC897/892	
CODEC	Line-in/Line-out/MIC	
AUDIO INTERFACE	—	
SPEAKER	—	
EXTERNAL I/O	COM1 (RS232)	
ETHERNET	Realtek RTL8119-CG, 10/100/1000Base-TX, RJ-45 x2	Intel® i210, 10/100/1000Base, RJ-45 x 4
USB	USB 3.2 Gen1 x 2	USB 2.0 x 2, USB 3.2 Gen 1 x 1
SERIAL PORT	COM1 (RS232)	
VIDEO	VGA x 1 HDMI x1 (optional)	HDMI x2
INTERNAL I/O	COM2, COM3 (RS232/422/485, supports 5V/12V/Rt) COM4, COM5, COM6 (RS232)	
USB	USB2.0 x 3	—
SERIAL PORT	COM2, COM3 (RS232/422/485, supports 5V/12V/Rt) COM4, COM5, COM6 (RS232)	—
VIDEO	LVDS1 x 1 LVDS2/HDMI x 1 (Default: LVDS2)	—
SATA	SATA III x 1 +5V SATA Power Connector x 1	
AUDIO	Audio Header x 1	—
DIO/GPIO	8-bit	4-bit
SMBus/I2C	I2C/SMBus x1 (Default: SMBus)	—
TOUCH	4/5/8-wire Touch Controller x 1 (optional)	—
FAN	DC Fan x 1 (optional: Smart Fan)	—
SIM	—	SIM X1
FRONT PANEL	HDD LED, PWR LED, Power Button, Buzzer, Reset	
OTHERS	—	CFast™ x 1
EXPANSION	Full-size mPCIe x 1 Half size mPCIe/msATA x 1 (Default msATA, BOM Option: mPCIe)	
Mini PCI-E/msATA	Mini-Card x 1 (for USB only)	
M.2	—	
OTHERS	—	
ENVIRONMENT & CERTIFICATION	32°F ~ 140°F (0°C ~ 60°C) -40°F ~ 176°F (-40°C ~ 80°C) 0% ~ 90% relative humidity, non-condensing	
OPERATING TEMP.	32°F ~ 140°F (0°C ~ 60°C)	
STORAGE TEMP.	-40°F ~ 176°F (-40°C ~ 80°C)	
OPERATING HUMIDITY	0% ~ 90% relative humidity, non-condensing	
MTBF (HOURS)	325,391	155,000
EMC	CE/FCC Class A	
Note		

Note: All specifications are subject to change without notice.

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Board Level Products

SubCompact Boards/Systems

SubCompact Boards/Systems



Model	GENE-BT05	GENESYS-BT05
SYSTEM		
FORM FACTOR	3.5" SubCompact Board	3.5" SubCompact Board System
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	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	
DIMENSION	5.75" x 4" (146mm x 101.7mm)	7.00" x 5.28" x 1.69" (178mm x 134.1mm x 43mm)
OS SUPPORT	Windows 7/10 (64bit) Linux Ubuntu 20.04.3/Kernel 5.11	
POWER		
POWER REQUIREMENT	+12V Only	
POWER SUPPLY TYPE	AT/ATX	ATX
CONNECTOR	Phoenix 2-pin Connector	DC Jack Connector
POWER CONSUMPTION	Intel® J1900, DDR3L 1600MHz 8GB, 1.73A @ +12V(TYPICAL) Intel® J1900, DDR3L 1600MHz 8GB, 1.88A @ +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 x 1, up to 3840 x 2160 VGA x 1, up to 1920 x 1200	HDMI 1.4a x 1 VGA x 1
MULTIPLE DISPLAY	Up to 3 Simultaneous Displays	Up to 2 Simultaneous Displays
AUDIO		
CODEC	Realtek ALC897/892	—
AUDIO INTERFACE	Line-in/Line-out/MIC	—
SPEAKER	—	
EXTERNAL I/O		
ETHERNET	Intel® i210/i211, 10/100/1000Base, RJ-45 x 2	Intel® i210, 10/100/1000Base, RJ-45 x 2
USB	USB 3.2 Gen 1 x 1 USB 2.0 x 1	
SERIAL PORT	COM1 (RS232)	
VIDEO	VGA x 1, HDMI 1.4a x 1	
INTERNAL I/O		
USB	USB2.0 x 2	
SERIAL PORT	COM2, COM3 (RS232/422/485, supports 5V/12V/RI), COM4 (RS232)	COM2, COM3 (RS232/422/485, supports 5V/12V/RI)(Optional)
VIDEO	LVDS x 1	—
SATA	SATA III x 1, +5V SATA Power Connector x 1	SATA III x 1 +5V SATA Power Connector x 1
AUDIO	Audio Header x 1	—
DIO/GPIO	8-bit	—
SMBus/I2C	I2C/SMBus x1 (Default: SMBus)	I2C/SMBus x1 (Optional)
TOUCH	4/5/8-wire Touch Controller x 1 (optional)	—
FAN	DC Fan x 1 (optional: Smart Fan)	Heatsink x 1 (Optional: DC Fan)
SIM	SIM X1	
FRONT PANEL	HDD LED, PWR LED, Power Button, Buzzer, Reset	
OTHERS	CFast™ (option with mSATA by BOM, occupies one Mini Card location)	—
EXPANSION		
Mini PCI-E/mSATA	Full-Size mPCIe/ USB2.0 x 1 Half-Size mSATA/ mPCIe x 1 (BOM optional)	Full-Size mPCIe x 1 Half-Size mSATA/ mPCIe x 1
M.2	—	
OTHERS	CFast™(Optional)	
ENVIRONMENT & CERTIFICATION		
OPERATING TEMP.	32°F ~ 140°F (0°C ~ 60°C) or WITAS 2 (E3825)	32°F ~ 122°F (0°C ~ 50°C)
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)	344,859	
EMC	CE/FCC Class A	
Note		

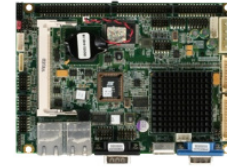
Note: All specifications are subject to change without notice.

Board Level Products

SubCompact Boards/Systems

01

SubCompact Boards/Systems



Model	GENE-BT06	GENE-5315 Rev. A	GENE-5315 Rev. B
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)	AMD Geode™ LX800 Processor AMD Geode™ LX 800(500MHz, 3.6W)	
CHIPSET	Integrated with Intel ® SoC	CS5536	
MEMORY TYPE	On Board DDR3L 1066/1333MHz,up to 4GB,Non-ECC	DDR333 SODIMM x 1 (DDR400 optional),up to 1GB	
BIOS	UEFI	Award 1MB	
WAKE ON LAN		Yes	
WATCHDOG TIMER		255 Levels	
SECURITY	TPM 2.0 (BOM optional)	—	—
RTC BATTERY		Lithium Battery 3V/240mAh	
DIMENSION		5.75" x 4" (146mm x 101.7mm)	
OS SUPPORT	Windows 7/10 (64bit) Linux Ubuntu 20.04.0/Kernel 5.11	Windows XP 32-bit	
POWER			
POWER REQUIREMENT	+9~24V	+5V	
POWER SUPPLY TYPE		AT/ATX	
CONNECTOR	Phoenix 2-pin Connector	4Pin 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)	LX 800 500 MHz, DDR400 1 GB, 1.17A@+5V(Typical)	
DISPLAY			
CONTROLLER	Intel® HD Graphics for Intel Atom® Processor Z3700 Series	AMD Geode™	
LVDS/eDP	LVDS Dual Channel 18/24bit x 1, up to 1920 x 1080	Up to 24-bit Single Channel LVDS/ TTL LCD	
DISPLAY INTERFACE	HDMI 1.4a, up to 3840 x 2160 (Opctional: DP1.1a) VGA x 1, up to 1920 x 1200	VGA x1, up to 1920 x 1200	VGA x1, up to 1920 x 1200
MULTIPLE DISPLAY	Up to 3 Simultaneous Displays	Up to 2 Simultaneous Displays	Up to 2 Simultaneous Displays
AUDIO			
CODEC	Realtek ALC897/892	High Definition Audio Interface	High Definition Audio Interface
AUDIO INTERFACE	Line-in/Line-out/MIC	Line-in/Line-out/MIC/CD-in	Line-in/Line-out/MIC/CD-in
SPEAKER	2W Amplifier(Optional)	—	—
EXTERNAL I/O			
ETHERNET	Intel® i210, 10/100/1000Base, RJ-45 x 2	10/100Base-TX x 2, Realtek RTL 8139DL	
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)	VGA x1	
INTERNAL I/O			
USB	USB2.0 x 2	USB2.0 x 4	
SERIAL PORT	COM2, COM3 (RS232/422/485, supports 5V/12V/ Ri),COM4 (RS232)	COM2(RS-232/422/485)	COM2, COM3, COM4(RS-232/422/485)
VIDEO	LVDS x1	TTL LCD x1 LVDS LCD x1	
SATA	SATA II x 1, +5V SATA Power Connector x 1	—	
AUDIO		Audio Header x 1	
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)	System Fan x1	
SIM	SIM x 1	—	
FRONT PANEL		HDD LED, PWR LED, Power Button, Buzzer, Reset	
OTHERS	—	SPP/EPP/ECP x 1,CompactFlash™ x1,UDMA33 x 1	
EXPANSION			
Mini PCI-E/mSATA	Full-size mPCIe/USB2.0 x 1 Half-size mSATA/mPCIe x 1 (BOM optional)	—	
M.2		—	
OTHERS	—	Mini-PCI x1,PC/104 x1,Floppy Disk Drive x 1	Mini-PCI x 1, Floppy Disk Drive x 1
ENVIRONMENT & CERTIFICATION			
OPERATING TEMP.	32°F ~ 140°F (0°C ~ 60°C) or WITAS 2 -40°F ~ 185°F (-40°C ~ 85°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C), WITAS1 -4°F ~ 158°F (-20°C ~ 70°C)
STORAGE TEMP.	-40°F ~ 176°F (-40°C ~ 80°C)		
OPERATING HUMIDITY	0% ~ 90% relative humidity, non-condensing		
MTBF (HOURS)	403,079	90,000	
EMC		CE/FCC Class A	

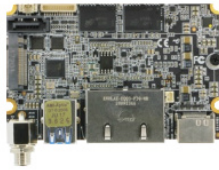
Note: All specifications are subject to change without notice.

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Board Level Products

de next



Model	de next-TGU8	de next-V2K8
SYSTEM		
FORM FACTOR	86mm x 55mm, Single board computer	
CPU	Onboard 11th Gen. Intel® Core™ Processor i7-1185G7E (4C/8T, 1.80GHz, up to 4.40GHz) i5-1145G7E (4C/8T, 1.50GHz, up to 4.10GHz) i3-1115G4E (2C/4T, 2.20GHz, up to 3.90GHz)	AMD Ryzen™ Embedded V2718 with Radeon™ Graphics , AMD Ryzen™ Embedded V2516 with Radeon™ Graphics
CPU TDP	15W, (TDP up to 28W)	10W, TDP-up to 25W : V2718 / V2516
CHIPSET	Integrated with Intel® SoC	Integrated with AMD Ryzen™ Embedded SoC
MEMORY TYPE	Onboard LPDDR4x, 3733, up to 16GB	Onboard LPDDR4x 3200, up to 16GB
BIOS	UEFI	
WAKE ON LAN	Yes	
WATCHDOG TIMER	255 Levels	
SECURITY	fTPM	
RTC Battery	Lithium Battery 3V/240mAh	
DIMENSION (L X W)	3.38" x 2.17" (86 mm x 55 mm)	
POWER		
POWER REQUIREMENT	DC in +12V	
POWER SUPPLY TYPE	AT/ATX	
CONNECTOR	DC Jack (Optional: 2 Pin Phoenix Connector)	
POWER CONSUMPTION	With i7-1185G7E + LPDDR4x 16GB : 12V@7A, 84W (Peak during full loading) With i7-1185G7E + LPDDR4x 16GB : 12V@4.58A, 55W (steady state during full loading)	AMD Ryzen™ V2718 Processor, LPDDR4 3200MHz 16GB, 3.92A@12V, 47.04W during full loading test (Peak) AMD Ryzen™ V2718 Processor, LPDDR4 3200MHz 16GB, 3.07A@12V, 36.84W during full loading test (Steady)
DISPLAY		
CONTROLLER	Intel® UHD Graphics for 11th Gen Intel® Processors	AMD Radeon™ Graphics
LVDS/eDP	eDP only, up to 3840 X 2160 Resolution	
Display Interface	eDP x 1 HDMI 1.4b x 1	
Multiple Display	Up to 2 Simultaneous Displays	
AUDIO		
CODEC	—	
AUDIO INTERFACE	—	
Speaker	—	
EXTERNAL I/O		
ETHERNET	Intel® i219LM, 10/100/1000Base, RJ-45 x1 Intel® i225LM, 10/100/2500Base, RJ-45 x1	REALTEK RTL8111H, 10/100/1000Base, RJ-45 x1 , Intel® i225LM, 10/100/2500Base, RJ-45 x1
USB	USB3.2 Gen 2 x 2 (Type A)	
SERIAL PORT	—	
VIDEO	HDMI 1.4b x 1	
INTERNAL I/O		
USB	USB2.0 x 4 (pin header) Note : USB2.0 x 2 shared with adapter card	USB2.0 x 4 (pin header)
SERIAL PORT	COM Port (RS232/422/485) x 2 (pin header)	
VIDEO	eDP x 1	
SATA	SATA3 x 1 +5V SATA Power Connector x 1	
AUDIO	—	
DIO/GPIO	8-Bit (pin header)	
SMBus/I2C	Optional	
Touch	—	
FAN	Smart Fan x1	
SIM	—	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
EXPANSION		
Mini PCI-E/mSATA	—	
M.2	M-Key 2280 x 1 (PCIe[x2])	M-Key 2280 x 1 (PCIe[x2])
Others	PCIe[x4] Gen3 x 1 (by FPC Connector)	—
ENVIRONMENT & CERTIFICATION		
OPERATING TEMP	32°F ~ 140°F (0°C ~ 60°C)	
STORAGE TEMP	-40°F ~ 176°F (-40°C ~ 80°C)	
OPERATING HUMIDITY	0% ~ 90% relative humidity, non-condensing	
MTBF (HOURS)	594,420	609,263
EMC	CE/FCC Class A	CE/FCC Class A
Note		

Note: All specifications are subject to change without notice.

Board Level Products

UP Boards

01

UP Boards



Model	UP Board	UP 4000
System		
Processor	Intel® Atom® x5-Z8350 Processor SoC	Intel® Celeron® N3350/ Intel® Pentium® N4200/ Intel Atom® x7-E3950 Processor SoC
Graphics	Intel® HD 400 Graphics, 12 EU GEN 8, up to 500MHz Support DX*11.1/12, Open GL*42, Open CL* 1.2 OGL ES3.0, H.264, HEVC(decode), VP8	Intel® Gen 9 HD, supporting 4K Codec Decode and Encode for HEVC4, H.264,VP8
I/O	HDMI x 1 I2S Audio port x 1	2 pin wafer for Fan (12V) x 1 2 pin wafer for RTC Battery x 1 6 pin wafer for Audio (Line out + MIC in) x 1 10 pin wafer (2 USB2.0 + 1 HSUART) x 1 HAT 40 pin header x 1 4pin wafer power button for front panel x 1 41 pin FPC connector for high speed expend x 1 power button x 1
Camera	MIPI-CSI (4 MEGA pixel)	—
USB	USB 2.0 x4 USB 2.0 pin header (10 pins in total) x 2 USB3.0 OTG x 1	USB 3.2 Gen 1 (Type A) x 3 USB 2.0 pin header (10 pins in total) x 2 USB 3.2 Gen 1 OTG via USB Type-C x 1
Expansion	40 pin General Purpose bus, supported by Altera Max V. ADC 8-bit@188ksos	40 pin GPIO x 1 via carrier board: M.2 2230/2242/2280 x 1 M.2 3052 x 1
RTC		Yes
Power	5V DC-in @ 4A 5.5/2.1mm jack	12V DC-in @5A (phoenix Terminal co-lay)
Dimension		3.34" x 2.20" (85mm x 56mm)
Memory	1GB/ 2GB/ 4GB DDR3L-1600	onboard LPDDR4 max to 8GB
Storage		eMMC 16GB / 32GB/ 64GB
Display Interface	DSI/eDP	HDMI 1.4bx 1 DP 1.2 via USB TYPE C Connector
Ethernet	Gb Ethernet (full speed) RJ-45 x 1	1 Gb Ethernet (full speed) RJ-45 x 1
OS Support	Win 10 Linux (ubilinux, Ubuntu, Yocto)	Microsoft Windows 10 (full), Windows IOT Core Yocto project 3.1 Kernel 5.4 Ubuntu 18.04
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow
Operation Humidity		10% ~ 80% relative humidity, non-condensing
Certification		CE/FCC Class A, RoHS Compliant
Note		

Note: All specifications are subject to change without notice.

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Board Level Products
UP Boards

UP Boards



Model	UP Squared	UP Squared Pro	UP Squared 6000
System			
Processor	Intel® Pentium® N4200/ Celeron® N3350/ Atom™ E3940/ E3950 Processor SoC	Intel® Pentium® N4200/ Celeron® N3350/ Atom® E3950 Processor SoC	Intel® Atom® X6413E / X6425RE, Celeron® N6210 (no PSE), Pentium® J6426 Processor SoC
Graphics	Intel® Gen 9 HD, supporting 4K Codec Decode and Encode for HEVC4, H.264, VP8		Intel® UHD Graphics
I/O	HDMI x 1 DP x 1 I2S Audio Port	HDMI x 1 DP x 1 COM port (RS422/RS232/RS485) x 2 Audio Jack x 1	HDMI 2.0b x 1 DP 1.2 x 1 eDP x 1 (Limited to Atom series) Audio wafer x 1 RS-232/422 x 1 (Limited to Atom series)
Camera	CSI 2-Lane + CSI 4-Lane		—
USB	USB 2.0 x 2 USB3.0 OTG x 1 USB3.0 (Type A) x 3	USB 2.0 x 2 USB 3.2 Gen 1 OTG x 1 USB 3.2 Gen 1 (Type A) x 3	USB 2.0 x 2 (from wafer x 1) USB 3.2 Gen 2 Type A x 2 USB 3.2 Gen 2 Type C (support OTG) x 1 (Limited to Atom series)
Expansion	40 pin GPIO x 1 Full-sized Mini-PCIe x 1 (PCIe & SATA + USB2.0) M.2 2230 x 1 SATA3 x 1 60 pin EXHAT x 1	40 pin GPIO x 1 M.2 2230 E-key x 1 M.2 2280 M-key x 1 SATA3 x 1 M.2 3042/3052 B-key x 1	40 pin GPIO x 1 M.2 2230 E-key x 1 M.2 2280 PCIe Gen3.0x2 M-key x 1 SATA3 x 1 M.2 3052 B-key x 1 Nano SIM slot x 1 100 pin high speed board-board connector x 1 (Limited to Atom series) TPM 2.0 (Limited to Atom series)
RTC	Yes		
Power	5V DC-in @ 4A-6A	12V-24V DC-in (Lockable plug)/ Phoenix connector (optional)	12V DC-in (Lockable plug)
Dimension	3.37" x 3.54" (85.6 mm × 90 mm)	4" x 4" (101.6mm x 101.6mm)	
Memory	2GB (single channel) LPDDR4 4GB/8GB (dual channel) LPDDR4	2GB (single channel) LPDDR4 4GB/8GB (dual channel) LPDDR4	Up to 8GB DDR4
Storage	eMMC 32 GB / 64 GB / 128 GB	eMMC 32 GB / 64 GB	UP to 64GB eMMC
Display Interface	eDP	HDMI1.4 x 1 DP1.2 x 1 eDP x 1	HDMI 2.0b x 1 DP 1.2 x 1 eDP x 1 (Limited to Atom series)
Ethernet	Gb Ethernet (full speed) RJ-45 x 2		GbE x 1, 2.5GbE x 1 Atom: Intel® i210-IT, i225-IT PC Client: Intel® i211-AT, i225-V
OS Support	Microsoft Windows 10 (full), Windows IOT Core, Linux (ubilinux, Ubuntu, Yocto), Android Nougat	Microsoft Windows 10 (full), Windows IOT Core Linux: Ubuntu 18.04.5, Ubuntu 20.04.1, Yocto 3.1	Microsoft Windows 10 (full), Windows IOT Core Linux: Ubuntu 20.04 LTS, Yocto 3.1
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	with Fan: 32°F ~ 140°F (0°C ~ 60°C, with airflow 0.5m/s) with Heatsink: 32°F ~ 122°F (0°C ~ 50°C, with airflow 0.5m/s)	With Heatsink: 32°F ~ 140°F (0°C ~ 60°) / 0.5 airflow
Operation Humidity	0% ~ 90% relative humidity, non-condensing		
Certification	CE/FCC Class A, RoHS Compliant, REACH		
Note			

Board Level Products

UP Boards

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UP Boards



Model	UP Squared V2	UP Squared Pro 7000
System		
Processor	Intel® Celeron® N6210 Pentium® J6426 Processor SoC	Intel®Core™ i3-N305 Intel Atom®x7425E Intel®Processor N97 Intel®Processor N50 (formerly Alder Lake N)
Graphics	Intel® UHD Graphics	Intel® UHD Graphics Gen 12
Memory	Up to 16GB LPDDR4	Up to 16GB LPDDR5
Storage	Up to 64GB eMMC	
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 2.0b x 1 DP 1.2 x 1 DP 1.2 via USB Type C Audio Jack x 1 (Mic-in+Line-out) RS-232/422/485 from 6 pin header x 1
Camera	—	
USB	USB 2.0 x 2 (from 10 pin wafer x 1) USB 3.2 Gen 2 Type A x 3	USB 2.0 x 2 (from 10 pin header 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 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 X1, USB2.0) M.2 2280 M-key x 1 (PCIe X2, USB2.0) M.2 3052 B-key x 1 (USB3.0 only) SATA3 x 1
Display Interface	HDMI 1.4b x 1 DP 1.2 x 1 eDP 1.3 x 1	HDMI 2.0b x 1 DP 1.2 x 1 DP 1.2 via USB Type C
Ethernet	Gb Ethernet (full speed) RJ-45 x 2	2.5GbE x 2 (Intel®/i226-IT)
Security	Onboard TPM 2.0	
RTC	Yes	
OS Support	Microsoft Windows 10 (full) Windows IOT Core Ubuntu 20.04 LTS Yocto 3.1	Windows 10 IoT Enterprise Windows IoT Core Ubuntu 22.04 LTS Yocto 4
Power Requirement		
Power	12V DC-in, 5A	12V DC-in, 6A
POWER SUPPLY TYPE	AT/ATX	
POWER CONSUMPTION (TYPICAL)	30~38W	TBD
Mechanical		
Dimension	3.37" x 3.54" (85.6 mm × 90 mm)	4" x 4" (101.6 mm × 101.6 mm)
Net Weight	0.52 lbs (0.24kg)	0.44 lbs (0.20kg)
Gross Weight	0.66 lbs (0.3kg)	0.77 lbs (0.35kg)
Environment		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow	
Operation Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF	465,586	465,586
Certification	CE/FCC Class A, RoHS Compliant, REACH	
Note		

Note: All specifications are subject to change without notice.

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Board Level Products
UP Boards

UP Boards



Model	UP Xtreme	UP Xtreme i11
System		
Processor	8th generation Intel® Core i7/i5/i3/Celeron® Processor SoC	11th Gen Intel® Core™ Processor SoC Core i7-1185G7E Core i7-1185GRE Core i5-1145 G7E Core i5-1145GRE Core i3-1115GRE Celeron® 6305E
Graphics	Intel® Graphics , GEN 9	Intel® Iris® Xe graphics
I/O	RJ45 Ethernet Connector x 2 HDMI/DP STACK Connector x 1 Power Button / LED x 1 Audio Jack (Line out + MIC) x 1 DC connector (Lockable) x 1 STM32 connector x 1 eDP with Backlight control Header x 1 10 pin 1xUSB2.0 x 1 / HSUART (TTL) x 1 SATA Connector with power connector (5V, GND) x 1 4 pin Fan connector x1 Power Button header x 1 Reset Pin header x 1 M.2 2230 E Key x 1 M.2 2280 M Key x 1 40 pin HAT connector x 1 mPCIe slot x 1 10 pin RS232/422/485 pin header x 2 100pin connector x 1	RJ45 Ethernet Connector x 2 HDMI/DP Stack Connector x 1 Power Button / LED x 1 DC Connector (Lockable) x 1 10-pin USB 2.0 x 2 / HSUART x 1 SATA Connector with Power Connector (5V, GND) x 1 4pin Fan Connector x1 6pin Front Panel Header M.2 2230 E Key x 1 M.2 2280 M Key x 1 USB 4.0 40-pin HAT Connector x 1 M.2 3052 B Key x 1 with SIM 10-pin RS232/422/485 Pin Header x 2 Alternative 4pin ATX Connector Behind DC Connector
Camera		—
USB	USB 3.2 Gen 2 STACK Connector for 2 ports (Front) x 1 USB 3.2 Gen 2 STACK Connector for 2 ports (Rear) x 1	USB 3.2 Gen 2 Type A x 3 USB 2.0 x 1 USB4.0 x 1 Type-C
Expansion	M.2 2230 E Key x 1 M.2 2280 M key x 1 mPCIe slot x 1 100pin connector x 1 40pin HAT	M.2 2230 E Key x 1 M.2 2280 M Key x 1 M.2 3052 B Key x 1 40-pin HAT Connector x 1 PCIe x 4 Slot
RTC	RTC battery, CR2032 x 1	
Power	12V - 60VDC	12V
Dimension	122 x 120 mm	120.35 x 122.5 mm
Memory	Onboard DDR4 memory, Max 16GB Single Channel: 4GB Dual Channel: 8GB, 16GB	DDR4 SO-DIMM Slot x 2 (up to 64GB 3200Mhz)
Storage	SATA3 (6Gb/s) x 3: a. SATA connector x 1 b. M.2 2280 SATA option (auto detect) x 1 c. minicard mSATA option (auto detect) x 1	SATA3 (6Gb/s) x 1: a. SATA Connector x 1 b. M.2 2280 M Key NVMe(PCIe [x2])
Display Interface	HDMI2.0 x 1 DP1.2 x 1 eDP x 1 CEC support with STM32 on HDMI x 1	HDMI 2.0 x 1 DP 1.4 x 1 + eDP x 1, 4K at 60hz internal panel
Ethernet	i7/i5 SKU LAN (i210 AT) x 1, LAN (i219 LM) x 1 i3/Celeron® LAN (i210 AT) x 1, LAN (i219 V) x 1	Intel® i225IT x 1, Intel® i219 (vPRO) x 1
OS Support	Win 10 Linux Ubuntu 18.04 with Kernel 5.0 Linux Yocto 2.7 with Kernel 4.19	Win 10/IOT Linux Ubuntu 20.04.02 Linux Yocto 3.1
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Operation Humidity	0% ~ 90% relative humidity, non-condensing	
Certification	CE/FCC Class A, RoHS Compliant, REACH	
Note		

Board Level Products

UP Boards

UP Boards



Model	UP Xtreme i12
System	
Processor	12th Gen Intel® Core™ Processor SoC Core i7-1270PE Core i5-1250PE Core i3-1220PE Celeron® 7305E
Graphics	Intel® Iris® Xe graphics
Memory	Up to 32GB on board LPDDR5 4800MHz (Dual Channel)
Storage	M.2 2280 (PCIe Gen4.0 x 4) M-key x 2 SATA3 x 1
I/O	10-pin USB 2.0 x 2 / HSUART x 1 4pin Fan Connector x1 6pin Front Panel Header x 1 10-pin RS232/422/485 Pin Header x 2 DC Connector x 1 Power Button/LED x 1 Audio Jack x 1 (Mic-in, Line out) RJ45 x 2
Camera	—
USB	USB 2.0 x 2 (from wafer x 1), USB2.0 Type A x 1 USB 3.2 Gen 2 Type A x 3 USB4.0 Type C x 1
Expansion	40 pin GPIO x 1 M.2 2230 E-key x 1 M.2 2280 (PCIe Gen4.0 x 4) M-key x 2 SATA3 x 1 M.2 3052 B-key x 1 Nano SIM slot x 1
Display Interface	HDMI 2.0b x 1 DP 1.4a x 1 DP 1.4b via USB type C x 1 eDP1.4b x 1
Ethernet	Intel® i226IT (TSN) x 1, Intel® i219 (vPRO) x 1
Security	TPM 2.0
RTC	Yes
OS Support	Windows* 10 Enterprise 2021 LTSC Ubuntu 22.04 Yocto (TBD)
Power Requirement	
Power	12-36V DC input (AT/ATX mode)
POWER SUPPLY TYPE	Lockable
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)
Mechanical	
Dimension	4.74" x 4.82" (120.35 x 122.5 mm)
Net Weight	0.88lb (0.4kg)
Gross Weight	1.32lb (0.6kg)
Environment	
Operating Temperature	With Heatsink: 32°F ~ 140°F (0°C ~ 60°) / 0.5 airflow
Operation Humidity	0% ~ 90% relative humidity, non-condensing
MTBF	362,068 Hours
Certification	CE/FCC Class A, RoHS Compliant, REACH
Note	

Note: All specifications are subject to change without notice.

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Board Level Products
UP Boards : UP Expansion Modules

UP Boards : UP Expansion Modules



Model	Connect Plus
System	
VPU	—
Ethernet	Intel I211-AT x 3 (A10-001) Intel I210-IT for wide temperature x 3 (A10-002)
Power Requirement	12V5A
Power Supply Type	12VDC from M/B
Power Consumption (Typical)	Max 13.5W w/o 5G module
Dimensions (L x W)	3.54" x 2.2" (90 mm x 56 mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Operation Humidity	10 ~ 80% relative humidity, non-condensing
Certification	CE/FCC Class A
OS Support	Microsoft Windows 10 Linux: ubilinux, Ubuntu, Yocto Android-IA 9.0
I/O	
Ethernet	001: Intel® I211-AT x 3 002: Intel® I210-IT for wide temperature
USB	USB 3.0 Type A x 1
SATA	—
Expansion Slot	M.2 3042/3052 B-key DOCKING I DOCKING II UART x 1 SPI x 1
Note	



Model	UP-3G HAT
System	
IC	2-CH FULL-SPEED USB UART x 1 USB 2.0 Hub x 1 RS-232/RS-485/RS-422 transceiver x 2
I/O Placements	
External Ports	RS-232/422/485 Connector (DB9) x 1
Internal connector	RS-232 wafer (RS-232/422/485) x 1 USB wafer x 1 Minicard x 1 uSIM Card Reader x 1 HAT 40 GPIO male (4x GPIO, 3.3V, 5V, GND) x 1 WiFi LED x 1 3G LED x 1 Power LED x 1
Others	
Form Factor	2.56" x 2.2" (65 mm x 56 mm)
Certification	CE/FCC Class A
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Operating Humidity	10%~80% RH, non-condensing
Optional	
WiFi Module	UP-WIFIMD-A20-7001 (WiFi module: 7M02) UP-WIFIMD-A20-4001 (WiFi module: 4M02)
BT Module	UP-BTMD-A20-0001
3G Module	9741UC20G0 (3G module: UC20-G)
Note	



Model	UP-POE HAT
System	
IC	LT43211 (PoE Ideal Diode Bridge Controller) x 1 LT4276B (PD Forward / Flyback Controller) x 1
I/O Placements	
External Ports	RJ45 input x 1 RJ45 output x 1
Internal connector	HAT 40 GPIO male (5V, GND) x 1
Others	
Form Factor	3.37" x 2.22" x 0.98" (85.6 mm x 56.5 mm x 25 mm)
Certification	CE / FCC Class A
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
OS Support	No OS limitation
Note	

Board Level Products

UP Boards : UP Expansion Modules

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UP Boards : UP Expansion Modules



Model	UP Squared 6000 PSE Carrier Board	UP 4000 M.2 Plus
System		
I/O	UPN-EHLCB-A10-001: Gbe via Marvell Alaska x 2 Micro USB (PSE DEBUG PORT) x 1 40pin HAT2 PSE header x 1 (CAN x 2, QEP x 4, I2C x 1, PWM x 4, ADC x 4) SATA with power connector x 1 100pin board-to-board high speed connector x 1 Full-sized Mini-PCle (via USB2.0) x 1 SIM card slot x 1 SWD 10pin wafer (connect to MB) x 1 UART 10pin wafer (connect to MB) x 1 RS232 wafer x 1 UPN-EHLCB-A10-002: Micro USB (PSE DEBUG PORT) x 1 40pin HAT2 PSE header x 1 (CAN x 2, QEP x 4, I2C x 1, PWM x 4, ADC x 4) SATA with power connector x 1 100pin board-to-board high speed connector x 1 SWD 10pin wafer (connect to MB) x 1 UART 10pin wafer (connect to MB) x 1 RS232 wafer x 1	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
Dimension	4" x 4" (101.6mm x 101.6mm)	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)
Net Weight	0.08 kg	UP-APL03CB-A10-0001: 16g UP-APL03CB-A10-0002: 19g UP-APL03CB-A10-0003: 15g
Gross Weight	0.14 kg	UP-APL03CB-A10-0001: 55g UP-APL03CB-A10-0002: 58g UP-APL03CB-A10-0003: 54g
Operating Temperature	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	10% ~ 80% relative humidity, non-condensing
Certification	CE/FCC Class A	CE/FCC Class A, RoHS Compliant
Note		

Note: All specifications are subject to change without notice.

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Board Level Products

Industrial Motherboards

Industrial Motherboards



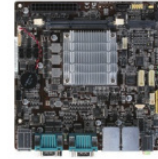
Model	EMB-APL1	EMB-APL3
System		
Processor	N4200, (4C @ 2.50GHz CPU [Burst Mode], 750MHz GFX [Turbo], ~6W TDP) N3350, (2C @ 2.40GHz CPU [Burst Mode], 650MHz GFX [Turbo], ~6W TDP)	
Chipset	Integrated into SoC	
Memory	DDR3L 1333/1600/1867MHz SODIMM x 2, max. 8GB, non-ECC, un-buffered memory	
I/O Chipset	NCT6116D	
Ethernet	Realtek PCIe Gb LAN 8111H x 2	
Audio	Realtek® ALC897	
TPM	Nuvoton NPCT652ABCYX TPM2.0 (default: No)	
Expansion Slots	PCIe2.0 [x1] x 1 M.2 M key (22 x 42mm) x 1, for SATA M.2 E Key (22 x 30mm) x 1, for PCIe	
BIOS	128Mbit Flash ROM x 1, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	Chassis Fan (Fanless)	
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® HD Graphics	
Graphics Multi Display	Three Independent Display	
VGA	Up to 1920 x 1200 @60Hz	
DVI	—	
HDMI	Up to 3840 x 2160 @ 30Hz	Up to 3840 x 2160 @30 Hz(HDMI 1.4b)
Display Port	—	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz (Colay with VGA)
LVDS	Up to 1920 x 1200 @60Hz, dual-channel 18/24 bit (via PS8625) (colay with eDP)	
eDP	Up to 4096 x 2160 @60Hz	
Backlight Control	Voltage/PWM	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	12V~24V wide-range voltage input back panel DC jack x 1; 4-pin ATX Power connector x 1	12V DC jack (screw type) 4-pin internal power connector
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Operation Humidity	0% ~ 90% RH, non-condensing	
Certificate	CE & FCC Class A	CE & FCC
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	263,080	230,820
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 (5 Gbps) x 2, USB 2.0 x 2	USB 3.2 Gen 1 (5 Gbps) x 4
Display I/O	HDMI x 1, VGA x 1	VGA/DP x 1, HDMI x 1
Audio I/O	Mic-in, Line-out	Line-out x 1
LAN I/O	RJ-45 x 2	LAN (RJ-45) port x 2
Serial Port	—	
PS/2 Port	—	
Others	DC power jack x 1	
Internal I/O Connectors		
Storage	SATA 6.0Gb/s x 2(1 colay with M.2 M-key), M.2 M-key (22 x 42mm) x 1	
USB	USB 2.0 headers support additional 3 USB ports (2*5-pin, p=2.00mm) x 2	USB 2.0 headers support additional 6 USB ports (2*5-pin, p=2.00mm) x 3
Display I/O	40-pin LVDS/eDP connector x 1 (default LVDS)	
Audio I/O	—	AAFP
Serial Port	RS-232/422/485 x 1, RS-232 x 5	
PS/2 Port	—	
Parallel Port	—	
DIO	8-bit x 1 (In/Out programmable)	
FAN	4-pin Chassis Fan x 1	
Power	—	
Others	Front panel header x 1, Clear CMOS jumper x 1, AT/ATX mode select jumper (optional) x 1, SATA power connector x 1, M.2 E key (22 x 30mm) for PCIe x 1	
OS		
OS Support	Windows® 10 64bit, Ubuntu16.04.02/Kernel4.8.0	
Note		

Note: All specifications are subject to change without notice.

Board Level Products

Industrial Motherboards

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	Fintech 81866D	
Memory	DDR3L 1333 MHz SODIMM x 2 up to 8 GB (for J1900 / E3845), DDR3L 1333 MHz SODIMM x 1 up to 4 GB (for N2807), Non-ECC, un-buffered memory, Dual-channel memory architecture flat type	DDR3L 1333 MHz SODIMM x 1 up to 8 GB, Non-ECC, un-buffered memory
I/O Chipset	Fintech 81866D	
Ethernet	Realtek® PCIe Gb LAN 8111H x 2	
Audio	Realtek® ALC897	
TPM	Infineon SLB9635 TT 1.2 (default : No)	
Expansion Slots	Full-size Mini-Card (mSATA default) (PCIe+USB optional) + SIM Card (default: No) x 1, Half-size Mini-Card (PCIe+USB) x 1, PCIe [x1] x 1	Full-size Mini-Card (mSATA default PCIe+USB optional) x 1, PCIe [x1] x 1
BIOS	64 M bit Flash ROM, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	Chassis Fan (fanless)	
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® HD Graphics	
Graphics Multi Display	VGA+LVDS, VGA+HDMI, LVDS+HDMI	VGA+LVDS, Dual LVDS
VGA	Up to 1920 x 1200 @60 Hz	
DVI		
HDMI	Up to 1920 x 1200 @60 Hz	
Display Port		
LVDS	Up to 1920 x 1080 @60Hz, dual-channel 18/24-bit (via CH7511)	Dual LVDS, Up to 1920 x 1080 @60Hz, dual-channel 18/24-bit (via CH7511)
eDP		
Backlight Control	Voltage/PWM	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	12VDC	ATX
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Operation Humidity	0% ~ 90% R/H, non-condensing	
Certificate	CE & FCC	
Form Factor	Mini-ITX 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	111,131	290,990
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 (5 Gbps)/2.0 x 1, USB 2.0 x 2	USB 2.0 x 6
Display I/O	VGA x 1, HDMI x 1	VGA x 1
Audio I/O	Line-out x 1	Mic-in x 1, Line-out x 1
LAN I/O	LAN (RJ-45) port x 2	
Serial Port	COM (RS-232) (optional) x 1	COM (RS-232/422/485) x 1, COM (RS-232) x 2
PS/2 Port		PS/2 Keyboard Mouse combo x 1
Others	DC port (12V) Screw type x 1	
Internal I/O Connectors		
Storage	SATA3 (6.0Gb/s) x 2, SATA2 (3.0Gb/s) x 2 (1 colay with mSATA), SATA power connector x 1, 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: All specifications are subject to change without notice.

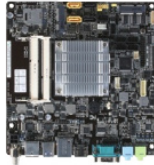
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Board Level Products

Industrial Motherboards

Industrial Motherboards



Model	EMB-BT4	MIX-EHLD1
System		
Processor	Intel®Celeron®J1900 Processor (4C@2.00GHz CPU, 688/854MHz GFX, 10W TDP)	Intel® Elkhart LAKE Processor Max. 12W TDPs
Chipset	—	—
Memory	DDR3L 1333 MHz SODIMM x 2 up to 8 GB (for J1900), Non-ECC, un-buffered memory, Dual-channel memory architecture flat type	SO-DIMM, max. 32GB , DDR4 3200MTS x 2
I/O Chipset	Fintech 81866D	NCT6126D
Ethernet	Realtek PCIe Gb LAN 8111Hx 1	RTL8111H x 2
Audio	Realtek® ALC897	Realtek® ALC897
TPM	Infineon SLB9635 TT 1.2 (default : No)	Nuvoton NPCT750 TPM2.0 onboard
Expansion Slots	Full-size Mini-Card (mSATA default) (PCIe+USB optional) + SIM Card (default: No) x 1, Half-size Mini-Card (PCIe+USB) x 1	M.2 Slot (B key; 3042/3052) x1, mini-PCIe(Full/Half)) x , SIM socket x 1(default for B-key)
BIOS	64 M bit Flash ROM, AMI BIOS	256Mbit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on Chassis
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	Chassis Fan (fanless)	Chassis Fan
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® HD Graphics	Intel® UHD Graphics
Graphics Multi Display	VGA+LVDS, VGA+HDMI, LVDS+HDMI	3 Independent Display(1xVGA+1x HDMI + 1x LVDS/eDP)
VGA	Up to 1920 x 1200 @60 Hz	
DVI	—	
HDMI	Up to 1920 x 1200 @60 Hz	Up to 4096 x 2160 @ 60Hz
Display Port	—	
LVDS	Up to 1920 x 1080 @60Hz, dual-channel 18/24-bit (via CH7511)	Up to 1920 x 1080 @60Hz, 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	12(+/-5%) DC
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	
Operation Humidity	0% ~ 90% R/H, non-condensing	
Certificate	CE & FCC	CE & FCC Class A
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	295,750	—
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1/2.0 x 1, USB 2.0 x 2	USB 3.2(Gen1) ports x 2, USB 2.0 ports x 4 (upper 2 ports by BOM Optional)
Display I/O	HDMI x 1	HDMI x 1, VGA x 1
Audio I/O	Line in x 1, Line-out x 1	Mic-in x 1, Line out x 1
LAN I/O	LAN (RJ-45) port x 1	1GbE x 2
Serial Port	COM (RS-232) x 1	RS232 by BOM Optional
PS/2 Port	—	
Others	DC port (12V) Screw type x 1	DC Jack x 1
Internal I/O Connectors		
Storage	SATA3 (6.0Gb/s) x 2, SATA2 (3.0Gb/s) x 2 (1 colay with mSATA), SATA power connector x 1, Full Size Mini-Card slot (mSATA) x 1	M.2 Slot (M key; 2280/PCIex2), SATA 6Gb/s x 1, SATA power connector (5V / 12V @1A) x 1
USB	USB 2.0 (2 x 5-pin, 2.54mm) x 2 ports support additional 4 USB, USB 2.0 (1x 5-pin, 2.0mm) x 1 port supports additional 1 USB	USB2.0 ports x 2
Display I/O	VGA pin header x 1, LVDS connector x 1, LVDS 3V /5V jumper x 1, LCD DC / PWM mode jumper x 1, LCD backlight connector (inverter) x 1, LCD backlight 12V /5V jumper x 1	40-pin LVDS / eDP connector x 1
Audio I/O	AAFP x 1	AAFP follow ASUS pin out x 1
Serial Port	Box header for COM (RS-232) x 4, Box header for COM (RS-232/422/485) x 1	Box header x 5 for COM (COM1: RS-232/422/485 supports 5V/12V/Ri; COM2~6: RS-232)
PS/2 Port	PS/2 Keyboard Mouse 6 PIN Connector x 1	—
Parallel Port	SPP/EPP Mode	—
DIO	DIO (4in/4out) x 1	Digital I/O box header x 1
FAN	Chassis Fan connector x 1	4-pin Chassis Fan connector x 1
Power	12V AUX Power Connector x 1, AT/ATX mode select jumper (default : No) x 1	—
Others	Half-size Mini-Card (PCIe + USB) x 1, SIM Card Socket(default : No) x 1, LPT PIN header x 1, Front Panel connector x 1, CMOS jumper x 1	Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, Clear CMOS jumper x 1, AT/ATX mode select jumper x 1
OS		
OS Support	Windows® 10 64-bit, Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora	Windows® 10 64-bit, Linux Ubuntu 64 bit (20.04.2/Kernel 5.4)

Note: All specifications are subject to change without notice.

Board Level Products

Industrial Motherboards

Industrial Motherboards



Model	MIX-KLUD1	MIX-TLUD1
System		
Processor	Core™ i3-7100U, 2C/4C, 2.4GHz, 3M, 300MHz/1.00GHz (Turbo) GFX, ~15W TDP	Intel® 11th Gen (Tiger Lake-UP3) Core™ Processors, up to 28W TDPs - i7-1185G7E, QC, Max Speed up to 4.4GHz - i5-1145G7E, QC, Max Speed up to 4.1GHz - i3-1115G4E, DC, Max Speed up to 3.9GHz - Celeron 6305E, DC, 1.8GHz
Chipset		
Memory	SODIMM x 2, max. 32GB, DDR4-2133 non-ECC, un-buffered memory	DDR4 2666/3200 MHz SODIMM x 2, Up to 64GB
I/O Chipset	NCT6793D	IT5121E
Ethernet	Intel® PCIe Gb LAN 219LM (vPro for i7-7600U/i5-7300U) x 1 Intel® PCIe Gb LAN 210AT x 1	Intel® PCIe Gb LAN 219LM x 1 Intel® PCIe Gb LAN 225LM x 1
Audio	Realtek® ALC897 with Amp.	Realtek® ALC897
TPM	NPCT650 TPM2.0 onboard (default: No)	Nuvoton NPCT750 TPM2.0 onboard
Expansion Slots	PCIe 3.0 [x1] x 1 M.2 M key (22 x 80 mm) x 1, SATA & PCIe [x4] M.2 E key (22 x 30 mm) x 1 for Wireless-wifi module (PCIe+USB)	PCIe 3.0 [x4] x 1, mini-card x 1 (PCIe/SATA; BOM Optional)
BIOS	128Mbit Flash ROM, AMI BIOS	256Mbit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/Chassis Fan	
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® UHD Graphics	Intel® Xe(Gen 12) Graphics
Graphics Multi Display	HDMI x 2, eDP x 1 or LVDS x 1	Quad Display
VGA		
DVI		
HDMI	HDMI 1.4 up to 4096 x 2340 @24Hz	HDMI 2.0
Display Port		DP1.4
LVDS	Up to 1920 x 1200 @ 60 Hz, Dual Channel 18/24 bit	Up to 1920 x 1200 @60Hz, Dual Channel 18/24 bit (via CH7511B)
eDP	UP to 4096 x 2304 @ 60Hz	eDP1.4b
Backlight Control	Voltage/PWM; Max 1A	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	12V DC	12(+/-5%) DC
Operation Temperature	32°F ~ 131°F (0°C ~ 55°C)	32°F ~122°F (0°C ~ 50°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~85°C)	-40°F ~185°F (-40°C ~85°C)
Operation Humidity	0% ~ 90%RH, non-condensing	
Certificate	CE & FCC (Class A)	
Form Factor	Mini-ITX: 6.7" x 6.7" (170 mm x 170 mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	400,330	
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 (5 Gbps) x 4	USB 3.2 Gen2 x 2, USB2.0 x 4
Display I/O	HDMI x 2	HDMI x 2, DP++ x 2
Audio I/O	Mic-in x 1, Line-out x 1	
LAN I/O	LAN (RJ-45) port x 2	1GbE x 1, 2.5GbE x 1
Serial Port		
PS/2 Port		
Others	DC Power Jack x 1	
Internal I/O Connectors		
Storage	M.2 M key (22 x 80mm) for PCIe [x4]/SATA storage x 1, SATA 6.0Gb/s x 2, 4-pin SATA power x 1	M.2 M key (2280) for (NVMe/PCIe4) storage x 1 SATA 6.0Gb/s x 1
USB	USB 2.0 pin header x 2 support additional 4 USB ports	USB 3.0 Box header x 1 (support additional USB3.2 Gen1 x 2ports)
Display I/O	40-pin LVDS connector x 1, 40-pin eDP connector x 1, LCD backlight connector(inverter) x 1	40-pin LVDS connector x 1, 40-pin eDP connector x 1
Audio I/O	Speaker for 2W@4Ω x 1, AAFP follow ASUS pin out x 1	AAFP follow ASUS pin out x 1
Serial Port	Box header x 2 for COM (COM1: RS-232/422/485 supports 5V/12V/RI)	Box header x 2 for COM (COM1/2: RS-232)
PS/2 Port		
Parallel Port		
DIO	8-bit programmable (4-in/4-out) x 1	Digital I/O box header x 1
FAN	4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1	4-pin CPU Fan connector x 1 4-pin Chassis Fan connector x 1
Power		
Others	Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, CMOS jumper x 1	Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, Clear CMOS jumper x 1, AT/ATX mode select jumper x 1; SIM socket x 1
OS		
OS Support	Windows® 10 64-bit	Windows® 10 64-bit, 20.04.2/Kernel 5.8

Note: All specifications are subject to change without notice.

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Board Level Products

Industrial Motherboards

Industrial Motherboards



Model	MIX-H310A1	MIX-H310A2
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	
I/O Chipset	NCT6793D	
Ethernet	Intel® PCIe Gb LAN 219V x 1, Intel® PCIe Gb LAN i210AT x 3	Intel® PCIe Gb LAN 219V x 1, Intel® PCIe Gb LAN i210AT x 1
Audio	Realtek® ALC897 with Amp.	
TPM	Firmware TPM	
Expansion Slots	PCIe3.0 [x16] x 1, M.2 M-key(22x80mm) at bottom side x 1 for SATA, M.2 E-key(22x30mm)	PCIe3.0 [x16] x 1
BIOS	128Mbit Flash ROM, AMI BIOS	256Mbit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/ Chassis Fan	
Wake On LAN/ PXE	Yes (WOL / PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® UHD Graphics	
Graphics Multi Display	HDMI+VGA	HDMI+VGA, HDMI+DP, HDMI+LVDS, VGA+DP, VGA+LVDS, DP+LVDS
VGA	Up to 1920 x 1200 @ 60 Hz	
DVI	—	
HDMI	Up to 4096 x 2160 @30Hz(HDMI 1.4)	Up to 3840 x 2160 @30 Hz(HDMI 1.4b)
Display Port	—	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz
LVDS	—	LVDS Up to 1920 x 1200 @60 Hz, Dual Channel 18/24 bit (1 x inverter)
eDP	—	
Backlight Control	—	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	ATX	
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	
Operation Humidity	0%~90%RH, non-condensing	
Certificate	CE & FCC	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	288,900	333,520
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 (5 Gbps) x 4, USB 2.0 x 2	USB 3.2 Gen 1 (5 Gbps) x 4
Display I/O	VGA x 1, HDMI x 1	VGA x 1, HDMI x 1, DP x 1
Audio I/O	Mic-in x 1, Line-out x 1	
LAN I/O	LAN (RJ-45) port x 4	LAN (RJ-45) port x 2
Serial Port	—	1x COM(RS485/422/232)
PS/2 Port	—	
Others	—	
Internal I/O Connectors		
Storage	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 80mm) at bottom side x 1 (SATA only)	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 80mm) x 1
USB	USB 2.0 (2 x 5-pin, 2.00mm) x 1 port support additional 2 USB.	
Display I/O	—	LVDS x 1
Audio I/O	AAFP x 1, Speaker x 1	
Serial Port	Box header for COM (RS-232/422/485) x 1, Box header for COM (RS-232) x 1	Box header for COM (RS-232) x 1
PS/2 Port	—	
Parallel Port	—	
DIO	Digital I/O box 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		

Note: All specifications are subject to change without notice.

Board Level Products

Industrial Motherboards

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Industrial Motherboards



Model	MIX-H310D1	MIX-H310D2
System	8th/9th Gen. Intel® Core™ LGA 1151 socket Processor (formerly Coffee Lake-S), Max. 65W TDPs	
Processor	Intel® H310 Express Chipset	
Chipset	Intel® H310 Express Chipset	
Memory	DDR4 2666 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture	DDR4 2666/2400/2133 MHz SODIMM x 2, Up to 64GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture
I/O Chipset	NCT6793D	
Ethernet	Realtek® PCIe Gb LAN RTL8111H	Intel® GbE LAN i219V x 1, Intel® GbE LAN i210AT x 1
Audio	Realtek® ALC897	
TPM	Firmware TPM	NPCT750 TPM2.0 (default: No)
Expansion Slots	PCIe3.0 [x4] x 1 M.2 E-key(22 x 30 mm) x 1 for Wireless-wifi module (PCIe+USB)	PCIe3.0 [x16] x 1 M.2 E-key(22 x 30 mm) x1 for Wireless-wifi module (PCIe+USB; CNVi)
BIOS	128Mbit Flash ROM, AMI BIOS	256Mbit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/ Chassis Fan	
Wake On LAN/ PXE	Yes (WOL / PXE)	
Power State	S3, S4, S5	
Graphics	Intel® UHD Graphics	
Graphics Chipset	Intel® UHD Graphics	
Graphics Multi Display	HDMI1+HDMI2, HDMI1+DP2, DP1+HDMI2, HDMI1+LVDS, HDMI2+LVDS, HDMI1+eDP, HDMI2+eDP, DP1+DP2, DP1+LVDS, DP2+LVDS, DP1+eDP, DP2+eDP	HDMI+HDMI, HDMI+eDP, HDMI+VGA, VGA+eDP
VGA	—	Up to 1920 x 1200 @ 60 Hz (Optional)
DVI	—	—
HDMI	Up to 4096 x 2304@24Hz (HDMI 1.4b)	Up to 3840 x 2160 @30 Hz(HDMI 1.4)
Display Port	Up to 4096 x 2304@60Hz	—
LVDS	Up to 1920 x 1200 @ 60 Hz, dual-channel 18/24 bit (via CH 7511)	—
eDP	UP to 4096 x 2304 @ 60Hz	
Backlight Control	Voltage/PWM	Support eDP
Environment & Power & ME	Lithium battery	
Battery	Lithium battery	
Power Requirement	12V DC	
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	
Operation Humidity	0%~90%RH, non-condensing	
Certificate	CE & FCC	
Form Factor	Mini-ITX: 6.7" x 6.7" (170 mm x 170 mm)	
Weight	1.1 lb (0.5 kg)	
MTBF (Hours)	246,210	373,720
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 (5 Gbps) x 4	USB 3.2 Gen 1 x 4, USB 2.0 x 4
Display I/O	HDMI x 2, DP x 1 + HDMI x 1 (Optional), DP x 2 (Optional)	HDMI x 2, VGA x 1 (Optional)
Audio I/O	Mic-in x 1, Line-out x 1	
LAN I/O	LAN (RJ-45) port x 2	
Serial Port	—	
PS/2 Port	—	
Others	DC Jack	12V DC Jack (max:192W)
Internal I/O Connectors		
Storage	SATA3.0 (6.0Gb/s) x 2 M.2 M-key (SATA) (22 x 42mm) x 1	SATA3.0 (6.0Gb/s) x 2 M.2 M-key (22 x 42/80mm; PCIe) x 1
USB	USB 2.0 (2 x 5-pin, 2.00mm) x 3 ports support additional 5 USB.	USB 2.0 (2 x 5-pin, 2.00mm) x 1 port support additional 1 USB
Display I/O	—	eDP x 1
Audio I/O	AAFP x 1, Speaker header x 1	AAFP x 1
Serial Port	Box header for COM (RS-232/422/485) x 1 Box header for COM (RS-232) x 1	Box header for COM (RS-232) x 1; RS-232/422/485 x 1
PS/2 Port	—	
Parallel Port	—	
DIO	Digital I/O box header x 1	
FAN	4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1	
Power	—	
Others	Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, CMOS jumper x 1	Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, CMOS jumper x 1, ATX/AT mode select x 1, ME disable x 1, eDP Tcon IC voltage select x 1, eDP panel backlight voltage select x 1, COM RI select jumper x 1, SATA PWR x 1
OS		
OS Support	Windows® 10 64-bit Linux Ubuntu 18.04 LTS	Windows® 10 64-bit, Linux Ubuntu 18.04.2

Note: All specifications are subject to change without notice.

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Board Level Products

Industrial Motherboards

Industrial Motherboards



Model	MIX-Q370A1	MIX-Q370D1
System		
Processor	8th/9th Gen. Intel® Core™ LGA 1151 socket Processor (formerly Coffee Lake-S), Max. 65W TDPs	8th/9th Generation Intel® Core™ i7/ i5 /i3, Pentium® LGA 1151 socket Processor (formerly Coffee Lake-S), Max. 65W TDPs
Chipset	Intel® Q370 Express Chipset	
Memory	DDR4 2666/2400/2133 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, dual-channel memory architecture	SODIMM x 2, Max. 32GB, DDR4 2666/2400 MHz, Non-ECC, Un-buffered Memory, Dual channel
I/O Chipset	NCT6793D	
Ethernet	Intel® PCIe Gb LAN 219LM x 1, Intel® PCIe Gb LAN i210AT x 3	Intel® PHY i219LM Giga LAN (support Intel® AMT 12.0) x 1 Intel® i210AT Giga LAN x 1
Audio	Realtek® ALC897 with Amp.	Realtek® ALC897
TPM	Firmware TPM	Nuvoton TPM version 2.0
Expansion Slots	PCIe 3.0 [x16] x 1 M.2 E-key (22 x 30mm; Support CNVi)	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)
BIOS	256Mbit Flash ROM, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on Chassis
WatchDog Timer	1~255 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	Three Independent Display
VGA	Up to 1920 x 1200 @ 60 Hz	—
DVI	—	—
HDMI	Up to 4096 x 2160 @30Hz (HDMI 1.4)	—
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
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	ATX	12V DC
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	
Operation Humidity	0%~90%RH, non-condensing	
Certificate	CE & FCC	CE & FCC (Class A)
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 kg)	
MTBF (Hours)	256,310	
Rear Panel I/O Ports		
USB	USB 3.2 Gen 2 (10 Gbps) x 4, USB 2.0 x 2	USB 3.2 Gen 2 (10 Gbps) x 4
Display I/O	VGA x 1, HDMI x 1	DP x 2
Audio I/O	Mic-in x 1, Line-out x 1	
LAN I/O	LAN (RJ-45) port x 4	LAN (RJ45) port x 2
Serial Port	—	
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) at bottom side x 1(SATA only)	SATA 6.0Gb/s x 4, M.2 M key (22 x 80 mm) x1 (Support Intel® NVMe M.2 SSD)
USB	USB 2.0 (2 x 5-pin, 2.00mm) x 1 ports support additional 2 USB	3 x USB 2.0 pin header support additional 6 USB ports
Display I/O	—	40-pin LVDS connector x 1, 40-pin eDP connector x 1 LCD backlight connector (inverter) x 1
Audio I/O	AAFP x 1, Speaker x 1	Speaker for 2W/4Ω x 1, AAFP follow ASUS pin out x 1
Serial Port	Box header for COM (RS-232/422/485) x 1 Box header for COM (RS-232) x 1	Box header x 1 for COM (COM1: RS-232/422/485 supports 5V/12V/RI)
PS/2 Port	—	
Parallel Port	—	
DIO	Digital I/O box header x 1	8-bit x 1 (In/Out programmable)
FAN	4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1	
Power	—	12V DC Power jack x 1
Others	Front Panel connector x 1, Chassis Intrusion x 1 Buzzer onboard x 1, CMOS jumper x 1	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
OS		
OS Support	Windows® 10 64-bit, Linux Ubuntu 18.04. 64-bit	Windows® 10 64 bit, Ubuntu 16.04 LTS

Note: All specifications are subject to change without notice.

Board Level Products

Industrial Motherboards

Industrial Motherboards



Model	MIX-Q370D2	MIX-Q670A1
System		
Processor	8th/9th Gen. Intel® Core™ LGA 1151 socket Processor (formerly Coffee Lake-S), Max. 65W TDPs	Intel® Alder lake-S Core™ Processors, 8+8;65W
Chipset	Intel® Q370 Express Chipset	Q670E
Memory	DDR4 2666/2400/2133 MHz SODIMM x 2, Up to 64GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture	SODIMM x 2, max. 64GB, Dual Channel DDR5 4800 MHz
I/O Chipset	NCT6793D	Intel® UHD Graphics
Ethernet	Intel® GbE LAN i219V x 1, Intel® GbE LAN i210AT x 1	Intel® GbE LAN 219LM x 1 Intel® GbE LAN 210AT x 1
Audio	Realtek® ALC897	Realtek® ALC897 with Amp
TPM	NPCT750 TPM2.0	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)	PCIex16 slot x 1, M.2 B key (3042/3052;PCIex1) x 1
BIOS	256Mbit Flash ROM, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/Chassis Fan	
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® UHD Graphics	
Graphics Multi Display	HDMI+VGA+eDP, HDMI+HDMI+VGA, HDMI+HDMI+eDP	HDMIx2+DPx2, HDMIx2+DPx1+LVDSx1, HDMIx2+DPx1+eDPx1, HDMIx1+DPx2+LVDSx1, HDMIx1+DPx2+eDPx1
VGA	Up to 1920 x 1200 @ 60 Hz	—
DVI	—	—
HDMI	Up to 3840 x 2160 @30 Hz(HDMI 1.4b)	Up to 4096 x 2160 @60 Hz(HDMI 2.0)
Display Port	—	Up to 4096 x 2160 @60 Hz
LVDS	—	Up to 1920 x 1080 @60Hz, Dual Channel 18/24 bit
eDP	eDP UP to 4096 x 2304 @ 60Hz	UP to 1920x 1080 @60Hz (via CH7513) co-layout LVDS
Backlight Control	Support eDP	PWM
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	12V DC	ATX
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Operation Humidity	0% ~ 90% R/H, non-condensing	
Certificate	CE & FCC	
Form Factor	Mini-ITX: 6.7" x 6.7" (170 mm x 170 mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	319,160	—
Rear Panel I/O Ports		
USB	USB 3.2 Gen2 x 6, USB2.0 x 4	USB 3.2 Gen1/2 x 8, USB 2.0 x 4
Display I/O	VGA x 1, HDMI x 2	HDMI x 2, DP x 2
Audio I/O	Mic-in x 1, Line-out x 1	
LAN I/O	LAN (RJ-45) port x 2	
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; NVME/SATA) x 1	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (2280)
USB	USB 2.0 (2 x 5-pin, 2.00mm) x 1 port support additional 2 USB	USB 3.0 pin header x 1 (support additional USB3.2 Gen1 x 2ports)
Display I/O	eDP x 1	—
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	
FAN	4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1	
Power	12V ATX Power Connector x 1	—
Others	Front Panel connector x 1, Chassis Intrusion x 1 Buzzer onboard x 1, CMOS jumper x 1 SATA Power connector x 1, SPI ROM programming header x 1 ATX/AT mode jumper x 1, eDP backlight power jumper x 1 eDP T-con IC power jumper x 1	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		

Note: All specifications are subject to change without notice.

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Board Level Products

Industrial Motherboards

Industrial Motherboards



Model	MIX-Q670D1	EMB-Q170A
System		
Processor	Intel® Alder lake-S Core™ Processors, 8+8;65W	6th/7th Generation Intel® Core™ i7/i5/i3, LGA1151 Socket Processor, Max. 65W TDPs
Chipset	Q670E	Intel® Q170
Memory	SODIMM x 2, max. 64GB, Dual Channel DDR5 4800 MHz(Non-ECC)	DDR4 2133/1867 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture
I/O Chipset	Intel® UHD Graphics	NCT6791D
Ethernet	Intel® GbE LAN 219LM x 1 Intel® GbE LAN 210AT x 1	Intel® PCIe Gb LAN 219LM x 1, Intel® PCIe Gb LAN i210AT x 1
Audio	Realtek® ALC897 with Amp.	Realtek® ALC897
TPM	TPM2.0 IC on board	Infineon SLB96XX TT 1.2/2.0 (default: No)
Expansion Slots	M.2 B-key (3042/3052; PCIe x1; USB3.2 Gen1/USB2.0) x 1 M.2 E-key (2232; PCIe x1(Optional: dual PCIe x1); USB2.0) x 1	PCIe3.0 [x16] x 1, M.2 M-key(22 x 80 mm) at bottom side x 1
BIOS	256Mbit Flash ROM, AMI BIOS	128M bit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/ System Fan	
Wake On LAN/ PXE	Yes (WOL / PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® UHD Graphics	Intel® HD Graphics
Graphics Multi Display	HDMIx2+DPx2, HDMIx2+DPx1+LVDSx1, HDMIx2+DPx1+eDPx1, HDMIx1+DPx2+LVDSx1, HDMIx1+DPx2+eDPx1	DP+DP, DP+VGA, DP+DP+VGA, DP+DP+DP
VGA	—	Up to 1920 x 1200 @60 Hz
DVI	—	—
HDMI	Up to 4096 x 2160 @60 Hz(HDMI 2.0)	—
Display Port	Up to 4096 x 2160 @60 Hz(DP1.2)	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio
LVDS	Up to 1920 x 1080 @60Hz, Dual Channel 18/24 bit (via CH7513) co-layout eDP (default LVDS)	—
eDP	Up to 1920 x 1080 @ 60Hz	—
Backlight Control	PWM	—
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	DC 12V	ATX
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	
Operation Humidity	0%~90%RH, non-condensing	
Certificate	CE & FCC	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	221,850	
Rear Panel I/O Ports		
USB	USB 3.2 Gen2 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, DP x 3
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	—	
PS/2 Port	PS/2 for KB/MS x 1	
Others	—	
Internal I/O Connectors		
Storage	SATA 6.0Gb/s x 2 with SATA power conn x 2(1A) M.2 M key(2280) x1, [PCIex4/NVMe]	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 80 mm) at bottom side x 1
USB	USB2.0 x 4 ports using 2 x 5-pin headers x 2	USB 2.0 (2 x 5-pin, 2.00mm) x 2 ports support additional 4 USB.
Display I/O	40-pin LVDS/eDP connector x 1 with Inverter	—
Audio I/O	HD Audio using AAFP header x 1, Internal Speaker (2W/40hm)x 1	Speaker x 1
Serial Port	Box header for COM (RS-232/422/485) x 1, Box header for COM (RS-232) x 1	
PS/2 Port	—	
Parallel Port	—	
DIO	Digital I/O box header x 1	
FAN	4-pin CPU Fan connector x 1, 4-pin System Fan connector x 1	
Power	ATX Power Connector x 2, AT/ATX mode select jumper (optional) x 1	
Others	Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, CMOS jumper x 1	
OS		
OS Support	Windows® 10 64-bit, Windows® 11 64bit	Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Windows® 10 64-bit, Ubuntu16.04.02/Kernel4.8.0

Note: All specifications are subject to change without notice.

Board Level Products

Industrial Motherboards

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Industrial Motherboards



Model	EMB-Q170B	EMB-H110B
System	6th/7th Generation Intel® Core™ i7/i5/i3, LGA1151 Socket Processor, Max. 65W TDPs	
Processor	Intel® Q170	
Chipset	Intel® Q170	Intel® H110
Memory	DDR4 2133/1867 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture	
I/O Chipset	NCT6791D	
Ethernet	Intel® PCIe Gb LAN 219LM for vPro x 1, Intel® PCIe Gb LAN 210AT x 1	Realtek® PCIe Gb LAN 8111H x 2
Audio	Realtek® ALC897	
TPM	Infineon SLB96XX TT 1.2/2.0 (default: No)	
Expansion Slots	PCIe 3.0 [x4] x 1 M.2 M key (22 x 80 mm) at Bottom side x 1 M.2 E key (22 x 30 mm) at Top side x 1	PCIe2.0 [x1] x 1, Full-size Mini-Card (mSATA default) (PCIe+USB optional)x 1, Half-size Mini-Card (PCIe+USB) x 1
BIOS	128M bit Flash ROM, AMI BIOS	64 M bit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on VCore™ 5V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/ Chassis Fan	
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3, S4, S5	
Graphics	Intel® HD Graphics	
Graphics Chipset	Intel® HD Graphics	
Graphics Multi Display	2DP + LVDS, DP + eDP + LVDS, 2DP + eDP	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	—	
DVI	—	
HDMI	—	Up to 4096 x 2160 @24 Hz / 2560 x 1600 @60 Hz, with Digital Audio (HDMI/ DP Combo)
Display Port	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio	Up to 1920 x 1200 @60 Hz, with Digital Audio (HDMI/DP Combo)
LVDS	Up to 1920 x 1200 @60 Hz, dual-channel 18/24-bit	Up to 1920 x 1200 @60 Hz, dual-channel 18/24-bit colay
eDP	UP to 4096 x 2340 @60Hz	UP to 4096 x 2340 @60Hz
Backlight Control	Voltage/PWM Voltage/PWM	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	12VDC	
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~ 185°F (-40°C ~85°C)	
Operation Humidity	0% ~ 90% RH, non-condensing	
Certificate	CE & FCC	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	292,450	315,210
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 x 4	
Display I/O	DP x 2	DP/HDMI (BOM Change) x 2
Audio I/O	Mic-in x 1, Line-out x 1	
LAN I/O	LAN (RJ-45) port x 2	
Serial Port	—	
PS/2 Port	—	
Others	DC Jack x 1	
Internal I/O Connectors		
Storage	SATA3 (6.0Gb/s) x 4, SATA power connector x 1, M.2 M key (22 x 80mm) at Bottom side x 1, M.2 E key (22 x 30mm) at Top side x 1	SATA3 (6.0Gb/s) x 2, Full Size Mini-Card (mSATA) x 1, SATA power connector x 1
USB	USB 2.0 (2 x 5-pin, 2.00mm) x 3 ports support additional 6 USB.	USB 2.0 (2 x 5-pin, 2.00mm) x 2 ports support additional 4 USB.
Display I/O	40-pin LVDS connector x 1, 40-pin eDP connector x 1, LVDS 3.3V /5V jumper x 1, LCD DC / PWM mode jumper x 1, LCD backlight connector (inverter) x 1, LCD backlight 12V /5V jumper x 1	40-pin LVDS connector x 1, 40-pin eDP connector x 1, LVDS 3.3V /5V jumper x 1, LCD DC / PWM mode jumper x 1, LCD backlight connector (inverter) x 1, LCD backlight 12V /5V jumper x 1
Audio I/O	AAFP x 1, Speaker x 1 (pin out refer to manual)	AAFP x 1, Speaker x 1
Serial Port	Box header for COM (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	
FAN	4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1	
Power	12V AUX Power Connector x 1, AT/ATX mode select jumper (optional) x 1	
Others	Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard (pin header) x 1, CMOS jumper x 1	
OS		
OS Support	Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Windows® 10 64-bit, Ubuntu16.04.02/Kernel4.8.0	

Note: All specifications are subject to change without notice.

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Board Level Products

Industrial Motherboards

Industrial Motherboards



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/CNV) x 1, Micro SIM card Slot x 1 M.2 3042/3052/2242 B-key (PCIe/USB/SATA) 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	
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	
Operation Humidity	0%~90%RH, non-condensing	
Certificate	CE & FCC Class A	
Form Factor	Micro-ATX Form Factor, 9.6"x9.6" (244 mm x 244 mm)	
Weight	1.76 lb (0.8 Kg)	
MTBF (Hours)	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 III (6.0Gb/s) ports x 4, support RAID 0/1/5/10 M.2 2280/2242 M-key (PCIex4) x 1	SATA3 (6.0Gb/s) ports 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	—
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/Kernel 4.8.0)

Note: All specifications are subject to change without notice.

Board Level Products

Industrial Motherboards

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Industrial Motherboards



Model	MAX-Q370C	MAX-C246A
System		
Processor	Intel® 8th/9th Generation (Coffee Lake-S/Coffee Lake-S Refresh) Core™ i9 / i7 / i5 / i3, Pentium 14nm LGA 1151 socket Processor, Max. 6 Core 95W	8th/9th Generation Intel® (Coffee Lake-S/Coffee Lake-S Refresh) Core™ i9 / i7 / i5 / i3, Pentium™ 14nm, Celeron™, Xeon™ E-2200/2100, LGA 1151 socket Processor, max. TDP 8 Core 95W
Chipset	Intel® Q370 Express Chipset	Intel® C246 Express Chipset
Memory	DIMM x 4, DDR4 (2666/2400/2133 MHz, max. 128GB) non-ECC, un-buffered memory Dual channel memory architecture	DIMM x 4, DDR4 (2666/2400/2133 MHz, max. 128GB) ECC, un-buffered memory Dual-channel memory architecture
I/O Chipset	NCT6793D+ F81216HD	
Ethernet	Intel® PHY i219LM Giga LAN (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 NPCT750 TPM2.0 onboard	
Expansion Slots	PCIe 3.0[x16] Slot x 1, PCIe 3.0[x4] Slot (open edge) x 3 M.2 2280/2242 M-key (PCIe SSD (Ideal speed: 800MB/S)) x 1	PCIe 3.0[x16] Slot x 1, PCIe 3.0[x4] Slot x 2 (open edge) PCIe 3.0[x1] Slot x 1 (open edge) M.2 2230 E-key x 1 (PCIe/USB), M.2 2280 M-key x 1 (PCIe/SATA3)
BIOS	256 Mbit Flash ROM x 1, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/ Chassis Fan x 2	
Wake On LAN/ PXE	Yes (WOL / PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® Graphics Media Accelerator	Intel® UHD Graphics
Graphics Multi Display	HDMI+VGA+DP, HDMI+HDMI+VGA, HDMI+HDMI+DP	
VGA	Up to 1920 x 1200 @60Hz (via IT6516B)	
DVI	—	
HDMI	Up to 4096 x 2160 @ 24 Hz / 2560 x 1600 @ 60 Hz, with Digital Audio	
Display Port	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz, with Digital Audio	
LVDS	—	
eDP	—	
Backlight Control	—	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	24-pin ATX connector x 1, 8-pin (2x4) ATX 12V Power connector x 1	
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Operation Humidity	0%~90%RH, non-condensing	
Certificate	CE & FCC Class A	
Form Factor	Micro-ATX Form Factor, 9.6"x9.6" (244 mm x 244 mm)	
Weight	1.76 lb (0.8 Kg)	
MTBF (Hours)	264,820	
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 ports (5 Gbps) x 6, USB 2.0 ports 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	DP x 1, VGA x 1, HDMI x 2	
Audio I/O	Audio Jack x 3: Line-in, Mic-in, Line-out	
LAN I/O	LAN (RJ45) ports x 2	
Serial Port	—	
PS/2 Port	PS/2 combo Port (Keyboard & Mouse) x 1	
Others	—	
Internal I/O Connectors		
Storage	SATA III (6.0Gb/s) ports x 4, support RAID 0/1/5/10 M.2 2280/2242 M-key (PCIe SSD (Ideal speed: 800MB/S)) x 1	SATA3 (6.0Gb/s) ports x 4, support RAID 0/1/5/10 M.2 2280 M-key (PCIe4/SATA3) x 1
USB	USB 3.2 Gen 1 box header x 1, support additional 2 ports (2x5PIN, p=2.54mm) USB 3.2 Gen 1 Type A (vertical) connector x 1	USB 2.0 headers support additional 3 USB ports (2x5PIN, p=2.54mm)
Display I/O	—	
Audio I/O	AAFP x 1	Speaker for 2W@4Ω x 1
Serial Port	RS-232 headers x 5 RS-232/422/485 (COM1, supports 5V/12V/RI optional) x 1	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	
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 x1	
OS		
OS Support	Windows® 10 64bit, Windows® 11 64bit, Linux Ubuntu 64bit (18.04.1/Kernel4.8.0)	

Note: All specifications are subject to change without notice.

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Board Level Products

Industrial Motherboards

Industrial Motherboards



Model	MAX-H310A	IMBM-Q170A
System		
Processor	8th/9th Generation Intel® (Coffee Lake-S/Coffee Lake-S Refresh) Core™ i9/ i7/ i5 /i3, Pentium 14nm LGA 1151 socket Processor	7th/6th Generation Intel® Core™ i7/i5/i3/Pentium®/ Celeron® 14nm LGA1151 Socket Processor
Chipset	Intel® H310 Express Chipset	Intel® Q170 Express Chipset
Memory	DIMM x 2, DDR4 (2666/2400/2133 MHz, max. 64GB) non-ECC, un-buffered memory Dual-channel memory architecture	288-pin DIMM x 4, max. 64GB, DDR4 2133/1867 MHz, non-ECC, un-buffered memory, dual-channel memory architecture
I/O Chipset	NCT6793D+ F81216HD	NCT6791D, F81216HD
Ethernet	Intel® PHY i219V Gb LAN x 1, Intel® i210AT Gb LAN x 1	LAN 1: Intel® PHY i219LM Gb LAN (supports iAMT 11.0) x 1 LAN 2: Intel® i210AT Gb LAN x 1 ,RJ-45 x 2
Audio	Realtek® ALC897 6-Channel High Definition Audio CODEC	
TPM	Nuvoton NPCT750 TPM2.0 onboard	Nuvoton NPCT750 TPM2.0 onboard (optional; default: not onboard)
Expansion Slots	PCIe 3.0[x16] Slot x 1, PCIe 2.0[x1] Slot (open edge) x 3, M.2 2280 M-key (BOM option: PCIe or SATA; default: SATA) x 1	PCIe 3.0/2.0[x16] Slot x 1, PCIe 3.0/2.0[x4] Slot (open edge) x 1, PCIe 3.0/2.0[x1] Slot (open edge) x 1, PCI x 1
BIOS	128Mbit Flash ROM, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan x 1, Chassis Fan x 2	CPU Fan/ Chassis Fan x 2
Wake On LAN/ PXE	Yes (WOL / PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® UHD Graphics	Intel® HD Graphics
Graphics Multi Display	VGA+DP; VGA+HDMI; DP+HDMI	DVI-I+HDMI, HDMI+HDMI
VGA	Up to 1920 x 1200 @60Hz (via IT6516B)	Up to 1920 x 1200 @60Hz
DVI	—	Up to 1920 x 1200 @60Hz
HDMI	Up to 4096 x 2160 @ 24 Hz / 2560 x 1600 @ 60 Hz, with Digital Audio	HDMI 1.4 up to 4096 x 2304 @30Hz
Display Port	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz, with Digital Audio	—
LVDS	—	—
eDP	—	—
Backlight Control	—	—
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	24-pin ATX connector x 1, 8-pin (2x4) ATX 12V Power connector x 1	24-pin ATX connector x 1, 8-pin ATX 12V Power connector x 1
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	
Operation Humidity	0%~90%RH, non-condensing	
Certificate	CE & FCC Class A	
Form Factor	Micro-ATX Form Factor, 9.6"x9.6" (244 mm x 244 mm)	
Weight	1.76 lb (0.8 Kg)	
MTBF (Hours)	261,090	
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 ports (5 Gbps) x 4, USB 2.0 ports x 4	USB 3.2 Gen 1 port x 10
Display I/O	DP x 1, VGA x 1, HDMI x 1	DVI-I 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	—	RS-232/422/485 DB-9 connector x 1 (COM1, supports 5/12V on RI pin)
PS/2 Port	PS/2 stack Port (Keyboard & Mouse) x 1	PS/2 Combo Port (Keyboard & Mouse) x 1
Others	—	
Internal I/O Connectors		
Storage	SATA III (6.0Gb/s) ports x 3; BOM option: can support additional 2 SATA M.2 2280 M-key (BOM option: PCIe1 or SATA; default: SATA) x 1	SATA3 (6.0Gb/s) port x 6, supports RAID 0/1/5/10
USB	USB 2.0 header support additional 2 USB ports (2x5PIN, p=2.54mm) x 1	USB 2.0 header supports additional 2 USB ports x 2
Display I/O	—	—
Audio I/O	AAFP x 1	Speaker header x 1 (Line-out)
Serial Port	RS-232Box headers x 5 RS-232/422/485Box header (COM1, Pin9 supports 5V/12V/RI optional) x 1	RS-232 header x 5
PS/2 Port	—	—
Parallel Port	—	—
DIO	8-bit Digital I/O interface x 1 (In/Out programmable)	
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 LPC box header x 1, 3-pin ME lock header x 1, Buzzer on-board x 1	Front panel header x 1, Clear CMOS jumper x 1, BIOS flash header (2[x4]P p=1.27mm) x 1, Chassis Intrusion x 1
OS	—	
OS Support	Windows® 10 64bit, Windows® 11 64bit, Linux Ubuntu 64bit (18.04.1/Kernel4.8.0)	Windows® 7 32/64-bit, Windows® 8.1 64-bit, Windows® 10 64-bit, Linux Fedora 64bit

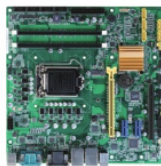
Note: All specifications are subject to change without notice.

Board Level Products

Industrial Motherboards

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Industrial Motherboards



Model	IMBM-H110A	ATX-Q670A
System		
Processor	7th/6th Generation Intel® Core™ i7/i5/i3/Pentium®/ Celeron® 14nm LGA1151 Socket Processor	Intel® Alder Lake-S, LGA 1700 socket, Processor Max. 125W TDPs
Chipset	Intel® H110	Intel® Q670 Express Chipset
Memory	288-pin DIMM x 2, max. 32GB, DDR4 2400/2133/1867, dual-channel	DIMM x4, DDR5 (4000MHz x 4, Up to 128GB) Non-ECC, Un-buffered Memory, Dual-Channel Memory Architecture
I/O Chipset	NCT6791D, F81216HD	NCT6126D
Ethernet	Intel® i210AT Gb LAN x 2	Intel® PHY i219LM Giga LAN x 1 (supports Intel® AMT 12.0) Intel® i210AT Giga LAN x 1, Intel® i225LM Giga LAN x 1 (Optional) RJ45 x 2 (Option: RJ45 x 3, LAN3 with USB3.2 Gen2 x 1)
Audio	Realtek® ALC897 6-Channel	High Definition Audio CODEC
TPM	Nuvoton NPCT650 TPM2.0 (default : No)	TPM 2.0 onboard
Expansion Slots	PCIe [x16] x 1, PCIe [x1] (open edge) x 2, PCI x 1, M.2 M key (22 x 42mm) x 1	PCIe [x16] Slot (16 lanes, Gen5) x 1, PCIe [x1] Slot (open Slot) (1 lane, Gen3) x 1 PCIe [x4] Slot (open Slot) (4 lanes, Gen4) x 1, PCIe [x16] Slot (4 lanes, Gen4) x 1 PCI Slot x 3, M.2 3042/3052 B Key (PCIe 3.0 x1 / USB3.2 Gen1) x 1, Mini PCIe Slot (PCIe 3.0 / USB2.0) x 1, Micro SIM Card Slot x1 (either with M.2 B-Key or Mini PCIe Slot)
BIOS	128M bit Flash ROM x 1, AMI BIOS	256Mbit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V/3VSB/VBAT, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan x 1, Chassis Fan x 2	CPU Fan x1/ Chassis Fan x3
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® HD Graphics	Intel® Graphics Media Accelerator
Graphics Multi Display	DVI-D+HDMI, HDMI+HDMI, VGA+HDMI, DVI-D+VGA	HDMI+HDMI+DP+DP, HDMI+HDMI+DP+VGA, HDMI+VGA+DP+DP
VGA	Up to 1920 x 1200 @60Hz	Up to 1920 x 1200 @60Hz (via IT6516B)
DVI	Up to 1920 x 1200 @60Hz	—
HDMI	HDMI 1.4 up to 4096 x 2304 @24Hz	Up to 4096 x 2160 @ 60 / 30 Hz, with digital audio (HDMI2.0)
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 ATX 12V Power connector x 1	
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Operation Humidity	0% ~ 90% RH, non-condensing	
Certificate	CE & FCC Class A	
Form Factor	Micro-ATX, 9.6" x 9.6" (244mm x 244mm)	ATX Form Factor, 12" x 9.6" (305mm x 244mm)
Weight	1.76 lb (0.8 Kg)	
MTBF (Hours)	245,250	—
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 x 4	USB 3.2 Gen2 (10Gbps) x 2 (Option: x3units if with LAN3 i225LM), USB 3.2 Gen1 (5Gbps) x 2, Type C (5Gbps, 5V, 1.5A) x 1 (Optional), (All ports are bootable, can be deactivated per BIOS function; USB Power switchable feature)
Display I/O	HDMI x 2, VGA x 1, DVI-D x 1	HDMI2.0 x 2, DP1.4 x 2
Audio I/O	Line-in, Mic-in, Line-out	3 x Audio Jack: Line-in, Mic-in, Line-out
LAN I/O	RJ-45 x 2	LAN (RJ-45) port x 2 (Option: RJ45 x 3)
Serial Port	DB-9 COM x 1 (supports RS-232/422/485)	DB-9 COM (supports RS-232/422/485, 5V/12V/RI) x 1
PS/2 Port	Stack Port (Keyboard & Mouse) x 1	—
Others	—	—
Internal I/O Connectors		
Storage	SATA 6.0Gb/s x 5, M.2 M key (22 x 42mm) x 1	SATA III ports x 8, support RAID 0/1/5/10, M.2 2280 M key (PCIe 4 lanes, Gen4.0) x 1, M.2 2242/80 M key (PCIe 1 lane, Gen3.0) x 1
USB	USB 2.0 x 6	USB 3.0 Box Header x 1 (2x5PIN, p=2.54mm) support 2 USB3.2 Gen1 ports (USB Power switchable feature), USB 2.0 Header x 1 (2x5PIN, p=2.54mm) support 2 USB2.0 ports (USB Power switchable feature), USB 2.0 Vertical type A connector x1 VGA Header x 1 Speaker header(Line-out), AAFP x 1
Display I/O	—	—
Audio I/O	—	—
Serial Port	—	RS-232 header x 5
PS/2 Port	—	—
Parallel Port	—	—
DIO	8-bit x 1 (In/Out programmable)	8-bit Digital I/O interface (In/Out programmable) x 1
FAN	4-pin CPU Fan x 1, 4-pin Chassis Fan x 2	4-pin CPU Fan connector(PWM mode) x 1 4-pin Chassis Fan connector(PWM mode) x 3
Power	—	—
Others	Front panel header x 1, Clear CMOS jumper x 1, BIOS flash header (2[x4]P p=1.27mm) x 1, Chassis Intrusion x 1, AT/ATX mode select jumper x 1	Chassis Intrusion x1, AT/ATX mode select jumper x1, Front panel header x 1 Clear CMOS jumper x 1, Buzzer onboard x 1, 3-pin ME lock header x 1
OS	—	—
OS Support	Windows® 7 32/64-bit (not supported when a Kaby Lake processor is used), Windows® 8.1 64-bit (not supported when a Kaby Lake processor is used), Windows® 10 64-bit, Linux Fedora 64bit	Windows® 10 64-bit, Windows® 11 64-bit

Note: All specifications are subject to change without notice.

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Board Level Products

Industrial Motherboards

Industrial Motherboards



Model	ATX-Q370A	ATX-C246A
System		
Processor	Intel® 8th/9th Generation (Coffee Lake-S/Coffee Lake-S Refresh) Core™ i9/ i7/ i5 /i3, Pentium 14nm LGA 1151 socket Processor, max. TDP 8 Core 95W	Intel® 8th/9th Generation (Coffee Lake-S/Coffee Lake-S Refresh) Core™ i9/ i7/ i5 /i3, Pentium 14nm, Celeron™, Xeon E-2200/2100, LGA 1151 socket Processor, max. TDP 8 Core 95W
Chipset	Intel® Q370 Express Chipset	Intel® C246 Express Chipset
Memory	DIMM x 4, DDR4 (2666/2400/2133 MHz, max. 128GB) Non-ECC, un-buffered memory Dual channel memory architecture	
I/O Chipset	NCT6793D + F81216HD	
Ethernet	Intel® PHY i219LM Giga LAN x 1 (supports Intel® AMT 12.0) Intel® i210AT Giga LAN x 1 (BOM option: i210AT x 2) RJ45 x 2 (BOM option: RJ45 x 3)	
Audio	Realtek® ALC897 6-Channel High Definition Audio CODEC	
TPM	Nuvoton NPCT750 TPM2.0 onboard	
Expansion Slots	PCIe 3.0[x16] Slot x 1, PCIe 3.0[x4] Slot (open edge) x 2, PCIe 3.0[x1] Slot (open edge) x 2, PCI x 2, M.2 2230 E-key (PCIex1/USB2.0/CNV) x 1, M.2 2280 M-key (PCIex4/SATA3) x 1	
BIOS	256Mbit Flash ROM x 1, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/ Chassis Fan x 2	
Wake On LAN/ PXE	Yes (WOL / PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® Graphics Media Accelerator	
Graphics Multi Display	HDMI+VGA+DP (BOM option: USB 3.2 Gen 2-10Gbps Type-C connector (Alternate Mode: USB+DP) x 1)	
VGA	Up to 1920 x 1200 @60Hz (via IT6516B)	
DVI	—	
HDMI	Up to 4096 x 2160 @ 24 Hz / 2560 x 1600 @ 60 Hz, with Digital Audio	
Display Port	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz, with Digital Audio	
LVDS	—	
eDP	—	
Backlight Control	—	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	24-pin ATX connector x 1, 8-pin (2x4) ATX 12V Power connector x 1	
Operation Temperature	32°F ~140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	
Operation Humidity	0%~90%RH, non-condensing	
Certificate	CE & FCC Class A	
Form Factor	ATX Form Factor, 12"x9.6" (305mm x 244mm)	
Weight	1.76 lb (0.8 Kg)	
MTBF (Hours)	281,410	
Rear Panel I/O Ports		
USB	USB 3.2 Gen 2 ports (10 Gbps) x 4, USB 3.2 Gen 1 ports (5 Gbps) x 2, USB 2.0 ports x 4	
Display I/O	HDMI x 1, VGA x 1, DP x 1, USB Type-C x 1 (optional)	
Audio I/O	Audio Jack x 3: Line-in, Mic-in, Line-out	
LAN I/O	LAN (RJ45) ports x 2 (BOM option: RJ45 x 3)	
Serial Port	—	
PS/2 Port	—	
Others	—	
Internal I/O Connectors		
Storage	SATA III (6.0Gb/s) ports x 4, support RAID 0/1/5/10 M.2 2280 M-key (PCIex4/SATA3) x 1	
USB	USB 2.0 headers x 1 support additional 2 USB ports (2x5PIN, p=2.54mm)	
Display I/O	—	
Audio I/O	—	
Serial Port	5 x RS-232 headers 1 x RS-232/422/485 (COM1, supports 5V/12V/RI optional)	
PS/2 Port	—	
Parallel Port	—	
DIO	8-bit Digital I/O interface (In/Out programmable) x 1	
FAN	CPU Fan connector(s) (4-pin) x 1 Chassis Fan connector(s) (4-pin) x 2	
Power	—	
Others	Chassis Intrusion x 1, AT/ATX mode select jumper x 1, Front panel header x 1, Clear CMOS jumper x 1, 3-pin ME lock header x 1, Buzzer on-board x1	
OS		
OS Support	Windows® 10 64bit, Windows® 11 64bit, Linux Ubuntu 64bit (18.04.1/Kernel4.8.0)	Windows® 10 64bit, Windows® 11 64bit, Linux Ubuntu 64bit (18.04.1/Kernel4.8.0)

Note: All specifications are subject to change without notice.

Board Level Products

Industrial Motherboards

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Industrial Motherboards



Model	ATX-H310A	IMBA-Q170A
System		
Processor	Intel® 8th/9th Generation (Coffee Lake-S/Coffee Lake-S Refresh) Core™ i9/ i7/ i5/ i3, Pentium 14nm LGA 1151 socket Processor, Max. 6 Core 95W	Intel® 7th/ 6th Generation(Kaby Lake-S/ Skylake-S) Core™ i7/i5/i3/ Pentium®/ Celeron® 14nm LGA1151 Socket Processor
Chipset	Intel® H310 Express Chipset	Intel® Q170
Memory	DIMM x 2, DDR4 (2666/2400/2133 MHz, max. 64GB) non-ECC, un-buffered memory, Dual channel memory architecture	288-pin DIMM x 4, max. 64GB, DDR4 2400/2133/1867, dual-channel
I/O Chipset	NCT6793D+ F81216HD	NCT6791D, F81216HD
Ethernet	Intel® PHY i219V Giga LAN x 1, Intel® i210AT Giga LAN x 1 RJ45 x 2	LAN1: Intel® PHY i219LM Gb LAN (supports iAMT 11.0), LAN2: Intel® i210AT Gb LAN
Audio	Realtek® ALC897 6-Channel High Definition Audio CODEC	
TPM	Nuvoton NPCT750 TPM2.0 onboard (optional, default: on-board)	Nuvoton NPCT750AADYX TPM2.0 onboard (optional; default: onboard)
Expansion Slots	PCIe 3.0[x16] Slot x 1, PCIe 2.0[x4] Slot (open edge) x 2 (#1: 1Lane #2: Default: 2Lanes, only support 1Lane when Mini PCIe slot is installed.), PCI x 3, M.2 2280/2242 M-key (PCIex1/SATA3) x 1, Mini PCIe + Micro SIM card Slot (optional, default: N/A)	SKU1: PCIe [x16] x 1, PCIe [x4] (open edge) x 2, PCI x 3, M.2 E key (22 x 30mm) x 1, M.2 M key (22 x 80mm, for SATA) x 1 SKU2: PCIe [x16] x 1, PCIe [x4] (open edge) x 1, PCI x 3, M.2 E key x 1, M.2 M key (for SATA & PCIe4) x 1
BIOS	128Mbit Flash ROM x 1, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/ Chassis Fan x 2	CPU Fan x1, Chassis Fan x 2
Wake On LAN/ PXE	Yes (WOL / PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® Graphics Media Accelerator	Intel® HD Graphics
Graphics Multi Display	HDMI+VGA, HDMI+DP, VGA+DP	VGA+HDMI, HDMI+HDMI, VGA+HDMI+HDMI
VGA	Up to 1920 x 1200 @60Hz (via IT6516B)	Up to 1920 x 1200 @60Hz
DVI	—	—
HDMI	Up to 4096 x 2160 @ 30 Hz	HDMI 1.4 up to 4096 x 2304 @24Hz
Display Port	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz, with Digital Audio	—
LVDS	—	—
eDP	—	—
Backlight Control	—	—
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	24-pin ATX connector x 1, 8-pin (2x4) ATX 12V Power connector x 1	24-pin ATX connector x 1, 8-pin ATX 12V Power connector x 1
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~ 185°F (-40°C ~85°C)	
Operation Humidity	0% ~ 90%RH, non-condensing	
Certificate	CE & FCC Class A	
Form Factor	ATX Form Factor, 12" x 9.6" (305mm x 244mm)	
Weight	1.76 lb (0.8 Kg)	
MTBF (Hours)	285,600	219,970
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 ports x 2, USB 2.0 ports x 4	USB 3.2 Gen 1 x 10
Display I/O	HDMI x 1, VGA x 1, DP x 1	HDMI x 2, VGA x 1
Audio I/O	Audio Jack x 3: Line-in, Mic-in, Line-out	Line-in, Mic-in, Line-out
LAN I/O	LAN (RJ45) ports x 2	RJ-45 x 2
Serial Port	DB-9 COM x 1 (supports RS-232/422/485, 5V/12V/RI)	
PS/2 Port	—	Stack Port (Keyboard & Mouse) x 1
Others	—	
Internal I/O Connectors		
Storage	SATA III (6.0Gb/s) ports x 3 M.2 2280/2242 M-key (PCIex1/SATA3) x 1	Supports RAID 0/1/5/10, SKU1: SATA 6.0Gb/s x 3, M.2 M key (SATA) x 1 SKU2: SATA 6.0Gb/s x 4, M.2 M key (PCIex4) x 1
USB	USB 3.2 Gen 1 headers support additional 2 USB ports (2x5PIN, p=2.54mm) x 1, USB 2.0 Type A (vertical) x 1	USB 2.0 x 3
Display I/O	—	—
Audio I/O	AAFP x 1	Speaker header x 1 (Line-out)
Serial Port	RS-232 header x 5	
PS/2 Port	—	—
Parallel Port	—	—
DIO	8-bit Digital I/O interface (In/Out programmable) x 1	8-bit DIO x 1 (In/Out programmable)
FAN	CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 2	4-pin CPU Fan x 1, 4-pin Chassis Fan x 2
Power	—	
Others	Chassis Intrusion x 1, AT/ATX mode select jumper x 1, Front panel header x 1, Clear CMOS jumper x 1, 3-pin ME lock header x 1, Buzzer on-board x 1	Front panel header x 1, Clear CMOS jumper x 1, BIOS flash header (2[x4]P p=1.27mm) x 1, Chassis Intrusion x 1, AT/ATX mode select jumper x 1
OS	—	
OS Support	Windows® 10 64bit, Windows® 11 64bit, Linux Ubuntu 64 bit (18.04.3/ Kernel5)	Windows® 7 32/64-bit (not supported when a Kaby Lake processor is used), Windows® 8.1 64-bit (not supported when a Kaby Lake processor is used), Windows® 10 64-bit, Linux Fedora 64bit

Note: All specifications are subject to change without notice.

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Board Level Products

Industrial Motherboards

Industrial Motherboards



Model	IMBA-H110A
System	
Processor	7th/6th Generation Intel® Core™ i7/i5/i3/Pentium®/ Celeron® 14nm LGA1151 Socket Processor
Chipset	Intel® H110
Memory	288-pin DIMM x 2, max. 32GB, DDR4 2400/2133/1867, dual-channel
I/O Chipset	NCT6791D, F81216HD
Ethernet	LAN1: Intel® PHY i219V Gb LAN, LAN2: Intel® i210AT Gb LAN
Audio	Realtek® ALC897
TPM	Nuvoton NPCT750 TPM2.0
Expansion Slots	PCIe [x16] x 1, PCIe [x4] (open edge) x 1, PCI x 4, M.2 M key (22 x 80mm) x 1
BIOS	128M bit Flash ROM x 1, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program
Smart Fan Control	CPU Fan x 1, Chassis Fan x 2
Wake On LAN/ PXE	Yes (WOL/PXE)
Power State	S3, S4, S5
Graphics	
Graphics Chipset	Intel® HD Graphics
Graphics Multi Display	VGA+HDMI, VGA+DP, HDMI+DP
VGA	Up to 1920 x 1200 @60Hz
DVI	—
HDMI	HDMI 1.4 up to 4096 x 2304 @24 Hz
Display Port	DP 1.2, up to 4096 x 2304 @60 Hz
LVDS	—
eDP	—
Backlight Control	—
Environment & Power & ME	
Battery	Lithium battery
Power Requirement	24-pin ATX connector x 1, 8-pin ATX 12V Power connector x 1
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)
Operation Humidity	0% ~ 90% RH, non-condensing
Certificate	CE & FCC Class A
Form Factor	ATX, 12" x 9.6" (305 mm x 244 mm)
Weight	1.76 lb (0.8 Kg)
MTBF (Hours)	244,580
Rear Panel I/O Ports	
USB	USB 3.2 Gen 1 x 4, USB 2.0 x 2
Display I/O	HDMI x 1, DP x 1, VGA x 1
Audio I/O	Line-in, Mic-in, Line-out
LAN I/O	RJ-45 x 2
Serial Port	DB-9 COM x 1 (supports RS-232/422/485)
PS/2 Port	Stack Port (Keyboard & Mouse) x 1
Others	—
Internal I/O Connectors	
Storage	SATA 6.0Gb/s x 3, M.2 M key (22 x 80mm) x 1
USB	USB 2.0 x 4
Display I/O	—
Audio I/O	Speaker header x 1 (Line-out)
Serial Port	RS-232 header x 5
PS/2 Port	—
Parallel Port	—
DIO	8-bit x 1 (In/Out programmable)
FAN	4-pin CPU Fan x 1, 4-pin Chassis Fan x 2
Power	—
Others	Front panel header x 1, Clear CMOS jumper x 1, BIOS flash header (2[x4]P p=1.27mm) x 1, Chassis Intrusion x 1, AT/ATX mode select jumper x 1
OS	
OS Support	Windows® 7 32/64-bit (not supported when a Kaby Lake processor is used), Windows® 8.1 64-bit (not supported when a Kaby Lake processor is used), Windows® 10 64-bit, Linux Fedora 64bit
Note	

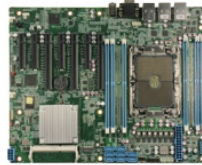
Note: All specifications are subject to change without notice.

Board Level Products

Industrial Server Board

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Industrial Server Board



Launching in Q1

Model	ARES-WHIO	ARES-EAGO
System		
Form Factor	ATX Sever Board Whitely Platform	EATX Sever Board Whitely Platform
Processor	Single Intel® Xeon® Processor Ice Lake-SP processor, supports up to 270W	Dual Intel® Xeon® Processor Sapphire Rapid-SP processor, supports up to 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 III port x 8	SATA III 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: 1 x PCIe Gen. 5 [x16] slot PCIE 2: 1 x PCIe Gen. 5 [x16] slot PCIE 3: 1 x PCIe Gen. 5 [x16] slot PCIE 4: 1 x PCIe Gen. 5 [x16] slot PCIE 5: 1 x PCIe Gen. 5 [x16] slot PCIE 6: 1 x PCIe Gen. 5 [x16] slot
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, 2.5Gb RJ45 LAN x 1, 10Gb RJ45 LAN x 2, VGA x 1, COM x 1
Color	—	
Power Supply	ATX	
Dimension	12.0" x 9.6" (305mm x 244 mm)	305 x 330 mm
Power Consumption	269W (Based on Intel® Xeon® Platinum 8352S)	TBD
MTBF (Hours)	292,321	TBD
Display		
Chipset	SM750	AST2510
Graphic Engine	—	
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		

Note: All specifications are subject to change without notice.

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Board Level Products

Industrial Server System

Industrial Server System



Model	ZEUS-PUR0	ZEUS-WH10
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 III 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	3 x middle fans default; 2 x rear fans, 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 3.0 x 6, 1Gb RJ45 LAN x 2, AUDIO in and out x 1, VGA x 1, Rear Expansion Slots x7
Color	Black	
Power Supply	800 ~1600W Redundant PSU	800 mini redundant PSU; 1600W CRPS PSU, optional
Dimension	(480mm x 600mm x 176mm)	597.2(D) x 430(W) x 174.8(H)mm
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 3.0 x 6
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		

Note: All specifications are subject to change without notice.



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02

► System Level Products

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System Level Products
AI@Edge Solutions

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Model	BOXER-8221AI	BOXER-8222AI
System		
AI Accelerator	NVIDIA® Jetson Nano™	
CPU	Quad Core Arm® Cortex®-A57 MPCore Processor	
System Memory	4GB LPDDR4	
Storage Device	32GB Micro-SD (A version) or 16GB eMMC (B version)	32 GB MicroSD Card (Version A) 16 GB eMMC (Version B) Mini-Card (Full Size) x 1 (PCIe+SATA+USB)
Display Interface	HDMI 2.0	HDMI 2.0 x 1
Ethernet	10/100/1000Base-TX x 1	10/100/1000Base-TX x 2
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 x 4 LAN x 1 PD x1 (Powered Device) 40-pin I/O x 1 (GPIO/I2S/I2C/Audio/SPI/UART) RS-232 x 1 HDMI x 1 Micro-USB x 1 for Flash OS DC Power Input x 1 Recovery Button x 1 Micro-USB for Flash OS x 1
Expansion	M.2 E-Key 2230 x 1(for WiFi)	Antenna x 2 M.2 2230 E Key x 1 (for Wi-Fi)
Indicator	Power LED x 1	Power LED x 1
OS Support	Linux (AAEON AALinux 4.9), Linux (NVIDIA Jetpack 4.5)	
Power Supply		
Power Requirement	12Vdc w/ 2-pin terminal block	DC 12V~24V 2-pin terminal
Mechanical		
Mounting	Wallmount	
Dimensions (W x D x H)	3.39" x 2.87" x 1.3" (88mm x 75mm x 39mm)	6.92" x 3.94" x 1.54" (175.8 mm x 100.0 mm x 39.0 mm)
Gross Weight	1.10 lb (0.5 Kg)	2.31 lbs (1.05 kg)
Net Weight	0.66 lb (0.3 Kg)	1.28 lbs (0.58 kg)
Environmental		
Operating Temperature	-4°F ~ 122°F (-20°C ~ 50°C, according to IEC60068-2 with 0.5 m/s AirFlow)	
Storage Temperature	-49°F ~176°F (-45°C ~ 80°C)	
Storage Humidity	95% @ 40°C, non-condensing	
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation – MicroSD or eMMC	Random, 3.5Grms, 5~500Hz
Anti-Shock	—	
Certification	CE/FCC class A	
Note	 TAIWAN EXCELLENCE 2021	

System Level Products

AI@Edge Solutions

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Launching in Q1

Model	BOXER-8223AI	BOXER-8224AI
System	NVIDIA® Jetson Nano	
AI Accelerator	NVIDIA® Jetson Nano	
CPU	Quad Core ARM® Cortex®-A57 MPCore Processor	ARM® Cortex® -A57 Quad-Core Processor
System Memory	4GB LPDDR4	4GB 64-Bit LPDDR4x 25.6GB/s
Storage Device	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 Type A 2.0 *1 (Output) HDMI Type A 1.4 *1 (Input)	Wafer connector for HDMI 2.0 x 1
Ethernet	POE PSE LAN x2 (802.3at)	Pin header for 10/100/1000 Base-T LAN x 2
I/O	USB Type A x 4 for USB 3.2 Gen1 GbE LAN with LED Indicator POE PSE LAN x2 (802.3at) DB-9 x 1 for RS-232/485 DB15 x 1 Female for 13 Channel DIO O.S Flash port x 1 Recovery port x1 Antenna opening x 2 HDMI Type A 2.0 *1 (Output) HDMI Type A 1.4 *1 (Input via MIPI CSI) Power bottom *1	Wafer connector for Dual USB 3.2 Gen 1 x 2 Wafer connector for HDMI 2.0 x 1 Wafer connector for Dual RS-232/485 (by switch) x 2 Wafer connector for UART TX/ RX +GPIO x 6 (5V) x 1 Wafer connector for 5V and GND x 1 Wafer connector for I2C x2 (I2C_1_SDA+I2C_1_SCL) x 1 MicroSD slot x 1 MIPI connector for four MIPI camera x 2 M.2 E key (for Wifi) x 1 Micro USB for flashing x 1 Recovery bottom x 1 Debug port / reset pin header x 1
Expansion	Minicard*1 w/ SIM slot M.2 E-Key 2230 x 1(for WiFi)	M.2 E key (for Wifi) x 1 Mini-Card (for 4G LTE) x 1 SIM card slot x 1
Indicator	Power LED x 1	TBD
OS Support	Nvidia Jetpack 4.5 or above	Linux (NVIDIA Jetpack 4.6 and above)
Power Supply		
Power Requirement	DC 12V~24V with 2-pin terminal block ATX mode	12V ~ 24V DC with Wafer connector
Mechanical		
Mounting	Wall mount kit (default)	—
Dimensions (W x D x H)	7.09" x 5.35" x 2.41" (180.0 mm x 136.0 mm x 61.1 mm)	TBD
Gross Weight	4.63 lbs. (2.1 kg)	TBD
Net Weight	2.87 lbs. (1.3 kg)	TBD
Environmental		
Operating Temperature	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	-40°F ~ 176°F (-40°C ~ 80°C)	-49°F ~ 176°F (-40°C ~ 70°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	
Anti-Vibration	Random, 3 Grms, 5~500Hz	5Grms / 5~500Hz / X/Y/Z axis, random (by M.2 storage)
Anti-Shock	50G peak acceleration (11 msec. duration,eMMC)	TBD
Certification	CE / FCC class A / UKCA	TBD
Note		

Note: All specifications are subject to change without notice.

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System Level Products
AI@Edge Solutions

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Model	BOXER-8230AI	BOXER-8231AI
System	NVIDIA® Jetson™ TX2 NX	
AI Accelerator	NVIDIA® Jetson™ TX2 NX	
CPU	NVIDIA® Denver 2 (Dual-Core) Processor & ARM® Cortex® -A57 MPCore (Quad-Core) Processor	4 Core ARM A57 Complex and 2 core NVIDIA Denver2 64-bit CPU
System Memory	4GB 128-bit LPDDR4 @ 1600 MHz	4GB LPDDR4
Storage Device	eMMC 5.1 16GB MicroSD card slot x 1 2.5" SATA drive bay x 1 (A4/JP46E-A2 only)	16GB eMMC + MicroSD
Display Interface	HDMI Type A x 1 for HDMI 2.0	HDMI 2.0
Ethernet	RJ-45 x 5 for GbE LAN	10/100/1000Base-TX x 1
I/O	USB Type A x 4 for USB 3.2 Gen 1 DB-9 x 2 for RS-232 HDMI Type A x 1 for HDMI 2.0 MicroSD slot x 1 Micro USB x 1 for O.S Flash Recovery button x 1 Power button with power LED x 1	USB 3.2 Gen 1 x 4 LAN x 1 RS-232 x 2 HDMI x 1 MicroSD x 1 DC Power Input x 1 Recovery Button x 1 Micro-USB for Flash OS x 1
Expansion	SATA III Port x 1 for 2.5" SATA drive (A4/JP46E-A2 only)	M.2 E-Key 2230 x 1(for WiFi)
Indicator	Power LED x 1	
OS Support	Linux (NVIDIA Jetpack 4.5 or above)	Linux (AAEON ACLinux 4.9) Linux (NVIDIA Jetpack 4.5 and above)
Power Supply		
Power Requirement	DC-in 10V~24V with 2-pin terminal block ATX mode	12Vdc w/ 2-pin terminal block
Mechanical		
Mounting	Wall mount kit	Wallmount
Dimensions (W x D x H)	A3/JP46E-A1 : 6.92" x 3.94" x 1.54"(175.8mm x 100.0mm x 39.0mm) A4/JP46E-A2 : 6.92" x 3.94" x 2.41"(175.8mm x 100.0mm x 61.3mm)	3.46" x 2.95" x 1.53" (88mm x 75mm x 39mm)
Gross Weight	A3/JP46E-A1 : 2.91lbs (1.3kg) A4/JP46E-A2 : 3.5lbs (1.6kg)	1.10 lb (0.5 kg)
Net Weight	A3/JP46E-A1 : 1.51lbs (0.67kg) A4/JP46E-A2 : 2.0lbs (0.91kg)	0.66 lb (0.3 kg)
Environmental		
Operating Temperature	A3/JP46E-A1 : -13°F ~ 149°F(-25°C ~ 65°C,according to IEC60068-2 with 0.5 m/s AirFlow) A4/JP46E-A2 : -13°F ~ 167°F(-25°C ~ 75°C,according to IEC60068-2 with 0.5 m/s AirFlow)	-25°C ~ 45°C, according to IEC60068-2 with 0.5 m/s AirFlow
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	
Anti-Vibration	3.5Grm / 5~500Hz / operation (eMMC, MicroSD, or SSD)	3.5 Grms/ 5 ~ 500Hz/ operation – eMMC
Anti-Shock	50G peak acceleration (11 msec. duration, eMMC, microSD, or SSD)	50G peak acceleration (11 msec. duration) – eMMC
Certification	CE / FCC class A	
Note		

Note: All specifications are subject to change without notice.

System Level Products

AI@Edge Solutions

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AI@Edge Solutions



Model	BOXER-8233AI	BOXER-8240AI
System		
AI Accelerator	NVIDIA® Jetson™ TX2 NX	NVIDIA® AGX Xavier
CPU	NVIDIA® Denver 2 (Dual-Core) Processor & ARM® Cortex® -A57 MPCore (Quad-Core) Processor	8-core ARM v8.2 64bit CPU, 8MB L2 + 4MB L3
System Memory	4GB 128-bit LPDDR4	32GB 256-Bit LPDDR4x 137GB/s
Storage Device	eMMC 16GB MicroSD slot x 1 Full-size mSATA (sharing slot with Full-size minicard module) 2.5" SATA drive bay x 1	32GB eMMC 5.1 Micro SD card slot 2.5" SATA drive bay M.2 Key M 2280
Display Interface	HDMI Type A x 1 for HDMI 2.0	HDMI 2.0 x 1
Ethernet	RJ-45 x 2 for GbE PoE/PSE (802.3at) RJ-45 x 1 for GbE LAN	10/100/1000 Base-TX with IEEE 802.11 af PoE LAN x 4
I/O	USB Type A x 4 for USB 3.2 Gen 1, USB Micro A/B x 1 for OS Flash, RJ45 x 2 for GbE PoE/PSE x 2 (802.3at) (Total 60W), RJ-45 x 1 for GbE LAN, DB-9 x 1 for RS-232/485 & CANbus, DB15 x 1 for Digital I/O 13-Channel (programmable), Recovery port x 1, MicroSD slot x 1, Antenna opening x 4, HDMI Type A for HDMI 2.0 output x 1, HDMI Type A for HDMI 1.4 input x 1, Power Button x 1,	PoE x 4 (IEEE 802.af, total 60W), USB Type A x 1 for USB 3.2 Gen 1, USB Type C x 2 for USB 3.2 Gen 1, USB Type A x 1 for USB 2.0, RS-232/422/485 x1, CANBUS x 1, HDMI 2.0 x1, DP 1.4 x 1 Mic-in x 1, Line-out x 1, MicroSD slot x 1, Micro USB x 1 for OS Flash, Recovery button x 1, Power button x 1, 40-pin header compliance with NVIDIA Dev Kit 40 pins (4 pins CANBUS occupied)
Expansion	Full-size minicard slot x1 (PCIe/USB/mSATA, default PCIe) M.2 E-Key 2230 x 1 (for WiFi) SIM socket x 1 SATA III (6.0 Gbps) port x 1 for 2.5" drive	USB 2.0 header x 1 (Optional, circuit reserved) M.2 Key E 2230 x 1 for WiFi/Bluetooth (PCIe[x1] + USB) M.2 Key M 2280 x 1 (PCIe[x4]) SATA x 1 RS-232/422/485 pin header x 1
Indicator	Power LED x 1	
OS Support	Linux (NVIDIA Jetpack 4.5.1)	Linux (NVIDIA Jetpack 4.5 and above) Linux (AAEON AClinux 4.9)
Power Supply		
Power Requirement	DC 12V~24V with 2-pin terminal block ATX mode	DC 12V~24V 2-pin terminal
Mechanical		
Mounting	Wall mount kit	Wallmount
Dimensions (W x D x H)	7.09" x 5.35" x 2.41" (180.0 mm x 136.0 mm x 61.1 mm)	8.26" x 6.46" x 2.32" (210mm x 164.2mm x 59mm)
Gross Weight	4.63 lbs. (2.1kg)	6 lbs (2.72kg)
Net Weight	2.87 lbs. (1.3kb)	4.23 lbs (1.92kg)
Environmental		
Operating Temperature	5°F ~ 131°F (-15°C ~ 55°C, according to IEC60068-2 with 0.5 m/s airflow)	14°F ~ 131°F (-10°C ~ 55°C, according to IEC60068-2 with 0.5 m/s AirFlow)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40 °F ~ 158°F(-40°C ~ 70°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	
Anti-Vibration	3.5Grms / 5~500Hz / operation (eMMC, MicroSD, mSATA, or SSD)	Random, 3 Grms, 5 ~ 500Hz
Anti-Shock	50G peak acceleration (11 msec. duration, eMMC, microSD, mSATA, or SSD)	—
Certification	CE / FCC class A / UKCA	CE/FCC class A
Note	 	

Note: All specifications are subject to change without notice.

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System Level Products
AI@Edge Solutions

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Model	BOXER-8250AI	BOXER-8251AI
System	NVIDIA Jetson Xavier NX	
AI Accelerator	6-core NVIDIA Carmel ARM® v8.2 64-bit CP	
CPU	6-core NVIDIA Carmel ARM® v8.2 64-bit CP	6 Core ARM® Carmel®V8.2 64bit CPU 6MB L2 + 4MB L3
System Memory	8GB LPDDR4x	
Storage Device	16 eMMC and MicroSD card slot (A1, A3) 16 eMMC and MicroSD card slot and 2.5" HDD drive(A4)	16GB eMMC + MicroSD
Display Interface	HDMI 2.0	
Ethernet	10/100/1000Base-TX x 5	10/100/1000Base-TX x 1
I/O	USB Type A x 4 for USB 3.2 Gen 1 RJ-45 x 5 for GbE LAN DB-9 x 2 for RS-232 HDMI Type A x 1 for HDMI 2.0 MicroSD slot x 1 Micro USB x 1 for O.S Flash Recovery button x 1 Power button with power LED x 1	USB 3.2 Gen 1 x 4 LAN x 1 RS-232 x 2 HDMI x 1 MicroSD x 1 DC Power Input x 1 Recovery Button x 1 Micro-USB for Flash OS x 1
Expansion	—	M.2 E-Key 2230 x 1(for WiFi)
Indicator	Power LED x 1	
OS Support	Linux (AAEON ACLinux 4.9) Linux (NVIDIA Jetpack 4.5)	Linux (AAEON ACLinux 4.9) Linux (NVIDIA Jetpack 4.5) Ubuntu18.04
Power Supply		
Power Requirement	10 ~ 24V DC with 2-pin terminal block	12Vdc w/ 2-pin terminal block
Mechanical		
Mounting	Wallmount	
Dimensions (W x D x H)	A1, A3 : 6.92" x 3.94" x 1.54"(175.8mm x 100.0mm x 39.0mm) A4 : 6.92" x 3.94" x 2.41"(175.8mm x 100.0mm x 61.3mm)	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)
Gross Weight	A1, A3 : 2.48 lbs (1.12 kg) A4 : 3.5lbs (1.6kg)	Standard: 1.10 lb (0.5 kg) High heatsink: 1.76lb(0.8kg)
Net Weight	A1, A3 : 1.46 lbs (0.66 kg) A4 : 2.0lbs (0.91kg)	Standard: 0.66 lb (0.3 kg) High heatsink: 1.3lb(0.6kg)
Environmental		
Operating Temperature	A1, A3 : 14°F ~ 149°F (-10°C ~ 65°C, according to IEC60068-2 with 0.5 m/s AirFlow) A4 : -13°F ~ 158°F (-25°C ~ 70°C, according to IEC60068-2 with 0.5 m/s AirFlow)	TBC
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 158°F (-40°C ~ 70°C)
Storage Humidity	95% @ 40°C, non-condensing	
Anti-Vibration	3.5Grms / 5~500Hz / operation (eMMC, MicroSD, or SSD)	3 Grms/ 5 ~ 500Hz/ operation – MicroSD or eMMC
Anti-Shock	—	
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

System Level Products

AI@Edge Solutions

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AI@Edge Solutions



Model	BOXER-8253AI	BOXER-8256AI
System	NVIDIA® Jetson Xavier™ NX	
AI Accelerator	6 Core ARM® Carmel@V8.2 64bit CPU 6MB L2 + 4MB L3	
CPU	6-core NVIDIA Carmel Arm@v8.2 64-bit CPU	
System Memory	8GB LPDDR4x	
Storage Device	eMMC 16GB MicroSD slot x 1 Full-size mSATA (sharing slot with Full-size minicard module) 2.5" SATA drive bay x 1	16GB eMMC x 1 MicroSD Slot x 1 M.2 M-Key 2280 x 1 (PCIe[x4])
Display Interface	HDMI Type A for HDMI 2.0 x 1	HDMI 2.0 x 2
Ethernet	RJ-45 x 2 For GbE PoE/PSE (802.3at) RJ-45 x 1 For GbE LAN	RJ-45 x 1 for GbE LAN
I/O	USB Type A x 4 for USB 3.2 Gen 1 USB Micro A/B x 1 for OS Flash RJ-45 x 2 for PoE/PSE (802.3at) (Total 60W) RJ-45 x 1 for GbE LAN DB-9 x 1 for RS-232/485 & CANbus DB15 x 1 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	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
Expansion	Full-size minicard slot x1 (PCIe/USB/mSATA, default PCIe) M.2 E-Key 2230 x 1 (for WIFI) SIM socket x 1 SATA III (6.0 Gbps) port x 1 for 2.5" drive	M.2 B-Key 3042/3052 x 1 (PCIe[x2] + USB 3.0) M.2 E-key x 1 (PCIe[x1] + USB 2.0) SATA connector and 5V x 1
Indicator	Power LED x 1	
OS Support	Linux (AAEON AELinux4.9) Linux (NVIDIA Jetpack 4.5)	Linux (NVIDIA Jetpack 4.6.2 or above)
Power Supply		
Power Requirement	12~24V DC with 2-pin terminal block	
Mechanical		
Mounting	Wall mount kit	
Dimensions (W x D x H)	7.09" x 5.35" x 2.41" (180.0 mm x 136.0 mm x 61.1 mm)	7.09" x 5.35" x 2.64" (180 mm x 136 mm x 67 mm)
Gross Weight	4.63 lbs. (2.1 kg)	4.23 lb (1.92 kg)
Net Weight	2.87 lbs. (1.3 kg)	2.87 lb (1.3 kg)
Environmental		
Operating Temperature	5°F ~ 131°F (-15°C ~ 55°C with 0.5 m/s airflow)	-5°F ~ 140°F (-15°C ~ 60°C 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	3.5Grms / 5~500Hz / operation-eMMC, MicroSD or mSATA	3.5 Grms/ 5 ~ 500Hz/ operation – eMMC
Anti-Shock	50G peak acceleration (11 msec. duration, eMMC, microSD, or mSATA)	50G, IEC 60068-2-27, half sine, 11 ms duration – eMMC
Certification	CE / FCC class A	
Note		

Note: All specifications are subject to change without notice.

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System Level Products
AI@Edge Solutions

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Launching in Q1

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Model	BOXER-8621AI	BOXER-8623AI
System	NVIDIA Jetson Orin NANO	
AI Accelerator	6-core Arm® Cortex®-A78AE ARMv8.2 64-bit CPU	
CPU	4GB LPDDR5	
System Memory	mSATA x 1, M.2 2230 E Key x 1	
Storage Device	M.2 2230 E Key x 1, 2.5" SATA drive bay x 1	
Display Interface	HDMI 1.4 type A x 1	
Ethernet	RJ-45 x 1 for GbE LAN	RJ-45 x 1 for GbE LAN RJ-45 x 2 for GbE PoE/PSE 802.3af/each (Max.30W)
I/O	USB 3.2 Gen 1 type A x 3 USB 2.0 type A x 1 DB-9 for RS232(Rx/Tx/CTS/RTS)/RS485 x 1 and CANBus FD x 1 RS232(Rx/Tx)/RS485 x 1 and DIO x 9 HDMI 1.4 type A x 1 Micro USB x 1 for OS Flash Power button x 1 Recovery button x 1 Antenna x 2	USB 3.2 Gen 1 type A x 3 USB 2.0 type A x 1 DB-9 for RS232(Rx/Tx/CTS/RTS)/RS485 x 1 and CANBus FD x 1 RS232(Rx/Tx)/RS485 x 1 and DIO x 9 HDMI 1.4 type A x 1 Micro USB OTG x 1 for OS Flash Power button x 1 Recovery button x 1 Antenna x 4
Expansion	Full size Mini-PCIe slot x 1 (USB + PCIe + SATA), Default: PCIe M.2 2230 E Key (Wifi/BT/Storage) x 1 SIM Slot x 1	Full size mini-PCIe slot x 1 (USB + PCIe + SATA), Default: PCIe M.2 2230 E Key x 1 2.5" SATA Drive Bay x 1 SIM Slot x 1
Indicator	Power LED x 1	
OS Support	Linux (NVIDIA Jetpack 5.0 up)	
Power Supply		
Power Requirement	12V DC in with 2 pins terminal block x 1	12V~24V DC in with 2 pins terminal block x 1
Mechanical		
Mounting	Wall Mount (default)	
Dimensions (W x D x H)	TBD	TBD
Gross Weight	TBD	TBD
Net Weight	TBD	TBD
Environmental		
Operating Temperature	-13°F ~ 131°F (-25°C ~ 55°C), according to IEC60068-2 with 0.5 m/s AirFlow	-13°F ~ 158°F (-25°C ~ 70°C), according to IEC60068-2 with 0.5 m/s AirFlow
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Storage Humidity	5% ~ 95% @ 40°C, non-condensing	
Anti-Vibration	3.5Grms / 5~500Hz / Operation	
Anti-Shock	50G peak acceleration	
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

System Level Products

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Model	BOXER-8640AI	BOXER-8641AI
System		
AI Accelerator	NVIDIA Jetson AGX Orin 32GB	NVIDIA® Jetson AGX Orin
CPU	8-core ARM v8.2 64bit CPU, 2MB L2 + 4MB L3	
System Memory	32GB 256-Bit LPDDR5 205GB/s	
Storage Device	64GB eMMC 5.1 Micro SD card slot x 1 2.5" SATA drive bay x 1 M.2 Key M 2280 x 1	64GB eMMC 5.1 x 1 MicroSD slot x 1 SATA drive bay x 1
Display Interface	HDMI 2.0 x 1	HDMI Type A for HDMI 2.0 x 1
Ethernet	RJ-45 for GbE PoE/PSE 802.3af x 4 (Max. 60W)	RJ-45 for GbE LAN x 2
I/O	USB Type A x 2 for USB 3.2 Gen 2 USB Type C x 2 for USB 3.2 Gen 2 RS-232/422/485 x1 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 compliance with NVIDIA Dev Kit 40 pins (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 2 Power Button x 1 DB-9 x 2 for RS-232/422/485 DB-9 x 1 for DI0 x 8
Expansion	USB 2.0 header x 1 (Optional, circuit reserved) M.2 E Key 2230 (for Wifi/BT) x 1 M.2 M Key 2280 (NVMe) x 1 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)	
Power Supply		
Power Requirement	DC 12V~24V 2-pin terminal	12V DC with lockable DC Jack
Mechanical		
Mounting	Wallmount	Wall mount kit
Dimensions (W x D x H)	8.26" x 6.46" x 2.32" (210mm x 164.2mm x 59mm)	7.09 " x 5.35 " x 2.41" (180.0 mm x 136 .0 mm x 61.1 mm)
Gross Weight	8.3lb (3.76kg)	7.8lb (3.55kg)
Net Weight	6.4lb (2.9kg)	5.5lb (2.5kg)
Environmental		
Operating Temperature	-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 ~ 158°F(-40°C ~ 70°C)	
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	
Anti-Vibration	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		

Note: All specifications are subject to change without notice.

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System Level Products
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Model	BOXER-8646AI	BOXER-8650AI
System		
AI Accelerator	NVIDIA® AGX Orin	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
System Memory	32GB 256-Bit LPDDR5 205GB/s	8GB LPDDR5
Storage Device	64GB eMMC 5.1 x 1	M.2 2230 E Key x 1, 2.5" SATA Drive Bay x 1
Display Interface	HDMI Type A for HDMI 2.0 x 1	HDMI 1.4 type A x 1
Ethernet	RJ-45 for GbE PoE/PSE (802.3af/at, total 120W) x 12 RJ-45 for 10G x 1 RJ-45 for 1G (PHY) x 1	RJ-45 x 5 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 Line-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 for 24V power input Power ON/OFF switch x 1 Antenna hole x 6	USB 3.2 Gen 1 type A x 3 USB 2.0 type A x 1 DB-9 for RS232(Rx/Tx/CTS/RTS)/RS485 x 1 and CANBus FD x 1 RS232(Rx/Tx)/RS485 x 1 and DIO x 9 HDMI 1.4 type A x 1 Micro USB x 1 for OS Flash Power button x 1 Recovery button x 1 Antenna x 2
Expansion	M.2 Key E 2230 for WiFi/Bluetooth (PCIe[x1] + USB) x1 M.2 Key B 3042/3052 for 4G/5G x 1 M.2 Key M 2280 (PCIe[x4]) x 1 SIM Slot x 1	Full size Mini-PCIe slot x 1 (USB + PCIe) 2.5" SATA Drive Bay x 1 M.2 2230 E Key x 1 SIM Slot x 1
Indicator	Power LED x 1	
OS Support	Linux (NVIDIA Jetpack 5.0 or above)	Linux (NVIDIA Jetpack 5.0 up)
Power Supply		
Power Requirement	DC-in 19-24V with 3-pin terminal block	12V ~ 24V DC in with 2 pins terminal block x 1
Mechanical		
Mounting	Wall mount kit	Wall Mount (default)
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)	TBD
Gross Weight	TBD	TBD
Net Weight	TBD	TBD
Environmental		
Operating Temperature	-4°F ~ 122°F (-20°C ~ 50°C with 0.5 m/s airflow)	-13°F ~ 158°F (-25°C ~ 70°C), according to IEC60068-2 with 0.5 m/s AirFlow
Storage Temperature	-40°F ~ 158°F (-40°C ~ 70°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	
Anti-Vibration	3.5Grms / 5~500Hz	
Anti-Shock	50G peak acceleration	
Certification	CE / FCC class A	
Note		

Note: All specifications are subject to change without notice.

System Level Products

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Model	BOXER-8651AI	BOXER-8652AI
System		
AI Accelerator	NVIDIA Jetson Orin NX	NVIDIA® Orin NX
CPU	6-core Arm® Cortex®-A78AE ARMv8.2 64-bit CPU	8-core Arm® Cortex®-A78AE v8.2 64-bit CPU
System Memory	8GB LPDDR5	16GB 256-Bit LPDDR5x 102.4GB/s
Storage Device	mSATA x 1, M.2 2230 E Key x 1	M.2 M Key x 1
Display Interface	HDMI 1.4 type A x 1	HDMI Type A for HDMI 2.0 x 1
Ethernet	RJ-45 x 1 for GbE LAN	RJ-45 x 2 for 10/100/1000 Base-T
I/O	USB 3.2 Gen 1 type A x 3 USB 2.0 type A x 1 DB-9 for RS232(Rx/Tx/CTS/RTS)/RS485 x 1 and CANBus FD x 1 RS232(Rx/Tx/CTS/RTS)/RS485 x 1 and DIO x 9 HDMI 1.4 type A x 1 Micro USB x 1 for OS Flash Power button x 1 Recovery button x 1 Antenna x 2	RJ-45 x 2 for 10/100/1000 Base-T USB Type A x 3 for USB 3.2 Gen 1 USB Type A x 1 for USB 2.0 HDMI type A for HDMI v2.0 x 1 DB-9 x 1 for CANbus DB-9 x 1 for RS-232/422/485 DB-15 x 1 for 13 DIO 2-pin terminal block for 12-24V power input Power ON/OFF switch x 1 Antenna hole x 4
Expansion	Full size Mini-PCIe slot x 1 (USB + PCIe + SATA), default: PCIe M.2 2230 E Key (Wifi/BT/Storage) x 1 SIM Slot x 1	M.2 E-Key 2230 x 1 for WiFi/Bluetooth M.2 B-Key 3042/3052 x1 for 4G/5G M.2 M-Key 2280 x1
Indicator		Power LED x 1
OS Support	Linux (NVIDIA Jetpack 5.0 up)	Linux (NVIDIAJetpack 5.0 and above)
Power Supply		
Power Requirement	12V DC in with 2 pins terminal block x 1	DC-In 12-24V with 2-pin terminal block
Mechanical		
Mounting	Wall Mount (default)	Wall mount kit
Dimensions (W x D x H)	TBD	TBD
Gross Weight	TBD	TBD
Net Weight	TBD	TBD
Environmental		
Operating Temperature	-13°F ~ 131°F (-25°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% @ 40C, non-condensing	5 ~ 95% @ 40°C, non-condensing
Anti-Vibration	3.5Grms / 5~500Hz / Operation	1Grms / 5~500Hz
Anti-Shock	50G peak acceleration	20G peak acceleration
Certification		CE/FCC class A
Note		

Note: All specifications are subject to change without notice.

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System Level Products

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Model	BOXER-8653AI
System	
AI Accelerator	NVIDIA Jetson Orin NX
CPU	6-core Arm® Cortex®-A78AE ARMv8.2 64-bit CPU
System Memory	8GB LPDDR5
Storage Device	M.2 2230 E Key x 1, 2.5" SATA Drive Bay x 1
Display Interface	HDMI 1.4 type A x 1
Ethernet	RJ-45 x 1 for GbE LAN RJ-45 x 2 for GbE PoE/PSE 802.3af/each (Max.30W)
I/O	USB 3.2 Gen 1 type A x 3 USB 2.0 type A x 1 DB-9 for RS232(Rx/Tx/CTS/RTS)/RS485 x 1 and CANBus FD x 1 RS232(Rx/Tx)/RS485 x 1 and DIO x 9 HDMI 1.4 type A x 1 Micro USB x 1 for OS Flash Power button x 1 Recovery button x 1 Antenna x 4
Expansion	Full size mini-PCIe slot x 1 (USB + PCIe) 2.5"SATA Drive Bay x 1 M.2 2230 E Key x 1 SIM Slot x 1
Indicator	Power LED x 1
OS Support	Linux (NVIDIA Jetpack 5.0 up)
Power Supply	
Power Requirement	12V~24V DC in with 2 pins terminal block x 1
Mechanical	
Mounting	Wall Mount (default)
Dimensions (W x D x H)	TBD
Gross Weight	TBD
Net Weight	TBD
Environmental	
Operating Temperature	-13°F ~ 158°F (-25°C ~ 70°C), according to IEC60068-2 with 0.5 m/s AirFlow
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)
Storage Humidity	5% ~ 95% @ 40C, non-condensing
Anti-Vibration	3.5Grms / 5~500Hz / Operation
Anti-Shock	50G peak acceleration
Certification	CE/FCC class A
Note	

System Level Products

AI@Edge Solutions : Edge AI Server

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AI@Edge Solutions : Edge AI Server



Model	BOXER-8301AI-CML	BOXER-8332AI-CFL
System		
AI Accelerator	Intel® 10th Gen Core™ Desktop Processors	Intel® Xeon® E-2124G Intel® Core™ i7-9700TE Intel® Core™ i7-8700T Intel® Core™ i5-8500T Intel® Core™ i3-8100T Intel® Pentium® G5400T Intel® Celeron® G4900T Intel® Xeon® E-2278GEL Note: Support max. TPD 71W Processor
CPU	Intel® Q470E	C246, No H310 downward support
System Memory	DDR4 up to 2933 Mhz 128GB, Long-DIMM x 4	DDR4 SO-DIMM socket x4 (double deck) Support max. 2666MHz up to 128GB Support un-buffered and ECC / non-ECC type SODIMM
Storage Device	Hot Swappable 3.5"SATA HDD/SSD Bay x 4 M.2 M Key 2242/2260/2280 x 1	2.5" SATA Drive Bay x2 (4 SATA Port w/ RAID Function) Half-size Minicard x1 for mSATA (optional) M.2 2280 NVMe slot x1
Display Interface	HDMI 2.0a x 1, 4096 x 2160 @60Hz DP 1.2 x 1, 4096 x 2160@60Hz VGA x 1, 1920 x 1200@60Hz	HDMI 1.4 x2 Support Dual Independent Display, 4K Ultra HD displays
Ethernet	Intel® I225LM with 10/100/1000/2500 Mbps Intel® I219LM with 10/100/1000 Mbps, support AMT / vPro Intel® X550-T2 with 10GbE/5GbE/2.5GbE/1GbE/100Mb	RJ-45 x3 for GbE LAN (Intel i211AT x2, i219LM x1)
I/O	USB 3.2 Gen2 x 4 USB 3.2 Gen1 x 2 (Front Panel) USB 3.2 Gen1 x 2 USB 2.0 x 2 RJ-45 x 4 for LAN (i225 x 1, i219 x 1, X550-T2 x 1) DB-9 x 2 for RS-232/422/485 Audio for Line-in, Line-out, Mic-in PS2 x 1	USB Type-A x6 for USB3.2 Gen1 DB9 x4 For RS-232/422/485 Mic-in x1, Line-out x1 Power ON/OFF switch x1 Remote power on/off connector x1 Reset switch x1 SMA Antenna Holes x3
Expansion	PCIe [x8] Gen3 x 1 PCIe [x4] Gen3 x 1 M.2 E Key 2230 x 1 (PCIe [x1]/USB 2.0) M.2 B Key 3042/3052 w/SIM slot (PCIe [x1]/USB 3.0/USB 2.0)	Full-size Minicard x1 (PCIe + USB with 1 SIM Slot) Half-size Minicard x1 (PCIe + USB, optional for mSATA) M.2 M key (2280) x1 (PCIEx4) Built in NVIDIA A2 x1 PCIe [x4] x1
Indicator	Power Status x 1 HDD Activity x 1 LAN Activity x 2 Fan Failure and Overheat x 1	System Power LED x1 (Green) Storage Active LED x1 (Red)
OS Support	WIN10 IoT LTSC 2019 Multi-Language English	Windows® 10 Enterprise 64 bit Ubuntu 20.04.3/Kernel 5.40.-72
Power Supply		
Power Requirement	600W ATX Power Supply Input voltage: 90-264Vac Input frequency: 47-63Hz Input current: 115Vac @ 6A, 230Vac @ 3A	DC In 12~24V x1 for 3-pin Terminal block
Mechanical		
Mounting	—	Wallmount
Dimensions (W x D x H)	18.3" x 7.8" x 16.7" (465 mm x 198 mm x 425 mm)	8.66" x 5.91" x 11.02" (220 mm x 150 mm x 280 mm)
Gross Weight	39.68 lb (18 Kg)	17.64 lb (8 kg)
Net Weight	33.07 lb (15.5 Kg)	15.43 lb (7 kg)
Environmental		
Operating Temperature	32°F ~104°F (0°C ~ 40°C), IEC68-2 with 0.5 m/s AirFlow	
Storage Temperature	-49°F~176°F (-45°C ~ 80°C)	
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	
Anti-Vibration	Random, 1Grms, 5~500Hz, Anti-vibration design	SSD : Random, 1Grms, 5~500Hz
Anti-Shock	SSD : 5G @ Half-sine, 11ms	SSD : 5G @ wallmount, Half-sine, 11ms
Certification	CE/FCC Class B, VCCI Class B	CE/FCC class A , UKCA
Note		

Note: All specifications are subject to change without notice.

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System Level Products

IoT Gateway Solutions – IoT Gateway & Expansion

IoT Gateway Solutions – IoT Gateway & Expansion



Model	SRG-3352		SRG-3352C	SRG-IMX8P
System				
Processor	ARM Cortex-A8 800 MHz RISC Processor			ARM NXP i.MX8M Plus Quad-Core Cortex-A53 1.6GHz Processor (NPU Optional)
Memory	Onboard DDR3L 1GB			Onboard DDR4L 2GB (Optional 4GB)
Storage	eMMC 16GB			eMMC 16GB (Optional 32GB)
Real Time Clock	RTC, with 3V CR2032 Lithium battery x 1			RTC x 1, with 3V CR2032 Lithium battery
Security	—			TPM 2.0
Indicators	Programmable LED control x 4			Programmable LED control x 7
Cellular	Mini PCIe Connector x 1			Mini PCIe Connector x 1 (USB signal)
Wireless Lan	—	Onboard WiFi 802.11 b/g/n, Bluetooth4.2 / BLE	Mini PCIe Connector x 1 (USB signal)	
Operating System	Debian 9		Debian 10	
Support Protocol	Modbus / MQTT Library(by request)			
I/O Interfaces				
Serial Port	RS-485, Phoenix Connector x 2	RS-485, DB9 Connector x 2		RS-232/422/485 switchable x 2, Phoenix Connector
Ethernet	Gigabit Ethernet, RJ-45 x 2			Gigabit Ethernet x 2, RJ-45
USB	USB 2.0, Type A x 1	USB 2.0, Type A x 2		USB 3.0, Type-A x 2
ADC	—			
DI/DO	—			
CAN Bus	—			CAN-FD x 2 CH, Phoenix Connector
Display	—			HDMI x1 (Output)
Power Connector	3 Pin Phoenix Connector	Lockable DC Jack		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	—			
Power Supply				
Power Requirement	DC9-30V			DC 9-36V
Power Consumption	2.28 W (Full Loading)	3.36 W (Full Loading)		9.36W (Full Loading)
MTBF (Hours)	855590			479,374
Environmental and Mechanical				
Dimension	5.67" x 3.94" x 1.73"(144 x 100 x 44mm)	4.3" x 4.33" x 1.54" (109 x 110 x 39 mm)		5.54" x 3.86" x 1.89" (140.76 x 98.2 x 48 mm)
Weight	512 g	430 g		2.6lb (1.18kg)
Mount Options	Wallmount, Din Rail (Optional)			
Operation Temperature	32 °F ~ 140 °F (0 °C ~ 60 °C)			-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			
Note				

System Level Products

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IoT Gateway Solutions – IoT Gateway & Expansion



IoT Gateway Solutions – IoT Gateway & Expansion

Model	SRG-AD10		SRG-ACAN	SRG-TG01
System				
Processor	ARM Cortex-A8 800 MHz RISC Processor			11th Generation Core Intel® i7-1185G7E SoC 11th Generation Core Intel® i5-1145G7E SoC 11th Generation Core Intel® i3-1115G4E SoC 11th Generation Core Intel® Celeron 6305E SoC TDP 12W Only
Memory	Onboard DDR3L 1GB			DDR4 3200MHz, SO-DIMM x 2, Up to 64GB
Storage	eMMC 16GB			M.2 2280 M Key slot x 1 (PCIex4) 2.5" SATA SSD/HDD bay x 1
Real Time Clock	RTC x 1, with 3V CR2032 Lithium battery			RTC x 1, with 3V CR2032 Lithium battery
Security	TPM 2.0			TPM 2.0
Indicators	Programmable LED control x 4			—
Cellular	Mini PCIe Connector x 1			M.2 3052 B Key slot x 1 (4G/5G)
Wireless Lan	Onboard WiFi 802.11 b/g/n, Bluetooth 4.2 / BLE			M.2 2230 E Key slot x 1 (Wi-Fi 802.11 ac/b/g/n, BT 5.0)
Operating System	Debian 10			Windows 10 IoT Enterprise / Linux (by request)
Support Protocol	Modbus / MQTT Library (by request)			—
I/O Interfaces				
Serial Port	—	Switchable RS232/422/485 x 2, DB9 Connector (Optional)		RS-232/422/485 x 4, DB9 (Optional)
Ethernet	Gigabit Ethernet x 2, RJ-45			Intel® i211-LM, 10/100/1000Base x 1, RJ45 Intel® i219-LM, 10/100/1000Base x 1, RJ45 Intel® i225-LM, 10/100/1000Base x 1, RJ45 (Support Vpro)
USB	USB 2.0 x 2, Type A			USB3.2 Gen 2 x 1, Type A USB3.2 Gen 1 x 3, Type A
ADC	Differential x 2 CH or Single-End x 4 CH, Phoenix Connector Input Range: 0~15V, 0~20mA Resolution: 16 bit	Differential x 2 CH or Single-End x 4 CH, DB9 Connector (Optional) Input Range: 0~15V, 0~20mA Resolution: 16 bit		—
DI/DO	Isolation DI x 4 CH, Phoenix Connector Voltage Level: ON:9~24V, OFF:0~8V Isolation DO x 4 CH, Phoenix Connector Load Voltage: DC 24V Max Load Current: 100mA/ channel	—		8 bit, Phoenix Connector
CAN Bus	—	CAN Bus x 2 CH, DB9 Connector (Optional)		CAN 2.0 B x 2 CH, Phoenix Connector
Display	—			HDMI 2.0b x 1
Power Connector	Lockable DC jack			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			Micro SIM slot x 1 Micro SIM slot x 2 (Optional)
Other Interface	—			SATA 3.0 x 1 (Internal) SATA Power connector x 1 (5V) (Internal)
Power Supply				
Power Requirement	DC9-30V			DC 9 ~ 36V (Optional DC12V), AT Type
Power Consumption	3.36 W (Full Loading)			67 W (Full Loading)
MTBF (Hours)	855590			306,575
Environmental and Mechanical				
Dimension	4.3" x 4.33" x 1.54" (109 x 110 x 39 mm)			8.1" x 6.1" x 2.8" (207 x 155 x 72 mm)
Weight	430 g			3.3lb (1500g)
Mount Options	Wallmount, Din Rail (Optional)			Wall Mount (Optional)
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)			32°F ~ 122°F (0°C ~ 50°C)
Storage Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C)			
Operation Humidity	10% ~ 95% relative humidity, non-condensing			
Note				

Note: All specifications are subject to change without notice.

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System Level Products

IoT Gateway Solutions – IoT Gateway & Expansion

IoT Gateway Solutions – IoT Gateway & Expansion



Model	SRG-APL	SRG-CM4	SRG-4858P
System			
Processor	Intel Atom X5-E3940 Processor SoC / Intel HD 500 Graphics	Broadcom BCM2711 quad-core Cortex-A72 SoC @ 1.5GHz	ARM Cortex-A8 800 MHz RISC Processor
Memory	Onboard LPDDR4 1866MHz 4GB / 8GB (Optional)	Onboard DDR4L 1GB (Optional 2GB)	Onboard DDR3L 1GB
Storage	eMMC 5.1 32GB / 64GB (Optional)	eMMC 8G (Optional 16GB)	eMMC 16GB
Real Time Clock	RTC x 1, with 3V CR2032 Lithium battery	RTC x 1, with 3V CR2032 Lithium battery	RTC, with 3V CR2032 Lithium battery x 1
Security	—	TPM 2.0	—
Indicators	—	Programmable LED control x 3	Programmable LED control x 4
Cellular	Mini PCIe Connector x 1	M.2 3042/3052 B Key x1 (USB Signal)	Mini PCIe Connector x 1 (USB signal)
Wireless Lan	M.2 2230 E Key slot x 1	Onboard Wifi 802.11 b/g/n/ac, BT 5.0 (Optional)	—
Operating System	Windows 10 IoT Enterprise / Linux (by request)	Raspberry Pi OS / Debian 10 (by request)	Debian 10
Support Protocol	—	Modbus / MQTT Library (by request)	
I/O Interfaces			
Serial Port	—	RS-232/422/485 switchable x 2, phoenix connector RS-485 with isolation x 2, wafer box (Optional)	RS-485 x 10, Phoenix Connector
Ethernet	Gigabit Ethernet x 2, RJ-45		
USB	USB 3.0 x 4, Type A	USB 3.0 Type-A x 2 Micro USB 2.0 OTG x 1	USB 2.0 x 1, Type A
ADC	—		
DI/DO	—	Dlx1 / DOx1 with Isolation, wafer box (Optional)	—
CAN Bus	—	CAN-FD x 1, phoenix connector	—
Display	HDMI 1.4 x 1	HDMI x 1 (Output)	—
Power Connector	DC Jack	2 pin 3.81mm pitch phoenix connector	3 Pin 3.81mm Phoenix Connector
Debug Port	—	UART x1 (Pin Header)	Micro USB x 1
Expansion Slot	SIM card slot x 1 Micro SD slot x 1	SIM card slot x 1 Micro SD slot x 1 (Optional)	Micro SIM slot x1 Micro SD slot x 1
Other Interface	Power switch button x 1 Reset switch button x 1 Antenna x3 (Optional)	Software button x 1 (Share with DI) Reset button x 1 Hardware watchdog	Antenna x2 (Optional)
Power Supply			
Power Requirement	12V DC-In @ 3A-5A 5.5/2.5 mm	DC 9-24V	DC9-30V
Power Consumption	20 W (Full Loading)	TBD	6.36 W (Full Loading)
MTBF (Hours)	516,789	TBD	855590
Environmental and Mechanical			
Dimension	3.16" x 3.7" x 2.5" (80.28 x 95 x 63.6 mm)	5.51" x 4.13" x 1.96" (140x105x50mm)	5.67" x 3.94" x 1.73" (144 x 100 x 44mm)
Weight	1.94lb (880g)	0.99 lb (450g)	512 g
Mount Options	Wallmount, Din Rail (Optional)		
Operation Temperature	32 °F ~ 140 °F (0 °C ~ 60 °C)	-4 °F ~ 158 °F (-20 °C ~ 70 °C)	32 °F ~ 140 °F (0 °C ~ 60 °C)
Storage Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C)		
Operation Humidity	10% ~ 95% relative humidity, non-condensing		
Note			

IoT Gateway Solutions – Industrial Fieldbus Gateways



IoT Gateway Solutions – Industrial Fieldbus Gateways

Model	SPG-M041
System	
CPU/MCU	ARM Cortex M4F
External flash	128 M-bit flash
Storage	External Micro SD slot, Max. 32GB
Operating system	Embedded real-time OS: Zephyr Version: 3.0.99
LED indicator(s)	10
Real time clock	Yes
I/O Interfaces	
Ethernet	10/100Mbps Ethernet x 2, RJ45
Serial Port	RS232, 3W-RS485 or 2W-RS485 x 2, Terminal Block (Software selectable)
Digital Input	4, Terminal Block
Relay Output	1, Terminal Block
SD card	Micro SD card slot x 1
Power Input	12/24 VDC Power input x 2, Terminal Block
Power Supply	
Ports/Channels	Dual DC power inputs for power redundancy
Power supply rated voltage	12 / 24 VDC
Power supply voltage range	9.6 ~ 31.2 VDC
Input current	12V/2.29W, 24V/3.14W, Normal used
Reverse polarity protection	Yes
Voltage variation protection	Yes
Mechanical	
Enclosure	Metal housing
Dimension	6.29 x 4.17 x 1.06 (160 x 106 x 27mm)
Weight	1.11 lb (504g)
Mounting/Installation	DIN mount
Environmental	
Operating Temperature	-20 to 70°C (-4 to 158°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Operating Humidity	5% to 95% Non-condensing
Certification	
Regulations	CE, FCC
Note	

Note: All specifications are subject to change without notice.

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System Level Products

IoT Gateway & Expansion - Accessories

IoT Gateway & Expansion - Accessories



Launching in Q1

Model	iEC-SIM8	iEC-SI35
System		
Form Factor	SMARC (82 x 50 mm) with MXM3 connector	200-pin SO-DIMM
Processor	NXP i.MX8M Plus Cortex-A53, Quad-core, 1.6GHz NXP i.MX8M Plus Cortex-A53, Dual-core, 1.6GHz (model variant)	MediaTek Genio 350/MT8365 ARM Cortex-A53, Quad-core, 2.0GHz
RAM	2GB/4GB LPDDR4 (model variant)	
Storage	16GB/32GB eMMC (model variant)	
Network	Gigabit Ethernet x 2	RMII x 1
Display	HDMI 2.0a x 1 dual channel 24-bit LVDS x 1 MIPI-DSI 4-lane shared with second LVDS channel x 1	LVDS x 1 DPI x 1
Video input	2-lane MIPI-CSI x 1 4-lane MIPI-CSI x 1	MIPI-CSI x 2
Connectivity	UART x 2 CAN bus x 2 I²C x 3 SD/SDIO x 1 JTAG x 1	UART x 1 SPI x 1 I²C x 3 SD/SDIO x 1 JTAG x 1
USB	USB 3.0 x 2	USB 2.0 OTG x 1 USB 2.0 host x 1
PCIe	PCIe Gen3 x 1	—
Audio	I²S x 1	—
Power Supply		
SD card	5V DC	
Environmental and Mechanical		
Power Input	67.6 x 31.0 mm	
Serial Port	0°C ~ 60°C	
Digital Input	5% ~ 95% relative humidity, non-condensing	
Note		

System Level Products

Compact Fanless BOX PC Solutions

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Compact Fanless BOX PC Solutions



Model	BOXER-6614	BOXER-6615
System		
CPU	Intel® Celeron® N2930, 1.83 GHz Intel® Celeron® N2807, 1.58GHz	Intel® Pentium® N3710 1.6GHz
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
Display Interface	VGA, HDMI	
Storage Device	CFast™, HDD/SSD	mSATA, 2.5" HDD/SSD
Ethernet	Intel® I210/I211, 10/100/1000 Base-TX x 2	Realtek® RTL-8111E, 10/100/1000 Base x2
I/O	RS-232/422/485 x 2 RS-232 x 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
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)
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, Windows® 8.1 (32/64-bit), Windows® 7 (32/64-bit), WES7/WES8, Windows® 10 IoT, Linux
Power Supply		
Power Requirement	9 - 30V with 3-pin terminal block, 12V with lockable DC jack	
Mechanical		
Mounting	Wallmount DIN Rail (Mounting kit is optional)	
Dimensions (W x H x D)	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)
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
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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System Level Products

Compact Fanless BOX PC Solutions

Compact Fanless BOX PC Solutions



Model	BOXER-6616	BOXER-6639
System		
CPU	Intel® Pentium® N4200, 2.5 GHz Intel® Celeron® N3350, 2.4 GHz	Intel® Core™ i7-7700T, 2.9 GHz Intel® Core™ i5-7500T, 2.7 GHz Intel® Core™ i7-6700TE, 2.4 GHz Intel® Core™ i5-6500TE, 2.3 GHz Intel® Core™ i3-6100TE, 2.7 GHz Intel® Pentium® G4400TE, 2.4 GHz Intel® Celeron® G3900TE, 2.3 GHz
Chipset	Intel® System on Chip	Q170
System Memory	DDR3L 1866 SODIMM slot x 1, up to 8GB	DDR4 1866/2133 SODIMM slot x 2, up to 32 GB, ECC or Non-ECC support
Display Interface	HDMI (max. 2048 x 1152) VGA (max. 2048 x 1152)	VGA, HDMI
Storage Device	mSATA, HDD/SSD	CFast, SATA HDD/SSD (Optional: x2)
Ethernet	Intel® I211, 10/100/1000 Base-TX x 2	Intel® i210, 10/100/1000Base-TX x 3
I/O	RS-232/422/485 x 2 RS-232 x 4 USB 3.2 Gen 1 x 4 VGA x 1 HDMI x 1 LAN x 2 Remote On/Off x 1 Reset Button x 1 AT/ATX DIP Switch Mic-In x 1 Line-Out x 1 Antenna holes x 1 Power button Power input	RS-232/422/485 x 6 USB 3.2 Gen 1 x 4 USB 2.0 x 2 VGA x 1 HDMI x 2 Line-out x 1 Mic-in x 1 LAN x 3 CFast slot x 1 SIM slot x 1 Antenna holes x 2 34bit DIO x 1 (A2 & A4 SKU) Power switch Power input Remote power switch Reset Button
Expansion	Full-size Mini-Card x 1 (PCI-E + USB, w/ SIM slot) Half-size Mini-Card x 1 (A1:PCI-E + USB, A2: mSATA + USB)	Full-size Mini-Card x 1 (PCI-E + USB, w/ SIM slot) Full-size Mini-Card x 1 (PCI-E + USB, Optional for mSATA and SIM Slot)
Indicator		Power LED HDD active LED
OS support	Windows® 10 Pro 64 bit Windows® 10 IoT Ent LTSC 2019 64 bit Ubuntu 16.04 above	Windows® 7 (32/64-bit), Windows® 8/8.1 (64-bit) , Windows® 10 (64-bit)
Power Supply		
Power Requirement	9-24V with 3-pin terminal block	9 - 36V with 3-pin terminal block
Mechanical		
Mounting		Wallmount DIN Rail (Mounting kit is optional)
Dimensions (W x H x D)	7.76" x 2.17" x 4.33" (197mm x 55mm x 110mm)	10.4" x 2.6" x 6.1" (264.2mm x 66.5mm x 156.2mm)
Gross Weight	6.6 lb (2.8 kg)	7.7 lb (3.5 kg)
Net Weight	4.4 lb (2 kg)	6.6 lb (3 kg)
Environmental		
Operating Temperature	-4°F ~ 158°F (-20°C ~ 70°C) with W.T. SSD/HDD/mSATA (according to IEC682-14 with 0.5 m/s AirFlow; with industrial devices)	-4°F ~ 131°F (-20°C ~ 55°C) (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°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 – mSATA/SSD 1 Grms/ 5~ 500Hz/ operation – HDD	2 Grms/ 5 ~ 500Hz/ operation – CFast™ card 1 Grms/ 5~ 500Hz/ operation – HDD
Anti-Shock		
Certification		CE/FCC class A
Note		

System Level Products

Compact Fanless BOX PC Solutions

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Compact Fanless BOX PC Solutions



Model	BOXER-6639M	BOXER-6640
System		
CPU	7th Generation Intel® Core™ Processor family: Intel® Core™ i7-7700T, 2.9 GHz Intel® Core™ i5-7500T, 2.8 GHz Intel® Core™ i3-7101TE, 3.4 GHz Intel® Pentium® G4600T, 3.0 GHz Intel® Pentium® G4560T, 2.9 GHz Intel® Celeron® G3930T, 2.7 GHz 6th Generation Intel® Core™ Processor family: Intel® Core™ i7-6700TE, 2.4 GHz Intel® Core™ i5-6500TE, 2.3 GHz Intel® Core™ i3-6100TE, 2.7 GHz Intel® Pentium® G4500T, 3.0 GHz Intel® Pentium® G4400T, 2.9 GHz Intel® Celeron® G3900T, 2.6 GHz	Intel® Core™ i7-7700T, Quad Core, 2.9 GHz Intel® Core™ i5-7600T, Quad Core, 2.8 GHz Intel® Core™ i3-7300T, Dual Core, 3.5 GHz Intel® Core™ i7-6700TE, Quad Core, 2.4 GHz Intel® Core™ i5-6500TE, Quad Core, 2.3 GHz Intel® Core™ i3-6100TE, Dual Core, 2.7 GHz
Chipset	Intel® Q170	Intel® H110
System Memory	DDR4 1866/2133 SODIMM slot x 2, up to 32GB	DDR4 SODIMM socket (double deck) x 2 Supports 1866/2133MHz DDR4 and up to 32GB Supports un-buffered and ECC / non-ECC type SODIMM
Display Interface	HDMI, VGA	VGA x 1, HDMI x 2 (Combo DP x 2) - A1 Sku VGA x 1 - A2 Sku
Storage Device	CFast™, HDD/SSD	mSATA, SATA HDD/SSD
Ethernet	Intel® I210, 10/100/1000 Base-TX x 3	Intel® I211AT x 1, I219LM x 1
I/O	RS-232/422/485 x 6, USB Type A x 6 for USB 3.2 Gen 1, USB Type A x 2 for USB 2.0 RJ-45 x 3 for GbE LAN, RJ-45 x 4 for PoE (802.3at, max. 80W in total) DB-44 for 34-bit Digital I/O (5V), CFast™ slot x 1, SIM card slot x 1 Power On/Off Button x 1, 2 pin Remote power on/off, Reset switch Mic-in x 1, Line-out x 1, Antenna opening x 2, SYS LED indicator x 1, HDD LED indicator x 1, DB-15 x 1 for VGA, HDMI v1.3 x 2, DC-in 3-pin terminal block (12~36V)	2 pin Remote power on/off connector Audio x1 (MIC-in, Line-out) USB 2.0 x 3 DB-9 x 3 for RS-232 8-bit DIO DB-9 x 1 for RS-232/422/485 with auto flow control Power ON/OFF switch x 1 3 pin 9~36V DC Power input x 1 (+, -, GND) VGA x 1 HDMI x 2 (Combo DP x 2) USB 3.2 Gen 1 x 4 RJ-45 x 2 for GbE (i211AT x 1, i219LM x 1)
Expansion	Full-size Mini-Card x 1 (PCI-E + USB, w/ SIM slot) Full-size Mini-Card x 1 (PCI-E + USB, Optional for mSATA and SIM Slot)	Full-size Mini-Card x 1 (PCI-E + USB, w/ SIM slot) Full-size Mini-Card x 1 (mSATA + USB) LPC x 1
Indicator	Power LED, HDD active LED	
OS support	7th Generation Intel® Core™ Processor family: Windows® 10 IoT (64bit), Ubuntu 16.04 above, Fedora 25 above, CentOS 7.3 above 6th Generation Intel® Core™ Processor family: Windows® 10 IoT (64bit), Windows® 8.1 (64bit), Windows® Embedded 8 Standard (64bit), Windows® 7 (32/64bit), Windows® Embedded Standard 7 (32/64bit), Ubuntu 16.04 above, Fedora 25 above, CentOS 7.3 above	Windows® 10 64-bit (Kabylake, Skylake CPU) Windows® 8.1 64-bit (Skylake CPU only) Windows® embedded 8 standard 64-bit (Skylake CPU only)
Power Supply		
Power Requirement	12 - 36V with 3-pin terminal block	3-pin Phoenix DC Input 9~36V
Mechanical		
Mounting	Wallmount	
Dimensions (W x H x D)	10.4" x 3.8" x 6.1" (264.2mm x 96.4mm x 154.2mm)	10.39" x 3.8" x 7.33" (264mm x 96.4mm x 186.2mm)
Gross Weight	13.0 lb (5.9 kg)	12.76 lb (5.8 kg)
Net Weight	8.8 lb (4.0 kg)	9.9 lb (4.5 kg)
Environmental		
Operating Temperature	-13°F ~ 131°F (-25°C ~ 55°C) (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-4°F ~ 131°F (-20°C ~ 55°C) (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-49°F ~ 176°F (-45°C ~ 80°C)	
Storage Humidity	5~95% @ 40°C, non-condensing	
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation - SSD/CFast™ card 1 Grms/ 5 ~ 500Hz/ operation - HDD	2 Grms/ 5 ~ 500Hz/ operation - SSD 1 Grms/ 5 ~ 500Hz/ operation - HDD
Anti-Shock	—	
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

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System Level Products

Compact Fanless BOX PC Solutions

Compact Fanless BOX PC Solutions



Model	BOXER-6641	BOXER-6641-PRO
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
Chipset	Intel® C246/H310	
System Memory	DDR4-2666 SO-DIMM slot x 2, Up to 64GB, ECC or Non-ECC Support	
Display Interface	HDMI x 2	
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
Ethernet	Intel® i211 x 3, i219 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
Expansion	Full-size Mini PCIe x 1 Full-size Mini PCIe x 1 (PCIe/mSATA switch by BIOS, Default: mSATA) SIM slot x 1	
Indicator	HDD LED x 1 SYS LED x 1	
OS support	Windows® 10 64-bit Linux Ubuntu 20.04	Windows® 10 64-bit Linux Ubuntu 20.04.2
Power Supply		
Power Requirement	3-pin DC Input 10~35V	
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)	
Gross Weight	10.4 lb (4.7 kg)	
Net Weight	8.2 lb (3.7 kg)	
Environmental		
Operating Temperature	-4°F ~ 131°F (-20°C ~ 55°C) with 0.5 m/s airflow – with TDP ≤ 35W CPU -4°F ~ 113°F (-20°C ~ 45°C) with 0.5 m/s airflow – with TDP >35W CPU	-40°F ~ 158°F (-40°C ~ 70°C), 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	—	
Certification	CE/FCC class A	
Note	 TAIWAN EXCELLENCE 2021	

Note: All specifications are subject to change without notice.

System Level Products

Compact Fanless BOX PC Solutions

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Compact Fanless BOX PC Solutions



Model	BOXER-6642-CML	BOXER-6643-TGU
System		
CPU	Intel® Core™ i9-10900TE Intel® Core™ i7-10700TE Intel® Core™ i5-10500TE Intel® Core™ i3-10100TE Intel® Celeron® G5900TE	Intel® Core™ i7-1185G7E Intel® Core™ i5-1145G7E Intel® Core™ i3-1115G4E
Chipset	Intel® Q470E	Intel® SoC
System Memory	DDR4 SO-DIMM x 2, up to 64GB	DDR4 3200MHz SO-DIMM x 2, max 64GB
Display Interface	HDMI 1.4 x 1	HDMI 2.0 x 2
Storage Device	M.2 2280 slot x 1 (PCIex4), 2.5" SATA SSD/HDD bay x 1	M.2 2280 M Key NVMe Slot x1 (PCIex4) 2.5" SATA Drive Bay x1
Ethernet	Intel® i211-AT x 1, i219-LM x 1	RJ-45 x 2 for 1G/2.5GbE LAN (i219x1, i225x1)
I/O	HDMI x 1 RJ-45 x 2 for GbE LAN (i211-AT x 1, i219-LM x 1) USB 3.2 Gen 2 x 4 USB 2.0 x 2 DB-9 x 4 for RS-232/422/485 DB15 x 1 for 8 channel DIO Line out x 1 3 pin 10~35V Power Input x 1 Power Button with LED x 1	HDMI 2.0 x 2 RJ-45 x 2 for 1G/2.5GbE LAN (i219 x 1, i225 x 1) USB Type-A x3 for USB3.2 Gen2 USB Type-A x1 for USB 2.0 DB-9 x 2 for RS-232/422/485 DB15 x1 Male for Digital I/O 8-channel Line out x 1 3 pin 9~36V Power Input x 1 Power Button with LED x 1
Expansion	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	M.2 3052 B Key x 1 (for 5G module) Full-Size Minicard x1 (PCIe + USB / SATA, Default PCIe + USB) SIM Slot x 1
Indicator	Power LED	Power / System LED
OS support	Windows® 10 IoT Enterprise 64-bit Linux Ubuntu 20.04.2	Windows® 10 IoT 64-bit Windows® 11 Pro 64-bit Linux Ubuntu 20.04.2
Power Supply		
Power Requirement	10-35V DC-in with 3-pin terminal block	DC-in 9-36V x1 for 3-pin Terminal Block
Mechanical		
Mounting	Wallmount	
Dimensions (W x H x D)	11.58" x 5.98" x 2.11" (292.4mm x 152mm x 53.5mm)	9.84" x 5.62" x 2.03" (250 x 143 x 51.5) with bracket 7.87" x 5.62" x 1.75" (200 x 143 x 44.5) w/o bracket
Gross Weight	8.4lb (3.8kg)	4.4 lb (2.0 kg)
Net Weight	6.2lb (2.8kg)	3.3 lb (1.5 kg)
Environmental		
Operating Temperature	32°F ~ 113°F (0°C ~ 45°C) (35W CPU), according to IEC68-2-14 with 0.5 m/s AirFlow	-4°F ~ 140°F (-20°C ~ 60°C), according to IEC68-2 with 0.5 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	2 Grms/5 ~ 500Hz/operation (with SSD)	3 Grms/ 5 ~ 500Hz/ operation (with SSD)
Anti-Shock	50G peak acceleration (11msec) (with SSD)	50G, IEC 68-2-27, 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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System Level Products

Compact Fanless BOX PC Solutions

Compact Fanless BOX PC Solutions



Model	BOXER-6645-ADS	BOXER-6646-ADP
System		
CPU	i9-12900E i7-12700TE i7-12700E i5-12500TE i5-12500E i3-12100TE i3-12100E G6900TE G6900E	Intel® Core™ i7-1270PE Intel® Core™ i5-1250PE Intel® Core™ i3-1220PE
Chipset	Intel H610E/Q670E	Intel® System on Chip
System Memory	DDR5 4800MHz Slot x2, max up to 64GB	DDR5 SODIMM slot x 2
Display Interface	HDMI Type A x2 for HDMI 1.4b DisplayPort x2 for DP1.4a	HDMI x2, Display Port x 2
Storage Device	2.5" SATA-III Drive Bay x 2 (A2 sku supports RAID 0/1) M.2 2280 M key for NVMe SSD x 1 (extra heatsink is needed, refer to optional accessories) (A2 sku only)	Removable 2.5" SATA Drive Bay x 1 M.2 2280 M Key NVMe Slot x 1
Ethernet	Intel® I210AT, 10/100/1000 Base-TX x 2 Intel® I219LM, 10/100/1000 Base-TX x 1 Intel® I226LM, 2.5GbE Base-TX x 1	RJ-45 x 2 for 2.5GbE LAN i225-LM x 2 RJ-45 x 1 for GbE LAN i219-LM x 1
I/O	USB 3.2 Gen2 5Gbps x 4 (A1 sku) USB 3.2 Gen2 10Gbps x 8 (A2 sku) USB2.0 x 4 (A1 sku) Audio x 1 (MIC-in, Line-out) DB-9 x 6 for RS-232/422/485 SMA Antenna Hole x6 DIO x 8	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 DB-9 for DIO 8 bit x 1 Power Button with LED indicator x 1 Remote Power on/off 2pin connector x 1
Expansion	M.2 2230 E-Key x 1 for WiFi module M.2 3052 B-Key x 1 for 4G / 5G module	M.2 E key 2230 x 1 M.2 B Key 3052 x 1 (for 5G/LTE module)
Indicator	System LED x 1 HDD LED x 1	System Power LED x 1
OS support	Windows® 10 IoT Enterprise 64-bit Windows® 11 PRO 64-bit Linux Ubuntu 20.04 (Kernel 15.5 or above)	Windows® 10 IoT Ent LTSC, Windows® 11 PRO, Ubuntu 22.04
Power Supply		
Power Requirement	3-pin DC Input 12~24V	DC-in 10~35V in 3pin Terminal block connector
Mechanical		
Mounting	Wallmount	
Dimensions (W x H x D)	10.39" x 3.8" x 7.33" (264mm x 80.92mm x 186.2mm)	8.66" x 6.06" x 2.42" (220 mm x 154 mm x 61.6 mm)
Gross Weight	11.7 lb (5.3 kg)	6.6 lbs. (3.0 kg)
Net Weight	9.5 lb (4.3 kg)	4.9 lbs. (2.2 kg)
Environmental		
Operating Temperature	-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. 32G)/ Storage (TDP 35W CPU)	-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	3 Grms/ 5 ~ 500Hz/ operation – SSD 1 Grms/ 5 ~ 500Hz/ operation – HDD	SSD: Random, 3Grms, 5~500Hz
Anti-Shock	50G, IEC68-2-27, half sine, 11ms duration (with SSD)	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

Launching in Q1

Model	BOXER-6617-ADN
System	
CPU	Intel® Pentium®/Celeron®/Atom® Processor (formerly codenamed ADL-N)
Chipset	Intel® SoC
System Memory	DDR5 4800 MT/s SO-DIMM slot x 1, up to 32GB
Display Interface	HDMI x 2 (Support 4K @60Hz)
Storage Device	M.2 2280 M Key Slot x1 (PCIex2) 2.5" SATA HDD/SSD x1
Ethernet	RJ-45 x 2 for 2.5GbE LAN (Intel® I226)
I/O	HDMI x 2 RJ-45 x 2 for 2.5GbE LAN (Intel® I226) USB Type-A x2 for USB3.2 Gen2 USB Type-A x4 for USB 2.0 DB-9 x6 for RS-232/422/485 Mic-in/Line-out 10pin Terminal Block x1 for Digital I/O 8-channel 3pin Terminal Block for DC in x 1 2pin Remote On/Off x 1 Reset Button x 1 Power Button with LED x 1
Expansion	M.2 2280 M Key x 1 (PCIex2 for Storage) M.2 2230 E Key x 1 (for WiFi) M.2 3052 B Key x 1 (for 5G/LTE) SIM Slot x 1
Indicator	Sys LED Storage active LED
OS support	Windows® 10 IoT Enterprise Windows® 10 Pro Linux Ubuntu 22.04
Power Supply	
Power Requirement	DC-in 9-36V x1 for 3-pin Terminal Block
Mechanical	
Mounting	Wall Mount
Dimensions (W x H x D)	TBD
Gross Weight	TBD
Net Weight	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)
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)
Anti-Shock	50G, IEC 68-2-27, 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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System Level Products

Ultra Slim Fanless BOX PC Solutions

Ultra Slim Fanless BOX PC Solutions



Model	BOXER-6404U	BOXER-6404
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)
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)
Gross Weight	3.6 lb (1.6 kg)	2.9 lb (1.3 kg)
Net Weight	1.76 lb (0.8 kg)	1.9 lb (0.86 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)
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		

System Level Products

Ultra Slim Fanless BOX PC Solutions

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Ultra Slim Fanless BOX PC Solutions



Model	BOXER-6404WT	BOXER-6404M
System		
CPU	Intel® Celeron® J1900, 2.0 GHz Intel® Celeron® N2807, 1.58 GHz	
Chipset	Intel® System on Chip	
System Memory	DDR3L 1333 SODIMM slot x 1, up to 8 GB (J1900) or 4 GB (N2807)	
Display Interface	HDMI	
Storage Device	CFast™	CFast™, HDD/SSD
Ethernet	Intel® I210AT, 10/100/1000Base-TX x 4	
I/O	RS-232 x 1 USB 2.0 x 2 USB 3.2 Gen 1 x 1 HDMI x 2 LAN x 4 CFast™ slot x 1 Antenna hole x 1 Power button Power input	
Expansion	Full-size Mini-Card (USB interface only) x 1	
Indicator	Power LED on power button	
OS support	Windows® 10, Windows® 8.1, Windows® 7, Windows® Embedded 8, Windows® Embedded 7, Linux Fedora	
Power Supply		
Power Requirement	12V - 24V with lockable DC jack	
Mechanical		
Mounting	VESA (Mounting kit is optional) DIN rail (Mounting kit is optional)	
Dimensions (W x H x D)	6.53" x 4.20" x 1.59" (166mm x 106.6mm x 40.5mm)	6.53" x 4.20" x 2.05" (166mm x 106.6mm x 52mm)
Gross Weight	3.59 lb (1.63 kg)	3.81 lb (1.73 kg)
Net Weight	2.6 lb (1.17 kg)	2.8 lb (1.27 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)	
Storage Temperature	-22°F ~ 176°F (-30°C ~ 80°C)	
Storage Humidity	95% @ 40°C, non-condensing	
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation –CFast™ card	5 Grms/ 5 ~ 500Hz/ operation –CFast™ card or SSD 1 Grms/ 5 ~ 500Hz/ operation –HDD
Anti-Shock	—	
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

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System Level Products

Ultra Slim Fanless BOX PC Solutions

Ultra Slim Fanless BOX PC Solutions



Model	BOXER-6405	BOXER-6405M
System	Intel® Celeron®/Pentium® processor	
CPU	Intel® System on Chip	
Chipset	Intel® System on Chip	
System Memory	DDR3L SODIMM slot x 1 Supports 1867 MHz and up to 8GB	
Display Interface	HDMI (max. 1920 x 1080)	HDMI type A x 1 for HDMI v1.4b VGA x 1
Storage Device	mSATA	HDD/SSD, (mSATA BOM option)
Ethernet	Intel® i211-AT x 2	
I/O	Power Button x 1 USB Type A x 4 for USB 3.2 Gen 1 HDMI type A x 1 for HDMI v1.4b RJ-45 x 2 for GbE LAN with LED indicator (i211-AT x 2) Power input x 1 3-pin terminal block in default (+, -, GND) Co-layout 3-pin terminal block & lockable DC-in jack, Co-layout internal DC Mic-in x 1, Line-out x 1 RS-232/422/485 x 3 with automatic flow control (switch by BIOS) VGA x 1 Remote On/Off Antenna opening x 2 DC-in 3-pin terminal block(9~24V) x 1	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 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 x1, HDD active LED x1	
OS support	Windows® 10, Windows® 10 IoT, Linux	
Power Supply		
Power Requirement	9-24V with 3-pin terminal block	3-pin Phoenix DC Input 9~24V without power protection
Mechanical		
Mounting	Wallmount	
Dimensions (W x H x D)	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	3.6 lb (1.6kg)	
Net Weight	1.76 lb (0.8 kg)	1.7 lb (0.8 kg)
Environmental		
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C) with W.T. mSATA (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial decives)	
Storage Temperature	-22°F ~ 140°F (-30°C ~ 60°C)	
Storage Humidity	95% @ 40°C, non-condensing	
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation – mSATA 1 Grms/ 5 ~ 500Hz/ operation - HDD	
Anti-Shock	—	
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

System Level Products

Ultra Slim Fanless BOX PC Solutions

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Ultra Slim Fanless BOX PC Solutions

Launching in Q1



Model	BOXER-6406-ADN	BOXER-6450-TGU
System		
CPU	Intel® Pentium®/Celeron®/Atom® Processor (formerly codenamed ADL-N)	Intel® Core™ i7-1185G7E, 1.80 GHz Intel® Core™ i5-1145G7E, 1.50 GHz Intel® Core™ i3-1115G4E, 2.20 GHz Intel® Celeron® 6305E Processor, 1.80 GHz
Chipset	Intel® SoC	Intel® System on Chip
System Memory	DDR5 4800 MT/s SO-DIMM slot x 1, up to 32GB	LPDDR4x max 3200 MHz on board memory. Default 4GB or 8GB, max. up to 32GB by customization
Display Interface	HDMI x1 / Display Port x 1	HDMI 2.0b x 1, 4Kx2K 60Hz
Storage Device	M.2 2280 M Key Slot x 1 (PCIe x2) 2.5" SATA HDD/SSD x 1	2.5" SATA Drive Bay x 1 Full-size Minicard x 1 for mSATA (optional) M.2 2280 NVMe Slot x 1
Ethernet	RJ-45 x 2 for 2.5GbE LAN (Intel® I226)	RJ-45 x 1 for 2.5GbE LAN i225-LM x 1 RJ-45 x 1 for GbE LAN i219-LM x 1
I/O	HDMI x1 / Display Port x 1 RJ-45 x 2 for 2.5GbE LAN (Intel® I226) USB Type-A x2 for USB3.2 Gen2 USB Type-A x2 for USB 2.0 DB-9 x3 for RS-232/422/485 DB15 x1 Male for Digital I/O 8-channel 3pin Terminal Block for DC in x 1 Power Button with LED x 1	USB Type-A x 2 for USB3.2 Gen2 USB Type-A x 4 for USB 2.0 DB-9 x 2 for RS-232/422/485 SMA Antenna Holes x 2 DB-9 for DIO 4 bit x 1 Power Button x 1
Expansion	M.2 2280 M Key x 1 (PCIe x2) M.2 2230 E Key x 1 Full-Size Minicard x 1 (PCIe + USB) SIM Slot x 1	M.2 M key 2280 x 1 (PCIe + SATA, PCIe Gen4 default) Full-size Minicard x 1 (PCIe + USB + SATA)
Indicator	—	System Power LED x 1 (Green)
OS support	Windows® 10 IoT Enterprise Windows® 10 Pro Linux Ubuntu 22.04	Windows® 10, Windows® 10 IoT, Ubuntu 20.04.2
Power Supply		
Power Requirement	DC-in 9-36V x1 for 3-pin Terminal Block	DC-in 12V x 1 for Lockable DC Jack
Mechanical		
Mounting	Wallmount	
Dimensions (W x H x D)	TBD	6.54" x 4.65" x 2.2" (166 mm x 118 mm x 56 mm)
Gross Weight	TBD	3.3 lb (1.5Kg)
Net Weight	TBD	2.20 lb (1Kg)
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)	14°F ~ 131°F (-10°C ~ 55°C), IEC68-2 with 0.5 m/s AirFlow (Turbo boost off)
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)	SSD: Random, 3.5Grms, 5~500Hz
Anti-Shock	50G, IEC 68-2-27, 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
Ultra Slim Fanless BOX PC Solutions

Ultra Slim Fanless BOX PC Solutions



Model	BOXER-6451-ADP
System	
CPU	Intel® Core™ i7-1265UE Intel® Core™ i5-1245UE Intel® Core™ i3-1215UE Intel® Celeron® 7305E
Chipset	Intel® SoC
System Memory	DDR4 SODIMM x1, up to 32GB
Display Interface	HDMI Type A x 2 for HDMI 1.4b
Storage Device	2.5" SATA-III Drive Bay x1 M.2 2280 M Key x1 (PCIEx4)
Ethernet	RJ-45 x 1 for 2.5GbE LAN i226-LM x 1 RJ-45 x 1 for GbE LAN i219-LM x 1
I/O	USB Type-A x 3 for USB3.2 Gen2 USB Type-A x 1 for USB 2.0 DB-9 x 4 for RS-232/422/485 HDMI x2 for HDMI 1.4b Power Button x 1 DC Jack 12V input Antenna opening x 6
Expansion	M.2 E-Key 2230 x1 (For WiFi/Bluetooth Module) M.2 B-Key 3052 x1 w/ SIM (For LTE/5G Module) M.2 M-Key 2280 NVMe x1
Indicator	Power Button with LED
OS support	Windows® 10 IoT Ent LTSC Windows® 11 PRO Ubuntu 22.04
Power Supply	
Power Requirement	DC-in 12V x 1 for Lockable DC Jack
Mechanical	
Mounting	Wallmount
Dimensions (W x H x D)	7.68" x 4.37" x 2.5" (195 mm x 111 mm x 63.5 mm) w/o bracket
Gross Weight	4.4 lb (2Kg)
Net Weight	3.3 lb (1.5Kg)
Environmental	
Operating Temperature	-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	SSD: Random, 3Grms, 5~500Hz
Anti-Shock	SSD: 50G @ wallmount, Half-sine, 11ms
Certification	CE/FCC class A
Note	

System Level Products

Din Rail Fanless BOX PC

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Din Rail Fanless BOX PC



Launching in Q1



Model	BOXER-6750	BOXER-6711-ADN	BOXER-6710
System			
CPU	Intel® Core™ i3-6100U Intel® Celeron® 3955U Intel® Core™ i3-7100U Intel® Core™ i5-7300U	Intel® Pentium®/Celeron®/Atom® Processor (formerly codenamed ADL-N)	Intel® Pentium® processor N4200 Intel® Celeron® processor N3350
Chipset	Intel® System on Chip	Intel® SoC	Intel® System on Chip
System Memory	DDR4 2133MHz SODIMM slot x 1, up to 16GB	DDR5 4800 MT/s SO-DIMM slot x 1, up to 32GB	DDR3L 1866 SODIMM slot x 1, up to 8GB
Display Interface	HDMI x 1, VGA x 1	HDMI x 1 / Display Port x 1	HDMI, VGA
Storage Device	mSATA, HDD/SSD	M.2 2280 M Key Slot x1 (PCIex2) 2.5" SATA HDD/SSD x1	HDD/SSD, optional mSATA
Ethernet	Intel® i211-AT x 2		
I/O	RS-232/422/485 x 4 RJ-45 x 2 for GbE (i211AT x 2) USB 3.2 Gen 1 x 4 VGA x 1 HDMI x 1 Antenna Holes x 2 Power Switch Power Input	HDMI x1 / Display Port x 1 RJ-45 x 2 for 2.5GbE LAN (Intel® i226) USB Type-A x2 for USB3.2 Gen2 USB Type-A x2 for USB 2.0 DB-9 x2 for RS-232/422/485 3pin 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	Full-size minicard x 1 (PCIe+USB with SIM slot, optional for mSATA) Full-size minicard x 1 (PCIe+USB)	M.2 2280 M Key x 1 (PCIex2) M.2 2230 E Key x 1 Full-Size Minicard 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 LED on power button	—	Power LED on power button
OS support	Windows® 10 (64-bit) Windows® 8.1 (64-bit) Windows® 7 (32/64-bit) Linux	Windows® 10 IoT Enterprise Windows® 10 Pro Linux Ubuntu 22.04	Windows® 10 (64-bit) Windows® 10 IoT (64-bit) Linux Ubuntu 16.04.4
Power Supply			
Power Requirement	9 - 30V with 3-pin terminal block	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)	Wall Mount	DIN Rail Mount
Dimensions (W x H x D)	2.72" x 7.2" x 6.1" (69mm x 183mm x 155mm)	TBD	1.73" x 6.54" x 4.17" (44mm x 166mm x 106mm)
Gross Weight	6.1 lb (2.8kg)	TBD	3.08lb (1.4kg)
Net Weight	3.9 lb (1.8kg)	TBD	1.32lb (0.6kg)
Environmental			
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C) with W.T. SSD/HDD/mSATA (according to IEC68-2-14 with 0.5 m/s AirFlow ; with industrial devices)	-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	-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	95% @ 40°C, non-condensing
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation – mSATA/ SSD 1 Grms/ 5~ 500Hz/ operation – HDD	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			

Note: All specifications are subject to change without notice.

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System Level Products

Expandable Fanless BOX PC Solutions

Expandable Fanless BOX PC Solutions



Model	BOXER-6839	BOXER-6839-CFL
System		
CPU	7th Generation Intel® Core™ Processor family: Intel® Core™ i7-7700T, 2.9 GHz, Intel® Core™ i5-7500T, 2.8 GHz, Intel® Core™ i3-7101TE, 3.4 GHz, Intel® Pentium® G4600T, 3.0 GHz Intel® Pentium® G4560T, 2.9 GHz, Intel® Celeron® G3930T, 2.7 GHz 6th Generation Intel® Core™ Processor family: Intel® Core™ i7-6700TE, 2.4 GHz, Intel® Core™ i5-6500TE, 2.3 GHz Intel® Core™ i3-6100TE, 2.7 GHz, Intel® Pentium® G4500T, 3.0 GHz Intel® Pentium® G4400T, 2.9 GHz, Intel® Celeron® G3900T, 2.6 GHz	Intel® Xeon® E-2124G Intel® i9-9900T Intel® i7-9700TE Intel® i7-8700T Intel® i5-8500T Intel® i3-8100T Pentium® G5400T Celeron® G4900T
Chipset	Intel® Q170	C246
System Memory	DDR4 1866/2133 SODIMM slot x 2, up to 32GB	DDR4-2666 SO-DIMM slot x 2 Up to 64GB, ECC or Non-ECC Support
Display Interface	HDMI, VGA	HDMI x 2
Storage Device	CFast™, HDD/SSD	2.5" SATA HDD/SSD Bay x 2
Ethernet	Intel® I210, 10/100/1000 Base-TX x 3	RJ-45 x 4 for GbE LAN (i211-AT x 3, i219-LM x 1)
I/O	RS-232/422/485 x 6 USB Type A x 6 for USB 3.2 Gen 1 USB Type A x 2 for USB 2.0 RJ-45 x 3 for GbE LAN DB-44 for 34-bit Digital I/O (5V) CFast™ slot x 1 SIM card slot x 1 Power On/Off Button x 1 2 pin Remote power on/off Reset switch Mic-in x 1 Line-out x 1 Antenna opening x 2 SYS LED indicator x 1 HDD LED indicator x 1 DB-15 x 1 for VGA HDMI v1.3 x 2 DC-in 3-pin terminal block (9~36V)	HDMI x 2 RJ-45 x 4 for GbE LAN (i211 x 3, i219 x 1) USB 3.2 Gen 1 x 8 DB-9 x 6 for RS-232/422/485 Audio x 1 (MIC-in, Line-out) DB-15 for DIO 8 bit x 1 3 pin 10~35V Power Input x 1 Power Button x 1 Remote Power switch x 1 Reset Button x 1
Expansion	Full-size Mini-Card x 2 PCIe [x4] x 1 & PCIe [x1] x 1 (for A1) PCIe [x4] x 1 & PCI x 1 (for A2) PCI x 2 (for A3)	Full-size Mini card x 1 (PCIe) Full-size Mini card x 1 (PCIe/mSATA switch by BIOS, Default: mSATA) SIM slot x 1 PCIe slot: Riser card type 1: PCIe[x4] slot x 1 & PCIe[x1] x 1 (A1) Riser card type 2: PCIe[x4] slot x 1 & PCI x 1 (A2) Riser card type 3: PCI x 2 (A3) Max. size of expansion card 150 x 105 x 40 mm
Indicator	Power LED HDD active LED	HDD LED x 1 System LED x 1
OS support	7th Generation Intel® Core™ Processor family: Windows® 10 IoT (64bit), Ubuntu 16.04 above, Fedora 25 above, CentOS 7.3 above 6th Generation Intel® Core™ Processor family: Windows® 10 IoT (64bit), Windows® 8.1 (64bit), Windows® embedded 8 standard (64bit), Windows® 7 (64bit/32bit), Windows® embedded standard 7 (32/64bit), Ubuntu 16.04 above, Fedora 25 above, CentOS 7.3 above	Windows® 10 64-bit, Linux Ubuntu 20.04
Power Supply		
Power Requirement	9 - 36V with 3-pin terminal block	3-pin Phoenix DC Input 10~35V
Mechanical		
Mounting		Wallmount
Dimensions (W x H x D)	10.40" x 4.90" x 6.15" (264.2mm x 124.5mm x 156.2mm)	264mm x 156mm x 125mm
Gross Weight		13.2 lb (6.0 kg)
Net Weight		9.9 lb (4.5 kg)
Environmental		
Operating Temperature	-4°F ~ 131°F (-20°C ~ 55°C) (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)	-4°F~131°F (-20°C ~ 55°C) with 0.5 m/s airflow (with TDP ≤ 35W CPU) -4°F~113°F (-20°C ~45°C) with 0.5 m/s airflow (with TDP > 35W CPU)
Storage Temperature		-49°F ~ 176°F (-45°C ~ 80°C)
Storage Humidity		5~95% @ 40°C, non-condensing
Anti-Vibration	5 Grms/ 5 ~ 500Hz/ operation – SSD/CFast™ card 1 Grms/ 5 ~ 500Hz/ operation – HDD	5 Grms/ 5 ~ 500Hz/ operation –SSD
Anti-Shock	—	SSD: 50G @ wallmount, Half-sine, 11ms
Certification		CE/FCC class A
Note		

System Level Products

Expandable Fanless BOX PC Solutions

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Expandable Fanless BOX PC Solutions



Model	BOXER-6840-CFL	BOXER-6841M-A1
System		
CPU	Intel® Xeon® E-2124G Intel® Core™ i9-9900T Intel® Core™ i7-8700T Intel® Core™ i5-8500T Intel® Core™ i3-8100T Intel® Pentium® G5400T Intel® Celeron® G4900T Note: Support max. TPD 71W Processor	6th / 7th Generation Intel® Core™-i desktop Processor -Intel® Core™ i7-6700TE, 2.4 GHz -Intel® Core™ i5-6500TE, 2.3 GHz -Intel® Core™ i3-6100TE, 2.7 GHz -Intel® Core™ i7-7700, 3.6 GHz -Intel® Core™ i7-7700T, 2.9 GHz -Intel® Core™ i3-7101TE, 3.4 GHz
Chipset	C246, No H310 downward support	Intel® H110 PCH
System Memory	DDR4 SO-DIMM socket x4 (double deck) Support max. 2666MHz up to 128GB Support un-buffered and ECC / non-ECC type SODIMM	DDR4 ECC or Non-ECC SODIMM, up to 32GB
Display Interface	HDMI 1.4 x2 Support Dual Independent Display, 4K Ultra HD displays	HDMI type A x 2 for HDMI v1.4b
Storage Device	2.5" SATA Drive Bay x2 (4 SATA Port w/ RAID Function) Half-size Minicard x1 for mSATA (optional) M.2 2280 NVMe slot x1	2.5" Drive Bay x 2
Ethernet	RJ-45 x3 for GbE LAN (Intel i211AT x2, i219LM x1)	RJ-45 x 5 for GbE (Intel i211AT x 4, i219LM x 1)
I/O	USB Type-A x6 for USB3.2 Gen1 DB9 x4 For RS-232/422/485 Mic-in x1, Line-out x1 Power ON/OFF switch x1 Remote power on/off connector x1 Reset switch x1 SMA Antenna Holes x3	2 pin Remote Power on/off connector Power ON/OFF Switch x 1 HDMI 1.4b x 2 Audio x 2 (MIC-in, Line-out) USB 3.2 Gen 1 x 4 DB-9 x 1 for RS-232/422/485 3 pin DC Power input x 1 (+, -, GND)
Expansion	Full-size Minicard x1 (PCIe + USB with 1 SIM Slot) Half-size Minicard x1 (PCIe + USB, optional for mSATA) M.2 M key (2280) x1 (PCIEx4) PCIe [x4] x1 PCIe [x16] x1 - Max. Power Consumption of GPU card 250W - Max. Size of GPU card 250mm x 125mm x 20mm Note: If the GPU card dimension is 250mm x 125mm x 40mm, we can change the riser card inside to support.	Full-size Mini card x 2 (USB, w/ 1 SIM slot) PCIe [x1] x 1 PCIe [x16] x 1 - Power Consumption of GPU card max. 180W - Max. size of GPU card 312 x 113 x 40 mm (Option) Max. size of GPU card 312 x 113 x 60 mm (Riser Card: 9697T50300)
Indicator	System Power LED x1 (Green) Storage Active LED x1 (Red)	Power LED x 1, HDD active LED x 1
OS support	Windows® 10 Enterprise 64 bit Ubuntu 20.04.1/Kernel 5.4	Skylake S Windows® 10, Windows® 10 IoT, Windows® 8.1, Windows® Embedded Standard 8, Windows® 7, Windows® Embedded Standard 7, Ubuntu 16.04.2 Kabylake Windows® 10, Windows® 10 IoT, Ubuntu 16.04.2
Power Supply		
Power Requirement	DC In 12~24V x1 for 3-pin Terminal block	DC-In 12~24V - CPU < 65W, No Graphic Card: 120W Adapter - CPU ≤ 65W, 180W Graphic Card: 330W Adapter
Mechanical		
Mounting		Wallmount
Dimensions (W x H x D)	8.66" x 5.91" x 12.6" (220 mm x 150 mm x 320 mm)	6.10" x 7.87" x 15.75" (155mm x 200mm x 400mm)
Gross Weight	17.64 lb (8 kg)	18.29 lb (8.3 Kg)
Net Weight	15.43 lb (7 kg)	14.53 lb (7 Kg)
Environmental		
Operating Temperature	-4°F~-140°F (-20°C ~ 60°C) IEC68-2 with 0.5 m/s AirFlow	-4°F ~ 131°F (-20°C ~ 55°C) according to IEC60068-2 with 0.5m/s airflow (TDP 35W Processor)
Storage Temperature	-49°F ~ 176°F (-45°C ~ 80°C)	-4°F ~ 176°F (-40°C ~ 80°C)
Storage Humidity		5 ~ 95% @ 40°C, non-condensing
Anti-Vibration	SSD: Random, 1Grms, 5~500Hz	Random, 1 Grms, 5~500Hz, Anti-vibration design
Anti-Shock	SSD: 50G @ wallmount, Half-sine, 11ms	—
Certification	CE/FCC class A, UKCA	CE/FCC class A
Note		

Note: All specifications are subject to change without notice.

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System Level Products

Expandable Fanless BOX PC Solutions

Expandable Fanless BOX PC Solutions



Model	BOXER-6841M-A2	BOXER-6841M-A3
System		
CPU	6th / 7th Generation Intel® Core™-i desktop Processor -Intel® Core™ i7-6700TE, 2.4 GHz -Intel® Core™ i5-6500TE, 2.3 GHz -Intel® Core™ i3-6100TE, 2.7 GHz -Intel® Core™ i7-7700, 3.6 GHz -Intel® Core™ i7-7700T, 2.9 GHz -Intel® Core™ i3-7101TE, 3.4 GHz	6th / 7th Generation Intel® Core™-i desktop and Xeon® server grade processor -Intel® Core™ i7-6700TE, 2.4 GHz -Intel® Core™ i5-6500TE, 2.3 GHz -Intel® Core™ i3-6100TE, 2.7 GHz -Intel® Core™ i7-7700, 3.6 GHz -Intel® Core™ i7-7700T, 2.9 GHz -Intel® Core™ i3-7101TE, 3.4 GHz -Intel® Xeon® E3-1268L v5, 2.40 GHz -Intel® Xeon® E3-1275 v6, 3.80 GHz
Chipset	Intel® H110 PCH	Intel® C236 PCH
System Memory	DDR4 ECC or Non-ECC SODIMM, up to 32GB	
Display Interface	HDMI type A x 2 for HDMI v1.4b	
Storage Device	2.5" Drive Bay x 2	
Ethernet	RJ-45 x 5 for GbE (Intel® i211AT x 4, i219LM x 1)	
I/O	2 pin Remote Power on/off connector Power ON/OFF Switch x 1 HDMI 1.4b x 2 Audio x 2 (MIC-in, Line-out) USB 3.2 Gen 1 x 4 DB-9 x 1 for RS-232/422/485 3 pin DC Power input x 1 (+, -, GND)	
Expansion	Full-size Mini card x 2 (USB, w/ 1 SIM slot) PCIe [x1] x 1 PCIe [x16] x 1 - Power Consumption of GPU card max. 250W - Max. size of GPU card 312 x 113 x 40 mm (Option) Max. size of GPU card 312 x 113 x 60 mm (Riser Card: 9697T50300)	Full-size Mini card x 2 (USB, w/ 1 SIM slot) PCIe [x1] x 1 PCIe [x16] x 1 - Power Consumption of GPU card max. 180W - Max. size of GPU card 312 x 113 x 40 mm (Option) Max. size of GPU card 312 x 113 x 60 mm (Riser Card: 9697T50300)
Indicator	Power LED x 1, HDD active LED x 1	
OS support	Skylake S Windows® 10, Windows® 10 IoT, Windows® 8.1, Windows® Embedded Standard 8, Windows® 7, Windows® Embedded Standard 7, Ubuntu 16.04.2 Kabylake Windows® 10, Windows® 10 IoT, Ubuntu 16.04.2	
Power Supply		
Power Requirement	DC-In 12~24V For System power, 12V only for Graphic Card - CPU < 65W, No Graphic Card: 120W Adapter - CPU ≤ 65W, 180W < Graphic Card < 250W: 240W Adapter x 2	DC-In 12~24V - CPU < 73W, No Graphic Card: 120W Adapter - CPU ≤ 73W, 180W Graphic Card: 330W Adapter
Mechanical		
Mounting	Wallmount	
Dimensions (W x H x D)	6.10" x 7.87" x 15.75" (155mm x 200mm x 400mm)	
Gross Weight	18.29 lb (8.3 Kg)	
Net Weight	14.53 lb (7 Kg)	
Environmental		
Operating Temperature	-4°F ~ 131°F (-20°C ~ 55°C) according to IEC60068-2 with 0.5m/s airflow (TDP 35W Processor)	-4°F ~131°F (-20°C ~ 55°C) according to IEC60068-2 with 0.5m/s airflow (TDP 35W Processor) -4°F ~113°F (-20°C ~ 45°C) according to IEC60068-2 with 0.5m/s airflow (TDP 73W Processor)
Storage Temperature	-4°F ~ 176°F (-40°C ~ 80°C)	
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	
Anti-Vibration	Random, 1 Grms, 5~500Hz, Anti-vibration design	
Anti-Shock	—	
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

System Level Products

Expandable Fanless BOX PC Solutions

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Expandable Fanless BOX PC Solutions



Model	BOXER-6841M-A4	BOXER-6841M-A5
System	6th / 7th Generation Intel® Core™-i desktop and Xeon® server grade processor	
CPU	-Intel® Core™ i7-6700TE, 2.4 GHz -Intel® Core™ i5-6500TE, 2.3 GHz -Intel® Core™ i3-6100TE, 2.7 GHz -Intel® Core™ i7-7700, 3.6 GHz -Intel® Core™ i7-7700T, 2.9 GHz -Intel® Core™ i3-7101TE, 3.4 GHz -Intel® Xeon® E3-1268L v5, 2.40 GHz -Intel® Xeon® E3-1275 v6, 3.80 GHz	
Chipset	Intel® C236 PCH	
System Memory	DDR4 ECC or Non-ECC SODIMM, up to 32GB	
Display Interface	HDMI type A x 2 for HDMI v1.4b	
Storage Device	2.5" Drive Bay x 2	
Ethernet	RJ-45 x 5 for GbE (Intel i211AT x4, i219LM x 1)	
I/O	2 pin Remote Power on/off connector Power ON/OFF Switch x 1 HDMI 1.4b x 2 Audio x 2 (MIC-in, Line-out) USB 3.2 Gen 1 x 4 DB-9 x 1 for RS-232/422/485 3 pin DC Power input x 1 (+, -, GND)	
Expansion	Full-size Mini card x 2 (USB, w/ 1 SIM slot) PCIe [x1] x 1 PCIe [x16] x 1 - Power Consumption of GPU card max. 250W - Max. size of GPU card 312 x 113 x 40 mm (Option) Max. size of GPU card 312 x 113 x 60 mm (Riser Card: 9697T50300)	Full-size Mini card x 2 (USB, w/ 1 SIM slot) PCIe [x8] x 2 Extension card size limit: 114.55mm(H) x 192mm (L) PCIe [x1] x 1
Indicator	Power LED x1, HDD active LED x1	
OS support	Skylake S Windows® 10, Windows® 10 IoT, Windows® 8.1, Windows® Embedded Standard 8, Windows® 7, Windows® Embedded Standard 7, Ubuntu 16.04.2 Kabylake Windows® 10, Windows® 10 IoT, Ubuntu 16.04.2	
Power Supply		
Power Requirement	DC-In 12~24V For System Power, 12V only for Graphic Card - CPU < 73W, No Graphic Card: 120W Adapter - CPU ≤ 73W, 250W Graphic Card: 240W Adapter x 2	DC-In 12~24V - CPU = 35W: 120W Adapter - 35W < CPU ≤ 73W: 240W Adapter
Mechanical		
Mounting	Wallmount	
Dimensions (W x H x D)	6.10" x 7.87" x 15.75" (155mm x 200mm x 400mm)	6.10" x 7.87" x 10.24" (155mm x 200mm x 260mm)
Gross Weight	18.29 lb (8.3 Kg)	12.75 lb (5.8 kg)
Net Weight	14.53 lb (7 Kg)	9.9 lb (4.5 Kg)
Environmental		
Operating Temperature	-4°F ~131°F (-20°C ~ 55°C) according to IEC60068-2 with 0.5m/s airflow (TDP 35W Processor) -4°F ~113°F (-20°C ~ 45°C) according to IEC60068-2 with 0.5m/s airflow (TDP 73W Processor)	
Storage Temperature	-4°F ~ 176°F (-40°C ~ 80°C)	
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	
Anti-Vibration	Random, 1Grm, 5~500Hz, Anti-vibration design	
Anti-Shock	—	
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

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System Level Products

Expandable Fanless BOX PC Solutions

Expandable Fanless BOX PC Solutions



Model	BOXER-6841M-A6	BOXER-6841M-A7
System	6th / 7th Generation Intel® Core™-i desktop and Xeon® server grade processor	
CPU	-Intel® Core™ i7-6700TE, 2.4 GHz -Intel® Core™ i5-6500TE, 2.3 GHz -Intel® Core™ i3-6100TE, 2.7 GHz -Intel® Core™ i7-7700, 3.6 GHz -Intel® Core™ i7-7700T, 2.9 GHz -Intel® Core™ i3-7101TE, 3.4 GHz -Intel® Xeon® E3-1268L v5, 2.40 GHz -Intel® Xeon® E3-1275 v6, 3.80 GHz	
Chipset	Intel® C236 PCH	
System Memory	DDR4 ECC or Non-ECC SODIMM, up to 32GB	
Display Interface	HDMI type A x 2 for HDMI v1.4b VGA x 1	HDMI 1.4b
Storage Device	2.5" Drive Bay x 2	
Ethernet	RJ-45 x 5 for GbE (Intel® i211AT x4, i219LM x1)	
I/O	2 pin Remote Power on/off connector Power ON/OFF Switch x 1 HDMI 1.4b x 2 VGA x 1 Audio x 2 (MIC-in, Line-out) USB 3.2 Gen 1 x 4 DB-9 x 1 for RS-232/422/485 DB-9 x 4 for RS-232 3 pin DC Power input x 1 (+, -, GND)	Audio x 2 (MIC-in, Line-out) RJ-45 x 5 for GbE LAN USB Type A x 4 for USB 3.2 Gen 1 DB-9 x 1 for RS-232/422/485 HDMI type A x2 for HDMI v1.4b Power ON/OFF Switch x 1 2 pin Remote Power on/off connector x1 Power input x 1
Expansion	Full-size Mini card x 2 (USB, w/ 1 SIM slot) PCIe[x8] x 2 Extension card size limit: 114.55mm(H) x 192mm (L) PCIe[x1] x 1	Full-size Mini card x2 (USB, w/ 1 SIM slot) PCIe [x1] x 1 PCIe [x16] x 1 - Power Consumption of GPU card max. 180W - Max. size of GPU card 190 x 113 x 40 mm (Option) Max. size of GPU card 190 x 113 x 60 mm (Riser Card: 9697T50300)
Indicator	Power LED x 1, HDD active LED x 1	
OS support	Skylake S Windows® 10, Windows® 10 IoT, Windows® 8.1, Windows® Embedded Standard 8, Windows® 7, Windows® Embedded Standard 7, Ubuntu 16.04.2 Kabylake Windows® 10, Windows® 10 IoT, Ubuntu 16.04.2	
Power Supply		
Power Requirement	DC-In 12~24V - CPU = 35W: 120W Adapter - 35W < CPU ≤ 73W: 240W Adapter	DC-In 12~24V - CPU < 73W, No Graphic Card: 120W Adapter - CPU ≤ 73W, 180W Graphic Card: 330W Adapter
Mechanical		
Mounting	Wallmount	
Dimensions (W x H x D)	6.10" x 7.87" x 10.24" (155mm x 200mm x 260mm)	
Gross Weight	12.75 lb (5.8 kg)	
Net Weight	9.9 lb (4.5 Kg)	
Environmental		
Operating Temperature	-4°F ~131°F (-20°C ~ 55°C) according to IEC60068-2 with 0.5m/s airflow (TDP 35W Processor) -4°F ~113°F (-20°C ~ 45°C) according to IEC60068-2 with 0.5m/s airflow (TDP 73W Processor)	
Storage Temperature	-4°F ~ 176°F (-40°C ~ 80°C)	
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	
Anti-Vibration	Random, 1 Grms, 5~500Hz, Anti-vibration design	
Anti-Shock	—	
Certification	CE/FCC class A	
Note		

Note: All specifications are subject to change without notice.

System Level Products

Expandable Fanless BOX PC Solutions

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Expandable Fanless BOX PC Solutions



Launching in Q1

Model	BOXER-6842M	BOXER-6843-ADS
System		
CPU	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	Intel 10nm LGA-1700 Socket (formerly codenamed Alder Lake-S) Support Max. 65W TDP Processor (LGA 6+0, LGA 8+8) i9-12900TE / i9-12900E, i7-12700TE / i7-12700E, i5-12500TE / i5-12500E, i3-12100TE / i3-12100E, G6900TE / G6900E
Chipset	C246, No H310 downward support	Q670E or R680E
System Memory	DDR4 SODIMM socket x4 (double deck) Support max. 2666MHz up to 128GB Support un-buffered and ECC / non-ECC type SODIMM	DDR5 4800 UDIMM x4, max. up to 128GB
Display Interface	HDMI x2 Support Dual Independent Display, 4K Ultra HD displays	HDMI Type A x2 DisplayPort x2
Storage Device	2.5" SATA Drive Bay x2 (4 SATA Port w/ RAID Function) mSATA x1 (optional) M.2 2280 NVMe SSD slot x 1	2.5" SATA-III Drive Bay x2 (External Swappable) M.2 2280 M Key x2 (PCIe4 Gen4) 3.5" SATA Drive bay (internal, non-swappable, Optional)
Ethernet	RJ-45 x 3 for GbE (Intel i211AT x 2, i219LM x 1)	GbE LAN x4 with LED Indicator - Intel i219-LM x1 (PHY) - Intel i226 x3
I/O	HDMI x2 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	HDMI x2 / Display Port x 2 RJ-45 x 4 Type A x 8 for 3.2 Gen2 DB-9 Male x 6 for RS-232/422/485 (Autoflow, Programmable) DB-15 Male x1 for 8bit DIO Audio (Mic-in / Line-out) DC 19~36V 3-pin Terminal Block Connector for DC-in Power Button with LED x 1 Remote Power On/Off x1 Reset Button x1
Expansion	A2/A3/A4/A5 Full-size Minicard x 1 (PCIe + USB with 1 SIM Slot) Half-size Minicard x 1 (PCIe + USB, optional for mSATA) M.2 M key (2280) x 1 (PCIe4) - Max. Power Consumption of GPU card 250W - Max. Size of GPU card 280mm x150mm x 40mm A2: PCIe [x4] x 1 + PCIe [x16] x 1 A3: PCIe [x4] x1 + PCIe [x8] (in x16 slot) x 2 A4: PCIe [x4] x1 + PCIe [x8] (in x16 slot) x2, Support dual Graphics Cards with two power inputs A5: Built in Nvidia 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.	M.2 2230 (Key E) x1 M.2 3052 (Key B) x1 w/ SIM M.2 2280 (Key B+M or M) x2 Full-Size Minicard x1 (PCIe + USB)
Indicator	System Power LED x 1 (Green), Storage Active LED x 1 (Red)	—
OS support	Windows® 10 Enterprise 64 bit, Ubuntu 18.04.4	Windows 10 IoT Enterprise LTSC 2021, Windows® 10 Pro Windows® 11 Pro, Linux Ubuntu 22.04
Power Supply		
Power Requirement	A2/A3/A4 DC In 12~24V with 3-pin terminal block No Graphics Card: CPU 35W->120W Adapter x 1, CPU 71W->240W Adapter x 1 With 250W Graphics Card x1: 480W Adapter x 1 A4: DC In 12~24V with 3-pin terminal block, With 250W Graphics Card x2: 330W Adapter x 1 + 480W Adapter x 1 A5: DC In 12~24V with 3-pin terminal block, With A2 x 1: 240W Power Adapter x 1, With A2 x 2: 330W Power Adapter x 1	DC 19~36V 3-pin Terminal Block
Mechanical		
Mounting		Wallmount
Dimensions (W x H x D)	A2/A3/A5: 6.17" x 8.92" x 12.8" (156.7mm x 226.5mm x 325mm) A4: 7.77" x 8.92" x 12.8" (197.3mm x 226.5mm x 325mm)	TBD
Gross Weight	A2/A3: 18.52 lb (8.4 Kg); A4: 20.72 lb (9.4 Kg); A5: 20.5 lb (9.3 Kg)	TBD
Net Weight	A2/A3: 15.65 lb (7.1 Kg); A4: 17.86 lb (8.1 Kg); A5: 17.64 lb (8 Kg)	TBD
Environmental		
Operating Temperature	Without Graphics Cards: -4°F ~ 149°F (-20°C ~ 65°C) with 0.5m/s airflow With 250W Graphics Card: 32°F ~ 113°F (0°C ~ 45°C) with 0.5m/s airflow A5: 32°F ~ 113°F (0°C ~ 40°C) with 0.5m/s airflow	-4°F ~ 131°F (-20°C ~ 55°C), according to IEC68-2 with 0.5 m/s AirFlow (w/ Industrial wide Temp. SSD/RAM)
Storage Temperature	-49°F ~ 176°F (-45°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Storage Humidity		5 ~ 95% @ 40°C, non-condensing
Anti-Vibration	HDD: Random, 1Grms, 5~500Hz	3 Grms/ 5 ~ 500Hz/ operation (with SSD)
Anti-Shock	—	50G, IEC 68-2-27, half sine, 11 ms duration (with SSD)
Certification		CE / FCC class A
Note		

Note: All specifications are subject to change without notice.

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System Level Products

Expandable Fanless BOX PC Solutions : Frame Grabber Card

Expandable Fanless BOX PC Solutions : Frame Grabber Card



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



Model	PER-T481	PER-T514
System		
Bus Interface	PCI-Express® [x4], Gen 2 PCI-Express Specification Revision 2.0 at 5GT/s	PCI-Express® [x4], Gen 2 PCI-Express Specification Revision 2.1 at 5GT/s
USB		—
USB Connector		—
Ethernet	LAN: Intel® i211AT Ethernet Controller x 4 (A10) Intel® i211AT Ethernet Controller x 2 (A20) Fully compliant with IEEE 802.3 and IEEE 802.3u Support IEEE 1588 precision time synchronization POE: Intel® i211AT Ethernet Controller x 4 (A30) Intel® i211AT Ethernet Controller x 2 (A40) Fully compliant with IEEE 802.3 and IEEE 802.3u Support IEEE 1588 precision time synchronization Support IEEE 802.3 at	2 Ports 10GbE Ethernet w/ Intel X550 Controller Fully compliant with IEEE 802.3 and IEEE 802.3u Support IEEE 1588 precision time synchronization Support 15.5 KB Jumbo Frame, teaming Support IEEE 802.3 Ethernet interface for 10GBASE-T (IEEE 802.3an) Support NBASE-T (IEEE 802.3bz) and 1000BASE-T (IEEE 802.3ab)
OS Support	LAN: Windows® 10(32/64-bit), Windows® 8.1 (32/64-bit), Windows® 7(32/64-bit), Linux POE: Windows® 10(32/64-bit), Windows® 8.1 (32/64-bit), Windows® 7(32/64-bit) (Linux not Supported)	Windows® 10(64-bit), Windows® 8.1 (64-bit), Windows® 7(64-bit), Linux 18.04.1
Power Supply		
Power Requirement	LAN: Max. 10W POE: 4POE DUAL SATA Power (15 pin) DC Input 12~24V,Max. 90W for 4ports (A30) 2POE DUAL SATA Power (15 pin) DC Input 12~24V,Max. 60W for 2ports (A40)	Max. 7.84W
Mechanical		
Dimensions (W x D)	LAN: 4.33" x 5.35" (110mm x 136mm) POE: 4.41" x 5.91" (112mm x 150mm)	3.94" x 5.35" (100mm x 136mm)
Environmental		
Operating Temperature	LAN: -4°F ~ 140°F(-20°C ~ 60°C) (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices) POE: -4°F ~ 131°F(-20°C ~ 55°C) (according to IEC68-2-14 with 0.5 m/s AirFlow; 90W loading) (A30) -4°F ~ 131°F(-20°C ~ 55°C) (according to IEC68-2-14 with 0.5 m/s AirFlow; 60W loading) (A40)	32°F ~ 140°F(0°C ~ 60°C) (according to IEC68-2-14 with 0.5 m/s AirFlow ; with industrial devices)
Storage Temperature	-49°F ~ 176°F (-45°C ~ 80°C)	
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	

System Level Products

Smart In-vehicle & AMR BOX PC

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Smart In-vehicle & AMR BOX PC



Model	VPC-3350S	VPC-5600S
System	Multi-PoE & Fanless Appliance	
Form Factor	Multi-PoE & Fanless Appliance	
Processor	Intel® Pentium®/ Celeron®/ Atom® Processor (Default: E3940; Project base: N4200/N3350, or E3950 w/ customized chassis)	Intel® 7th Gen. Core™ i3/i5/i7 Processor (Default: i3-7100U; Project base: i5-7300U, i7-7600U)
Chipset	—	
Main Memory	Up to 8GB, DDR3L 204-pin SODIMM	Up to 32GB, DDR4 260-pin SODIMM
Display	HDMI x 1, DP x 1	
Ethernet	Intel® i211 (colay i210)	LAN x 2 + 4 PoE Ports, RTL8111E 10/100/1000 Base
Smart PoE	4 ports, sharing 60W of power budget for every four PoE ports	
RAID support	—	0/1
Expansion Slot	Mini-Card slot x 2 (USB 2.0 + PCIe, full size), up to 4 slots (In-vehicle platform) SATA x 1 Built-in CANBus (In-vehicle platform)	Mini-Card slot x 3 (USB2.0 x 2 + PCIe & USB 2.0 x 1) Built-in CAN 2.0B x 1
GPS, G-Sensor	Built-in GPS & G-Sensor (In-vehicle platform)	On board (GPS/GLONASS), 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 GbE port (RJ-45) x 2 PoE LAN x 4 (IEEE 802.3 at/af) DP x 1 Reset Button x 1
Rear I/O Panel	DC-In power x 1 8-bit DIO x 1, 4-ch digital input, 4-ch digital output RS-232/422/485 x 2 DP x 1 Audio Line-out x 1, Mic-In x 1 Micro SIM slot x 2	DC-In power x 1 Remote Power x 1 8-bit DIO x 1, 4-ch digital input (Wet/dry contact with Isolation Protection 3,000 VDC), 4-ch digital output (Compatible 5 V/TTL, 31 mA max. per channel) DC 12V/1A Output x 1 RS-232/422/485 x 2 HDMI x 1 CanBus connector x 1, Audio Line-out x 1, Mic-In x 1 SIM slot x 2
Storage		
HDD Tray	2.5" HDD/SSD Bay x 1	2.5" SSD x 2
CF/CFast/mSATA Slot	—	mSATA Slot x 1 (If mSATA x 1 used, then only one SATA available)
Environmental		
Operating Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Storage Humidity	10%~80% @40°C, non-condensing	
Vibration/Shock	MIL-STD-810G	
Certification	CE & FCC Class A, eMark Compliance Available Per Project Basis	CE & FCC Class A, EMARK
Power Requirement		
Power Supply	DC 12-24V; DC9-36V with power ignition (In-vehicle platform)	DC 10-36V, with ignition pin
Mechanical		
Removable HDD Tray	—	Hot swappable 2.5" SSD x 2 (Project base) via extension module
Internal System HDD Bay	—	2.5" HDD x 2
Dimension	6.3" x 5.28" 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)
Gross Weight	3.96 lb (1.8 kg)	5.7 lb (2.6 kg)
Note	 TAIWAN EXCELLENCE 2018  COMPUTEX Taipei 2017	

Note: All specifications are subject to change without notice.

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System Level Products

Smart In-vehicle & AMR BOX PC

Expandable Fanless BOX PC Solutions



Launching in Q1

Model	VPC-5620S
System	
Form Factor	Multi-PoE & Fanless Appliance
Processor	Intel® Whiskey Lake Processor (Default: i7-8665UE; Project base: i5-8365UE, i3-8145UE or 4305UE)
Chipset	—
Main Memory	Up to 64GB, DDR4 260-pin SODIMM
Display	HDMI x 1, DP x 1
Ethernet	1x GbE, Intel i211, support Wake on LAN and PXE supported
Smart PoE	4 ports, IEEE 802.3 at/af, sharing 60W of power budget for every four PoE ports. Able to power management in each independent PoE port (SDK available)
RAID support	0/1
Expansion Slot	IS: mPCIe Full-Size (USB+PCIe) x 1 mPCIe Full-Size (USB+SATA) colay SATA x 1 M.2 2280 (USB+PCIe), support NVME PCIe [x4] SSD x 1 VS: mPCIe Full-Size (USB+PCIe) x 3 mPCIe Full-Size (USB+SATA) colay SATA x 1 M.2 2280 (USB+PCIe), support NVME PCIe [x4] SSD x 1
GPS, G-Sensor	VS:Built-in GPS, Gyro & G-Sensor
Front I/O Panel	RJ45 Smart PoE Port (60W) x 4, USB 3.2 Gen 1 x 4, Giga LAN x 1, DP x 1, Power button, Status LED, HDD LED, Wireless LED, Micro SIM slots(IS) x 2, Micro SIM slots(VS) x 4, Antenna holes x 2, CANbus (VS) x 1, RS-232 (VS) x 3
Rear I/O Panel	jack for Line out & MIC in x 1 HDMI x 1 RS-232/422/485 (Isolated by BOM option) x 2 HW Reset x 1, 3pin Power input x 1 8 bits DIO (Isolated 4DI & 4DO / 8DI/ 8DO by BOM option) Antenna holes x 2
Storage	
HDD Tray	IS:2.5" HDD/SSD Bay x 2 VS:2.5" HDD/SSD Bay x 1
CF/CFast/mSATA Slot	—
Environmental	
Operating Temperature	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)
Storage Humidity	10%~80% @40°C, non-condensing
Vibration/Shock	MIL-STD-810G
Certification	CE & FCC Class A
Power Requirement	
Power Supply	IS:DC 12-24V; VS:DC10-36V with power ignition
Mechanical	
Removable HDD Tray	—
Internal System HDD Bay	IS:2.5" HDD/SSD Bay x 2 VS:2.5" HDD/SSD Bay x 1
Dimension	IS:6.3" x 5.87" x 2.16" (180mm x 149mm x 55mm) VS:6.3" x 5.87" x 2.95" (180mm x 149mm x 75mm)
Gross Weight	TBD
Note	

Model	BOXER-8647AI
System	
AI Accelerator	NVIDIA® AGX Orin
CPU	8-core ARM v8.2 64bit CPU, 2MB L2 + 4MB L3
System Memory	32GB 256-Bit LPDDR5x 205GB/s
Storage Device	64GB eMMC 5.1 x 1 M.2 Key M 2280 (PCIe[x4]) x 1
Display Interface	HDMI Type A for HDMI 2.0 x 1
Ethernet	RJ-45 for PoE (802.3af/at, total 100W) x 8 RJ-45 for 10G x 1
I/O	USB Type A for USB 3.2 Gen 1 x 1 USB Type A for USB 2.0 x 3 Line-in x 1 Line-out x 1 HDMI type A for HDMI v2.0 x 1 DB-9 for two CANbus x 1 DB-9 for RS-232/422/485 x 2 DB-15 for 13 DIO x 1 Power ON/OFF switch x 1 Antenna hole x 7
GNSS	GPS/Glonass/Galileo/Beidou
Sensor	G-sensor, Gyro
Expansion	M.2 Key E 2230 for WiFi/Bluetooth (PCIe[x1] + USB) x1 M.2 Key B 3042/3052 for 4G/5G x 1 SIM Slot x 1
Indicator	Power LED x 1
OS Support	Linux (NVIDIA Jetpack 5.0 and above)
Power Supply	
Power Requirement	3-pin Terminal Block x 1 for DC in 9-36V ACC Ignition delay on/off
Mechanical	
Mounting	Wall mount kit
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)
Gross Weight	TBD
Net Weight	TBD
Environmental	
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C 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	MIL-STD-810G, 514.6C Procedure 1, Category 4 Trucker/ Semitrailer on US highway (Figure 514.6C-1-Category 4-Common carrier) by SSD
Anti-Shock	MIL-STD-810G, Method 516.6, Procedure I, flight vehicle equipment by SSD
Certification	CE / FCC class A
Note	

Note: All specifications are subject to change without notice.

System Level Products

UP Systems

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UP Systems



Model	UP-GWS01	UPS-GWS01
System		
CPU	Intel® Atom® x5-Z8350 Processor (2M Cache, 1.44 GHz up to 1.92 GHz) CPU with 64 bit architecture; Quad Core	Intel® Pentium® N4200/ Celeron® N3350 Processor SoC/ Atom® E3950
Memory	Onboard DDR3L memory	Onboard Single/ Dual Channel LPDDR4 memory, Max. 8GB
Graphics	Intel® HD 400 Graphics ,12 EU GEN 8, up to 500MHz Support DX*11.1/12, Open GL*4.2, Open CL*1.2 OGL ES3.0, H.264, HEVC (decode), VP8	Intel® Graphics, GEN 9
Storage	Onboard eMMC	eMMC ver 5.0 x 1, Max. 128G Optional: Full-sized Mini-PCIe x 1 SATA3 x 1
Ethernet	Gb LAN x 1	Realtek® 8111G x 2
WIFI/BT	Optional	Optional: M.2 2230 x 1
Audio	HDMI x 1	HDMI x 1, DP x 1
USB	USB2.0 x 4, USB3.0 OTG x 1	USB3.0 x 3
Expansion Slot	—	Full-sized Mini-PCIe x 1 (PCIe & SATA + USB2.0) M.2 2230 x 1
I/O Placements		
Power	DC-in Jack x 1	DC-in Jack x 1, Power Button x 1
USB	USB2.0 x 4, USB3.0 OTG x 1	USB3.0 x 2, USB3.0 OTG x 1/ USB3.0 x 1
Display Port	HDMI x 1	HDMI x 1, DP x 1
Ethernet	Gb LAN x 1	Realtek® 8111G x 2
COM		—
Environment		
Power	5V/4A DC Only	5V DC Only
Form Factor	3.74" x 3.58" x 1.46" (95mm x 91mm x 37mm)	3.74" x 3.74" x 1.97" (95mm x 95mm x 50mm)
Gross Weight		—
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 113°F (0°C ~ 45°C)
Operating Humidity	0% ~ 90% relative humidity non-condensing	0% ~ 90% relative humidity non-condensing
Certification	CE/FCC Class A	CE, FCC Class A, UL
OS Support	Windows® 10, Linux, Windows® 10 IoT core	Windows® 10, Linux, Android 7.0, Windows® 10 IoT core
Note		

Note: All specifications are subject to change without notice.

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System Level Products
UP Systems

UP Systems



Model	UP 4000 Edge	UP Squared V2 Edge
System		
CPU	Intel® Pentium® N4200/ Celeron® N3350/ Atom® E3950	Intel® Celeron® N6210 Pentium® J6426 Processor SoC
Memory	Onboard LPDDR4 Memory up to 8GB	Up to 16GB LPDDR4
Graphics	Intel® Gen 9 HD, supporting 4K Codec Decode and Encode for HEVC4, H.264, VP8	Intel® UHD Graphics
Storage	Onboard eMMC Storage up to 64GB	Up to 64GB eMMC
Ethernet	Gb Ethernet (full speed) RJ-45 x 1	Gb Ethernet (full speed) RJ-45 x 2
WIFI/BT	—	—
Expansion Slot	—	M.2 2230 E-Key x 1 (PCIe x2, USB2.0 x1) M.2 2280 M-key x 1 (PCIe x2) SATA3 x 1
Security	TPM 2.0	Onboard TPM 2.0
OS Support	Microsoft Windows 10 (full), Windows IOT Core Yocto project 3.1 Kernel 5.4 Ubuntu 18.04	Microsoft Windows 10 (full) Windows IOT Core Ubuntu 20.04 LTS Yocto 3.1
I/O Placements		
USB	USB 3.2 Gen 1 (Type A) x 3 USB 3.0 OTG via USB type C x1	USB 2.0 x 2 (from 10 pin wafer x 1) USB 3.2 Gen 2 Type A x 3
Display Port	HDMI 1.4b DP via USB type C	HDMI 1.4b x 1 DP 1.2 x 1
Ethernet	RJ45 x1	Gb Ethernet (full speed) RJ-45 x 2
COM	—	RS-232/422 x 1
Audio	Line out x 1 Mic in x 1	Line out x 1 Mic in x 1
GPIO	—	—
POWER Supply		
Power requirement	12V DC-in @5A	
Power supply type	DC Jack, 5.5-2.1mm /phoenix co-lay	AT/ATX
Power Consumption (Typical)	12V @ 1.25A (15Watt)	30~38W
MECHANICAL		
Mounting	VESA Mounting	
Dimensions (WxHxD)	3.62" x 2.52" x 1.78" (92 x 64 x 45.2 mm)	3.74" x 3.74" x 2.16" (95 x 95 x 55 mm)
Net Weight	0.64lb (290g)	0.99lb (450g)
Gross Weight	1.21lb (549g)	1.32lb (600g)
Environment		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) with air flow 0.5m/s	
Operating Humidity	10% ~ 80% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
Storage Temperature	-4°F ~ 158°F (-20°C~70°C)	
MTBF	538,629 hrs @ 30°C	465,586
Certification	CE/FCC Class A, RoHS Compliant, REACH	
Note		

System Level Products

UP Systems

UP Systems



Model	UPN-Edge Pro	UP Squared 6000 Edge
System		
CPU	Intel® Apollo Lake N4200/N3350/E3950 Processor SoC	Intel® Atom® X6413E / X6425RE, Celeron® N6210 (no PSE), Pentium® J6426 Processor SoC
Memory	Onboard DDR4, Max 8GB Single Channel: 2 GB Dual Channel: 4 GB, 8 GB	
Graphics	Intel® Graphic ,Gen 9	Intel® UHD Graphics
Storage	Emmc 32G/64G	Onboard eMMC 32G/64G Optional with M.2 2280 M-key x 1, SATA3 x 1
Ethernet	Intel i210 x2	GbE x 1, 2.5GbE x 1 Atom: Intel® i210-IT, i225-IT PC Client: Intel® i211-AT, i225-V
WIFI/BT	Optional	Optional with M.2 2230 E-key x 1
Audio	Line out+mic in x1	Line out x 1 Mic in x 1
USB	USB 3.2 Gen 1 OTG x 1 USB 3.2 Gen 1 (Type A) x 3	USB 3.2 Gen 2 Type A x 2 USB 3.2 Gen 2 Type C (support OTG) x 1 (Limited to Atom series)
Expansion Slot	40 pin GPIO x 1 M.2 2230 E-key x 1 M.2 2280 M-key x 1 M.2 3052/3042 B-key x 1 (support with SIM) SATA3 connector x 1 (support 2.5" HDD/SSD expansion)	40 pin GPIO x 1 M.2 2230 E-key x 1 M.2 2280 PCIe Gen3.0x2 M-key x 1 SATA3 x 1 M.2 3052 B-key x 1 Nano SIM slot x 1 TPM 2.0 (Limited to Atom series)
I/O Placements		
Power	DC-in Jack x 1, Power Button x 1	
USB	USB3.2 Gen1 OTG x 1 USB3.2 Gen1 (Type A) x 3	USB 3.2 Gen 2 Type A x 2 USB 3.2 Gen 2 Type C (support OTG) x 1 (Limited to Atom series)
Display Port	HDMIx1, DP x1	HDMI 2.0b x 1 DP 1.2 x 1
Ethernet	Gb Ethernet (full speed) RJ-45 x 2 (Intel i210)	RJ45 x 2
COM	RS422/RS232/RS485 x 2	RS232/RS422 x 1 (Limited to Atom series)
Environment		
Power	12-24VDC	12V DC-in (Lockable plug)
Form Factor	4.61" x4.19" x3.5" (117mm x 106.5mm x 88.8mm)	4.6" x 4.2" x 2.8" (11.7 x 10.6 x 7 cm)
Gross Weight	2.17 lb (982.5g)	2.31lb (1.05Kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 55°C) with air flow 0.5m/s	With Heatsink: 32°F ~ 140°F (0°C ~ 60°) with air flow 0.5m/s
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
Certification	CE/FCC Class A, RoHS Compliant, REACH	
OS Support	Microsoft Windows 10 (full), Windows IOT Core Linux: Ubuntu 18.04.5 & Ubuntu 20.04.1 Yocto 3.1	Microsoft Windows 10 (full), Windows IOT Core Linux: Ubuntu 20.04 LTS, Yocto 3.1
Note		

Note: All specifications are subject to change without notice.

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System Level Products
UP Systems

UP Systems



Model	UP Squared 6000 Edge Computing Kit	UPX-Edge
System		
CPU	Intel® Atom® X6425RE Processor SoC	8th generation Intel® Core™ i7/i5/i3/Celeron Processor SoC
Memory	Onboard 8GB DDR4	Onboard DDR4 memory, Max 16GB Single Channel: 4GB Dual Channel: 8GB, 16GB
Graphics	Intel® UHD Graphics	Intel® Graphics, GEN 9
Storage	Onboard eMMC 64G	eMMC 64GB
Ethernet	GbE x 3 (Intel® i210-IT x 1, Marvell Alaska x 2 from PSE), 2.5GbE x 1 (i225-IT)	i7/i5 SKU LAN (i210 AT) x 1, LAN (i219 LM) x 1 i3/Celeron® LAN (i210 AT) x 1, LAN (i219 V) x 1
WIFI/BT	Optional with M.2 2230 E-key x 1	Optional
Audio	Line out x 1 Mic in x 1	Line out + MIC x 1
USB	USB 3.2 Gen 2 Type A x 2 USB 3.2 Gen 2 Type C (support OTG) x 1 Micro USB (PSE debug port) x 1	USB 3.2 Gen 2 x 4
Expansion Slot	40 pin GPIO x 2 (1x from MB, 1x from CB(PSE)) M.2 2230 E-key x 1 M.2 2280 PCIe Gen3.0x2 M-key x 1 SATA3 x 2 (1x from MB, 1x from CB) M.2 3052 B-key x 1 Mini PCIe slot x 1 (via USB only) Nano SIM slot x 2 TPM 2.0	M.2 2230 E Key x 1 M.2 2280 M Key x 1 mPCIe slot x 1 100pin connector x 1 40 pin HAT x 1 SATA3 connector x 1 (support 2.5" HDD/SSD expansion)
I/O Placements		
Power	DC-in Jack x 1, Power Button x 1	
USB	USB 3.2 Gen 2 Type A x 2 USB 3.2 Gen 2 Type C (support OTG) x 1 Micro USB (PSE debug port) x 1	USB 3.2 Gen 2 STACK Connector for 2 ports (Front) x 1 USB 3.2 Gen 2 STACK Connector for 2 ports (Rear) x 1
Display Port	HDMI 2.0b x 1 DP 1.2 x 1	HDMI 2.0 x 1 (Support 4K at 60 Hz), DP 1.2 x 1, 16pin GPIO connectors (1 x GPIO for SMT32, 1 x GPIO for 40pin HAT)
Ethernet	RJ45 x 4	RJ45 connector x 2
COM	RS232/RS422 x 1 (From MB) RS232 x 1 (From CB(PSE))	RS-232/422/485 x 2
Environment		
Power	12V DC-in (Lockable plug)	12V - 60VDC
Form Factor	4.6" x 4.2" x 3.2" (11.7 x 10.6 x 8.2 cm)	7.48" x 5.12" x 3.1" (190mm x 130mm x 78.6mm)
Gross Weight	2.65lb (1.2Kg)	6.61lbs (3kg)
Operating Temperature	32°F ~ 122°F (0°C ~ 50°C)	eMMC: 32°F ~ 140°F (0°C ~ 60°C) SATA: -4°F ~ 158°F (-20°C ~ 70°C) With AI module: 32°F ~ 140°F (0°C ~ 60°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
Certification	CE/FCC Class A, RoHS Compliant, REACH	
OS Support	Preinstalled Software, Ubuntu 20.04 LTS and 5.13 Kernel Intel® Distribution of OpenVINO™ toolkit 2021 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	Win 10, Linux Ubuntu 18.04 with Kernel 5.0, Linux Yocto 2.7 with Kernel 4.19
Note		

Note: All specifications are subject to change without notice.

System Level Products

UP Systems

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UP Systems



Model	UP Xtreme i11 Edge	UP Xtreme i11 Edge Compute Enabling Kit
System		
CPU	11th Gen Intel® Core™ Processor SoC Core i7-1185G7E, Core i7-1185GRE, Core i5-1145G7E, Core i5-1145GRE, Core i3-1115GRE, Celeron® 6305E	11th Gen Intel® Core™ Processor SoC Core i7-1185GRE Core i5-1145GRE
Memory	DDR4 SO-DIMM Slot x 2 (up to 64GB 3200Mhz)	8GB 3200MHz SODIMM modules x 2
Graphics	Intel® Iris® Xe graphics	
Storage	SATA CONN x 1 with POWER CONN (2.5" SSD) M.2 2280 M Key NVMe(PCIe [x2])	128GB 2.5" SSD x 1
Ethernet	Intel® i225IT x 1, Intel® i219 (vPRO) x 1	Intel® i225IT (TSN) x 1, Intel® i219 (vPRO) x 1
WIFI/BT	Optional	
Audio	Realtek ALC888s x 1 (Mic in /Line out)	
USB	USB 3.2 Gen2 x 3, USB 2.0 x 1 (Type A), USB 4.0 via USB type C	
Expansion Slot	M.2 2230 E-Key x 1 M.2 2280 M-Key x 1 M.2 3052 B-Key x 1 with Micro-SIM SATA3.0 with power connector x 1 (2.5" SSD) PCIe x 4 slot (Optional)	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	12V DC-in (Lockable plug)/ Phoenix connector	
USB	USB3.2 Gen2 x 3, USB2.0 x 1 (Type A), USB4.0 via USB type C	
Display Port	HDM 2.0 x 1 /DP 1.4 x 1 eDP x 1, 4K at 60hz panel	
Ethernet	Intel® i225IT x 1, Intel® i219 (vPRO) x 1	
COM	RS232/422/485 x 2	
Environment		
Power	12V (AT & ATX)	
Form Factor	4.88"x 5.98" x 2.62" (124mm x 152mm x 66.5mm)	
Gross Weight	5.07 lb (2.3kg)	
Operating Temperature	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	32°F ~ 140°F (0°C ~ 60°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
Certification	CE,FCC Class A	
OS Support	Windows 10 /IOT, Yocto 3.1, Ubuntu 20.04.02	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		

Note: All specifications are subject to change without notice.

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System Level Products
UP Systems

UP Systems



Model	UP Xtreme i12 Edge	UP Element i12 Edge
System		
CPU	Intel Core i7-1270PE/i5-1250PE/i3-1220PE/Celeron-7305E	Intel® Core™ i3-1215U / i5-1235U / i7-1255U / Celeron® 7305 Processor SoC
Memory	LPDDR5 Dual Channel up to 32GB	Onboard LPDDR5, 4GB / 8GB / 16GB / 32GB
Graphics	Intel® Iris® Xe graphics	
Storage	M.2 2280 (PCIe Gen4.0 x 4) M-key x2 SATA3 x1	Optional with M.2 2280 M-key x 2
Ethernet	Intel i226IT (TSN) x1/ Intel i219 (vPRO) x1	GbE x 2 / 2.5GbE x 1 (All three support PXE function) Intel® i225-IT for 2.5G Gigabit Ethernet Intel® i219-LM for 1G Gigabit Ethernet Realtek RTL8111H for 1G Gigabit Ethernet
WIFI/BT	Optional via M.2 2230	Intel® AX211 Wi-Fi 6E (802.11ax)
Expansion Slot	M.2 2230 E-key x1 M.2 2280 (PCIe Gen4.0 x 4) M-key x2 SATA3 x1 M.2 3052 B-key x1 Nano SIM slot x1	M.2 3052 USB3.0/PCIe B-key x 1 (with Nano SIM slot) M.2 2280 SATA/PCIe Gen3.0 x2 M-key x 1 M.2 2280 PCIe Gen4.0 x4 M-key x 1
Security	TPM 2.0	TPM 2.0
OS Support	Windows® 10 Enterprise 2021 LTSC, Ubuntu 22.04, Yocto (4.0)	Microsoft Windows 10, Linux: Ubuntu 22.04 LTS
I/O Placements		
USB	USB 3.2 Gen2 Type A x3 USB2.0 USB Type A x1 USB2.0 via 10pin wafer x2 USB4.0 Type C x1	USB 3.2 Gen 2 Type A x 2 USB 2.0 Type A x 2 USB 3.2 Gen 1 Type C (support DP1.4) x 1
Display Port	HDMI 2.0b x1 DP 1.4a x1 DP 1.4b via USB type C x1 eDP1.4b x1	HDMI 2.0b x 1 DP 1.4 x 1
Ethernet	RJ45 x 2 for 1G/2.5GbE LAN	RJ45 x 3
COM	x 2 (RS232/422/485)	RS232/422/485 x 2 (pin header type)
Audio	Mic-in x 1, Line out x 1	Mic x 1 / Line out x 1
GPIO	16pin GPIO x1	Isolation GPIO x 8in/8out (pin header type)
POWER Supply		
Power requirement	12-36V DC input (AT/ATX mode)	9-36V
Power supply type	Lockable	Ø2.5 Lockable connector
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)	Power Consumption (Typical): Intel® Core™ i7-1255U, LPDDR5 5200MHz 32GB, 4.47A@ 12V Power Consumption (Maximum): Intel® Core™ i7-1255U, LPDDR5 5200MHz 32GB, 9.6A@ 12V
MECHANICAL		
Mounting	VESA Mount/Wall Mount	75mm x 75mm VESA mount, optional Wall mount kit
Dimensions (WxHxD)	152 x 123.8 x 72.5 mm	5.98" x 4.9" x 1.8" (152 x 125 x 48 mm)
Net Weight	1.34kg	2.21lb (1.0Kg)
Gross Weight	1.76kg	3.31lb (1.5Kg)
Environment		
Operating Temperature	0-60 degree with air flow 0.5m/s	With Heatsink: 32°F ~ 140°F (0°C ~ 60°) with air flow 0.5m/s (According Industrial wide temp. M.2 SSD)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	—
MTBF	366,810	—
Certification	CE/FCC Class A, RoHS Compliant, REACH	CE-RED/FCC Class A, RoHS Compliant, REACH Shock: MIL-STD-202G Method 213B, Table 213-I Condition A (with Absorber) Vibration: IEC 60068-2-6: 1G, 5-500Hz, 3 axes IEC 60068-2-64: Operating 5Grms, 5-500 Hz, 3 axes
Note		

System Level Products

UP Systems

UP Systems

Launching in Q1

Model	UP Squared Pro 7000 Edge
System	
CPU	Intel® Atom® Processor SoC (Alder Lake N)
Memory	Up to 16GB LPDDR5
Graphics	Intel® Gen 12 UHD Graphics
Storage	Up to 64GB eMMC
Ethernet	2.5GbE x 2 (Intel® i225/i226)
WIFI/BT	—
Expansion Slot	M.2 2230 E-key x 1 (CNV1, PCIE X1, USB2.0) M.2 2280 M-key x 1 (PCIE X2, USB2.0) M.2 3052 B-key x 1 (USB3.0 only) SATA3 x 1
Security	Onboard TPM 2.0
OS Support	Windows 10 IoT Enterprise Windows IoT Core Ubuntu 22.04 LTS Yocto 4
I/O Placements	
USB	USB 3.2 Gen 2 Type A x 2 USB 3.2 Gen 2 Type C x 1
Display Port	HDMI 2.0b x 1 DP 1.2 x 1 DP 1.2 via USB Type C
Ethernet	2.5GbE x 2 (Intel® i225/i226)
COM	RS-232/422/485 x 2
Audio	Audio Jack (Line out + MIC in) x 1
GPIO	40 pin GPIO x 1
POWER Supply	
Power requirement	12V DC-in, 6A
Power supply type	AT/ATX
Power Consumption (Typical)	TBD
MECHANICAL	
Mounting	VESA Mounting
Dimensions (WxHxD)	TBD
Net Weight	TBD
Gross Weight	TBD
Environment	
Operating Temperature	32°F ~ 140°F (0°C ~ 60°) / 0.5 airflow
Operating Humidity	0% ~ 90% relative humidity, non-condensing
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)
MTBF	TBD
Certification	CE/FCC Class A, RoHS Compliant, REACH
Note	

Note: All specifications are subject to change without notice.

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02

System Level Products

Turn-Key Chassis Solutions

Turn-Key Chassis Solutions



Model		ACS-1U01-BT4
System		
CPU		Intel® Atom® J1900 Processor (4C @ 2.00 GHz CPU, 688/854 MHz GFX, 10W TDP), Intel® Atom™ N2807 Processor (2C @ 1.58 GHz CPU, 313/750 MHz GFX, 4.3W TDP)
Chipset		—
System Memory		204-pin SODIMM x 2 up to 8 GB (for J1900) 204-pin SODIMM x 1 up to 4 GB (for N2807) DDR3L 1333 MHz, Non-ECC, un-buffered memory, Dual-channel memory architecture
I/O Chipset		Fintech 81866D
Display Interface	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
	Others	RS-232 connector x 1
Expansion	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		

Note: All specifications are subject to change without notice.

System Level Products

UP Systems

02

UP Systems



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		

Note: All specifications are subject to change without notice.

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		

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System Level Products

Industrial Chassis

Industrial Chassis



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	

Note: All specifications are subject to change without notice.

System Level Products

Edge Robot Processor

02

Edge Robot Processor



Model	RBX-I2000
System	
Processor	Intel® 11th Generation Core™ i7/i5/i3/Celeron SoC i7-1185G7E (4C, 1.7GHz, up to 4.4GHz, TDP-up 28W) i5-1145G7E (4C, 1.5GHz, up to 4.1GHz, TDP-up 28W) i3-1115G4E (2C, 2.2GHz, up to 3.9GHz, TDP-up 28W)
Memory	Max. up to 64G DDR4 3200MHz, SO-DIMM x 2, non-ECC type
Storage	M.2 2280 M Key slot x 1 (PCIe4), up to 2TB NVMe SSD 2.5" SATA SSD/HDD bay 3.0 x 1
Real Time Clock	RTC x 1, with 3V CR2032 Lithium battery
Security	TPM 2.0
Indicators	—
Cellular	—
Wireless Lan	M.2 2230 E Key slot x 1 (Wifi 802.11 ac/b/g/n, BT 5.0)
Operating System	Windows 10 IoT Enterprise / Linux (by request)
Robot Framework&Script	ROS 1/ ROS 2, LiDAR-base SLAM script (*NDT algorithm)
I/O Interfaces	
HDMI	HDMI 2.0 x 1, support 3840 x 2160 @ 30Hz)
Ethernet	10/100/1GBase-T(X) Ethernet port x 3 2.5Gigabit Ethernet port x 1
USB	USB 3.0 Gen1 x 4
Multi-I/O	8-bit DIO, 2-channel CAN interface
SyncOut	1pps + time date output x4 for robot external sensors *note (*note Support Velodyne VLP-16, Xsens MTI-670, stereo camera)
DB-9	RS232/485 x 2 CAN-FD x 2 PM&GPIO interface x1
Antenna	FAKRA Z code for Wi-Fi x 2 FAKRA C code for GPS x 1
Expansion Slot	Mini PCIe slot x 1, 3026 for GPS module Mini PCIe slot x 1, 3052 for PEAK CANbus
Power Connector	2 Pin 3.81mm Pitch Phoenix Connector
Other Interface	—
Power Supply	
Power Requirement	DC 9 ~ 36V (Optional DC12V), AT Type
Power Consumption	67 W (Full Loading)
Power Mode	Support system auto-power on
Environmental and Mechanical	
Dimension	6.88" x 5.9" x 2.8" (175 x 150 x 72mm)
Weight	4.4lb (2kg)
Mount Options	Wall Mount
Operation Temperature	32 °F ~ 122 °F (0 °C ~ 50 °C)
Storage Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C)
Operation Humidity	10% ~ 90% relative humidity, non-condensing
Vibration	3Grms/ operation – eMMC, MicroSD (IEC68-2-64)
Shock	30G peak acceleration (11 msec. duration, eMMC, microSD, or SSD) IEC 68-2-27
EMI	CE & FCC class A
Note	

Note: All specifications are subject to change without notice.

Model	AMR-TSMC
Platform	
Processor	High speed FPGA/VHDL
GPS module	Support SyncBotic's GPS module. (Use U-blox M9N, F9P module)
IMU module	Xsens MTI-670 9-axis IMU
Board to board connector	PPS (packet per second) + ToD (Time of Day) output x7 PPS (packet per second) output x4 I2C + PPS for controller side to update the time information x1 RS-232 output (Xsens sync raw data output) x1
Xsens MTI670 9-axis IMU Specification	
Support list	Gyroscope, Accelerometer, Magnetometer, Barometer, orthogonality
Roll/Pitch	Static: 0.2° Dynamic: 0.5°
Yaw	Dynamic: 1°
Position	Horizontal: 1.0m Vertical: 2.0m
Velocity	3D: 0.05m/s
U-Blox GPS Specification	
Module type	L1/L2 or RTK U-blox GPS high precision module
Receiver type	GPS L1C/A, SBAS L1C/A, QZSS L1C/A, QZSS L1 SAIF, GLONASS L10F, BeiDou B1, Galileo E1B/C, GPS/QZSS L2C, GLONASS L20F, Galileo E5b, BeiDou B2I, RTK
Acquisition	Cold start: 26s Hot start: 2s Aided start: 3s
Re-convergence time	RTK ≤ 10S (* Only on RTK module card)
Power	
Storage Temperature	9-55V DC ±5%
Operation Humidity	1.2W at 12VDC input
Physical Characteristics	
Vibration	75 x 50 x 23mm (2.95 x 1.968 x 0.917 inch)
Shock	M2 screw x4
Environmental	
Operating Temperature	-40°C to 75°C (-40°F to 167°F)
Operating Humidity	Approx. 95% @40 (non-condensing)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Vibration	IEC 60068-2-64: 5Grms, 5-500Hz, 3 axes
Shock	Operating: 3G, half sine, 11ms duration
EMI	CE (EN 55032, EN 55035) & FCC class A (ANSI C63.4, 4a)
Note	

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System Level Products

Roadside Unit

Roadside Unit



Model	iRSU
System	
Processor	Intel® Atom® x7-E3950 Processor
Memory	SO-DIMM DDR3L 8 GB
Storage	Onboard eMMC 64 GB mSATA via M.2 2242 B Key slot x 1
Indicators	LED Power Light x 1
Operating System	Windows 10/ Linux (by request)
RF & AI	
Cellular	4G LTE CAT 4, Mini PCIe slot
Wireless Lan	WiFi 802.11 b/g/n/ac, M.2 2230 E key
VPU (Optional)	Intel Movidius Myriad X VPU, MA2485, M.2 2280 M key
C-V2X / DSRC (Optional)	3GPP Rel.14 Compliant LTE-V2X direct communications
External I/O	
Power Input	AC input x 1, waterproof connector Male type
Serial Port	RS-232 x 1, M12 waterproof connector Male type
SDI-12 (Optional)	SDI-12 port x 1, M12 waterproof connector Male type
Antenna	Internal 4G LTE antenna x 1 Internal Wi-Fi antenna x 2
Expansion Slot	Mini PCIe slot x 2, for 3G/4G LTE M.2 2230 E key x 1, for WiFi M.2 2280 M key x 1, for Myriad X VPU Micro SIM slot x 1
Other Interface	—
Power Supply	
Power Requirement	80-264 VAC
Physical Characteristics	
Enclosure	Plastic and Metal enclosure
Dimension	11.4" x 16.14" x 8.2" (290 x 410 x 209 mm)
Weight	TBD
Mounting/Installation	Pole mount, Wall mount (Optional)
Environmental	
Operating Temperature	32 °F ~ 140 °F (0 °C ~ 60 °C)
Storage Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C)
Operating Humidity	10% ~ 90% relative humidity, non-condensing
Note	



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03

► Network Platform Solutions

A large, white, sans-serif number '03' is prominently displayed in the foreground, partially obscuring the server racks. The background is a photograph of a server room with rows of racks filled with electronic equipment, illuminated by blue light. A door with a green exit sign is visible at the end of the aisle.

03

Network Platform Solutions

Desktop Network Appliances

Desktop Network Appliances



Model	FWS-2365	FWS-2360
System	Desktop Network Appliance	
Form Factor	Desktop Network Appliance	
Processor	Intel® Atom® Processor C3000 series (4~16 cores)	Intel® Atom™ Processor C3000 Series supports dual and quad core
Chipset	SoC	
System Memory	DDR4 SODIMM ECC x 2, up to 64GB	DDR4 SODIMM ECC DIMM (Dual core 1 slot Quad core 2 Slot) Up to 32GB
Network		
Ethernet	1GbE RJ-45 x 6 (2 ports co-lay SFP) 10G SFP+ x 4 (4 cores only support 2 port)	Intel® X553 (Marvell 88E1543) RJ45 x 4 Default Intel® i211 GbE x 2 (Intel® i210 SFP x 2 Optional)
Bypass	Supports 1 pairs on LAN 3-4	Supports up to 2 pairs bypass function
Display		
Graphic Controller	—	
Connector	—	
Storage		
HDD	SATA III port x 2, 2.5" HDD/SSD up to 2	2.5" HDD Bay x 1
CF/CFast/MSATA	On board 16GB eMMC, up to 128GB optional mSATA slot x 1 (co-lay with M.2 slot)	SATA 6.0 Gb/s port x 1(Onboard eMMC up to 16GB optional)
Internal/ Expansion Interface		
PCIe Slot	—	
Mini-PCIe Slot	Mini-card slot x 1 (Half-size, PCIe) Mini-card slot x 1 (Full-size, PCIe + USB2.0) with SIM slot M.2 B key 3052 x 1 (USB3.0) with SIM slot	Mini-Card socket (full-size) x 2 (1 with SIM socket)
Keyboard and Mouse	Reserved pin-header	
USB	USB 3.0 x 2 (1 Port only support USB2.0 signal)	Dual Core: USB 3.2 Gen 1 x 1 + USB2.0 x 1
Miscellaneous		
RTC	Internal RTC	
Watchdog Timer	1~255 steps by software programmable	
Software Button	GPIO programmable push button x 1	—
TPM	TPM v2.0 9665	(TPM v1.2 9660/TPM2.0 9665 Optional)
GPIO	4 bits input/ 4 bits output	(4 bits input, 4bits output optional)
Fan	System fan x 1	
MTBF (Hours)	TBD	149683 Hours
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)	260mm x 178mm x 44mm	8.66" x 4.13" x 1.73" (220mm x 105mm x 44mm)
I/O		
Front Panel	Power LED x 1 Status LED x 1 Storage Active LED x 1 Bypass LED x 1 Ethernet LED x 20 Antenna Hole x 2 Accessible SIM slot x 2	Power LED x 1, Status LED x 1, Storage Active LED x 1, Bypass LED x 2, LAN LED x 12, (Antenna Hole x 2 Optional)
Rear Panel	USB 3.0 Port x 2 RJ-45 Port x 6 SFP+ Port x 2 RJ-45 Console x 1 12V DC Power Input x 1 Software Reset Button x 1 Power Button x 1 Antenna Hole x 4	USB 3.2 Gen 1 Port x 2, RJ-45 Port x 6 (Optional RJ-45 x 4 + SFP x 2) RJ-45 Console x 1, 12V DC Power Input x 1, Software Reset Button x 1, Power Button x 1, (Antenna Hole x 2 Optional)
Note		

Note: All specifications are subject to change without notice.

Network Platform Solutions

Desktop Network Appliances

03

Expandable Fanless BOX PC Solutions



Model	FWS-2280	FWS-2276
System	Desktop Network Appliance	
Form Factor		
Processor	Intel Elkhart lake SoC Processor 2~4 cores	Intel® Celeron® Processor N3350 SoC
Chipset	SoC	
System Memory	260-pin DDR4 SO-DIMM x 1, 3200MHz	Onboard LPDDR4 2GB memory
Network		
Ethernet	Intel® i211, Gigabit Ethernet x 4 Intel® i210, SFP x 1	Intel® i211 GbE x 4
Bypass	—	1 pair bypass function
Display		
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 III port x 1	Onboard 8GB eMMC, SATA 6.0 Gb/s port x 1
Internal/ Expansion Interface		
PCIe Slot	—	
Mini-PCIe Slot	Mini Card Socket (PCIe + USB 2.0, full size) with SIM x1 Mini Card Socket (PCIe, half size) x1 M.2 B key 3052 (USB 3.0, full size) with SIM x1(Optional)	—
Keyboard and Mouse	—	
USB	USB 2.0 Type A x 2	USB 3.2 Gen 1 x 2
Miscellaneous		
RTC	Internal RTC	
Watchdog Timer	1~255 steps by software programmable	
Software Button	GPIO Programmable push button x 1	—
TPM	(TPM SLB9670 VQ2.0 FW7.85 Optional)	(TPM v1.2 9660/TPM2.0 9665 Optional)
GPIO	4 bits input, 4bits output optional	
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)	
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	3 x LEDs (Power, Status, Storage) 1 x Micro-SIM 2 x Antenna Hole	Power LED x 1 Status LED x 1 HDD Active LED x 1 Bypass LED x 1 LAN LEDs x 8
Rear Panel	2 x DC Power Input Connector Lockable 1 x Power Button 2 x USB2.0 Ports 4 x 1GbE RJ45 Ports,1 SFP 1 x RJ-45 console 1 x Reset Button 3 x Antenna Hole	USB 3.2 Gen 1 Port x 2 RJ-45 Port x 4 RJ-45 Console x 1 12V DC Power Input x 1 Software Programmable Button x 1 Antenna Hole x 2 Optional
Note		

Note: All specifications are subject to change without notice.

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Network Platform Solutions

Desktop Network Appliances

Desktop Network Appliances



Model	FWS-2275	FWS-2273
System	Desktop Network Appliance	
Form Factor	Desktop Network Appliance	
Processor	Intel® Celeron® Processor N3350 SoC	
Chipset	SoC	Intel® Celeron® N3350 Processor
System Memory	Onboard LPDDR4, 2GB	204-pin DDR3L SODIMM x 1, up to 8GB
Network		
Ethernet	Intel® i211 GbE x 3	Intel® i211, Gigabit Ethernet x 4 Intel® i210, SFP x 2
Bypass	—	Supports up to 2 pairs bypass function
Display		
Graphic Controller	Intel® HD graphics integrated	Intel® HD Graphics 505 Integrated
Connector	(HDMI Connector x1 Optional)	HDMI x 1
Storage		
HDD	—	2.5" HDD Bay x 1
CF/CFast/MSATA	Onboard eMMC 16GB (Optional up to 32GB) SATA III Port x 1 for SATA DOM Micro SD card Reader x1	CompactFlash™ socket x 1 (Co-lay for BOM Optional CFast™ socket x 1) SATA 6.0 Gb/s port x 1
Internal/ Expansion Interface		
PCIe Slot	—	
Mini-PCIe Slot	Mini-Card Full Size Slot with SIM Socket x 1 (USB 2.0; PCIe co-lay with LAN 3)	Mini-Card socket (full-size) with SIM socket x 2
Keyboard and Mouse	—	Reserved pin-header
USB	USB 3.2 Gen 1 x 2	
Miscellaneous		
RTC	Internal RTC	
Watchdog Timer	1~255 steps by software programmable	
Software Button	GPIO Programmable push button x 1	—
TPM	(TPM2.0 9665 Optional)	(TPM v1.2 9660/TPM2.0 9665 Optional)
GPIO	4 bits input, 4bits output	Reserved internal pin-header 8-bit Digital I/O interface (4-in /4-out)
Fan	—	Fanless, reserved pin-header for system fan
MTBF (Hours)	550,521 Hours	109,725
Color	Black	
Environmental Parameters and Dimension		
Power 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		

Note: All specifications are subject to change without notice.

Network Platform Solutions

Desktop Network Appliances

Expandable Fanless BOX PC Solutions



Model	FWS-2272	FWS-2271
System		
Form Factor	Desktop Network Appliance	Desktop 6-port Network Appliance
Processor	Intel® Celeron® N3350 Processor	
Chipset	Intel® Celeron® N3350 Processor	Integrated
System Memory	Onboard LPDDR4 1GB memory. Optional BOM SKU supports 204-pin DDR3L SODIMM x 1, up to 8GB	204-pin DDR3L 1867MHz SODIMM Up to 1, 8 GB
Network		
Ethernet	Intel® i211, Gigabit Ethernet x 4	Intel® i211 (Co-lay with Intel® i210), Gigabit Ethernet x 6 (BOM Optional 4 Ports)
Bypass	—	Supports up to 2 pairs bypass function
Display		
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)	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)	
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)	
Operating Humidity	10%~80% relative humidity, non-condensing	
Storage Humidity	10%~80% @40°C; non-condensing	
Vibration	0.5 Grms/ 5 ~ 500Hz / operation (SATA DOM) 1.5 Grms/ 5 ~ 500Hz / non operation	0.5 Grms/ 5 ~ 500Hz/ operation (2.5" Hard Disk Drive) 1.5 Grms/ 5 ~ 500Hz/ non-operation
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non operation	
Dimension (W X D X H)	6.1" x 3.62" x 1.26" (155mm x 92mm x 32mm)	7.87" x 4.13" x 1.73" (200mm x 105mm x 44 mm)
I/O		
Front Panel	Power LED x 1 Status LED x 1 Storage Active LED x 1 LAN LED x 8	Bypass LED x 2 Power LED x 1 Status LED x 1 HDD Active LED x 1 LAN LED x 12
Rear Panel	USB 3.2 Gen 1 Port x 2 RJ-45 Port x 4 RJ-45 Console x 1 12V DC Power Input x 1 Software Reset Button x 1 Power Button x 1 Antenna Hole x 2	USB 3.2 Gen 1 Port x 2 RJ-45 Port x 6 (BOM Optional RJ-45 Port x 4) RJ-45 Console x 1 12V DC Power Input x 1 Software Programmable button x1 HDMI x 1 Power Button x 1
Note		

Note: All specifications are subject to change without notice.

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Network Platform Solutions

Desktop Network Appliances

Desktop Network Appliances



Launching in Q3

Launching in Q2

Model	FWS-2277	FWS-2281	FWS-2290
System	Desktop Network Appliance		
Form Factor	Desktop Network Appliance		
Processor	Intel® Celeron® Processor N3350 SoC	Intel Elkhart Lake SoC Processor 2~8 cores	Intel Alder lake N SoC Processor 2~8 cores
Chipset	SoC		
System Memory	Onboard LPDDR4, 4GB	260-pin DDR4 3200MHz SODIMM x 1, Up to 32GB	On board 4G LPDDR5 up to 16GB
Network			
Ethernet	Intel® i211, Gigabit Ethernet x 2	Intel® i226V, Gigabit Ethernet x 4 Intel® i210, SFP x 2	Intel® i226V, Gigabit Ethernet x 4
Bypass	—	2 Pair	1 Pair
Display	Intel® UHD Graphics		
Graphic Controller	Intel® UHD Graphics		
Connector	HDMI x 1		HDMI x 1 Optional
Storage			
HDD	—		
CF/CFast/MSATA	eMMC 16G	16G eMMC SATA III port x 1	
Internal/ Expansion Interface			
PCIe Slot	—		
Mini-PCIe Slot	Mini-Card Full Size Slot x1	Mini Card Socket with SIM push-push type (Full Size) for 4G/LTE , Co-lay M.2 (B Key 3052) for 5G/ fixable IO for reserve SATA signal for SATA M.2 storage M.2 (E Key 2230) Co-lay Mini-Card slot for WiFi	M.2 (B Key 3052) for 5G (Co-lay Mini-Card slot-2 with Push-pin SIM for 4G LTE/Wifi reserve 3042 screw hold for 4G LTE M.2 (E Key 2230) (Co-lay Mini-Card-1 slot for WiFi)
Keyboard and Mouse	—		
USB	USB 3.2 Gen 1 x 2	USB 3.1 Type A x2 (one only have 2.0 ,share to M.2 for LTE)	
Miscellaneous			
RTC	Internal RTC		
Watchdog Timer	1~255 steps by software programmable		
Software Button	GPIO Programmable push button x 1		
TPM	(TPM SLB9670 VQ2.0 FW7.85 Optional)		
GPIO	(4 bits input, 4bits output optional)		
Fan	Fan-less	Fan x1	
MTBF (Hours)	TBD	TBD	TBD
Color	Black		
Environmental Parameters and Dimension			
Power Requirement	12V DC Power Input Connector non-lock, 24W power adapter	2 x 12V DC Power Input Connector Lockable, 40W power adapter	1 x 12V DC Power Input Connector Lockable, 40W power adapter
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)		
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)		
Operating Humidity	10%~80% relative humidity, non-condensing		
Storage Humidity	10%~80% @40°C; non-condensing		
Vibration	0.5 Grms/ 5 ~ 500Hz / operation (mSATA) 1.5 Grms/ 5 ~ 500Hz / non-operation		
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation		
Dimension (W X D X H)	4.53" x4.53" x 1.26"(115mm x115mm x 32mm)	8.66" x 4.09" x 1.73" (220mm x 105mm x 44mm)	6.5" x 3.62" x 1.57" (165mm x 92mm x 40mm)
I/O			
Front Panel	USB 3.2 Gen 1 x 2 Power Button x 1 Reset Button x 1	3 x LEDs (Power, Status, Storage) 1 x Micro-SIM 3 x Antenna Hole	3 x LEDs (Power, Status, Storage) 1 x Micro-SIM 2 x Antenna Hole
Rear Panel	DC Power Input Connector non-lock x 1 1GbE RJ45 Ports x 2 HDMI x 1	2 x DC Power Input Connector Lockable 1 x Power Button 2 x USB2.0 Ports 4 x 1GbE RJ45 Ports,2 SFP 1 x RJ-45 console 1 x Reset Button 3 x Antenna Hole	1 x DC Power Input Connector Lockable 1 x Power Button 2 x USB2.0 Ports 4 x 1GbE RJ45 Ports 1 x RJ-45 console 1 x Reset Button 2 x Antenna Hole
Note			

Note: All specifications are subject to change without notice.

Network Platform Solutions

Rackmount Network Appliances



Model	FWS-8600	FWS-7541
System		
Form Factor	2U Rackmount Network Platform	1U Rackmount ICE-Lake-D LCC Platform Network Appliance
Processor	Dual 2nd Gen Intel® Xeon® Scalable Processors, up to 56 cores, 112 threads	Intel® Xeon® ICE-Lake-D LCC Processors
Chipset	Intel® C621 Chipset	SoC
System Memory	DDR4 2133/2400/2666 R-DIMM x 16 (8 DIMM per CPU), Up to 512 GB	Upto DDR4 SO-DIMM ECC DIMM slots x 2
Network		
Ethernet	Intel® i211 Gigabit Ethernet x 2	1Gb RJ45 (I350 AM4 x 3) x 12 + Upto 4 x 10Gb SFP+ (SKU optional)
Bypass	Depend on NIM module	2 Pairs 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 III Port x 6 External Hotswappable 3.5" HDD Bay x 4 Internal 3.5" HDD Bay x 1, option with 2.5" HDD Bay x 2	2.5" HDD x 2 (default) or 3.5" HDD x 1 (If no NIM module presence)
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 (B key 3052) for 4G/5G (USB3.0 + PCIe) x 1 with SIM M.2 (E key 2230) (PCIe) x 1
IPMI	Optional IPMI via AAEON Module (Project based)	Optional by BOM SKU
Keyboard and Mouse		—
USB	USB 3.2 Gen1 x 2 (Optional 2*10 pin USB 3.2 Gen1 x 2 Box Header 2.0mm)	USB3.2 GEN1 x 2
Miscellaneous		
RTC		Internal RTC
Watchdog Timer	1~255 steps by software programmable	1~255
Software Button	GPIO Programmable push button x 1	1
TPM	(Optional TPM2.0 9665 on board)	TPM2.0 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 Hours	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 g rms/ 5 ~ 500Hz / operation (2.5" Hard Disk Drive) 1.5 g rms/ 5 ~ 500Hz / non operation
Shock		10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non operation
Dimension (W X D X H)	17.48" x 22.83" x3.46" (444mm x 580mm x 88mm)	16.93" x 7.87" x1.73"(430mm x 200mm x 44mm)
I/O Interfaces		
Front Panel	Power LED x 1 Status LED x 1 HDD Active LED x 1 USB 3.2 Gen 1 Ports x 2 RJ-45 Console x 1 Parallel LCM display and 4 keypad x 1 Software Programmable Button x1 RJ-45 LAN x 2 IPMI x 1 (Project based)	12 x 1Gb RJ45 + upto 4 x 10Gb SFP+ (Optional by BOM SKU) Power LED x 1 Status LED x 1 HDD Active LED x 1 USB 3.2 GEN1 Ports 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 x1
Note		

Note: All specifications are subject to change without notice.

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Network Platform Solutions

Rackmount Network Appliances

Rackmount Network Appliances



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	8 x 1Gb RJ45 Port or 6 x 1Gb RJ45 + 2 x 1Gb SFP , with 2 x i350AM4 LAN chips 2 x 10Gb SFP+ with XL710 AM2 LAN chip (Option)	Intel® I350 AM2 Gigabit Ethernet x 2
Bypass	2 Pairs	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 x1 Optional)	VGA cable (Optional)
Storage		
HDDs	SATA III 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	1 x Mini card socket (Option mSATA)	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	—	Pin-header
USB	USB 3.2 Gen1 x 2	USB 3.2 Gen 1 x 2, Box Header (2.0mm)
Miscellaneous		
RTC	Internal RTC	
Watchdog Timer	1~255 steps by software programmable	1~255 steps by software programmable, 1 sec per step
Software Button	GPIO Programmable push button x 1	
TPM	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	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	
Shock	10G peak acceleration (11 m sec. duration), operation 20G peak acceleration (11 m sec. duration), non-operation	
Dimension (W X D X H)	430mm x 305mm x 44mm	16.93" x 18.7" x 1.73"(430mm x 475mm 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 2 LAN 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		

Note: All specifications are subject to change without notice.

Network Platform Solutions

Rackmount Network Appliances



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

Note: All specifications are subject to change without notice.

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Network Platform Solutions

Rackmount Network Appliances

Rackmount Network Appliances



Launching in Q2

Model	FWS-7360	FWS-7850
System	1U Rackmount Network Platform	
Form Factor	1U Rackmount Network Platform	
Processor	Intel® C3758 processor SoC, optional support up to 16 core	Intel® Alder Lake-S Processors
Chipset	SoC	W680
System Memory	DDR4 Slot x 4, Support ECC UDIMM/RDIMM upto 256GB	288-pin UDIMM DDR5 ECC x 4, up to 128GB
Network		
Ethernet	Intel®X553 RJ45 x 2, Intel® i211 GbE x 3, SFP+ x 2 from CPU	RJ45 /SFP Ethernet ports x 2 (Intel i350-AM2 x 1)
Bypass	Onboard 2 pairs bypass, others depend on NIM module	Depend on NIM module expansion
NIM Slot	1	NIM slot x 3 Option1: PCIe [x4,x4] GEN3.0 x 2 + PCI-E [x8] GEN3.0 x 1 Option2: PCI-E [x4, x4] GEN3.0 x 3)
Display		
Graphic Controller		
Connector	—	HDMI port x 1
Storage		
HDDs	2.5" HDD Bay x 2	Optional 1: 2.5" HDD Bay x 2 or 3.5" HDD x 1 Option 2: 2.5" HDD Bay x 2 + 3.5" HDD x 1 (Rear expansion not presented) Option 3: Upto 2.5" HDD Bay x 6 (Rear expansion not presented)
CF/CFast/mSATA	Default SATA III port x 2 (MSATA Slot X 2 Optional)	—
Internal/ Expansion Interface		
PCIe slot	PCIe [x8] slot x 1, cannot use w/ NIM	—
Mini-Card slot	Default Mini-Card socket (full-size) x1 (Mini-Card socket (full-size) with SIM socket x 1 Optional)	Mini Card x 1(PCle [x1] / USB) Colay mSATA M.2 M key 2280 x 1 (PCle [x4] or SATA [x1]) for NVMe colay SATA
IPMI	—	IPMI port x 1
Keyboard and Mouse		
USB	USB 3.2 Gen 1 x 2	
Miscellaneous		
RTC	Internal RTC	
Watchdog Timer	1~255 steps by software programmable	
Software Button	GPIO Programmable Button x 1	1
TPM	Optional TPM v1.2 / TPM v2.0	TPM2.0 SPI
GPIO	4 bits input, 4bits output	Reserve internal pin header 8-bit Digital I/O interface (4-in /4-out)
FAN	System Fan x 1	Smart Fan x 3
MTBF (Hours)	142,412	TBD
Color	Black	
Environmental Parameters and Dimension		
Power Requirement	150W Flex ATX PSU	Single AC/DC 1U Flex ATX 220W x 1 or 1U 300W Redundant PSU(optional) x 1
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)	
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)	
Operating Humidity	10%~80% relative humidity, non-condensing	
Storage Humidity	10%~80% @40°C; non-condensing	0%~80% @40°C; non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz / operation (2.5" HDD) 1.5 Grms/ 5 ~ 500Hz / non operation	
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non operation	
Dimension (W X D X H)	16.93" x 12.01" x 1.73" (430mm x 305mm x 44mm)	16.93" x 15.75" x1.73"(430mm x 400 mm x 44mm)
I/O Interfaces		
Front Panel	SFP+ with LED x 2 RJ45 Ethernet Port with LED x 5 USB 3.2 Gen 1 x 2 RJ45 Console x 1 Software Programmable Button x 1 Parallel LCM Display and 4 Keypad x 1 LED for Power/HDD/ Status/ Bypass x 5 NIM Slot x 1 Bypass LED x 2 Power LED x1 HDD LED x1 Status LED x1	RJ45 /SFP Ethernet ports x 2 Power LED x 1 Status LED x 1 HDD Active LED x 1 USB 3.2 GEN1 Ports x 2 HDMI port x 1 RJ-45 Console x 1 LCM display with keypad x 1 Software Programmable Button x 1 NIM Slot x 3 IPMI port x 1
Rear Panel	Power Switch x 1 AC Power Input x 1 Rear Expansion Slot x 1	AC Power Input x 1 Power Switch x1 Rear expansion slot x 1 (PCIe [x8]): Optional
Note		

Note: All specifications are subject to change without notice.

Network Platform Solutions

Rackmount Network Appliances

Launching in Q1

Model	FWS-7851
System	
Form Factor	1U Rackmount Network Appliance
Processor	Intel® Alder Lake-S Processors
Chipset	W680; (Project base Q670, H610)
System Memory	DDR5 SODIMM slots x 2
Network	
Ethernet	2.5Gb RJ45 x 10 (I226-LM) , 1Gb SFP ports x 2 (I210); Optional for 10Gb SFP+ x 2 (PER-T639 by PCIe[x4]) Note: If H610, only 8x 2.5GB RJ45 available
Bypass	2 Pairs LAN Bypass 3.1 (LAN 3-4, LAN 5-6)
NIM Slot	NIM Slot x 1, support PCIe[x4] x 2 interface, optional PCIe[x8] x 1 by BOM SKU
Display	—
Graphic Controller	—
Connector	HDMI port x 1
Storage	
HDDs	2.5" HDD x 2 (default) or 3.5" HDD x 1 (if no NIM module presence)
CF/CFast/mSATA	—
Internal/ Expansion Interface	
PCIe slot	—
Mini-Card slot	M.2 M key 2242/2260 (PCIe[x4]) x 1
IPMI	—
Keyboard and Mouse	—
USB	USB3.2 GEN1 x 2
Miscellaneous	
RTC	Internal RTC
Watchdog Timer	1~255
Software Button	1
TPM	TPM2.0 SPI
GPIO	Internal pin header 8-bit Digital I/O interface (4-in /4-out)
FAN	System Fan x 2
MTBF (Hours)	TBD
Color	Black
Environmental Parameters and Dimension	
Power Requirement	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	0%~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
Dimension (W X D X H)	16.93" x 7.87" x1.73"(430mm x 200mm x 44mm)
I/O Interfaces	
Front Panel	2.5Gb RJ45 port x 10 + 10Gb SFP port x 2 + Optional 10Gb SFP+ port x 2 (via PCIe [x4] Slot) Power LED x 1 Status LED x 1 HDD Active LED x 1 USB 3.2 GEN1 Ports x 2 HDMI port x 1 RJ-45 Console x 1 LCM display with keypad x 1 Software Programmable Button x 1 NIM Slot x 1
Rear Panel	AC Power Input x 1 Power Switch x1
Note	

Note: All specifications are subject to change without notice.

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Rackmount Network Appliances : Network Interface Modules

Rackmount Network Appliances : Network Interface Modules



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	Intel® 82580EB (i350-AM4; Optional by request) Ethernet Controller x 1	
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)		
Note			



Model	NIM-C13B	NIM-C13D	NIM-S26B
Main Specification			
Form Factor	1G LAN Module	1G Copper Module	40G Fiber 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	—	2	—
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)		
Note			

Network Platform Solutions

Rackmount Network Appliances : Network Interface Modules

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Rackmount Network Appliances : Network Interface Modules



Launching in Q1

Model	NIM-S26C	NIM-S26D	NIM-C15A
Main Specification			
Form Factor	10GbE Fiber LAN Module		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(2806)
Bypass	—		2
Host Interface	PCI-Express [x8]		PCI-Express Gen2/3 [x2]
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		LED x 8 for Active/Link
Qualification	CE/FCC Class A		
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)		
Dimension	5.71" x 3.03" (145mm x 77mm)		
Note			

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Network Platform Solutions

Industrial 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	204-pin DDR3L 1866MHz x 1, SODIMM Up to 8GB	260-pin DDR4 3200Mhz 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 pairs	Supports upto 2 Pairs LAN Bypass (Optional)
BIOS	AMI SPI Flash BIOS	
Serial ATA	SATA 6.0 Gb/s port x 1, for 2.5" HDD/SSD	SATA III port x 1 for 2.5"SSD support
CFast/mSATA	CFast™ socket x 1	mSATA (Full size) socket colay SATAIII port x 1
Expansion Interface	Supports Mini-Card slot x 1 with SIM socket	Supports Mini-card slot x 1 with Micro SIM socket
USB	USB 3.2 Gen 1 x 2	
Serial Port	Supports up to RS-232/422/485 COM Port x 2	
Watchdog Timer	1~255 steps by software programmable	
RTC	Internal RTC	
System Fan	Fanless	
Color	Dark Grey	Black
Power Supply	2 Pin Terminal Block	Dual 2-Pin Phoenix terminal block
Dimension	4.96" x 2.93" x 5.74" (126 x 74.5 x 146mm)	5.12" x 4.96" x 2.83" (130mm x 126mm x 72mm)
Power Requirement	+9 ~ 36V, 2-pin terminal block	Redundant 9~48Vdc power input
MTBF (Hours)	101,292	TBD
Display		
Chipset	Intel® HD Graphics 500	Intel® HD Graphics
Interface	VGA port x 1	HDMI port x 1, VGA port x 1
I/O		
Front I/O Panel	RJ-45 GbE x 6 RS-232/422/485 COM Port x 2 VGA port x 1 USB 3.2 Gen 1 x 2 Software programmable button x 1 Power LED x 1 HDD LED x 1 Status LED x 1 Bypass LED x 2	RJ-45 GbE x 4 RS-232/422/485 COM Ports x 2 HDMI portx1 VGA port x 1 USB 3.2 Gen 1 x 2 Micro SIM slot x 1 Software programmable button x 1 Power LED x 1 HDD LED x 1 Status LED x 1
Rear I/O Panel	DIN Rail/ Wallmount Lock	
Top Panel	2-Pin Terminal Block +9~36VDC x 1	2-Pin Terminal Block +9~46VDC x 2
Environmental Parameters and Dimension		
Operating Temperature	-40°F ~ 156°F (-40°C ~ 75°C)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	10% ~ 80% relative humidity, non-condensing	
Storage Humidity	10% ~ 80% @40°C; non-condensing	
Vibration	0.5 Grms/ 5 ~ 500Hz / operation (SSD) 1.5 Grms/ 5 ~ 500Hz / non operation	0.5 g rms/ 5 ~ 500Hz / operation (2.5" SSD) 1.5 g rms/ 5 ~ 500Hz / non operation
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non operation	
Note		

Note: All specifications are subject to change without notice.

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► Rugged Mobile and Panel PC Solutions



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Rugged Mobile and Panel PC Solutions

Rugged Tablet Computers

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® N3350 1.1GHz Dual core up to 2.4GHz Intel® Pentium® N4200 1.1GHz Quad core up to 2.5GHz
Operating System	Android 8.1	Windows® 10 IOT Enterprise SAC
Memory	Onboard LPDDR4 2GB (Default) / 4GB	Onboard LPDDR4 4GB (Default) / 8GB
Storage	eMMC 16GB (Default) / 32GB / 64GB	eMMC 64GB (Default) / 128GB
Display	7" WXGA (1280x800) 300-nit / 700-nit TFT LCD With Projected Capacitive Multi-Touch Screen	7" WXGA (1280x800) 300-nit / 700-nit TFT LCD With Projected Capacitive Multi-Touch Screen
I/O Port	SIM card slot x 1 USB 3.2 Gen 1 Type-C x 1 Audio jack x 1 (3.5mm) DC-in jack x 1 Micro-SD card slot x 1 USB 2.0 Type-A x 1 UART Port x 1 (Via I/O Module) 10/100/1000 Base-T RJ45 x 1 (Via I/O Module)	SIM card slot x 1 USB 3.2 Gen 1 Type-C x 1 Audio jack x 1 (3.5mm) DC-in jack x 1 Micro-SD card slot x 1 USB 2.0 Type-A x 1 RS-232 COM Port x 1 (Via I/O Module) 10/100/1000 Base-T RJ45 x 1 (Via I/O Module)
Communication	Wi-Fi 802.11 b/g/n, Bluetooth v4.2 (EDR + BLE)	Wi-Fi 802.11 b/g/n, Bluetooth v5.1
Navigation	GPS + GLONASS (Default), BeiDou (Optional), External Antenna (Optional)	Up to 3 GNSS, GPS + Galileo (Default), GLONASS, BeiDou (Optional) External Antenna (Optional)
WWAN(optional)	LTE via M.2 slot (Optional) Hot-swappable Battery can not be used when LTE module is installed.	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 (R/W), ISO 15693 (R/W), ISO 18092 (R/W), ISO 14443-A (R/W), ISO 14443-B (Only Read UID), Depend on card type	
Audio	Speaker x 1	
Physical Key	F1 (Audio On/Off), F2 (Screenprint), F3 (Barcode Scanner Trigger), Volume Up, Volume Down	F1 (Ctrl+Alt+Del as Soft Reboot), F2 (Screenprint), F3 (Barcode Scanner Trigger), Volume Up, Volume Down
Mechanical		
Color	Dark Gray	
Dimension (W x H x D)	8.65" x 5.46" x 0.94" (219.8 x 138.8 x 23.9 mm)	
Gross Weight	1.54 lb (0.7 Kg) based on configurations	
Environmental		
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C) for high-brightness version	
Storage Temperature	-22°F ~ 158°F (-30°C ~ 70°C)	
Humidity	MIL-STD-810G Method 507.5	
Environmental Sealing	IP65	
Vibration	MIL-STD-810G Method 514.6	
Drop	MIL-STD-810G Method 516.6 Procedure IV, Height of Drop: 122 cm (48 inch; 4 ft)	
Shock	MIL-STD-810G	—
ESD	Air charge: +/- 8KV, Contact charge: +/- 4KV	
Certifications and Standards	UL62368-1, CE, FCC, IC	CE, FCC
Power Supply		
AC / DC Adapter	AC 100 ~ 240 V, 50 ~ 60 Hz, Output: 12V/ 3.34A/ 40W	
Battery Life	Li-ion Battery 8-hour battery life based on test configurations	
Master Battery	7.2V, 4540mAh, 32.7W	
Slave Battery	Hot-swappable battery: 7.4V, 1530mAh, 11.3W (Optional)	
Display		
LCD	7" TFT-LCD / 16:10, with LED backlight	
Resolution	1280 x 800	
Maximum Color	—	
Dot Size	0.03925(H) X 0.11775(V) mm	
Brightness	700 / 300 nits	
Viewing Angle	Horizontal: 178° (Typ.), Vertical: 178° (Typ.)	
Touch Screen		
Touch Type	7" Projected Capacitive Multi-Touch Screen (700 nits with 10 points / 300 nits with 5 points)	
Light Transmission	Min. 85%	
Note		

Note: All specifications are subject to change without notice.

Rugged Mobile and Panel PC Solutions

Rugged Tablet Computers

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Rugged Tablet Computers



Model	RTC-1010	RTC-1010M
System Architecture		
Processor	Intel® Celeron® N3350 1.1GHz Dual core up to 2.4GHz, Intel® Pentium® N4200 1.1GHz Quad core up to 2.5GHz	
Operating System	Windows® 10 IOT Enterprise SAC	
Memory	Onboard DDR3L 4GB (Default) / 8GB	
Storage	eMMC 64GB (Up to 256GB, Optional)	
Display	10.1" WXGA (1280x800) 800-nit / 300-nit TFT LCD With Projected Capacitive Multi-Touch Screen	10.1" WXGA (1280x800) 300-nit TFT LCD With Projected Capacitive Multi-Touch Screen
I/O Port	Micro-HDMI port x 1 SIM card slot x 1 Micro-SD card slot x 1 Audio jack x 1 (3.5mm) USB 3.2 Gen 1 x 2 (USB Type-C x 1), USB 2.0 x 2 DC-in jack x 1 RS-232/422/485 COM Port x 1 10/100/1000 Base-T RJ45 x 1 Smart card reader x 1 (Optional, Without IP protection)	Micro-HDMI port x 1, SIM card slot x 1, Micro-SD card slot x 1 Audio jack x 1 (3.5mm), USB 3.2 Gen 1 x 2 (USB Type-C x 1), USB 2.0 x 2, DC-in jack x 1 RS-232/422/485 COM Port x 1 (Optional) 10/100/1000 Base-T RJ45 x 1 (Optional) Smart card reader x 1 (Optional, Without IP protection) MSR reader x 1 (Optional, Without IP protection)
Communication	Wi-Fi 802.11 b/g/n, Bluetooth v5.1 (EDR + BLE), Intel AC9260	
Navigation	Up to 3 GNSS, GPS + Galileo (Default), GLONASS, BeiDou (Optional)	
WWAN(optional)	LTE via mini-card slot (Optional)	
Camera	2MP front camera, 8MP rear camera with flash	
Sensor	G-sensor, E-compass, Gyro-sensor, Light-sensor	
Expansion Slot	Inside M.2 slot x 1 (For WiFi module), Mini-card slot x 1 (For LTE module), Docking connector: USB 2.0 x 1	
Barcode Scanner (Optional)	2D Barcode scanner, OPTICON MDI-4100-USB (Optional)	
HF RFID (Optional)	ISO 15693 (R/W), ISO 18092 (R/W), ISO 14443-A (R/W), ISO 14443-B (Only Read UID), Depend on card type	
Audio	Speaker x 1	
Physical Key	F0 or Windows (Windows Start Key), F1 (BCR Trigger Button (When BCR is enabled)), F2 (Screenprint), F3 (Ctrl+Alt+Del as Soft Reboot), Volume Up (Speaker Volume Up), Volume Down (Speaker Volume Down)	
Mechanical		
Color	Black & Dark Grey	
Dimension (W x H x D)	10.71" x 7.48" x 0.80" (272.0 x 190.0 x 20.4 mm)	
Gross Weight	1.0 Kg (2.2 lb) based on configurations	2.1 lb (0.95 Kg) based on configurations
Environmental		
Operating Temperature	-4°F ~ 122°F (-20°C ~ 50°C)	
Storage Temperature	-67°F ~ 158°F (-55°C ~ 70°C)	
Humidity	0% ~ 90% relative humidity, non-condensing	
Environmental Sealing	IP65	IP54
Vibration	MIL-STD-810G-514.6 Procedure I Cat.24, Fig 514.6E-1 & 514.6E-2 (Unit is non-operating) ASTM 4169-99 Truck Assurance Level II, Schedule E (Unit is non-operating)	—
Drop	MIL-STD-810G-516.6, Procedure IV Drop height: 122 cm Number of Drop: 26 times, for all surfaces, edges and corners Condition: Based on 2" plywood over concrete	Drop height: 76 cm Condition: Based on 2" plywood over concrete
Shock	—	
ESD	Air charge: +/- 8KV, Contact charge: +/- 4KV	
Certifications and Standards	UL60950-1, CE, FCC	
Power Supply		
AC / DC Adapter	AC 100 ~ 240 V, 50 ~ 60 Hz, Output: 12V/ 3A/ 36W	
Battery Life	Li-ion Battery 8-hour battery life based on test configurations	
Master Battery	Hot-swappable battery: 14.4V, 2270mAh, 32.7W	
Slave Battery	7.4V, 1530mAh, 11.3W	
Display		
LCD	10.1" TFT-LCD Display	
Resolution	1280 x 800	
Maximum Color	16.7M	
Dot Size	0.1692 (H) x 0.1692 (V) mm	
Brightness	300 nits (800 nits, Optional)	
Viewing Angle	Horizontal: 170°, Vertical: 170° (Typical)	
Touch Screen		
Touch Type	Projected Capacitive Multi-Touch Screen (PCT)	
Light Transmission	Min. 85%	
Note		

Note: All specifications are subject to change without notice.

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Rugged Mobile and Panel PC Solutions

Rugged Tablet Computers

Rugged Tablet Computers



Model	RTC-1020	RTC-1200
System Architecture		
Processor	Intel® Core™ i Tiger Lake UP3 processor i5-1145G7E / i3-1115G4E / Celeron 6305E	Intel® Core™ i 7100U / 7300U Dual Core up to 3.9GHz Intel® Celeron® 3965U Dual Core 2.2GHz Processor
Operating System	Windows® 10 IoT Enterprise SAC (Default), Ubuntu	Windows® 10 IoT Enterprise 64bit (Default)
Memory	Onboard LPDDR4X, 8GB (Default) / 16GB	DDR4 SO-DIMM Socket x 1, up to 16GB
Storage	M.2 SSD, 64GB (Default) / 128GB / 256GB	M.2 (NGFF) SSD, 64GB (Default) / 128GB / 256GB
Display	10.1" FHD (1920x1200) 450-nit / 850-nit TFT-LCD With Projected Capacitive Multi-Touch Screen	11.6" FHD (1920x1080) 500-nit / 850-nit TFT-LCD With Projected Capacitive Multi-Touch Screen
I/O Port	Micro-HDMI port x 1, SIM card slot x 1, Micro-SD card slot x 1, Audio jack x 1 (3.5mm), USB 3.2 Gen 1 x 2 (USB Type-C x 1), USB 2.0 x 2, DC-in Jack x 1, RS-232/422/485 COM Port x 1, 10/100/1000 Base-T RJ45 x 1	HDMI port x 1, SIM card slot x 1, Micro-SD card slot x 1 Audio jack x 1 (3.5mm), USB 3.2 Gen 1 x 2 (USB Type-C x 1), USB 2.0 x 2, DC-in Jack x 1, RS-232/422/485 COM Port x 1 10/100/1000 Base-T RJ45 x 1
Communication	Wi-Fi 802.11 b/g/n, Bluetooth v5.1 (EDR + BLE), Intel AC9260	Wi-Fi 802.11 b/g/n, Bluetooth v5.1
Navigation	Up to 3 GNSS, GPS + Galileo (Default), GLONASS, BeiDou (Optional)	GPS, GLONASS ==> Located in I/O board, PER-T407 143NEOM8Q0: u-blox NEO-M8Q-0
WWAN(optional)	LTE via M.2 slot (Optional)	LTE via mini-card slot (Optional)
Camera	5MP front camera, 8MP rear camera with flash	2MP front camera, 5MP auto-focus rear camera with flash
Sensor	G-sensor, E-compass, Gyro-sensor, Light-sensor	
Expansion Slot	M.2 slot x 3 (One for SSD, One for WiFi module, One for LTE module) Docking connector x 1: USB 3.2 Gen 1 x 1	Mini-card slot x 1 (For LTE module), Docking connector x 1, GNSS antenna Pass-through connector x 1 WWAN antenna Pass-through connector x 1
Barcode Scanner (Optional)	2D Barcode scanner, OPTICON MDI-4100-USB (Optional)	
HF RFID (Optional)	ISO 15693 (R/W), ISO 18092 (R/W), ISO 14443-A (R/W), ISO 14443-B (Only Read UID), Depend on card type	
Audio	Speaker x 1	
Physical Key	F0 or Windows (Windows Start Key), F1 (BCR Trigger Button (When BCR is enabled)), F2 (Screenprint), F3 (Ctrl+Alt+Del as Soft Reboot), Volume Up (Speaker Volume Up), Volume Down (Speaker Volume Down)	F0 or Windows (Windows Start Key), F1 (Ctrl+Atl+Del & BCR Trigger 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" (272.0 x 190.0 x 24.0 mm)	12.36" x 7.87" x 0.96" (310.4 mm x 200.0 mm x 24.5 mm)
Gross Weight	1.5 Kg (3.3 lbs) based on configurations	3.3 lbs (1.5 Kg)
Environmental		
Operating Temperature	-4°F ~ 122°F (-20°C ~ 50°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Storage Temperature	-22°F ~ 158°F (-30°C ~ 70°C)	
Humidity	0% ~ 90% relative humidity, non-condensing	5% ~ 90% relative humidity, non-condensing
Environmental Sealing	IP65	
Vibration	MIL-STD-810G-514.6 Procedure I Cat.24, Fig 514.6E-1 & 514.6E-2 (Unit is non-operating)	MIL-STD-810G-514.6 Procedure I Cat.24, Fig 514.6E-1 & 514.6E-2
Drop	MIL-STD-810G-516.6 Procedure IV Drop height: 122cm Number of Drop: 26 times, for all surfaces, edges and corners Condition: Based on 2" plywood over concrete	MIL-STD-810G Method 516.6 Procedure IV -Height of Drop: 122cm (48 inch; 4ft) -Number of Drop: 26 times, for all surfaces, edges and corners Condition: Based on 2" plywood over concrete
Shock	—	
ESD	Air charge: +/- 8KV, Contact charge: +/- 4KV	
Certifications and Standards	UL62368, CE, FCC, IC	UL60950-1, CE/LVD: EN60950-1, CE, FCC
Power Supply	AC 100 ~ 240 V, 50 ~ 60 Hz, Output: 19V/ 3.42A/ 65W	
Battery Life	Li-ion Battery 6-hour battery life based on test configurations	
Master Battery	Hot-swappable battery: 14.4V, 2270mAh, 32.7W 14.8V, 3450mAh, 51.1W (Optional)	Hot-swappable battery: 14.4V, 2270mAh, 32.7W
Slave Battery	Hot-swappable battery: 14.4V, 2270mAh, 32.7W 14.8V, 3450mAh, 51.1W (Optional)	Hot-swappable battery: 14.4V, 2270mAh, 32.7W
Display		
LCD	10.1" TFT-LCD Display	11.6" TFT-LCD Display
Resolution	1920 x 1200	1920 x 1080
Maximum Color	16.7M	
Dot Size	0.117 (H) x 0.117 (V) mm	
Brightness	450 nits (850 nits, Optional)	500 nits (850 nits, Optional)
Viewing Angle	Horizontal: 160°, Vertical: 160° (Typical)	Horizontal: 178°, Vertical: 178° (Typical)
Touch Screen		
Touch Type	Projected Capacitive Multi-Touch Screen (PCT)	Projected Capacitive Multi-Touch Screen (PCT) Gloves / Finger mode Switchable by F2
Light Transmission	Min. 85%	Min. 87% (ASTM D1003; Wavelength = 550 nm)
Note		

Note: All specifications are subject to change without notice.

Rugged Mobile and Panel PC Solutions

Rugged Tablet Computers

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Rugged Tablet Computers



Model	RTC-1010RK
System Architecture	
Processor	Rockchip RK3399 Processor (Quad-Core A53 1.6GHz & Dual-Core A72 2.0GHz)
Operating System	Android 10.0 (Will start from Android 8.1 for samples)
Memory	Onboard LPDDR4 2GB (Default) / 4GB
Storage	eMMC 16GB (Default) / 32GB
Display	10.1" WXGA (1280x800) 800-nit / 300-nit TFT LCD With Projected Capacitive Multi-Touch Screen
I/O Port	Micro-HDMI port x 1 SIM card slot x 1 Micro-SD card slot x 1 Audio jack x 1 (3.5mm) USB 3.2 Gen 1 x 2 (USB Type-C x 1), USB 2.0 x 2 DC-in jack x 1 RS-232/422/485 COM Port x 1 10/100/1000 Base-T RJ45 x 1
Communication	Wi-Fi 802.11 b/g/n, Bluetooth v5.0 (EDR + BLE)
Navigation	Up to 3 GNSS, GPS + Galileo (Default), GLONASS, BeiDou (Optional)
WWAN(optional)	LTE via M.2 slot (Optional)
Camera	8MP front camera, MIPI I/F 8MP rear camera with flash, MIPI I/F
Sensor	G-sensor, Gyro-sensor, Light-sensor
Expansion Slot	Inside M.2 slot x 1, M Key (For storage or others) M.2 slot, B Key 3042 (For LTE module) Docking connector: USB 2.0 x 1
Barcode Scanner (Optional)	2D Barcode scanner, OPTICON MDI-4100-USB (Optional)
HF RFID (Optional)	ISO 15693 (R/W), ISO 18092 (R/W), ISO 14443-A (R/W) ISO 14443-B (Only Read UID), Depend on card type
Audio	Speaker x 1
Physical Key	F0 or Windows (TBD), F1 (BCR Trigger Button (When BCR is enabled)), F2 (Screenprint), F3 (Audio On/Off), Volume Up (Speaker Volume Up), Volume Down (Speaker Volume Down)
Mechanical	
Color	Black & Dark Grey
Dimension (W x H x D)	272.0 x 190.0 x 20.4 mm (10.71" x 7.48" x 0.80")
Gross Weight	2.2 lb (1.0 Kg) based on configurations
Environmental	
Operating Temperature	-20°C ~ 50°C (-4°F ~ 122°F)
Storage Temperature	-30°C ~ 70°C (-22°F ~ 158°F)
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)
Drop	MIL-STD-810G-516.6, Procedure IV Drop height: 122 cm Number of Drop: 26 times, for all surfaces, edges and corners Condition: Based on 2" plywood over concrete
Shock	TBC
ESD	Air charge: +/- 8KV, Contact charge: +/- 4KV
Certifications and Standards	UL62368-1, CE, FCC, IC
Power Supply	
AC / DC Adapter	AC 100 ~ 240 V, 50 ~ 60 Hz, Output: 12V/ 3A/ 36W
Battery Life	Li-ion Battery 8-hour battery life based on test configurations
Master Battery	Hot-swappable battery: 14.4V, 2270mAh, 32.7W
Slave Battery	7.4V, 1530mAh, 11.3W
Display	
LCD	10.1" TFT-LCD Display
Resolution	1280 x 800
Maximum Color	16.7M
Dot Size	0.1692 (H) x 0.1692 (V) mm
Brightness	300 nits (800 nits, Optional)
Viewing Angle	Horizontal: 170°, Vertical: 170° (Typical)
Touch Screen	
Touch Type	Projected Capacitive Multi-Touch Screen (PCT)
Light Transmission	Min. 85%
Note	

Note: All specifications are subject to change without notice.

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Rugged Mobile and Panel PC Solutions

Rugged Tablet Computers : Accessories

Rugged Tablet Computers : Accessories



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

Note: All specifications are subject to change without notice.

Rugged Mobile and Panel PC Solutions

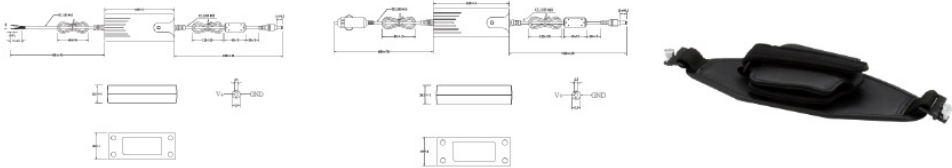
Rugged Tablet Computers : Accessories

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Rugged Tablet Computers : Accessories



Model	RTC-1010-HS-000	RTC-1010-SB-000	RTC-1010-VMP-000
Mechanical			
Color	Black	Black	Black
Dimensions (W x H x D)	232 x 92 x 30 mm	1050 x 65 x 5 mm	275.6 x 191.7 x 25 mm
Note	Hand Strap for RTC-1010/ RTC-1010M	Shoulder Belt for RTC-1010/ RTC-1010M	VESA Mount Plate for RTC-1010M



Model	1255900363	1255900364	RTC-1200HSP01-000
Mechanical			
Color	Black	Black	Black
Dimensions (W x H x D)	Adapter case: 40 x 105 x 26.5 mm Plug side length: 1200 ± 30 mm Flying Wires side length: 600 ± 30 mm Total length: 1905 ± 60 mm	Adapter case: 40 x 105 x 26.5 mm Plug side length: 1200 ± 30 mm Cigarette Plug side length: 600 ± 50 mm Total length: 1905 ± 50 mm	260 x 92 x 30 mm
Note	DC-To-DC Power Adapter, Flying Wires for RTC-1010/ RTC-1010M	DC-To-DC Power Adapter, Cigarette Plug for RTC-1010/ RTC-1010M	Hand Strap for RTC-1200

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Rugged Mobile and Panel PC Solutions
Rugged Tablet Computers : Accessories

Rugged Tablet Computers : Accessories



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



Model	RTC-1200BKT01-000	RTC-1010-SBG-000
Mechanical		
Color	Black	Black
Dimensions (W x H x D)	180 x 203.3 x 45.4 mm	Bag: 330 x 245 x 50 mm Shoulder strap: Length: 710 mm (Min) ~ 1310 mm (Max)
Note	VESA Mount Bracket for RTC-1200	Shoulder Bag for RTC-1010 / RTC-1020 / RTC-1200

Rugged Mobile and Panel PC Solutions

Rugged Tablet Computers : Accessories

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Rugged Tablet Computers : Accessories



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

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Rugged Mobile and Panel PC Solutions
RISC Boards

RISC Boards



Model	RICO-3288	RICO-3288MINI	RICO-3399
System Form Factor	Pico-ITX (100mm x 72mm)		
CPU	Rockchip RK3288 ARM Cortex™-A17 Quad-core 1.6 GHz	Rockchip 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, AVS, VC-1, VP8, MVC Video Encode: H.264 (BP@level4.0, MP@level4.0, HP@level4.0), MVC and VP8	Video Decode: MPEG-1, MPEG-2, MPEG-4, H.263, H.264, H.265, VC-1, VP8, VP9, MVC Video Encode: H.264 UP to HP@level4.1, MVC and VP8
Memory Capacity	Onboard DDR3L 2GB/4GB (Optional)	Onboard DDR3L 2GB	Onboard LPDDR3 2GB/4GB (Optional)
Storage/SSD	16GB eMMC and Micro-SD card	16GB eMMC	16GB eMMC and Micro-SD card
Operating System	Android 9.0 / Debian		Android 8.1 / Debian
Kernel	Kernal 4.4		
Watchdog Timer	Integrated		
Power Requirement	+12V DC input, Optional 7.4V battery	+12V DC input	
Power Consumption (Typical)	0.6A@12V, full load, Quad-core CPU		0.6A@12V, full load, Hexa-core CPU
Dimension	3.94" x 2.84" (100mm x 72mm)		
Gross Weight	0.44 lb (0.2 Kg)	0.22 lb (0.1 Kg)	0.44 lb (0.2 Kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)(-20°C~60°C: Optional)	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
MTBF (Hours)	80,000		
Certification	CE/FCC		
Display			
HDMI	HDMI (1.4) up to 4K x 2K @60Hz		HDMI (2.0) up to 4K x 2K @60Hz
eDP	Up to 2560 x 1440 @60Hz	—	Up to 4K x 2K @60Hz
LVDS	Support 18/24-bit up to 1920 x 1080 @60Hz	—	
MIPI	Up to 2560 x 1440 @60Hz	—	
RF Function			
WiFi	802.11 a/b/g/n/ac	—	802.11 a/b/g/n/ac
BT	Bluetooth V4.2 + EDR	—	Bluetooth V4.2 + EDR
I/O Ethernet	GbE x 1		
USB Port	Micro-USB OTG x 1 USB 2.0 Type A x 2 USB2.0 Pin header x 1 (Integrated)	Micro-USB OTG x 1 USB 2.0 Type A x 2	USB 3.2 Gen 1 Type C OTG x 1 USB 3.2 Gen 1 (Bottom)/USB 2.0 (Top) dual port x 1 USB 2.0 Pin Header x 1 (Integrated)
Serial Port	RS-232/422/485 x 1 RS-232 Pin header x 1 Debug port pin header x 1	—	RS-232/422/485 x 1 RS-232 Pin header x 1 Debug port pin header x 1
Audio	2.5W (by 4Ω) Speaker/ Microphone/ Earphone	—	2.5W (by 4Ω) Speaker/ Microphone/ Earphone
GPIO	8-bit (4-in, 4-out)		
Expansion Slot	Full-size mini-PCIe slot x 1 (For 3G/4G card)	—	Full-size mini-PCIe slot x 1 (For 3G/4G card)
SIM Slot	Nano-SIM	—	Nano-SIM
SD Socket	Support Micro-SD card	—	Support Micro-SD card
Camera	—		
Note			

Note: All specifications are subject to change without notice.

Rugged Mobile and Panel PC Solutions

RISC Boards

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RISC Boards



Model	RICO-3568	RICO-MX8P
System		
Form Factor	Pico-ITX Plus (100mm x 80mm)	
CPU	Rockchip RK3568 ARM Cortex™-A55 Quad-core NPU: 0.8 TOPS	NXP i.MX 8M Plus Quad Cortex™-A53 1.8GHz Cortex™-M7 800MHz processor for low-power processing NPU: 2.3 TOPS (Optional)
GPU	Mali-G52	GC7000UltraLite: 3D GPU (2 shaders) OpenGL ES 3.1, Vulkan, OpenCL 1.2 GC520L: 2D 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): • 1080p60 H.265, VP9 decoder • 1080p60 H.264, VP8 decoder • 1080p60 H.265, H.264 encoder
Memory Capacity	Onboard LPDDR4 2GB/4GB (Optional)	Onboard LPDDR4 2GB RAM/4GB (Optional)
Storage/SSD	16GB eMMC and Micro-SD card Full-size mini-PCIe slot x 1 (PCIe 3.0 x 1 or mSATA)	16GB eMMC and Micro-SD card
Operating System	Android 12 Debian	Debian 10 (Default) Yocto (TBD)
Kernel	TBD	TBD
Watchdog Timer	Integrated	
Power Requirement	+12V DC input SW1: Power ON/OFF SW2: Reset	+12V DC input
Power Consumption (Typical)	TBD	TBD
Dimension	3.94" x 3.15" (100mm x 80mm)	
Gross Weight	0.44 lb (0.2 Kg)	
Operating Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	TBD	TBD
Certification	CE/FCC	
Display		
HDMI	HDMI (2.0) up to 4K x 2K @ 60Hz	HDMI Port Type A (2.0)
eDP	eDP (1.3) up to 2560 x 1600 @ 60Hz	N/A
LVDS	Support 18/24-bit up to 1280 x 800 @ 60Hz JP2, 3.3V/5V: LVDS Power Selection JP3, 5V/12V: Backlight Power Selection	4-lane or 8-lane LVDS interface
MIPI	Up to 2048 x 1536 @ 60Hz for Dual-MIPI mode	4-lane MIPI DSI interface
RF Function		
WiFi	802.11 a/b/g/n/ac, on board	Support via M.2 WiFi/BT module (Optional) (E Key) (1-lane PCIe 3.0 I/F)
BT	Bluetooth V5.0 + EDR	Support via M.2 WiFi/BT module (Optional) (E Key) (1-lane PCIe 3.0 I/F)
I/O		
Ethernet	GbE x 2 One RJ45 located in RICO-3568 One RJ45 located in Daughter Board	GbE x 2 One RJ45 located in RICO-MX8P One RJ45 located in Daughter Board
USB Port	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 USB, I2C x 1, 5V)	USB 3.2 Gen 1 Type C OTG x 1 USB 2.0 Type A x 2
Serial Port	RS-232/422/485 x 1 RS-232 Pin header x 1 Debug port pin header x 1 JPxx: UART (Tx/Rx only), I2C, GPIO, Others	RS-232/422/485 x 1 RS-232 Pin header x 1 Debug port x 1 UART (Tx/Rx only) x 2
Audio	Microphone/ Earphone	Audio Line Out Jack x 1
GPIO	8-bit (4-in, 4-out) Pin header x 1	
Expansion Slot	Full-size mini-PCIe slot x 1 (PCIe 3.0 x 1 or mSATA) Connect to Daughter board: FPC connector x 2	Full-size mini-PCIe slot x 1 (For LTE module) (USB I/F) Connect to Daughter board: FFC connector x 2
SIM Slot	Nano-SIM	
SD Socket	Support Micro-SD card	Push-Push Micro-SD card slot x 1
Camera	—	4-lane MIPI CSI interface
Note		

Note: All specifications are subject to change without notice.

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Rugged Mobile and Panel PC Solutions
RISC Boxes

RISC Boxes



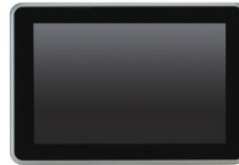
Model	BOXER-RK88	BOXER-RK99
System		
CPU	Rockchip RK3288 ARM Cortex™-A17 Quad-core 1.6GHz	Rockchip RK3399 ARM Cortex™-A72 Dual-core 1.8GHz and Cortex™-A53 Quad-core 1.4GHz
GPU	Mali-T764	Mali-T864
Chipset		—
Graphics	Video Decode: MPEG-1, MPEG-2, MPEG-4, H.263, H.264, AVS, VC-1, VP8, MVC Video Encode: 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	Android 8.1
Power Supply		
Power Requirement	+12V DC input	
Mechanical		
Mounting	VESA mount, 75mm x 75mm	
Dimension (W x D x H)	4.07" x 3.78" x 1.97" (103.4 mm x 96 mm x 50 mm)	
Gross Weight	1.1 lb (0.5 Kg)	
Net Weight	0.66 lb (0.3 Kg)	
Environmental		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	
Storage Humidity	0% ~ 90% relative humidity, non-condensing	
Anti-Vibration	—	
Certification	CE/FCC/IC	
Note		

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



Launching in Q1

Model	ACP-1108	ACP-1106	ACP-1105
System			
Processor	RockChipRK3568 ARM Cortex™-A55 Quad-core	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® N4200/ Celeron® N3350/ Atom™ Processor SoC
System Memory	LPDDR4 2GB/4GB (Optional)	204-pin DDR3L SODIMM x 1, Build-in 4GB, Max. 8GB	LPDDR4 2GB/4GB (Optional)
LCD/CRT controller	—	Integrated in processor	—
Ethernet	10/100/1000 Base TX x2	10/100/1000 Base-TX, RJ-45 x 2	10/100/1000 Base TX x1
I/O Port	LAN x2 COM x2 USB 3.2 Gen 1 Type C OTG x 1 (For System Recovery) USB 3.2 Gen 1 x2 USB 2.0 x2 HDMI x 1 Audio x1	DB9 Type RS-232 x 1 USB 3.2 Gen 1 x 2 HDMI x 1 RJ-45 10/100/1000 LAN x 2 2 Pin terminal block for power input Power Button x 1 Type A USB 2.0 x 1 Expansion I/O Slot	LAN x1 COM x1 USB 3.2 Gen 1 x2 USB 2.0 x1 HDMI x 1
Storage Disk Drive	16GB eMMC and Micro-SD card	Full Size mSATA x 1	Onboard 32GB eMMC(16 GB/64GB Optional)
Expansion Slot	Full-size mini-PCIe slot x 1 (PCIe 3.0 x 1 or mSATA)	Half size mini card x 1(Internal)	M.2 B Key (2280) x 1, M.2 E Key (2230) x 1
OS support	Android 12 / Debian	Windows® 10, Linux Kernal 4.4.0 or higher	Windows 10(64 Bit)
Mechanical			
Construction	Aluminum Front Bezel + Metal Chassis	Aluminum Front Bezel + Metal Chassis	SECC
Mounting	VESA / Panel Mount	VESA 75, Panel Mount	—
Dimension	TBD	10.47" x 7.24 x 1.89" (266 x 184 x 48mm)	TBD
Carton Dimension	TBD	13.38" x 7.64 x 9.96" (340 x 194 x 253mm)	TBD
Gross Weight	TBD	6.38 lb (2.9 kg)	TBD
Environmental			
Operating Temperature	23°F ~131°F (-5°C ~ 50°C) with 0.5 m/s airflow	23°F ~ 122°F (-5°C ~ 50°C) with 0.5 m/s airflow	32°F~104°F (0°C ~ 40°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)	32°F~113°F(0°C~45°C)
Storage Humidity		90% @40°C; non-condensing	
Vibration	1Grms / 5~ 500Hz / operation	1 Grms/ 5~ 500Hz/ operation – with HDD	—
Shock	15 G peak acceleration (11 msec. duration)	—	—
EMC	CE/FCC Class A Compatible	CE/FCC Class A	—
Power Supply			
DC Input	DC 9~36V	DC 9~30V	DC 12V
LCD			
Display Type	10.1" WXGA (1280 x 800) Color TFT LCD Display	10.1" TFT-LCD, LED	10.1" WXGA (1280 x 800) Color TFT LCD Display
Max Resolution	1280 x 800	1280 x 800	1280 x 800
Max. Colors	262K colors (6 bit for R,G,B)	262K colors (6 bit for R,G,B)	262K colors (6 bit for R,G,B)
Luminance	300 nits	300 cd/m2	300 nits
Viewing Angle		170° (H) ; 170° (V)	
Back Light		LED	
Back Light MTBF (Hours)	25,000 Hrs	—	25,000 Hrs
Touchscreen			
Type	Projected Capacitive Multi-Touch	P-CAP Touchscreen	Projected Capacitive Multi-Touch
Light Transmission	90%		
Note			

Note: All specifications are subject to change without notice.

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Rugged Mobile and Panel PC Solutions

All in One Panel PC Solutions : ACP Series

All in One Panel PC Solutions : ACP Series



Launching in Q1



Model	ACP-1104	ACP-1078	ACP-1076
System			
Processor	Intel® Celeron® J1900 processor, 2 GHz Intel® N2807 processor, 1.58 GHz	RockChipRK3568 ARM Cortex™-A55 Quad-core	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
System Memory	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)	LPDDR4 2GB/4GB (Optional)	204-pin DDR3L SODIMM x 1, Build-in 4GB, Max. 8GB
LCD/CRT controller	—		
Ethernet	10/100/1000 Base-TX, RJ-45 x 2	10/100/1000 Base TX x2	10/100/1000 Base-TX, RJ-45 x 2
I/O Port	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	LAN x2 COM x2 USB 3.2 Gen 1 Type C OTG x 1 (For System Recovery) USB 3.2 Gen 1 x2 USB 2.0 x2 HDMI x 1 Audio x1	DB9 Type RS-232 x 1 USB 3.2 Gen 1 x 2 HDMI x 1 RJ-45 10/100/1000 LAN x 2 2 Pin terminal block for power input Power Button x 1 Type A USB 2.0 x 1 Expansion I/O Slot
Storage Disk Drive	Half size mSATA x 1 (Installation by AAEON recommended)	16GB eMMC and Micro-SD card	Full Size mSATA x 1
Expansion Slot	Full size Mini-Card x 1	Full-size mini-PCIe slot x 1 (PCIe 3.0 x 1 or mSATA)	Half size mini card x 1 (Internal)
OS support	Windows® 7, Windows® 8.1, Windows® 10, Linux kernel 2.6.3 or higher, Android 4.4.4	Android 12 / Debian	Windows® 10, Linux Kernel 4.4.0 or higher
Mechanical			
Construction	Aluminum Design	Aluminum Front Bezel + Metal Chassis	Aluminum Front Bezel + Metal Chassis
Mounting	VESA 75/ Panel mount/ Stand	VESA / Panel Mount	VESA 75, Panel Mount
Dimension	10.47" x 7.22" x 1.81" (266 x 183.5 x 30mm)	TBD	7.72" x 5.28" x 1.89" (196 x 134 x 48 mm)
Carton Dimension	13.58" x 7.87" x 9.65" (345 x 200 x 245mm)	TBD	10.87" x 9.41" x 6.69" (276 x 239 x 170 mm)
Gross Weight	5.5 lb (2.5 kg)	TBD	4.62 lb (2.1 Kg)
Environmental			
Operating Temperature	32°F ~ 113°F (0°C ~ 45°C) without airflow 32°F ~ 122°F (0°C ~ 50°C) with airflow	-5°C ~ 50°C with 0.5 m/s airflow	23°F ~ 122°F (-5°C ~ 50°C) with 0.5 m/s airflow
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-20°C~60°C	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	5%~90% @40°C, non-condensing	90% @40°C; non-condensing	90% @40°C; non-condensing
Vibration	1 Grms/ 5~ 500Hz/ operation	1Grms / 5~ 500Hz / operation	1 Grms/ 5~ 500Hz/ operation – with HDD
Shock	15 G peak acceleration (11 msec. duration)	15 G peak acceleration (11 msec. duration)	15 G peak acceleration (11 msec. duration) – with HDD
EMC	CE/FCC class A	CE/FCC Class A Compatible	CE/FCC Class A
Power Supply			
DC Input	DC 12V with lockable power adapter	DC 9~36V	DC 9~30V
LCD			
Display Type	10.1" TFT-LCD, LED	7" WSVGA (1024 x 600) Color TFT LCD Display	7" TFT-LCD, LED
Max Resolution	1280 x 800	1024 x 600	1024 x 600
Max. Colors	262k	16.7M	16.7M
Luminance	300 cd/m2	320 nits	320 cd/m2
Viewing Angle	170° (H), 170° (V)	145° (H) ; 150° (V)	150° (H), 145° (V)
Back Light	LED		
Back Light MTBF (Hours)	—	20,000	20,000
Touchscreen			
Type	Projected Capacitive Multi-Touch		P-CAP Touchscreen
Light Transmission	—	90%	90%
Note			

Note: All specifications are subject to change without notice.

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

Launching in Q1



Model	ACP-1075	ACP-1074
System		
Processor	Intel® Pentium® N4200/ Celeron® N3350/ Atom™ Processor SoC	Intel® N2807 processor, 1.58 GHz Intel® Celeron® J1900 processor, 2 GHz
System Memory	LPDDR4 2GB/4GB (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
Ethernet	10/100/1000 Base TX x1	10/100/1000 Base-TX, RJ-45 x 2
I/O Port	LAN x1 COM x1 USB 3.2 Gen 1 x2 USB 2.0 x1 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 RJ-45 10/100/1000 LAN x 2 DI/O (4DI, 2DO) BIOS Selection Lockable power input connector Power switch x 1
Storage Disk Drive	Onboard 32GB eMMC(16 GB/64GB Optional)	Half size mSATA storage x 1 (Installation by AAEON recommended)
Expansion Slot	M.2 B Key (2280) x 1, M.2 E Key (2230) x 1	Full size Mini-Card x 1
OS support	Windows 10(64 Bit)	Windows® 7, Windows® 8.1, Windows® 10, Linux kernel 2.6.3 or higher
Mechanical		
Construction	SECC	Aluminum Design
Mounting	—	VESA 75/ Panel mount/ Stand
Dimension	TBD	7.71" x 5.27" x 1.18" (196mm x 134mm x 30mm)
Carton Dimension	TBD	13.58" x 7.87" x 9.64" (345mm x 200mm x 245mm)
Gross Weight	TBD	5.5 lb (2.5 kg)
Environmental		
Operating Temperature	32°F~104°F (0°C ~ 40°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	32°F~113°F(0°C~45°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
Shock	—	15G peak acceleration (11 msec. duration) – with HDD
EMC	—	CE/FCC class A
Power Supply		
DC Input	DC 12V	DC12V, with lockable power adapter
LCD		
Display Type	7" WSVGA (1024 x 600) Color TFT LCD Display	7" TFT-LCD, LED
Max Resolution		1024 x 600
Max. Colors		16.7M
Luminance	320 nits	320 cd/m²
Viewing Angle	145° (H) ; 150° (V)	150° (H), 145° (V)
Back Light		LED
Back Light MTBF (Hours)		20,000
Touchscreen		
Type	Projected Capacitive Multi-Touch	Projected capacitive multi-touch (2-point)
Light Transmission		90%
Note		

Note: All specifications are subject to change without notice.

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Rugged Mobile and Panel PC Solutions

All in One Panel PC Solutions : OMNI Series

All in One Panel PC Solutions : OMNI Series



Model	OMNI-2155-CML
System	
Processor	Intel® Core™ i9-10900TE Intel® Core™ i7-10700TE Intel® Core™ i5-10500TE Intel® Core™ i3-10100TE Intel® Celeron® G5900TE
System Memory	DDR4 SO-DIMM x 2, up to 64GB
LCD/CRT controller	—
Ethernet	Intel® i211 x 1, i219 x 1
I/O Port	USB 3.2 Gen 2 x 4 RJ-45 x 2 for GbE LAN (i211-AT x 1, i219-LM x 1) HDMI x 1 Line out x 1 DB-9 x 2 for RS-232/422/485 3 pin 10~35V Power Input x 1 Power Button with LED x 1
Storage Disk Drive	M.2 2280 slot x 1 (PCIex4), 2.5" SATA SSD/HDD bay x 1
Expansion Slot	M.2 2230 E Key x 1, M.2 2280 B Key x 1 Full-Size Mini Card x 1 (mSATA/PCIe switch by BIOS, default PCIe), SIM x 1
OS support	Windows® 10 IoT Enterprise 64-bit, Linux Ubuntu 20.04
Mechanical	
Construction	Aluminum Design (IP65 Front Frame)
Mounting	VESA 100 / Panel Mount
Dimension	420.14mm x 264.47mm x 73.2 mm
Carton Dimension	530mm x 445mm x 200mm
Gross Weight	6.75 kg
Environmental	
Operating Temperature	32°F ~ 113°F (0°C ~ 45°C) (35W CPU), according to IEC68-2-14 with 0.5 m/s AirFlow
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	90% @40°C; non-condensing
Vibration	1 Grms/ 5~500Hz/random operation
Shock	15 G peak acceleration (11 msec. duration)
EMC	CE/FCC class A
Power Supply	
DC Input	10-35V DC-in with 3-pin terminal block
LCD	
Display Type	15.6" TFT-LCD, LED
Max Resolution	1366 (H) x 768 (V)
Max. Colors	16.7M (8 bit/color)
Luminance	400 cd/m ²
Viewing Angle	170° (H), 130° (V)
Back Light	LED
Back Light MTBF (Hours)	50,000
Touchscreen	
Type	Flat 5-wire Resistive / P-CAP Multi Touch
Light Transmission	80% ± 3% / 88% ± 2%
Note	

Note: All specifications are subject to change without notice.

Rugged Mobile and Panel PC Solutions

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	14°F ~ 131°F (-10°C ~ 55°C) with 0.5 m/s airflow		
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)		
Storage Humidity	90% @40°C; non-condensing		
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD		
Shock	15G peak acceleration (11 msec. duration) – with HDD		
EMC	CE/FCC Class A		
Power Supply			
DC input	—		
LCD			
Display Type	15.6" TFT-LCD, LED	21.5" TFT-LCD, LED	10.4" TFT-LCD, LED
Max Resolution	1366 x 768	1920 x 1080	800 x 600
Max. Colors	16.2M colors	16.7M colors	16.2M colors
Luminance	400 cd/m2	250 cd/m2	230 cd/m2
Viewing Angle	160° (H), 140° (V)	178° (H), 178° (V)	120° (H), 100° (V)
Back Light	LED		
Back Light MTBF (hours)	50,000		
Touch Screen			
Type	P-CAP/ Full-flap resistive		
Light Transmission	90%		
Others	1. Connect with OMNI-Box Kit 2. Connect with LVDS/USB Type Touch		
Note			

Note: All specifications are subject to change without notice.

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Rugged Mobile and Panel PC Solutions

OMNI Series : Modular Builder - Panel Kit

OMNI Series : Modular Builder - Panel Kit



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

Rugged Mobile and Panel PC Solutions

OMNI Series : Modular Builder - Panel Kit

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OMNI Series : Modular Builder - Panel Kit



Model	OMNI-319D
Mechanical	
Construction	Aluminum Front Bezel
Mounting	Panel Mount
Dimension	16.54" x 10.39" x 1.14" (420mm x 264mm x 29mm)
Carton Dimension	20.47" x 17.13" x 7.09" (520mm x 435mm x 180mm)
Gross Weight	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	15.6" TFT-LCD, LED
Max Resolution	1366 x 768
Max. Colors	16.2M colors
Luminance	400 cd/m2
Viewing Angle	160° (H), 140° (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	

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Rugged Mobile and Panel PC Solutions

OMNI Series : Modular Builder - BOX Kit

OMNI Series : Modular Builder - BOX Kit



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

Note: All specifications are subject to change without notice.

Rugged Mobile and Panel PC Solutions

OMNI Series : Modular Builder - BOX Kit

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OMNI Series : Modular Builder - BOX Kit



Model	OMNI-ADP-KIT CPU BOX
System	
Processor	Intel® Alder Lake-P i7/i5/i3/Celeron CPU
System Memory	DDR5 4800 MHz, Dual Channel SODIMM x 2
LCD CRT Controller	—
Ethernet	Intel® i210/i211, 10/100/1000Base Intel® i225, 10/100/1000/2500Base
I/O Port	LAN x2 USB Type A x3 USB Type C x1 HDMI x1 Audio x1 COM x2
Storage Disk Drive	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	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 10/Windows 11/Linux
Construction	Aluminum design
Mounting	TBD
Dimension	TBD
Gross Weight	TBD
Operating Temperature	23°F~122°F(-5°C ~ 50°C) with 0.5 m/s airflow
Storage Temperature	-4°F~140°F(-20°C~60°C)
Storage Humidity	90% @40°C; non-condensing
Anti Vibration	1Grms / 5~ 500Hz / operation
Anti-Shock	15 G peak acceleration (11 msec. duration)
Certification	CE/FCC Class A Compatible
DC Input	DC 9~36V
Display Type	OMNI Series Panel Kit from 12.1 inches to 21.5 inch
Others	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	Depends on your OMNI Panel Modules
Max. Resolution	
Max. Colors	
Luminance	
Viewing Angle	
Back Light	
Back Light MTBF (Hours)	
Touchscreen	
Type	Depends on your OMNI Panel Modules
Light Transmission	
Life Time	
Note	

Note: All specifications are subject to change without notice.

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Rugged Mobile and Panel PC Solutions

OMNI Series : Modular Builder - I/O Modules

OMNI Series : Modular Builder - I/O Modules



Model	9741215501 - Mini Card x 2 & SIM Card x 2 Module	9741215502 - Dual LAN Module
System		
Product Description	Mini PCIe Slot x 2, for OMNI Panel PC Only	Gigabit Ethernet x 2, for OMNI Panel PC only
Features	Full-size Mini-Card Slot x 2 SIM Card Slot x 2 OS support: Windows® 7, Windows® 10, Linux Kernel 2.6.x or above	Gigabit Ethernet x 2 Intel® i211 Chipset OS support: Windows® 7, Windows® 10, Linux Kernel 2.6.x or above
Dimension	161 x 80 x 31 mm	
Note		



Model	9741215506 - DIO Module	9741215508 - Audio Module
System		
Product Description	DIO without Isolation x 8, for OMNI Panel PC only	MIC-In x 1, Line-out x 1, for OMNI Panel PC only
Features	DIO x 8 (3.3 Vac) OS support: Windows® 7, Windows® 10, Linux Kernel 2.6.x or above	Mic in x 1 Line out x 1 OS support: Windows® 7, Windows® 10, Linux Kernel 2.6.x or above
Dimension	161 x 80 x 31 mm	
Note		



Model	9741215510 - HMS Kit	9741215512
System		
Product Description	10/100 Ethernet x 2, for OMNI Panel PC Only	WiFi 802.11 b/g/n Module
Features	10/100 Ethernet x 2, Anybus Support All Major Industrial Ethernet and Fieldbus Networks OS support: Windows® 7, Windows® 10, Linux Kernel 2.6.x or above	Supports 802.11b/g/n Supports BT 4.0 OS support: Windows® 7, Windows® 10, Linux Kernel 2.6.x or above
Dimension	161 x 80 x 42 mm	161 x 80 x 31 mm
Note		

Rugged Mobile and Panel PC Solutions

OMNI Series : Modular Builder - I/O Modules

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OMNI Series : Modular Builder - I/O Modules



Model	9741215513	9741215515
System		
Product Description	RS-485/422/232 Module	OMNI USB/COM/LAN Module
Features	RS-232/422/485 x 2 Selection by Jumper OS support: Windows® 7, Windows® 10, Linux Kernal 2.6.x or above	USB 2.0 x 2 RS-232/422/485 x 2 (Selection by External Switch) Gigabit Ethernet x 1 OS support: Windows® 7, Windows® 10, Linux Kernal 2.6.x or above
Dimension	161x 99 x 42 mm	161x 99 x 56 mm
Note		



Model	9741215516	9741215517
System		
Product Description	OMNI COM x 4 Module	OMNI Isolated COM Module
Features	RS-232/422/485 x 4 Selection by internal jumper OS support: Windows® 7, Windows® 10, Linux Kernal 2.6.x or above	Isolated RS-232/422/485 x 4 2K VDC Isolation Selection by internal jumper OS support: Windows® 7, Windows® 10, Linux Kernal 2.6.x or above
Dimension	161 x 99 x 56 mm	
Note		



Model	9741215518
System	
Product Description	OMNI COM, DIO Module
Features	DB-9 Isolated RS-232/422/485 x 4 DIO x 16 OS support: Windows® 7, Windows® 10, Linux Kernal 2.6.x or above
Dimension	161 x 99 x 55 mm
Note	

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Rugged Mobile and Panel PC Solutions

OMNI Series : Modular Touch Panel Solutions

OMNI Series : Modular Touch Panel Solutions



Processor	OMNI-2155-BT	OMNI-3105-BT	OMNI-3125-BT
System			
Processor	Intel® Celeron® J1900, 2.0 GHz/ N2807, 1.58 GHz	Intel® N2807 processor, 1.58 GHz, Intel® Celeron® J1900 processor, 2 GHz	
System Memory	204-pin DDR3L 1333MHz SODIMM x 1, up to 8 GB (J1900), 4 GB (N2807)	204-pin DDR3L 1333MHz SODIMM x 1, up to 8 GB, (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, up to 4 GB, (N2807)	
LCD/CRT Controller	Integrated in Processor		
Ethernet	10/100/1000Base-TX, RJ-45 x 2	Intel® I211, 10/100/1000 Base-TX x 2	
I/O Port	USB Type A x 1 for USB 3.2 Gen 1, USB Type A x 3 for USB 2.0 SMA antenna hole x 1, HDMI x 1 CFast™ x 1, DB-9 for RS-232/422/485 x 1 RJ-45 x 2 for 10/100/1000Base-TX DB-15 x 1 for VGA 3-pin terminal block x 1 for 9~30 V DC power input LED Power On/Off Switch x 1 (Power on = orange, Power off =N/A)	USB 2.0 Type A x 3 USB 3.2 Gen 1 Type A x 1 SMA Antenna hole x 1 HDMI x 1 CFast™ x 1 DB-9 x 1 for RS-232/422/485 RJ-45 x 2 for GbE LAN DB-15 x 1 for VGA 3-pin terminal block x1 for 9~30 Vdc power input LED Power on/off switch x 1 (Power on = Orange, Power off =N/A)	USB 2.0 Type A x 3 USB 3.2 Gen 1 Type A x 1 SMA Antenna hole x 1 HDMI x 1, CFast™ x 1 DB-9 Type RS-232/422/485 x 1 RJ-45 Type for 10/100/1000Base-TX x 2 DB-15 x 1 for VGA 3-pin terminal block x1 for 9~30 Vdc power input LED Power on/off switch x1 (Power on = Orange, Power off =N/A)
Storage Disk Drive	CFast™ socket x 1, SATA 2.5" HDD bay x 1	CFast™ x 1, 2.5" SATA HDD bay x 1	CFast™ x 1, 2.5" SATA HDD bay x 1
Expansion Slot	Mini-Card x 2 (Full Size), OMNI I/O Connector x 1, SIM x 2	Full Size Mini card x 2, SIM card x 1, OMNI I/O connector x 1	
OS support	Windows® 7, Windows® 8, Windows® 10, Linux kernel 2.6.x or higher	Windows® 7, Windows® 8, Windows® 10, Linux Kernel 2.6.x or higher	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~ 500Hz/ operation – with HDD		
Shock	15 G peak acceleration (11 msec. duration)	15 G peak acceleration (11 msec. duration) – with HDD	15 G peak acceleration (11 msec. duration) – with HDD
EMC	CE/FCC class A		
Power Supply			
DC input	DC 9 (min.) ~ 30 (max.) V w/ 3-pin terminal block, ATX Power function		
LCD			
Display Type	15.6" TFT-LCD, LED backlight	10.4" TFT-LCD, LED	12.1" TFT-LCD, LED
Max Resolution	1366 x 768	800 (H) x 600 (V)	1024 (H) x 768 (V)
Max. Colors	16.7M colors (8-bit for R,G,B)	16.2M colors	
Luminance	400 cd/m2	230 cd/m2	500 cd/m2
Viewing Angle	160° (H), 140° (V)	120° (H), 100° (V)	160° (H), 160° (V)
Back Light	LED		
Back Light MTBF (Hours)	50,000		
Touchscreen			
Type	P-CAP/ 5-wire resistive		
Light Transmission	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)		
Note			

Note: All specifications are subject to change without notice.

Rugged Mobile and Panel PC Solutions

OMNI Series : Modular Touch Panel Solutions

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OMNI Series : Modular Touch Panel Solutions



Processor	OMNI-3155-BT		OMNI-3175-BT		OMNI-3195-BT	
System						
Processor	Intel® N2807 processor, 1.58 GHz Intel® Celeron® J1900 processor, 2 GHz					
System Memory	204-pin DDR3L 1333MHz SODIMM x 1, up to 8 GB, (J1900) 204-pin DDR3L 1333MHz SODIMM x 1, up to 4 GB, (N2807)					
LCD/CRT Controller	Integrated in processor					
Ethernet	Intel® I211, 10/100/1000 Base-TX x 2					
I/O Port	USB 2.0 Type A x 3 USB 3.2 Gen 1 Type A x 1 SMA Antenna hole x 1 HDMI x 1, CFast™ x 1 DB-9 Type RS-232/422/485 x 1 RJ-45 Type for 10/100/1000Base-TX x 2 DB-15 x 1 for VGA 3-pin terminal block x1 for 9~30 Vdc power input LED Power on/off switch x1 (Power on = Orange, Power off =N/A)		USB 2.0 Type A x 3, USB 3.2 Gen 1 Type A x 1 SMA Antenna hole x 1 HDMI x 1 CFast™ x 1 DB-9 Type RS-232/422/485 x 1 RJ-45 Type for 10/100/1000Base-TX x 2 DB-15 x 1 for VGA 3-pin terminal block x1 for 9~30 Vdc power input LED Power on/off switch x1 (Power on = Orange, Power off =N/A)			
Storage Disk Drive	CFast™ x 1, 2.5" SATA HDD bay x 1					
Expansion Slot	Full Size Mini card x 2, SIM card x 1, OMNI I/O connector x 1		Mini card x 2, SIM card x 1, OMNI I/O connector x 1		Full Size Mini card x 2, SIM card x 2, OMNI I/O connector x 1	
OS support	Windows® 7, Windows® 8, Windows® 10, Linux kernel 2.6.x or higher					
Mechanical						
Construction	Aluminum design (IP65 Front Frame)					
Mounting	VESA 100 / Panel Mount					
Dimension	14.53" x 12.36" x 2.28" (369 mm x 314 mm x 58 mm)		16.14" x 14.57" x 2.32" (410mm x 370mm x 59mm)		18.15" x 16.14" x 2.32" (461 mm x 410 mm x 59 mm)	
Carton Dimension	20.08" x 9.84" x 18.11" (510mm x 250mm x 460mm)		20.55" x 10.31" x19.29" (522mm x 262mm x 490mm)		26.02" x 8.11" x 19.53" (661mm x 206mm x 496mm)	
Gross Weight	13.97 lb (6.35 kg)		15.84 lb (7.2 kg)		19.36 lb (8.8 kg)	
Environmental						
Operating Temperature	14°F ~ 131°F (-10°C ~ 55°C) (J1900), 14°F ~ 140°F (-10°C ~ 60°C) (N2807) with 0.5 m/s airflow (CF & HDD)					
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)					
Storage Humidity	90% @40°C; non-condensing					
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD					
Shock	15 G peak acceleration (11 msec. duration) – with HDD					
EMC	CE/FCC class A					
Power Supply						
DC input	DC 9 (min.) ~ 30 (max.) V w/3-pin terminal block, ATX Power function					
LCD						
Display Type	15" TFT-LCD, LED		17" TFT-LCD, LED		19" TFT-LCD, LED	
Max Resolution	1024 (H) x 768 (V)		1280 (H) x 1024 (V)			
Max. Colors	16.2M (8bit/color)		16.7M colors (RGB 6-bits + Hi-FRC data)		16.7M colors	
Luminance	300 cd/m2		350 cd/m2			
Viewing Angle	176° (H), 176° (V)		170° (H), 160° (V)			
Back Light	LED					
Back Light MTBF (Hours)	70,000		50,000			
Touchscreen						
Type	P-CAP/ 5-wire resistive					
Light Transmission	P-CAP (90%± 2%), 5-wire Resistive (80% ± 2%)		P-CAP (≥85%), 5-wire Resistive (80% ± 5%)			
Note						

Note: All specifications are subject to change without notice.

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Rugged Mobile and Panel PC Solutions

OMNI Series : Modular Touch Panel Solutions

OMNI Series : Modular Touch Panel Solutions



Processor	OMNI-2155-SKU	OMNI-2215-SKU	OMNI-3125-SKU
System			
Processor	Intel® i5-6300U processor, 2.4 GHz Intel® Celeron® 3955U processor, 2.0 GHz	Intel® Core™ i5-6300U processor, 2.4 GHz Intel® Celeron® 3955U processor, 2.0 GHz	Intel® i5-6300U processor, 2.4 GHz Intel® Celeron® 3955U processor, 2.0 GHz
System Memory	260-pin DDR4 SODIMM x 1, up to 16 GB		
LCD/CRT Controller	Integrated in processor		
Ethernet	Intel® I211, 10/100/1000 Base-TX x 1		
I/O Port	USB 3.2 Gen 1 Type A x 4 SMA Antenna hole x 1 HDMI x 1 DB-9 Type RS-232/422/485 x 2 RJ-45 Type 10/100/1000 Base-TX x 1 3-pin terminal block x1 for 9~30 Vdc power input LED Power on/off switch x1 (Power on = Orange, Power off =N/A)		
Storage Disk Drive	2.5" SATA HDD bay x 1		
Expansion Slot	Full Size Mini card x 1 SIM card x 1 OMNI I/O connector x 1		
OS support	Windows® 8.1 Windows® 10 (64 bit) Linux Kernel 2.6.x or higher		
Mechanical			
Construction	Aluminum design (IP65 Front Frame)		
Mounting	VESA 100 / Panel Mount		
Dimension	16.54" x 10.43" x 2.87" (420 mm x 265 mm x 73 mm)	21.7" x 14.7" x 2.6" (550mm x 373mm x 66mm)	12.95" x 11.34" x 2.72" (329mm x 288mm x 69 mm)
Carton Dimension	20.87" x 17.52" x 7.87" (530mm x 445mm x 200mm)	26.38" x 7.87" x 20.67" (670mm x 200mm x 525mm)	20.87" x 17.52" x 7.87" (530mm x 445mm x 200mm)
Gross Weight	14.96 lb (6.8 kg)	20.02 lb (9.1 Kg)	12.34 lb (5.6 kg)
Environmental			
Operating Temperature	-4°F ~ 131°F (-20°C ~ 55°C) with 0.5 m/s airflow (Industrial Grade HDD)		
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)		
Storage Humidity	90% @40°C; non-condensing		
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD		
Shock	15 G peak acceleration (11 msec. duration) – with HDD		
EMC	CE/FCC class A		
Power Supply			
DC input	DC 9 (min.) ~ 30 (max.) V w/3-pin terminal block, ATX Power function		
LCD			
Display Type	15.6" TFT-LCD, LED	21.5" TFT-LCD, LED	12.1" TFT-LCD, LED
Max Resolution	1366 (H) x 768 (V)	1920 (H) x 1080 (V)	1024 (H) x 768 (V)
Max. Colors	16.7M (8 bit/color)	16.7M colors	16.2M colors
Luminance	400 cd/m2	250 cd/m2	500 cd/m2
Viewing Angle	160° (H), 140° (V)	178° (H), 178° (V)	160° (H), 160° (V)
Back Light	LED		
Back Light MTBF (Hours)	50,000		
Touchscreen			
Type	P-CAP/ 5-wire resistive		
Light Transmission	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 2%)	P-CAP (≥85%), 5-wire Resistive (80% ± 5%)	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)
Note			

Note: All specifications are subject to change without notice.

Rugged Mobile and Panel PC Solutions

OMNI Series : Modular Touch Panel Solutions

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OMNI Series : Modular Touch Panel Solutions



Processor	OMNI-3155-SKU	OMNI-3175-SKU	OMNI-3195-SKU
System			
Processor	Intel® i5-6300U processor, 2.4 GHz Intel® Celeron® 3955U processor, 2.0 GHz		
System Memory	260-pin DDR4 SODIMM x 1, up to 16 GB		
LCD/CRT Controller	Integrated in processor		
Ethernet	Intel® I211, 10/100/1000 Base-TX x 1		
I/O Port	USB 3.2 Gen 1 Type A x 4 SMA Antenna hole x 1 HDMI x 1 DB-9 Type RS-232/422/485 x 2 RJ-45 Type 10/100/1000 Base-TX x 1 3-pin terminal block x1 for 9~30 Vdc power input LED Power on/off switch x1 (Power on = Orange, Power off =N/A)		
Storage Disk Drive	2.5" SATA HDD bay x 1		
Expansion Slot	Full Size Mini card x 1, SIM card x 1, OMNI I/O connector x 1		
OS support	Windows® 8.1, Windows® 10 (64 bit), Linux kernel 2.6.x or higher		
Mechanical			
Construction	Aluminum design (IP65 Front Frame)		
Mounting	VESA 100/ Panel Mount		
Dimension	14.53" x 12.36" x 2.79" (369mm x 314mm x 71 mm)	16.14" x 14.57" x 2.32" (410mm x 370mm x 59mm)	18.14" x 16.14" x 2.83" (460.8mm x 410mm x 72 mm)
Carton Dimension	20.08" x 9.84" x 18.11" (510mm x 250mm x 460mm)	20.55" x 10.31" x 19.29" (522mm x 262mm x 490mm)	26.02" x 8.11" x 19.53" (661mm x 206mm x 496mm)
Gross Weight	14.3 lb (6.5 kg)	16.28 lb (7.4 kg)	20.06 lb (9.1 kg)
Environmental			
Operating Temperature	-4°F ~ 131°F (-20°C ~ 55°C) with 0.5 m/s airflow (Industrial Grade HDD)		
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)		
Storage Humidity	90% @40°C; non-condensing		
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD		
Shock	15 G peak acceleration (11 msec. duration) – with HDD		
EMC	CE/FCC class A		
Power Supply			
DC input	DC 9 (min.) ~ 30 (max.) V w/3-pin terminal block, ATX Power function		
LCD			
Display Type	15" TFT-LCD, LED	17" TFT-LCD, LED	17" TFT-LCD, LED
Max Resolution	1024 (H) x 768 (V)	1280 (H) x 1024 (V)	
Max. Colors	16.2M (8bit/color)	16.7M colors (RGB 6-bits + Hi-FRC data)	
Luminance	300 cd/m ²	350 cd/m ²	
Viewing Angle	176° (H), 176° (V)	170° (H), 160° (V)	
Back Light	LED		
Back Light MTBF (Hours)	70,000	50,000	
Touchscreen			
Type	P-CAP/ 5-wire resistive		
Light Transmission	P-CAP (90%± 2%), 5-wire Resistive (80% ± 2%)	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)	
Note			

Note: All specifications are subject to change without notice.

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Rugged Mobile and Panel PC Solutions

OMNI Series : Modular Touch Panel Solutions

OMNI Series : Modular Touch Panel Solutions

Launching in Q1

Launching in Q1

Launching in Q1

Processor	OMNI-2155-ADP	OMNI-2215-ADP	OMNI-3125-ADP
System			
Processor	Intel® Alder Lake-P i7/i5/i3/Celeron CPU		
System Memory	DDR5 4800 MHz, Dual Channel SODIMM x 2		
LCD/CRT Controller	—		
Ethernet	Intel® i210/i211, 10/100/1000Base Intel® i225, 10/100/1000/2500Base		
I/O Port	RJ45 LAN x2 USB Type A USB 3.2 Gen2 x3 USB Type C x1 HDMI 2.0b x 1 Audio x1 DB9 COM RS-232/422/485 x2		
Storage Disk Drive	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	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 10/Windows 11/Linux		
Mechanical			
Construction	Aluminum Front Bezel + Metal Chassis		
Mounting	VESA / Panel Mount		
Dimension	TBD	TBD	TBD
Carton Dimension	TBD	TBD	TBD
Gross Weight	TBD	TBD	TBD
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 9~36V		
LCD			
Display Type	15.6" TFT-LCD, LED	21.5" TFT-LCD, LED	12.1" TFT-LCD, LED
Max Resolution	1366 (H) x 768 (V)	1920 x 1080	1024(H) x 768 (V)
Max. Colors	16.7M (8 bit/color)	16.7M colors	16.2M colors
Luminance	400 cd/m ²	250 cd/m ²	500 cd/m ²
Viewing Angle	170° (H) ; 130° (V)	178° (H) ; 178° (V)	160° (H) ; 160° (V)
Back Light	LED		
Back Light MTBF (Hours)	50,000 Hrs		
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% ± 5%)	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)
Note			

Note: All specifications are subject to change without notice.

Rugged Mobile and Panel PC Solutions

OMNI Series : Modular Touch Panel Solutions

OMNI Series : Modular Touch Panel Solutions

Launching in Q1

Launching in Q1

Launching in Q1

Processor	OMNI-3155-ADP		OMNI-3175-ADP	OMNI-3195-ADP
System				
Processor	Intel® Alder Lake-P i7/i5/i3/Celeron CPU			
System Memory	DDR5 4800 MHz, Dual Channel SODIMM x 2			
LCD/CRT Controller	—			
Ethernet	Intel® i210/i211, 10/100/1000Base Intel® i225, 10/100/1000/2500Base			
I/O Port	RJ45 LAN x2 USB Type A USB 3.2 Gen2 x3 USB Type C x1 HDMI 2.0b x 1 Audio x1 DB9 COM RS-232/422/485 x2			
Storage Disk Drive	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	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 10/Windows 11/Linux			
Mechanical				
Construction	Aluminum Front Bezel + Metal Chassis			
Mounting	VESA / Panel Mount			
Dimension	TBD	TBD	TBD	
Carton Dimension	TBD	TBD	TBD	
Gross Weight	TBD	TBD	TBD	
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 9~36V			
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 (8 bit/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 (90% ± 3%), 5-wire Resistive (80% ± 3%)		
Note				

Note: All specifications are subject to change without notice.

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OMNI Series : Modular Display Solutions

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Model	OMNI-215M	OMNI-221M	OMNI-310M
System	VGA/HDMI		
Input Signal	5 keys OSD keypad (Up, Down, Menu, Auto, Power)		
On Screen Display Control	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)		
I/O Port	Windows® 7 32/64-bit, Windows® 8 32/64-bit, Windows® 10 64-bit, Linux Ubuntu 16.04		
Os Support	—		
Mechanical	IP65 aluminum front bezel & SGCC chassis		
Construction	Panel Mount / VESA 100 x 100 / Stand		
Mounting	—		
Dimension	16.5" x 10.4" x 2.4" (420.2mm x 264.5mm x 60.2mm)	21.6" x 14.6" x 2.1" (549mm x 372mm x 53mm)	11.0" x 9.4" x 2.33" (280mm x 239.3mm x 59.1mm)
Carton Dimension	20.9" x 17.5" x 7.9" (530mm x 445mm x 200mm)	26.4" x 20.7" x 7.9" (670mm x 525mm x 200mm)	16.3" x 15.4" x 7.04" (415mm x 391mm x 179mm)
Gross Weight	14.1 lbs (6.4 kg)	18.5 lbs (8.4 kg)	7.9 lbs (3.6 kg)
Net Weight	11.2 lbs (5.1 kg)	15.4 lbs (7.0 kg)	1.1 lbs (2.4 kg)
Environmental	—		
Operating Temperature	14°F ~ 131°F (-10°C ~ 55°C) With 0.5m/s Airflow		
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)		
Storage Humidity	10%~90% @104°F (40°C); non-condensing		
Vibration	1 Grms / 5~500Hz/random Operation		
Shock	—		
EMC	CE/FCC, Class A		
Power Supply	—		
Dc Input	DC 12~30V Power Input with 3 Pin Terminal Block		
LCD	—		
Display Type	15.6" TFT-LCD	21.5" TFT-LCD	10.4" TFT-LCD
Max. Resolution	1366 x 768	1920 x 1080	800 x 600
Max. Colors	16.7M	16.7M	16.2M
Luminance	400 cd/m2	250 cd/m2	230 cd/m2
Viewing Angle	170° (H), 160° (V)	178° (H), 178° (V)	160° (H), 130° (V)
Back Light	LED		
Back Light MTBF (Hours)	50,000	50,000	30,000
Touchscreen	—		
Type	Projective Capacitive Multi Touch or 5 Wire Resistive Touch Screen (By Model)		
Light Transmission	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)		
Life Time	—		
Note	—		

Note: All specifications are subject to change without notice.

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 lbs (4.7 kg)	14 lbs (6.35 kg)	14.8 lbs (6.7 kg)
Net Weight	7.7 lbs (3.5 kg)	11.2 lbs (5.1 kg)	11.7 lbs (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		
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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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 lbs (8.2 kg)
Net Weight	15.2 lbs (6.9 kg)
Environmental	
Operating Temperature	14°F ~ 131°F (-10°C ~ 55°C) With 0.5m/s Airflow
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)
Storage Humidity	10%~90% @104°F (40°C); non-condensing
Vibration	1 Grms / 5~500Hz/random Operation
Shock	—
EMC	CE/FCC, Class A
Power Supply	
Dc Input	DC 12~30V Power Input with 3 Pin Terminal Block
LCD	
Display Type	19" TFT-LCD
Max. Resolution	1280 x 1024
Max. Colors	16.7M
Luminance	350 cd/m2
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	

Note: All specifications are subject to change without notice.



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