

EDGE READY Platforms

Selection Guide
2nd ed.

2026



AEON

► Table of Contents

00 Introduction

About Us	00-1
Operation Strength	00-2
AAEON AI Website	00-3
AAEON eShop	00-4
AAEON's Embedded OS Solutions	00-5
AAEON AI-Angel	00-6
AAEON Hi-Safe	00-7
AAEON BIOX	00-8

01 Board Level Products

AI Edge Computing Solutions

MEX-BTS	01-1
PICO-APL3-A10-FAI1	01-2
GAR-A750E	01-3

Gateway Board

PICO-IMX8PL	01-4
PICO-AM62	01-4

Pico-ITX Boards

PICO-ARU4	01-5
PICO-MTU4	01-5
PICO-MTU4-SEMI	01-6
PICO-ADN2	01-6
PICO-TWL4 Rev.B	01-7
PICO-ASL4 Rev.B	01-7
PICO-ADN4 Rev.B	01-8
PICO-ADN4-SEMI Rev.B	01-8
PICO-ADN4	01-9
PICO-RAP4	01-9
PICO-V2K4	01-10
PICO-V2K4-SEMI	01-10
PICO-TGU4	01-11
PICO-TGU4-SEMI	01-11
PICO-WHU4	01-12
PICO-EHL1	01-12
PICO-EHL4	01-13
PICO-EHL4-SEMI	01-13
PICO-APL1	01-14
PICO-APL3	01-14
PICO-APL3-SEMI	01-15
PICO-APL4	01-15
PER-P30D	01-15

Computing On Module

COM-TWLC6 Rev.B	01-16
COM-ARHC6	01-16
COM-MTHC6	01-16
COM-ASLC6	01-17
COM-ASLC6 Rev.B	01-17
COM-ADNC6	01-17
COM-ADNC6 Rev.B	01-18
COM-RAPC6	01-18
COM-TGHB6	01-18
COM-CFHB6	01-19
COM-TGUC6	01-19
COM-TGUC6 Rev.C	01-19
COM-TGUC6	01-20
COM-TGUC6 Rev.C	01-20
COM-WHUC6	01-20
NanoCOM-ARH	01-21
NanoCOM-MTU	01-21
NanoCOM-RAP	01-21
NanoCOM-ASL	01-22
NanoCOM-ADN	01-22
NanoCOM-TGU	01-22
NanoCOM-EHL	01-23
HPC-RPSC	01-24
HPC-ARHm	01-24
uCOM-TWL	01-25
uCOM-ASL	01-25
uCOM-ADN	01-25
uCOM-IMX8P	01-26
uCOM-IMX93	01-26
uCOM-M700/M510	01-26
uCOM-3588	01-27
uCOM-Q6490	01-27

Computing On Module: Carrier Boards

ECB-920A-A11	01-28
ECB-927A	01-28
ECB-980A	01-28
ECB-960T	01-29
ECB-960P	01-29
ECB-960P-SEMI	01-29

EPIC Boards

EPIC-PTH9	01-30
EPIC-TWL9	01-30
EPIC-BTS9	01-31
EPIC-BTS7	01-31
EPIC-ASL9	01-32
EPIC-ADN9	01-32
EPIC-ADN9-PUC Rev.B	01-33
EPIC-TGH7	01-33

SubCompact Boards

GENE-R8K6	01-34
GENE-MTH6	01-34
GENESYSM-MTH6	01-35
GENE-ARH6	01-35
GENESYSM-ARH6	01-36
GENE-TWL5	01-36
GENE-TWL5	01-37
GENE-TWL6	01-37
GENE-TWL7	01-38
GENESYSM-TWL7	01-38
GENE-ASL5	01-39
GENE-ASL6	01-39
GENESYSM-ASL6	01-40
GENE-ADN5	01-40
GENE-ADN6	01-41
GENESYSM-ADN6	01-41
GENE-ADN7	01-42
GENE-RAP6	01-42
GENESYSM-RAP6	01-43
GENE-ADP6	01-43
GENESYSM-ADP6	01-44
GENE-TGU6	01-44
GENESYSM-TGU6	01-45
GENE-WHU6	01-45
GENESYS-WHU6	01-46
GENE-EHL5	01-46
GENE-APL5	01-47
GENE-APL6	01-47
de next	
de next-RAP8	01-48

Table of Contents ◀

de next-TGU8	01-48
de next-V2K8	01-48
de next-TGU8-EZBOX	01-49
de next-RAP8-EZBOX	01-49

UP Boards

UP 4000	01-50
UP 7000	01-50
UP 710S	01-50
UP TWL	01-51
UP TWLS	01-51
UP WCL	01-51
UP Squared	01-52
UP Squared V2	01-52
UP Squared i12	01-52
UP Squared 7100	01-53
UP Squared TWL	01-53
UP Squared Pro 7000	01-53
UP Squared Pro TWL	01-54
UP Squared Pro 710H	01-54
UP Nexus WCL	01-54
UP Xtreme i11	01-55
UP Xtreme i12	01-55
UP Xtreme i14	01-55
UP Xtreme ARL	01-56
UP Xtreme 7100	01-56
UP Xtreme PTL	01-56

UP Boards: UP Expansion Modules

UPAI-2280-HLO8	01-57
UP-3G HAT	01-57
MIPICSI Camera RPI Converter Kit	01-58
MIPICSI Camera RVP Converter Kit	01-58
UP 4000 M.2 Plus	01-58
UP POE V2 Expansion Board	01-58
HDMI In Carrier Board	01-58
CAN Bus Carrier Board	01-58

Industrial Motherboards

EMB-APL1	01-59
EMB-APL3	01-59
MIX-EHLD1	01-60
MIX-TLUD1	01-60
MIX-H310A1	01-61
MIX-H310A2	01-61

MIX-H310D1	01-62
MIX-H310D2	01-62
MIX-H610A1	01-63
MIX-Q370A1	01-63
MIX-Q370D1	01-64
MIX-Q370D2	01-64
MIX-Q670A1	01-65
MIX-Q670D1	01-65
MIX-ALND1	01-66
MIX-MTLD1	01-66
MIX-H810WW1	01-67
MIX-Q870A1	01-67
MAX-H810A	01-68
MAX-Q870A	01-68
MAX-Q670A	01-69
MAX-Q470A	01-69
MAX-Q370A	01-70
MAX-C246A	01-70
MAX-H310A	01-71
ATX-Q870A	01-71
ATX-Q670A	01-72
ATX-Q370A	01-72
ATX-C246A	01-73
ATX-H310A	01-73
MIX-PTLWW1	01-74

Server & Workstation

EATX-W890A	01-75
ARES-WHIO	01-76
ARES-EAGO	01-76
ZEUS-PUR0	01-77
ZEUS-WHIO	01-78

02 System Level Products

AI@Edge Solutions

BOXER-8221AI	02-1
BOXER-8240AI	02-1
BOXER-8251AI	02-1
BOXER-8253AI	02-2
BOXER-8256AI	02-2
BOXER-8621AI	02-2
BOXER-8622AI	02-3
BOXER-8623AI	02-3
BOXER-8629AI	02-3

BOXER-8640AI	02-4
BOXER-8641AI	02-4
BOXER-8641AI-PLUS	02-4
BOXER-8645AI	02-5
BOXER-8649AI	02-5
BOXER-8651AI	02-5
BOXER-8651AI-PLUS	02-6
BOXER-8652AI	02-6
BOXER-8652AI-PLUS	02-6
BOXER-8653AI	02-7
BOXER-8653AI-PLUS	02-7
BOXER-8654AI-KIT	02-7
BOXER-8654AI-KIT-PLUS	02-8
BOXER-8655AI	02-8
BOXER-8658AI	02-8
BOXER-8658AI-PLUS	02-9
BOXER-8740AI	02-9
BOXER-8741AI	02-9
BOXER-8742AI	02-10

AI Inference Server

MAXER-2100	02-11
MAXER-5000	02-11
MAXER-5100	02-11
MAXER-5120	02-12

RISC Gateway Solutions

SRG-IMX8P	02-13
SRG-IMX8PL	02-13
SRG-AM62	02-13

Compact Fanless BOX PC Solutions

BOXER-6616	02-14
BOXER-6617-ADN	02-14
BOXER-6617-ASL	02-14
BOXER-6619-TWL	02-15
BOXER-6641	02-15
BOXER-6641-PRO	02-15
BOXER-6642-CML	02-16
BOXER-6643-TGU	02-16
BOXER-6645-ADS	02-16
BOXER-6645U-RPL	02-17
BOXER-6646-ADP	02-17
BOXER-6647-MTH	02-17

► Table of Contents

BOXER-6648-ARS	02-18
BOXER-6649-RAP	02-18
BOXER-6650-PTH	02-18
Ultra Slim Fanless BOX PC Solutions	
BOXER-6405	02-19
BOXER-6405M	02-19
BOXER-6406-ADN	02-19
BOXER-6406-ASL	02-20
BOXER-6406U-ADN	02-20
BOXER-6406U-ASL	02-20
BOXER-6407-TWL	02-21
BOXER-6451-ADP	02-21
DIN Rail Fanless BOX PC	
BOXER-6751-ADP	02-24
BOXER-6711-ADN	02-24
BOXER-6710	02-24
Expandable Fanless BOX PC Solutions	
BOXER-6801-RAP	02-23
BOXER-6839-CFL	02-23
BOXER-6839-RPL	02-23
BOXER-6843-ADS	02-24
BOXER-6845-BTL	02-24
Smart In-vehicle & AMR BOX PC	
BOXER-6314-TWL	02-26
VPC-5640S	02-26
UP Systems	
UP 4000 Edge	02-27
UP 7000 Edge	02-27
UP 710S Edge	02-27
UP TWL Edge	02-28
UP TWLS Edge	02-28
UP WCL Edge	02-28
UPS-GWS01	02-29
UP Squared V2 Edge	02-29
UP Squared i12 Edge	02-29
UP Squared 7100 Edge	02-30
UP Squared TWL Edge	02-30
UPN-Edge Pro	02-31
UP Squared Pro 7000 Edge	02-31
UP Squared Pro 710H Edge	02-32

UP Squared Pro TWL Edge	02-32
UP Nexus WCL Edge	02-32
UP Xtreme i11 Edge	02-33
UP Xtreme i12 Edge	02-33
UP Xtreme i14 Edge	02-33
UP Xtreme ARL Edge	02-34
UP Xtreme 7100 Edge	02-34
UP Xtreme PTL Edge	02-34
Intelli i14 Edge	02-35
Intelli TWL01 Edge	02-35
Turn-Key Chassis Solutions	
ACS-1U01-BT4	02-36
ACS-1U01-H110B	02-37
ACS-1U01	02-38
03 Network Appliances	
Desktop Network Appliances	
FWS-2365	03-1
FWS-2360	03-1
FWS-2280	03-1
FWS-2276	03-2
FWS-2275	03-2
FWS-2273	03-2
FWS-2272	03-3
FWS-2271	03-3
FWS-2277	03-3
FWS-2290	03-4
FWS-2291	03-4
FWS-2292	03-4
FWS-2370	03-5
Rackmount Network Appliances	
FWS-8600	03-6
FWS-7541	03-6
FWS-7840	03-6
FWS-7830	03-7
FWS-7831	03-7
FWS-7360	03-7
FWS-7851	03-8
FWS-7850	03-8
FWS-7370	03-8
NIM-S13B	03-9
NIM-S13D	03-9

NIM-S13E	03-9
NIM-C13B	03-9
NIM-C13D	03-9
NIM-S26B	03-9
NIM-S26C	03-9
NIM-S26D	03-9
NIM-C15A	03-9
Industrial Network Appliances	
ICS-6270	03-10
ICS-6280	03-10
04 Rugged Mobile & Panel PC Solutions	
Rugged Tablet Computers	
RTC-710RK	04-1
RTC-1010	04-1
RTC-1020	04-2
RTC-1030	04-2
Rugged Tablet Computers : Accessories	
RTC-1010-HS-000	04-3
RTC-1010-SB-000	04-3
RTC-1010-VMP-000	04-3
RTC-1010-DTDP-002	04-3
RTC-1010-DTDP-001	04-3
RTC-1200HSP01-000	04-3
RTC-1200BLT01-000	04-3
RTC-1200BLT02-000	04-3
RTC-1200BKT01-000	04-3
RTC-1010BKT-000	04-3
RTC-1010-SBG-000	04-3
RBC-1020	04-3
RTC-1200BAT01-000	04-3
RISC Boards	
RICO-3288	04-4
RICO-3288MINI	04-4
RICO-3568	04-4
RICO-MX8P	04-5
RICO-MX8PLITE	04-5
RICO-3568 Developer Kit	04-5
RISC Boxes	
BOXER-RK88	04-6

BOXER-RK99	04-6
BOXER-RK3568	04-7
BOXER-MX8P	04-7

All in One Panel PC Solutions: ACP Series

ACP-2076	04-8
ACP-1108	04-8
ACP-1106	04-8
ACP-1104	04-9
ACP-1076	04-9
ACP-1074	04-9

OMNI Series : Modular Builder - Panel Kit

OMNI-215D	04-10
OMNI-221D	04-10
OMNI-224D	04-10
OMNI-227D	04-11
OMNI-312D	04-11
OMNI-315D	04-12
OMNI-317D	04-12
OMNI-319D	04-12

OMNI Series : Modular Builder - BOX Kit

OMNI-ADP CPU-BOX Kit	04-13
OMNI-ADN CPU-BOX Kit	04-13

OMNI Series : Modular Touch Panel Solutions

OMNI-2155-ADP	04-14
OMNI-2215-ADP	04-14
OMNI-2245-ADP	04-14
OMNI-2275-ADP	04-15
OMNI-3125-ADP	04-15

OMNI-3155-ADP	04-15
OMNI-3175-ADP	04-16
OMNI-3195-ADP	04-16
OMNI-2155-ADN	04-16
OMNI-2215-ADN	04-17
OMNI-3125-ADN	04-17
OMNI-3155-ADN	04-17

OMNI Series : Modular Display Solutions - Panel Kit

OMNI-215M	04-18
OMNI-221M	04-18
OMNI-312M	04-19
OMNI-315M	04-19
OMNI-317M	04-19
OMNI-319M	04-20
OMNI-ADB-KIT	04-20

AI Panel PC Solutions

ACP-4070-NANO	04-21
ACP-4100-NANO	04-21
ACP-4160-NX	04-22
ACP-4210-NX	04-22



The Trusted Innovation Partner

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



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

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

AAEON Core Values

Innovation:

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

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

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

Trusted Quality:

Design Quality – rigorously monitoring standards to ensure continual improvement

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

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

Flexibility:

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

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

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

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

ASUS Technology and Financing

AAEON Design Flexibility and Domain Know-how



OEM/ODM Capability

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

AAEON.AI

Connecting You
with AI at the Edge



Introduction

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

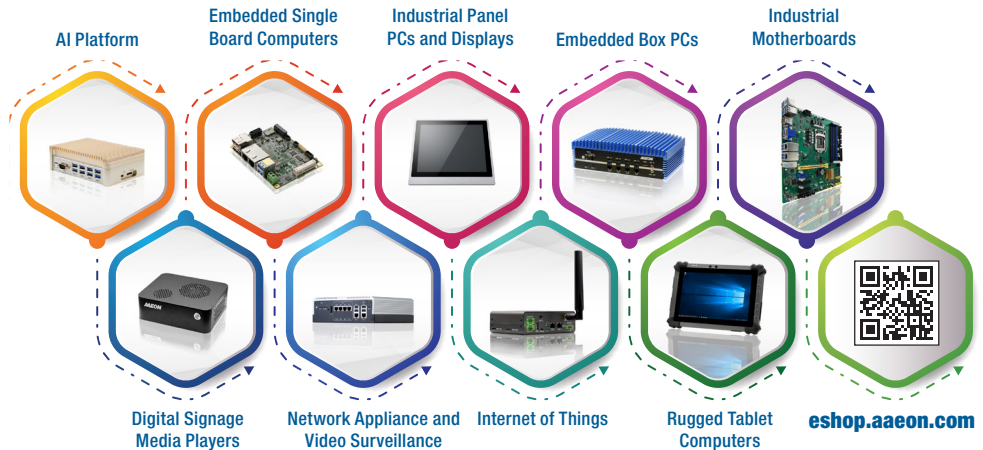
Market analysts have consistently pointed to expanded growth and deployment of Industry 4.0 technologies, especially AI edge computing, in various vertical markets. AAEON.ai collects all of AAEON's rugged, compact, industrial grade AI edge solutions in one convenient location. From boards and systems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



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- 
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- 
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- 
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- 
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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
1809/ 2021**

 Windows 11 IoT

**Windows 11 IoT Enterprise LTSC
2024**

AAEON Embedded OS Solution

Chipset	Windows® 10 IoT Enterprise	Windows® 11 IoT Enterprise
NXP i.MX8 plus WOA (Windows on ARM)	✓	—
NXP i.MX8 Mini WOA (Windows on ARM)	✓	—
Intel® Core™ Ultra Processors Series 2 Arrow lake	✓	✓
Intel® Core™ Ultra Processors Series 1 Meteor Lake	✓	✓
Intel® 13th and 14th Raptor Lake	✓	✓
Intel® 12th Alder Lake	✓	✓
Intel® 11th Tiger Lake	✓	✓
Intel® 10th Comet Lake	✓	✓
Intel® 8th and 9th Coffee Lake	✓	✓
Intel® 8th Whiskey Lake	✓	✓
Intel® 7th KabyLake (Q170/H110/C236)	✓	✓
Intel® 6th SkyLake (Q170/ H110/C236)	✓	—
Intel® ApolloLake (N4200/N3350/E3930/E3940/E3950)	✓	—

AI Angel is a powerful tool designed to deliver a unified AI model toolkit for systems operating on various hardware devices. It seamlessly integrates inference frameworks such as OpenVINO, Hailo RT, and CUDA, providing a secure and efficient standardized interface for AI applications. AI Angel empowers users to effortlessly build AI models while fully leveraging the performance of CPUs, GPUs, NPUs and dedicated AI accelerator chips. Its core features include one-click environment setup, cross-hardware performance acceleration, and visual performance analysis. Through an intuitive user interface, users can quickly apply trained models to target devices without needing to delve into complex underlying configurations.

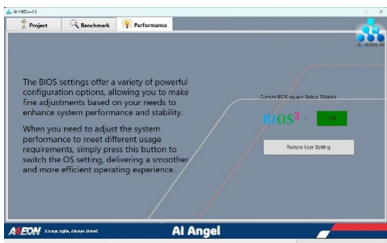
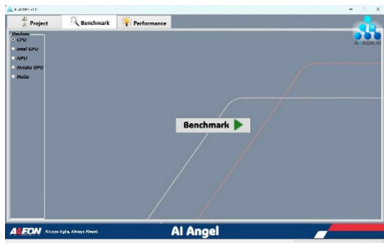
AI-Angel Advantages

- Modern and Flexible User Interface
- Simple One-Click Environment Setup
- Real-Time Hardware Usage Monitoring
- BIOS2 (BIOS + OS) Optimization Setting



Supports

AI Accelerator	Windows 10 21H2 LTSC	Windows 11 24H2 LTSC
Hailo 8	✓	✓
Intel NPU	—	✓
Intel GPU	✓	✓
Nvidia GPU	✓	✓

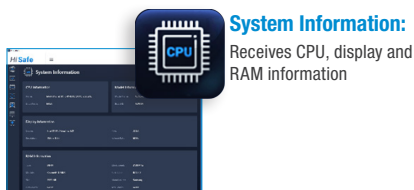


AAEON Hi-Safe

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.

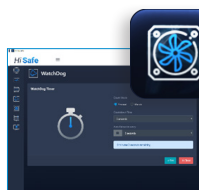
Hi-Safe V3 Advantages

- **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



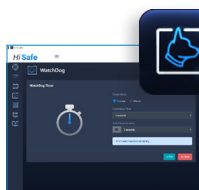
DIO:

Obtains DIO information: sets the pin direction and pin data



Backlight Controller:

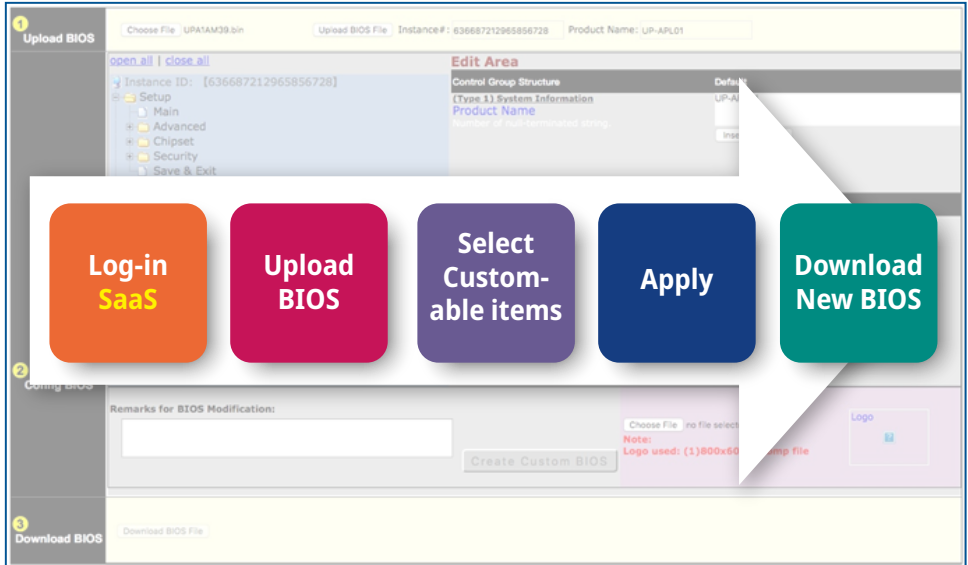
Controls LVDS or eDP display



Watchdog:

Sets the system reboot timer

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/>

01



► Board Level Products

01



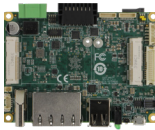
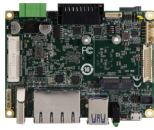
Model	MEX-BTS
System	
Form Factor	MXM System
CPU	12th/13th/14th Generation Intel® Core™ & Intel® Core™ Series 2 Processors, up to 65W
Chipset	Intel® R680E Chipset Intel® Q670E Chipset Intel® H610E Chipset (Optional)
Memory Type	Dual Channel DDR5 SODIMM x 2, up to 5200, 64GB (ECC support for R680E SKU only) Note: DDR speed is dependent on CPU SKU
BIOS	UEFI
Wake On Lan	Yes (Onboard LAN only)
Watchdog Timer	255 Levels
Security	TPM 2.0
RTC Battery	Lithium Battery 3V/240mAh
Dimension	11.6" x 7.3" x 1.9" (295mm x 186mm x 50mm)
OS Support	Windows® 10 (Versions 22H2 and later), Windows 11, Ubuntu 24.04 Kernel 6.11
Power	
Power Requirement	+19V ~ +24V
Power Supply Type	AT/ATX
Connector	4-pin Phoenix Connector
Power Consumption	Intel® Core™ i7 251E, DDR5 32GB x 2, 6.58A @24V, 157.92W (Typical) Intel® Core™ i7 251E, DDR5 32GB x 2, 12.16A @24V, 291.84 (Max)
Display	
Controller	CPU Graphic Controller, Intel® UHD Graphics 770 (i5 SKU and above), Intel® UHD Graphics 730 (i3 SKU)
LVDS/eDP	—
Display Interface	HDMI 2.0 x 1, up to 3840 x 2160 @60Hz (from Main Board) DP++ 1.4 x 2 (from MXM Module ,optional)
Multiple Display	1 Display from Main Board Up to 2 Simultaneous Displays from MXM Module
Audio	
CODEC	Realtek ALC897
Audio Interface	Line-In/Line-Out/Mic
Speaker	—
External I/O	
Ethernet	Intel® Ethernet Controller i226-LM, 2.5GbE RJ-45 x 2, from FPC (optional) Intel® Ethernet Controller i226-V, 2.5GbE RJ-45 x 3 Intel® Ethernet Connection i219-LM, GbE RJ-45 x 1
USB	USB 3.2 Gen 2 x 4 , USB 2.0 x 2
Serial Port	—
Video	HDMI 2.0 x 1, up to 3840 x 2160 @60Hz (from Main Board); DP++ 1.4 x 2, up to 3840 x 2160 (from MXM Module ,optional)
Internal I/O	
USB	—
Serial Port	COM 1 ~ COM 4 (RS-232/422/485 x 2 + RS-232 x 2, RI as default, 5V/12V selected by BOM change)
Video	—
SATA	SATA 6Gb/s x 1 (Optional)
Audio	Audio Header x 1
DIO/GPIO	GPIO-16 bits
SMBus/I2C	SMBus (Default) / I2C
Touch	—
Fan	4-Pin Smart Fan (CPU) x 1, 3-Pin Fan (MXM Module) x 1, System Fan x 1
SIM	Nano SIM x 1
Front Panel	Power Button, Power LED
Others	—
Expansion	
Mini PCI-E/mSATA	—
M.2	M.2 2280 M-Key x 2 (PCIe 4.0 [x4] x 1 + PCIe 3.0 [x4] x 1), M.2 3052 B-Key x 1 (PCIe 3.0 [x2] + USB 3.2 + USB 2.0), Full-size Mini Card x 1 (PCIe 3.0 [x1] + USB 2.0)
Others	MXM 3.1 Type A / Type B Module slot, TGP up to 120W
Environment & Certification	
Operating Temperature	32°F ~ 122°F (0°C ~ 50°C) with 0.5m/sec airflow
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	768,724
EMC	CE/FCC Class A
Note	



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 lb. (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 6Gb/s x 1 +5V SATA Power Connector x 1 eMMC 32GB
AUDIO	—
DIO/GPIO	4-bit
SMBus/I2C	I2C/SMBus x 1 (I2C as default)
Touch	—
FAN	—
SIM	—
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset
Others	—
EXPANSION	
Mini PCI-E/mSATA	—
M.2	M.2 E-Key 2230 x 1 (PCIe/USB) M.2 B-Key 2280 x 1 (SATA/USB)
Others	—
ENVIRONMENT & CERTIFICATION	
OPERATING TEMP	32°F ~ 140°F (0°C ~ 60°C)
STORAGE TEMP	-40°F ~ 185°F (-40°C ~ 85°C)
OPERATING HUMIDITY	0% ~ 90% relative humidity, non-condensing
MTBF (HOURS)	110,000
EMC	CE/FCC Class A
Note	



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



Model	PICO-IMX8PL	PICO-AM62
System		
Form Factor	PICO-ITX, 2.5" SBC	PICO ITX , 2.5" SBC
Processor	ARM NXP i.MX8M Plus Quad-Core Cortex-A53 1.6GHz Processor (Default w/NPU, optional w/o NPU)	ARM TI AM62x, up to Quad 64-bit Arm® Cortex®-A53
Memory	Onboard LPDDR4 up to 4GB	Onboard DDR4 16 bit, up to 4 GB
Storage	eMMC 5.1 16/32GB (Optional 64/128 GB) Micro SD Card slot x1	eMMC 5.1 16 GB (Optional 32/64/128 GB) Micro SD Card slot x1
Real Time Clock	RTC x 1, with 3V CR2032H Lithium battery	
Security	TPM 2.0 (optional)	
Indicators	Programmable LED control x 3	
Cellular	Full Size Mini Card x 1 (USB signal)	
Wireless Lan	M.2 2230 E-key x 1 (USB, PCIe)	Half Size Mini Card x 1 (USB signal)
Operating System	Debian 11 (GUI is optional) Debian 12 Android 14 Yocto 5.0 (By request)	Debian 12 (w/ GUI)
Support Protocol	Modbus, MQTT, OPCUA	—
I/O Interfaces		
Serial Port	RS-232/422/485 switchable x 2, Phoenix Connector	RS-232/422/485 switchable x 4, 2 by Phoenix Connector, 2 by pin header
Ethernet	Gigabit Ethernet x 2, RJ-45 support IEEE 1588, TSN, integrated RGMII	
Audio	Line in / Line Out / Mic x 1 (optional) Speaker out / Line Out / Mic In (only for Android OS)	Line in / Line Out / Mic x 1 (optional)
USB	USB 3.0 Gen1 x 2 (rear I/O) USB 2.0 x 1 (pin header)	USB 2.0 Gen1 x 2 (rear I/O) -Host/device by image option, default: host x 1 -Host x 1 USB2.0 (Pin Header) x 1
ADC	—	
DI/DO	—	
CAN Bus	CAN-FD x 2 CH, Phoenix Connector	CAN-FD x 2 CH, Phoenix Connector (optional)
Display	HDMI 2.0 x 1 LVDS x 1, dual channel, 18/24bit	HDMI 1.4b up to 1080p x 1 LVDS x 1, dual channel, 18/24bit
Power Connector	2 Pin 3.81mm Pitch Phoenix Connector	
Debug Port	Micro USB x 1	
Expansion Slot	M.2 2230 E-key x 1, support Wifi/BT module, etc Full Size Mini Card x 1, support 4G module, etc Power control available by software Nano SIM card slot x 1	Half Size Mini Card (USB2.0) x 1, power control available by software Full Size Mini Card (USB2.0) x 1, power control available by software SPI x 4 (optional) I2C x 2 (optional) UART x 2 (optional)
Other Interface	GPIO x 8 (w/o TPM: include SPI x1, I2C x1, GPIO x2, w/TPM: I2C x1, GPIO x2) UART x 1 (optional w/o debug port)	GPIO x 1, I2C x 1, SPI x 1 (CSx2)
Power Supply		
Power Requirement	DC 9-36V (Optional: 12V)	
Power Consumption	14.8W (Full Loading)	5.76W (Full Loading)
MTBF (Hours)	1,699,754 Hours	1,279,408 Hours
Environmental and Mechanical		
Dimension	3.94" x 2.84"(100mm x 72mm)	
Weight	0.18 lb (0.08 Kg)	
Mount Options	—	
Operation Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C) (Option: 0°C ~ 60°C)	-40 °F ~ 185 °F (-40 °C ~ 85 °C) (Option: 0°C ~ 60°C)
Storage Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C)	-40 °F ~ 185 °F (-40 °C ~ 85 °C)
Operation Humidity	0% ~ 90% relative humidity, non-condensing	
Certification	CE/FCC Class A	
Note		

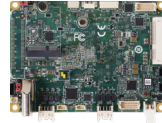
Note: All specifications are subject to change without notice.

Board Level Products

Pico-ITX Boards



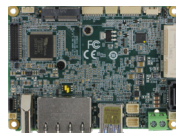
Model	PICO-ARU4	PICO-MTU4
System Form Factor	PICO-ITX	
CPU	Intel® Core™ Ultra 7 Processor 255U (2PC+10EC/14T, P-core 2.00 GHz, E-core 1.70 GHz, 15W) Intel® Core™ Ultra 5 Processor 225U (2PC+10EC/14T, P-core 1.50 GHz, E-core 1.30 GHz, 15W)	Intel® Core™ Ultra 7 Processor 165U (2PC+10EC/14T, P-core 1.70 GHz, E-core 1.20 GHz, 15W) Intel® Core™ Ultra 7 Processor 155U (2PC+10EC/14T, P-core 1.70 GHz, E-core 1.20 GHz, 15W) Intel® Core™ Ultra 5 Processor 135U (2PC+10EC/14T, P-core 1.60 GHz, E-core 1.10 GHz, 15W) Intel® Core™ Ultra 5 Processor 125U (2PC+10EC/14T, P-core 1.30 GHz, E-core 0.80 GHz, 15W)
Chipset	Integrated with Intel® SoC	
Memory Type	Single-Channel LPDDR5 6400, up to 32GB	
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0	
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	3.94" x 2.84" (100mm x 72mm)	
Gross Weight	0.18 lb (0.08 Kg)	
OS Support	Windows 10/11 (64bit, NPU is supported only on Win 11) Linux Ubuntu 22.04.2 kernel 5.19.0 32 generic	
Power		
Power Requirement	12V only	
Power Supply Type	AT/ATX	
Connector	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (Optional)	
Power Consumption	Intel® Core™ Ultra 7 Processor 255U, DDR5 32GB x 1, 2.85A @+12V (Typical) Intel® Core™ Ultra 7 Processor 255U, DDR5 32GB x 1, 6.96A @+12V (Max)	Intel® Core™ Ultra 7 Processor 165U, DDR5 32GB x1, 2.94A@+12V (Typical)/Intel® Core™ Ultra 7 Processor 165U, DDR5 32GB x1, 5.13A@+12V (Max)
Display		
Controller	Intel® Graphics	
LVDS/eDP	eDP 1.4 x 1	
Display Interface	HDMI 1.4 x 1, 3840 x 2160 @30Hz	
Multiple Display	Up to 2 Simultaneous Displays	
Audio		
Codec	—	
Audio Interface	—	
Speaker	—	
External I/O		
Ethernet	Intel® Ethernet Controller I226, 2.5GbE, RJ-45 x 1 Intel® Ethernet Connection I219, 1GbE RJ-45 x 1	
USB	USB 3.2 Gen 2 x 2 ports	
Serial Port	—	
Video	HDMI 1.4 x 1	
Internal I/O		
USB	USB 2.0 x 2	
Serial Port	COM 1 ~ 2 (RS-232/422/485, supports 5V/12V/RI)	
Video	—	
SATA	SATA 6Gb/s x 1 +5V SATA Power Connector x 1	
Audio	—	
DIO/GPIO	GPIO 4-bit	
SMBus/I2C	I2C/SMBus (Default: SMBus)	
Fan	4pins Smart Fan x1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
Expansion		
Mini PCIe/msATA	—	
M.2	M.2 2280 M-Key x 1 (PCIe 4.0 [x4] / SATA, Default: PCIe [x4], select by BOM); M.2 2230 E-Key x 1 (PCIe 4.0 [x1] + USB 2.0)	
Others	—	
Environment & Certification		
Operating Temp	-4°F ~ 158°F (-20°C ~ 70°C)	
Storage Temp	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	1,063,716	
EMC	CE/FCC Class A	



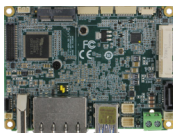
Model	PICO-MTU4-SEMI	PICO-ADN2
System Form Factor	PICO-SEMI	PICO-ITX
CPU	Intel® Core™ Ultra 5 Processor 125U (2PC+10EC/14T, P core 1.30 GHz, E core 0.80 GHz, 15W)	Intel Atom® x7000E Series, Intel® Processor N-series, and Intel® Core™ i3 Processor N-series: Intel® Processor N97 (4C, 2.00 GHz, 12W) Intel® Core™ i3-N305 Processor (8C, 1.80 GHz, 15)
Chipset	Integrated with Intel® SoC	
Memory Type	Single Channel LPDDR5 6400, up to 32GB	Onboard Single-Channel LPDDR5, up to 16GB
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0	
RTC Battery	Lithium Battery 3V/240mAh	Lithium Battery 3V/240mAh 2-pin Header for external supercapacitor (Optional) Note: Capacitance of the capacitor must be large enough to achieve a running time of at least 48 hours.
Dimension	4.25" x 3.74" x 1.69" (108mm x 95mm x 43mm)	3.94" x 2.84" (100mm x 72mm)
Gross Weight	1.10 lb (0.60 Kg)	0.18 lb (0.08 Kg)
OS Support	Windows 10/11 (64 bit), Linux Ubuntu 22.04.2 kernel 5.19.0 32 generic	Windows 10/11 (64-bit), Ubuntu 24.04.2
Power		
Power Requirement	+12V	12V only
Power Supply Type	ATX	AT/ATX
Connector	Lockable DC Jack Connector	JST.S2P-VH(LF)(SN) (Default)
Power Consumption	Intel® Core™ Ultra 5 Processor 125U, LPDDR5 32GB (Micron 3UC47 D8DRX x2), 2.75A @ +12V (Typical); Intel® Core™ Ultra 5 Processor 125U, LPDDR5 32GB (Micron 3UC47 D8DRX x2), 4.95A @ +12V (Max)	Intel® Processor N97, LPDDR5 8GB, 2.43A @ +12V (Typical) Intel® Processor N97, LPDDR5 8GB, 2.91A @ +12V (Max)
Display		
Controller	Intel® Graphics	Intel® UHD Graphics
LVDS/eDP	—	LVDS x 1 (18/24-bit 2CH), 1920 x 1200 @60Hz; eDP 1.4 x 1, 3840 x 2160 @60Hz (Optional); LVDS Signal Voltage: 3.3 V / 5 V, 1.5 A (selectable via jumper); LVDS Backlight Voltage: 5 V / 12 V, 2.5 A (selectable via jumper)
Display Interface	HDMI 1.4 x 1, 3840 x 2160 @30Hz	HDMI 1.4 x 1, 3840 x 2160 @30Hz; DDI x1 (Via Bio, Optional)
Multiple Display	1 Display	Up to 3 Simultaneous Displays
Audio		
Codec	—	—
Audio Interface	—	—
Speaker	—	—
External I/O		
Ethernet	Intel® Ethernet Controller I226, 2.5GbE, RJ 45 x 1 Intel® Ethernet Connection I219 , 1GbE, RJ 45 x 1	8-Pin Header for 1GbE x 2, (Intel® Ethernet Controller I226-IT x 1, Realtek RTL8111H-CG x 1)
USB	USB 3.2 Gen2 x 2	—
Serial Port	COM 1~2 (RS-232/422/485, support 5V/12V/RI, Optional)	—
Video		HDMI 1.4 x 1
Internal I/O		
USB	—	USB 3.2 Gen 1 Pin Header x 2; USB 2.0 x 2
Serial Port	—	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RI, by BOM)
Video	—	LVDS / eDP x 1 (Default: LVDS); Backlight Voltage Control (5/12V @2.5A)
SATA	—	—
Audio	—	—
DIO/GPIO	GPIO 4-bit (Optional)	GPIO 4-bit
I2C/SMBus	—	I2C/SMBus (Default: SMBus)
Fan	—	4pins Smart Fan x 1
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
Expansion		
Mini PCIe/mSATA	—	Full-size mSATA/mPCIe x 1 (default: mSATA, select with BIOS)
M.2	M.2 2280 M-Key x 1 (PCIe 4.0 [x4]/SATA, Default: PCIe [x4], select by BOM) M.2 2230 E-Key x 1 (PCIe 4.0 [x1] + USB 2.0)	M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0)
Others	—	BIO (Optional, PCIe [x1] x 1, USB2.0, SMBus, DDI, LPC)
Environment & Certification		
Operating Temp	14°F ~ 122°F (-10°C ~ 50°C) with 0.7m/s air flow	-4°F ~ 158°F (-20°C ~ 70°C)
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)	1,063,716	1,636,770
EMC	CE/FCC Class A	CE/FCC Class A

Board Level Products

Pico-ITX Boards



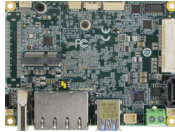
Model	PICO-TWL4 Rev.B	PICO-ASL4 Rev.B
System Form Factor	PICO-ITX	
CPU	Intel® Processor N150 (4C, 0.80GHz, 6W) Intel® Core™ 3 Processor N355 (8C, 1.90GHz, 15W)	Intel Atom® x7000E Series Atom® x7433RE(4C, 1.5GHz, 9W) Atom® x7835RE(8C, 1.3GHz, 12W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR5 4800, Single Channel SODIMM x 1, Max.16GB, Non-ECC	
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0	
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	3.94" x 2.84" (100mm x 72mm)	
Gross Weight	0.18 lb (0.08 Kg)	
OS Support	Windows 10/11 (64-bit) Ubuntu 22.04.2/Kernel 5.19	
Power		
Power Requirement	+12V (Optional: +9 ~ 36V, support by power adapter card)	
Power Supply Type	AT/ATX	
Connector	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (Optional)	
Power Consumption	Intel® Core™ 3 Processor N355, DDR5 16GB x 1, 3.53A @+12V (Typical) Intel® Core™ 3 Processor N355, DDR5 16GB x 1, 5.25A @+12V (Max)	Intel® x7835RE, DDR5 16GB x1, 3.06A@ +12V (TYPICAL) Intel® x7835RE, DDR5 16GB x1, 4.21A@ +12V (MAX)
Display		
Controller	Intel® UHD Graphics for 12th Gen Intel® Processors	
LVDS/eDP	LVDS x 1 (18/24bit 2CH) 1920 x 1200 @60Hz eDP 1.4 x 1, 3840 x 2160 @60Hz (Optional)	
Display Interface	HDMI 1.4 x 1, 3840 x 2160 @30Hz	
Multiple Display	Up to 2 Simultaneous Displays	
Audio		
Codec	Realtek ALC256 (Optional)	
Audio Interface	Line-out (Optional, audio function not available for WITAS SKU)	
Speaker	—	
External I/O		
Ethernet	Intel® Ethernet Controller I226, 2.5GbE, RJ-45 x 1 Realtek RTL8111H-CG, 1GbE, RJ-45 x 1	
USB	USB 3.2 Gen2[x1] x 2 ports	
Serial Port	—	
Video	HDMI 1.4 x 1	
Internal I/O		
USB	USB 2.0 x 4	
Serial Port	COM 1~2 (RS-232/422/485, supports 5V/12V/RI) COM 3~4 (RS-232)	
Video	LVDS/eDP x 1 (Default: LVDS) Inverter x 1 (12V/2A)	
SATA	SATA 6Gb/s x 1 +5V SATA Power Connector x 1	
Audio	Line-out header x 1 (Optional, audio function not available for WITAS SKU)	
DIO/GPIO	GPIO 4-bit	
SMBus/I2C	SMBus/I2C x 1 (Default: SMBus)	
Fan	4-pin Smart Fan x 1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
Expansion		
Mini PCIe/mSATA	Full-size mSATA/mPCIe x 1 (default: mSATA, select with BIOS)	
M.2	M.2 2230 E-Key x 1	
Others	—	
Environment & Certification		
Operating Temp	-4°F ~ 158°F (-20°C ~ 70°C) WITAS 2 -40°F ~ 185°F (-40°C ~ 85°C), airflow 0.5m/s	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)	2,219,397	
EMC	CE/FCC Class A	
Note		



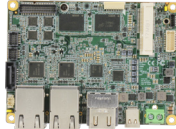
Model	PICO-ADN4 Rev.B	PICO-ADN4-SEMI Rev.B
System Form Factor	PICO-ITX	PICO-SEMI
CPU	Intel Atom [®] x7000E Series, Intel [®] Processor N-series, and Intel [®] Core™ i3 Processor N-series Processors: Intel [®] Processor N97 (4C/4T, 2.00 GHz, 12W) Intel [®] Core™ i3-N305 Processor (8C/8T, 1.80 GHz, 15W) Intel Atom [®] x7425E Processor (4C/4T, 1.50 GHz, 12W)	Intel [®] Processor N-series & Intel [®] Core™ Processor N-series Processors: Intel [®] Processor N97 (4C/4T, 2.00 GHz, 12W) Intel [®] Core™ i3-N305 Processor (8C/8T, 1.80 GHz, 15W)
Chipset	Integrated with Intel [®] SoC	
Memory Type	DDR5 4800, Single Channel SODIMM x 1, Max.16GB, Non-ECC	
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0	
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	3.94" x 2.84" (100mm x 72mm)	5.51" x 3.94" x 1.69" (140mm x 100mm x 43mm)
Gross Weight	0.18 lb (0.08 Kg)	1.55 lb (0.70 Kg)
OS Support	Windows 10/11 (64 bit), Ubuntu 22.04.2/Kernel 5.19	
Power		
Power Requirement	+12V (Optional: +9 ~ 36V, support by power adapter card)	+9~36V (Optional: 12V)
Power Supply Type	AT/ATX	ATX
Connector	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (Optional)	Lockable DC Jack Connector
Power Consumption	Intel [®] x7835RE, DDR5 16GB x1, 3.06A@ +12V (TYPICAL) Intel [®] x7835RE, DDR5 16GB x1, 4.21A@ +12V (MAX)	Intel [®] Core™ i3-N305, DDR5 16GB x 1, 2.43A @+12V (Typical) Intel [®] Core™ i3-N305, DDR5 16GB x 1, 3.63A @+12V (Max)
Display Controller	Intel [®] UHD Graphics for 12th Gen Intel [®] Processors	
LVDS/eDP	LVDS x 1 (18/24bit 2CH) 1920 x 1200 @60Hz eDP 1.4 x 1, 3840 x 2160 @60Hz (Optional)	—
Display Interface	HDMI 1.4 x 1, 3840 x 2160 @30Hz	
Multiple Display	Up to 2 Simultaneous Displays	1 Display
Audio		
Codec	Realtek ALC256 (Optional)	
Audio Interface	Line-out (Optional, no audio function in WITAS 2)	Line-out (Optional)
Speaker	—	
External I/O		
Ethernet	Intel [®] Ethernet Controller I226 2.5GbE, RJ-45 x 1 Realtek RTL8111H-CG, 1GbE, RJ-45 x 1,	Intel [®] Ethernet Controller I226 2.5GbE, RJ-45 x 1 Realtek RTL8111H-CG, 1GbE, RJ-45 x 1
USB	USB 3.2 Gen 2 x 2	
Serial Port	—	COM 1~2 (RS-232/422/485, support 5V/12V/Ri, Optional)
Video Internal I/O	HDMI 1.4 x 1	
USB	USB 2.0 x 4	—
Serial Port	COM1~2 (RS232/422/485, supports 5V/12V/Ri) COM3~4 (RS232)	—
Video	LVDS/eDP x 1(Default: LVDS) Inverter x 1 (12V/2A)	—
SATA	SATA 6Gb/s x 1 +5V SATA Power Connector x 1	—
Audio	Line-out header x 1 (Optional, no audio function in WITAS 2)	Line-out Header x 1 (Optional)
DIO/GPIO	GPIO 4-bit	GPIO 4-bit (Optional)
SMBus/I2C	SMBus/I2C x 1 (Default: SMBus)	
Fan	4pins Smart Fan x1	—
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others Expansion	—	
Mini PCIe/msATA	Full-Sized mSATA/mPCIe x 1 (default: mSATA, select with BIOS)	
M.2	M.2 2230 E-Key x 1	M.2 2230 E-Key x 1 (PCIe [x1] + USB 2.0)
Others	—	
Environment & Certification		
Operating Temp	-4°F ~ 158°F (-20°C ~ 70°C)	Default: 32°F ~ 122°F (0°C ~ 50°C) with 0.7m/s air flow Optional: -40°F ~ 122°F (-40°C ~ 50°C)
Storage Temp	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	2,219,397	
EMC	CE/FCC Class A	

Board Level Products

Pico-ITX Boards



Model	PICO-ADN4	PICO-RAP4
System Form Factor	PICO-ITX	
CPU	Intel Atom® x7000E Series, Intel® Processor N-series, and Intel® Core™ i3 Processor N-series Processors: Intel® Processor N50 (20/2T, 1.00 GHz, 6W) Intel® Processor N97 (4C/4T, 2.00 GHz, 12W) Intel® Core™ i3-N305 (8C/8T, 1.80 GHz, 15W) Intel Atom® x7425E (4C/4T, 1.50 GHz, 12W)	13th Generation Intel® Core™ i3/J series Processors: Intel® Core™ i7-1360P (4P+8E/16T, 2.20 GHz, 28W) Intel® Core™ i7-1370PE (6P+8E/20T, 1.90 GHz, 28W) Intel® Core™ i7-1370PRE (6P+8E/20T, 1.90 GHz, 28W) Intel® Core™ i5-1340PE (4P+8E/16T, 1.80 GHz, 28W) Intel® Core™ i3-1320PE (4P+4E/12T, 1.70 GHz, 28W) Intel® Processor U300E (1P+4E/6T, 1.10 GHz, 15W)
Chipset	Integrated with Intel® SoC	
Memory Type	Onboard LPDDR5, Single Channel (Max. 16GB)	DDR5 5200, SODIMM x 1, Non-ECC (Max. 32GB)
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0	
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	3.94" x 2.84" (100mm x 72mm)	
Gross Weight	0.18 lb (0.08 Kg)	
OS Support	Windows 10/11 (64 bit) Ubuntu 22.04.2/Kernel 5.19	Windows 10/11 (64 bit) Ubuntu 22.04.2 (eDP is verified on Ubuntu 23.10.1)
Power		
Power Requirement	+12V	12V only
Power Supply Type	AT/ATX	
Connector	2-pin Phoenix Connector (Default), Lockable DC Jack Connector (Optional)	
Power Consumption	Intel® Core™ i3-N305, LPDDR5 16GB x1, 2.97A@ +12V (TYPICAL) Intel® Core™ i3-N305, LPDDR5 16GB x1, 4.46A@ +12V (MAX)	Intel® Core™ i7-1370PE, DDR5 32GB, 4.51A@ +12V (TYPICAL) Intel® Core™ i7-1370PE, DDR5 32GB, 7.46A@ +12V (MAX)
Display	Intel® UHD Graphics	
Controller		
LVDS/eDP	LVDS x 1 (18/24bit 2Ch) 1920 x 1200 @60Hz eDP 1.4 x 1, 3840 x 2160 @60Hz (Optional)	LVDS x 1 (18/24bit 2Ch) 1920 x 1200 @60Hz eDP 1.4 x 1, up to 3840 x 2160 (Optional)
Display Interface	HDMI 1.4 x 1, 3840 x 2160 @30Hz, DDI (Via BIO, Optional)	HDMI 1.4 x 1, 3840 x 2160 @30Hz
Multiple Display	Up to 3 Simultaneous Displays	Up to 2 Simultaneous Displays
Audio		
Codec	Realtek ALC256 (Optional)	Realtek ALC256 (Optional)
Audio Interface	Line-Out (Audio function not available for WITAS SKU)	Line-in/Line-out/Mic (Optional, Audio function not available for WITAS SKU)
Speaker	—	
External I/O		
Ethernet	Intel® i226 2.5GbE, RJ-45 x 1 Realtek RTL8111H-CG, 1GbE, RJ-45 x 1	Intel® Ethernet Controller i226, 2.5GbE RJ-45 x 1 Intel® Ethernet Connection i219, 1GbE RJ-45 x 1
USB	USB 3.2 Gen 2 x 2	
Serial Port	—	
Video	HDMI 1.4 x 1	
Internal I/O		
USB	USB 2.0 x 2	
Serial Port	COM 1~2 (RS-232/422/485, supports 5V/12V/RI)	COM1~2 (RS232/422/485, supports 5V/12V/RI)
Video	LVDS/eDP x 1 (Default: LVDS), Inverter x 1 (12V/2A)	
SATA	SATA 6Gb/s x 1; +5V SATA Power Connector x 1	
Audio	Line-out header x 1 (Optional, audio function not available for WITAS SKU)	Audio Header x 1 (Optional, Audio function not available for WITAS SKU)
DIO/GPIO	GPIO 4-bit	GPIO 8-bit
SMBus/I2C	SMBus/I2C x 1 (Default: SMBus)	
Fan	4-pin Smart Fan x 1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
Expansion		
Mini PCIe/mSATA	Full-Size mSATA/mPCIe x 1 (default: mSATA, select with BIOS)	Half-size mSATA/mPCIe x 1 (default: mSATA, select with BIOS)
M.2	M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0)	M.2 2280 M-Key x 1 (PCIe 4.0 [x4])
Others	BIO (Optional, need customized BIOS, USB2.0, SMBUS, DDI, LPC, PCIe [x1] x 1)	MIPI-CSI via 61-Pin FPC Connector
Environment & Certification		
Operating Temp	-4°F ~ 158°F (-20°C ~ 70°C) WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C)	32°F ~ 140°F (0°C ~ 60°C) WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C)
Storage Temp	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	1,087,822	1,087,053
EMC	CE/FCC Class A	
Note		



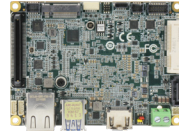
Model	PICO-V2K4	PICO-V2K4-SEMI
System		
Form Factor	PICO-ITX	PICO-SEMI
CPU	AMD RYZEN™ V2000 embedded Processor Family V2718 (8C/16T, 1.70GHz, 25W) V2516 (6C/12T, 2.10GHz, 25W)	
Chipset	Integrated with AMD RYZEN™ V2000 embedded Processor	
Memory Type	Onboard LPDDR4x 3733, Dual Channel, Non-ECC (Max.32GB)	
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0	
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	3.94" x 2.84" (100mm x 72mm)	4.80" x 3.18" x 2.13" (122mm x 80.8mm x 54 mm)
Gross Weight	0.18 lb (0.08 Kg)	0.84 lb (0.38 Kg)
OS Support	Windows 10 /11 (64 bit) Linux Ubuntu 20.04.3/Kernel 5.18.0-4449-amd+	Windows 10 (64 bit) Linux Ubuntu 20.04.3/Kernel 5.18.0-4449-amd+
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 32GB, NVM64GB 4.24A @ +12V(TYPICAL) V2718, LPDDR4x 32GB, NVM64GB, 4.82A @ +12V(MAX)	
Display		
Controller	AMD Radeon 6, 7 Graphics (Renoir)	
LVDS/eDP	LVDS x 1 (18/24bit) 1024 x 768 @60Hz eDP1.3 x 1, 3840 x 2160 @60Hz (Optional)	—
Display Interface	Type C to DP x 1, 3480 x 2160 @60Hz;; HDMI 2.0 x 1, 3480 x 2160 @60Hz; HDMI 1.4 x 1, 3480 x 2160 @30Hz	
Multiple Display	Up to 4 Simultaneous Displays	Up to 3 Simultaneous Displays
Audio		
Codec	Realtek ALC269 (Optional)	
Audio Interface	Line-In / Line-Out / Mic (Optional, audio function not available for WITAS SKU)	Line-out (Optional)
Speaker	—	
External I/O		
Ethernet	Intel® i225/226 2.5GbE, RJ-45 x 1 Intel® i210 1GbE, RJ-45 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	—	COM1~2 (RS232/422/485, support 5V/12V/RI, Optional)
Video	DP x 1 (Via Type C), HDMI 2.0 x 1, HDMI 1.4 x 1	
Internal I/O		
USB	USB2.0 x 4	—
Serial Port	COM1~4 (RS232/422/485, support 5V/12V/RI)	—
Video	LVDS/eDP x 1(Default: LVDS)	—
SATA	SATA 6.0 Gb/s x 1, +5V SATA Power Connector x 1 Onboard NVME SSD (Optional, up to 128GB, PCIe[x2])	Onboard NVME SSD (Optional, up to 128GB, PCIe[x2])
Audio	Audio Header (Optional, audio function not available for WITAS SKU)	Line-out (Optional)
DIO/GPIO	GPIO 8-bit	—
SMBus/I2C	I2C/SMBus x 1 (Default: SMBus)	—
Fan	4pins Smart Fan x 1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
Expansion		
Mini PCIe/mSATA	Full-Size mSATA/mPCIe x 1 (Default: mPCIe, select with HW BOM)	
M.2	M.2 2280 M-Key x 1 (PCIe 4.0 [x4]/SATA, Default: PCIe [x4], select with BIOS)	
Others	—	
Environment & Certification		
Operating Temp	32°F ~ 140°F (0°C ~ 60°C) WITAS 2 -40°F ~ 185°F (-40°C ~ 85°C)	32°F ~ 122°F (0°C ~ 50°C) with 0.2 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	
Note		

Board Level Products

Pico-ITX Boards



Model	PICO-TGU4	PICO-TGU4-SEMI
System		
Form Factor	PICO-ITX	PICO-SEMI
CPU	Intel® 11th Generation Core™ / Celeron Processors: i7-1185G7E (4C/8T, 1.80GHz, 15W) i5-1145G7E (4C/8T, 1.5GHz, 15W) i3-1115G4E (2C/4T, 2.20GHz, 15W) 6305E (2C/2T, 1.80GHz, 15W)	
Chipset	Integrated with Intel® SoC	
Memory Type	Onboard LPDDR4x 3200, Dual Channel, In-Band ECC (select SKUs, Max.32GB)	
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0 (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 lb (0.08 Kg)	0.84 lb (0.38 Kg)
OS Support	Windows 10 (64bit) Linux Ubuntu 20.10.2/Kernel 5.8.0-33-generic	
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® i7-1185G7E, LPDDR4x 32GB, 2.89A@ +12V (TYPICAL)	
Display		
Controller	Intel® Iris® Xe (i5/i7 support) Intel® UHD Graphics (i3/Celeron support)	
LVDS/eDP	eDP1.3 x 1, 3840 x 2160@60Hz	—
Display Interface	HDMI2.0 x 1, 3840 x 2160 @60Hz	
Multiple Display	Up to 2 Simultaneous Displays	Single display
Audio		
Codec	Realtek ALC269 (Optional)	Realtek ALC269 (By request)
Audio Interface	Line-In / Line-Out / Mic (Optional, audio function not available for WITAS SKU)	Line-out (By request)
Speaker	—	
External I/O		
Ethernet	Intel® i225/226, 2.5GbE, RJ-45 x 1 Intel® i219, 1GbE, RJ-45 x 1	
USB	USB3.2 Gen2 x 2	
Serial Port	—	COM1~2 (RS232/422/485, support 5V/12V/RI, Optional)
Video	HDMI2.0 x 1	
Internal I/O		
USB	USB3.2 Gen1 x 2 USB2.0 x 4	—
Serial Port	COM1~2 (RS232/422/485, support 5V/12V/RI)	—
Video	eDP x 1	—
SATA	SATA 6.0 Gb/s x 1, +5V SATA Power Connector x 1	—
Audio	Audio Header (Optional, audio function not available for WITAS SKU)	Line-out (By request)
DIO/GPIO	GPIO 8-bit	—
SMBus/I2C	I2C/SMBus x1 (Default: SMBus)	—
Fan	4pins Smart Fan x 1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
Expansion		
Mini PCIe/mSATA	Full-Size mSATA/mPCIe x 1 (Default: mPCIe, select with BIOS)	
M.2	M.2 2280 M-Key x 1 (PCIe 4.0 [x4]/SATA, Default: PCIe [x4], select with HW BOM)	
Others	—	
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		



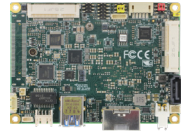
Model	PICO-WHU4	PICO-EHL1
System Form Factor	PICO-ITX	
CPU	Intel® 8th Generation Core™ / Celeron Processors: i7-8665UE (4C/8T, 1.70GHz, 15W) i5-8365UE (4C/8T, 1.60GHz, 15W) i3-8145UE (2C/4T, 2.20GHz, 15W) 4305UE (2C/2T, 2.00GHz, 15W)	Intel® Atom® x6000E series, Pentium®, and Celeron® N and J series Processors: J6412 (4C/4T, 2.00GHz, 10W) N6210 (2C/2T, 1.20GHz, 6.5W) x6425E (4C/4T, 2.0GHz, 12W) x6211E (2C/2T, 1.3GHz, 6W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR4 2400, SODIMM x 1, Non-ECC (Max. 32GB)	DDR4 3200, SODIMM x 1, Non-ECC (Max. 32GB)
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	3.94" x 2.84" (100mm x 72mm)	
Gross Weight	0.18 lb (0.08 Kg)	
OS Support	Windows 10 (64 bit) Linux Ubuntu 18.04.3/Kernel 5.3.0-51-generic	Windows® 10 (64-bit) Ubuntu 20.04.5/Kernel 5.15
Power	+12V	
Power Requirement	AT/ATX	
Power Supply Type	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (colay)	
Connector		
Power Consumption	Intel® i7-8665UE @ DDR4 16GB, 2.23A@ +12V(TYPICAL)	Intel Atom® x6425E, DDR4 32GB, 2.67A@ +12V (TYPICAL) Intel Atom® x6425E, DDR4 32GB, 2.84A@ +12V (MAX)
Display Controller	Intel® UHD Graphics 610/620	Intel® UHD Graphics for 10th Gen Intel® Processors
LVDS/eDP	—	LVDS x 1 (18/24bit 2CH) 1920 x 1200 @60Hz eDP 1.3 x 1, 3840 x 2160 @60Hz (Optional)
Display Interface	HDMI 1.4 x 2, up to 3840 x 2160 @30Hz	HDMI 1.4 x 1, 3840 x 2160 @30Hz
Multiple Display	Up to 2 Simultaneous Displays	
Audio Codec	—	Realtek ALC269 (Optional)
Audio Interface	—	Line-In / Line-Out / Mic (Optional, audio function not available for WITAS SKU)
Speaker	—	
External I/O		
Ethernet	Realtek 8111H 1GbE, RJ45 x 2	Realtek 8111H-CG 1GbE, RJ45 x 1
USB	USB 3.2 Gen2 x 2	
Serial Port	—	
Video	HDMI 1.4 x 2	HDMI 1.4 x 1
Internal I/O		
USB	USB2.0 x 2	USB 2.0 x 2
Serial Port	COM1~2 (RS232/422/485, support 5V/12V/Ri)	
Video	—	LVDS/eDP x 1(Default: LVDS)
SATA	SATA 6.0 Gb/s x 1, +5V SATA Power Connector x 1	
Audio	—	Audio Header x 1 (Optional, audio function not available for WITAS SKU)
DIO/GPIO	GPIO 4-bit	
SMBus/I2C	I2C/SMBus x1 (Default: SMBus)	
Fan	4pins Smart Fan x1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
Expansion		
Mini PCIe/mSATA	Full-Size mSATA/mPCIe x 1 (Default: mPCIe, select with BIOS)	Full-Size mSATA/mPCIe x 1 (Default: mSATA, select with BIOS)
M.2	M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB2.0)	M.2 2242 B-key x 1 (PCIe [x2] as default, USB2.0 is optional)
Others	—	BIO x 1 (Optional, supports PCIe [x1] x 2, line out, DDI, GPIO, LPC, SMBUS, USB.3.0/2.0)
Environment & Certification		
Operating Temp	32°F ~ 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)	298,762	489,989
EMC	CE/FCC Class A	
Note		

Board Level Products

Pico-ITX Boards



Model	PICO-EHL4	PICO-EHL4-SEMI
System Form Factor	PICO-ITX	PICO-SEMI
CPU	Intel® Atom® x6000E series, Pentium®, and Celeron® N and J series Processors: J6412 (4C/4T, 2.00GHz, 10W) N6210 (2C/2T, 1.20GHz, 6.5W) x6425E (4C/4T, 2.0GHz, 12W) x6211E (2C/2T, 1.3GHz, 6W)	Intel® Celeron® Processor J6412 (4C/4T, 2.00 GHz, 10W) Intel® Celeron® Processor N6210 (2C/2T, 1.20 GHz, 6.5W)
Chipset	Integrated with Intel® SoC	
Memory Type	Onboard LPDDR4x 3200, Single Channel, Non-ECC (Max. 16GB)	Onboard Single-Channel LPDDR4x 3200MHz (Max. 16GB, Non ECC)
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	Intel® PTT (Integrated TPM)	
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	3.94" x 2.84" (100mm x 72mm)	4.80" x 3.18" x 1.75" (122mm x 80.8mm x 44.4mm)
Gross Weight	0.18 lb (0.08 Kg)	0.88 lb (0.40Kg)
OS Support	Windows 10 (64 bit) Ubuntu 20.04.4/Kernel 5.13.0-30-generic	Windows 10 (64 bit) Ubuntu 20.04.3(0T)/Kernel 5.13
Power		
Power Requirement	+12V	12V only
Power Supply Type	AT/ATX	ATX
Connector	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (colay)	DC Jack Connector
Power Consumption	Intel® Atom™ x6425E, LPDDR4x onboard 16GB, 2.48A@ +12V(TYPICAL) Intel® Atom™ x6425E, LPDDR4x onboard 16GB, 2.62A@ +12V(MAX)	Intel® Pentium® J6426, LPDDR4x onboard 16GB, 1.43A@ +12V(TYPICAL) Intel® Pentium® J6426, LPDDR4x onboard 16GB, 1.78A@ +12V(MAX)
Display Controller	Intel® UHD Graphics for 10th Gen Intel® Processors	
LVDS/eDP	LVDS x 1 (18/24bit 2CH) 1920 x 1200 @60Hz eDP 1.3 x 1, 3840 x 2160 @60Hz (Optional)	—
Display Interface	HDMI 2.0 x 2, 3840 x 2160 @60Hz	HDMI 2.0 x 1, 3840 x 2160 @60Hz
Multiple Display	Up to 3 Simultaneous Displays	Up to 1 Display
Audio		
Codec	—	
Audio Interface	—	
Speaker	—	
External I/O		
Ethernet	Realtek 8111 1GbE, RJ45 x 2	RTL8111H-CG 1GbE, RJ45 x 2
USB	USB 3.2 Gen 2 x 2	
Serial Port	—	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RI, Optional)
Video	HDMI 2.0 x 2	HDMI 2.0 x 1
Internal I/O		
USB	USB 2.0 x 2	—
Serial Port	COM1~2 (RS232/422/485, support 5V/12V/RI)	—
Video	LVDS/eDP x 1(Default: LVDS)	—
SATA	SATA 6.0 Gb/s x 1, +5V SATA Power Connector x 1 eMMC5.1 32GB (Optional to 16/64/128GB)	32GB eMMC 5.1 (Optional: 64GB/128GB)
Audio	—	
DIO/GPIO	GPIO 4-bit	—
SMBus/I2C	I2C/SMBus x1 (Default: SMBus)	—
Fan	4pins Smart Fan x1	—
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
Expansion		
Mini PCIe/mSATA	Full size mPCIe/mSATA x 1 (SATA as default, PCIe selected by BIOS)	
M.2	M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB2.0)	M.2 2230 E-Key x 1 (PCIe [x1]/USB 2.0)
Others	CANBUS x 2 (Optional, N6210/J6412 not support, support up to 5Mbit/s)	—
Environment & Certification		
Operating Temp	32°F ~ 140°F (0°C ~ 60°C) WITAS 2 -40°F ~ 185°F (-40°C ~ 85°C)	32°F ~ 122°F (0°C ~ 50°C) with 0.5m/s air flow
Storage Temp	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	489,989	
EMC	CE/FCC Class A	
Note		



Model	PICO-APL1	PICO-APL3
System Form Factor	PICO-ITX	
CPU	Intel® Atom® / Celeron® / Pentium® Processors: N4200 (4C/4T, 1.10GHz, 6W) N3350 (2C/2T, 1.10GHz, 6W) E3950 (4C/4T, 1.60GHz, 12W) E3940 (4C/4T, 1.60GHz, 9.5W) E3930 (2C/2T, 1.306GHz, 6.5W)	Intel® Atom® / Celeron® / Pentium® Processors: N3350 (2C/2T, 1.10GHz, 6W) N4200 (4C/4T, 1.10GHz, 6W) E3950 (4C/4T, 1.60GHz, 12W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR3L 1866, Single Channel SODIMM x 1, Non-ECC (Max.8GB, up to 1600MHz)	
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security		
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	3.94" x 2.84" (100mm x 72mm)	
Gross Weight	0.18 lb (0.08 Kg)	
OS Support	Windows 10 (64 bit) Linux Ubuntu 20.04.4/ Kernel 5.11.0-13-generic	Windows 10 (64 bit) Linux Ubuntu 20.04.4/ Kernel 5.11.0-30-generic
Power		
Power Requirement	+12V	
Power Supply Type	AT/ATX	
Connector	Phoenix 2-pin Connector (Default) Lockable DC Jack Connector (colay)	Line-Out (Audio function not available for WITAS SKU)
Power Consumption	Intel® E3940 Processor, DDR3L 8GB x 1, 1.11A@+12V(TYPICAL)	Intel® N4200, DDR3L 8GB x 1, 2.16A@ +12V(TYPICAL) Intel® N4200, DDR3L 8GB x 1, 2.28A@ +12V(MAX)
Display	Intel® HD Graphics 500/505	
Controller	Intel® HD Graphics 500/505	
LVDS/eDP	LVDS x 1 (18/24bit 2CH) 1920 x 1200 @60Hz (Optional)	LVDS x 1 (18/24bit 2CH) 1920 x 1200 @60Hz
Display Interface	HDMI 1.4 x 1, 3840 x 2160 @30Hz DDI (Via BIO, Optional)	
Multiple Display	Up to 3 Simultaneous Displays	
Audio		
Codec	Realtek ALC897/892	Realtek ALC897/888
Audio Interface	Line-Out (Audio function not available for WITAS SKU)	
Speaker		
External I/O		
Ethernet	Intel® i210 1GbE, RJ45 x 1	
USB	USB 3.2 Gen1 x 2	
Serial Port		
Video	HDMI 1.4 x 1	
Internal I/O		
USB	USB 2.0 x 1	
Serial Port	COM1 (RS232) COM2 (RS232/422/485, support 5V/12V/RI)	
Video	LVDS x 1	
SATA	SATA 6.0 Gb/s x 1, +5V SATA Power Connector x 1	
Audio	Line-out header x 1 (Audio function not available for WITAS SKU)	
DIO/GPIO	GPIO 4-bit	
SMBus/I2C	I2C/SMBus x1 (Default: SMBus)	
Fan		
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others		
Expansion		
Mini PCIe/mSATA	Full-Size mSATA/mPCIe x 1 (Default: mSATA, select with HW BOM) Half-Sized mPCIe x 1	
M.2		
Others	BIO x 1 (Optional, supports PCIe [x1] x 2, line out, DDI, GPIO, LPC, SMBUS, USB3.0/2.0)	
Environment & Certification		
Operating Temp	32°F ~ 140°F (0°C ~ 60°C)	
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		

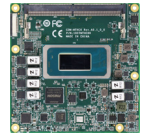
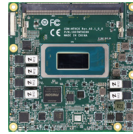
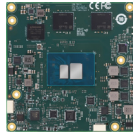
Board Level Products

Pico-ITX Boards

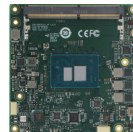
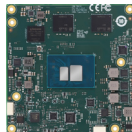
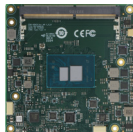


Model	PICO-APL3-SEMI	PICO-APL4
System Form Factor	PICO-SEMI	PICO-ITX
CPU	Intel® Atom® / Celeron® / Pentium® Processors: N4200 (4C/4T, 1.10GHz, 6W) N3350 (2C/2T, 1.10GHz, 6W)	Intel® Atom® / Celeron® / Pentium® Processors: N4200 (4C/4T, 1.10GHz, 6W) N3350 (2C/2T, 1.10GHz, 6W) E3950 (4C/4T, 1.60GHz, 12W)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

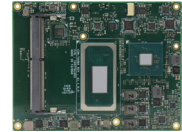
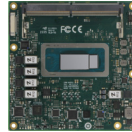
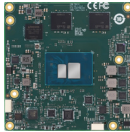
Model	PER-P30D
System	
Power Input	DC 9~36V
Power Output	DC 5V + DC 12V / max.120W (with HSK and 0.5m/s air flow)
Output Voltage Tolerance	±5%
Dimension	1.18" x 2.84" (30mm x 72mm)
Gross Weight	0.07 lb (0.03 Kg)
Input Connector	2-pin Phoenix Connector.180D (Default) Lockable DC Jack Connector (Optional)
Output Connector	2-pin Phoenix Connector.90D (Default)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)



Model	COM-TWLC6 Rev.B		COM-ARHC6	COM-MTHC6
System Form Factor	COM Express Type 6, Compact Size			
CPU	Intel N-series/Core™ CPU: Intel® Core™ 3 Processor N355 (8C, up to 3.9 GHz, 15W) Intel® Processor N150 (4C, up to 3.6 GHz, 6W)	Intel® Core™ Ultra Processors: Intel® Core™ Ultra 9 Processor 285H (16C/16T, up to 5.4 GHz, 45W) Intel® Core™ Ultra 7 Processor 255H (16C/16T, up to 5.1 GHz, 28W) Intel® Core™ Ultra 5 Processor 225H (14C/14T, up to 4.9 GHz, 28W)	Intel® Core™ Ultra Processors: Intel® Core™ Ultra 9 Processor 185H (16C/22T, up to 5.1 GHz, 45W) Intel® Core™ Ultra 7 Processor 155H (16C/22T, up to 4.8 GHz, 28W) Intel® Core™ Ultra 5 Processor 125H (14C/18T, up to 4.5 GHz, 28W)	
Chipset	Integrated with Intel® SoC			
Memory	Onboard LPDDR5x up to 4800MHz, up to 16GB	DDR5 6400MHz Dual Channel SODIMM x 2, non-ECC, up to 128GB	DDR5 5600MHz Dual Channel SODIMM x 2, non-ECC, up to 96GB	
Onboard Storage	eMMC, up to 128GB	NVMe, up to 256GB, via last PEG [x4] bus (Option)		
BIOS	AMI BIOS (UEFI)	AMI UEFI		
Wake on LAN	Yes			
Watchdog Timer	255 Levels			
Dimension	3.75" x 3.75" (95mm x 95mm)			
Security	dTPM / fTPM	fTPM / dTPM (default)		
Power				
Power Requirement	+12V and +5VSB for ATX, +12V for AT	+9V-16V and +5VSB for ATX, +9V-16V for AT		
Power Type	AT/ATX, switch by BIOS	AT/ATX		
Power Consumption (Typical)	Intel® Core™ i3-N305, 1.8A @+12V	Intel® Core™ Ultra 9 Processor 285H, 9.13A@+12V	Intel® Core™ Ultra 9 Processor 185H, 9.13A@+12V	
Display				
Graphics Controller	Intel® UHD Graphics	Intel® Arc™ graphics		
Video Output	3 Displays: 18/24-bit Single/Dual-Channel LVDS/eDP x 1, up to 1920 x 1080 / 3840 x 2160 DP x 2, up to 3840 x 2160 @ 60Hz	4 Simultaneous Displays: LVDS: up to 1920 x 1080 (default) / eDP: up to 3840 x 2160, switch by BOM DDI 1: DP/HDMI, up to 3840 x 2160 DDI 2: DP/HDMI, up to 3840 x 2160 DDI 3: DP/HDMI, up to 3840 x 2160 or VGA, up to 1920 x 1080 (DDI 3 co-lay with VGA)	4 Simultaneous Displays: LVDS: up to 1920 x 1080 (default) / eDP: up to 3840 x 2160, switch by BOM DDI 1: DP, up to 3840 x 2160 DDI 2: DP, up to 3840 x 2160 DDI 3: DP, up to 3840 x 2160 , co-lay with VGA, auto switch VGA: up to 1920 x 1080, co-lay with DDI 3, auto switch	
I/O				
Ethernet	Intel® Ethernet Controller I226 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 Gen 2 x 4		
Serial Port	2-Wire UART x 2 (Tx/Rx)			
HDD Interface	SATA 6Gb/s x 1, by BOM	SATA 6Gb/s x 2		
Expansion	PCIe [x2] x 1 + PCIe [x2] x 1 + PCIe [x1] x 2 lane#3 colay SATA LPC, WDT, HWM	PEG 4.0 [x8] + [x4] + [x4],last PEG [x4] option to be onboard NVMe SSD PCIe 4.0 [x1] x 4 + PCIe [x4]	PEG 4.0 [x8] + [x4] + [x4],last PEG [x4] option to be onboard NVMe SSD PCIe 4.0 [x1] x 4 + PCIe [x4] MIPI CSI x 2	
GPIO	8-bit			
SMBus/I2C	I2C x 1, SMBus x 1	I2C x 1, from EC (default) or CPU, switch by BIOS SMBus x 1, from CPU		
Environment				
Operating Temperature	-4°F ~ 158°F (-20°C ~ 70°C)			
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)			
Operating Humidity	0% ~ 90% relative humidity, non-condensing			
EMC	CE/FCC Class A			
OS Support	Windows® 10/11 (64-bit) Linux Ubuntu 24.04/Kernel 6.11	Windows® 11 (64-bit) Linux Ubuntu 24.04/Kernel 6.11	Windows® 11 (64-bit) Linux Ubuntu 24.04/Kernel 6.8	
Weight	0.26 lb (0.12 Kg)			
Note				



Model	COM-ASLC6	COM-ASLC6 Rev.B	COM-ADNC6
System Form Factor	COM Express Type 6, Compact Size		
CPU	Intel Atom® X Series CPU Intel® Atom® x7835RE (8C, up to 3.6 GHz, 12W) Intel Atom® x7433RE (4C, up to 3.4 GHz, 9W) Intel Atom® x7213RE (2C, up to 3.4 GHz, 9W) Intel Atom® x7211RE (2C, up to 3.2 GHz, 6W)	Intel® Atom® x7835RE (8C, up to 3.6 GHz, 12W) Intel Atom® x7433RE (4C, up to 3.4 GHz, 9W)	Intel Atom® X Series/N-series/Core™ i3-N305 CPU Intel® Core™ i3-N305 (8C, up to 3.8 GHz, 15W) Intel Atom® x7425E (4C, up to 3.4 GHz, 12W) Intel Atom® x7211E (2C, up to 3.2 GHz, 6W) Intel® Processor N97 (4C, up to 3.6 GHz, 12W) Intel® Processor N50 (2C, up to 3.4 GHz, 6W)
Chipset	Integrated with Intel® SoC		
Memory	DDR5 4800MHz Single Channel, SODIMM x1, up to 16GB	Onboard LPDDR5x up to 4800MHz, up to 16GB	DDR5 4800MHz Single Channel, SODIMM x1, up to 16GB
Onboard Storage	—	eMMC, up to 128GB	—
BIOS	AMI BIOS (UEFI)		
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Dimension	3.74" x 3.74" (95mm x 95mm)		
Security	TPM 2.0	dTPM / fTPM	TPM 2.0
Power			
Power Requirement	+12V and +5VSB for ATX, +12V for AT		
Power Type	AT (default)/ATX, switch by BIOS	AT/ATX, switch by BIOS	AT (default)/ATX, switch by BIOS
Power Consumption (Typical)	Intel Atom® x7835RE, 1.94A@+12V	Intel® Core™ i3-N305, 1.8A @+12V	Intel® Core™ i3-N305, 1.57A @+12V
Display			
Graphics Controller	Intel® UHD Graphics		
Video Output	3 Displays: 18/24-bit Single/Dual-Channel LVDS/eDP x 1, up to 1920 x 1080/ 3840 x 2160 DP x 2, up to 3840 x 2160	3 Displays: 18/24-bit Single/Dual-Channel LVDS/eDP x 1, up to 1920 x 1080 / 3840 x 2160 DP x 2, up to 3840 x 2160 @ 60Hz	3 Displays: 18/24-bit Single/Dual-Channel LVDS/eDP x 1, up to 1920 x 1080/ 3840 x 2160 DP x 2, up to 3840 x 2160
I/O			
Ethernet	Intel® Ethernet Controller I226-V or I226-IT 2.5GbE x 1	Intel® Ethernet Controller I226 2.5GbE x 1	Intel® Ethernet Controller I226-V or I226-IT 2.5GbE x 1
Audio	High Definition Audio Interface		
USB Port	USB 2.0 x 8, USB 3.2 Gen 2 x 2		
Serial Port	2-Wire UART x 2 (Tx/Rx)		
HDD Interface	SATA 6Gb/s x 2	SATA 6Gb/s x 1, by BOM	SATA 6Gb/s x 2
Expansion	PCIe [x1] x 4 or [x2] x 2, LPC, WDT, HWM	PCIe [x2] x 1 + PCIe [x2] x 1 + PCIe [x1] x 2 lane#3 colay SATA, by BOM LPC, WDT, HWM	PCIe [x1] x 4 or [x2] x 2, LPC, WDT, HWM
GPIO	8-bit		
SMBus/I2C	I2C x 1, SMBus x 1		
Environment			
Operating Temperature	-40°F ~ 185°F (-40°C ~ 85°C)		-4°F ~ 158°F (-20°C ~ 70°C) -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
EMC	CE/FCC Class A		
OS Support	Windows® 11 (64-bit) Linux Ubuntu 22.04.02/Kernel 5.19	Windows® 10/11 (64-bit) Linux Ubuntu 24.04/Kernel 6.11	Windows® 10 (64-bit) Linux Ubuntu 22.04.02/Kernel 5.19
Weight	0.26 lb (0.12Kg)		
Note			

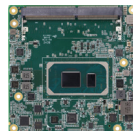


Model	COM-ADNC6 Rev.B		COM-RAPC6	COM-TGHB6
System Form Factor	COM Express Type 6, Compact Size			COM Express Basic Size, Type 6
CPU	Intel Atom® X Series/N-series/Core™ CPU Intel® Core™ i3-N305 (8C, up to 3.8 GHz, 15W) Intel® Processor N97 (4C, up to 3.6 GHz, 12W)	13th Intel® Core™Processor: Intel® Core™ i7-13800HRE Processor (14C/20T, 2.5GHz, 45W, In-Band ECC) Intel® Core™ i7-13800HE Processor (14C/20T, 2.5GHz, 45W) Intel® Core™ i5-13600HE Processor (12C/16T, 2.7GHz, 45W) Intel® Core™ i3-13300HE Processor (8C/12T, 2.1GHz, 45W) Intel® Core™ i7-1370PE Processor (14C/20T, 1.9GHz, 28W) Intel® Core™ i5-1340PE Processor (14C/16T, 1.8GHz, 28W) Intel® Core™ i3-1320PE Processor (8C/12T, 1.7GHz, 28W) Intel® Core™ i3-1315UE Processor (6C/8T, 1.2GHz, 15W) Intel® Core™ U300 Processor (5C/6T, 1.1GHz, 15W)	11th Generation Intel® Core™ Processors: Intel® Core™ i7-11850HE (8C/16T, 2.1 GHz, 35W) Intel® Core™ i5-11500HE (6C/12T, 2.1 GHz, 35W) Intel® Core™ i3-11100HE (4C/8T, 1.9 GHz, 35W) Intel® Xeon® W Processors: Intel® Xeon® W-11865MRE (8C/16T, 2.1 GHz, 35W) Intel® Xeon® W-11865MLE (8C/16T, 1.5 GHz, 25W)	
Chipset	Integrated with Intel® SoC			Intel® QM580E Intel® RM590E
Memory	Onboard LPDDR5x up to 4800MHz, up to 16GB	DDR5 Dual channel , SODIMM Socket x 2, non-ECC, up to 64GB (U Processor up to 4800MT/s, H/P Processor up to 5200 MT/s)	DDR4 3200MHz Dual Channel , SODIMM x 2 , up to 64GB	
Onboard Storage	eMMC, up to 128GB			
BIOS	AMI BIOS (UEFI)	AMI UEFI		
Wake on LAN	Yes			
Watchdog Timer	255 Levels			
Dimension	3.74" x 3.74" (95mm x 95mm)		4.92" x 3.75" (125mm x 95mm)	
Security	dTPM / fTPM	TPM 2.0		
Power				
Power Requirement	+12V and +5VSB for ATX, +12V for AT			
Power Type	AT/ATX, switch by BIOS			AT/ATX
Power Consumption (Typical)	Intel® Core™ i3-N305, 1.8A @+12V	Intel® Core™ i7-13800HE, DDR5 32Gb x 2, 8.30A @+12V	Intel® Xeon® W-11865MRE, 5.26A @+12V	
Display				
Graphics Controller	Intel® UHD Graphics	Intel® Iris® Xe Graphics Intel® UHD Graphics	Intel® UHD Graphics	
Video Output	3 Displays: 18/24-bit Single/Dual-Channel LVDS/eDP x 1, up to 1920 x 1080 / 3840 x 2160 DP x 2, up to 3840 x 2160 @ 60Hz	4 Simultaneous Displays: DDI x 3, up to 3840 x 2160 18/24-bit Single/Dual-Channel LVDS/eDP x 1, up to 1920 x 1080 / 3840 x 2160 @60Hz VGA x 1, up to 1920 x 1080	4 Simultaneous Displays: DDI x 3, up to 3840 x 2160 LVDS/eDP x 1, up to 1920 x 1080 VGA x 1, up to 1920 x 1080	
I/O				
Ethernet	Intel® Ethernet Controller I226 2.5GbE x 1			Intel® I226-LM 2.5GbE x 1
Audio	High Definition Audio Interface			
USB Port	USB 2.0 x 8, USB 3.2 Gen 2 x 2		USB 2.0 x 8, USB 3.2 Gen 2 x 4	
Serial Port	2-Wire UART x 2 (Tx/Rx)			
HDD Interface	SATA 6Gb/s x 1, by BOM	SATA 6Gb/s x 2	SATA 6Gb/s x 4	
Expansion	PCIe [x2] x 1 + PCIe [x2] x 1 + PCIe [x1] x 2 lane#3 colay SATA, by BOM LPC, WDT, HWM	PCIe[x1] x 4 (Configurable by BIOS)+ PCIe[x4] x 1+PCIe[x8] x 1 (PCIe[x8] for H series CPU only)	PEG 4.0 [x16] x 1 PCIe 3.0 [x1] x 8 LPC x 1	
GPIO	8-bit			
SMBus/I2C	I2C x 1, SMBus x 1			
Environment				
Operating Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	32°F ~ 140°F (0°C ~ 60°C) WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU	32°F ~ 140°F (0°C ~ 60°C) -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)			
Operating Humidity	0% ~ 90% relative humidity, non-condensing			
EMC	CE/FCC Class A			
OS Support	Windows® 10/11 (64-bit) Linux Ubuntu 24.04/Kernel 6.11	Windows® 10 / 11 (64-bit) Linux Ubuntu 24.04/Kernel 6.8	Windows® 10 (64-bit) Linux Ubuntu 20.04/Kernel 5.13	
Weight	0.26 lb (0.12 Kg)	0.25 lb (0.12Kg)	0.33 lb (0.15kg)	
Note				

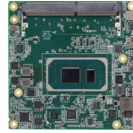
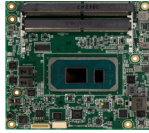
Note: All specifications are subject to change without notice.

www.aaeon.com

01-18



Model	COM-CFHB6	COM-TGUC6	COM-TGUC6 Rev.C
System Form Factor	COM Express Basic Size, Type 6		
CPU	9th Generation Intel® Core™ Processors: Intel® Core™ i7-9850HL (6C/12T, 1.90 GHz, 25W) Intel® Core™ i7-9850HE (6C/12T, 2.70 GHz, 45W) 8th Generation Intel® Core™ Processors: Intel® Core™ i7-8850H (6C/12T, 2.60 GHz, 45W) Intel® Core™ i5-8400H (4C/8T, 2.50 GHz, 45W) Intel® Core™ i3-8100H (4C/4T, 3.00 GHz, 45W) Intel® Xeon® E Processors: Intel® Xeon® E-2176M (6C/12T, 2.70 GHz, 45W) Intel® Xeon® E-2276ME Processor (6C/12T, 2.80 GHz, 45W)	11th Generation Intel® Core™ Processors: Intel® Core™ i7-1185G7E (4C/8T, 1.8 GHz, 15W) Intel® Core™ i7-1185G9E (4C/8T, 1.80 GHz, 15W, In-Band ECC) Intel® Core™ i5-1145G7E (4C/8T, 1.5 GHz, 15W) Intel® Core™ i5-1145G9E (4C/8T, 1.50 GHz, 15W, In-Band ECC) Intel® Core™ i3-1115G4E (2C/4T, 2.20 GHz, 15W) Intel® Core™ i3-1115G9E (2C/4T, 2.20 GHz, 15W, In-Band ECC) Intel® Celeron® Processor 6000 Series: Intel® Celeron® 6305E Processor (2C/2T 1.80 GHz, 15W)	11th Generation Intel® Core™ Processors: Intel® Core™ i7-1185G7E (4C/8T, 1.8 GHz, 15W) Intel® Core™ i3-1115G4E (2C/4T, 2.20 GHz, 15W) Intel® Core™ i7-1185G9E (4C/8T, 1.8 GHz, 15W)
Chipset	Intel® QM370 Intel® CM246	Integrated with Intel® SoC	
Memory	DDR4 2666MHz SODIMM x 3, up to 96GB (ECC by SKU)	DDR4 3200MHz Dual Channel SODIMM x 2, up to 64GB (In-Band ECC by SKU)	DDR4 3200MHz Dual channel , SODIMM x 2, up to 64GB
Onboard Storage	—		
BIOS	AMI UEFI		
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Dimension	4.92" x 3.75" (125mm x 95mm)	3.74" x 3.74" (95mm x 95mm)	
Security	TPM 2.0 (Optional)	TPM 2.0	
Power Requirement	+12V and +5VSB for ATX, +12V for AT		
Power Type	AT/ATX		
Power Consumption (Typical)	Intel® Xeon® E-2276ME, 4.65A @+12V	Intel® Core™ i7-1185G9E, 3.5A @+12V	Intel® Core™ i7-1185G7E, 3.22A @+12V
Display	Intel® Iris® Xe Graphics Intel® UHD Graphics		
Graphics Controller	Intel® UHD Graphics 630 Intel® UHD Graphics P630	Intel® Iris® Xe Graphics Intel® UHD Graphics	
Video Output	3 Simultaneous Displays: 18/24-bit Single/Dual-Channel LVDS x 1, up to 1920 x 1080 DDI x 2, up to 3840 x 2160 VGA x 1, up to 1920 x 1080	4 Simultaneous Displays: DDI x 3, up to 3840 x 2160 18/24-bit Single/Dual-Channel LVDS/eDP x 1, up to 1920 x 1080/3840 x 2160 VGA x 1, up to 1920 x 1080	4 Simultaneous Displays: DDI x 3, up to 3840 x 2160 18/24-bit Single/Dual-Channel LVDS/eDP x 1, up to 1920 x 1080 / 3840 x 2160 VGA x 1, up to 1920 x 1080
I/O	Intel® Ethernet Controller i225/i226-LM 2.5GbE x 1		
Ethernet	Intel® I219-LM GbE x 1	Intel® Ethernet Controller i225/i226-LM 2.5GbE x 1	Intel® Ethernet Controller i226, 2.5GbE x 1
Audio	High Definition Audio Interface		
USB Port	USB 2.0 x 8, USB 3.2 Gen 2 x 4		
Serial Port	2-Wire UART x 2 (Tx/Rx)		
HDD Interface	SATA 6Gb/s x 4	SATA 6Gb/s x 2	
Expansion	PEG 3.0 [x16] x 1 PCIe 3.0 [x1] x 8 LPC x 1	PEG 4.0 [x4] x 1 PCIe 3.0 [x1] x 5 LPC x 1	PEG 3.0 [x4] x 1 PCIe 3.0 [x1] x 5 LPC x 1
GPIO	8-bit		
SMBus/I2C	I2C x 1, SMBus x 1		
Environment			
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C) -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU	32°F ~ 140°F (0°C ~ 60°C) WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
EMC	CE/FCC Class A		
OS Support	Windows® 10 (64-bit) Linux Ubuntu 18.04.3/Kernel 5.0	Windows® 10 (64-bit) Linux Ubuntu 20.04.2/Kernel 5.8	Windows® 10 (64-bit)
Weight	0.44 lb (0.20Kg)		
Note			



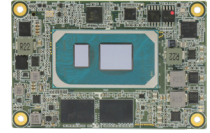
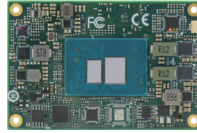
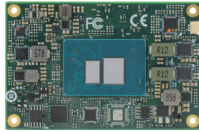
Model	COM-TGUC6	COM-TGUC6 Rev.C	COM-WHUC6
System Form Factor	COM Express Compact Size, Type 6		
CPU	11th Generation Intel® Core™ Processors: Intel® Core™ i7-1185G7E (4C/8T, 1.8 GHz, 15W) Intel® Core™ i7-1185GRE (4C/8T, 1.80 GHz, 15W, In-Band ECC) Intel® Core™ i5-1145G7E (4C/8T, 1.5 GHz, 15W) Intel® Core™ i5-1145GRE (4C/8T, 1.50 GHz, 15W, In-Band ECC) Intel® Core™ i3-1115G4E (2C/4T, 2.20 GHz, 15W) Intel® Core™ i3-1115GRE (2C/4T, 2.20 GHz, 15W, In-Band ECC) Intel® Celeron® Processor 6000 Series: Intel® Celeron® 6305E Processor (2C/2T 1.80 GHz, 15W)	11th Generation Intel® Core™ Processors: Intel® Core™ i7-1185G7E (4C/8T, 1.8 GHz, 15W) Intel® Core™ i3-1115G4E (2C/4T, 2.20 GHz, 15W) Intel® Core™ i7-1185GRE (4C/8T, 1.8 GHz, 15W)	8th Generation Intel® Core™ Processors: Intel® Core™ i7-8665UE (4C/8T, 1.70 GHz, 15W) Intel® Core™ i5-8365UE (4C/8T, 1.60 GHz, 15W) Intel® Core™ i3-8145UE (2C/4T, 2.20 GHz, 15W) Intel® Celeron® Processor 4000 Series: Intel® Celeron® Processor 4305UE (2C/2T, 2.00 GHz, 15W)
Chipset	Integrated with Intel® SoC		
Memory	DDR4 3200MHz Dual Channel SODIMM x 2, up to 64GB (In-Band ECC by SKU)	DDR4 3200MHz Dual channel , SODIMM x 2, up to 64GB	DDR4 2400MHz SODIMM x 2, up to 64GB (non-ECC)
Onboard Storage	—		
BIOS	AMI UEFI		
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Dimension	3.74" x 3.74" (95mm x 95mm)		
Security	TPM 2.0		dTPM
Power			
Power Requirement	+12V and +5VSB for ATX, +12V for AT		
Power Type	AT/ATX		
Power Consumption (Typical)	Intel® Core™ i7-1185GRE, 3.5A @+12V	Intel® Core™ i7-1185G7E, 3.22A @+12V	Intel® Core™ i7-8665UE, 2.61A @+12V
Display			
Graphics Controller	Intel® Iris® Xe Graphics Intel® UHD Graphics		Intel® UHD Graphics 620 Intel® UHD Graphics 610
Video Output	4 Simultaneous Displays: DDI x 3, up to 3840 x 2160 18/24-bit Single/Dual-Channel LVDS/eDP x 1, up to 1920 x 1080/3840 x 2160 VGA x 1, up to 1920 x 1080	4 Simultaneous Displays: DDI x 3, up to 3840 x 2160 18/24-bit Single/Dual-Channel LVDS/eDP x 1, up to 1920 x 1080 / 3840 x 2160 VGA x 1, up to 1920 x 1080	3 Simultaneous Displays: DDI x 1, up to 3840 x 2160 18/24-bit Single/Dual-Channel LVDS/eDP x 1, up to 1920 x 1080 VGA x 1, up to 2048 x 1152
I/O			
Ethernet	Intel® Ethernet Controller i225/i226-LM 2.5GbE x 1	Intel® Ethernet Controller I226, 2.5GbE x 1	Intel® I219-LM 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 x 2 (Tx/Rx)		
HDD Interface	SATA 6Gb/s x 2		
Expansion	PEG 4.0 [x4] x 1 PCIe 3.0 [x1] x 5 LPC x 1	PEG 3.0 [x4] x 1 PCIe 3.0 [x1] x 5 LPC x 1	PCIe 3.0 [x1] x 4 PCIe 3.0 [x4] x 1 LPC x 1
GPIO	8-bit		
SMBus/I2C	I2C x 1, SMBus x 1		
Environment			
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU	32°F ~ 140°F (0°C ~ 60°C) WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
EMC	CE/FCC Class A		
OS Support	Windows® 10 (64-bit) Linux Ubuntu 20.04.2/Kernel 5.8	Windows® 10 (64-bit)	Windows® 10 (64-bit) Linux Ubuntu 18.04.2/Kernel 4.18
Weight	0.44 lb (0.20Kg)		
Note			

Board Level Products

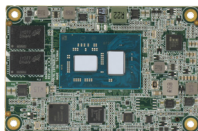
Computing On Module



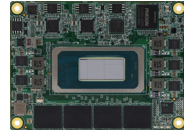
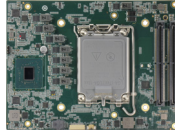
Model	NanoCOM-ARH	NanoCOM-MTU	NanoCOM-RAP
System Form Factor	COM Express Mini Size, Type 10		
CPU	Intel® Core™ Ultra Processors (Series 2): Intel® Core™ Ultra 7 Processor 255H (16C/16T, up to 5.1 GHz, 28W) Intel® Core™ Ultra 5 Processor 225H (14C/14T, up to 4.9 GHz, 28W)	Intel® Core™ Ultra Processors: Intel® Core™ Ultra 7 Processor 155H (16C/22T, up to 4.8 GHz, 28W) Intel® Core™ Ultra 5 Processor 125H (14C/18T, up to 4.5 GHz, 28W)	13th Generation Intel® Core™ U-series Processors: Intel® Core™ i7-1365UE (10C/12T, 1.70 GHz, 15W) Intel® Core™ i5-1335UE (10C/12T, 1.30 GHz, 15W) Intel® Core™ i3-1315UE (6C/8T, 1.20 GHz, 15W) Intel® Processor U300E (5C/6T, 1.10 GHz, 15W)
Chipset	Integrated with Intel® SoC		
Memory	onboard LPDDR5(X), up to 8400MHz, 32GB	onboard LPDDR5(X) 6400MHz, up to 32GB	Onboard LPDDR5, up to 16GB
Onboard Storage	NVMe, up to 256GB		NVMe, up to 128GB (Optional)
BIOS	AMI UEFI		
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Dimension	3.31" x 2.17" (84mm x 55mm)		
Security	fTPM / dTPM (Default)		TPM 2.0
Power			
Power Requirement	+9V-19V and +5VSB for ATX, +9-19V for AT		+9V-15V and +5VSB for ATX, +9-15V for AT
Power Type	AT/ATX, switch by BIOS		AT/ATX
Power Consumption (Typical)	Intel® Core™ Ultra 7 Processor 255H, 1.67A@+19V *Note: +8.5V will trigger UVP & +20V will trigger OVP	Intel® Core™ Ultra 7 Processor 155H, 2.06A@+19V	Intel® Core™ i7-1365UE, LPDDR5 16GB, 2.82A@+12V
Display			
Graphics Controller	Intel® Arc™ Graphics		Intel® UHD Graphics for 13th Gen Intel® Processors
Video Output	Dual Display: DDI x 1, up to 3840 x 2160 eDP x 1, up to 3840 x 2160 @60Hz		
I/O			
Ethernet	Intel® Ethernet Controller I226, 2.5GbE x 1		Intel® I226-IT 2.5GbE x 1
Audio	High Definition Audio Interface		
USB Port	USB 2.0 x 8, USB 3.2 Gen 2 x 2		
Serial Port	2-Wire UART x 2 (Tx/Rx)		
HDD Interface	SATA 6Gb/s x 2		
Expansion	PCIe 4.0 [x1] x 4 LPC x 1	PCIe 4.0 [x1] x 4 MIPI CSI x 2 LPC x 1	PCIe 3.0 [x1] x 4 LPC x 1
GPIO	8-bit		
SMBus/I2C	I2C x 1, from EC (default) or CPU, switch by BIOS		I2C x 1, SMBus x 1
Environment			
Operating Temperature	-4°F ~ 158°F (-20°C ~ 70°C)		32°F ~ 140°F (0°C ~ 60°C) WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
EMC	CE/FCC Class A		
OS Support	Windows® 11 (64-bit) Linux Ubuntu 24.04/Kernel 6.11	Windows® 11 (64-bit) Linux Ubuntu 24.04.1/Kernel 6.8	Windows® 10 (64-bit) Linux Ubuntu 22.04.2/Kernel 5.19
Weight	0.15 lb (0.07Kg)		
Note			



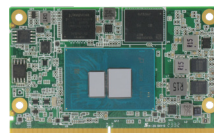
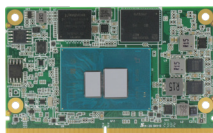
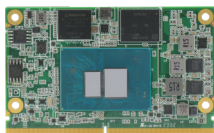
Model	NanoCOM-ASL	NanoCOM-ADN	NanoCOM-TGU
System Form Factor	COM Express Mini Size, Type 10		
CPU	Intel Atom® x7835RE (8C, 1.30 GHz, 12W) Intel Atom® x7433RE (4C, 1.50 GHz, 9W)	Intel Atom® x7000E Series: Intel Atom® x7425E (4C, 1.50 GHz, 12W) Intel® Processor N-series: Intel® Core™ i3-N305 (8C, up to 3.8 GHz, 15W) Intel® Processor N97 (4C, 2.00 GHz, 12W) Intel® Processor N50 (2C, 1.00 GHz, 6W) Integrated with Intel® SoC	11th Generation Intel® Core™ Processors: Intel® Core™ i7-1185G7E (4C/8T, 1.80 GHz, 15W) Intel® Core™ i5-1145G7E (4C/8T, 1.50 GHz, 15W) Intel® Core™ i3-1115G4E (2C/4T, 2.20 GHz, 15W) Intel® Core™ i7-1185G7E (4C/8T, 1.80 GHz, 15W) Intel® Core™ i5-1145G7E (4C/8T, 1.80 GHz, 15W) Intel® Core™ i3-1115G7E (2C/4T, 2.20 GHz, 15W)
Chipset	Integrated with Intel® SoC		
Memory	Onboard LPDDR5x 4800MHz, 4 Channel , up to 16GB	Onboard LPDDR5x up to 4800MHz, up to 16GB	Onboard LPDDR4 4267MHz, up to 16GB
Onboard Storage	eMMC, up to 64GB		NVMe, up to 256GB (Optional)
BIOS	AMI UEFI		
Wake on LAN	Yes		
Watchdog Timer	255 Levels		
Dimension	3.31" x 2.17" (84mm x 55mm)		
Security	TPM 2.0		fTPM
Power			
Power Requirement	+9V-15V and +5VSB for ATX, +9-15V for AT	A10: +12V and +5VSB for ATX, +12V for AT A12: +9V-15V and +5VSB for ATX, +9-15V for AT	+12V and +5VSB for ATX, +12V for AT
Power Type	AT/ATX, switch by BIOS		AT/ATX
Power Consumption (Typical)	Intel Atom® x7433RE, 1.31A @+12V	Intel® Core™ i3-N305, 2.32A @+12V	Intel® Core™ i7-1185G7E, 2.75A @+12V
Display			
Graphics Controller	Intel® UHD Graphics		Intel® UHD Graphics for 11th Gen Intel® Processors
Video Output	Dual Display: DDI x 1, up to 3840 x 2160 18/24-bit Single-Channel LVDS x 1, up to 1024 x 768		Dual Display: DP x 1, up to 3840 x 2160 eDP x 1, up to 3840 x 2160
I/O			
Ethernet	Intel® Ethernet Controller I226-IT 2.5GbE x 1	Intel® Ethernet Controller I226-V 2.5GbE x 1	Intel® I225-LM/IT 2.5GbE x 1
Audio	High Definition Audio Interface		
USB Port	USB 2.0 x 8, USB 3.2 Gen 2 x 2		
Serial Port	2-Wire UART x 2 (Tx/Rx)		
HDD Interface	SATA 6Gb/s x 2		
Expansion	PCIe 3.0 [x1] x 4 LPC x 1		
GPIO	8-bit		
SMBus/I2C	I2C x 1, SMBus x 1		
Environment			
Operating Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	-4°F ~ 158°F (-20°C ~ 70°C)	32°F ~ 140°F (0°C ~ 60°C) WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
EMC	CE/FCC Class A		
OS Support	Windows® 10 / 11 (64-bit) Linux Ubuntu 22.04.4/Kernel 6.5		Windows® 10 (64-bit) Linux Ubuntu 20.04.4/Kernel 5.13.0
Weight	0.15 lb (0.07Kg)		
Note			



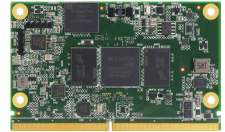
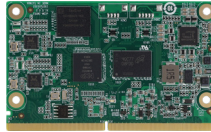
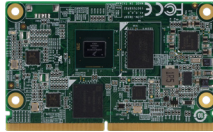
Model	NanoCOM-EHL
System	
Form Factor	COM Express Mini Size, Type 10
CPU	Intel Atom [®] Processor X Series: Intel Atom [®] x6413E (4C/4T, 1.50 GHz, 9W) Intel Atom [®] x6425E (4C/4T, 2.20 GHz, 12W) Intel Atom [®] x6425RE (4C/4T, 1.90 GHz, 12W) Intel [®] Celeron [®] Processor J & N Series: Intel [™] Celeron [®] Processor J6412 (4C/4T, 2.00 GHz, 10W) Intel [™] Celeron [®] Processor N6211 (2C/2T, 1.20 GHz, 6.5W) Intel [®] Pentium [®] Processor J Series: Intel [™] Pentium [®] Processor J6426 (4C/4T, 2.00 GHz, 10W)
Chipset	Integrated with Intel [®] SoC
Memory	Onboard LPDDR4 3733MHz, up to 16GB
Onboard Storage	eMMC, up to 64GB (Optional)
BIOS	AMI UEFI
Wake on LAN	Yes
Watchdog Timer	255 Levels
Dimension	3.31" x 2.17" (84mm x 55mm)
Security	iTPM
Power	
Power Requirement	+12V and +5VSB for ATX, +12V for AT
Power Type	AT/ATX
Power Consumption (Typical)	Intel Atom [®] x6425E, 1.44A @+12V
Display	
Graphics Controller	Intel [®] UHD Graphics for 10th Gen Intel [®] Processors
Video Output	Dual Display: DDI x 1, up to 3840 x 2160 18/24-bit Single-Channel LVDS x 1, up to 1920 x 1080 or eDPx 1, up to 3840 X 2160
I/O	
Ethernet	Intel [®] I226-IT 2.5GbE x 1
Audio	High Definition Audio Interface
USB Port	USB 2.0 x 8, USB 3.2 Gen 2 x 2
Serial Port	2-Wire UART x 2 (Tx/Rx)
HDD Interface	SATA 6Gb/s x 2
Expansion	PCIe 3.0 [x1] x 4 LPC x 1
GPIO	8-bit
SMBus/I2C	I2C x 1, SMBus x 1
Environment	
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
EMC	CE/FCC Class A
OS Support	Windows [®] 10 (64-bit) Linux Ubuntu 20.04.3/Kernel 5.13.0
Weight	0.15 lb (0.07Kg)
Note	



Model	HPC-RPSC	HPC-ARHm
System Form Factor	COM HPC Client Size C	COM-HPC R1.2 Mini
CPU	12th/13th/14th Gen Intel® Core™ Processor Intel® Core™ processors (Series 2)	Intel® Core™ Ultra Processors: Intel® Core™ Ultra 7 Processor 255H (16C/16T, 2.0GHz, 28W) Intel® Core™ Ultra 5 Processor 225H (14C/14T, 1.7GHz, 28W) Intel® Core™ Ultra 7 Processor 155H (16C/22T, 1.4 GHz, 28W) Intel® Core™ Ultra 5 Processor 125H (14C/18T, 1.2 GHz, 28W)
Chipset	Intel® R680E	SoC
Memory	DDR5 5600 MHz, Dual Channel SODIMM x 2, up to 64GB(ECC)	Onboard LPDDR5x, up to 64GB
Onboard Storage	—	Onboard NVMe, up to 256GB
BIOS		AMI UEFI
Wake on LAN		Yes
Watchdog Timer		255 Levels
Dimension	6.30" x 4.72" (160mm x 120mm)	3.74" x 2.76" (95mm x 70mm)
Security	TPM 2.0	dTPM / fTPM
Power		
Power Requirement	+12V and +5VSB for ATX, +12V for AT	+12V for ATX / AT
Power Type		AT/ATX
Power Consumption (Typical)	Intel® Core™ i9-13900E, 7.13A @+12V	Intel® Core™ Ultra 7 265H , 4.13 @+12V
Display		
Graphics Controller	Intel® UHD Graphics 770	Series 1 CPU SKU: Intel® Arc™ graphics Series 2 CPU SKU: Intel® Arc™ 140T/130T GPU
Video Output	4 Simultaneous Displays: eDP x 1, up to 3840 x 2160 @60Hz DDI x 3, up to 3840 x 2160 @144Hz	DDI1: DP/HDMI, up to 3840x2160 DDI2: DP/HDMI, up to 3840x2160 eDP: up to 3840 x 2160
I/O		
Ethernet	Intel® Ethernet Controller I226-LM 2.5GbE x 2	Intel® Ethernet Controller I226 2.5GbE x 2
Audio		High Definition Audio Interface
USB Port	USB 2.0 x 8 USB 3.2 Type-C x 2 (20Gbps x 2) USB 3.2 Type-A x 4 (10Gbps)	USB 3.2 (10Gbps) x 4 USB 2.0 x 8
Serial Port	4-Wire UART x 2 (Tx/Rx)	4-Wire UART x 2 (Tx/Rx/RTS/CTS)
HDD Interface	SATA III x 2	Option: SATA 6Gb/s x 2, via PCIe lane 6 and lane 7 *BIOS and BOM change required to enable SATA
Expansion	PEG 5.0 [x16] x 1 PCIe 4.0 [x4] x 3 PCIe 3.0 [x1] x 8 eSPI x 1 LPC x 1 M.2 2280 M-Key x 1	PCIe 4.0 [x8] x 1 PCIe 3.0 [x1] x 4 PCIe 3.0 [x4] x 1 (lanes 6 and 7 co-lay with SATA)
GPIO		12-bit
SMBus/I2C		I2C x 2, SMBus x 1
Environment		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Temperature		-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity		0% ~ 90% relative humidity, non-condensing
EMC		CE/FCC Class A
OS Support	Windows® 10 (64-bit) Linux Ubuntu 20.04.1/Kernel 5.15	Windows 11 Ubuntu 24.04/Kernel 6.11
Weight	0.66 lb. (0.30Kg)	0.17lb (0.08kg)
Note		



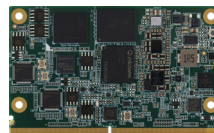
Model	uCOM-TWL	uCOM-ASL	uCOM-ADN
System	SMARC Module		
Form Factor			
CPU	Intel® Core™ 3 Processor N355 (8C/8T, up to 3.9 GHz, 15W) Intel® Processor N150 (4C/4T, up to 3.6 GHz, 6W)	Intel Atom® x7835RE Processor (8C, up to 3.6 GHz, 12W) Intel Atom® x7433RE Processor (4C, up to 3.4 GHz, 9W) Intel Atom® x7213RE Processor (2C, up to 3.4 GHz, 9W) Intel Atom® x7211RE Processor (2C, up to 3.2 GHz, 6W)	Intel® Core™ i3-N305 Processor (8C/8T, up to 3.8 GHz, 15W) Intel® Processor N97 (4C, up to 3.6 GHz, 12W) Intel® Processor N50 (2C, up to 3.4 GHz, 6W) Intel Atom® x7425E Processor (4C, up to 3.4 GHz, 12W)
Chipset	Integrated with Intel® SoC		
Memory	Onboard LPDDR5x 4800MHz, up to 16GB		
Storage	eMMC, up to 128GB		
BIOS	AMI UEFI		
MTBF (Hours)	2,624,901		
Wake On LAN	Yes		
Watchdog Timer	255 Levels		
Real Time Clock	RTC x 1		
Boot Select	Module eMMC Flash		
Security	TPM 2.0		
Display			
Graphics Controller	Intel® UHD Graphics		
Video Output	Up to 3 Simultaneous Displays: DP++ x 2 / DP++ x 1 + HDMI x 1, up to 3840 x 2160 (by SKU) eDP x 1, up to 3840 x 2160		
I/O Interfaces			
Ethernet	Intel® Ethernet Controller I226 2.5GbE x 2		
USB	USB 2.0 x 6, USB 3.2 x 2		
Serial Port	2-Wire UART x 2 (Tx/Rx) 4-Wire UART x 2 (Tx/Rx/RTS/CTS)		
Audio	High Definition Audio Interface (Optional: I2S)		
PCIe	PCIe 3.0 [x2] x 1 + [x1] x 2 (Optional: PCIe [x1] x 3)		
CANBus			
MIPI-CSI	MIPI CSI x 2	MIPI CSI x 2 (by SKU)	MIPI CSI x 2
GPIO	7-bit (up to 14-bit by customization)		
Other Interfaces	SATA 6Gb/s x 1 GP_I2C x 1 SMBus x 1		
Power			
Power Requirement	+5V for ATX / AT		
Power Consumption	Intel® Core™ i3-N305, 4.23A @+5V		
Environmental & Mechanical			
Dimensions	3.23" x 1.97" (82mm x 50mm)		
Weight	0.14 lb (0.06Kg)		
Operating Temperature	-4°F ~ 158°F (-20°C ~ 70°C) -40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)	-4°F ~ 158°F (-20°C ~ 70°C) -40°F ~ 185°F (-40°C ~ 85°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
Certification	CE/FCC Class A		
OS Support	Windows 10 (64-bit) Windows 11 (64-bit) Linux Ubuntu 24.04/Kernel 6.11		
Support Protocol	—		
Note			



Model	uCOM-IMX8P	uCOM-IMX93	uCOM-M700/M510
System Form Factor	SMARC 2.1 Compliant		
CPU	NXP i.MX 8M Plus – Quad-Core Arm® Cortex®-A53 Processor, 1.6GHz (Default w/NPU, optional w/o NPU)	NXP i.MX 93 – Dual-Core Arm® Cortex®-A55 + Arm Cortex®-M33 Processor, 0.5 TOPs Cortex-A55: 1.7 GHz, Cortex-M33: 250 MHz (Default w/NPU, optional w/o NPU)	MediaTek Genio 700 (MT8390): Dual-core Arm® Cortex®-A78, 2.2GHz Hexa-core Arm® Cortex®-A55, 2.0GHz Arm® Mali™-G57 MC3 GPU, 4 TOPs MediaTek Genio 510 (MT8370): Dual-core Arm® Cortex®-A78, 2.0GHz Quad-core Arm® Cortex®-A55, 2.0GHz Arm® Mali™-G57 MC2 GPU, 3.2 TOPs
Chipset	—		
Memory	Onboard LPDDR4 up to 4GB	Onboard LPDDR4, up to 2GB	Onboard LPDDR4, up to 8GB
Storage	eMMC 5.1, 16/32GB (Optional: 64/128 GB)	eMMC 5.1, 16GB (Optional: 32GB/64GB/128GB) SDIO 3.0 x 1 (for SD Card)	eMMC 5.1, 16GB (Optional: 32GB/64GB/128GB) SDIO 3.0 x 1 (for SD Card)
BIOS	—		
MTBF (Hours)	3,780,780	3,896,445	3,092,590
Wake On LAN	—		
Watchdog Timer	Yes		
Real Time Clock	RTC x 1		
Boot Select	Carrier SD Card Module eMMC Flash	Carrier SD Card Module eMMC Flash Universal Update Utility (UUU) Serial Download Mode	Module eMMC Flash
Security	TPM 2.0 (optional)		
Display	—		
Graphics Controller	2D: Vivante GC520L 3D: Vivante GC7000UL	NXP integrated 2D Graphic Acceleration	Arm® Mali™-G57 MC2/MC3 GPU, supports OpenGL® ES 1.1/2.0/3.2 and Vulkan® 1.0/1.1 (MC3 for model 700, MC2 for model 510)
Video Output	HDMI 2.0a x 1 LVDS (2 CH, 4 Lane) x 1 MIPI-DSI 4 Lane x 1 (By request)	HDMI x 1, 1920 x 1080, 1280 x 720 (optional w/ I2S) LVDS 4-Lane x 1 (18/24bit) MIPI-DSI 4-Lane x 1 (by request)	HDMI 2.0 x 1 DP 1.4 x 1 (4k x 2k @ 60Hz) eDP 1.2 (2-Lane) x 1 MIPI-DSI (4-Lane) x 1 (by request) *Supports up to dual display (4K x 1 + 2K x 1)
I/O Interfaces	—		
Ethernet	Gigabit Ethernet x 2 (TSN x 1)		Gigabit Ethernet x 1 (TSN support)
USB	USB 3.0 Gen 1 + USB 2.0 x 2 (Host) USB 2.0 x 2 (Host) USB 2.0 x 1 (OTG)	USB 2.0 x 4 (Host) USB 2.0 x 1 (OTG)	USB 3.0 + 2.0 x 1 USB 2.0 x 5
Serial Port	UART x 4 (2-wire x 2, one for debug port, 4-wire x 2)	UART x 4 (2-wire x 2, SER1 for A55 debug port, 4-wire x 2)	UART x 2 (4-wire, 1.8V) UART x 2 (2-wire, 1.8V, one for debug port)
Audio	I2S x 1	I2S x 1 (optional w/HDMI) x 1	I2S x 1
PCIe	PCIe Gen 3.0 x 1	—	PCIe 2.0 x 1
CANBus	CAN 2.0 FD x 2 (1.8V)		—
MIPI-CSI	MIPI CSI 2 Lane x 1 MIPI CSI 4 Lane x 1	MIPI CSI 2 Lane x 1	MIPI CSI x 2 (4-Lane x 1 + 2-Lane x 1, by request)
GPIO	14 bits (one for PWM)	8 bits (one for PWM)	12-bit
Other Interfaces	SPI x 2 (SPI x 1, QSPI x 1) I2C x 5 (Power Management x 1, Camera x 2, LCD Display x 1, General Purpose x 1)	SPI x 2 (SPI1 colay with TPM) I2C x 4	SPI x 1 I2C x 5
Power	—		
Power Requirement	DC 3.3V ~ 5.25V		DC 3V ~ 5.25V, AT (Optional : ATX for Yocto)
Power Consumption	3.45 W (Full loading)	13.8W (Full Loading)	4.25W
Environmental & Mechanical	—		
Dimensions	3.23" x 1.97" (82mm x 50mm)		
Weight	0.03 lb (0.013Kg)	0.03 lb (0.016Kg)	0.0374 lb (0.017Kg)
Operating Temperature	-40°F ~ 185°F (-40°C ~ 85°C) Optional: 32°F ~ 140°F (0°C ~ 60°C)		-40°F ~ 185°F (-40°C ~ 85°C) Optional: 32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		0% ~ 95% relative humidity, non-condensing
Certification	CE/FCC Class A		
OS Support	Debian 12 (default) Win 10 IoT (by request) Yocto (by request)	Yocto 5.0 (kernel 6.6.23) Ubuntu 22.04 (kernel 6.6.23-LTS-next, by request) Windows 11 IoT (by request)	Yocto 4.0 (Kernel 5.15) Ubuntu, Android 14, Debian 13 (by request)
Support Protocol	Modbus, MQTT, OPCUA (by request)	By request	
Note	—		

Board Level Products

Computing On Module



Model	uCOM-3588	uCOM-Q6490
System Form Factor	SMARC 2.1 Compliant	SMARC 2.1 compliance
CPU	Rockchip RK3588 Arm Quad Cortex-A76 2.4 GHz and Quad Cortex-A55 1.8 GHz Up to 6.0 Tops.	Qualcomm® Kryo™ CPU 670 built on Arm v8 Cortex technology QCS6490 Gold+ x 1; Gold x 3; Silver x 4 Cortex-A78 x1 up to 2.7GHz, Cortex-A78 x3 up to 2.4 GHz, Cortex-A55 x4, up to 1.9 GHz
Chipset		
Memory	Onboard LPDDR4, up to 8 GB	Onboard LPDDR5, up to 16 GB
Storage	eMMC 5.1, up to 128 GB SDIO 3.0 x 1 (for SD Card)	SDIO 3.0 x 1 (for SD Card) UFS, up to 64 GB
BIOS		
MTBF (Hours)	TBD	3,050,991
Wake On LAN		
Watchdog Timer	Yes	
Real Time Clock	RTC x 1	Yes
Boot Select	Module eMMC Flash	
Security		
Display		
Graphics Controller	Arm Mali-G610 MP4 GPU, high-performance OpenGL ES 1.1, 2.0 and 3.2, Vulkan 1.2	Qualcomm® Adreno™ 643L, Up to 812 MHz, OpenGL® ES 3.2, DirectX® FL 12, Vulkan™ 2.0 FP, Vulkan® 1.1
Video Output	HDMI x 1 MIPI-DSI 4-Lane x 1 eDP 4-Lane x 1	DP x 1(2K@60Hz)
I/O Interfaces		
Ethernet		Gigabit Ethernet x 2
USB	USB 3.0+2.0 x 2 (Host) USB 2.0 x 2 (Host x 1, OTG x 1)	USB 2.0 x 4 USB 3.1 x 1
Serial Port	UART x 4 (2-wire)	UART x 2 (4-wire, 1.8V) UART x 2 (2-wire, 1.8V, one for debug port)
Audio		I2S x 1
PCIe	PCIe 3.0 x 4	PCIe 3.0 x1(2-lane)
CANBus	CAN x 2	
MIPI-CSI	MIPI-CSI x 2	
GPIO	13 bits	14 bits (one for PWM)
Other Interfaces	SPI x 1, I2C x 3	SPI x 2 I2C x 3
Power		
Power Requirement	DC 3~5.25 V, AT	DC 5 V, AT/ATX
Power Consumption	TBD	33.12 W
Environmental & Mechanical		
Dimensions	3.23" x 1.97" (82mm x 50mm)	82mm x 50 mm
Weight	TBD	0.0625 lb (0.02kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	0°C ~ 60°C -40°C ~ 85°C (By request)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-40°C ~ 85°C
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 95% relative humidity, non-condensing
Certification		CE/FCC Class A
OS Support	Android	QC Linux (kernel 6.6.97)
Support Protocol	By request	
Note		

Board Level Products

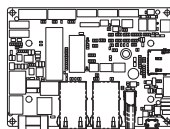
Computing On Module: Carrier Boards



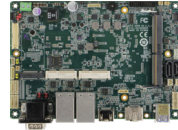
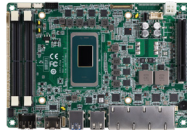
Model	ECB-920A-A11	ECB-927A	ECB-980A
System			
Form Factor	ATX Form Factor	COM Express Basic Size Type 7 Carrier Board in ATX Form Factor	COM HPC Client Size A/B/C
COM Express Connector	x 2 (Row A,B & Row C,D)	x 2 (Row AB and Row CD, Type 7 pin-out)	x 2 (J1 and J2)
I/O Chipset		—	
Front Panel Control		10-pin Header (5x2)	10-pin Header (2x5P)
Ethernet	10/100/1000/2500 Base-TX, RJ45 x 1 (From CPU Module)	10GbE Base-T x 4 (Intel® Ethernet Connection X557-AT4) GbE x 1 (from Module)	2.5 GbE x 1 10 GbE x 1
Expansion Interface	PCIe [x4] x 2 PCIe [x16] x 1	PCIe [x4] x 2 PCIe [x8] x 1 PCIe [x16] x 1 (PEG port)	PCIe [x4] x 2 (Group 0, Lane 0 ~ 7) PCIe [x16] x 2 (one PCIe [x16] only supports PCIe [x4])
Power Supply Type	ATX	Standard 24-pin ATX + 4-pin 12V	Standard 24-pin ATX + 8-pin 12V
CMOS Battery	RTC Battery Socket x 1	CR2032 Holder x 1	RTC battery socket x 1
BIOS		—	Yes
Dimension		12" x 9.6" (305mm x 244mm)	
Gross Weight	1.32 lb (0.6Kg)		1.54 lb (0.7Kg)
Operating Temperature		32°F ~ 140°F (0°C ~ 60°C)	
Storage Temperature		-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity		0% ~ 90% relative humidity, non-condensing	
Display			
LCD	LVDS: 40-pin Dual-Channel LVDS Connector (20x2) eDP: 30-pin Board Wire Connector	N/A. via PCIe Graphic card	eDP x 1
Display interface	Display Port x 3 (Dual x 1, Single x 1) D-SUB15 Connector x 1	N/A. via PCIe Graphic card	Display Port x 2 HDMI x 1
I/O			
Storage	SATA 6Gb/s x 4	SATA x 2	SATA x 2 M.2 2280 M-Key x 2 (PCIe Gen 4 [x4] for NVMe)
Serial Port	COM Port x 2 (2-Wire UART Tx/Rx)	2-wire UART x 2 (TX/RX)	4-wire UART x 2
USB	USB 2.0 x 4 (Type-A), USB 3.2/2.0 x 4 (Type-A)	USB 3.2 x 4	USB 3.2 x 2 (20Gbps, up to Gen 2 x 2 support) USB 3.2 x 1 (10Gbps, up to Gen 2 x 1 support) USB 3.2 x 2 (5Gbps, up to Gen 1 x 1 support) USB 2.0 x 8
Audio	Audio Jack, supports Line-in, Line-out, Microphone	N/A	Audio Jack, supports Line-in, Line-out, Microphone
GPIO	8-bit Programmable	8-bit	12 bit
Switch/Button		Power Button x 1 / Reset Button x 1	
Debug LED	80 PORT	7-SEG LED X2 80 PORT POST CODE INDICATOR	7-Segment Display LED x 2 (80 Port Post Code Indicator)
I2C		x 1	
Expansion Interface	LPC, SMBus, eSPI, CAN Bus, 4 pin fan connector, Micro SD Card Slot x 1	SMBus, LPC/eSPI slot	
Note			

Note: All specifications are subject to change without notice.

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Model	ECB-960T	ECB-960P	ECB-960P-SEMI
System			
Form Factor	Mini-ITX form Factor	2.5" PICO-ITX	
COM Express Connector		—	
I/O Chipset		—	
Front Panel Control		—	
Ethernet	10/100/1000/2500 Base-TX RJ45 x 2	Gigabit Ethernet x 2, RJ-45	
Expansion Interface	PCIe lane[x4] x 1	—	
Power Supply Type		AT / ATX Depends on module	
CMOS Battery	RTC battery socket x 1	RTC x 1, with 3V CR2032H Lithium battery	
BIOS		—	
Dimension	6.69" x 6.69" (170mm x 170mm)	3.94" x 2.84"(100mm x 72mm)	4.25" x 3.12" x 1.69" (108mm x 79.5mm x 43mm)
Gross Weight	1.54 lb (0.7Kg)	TBD	TBD
Operating Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	-40 °F ~ 185 °F (-40 °C ~ 85 °C)	
Storage Temperature	-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% ~ 95% relative humidity, non-condensing	
Display			
LCD	LCD connectors x 2 for LVDS, eDP, DSI(4 lane), support by module features	—	
Display interface	DDI2: HDMI or DP++ (Optional, by BOM) DDI1: DP++	HDMI x 1	
I/O			
Storage	SATA 6Gb/s x 1 (Optional, by BOM)	Optional by module	—
Serial Port	RS-232 x 2 (Tx/Rx) + RS-232 x 2 (Tx/Rx/RTS/CTS) or 4-wire UART x 2 + 2-wire UART x 2 (Optional, by BOM)	RS232 x 2, RS485 x 1	
USB	Type A connector x 6 (USB 2.0 x 4 , USB 3.2/2.0 x 2) OTG x 1 (Client Mode Only) co-lay USB 2.0 x 1	USB 3.0 Type-A x 2 USB 2.0 OTG x 1	USB 3.0 Type-A x 2
Audio	High Definition Audio (pin header) x 1 or I2S x 1 (Optional, by BOM)	—	
GPIO	7 bit (up to 14 bit ,optional by BOM)	GPIO x 14	
Switch/Button	Power Button x 1/Reset Button x 1/Sleep Button x 1	—	
Debug LED	7-Segment Display LED x 1 (80 Port Post Code Indicator) for x86	—	
I2C		x 1	
Expansion Interface	microSD card x 1 (Optional, by BOM) MIPI CSI x 2 (4 lane + 2 lane) CANBUS 2.0 A/B x 2 (Optional, by BOM) 3 pin Fan connector x 1 4 pin Fan connector x 1 SMBus x 1 SPI x 1 (Optional, by BOM)	M.2 2230 E-key x 1 Full Size Mini Card x 1 Micro SD card slot x 1 Micro SIM card slot x 1 Debug Port (Micro USB) x 1 (UART) MIPI-CSI 2L x 1, MIPI-CSI 4L x 1 CANBUS x 2	M.2 2230 E-key x 1 Full Size Mini Card x 1 Micro SD card slot x 1 Micro SIM card slot x 1 USB 2.0 OTG x 1(optional) SPI x 2 (optional) MIPI-CSI 2L x 1, MIPI-CSI 4L x 1 (optional) CANBUS x 2 (optional)
Note			



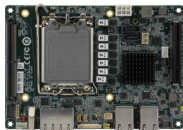
Model	EPIC-PTH9	EPIC-TWL9
System Form Factor	4" EPIC Board	
CPU	Intel® Core™ Ultra Series 3 processors: Intel® Core™ Ultra X7 Processor 358H (16C/16T, up to 4.8 GHz, 25W) Intel® Core™ Ultra 7 Processor 356H (16C/16T, up to 4.7 GHz, 25W) Intel® Core Ultra 5 325 (8C/8T, max 4.5GHz, 25W) Intel® Core Ultra 9 386H (16C/16T, max 4.9GHz, 25W)	Intel® Core™ Processor N-series, Intel® Processor N-series: Intel® Processor N150 (4C/4T, up to 3.6 GHz, 6W) Intel® Core™ 3 Processor N355 (8C/8T, up to 3.90 GHz, 15W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR5 7200, Dual Channel SODIMM x 2, Max 128GB (Non ECC)	DDR4 3200MHz Single-Channel SODIMM x 1, up to 16GB
BIOS	UEFI	
Wake On Lan	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0	TPM 2.0 (Optional)
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	4.53" x 6.50" (115mm x 165mm)	
OS Support	Windows 11 (64-bit); Ubuntu 26.04 kernel 7.0.0-14 generic	Windows® 10 (64-bit); Ubuntu 22.04.2 LTS/Kernel 5.19
Power		
Power Requirement	9V – 24V (Optional: 12V)	+9-36V or +12V
Power Supply Type	AT/ATX (Default: AT)	AT/ATX
Connector	4-pin ATX Connector	2-Pin Phoenix Connector
Power Consumption	Intel® Core™ Ultra X7 Processor 358H, DDR5 32GB, 8.23A @+12V (Typical) Intel® Core™ Ultra X7 Processor 358H, DDR5 32GB, 9.32A @+12V (Max)	Intel® Core™ 3 Processor N355, DDR4 16GB x 1, 5.0A @+12V (Typical) Intel® Core™ 3 Processor N355, DDR4 16GB x 1, 5.5A @+12V (Max)
Display		
Controller	Intel® Graphics (Intel® Core™ Ultra 9 Processor 386H / Intel® Core™ Ultra 7 Processor 356H) Intel® Arc™ B390 GPU (Intel® Core™ Ultra X9 Processor 388H / Intel® Core™ Ultra X7 Processor 358H)	Intel® UHD Graphics
LVDS/eDP	LVDS x 1, Dual-Channel 18/24-bit, up to 1920 x 1080 eDP x 1, up to 3840 x 2160 (Optional)	24/48-bit Dual-Channel LVDS x 1, up to 1920 x 1080 eDP 1.4 x 1, up to 1920 x 1080 (Optional)
Display Interface	HDMI 2.1 x 1, up to 3840 x 2160 @60Hz DP 2.1 x 1, up to 3840 x 2160 @60Hz	HDMI 1.4 x 1, up to 3840 x 2160 @30Hz DP 1.2 x 1, up to 3840 x 2160 @144Hz or VGA x 1, up to 1920 x 1080
Multiple Display	Up to 3 Simultaneous Displays	
Audio		
CODEC	Realtek ALC897	
Audio Interface	Line-In / Line-Out / Mic	
Speaker	5W Speaker (Optional)	
External I/O		
Ethernet	Intel® Ethernet Connection I219, 1GbE RJ-45 x 1 (PXE support x 1) Intel® Ethernet Controller I226, 2.5GbE RJ-45 x 3 (PXE support x 1)	Intel® Ethernet Controller I226-V, 2.5GbE RJ-45 x 2 (Standard: 2 Ports, Advanced: 4 Ports)
USB	USB2.0 x 2; USB3.2 Gen2 x 2	USB 3.2 Gen 2 x 2
Serial Port	—	COM 1, COM 2 (RS-232/422/485, support 5V/12V/RI)
Video	DP 2.1 x 1; HDMI 2.1 x 1	HDMI 1.4 x 1; DP 1.2 x 1
Internal I/O		
USB	USB 2.0 x 4	
Serial Port	COM 1 & COM 2 (RS-232/422/485, supports 5V/12V/RI) COM 3 & COM 4 (RS-232 only, supports RI only)	COM 3, COM 4, COM 5, COM 6 (RS-232, support RI only)
Video	LVDS x 1, Dual-Channel 18/24-bit, up to 1920 x 1080 eDP x 1, up to 3840 x 2160 (Optional)	LVDS / eDP x 1 (Default : LVDS) Inverter x 1 (5V/12V@2A)
SATA	—	SATA 6Gb/s x 1 (Default) (up to SATA x 2 shared with mSATA, BOM Optional)
Audio	Audio Header x 1	
DIO/GPIO	GPIO 8-bit	GPIO 16-bits
SMBus/I2C	SMBus / I2C / Timed GPIO (Default: SMBus, change by BOM)	SMBus / I2C (Default : SMBus)
Touch	—	
Fan	4-pin Smart Fan x 2	4 Pin Smart Fan
SIM	Nano SIM x 1	
Front Panel	Power Button, Reset Button, Power LED, Buzzer	Power Button, Reset Button, Power LED, SATA LED, Buzzer
Others		
Expansion		
Mini PCI-E/mSATA	—	Full-size mPCIe x 1 Full-size mSATA x 1
M.2	M.2 3052 B-Key x 1 (PCIe 4.0 [x1] + USB 3.0 / PCIe 4.0 [x2] x 1) Default: PCIe 4.0 [x1] + USB 3.0, change by BOM M.2 2280 M-Key x 1 (PCIe 4.0 [x4]) M.2 2230 E-Key x 1 (PCIe 4.0 [x1] + USB 2.0)	M.2 2242 B-Key x 1 (PCIe 2.0 [x1] + USB 2.0)
Others	PCIe 5.0 [x8] Slot x 1 (support by Intel® Core™ Ultra 7 Processor 356H CPU only)	—
Environment & Certification		
Operating Temperature	-4°F – 158°F (-20°C – 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Temperature	-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)	860,096	922,291
EMC	CE/FCC Class A	

Note: All specifications are subject to change without notice.

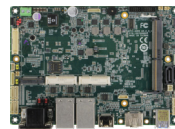
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Board Level Products

EPIC Boards



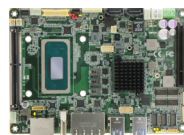
Model	EPIC-BTS9	EPIC-BTS7
System Form Factor	4" EPIC Board	
CPU	14th Generation Intel® Core™ Processor (up to 35W/65W) 13th Generation Intel® Core™ Processor (up to 35W/65W) 12th Generation Intel® Core™ Processor (up to 35W/65W) Intel® Core™ processors (Series 2) (up to 35W/65W)	14th Generation Intel® Core™ Processor (up to 35W/65W) 13th Generation Intel® Core™ Processor (up to 35W/65W) 12th Generation Intel® Core™ Processor (up to 35W/65W) Intel® Core™ processors (Series 2) (up to 35W/65W)
Chipset	Intel 600 Series Chipset (R680E/Q670E/H610E)	Intel® H610E Chipset
Memory Type	DDR5 4800 Dual Channel SODIMM x 2, up to 64GB (ECC support only for R680E)	DDR5 4800/5200/5600, Dual-Channel SODIMM x 2, non-ECC, up to 64GB (DDR Speed dependent on CPU SKU)
BIOS	UEFI	
Wake On Lan	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0 (TPM 2.0 (Optional))	
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	4.53" x 6.50" (115mm x 165mm)	
OS Support	Windows® 10/11 (64-bit); Ubuntu 24.04.2/Kernel 6.10.0-27-generic x86_64/Windows 10 (64bit) / Windows 11 (64bit); Ubuntu 22.04.2/kernel 5.19.0	
Power		
Power Requirement	+12V, support ERP (Note: To achieve stable performance, using the power supply unit rated 22A@12V DC output, to meet the potential maximum peak requirement is recommended)	DC 19Vin ~ 24Vin; DC 12Vin (Note: For stable performance, it is recommended to use a power supply unit rated at 24A @12V DC output to accommodate potential maximum peak power requirements.)
Power Supply Type	AT/ATX	
Connector	6-Pin Connector	8-Pin Connector
Power Consumption	Intel® Core™ 7 Processor 251E, DDR5 32GB x 2, 24.76A @+12V (Max)	Intel Core Series2 251E, DDR5 32GB x2,10A@+12V (Typical) Intel Core Series2 251E, DDR5 32GB x 2,24A@+12V (Max)
Display		
Controller	Intel® UHD Graphics 770 (i5 SKU and above) Intel® UHD Graphics 730 (i3 SKU) Intel® UHD Graphics 710 (Intel® Celeron® G6900TE SKU)	
LVDS/eDP	eDP 1.4 x 1, up to 3840 x 2160	Dual Channel 18/24bit LVDS x 1
Display Interface	HDMI 2.0 x 1, up to 3840 x 2160 @60Hz VGA x 1, up to 1920 x 1080	DP 1.2 x 1, up to 3840 x 2160 @60Hz VGA x 1, up to 1920 x 1080
Multiple Display	Up to 3 Simultaneous Displays	
Audio		
CODEC	Realtek ALC897	—
Audio Interface	Line-In/Line-Out/MIC	—
Speaker	—	
External I/O		
Ethernet	Intel® Ethernet Controller I226, 2.5GbE RJ-45 x 3 Intel® Ethernet Connection I219, GbE RJ-45 x 1	Intel® Ethernet Controller I226, 2.5GbE RJ-45 x 1 Intel® Ethernet Connection I219, GbE RJ-45 x 1
USB	USB 3.2 Gen 1 x 1; USB 3.2 Gen 2 x 1	USB 3.2 Gen 2 (Type-A) x 2; USB3.2 Gen 1 (Type-A) x 2
Serial Port	—	
Video	HDMI 2.0 x 1, up to 3840 x 2160 @60Hz	DP 1.2 x 1
Internal I/O		
USB	USB 2.0 x 2	USB2.0 x 4 (Pin Header)
Serial Port	COM 1 (RS-232/422/485, supports RI only) COM 2 (RS-232/422/485, supports 12V/5V/RI)	RS-232/422/285 x 2 RS-232 x 2 (Pin Header)
Video	eDP 1.4 x 1, up to 3840 x 2160; VGA x 1, up to 1920 x 1080	VGA x 1, LVDS x 1
SATA	SATA 6Gb/s x 2; +5V SATA Power Connector x 2	
Audio	Audio Header x 1	—
DIO/GPIO	GPIO 8-bits	8 bit
SMBus/I2C	SMBus/I2C (change by BOM, I2C only for Windows 10)	SMBus/I2C (change by BOM)
Touch	—	
Fan	4 Pin Smart Fan	
SIM	Nano SIM x 1	—
Front Panel	Power Button, Reset Button, Power LED, SATA LED, Buzzer	
Others	—	
Expansion		
Mini PCI-E/mSATA	—	Full-size mSATA/Mini Card (Default: Mini PCIe, SATA configuration subject to BOM change)
M.2	M.2 2280 M-Key x 1 (PCIe 4.0 [x4], R680E & Q670E SKU support) M.2 3052 B-Key x 1 (PCIe 3.0 [x1] + USB 3.0) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0)	M.2 2280 M-Key x 1 (PCIe 3.0 [x4]) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0)
Others	PCIe 4.0 [x8] Slot x 1 (Supplies maximum 25W to the PCIe peripheral) FPC Connector x 1 (PCIe 3.0 [x2])	—
Environment & Certification		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) (Note: To achieve the best performance, keeping the EPIC-BTS9 operating with 0.5m/sec airflow when DDR5 SODIMM1 installed on bottom side is recommended)	32°F ~ 140°F (0°C ~ 60°C) (Note: To achieve the best performance, keeping the EPIC-BTS7 operating with 0.5m/sec airflow when DDR5 SODIMM1 installed on bottom side is recommended)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	353,666	
EMC	CE/FCC Class A	



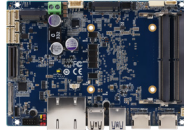
Model	EPIC-ASL9	EPIC-ADN9
System Form Factor	4" EPIC Board	
CPU	Intel Atom® Processors x7000RE Series Processors: Intel Atom® x7433RE (4C, up to 3.4 GHz, 9W) Intel Atom® x7835RE (8C, up to 3.6 GHz, 12W)	Intel Atom® x7000E Series/Intel® Processor N Series/Intel® Core™ i3-N305 Processors: Intel® Core™ i3-N305 (8C/8T, up to 3.8 GHz, TDP 15W) Intel Atom® x7425E (4C/4T, up to 3.4 GHz, TDP 12W) Intel® Processor N97 (4C/4T, up to 3.6 GHz, TDP 12W) Intel® Processor N50 (2C/2T, up to 3.4 GHz, TDP 6W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR4 3200MHz Single-Channel SODIMM x 1, up to 16GB	
BIOS	UEFI	
Wake On Lan	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAh	
Dimension	4.53" x 6.50" (115mm x 165mm)	
OS Support	Windows® 10 (64-bit) Ubuntu 22.04.2 LTS/Kernel 5.19	
Power		
Power Requirement	+9-36V or +12V	
Power Supply Type	AT/ATX	
Connector	2-Pin Phoenix Connector	
Power Consumption	Intel® Core™ i3-N305, DDR4 16GB, 1.87A+24V (Typical) Intel® Core™ i3-N305, DDR4 16GB, 2.66A +24V (Max)	
Display Controller	Intel® UHD Graphics	
LVDS/eDP	24/48-bit Dual-Channel LVDS x 1, up to 1920 x 1080 eDP 1.4 x 1, up to 1920 x 1080 (Optional)	24/48-bit Dual-Channel LVDS x 1, up to 1920 x 1080 eDP 1.4 x 1, up to 1920 x 1080 (Optional)
Display Interface	HDMI 1.4 x 1, up to 3840 x 2160 @30Hz DP 1.2 x 1, up to 3840 x 2160 @144Hz or VGA x 1, up to 1920 x 1080 Up to 3 Simultaneous Displays	
Multiple Display		
Audio		
CODEC	Realtek ALC897	
Audio Interface	Line-In / Line-Out / MIC	
Speaker	5W Speaker (Optional)	
External I/O		
Ethernet	Intel® Ethernet Controller I226-V, 2.5GbE RJ-45 x 2 (Standard: 2 ports, Advanced: 4 ports)	RJ-45 for Intel® I226-V 2.5GbE x 2 (Standard: 2 Ports, Advanced: 4 Ports)
USB	USB 3.2 Gen 2 x 2	
Serial Port	COM 1, COM 2 (RS-232/422/485, support 5V/12V/Ri)	
Video	HDMI 1.4 x 1 DP 1.2 x 1	
Internal I/O		
USB	USB 2.0 x 4	
Serial Port	COM 3, COM 4, COM 5, COM 6 (RS-232, support Ri only)	
Video	LVDS / eDP x 1 (Default : LVDS) Inverter x 1 (5V/12V@2A)	
SATA	SATA 6.0Gbps x 1 (Default) (up to SATA x 2 shared with mSATA, BOM Optional)	
Audio	Audio Header x 1	
DIO/GPIO	GPIO 16-bit	
SMBus/I2C	SMBus / I2C (Default : SMBus)	
Touch	—	
Fan	4 Pin Smart Fan	
SIM	Nano SIM x 1	
Front Panel	Power Button, Reset Button, Power LED, SATA LED, Buzzer	
Others	—	
Expansion		
Mini PCI-E/mSATA	Full-size mPCIe x 1 Full-size mSATA x 1	
M.2	M.2 2242 B-Key x 1 (PCIe 2.0 [x1] + USB 2.0)	
Others	—	
Environment & Certification		
Operating Temperature	WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	364,565	
EMC	CE/FCC Class A	
Note		

Board Level Products

EPIC Boards



Model	EPIC-ADN9-PUC Rev.B	EPIC-TGH7
System		
Form Factor	4" EPIC System	4" EPIC Board
CPU	Intel® Core™ i3-N305 (8C/8T, up to 3.8 GHz, TDP 15W) Intel® Processor N97 (4C/4T, up to 3.6 GHz, TDP 12W)	Onboard 11th Generation Intel® Core™/Xeon® Processors: Intel® Xeon® W-11865MRE (8C/16T, 2.60 GHz, 45W) Intel® Core™ i7-11850HE (8C/16T, 2.60 GHz, 45W) Intel® Core™ i5-11500HE (6C/12T, 2.60 GHz, 45W) Intel® Core™ i3-11100HE (4C/8T, 2.40 GHz, 45W) Intel® Celeron® 6600HE (2C/2T, 2.60 GHz, 35W)
Chipset	Integrated with Intel® SoC	Intel® 500 Series Mobile Chipset (RM590E/HM570E)
Memory Type	DDR4 3200MHz Single-Channel SODIMM x 1, up to 16GB	DDR4 3200, Dual Channel SODIMM x 2, Max 64GB (ECC supported by Intel® Xeon® SKU)
BIOS		UEFI
Wake On Lan		Yes
Watchdog Timer		255 Levels
Security	TPM2.0	TPM 2.0 (Optional)
RTC Battery		Lithium Battery 3V/240mAh
Dimension	191*135*53mm	4.53" x 6.50" (115mm x 165mm)
OS Support	Windows® 10 (64-bit) / Windows 11 (64bit) Ubuntu 22.04.2/Kernel 5.19	Windows 10 (64bit) Ubuntu 20.04.3/Kernel 5.11.0-27-generic x86_64 or above
Power		
Power Requirement	+9-36V	+9V to +24V (Optional: +12V)
Power Supply Type	ATX	AT/ATX
Connector	DC Jack connector	ATX 4-Pin connector + Phoenix 2-Pin Connector
Power Consumption	Intel® Core™ i3-N305, DDR4 32GB x 1, 1.92A@ +36V (TYPICAL) Intel® Core™ i3-N305, DDR4 32GB x 1, 2.03A@ +36V (MAX)	Xeon® W-11865MRE, DDR4 32GB x 2, 8.32A@12V, 99.84W (TYPICAL) Xeon® W-11865MRE, DDR4 32GB x 2, 12.52A@12V, 150.24W (MAX)
Display		
Controller	Intel® UHD Graphics	Intel® UHD Graphics for 11th Gen Intel® Processors
LVDS/eDP	—	LVDS x 1, Dual Channel 24/48bit, up to 1920 x 1080 eDP 1.4 x 1, up to 1920 x 1080 (Optional)
Display Interface	HDMI 1.4b x 1, up to 3840 x 2160 @30Hz; DP 1.2 x 1, up to 3840 x 2160 @144Hz	VGA x 1, up to 1920 x 1080; DP++ 1.2 x 2, up to 3840 x 2160 @60Hz; HDMI 2.0 x 1, up to 3840 x 2160 @60Hz
Multiple Display	Up to 2 Simultaneous Displays	Up to 4 Simultaneous Displays
Audio		
CODEC	Realtek ALC897	Realtek ALC269 (No audio function support for Wide temperature sku.)
Audio Interface	HD Audio, Line In / Line Out/ Mic (Optional)	Line-In/Line-Out/Mic
Speaker	—	2W Amp.
External I/O		
Ethernet	RJ-45 for Intel® I226-LM 2.5GbE x 4 (onboard) RJ45 for Intel I210AT GbE x 2 (expanded by PER-T545)	Intel® I225/I226, 2.5GbE RJ-45 x 1 Intel® I219, 1GbE RJ-45 x 1
USB	USB 3.2 Gen 2 (Type A) x 2; USB 2.0 (Type A) x 4 (Optional)	USB 3.2 Gen 2 x 4
Serial Port	COM1 & COM2 (RS232/422/485, Support 12V/5V/RI) COM3, COM4, COM5, COM 6 (RS232 only, Optional)	—
Video	HDMI 1.4 x 1 (3840*2160@30Hz); DP 1.2 x 1 (3840*2160@60Hz)	DP 1.2 x 2; HDMI 2.0 x 1
Internal I/O		
USB	—	USB 2.0 x 4
Serial Port	—	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RI) COM 3, COM 4, COM 5, COM 6 (RS-232 only, supports RI only)
Video	—	LVDS or eDP x 1 (Default: LVDS); LVDS Inverter 5V/12V @2A; VGA x 1
SATA	SATA 6.0 Gb/s x 1; +5V SATA Power Connector x 1	SATA 6Gb/s x 2, +5V SATA Power Connector x 1 (Total up to 5V@2A) (Up to 5V@1A, shared with 2 x 2.5"SSD as limitation with 170X000592)
Audio	Line in / Line Out / Mic (Optional)	Audio Header x 1 (No audio function support for wide temperature sku.)
DIO/GPIO	GPIO 16 bits	GPIO-16 bits
SMBus/I2C	—	SMBus/I2C (Default : SMBus)
Touch	—	4/5/8-wire Touch Controller x 1
Fan	Fanless Solution (System Fan as option)	4 Pin Smart Fan
SIM		Nano SIM x 1
Front Panel	Power On / Off	Power Button, Reset Button, Power LED, SATA LED, Buzzer
Others		
Expansion		
Mini PCI-E/mSATA	Full-size Mini Card (PCIe2.0[x1] + USB2.0) x 1; Full Sized mSATA x 1	Half Size mSATA/mPCIe x 1 (Default: mPCIe, selected by BIOS)
M.2	M.2 2242 B-Key (PCIe 2.0 [x1] + USB 2.0) x 1	M.2 2280 M-Key x 1 (PCIe 4.0 [x4] x 1) M.2 3052 B-Key x 1 (PCIe 3.0 [x2]) + USB 3.2 + USB 2.0)
Others	—	PCIe 4.0 [x8] Slot x 1 (Supply maximum 25W to the PCIe peripheral) FPC Connector x 1 (PCIe3.0 [x4] x 1)
Environment & Certification		
Operating Temperature	32°F ~ 122°F (0°C ~ 50°C) in 0.5m/sec air flow	32°F ~ 140°F (0°C ~ 60°C) WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU (Note: To achieve the best performance, installing SODIMM heatsink for EPIC-TGH7 DIMM1 and DIMM2 is recommended.)
Storage Temperature	-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)	TBD	274,169
EMC		CE/FCC Class A



Model	GENE-R8K6	GENE-MTH6
System Form Factor	3.5" SubCompact Board	
CPU	AMD Ryzen™ Embedded 8000 Series AMD Ryzen™ 7 PRO 8840U (8C/16T, 3.30 GHz, 28W) AMD Ryzen™ 5 PRO 8640U (6C/12T, 3.50 GHz, 28W)	Intel® Core™ Ultra Processors: Intel® Core™ Ultra 7 Processor 155H (16C/22T, up to 4.8 GHz, 28W) Intel® Core™ Ultra 5 Processor 125H (14C/18T, up to 4.5 GHz, 28W) Intel® Core™ Ultra 7 Processor 155U (12C/14T, up to 4.8 GHz, 15W) Intel® Core™ Ultra 5 Processor 125U (12C/14T, up to 4.3 GHz, 15W)
Chipset	Zen4, Radeon RDNA3 Graphics, XDNA NPU	Integrated with Intel® SoC
Memory Type	DDR5 5600, Dual Channel SODIMM x 2, up to 64GB, Support ECC	DDR5 5600, Dual Channel SODIMM x 2 Max. 96GB, Non-ECC
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAh	
Dimensions	5.75" x 4" (146mm x 101.7mm)	5.75" x 4" (146mm x 101.7mm), 0.88 lb (0.4Kg)
OS Support	Windows 11 (64bit); Ubuntu 22.04	Windows® 10 (64-bit); Windows® 11 (64-bit); Linux Ubuntu 22.04.3 (kernel 6.2.0-26-generic)
Power		
Power Requirement	+9-36V (Optional: +12V)	+9-36V (Optional: +12V), support ERP
Power Supply Type	AT/ATX	AT/ATX, support 3pin ATX
Connector	Phoenix 2-pin Connector (Colay 4 pin connector)	Phoenix 2-pin Connector (Colay 4 pin connector)
Power Consumption	TBD	Intel® Core™ Ultra 7, DDR5 32GB x 2, 5.78A @+12V (Typical) Intel® Core™ Ultra 7, DDR5 32GB x 1, 8.42A @+12V (Max)
Display		
Controller	RDNA3 graphics	Intel® Arc™ Graphics; Intel® Graphics
LVDS/eDP	LVDS Dual Channel 18/24bit x 1 (30pins) colay eDP1.4a	LVDS x 1, Dual-Channel 18/24-bit, up to 1920 x 1080 eDP 1.4b HBR3 x 1, up to 3840 x 2160 @60Hz
Display Interface	HDMI 2.1 x 2 DP1.4a x 1 (via USB Type C, SOC integrated)	HDMI 2.1 x 1, up to 8K x 4K@60Hz or 4K x 2K@120Hz DP 2.0 x 1, up to 7680 x 4320@60Hz 30bpp (support DP++)
Multiple Display	Up to 4 Simultaneous Displays	
Audio		
Codec	Realtek ALC897	
Audio Interface	Line-in/Line-out/Mic	Line-in/Line-out/MIC (Audio function not available for WITAS SKU)
Speaker	---	
External I/O		
Ethernet	Intel I226 2.5 GbE RJ45 x 2	Intel® I219 1GbE, RJ-45 x 1; Intel® I226 2.5GbE, RJ-45 x 2, support PEX (Support Vpro only with ULTRA 7 165U/165H, ULTRA 5 135U/135H)
USB	USB3.2 Gen2 x 2 (Type A); USB3.2 Gen2 x 1 (Type C, USB/DP Alt mode); USB2.0 x 1	USB3.2 Gen 2 x 2 port
Serial Port	---	
Video	HDMI 2.1 x 2; DP1.4a x 1 (via USB Type C, USB/DP Alt mode)	HDMI 2.1 x 1; DP 2.0++ x 1
Internal I/O		
USB	USB2.0 x 3	USB 2.0 x 4
Serial Port	COM1~2 (RS-232/422/485) COM3~4 (RS-232)	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RI) COM 3, COM 4 (RS-232)
Video	Dual Channel 18bit/24bit LVDS, up to 1920x1080@60Hz, or eDP 1.4 x 1, up to 3840x2160@60Hz (Optional)	LVDS x 1; Inverter x 1 (12V/2A); eDP x 1
SATA	---	SATA 6.0 Gb/s x 1; +5V SATA Power Connector x 1
Audio	Header x 1 (Line-in/Line-out/MIC)	Audio Header x 1 (Optional, Audio function not available for WITAS SKU)
DIO/GPIO	GPIO 8-bits	GPIO 8-bit
SMBus/I2C	SMBus/I2C (Default : SMBus)	SMBus/I2C x 1 (Default: SMBus)
Touch	---	
Fan	4 Pin Smart Fan x 1	4 wire 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 PCIe/mSATA	---	
M.2	M-Key 2280 x 2 (PCIe Gen4 [x4]) MCIO x 1 (PCIe Gen4 [x8])	M.2 2280 M-Key x 1 (PCIe 4.0 [x4]/SATA) Default: PCIe 4.0 [x4] (selected by BOM) M.2 3052 B-Key x 1 (PCIe 3.0 [x1] + USB 3.2/PCIe 3.0 [x2]) Default: PCIe 3.0 [x1] (selected by BOM) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0), supports Wi-Fi 6E CNVi (RAID 0, RAID 1 support on PCIe storage)
Others	---	FP2C x 1 (PCIe Gen4 [x4] x 2), Support RAID 0, RAID 1
Environment & Certification		
Operating Temp.	-4°F ~ 158°F (-20°C ~ 70°C)	32°F ~ 140°F (0°C ~ 60°C)
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)	TBD	753,493
EMC	CE/FCC Class A	
Note		

Board Level Products

SubCompact Boards



Model	GENESYSM-MTH6	GENE-ARH6
System Form Factor	3.5" SubCompact Board System	3.5" SubCompact Board
CPU	Intel® Core™ Ultra Processors: Intel® Core™ Ultra 7 Processor 155H (16C/22T, up to 4.8 GHz, 28W) Intel® Core™ Ultra 5 Processor 125H (14C/18T, up to 4.5 GHz, 28W) Intel® Core™ Ultra 7 Processor 155U (12C/14T, up to 4.8 GHz, 15W) Intel® Core™ Ultra 5 Processor 125U (12C/14T, up to 4.3 GHz, 15W)	Intel® Core™ Ultra Processors (Series 2): Intel® Core™ Ultra 7 Processor 255H (16C/16T, up to 5.1 GHz, 28W) Intel® Core™ Ultra 5 Processor 225H (14C/14T, up to 4.9 GHz, 28W) Intel® Core™ Ultra 7 Processor 255U (12C/14T, up to 5.2 GHz, 15W) Intel® Core™ Ultra 5 Processor 225U (12C/14T, up to 4.8 GHz, 15W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR5 5600, Dual Channel SODIMM x 2; Max. 96GB, Non-ECC	DDR5 6400, Dual Channel SODIMM x 2; Max. 96GB, Non-ECC Note: Max capacity up to 2x 48GB DDR5 SODIMM up to 5600 MT/s
BIOS		UEFI
Wake on LAN		Yes
Watchdog Timer		255 Levels
Security		TPM 2.0
RTC Battery	Lithium Battery 3V/240mAh	
Dimensions	7.48" x 5.28" x 1.69" (190mm x 134.1mm x 43mm)	5.75" x 4" (146mm x 101.7mm), 0.88 lb (0.4Kg)
OS Support	Windows 10 IoT LTSC (21H2); Windows 11 IoT LTSC(24H2); Linux Ubuntu 22.04.3 (kernel 6.2.0-26-generic)	Windows® 10 (64-bit); Windows® 11 (64-bit, NPU is supported on Windows® 11 only); Linux Ubuntu 24.04.2 (Kernel 6.11.0-25-generic)
Power		
Power Requirement	+9-36V (Optional: +12V), support ERP	
Power Supply Type	ATX	AT/ATX, support 3pin ATX
Connector	DC Jack Connector	Phoenix 2-pin Connector (Colay 4 pin connector)
Power Consumption	Intel® Core™ Ultra 7 Processor 155H, DDR5 32GB x 2, 5.78A @+12V (Typical); Intel® Core™ Ultra 7 Processor 155H, DDR5 32GB x 1, 8.42A @+12V (Max)	Intel® Core™ Ultra 7, DDR5 48GB x 2, 5.44A @+12V (Typical) Intel® Core™ Ultra 7, DDR5 48GB x 1, 9.56A @+12V (Max)
Display	Intel® Arc™ Graphics; Intel® Graphics	
Controller		LVDS x 1, Dual-Channel 18/24-bit, up to 1920 x 1080 eDP 1.4b HBR3 x 1, up to 3840 x 2160 @60Hz
LVDS/eDP	—	
Display Interface	HDMI 2.1 x 1, up to 8K x 4K@60Hz or 4K x 2K@120Hz DP 2.0 x 1, up to 7680 x 4320@60Hz 30bpps (support DP++)	HDMI 2.1 x 1, up to 8K x 4K@60Hz or 4K x 2K@120Hz DP 2.0 x 1, up to 7680 x 4320@60Hz 30bpps (support DP++)
Multiple Display	Up to 2 Simultaneous Displays	Up to 4 Simultaneous Displays
Audio		
Codec	Realtek ALC897	
Audio Interface	Line-in/Line-out/MIC	Line-in/Line-out/MIC (Audio function not available for WITAS SKU)
Speaker		—
External I/O		
Ethernet	Intel® Ethernet Controller I226, 2.5GbE RJ-45 x 2 Intel® Ethernet Connection I219, 1GbE RJ-45 x 1 *Note: vPro only supported with Intel® Core™ Ultra 7 Processor 165U/165H, Intel® Core™ Ultra 5 Processor 135U/135H), LAN 2 & LAN 3 support PXE	Intel® Ethernet Connection I219 1GbE, RJ-45 x 1 Intel® Ethernet Controller I226 2.5GbE, RJ-45 x 2, support PXE (Intel vPro® support with Intel® Core™ Ultra 7 Processor 265H)
USB	USB 3.2 Gen 2 x 2; USB 2.0 x 4	USB 3.2 Gen 2 x 2
Serial Port	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RI)	—
Video	HDMI 2.1 x 1, DP 2.0++ x 1	HDMI 2.1 x 1; DP 2.0++ x 1
Internal I/O		
USB	—	USB 2.0 x 4
Serial Port	—	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RI) COM 3, COM 4 (RS-232)
Video	—	LVDS x 1; Inverter x 1 (12V/2A); eDP x 1
SATA	—	SATA 6.0 Gb/s x 1; +5V SATA Power Connector x 1
Audio	Audio Header x 1	Audio Header x 1 (Optional, Audio function not available for WITAS SKU)
DIO/GPIO		GPIO 8-bit
SMBus/I2C		SMBus/I2C x 1 (Default: SMBus)
Touch		—
Fan	4-pin Smart Fan x 1	4 wire Smart Fan x 1
Sim		Nano SIM x 1
Front Panel		HDD LED, PWR LED, Power Button, Buzzer, Reset
Others		—
Expansion		
Mini PCIe/mSATA		
M.2	M.2 2280 M-Key x 3 (PCIe [x4], SATA) Select by BOM M.2 3052 B-Key x 1 (PCIe [x2]/[x1], USB 3.0), Default: PCIe 3.0 [x1] + USB 3.0 (selected by BOM) M.2 2230 E-Key x 1 (PCIe, USB 2.0), support Wi-Fi 6E CNVi (Storage using PCIe can support RAID 0, 1) M.2 2280 M-Key x 2 (PCIe [x4] via PER-SB2B (FPC2))	M.2 2280 M-Key x 1 (PCIe 4.0 [x4]/SATA) Default: PCIe 4.0 [x4] (selected by BOM) M.2 3052 B-Key x 1 (PCIe 3.0 [x1] + USB 3.2/PCIe 3.0 [x2]) Default: PCIe 3.0 [x1] (selected by BOM) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0), supports Wi-Fi 6E CNVi (RAID 0, RAID 1 support on PCIe storage) Note: Recommended Screw Torque 2.5Kgf-cm±5%
Others	—	FPC2 x 1 (PCIe Gen4 [x4] x 2), Support RAID 0, RAID 1
Environment & Certification		
Operating Temp.	14°F ~ 122°F (-10°C ~ 50°C) 0.7 m/s air flow	-4°F ~ 158°F (-20°C ~ 70°C) *Note: Please refer to the Datasheet for the recommended fan kit.
Storage Temp.		-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity		0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	753,493	753,493
EMC		CE/FCC Class A



Model	GENESYSM-ARH6	GENE-TWL5
System Form Factor	3.5" SubCompact Board System	3.5" SubCompact Board
CPU	Intel® Core™ Ultra Processors: Intel® Core™ Ultra 7 Processor 255H (16C/16T, up to 5.1 GHz, 28W) Intel® Core™ Ultra 5 Processor 225H (14C/14T, up to 4.9 GHz, 28W)	Intel® Processor N150 (4C/4T, up to 3.6 GHz, 6W) Intel® Core™ 3 Processor N355 (8C/8T, up to 3.90GHz, 15W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR5 6400, Dual Channel SODIMM x 2 Max. 96GB, Non-ECC	DDR5 4800, Single Channel SODIMM x 1, Max. 16GB, Non-ECC
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0	
RTC Battery	Lithium Battery 3V/240mAh	
Dimensions	7.48" x 5.28" x 1.69" (190mm x 134.1mm x 43mm)	5.75" x 4" (146mm x 101.7mm), 1.1 lb (0.5Kg)
OS Support	Windows 10 IoT LTSC (21H2) Windows 11 IoT LTSC(24H2) Linux Ubuntu 24.04.2 (Kernel 6.11.0-25-generic)	Windows 10 (64-bit) Windows 11 (64-bit) Ubuntu 24.04.2/ kernel 6.11.0-17-generic
Power		
Power Requirement	+9~36V (Optional: +12V), support ERP	+9V~36V (Optional: +12V), support ERP
Power Supply Type	ATX	AT/ATX, support 3pin ATX
Connector	DC Jack Connector	Phoenix 2-pin Connector (Colay 4 pin connector)
Power Consumption	Intel® Core™ Ultra 7, DDR5 48GB x 2, 5.44A @+12V (Typical) Intel® Core™ Ultra 7, DDR5 48GB x 1, 9.56A @+12V (Max)	Intel® Core™ 3 Processor N355, DDR5 16GB x 1, 3.43A @+12V (Typical) Intel® Core™ 3 Processor N355, DDR5 16GB x 1, 5.13A @+12V (Max)
Display		
Controller	Intel® Arc™ Graphics; Intel® Graphics	Intel® UHD Graphics
LVDS/eDP	—	LVDS x 1, Dual-Channel 18/24-bit, up to 1920 x 1080 eDP HBR3 x 1, up to 1920 x 1200 (Optional)
Display Interface	HDMI 2.1 x 1, up to 8K x 4K@60Hz or 4K x 2K@120Hz DP 2.0 x 1, up to 7680 x 4320@60Hz 30bpp (support DP++)	HDMI 1.4 x 1, up to 3840 x 2160 @30Hz VGA x 1, up to 1920 x 1080
Multiple Display	Up to 2 Simultaneous Displays	Up to 3 Simultaneous Displays
Audio		
Codec	Realtek ALC897	
Audio Interface	Line-in/Line-out/MIC	Line-In / Line-Out / Mic, (Audio function not available for WITAS SKU)
Speaker	—	
External I/O		
Ethernet	Intel® Ethernet Controller I226, 2.5GbE RJ-45 x 2 Intel® Ethernet Controller I219, 1GbE RJ-45 x 1 *Note: Intel vPro® support with Intel® Core™ Ultra 7 Processor 265H	Intel® Ethernet Controller I226, 2.5GbE x 2
USB	USB 3.2 Gen 2 x 2 USB 2.0 x 4	USB 3.2 Gen 2 x 2
Serial Port	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RI)	—
Video	HDMI 2.1 x 1, DP 2.0++ x 1	HDMI 1.4 x 1, VGA x 1
Internal I/O		
USB	—	USB 2.0 x 4
Serial Port	—	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RI) COM 3, COM 4 (RS-232)
Video	—	LVDS x 1; eDP x 1 Inverter x 1 (12V/2A)
SATA	—	SATA 6.0 Gb/s x 1 +5V SATA Power Connector x 1
Audio	Audio Header x 1	Audio Header x 1 (Optional, Audio function not available for WITAS SKU)
DIO/GPIO	—	GPIO 8-bit
SMBus/I2C	—	SMBus / I2C x 1 (Default: SMBus)
Touch	—	4/5/8 wire Touch Controller x 1
Fan	4-pin Smart Fan x 1	
Sim	Nano SIM x 1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
Expansion		
Mini PCIe/mSATA	—	Full-size mSATA / mPCIe x 1 (Default: mPCIe, select by BIOS)
M.2	M.2 2280 M-Key x 3 (PCIe [x4], SATA) Select by BOM M.2 3052 B-Key x 1 (PCIe [x2]/[x1], USB 3.0, Default: PCIe 3.0 [x1] + USB 3.0 (selected by BOM) M.2 2230 E-Key x 1 (PCIe, USB 2.0), support Wi-Fi 6E CNVi (Storage using PCIe can support RAID 0, 1) M.2 2280 M-Key x 2 (PCIe [x4] via PER-SB2B (FPC2))	M.2 3052 B-Key x 1 (PCIe 3.0 [x1] + USB 3.2 Gen 2/PCIe 3.0 [x2] + USB 2.0, default: PCIe [x1] + USB 3.2 Gen 2, selected by BIOS) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0, support CNVi)
Others	—	
Environment & Certification		
Operating Temp.	14°F ~ 122°F (-10°C ~ 50°C) 0.7 m/s air flow	-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)	753,493	1,284,701
EMC	CE/FCC Class A	
Note		

Note: All specifications are subject to change without notice.

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Board Level Products

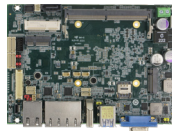
SubCompact Boards



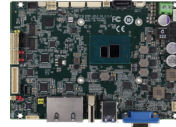
Model	GENE-TWL5	GENE-TWL6
System	3.5" SubCompact Board	
Form Factor		
CPU	Intel® Processor N150 (4C/4T, up to 3.6 GHz, 6W) Intel® Core™ 3 Processor N355 (8C/8T, up to 3.90 GHz, 15W)	
Chipset	Integrated with Intel® SoC	
Memory Type	DDR5 4800, Single Channel SODIMM x 1, Max.16GB, Non-ECC	
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0	TPM 2.0 (Optional)
RTC Battery	Lithium Battery 3V/240mAh	
Dimensions	5.75" x 4" (146mm x 101.7mm), 1.1 lb (0.5Kg)	5.75" x 4" (146mm x 101.7mm), 0.94 lb (0.43 Kg)
OS Support	Windows 10 (64-bit) Windows 11 (64-bit) Ubuntu 24.04.2/ kernel 6.11.0-17-generic	Windows 10 (64-bit), Windows 11 (64-bit) Ubuntu 24.04.2/ Kernel 6.11.0-26-generic
Power		
Power Requirement	+9V~36V (Optional: +12V), Support ERP	
Power Supply Type	AT/ATX, support 3pin ATX	AT/ATX
Connector	Phoenix 2-pin Connector (Colay 4 pin connector)	Phoenix 2-pin Connector
Power Consumption	Intel® Core™ 3 Processor N355, DDR5 16GB x 1, 3.43A @+12V (Typical) Intel® Core™ 3 Processor N355, DDR5 16GB x 1, 5.13A @+12V (Max)	Intel® Core™ 3 Processor N355, DDR5 16GB x1, 4.15A@ +12V (TYPICAL) Intel® Core™ 3 Processor N355, DDR5 16GB x1, 5.06A@ +12V (MAX)
Display	Intel® UHD Graphics	
Controller		
LVDS/eDP	LVDS x 1, Dual-Channel 18/24-bit, up to 1920 x 1080 eDP HBR3 x 1, up to 1920 x 1200 (Optional)	LVDS x 1, Dual Channel 18/24-bit, up to 1920 x1080 (Optional: eDP 1.4b HBR3, up to 3840 x 2160)
Display Interface	HDMI 1.4 x 1, up to 3840 x 2160 @30Hz VGA x 1, up to 1920 x 1080 Up to 3 Simultaneous Displays	
Multiple Display		
Audio	Realtek ALC897	
Codec		
Audio Interface	Line-In / Line-Out / Mic, (Audio function not available for WITAS SKU)	Line-In / Line-Out / Mic (Audio function not available for WITAS SKU)
Speaker		
External I/O		
Ethernet	Intel® Ethernet Controller I226, 2.5GbE x 2	Intel® Ethernet Controller I226, 2.5GbE RJ-45 x 3
USB	USB 3.2 Gen 2 x 2	
Serial Port		
Video	HDMI 1.4 x 1, VGA x 1	
Internal I/O		
USB	USB 2.0 x 4	
Serial Port	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RI) COM 3, COM 4 (RS-232)	
Video	LVDS x 1 eDP x 1 Inverter x 1 (12V/2A)	LVDS x 1, Inverter x 1 (12V/2A)
SATA	SATA 6.0 Gb/s x 1 +5V SATA Power Connector x 1	
Audio	Audio Header x 1 (Optional, Audio function not available for WITAS SKU)	Audio Header x 1
DIO/GPIO	GPIO 8-bit	
SMBus/I2C	SMBus / I2C x 1 (Default: SMBus)	
Touch	4/5/8 wire Touch Controller x 1	
Fan	4-pin Smart Fan x 1	
Sim	Nano SIM x 1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others		
Expansion		
Mini PCIe/mSATA	Full-size mSATA / mPCIe x 1 (Default: mPCIe, select by BIOS)	Full-size mSATA / mPCIe x 1 (Default: mSATA, select by BIOS)
M.2	M.2 3052 B-Key x 1 (PCIe 3.0 [x1] + USB 3.2 Gen 2/PCIe 3.0 [x2] + USB 2.0, default: PCIe [x1] + USB 3.2 Gen 2, selected by BIOS) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0, support CNVi)	M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0) M.2 3052 B-Key x 1 (USB 3.2 Gen 2 + USB 2.0)
Others		
Environment & Certification		
Operating Temp.	-4°F ~ 158°F (-20°C ~ 70°C)	
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	1,284,701	337,963
EMC	CE/FCC Class A	
Note		



Model	GENE-TWL7	GENESYSM-TWL7
System	3.5" SubCompact Board	
Form Factor	3.5" SubCompact Board System	
CPU	Intel® Processor N150 (4C/4T, up to 3.6 GHz, 6W) Intel® Core™ 3 Processor N355 (8C/8T, up to 3.9 GHz, 15W)	Intel® Processor N150 (4C/4T, up to 3.6 GHz, 6W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR5 4800, SODIMM x 1, Max. 16GB, Non-ECC	
BIOS	AMI UEFI 256Mbit	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0	
RTC Battery	Lithium Battery 3V/240mAh	
Dimensions	5.75" x 4" (146mm x 101.7mm), 1.1 lb (0.3Kg)	7.00" x 5.28" x 1.73" (178mm x 134.1mm x 44mm), 1.77 lb (0.8Kg)
OS Support	Windows® 11 (64-bit) Ubuntu 24.04.2 / Kernel 6.11.0-17-generic	
Power		
Power Requirement	+12V, Support ERP	
Power Supply Type	AT/ATX	ATX
Connector	2-pin Phoenix Connector 4-pin ATX Connector (optional)	
Power Consumption	Intel Atom® Core™ i3-N305, DDR5 16GB x 1, 4.19A @+12V (Typical) Intel Atom® Core™ i3-N305, DDR5 16GB x 1, 6.09A@+12V (Max)	
Display		
Controller	Intel® UHD Graphics	
LVDS/eDP	LVDS 1: Dual Channel 18/24-bit, up to 1920 x 1080 (co-lay eDP, by BOM change) LVDS 2: Dual Channel 18/24-bit, up to 1920 x 1080	—
Display Interface	HDMI 1.4b x 1, up to 3840 x 2160 @144Hz DP 1.4a x 1, up to 3840 x 2160 @120Hz	
Multiple Display	Up to 3 Simultaneous Displays	Up to 2 Simultaneous Displays
Audio		
Codec	C-Media CM9825	
Audio Interface	Line-in/Line-out/MIC	
Speaker	—	
External I/O		
Ethernet	Intel® Ethernet Controller I226, 2.5GbE x 2	
USB	USB 3.2 Gen 2 x 2	
Serial Port	—	
Video	HDMI 1.4b x 1 DP x 1	
Internal I/O		
USB	USB2.0 x 4	USB 2.0 x 4
Serial Port	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RI) COM 3, COM 4 (RS-232)	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RI)
Video	LVDS x 2, Inverter x 1 (12V/2A)	—
SATA	SATA 6.0 Gb/s x 1 +5V SATA Power Connector x 1	
Audio	Audio Header x 1 (Line-in/Line-out/MIC)	—
DIO/GPIO	GPIO 8-Bit	—
SMBus/I2C	SMBus / I2C x1(Default: SMBus)	—
Touch	—	—
Fan	4-pin Smart Fan x 1	4-pin Smart Fan x 1 (Optional)
Sim	—	—
Front Panel	PWR LED, HDD LED, PWR button, HW Reset	PWR LED, PWR button
Others	—	
Expansion		
Mini PCIe/mSATA	Full-size Mini PCIe / mSATA x 1 (Default: PCIe [x1] x 1, USB 2.0, SATA select by BIOS)	
M.2	M.2 2230 E-Key x 1 (PCIe [x1], USB 2.0) M.2 2280 M-Key x 1 (PCIe 3.0 [x2])	
Others	—	
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 air flow
Storage Temp.	—	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	957,274	
EMC	CE/FCC Class A	
Note		



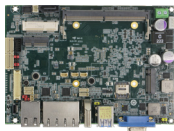
Model	GENE-ASL5	GENE-ASL6
System Form Factor	3.5" SubCompact Board	
CPU	Intel Atom® Processors x7000RE Series for the Edge: Intel Atom® x7213RE (2C, 2.0 GHz, 9W) Intel Atom® x7433RE (4C, 1.5 GHz, 9W) Intel Atom® x7835RE (8C, 1.3 GHz, 12W)	
Chipset	Integrated with Intel® SoC	
Memory Type	DDR5 4800, Single Channel SODIMM x 1, Max. 16GB, Non-ECC	
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0	TPM 2.0 (Optional)
RTC Battery	Lithium Battery 3V/240mAh	
Dimensions	5.75" x 4" (146mm x 101.7mm), 1.1 lb (0.5Kg)	5.75" x 4" (146mm x 101.7mm), 0.94 lb (0.43 Kg)
OS Support	Windows 10 (64bit), Windows 11 (64bit), Ubuntu 22.04 / Kernel 5.15.0-25-generic	Windows 10 (64bit) Ubuntu 22.04 / Kernel 5.15.0-25-generic
Power		
Power Requirement	+9V~36V (Optional: +12V), support ERP	+12V (Optional: +9V~36V)
Power Supply Type	AT/ATX, support 3pin ATX	AT/ATX
Connector	Phoenix 2-pin Connector (Colay 4 pin connector)	Phoenix 2-pin Connector
Power Consumption	Intel Atom® x7835RE, DDR5 16GB x 1, 3.23A @+12V (Typical) Intel Atom® x7835RE, DDR5 16GB x 1, 4.76A @+12V (Max)	Intel® Atom x7835RE, DDR5 16GB x1, 3.20A@ +12V (TYPICAL) Intel® Atom x7835RE, DDR5 16GB x1, 4.80A@ +12V (MAX)
Display		
Controller	Intel® UHD Graphics	
LVDS/eDP	LVDS x 1, Dual-Channel 18/24-bit, up to 1920 x 1080 eDP HBR3 x 1, up to 1920 x 1260 (Optional)	LVDS x 1, Dual Channel 18/24bit, up to 1920 x 1080
Display Interface	HDMI 1.4 x 1, up to 3840 x 2160 @30Hz VGA x 1, up to 1920 x 1080	HDMI 1.4 x 1, up to 3840 x 2160 @30Hz VGA x 1, up to 1920 x 1080
Multiple Display	Up to 3 Simultaneous Displays	
Audio	—	
Codec	—	
Audio Interface	—	
Speaker	—	
External I/O		
Ethernet	Intel® Ethernet Controller I226, 2.5GbE x 2	Intel® I226 2.5G, RJ-45 x 3
USB	USB 3.2 Gen 2 x 2	
Serial Port	—	
Video	HDMI 1.4 x 1, VGA x 1	
Internal I/O		
USB	USB 2.0 x 4	
Serial Port	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RI) COM 3, COM 4 (RS-232)	COM1 , COM2 (RS232/422/485, supports 5V/12V/RI) COM3 , COM4 (RS232)
Video	LVDS x 1; eDP x 1; Inverter x 1 (12V/2A)	LVDS x 1; Inverter x 1 (12V/2A)
SATA	SATA 6.0 Gb/s x 1 +5V SATA Power Connector x 1	
Audio	—	
DIO/GPIO	GPIO 8-bit	
SMBus/I2C	SMBus / I2C x 1 (Default: SMBus)	
Touch	—	
Fan	4pins Smart Fan x 1	
Sim	Nano SIM x 1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
Expansion		
Mini PCIe/mSATA	Full-size mSATA / mPCIe x 1 (Default: mPCIe, select by BIOS)	Full-size mSATA / mPCIe x 1 (Default: mSATA, select by BIOS)
M.2	M.2 3052 B-Key x 1 (PCIe 3.0 [x1] + USB 3.2 Gen 2/PCIe 3.0 [x2] + USB 2.0, default: PCIe [x1] + USB 3.2 Gen 2, selected by BIOS) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0, support CNVi)	M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB2.0) M.2 3052 B-Key x 1 (USB3.2 Gen2 + USB2.0)
Others	—	
Environment & Certification		
Operating Temp.	WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C)	
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	1,284,701	1,802,587
EMC	CE/FCC Class A	
Note		



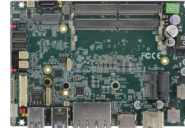
Model	GENESYSM-ASL6	GENE-ADN5
System	3.5" SubCompact Board System	
Form Factor	3.5" SubCompact Board	
CPU	Intel Atom™ x7000RE Series Processors: Intel Atom™ x7433RE (4C, up to 3.4 GHz, 9W) Intel Atom™ x7835RE (8C, up to 3.6 GHz, 12W)	Intel® Processor N-series: Intel® Core™ i3-N305 (8C/8T, 3.8 GHz, 15W) Intel® Processor N97 (4C/4T, 3.6 GHz, 12W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR5 4800, Single Channel SODIMM x 1, Max. 16GB, Non-ECC	
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAh	
Dimensions	7.00" x 5.28" x 1.69" (178mm x 134.1mm x 43mm)	5.75" x 4" (146mm x 101.7mm), 1.1 lb (0.5Kg)
OS Support	Windows 10 (64-bit) Windows 11 (64-bit) Ubuntu 22.04 / Kernel 5.15.0-25-generic	
Power		
Power Requirement	+9~36V	+9V~36V (Optional: +12V), support ERP
Power Supply Type	ATX	AT/ATX, support 3pin ATX
Connector	DC Jack Connector	Phoenix 2-pin Connector (Colay 4 pin connector)
Power Consumption	Intel Atom™ x7835RE, DDR5 16GB x 1, 3.2A @+12V(Typical) Intel Atom™ x7835RE, DDR5 16GB x 1, 4.8A @+12V(Max)	Intel Atom™ Core™ i3-N305, DDR5 16GB x 1, 4.05A @+12V (Typical) Intel Atom™ Core™ i3-N305, DDR5 16GB x 1, 5.05A@+12V (Max)
Display	Intel® UHD Graphics	
Controller	LVDS x 1, Dual-Channel 18/24-bit, up to 1920 x 1080 eDP HBR3 x 1, up to 1920 x 1200 (Optional)	
LVDS/eDP	HDMI 1.4 x 1, up to 3840 x 2160 @30Hz VGA x 1, up to 1920 x 1080	
Display Interface	Up to 3 Simultaneous Displays	
Multiple Display	Up to 2 Simultaneous Displays	
Audio	Realtek ALC897	
Codec	Line-In / Line-Out / Mic, (Audio function not available for WiTAS SKU)	
Audio Interface	Line-In/Line-Out/MIC	
Speaker		
External I/O		
Ethernet	Intel® Ethernet Controller I226, 2.5GbE RJ-45 x 3	Intel® Ethernet Controller I226, 2.5GbE x 2
USB	USB 3.2 Gen 2 x 2 USB 2.0 x 4	USB 3.2 Gen 2 x 2 port
Serial Port	COM1, COM2 (RS-232/422/485, supports 5V/12V/Ri) COM3, COM4 (RS-232 x 2, optional)	—
Video	HDMI 1.4 x 1, VGA x 1	
Internal I/O		
USB	USB 2.0 x 4	
Serial Port	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/Ri) COM 3, COM 4 (RS-232)	
Video	LVDS x 1 eDP x 1 Inverter x 1 (12V/2A)	
SATA	SATA 6.0 Gb/s x 1 +5V SATA Power Connector x 1	
Audio	Audio Header x 1	
DIO/GPIO	GPIO 8-bit	
SMBus/I2C	SMBus / I2C x 1 (Default: SMBus)	
Touch	4/5/8 wire Touch Controller x 1	
Fan	4pins Smart Fan x 1	
Sim	Nano SIM x 1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others		
Expansion		
Mini PCIe/mSATA	Full-size mSATA / mPCIe x 1 (Default: mSATA, select by BIOS)	
M.2	M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB2.0) M.2 3052 B-Key x 1 (USB3.2 Gen2 + USB2.0)	M.2 3052 B-Key x 1 (PCIe 3.0 [x1] + USB 3.2 Gen 2/PCIe 3.0 [x2] + USB 2.0, default: PCIe [x1] + USB 3.2 Gen 2, selected by BIOS) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0, support CNVi)
Others		
Environment & Certification		
Operating Temp.	-4°F ~ 158°F (-20°C ~ 70°C) 0.7m/s air flow	32°F ~ 140°F (0°C ~ 60°C) or -4°F ~ 158°F (-20°C ~ 70°C)
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	1,284,701	
EMC	CE/FCC Class A	
Note		

Board Level Products

SubCompact Boards



Model	GENE-ADN6	GENESYSM-ADN6
System Form Factor	3.5" SubCompact Board	3.5" SubCompact Board System
CPU	Intel Atom™ x7000E Series, Intel® Processor N Series, Intel® Core™ i3-N305 Processors: Intel® Core™ i3-N305 (8C/8T, up to 3.8 GHz, 15W) Intel Atom™ x7425E (4C/4T, up to 3.4 GHz, 12W) Intel® Processor N97 (4C/4T, up to 3.6 GHz, 12W) Intel® Processor N50 (2C/2T, up to 3.4 GHz, 6W)	Intel® Processor N Series, Intel® Core™ i3-N305 Processors: Intel® Core™ i3-N305 (8C/8T, up to 3.8 GHz, 15W) Intel® Processor N97 (4C/4T, up to 3.6 GHz, 12W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR5 4800, Single Channel SODIMM x 1, Max.16GB, Non-ECC	
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAh	
Dimensions	5.75" x 4" (146mm x 101.7mm), 0.94 lb (0.43 Kg)	7.00" x 5.28" x 1.69" (178mm x 134.1mm x 43mm)
OS Support	Windows 10 (64bit) Ubuntu 22.04 / Kernel 5.15.0-25-generic	
Power		
Power Requirement	+9V~36V (Optional: +12V)	+9-36V
Power Supply Type	AT/ATX	ATX
Connector	Phoenix 2-pin Connector	DC Jack Connector
Power Consumption	Intel® Core™ i3-N305, 16GB x 1, 3.80A@ +12V (TYPICAL) Intel® Core™ i3-N305, 16GB x 1, 5.48A@ +12V (MAX)	Intel® Core™ i3-N305, DDR5 16GB x 1, 3.4A @+12V(Typical) Intel® Core™ i3-N305, DDR5 16GB x 1, 5.24A @+12V(Max)
Display		
Controller	Intel® UHD Graphics	
LVDS/eDP	LVDS x 1, Dual Channel 18/24bit, up to 1920 x1080	—
Display Interface	HDMI 1.4 x 1, up to 3840 x2160 @30Hz VGA x 1, up to 1920 x1080	HDMI 1.4 x 1, up to 3840 x 2160 @30Hz VGA x 1, up to 1920 x1080
Multiple Display	Up to 3 Simultaneous Displays	Up to 2 Simultaneous Displays
Audio		
Codec	Realtek ALC897	
Audio Interface	Line-In / Line-Out / Mic (Audio function not available for WITAS SKU)	Line-In/Line-Out/MIC
Speaker	—	
External I/O		
Ethernet	Intel® i226 2.5G, RJ-45 x 3	
USB	USB3.2 Gen 2 x 2	USB3.2 Gen 2 x 2 ports USB2.0 x 4
Serial Port	—	COM1, COM2 (RS232/422/485, supports 5V/12V/RI) COM3, COM4 (RS-232 x 2, optional)
Video	HDMI 1.4 x 1, VGA x 1	
Internal I/O		
USB	USB2.0 x 4	—
Serial Port	COM1 , COM2 (RS232/422/485, supports 5V/12V/RI) COM3 , COM4 (RS232)	—
Video	LVDS x 1, Inverter x 1 (12V/2A)	—
SATA	SATA 6.0 Gb/s x 1 +5V SATA Power Connector x 1	
Audio	Audio Header x 1 (Optional, Audio function not available for WITAS SKU)	Audio Header x 1
DIO/GPIO	GPIO 8-bit	—
SMBus/I2C	SMBus / I2C x 1 (Default: SMBus)	—
Touch	—	
Fan	4pins Smart Fan x 1	—
Sim	Nano SIM x 1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	PWR LED, Power Button
Others	—	
Expansion		
Mini PCIe/mSATA	Full-size mSATA / mPCIe x 1 (Default: mSATA, select by BIOS)	
M.2	M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB2.0) M.2 3052 B-Key x 1 (USB3.2 Gen2 + USB2.0)	
Others	—	
Environment & Certification		
Operating Temp.	-4°F ~ 158°F (-20°C ~ 70°C) WITAS2: -40°F ~ 185°F (-40°C ~ 85°C)	14°F ~ 140°F (-10°C ~ 60°C) 0.7m/s air flow
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	813,668	337,963
EMC	CE/FCC Class A	
Note		



Model	GENE-ADN7	GENE-RAP6
System Form Factor	3.5" SubCompact Board	
CPU	Intel Atom® x7000E Series, Intel® Processor N-series, and Intel® Core™ i3 Processor N-series Processors: Intel® Core™ i3-N305 (8C/8T, 3.8 GHz, 15W) Intel® Processor N97 (4C/4T, 3.6 GHz, 12W) Intel® Intel Atom® x7425E Processor (4C/4T, 1.50 GHz, 12W)	13th Generation Intel® Core™/U-series Processors: Intel® Core™ i7-1370PE (6PC+8EC/20T, 1.90 GHz, 28W) Intel® Core™ i7-1370PRE (6PC+8EC/20T, 1.90 GHz, 28W) Intel® Core™ i5-1340PE (4PC+8EC/16T, 1.80 GHz, 28W) Intel® Core™ i5-1335UE (2PC+8EC/12T, 1.30 GHz, 15W) Intel® Core™ i3-1320PE (4PC+4EC/12T, 1.70 GHz, 28W) Intel® Processor U300E (1PC+4EC/6T, 1.10 GHz, 15W)
Chipset	Integrated with Intel® SoC	Integrated with Intel® SoC
Memory Type	DDR5 4800, SODIMM x 1, Max. 16GB, Non-ECC	DDR5 4800, Dual Channel SODIMM x 2, Max. 64GB, Non-ECC
BIOS	AMI UEFI 256Mbit	UEFI
Wake on LAN		Yes
Watchdog Timer		255 Levels
Security	TPM 2.0	TPM 2.0 (Optional)
RTC Battery		Lithium Battery 3V/240mAh
Dimensions	5.75" x 4" (146mm x 101.7mm), 1.1 lb (0.3Kg)	5.75" x 4" (146mm x 101.7mm), 0.94 lb (0.43 Kg)
OS Support	Windows® 11 (64-bit); Ubuntu 24.04.2 / Kernel 6.11.0-17-generic	Windows 10/11 (64bit); Ubuntu 22.04.2/5.19.0-32-generic
Power		
Power Requirement	+12V, Support ERP	+9V~36V (Optional: +12V)
Power Supply Type		AT/ATX
Connector	2-pin Phoenix Connector; 4-pin ATX Connector (optional)	Phoenix 2-pin Connector
Power Consumption	Intel Atom® Core™ i3-N305, DDR5 16GB x 1, 4.19A @+12V (Typical) Intel Atom® Core™ i3-N305, DDR5 16GB x 1, 6.09A@+12V (Max)	Intel® Core™ i7-1370PE, DDR5 32GB x 2, 5.33A@+12V (TYPICAL) Intel® Core™ i7-1370PE, DDR5 32GB x 2, 8.55A@+12V (MAX)
Display		
Controller	Intel® UHD Graphics	Intel® Iris® Xe Graphics; Intel® UHD Graphics
LVDS/eDP	LVDS 1: Dual Channel 18/24-bit, up to 1920 x 1080 (co-lay eDP, by BOM change) LVDS 2: Dual Channel 18/24-bit, up to 1920 x 1080	LVDS x 1, Dual Channel 18/24bit, up to 1920 x 1080 eDP 1.4 x 1, up to 3840 x 2160 (Optional)
Display Interface	HDMI 1.4b x 1, up to 3840 x 2160 @144Hz DP 1.4a x 1, up to 3840 x 2160 @120Hz	HDMI 2.1 x 1, up to 8K x 4K@60Hz or 4K x 2K@120Hz DP 1.4 x 1, up to 7680 x 4320@60Hz 30bpp (support DP++)
Multiple Display	Up to 3 Simultaneous Displays	Up to 4 Simultaneous Displays
Audio		
Codec	C Media CM9825	Realtek ALC897
Audio Interface	Line-in/Line-out/MIC	Line-In/Line-Out/Mic (Audio function not available for WITAS SKU)
Speaker		
External I/O		
Ethernet	Intel® Ethernet Controller I226, 2.5GbE x 2	Intel® I219 1GbE, RJ-45 x 1 Intel® I226 2.5GbE, RJ-45 x 1
USB	USB 3.2 Gen 2 x 2 port	USB 3.2 Gen 2 x 3; USB Type-C x 1 (USB3.2 Gen2 maximum 5V/3A , DP1.4)
Serial Port		
Video	HDMI 1.4b x 1; DP x 1	HDMI 2.1 x 1, DP 1.4 x 1
Internal I/O		
USB	USB2.0 x 4	USB 2.0 x 4
Serial Port	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RI) COM 3, COM 4 (RS-232)	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RI) COM 3, COM 4 (RS-232/422/485)
Video	LVDS x 2, Inverter x 1 (12V/2A)	LVDS x 1 eDP x 1 Inverter x 1 (12V/2A)
SATA		SATA 6.0 Gb/s x 1 +5V SATA Power Connector x 1
Audio	Audio Header x 1 (Line-in/Line-out/MIC)	Audio Header x 1 (Optional, Audio function not available for WITAS SKU)
GPIO/GPIO	GPIO 8-Bit	GPIO 8-bit
SMBus/I2C	SMBus / I2C x1(Default: SMBus)	SMBus/I2C x 1 (Default: SMBus)
Touch		
Fan	4-pin 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 PCIe/mSATA	Full-size Mini PCIe / mSATA x 1 (Default: PCIe [x1] x 1, USB 2.0, SATA select by BIOS)	
M.2	M.2 2230 E-Key x 1 (PCIe [x1], USB2.0,Only CPU N97 SKU Support CNVl) M.2 2280 M-Key x 1 (PCIe 3.0 [x2])	M.2 2280 M-Key x 1 (PCIe 4.0 [x4] x 1) M.2 3052/3042/2242 B-Key x 1 (PCIe 3.0 [x2]/SATA + USB3.2), Default: SATA (selected by BOM) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB2.0)
Others		FPC x 1 (PCIe 4.0 [x4] x1), Only support Graphic or NVME
Environment & Certification		
Operating Temp.	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)	WITAS2: -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)	957,274	338,172
EMC		CE/FCC Class A

Note: All specifications are subject to change without notice.

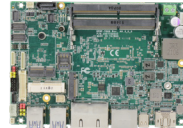
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Board Level Products

SubCompact Boards



Model	GENESYSM-RAP6	GENE-ADP6
System Form Factor	3.5" SubCompact Board System	3.5" SubCompact Board
CPU	13th Generation Intel® Core™/U-series Processors: Intel® Core™ i7-1370PE (6PC+8EC/20T, 1.90 GHz, 28W) Intel® Core™ i5-1340PE (4PC+8EC/16T, 1.80 GHz, 28W) Intel® Core™ i3-1320PE (4PC+4EC/12T, 1.70 GHz, 28W)	12th Generation Intel® Core™/Celeron® Processors: Intel® Core™ i7-1270PE (4PC+8EC/16T, 1.80 GHz, 28W) Intel® Core™ i7-1265UE (2PC+8EC/12T, 1.70 GHz, 15W) Intel® Core™ i5-1250PE (4PC+8EC/16T, 1.70 GHz, 28W) Intel® Core™ i3-1220PE (4PC+4EC/12T, 1.50 GHz, 28W) Intel® Celeron® Processor 7305E (1PC+4EC/5T, 1.00 GHz, 15W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR5 4800, Dual Channel SODIMM x 2, Max. 64GB, Non-ECC	DDR5 4800, Dual Channel SODIMM x 2, Max.64GB, Non-ECC
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAh	
Dimensions	7.00" x 5.28" x 1.69" (178mm x 134.1mm x 43mm), 2.20 lb (1.0Kg)	5.75" x 4" (146mm x 101.7mm), 0.94 lb (0.43 Kg)
OS Support	Windows 10/11 (64bit) Ubuntu 22.04.2/5.19.0-32-generic	Windows 10/11 (64bit) Ubuntu 22.04/Kernel 5.15.0-25-generic
Power		
Power Requirement	+9-36V	+9V~36V (Optional: +12V)
Power Supply Type	ATX	AT/ATX
Connect	DC Jack Connector	Phoenix 2-pin Connector
Power Consumption	Intel® Core™ i7-1370PE, DDR5 32GB x 2, 5.33A@ +12V (TYPICAL) Intel® Core™ i7-1370PE, DDR5 32GB x 2, 8.55A@ +12V (MAX)	Intel® Core™ i7-1270PE, DDR5 32GB x 2, 5.72A @+12V (Typical) Intel® Core™ i7-1270PE, DDR5 32GB x 2, 7.95A @+12V (Max)
Display		
Controller	Intel® Iris® Xe Graphics Intel® UHD Graphics	
LVDS/eDP	—	LVDS x 1, Dual Channel 18/24bit, up to 1920 x 1080 eDP 1.4 x 1, up to 3840 x 2160 (Optional)
Display Interface	HDMI 2.1 x 1, up to 8K x 4K@60Hz or 4K x 2K@120Hz DP 1.4 x 1, up to 7680 x 4320@60Hz 30bpp (support DP++) Type-C x 1 (USB 3.2 Gen 2, DP 1.4, PD 5V/3A)	HDMI 2.1 x 1, up to 8K x 4K@60Hz or 4K x 2K@120Hz DP 1.4 x 1, up to 7680 x 4320@60Hz 30bpp (support DP++)
Multiple Display	Up to 3 Simultaneous Displays	Up to 4 Simultaneous Displays
Audio		
Codec	Realtek ALC897	
Audio Interface	Line-In/Line-out/MIC	Line-In / Line-Out / Mic (Audio function not available for WITAS SKU)
Speaker	—	
External I/O		
Ethernet	Intel® I219 1GbE, RJ-45 x 1; Intel® I226 2.5GbE, RJ-45 x 1	
USB	USB 3.2 Gen 2 x 3 USB Type-C x 1 (USB3.2 Gen2 maximum 5V/3A , DP1.4) USB2.0 x 2	USB 3.2 Gen 2 x 3 USB Type-C x 1 (USB3.2 Gen2 maximum 5V/3A , DP1.4)
Serial Port	COM1, COM2 (RS232/422/485, supports 5V/12V/RI)	—
Video	HDMI 2.1 x 1, DP 1.4 x 1	
Internal I/O		
USB	—	USB 2.0 x 4
Serial Port	—	COM 1, COM 2 (RS-232/422/485, supports 5V/12V/RI) COM 3, COM 4 (RS-232/422/485)
Video	—	LVDS x 1; eDP x 1; Inverter x 1 (12V/2A)
SATA	SATA 6.0 Gb/s x 1 +5V SATA Power Connector x 1	
Audio	—	Audio Header x 1 (Optional, Audio function not available for WITAS SKU)
DIO/GPIO	—	GPIO 8-bit
SMBus/I2C	—	SMBus/I2C x 1 (Default: SMBus)
Touch	—	
Fan	4pins Smart Fan x1	4pins Smart Fan x 1
Sim	Nano SIM x 1	
Front Panel	PWR LED, Power Button	HDD LED, PWR LED, Power Button, Buzzer, Reset
Others	—	
Expansion		
Mini PCIe/mSATA	—	
M.2	M.2 2280 M-Key x 1 (PCIe 4.0 [x4] x 1) M.2 3052/3042/2242 B-Key x 1 (PCIe 3.0 [x2]/SATA + USB3.2), Default: SATA(selected by BOM) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB2.0)	M.2 2280 M-Key x 1 (PCIe 4.0 [x4] x 1) M.2 3052/3042/2242 B-Key x 1 (PCIe 3.0 [x2]/SATA + USB 3.2), Default: SATA (selected by BOM) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0)
Others	FPC x 1 (PCIe 4.0 [x4] x 1), Only support Graphic or NVME	
Environment & Certification		
Operating Temp.	32°F ~ 122°F (0°C ~ 50°C) 0.5 m/s air flow	32°F ~ 140°F (0°C ~ 60°C) WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	338,172	344,735
EMC	CE/FCC Class A	
Note		



Model	GENESYSM-ADP6	GENE-TGU6
System Form Factor	3.5" SubCompact Board System	3.5" SubCompact Board
CPU	Intel® 12th Generation Core™/Celeron CPU Intel® Core™ i7-1270PE (4PC+8EC/16T, 1.80 GHz, 28W) Intel® Core™ i5-1250PE (4PC+8EC/16T, 1.70 GHz, 28W) Intel® Core™ i3-1220PE (4PC+4EC/12T, 1.50 GHz, 28W)	11th Generation Intel® Core™/Celeron® Processors: Intel® Core™ i7-1185G7E (4C/8T, 1.80 GHz, 15W) Intel® Core™ i5-1145G7E (4C/8T, 1.5 GHz, 15W) Intel® Core™ i3-1115G4E (2C/4T, 2.20 GHz, 15W) Intel® Celeron® 6305E (2C/2T, 1.80 GHz, 15W) Intel® Core™ i7-1185G7E (4C/8T, 1.80 GHz, 15W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR5 4800 MHz, Dual Channel SODIMM x 2, up to 64GB	DDR4 3200, Dual Channel SODIMM x 2, Max.64GB, Non-ECC
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0 (NPCT750AABYX)	TPM 2.0 (Optional)
RTC Battery	Lithium Battery 3V/240mAh	
Dimensions	7.00" x 5.28" x 1.69" (178mm x 134.1mm x 43mm)	5.75" x 4" (146mm x 101.7mm)
OS Support	Windows 10/11 (64bit); Linux Ubuntu 20.04/Kernel 5.15	Windows 10 (64bit); Linux Ubuntu 20.04.2/Kernel 5.8
Power		
Power Requirement	+9~36V	+9V~36V (Optional: +12V)
Power Supply Type	ATX	AT/ATX
Connector	DC Jack Connector	Phoenix 2-pin 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)	Intel® Core™ i7-1185G7E, DDR4 3200MHz 32GB x 2, 4.96A @+12V (Typical) Intel® Core™ i7-1185G7E, DDR4 3200MHz 32GB x 2, 7.32A @+12V (Max)
Display	Intel® Iris® Xe Graphics; Intel® UHD Graphics	
Controller	Intel® Iris® Xe Graphics; Intel® UHD Graphics	
LVDS/eDP	—	LVDS x 1, Dual Channel 18/24bit, up to 1920 x 1080 eDP 1.4 x 1, up to 3840 x 2160 (Optional)
Display Interface	HDMI 2.1 x 1, up to 8K x 4K@60Hz or 4K2K 120Hz DP 1.4 x 1, up to 7680 x 4320@60Hz 30bpp (support DP++) Type-C x 1 (USB 3.2 Gen 2, DP 1.4, PD 5V/3A)	HDMI 2.0 x 1, up to 4K x 2K@60Hz DP 1.4 x 2, up to 4K x 2K@60Hz DP 1.4 x 1 (via USB Type-C), up to 4K x 2K@60Hz
Multiple Display	Up to 3 Simultaneous Displays	Up to 4 Simultaneous Displays
Audio	Realtek ALC897	
Codec	Line-In / Line-Out / Mic (Audio function not available for WITAS SKU)	
Audio Interface	Line-in/Line-out/MIC	—
Speaker	—	
External I/O	—	
Ethernet	Intel® i219, 10/100/1000Base; Intel® i226, 10/100/2500Base	Intel® i219 1GbE, RJ-45 x1; Intel® i225/i226 2.5GbE, RJ-45 x 1
USB	USB3.2 Gen 2 x 3 USB Type-C x 1 (USB 3.2 Gen 2, DP 1.4, PD 5V/3A) USB2.0 x 2	USB 3.2 Gen 2 x 4 USB Type-C x 1 (USB3.2 Gen2 maximum 5V/3A , DP1.4)
Serial Port	COM1, COM2 (RS232/422/485, supports 5V/12V/RI)	—
Video	HDMI 2.1 x 1; DP 1.4 x 1	HDMI 2.0 x 1, DP 1.4 x 2, Type-C DP 1.4 x 1
Internal I/O	—	
USB	—	USB 2.0 x 2
Serial Port	—	COM 1, COM 3, COM 4 (RS-232/422/485) COM 2 (RS-232/422/485, supports 5V/12V/RI)
Video	—	LVDS/eDP x 1 (Default: LVDS); Inverter x 1 (12V/2A)
SATA	SATA 6.0 Gb/s x 1 +5V SATA Power Connector x 1	
Audio	Audio Header x 1	Audio Header x 1 (Optional, Audio function not available for WITAS SKU)
DIO/GPIO	GPIO 8-bit	
SMBus/I2C	SMBus/I2C x1 (Default: SMBus)	SMBus/I2C x 1 (Default: SMBus)
Touch	—	4/5/8-wire Touch Controller x 1 (Optional)
Fan	4pins Smart Fan x 1	
Sim	Nano SIM x 1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
Expansion	—	
Mini PCIe/mSATA	—	Full-size mSATA / mPCIe x 1 (Default: mSATA, select by BIOS)
M.2	M.2 2280 M-Key x 1 (PCIe 4.0 [x4] x 1) M.2 3052/3042/2242 B-Key x 1 (PCIe 3.0 [x2]/SATA + USB 3.2), Default: SATA (selected by BOM) M.2 2230 E-Key x 1 (PCIe 3.0 [x1] + USB 2.0)	M.2 2280 M-Key x 1 (PCIe 4.0 [x4] x 1) M.2 2230 E-Key x 1 (PCIe 3.0 [x1], USB 2.0)
Others	—	
Environment & Certification	—	
Operating Temp.	32°F ~ 122°F (0°C ~ 50°C) 0.5 m/s air flow	32°F ~ 140°F (0°C ~ 60°C) WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	344,735	329,884
EMC	CE/FCC Class A	
Note	—	

Board Level Products

SubCompact Boards



Model	GENESYSM-TGU6	GENE-WHU6
System	3.5" SubCompact Board System	
Form Factor	3.5" SubCompact Board	
CPU	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)	Intel® 8th Generation Core™ / Celeron® Processors: i7-8665UE (4C/8T, 1.70GHz, 15W) i5-8365UE (4C/8T, 1.60GHz, 15W) i3-8145UE (2C/4T, 2.20GHz, 15W) 4305UE (2C/2T, 2.00GHz, 15W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR4 up to 3200MHz, Dual Channel SODIMM x 2, up to 64GB, Support IBEC(select SKUs)	DDR4 2400, Dual Channel SODIMM x 2, Max.64GB, Non-ECC
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0	
RTC Battery	Lithium Battery 3V/240mAh	
Dimensions	7.00" x 5.28" x 1.97" (178.0mm x 134.1mm x 50.0mm)	5.75" x 4" (146mm x 101.7mm)
OS Support	Windows 10 (64bit); Linux Ubuntu 20.04.3(iOT)/Kernel 5.13	Windows 10 (64bit); Linux Ubuntu 21.04.0/Kernel 5.10
Power		
Power Requirement	+9~36V (Optional: +12V)	+9V~36V (Optional: +12V)
Power Supply Type	ATX	AT/ATX
Connector	DC Jack Connector	Phoenix 2-pin Connector
Power Consumption	Intel® i7-1185G7E, DDR4 3200MHz 32GB x 2, 4.96A@ +12V(TYPICAL) Intel® i7-1185G7E, DDR4 3200MHz 32GB x 2, 7.32A@ +12V(MAX)	Intel® i7-8665UE, DDR4 2400MHz 16GB x2, 4.83A@ +12V (TYPICAL) Intel® i7-8665UE, DDR4 2400MHz 16GB x2, 7.3A@ +12V (MAX)
Display		
Controller	Intel® Iris® Xe Graphics Intel® UHD Graphics	Intel® UHD Graphics 610/620
LVDS/eDP	—	LVDS x 1, Dual Channel 18/24bit, up to 1920 x 1080 eDP 1.4 x 1, , up to 1920 X 1200 (Optional)
Display Interface	HDMI 2.0b x 1 DP1.4 x 2 Type-C DP1.4 x 1	HDMI 2.0 x 1, up to 3840 x 2160 VGA x 1, up to 2560 x 1440
Multiple Display	Up to 4 Simultaneous Displays	Up to 3 Simultaneous Displays
Audio		
Codec	Realtek ALC897/892	Realtek ALC897
Audio Interface	Line-in/Line-out/MIC (Optional)	Line-In / Line-Out / Mic (Audio function not available for WITAS SKU)
Speaker	—	
External I/O		
Ethernet	Intel® i219, 10/100/1000Base RJ-45 x 1 Intel® i225/i226, 10/100/2500Base RJ-45 x 1	Intel® I210 1GbE, RJ45 x1 Intel® I219, 1GbE, RJ45 x1
USB	USB3.2 Gen 2 x 4 USB3.2 Gen 2 Type C x 1 (PD 5V/3A) USB2.0 x 2	USB 3.2 Gen2 x 4
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 DP1.4 x 1	HDMI 2.0 x 1, VGA x 1
Internal I/O		
USB	—	USB 2.0 x 2
Serial Port	—	COM1 (RS232/422/485, support Ri) COM2 (RS232/422/485, support 5V/12V/Ri)
Video	—	LVDS / eDP x 1 (Default: LVDS)
SATA	SATA 6.0 Gb/s x 1 +5V SATA Power Connector x 1	
Audio	Audio Header x 1	Audio Header x 1 (Optional, Audio function not available for WITAS SKU)
DIO/GPIO	—	GPIO 8-bit
SMBus/I2C	SMBus/I2C x1(Default: SMBus)	SMBus / I2C x 1 (Default: I2C)
Touch	—	4/5/8 wire Touch Controller x 1 (Optional)
Fan	4pins Smart Fan x 1	DC Fan x 1 (Option: Smart Fan x 1)
Sim	Nano SIM x 1	
Front Panel	HDD LED, PWR LED, Power Button, Buzzer, Reset	
Others	—	
Expansion		
Mini PCIe/mSATA	Full-Sized mSATA/mPCIe x 1 (default: mSATA, select with BIOS)	Full-size mSATA / mPCIe x 1 (Default: mSATA, select by BIOS)
M.2	M-Key 2280 x 1 (PCIex4) E-Key 2230 x 1 (PCIe, USB2.0)	M.2 2280 B-Key x1 (PCIe 3.0 [x2], SATA, USB2.0), Default: selected by BIOS) M.2 2230 E-Key x 1 (PCIe 3.0 [x1], USB2.0)
Others	—	
Environment & Certification		
Operating Temp.	32°F ~ 122°F (0°C ~ 50°C)	32°F ~ 140°F (0°C ~ 60°C) WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	329,884	354,194
EMC	CE/FCC Class A	
Note		



Model	GENESYS-WHU6	GENE-EHL5
System Form Factor	3.5" SubCompact Board System	3.5" SubCompact Board
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)	Intel Atom™ x6000E series, Pentium®, and Celeron® N and J series Processors: Intel Atom™ x6425RE (4C/4T, 1.90 GHz, 12W) Intel Atom™ x6425E (4C/4T, 2.00 GHz, 12W) Intel Atom™ x6211E (2C/2T, 1.30 GHz, 6W) Intel® Pentium® Processor J6426 (4C/4T, 2.00 GHz, 10W) Intel® Celeron® Processor J6412 (4C/4T, 2.00 GHz, 10W) Intel® Celeron® Processor N6210 (2C/2T, 1.20 GHz, 6.5W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR4 up to 2400MHz Dual Channel, SODIMM x 2, up to 64GB, Non-ECC	DDR4 3200, Single Channel SODIMM x 1, Max. 32GB, Non-ECC *IBECC supported by selected CPU SKU
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAh	
Dimensions	7.00" x 5.28" x 1.69" (178mm x 134.1mm x 43mm)	5.75" x 4" (146mm x 101.7mm), 1.10 lb (0.50 Kg)
OS Support	Windows 10 (64bit); Linux Ubuntu 21.04.0/Kernel 5.1	Windows 10 (64bit); Windows® 11 (64-bit) Linux Ubuntu 20.04.3(IOT)/Kernel 5.13
Power		
Power Requirement	+9-36V (Optional: +12V)	+9V~36V (Optional: +12V)
Power Supply Type	ATX	AT/ATX
Connector	DC Jack Connector	Phoenix 2-pin Connector
Power Consumption	Intel® i7-8665UE, DDR4 2400 MHz 16GB, 2.8A@ +12V(Typical)	Intel Atom™ x6425E, DDR4 32GB, 3.26A @+12V (Typical) Intel Atom™ x6425E, DDR4 32GB, 3.42A @+12V (Max)
Display		
Controller	Intel® UHD Graphics 610/620	Intel® UHD Graphics for 10th Gen Intel® Processors
LVDS/eDP	—	LVDS x 1, Dual Channel 18/24bit, up to 1920 x 1080 eDP 1.3 x 1, up to 1920 x 1200 (Optional)
Display Interface	HDMI2.0a x 1 VGA x 1	HDMI 2.0 x 1, up to 3840 x 2160@60Hz DP 1.4 x 1, up to 3840 x 2160@120Hz (support DP++) VGA x 1, up to 2560 x 1440 (Optional)
Multiple Display	Up to 2 Simultaneous Displays	Up to 3 Simultaneous Displays
Audio		
Codec	Realtek ALC897/892	Realtek ALC256
Audio Interface	Line-in/Line-out/MIC(Optional)	Line-In / Line-Out / Mic (Audio function not available for WITAS SKU)
Speaker	—	2W Speaker (Audio function not available for WITAS SKU)
External I/O		
Ethernet	Intel® i210/i211 & i219, 10/100/1000Base, RJ-45 x2	Intel® i210 1GbE, RJ45 x 2
USB	USB 3.2 Gen2 x4	USB 3.2 Gen 2 x 2
Serial Port	—	—
Video	HDMI2.0a x 1, VGA x 1	HDMI 2.0 x 1; DP 1.4 x 1 (Optional:VGA x 1)
Internal I/O		
USB	USB 2.0 x 2	USB2.0 x 4
Serial Port	COM1(RS232/422/485, supports RI) (Optional) COM2 (RS232/422/485, supports 5V/12V/RI) (Optional)	COM 1, COM 4 (RS-232/422/485) COM 2, COM 3 (RS-232/422/485, supports 5V/12V/RI)
Video	—	LVDS/eDP x 1 (Default: LVDS); Inverter x 1 (12V/2A)
SATA	SATA 6.0 Gb/s x 1; +5V SATA Power Connector x 1	
Audio	Audio Header x 1 (optional)	Audio Header x 1 (Optional, Audio function not available for WITAS SKU) Speaker Header x 2 (Optional, Audio function not available for WITAS SKU)
DIO/GPIO	—	16-bit GPIO (8 In / 8 Out)
SMBus/I2C	I2C/ SMBus x 1 (Default: I2C)	SMBus/I2C x 1 (Default: SMBus)
Touch	—	4/5/8 wire Touch Controller x 1 (Optional)
Fan	DC Fan x 1 (optional: Smart Fan)	4pins Smart Fan x 1
Sim	Nano SIM x 1	
Front Panel	PWR LED, Power Button	HDD LED, PWR LED, Power Button, Buzzer, Reset
Others	—	eMMC5.1 32GB; CANBUS x 2, TX/RX (Celeron J6412 and Celeron N6210 don't support CANBUS)
Expansion		
Mini PCIe/mSATA	Full-size mSATA/mPCIe x 1 (Default mSATA, select by BIOS)	—
M.2	M.2 2280 B-Key x1 (PCIe x2, SATA, USB2.0, selected by BIOS) M.2 2230 E-Key x 1 (PCIe, USB2.0)	M.2 2230 E-Key x 1 (PCIe 3.0 [x1], USB 2.0) M.2 2242 B-Key x 1 (PCIe 3.0 [x2]/SATA, Default: PCIe [x2]) M.2 2280 B-Key x 1 (PCIe 3.0 [x1], USB 2.0, PCIe 3.0 [x2] select by BIOS) M.2 3052 B-Key x 1 (USB 3.2 Gen 2, USB2.0)
Others	—	—
Environment & Certification		
Operating Temp.	32°F ~ 122°F (0°C ~ 50°C)	32°F ~ 140°F (0°C ~ 60°C) WITAS 2: -40°F ~ 185°F (-40°C ~ 85°C) on selected CPU SKU
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)	354,194	335,427
EMC	CE/FCC Class A	

Note: All specifications are subject to change without notice.

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Board Level Products

SubCompact Boards



Model	GENE-APL5	GENE-APL6
System Form Factor	3.5" SubCompact Board	
CPU	Intel® Atom®/Celeron®/Pentium® Processor: Pentium N4200 (4C/4T, 1.10GHz, up to 2.50GHz, 6W) Celeron N3350 (2C/2T, 1.10GHz, up to 2.40GHz, 6W) Atom E3950 (4C/4T, 1.60GHz, up to 2.00GHz, 9.5W) Atom E3940 (4C/4T, 1.60GHz, up to 1.80GHz, 9.5W) Atom E3930 (2C/2T, 1.30GHz, up to 1.80GHz, 6.5W)	Intel® Atom®/Celeron®/Pentium® Processor: Pentium N4200 (4C/4T, 1.10GHz, up to 2.50GHz, 6W) Celeron N3350 (2C/2T, 1.10GHz, up to 2.40GHz, 6W) Atom E3950 (4C/4T, 1.60GHz, up to 2.00GHz, 9.5W) Atom E3940 (4C/4T, 1.60GHz, up to 1.80GHz, 9.5W) Atom E3930 (2C/2T, 1.30GHz, up to 1.80GHz, 6.5W)
Chipset	Integrated with Intel® SoC	
Memory Type	DDR3L 1866, Single Channel SODIMM x 1, Non-ECC (Max.8GB, up to 1600MHz)	
BIOS	UEFI	
Wake on LAN	Yes	
Watchdog Timer	255 Levels	
Security	TPM 2.0 (Optional)	
RTC Battery	Lithium Battery 3V/240mAh	
Dimensions	5.75" x 4" (146mm x 101.7mm)	
OS Support	Windows 10 (64bit) Linux Ubuntu 21.04.0/Kernel 5.10	
Power		
Power Requirement	+12V (Optional: +9-19V)	+9-36V (Optional: +12V)
Power Supply Type	AT/ATX	
Connector	Phoenix 2-pin Connector	
Power Consumption	Intel® E3950, DDR3L 1866MHz 8GB, 2.03A @+12V(TYPICAL) Intel® E3950, DDR3L 1866MHz 8GB, 2.45A @+12V(MAX)	Intel® E3950, DDR3L 1866MHz 8G, 2.36A @+12V(TYPICAL) Intel® E3950, DDR3L 1866MHz 8G, 2.41A @+12V(MAX)
Display		
Controller	Intel® HD Graphics 500/505	
LVDS/eDP	LVDS1 Dual Channel 18/24bit x 1, up to 1920 x 1080 LVDS2 Dual Channel 18/24bit x 1 (Optional: HDMI1.4b, up to 3840 x 2160)	
Display Interface	VGA x 1, up to 1920 x 1200	
Multiple Display	Up to 3 Simultaneous Displays	
Audio		
Codec	Realtek ALC897/892	
Audio Interface	Line-In / Line-Out / Mic (Audio function not available for WiTAS SKU)	
Speaker	—	
External I/O		
Ethernet	Intel® i210/i211, 10/100/1000Base, RJ-45 x 2	
USB	USB3.2 Gen 1 x 2	
Serial Port	COM1 (RS232, supports RI)	COM1 (RS232)
Video	VGA x 1	
Internal I/O		
USB	USB2.0 x 4	USB 2.0 x 2
Serial Port	COM2, COM3 (RS232/422/485, supports 5V/12V/RI), COM4 (RS232, supports RI)	COM2, COM3 (RS232/422/485, support 5V/12V/RI) COM4 (RS232)
Video	LVDS1 x 1, LVDS2/HDMI x 1(Default: LVDS2)	LVDS1 x 1 LVDS2/HDMI x 1(Default: LVDS2)
SATA	SATA 6.0 Gb/s x 1 +5V SATA Power Connector x 1	
Audio	Audio Header x 1 (Audio function not available for WiTAS SKU)	
DIO/GPIO	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 PCIe/mSATA	mSATA x 1 (Full-Size), Mini Card x 1 (Half-Size)	Full-size mPCIe x 1; Half-size mSATA x 1
M.2	—	
Others	—	
Environment & Certification		
Operating Temp.	32°F ~ 140°F (0°C ~ 60°C), WiTAS2 -40°F ~ 185°F (-40°C ~ 85°C)	
Storage Temp.	-40°F ~ 185°F (-40°C ~ 85°C)	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
MTBF (Hours)	365,976	374,567
EMC	CE/FCC Class A	
Note		



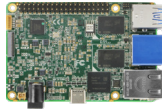
Model	de next-RAP8	de next-TGU8	de next-V2K8
System Form Factor	86mm x 55mm, Single board computer		
CPU	13th Generation Intel® Core™ Processors: Intel® Core™ i7-1365UE (10C/12T, 1.70 GHz, up to 15W) Intel® Core™ i5-1335UE (10C/12T, 1.30 GHz, up to 15W) Intel® Core™ i3-1315UE (6C/8T, 1.20 GHz, up to 15W)	Onboard 11th Gen. Intel® Core™ Processor i7-1185G7E (4C/8T, 1.80GHz,15W) i5-1145G7E (4C/8T, 1.50GHz,15W) i3-1115G4E (2C/4T, 2.20GHz, 15W)	AMD Ryzen™ Embedded V2000 Series Processor AMD Ryzen™ Embedded V2718 with Radeon™ Graphics (8C/16T, 1.7GHz, 25W) AMD Ryzen™ Embedded V2516 with Radeon™ Graphics (6C/16T, 2.1GHz, 25W)
Chipset	Integrated with Intel® SoC		Integrated with AMD SoC
Memory Type	Onboard LPDDR5x, up to 16GB	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		
Dimensions	3.38" x 2.17" (86mm x 55mm)		
OS Support	Windows 10 (64-bit) Ubuntu 22.04.3 (Kernel 6.2)	Windows 10 (64bit) Ubuntu 20.04.4 (Kernel 5.13)	Windows 10 (64bit) Ubuntu 22.04 (kernel 5.15)
Power	+12V		
Power Requirement	AT/ATX (Default : AT mode)		
Power Supply Type	AT/ATX		
Connector	DC Jack Connector	DC Jack Connector (Optional : Phoenix 2-Pin Connector)	
Power Consumption	Intel® Core™ i7-1365UE, LPDDR4x 16GB, 3.18A @12V, 38.16W (Typical) Intel® Core™ i7-1365UE, LPDDR4x 16GB, 3.36A @12V, 39.16W (Max)	i7-1185G7E, LPDDR4x 16GB, 4.58A@12V, 55W (TYPICAL) i7-1185G7E, LPDDR4x 16GB, 7A@12V, 84W (MAX)	V2718 , LPDDR4 16GB, 3.07A @12V, 36.84W (TYPICAL) V2718 , LPDDR4 16GB, 3.92A @12V, 47.04W (MAX)
Display			
Controller	Intel® Iris® Xe	Intel® UHD Graphics for 11th Gen Intel® Processors/AMD V-Series V2000 with Radeon™ Graphics	
LVDS/eDP		eDP 1.4 x 1, up to 3840 x 2160	
Display Interface	HDMI 1.2a x 1, up to 1920 x 1080 @60Hz	HDMI 1.4 x 1 , up to 3840 x 2160@30Hz	
Multiple Display	Up to Dual Displays	2 Simultaneous Displays	
Audio	—		
Codec	—		
Audio Interface	—		
Speaker	—		
External I/O			
Ethernet	Intel® Ethernet Connection I219-LM, GbE RJ-45 x 1 Intel® Ethernet Controller I226-LM, 2.5GbE x 1	Intel® i225, 2.5GbE RJ-45 x 1 Intel® i219, 1GbE RJ-45 x 1	Realtek RTL8111, 1GbE RJ-45 x 1 Intel® i226, 2.5GbE RJ-45 x 1
USB	Rear I/O : USB3.2 Gen2 Type A x 2	USB 3.2 Gen 2 x 2	
Serial Port	—		
Video	HDMI 1.4b x 1		
Internal I/O			
USB	USB 2.0 x 4 (Pin Header)	USB 2.0 x 4 Note : USB2.0 x 2 shared with adapter card PER-T642 / PER-T643	USB 2.0 x 4 Note : USB2.0 x 2 shared with adapter card PER-T642 / PER-T643. (de next-V2K8-A11 only)
Serial Port	RS-232/422/285 x 2 (Pin Header)	COM1 , COM2 (RS232/422/485, support 5V/RI)	
Video	eDP x 1	eDP 1.4 x 1	
SATA	SATA 6Gb/s x 1 +5V SATA Power Connector x 1	SATA 6.0 Gbps x 1 with +5V SATA Power Connector x 1	
Audio	—		
DIO/GPIO	8-Bit	GPIO 8 bits	
SMBus/I2C	Optional		
Touch	—		
Fan	4 Pin Smart Fan (with Cooler version only)	4 Pin Smart Fan	
Sim	—		
Front Panel	PowerLED, Power Button, Buzzer, Reset Button	Power Button, Reset Button, Power LED, SATA LED, Buzzer	
Others	—		
Expansion			
Mini PCIe/mSATA	—		
M.2	M.2 2280 M-Key x 1 (PCIe [x2]) PCIe Gen 3 [x4] via FPC x 1	M.2 2280 M-key x 1 (PCIe[x2] x 1 or PCIe[x1] x 2, selected by BIOS)	
Others	FPC Connector x 1 (PCIe 3.0 [x4] x 1)		
Environment & Certification			
Operating Temp.	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C), -40°F ~ 185°F (-40°C ~ 85°C) by sku support	32°F ~ 140°F (0°C ~ 60°C)
Storage Temp.	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
MTBF (Hours)	1,679,950	609,263	
EMC	CE/FCC Class A		
Note			

Board Level Products

de next



Model	de next-TGU8-EZBOX	de next-RAP8-EZBOX
System Form Factor	de next System	de next system
CPU	Onboard 11th Gen Intel® Core™ Processors Intel® Core™ i7-1185G7E (4C/8T, 1.80 GHz, 15W), with Cooler Version Only Intel® Core™ i5-1145G7E (4C/8T, 1.50 GHz, 15W), with Cooler Version Only Intel® Core™ i3-1115G4E (2C/4T, 2.20 GHz, 15W), with Cooler Version & Heatsink Version	13th Generation Intel® Core™ Processors Intel® Core™ i7-1365UE (10C/12T, 1.70 GHz, up to 15W)
Chipset	Integrated with Intel® SoC	
Memory Type	Onboard LPDDR4x 3733, up to 16GB	Onboard LPDDR5x, up to 16GB
BIOS		UEFI
Wake on LAN		Yes
Watchdog Timer		255 Levels
Security		TPM
RTC Battery		Lithium Battery 3V/240mAh
Dimensions	3.75" x 2.73" x 1.78" (95.5mm x 69.5mm x 45.4mm), with Cooler Version 3.75" x 2.73" x 1.67" (95.5mm x 69.5mm x 42.5mm), with Heatsink Version	3.75" x 2.73" x 1.78" (95.5mm x 69.5mm x 45.4mm), with Cooler Version 3.75" x 2.73" x 1.67" (95.5mm x 69.5mm x 42.5mm), with Heatsink Version
OS Support	Windows 10 (64bit) Ubuntu 20.04.4 (Kernel 5.13)	Windows 10 (64-bit) Ubuntu 22.04.3 (Kernel 6.2)
Power		+12V
Power Requirement		AT/ATX
Power Supply Type		DC Jack Connector
Connector		DC Jack Connector
Power Consumption	Intel® Core™ i7-1185G7E, LPDDR4x 16GB, 4.58A@12V, 55W (Typical) Intel® Core™ i7-1185G7E, LPDDR4x 16GB, 7A@12V, 84W (Max)	TBD
Display		
Controller	Intel® UHD Graphics for 11th Gen Intel® Processors	Intel® Iris® Xe Graphic Engine
LVDS/eDP		
Display Interface	HDMI 1.4b x 1, up to 3840 x 2160 @30Hz	HDMI 1.4b x 1
Multiple Display		Single Display
Audio		
Codec		—
Audio Interface		—
Speaker		—
External I/O		
Ethernet	Intel® Ethernet Controller I225/I226, 2.5GbE RJ-45 x 1 Intel® Ethernet Connection I219, 1GbE RJ-45 x 1	Intel® Ethernet Connection I219-LM, GbE RJ-45 x 1 Intel® Ethernet Controller I226-LM, 2.5GbE x 1
USB	USB 3.2 Gen 2 x 2	Rear I/O: USB 3.2 Gen 2 (Type-A) x 2
Serial Port		—
Video	HDMI 1.4b x 1, up to 3840 x 2160 @30Hz	HDMI 1.4b x 1
Internal I/O		
USB		—
Serial Port		—
Video		—
SATA		—
Audio		—
DIO/GPIO		—
SMBus/I2C		—
Touch		—
Fan		4 Pin Smart Fan (with Cooler version only)
Sim		—
Front Panel	—	PWR LED, Power Button
Others		
Expansion		
Mini PCIe/mSATA		—
M.2	M.2 2280 M-Key x 1 (PCIe 4.0 [x2] x 1)	M.2 2280 M-Key (PCIe [x2]) x 1
Others		—
Environment & Certification		
Operating Temp.	14°F ~ 122°F (-10°C ~ 50°C) with 0.7m/sec air flow	32°F ~ 140°F (0°C ~ 50°C) in 0.5 airflow/sec
Storage Temp.		-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity		0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	609,263	—
EMC		CE/FCC Class A
Note		



Model	UP 4000	UP 7000	UP 710S
System			
Processor	Intel® Celeron® Processor N3350 Intel® Pentium® Processor N4200 Intel Atom™ x7-E3950	Intel® Processor N200 Intel® Processor N97 Intel® Processor N100 Intel® Processor N50 Intel Atom™ x7433RE Intel Atom™ x7835RE	Intel® Processor N200 Intel® Processor N97 Intel® Processor N100 Intel® Processor N50
Graphics	Intel® HD Graphics	Intel® UHD Graphics	Intel® UHD Graphics for 12th Gen Intel® Processors
Memory	Up to 8GB onboard LPDDR4	Dual-Channel LPDDR5, up to 8GB	Up to 8GB LPDDR5
Storage	Up to 64GB onboard eMMC	Up to 64GB eMMC	Up to 128GB eMMC
I/O	HDMI 1.4b x 1 DP 1.4a x 1 (via USB Type-C) 41-pin FPC connector for high speed expend x 1 6-pin Audio wafer x 1 (Mic-in+Line-out)	HDMI 1.4b/USB 3.2 Gen 2 STACK Connector x 1 (Type-A) 4-pin Front Panel x 1 2-pin Fan Wafer x 1 (12V) 2-pin RTC Battery Wafer x 1	HDMI 1.4b 3.3V I2C x 2 + PWM x 2 via 8-Pin Wafer 3.3V SPI x 2 via 10-Pin Wafer GPIO x 8 via 10-Pin wafer RS-232/422/485 x 1 via 10-Pin Wafer
Camera	—		
USB	USB 2.0 x 2 (from 10-pin header x 1) USB 3.2 Gen 1 (Type A) x 3 USB 3.2 Gen 1 OTG (USB Type-C) x 1	USB 3.2 Gen 2 (Type-A) x 3 10-pin USB 2.0 x 2/UART x 1	10-pin USB 2.0 x 2/UART x 1 USB 3.2 Gen 2 Type A x 3
Expansion	40-pin GPIO x 1 Via carrier board: M.2 2230 E-Key x 1 M.2 2280 M-Key x 1 M.2 3052/3042 B-Key x 1	40-pin GPIO x 1	M.2 2230 E-Key x 1
Display Interface	HDMI 1.4b x 1 DP 1.4a x 1 (via USB Type-C)	HDMI 1.4b x 1	
Ethernet	1GbE RJ-45 x 1 (Realtek RTL8111H CG)		GbE, RJ-45 x 1
Security	Onboard TPM 2.0		
RTC	Yes		
OS Support	Windows 10 and Windows IoT Linux Ubuntu 22.04 Linux Yocto 4.0	Windows 10/11 (64-bit) Linux: Ubuntu 22.04 LTS/Kernel 5.15, Yocto 4.0	Windows 10/11 Ubuntu 22.04 LTS Yocto 5.1
Power Requirement			
Power	12V DC-in	12V DC-in, 5A	
Power Supply Type	AT/ATX (AT as default)	AT (default) /ATX	AT/ATX
Power Consumption (Typical)	19W~25W	30~36W	
Mechanical			
Dimension	3.34" x 2.20" (85mm x 56mm)		
Net Weight	4.63 lb (2.10Kg)	0.33 lb (0.15Kg)	
Gross Weight	6.39 lb (2.90Kg)	0.44 lb (0.20Kg)	
Environment			
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow, WiTAS1 -4°F ~ 158°F (-20°C ~ 70°C) with active cooler	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow
Operation Humidity	10% ~ 80% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	
MTBF	538,629 Hours	685,218 Hours	
Certification	CE/FCC Class A, RoHS Compliant, REACH		
Note			

Board Level Products

UP Boards



Model	UP TWL	UP TWLS	UP WCL
System			
Processor	Intel® Core™ 3 Processor N355 Intel® Processor N250 Intel® Processor N150 (formerly Twin Lake)		Intel® Core™ 7 processor 350 Intel® Core™ 5 processor 320 Intel® Core™ 3 processor 304 (formerly Wildcat Lake)
Graphics	Intel® UHD Graphics	Intel® UHD Graphics for 12th Gen Intel® Processors	Intel® Graphics
Memory	Dual-Channel LPDDR5, up to 8GB	Up to 8GB LPDDR5	Up to 24GB LPDDR5
Storage	Up to 64GB eMMC	Up to 128GB eMMC	Up to 256GB UFS
I/O	HDMI 1.4b/USB 3.2 Gen 2 STACK Connector x 1 (Type-A) 4-pin Front Panel x 1 2-pin Fan Wafer x 1 (12V) 2-pin RTC Battery Wafer x 1	HDMI 1.4b 3.3V I2C x 2 + PWM x 2 via 8-Pin Wafer 3.3V SPI x 2 via 10-Pin Wafer GPIO x 8 via 10-Pin wafer RS-232/422/485 x 1 via 10-Pin Wafer	HDMI 2.1 (TMDS) x 1 10 pin wafer (BIOS-selectable: 3.3V I2C x 2/PWM x 2/SPI x 2/GPIO x 8)
Camera	—		
USB	USB 3.2 Gen 2 (Type-A) x 3 10-pin USB 2.0 x 2/UART x 1	10-pin USB 2.0 x 2/UART x 1 USB 3.2 Gen 2 Type A x 3	10-pin Header x 1 (USB 2.0 x 2 / UART x 1) USB 3.2 Gen 2 (Type-A) x 3
Expansion	40-pin GPIO x 1	M.2 2230 E-Key x 1	M.2 2230 E-Key x 1 (CNV12/ CNV13, PCIe Gen 4 [x1], USB 2.0)
Display Interface	HDMI 1.4b x 1		HDMI 2.1 (TMDS) x 1
Ethernet	1GbE RJ-45 x 1 (Realtek RTL8111H CG)	GbE, RJ-45 x 1	2.5GbE, RJ-45 x 1
Security	Onboard TPM 2.0		TPM 2.0 support (fTPM)
RTC	Yes		
OS Support	Windows® 11 LTSC Ubuntu 24.04 LTS Yocto 5.1		Windows® 11 LTSC Ubuntu 24.04 LTS Yocto 6.0
Power Requirement			
Power	12V DC-in, 5A		
Power Supply Type	AT (default) /ATX	AT/ATX	
Power Consumption (Typical)	30~36W		
Mechanical			
Dimension	3.34" x 2.20" (85mm x 56mm)		
Net Weight	0.33 lb (0.15Kg)		
Gross Weight	0.44 lb (0.20Kg)		
Environment			
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow, WITAS1 -4°F ~ 158°F (-20°C ~ 70°C) with active cooler		-4°F ~ 140°F (-20°C ~ 60°C) / 0.7 airflow with active cooler
Operation Humidity	0% ~ 90% relative humidity, non-condensing		
MTBF	685,218 Hours		1,707,541
Certification	CE/FCC Class A, RoHS Compliant, REACH		
Note			



Model	UP Squared	UP Squared V2	UP Squared i12
System			
Processor	Intel® Celeron® Processor N3350 Intel® Pentium® Processor N4200 Intel Atom® x7-E3950 Intel Atom® x5-E3940	Intel® Celeron® N6210 Processor SoC Intel® Celeron® J6412 Processor SoC Intel® Pentium® J6426 Processor SoC	12th Gen Intel® Core™ Processor SoC Intel® Core i7-1270PE Intel® Core i5-1250PE Intel® Core i3-1220PE Intel® Celeron® 7305E 13th Gen Intel® Core™ Processor SoC Intel® Core™ i7-1370PE Intel® Core™ i5-1340PE Intel® Core™ i3-1320PE
Graphics	Intel® HD Graphics		Intel® UHD Graphics
Memory	Up to 8GB onboard LPDDR4	Up to 16GB LPDDR4	Up to 16GB Onboard LPDDR5
Storage	Up to 128GB onboard eMMC	Up to 64GB eMMC	Up to 128GB Onboard SSD M.2 2280 M-Key NVMe x 1 (PCIe Gen 4.0 (x4)) SATA 6Gb/s x 1
I/O	HDMI 1.4b x 1 DP 1.2 x 1	HDMI 1.4b x 1 DP 1.2 x 1 eDP 1.3 x 1 Audio 6 pin wafer (Line out + MIC in) x 1 RS-232/422 6 pin header x 1	HDMI 1.4b/DP 1.2 STACK Connector x 1 DP 1.4a x 1 (via USB Type-C) 6-pin Audio Wafer x 1 (Line out + MIC in) 6-pin Front Panel x 1 2-pin Fan Wafer x 1 (12V) 2-pin RTC Battery Wafer x 1
Camera	MIPI-CSI via 21 Pin FPC connector x 1 MIPI-CSI via 31 Pin FPC connector x 1	—	MIPI CSI camera via 61pin wafer w/carrier board HDMI-in via 61pin wafer w/carrier board
USB	USB 2.0 x 2 (via 10 Pin Header x 1) USB 3.2 Gen 1 x 3 (Type-A) USB 3.2 Gen 1 OTG x 1 (Micro B)	USB 2.0 x 2 (from 10 pin wafer x 1) USB 3.2 Gen 2 Type A x 3	10-pin USB 2.0 x 2/UART x 1 USB 3.2 Gen 2 (Type-A) x 2 USB 3.2 Gen 2 (Type-C for DP 1.4) x 1
Expansion	40-pin GPIO x 1 Full-sized mPCIe x 1 (PCIe & SATA [x1] , USB2.0 [x1]) M.2 2230 E-Key x 1 (PCIe [x1], USB2.0 [x1]) SATA 6.0 Gb/s x 1 60 Pin EXHAT x 1	40 pin GPIO x 1 M.2 2230 E-Key x 1 (PCIe x2, USB2.0 x1) M.2 2280 M-key x 1 (PCIe x2) SATA3 x 1	40-pin GPIO x 1 M.2 2230 E-Key x 1 (CNVI & PCIe Gen 3.0 [x1]) M.2 2280 M-Key NVMe x 1 (PCIe Gen 4.0 [x4]) SATA 6Gb/s x 1
Display Interface	HDMI 1.4b x 1 DP 1.2 x 1 eDP 1.3 x 1	HDMI 1.4b x 1 DP 1.2 x 1 eDP 1.3 x 1	HDMI 1.4b/DP 1.2 STACK Connector x 1 DP 1.4a x 1 (via USB Type-C)
Ethernet	GbE x 2 (Realtek 8111H CG)	Gb Ethernet (full speed) RJ-45 x 2	1GbE RJ45 x 2 (Dual Stacked) (Realtek 8111H CG)
Security	fTPM		Onboard TPM 2.0
RTC		Yes	
OS Support	Windows® 10 IoT Enterprise LTSC 2021 Windows IoT Core Linux Ubuntu 20.04 LTS Linux Yocto 3.1	Windows 10 (full) Windows IOT Core Ubuntu 20.04 LTS Yocto 3.1	Windows® 10 IoT Enterprise LTSC 2021, Ubuntu 22.04, Yocto 4.0
Power Requirement			
Power	5V DC-in	12V DC-in, 5A	12V DC-in
Power Supply Type	AT/ATX (AT as default)	AT/ATX	AT/ATX (AT as default)
Power Consumption (Typical)	15.05W	30~38W	26W~39W
Mechanical			
Dimension	3.37" x 3.54" (85.6 mm x 90 mm)		3.37" x 3.54" (85.6mm x 90mm)
Net Weight	0.463 lb (0.21Kg)	0.41 lb (0.19Kg)	0.59 lb (0.27Kg)
Gross Weight	0.639 lb (0.29Kg)	0.66 lb (0.3Kg)	0.84 lb (0.38Kg)
Environment			
Operating Temperature	32°F ~ 140°F (0°C ~ 60°) / 0.5 airflow		32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow
Operation Humidity	0%~90% relative humidity, non-condensing		0% ~ 90% relative humidity, non-condensing
MTBF	173,446	465,586	522,716
Certification	CE/FCC Class A, RoHS complaint, REACH		CE/FCC Class A, RoHS Compliant, REACH
Note			



Model	UP Squared 7100	UP Squared TWL	UP Squared Pro 7000
System	Intel® UHD Graphics for 12th Gen Intel® Processors		
Processor	Intel® Processor N97 Intel® Processor N100 Intel Atom® x7433RE Intel Atom® x7835RE Intel Atom® x7425E	Intel® Core™ 3 Processor N355 Intel® Processor N250 Intel® Processor N150 (formerly Twin Lake)	Intel® Core™ i3-N305 Intel Atom® x7425E Intel Atom® x7433RE Intel Atom® x7835RE Intel® Processor N97 Intel® Processor N50
Graphics	Intel® UHD Graphics for 12th Gen Intel® Processors		
Memory	Up to 16GB LPDDR5		
Storage	Up to 128GB eMMC		
I/O	HDMI 2.0b x 1 DP 1.2 x 1 eDP 1.3 x 1 Audio wafer (Line out + MIC in) x 1 RS-232/422/485 via wafer x 2		
Camera	—		
USB	USB 2.0 x 2 (from 10 pin wafer x 1) USB 3.2 Gen 2 Type A x 3		
Expansion	40 pin GPIO x 1 M.2 2230 E-Key x 1 (PCIe x1, USB2.0 x1) M.2 2280 M-key x 1 (PCIe x2)	40 pin GPIO x 1 M.2 2230 E-Key x 1 (PCIe [x1], USB 2.0) M.2 2280 M-Key x 1 (PCIe [x2])	40 Pin GPIO x 1 M.2 2230 E-Key x 1 (CNVI, PCIe Gen 3 [x1], USB 2.0) M.2 2280 M-Key x 1 (PCIe Gen 3 [x2]) M.2 3052 B-Key x 1 (USB 3.2 Gen 2 only) with Nano SIM slot (USB 3.0) SATA 6Gb/s x 1
Display Interface	HDMI 2.0b x 1 DP 1.2 x 1 eDP 1.3 x 1		
Ethernet	Gb Ethernet (full speed) RJ-45 x 2		
Security	Onboard TPM 2.0		
RTC	Yes		
OS Support	Windows 10/11 Ubuntu 22.04 LTS Yocto 5.1	Windows 11 LTSC Ubuntu 24.04 LTS Yocto 5.1	Windows 10 IoT Enterprise Ubuntu 22.04 LTS Yocto 4.0
Power Requirement	12V DC-in		
Power Supply Type	AT/ ATX (ATX as default)		
Power Consumption (Typical)	15W~37W		
Mechanical			
Dimension	3.37" x 3.54" (85.6 mm x 90 mm)		
Net Weight	0.41 lb (0.19Kg)		
Gross Weight	0.66 lb (0.3Kg)		
Environment			
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow, WITAS1 -4°F ~ 158°F (-20°C ~ 70°C) with active cooler		
Operation Humidity	0% ~ 90% relative humidity, non-condensing		
MTBF	1,224,238		
Certification	CE/FCC Class A, RoHS Compliant, REACH		
Note			



Model	UP Squared Pro TWL	UP Squared Pro 710H	UP Nexus WCL
System			
Processor	Intel® Core3 N355 Intel® Processor N150	Intel® Core™ i3-N305 (8C, 1.80 GHz, 15W) Intel™ Processor N97 (4C, 2.00 GHz, 12W) Onboard Hailo-8™ edge AI processor	Intel® Core™ 7 processor 350 Intel® Core™ 5 processor 320
Graphics	Intel® Graphics up to 32EU w/ INT8 extension	Intel® UHD Graphics for 12th Gen Intel® Processors	Intel® Graphics
Memory	Up to 16GB onboard LPDDR5		Up to 48GB onboard LPDDR5
Storage	Up to 64GB onboard eMMC	Up to 128GB onboard eMMC	Up to 256GB onboard UFS
I/O	HDMI 2.0b x 1 DP 1.2 x 1 DP 1.4a via USB Type C Audio Jack x 1 (Mic-in+Line-out) RS-232/422/485 via 10 Pin header x 2	HDMI 2.0b x 1 DP 1.4 x 1 RS-232/422/485 from 10 pin header x 2	HDMI 2.1 (TMDS) x 2 DP 1.4a via USB Type-C Audio Jack x 1 (Mic-in + Line-out) RS-232/422/485 via 10-pin Header x 2
Camera	MIPI-CSI via 61-Pin FPC Connector x 1		—
USB	USB 2.0 x 2 (via 10 Pin Header x 1) USB 3.2 Gen 2 (Type-A) x 2 USB 3.2 Gen 2 (Type-C) x 1	USB 2.0 x 2 (from 10 pin header x 1) USB 3.2 Gen 2 (Type-A) x 2	USB 2.0 x 2 (via 10 Pin Header x 1) USB 3.2 Gen 2 (Type-A) x 2 USB 3.2 Gen 2x2 (Type-C) x 1
Expansion	40 Pin GPIO x 1 M.2 2230 E-Key x 1 (CNVI, PCIe Gen 3 [x1], USB 2.0) M.2 2280 M-Key x 1 (PCIe Gen 3 [x2]) M.2 3052 B-Key x 1 (USB 3.2 Gen 2 only) with Nano SIM slot (USB 3.0) SATA 6Gb/s x 1	40-pin GPIO x 1 M.2 2230 E-Key x 1 (CNVI, PCIe Gen 3 [x1], USB 2.0) M.2 2280 M-Key x 1 (PCIe Gen 3 [x2], colay with M.2 3052 B-Key x 1) M.2 3052 B-Key x 1 (USB 3.2 Gen 2 only) (Optional)	40-pin GPIO x 1 M.2 2230 E-Key x 1 (CNVI, PCIe Gen 4 [x1], USB 2.0, UART) M.2 2280 M-Key x 1 (PCIe Gen 4 [x2]) M.2 2242 M-Key x 1 (PCIe Gen 4 [x1])
Display Interface	HDMI 2.0b x 1 DP 1.2 x 1 DP 1.4a via USB Type C	HDMI 2.0b x 1 DP 1.4 x 1	HDMI 2.1 (TMDS) x 2 DP 1.4a via USB Type C
Ethernet	2.5GbE x 2 (Intel® I226-IT)	2.5GbE x 2 (Intel® Ethernet Controller I226-IT)	
Security	Onboard TPM 2.0		TPM 2.0
RTC	Yes		
OS Support	Windows 11 LTSC Ubuntu 22.04/kernel 6.11+, ubuntu 24.04/kernel 6.11+, Yocto 5+ Yocto 5+	Windows 10 IoT Enterprise Ubuntu 22.04 LTS Yocto 4.0	Windows 11 Ubuntu 24.04
Power Requirement			
Power	12V DC-in	12V-36V DC-in Phoenix connector (Optional: Lockable plug)	12V-24V DC in
Power Supply Type	AT/ATX (ATX as default)	AT/ATX	
Power Consumption (Typical)	26W~35W	50W~55W	35W
Mechanical			
Dimension	4" x 4" (101.6mm × 101.6mm)		
Net Weight	0.44 lb (0.20Kg)		0.56 lbs (0.25kg)
Gross Weight	0.77 lb (0.35Kg)		0.89 lbs (0.40kg)
Environment			
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow, WiTAS1 -4°F ~ 158°F (-20°C ~ 70°C) with active cooler (project base)	32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow	-4°F ~ 140°F (-20°C ~ 60°C) / 0.5 airflow with active cooler
Operation Humidity	0% ~ 90% relative humidity, non-condensing		
MTBF	857,310	422,053	1,140,040
Certification	CE/FCC Class A, RoHS Compliant, REACH		
Note			

Board Level Products

UP Boards



Model	UP Xtreme i11	UP Xtreme i12	UP Xtreme i14
System			
Processor	11th Gen Intel® Core™ Processor SoC Intel® Core™ i7-1185G7E Intel® Core™ i7-1185GRE Intel® Core™ i5-1145 G7E Intel® Core™ i5-1145GRE Intel® Core™ i3-1115GRE Intel® Celeron® 6305E	12th Gen Intel® Core™ Processor SoC Intel® Core™ i7-1270PE Intel® Core™ i7-1260P Intel® Core™ i5-1250PE Intel® Core™ i5-1240P Intel® Core™ i3-1220PE Intel® Celeron® Processor 7305E 13th Gen Intel® Core™ Processor SoC Intel® Core™ i7-1370PE Intel® Core™ i7-1360P Intel® Core™ i5-1340PE Intel® Core™ i3-1320PE	Intel® Core™ Ultra 5 processor 125U (12M Cache, up to 4.30 GHz) Intel® Core™ Ultra 5 processor 125H (18M Cache, up to 4.50 GHz) Intel® Core™ Ultra 7 processor 155H (24M Cache, up to 4.80 GHz) Intel® Core™ Ultra 7 processor 165H (24M Cache, up to 5.00 GHz)
Graphics	Intel® Iris® Xe graphics	Intel® Arc™ graphics	Intel® Arc™ graphics
Memory	DDR4 SODIMM Slot x 2, up to 64GB	Up to 32GB onboard LPDDR5	Up to 64GB onboard LPDDR5 (Dual-Channel)
Storage	M.2 2280 M-Key x 1 for NVMe (PCIe [x2]) SATA 6Gb/s x 1	M.2 2280 M-Key x 2 (PCIe Gen 4.0 [x4]), SATA 6Gb/s x 1	M.2 2280 M-Key x 2 SATA 6Gb/s x 1
I/O	HDMI 2.0 x 1 DP 1.4x 1 eDP x 1 Audio Jack x 1 (Mic-in+Line-out) RS-232/422 10-pin header x 2	HDMI 2.0b x 1 DP 1.4a x 1 DP 1.4a x 1 (via USB Type-C) eDP 1.4b x 1 Audio Jack x 1 (Mic-in+Line-out) RS-232/422/485 10-pin header x 2	HDMI 2.1 x 2 DP 2.1 x 1 DP 1.4 via USB Type-C x 1 Audio Jack x 1 (Mic-in+Line-out) RS-232/422/485 10-pin header x 2
Camera	—	MIPI CSI camera via 61pin wafer w/carrier board (optional for 13th Gen) HDMI-in via 61pin wafer w/carrier board (optional for 13th Gen)	MIPI-CSI via 61-Pin FPC Connector x 1
USB	USB 2.0 x 2 (from wafer x 1) USB 2.0 (Type-A) x 1 USB 3.2 Gen 2 (Type-A) x 3 USB 4.0 (Type-C) x 1	USB 2.0 x 2 (from 10 pin header x 1) USB 2.0 (Type-A) x 1 USB 3.2 Gen 2 (Type-A) x 3 USB 4.0 (Type-C) x 1	USB 2.0 x 2 (from 10 pin header x 1) USB 2.0 (Type-A) x 1 USB 3.2 Gen 2 (Type-A) x 2 USB 3.2 Gen 2 (Type-C) x 1
Expansion	40-pin GPIO x 1 M.2 2230 E-Key x 1 M.2 2280 M-Key x 1 M.2 3052 B-Key x 1 SATA 6Gb/s x 1 PCIe [x4] Slot	40-pin GPIO x 1 M.2 2230 E-Key x 1 M.2 2280 M-Key x 2 (PCIe Gen 4.0 [x4]) SATA 6Gb/s x 1 M.2 3052 B-Key x 1 Nano SIM Slot x 1	40-pin GPIO x 1 M.2 2230 E-Key x 1 (PCIe Gen 3 [x1], USB 2.0) M.2 2280 M-Key x 2 (PCIe Gen 4 [x4]) M.2 3052 B-Key x 1 (PCIe Gen 3 [x1], USB 3.2 Gen 2 [x1]) with Nano SIM slot (USB 3.0) SATA 6Gb/s x 1
Display Interface	HDMI 2.0 x 1 DP 1.4 x 1 eDP x 1	HDMI 2.0b x 1, DP 1.4a x 1, DP 1.4a x 1 (via USB Type-C), eDP 1.4b x 1	HDMI 2.1 x 2 DP 2.1 x 1 DP 1.4 via USB Type-C x 1
Ethernet	Intel® I225-IT x 1 Intel® I219 (vPRO) x 1	Intel® I226-IT x 1 (TSN), Intel® I219 x 1 (vPRO)	2.5GbE x 1 (via Intel® Ethernet Controller I226-IT), GbE x 1 (Intel® Ethernet Connection I219)
Security	—	Onboard TPM 2.0	Onboard TPM 2.0
RTC		Yes	
OS Support	Windows 10 and Windows IoT Linux Ubuntu 22.04 Linux Yocto 3.1	Windows® 10 Enterprise 2021 LTSC, Ubuntu 22.04, Yocto 4.0	Windows 10/11 (64bit) Ubuntu 22.04/Kernel 6.5 up
Power Requirement			
Power	12V (Lockable plug)	12-36V DC-in (Lockable plug)	9-36V DC-in (Lockable plug)
Power Supply Type		AT/ATX (ATX as default)	
Power Consumption (Typical)	Balance: 32.4W Max current: 66W	Intel® Core™ i7-1270PE, LPDDR5 4800MHz 16GB, 5.86A@+ 12V (Typical) Intel® Core™ i7-1270PE, LPDDR5 4800MHz 16GB, 8.05A@+ 12V (Max)	67-80W
Mechanical			
Dimension		4.74" x 4.82" (120.35mm x 122.5mm)	
Net Weight	0.57 lb (0.26Kg)	0.88lb (0.4Kg)	12.7 lb (0.36Kg)
Gross Weight	1.15 lb (0.52Kg)		1.32lb (0.6Kg)
Environment			
Operating Temperature	32°F ~ 140°F (0°C ~ 60°) / 0.5 airflow	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow, WiTAS1 -4°F ~ 140 °F (-20°C ~ 60°C)	With Cooler: 32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow
Operation Humidity		0% ~ 90% relative humidity, non-condensing	
MTBF	372,419	362,068	1,014,016
Certification		CE/FCC Class A, RoHS Compliant, REACH	
Note			



Model	UP Xtreme ARL	UP Xtreme 7100	UP Xtreme PTL
System			
Processor	Intel® Core™ Ultra 5 processor 225H (18M Cache, up to 4.90 GHz) Intel® Core™ Ultra 7 processor 255H (24M Cache, up to 5.10 GHz) Intel® Core™ Ultra 7 processor 265H (24M Cache, up to 5.30 GHz)	Intel® Processor N97 Intel® Core™ i3-N305	Intel® Core™ Ultra 5 processor 325 (12M Cache, up to 4.50 GHz) Intel® Core™ Ultra 7 processor 356H (18M Cache, up to 4.70 GHz) Intel® Core™ Ultra X7 processor 358H (18M Cache, up to 4.80 GHz)
Graphics	Intel® Arc™ graphics	Intel® UHD Graphics Gen 12	Intel® Core™ Ultra 5 processor 325 - Intel® Graphics Intel® Core™ Ultra 7 processor 356H - Intel® Graphics Intel® Core™ Ultra X7 processor 358H - Intel® Arc™ B390 GPU
Memory	Up to 64GB onboard LPDDR5 (Dual-Channel)	Up to 16GB LPDDR5	DDR5 SODIMM × 2, Dual Channel, up to 128GB, up to 7200 MT/s
Storage	M.2 2280 M-Key x 2 SATA 6Gb/s x 1	Up to 64GB onboard eMMC M.2 2280 M-Key x 1 (PCIe Gen 3 [x2]) SATA 6Gb/s x 1	M.2 2280 M-Key x 2
I/O	HDMI 2.1 x 2 DP 2.1 x 1 Audio Jack x 1 (Mic-in+Line-out) RS-232/422/485 10-pin header x 2	RS-232/422/485 x 1 (Terminal Block) (Default RS232) 30pin board-to-board Connector x 1 UART x 1 (via 10 Pin Header x 1)	HDMI 2.1 x 2 DP 2.1 x 2 via USB 4.0 Type-C Audio Jack x 1 (Mic-in + Line-out) RS-232/422/485 via 10-Pin header x 2 eDP 1.5 x 1
Camera	MIPI-CSI via 61-Pin FPC Connector x 1	—	MIPI CSI x 2 via 60-pin Connector
USB	USB 2.0 x 2 (from 10 pin header x 1) USB 2.0 (Type-A) x 1 USB 3.2 Gen 2 (Type-A) x 2	USB 2.0 (Type A) x 2 USB 3.2 Gen 2 (Type A) x 2 USB 3.2 Gen 2 (Type C) x 1 (Supports DP alt mode)	USB 2.0 x 2 (from 10 pin header x 1) USB 3.2 Gen 2 (Type-A) x 2 USB 4.0 (Type-C) x 2
Expansion	40-pin GPIO x 1 M.2 2230 E-Key x 1 (PCIe Gen 3 [x1], USB 2.0) M.2 2280 M-Key x 2 (PCIe Gen 4 [x4]) M.2 3052 B-Key x 1 (PCIe Gen 3 [x1], USB 3.2 Gen 2 [x1]) with Nano SIM slot (USB 3.0) SATA 6Gb/s x 1	M.2 3052 B-Key x 1 with Nano SIM slot (USB 3.0) M.2 2230 E-Key x 1 (USB 2.0/PCIe) M.2 2280 M-Key x 1 (PCIe Gen 3 [x2]) 24V 8-in/8-out Digital I/O x 1 via Terminal Block (Output current: 500mA per channel) 6 pin GPIO x 1 via Terminal Block 6 pin 2-channel CAN 2.0B x 1 via Terminal Block (10 ~ 1000 kbps) DIP Switch for CANBus function x 1 CAN LED indicator x 2 SATA 6Gb/s x 1	40-pin GPIO x 1 M.2 2230 E-Key x 1 (PCIe Gen 4 [x1], USB 2.0) M.2 2280 M-Key x 2 (PCIe Gen 4 [x4], PCIe Gen 5 [x4])
Display Interface	HDMI 2.1 x 2 DP 2.1 x 1	DP 1.4a x 1 (via USB Type-C) eDP 1.3 x 1	HDMI 2.1 x 2 DP 2.1 x 2 via USB Type-C eDP 1.5 x 1
Ethernet	2.5GbE x 1 (via Intel® Ethernet Controller I226-IT), GbE x 1 (Intel® Ethernet Connection I219)	2.5GbE x 2 (Intel® I226-IT)	2.5GbE x 2 (via Intel® Ethernet Controller I226-IT)
Security	Onboard TPM 2.0		
RTC	Yes		
OS Support	Win 11 LTSC/ 10 LTSC Linux: Ubuntu 24.04 LTS, Yocto 5+	Ubuntu 22.04 LTS (kernel 5.15 and kernel 5.19)	Windows 11 IoT Enterprise Ubuntu 24.04 LTS
Power Requirement			
Power	9-36V DC-in (Lockable plug)	9-36V	19-36V DC-in (Lockable plug)
Power Supply Type	AT/ATX (ATX as default)	AT/ATX (AT as default)	AT/ATX
Power Consumption (Typical)	57.6W ~ 86.4W	52W~55W	100W
Mechanical			
Dimension	4.74" x 4.82" (120.35mm x 122.5mm)	4.74" x 4.82" (120.35mm x 122.5mm)	6.69" x 4.92" (170mm x 125mm)
Net Weight	12.7 lb (0.36Kg)	1.11 lb (0.5Kg)	1 lb (0.46Kg)
Gross Weight	1.32lb (0.6Kg)	1.76 lb (0.8Kg)	1.58 lb (0.72Kg)
Environment			
Operating Temperature	32°F - 140°F (0°C - 60°C)	With Heatsink: -4°F ~ 158°F (0°C ~ 60°C)/0.5m/s airflow	With Cooler: 32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow
Operation Humidity	0% ~ 90% relative humidity, non-condensing		
MTBF	1,263,279	421,998	971,676
Certification	CE/FCC Class A, RoHS Compliant, REACH		
Note			

Board Level Products
UP Expansion Modules

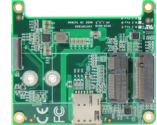
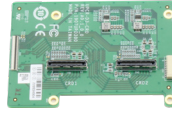
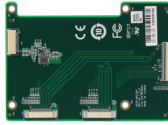
UP Expansion Modules



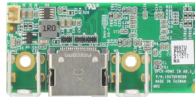
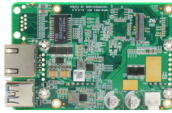
Model	UPAI-2280-HL08
System	
IC	Hailo-8™ Artificial Intelligence Processor
Frame Work	TensorFlow, TensorFlow Lite, Keras, PyTorch, ONNX
OS Support	Linux, Windows
Others	
Others	
Form Factor	M.2 2280 key M
Dimension	3.15" x 0.86" (80 mm x 22 mm)
Net Weight	0.33 lb (0.15Kg)
Gross Weight	0.55 lb (0.25 Kg) with heatsink kit (optional)
Operating Temperature	-40 °F ~ 185 °F (-40 °C ~ 85 °C)
Operation Humidity	10% ~ 80% relative humidity, non-condensing
Certification	CE/FCC Class A
Others	—
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	—
3G Module	9741UC20G0 (3G module: UC20-G)
Note	



Model	MIPICSI Camera RPI Converter Kit	MIPICSI Camera RVP Converter Kit	UP 4000 M.2 Plus
System			
I/O	Power: 5V/2A In from Wafer MIPI-CSI In: 4-Lane + Clock from Camera Module Connector x 2 MIPI-CSI Out: 61-pin FPC Connector x 1	Power: 5V/2A In from Wafer MIPI-CSI In: 4-Lane + Clock from Camera Module Connector x 2 MIPI-CSI Out: 61-pin FPC Connector x 1	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	3.3" x 2.4" (85mm x 61mm)	3.3" x 2.4" (85mm x 61mm)	UP-APL03CB-A10-0001: 2" x 2.36" (51mm x 60mm) UP-APL03CB-A10-0002: 2" x 3.5" (51mm x 89mm) UP-APL03CB-A10-0003: 2" x 2.36" (51mm x 60mm)
Net Weight	0.1 lb (0.04Kg)	0.1 lb (0.04Kg)	UP-APL03CB-A10-0001: 16g UP-APL03CB-A10-0002: 19g UP-APL03CB-A10-0003: 15g
Gross Weight	0.13 lb (0.06Kg)	0.13 lb (0.06Kg)	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), 0.5m/s airflow	32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow	32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow
Operation Humidity	10% ~ 90% relative humidity, non-condensing	10% ~ 90% relative humidity, non-condensing	10% ~ 80% relative humidity, non-condensing
Certification	—	—	CE/FCC Class A, RoHS Compliant



Model	UP POE V2 Expansion Board	HDMI In Carrier Board	CAN Bus Carrier Board
System			
I/O	UP-POEV2-30W-A10-0001: RJ-45 Input x 1 (10/100/1000M Gigabit Ethernet) USB 3.2 Gen 1 x 1 41-Pin FPC Connector x 1 UP-POEV2-30W-A10-0002: RJ-45 Input x 1 (10/100M) 10-Pin Wafer x 1	FPC 61-pin MIPI CSI x 1 (Lontium.LT6911UXC) 2-pin Power Wafer x 2 HDMI 2.0 x 1 Color Format: -CSC disabled: RGB565/666/888, YUV422 8/10-bit, Legacy YUV420 8-bit -CSC enabled: RGB565/666/888, YUV422 8-bit Video Resolutions: -3840x2160p@30fps -1920x1200@30fps -1920x1080@30fps -1680x1050@30fps -1440x900@30fps -1366x768p@30fps -1280x1024p@30fps -1280x960p@30fps -1280x800p@30fps -1280x768p@30fps -1280x720p@30fps -1280x600p@30fps -1152x864p@30fps -1024x768p@30fps -800x600p@30fps/720x576i@60fps *Once change resolution or frequency please reboot or unplug and plug in HDMI In carrier board	UP Board Connector x 1 6 pin terminal block x 1 6 pin LED Wafer x 1 Termination Resistor DIP Switch x 1 Reset Button x 1
Dimension	3.37" x 2.22" (85mm x 56mm)	1.9" x 0.9" (49mm x 23mm)	2.56" x 2.20" (65 mm x 56 mm)
Net Weight	0.1 lb (0.04Kg)	0.44 lb (0.2Kg)	0.066 lb (0.03Kg)
Gross Weight	0.13 lb (0.06Kg)	0.88 lb (0.4Kg)	0.13 lb (0.06Kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow	32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow	32°F ~ 140°F (0°C ~ 60°)
Operation Humidity	10% ~ 80% relative humidity, non-condensing	10% ~ 80% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
Certification	CE/FCC Class A, RoHS Compliant, REACH	—	CE/FCC Class A

Board Level Products

Industrial Motherboards



Model	EMB-APL1	EMB-APL3
System		
Processor	Intel® Celeron® N4200 (4C @ 2.50GHz CPU [Burst Mode], 750MHz GPU [Turbo], ~6W TDP) Intel® Celeron® N3350 (2C @ 2.40GHz CPU [Burst Mode], 650MHz GPU [Turbo], ~6W TDP)	
Chipset	Integrated into SoC	
Memory	DDR3L 1866, Single Channel SODIMM x 2, Non-ECC (Max.8GB, up to 1600MHz)	
I/O Chipset	NCT6116D	
Ethernet	Realtek® PCIe GbE LAN 8111H x 2	
Audio	Realtek® ALC897	
TPM	Nuvoton NPCT652ABCYX TPM2.0 (default: No)	Nuvoton NPCT652 TPM2.0 (default: No)
Expansion Slots	PCIe2.0 [x1] x 1 M.2 M key (22 x 42mm) x 1, for SATA M.2 E Key (22 x 30mm) x 1, for PCIe	
BIOS	128Mbit Flash ROM x 1, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	Chassis Fan (Fanless)	
Wake On LAN/ PXE	Yes (WOL/PXE)	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	Up to 1920 x 1200 @ 60 Hz
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 Power consumption: 84W	12V DC jack (screw type) 4-pin internal power connector Power consumption: 84W
Operation Temperature	32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60%G @ 90% RH Non-Condensing)	
Storage Temperature	—	
Certificate	CE & FCC Class A	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	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	
Serial Port	—	
PS/2 Port	—	
Others	DC power jack x 1	
Internal I/O Connectors		
Storage	SATA 6.0Gb/s x 2(1 colay with M.2 M-key), M.2 M-key (22 x 42mm) x 1	SATA 6.0Gb/s x 2(1 colay with M.2 M-key), M.2 M-key (22 x 42mm) x 1
USB	USB 2.0 headers support additional 3 USB ports (2*5-pin, p=2.00mm) x 2	USB 2.0 headers support additional 6 USB ports (2*5-pin, p=2.00mm) x 3
Display I/O	40-pin LVDS/eDP connector x 1 (default LVDS)	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		



Model	MIX-EHLD1	MIX-TLUD1
System		
Processor	Intel Atom® x6000E Series/Intel® Pentium®/Celeron® N & J Series Processors (12W)	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	Dual-Channel DDR4 3200 SODIMM x 2, up to 32GB, Non-ECC	DDR4 2666/3200 MHz SODIMM x 2, up to 64GB
I/O Chipset	Nuvoton NCT6126D	IT5121E
Ethernet	Realtek® RTL8111H, GbE x 2	Intel® PCIe Gb LAN 219LM x 1, Intel® PCIe GbE LAN I226LM x 1
Audio		Realtek® ALC897
TPM	TPM 2.0	Nuvoton NPCT750 TPM2.0 onboard
Expansion Slots	M.2 3042/3052 B-Key x 1 Full/Half-size mPCIe x 1 SIM Socket x 1 (default: B-key)	PCIe 3.0 [x4] x 1, mini-card x 1(PCIe/SATA; BOM Optional)
BIOS		256Mbit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on Chassis	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer		1~255 steps by software program
Smart Fan Control	Chassis Fan	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	3 Independent Display(1xVGA+1x HDMI + 1x LVDS/eDP)	Quad Display
VGA	Up to 1920 x 1200 @60 Hz	—
DVI		
HDMI	Up to 4096 x 2160 @ 60Hz	HDMI 2.0
Display Port	—	DP1.4
LVDS	Up to 1920 x 1080 @60Hz, Dual Channel 18/24 bit (via CH7513) co-layout eDP (default LVDS)	Up to 1920 x 1200 @60Hz, Dual Channel 18/24 bit (via CH7511B)
eDP	Up to 3840 x 2160 @ 30Hz	eDP1.4b
Backlight Control	Voltage / PWM, use HW control	Voltage/PWM (Max. current: 1A)
Environment & Power & ME		
Battery		Lithium battery
Power Requirement	DC 12V Power consumption 60W	12(+/-5%) DC
Operation Temperature	32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	32°F ~ 122°F(0 ~ 50°C) (Operational humidity: 50°C @ 90% RH Non-Condensing)
Storage Temperature		-40°F ~ 185°F (-40°C ~ 85°C)
Certificate		CE & FCC Class A
Form Factor		Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
Weight		1.1 lb (0.5 Kg)
MTBF (Hours)	399,940	—
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 x 2 USB 2.0 x 4 (upper 2 ports by BOM Optional)	USB 3.2 Gen2 x 2, USB2.0 x 4
Display I/O	HDMI x 1, VGA x 1	HDMI x 2, DP++ x 2
Audio I/O		Mic-in x 1, Line out x 1
LAN I/O	1GbE x 2	1GbE x 1, 2.5GbE x 1
Serial Port	RS232 by BOM Optional	—
PS/2 Port		—
Others	DC Jack x 1	—
Internal I/O Connectors		
Storage	M.2 2280 M-Key x 1(PCIe [x2]) SATA 6Gb/s x 1 SATA Power Connector x 1 (5V/12V @1A)	M.2 M key (2280) for (NVMe/PCIex4) storage x 1 SATA 6.0Gb/s x 1
USB	USB 2.0 x 2	USB 3.0 Box header x 1 (support additional USB3.2 Gen1 x 2ports)
Display I/O	40-pin LVDS / eDP connector x 1	40-pin LVDS connector x 1, 40-pin eDP connector x 1
Audio I/O		AAFP follow ASUS pin out x 1
Serial Port	Box header x 5 for COM (COM1: RS-232/422/485 supports 5V/12V/RI; COM2-6: RS-232)	Box header x 2 for COM (COM1/2: RS-232)
PS/2 Port		—
Parallel Port		—
DIO		Digital I/O box header x 1
FAN	4-pin Chassis Fan connector x 1	4-pin CPU Fan connector x 1 4-pin Chassis Fan connector x 1
Power		—
Others	Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, Clear CMOS jumper x 1, AT/ATX mode select jumper x 1	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, Linux Ubuntu 64 bit (20.04.2/Kernel 5.4)	Windows® 10 64-bit, 20.04.2/Kernel 5.8
Note		

Board Level Products

Industrial Motherboards



Model	MIX-H310A1	MIX-H310A2
System		
Processor	8th/9th Gen. Intel® Core™ LGA 1151 socket Processor (formerly Coffee Lake-S), Max. 65W 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 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	
Storage Temperature	—	
Certificate	CE & FCC	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	288,900	333,520
Rear Panel I/O Ports		
USB	USB 3.2 Gen 1 (5 Gbps) x 4, USB 2.0 x 2	USB 3.2 Gen 1 (5 Gbps) x 4
Display I/O	VGA x 1, HDMI x 1	VGA x 1, HDMI x 1, DP x 1
Audio I/O	Mic-in x 1, Line-out x 1	
LAN I/O	LAN (RJ-45) port x 4	LAN (RJ-45) port x 2
Serial Port	—	1x COM(RS485/422/232)
PS/2 Port	—	
Others	—	
Internal I/O Connectors		
Storage	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 80mm) at bottom side x 1 (SATA only)	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 80mm) x 1
USB	USB 2.0 (2 x 5-pin, 2.00mm) x 1 ports support additional 2 USB.	USB 2.0 (2 x 5-pin, 2.00mm) x 1 port support additional 2 USB.
Display I/O	—	LVDS x 1
Audio I/O	AAFP x 1, Speaker x 1	
Serial Port	Box header for COM (RS-232/422/485) x 1, Box header for COM (RS-232) x 1	Box header for COM (RS-232) x 1
PS/2 Port	—	
Parallel Port	—	
DIO	Digital I/O box head x 1	Digital I/O box header x 1
FAN	4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1	
Power	—	
Others	Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, CMOS jumper x 1	
OS		
OS Support	Windows® 10 64-bit, Linux Ubuntu 18.04 LTS	
Note		



Model	MIX-H310D1	MIX-H310D2
System		
Processor	8th/9th Gen. Intel® Core™ LGA 1151 socket Processor (formerly Coffee Lake-S), Max. 65W TDPs	8th/9th Gen. Intel® Core™ LGA 1151 socket Processor (formerly Coffee Lake-S), Max. 65W TDPs
Chipset	Intel® H310 Express Chipset	
Memory	DDR4 2666 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture	DDR4 2666/2400/2133 MHz SODIMM x 2, Up to 64GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture
I/O Chipset	NCT6793D	
Ethernet	Realtek® RTL8111H PCIe GbE LAN x 1	Intel® I219-V GbE LAN x 1, Intel® I210-AT GbE LAN x 1
Audio	Realtek® ALC897	
TPM	Firmware TPM	NPCT750 TPM 2.0 (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+eDP, DP1+HDMI2, HDMI1+LVDS, HDMI2+LVDS, HDMI1+eDP, HDMI2+eDP, DP1+DP2, DP1+LVDS, DP2+LVDS, DP1+eDP, DP2+eDP	HDMI+HDMI, HDMI+eDP, HDMI+VGA, VGA+eDP
VGA	—	Up to 1920 x 1200 @ 60 Hz (Optional)
DVI	—	—
HDMI	Up to 4096 x 2304@24Hz (HDMI 1.4b)	Up to 3840 x 2160 @30 Hz(HDMI 1.4)
Display Port	Up to 4096 x 2304@60Hz	—
LVDS	Up to 1920 x 1200 @ 60 Hz, dual-channel 18/24 bit (via CH 7511)	—
eDP	—	Up to 4096 x 2304 @ 60Hz
Backlight Control	Voltage/PWM	Support eDP
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	12V DC Power consumption: [Typical: 120W]	12V DC
Operation Temperature	32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	
Storage Temperature	—	
Certificate	CE & FCC	
Form Factor	Mini-ITX: 6.7" x 6.7" (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	RJ-45 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 Icon 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		

Board Level Products

Industrial Motherboards



Model	MIX-H610A1	MIX-Q370A1
System		
Processor	12th/13th/14th Generation Intel® Core™ (formerly Alder Lake/Raptor Lake) and Series 2 (formerly Bartlett Lake) LGA1700 Socket Processors, TDP Max 65W	8th/9th Gen. Intel® Core™ LGA 1151 socket Processor (formerly Coffee Lake-S), Max. 65W TDPs
Chipset	Intel® H610E Chipset	Intel® Q370 Express Chipset
Memory	Dual-Channel DDR4 3200MHz SODIMM x 2, Max 64GB	DDR4 2666/2400/2133 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory, dual-channel memory architecture
I/O Chipset	NCT6126D	NCT6793D
Ethernet	Intel® Ethernet Connection I219-V x 1, Realtek RTL8111H x 3	Intel® I219-LM GbE LAN x 1, Intel® I210-AT GbE LAN x 3
Audio	Realtek® ALC897 with Amp.	
TPM	TPM 2.0 IC on board	Firmware TPM
Expansion Slots	PCIe Gen 4 [x16] x 1, M.2 2230 E-Key x 1 (PCIe [x1]/CNVi/USB)	PCIe3.0 [x16] x 1 M.2 E-key (22 x 30mm; Support CNVi)
BIOS	256Mbit Flash ROM, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/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 x 2 + DP x 1, HDMI x 1 + DP x 2, HDMI x 1 + DP x 1 + LVDS x 1, HDMI x 1 + DP x 1 + eDP x 1	HDMI+VGA
VGA	—	Up to 1920 x 1200 @ 60 Hz
DVI	—	—
HDMI	HDMI 2.0, up to 3840 x 2160 @60Hz	Up to 4096 x 2160 @30Hz (HDMI 1.4)
Display Port	DP 1.2, up to 3840 x 2160 @60Hz	—
LVDS	18/24-bit Dual-Channel LVDS, up to 1920 x 1080 @60Hz (co-lay eDP, default LVDS)	—
eDP	eDP, Up to 1920 x 1080 @60Hz	—
Backlight Control	—	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	ATX; [330 Watt or greater power supply] Voltage/Current(A) requirement: +3.3V/0.05A; +5V/6.07A; +12V/17.3A	ATX
Operation Temperature	32°F ~ 140°F (0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Certificate	CE & FCC	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 Kg)	1.1 lb (0.5 Kg)
MTBF (Hours)	357,180	—
Rear Panel I/O Ports		
USB	USB 3.2 Gen 2 x 2, USB 2.0 x 4	USB 3.2 Gen 2 (10 Gbps) x 4, USB 2.0 x 2
Display I/O	HDMI 2.0 x 2, DP 1.2 x 2	VGA x 1, HDMI x 1
Audio I/O	Mic-in x 1, Line-out x 1	
LAN I/O	RJ-45 LAN x 4	LAN (RJ-45) port x 4
Serial Port	—	
PS/2 Port	—	
Others	—	
Internal I/O Connectors		
Storage	SATA 6Gb/s x 2, M.2 2280 M-Key x 1	SATA3.0 (6.0Gb/s) x 2, M.2 M-key (22 x 80mm) at bottom side x 1 (SATA only)
USB	USB 3.2 Pin Header x 1 (USB 3.2 Gen 1 x 2)	USB 2.0 (2 x 5-pin, 2.00mm) x 1 ports support additional 2 USB
Display I/O	40-pin LVDS/eDP connector x 1 with inverter	—
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	
PS/2 Port	—	
Parallel Port	—	
DIO	8-bit Programmable connector x 1	Digital I/O box header x 1
FAN	4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1	
Power	1x24-pin EATX Power connector, 1x8-pin EATX 12V Power connector	—
Others	Front Panel connector x 1, Chassis Intrusion x 1, Buzzer onboard x 1, CMOS jumper x 1	
OS		
OS Support	Windows® 10 64-bit, Windows® 11 64bit	Windows® 10 64-bit, Linux Ubuntu 18.04. 64-bit
Note		



Model	MIX-Q370D1	MIX-Q370D2
System		
Processor	8th/9th Generation Intel® Core™ i7/ i5/ i3, Pentium® LGA 1151 socket Processor (formerly Coffee Lake-S), Max. 65W TDPs	8th/9th Gen. Intel® Core™ LGA 1151 socket Processor (formerly Coffee Lake-S), Max. 65W TDPs
Chipset	Intel® Q370 Express Chipset	
Memory	SODIMM x 2, Max. 32GB, DDR4 2666/2400 MHz, Non-ECC, Un-buffered Memory, Dual channel	DDR4 2666/2400/2133 MHz SODIMM x 2, Up to 64GB, Non-ECC, Un-buffered Memory, Dual channel memory architecture
I/O Chipset	NCT6793D	
Ethernet	Intel® Ethernet Connection I219-LM (Intel® AMT 12.0 supported) x 1 Intel® Ethernet Controller I210-AT x 1	Intel® I219-V GbE LAN x 1, Intel® I210-AT GbE LAN x 1
Audio	Realtek® ALC897	
TPM	Nuvoton TPM version 2.0	NPCT750 TPM 2.0
Expansion Slots	PCIe 3.0 [x4] x 1 M.2 M key (22 x 80 mm) x 1 at Bottom side, SATA & PCIe [x4] M.2 E key (22 x 30 mm) x 1 for Wireless-wifi module (PCIe+USB)	PCIe3.0 [x16] x 1 M.2 E-key(22 x 30 mm) x1 for Wireless-wifi module (PCIe+USB; CNVi)
BIOS	256Mbit Flash ROM, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on Chassis	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/Chassis Fan	
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3, S4, S5	
Graphics	Intel® UHD Graphics	
Graphics Chipset	Intel® UHD Graphics	
Graphics Multi Display	Three Independent Display	HDMI+VGA+eDP, HDMI+HDMI+VGA,HDMI+HDMI+eDP
VGA	—	Up to 1920 x 1200 @ 60 Hz
DVI	—	—
HDMI	—	Up to 3840 x 2160 @30 Hz(HDMI 1.4b)
Display Port	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz, with Digital Audio, DP++ supported	—
LVDS	LVDS Up to 1920 x 1200 @ 60 Hz, dual-channel 18/24 bit (via Chronitel 7511)	—
eDP	—	eDP UP to 4096 x 2304 @ 60Hz
Backlight Control	Voltage/PWM	Support eDP
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	12V DC, Power consumption: [Typical:120W]	12V DC
Operation Temperature	32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	
Storage Temperature	-40°F ~185°F (-40°C ~85°C)	
Certificate	CE & FCC (Class A)	
Form Factor	Mini-ITX: 6.7" x 6.7" (170 mm x 170 mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	256,310	319,160
Rear Panel I/O Ports		
USB	USB 3.2 Gen 2 (10 Gbps) x 4	USB 3.2 Gen2 x 6, USB2.0 x 4
Display I/O	DP x 2	VGA x 1, HDMI x 2
Audio I/O	Mic-in x 1, Line out x 1	Mic-in x 1, Line-out x 1
LAN I/O	LAN (RJ45) port x 2	LAN (RJ-45) port x 2
Serial Port	—	—
PS/2 Port	—	—
Others	DC Jack	12V DC Jack (max:192W)
Internal I/O Connectors		
Storage	SATA 6.0Gb/s x4 M.2 M key (22 x 80 mm) x1 (Support Intel® NVMe M.2 SSD)	SATA3.0 (6.0Gb/s) x 2 M.2 M-key (22 x 42/80mm; NVMe/SATA) x 1
USB	USB 2.0 pin headers x 3, supporting an additional 6 USB 2.0 ports	USB 2.0 header (2 x 5-pin, 2.00mm) x 1, supporting an additional 2 USB 2.0 ports
Display I/O	40-pin LVDS connector x 1, 40-pin eDP connector x 1 LCD backlight connector (inverter) x 1	eDP x 1
Audio I/O	Speaker for 2W/4Ω x 1; AAFP follow ASUS pin out x 1	AAFP x 1
Serial Port	Box header x 1 for COM (COM1: RS-232/422/485 supports 5V/12V/RL)	Box header for COM (RS-232) x 1; RS-232/422/485 x 1
PS/2 Port	—	—
Parallel Port	—	—
DIO	8-bit x 1 (In/Out programmable)	Digital I/O box header x 1
FAN	4-pin Chassis Fan connector x 1, 4-pin CPU Fan connector x 1	4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1
Power	12V DC Power jack x 1	12V ATX Power Connector x 1
Others	Front panel header x 1 Clear CMOS jumper x 1 AT/ATX select jumper x 1 Chassis Intrusion x 1 4-pin SATA power x 1	Front Panel connector x 1; Chassis Intrusion x 1; Buzzer onboard x 1; CMOS jumper x 1; SATA Power connector x 1; SPI ROM programming header x 1; ATX/AT mode jumper x 1; eDP backlight power jumper x 1; eDP T-con IC power jumper x 1
OS		
OS Support	Windows® 10 64 bit, Ubuntu 16.04 LTS	Windows® 10 64-bit, Linux Ubuntu 18.04.2
Note		

Board Level Products

Industrial Motherboards



Model	MIX-Q670A1	MIX-Q670D1
System		
Processor	12th/13th/14th Gen Intel® Core™ and Series 2 (formerly Bartlett Lake) LGA1700 Socket Processors, Max. TDP 65W	12th/13th/14th Generation Intel® Core™ (formerly Alder Lake/Raptor Lake) and Series 2 (formerly Bartlett Lake) LGA1700 Socket Processors, TDP Max 65W
Chipset	Intel® Q670E Chipset	Intel® Q670E Chipset
Memory	Dual-Channel DDR5 4800MHz SODIMM x 2, Max. 64GB	Dual-Channel DDR5 4800MHz SODIMM x 2 (Non-ECC, Max. 64GB)
I/O Chipset	Intel® UHD Graphics	NCT6126D
Ethernet	Intel® I219-LM GbE LAN x 1, Intel® I210-AT GbE LAN x 1	
Audio	Realtek® ALC897 with Amp	Realtek® ALC897 with Amp
TPM	Onboard TPM 2.0 IC	
Expansion Slots	PCIe Gen 5 [x16] x 1 A10/A13-AN: M.2 3042/3052 B-Key x 1 A11-EK: M.2 2230 E-Key x 1	M.2 3042/3052 B-Key x 1 (PCIe [x1]), USB 3.2 Gen 1/USB 2.0) M.2 2230 E-Key x 1 (PCIe [x1], Optional: dual PCIe [x1], USB 2.0)
BIOS	256Mbit Flash ROM, AMI BIOS	
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V, Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/ System 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 x 2 + DP x 2, HDMI x 2 + DP x 1 + LVDS x 1, HDMI x 2 + DP x 1 + eDP x 1, HDMI x 1 + DP x 2 + LVDS x 1, HDMI x 1 + DP x 2 + eDP x 1	HDMI x 2 + DP x 2, HDMI x 2 + DP x 1 + LVDS x 1, HDMI x 2 + DP x 1 + eDP x 1, HDMI x 1 + DP x 2 + LVDS x 1, HDMI x 1 + DP x 2 + eDP x 1
VGA	---	
DVI	---	
HDMI	Up to 3840 x 2160 @60Hz (HDMI 2.0)	HDMI 2.0, Up to 3840 x 2160 @60Hz
Display Port	Up to 3840 x 2160 @60Hz	DP 1.2, Up to 3840 x 2160 @60Hz
LVDS	Up to 1920 x 1080 @60Hz, Dual-Channel 18/24 bit	Dual-Channel 18/24 bit LVDS via CH7513, up to 1920 x 1080 @60Hz, colay eDP
eDP	Up to 1920 x 1080 @60Hz (via CH7513), co-layout LVDS	Up to 1920 x 1080 @60Hz
Backlight Control	PWM	
Environment & Power & ME		
Battery	Lithium Battery	
Power Requirement	ATX Voltage/Current(A) requirement: +3.3V/0.06A; +5V/11.65A; +12V/17.68A; +5V SB/0.14A	DC 12V Power consumption: Peak 330W; Typical 150W
Operation Temperature	32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60% @ 90% RH Non-Condensing)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Certificate	CE & FCC	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5Kg)	1.1 lb (0.5 Kg)
MTBF (Hours)	366,590	368,780
Rear Panel I/O Ports		
USB	A10: USB 3.2 Gen 2 x 8 + USB 2.0 x 4 A11-EK: USB 3.2 Gen 2 x 8 + USB 2.0 x 2 A13-AN: USB 3.2 Gen 2 x 4 (available by request)	USB 3.2 Gen 2 x 4
Display I/O	HDMI x 2, DP x 2	
Audio I/O	Line-out x 1	
LAN I/O	RJ-45 LAN ports x 2	
Serial Port	---	
PS/2 Port	---	
Others	SIM Socket x 1 (A10 only)	
Internal I/O Connectors		
Storage	SATA 6.0Gb/s x 2, M.2 2280 M-Key x 1	SATA 6.0Gb/s x 2 with SATA Power Connector x 2 (1A) M.2 2280 M-Key (PCIe [x4]/NVMe) x 1
USB	A10/A11-EK: USB 3.2 Gen 1 x 2 ports A13-AN: USB 3.2 Gen 1 x 2 ports + USB 2.0 x 8 ports (available by request)	USB 2.0 x 4 via 2x5P Header x 2
Display I/O	40-pin LVDS/eDP connector x 1 with Inverter	
Audio I/O	AAFP x 1, Speaker x 1	HD Audio x 1 (via AAFP Header), Internal Speaker x 1 (2W/40hm2)
Serial Port	COM Box Header x 1 (RS-232/422/485) COM Box Header x 1 (RS-232)	COM Box Header x 1 (RS-232/422/485) COM Box Header x 1 (RS-232)
PS/2 Port	---	
Parallel Port	---	
DIO	Digital I/O Box Header x 1	
FAN	4-pin CPU Fan Connector x 1, 4-pin Chassis Fan Connector x 1	4-pin CPU Fan connector x 1, 4-pin System Fan connector x 1
Power	---	
Others	Front Panel Connector x 1, Chassis Intrusion x 1, Onboard Buzzer x 1, CMOS 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, Windows® 11 64-bit	Windows® 10 64-bit, Windows® 11 64bit
Note		



Model	MIX-ALND1	MIX-MTLD1
System		
Processor	Intel® Processor N-series; Intel® Processor N97; Intel® Processor N50 *For additional compatible CPUs, please contact regional sales	Intel® Core™ Ultra processors (H-series & U-series support) TDP: 15W (U-series)/28W (H-series)
Chipset	SoC	—
Memory	Single-Channel DDR5 4800MHz SODIMM x 1 (Non-ECC, Max. 16GB)	Dual Channel DDR5 5600MHz SODIMM x 2, Max 96GB
I/O Chipset	Nuvoton NCT6126D	
Ethernet	Realtek® 8111H x 2	Intel® Ethernet Controller I210-AT x 1; Intel® Ethernet Controller I226-V x 1
Audio	Realtek® ALC897 with Amp	Realtek® ALC897
TPM	fTPM (TPM chip by BOM optional)	Onboard TPM 2.0
Expansion Slots	M.2 3042/3052 B-Key x 1 (PCIe [x1], SATA, USB 3.2 Gen 1/USB 2.0) with SIM socket M.2 2230 E-Key x 1 (PCIe [x1], USB 2.0)	M.2 2230 E-Key x 1 (one pair PCIe [x1], USB 2.0, CNVi) M.2 3042/52 B-Key x 1 (PCIe [x1], USB 3.2 Gen 1) with Nano SIM socket (Default 3052 by BOM) PCIe Gen 5 [x8], H-series only; Open edge
BIOS	256Mbit 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, Voltage Monitor on Vcore/5V/3.3V/12V
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® Arc™ Graphics
Graphics Multi Display	HDMI x 2 + DP x 1, HDMI x 2 + LVDS x 1, HDMI x 2 + eDP x 1, HDMI x 1 + DP x 1 + LVDS x 1, HDMI x 1 + DP x 1 + eDP x 1	Quad Display
VGA	—	
DVI	—	
HDMI	HDMI 2.0, Up to 4096 x 2160 @60Hz	HDMI 2.0, up to 4096 x 2160 @60Hz, with Digital Audio
Display Port	DP 1.4, Up to 4096 x 2160 @60Hz	—
LVDS	18/24-bit Dual-Channel LVDS via CH7513, up to 1920 x 1080 @60Hz, colay eDP	Dual-Channel 18/24 bit, up to 1920 x 1080 @60Hz (Co-layout eDP header; default: LVDS)
eDP	Up to 1920 x 1080 @60Hz	Up to 4096 x 2160 @60Hz (4ch; Co-layout LVDS by BOM optional)
Backlight Control	PWM	—
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	DC 12V; Power consumption: [Peak: 100W; Typical: 60W]	DC 12V±5%; Power consumption: Peak 150W
Operation Temperature	32°F ~ 140°F (0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Certificate	CE & FCC class A	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5kg)	
MTBF (Hours)	998,294	
Rear Panel I/O Ports		
USB	USB 3.2 Gen 2 x 2; USB 2.0 x 2	USB 3.2 Gen 2 (Type-A) x 1; USB 2.0 x 3; USB 3.2 Gen 1 (Type-C) x 1 (5Gbps)
Display I/O	HDMI x 2, DP x 1	HDMI 2.0 x 4
Audio I/O	Line-out x 1	Line-out x 1, MIC-in x 1
LAN I/O	RJ-45 LAN Port x 2	
Serial Port	—	
PS/2 Port	—	
Others	Power DIN x 1	
Internal I/O Connectors		
Storage	SATA 6.0Gb/s x 1 with SATA Power Connector (1A) M.2 2280 M-Key x 1 (PCIe [x1]/NVMe/SATA)	SATA 6Gb/s x 2 with SATA power Connector x 1 (2A), RAID 0,1 support M.2 2280 M-Key x 1 (PCIe Gen 4 [x4], NVMe)
USB	USB 2.0 x 4 via 2x5P Headers x 2	USB 3.2 Gen 1 x 1 (2x10-pin, 2.0mm Header) additional 2 USB port interface USB 2.0 x 1 (2x5-pin, 2.00mm Header) additional 2 USB port interface
Display I/O	40-pin LVDS/eDP Connector x 1 with Inverter	LVDS/eDP Header x 1
Audio I/O	HD Audio x 1 (via AAFP Header), Internal Speaker x 1 (2W/4Ω)	Pin header (1x4-pin) Support 2W/4ohm x 1
Serial Port	COM Box Header x 2 (RS-232/422/485) COM Box Header x 4 (RS-232)	Box Header x 1 for RS-232/422/485 Box Header x 3 for RS-232
PS/2 Port	—	
Parallel Port	—	
DIO	Digital I/O Box Header x 1	8-bit programmable (4-in/4-out) x 1
FAN	4-pin CPU Fan connector x 1, 4-pin Chassis Fan connector x 1	4-pin CPU Fan connector x 1
Power		
Others	Front Panel Connector x 1, Chassis Intrusion x 1, Onboard Buzzer x 1, CMOS Jumper x 1	Clear CMOS Jumper x 1; Front Panel Connector x 1; Buzzer Header x 1; ATX/AT Mode Select x 1; ME Disable x 1; eDP/LVDS Tcon IC Voltage Select x 1; 1x3-pin ME Lock Header; eDP/LVDS Panel Backlight Voltage Select x 1; SATA PWR Connector x 1; LVDS Inverter Connector x 1; NCSI Header x 1 for OOB Module: MOD-RMB (via Intel® Ethernet Controller I210-AT)
OS		
OS Support	Windows® 10 64-bit, Windows® 11 64-bit	Windows® 10 64-bit, Windows® 11 64-bit, Ubuntu 24.04, Kernel 6.8
Note		

Board Level Products

Industrial Motherboards



Model	MIX-H810WV1	MIX-Q870A1
System		
Processor	Intel® Core™ Ultra 200S Series Processors, 65W, LGA1851 socket; up to 24C (8+16) 24T	Intel® Core™ Ultra 200S Series Processors, 65W, LGA1851 Socket
Chipset	Intel® H810 Chipset	Intel® Q870 Chipset
Memory	SODIMM/CSODIMM x 2, Dual Channel DDR5 up to 6400 MHz, Max 96GB	CSODIMM/SODIMM x 2, Max 96GB, Dual-Channel DDR5, up to 6400MHz
I/O Chipset	Nuvoton NCT6126D	Nuvoton NCT5525D
Ethernet	Intel® Ethernet Controller I226-V, 2.5GbE x 2 Intel® Ethernet Controller I210-AT, 1GbE x 1 by BOM Optional	Intel® Ethernet Connection I219-LM, 1GbE LAN x 1 Intel® Ethernet Controller I226-V, 2.5GbE LAN x 1
Audio	Realtek® ALC897	Realtek® ALC897 (with audio AMP)
TPM	fTPM; dTPM by BOM optional	TPM 2.0
Expansion Slots	PCIe Gen 5 [x4] x 1 (close edge) M.2 3042/52 B-Key x 1 (PCIe [x1] with SIM socket; or SATA support by BOM optional)	PCIe Gen 5 [x16] x 1 (Jumper for Bifurcation selection ([x16] x 1 or [x8] + [x8] or [x8] + [x4] + [x4])) M.2 2230 E-Key x 1 (PCIe [x1]/NVMe)
BIOS	256Mbit Flash ROM	256Mbit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V, Fan Monitor on Chassis	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on Chassis
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/Chassis Fan	
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® Graphics	Intel® UHD Graphics
Graphics Multi Display	Triple Independent Display	Quad Independent Display
VGA		—
DVI		—
HDMI	Up to 4096 x 2160 @60Hz with Digital Audio	HDMI 2.0: Up to 4096 x 2160 @60Hz/2560 x 1600 @60Hz, with Digital Audio
Display Port	Up to 4096 x 2160 @60Hz	DP 1.4: Up to 4096 x 2160 @120 Hz (HBR2)
LVDS	Up to 1920 x 1080 @60Hz, Dual Channel 18/24 bit co-layout eDP (default LVDS)	Up to 1920 x 1080 @60Hz, Dual-Channel 18/24 bit, co-layout eDP (default LVDS)
eDP	Up to 1920 x 1080 @60Hz (co-layout LVDS)	Up to 1920 x 1080 @60Hz
Backlight Control	Voltage/PWM	PWM
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	19V ~ 24V	ATX
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C) (Operational humidity: 60°C @90% RH Non-Condensing)	32°F ~ 140°F (0 ~ 60°C) (Operational humidity: 60°C @90% RH Non-Condensing)
Storage Temperature Certificate	-40°F ~ 185°F (-40°C ~ 85°C)	
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)	
Weight	1.1 lb (0.5 Kg)	
MTBF (Hours)	—	
Rear Panel I/O Ports		
USB	USB 3.2 Gen 2 x 2, USB 2.0 x 4	USB 3.2 Gen 2 x 8
Display I/O	HDMI 2.0 x 2, DP1.2x 1	HDMI 2.0 x 2, DP 1.4 x 2
Audio I/O	Line-out x 1 + Mic-in x 1	Line Out x 1, Mic x 1
LAN I/O	3L:RJ-45 LAN x 3, 2L:RJ-45 LAN x 2	RJ-45 x 2
Serial Port	—	—
PS/2 Port	—	—
Others	19V ~ 24V Phoenix Connector	—
Internal I/O Connectors		
Storage	SATA 6Gb/s x 2 with SATA Power Connector x 2 (1A) M.2-1A 2280 M-Key x 1 (PCIe [x4]/NVMe Gen4)	SATA 6Gb/s x 2, RAID 0,1 supported M.2-1A 2280 M-key x 1 (PCIe [x4]/NVMe) M.2 2242 M-Key x 1 (SATA)
USB	USB 3.2 Gen 1 x 1 (via 2 x 10-pin header) additional 2 USB port interface USB 2.0 x 1 (via 2 x 5-pin header) additional 2 USB port interface	USB 3.0 pin header x 1 (supports additional USB 3.2 Gen 1 x 2)
Display I/O	40-pin LVDS/eDP Connector x 1 with Inverter (Default LVDS)	40-pin LVDS/eDP connector x 1 with Inverter (Default LVDS)
Audio I/O	HD Audio using AAFP x 1, Speaker header x 1	AAFP follows ASUS pin out x 1
Serial Port	RS-232/422/485 x 1 (supports 5V/12V/RI option) + RS-232 x 1	—
PS/2 Port	—	—
Parallel Port	—	—
DIO	8-bit programmable (4-in/4-out) x 1	
FAN	4-pin Chassis Fan connector x 1, 4-pin CPU Fan connector x 1	4-pin Chassis Fan Connector x 1, 4-pin CPU Fan Connector x 1
Power	Phoenix Connector x 1	ATX
Others	Clear CMOS Jumper x 1; Front Panel Connector x 1; Chassis Intrusion x 1; ATX/AT Mode Select x 1; ME Disable x 1; eDP/LVDS Tcon IC Voltage Select x 1; eDP/LVDS Panel Backlight Voltage Select x 1; SATA Power x 2; LVDS Inverter x 1 (5V/3.3V); SIM Socket x 1	Clear CMOS Jumper x 1; Front Panel Connector x 1; Chassis Intrusion x 1; Buzzer Onboard x 1; ATX/AT Mode Select x 1; ME Disable x 1; eDP/LVDS Tcon IC Voltage Select x 1; Backlight Voltage Select x 1
OS		
OS Support	Windows 10/11 64 bit; Ubuntu 26.04 LTS	Windows 11 64-bit; Linux Ubuntu 24.04 (TBD)
Note		



Model	MAX-H810A	MAX-Q870A
System		
Processor	Intel® Core™ Ultra (Series 2) LGA 1851 Socket Processors	Intel® Core™ Ultra 200S Series LGA 1851 Socket Processors, up to 125W
Chipset	Intel® H810 Chipset	Intel® Q870 Chipset
Memory	DDR5 6400MT/s x 2, Dual-Channel CU/U-DIMM , up to 128GB	DDR5 6400MT/s x 4, Dual Channel CU/U-DIMM , up to 256GB
I/O Chipset	SIO: Fintek F81966	
Ethernet	Intel® Ethernet Controller I226-V, 2.5GbE x 2	Intel® Ethernet Controller I226-LM, 2.5GbE x 1 Intel® Ethernet Controller I226-V, 2.5GbE x 1 Realtek® RTL8156, 2.5GbE x 1
Audio	Realtek® ALC897 with AMP (3W)	
TPM	Intel® PTT (fTPM)	
Expansion Slots	PCIe Gen 5 [x16] x 1 PCIe Gen 4 [x4] x 1 PCIe Gen 4 [x1] x 1 M.2 2230 E-Key (PCIe Gen 4 [x1]/USB 2.0) x 1, CNVi supported	PCIe Gen 5 [x16] x 1 PCIe Gen 4 [x4] x 2 PCIe Gen 4 [x1] x 1 M.2 E-Key 2230 x 1 (PCIe Gen 4 [x1]/USB 2.0), CNVi supported M.2 3042/3052 B-Key x 1 (USB 3.2/USB 2.0), 4G/5G supported
BIOS	UEFI	
H/W Monitor	Temperature Monitor on CPU/System, CPU/SYS Fan Speed, Voltage on Vcore/VCC5V/VCC3V/+12V	
WatchDog Timer	255 Levels	
Smart Fan Control	CPU Fan/System Fan	
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3, S5	
Graphics		
Graphics Chipset	Intel® Graphics	
Graphics Multi Display	Supports 3 Displays	Supports 4 Displays
VGA	—	
DVI	—	
HDMI	HDMI 2.1 TMDS x 2 (Max Resolution: 4096 x 2160@60Hz)	
Display Port	DP 1.4a x 1 (Max Resolution: 4096 x 2160@60Hz)	
LVDS	24-bit Dual-Channel LVDS x 1 (Max. Resolution: 1920 x 1200 @60Hz, co-layout eDP)	
eDP	Co-lay LVDS	
Backlight Control	Yes	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	ATX Power Supply, Internal 24+8-pin ATX Header	
Operation Temperature	-4°F ~ 140°F (-20°C ~ 60°C) (Operational humidity: 10~90% Relative Humidity, Non-condensing)	
Storage Temperature	-4°F ~ 185°F (-20°C ~ 85°C)	
Certificate	CE & FCC Class A, LVD	
Form Factor	Micro-ATX: 9.6" x 9.6" (244 mm x 244 mm)	
Weight	1.32 lb (0.6 Kg)	
MTBF (Hours)	482,605	
Rear Panel I/O Ports		
USB	USB 3.2 Gen 2x1 (10Gbps) x 2 USB 3.2 Gen 1x1 (5Gbps) x 2 USB 2.0 x 2	USB 3.2 (Gen 2) x 6
Display I/O	HDMI 2.1 TMDS x 2, DP 1.4a x 1	
Audio I/O	Mic-in x 1, Line-out x 1, Line-in x 1	
LAN I/O	RJ-45 LAN x 2	RJ-45 LAN Port x 3
Serial Port	DB-9 for RS-232/422/485 x 1	
PS/2 Port	—	
Others	—	
Internal I/O Connectors		
Storage	SATA 6Gb/s x 2, RAID 0/1 supported M.2 2242/80 M-Key x 1 (SATA)	SATA 6Gb/s x 2, RAID 0, 1, 5 supported M.2 2242/2280 M-Key x 1 (SATA/PCIe Gen 4 [x4]), NVMe supported M.2 2242/2260/2280/22110 M-Key x 1 (PCIe Gen 4 [x4]), NVMe supported
USB	USB 2.0 x 6 via pin-header x 3	USB 2.0 x 6 via Pin Header x 3, USB 3.2 (Gen 1x1) x 2 via Box Header x 1
Display I/O	LVDS/eDP Connector x 1	LVDS/eDP connector x 1
Audio I/O	Speaker header x 1, Front Panel x 1	
Serial Port	Internal Header for DB-9 x 5 for RS-232	Internal Header for DB-9 x 5 for RS-232 Internal Header for 4 x RS-232 (Optional)
PS/2 Port	PS/2 x 1	—
Parallel Port	—	
DIO	8-bit Header x 1	
FAN	CPU Fan Header x 1 System Fan Header x 2	
Power	24+8-pin ATX Header	
Others	Chassis Intrusion x 1, AT/ATX Mode Selection x 1	Nano SIM Card Slot x 1, Chassis Intrusion x 1, AT/ATX Mode Selection x 1
OS		
OS Support	Windows® 11 (64bit), Linux Ubuntu 24.04.2/kernel 6.11.0-26	
Note		

Board Level Products

Industrial Motherboards



Model	MAX-Q670A	MAX-Q470A
System		
Processor	12th/13th/14th Generation Intel® Core™ (formerly Alder Lake/Raptor Lake) and Series 2 (formerly Bartlett Lake) LGA1700 Socket Processors, TDP Max 125W	Intel® 10th Generation (Comet Lake-S) Core™ i9 /i7 /i5 /i3, Pentium 14nm LGA 1200 socket Processor, Max. 10 Core 80W
Chipset	Intel® Q670 Express Chipset	Intel® Q470E Express Chipset
Memory	DDR5 4000MHz DIMM x 4, Up to 192GB Non-ECC, Un-buffered Memory, Dual-Channel Memory Architecture	DIMM x 4, DDR4 (2933/2666/2400 MHz, max. 128GB) non-ECC, un-buffered memory, Dual channel memory architecture
I/O Chipset	NCT6126D	IT5121E + F81216HD
Ethernet	RJ-45 GbE LAN x 1 (Intel® PHY i219-LM, supports Intel® AMT 12.0) RJ-45 GbE LAN x 1 (Intel® i210-AT) RJ-45 2.5GbE LAN x 2 (Intel® i226-LM, Optional)	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	Realtek® ALC897 6-Channel High Definition Audio CODEC
TPM	TPM 2.0 onboard	Nuvoton NPC1750AADYX TPM 2.0 onboard (optional; default: onboard)
Expansion Slots	PCIe Gen 5 [x16] x 1 (8 Lanes/8 Lanes when dual-use PCIe [x16] slot), PCIe Gen 3 [x4] x 1 (2 Lanes, Open Slot), PCIe Gen 5 [x16] x 1 (8 Lanes), PCIe Gen 4 [x4] x 1 (4 Lanes), M.2 3042/3052/2242 B-Key x 1 (PCIe 3.0 [x1]/USB 3.2 Gen 1) + Micro SIM Slot x 1 M.2 2230 E-Key x 1 (PCIe 3.0 [x1]/USB 2.0)	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, M.2 3042/3052/2242 B-key (PCIe/USB/SATA) x 1, Micro SIM card Slot x 1
BIOS	256 Mbit 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 x 1/Chassis Fan x 2 (3rd Chassis Fan is DC Fan)	
Wake On LAN/ PXE	Yes (WOL/PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® Graphics Media Accelerator	
Graphics Multi Display	HDMI+VGA+DP+LVDS/eDP	
VGA	Up to 1920 x 1200 @60Hz (via IT6516B)	
DVI		
HDMI	HDMI 2.0 x 1, up to 4096 x 2160 @60/30 Hz, with Digital Audio	
Display Port	DP 1.4 x 1, up to 4096 x 2160 @24 Hz or 3840 x 2160 @60 Hz, with Digital Audio	
LVDS	18/24-bit Dual-Channel LVDS x 1, up to 1920 x 1080 @60 Hz	
eDP	eDP x 1, up to 3840 x 2160 @30 Hz	
Backlight Control	Yes	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	24-pin ATX connector x 1, 8-pin 12V ATX Power Connector x 1 (Voltage/Current(A) requirement+3.3V/1.4A;+5V/10.55A;+12V/13.89A;+5VSB/0.2 4A)	
Operation Temperature	32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Certificate	CE & FCC Class A	
Form Factor	Micro-ATX Form Factor, 9.6" x 9.6" (244mm x 244mm)	
Weight	1.76 lb (0.8kg)	
MTBF (Hours)	267,950	
Rear Panel I/O Ports		
USB	USB 3.2 Gen 2 x 4 (10Gbps) USB Type-C x 1 (Optional, 20Gbps, 5V, 3A) (All ports are bootable, can be deactivated per BIOS function; USB Power switchable feature)	USB 3.2 Gen2 ports (10 Gbps) x 2, USB 3.2 Gen1 ports (5 Gbps) x 4
Display I/O	HDMI 2.0 x 1, VGA x 1, DP 1.4 x 1	VGA x 1, HDMI x 3 (2.0 x 1, 1.4 x 2)
Audio I/O	Audio Jack x 3: Line-in, Mic-in, Line-out	
LAN I/O	RJ-45 LAN x 2 (Optional: RJ-45 x 4)	LAN (RJ45) ports x 2
Serial Port	DB-9 x 1 (Supports RS-232/422/485, 5V/12V/RI)	DB-9 COM (supports RS-232/422/485, 5V/12V/RI) x 1
PS/2 Port		
Others	BIOS recovery button	
Internal I/O Connectors		
Storage	SATA 6.0Gb/s x 8, supports RAID 0, 1, 5, 10 M.2 2242/2280 M-Key x 2 (PCIe Gen 4.0, 4 Lanes, supports RAID 0, 1, 5)	SATA 6.0Gb/sports x 4, support RAID 0/1/5/10 M.2 2280/2242 M-key (PCIex4) x 1
USB	USB 3.2 x 1 (2x5P 2.54mm Pitch Box Header, supports USB 3.2 Gen 1 x 2) USB 2.0 Header x 1 (2x5P 2.54mm Pitch Box Header, supports USB 2.0 x 2) USB 3.2 Gen 1 x 1 (Type-A, vertical) (All Headers support USB Power switchable feature)	USB3.2 Gen1 box header support additional 2 USB ports (2x5Pin, p=2.54mm) x 1, USB3.2 Gen1 Type A (vertical) connector x 1, USB 2.0 header support additional 2 USB ports (2x5Pin, p=2.54mm) x 1
Display I/O		
Audio I/O	Speaker header x 1 (Line-out), AAFP x 1	40-pin LVDS connector x 1 speaker header (Line-out) x 1, AAFP x 1
Serial Port	RS-232 x 5 (via 1x9P Header)	RS-232 headers x 3
PS/2 Port		
Parallel Port		
DIO	8-bit Digital I/O Interface x 1	
FAN	4-pin CPU Fan Connector x 1 (PWM Mode), 4-pin Chassis Fan connector x 2 (PWM Mode), 3-pin Chassis Fan connector x 1 (DC Mode)	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, Onboard Buzzer x 1, 3-pin ME Lock Header x 1, LED Header for Ethernet x 2 (Optional: LED Header x 4 when RJ-45 x 4)	24-pin EATX Power header x 1, 8-pin EATX 12V Power connector x 1 Chassis Intrusion x 1, AT/ATX mode select jumper x 1, Front panel header x 1, Clear CMOS jumper x 1, 3-pin ME lock header x 1, Buzzer on board x 1
OS		
OS Support	Windows® 10 64-bit, Windows® 11 64-bit	Windows® 10 64bit, Windows® 11 64bit, Linux Ubuntu 64bit (20.04.0/Kernel 5.4)



Model	MAX-Q370A	MAX-C246A
System		
Processor	8th/9th Generation Intel® (Coffee Lake-S/Coffee Lake-S Refresh) Core™ i9/ i7/ i5 / i3, Pentium™ 14nm LGA 1151 socket processor, max. TDP 8 Core 95W	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 GbE LAN (supports Intel® AMT 12.0) x 1 Intel® i210AT GbE LAN x 1 RJ45 x 2	Intel® PHY i219LM GbE LAN (supports Intel® AMT 12.0) x 1 Intel® i210AT GbE LAN x 1
Audio	Realtek® ALC897 6-Channel High Definition Audio CODEC	
TPM	Nuvoton NPCT750 TPM 2.0 onboard	
Expansion Slots	PCIe 3.0(x16) Slot x 1, PCIe 3.0(x4) Slot (open edge) x 2, PCIe 3.0(x1) Slot (open edge) x 1, M.2 2230 E-key (PCIe/USB) x 1 M.2 2280 M-key (PCIe/x4/SATA 6.0Gb/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),
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	
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	Intel® UHD Graphics	
Graphics Chipset	Intel® UHD Graphics	
Graphics Multi Display	HDMI+VGA+DP, HDMI+HDMI+VGA, HDMI+HDMI+DP	
VGA	Up to 1920 x 1200 @60Hz (via i76516B)	
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 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	
Storage Temperature	— -40°F ~ 185°F (-40°C ~ 85°C)	
Certificate	CE & FCC Class A	
Form Factor	Micro-ATX Form Factor, 9.6"x9.6" (244 mm x 244 mm)	Micro-ATX Form Factor, 9.6"x9.6" (244mmx244mm)
Weight	1.76 lb (0.8 Kg)	
MTBF (Hours)	264,820	
Rear Panel I/O Ports		
USB	USB 3.2 Gen 2 ports (10 Gbps) x 6, USB 3.2 Gen 1 ports (5 Gbps) x 4	
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	PS/2 combo port (Keyboard & Mouse) x 1
Others		
Internal I/O Connectors		
Storage	SATA 6.0Gb/sports x 4, support RAID 0/1/5/10 M.2 2280 M-key (PCIe/x4/SATA 6.0Gb/s) x 1	
USB	USB 2.0 headers support additional 3 USB ports (2x5Pin, p=2.54mm)	USB 2.0 headers support additional 3 USB ports (2x5Pin, p=2.54mm) (USB_13 supports 1 port, USB_1112 supports 2 ports)
Display I/O		
Audio I/O	—	
Serial Port	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 (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 x1, Buzzer on-board x1	Chassis Intrusion x 1, AT/ATX mode select jumper x 1, Front panel header x 1, Clear CMOS jumper x 1, 3-pin ME lock header x 1, Buzzer on-board x 1
OS		
OS Support	Windows® 10 64bit, Windows® 11 64bit, Linux Ubuntu 64bit (18.04.1/Kernel4.8.0)	Windows® 10 64bit, Windows® 11 64bit, Linux Ubuntu 64-bit (18.04.1/Kernel4.8.0)
Note		

Board Level Products

Industrial Motherboards



Model	MAX-H310A	ATX-Q870A
System		
Processor	8th/9th Generation Intel® (Coffee Lake-S/Coffee Lake-S Refresh) Core™ i9/ i7/ i5 / i3, Pentium 14nm LGA 1151 socket Processor	Intel® Core™ Ultra Processors (Series 2), LGA1851 Socket, up to 125W
Chipset	Intel® H310 Express Chipset	Intel® Q870 Chipset
Memory	DIMM x 2, DDR4 (2666/2400/2133 MHz, max. 64GB) non-ECC, un-buffered memory Dual-channel memory architecture	DDR5 6400MT/s x 4, Dual Channel CU/U-DIMM, up to 256GB
I/O Chipset	NCT6793D+ F81216HD	Fintek F81966D-I
Ethernet	Intel® PHY i219V GbE LAN x 1 Intel® i210AT GbE LAN x 1 RJ45 x 2	Intel® Ethernet Controller I226-LM, 2.5GbE x 1 Intel® Ethernet Controller I226-V, 2.5GbE x 2
Audio	Realtek® ALC897 6-Channel High Definition Audio CODEC	Realtek® ALC897 Audio Codec
TPM	Nuvoton NPC1750 TPM 2.0 onboard	Intel® PTT (TPM)
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 Gen 5 [x16] x 2 (1 x PCIe Gen 5 [x16] or 2 x PCIe Gen 5 [x8]); PCIe Gen 4 [x4] x 2; PCIe Gen 4 [x1] x 3; M.2 2230 E-Key x 1 (PCIe Gen 3 [x1], USB 2.0), supports CNVio; M.2 3042/3052 B-Key x 1 (PCIe Gen 3 [x1], USB 3.1, USB 2.0), supports 4G/5G
BIOS	128Mbit Flash ROM, AMI BIOS	UEFI
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	Temperature Monitor on CPU/System, CPU/SYS Fan Speed, Voltage on Vcore/VCC5V/VCC3V+12V
WatchDog Timer		1~255 steps by software program
Smart Fan Control	CPU Fan x 1, Chassis Fan x 2	CPU Fan/System Fan
Wake On LAN/ PXE		Yes (WOL/PXE)
Power State	S3, S4, S5	S3, S5
Graphics		
Graphics Chipset	Intel® UHD Graphics	Intel® Graphics
Graphics Multi Display	VGA+DP; VGA+HDMI; DP+HDMI	Supports 4 Displays
VGA	Up to 1920 x 1200 @60Hz (via IT6516B)	VGA x1 (Max Resolution: 1920 x 1080 @60Hz)
DVI		—
HDMI	Up to 4096 x 2160 @ 24 Hz / 2560 x 1600 @ 60 Hz, with Digital Audio	HDMI 2.1 TMDS x 2 (Max Resolution: 3840 x 2160@60Hz)
Display Port	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz, with Digital Audio	DP 1.4a x 1 (Max Resolution: 4096 x 2160@60Hz)
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	ATX Power Supply, Internal 24+8-pin ATX Header
Operation Temperature	32°F ~ 140°F (0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	-4°F ~ 140°F (-20°C ~ 60°C) (Operational humidity: 10~90% Relative Humidity, Non-condensing)
Storage Temperature	—	-4°F ~ 185°F (-20°C ~ 85°C)
Certificate	CE & FCC Class A	CE & FCC Class A, LVD
Form Factor	Micro-ATX Form Factor, 9.6"x9.6" (244 mm x 244 mm)	12" x 9.6" (305mm x 244mm)
Weight	1.76 lb (0.8 Kg)	1.54 lb (0.7 Kg)
MTBF (Hours)	261,090	458,204
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 2 x 6
Display I/O	DP x 1, VGA x 1, HDMI x 1	DP1.4a x 1, HDMI 2.1 TMDS x 2, VGA x 1
Audio I/O	Audio Jack x 3: Line-in, Mic-in, Line-out	Mic-in x 1, Line-out x 1, Line-in x 1
LAN I/O	LAN (RJ45) ports x 2	RJ-45 LAN x 3
Serial Port	—	DB-9 for RS-232/422/485 x 1
PS/2 Port	PS/2 stack Port (Keyboard & Mouse) x 1	—
Others	—	—
Internal I/O Connectors		
Storage	SATA 6.0Gb/sports x 3; BOM option: can support additional 2 SATA M.2 2280 M-key (BOM option: PCIe1 or SATA; default: SATA) x 1	M.2 2242/2260/2280/22110 M-Key x 1 (PCIe Gen 5 [x4]), NVMe supported M.2 2280 M-Key x 1 (PCIe Gen 4 [x4]), NVMe supported SATA 6Gb/s x 4, RAID 0, 1, 5, 10 support
USB	USB 2.0 header support additional 2 USB ports (2xSPIN, p=2.54mm) x 1	USB 3.2 (Gen 1x1) x 2 via Box Header x 1 USB 2.0 x 6 via Pin Header x 3 USB 3.2 (Gen 1x1) x 1 (Type-A, Vertical) USB 2.0 x 1 (Type-A, Vertical)
Display I/O		—
Audio I/O	AAFP x 1	Speaker header x 1, Front panel x 1
Serial Port	RS-232Box headers x 5 RS-232/422/485Box header (COM1, Pin9 supports 5V/12V/R! optional) x 1	RS-232 x 5
PS/2 Port	—	PS/2 x 1
Parallel Port	—	—
DIO	8-bit Digital I/O interface (In/Out programmable) x 1	8-bit Header x 1
FAN	CPU Fan connector (4-pin) x 1; Chassis Fan connector(s) (4-pin) x 2	CPU Fan Header (Smart Fan) x 1, 3-pin Connector for System Fan x 2 (PWM Mode)
Power	—	24+8-pin ATX Header
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	Chassis Intrusion x 1, AT/ATX Mode Select Jumper x 1, Clear CMOS Jumper x 1, Buzzer Onboard x 1, Nano SIM Card Slot x 1
OS		
OS Support	Windows® 10 64bit, Windows® 11 64bit, Linux Ubuntu 64bit (18.04.1/Kernel4.8.0)	Windows® 11 (64-bit), Linux Ubuntu 24.04.1/kernel 6.11.0-29



Model	ATX-Q670A	ATX-Q370A
System		
Processor	12th/13th/14th Generation Intel® Core™ (formerly Alder Lake/Raptor Lake) and Series 2 (formerly Bartlett Lake) LGA1700 Socket Processors, TDP Max 125W	Intel® 8th/9th Generation (Coffee Lake-S/Coffee Lake-S Refresh) Core™ i9/ i7/ i5/ i3, Pentium 14nm LGA 1151 socket Processor, max. TDP 6 Core 95W
Chipset	Intel® Q670E Chipset	Intel® Q370 Express Chipset
Memory	DDR5 4000MHz DIMM x 4, up to 192GB Non-ECC, Unbuffered 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	NCT6126D	NCT6793D + F81216HD
Ethernet	Intel® PHY i219-LM Giga LAN x 1 (supports Intel® AMT 12.0) Intel® i210-AT Giga LAN x 1 Intel® i226-LM Giga LAN x 1 (Optional) RJ-45 x 2 (Optional: RJ-45 x 3, LAN 3 with USB 3.2 Gen 2 x 1)	Intel® PHY i219LM Giga LAN x 1 (supports Intel® AMT 12.0) Intel® i210AT Giga LAN x 1 (BOM option: i210AT x 2) RJ45 x 2 (BOM option: RJ45 x 3)
Audio	Realtek ALC897 6-Channel High Definition Audio CODEC	Realtek® ALC897 6-Channel High Definition Audio CODEC
TPM	TPM 2.0 onboard	Nuvoton NPCT750 TPM 2.0 onboard
Expansion Slots	PCIe Gen 5 [x16] x 1 (16 Lanes); PCIe Gen 3 [x1] x 1 (1 Lane, Open Slot); PCIe Gen 4 [x4] x 1 (4 Lanes, Open Slot); PCIe Gen 4 [x16] x 1 (4 lanes); PCI Slot x 3; M.2 3042/3052 B-Key x 1 (PCIe 3.0 [x1]/USB 3.2 Gen 1); Mini PCIe Slot x 1 (PCIe 3.0/USB 2.0); Micro SIM Card Slot x 1 (M.2 B-Key or Mini PCIe Slot);	PCIe 3.0[x16] Slot x 1, PCIe 3.0[x4] Slot (open edge) x 2, PCIe 3.0[x1] Slot (open edge) x 2, PCI x 2, M.2 2230 E-key (PCIe1/USB2.0/CNV) x 1, M.2 2280 M-key (PCIex4/SATA 6.0Gb/s) x 1
BIOS	256Mbit Flash ROM, AMI 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	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 3	CPU Fan/ Chassis Fan x 2
Wake On LAN/ PXE	Yes (WOL/PXE)	Yes (WOL / PXE)
Power State	S3, S4, S5	
Graphics	Intel® Graphics Media Accelerator	
Graphics Chipset	Intel® Graphics Media Accelerator	
Graphics Multi Display	HDMI+HDMI+DP+DP, HDMI+HDMI+DP+VGA, HDMI+VGA+DP+DP	HDMI+VGA+DP (BOM option: USB 3.2 Gen 2-10Gbps Type-C connector (Alternate Mode: USB+DP) x 1)
VGA	Up to 1920 x 1200 @60Hz (via IT6516B)	
DVI	---	
HDMI	HDMI 2.0, up to 4096 x 2160 @60/30Hz, with Digital Audio	Up to 4096 x 2160 @ 24 Hz / 2560 x 1600 @ 60 Hz, with Digital Audio
Display Port	DP 1.4, up to 4096 x 2160 @24Hz or 3840 x 2160 @60 Hz, with Digital Audio	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz, with Digital Audio
LVDS	---	
eDP	---	
Backlight Control	---	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	24-pin ATX Connector x 1, 8-pin ATX 12V Power Connector x 1	24-pin ATX connector x 1, 8-pin (2x4) ATX 12V Power connector x 1
Operation Temperature	32°F ~ 140°F (0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	
Certificate	CE & FCC Class A	
Form Factor	ATX Form Factor, 12" x 9.6" (305mm x 244mm)	ATX Form Factor, 12"x9.6" (305mm x 244mm)
Weight	1.76 lb (0.8 Kg)	
MTBF (Hours)	281,760	281,410
Rear Panel I/O Ports		
USB	USB 3.2 Gen 2 x 2 (10Gbps, Optional: x 3 units if with LAN 3 i226-LM); USB 3.2 Gen 1 x 2 (5Gbps); USB Type C x 1 (5Gbps, 5V, 1.5A, Optional); (All ports are bootable, can be deactivated per BIOS function; USB Power switchable feature)	USB 3.2 Gen 2 (10Gbps) x 4, USB 3.2 Gen 1 (5Gbps) x 2, USB 2.0 x 4
Display I/O	HDMI 2.0 x 2, DP 1.4 x 2	HDMI x 1, VGA x 1, DP x 1, USB Type-C x 1 (optional)
Audio I/O	Audio Jack x 3, Line-in, Mic-in, Line-out	Audio Jack x 3: Line-in, Mic-in, Line-out
LAN I/O	RJ-45 LAN x 2 (Optional: RJ-45 x 3)	LAN (RJ45) ports x 2 (BOM option: RJ45 x 3)
Serial Port	DB-9 COM x 1 (supports RS-232/422/485, 5V/12V/RI)	---
PS/2 Port	---	---
Others	---	---
Internal I/O Connectors		
Storage	SATA 6.0Gb/s x 8, supports RAID 0/1/5/10; M.2 2280 M-Key x 1 (PCIe Gen 4.0 [x4]); M.2 2242/2280 M-Key x 1 (PCIe Gen 3.0 [x1])	SATA 6.0Gb/s ports x 4, supports RAID 0/1/5/10; M.2 2280 M-Key (PCIe [x4]/SATA 6.0Gb/s) x 1
USB	USB 3.0 Box Header x 1 (2 x 5-pin, 2.54mm), supports USB 3.2 Gen 1 x 2 (USB Power Switchable); USB 2.0 Header x 1 (2 x 5-pin, 2.54mm), supports USB 2.0 x 2 (USB Power Switchable); USB 2.0 x 1 (Vertical Type-A)	USB 2.0 headers x 1 support additional 2 USB ports (2x5PIN, p=2.54mm)
Display I/O	VGA Header x 1	---
Audio I/O	Speaker Header (Line-out), AAFP x 1	---
Serial Port	RS-232 Header x 5	RS-232 headers x 5 RS-232/422/485 (COM1, supports 5V/12V/RI, optional) x 1
PS/2 Port	---	---
Parallel Port	---	---
DIO	8-bit Digital I/O Interface x 1 (In/Out Programmable)	8-bit Digital I/O interface (In/Out programmable) x 1
FAN	4-pin CPU Fan Connector x 1 (PWM Mode) 4-pin Chassis Fan Connector x 3 (PWM Mode)	CPU Fan connector(s) (4-pin) x 1 Chassis Fan connector(s) (4-pin) x 2
Power	---	---
Others	Chassis Intrusion x 1, AT/ATX Mode Select Jumper x 1, Front Panel Header x 1 Clear CMOS Jumper x 1, Buzzer Onboard x 1, 3-pin ME Lock Header x 1	Chassis Intrusion x 1; AT/ATX mode select jumper x 1; Front panel header x 1; Clear CMOS jumper x 1; 3-pin ME lock header x 1; Buzzer on-board x 1
OS	---	---
OS Support	Windows® 10 64-bit, Windows® 11 64-bit	Windows® 10 64bit, Windows® 11 64bit, Linux Ubuntu 64bit (18.04.1/Kernal4.8.0)

Note: All specifications are subject to change without notice.

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Board Level Products

Industrial Motherboards



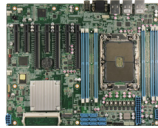
Model	ATX-C246A	ATX-H310A
System		
Processor	Intel® 8th/9th Generation (Coffee Lake-S/Coffee Lake-S Refresh) Core™ i9/ i7/ i5/ i3, Pentium 14nm, Celeron™, Xeon E-2200/2100, LGA 1151 socket Processor, max. TDP 8 Core 95W	Intel® 8th/9th Generation (Coffee Lake-S/Coffee Lake-S Refresh) Core™ i9/ i7/ i5/ i3, Pentium 14nm LGA 1151 socket Processor, Max. 6 Core 95W
Chipset	Intel® C246 Express Chipset	Intel® H310 Express Chipset
Memory	DIMM x 4, DDR4 (2666/2400/2133 MHz, max. 128GB) ECC, un-buffered memory Dual channel memory architecture	DIMM x 2, DDR4 (2666/2400/2133 MHz, max. 64GB) non-ECC, un-buffered memory Dual channel memory architecture
I/O Chipset	NCT6793D + F81216HD	NCT6793D+ F81216HD
Ethernet	Intel® PHY i219LM Giga LAN x 1 (supports Intel® AMT 12.0) Intel® i210AT Giga LAN x 1 (BOM option: i210AT x 2) RJ45 x 2 (BOM option: RJ45 x 3)	Intel® PHY i219V Giga LAN x 1 Intel® i210AT Giga LAN x 1 RJ45 x 2
Audio	Realtek® ALC897 6-Channel	
TPM	Nuvoton NPC750 TPM 2.0 onboard	Nuvoton NPC750 TPM 2.0 onboard (optional, default: on-board)
Expansion Slots	PCIe 3.0[x16] Slot x 1, PCIe 3.0[x4] Slot (open edge) x 2, PCIe 3.0[x1] Slot (open edge) x 2, PCI x 2, M.2 2230 E-key (PCIex1/USB2.0/CNV) x 1, M.2 2280 M-key (PCIex4/SATA 6.0Gb/s) x 1	PCIe 3.0[x16] Slot x 1, PCIe 2.0[x4] Slot (open edge) x 2 (#1: 1Lane #2: Default: 2Lanes, only support 1Lane when Mini PCIe slot is installed.), PCI x 3, M.2 2280/2242 M-key (PCIex1/SATA 6.0Gb/s) x 1, Mini PCIe + Micro SIM card Slot (optional, default: N/A)
BIOS	256Mbit Flash ROM x 1, AMI BIOS	128Mbit Flash ROM x 1, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis	
WatchDog Timer	1~255 steps by software program	
Smart Fan Control	CPU Fan/ Chassis Fan x 2	
Wake On LAN/ PXE	Yes (WOL / PXE)	
Power State	S3, S4, S5	
Graphics		
Graphics Chipset	Intel® Graphics Media Accelerator	
Graphics Multi Display	HDMI+VGA+DP (BOM option: USB 3.2 Gen 2-10Gbps Type-C connector (Alternate Mode: USB+DP) x 1)	HDMI+VGA, HDMI+DP, VGA+DP
VGA	Up to 1920 x 1200 @60Hz (via IT6616B)	
DVI	—	
HDMI	Up to 4096 x 2160 @ 24 Hz / 2560 x 1600 @ 60 Hz, with Digital Audio	Up to 4096 x 2160 @ 30 Hz
Display Port	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz, with Digital Audio	
LVDS	—	
eDP	—	
Backlight Control	—	
Environment & Power & ME		
Battery	Lithium battery	
Power Requirement	24-pin ATX connector x 1, 8-pin (2x4) ATX 12V Power connector x 1	
Operation Temperature	32°F ~ 140°F(0 ~ 60°C) (Operational humidity: 60°C @ 90% RH Non-Condensing)	
Storage Temperature	—	
Certificate	CE & FCC Class A	
Form Factor	ATX Form Factor, 12"x9.6" (305mm x 244mm)	ATX Form Factor, 12" x 9.6" (305mm x 244mm)
Weight	1.76 lb (0.8 Kg)	
MTBF (Hours)	281,410	285,600
Rear Panel I/O Ports		
USB	USB 3.2 Gen 2 ports (10 Gbps) x 4, USB 3.2 Gen 1 ports (5 Gbps) x 2, USB 2.0 ports x 4	USB 3.2 Gen 1 ports x 2, USB 2.0 ports x 4
Display I/O	HDMI x 1, VGA x 1, DP x 1, USB Type-C x 1 (optional)	HDMI x 1, VGA x 1, DP x 1
Audio I/O	Audio Jack x 3: Line-in, Mic-in, Line-out	
LAN I/O	LAN (RJ45) ports x 2 (BOM option: RJ45 x 3)	LAN (RJ45) ports x 2
Serial Port	—	DB-9 COM x 1 (supports RS-232/422/485, 5V/12V/RI)
PS/2 Port	—	—
Others	—	—
Internal I/O Connectors		
Storage	SATA 6.0Gb/s ports x 4, supports RAID 0/1/5/10 M.2 2280 M-Key (PCIe [x4]/SATA 6.0Gb/s) x 1	SATA 6.0Gb/s ports x 3 M.2 2242/2280 M-Key (PCIe [x1]/SATA 6.0Gb/s) x 1
USB	USB 2.0 headers x 1 support additional 2 USB ports (2x5PIN, p=2.54mm)	USB 3.2 Gen 1 headers support additional 2 USB ports (2x5PIN, p=2.54mm) x 1, USB 2.0 Type A (vertical) x 1
Display I/O	—	
Audio I/O	—	AAFP x 1
Serial Port	RS-232 headers x 5 RS-232/422/485 (COM1, supports optional 5V/12V/RI) x 1	RS-232 headers x 5
PS/2 Port	—	
Parallel Port	—	
DIO	8-bit Digital I/O interface (I/n/Out programmable) x 1	
FAN	CPU Fan connector(s) (4-pin) x 1 Chassis Fan connector(s) (4-pin) x 2	CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 2
Power		
Others	Chassis Intrusion x 1; AT/ATX mode select jumper x 1; Front panel header x 1; Clear CMOS jumper x 1; 3-pin ME lock header x 1; Buzzer on-board x 1	Chassis Intrusion x 1, AT/ATX mode select jumper x 1, Front panel header x 1, Clear CMOS jumper x 1, 3-pin ME lock header x 1, Buzzer on-board x 1
OS		
OS Support	Windows® 10 64bit, Windows® 11 64bit, Linux Ubuntu 64bit (18.04.1/Kernel4.8.0)	Windows® 10 64bit, Windows® 11 64bit, Linux Ubuntu 64 bit (18.04.3/Kernel5)
Note		



Model	MIX-PTLWV1
System	
Processor	Intel® Core™ Ultra Series 3 Processors, TDP 15~25W
Chipset	—
Memory	DDR5 C/SODIMM x 2, 6400 MHz, 1DPC, Max. 128GB
I/O Chipset	Nuvoton NCT6126D
Ethernet	Intel® Ethernet Controller I226-LM, 2.5GbE x 1 Intel® Ethernet Controller I226-V, 2.5GbE x 1 Intel® Ethernet Controller E610-XAT2, 10GbE x 2 (by BOM optional)
Audio	Realtek® ALC897
TPM	TPM 2.0 onboard
Expansion Slots	PCIe Gen 5 [x8] x 1 (open edge) (depend on CPU SKU) M.2 2230 E-Key x 1 (PCIe 4.0 [x1]/USB 2.0/CNV) M.2 3042/3052 B-Key x 1 (PCIe [x1]/USB 3.2 Gen 1) with Nano SIM Socket (Default 3052 by BOM optional)
BIOS	256Mbit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on Chassis
WatchDog Timer	1~255 steps by software program
Smart Fan Control	CPU Fan, SYS Fan
Wake On LAN/ PXE	Yes (WOL/PXE)
Power State	S4, S5
Graphics	
Graphics Chipset	Intel® Arc™ B390 GPU/Intel® Graphics (depend on CPU SKU)
Graphics Multi Display	Quad Display
VGA	—
DVI	—
HDMI	—
Display Port	DP 1.4, up to 4096 x 2160 @60Hz
LVDS	Up to 1920 x 1080 @60Hz, Dual Channel 18/24 bit, co-layout eDP (default LVDS)
eDP	eDP 1.4, up to 4096 x 2160 @120Hz, 4ch, co-layout LVDS by BOM optional
Backlight Control	—
Environment & Power & ME	
Battery	Lithium battery
Power Requirement	12V ~ 24V DC-in (±5%)
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C) (Operational humidity: 60°C @90% RH Non-Condensing)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)
Certificate	CE & FCC (Class A)
Form Factor	Mini-ITX: 6.7" x 6.7" (170mm x 170mm)
Weight	TBD
MTBF (Hours)	—
Rear Panel I/O Ports	
USB	USB 3.2 Gen 1 x 4 (5Gbps)
Display I/O	DP 1.4 x 4
Audio I/O	Line-out x 1
LAN I/O	RJ-45 LAN x 2, RJ-45 LAN x 2 (by BOM optional)
Serial Port	—
PS/2 Port	—
Others	2x2-Pin Connector x 1
Internal I/O Connectors	
Storage	M.2-1A 2280 M-Key x 1 (PCIe [x4]; Gen 4, NVMe)
USB	USB 3.2 Gen 1 x 2 ports via 2 x 10-pin, 2.0mm header x 1
Display I/O	40-pin LVDS/eDP Connector x 1
Audio I/O	1x4-Pin header x 1, supports 2W/4ohm
Serial Port	RS-232/422/485 Box Header x 1(5V/12V/RI optional), RS-232 Box Header x 5
PS/2 Port	—
Parallel Port	—
DIO	8-bit programmable (4-in/4-out) x 1
FAN	Chassis Fan connectors (4-pin) x 1, CPU Fan connectors (4-pin) x 1
Power	—
Others	Clear CMOS Jumper x 1 Front Panel Header x 1 ATX/AT Mode Select x 1 ME Disable x 1 eDP/LVDS Tcon IC Voltage Select x 1 eDP/LVDS Panel Backlight Voltage Select x 1 (3.3V/5V/12V) LVDS Inverter x 1
OS	
OS Support	Windows® 11 64-bit, Linux Ubuntu 24.04 / Kernel 6.8
Note	



Model	EATX-W890A
System	
Processor	Intel® Xeon® 600 processors for Workstation, Socket E2, LGA 4710-2; Intel® Xeon® 690/670 Series Processors, TDP up to 350W
Chipset	Intel® W890 Chipset
Memory	DDR5 R-DIMM, ECC, 1DPC, 128GB per DIMM, 1.1V DDR5 6400MT/s x 8, Max. 2TB *With Mainstream CPU, optional by BOM: DDR5 6400MT/s x 4, Max. 1TB
Ethernet	Intel® Ethernet Controller E610-XAT2, 10GbE x 2; Intel® Ethernet Controller I226-LM, 2.5GbE x 2
Audio	Realtek® ALC897
TPM	TPM 2.0 onboard
Expansion Slots	PCIe Gen 5 [x16] x 7; Note: Slots 2 and 6 are unavailable when using Mainstream CPU SKUs. M.2 2230 E-Key x 1 (PCIe Gen 4 [x1]/USB 2.0/CNVb)
BIOS	AMI 512Mb SPI Flash ROM, supports BIOS recovery, BIOS Backup
WatchDog Timer	Yes
H/W Monitor	
Temperature	CPU, CPU Power MOSFET, Memory, PCH, PCIe Slot, MB
Fan	Fan Tachometer via IPMI, CPU Smart Fan (enables automatic chassis fan speed adjustment based on CPU temperature)
Voltage	CPU: VCCIN, VCCFA, EHV, VNN, MAIN, VCCFA, EHV, FVR, VCCINF, VCCD, HV0, VCCD, HV1, V3P3, CPU_VR_OUT, V12S, CPU; PCH: V3P3A, V0P82A, VRTC; DIMM: 12V_DIMM; System: V5DSW, V3P3DSW, V1P8A, V12S, V5S, V3P3S
Smart Fan Control	CPU Fan/System Fan
Wake On LAN/ PXE	—
Power State	TBD
Graphics	—
Controller	—
Graphics Multi Display	—
VGA	—
DVI	—
HDMI	—
Display Port	Via VGA(DB-15) output (from BMC module, optional)
Backlight Control	—
Environment & Power & ME	
Battery	Lithium Battery
Power Requirement	24-pin ATX Main Power Connector x 1; 8-pin ATX 12V Power Connectors x 2
Operation Temperature	32°F ~ 140°F (0 ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)
Operation Humidity	20 ~ 90% relative humidity, non-condensing
Certificate	CE & FCC Class A
Form Factor	EATX: 12" x 13" (305mm x 330mm)
Weight	TBD
MTBF (Hours)	TBD
Rear Panel I/O Ports	
USB	USB 3.2 Gen 2x1 (Type-C) x 1 (USB only; 5V/3A); USB3.2 Gen 2x1 (Type-A) x 4
Audio I/O	Audio Jack x 3: Line-in, Mic-in, Line-out (5.1 CH HD Audio)
LAN I/O	RJ-45 (10GbE) x 2, RJ-45 (2.5GbE) x 2
Management Port	Management LAN x 1 (BMC, Optional)
Display Port	Via VGA(DB-15) output (from BMC module, optional)
Console Port	SIO COM Port (via RJ-45) x 1
Serial Port	—
PS/2 Port	—
Others	—
Internal I/O Connectors	
Storage	SATA 6.0Gb/s x 4, supports RAID 0/1/5/10; MCI0 x 4 (PCIe Gen 4 [x4], PCIe Gen 5 [x4]), supports RAID 0/1; M.2 2280 M-Key x 1 (PCIe Gen 4 [x4]); M.2 2280 M-Key x 2 (PCIe Gen 5 [x4]), supports RAID 0/1/10; supports Intel® VROC *With Mainstream CPU (optional by BOM): SATA 6.0Gb/s x 4, supports RAID 0/1/5/10; MCI0 x 2 (PCIe Gen 4 [x4]), supports RAID 0/1; M.2 2280 M-Key x 1 (PCIe Gen 4 [x4])
USB	USB 3.2 Gen 2x1 (Vertical Type-C) x 2 (USB only; 5V/3A); USB 3.2 Gen 1 x 2 via 2x10-Pin Header x 1
Display I/O	—
Audio I/O	—
Serial Port	—
PS/2 Port	—
Parallel Port	—
Front panel	24-pin FPC x 1: Power Switch, HDD Activity LED, LAN Activity LED, Watchdog, Temperature Alarm LED, Fan Failure LED, Chassis Intrusion, System Fault LED, SMBus
BMC_SMB Header	1
PMBus header	1
IPMB Header	1
Clear CMOS	1
FAN	CPU Fan Header x 1; System Fan Header x 6
Others	VROC Key Header x 1; 1x2-pin Power Connector x 1; BMC Module Socket x 1; BMC COM Header x 1
LED Indicators	
Status LEDs	Standby PWR LED (5VSB) x 1, PWR LED (5V) x 1, Port 80 LED x 1, Fan Fail LED x 5
Management	
BMC	BMC Module socket x 1
Security	
Security	TPM 2.0; Secure Boot; Silicon Root of Trust
OS	
OS Support	Windows 11 25H2 Ubuntu Linux (version: 22.04 LTS) RHEL 9.6 (Kernel 5.14.0-570.12.1.el9_6)



Model	ARES-WHIO	ARES-EAGO
System		
Form Factor	ATX Server Board Whitely Platform	EATX Server Board Eagle Stream Platform
Processor	Single Intel® Xeon® Processor Ice Lake-SP processor, supports up to 270W	Dual 4th/5th Generation Intel® Xeon® Scalable CPU Support, TDP Max. 350W
System Memory	DDR4 2666MHz R-DIMM Slot x 6, supports up to 192GB (32GB per DIMM)	DDR5 4800 MHz R-DIMM Slot x 12
Chipset	Intel® C621A	Intel® C741 Chipset
Ethernet	Intel® i210 Gigabit Ethernet x 2	Intel® i226LM LAN controller x 1, Intel® X550-AT2 x 1
COM	RS-232 x 1	Pin header x 1
BIOS	AMI BIOS	
Serial ATA	SATA 6Gb/s port x 8	SATA 6Gb/s port x 2, miniSAS x 1 (up to 4x SATA)
Audio and VGA	1	VGA x 1, Audio In Out (Optional)
Expansion Interface	PCIe 1: 1 x PCIe x16 (Gen4 x16) slot PCIe 2: 1 x PCIe x8 (Gen3 x4) slot PCIe 3: 1 x PCIe x16 (Gen4 x16) slot PCIe 4: 1 x PCIe x8 (Gen4 x4) slot PCIe 5: 1 x PCIe x16 (Gen4 x16) slot PCIe 6: 1 x PCIe x8 (Gen3 x4) slot PCIe 7: 1 x PCIe x8 (Gen4 x8) slot	PCIe 1: PCIe Gen 5 [x16] x 1 PCIe 2: PCIe Gen 5 [x16] x 1 PCIe 3: PCIe Gen 5 [x16] x 1 PCIe 4: PCIe Gen 5 [x16] x 1 PCIe 5: PCIe Gen 5 [x16] x 1 PCIe 6: PCIe Gen 5 [x16] x 1
Watchdog Timer	1~255 steps by software programming	
RTC	Internal RTC	
System Fan	4-pin fan headers x 5(up to 5 fans)	
Front I/O Panel	N/A	—
Rear I/O Panel	USB 3.0 x 6, 1Gb RJ45 LAN x 2, AUDIO in and out x 1, VGA x 1	USB 3.2 Gen 1 x 4 2.5GbE LAN x 1 10GbE LAN x 2 VGA x 1 COM x 1
Color	N/A	—
Power Supply	ATX	
Dimension	12.0" x 9.6" (305mm x 244 mm)	12" x 13" (305mm x 330mm)
Power Consumption	269W (Based on Intel® Xeon® Platinum 8352S)	TBD
MTBF (Hours)	292,321	TBD
Display		
Chipset	SM750	AST2510
Graphic Engine	N/A	—
Resolution	1920x1080 (WIN Server 2019); 800x600 (CentOS 7.3)	TBD
Connector	VGA	
I/O		
Serial Port	COM x 1 Pin	
K/B and Mouse	N/A	—
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	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	20 G peak acceleration (11 m sec. duration), non operation
Note		



Model	ZEUS-PURO
System	
Form Factor	4U Rackmount Server System
Processor	Intel® Xeon® Skylake-SP and Cascade Lake-SP Processors
System Memory	DDR4 2133/2400/2666 R-DIMM, Up to 512 GB
Chipset	Intel® C621
Ethernet	Intel® i211 Gigabit Ethernet x 2
BIOS	AMI BIOS
Serial ATA	SATA II port x 6
Storage	2.5" HDD x 6 or 3.5" HDD x 6, M.2 x 1
Expansion Interface	NIM slot x 4 (Project Base NIM Slot x 8) Option front PCIe [x16] slots x 2 Option rear side PCIe [x4] x 4 (or PCIe [x8] x 2) + PCIe [x8] x 2 (Or PCIe [x16] x 1) M.2 Slot x 1 Mini PCIe x 1
Watchdog Timer	1~255 steps by software programmable
RTC	Internal RTC
System Fan	5
Front I/O Panel	Power LED x 1, Status LED x 1, HDD Active LED x 1
Rear I/O Panel	AC Power Input x 1, Power Switch x 1, VGA port (Optional), Rear Expansion Slot (Option)
Color	Black
Power Supply	800 ~1600W Redundant PSU
Dimension	(480mm x 600mm x 176mm)
Power Consumption	TBD
MTBF (Hours)	TBD
Display	
Chipset	AST2500
Graphic Engine	From IPMI or Mini PCIe Option
Resolution	—
Connector	VGA Option
I/O	
Serial Port	RJ-45 Console x 1
K/B and Mouse	N/A
USB	USB 3.0 x 2
Environmental	
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)
Operating Humidity	10% ~ 80% relative humidity, non-condensing
Storage Humidity	10% ~ 80% @40°C; non-condensing
Vibration	0.5 g rms/ 5 ~ 500Hz / operation (2.5" Hard Disk Drive) 1.5 g rms/ 5 ~ 500Hz / non operation
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non operation
Note	



Model	ZEUS-WH10
System	
Form Factor	4U Rackmount Server System
Processor	Single Intel® Xeon® Processor Ice Lake-SP processor, supports up to 205W
System Memory	DDR4 2666MHz R-DIMM Slot x 6, supports up to 192GB (32GB per DIMM)
Chipset	Intel® C621A
Ethernet	Intel® i210 Gigabit Ethernet x 2
BIOS	AMI BIOS
Serial ATA	SATA III port x 8
Storage	2.5" HDD x 8 or 3.5" HDD x 8, M.2 2280 M key socket x 1
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 (Gen3 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	Middle Fan x 3 (Default), Rear Fan x 2 (Optional)
Front I/O Panel	Power LED x 1, HDD Active LED x 1
Rear I/O Panel	AC Power Input x 1, Power Switch button x 1, USB 3.1 Gen 1 x 6 (Type-A), 1Gb RJ45 LAN x 2, AUDIO in and out x 1, VGA x 1, Rear Expansion Slots x 7
Color	Black
Power Supply	800 mini redundant PSU; 1600W CRPS PSU, optional
Dimension	23.5" x 17" x 6.88" (597.2mm x 430mm x 174.8mm)
Power Consumption	—
MTBF (Hours)	—
Display	
Chipset	SM750
Graphic Engine	—
Resolution	1920x1080 (WIN Server 2019); 800x600 (CentOS 7.3)
Connector	VGA
I/O	
Serial Port	COM x 1
K/B and Mouse	—
USB	USB 3.1 Gen 1 x 6 (Type-A)
Environmental	
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	10% ~ 90% relative humidity, non-condensing
Storage Humidity	10% ~ 80% @40°C; non-condensing
Vibration	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	

02

► System Level Products





Model	BOXER-8221AI	BOXER-8240AI	BOXER-8251AI
System			
AI Accelerator	NVIDIA® Jetson Nano™	NVIDIA® Jetson AGX Xavier™	NVIDIA® Jetson Xavier™ NX
CPU	Quad Core Arm® Cortex®-A57 MPCore Processor	8-core ARM v8.2 64bit CPU, 8MB L2 + 4MB L3	6 Core ARM® Carmel™ V8.2 64bit CPU 6MB L2 + 4MB L3
System Memory	4GB LPDDR4	32GB 256-Bit LPDDR4x 137GB/s	8GB LPDDR4x
Storage Device	32GB Micro-SD (A version) or 16GB eMMC (B version)	32GB eMMC 5.1 Micro SD card slot 2.5" SATA drive bay M.2 Key M 2280	16GB eMMC + MicroSD
Display Interface	HDMI 2.0	HDMI 2.0 x 1	HDMI 2.0
Ethernet	10/100/1000Base-TX x 1	10/100/1000 Base-TX with IEEE 802.3af PoE LAN x 4	10/100/1000Base-TX x 1
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	PoE x 4 (IEEE 802.3af, total 60W) USB Type A x 1 for USB 3.2 Gen 1 USB Type C x 2 for USB 3.2 Gen 1 USB Type A x 1 for USB 2.0 RS-232/422/485 x1 CANBUS x 1 HDMI 2.0 x1 DP 1.4 x 1 Mic-in x 1 Line-out x 1 MicroSD slot x 1 Micro USB x 1 for OS Flash Recovery button x 1 Power button x 1 40-pin header compliance with NVIDIA Dev Kit 40 pins (4 pins CANBUS occupied)	USB 3.2 Gen 1 x 4 LAN x 1 RS-232/422/485 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)	USB 2.0 header x 1 (Optional, circuit reserved) M.2 Key E 2230 x 1 for WiFi/Bluetooth (PCIe[x1] + USB) M.2 Key M 2280 x 1 (PCIe[x4]) SATA x 1 RS-232/422/485 pin header x 1	M.2 E-Key 2230 x 1 (for WiFi)
Indicator	Power LED x 1		
OS Support	Linux (AAEON ACLinux 4.9) Linux (NVIDIA Jetpack 4.5)	Linux (NVIDIA Jetpack 4.5 and later)	Linux (AAEON ACLinux 4.9) Linux (NVIDIA Jetpack 4.5) Ubuntu18.04
Power Supply			
Power Requirement	12Vdc w/ 2-pin terminal block	DC 12V~24V 2-pin terminal	12Vdc w/ 2-pin terminal block
Mechanical			
Mounting	Wallmount		
Dimensions (W x D x H)	3.39" x 2.87" x 1.3" (88mm x 75mm x 39mm)	8.26" x 6.46" x 2.32" (210mm x 164.2mm x 59mm)	Standard: 3.46" x 2.95" x 1.53" (88mm x 75mm x 39mm) High heatsink Dimension: 3.54" x 3.30" x 2.04"(90mm x 84mm x 52mm)
Gross Weight	1.10 lb (0.5 Kg)	6 lb (2.72 Kg)	Standard: 1.10 lb (0.5 Kg) High heatsink: 1.76lb(0.8Kg)
Net Weight	0.66 lb (0.3 Kg)	4.23 lb (1.92 Kg)	Standard: 0.66 lb (0.3 Kg) High heatsink: 1.3lb(0.6Kg)
Environmental			
Operating Temperature	-4°F ~ 122°F (-20°C ~ 50°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)	-4°F ~ 140°F (-20°C ~ 60°C) (varies depending on selected power model)
Storage Temperature	-49°F ~176°F (-45°C ~ 80°C)	-40 °F ~ 158°F (-40°C ~ 70°C)	
Storage Humidity	95% @ 40°C, non-condensing		
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation – MicroSD or eMMC	Random, 3 Grms, 5 ~ 500Hz	3 Grms/ 5 ~ 500Hz/ operation – MicroSD or eMMC
Anti-Shock	—		
Certification	CE/FCC Class A		
Note			



Model	BOXER-8253AI	BOXER-8256AI	BOXER-8621AI
System	NVIDIA® Jetson Xavier™ NX		
AI Accelerator	NVIDIA® Jetson Orin Nano™ NVIDIA® Jetson Orin Nano™ with Super Mode		
CPU	6 Core ARM® Carmel®v8.2 64bit CPU 6MB L2 + 4MB L3	6-core NVIDIA Carmel Arm®v8.2 64-bit CPU	6-core Arm® Cortex®-A78AE ARMv8.2 64-bit CPU
System Memory	8GB LPDDR4x		4GB/8GB LPDDR5
Storage Device	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]) 2.5" SATA x 1	M.2 3052 B-Key x 1 for M.2 2242 B+M Key SSD (Default Storage) M.2 2230 E-Key x 1 (Optional)
Display Interface	HDMI Type A for HDMI 2.0 x 1	HDMI 2.0 x 2	HDMI 1.4 (Type-A) x 1
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 x1 for Digital I/O 13-Channel (programmable) Recovery Button x 1 MicroSD card slot x 1 Antenna opening x 4 HDMI Type A for HDMI 2.0 output x 1 HDMI Type A for HDMI 1.4 input x 1 Power Button x 1	USB Type A x 3 for USB 3.2 Gen 1 DB9 for RS-232/422/485 (By switch) and CANBUS x1 HDMI x 2 for Video Display 2.0 HDMI x 4 for Video Input 1.4 (Limitation have stated in User manual) Mic-in x 1, Line-Out x 1 Micro USB for OS Flash x 1 Power ON/OFF switch x 1 Recovery button x 1 SMA Antenna hole x 2	USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 (Type-A) x 2 DB-9 for RS-232 (Rx/Tx/CTS/RTS)/485 x 1 and CANBus FD x 1 DB-15 for RS-232 (Rx/Tx)/422/485 x 1 and DIO x 8 Micro USB x 1 for OS Flash Recovery Button x 1 Antenna x 2
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)	M.2 3042/3052 B Key x 1 (4G/5G/M.2 2242 B+M Key storage) M.2 2230 E Key x 1 (Wifi/BT/Storage) SIM Slot x 1
Indicator	Power LED x 1		
OS Support	Linux (AAEON ACLinux4.9) Linux (NVIDIA Jetpack 4.5)	Linux (NVIDIA Jetpack 4.6.2 and later)	Linux (NVIDIA Jetpack™ 6.2 and later)
Power Supply			
Power Requirement	12~24V DC with 2-pin terminal block	DC-In 12-24V with 2-pin terminal block	12V~24V DC in with 2 pins terminal block x 1
Mechanical Mounting	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)	7.09" x 5.35" x 2.64" (180 mm x 136 mm x 67 mm)	4.13" x 3.54" x 2.05" (105mm x 90mm x 52mm), w/o bracket
Gross Weight	4.63 lb (2.1 Kg)	4.23 lb (1.92 Kg)	2.4 lb (1.1Kg)
Net Weight	2.87 lb (1.3 Kg)	2.87 lb (1.3 Kg)	1.58 lb (0.7Kg)
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)	-5°F ~ 140°F (-15°C ~ 60°C), according to IEC60068-2 with 0.5 m/s AirFlow
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)		
Storage Humidity	5 ~ 95% @ 40°C, non-condensing		
Anti-Vibration	3.5Grms / 5~500Hz / operation-eMMC, MicroSD or mSATA	3.5 Grms/ 5 ~ 500Hz/ operation – eMMC	3.5Grms / 5~500Hz / Operation
Anti-Shock	50G peak acceleration (11 msec. duration, eMMC, microSD, or mSATA)	50G, IEC 60068-2-27, half sine, 11 ms duration – eMMC	50G peak acceleration
Certification	CE/FCC Class A		
Note			



Model	BOXER-8622AI	BOXER-8623AI	BOXER-8629AI
System			
AI Accelerator	NVIDIA® Jetson Orin Nano™ NVIDIA® Jetson Orin Nano™ with Super Mode	NVIDIA® Jetson Orin Nano™	NVIDIA® Jetson Orin Nano™ with Super Mode
CPU	6-core Arm® Cortex®-A78AE ARMv8.2 64-bit CPU		
System Memory	4GB LPDDR5 8GB LPDDR5		
Storage Device	M.2 2280 M-Key x 1	M.2 2280 M-Key x 1	M.2 2242 B+M-Key x 1 for NVMe
Display Interface	HDMI 1.4 (Type-A) x 1		
Ethernet	RJ-45 x 2 for 10/100/1000 Base-T	RJ-45 x 1 for GbE LAN RJ-45 x 4 for GbE PoE/PSE 802.3af/at (Max.60W)	8-pin M12 X-code Connector x 2 for GbE LAN x 2
I/O	USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 (Type-A) x 2 Micro USB x 1 for OS Flash DB-9 x 1 for CANbus DB-9 x 1 for RS-232/422/485 DB-15 x 1 for 13-bit DIO Power ON/OFF switch x 1 Recovery button x 1 Antenna Hole x 6	USB 3.2 Gen 2 (Type-A) x 4 DB-9 x 1 for RS-232 (Rx/Tx/CTS/RTS) x 1 and CANBus FD x 1 DB-15 x 1 for RS-232(Rx/Tx)/422/485 x 1 and DIO x 8 Micro USB x 1 for OS Flash Power Button x 1 Recovery Button x 1 Antenna Hole x 6	GMSL2 x 4 via Mini FAKRA x 1 8-pin M12 A-code Connector x 1 for USB 2.0 (Type-A) x 2 12-pin M12 A-code Connector x 1 for RS-232/485 x 1, DIO x 2, CAN FD x 1 Micro USB x 1 for OS Flash Recovery Button x 1
Expansion	M.2 2230 E-Key x 1 (Wi-Fi/Bluetooth) M.2 3042/3052 B-Key x 1 (4G/5G) M.2 2280 M-Key x 1	M.2 2280 M-Key x 1 (NVMe) M.2 3042/3052 B-Key x 1 M.2 2230 E-Key x 1 SIM Slot x 1	M.2 2242 B+M-Key x 1 for NVMe M.2 3042/3052 B-Key x 1 for 4G/5G M.2 2230 E-Key x 1 for Wi-Fi/BT SIM Slot x 1
Indicator	Power LED x 1		
OS Support	Linux (NVIDIA Jetpack™ 6.2.0 and later)		
Power Supply			
Power Requirement	DC-in 12-24V with 2-pin terminal block	12V ~ 24V DC in with 2-pin Terminal Block x 1	M12 A-code Connector x 1 for 12V - 24V DC input
Mechanical			
Mounting	Wallmount		
Dimensions (W x D x H)	5.98" x 3.78" x 2.42" (152mm x 96 mm x 61.5mm)	7.09" x 5.35" x 2.95" (180mm x 136mm x 75mm)	5.31" x 4.72" x 4.03" (135mm x 120mm x 102.3mm)
Gross Weight	3.97lb (1.8Kg)	7.7 lb (3.5Kg)	TBD
Net Weight	2.65lb (1.2Kg)	5.5 lb (2.5Kg)	TBD
Environmental			
Operating Temperature	-5°F ~ 149°F (-15°C ~ 65°C with 0.5 m/s airflow)	5°F ~ 149°F (-15°C ~ 65°C), according to IEC60068-2 with 0.5 m/s AirFlow	-13°F ~ 140°F (-25°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C), non operation
Storage Humidity	5% ~ 95% @ 40°C, non-condensing		
Anti-Vibration	3.5Grm / 5~500Hz	3.5Grm / 5~500Hz / Operation	MIL-STD-810H
Anti-Shock	50G Peak Acceleration	50G peak acceleration	MIL-STD-810H
Certification	CE/FCC Class A		
Note			



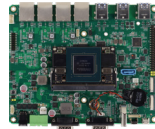
Model	BOXER-8640AI	BOXER-8641AI	BOXER-8641AI-PLUS
System	NVIDIA® Jetson AGX Orin™		
AI Accelerator			
CPU	AGX Orin 32GB: 8-core Arm® Cortex®-A78AE CPU AGX Orin 64GB: 12-core Arm® Cortex®-A78AE CPU		
System Memory	32GB LPDDR5 64GB LPDDR5		
Storage Device	64GB eMMC 5.1 Micro SD Card Slot x 1 2.5" SATA Drive Bay x 1 M.2 2280 M-Key x 1	64GB eMMC 5.1 x 1 MicroSD slot x 1 SATA drive bay x 1	64GB eMMC 5.1 x 1 MicroSD slot x 1 2.5" 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	RJ-45 for Giga LAN x 1 RJ-45 for 10G LAN x 1
I/O	USB 3.2 Gen 2 (Type-A) x 2 USB 3.2 Gen 2 (Type-C) x 2 RS-232/422/485 x 1 CANBus x 1 Mic-in x 1 Line-out x 1 MicroSD Slot x 1 Micro USB x 1 for OS Flash Recovery Button x 1 Power Button x 1 40-pin Header compliant with NVIDIA Jetson Orin Nano Developer Kit (without CANBus)	USB Type A for USB 3.2 Gen 2 x 2 USB Type C for USB 3.2 Gen 2 x 1 USB Type A for USB 2.0 x 1 Micro USB x 1 for OS Flash Mic in and Line out x1 Reset Button x 1 Recovery Button x 1 MicroSD card slot x 1 Antenna opening x 4 Power Button x 1 DB-9 x 2 for RS-232/422/485 DB-9 x 1 for DIO x 8	USB 3.2 Gen 2 (Type-A) x 2 (from SoM) USB 3.2 Gen 2 (Type-A) x 2 (from Hub) DB-9 x 2 for RS-232/422/485(Rx/Tx/RTS/CTS) DB-9 x 1 for DIO x 8 Micro USB x 1 for OS Flash Mic in and Line out x 1 MicroSD Card Slot x 1 Antenna Opening x 6 Reset Button x 1 Recovery Button x 1 Power Button x 1 OOB Connector x 1 TPM 2.0 x 1
Expansion	USB 2.0 Header x 1 (Optional, Circuit Reserved) M.2 2230 E-Key x 1 (Wifi/BT) M.2 2280 M-Key x 1 (NVMe) 2.5" SATA Drive Bay x 1 RS-232/422/485 Pin Header x 1	M.2 E-Key 2230 (for Wifi/BT) x 1 M.2 B-Key 3052 x 1 M.2 M-Key 2280 (NVMe) x 1 2.5" SATA drive bay SIM Slot x 1	M.2 2230 E-Key x 1 M.2 3052 B-Key x 1 M.2 2280 M-Key x 1 2.5" SATA Drive Bay x 1 SIM Slot x 1
Indicator	Power LED x 1		
OS Support	Linux (NVIDIA Jetpack™ 6.0 and later)		
Power Supply			
Power Requirement	DC 12V ~ 24V 2-pin terminal	12V DC with lockable DC Jack	12~19VDC 2-pin Terminal Block
Mechanical			
Mounting	Wallmount		
Dimensions (W x D x H)	8.26" x 6.46" x 2.91" (210mm x 164.2mm x 74mm)	7.09 " x 5.35 " x 3.11" (180.0 mm x 136.0 mm x 79.1 mm)	7.09 " x 5.35 " x 3.11" (180mm x 136mm x 79.1mm)
Gross Weight	8.3 lb (3.76Kg)	7.8lb (3.55Kg)	7.8 lb (3.55Kg)
Net Weight	6.4 lb (2.9Kg)	5.5lb (2.5Kg)	5.5 lb (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)	-13°F ~ 131°F (-25°C ~ 55°C) with 0.7 m/s airflow
Storage Temperature	-40°F ~ 158°F	(-40°C ~ 70°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Storage Humidity	95% @ 40°C, non-condensing	5 ~ 95% @ 40°C, non-condensing	
Anti-Vibration	Random, 3.5 Grms, 5 ~ 500Hz	3.5Grm / 5~500Hz / operation-eMMC, MicroSD or SSD	3.5 Grms, 5~500Hz with SSD
Anti-Shock	50G Peak Acceleration	50G peak acceleration (11 msec. duration, eMMC, microSD, or SSD)	50G peak acceleration
Certification	CE/FCC Class A	CE/FCC Class B	
Note			



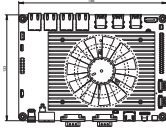
Model	BOXER-8645AI		BOXER-8649AI	BOXER-8651AI
System	NVIDIA® Jetson AGX Orin™			NVIDIA® Jetson Orin™ NX
AI Accelerator				
CPU	AGX Orin 32GB: 8-core Arm® Cortex®-A78AE CPU AGX Orin 64GB: 12-core Arm® Cortex®-A78AE CPU			6-core Arm® Cortex®-A78AE ARMv8.2 64-bit CPU
System Memory	32GB LPDDR5 64GB LPDDR5			8GB/16GB LPDDR5
Storage Device	64GB eMMC 5.1 x 1 M.2 2280 M-Key x 1 (NVMe) 2.5" SATA x 2	M.2 2280 M-Key x 1 for NVMe M.2 2230 E-Key x 1 for Wi-Fi/BT/NVMe	M.2 3052 B-Key x 1 for M.2 2242 B+M Key SSD (Default Storage) M.2 2230 E-Key x 1 (Optional)	
Display Interface	HDMI 2.0 x 1 (Type-A)	Mini HDMI 2.0 output (Inside waterproof cover)	HDMI 2.1 (Type-A) x 1	
Ethernet	RJ-45 for 10G LAN x 1 RJ-45 for Giga LAN x 1 Additional LAN x 8 (By request)	M12 X code 8Pin x 1 for 10Gbps LAN M12 X code 8Pin x 1 for Giga LAN	RJ-45 x 1 for GbE LAN	
I/O	GMSL2 with FAKRA x 8 USB 3.2 Gen 2 x 4 (Type-A) Micro USB x 1 for OS Flash Line-Out x 1 DB-9 x 1 for Isolated CANBus x 2 DB-9 x 2 for RS-232 (Rx/Tx/CTS/RTS)/RS-485 x 2 DB-9 x 1 for DIO x 8 Switch x 2 for Ignition Delay On/Off 3-pin Terminal Block x 1 for Power Input Power Button x 1 Recovery Button x 1 Antenna Hole x 7 TPM Support GNSS Support 9-Axis Sensor Support	Mini FAKRA B type x 1 for GMSL2 x 4, 2 sets M12 A code 8pin x 1 for USB 2.0 x2 M12 A code 12Pin x 1 for RS232 (Rx/Tx/CTS/RTS)/RS485 x 1 & CANBus FD x 2 M12 A code 12Pin x 1 for RS232 (Rx/Tx/CTS/RTS)/RS485 x 1, DIO x 3 External IP67 SMA antenna x 7 Micro USB for image flash x 1 (Inside waterproof cover) Recovery button x 1 (Inside waterproof cover)	USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 (Type-A) x 2 DB-9 for RS-232 (Rx/Tx/CTS/RTS)/485 x 1 and CANBus FD x 1 DB-15 for RS-232 (Rx/Tx)/422/485 x 1 and DIO x 8 Micro USB x 1 for OS Flash Recovery Button x 1 Antenna x 2	
Expansion	M.2 2230 E-Key x 1 (Wi-Fi/BT) M.2 3052 B-Key x 1 (LTE) M.2 2280 M-Key x 1 (NVMe) 2.5" SATA x 2 SIM Slot x 2 MicroSD Slot x 1	M.2 2280 M-Key x 1 for NVMe M.2 3042/3052 B-Key x 1 for 4G/5G (USB 3.0 + PCIe) M.2 2230 E-Key x 1 for Wi-Fi/BT/NVMe SIM Slot x 2	M.2 3042/3052 B Key x 1 (4G/5G/M.2 2242 B+M Key storage) M.2 2230 E Key x 1 (Wi-Fi/BT/Storage) SIM Slot x 1	
Indicator	Power LED x 1	Power LED x 1 System LED x 1	Power LED x 1	
OS Support	Linux (NVIDIA JetPack™ 5.0 and later)	Linux (NVIDIA Jetpack™ 7.0 and later)	Linux (NVIDIA Jetpack™ 6.0 and later)	
Power Supply				
Power Requirement	3-pin Terminal Block x 1 for 9V ~ 36V ACC Ignition Delay On/Off	9V to 48V DC input and ignition power control via M12 A-code OVP, UVP, OCP, Short protection, Reverse protection, Surge protection	12V~24V DC in with 2 pins terminal block x 1	
Mechanical				
Mounting	Wallmount (default)	TBD	Wallmount	
Dimensions (W x D x H)	11.26" x 7.95" x 3.54" (286mm x 202mm x 90mm)	7.48" x 5.35" x 4.30" (190mm x 136mm x 109.3mm)	4.13" x 3.54" x 2.05" (105mm x 90mm x 52mm), w/o bracket	
Gross Weight	13 lb (5.9Kg)	TBD	2.4 lb (1.1Kg)	
Net Weight	11 lb (5Kg)	TBD	1.58 lb (0.7Kg)	
Environmental				
Operating Temperature	-13°F ~ 149°F (-25°C ~ 65°C with 0.5 m/s airflow)	-13°F ~ 140°F (-25°C ~ 60°C), according to IEC 60068-2 with 0.7 m/s airflow	-5°F ~ 131°F (-15°C ~ 55°C), according to IEC60068-2 with 0.5 m/s AirFlow	
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	104°F ~ 185°F (40°C ~ 85°C), non-operation	-40°F ~ 185°F (-40°C ~ 85°C)	
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	5%~ 95% @ 40°C, non-condensing, non-operation	5% ~ 95% @ 40C, non-condensing	
Anti-Vibration	MIL-STD-810G, 514.6C Procedure 1, Category 4 Trucker/Semitrailer on US highway (Figure 514.6C-1-Category 4-Common carrier)	MIL-STD-810H	3.5Grm / 5~500Hz / Operation	
Anti-Shock	MIL-STD-810G, Method 516.6, Procedure I, flight vehicle equipment	MIL-STD-810H	50G peak acceleration	
Certification	E-Mark, CE/FCC Class A	CE/FCC Class A		
Note				



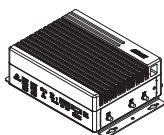
Model	BOXER-8651AI-PLUS	BOXER-8652AI	BOXER-8652AI-PLUS
System	NVIDIA® Jetson Orin™ NX		
AI Accelerator			
CPU	Orin NX 8GB: 6-core Arm® Cortex®-A78AE v8.2 64-bit CPU Orin NX 16GB: 8-core Arm® Cortex®-A78AE v8.2 64-bit CPU	6-core Arm® Cortex®-A78AE v8.2 64-bit CPU	Orin NX 8GB: 6-core Arm® Cortex®-A78AE v8.2 64-bit CPU Orin NX 16GB: 8-core Arm® Cortex®-A78AE v8.2 64-bit CPU
System Memory	Orin NX 8GB: 8GB LPDDR5 Orin NX 16GB: 16GB LPDDR5	8GB/16GB LPDDR5	Orin NX 8GB: 8GB LPDDR5 Orin NX 16GB: 16GB LPDDR5
Storage Device	M.2 3052 B-Key x 1 for M.2 2242 B+M Key SSD (Default Storage) M.2 2230 E-Key x 1 (Optional)	M.2 2280 M-Key x 1	M.2 2280 M-Key (pre-populated with 128GB NVMe)
Display Interface	HDMI 1.2 (Type-A) x 1, up to 1920 x 1080	HDMI 2.0 (Type-A) x 1	HDMI 1.4b x 1
Ethernet	RJ-45 x 1 for GbE LAN	RJ-45 x 2 for 10/100/1000 Base-T	RJ-45 x 2 for 10/100/1000 Base-T (OOB Management support x 1)
I/O	USB 3.2 Gen 2 (Type-A) x 4 DB-9 for RS-232 (Rx/Tx/CTS/RTS) & CANBus FD x 1 10-pin terminal block for DIO x 8 Micro USB x 1 for OS Flash Recovery Button x 1 Antenna x 6	USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 (Type-A) x 2 Micro USB x 1 for OS Flash DB-9 x 1 for CANbus DB-9 x 1 for RS-232/422/485 DB-15 x 1 for 13-bit DIO Power ON/OFF switch x 1 Recovery button x 1 Antenna Hole x 6	USB 3.2 Gen 2 (Type-A) x 4 Micro USB x 1 for OS Flash DB-9 x 1 for CANBus DB-9 x 1 for RS-232/422/485 Power ON/OFF Switch x 1 Recovery Button x 1 Antenna Hole x 6 MIPI Connector x 2 AT/ATX Jumper x 1 (Default: ATX) UART x 1 for debug 5V Fan connector x 1
Expansion	M.2 3042/3052 B Key x 1 (4G/5G/M.2 2242 B+M-Key storage) M.2 2230 E-Key x 1 (Wi-Fi/BT) SIM Slot x 1	M.2 2230 E-Key x 1 (Wi-Fi/Bluetooth) M.2 3042/3052 B-Key x 1 (4G/5G) M.2 2280 M-Key x 1	M.2 3042/3052 B-Key x 1 (LTE/5G/M.2 2242 B+M-Key storage) M.2 2230 E-Key x 1 (Wi-Fi/BT) M.2 2280 M-Key x 1 (pre-populated with 128GB NVMe) Nano SIM x 1 TPM 2.0 x 1 (onboard) Box Header x 1 for OOB
Indicator	Power LED x 1		
OS Support	Linux (NVIDIA Jetpack™ 6.2 and later)	Linux (NVIDIA Jetpack™ 6.0 and later)	Linux (NVIDIA JetPack™ 6.2.1 and later)
Power Supply			
Power Requirement	12VDC ~ 24VDC via 2-pin Terminal Block		
Mechanical			
Mounting	Wallmount		
Dimensions (W x D x H)	4.92" x 3.54" x 2.2" (125mm x 90mm x 56mm)	5.98" x 3.78" x 2.42" (152mm x 96 mm x 61.5mm)	7.48" x 5.35" x 2.95" (190mm x 136mm x 75mm)
Gross Weight	3.13 lb (1.42Kg)	3.97lb (1.8Kg)	4.37 lb (1.98Kg)
Net Weight	1.85 lb (0.84Kg)	2.65lb (1.2Kg)	3.04 lb (1.38Kg)
Environmental			
Operating Temperature	-13°F ~ 131°F (-25°C ~ 55°C with 0.7m/s airflow)	-5°F ~ 140°F (-15°C ~ 60°C with 0.5 m/s airflow)	-13°F - 149°F (-25°C ~ 65°C), according to IEC60068-2 with 0.7 m/s Airflow
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)		
Storage Humidity	5 ~ 95% @ 40°C, non-condensing		
Anti-Vibration	3.5 Grms, 5~500Hz with SSD	3.5Grms / 5~500Hz	3.5G / 5~500Hz / operating
Anti-Shock	50G peak acceleration		
Certification	CE/FCC Class A		
Note			



Model	BOXER-8653AI	BOXER-8653AI-PLUS	BOXER-8654AI-KIT
System	NVIDIA® Jetson Orin™ NX		
AI Accelerator			
CPU	6-core Arm® Cortex®-A78AE ARMv8.2 64-bit CPU 8-core Arm® Cortex®-A78AE ARMv8.2 64-bit CPU	Orin NX 8GB: 6-core Arm® Cortex®-A78AE v8.2 64-bit CPU Orin NX 16GB: 8-core Arm® Cortex®-A78AE v8.2 64-bit CPU	Orin NX 16GB: 8-core Arm® Cortex®-A78AE ARMv8.2 64-bit CPU Orin NX 8GB: 6-core Arm® Cortex®-A78AE ARMv8.2 64-bit CPU
System Memory	8GB/16GB LPDDR5	Orin NX 8GB: 8GB LPDDR5 Orin NX 16GB: 16GB LPDDR5	16GB LPDDR5 8GB LPDDR5
Storage Device	M.2 2280 M Key x 1	M.2 2280 M Key (128GB built-in) M.2 3042/3052 B Key x 1 M.2 2230 E key	M.2 M-Key 2280 x 1 (NVMe)
Display Interface	HDMI 2.0 (Type-A) x 1	HDMI 1.2a (Type-A) x 1	HDMI Type A for HDMI 1.4 x 1
Ethernet	RJ-45 x 1 for GbE LAN RJ-45 x 4 for GbE PoE/PSE 802.3af/at (Max.60W)	RJ-45 x 1 for GbE LAN RJ-45 x 4 for GbE LAN PoE/PSE (IEEE 802.3af/at, total 60W)	RJ-45 x 4 for GbE LAN (optional: power module for PoE (25.6W each port))
I/O	USB 3.2 Gen 2 (Type-A) x 4 DB-9 x 1 for RS-232 (Rx/Tx/CTS/RTS)/RS485 x 1 and CANBus FD x 1 DB-15 x 1 for RS-232(Rx/Tx)/422/485 x 1 and DIO x 8 Micro USB x 1 for OS Flash Power Button x 1 Recovery Button x 1 Antenna Hole x 6	USB 3.2 Gen 2 (Type-A) x 4 DB-9 for RS-232 (Rx/Tx/CTS/RTS) & CANBus FD x 1 DB-15 for RS422/485/232 (Rx/Tx) x 1 & DIO x 8 Micro USB x 1 for OS Flash Recovery Button x 1 Antenna x 6	MIPI Connector x 2 (4 lanes for each MIPI connector, Default IMX219) DB-9 x 1 for RS-232(Rx/Tx/GND)/422/485 DB-9 x 1 for CANBus USB Type A x 6 for USB 3.2 Gen 2 Micro USB for image flash x 1 Power Button with LED Indicator x 1 2-pin Phoenix Type x 1 for Power Input Recovery Button x 1 40-pin Header compliant with NVIDIA Jetson Orin Nano Developer Kit Pin Header x 1 for RS/232/422/485 by jump select UART to 40-pin Box Header x 1 for OOB SATA Connector x 1 SATA power Connector x 1
Expansion	M.2 2280 M-Key x 1 (NVMe) M.2 3042/3052 B-Key x 1 M.2 2230 E-Key x 1 SIM Slot x 1	M.2 3042/3052 B Key x 1 (LTE/5G/M.2 2242 B+M Key storage) M.2 2230 E Key x 1 (Wifi/BT) M.2 2280 M Key x 1 (NVMe 128GB built-in) NANO SIM x 1 TPM x 1 (onboard) Box Header x 1 for OOB*	M.2 2230 E-Key x 1 M.2 2242/3042/3052 B-Key x 1 (SIM onboard) M.2 2280 M-Key x 1
Indicator	Power LED x 1		
OS Support	Linux (NVIDIA Jetpack™ 6.0 and later)	Linux (NVIDIA Jetpack™ 6.2 and later)	Linux (NVIDIA Jetpack™ 6.0 and later)
Power Supply			
Power Requirement	12V ~ 24V DC input, 2-pin Terminal Block x 1		
Mechanical			
Mounting	Wallmount		
Dimensions (W x D x H)	7.09" x 5.35" x 2.95" (180mm x 136mm x 75mm)	7.48" x 5.35" x 2.95" (190mm x 136mm x 75mm)	6.53" x 5.24" (166mm x 133mm)
Gross Weight	7.7 lb (3.5Kg)	7.41 lb (3.36Kg)	0.79 lb (0.36 Kg)
Net Weight	5.5 lb (2.5Kg)	5.51 lb (2.5Kg)	0.42 lb (0.19 Kg)
Environmental			
Operating Temperature	5°F ~ 140°F (-15°C ~ 60°C), according to IEC60068-2 with 0.5 m/s AirFlow	-13°F ~ 149°F (-25°C ~ 65°C with 0.7m/s airflow)	-13°F ~ 158°F (-25°C ~ 70°C) w/ Fan Kit, according to IEC60068-2 with 0.5 m/s AirFlow
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)		
Storage Humidity	5% ~ 95% @ 40°C, non-condensing		
Anti-Vibration	3.5Grms / 5~500Hz / Operation	3.5 Grms, 5~500Hz with SSD	—
Anti-Shock	50G peak acceleration	50G peak acceleration with SSD	—
Certification	CE/FCC Class A		
Note			



Model	BOXER-8654AI-KIT-PLUS	BOXER-8655AI	BOXER-8658AI
System	NVIDIA® Jetson Orin™ NX		
AI Accelerator			
CPU	Orin NX 16GB: 8-core Arm® Cortex®-A78AE ARMv8.2 64-bit CPU Orin NX 8GB: 6-core Arm® Cortex®-A78AE ARMv8.2 64-bit CPU	Orin NX 8GB : 6-core Arm® Cortex®-A78AE v8.2 64-bit CPU 1.5MB L2 + 4MB L3 Orin NX 16GB : 8-core Arm® Cortex®-A78AE v8.2 64-bit CPU 2MB L2 + 4MB L3	Orin NX 8GB: 6-core Arm® Cortex®-A78AE v8.2 64-bit CPU Orin NX 16GB: 8-core Arm® Cortex®-A78AE v8.2 64-bit CPU
System Memory	8GB/16GB LPDDR5	Orin NX 8GB : 8GB LPDDR5 Orin NX 16GB : 16GB LPDDR5	8GB LPDDR5 16GB LPDDR5
Storage Device	M.2 M-Key 2280 x 1 (NVMe)	M.2 2280 M-Key x 1 (NVMe) 2.5" SATA Driver Bay x 1	2.5" SATA Driver Bay x 1 M.2 2280 NVMe M Key x 1
Display Interface	HDMI Type A for HDMI 1.4 x 1	HDMI 1.2 x 1	HDMI 2.0 type A x 1
Ethernet	RJ-45 x 4 for GbE LAN (optional: power module for PoE (25.6W each port))	RJ-45 for GbE LAN x 5	RJ-45 x 2 for Giga LAN RJ-45 x 8 for GbE PoE/PSE (802.3at/at, MAX.:120W) *4 PoE ports sharing one MAC address and one Giga bandwidth. Supports total 120W PoE when input voltage is at or over 24V. Supports total 80W PoE when input voltage is between 12~24V. Supports total 30W PoE when input voltage is below 12V.
I/O	MIPI Connector x 2 (4 lanes for each MIPI connector, Default IMX219) DB-9 x 1 for RS-232(RX/TX/GND)/422/485 DB-9 x 1 for CANBus USB Type A x 6 for USB 3.2 Gen 2 Micro USB for image flash x 1 Power Button with LED Indicator x 1 2-pin Phoenix Type x 1 for Power Input Recovery Button x 1 40-pin Header compliant with NVIDIA Jetson Orin Nano Developer Kit Pin Header x 1 for RS/232/422/485 by jump select UART to 40-pin Box Header x 1 for OOB SATA Connector x 1 SATA power Connector x 1	GMSL2 x 8 with Fakra connectors DB-9 x 1 for CANBus FD DB-15 for RS232 (Rx/Tx)/RS422/RS485 x 1, programmable DIO x 8 External SMA antenna x 7 Power button x 1 Recovery button x 1 Micro USB x 1 for OS Flash Mic in and Line out x1 Reset button x1 USB Type A for USB 3.2 Gen 2 x 4	USB 3.2 Gen 2 type A x 4 DB-9 x 1 for CANBus FD x 1 DB-15 x 1 for RS232/422/485 x 1 and DIO x 8 Line out x 1 Micro USB x 1 for OS Flash Power button x 1 Recovery button x 1 Switch x 2 for ACC Ignition Delay On/Off Antenna x 7 TPM Support GNSS Support 9-Axis Sensor Support
Expansion	M.2 2230 E-Key x 1 M.2 2242/3042/3052 B-Key x 1 (SIM onboard) M.2 2280 M-Key x 1	M.2 2230 E-Key x 1 (Wifi/BT) M.2 3042/3052 B-Key x 1 (LTE/5G) (USB 2.0, USB3.0) M.2 2280 M-Key x 1 (NVMe) 2.5" SATA x 1	M.2 2230 E Key x 1 (Wifi/BT) M.2 3052 B Key x 1 (LTE) M.2 2280 NVMe M Key x 1 2.5" SATA x 1 SIM Slot x 2
Indicator	Power LED x 1	Power LED	Power LED x 1
OS Support	Linux (NVIDIA JetPack™ 6.x and later)		Linux (NVIDIA JetPack™ 6.0 and later)
Power Supply			
Power Requirement	DC-in 12-24V with 2-pin terminal block	3-pin Terminal Block x 1 for 9V ~ 36V ACC Ignition Delay On/Off	
Mechanical			
Mounting	Wallmount		
Dimensions (W x D x H)	6.53" x 5.24" (166mm x 133mm)	9.68" x 6.46" x 3.49" (246.0 mm x 164.2 mm x 88.8 mm)	8.27" x 6.46" x 2.99" (210 x 164.2 x 76 mm) (Without Bracket) 9.69" x 6.46" x 3.27" (246 x 164.2 x 83 mm) (With Bracket)
Gross Weight	TBD	7.9 lb (3.6Kg)	8.6 lb (3.9Kg)
Net Weight	TBD	6.2 lb (2.8Kg)	6.7 lb (3Kg)
Environmental			
Operating Temperature	-25°C ~ 70°C, according to IEC60068-2 with 0.7 m/s Airflow	5°F ~ 158°F (-15°C ~ 70°C with 0.7 m/s airflow)	5°F ~ 140°F (-15°C ~ 60°C with 0.7 m/s airflow, with Industrial wide Temp. SSD)
Storage Temperature	-40°C ~ 85°C, non operation	-40°F ~ 185°F (-40°C ~ 85°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)	MIL-STD-810G, 514.6C Procedure 1, Category 4 Trucker/Semitrailer on US highway (Figure 514.6C-1-Category 4-Common carrier)
Anti-Shock	—	MIL-STD-810G, Method 516.6, Procedure I, flight vehicle equipment	
Certification	CE/FCC Class A	CE/FCC Class A, E-Mark Compliance	
Note			



Model	BOXER-8658AI-PLUS	BOXER-8740AI	BOXER-8741AI
System	NVIDIA® Jetson T5000™ (2560-core NVIDIA Blackwell architecture GPU with fifth-gen Tensor Cores)		
AI Accelerator	NVIDIA® Jetson Orin™ NX		
CPU	Orin NX 16GB: 8-core Arm® Cortex®-A78AE ARMv8.2 64-bit CPU Orin NX 8GB: 6-core Arm® Cortex®-A78AE ARMv8.2 64-bit CPU	14-core Arm® Neoverse®-V3AE 64-bit	14-core Arm® Neoverse®-V3AE 64-bit CPU
System Memory	8GB/16GB LPDDR5	128GB 256-bit LPDDR5X	
Storage Device	2.5" SATA Driver Bay x 1 M.2 2280 NVMe M Key x 1	M.2 2280 M-Key x 1 for NVMe	M.2 2280 M-Key x 1
Display Interface	HDMI 2.0 type A x 1	HDMI x 1 for HDMI 2.0	HDMI 1.4a x 1
Ethernet	RJ-45 x 2 for GbE LAN RJ-45 x 8 for GbE PoE/PSE (802.3af/at, Max: 120W) *4 PoE ports share one MAC address and one Gigabit uplink (bandwidth) Supports total 120W PoE power with ≥ 24 VDC input voltage. Supports total 80W PoE power with 12-24 VDC input voltage. Supports total 30W PoE power with < 12 VDC input voltage.	QSFP28 x 1 for 25GbE x 4 RJ-45 x 1 for 5GbE	QSFP28 x 1 for 4 x 25GbE (4 x Independent MAC, aggregate up to 100Gbps) RJ-45 x 4 for 5GbE
I/O	USB 3.2 Gen 2 type A x 4 DB-9 x 1 for CANBus FD x 1 DB-15 x 1 for RS232/422/485 x 1 DIO x 8 Line Out x 1 Micro USB x 1 for OS Flash Power Button x 1 Recovery button x 1 Switch x 2 for ACC Ignition Delay On/Off Antenna x 7 TPM Support GNSS Support 22 pins for OOB module	USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 x 2 Micro USB x 1 for OS Flash Recovery Button x 1 Reset Button x 1 Power Button x 1	DB-9 x 1 for CAN FD x 2 DB-9 x 1 for RS-232/485 x 1 DB-9 x 1 for GPIO 8-bit USB 3.2 Gen 2 (Type-A) x 4 Micro USB x 1 for OS Flash Reset Button x 1
Expansion	M.2 2230 E Key x 1 (Wifi/BT) M.2 3052 B Key x 1 (LTE) M.2 2280 NVMe M Key x 1 2.5" SATA x 1 SIM Slot x 2	M.2 2280 M-Key x 1 for NVMe M.2 3052 B-Key x 1 for 4G/LTE M.2 2230 E-Key x 1 for WiFi 7 Nano SIM slot x 1	M.2 2280 M-Key x 1 for NVMe M.2 3052 B-Key x 1 for 4G/5G/LTE M.2 2230 E-Key x 1 for WiFi/BT
Indicator	Power LED x 1	Power LED x 1 System LED x 1	System LED x 1
OS Support	Linux (NVIDIA Jetpack 6.x and later)		
Power Supply	NVIDIA Jetpack™ 7.0 and later		
Power Requirement	3-pin Terminal Block x 1 for 9V ~ 36V ACC Ignition Delay On/Off	2 pin phoenix type x 1 for DC 12V~24V DC in	2-pin Terminal Block x 1 for 12~24Vdc Power Input (pitch 5mm)
Mechanical			
Mounting	Wallmount	TBD	Wallmount
Dimensions (W x D x H)	8.27" x 6.46" x 2.99" (210 x 164.2 x 76 mm) (Without Bracket) 9.69" x 6.46" x 3.27" (246 x 164.2 x 83 mm) (With Bracket)	7.09" x 5.67" x 2.37" (180mm x 144mm x 60.2mm)	9.4" x 6.4" x 3.1" (240mm x 164.8mm x 80.1mm)
Gross Weight	TBD	TBD	TBD
Net Weight	TBD	TBD	TBD
Environmental			
Operating Temperature	-13°F ~ 140°F (-25°C ~ 60°C with 0.7 m/s airflow, with Industrial wide Temp. SSD)	0°C ~ 40°C	-13°F~140°F (-25°C~60°C) according to IEC68-2-14 with 0.7 m/s AirFlow
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	TBD	-40°F~185°F (-40°C~85°C)
Storage Humidity	5%~ 95% @ 40°C, non-condensing	TBD	5 ~ 95% @ 40C, non-condensing
Anti-Vibration	MIL-STD-810H, 514.8C Procedure 6, Category 4 (by 2.5" SATA SSD)	TBD	MIL-STD-810H
Anti-Shock	MIL-STD-810H, 516.8 Procedure I, Functional Shock ~ Sawtooth 40G 11ms (by 2.5" SATA SSD)	TBD	MIL-STD-810H
Certification	CE/FCC Class A	CE/FCC class B	FCC/CE Class A
Note			



Model	BOXER-8742AI
System	
AI Accelerator	NVIDIA® Jetson T4000™ (1536-core NVIDIA Blackwell architecture GPU with 64 fifth-gen Tensor Cores)
CPU	12-core Arm® Neoverse®-V3AE 64-bit CPU
System Memory	64 GB 256-bit LPDDR5X
Storage Device	M.2 2280 M-Key x 1 for NVMe
Display Interface	HDMI 2.0 x 1
Ethernet	RJ-45 x 2 for 10GbE LAN RJ-45 x 4 for 5GbE LAN with PoE 802.3af/at, Max: 60W
I/O	USB 3.2 Gen 2 (Type-A) x 4 DB-15 x 1 for RS-232/422/485 & DIO x 8 DB-9 x 1 for RS-232 & CAN FD x 2 Mini USB x 1 for OS Flash Recovery Button x 1 Reset Button x 1 Power Button x 1 External SMA Antenna x 6 SIM Slot x 2
Expansion	M.2 2280 M-Key x 1 for NVMe M.2 3042/3052 B-Key x 1 for 4G/5G (USB 3.0 + PCIe) M.2 2230 E-Key x 1 for WiFi/BT/NVMe
Indicator	Power LED x 1
OS Support	NVIDIA Jetpack™ 7.0 and later
Power Supply	
Power Requirement	2-pin 12V-24V DC Input Phoenix Connector
Mechanical	
Mounting	TBD
Dimensions (W x D x H)	8.26" x 6.46" x 2.91" (210mm x 164.2mm x 74mm)
Gross Weight	TBD
Net Weight	TBD
Environmental	
Operating Temperature	13°F ~ 140°F (-25°C ~ 60°C), according to IEC60068-2 with 0.7 m/s Airflow
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C), non operation
Storage Humidity	5%~ 95% @ 40°C, non-condensing
Anti-Vibration	3.5G / 5~500Hz / operating
Anti-Shock	50G peak acceleration (11 msec.)
Certification	CE/FCC Class A
Note	

Note: All specifications are subject to change without notice.



Model	MAXER-2100	MAXER-5000	MAXER-5100
System			
CPU	A2: Please select required CPU before shipping A3: Intel® Core™ i9-13900	14-core Arm® Neoverse®-V3AE 64-bit	12th/13th/14th Generation Intel® Core™ LGA1700 Socket Processors
GPU	A2: PCIe Gen 4 [x16] x 1 for GPU card. A3: NVIDIA RTX™ 6000 Ada	NVIDIA® Blackwell architecture GPU with 2560 CUDA® cores and 5th Gen Tensor Cores	NVIDIA RTX™ 2000 Ada GPU x 2 (Selected SKUs)
Chipset	Intel Q670	NVIDIA® Jetson T5000™ AI Accelerator SoC	Intel® Q670 Chipset
System Memory	DDR5 4000MHz DIMM x 4, Up to 128GB Non-ECC, Un-buffered Memory, Dual-Channel Memory Architecture	128GB 256-bit LPDDR5X	DDR5 4800MHz U-DIMM x 4, Up to 128GB
Display Interface	HDMI 2.0 x 1, DP 1.4 x 1, VGA x1	HDMI x 1 for HDMI 2.0	VGA x 1 HDMI 2.0 x 2 DP 1.4 x 1
Storage Device	2.5" SATA-III Drive Bay x 2 (Swappable, RAID 0/1) M.2 2280 M key for NVMe SSD x 1	M.2 2280 M-Key x 1 for NVMe	2.5" SSD x 1 3.5" HDD x 1
Ethernet	RJ-45 GbE LAN x 1 (supports Intel® AMT 12.0) RJ-45 GbE LAN x 1 RJ-45 2.5GbE LAN x 2	QSFP28 x 1 for 25GbE x 4 RJ-45 x 1 for 5GbE	RJ-45, 1GbE x 1 RJ-45, 2.5GbE x 1
USB	USB 3.2 Gen2 x 4 (10Gbps)	USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 x 2 Micro USB x 1 for OS Flash	USB 2.0 x 2 USB 3.2 x 6
Serial Port	DB-9 x 1 for RS-232/422/485	—	DB-9 for COM Port (RS-232/422/485 & RI/5V/12V)
Audio	Audio (Mic-in/Line-out/Line-in)	—	Audio Jack x 5 (Line-in, Mic-in x 2, Line-out x 2)
Expansion	M.2 3042/3052 B-Key x 1 + MicroSIM Slot M.2 2230 E-Key x 1	M.2 2280 M-Key x 1 for NVMe M.2 3052 B-Key x 1 for 4G/LTE M.2 2230 E-Key x 1 for WiFi 7 NANO SIM slot x 1	PCIe Gen 4 [x16] x 1 PCIe Gen 4 [x8] x 1 PCIe Gen 3 [x1] x 1 PCIe Gen 3 [x4] x 1 M.2 2230 E-Key x 1 M.2 2280/2242 M-Key x 1 (PCIe Gen 4 [x4], SATA 6Gb/s)
TPM	TPM 2.0 Onboard	—	TPM 2.0 Onboard
Indicator	System LED x 1, HDD Activity x 1	Power LED x 1 System LED x 1	—
OS support	Windows® 10 IoT Enterprise 64-bit Windows® 11 PRO 64-bit Ubuntu 22.04.3 and later	NVIDIA JetPack™ 7.0 and later	Windows® 10/11 64bit
Drive Bay	2.5" SATA-III Drive Bay x 2 (Swappable, RAID 0/1)	—	2.5" SATA 6Gb/s Drive Bay x 1 3.5" SATA 6Gb/s Drive Bay x 1
Front Control	Power On/Off, System Reset	Recovery Button x 1 Reset Button x 1 Power Button x 1	—
Power Supply			
Power Requirement	Build in 1000W power supply	2 Pin Phoenix Type x 1 for DC 12V~24V DC in	Build in ATX 450W AC/DC Power supply
Mechanical			
Mounting	Rack Mount	Desktop stand	Wallmount
Dimensions (W x H x D)	17" x 3.46" x 17.6" (431.8mm x 88mm x 448mm)	6.69" x 6.57" x 3.07" (170mm x 167mm x 78mm)	12" x 3.7" x 10.9" (305mm x 95mm x 276mm)
Gross Weight	31.52 lb (14.3Kg)	TBD	12 lb (5.6Kg)
Net Weight	24.25 lb (11Kg)	TBD	11 lb (5Kg)
Environmental			
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C), according to IEC68-2 with 0.5 m/s AirFlow	0°C ~ 40°C	32°F ~ 113°F (0°C ~ 45°C), according to IEC68-2 with 0.5 m/s AirFlow
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	TBD	-40°F ~ 185°F (-25°C ~ 85°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	TBD	5 ~ 95% @ 40°C, non-condensing
Certification	CE/FCC class A		
Note			

Launching in Q3

Model	MAXER-5120
System	
CPU	12th / 13th / 14th Gen Intel® Core™ Processors (Alder Lake-S / Raptor Lake-S / Raptor Lake-S Refresh) LGA1700 Socket, up to 125W Pre-installed: Intel® Core™ i9-14900 (max. 65W)
GPU	Supports dual GPU cards via dual PCIe Gen5 slots NVIDIA RTX Pro 6000 (600W) NVIDIA RTX Pro 6000 Max-Q (300W) NVIDIA RTX 5090 (600W)
Chipset	Intel® Q670
System Memory	288-pin DDR5 DIMM x 4, Dual Channel, 4400/5600MHz, up to 192GB (48GB per DIMM)
Display Interface	HDMI 2.0b x 1 (Max. 4096 × 2160 @ 60Hz) DisplayPort 1.4a (DP++) x 1 (Max. 4096 × 2160 @ 60Hz) VGA x 1 (Max. 1920 × 1200 @ 60Hz) Triple Display Supported
Storage Device	M.2 Key M (2242/2260/2280/22110/25110) x 1 (PCIe Gen4 [x4], NVMe)
Ethernet	2.5GbE LAN (RJ-45) x 3
USB	USB 3.2 Gen 2 Type-A x 5 (Rear) USB 3.2 Gen 2x2 Type-C x 1 (Rear, 5V/3A) USB 3.2 Gen 1 x 2 (Front, Internal Header)
Serial Port	COM (RS-232/422/485) x 2
Audio	Audio Jack x 3 (Mic-in, Line-in, Line-out)
Expansion	PCIe Gen5 [x16] x 2 (PCIe1: x16, PCIe4: x8) PCIe Gen4 [x4] x 2 PCIe Gen3 [x1] x 3 M.2 Key E 2230 x 1 (PCIe [x1], USB 2.0, CNVi) M.2 Key B 3042/3052 x 1 (PCIe [x1], USB 3.2 Gen 1, USB 2.0, SIM) SIM Socket x 1 (Connected to M.2 Key B)
TPM	Onboard TPM 2.0
Indicator	Power LED x 1 LAN1 LED (Activity/Link) x 1 LAN2 LED (Activity/Link) x 1 Fail LED (LAN3 Activity/Link) x 1
OS support	Windows 11, Linux
Drive Bay	2.5" SATA Drive Bay x 2 (Intel® VMD RAID 0/1/5/10 Supported)
Front Control	Power Button x 1 Reset Button x 1
Power Supply	
Power Requirement	Build in ATX 2500W AC/DC Power Supply
Mechanical	
Mounting	Desktop Tower
Dimensions (W x H x D)	7.9" x 16.9" x 22.1" (200 x 430 x 560 mm)
Gross Weight	TBD
Net Weight	TBD
Environmental	
Operating Temperature	0°C ~ 45°C (32°F ~ 113°F), IEC 68-2, 0.5 m/s airflow (w/ industrial wide temp. SSD/RAM)
Storage Temperature	-40°C ~ 80°C (-40°F ~ 176°F)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing
Certification	CE / FCC Class A
Note	

Note: All specifications are subject to change without notice.

System Level Products

RISC Gateway Solutions



Model	SRG-IMX8P		SRG-IMX8PL	SRG-AM62
System				
Processor	ARM NXP i.MX8M Plus Quad-Core Cortex-A53 1.6GHz Processor	ARM NXP i.MX8M Plus Quad-Core Cortex-A53 1.6GHz Processor (Default w/NPU, optional w/o NPU)		ARM TI AM62x, up to Quad 64-bit Arm® Cortex®-A53
Memory	Onboard LPDDR4 2GB (Optional 4GB)	Onboard LPDDR4 up to 4GB (8GB by request)		Onboard DDR4 16 bit, up to 4 GB
Storage	eMMC 5.1 16GB (Optional 32GB)	eMMC 5.1 16/32GB (Optional 64/128 GB) Micro SD Card slot x 1		eMMC 5.1 16 GB (Optional 32/64/128 GB) Micro SD Card slot x1
Real Time Clock	RTC x 1, with 3V CR2032H Lithium battery			
Security	TPM 2.0	TPM 2.0 (optional)		
Indicators	Programmable LED control x 7	Programmable LED control x 3		
Cellular	Mini PCIe Connector x 1 (USB signal)	Full Size Mini Card x 1 (USB signal)		
Wireless Lan	Mini PCIe Connector x 1 (USB signal)	M.2 2230 E-key x 1 (USB, PCIe)	Half Size Mini Card x 1 (USB signal)	
Operating System	Debian 11(Default, GUI is optional)	Debian 11 (GUI is optional)	Debian 12 (w/ GUI)	
	Android 13	Debian 12		
	Win 10 IoT	Android 14 (By request)		
	Yocto	Yocto 5.0 (By request)		
Support Protocol	Modbus / MQTT Library (by request)	Modbus, MQTT, OPCUA	—	
I/O Interfaces				
Serial Port	RS-232/422/485 switchable x 2, Phoenix Connector			
Ethernet	Gigabit Ethernet x 2, RJ-45	Gigabit Ethernet x 2, RJ-45 support IEEE 1588, TSN, integrated RGMII		
Audio	—	Line Out x 1 (optional)	Line Out x 1 (by request)	
USB	USB 3.0, Type-A x 2	USB 3.0 Type-A x 2	USB 2.0 Gen1 x 2 -Host/device by image option, default: host x 1 -Host x 1	
ADC	—			
DI/DO	—			
CAN Bus	CAN-FD x 2 CH, Phoenix Connector			
Display	HDMI 2.0a x 1	HDMI 2.0 x 1	HDMI 1.4b up to 1080p x 1	
Power Connector	2 Pin 3.81mm Pitch Phoenix Connector			
Debug Port	Micro USB x 1			
Expansion Slot	SIM card slot x 1 Micro SD slot x 1	M.2 2230 E-key x 1, support Wifi/BT module	Half Size Mini Card (USB2.0) x 1, support Wifi/BT module, etc	
		Full Size Mini Card x 1, support 4G module, etc)	Full Size Mini Card (USB2.0) x 1, support 4G module, etc	
		Power control available by software		
		Nano SIM card slot x 1	Power control available by software	
Other Interface	—			
Power Supply				
Power Requirement	DC 9-36V	DC 9-36V (Optional: 12V)		
Power Consumption	9.36W (Full Loading)	14.8W (Full Loading)	5.76W (Full Loading)	
MTBF ()	479,374	1,699,754	1,279,408	
Environmental and Mechanical				
Dimension	5.54" x 3.86" x 1.89" (140.76 x 98.2 x 48 mm)	4.25" x 3.12" x 1.69" (108mm x 79.5mm x 43mm)	4.25" x 3.13" x 1.29" (108mm x 79.5mm x 33mm)	
Weight	2.6lb (1.18Kg)	1.01 lb (0.46Kg)	0.72 lb (0.33 Kg)	
Mount Options	Wallmount, Din Rail (Optional)			
Operation Temperature	-4 °F ~ 158 °F (-20 °C ~ 70 °C)	-40 °F ~ 176 °F (-40 °C ~ 80 °C), IEC60068-2 with 0.7 m/s AirFlow, with wide temperature Memory/Storage		-40 °F ~ 185 °F (-40 °C ~ 85 °C) (Option: 0°C ~ 60°C)
Storage Temperature	-40 °F ~ 176 °F (-40 °C ~ 80 °C)			-40 °F ~ 185 °F (-40 °C ~ 85 °C)
Operation Humidity	10% ~ 95% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing		
Certification	CE/FCC Class A UL61010/IEC61000-6-2/IEC61000-6-4/IEC61131-2	CE/FCC Class A		
Note				

System Level Products

Compact Fanless BOX PC Solutions

02

Compact Fanless BOX PC Solutions



Model	BOXER-6616	BOXER-6617-ADN	BOXER-6617-ASL
System			
CPU	Intel® Pentium® N4200, 2.5 GHz Intel® Celeron® N3350, 2.4 GHz	Intel® Processor N50 Intel® Processor N97 Intel® Core™ i3-N305 Intel Atom® x7211E	Intel® Processor N50 Intel® Processor N97 Intel® Core™ i3-N305 Intel Atom® x7211E Intel Atom® x7835RE Intel Atom® x7433RE Intel Atom® x7211RE
Chipset	Intel® System on Chip		Intel® SoC
System Memory	DDR3L 1866, Single Channel SODIMM x 1, Non-ECC (Max.8GB, up to 1600MHz)		DDR5 4800MHz SODIMM x 1, up to 32GB
Display Interface	HDMI (max. 2048 x 1152) VGA (max. 2048 x 1152)		HDMI x 2
Storage Device	mSATA, HDD/SSD		M.2 2280 M-Key x 1 (PCIe [x2]) 2.5" SATA HDD/SSD x 1
Ethernet	Intel® I211, 10/100/1000 Base-TX x 2		RJ-45 x 2 for 2.5GbE LAN (Intel® I226)
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		HDMI x 2 RJ-45 x 2 for 2.5GbE LAN (Intel® I226) USB 3.2 Gen 2 x 2 (Type-A) USB 2.0 x 4 (Type-A) DB-9 x 6 for RS-232/422/485 Mic-in/Line-out D-Sub connector for DIO 8 bit 3-Pin Terminal Block for DC In x 1 Reset Button x 1 Power Button with LED x 1
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)		M.2 2280 M-Key x 1 (PCIe [x2]) M.2 2230 E-Key x 1 (for Wi-Fi) M.2 3052 B-Key x 1 (for 5G/LTE) SIM Slot x 1
Indicator	Power LED HDD active LED		Sys LED Storage active LED
OS support	Windows® 10 IoT Ent LTSC 2019 64 bit Ubuntu 16.04 above		Windows® 10 IoT Enterprise Windows® 11 IoT Enterprise Windows® 11 PRO Linux Ubuntu 22.04
Power Supply			
Power Requirement	9-24V with 3-pin terminal block		DC-in 9-36V x 1 for 3-Pin Terminal Block
Mechanical			
Mounting	Wallmount (Default) DIN Rail (Mounting Kit Optional)		Wallmount (Default) DIN Rail (Mounting Clip Optional)
Dimensions (W x H x D)	7.76" x 2.17" x 4.33" (197mm x 55mm x 110mm)		8.42" x 4.54" x 2.59" (214mm x 115.5mm x 65.8mm) without brackets
Gross Weight	6.6 lb (2.8 Kg)		6.17 lb (2.8Kg)
Net Weight	4.4 lb (2 Kg)		4.4 lb (2Kg)
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 ~ 158°F (-20°C ~ 70°C), according to IEC68-2 with 0.5 m/s AirFlow (w/ Industrial wide Temp. SSD/RAM)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)		-40°F ~ 176°F (-40°C ~ 80°C)
Storage Humidity	95% @ 40°C, non-condensing		5 ~ 95% @ 40°C, non-condensing
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation - mSATA/SSD 1 Grms/ 5 ~ 500Hz/ operation - HDD		3 Grms/ 5 ~ 500Hz/ operation (with SSD)
Anti-Shock	—		50G, IEC 68-2-27, half sine, 11 ms duration (with SSD)
Certification			CE/FCC Class A
Note			

Note: All specifications are subject to change without notice.

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02-14

System Level Products

Compact Fanless BOX PC Solutions



Model	BOXER-6619-TWL	BOXER-6641	BOXER-6641-PRO
System			
CPU	Intel® Core™ Processor N-series & Intel® Processor N-series (formerly Twin Lake): -Intel® Core™ 3 Processor N355 (8C/8T), TDP 15W -Intel® Processor N150 (4C/4T), TDP 6W	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® SoC	Intel® C246/H310	
System Memory	DDR5 SODIMM slot x 1, up to 32GB	DDR4-2666 SODIMM slot x 2, Up to 64GB, ECC or Non-ECC Support	
Display Interface	VGA x 1 (Support up to FHD) HDMI x 2 (Support up to 4K @60Hz)	HDMI x 2	
Storage Device	Internal 2.5" SATA Drive Bay x 1	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	RJ-45 x 4 (IEEE 802.3at/at PoE support, providing a total power budget of 80W across all ports): Intel® Ethernet Controller I226-LM, 2.5GbE x 3 Intel® Ethernet Controller I210-IT, 1GbE x 1 (optional OOB support) Note: When the input voltage is ≤10V, the system supports PoE with a maximum combined output of 20W (≈5W per port).	Intel® i211 x 3, i219 x 1	
I/O	USB 3.2 Gen 1 (Type-A) x 2 USB 2.0 x 2 (additional USB 2.0 x 2 via Wafer, optional) DB-9 x 6 for RS-232/422/485 DB-15 Male x 1 for DIO 8-bit Mic-in / Line-out x 1 Antenna Opening x 6 Power Button with Power LED x 1 Remote Power On/Off x 1 Reset Button x 1	HDMI x 2 RJ-45 x 4 for GbE LAN (i211 x 3, i219 x 1) USB 3.2 Gen 1 x 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	M.2 2230 E-Key x 1 (PCIe [x1], USB 2.0) M.2 3052 B-Key x 1 (USB 3.2) Nano SIM Slot x 1 NCSI Header x 1 for OOB function (Power Button/Reset/5V/UART)	Full-size Mini PCIe x 1 Full-size Mini PCIe x 1 (PCIe/mSATA switch by BIOS, Default: mSATA) SIM slot x 1	Full-size Mini PCIe x 1 Full-size Mini Card x 1 (PCIe/mSATA switch by BIOS, Default: mSATA) SIM slot x 1
Indicator	—	HDD LED x 1 SYS LED x 1	
OS support	Windows 11 IoT Linux Ubuntu 24.04 (Kernel 6.8 or later)	Windows® 10 64-bit Linux Ubuntu 20.04	Windows® 10 64-bit Linux Ubuntu 20.04.2
Power Supply			
Power Requirement	DC 9 V~36 V via 4-pin Terminal Block (ATX mode) Power protection features: OCP (Overcurrent), OVP (Overvoltage), UVP (Undervoltage), SCP (Short-circuit), RVP (Reverse voltage)	3-pin DC Input 10~35V	
Mechanical			
Mounting	Wallmount (default) DIN Rail (optional)	Wallmount	
Dimensions (W x H x D)	8.4" x 4.5" x 2.5" (214mm x 116mm x 65mm) w/o Bracket 9.9" x 4.5" x 2.8" (253mm x 116mm x 72mm) w/ Bracket	10.4" x 3.19" x 6.15" (264.2mm x 80.92mm x 156.2mm)	
Gross Weight	6.2 lb (2.8 Kg)	10.4 lb (4.7 Kg)	
Net Weight	4.4 lb (2 Kg)	8.2 lb (3.7 Kg)	
Environmental			
Operating Temperature	-4°F ~140°F (-20°C ~ 60°C) with 0.7 m/s airflow (with wide temp. memory/storage)	-4°F ~ 131°F (-20°C ~ 55°C) with 0.5 m/s airflow ~ with TDP ≤ 35W CPU -4°F ~ 113°F (-20°C ~ 45°C) with 0.5 m/s airflow ~ with TDP >35W CPU	-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	With SSD: Random, 3Grms, 5~500Hz	2 Grms/ 5 ~ 500Hz/ operation ~ SSD/mSATA 1 Grms/ 5 ~ 500Hz/ operation ~ HDD	2 Grms/ 5 ~ 500Hz/ operation (with SSD)
Anti-Shock	With SSD: 50G @ Wallmount, half-sine, 11ms	—	
Certification		CE/FCC class A	
Note			

System Level Products

Compact Fanless BOX PC Solutions

02

Compact Fanless BOX PC Solutions



Model	BOXER-6642-CML	BOXER-6643-TGU	BOXER-6645-ADS
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	14th Gen Intel® Core™ Processors Intel® Core™ i9/i7/i5/i3 Processor 14900/14900T, 14700/14700T, 14500/14500T, 14100/14100T 13th Gen Intel® Core™ Processors Intel® Core™ i9/i7/i5/i3 Processor 13900E/TE, 13700E/TE, 13500E/TE, 13100E/TE 12th Gen Intel® Core™/Celeron® Processors Intel® Core™ i9/i7/i5/i3 Processor 12900E, 12700E/TE, 12500E/TE, 12100E/TE Intel® Celeron® Processor G6900E/TE
Chipset	Intel® Q470E	Intel® SoC	Intel® H610E/Q670E
System Memory	DDR4 SODIMM x 2, up to 64GB	DDR4 3200MHz SODIMM x 2, up to 64GB	DDR5 4800MHz SODIMM x 2, up to 64GB
Display Interface	HDMI 1.4 x 1	HDMI 2.0 x 2	HDMI 1.4b (Type-A) x 2 DP 1.4a x 2 *A2 model supports four simultaneous display outputs *A1 model supports three simultaneous display outputs
Storage Device	M.2 2280 slot 1 (PCIe4), 2.5" SATA SSD/HDD bay x 1	M.2 2280 M-Key x 1 (PCIe [x4]) for NVMe 2.5" SATA Drive Bay x 1	2.5" SATA 6Gb/s Drive Bay x 2 (A2 SKU supports RAID 0, 1) M.2 2280 M-Key x 1 (NVMe, extra heatsink required, refer to optional accessories) (A2 Model)
Ethernet	Intel® i211-AT x 1, i219-LM x 1	RJ-45 x 1 for 1GbE (Intel® Ethernet Connection i219) RJ-45 x 1 for 2.5GbE LAN (Intel® Ethernet Controller i226)	Intel® i210-AT, 10/100/1000 Base-TX x 2 Intel® i219-LM, 10/100/1000 Base-TX x 1 Intel® i226-LM, 2.5GbE Base-TX x 1
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 1 for 1GbE (Intel® Ethernet Connection i219) RJ-45 x 1 for 2.5GbE LAN (Intel® Ethernet Controller i226) USB 3.2 Gen 2 (Type-A) x 3 USB 2.0 x 1 DB-9 x 2 for RS-232/422/485 DB-15 x 1 Digital I/O 8-channel Line-out x 1 3-pin 9V-36V Power Input x 1 Power Button with LED x 1	USB 3.2 Gen 2 (5Gbps) x 4 (A1 Model) USB 3.2 Gen 2 (10Gbps) x 8 (A2 Model) USB 2.0 x 4 (A1 Model) Audio x 1 (MIC-in, Line-out) DB-9 x 6 for RS-232/422/485 SMA Antenna Hole x 6 DIO x 8
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 Mini Card x 1 (PCIe + USB / SATA, Default PCIe + USB) SIM Slot x 1	M.2 2230 E-Key x 1 for WiFi module, M.2 3052 B-Key x 1 for 4G/5G module
Indicator	Power LED	Power / System LED	System LED x 1, HDD LED x 1
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	Windows® 10 IoT Enterprise 64-bit, Windows® 11 PRO 64-bit Linux Ubuntu 20.04 (Kernel 15.5 and later)
Power Supply			
Power Requirement	10-35V DC-in with 3-pin terminal block	9V-36V DC-in via 3-pin Terminal Block x 1	3-pin DC Input 12~24V
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" (250mm x 143mm x 51.5mm) with bracket 7.87" x 5.62" x 1.75" (200mm x 143mm x 44.5mm) w/o bracket	10.39" x 3.8" x 7.33" (264mm x 80.92mm x 186.2mm)
Gross Weight	8.4lb (3.8Kg)	4.4 lb (2.0 Kg)	11.7 lb (5.3 Kg)
Net Weight	6.2lb (2.8Kg)	3.3 lb (1.5 Kg)	9.5 lb (4.3 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)	-4°F ~ 122°F (-20°C ~ 50°C), IEC68-2 with 0.5 m/s AirFlow, with wide temperature memory/ storage (TDP 65W CPU) -4°F ~ 140°F (-20°C ~ 60°C), IEC68-2 with 0.5 m/s AirFlow, with wide temperature memory (Max. 32GB)/Storage (TDP 35W CPU)
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)	3 Grms/ 5 ~ 500Hz/ operation – SSD 1 Grms/ 5 ~ 500Hz/ operation – HDD
Anti-Shock	50G peak acceleration (11msec) (with SSD)	50G, IEC 68-2-27, half sine, 11 ms duration (with SSD)	50G, IEC68-2-27, half sine, 11ms duration (with SSD)
Certification	CE/FCC class A	CE/FCC class A, UL	CE/FCC class A
Note			

Note: All specifications are subject to change without notice.

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02-16

System Level Products

Compact Fanless BOX PC Solutions



Model	BOXER-6645U-RPL	BOXER-6646-ADP	BOXER-6647-MTH
System			
CPU	12/13/14th Generation Intel® Core™ LGA 1700 Socket-Type Processor, Max TDP 65W 13th Generation Intel® Core™ Processors: Intel® Core™ i9-13900TE/13900E Intel® Core™ i7-13700TE/13700E Intel® Core™ i5-13500TE/13500E Intel® Core™ i3-13100TE/13100E 14th Generation Intel® Core™ Processors: Intel® Core™ i9 processor 14900/14900T Intel® Core™ i7 processor 14700/14700T Intel® Core™ i5 processor 14500/14500T Intel® Core™ i3 processor 14100/14100T	13th Generation Intel® Core™ Processors: Intel® Core™ i7-1370PE Intel® Core™ i5-1350PE Intel® Core™ i3-1320PE 12th Generation Intel® Core™ Processors: Intel® Core™ i7-1270PE Intel® Core™ i5-1250PE Intel® Core™ i3-1220PE	Intel® Core™ Ultra 5 processor 125H Intel® Core™ Ultra 7 processor 155H
Chipset	Intel® H610E Chipset	Intel® System on Chip	Intel® SoC
System Memory	DDR5 SODIMM x 2, up to 64GB	DDR5 SODIMM slot x 2, max. 64GB	DDR5 5600 MT/s SODIMM x2, up to 64GB *Note: One DIMM slot can be user-populated via rear chassis access. Second DIMM slot is not user-accessible, but module preinstallation is available upon request.
Display Interface	HDMI x 2, 4K x 2K @30Hz	HDMI x2, Display Port x 2	HDMI x 2 (Support 4K @60Hz)
Storage Device	2.5" SATA Drive Bay x 2 M.2 2280 M-Key x 1 (PCIe Gen 3 [x4]) for NVMe	Removable 2.5" SATA Drive Bay x 1 M.2 2280 M Key NVMe Slot x 1	M.2 2280 M-Key x 1 (NVMe PCIe SSD, quick access tray design) 2.5" SATA HDD/SSD x 1 (quick access tray design)
Ethernet	Intel® Ethernet Connection I219-LM, GbE RJ-45 x 1 Intel® Ethernet Controller I226-LM, 2.5GbE RJ-45 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	RJ-45 x 2 for 2.5GbE LAN (Intel® Ethernet Controller I226) RJ-45 x 1 for GbE LAN (Intel® Ethernet Connection I219)
I/O	USB 3.2 Gen 2 x 4, USB 2.0 x 2 DB-9 x 2 for RS-232/422/485 Audio x 1 (Mic-in/Line-out) Power Button with power LED x 1 Remote Power On/Off x 1	USB Type-A x 3 for USB3.2 Gen2 (10Gbps) USB Type-A x 3 for USB 2.0 DB-9 x 4 for RS-232/422/485 Line out SMA Antenna Holes x 6 10-pin D-Sub connector for DIO 8 bit x 1 Power Button with LED indicator x 1 Remote Power on/off 2pin connector x 1	HDMI x 2 USB 3.2 Gen 2 (Type-A) x 4 USB 2.0 (Type-A) x 2 DB-9 Male x 2 for RS-232/422/485 3.5mm Jack x 1 for Mic-in/Line-out DB-15 male x1 for 8-bit DIO Remote Power x 1 Power Button with LED x 1 Antenna holes x 6
Expansion	M.2 2280 M-Key x 1 (NVMe) *Note: Additional heatsink required, please refer to optional accessories. M.2 2230 E-Key x 1 (for Wi-Fi/Bluetooth) Full Size MiniPCIe x 1 (optional for mSATA) Onboard TPM 2.0	M.2 E key 2230 x 1 M.2 B Key 3052 x 1 (for 5G/LTE module)	M.2 2280 M-Key x 1 (PCIe [x4] for NVMe Storage) M.2 2230 E-Key x 1 (for Wi-Fi) M.2 3052 B-Key x 1 (for 5G/LTE) SIM Slot x 1
Indicator	System / Storage	System Power LED x 1	Sys LED Storage active LED
OS support	Windows® 10 IoT Enterprise 64-bit Windows® 11 PRO 64-bit Linux Ubuntu 22.04	Windows® 10 IoT Ent LTSC, Windows® 11 PRO, Ubuntu 22.04	Windows® 11 Pro, Windows® 11 IoT Enterprise, Linux Ubuntu 24.04.01 and later
Power Supply			
Power Requirement	3-pin DC Input 10~35V	DC-in 10~35V in 3pin Terminal block connector	DC-in 9~36V in 3-pin Terminal block connector
Mechanical			
Mounting			
Dimensions (W x H x D)	7.09" x 3.04" x 8.66" (180mm x 77.2mm x 220mm) 8.43" x 3.31" x 8.66" (214mm x 84.2mm x 220mm) with brackets	8.66" x 6.06" x 2.42" (220 mm x 154 mm x 61.6 mm)	Wallmount 8.66" x 6.06" x 2.42" (220mm x 154mm x 62.1mm) w/o bracket 10.7" x 6.1" x 3.0" (272mm x 154mm x 76.1mm) with bracket
Gross Weight	8.59 lb (3.9 Kg)	6.6 lb (3.0 Kg)	6.6 lb (3.2 Kg)
Net Weight	6.39 lb (2.9 Kg)	4.9 lb (2.2 Kg)	4.9 lb (2.4 Kg)
Environmental			
Operating Temperature	-13°F ~ 131°F (-25°C ~ 55°C), IEC60068-2 with 0.7 m/s AirFlow, with wide temperature memory/storage (TDP 65W CPU) -13°F ~ 158°F (-25°C ~ 70°C), IEC60068-2 with 0.7 m/s AirFlow, with wide temperature memory/storage (TDP 35W CPU)	-4°F ~ 140°F (-20°C ~ 60°C), IEC68-2 with 0.5 m/s AirFlow, with wide temperature Memory/Storage	-4°F ~ 140°F (-20°C ~ 60°C), IEC60068-2 with 0.7 m/s AirFlow, with wide temperature Memory/Storage
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	5 ~ 95% @ 40°C, non-condensing	5 ~ 95% @ 40°C, non-condensing
Anti-Vibration	IEC60068-2-64, 3 Grms/ 5 ~ 500Hz/ operation (with SSD)	SSD: Random, 3Grms, 5~500Hz	2 Grms/ 5 ~ 500Hz/ operation (with SSD)
Anti-Shock	50G, IEC60068-2-27, half sine, 11ms duration (with SSD)	SSD: 50G @ Wallmount, Half-sine, 11ms	30G, IEC60068-2-27, half sine, 11 ms duration (with SSD)
Certification	CE/FCC Class A		
Note			

System Level Products

Compact Fanless BOX PC Solutions

02

Compact Fanless BOX PC Solutions



Model	BOXER-6648-ARS	BOXER-6649-RAP	BOXER-6650-PTH
System			
CPU	Intel® Core™ Ultra 9 Processor 285/285T Intel® Core™ Ultra 7 Processor 265/265T Intel® Core™ Ultra 5 Processor 225/225T	13th Generation Intel® Core™ i7/i5/i3 Processors (28W) Intel® Core™ i3-1320PE Intel® Core™ i5-1340PE Intel® Core™ i7-1370PE	Intel® Core™ Ultra Series 3 processors (25W, formerly Panther Lake): Intel® Core™ Ultra 5 325 Intel® Core™ Ultra X7 358H Intel® Core™ Ultra X9 388H
Chipset	A1 SKU: Intel® H810 Chipset A2 SKU: Intel® Q870 Chipset	Intel® SoC	
System Memory	DDR5 SODIMM Slot x 2, up to 64GB	DDR5 SODIMM slot x 2, up to 96GB	DDR5 6400MHz CSODIMM x2, max. up to 64GB
Display Interface	HDMI 2.0 x 2	HDMI x 2	
Storage Device	Internal 2.5" SATA Drive Bay x 2 (RAID 0, 1 supported on A2 SKU) M.2 2280 M-Key x 1 (PCIe Gen 4 [x4]) for NVMe	Internal 2.5" SATA Drive Bay x 1 M.2 2280 M-Key x 1 (PCIe Gen 4 [x4]) for NVMe	Internal 2.5" SATA Drive Bay x 1 M.2 2280 M-Key x 1 (PCIe Gen 4 [x4]) for NVMe
Ethernet	Intel® Ethernet Controller I226-LM, 2.5GbE LAN x 2 / Intel® Ethernet Connection I219-LM, 1GbE LAN x 1 (Intel® Active Management Technology on 2.5GbE LAN on A2 Model SKU only)	Intel® Ethernet Controller I226-LM, 2.5GbE, RJ-45 x 5 (IEEE 802.3 at PoE PSE x 4) Note: PoE Power Budget: 20W (≥12V DC Input) 60W (≥19V DC Input)	RJ-45 x 6 (IEEE 802.3af/at PoE PSE x 4, total power budget of 60W): Intel® Ethernet Controller I226-LM, 2.5GbE x 5 Intel® Ethernet Controller I210-IT, 1GbE x 1 (OOB support by request)
I/O	A1 SKU: USB 3.2 Gen 1 (5Gbps) Type-A x 4, USB 2.0 x 4 A2 SKU: USB 3.2 Gen 2 (10Gbps) Type-A x 6, USB 2.0 x 2 DB-9 x 6 for RS-232/422/485 Mic-in / Line-out 10-pin Terminal Block for 8-bit DIO Power Button with LED Indicator x 1 2-pin Remote Power On/Off Connector x 1	USB 3.2 Gen 2 (Type-A) x 2 (10Gbps) USB 2.0 x 4 DB-9 for RS-232/422/485 x 2 Audio Jack x 1 for Mic-in/Line-out DB-15 for DIO 8-bit Power Button with LED Indicator x 1	USB3.2 Gen1 x1 USB2.0 x 3 DB-9 x 2 for RS-232/422/485 DB-15 Male x 1 for DIO 8-bit Audio Jack x 1 for Mic-in/Line-out Antenna opening x 6 Power button with power LED x 1 Remote Power On/Off x 1
Expansion	M.2 2230 E-Key x 1 (PCIe) M.2 2280 M-Key x 1 (PCIe Gen 4 [x4])	M.2 2230 E-Key x 1 (PCIe) M.2 3052 B-Key x 1 (USB 3.2/USB 2.0) SIM Slot x 1	M.2 2230 E-Key x 1 (PCIe [x1]) M.2 3052 B-Key x 1 (USB 3.2) Nano SIM Slot x 1 TPM2.0 (Onboard)
Indicator	System Power / Storage LED	System Power	Power button with power LED
OS support	Windows® 11 Pro Windows® 11 IoT Enterprise LTSC 2024 Ubuntu 24.04 or later	Windows® 10 IoT Enterprise LTSC 2021 Windows® 11 PRO Windows® 11 IoT Enterprise LTSC 2024 Ubuntu 24.04 above	Windows 11 PRO/IoT Linux Ubuntu 24.04 and later
Power Supply			
Power Requirement	DC-in 10V ~ 35V via 4-pin Terminal Block Connector	9V ~ 36V DC input via 3-pin Terminal Block Connector with protection circuit	DC 9 V~36 V via 4-pin Terminal Block (ATX mode) Power protection features: OCP (Overcurrent), OVP (Overvoltage), UVP (Undervoltage), SCP (Short circuit), RVP (Reverse voltage)
Mechanical Mounting		Wallmount, DIN Rail (optional)	
Dimensions (W x H x D)	10.39" x 3.2" x 6.1" (264mm x 81mm x 156mm)	9.5" x 6.6" x 2.2" (242mm x 167mm x 56mm) w/o brackets	8.66" x 6.06" x 2.4" (220mm x 154mm x 61mm) w/o brackets
Gross Weight	9.9 lb (4.5Kg)	7.1 lb (3.2 Kg)	7.7 lb (3.5Kg)
Net Weight	7.7 lb (3.5Kg)	5.3 lb (2.4 Kg)	5.5 lb (2.5Kg)
Environmental			
Operating Temperature	-13°F ~ 122°F (-25°C ~ 50°C) with 65W TDP CPU, IEC60068-2 with 0.7 m/s AirFlow, with wide temp. memory/storage	-13°F ~ 140°F (-25°C ~ 60°C), IEC60068-2 with 0.7 m/s AirFlow, with wide temp. memory/storage	-13°F ~ 131°F (-25°C ~ 60°C), IEC60068-2 with 0.7 m/s AirFlow, with wide temp. memory/storage
Storage Temperature		-40°F ~ 176°F (-40°C ~ 80°C)	
Storage Humidity		5 ~ 95% @ 40°C, non-condensing	
Anti-Vibration		Random, 3 Grms, 5~500Hz, with SSD	
Anti-Shock	SSD: 50G @ Wallmount, Half-sine, 11ms	SSD: 50G @ Wallmount, Half-sine, 11ms	With SSD: 50 G, IEC 60068-2-27, half sine, 11 ms duration
Certification		CE/FCC class A	
Note			

Note: All specifications are subject to change without notice.

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02-18

Ultra Slim Fanless BOX PC Solutions



Model	BOXER-6405	BOXER-6405M	BOXER-6406-ADN
System			
CPU	Intel® Celeron®/Pentium® processor		Intel® Processor N200 Intel® Processor N50 Intel Atom® x7211E
Chipset	Intel® System on Chip		Intel® SoC
System Memory	DDR3L 1866, Single Channel SODIMM x 1, Non-ECC (Max.8GB, up to 1600MHz)		DDR5 4800MHz SODIMM x 1, up to 32GB
Display Interface	HDMI (max. 1920 x 1080)	HDMI type A x 1 for HDMI v1.4b VGA x 1	HDMI x 2
Storage Device	mSATA	HDD/SSD, (mSATA BOM option)	M.2 2280 M-Key x 1 (PCIe Gen 3 x 2) 2.5" SATA HDD/SSD x 1
Ethernet	Intel® i211-AT x 2		RJ-45 x 2 for 2.5GbE LAN (Intel® I226-LM)
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	HDMI x 2 RJ-45 x 2 for 2.5GbE LAN (Intel® I226-LM) USB 3.2 Gen 2 x 2 (Type-A) USB 2.0 x 2 (Type-A) DB-9 x 3 for RS-232/422/485 DB-15 x 1 Male for Digital I/O 8-Channel 3-pin Terminal Block for DC In x 1 Power Button with LED x 1
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)	M.2 2280 M-Key x 1 (PCIe [x2]) M.2 2230 E-Key x 1 Full-Size Mini Card x 1 (PCIe + USB) SIM Slot x 1
Indicator	Power LED x1, HDD active LED x1	Power LED x 1, HDD active LED x 1	—
OS support	Windows® 10, Windows® 10 IoT, Linux		Windows® 10 IoT Enterprise Windows® 11 IoT Enterprise Windows® 11 Pro Linux Ubuntu 22.04
Power Supply			
Power Requirement	9-24V with 3-pin terminal block	3-pin Phoenix DC Input 9~24V without power protection	9 ~ 36V DC-In x 1 for 3-pin Terminal Block
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)	7.32" x 4.12" x 1.93" (186mm x 104.6mm x 49.1mm) without bracket 8.74" x 4.12" x 2.21" (222mm x 104.6mm x 56.1mm) with bracket
Gross Weight	3.6 lb (1.6Kg)		4.32 lb (1.96 Kg)
Net Weight	1.76 lb (0.8 Kg)		2.56 lb (1.16 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)		-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	-22°F ~ 140°F (-30°C ~ 60°C)		-40°F ~ 176°F (-40°C ~ 80°C)
Storage Humidity	95% @ 40°C, non-condensing		5 ~ 95% @ 40°C, non-condensing
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation – mSATA 1 Grms/ 5 ~ 500Hz/ operation - HDD		3 Grms/ 5 ~ 500Hz/ operation (with SSD)
Anti-Shock	—		
Certification	CE/FCC Class A	CE/FCC Class A, UL	CE/FCC Class A
Note			

System Level Products

Ultra Slim Fanless BOX PC Solutions

02

Ultra Slim Fanless BOX PC Solutions



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

Note: All specifications are subject to change without notice.

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02-20

System Level Products

Ultra Slim Fanless BOX PC Solutions



Model	BOXER-6407-TWL	BOXER-6451-ADP
System		
CPU	Intel® Processor N series: Intel® Processor N250 (4C/4T, 6W) Intel® Processor N150 (4C/4T, 6W)	Intel® Core™ i7-1265UE Intel® Core™ i5-1245UE Intel® Core™ i3-1215UE Intel® Celeron® Processor 7305E
Chipset		Intel® SoC
System Memory	DDR5 4800MHz SODIMM x 1, up to 32GB	DDR4 SODIMM x 1, up to 32GB
Display Interface	HDMI x 1, up to 4K @60Hz VGA x 1	HDMI 1.4b x 2 (Type-A)
Storage Device	M.2 2280 M-Key x 1 (PCIe Gen 3 [x2])	2.5" SATA Drive Bay x 1 M.2 2280 M-Key x 1 (PCIe [x4])
Ethernet	RJ-45 x 2 for GbE LAN (Intel® Ethernet Controller I210-AT)	RJ-45 x 1 for 2.5GbE (Intel® I226-LM) RJ-45 x 1 for GbE (Intel® I219-LM)
I/O	USB 3.2 Gen 2 x 1 USB 2.0 x 3 DB-9 x 2 for RS-232/422/485 Power Button with Power LED x 1 Antenna Opening x 4	USB 3.2 Gen 2 x 3 (Type-A) USB 2.0 x 1 (Type-A) DB-9 x 4 for RS-232/422/485 HDMI 1.4b x 2 (Type-A) Power Button x 1 DC Jack 12V Input Antenna Opening x 6
Expansion	M.2 2230 E-Key x1 (PCIe [x1]) M.2 3052 B-Key x 1 (USB 3 + PCIe) SIM Slot x 1 Onboard TPM 2.0	M.2 2230 E-Key x 1 (Wi-Fi/BT) M.2 3052 B-Key w/ SIM x 1 (LTE/5G) M.2 2280 M-Key x 1 (NVMe)
Indicator	Power button with LED	
OS support	Windows® 11 PRO/loT Linux Ubuntu 24.04 and later	Windows® 10 IoT Ent LTSC Windows® 11 PRO Ubuntu 22.04
Power Supply		
Power Requirement	DC-in 12V with lockable DC jack	
Mechanical		
Mounting	Wallmount	
Dimensions (W x H x D)	6.02" x 3.98" x 1.18" (153mm x 101mm x 30mm) w/o brackets	7.68" x 4.37" x 2.5" (195mm x 111mm x 63.5mm) w/o bracket
Gross Weight	2.95 lb (1.34 Kg)	4.4 lb (2Kg)
Net Weight	1.21 lb (0.55 Kg)	3.3 lb (1.5Kg)
Environmental		
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C), IEC60068-2 with 0.7 m/s AirFlow, with wide temp. memory/storage	-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	Random, 3 Grms, 5~500Hz, with SSD	
Anti-Shock	With SSD: 50 G, IEC 60068-2-27, half sine, 11 ms duration	SSD: 50G @ Wallmount, Half-sine, 11ms
Certification	CE/FCC Class A	
Note		



Model	BOXER-6751-ADP	BOXER-6711-ADN	BOXER-6710
System			
CPU	Intel® Core™ i7-1265UE Intel® Core™ i5-1245UE Intel® Core™ i3-1215UE	Intel Atom® x7211E Intel® Processor N200 Intel® Processor N50	Intel® Pentium® processor N4200 Intel® Celeron® processor N3350
Chipset	Intel® SoC		Intel® System on Chip
System Memory	DDR4 SODIMM x 1, up to 32GB	DDR5 4800 MT/s SODIMM slot x 1, up to 32GB	DDR3L 1866, Single Channel SODIMM x 1, Non-ECC (Max.8GB, up to 1600MHz)
Display Interface	HDMI 1.4b (Type-A) x 2	HDMI 1.4 x 2	HDMI, VGA
Storage Device	2.5" SATA III Drive Bay x 1 M.2 2280 M-Key x 1 (PCIe [x4])	M.2 2280 M-Key x 1 (PCIe [x2]) 2.5" SATA HDD/SSD x 1	HDD/SSD, optional mSATA
Ethernet	RJ-45 x 1 for Intel® i226-LM, 2.5GbE RJ-45 x 1 for Intel® i219-LM, GbE	RJ-45 x 2 for 2.5GbE LAN (Intel® Ethernet Controller I226)	Intel® i211-AT x 2
I/O	USB 3.2 Gen 2 (Type-A) x 3 USB 2.0 (Type-A) x 3 DB-9 x 2 for RS-232/422/485 DB-15 x 1 for DIO 8-bit HDMI 1.4b (Type-A) x 2 Audio x 1 for Line-Out Power Button x 1 3-pin Terminal Block for DC-in x 1 Antenna Opening x 4	HDMI 1.4 x 2 RJ-45 x 2 for 2.5GbE LAN (Intel® Ethernet Controller I226) USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 (Type-A) x 2 DB-9 x 3 for RS-232/422/485 DB-15 x 1 for 8-bit DIO 3-pin Terminal Block for DC in x 1 Power Button with LED x 1	VGA x 1 HDMI x 1 RJ-45 x 2 for GbE LAN USB Type A x 4 for USB 3.2 Gen 1 Mic-in x 1 Line-out x 1 RS-232/422/485 x 3 with automatic flow control Power On/Off Button x 1 DC-in 3-pin terminal block (9~24V) x 1
Expansion	M.2 2230 E-Key x 1 (Wi-Fi/BT) M.2 3052 B-Key w/ SIM x 1 (LTE/5G) M.2 2280 M-Key x 1 (NVMe)	M.2 2280 M-Key x 1 (PCIe [x2]) M.2 2230 E-Key x 1 Full Size Mini Card x1 (PCIe + USB) SIM Slot x 1	Full-size Minicard x 1 w/ SIM Slot Half-size Minicard x 1 (optional for mSATA)
Indicator	Power Button with LED	—	Power LED on power button
OS Support	Windows® 10 IoT Ent LTSC Windows® 11 PRO Ubuntu 22.04	Windows® 10 IoT Enterprise Windows® 11 Pro Linux Ubuntu 22.04	Windows® 10 (64-bit) Windows® 10 IoT (64-bit) Linux Ubuntu 16.04.4
Power Supply			
Power Requirement	DC 9 - 36V with 3-pin terminal block		9 - 24V with 3-pin terminal block
Mechanical			
Mounting	DIN Rail Mount Wallmount (Mounting kit is optional)	DIN Rail Mount	
Dimensions (W x H x D)	2.93" x 7.32" x 5.0" (74.3mm x 186mm x 127mm)	1.89" x 7.48" x 4.88" (48mm x 190mm x 124mm)	1.73" x 6.54" x 4.17" (44mm x 166mm x 106mm)
Gross Weight	5.3 lb (2.41 Kg)	3.50 lb (1.59 Kg)	3.08lb (1.4Kg)
Net Weight	3.9 lb (1.77 Kg)	2.40 lb (1.09 Kg)	1.32lb (0.6Kg)
Environmental			
Operating Temperature	-4°F ~140°F (-20°C ~ 60°C), IEC68-2 with 0.5 m/s AirFlow	-4°F ~ 140°F (-20°C ~ 60°C), according to IEC68-2 with 0.5 m/s AirFlow (w/ Industrial wide Temp. SSD/RAM)	-4°F ~ 140°F (-20°C ~ 60°C) with W.T. SSD/HDD/ mSATA (according to IEC68-2-14 with 0.5 m/s AirFlow; with industrial devices)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-49°F ~ 176°F (-45°C ~ 80°C)	-49°F ~ 176°F (-45°C ~ 80°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	95% @ 40°C, non-condensing	95% @ 40°C, non-condensing
Anti-Vibration	With SSD: Random, 3 Grms, 5~500Hz	3 Grms/ 5 ~ 500Hz/ operation (with SSD)	3 Grms/ 5 ~ 500Hz/ operation – mSATA/SSD 1 Grms/ 5~ 500Hz/ operation – HDD
Certification	CE/FCC class A		
Note			

Expandable Fanless BOX PC Solutions



Model	BOXER-6801-RAP	BOXER-6839-CFL	BOXER-6839-RPL
System			
CPU	13th Gen Intel® Core™ Processors, Max. 28W: Intel® Core™ i7-1370PE Processor Intel® Core™ i5-1340PE Processor Intel® Core™ i3-1320PE Processor	Intel® Xeon® E-2124G Intel® i9-9900T Intel® i7-9700T Intel® i5-8500T Intel® i3-8100T Pentium® G5400T Celeron® G4900T	14th Generation Intel® Core™ Processors Intel® Core™ i9 Processor: 14900/14900T, 14901E/14901TE Intel® Core™ i7 Processor: 14700/14700T, 14701E/14701TE Intel® Core™ i5 Processor: 14500/14500T, 14400 Intel® Core™ i3 Processor: 14100/14100T 13th Generation Intel® Core™ Processors Intel® Core™ i9 Processor: 13900E/13900TE Intel® Core™ i7 Processor: 13700E/13700TE Intel® Core™ i5 Processor: 13500E/13500TE Intel® Core™ i3 Processor: 13100E/13100TE 12th Generation Intel® Core™/Celeron® Processors Intel® Core™ i9 Processor: 12900E Intel® Core™ i7 Processor: 12700E/12700TE Intel® Core™ i5 Processor: 12500E/12500TE Intel® Core™ i3 Processor: 12100E/12100TE Intel® Celeron® Processor: G6900E/G6900TE
Chipset	Intel® SoC	C246	Intel® Q670E Chipset
System Memory	DDR5 SODIMM x 2, up to 96GB	DDR4-2666 SODIMM slot x 2 Up to 64GB, ECC or Non-ECC Support	DDR5 4800, SODIMM x 2, up to 64GB
Display Interface		HDMI x 2	HDMI x 2, Display Port x 2
Storage Device	2.5" SATA Drive Bay x 1 M.2 2280 M-Key x 1 (PCIe Gen 4 [x4])	2.5" SATA HDD/SSD Bay x 2	2.5" SATA Drive Bay x 2 M.2 2280 M-Key x 1 (PCIe Gen 4 [x4]) for NVMe
Ethernet	2.5GbE x 5 (Intel® Ethernet Controller i226-LM)	RJ-45 x 4 for GbE LAN (i211-AT x 3, i219-LM x 1)	RJ-45 for 2.5GbE LAN x 1, RJ-45 for GbE LAN x 3
I/O	2.5GbE x 4 (IEEE 802.3af/at PoE support, providing a total power budget of 60W across all ports) Note: When the input voltage is ≤12V, the system supports PoE with a maximum combined output of <20W. USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 (Type-A) x 2 DB-9 x 2 for RS-232/422/485 DB-15 x 1 for DIO 8-bit Front-access SIM Slot x 1 3.5mm Jack x 1 for Line-out/Mic-in Antenna Opening x 6 Reset Button x 1 Power Button x 1	HDMI x 2 RJ-45 x 4 for GbE LAN (i211 x 3, i219 x 1) USB 3.2 Gen 1 x 8 DB-9 x 6 for RS-232/422/485 Audio x 1 (MIC-in, Line-out) DB-15 for DIO 8 bit x 1 3 pin 10~35V Power Input x 1 Power Button x 1 Remote Power switch x 1 Reset Button x 1	USB 3.2 Gen 2 (Type-A) x 8 DB-9 for RS-232/422/485 x 6 Mic-in / Line-out x 1 10-pin Terminal Block for 8-bit DIO x 1 Remote Power on/off x 1 2-pin Remote Power Switch x 1 Power Button with LED Indicator x 1
Expansion	M.2 2280 M-Key x 1 M.2 2230 E-Key x 1 (PCIe) M.2 3052 B-Key x 1 (USB) with SIM slot PCIe [x1] Slot x 1 (Max size: 150mm x 110mm x 20mm) PCI Slot x 1 (Max size: 150mm x 110mm x 20mm)	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	M.2 2230 E-Key x 1 (Wi-Fi) M.2 3052 B-Key x 1 with Nano SIM (LTE/5G) M.2 2280 M-Key x 1 (NVMe) Model A1: PCIe [x4] x 1 + PCIe [x1] x 1 (Total Power Consumption: 25W) Model A2: PCIe [x4] x 1 + PCI x 1 (Total Power Consumption: 25W) Maximum Expansion Card Size: Upper slot: 160 mm x 105 mm, Lower slot: 170 mm x 105 mm
Indicator	—	HDD LED x 1 System LED x 1	System LED x 1 HDD LED x 1
OS Support	Windows® 10 IoT 2021 LTSC Windows® 11 IoT LTSC Ubuntu 24.04 above	Windows® 10 64-bit, Linux Ubuntu 20.04	Windows 10 IoT LTSC 2021 Windows 11 IoT LTSC 2024 Ubuntu 24.04 and later
Power Supply			
Power Requirement	9V~36V DC Input via 3-pin Terminal Block, with built-in protection circuit	3-pin Phoenix DC Input 10~35V	12V ~ 24V DC-in via 3-pin Terminal Block Connector with protection circuit
Mechanical Mounting	Wallmount (Optional: DIN Rail Mount)		Wallmount
Dimensions (W x H x D)	10.3" x 7" x 4.8" (264mm x 179mm x 124mm) w/o Brackets	264mm x 156mm x 125mm	10.3" x 7.3" x 4.8" (264mm x 186mm x 122mm) w/o Brackets
Gross Weight	13.89 lb (6.3 Kg)	13.2 lb (6.0 Kg)	16.1 lb (7.3 Kg)
Net Weight	10.80 lb (4.9 Kg)	9.9 lb (4.5 Kg)	12.4 lb (5.6 Kg)
Environmental			
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C) with 0.7 m/s airflow (with wide temp. memory/storage)	-4°F ~ 131°F (-20°C ~ 55°C) with 0.5 m/s airflow (with TDP ≤ 35W CPU) -4°F ~ 113°F (-20°C ~ 45°C) with 0.5 m/s airflow (with TDP > 35W CPU)	-4°F ~ 131°F (-20°C ~ 50°C) with 0.7 m/s airflow (with wide temp. memory/storage)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-49°F ~ 176°F (-45°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	5~95% @ 40°C, non-condensing	5 ~ 95% @ 40°C, non-condensing
Anti-Vibration	With SSD: Random, 3Grms, 5~500Hz	5 Grms/ 5 ~ 500Hz/ operation -SSD	With SSD: Random, 3Grms, 5~500Hz
Anti-Shock	With SSD: 50G @ Wallmount, Half-sine, 11ms	SSD: 50G @ Wallmount, Half-sine, 11ms	With SSD: 50G @ Wallmount, half-sine, 11ms
Certification	CE/FCC Class A		CE/FCC class A
Note			

System Level Products

Expandable Fanless BOX PC Solutions

Expandable Fanless BOX PC Solutions



Model	BOXER-6843-ADS	BOXER-6845-BTL
System		
CPU	12th Generation Intel® Core™, TDP Max. 65W Intel® Core™ i9-12900TE/i9-12900E Intel® Core™ i7-12700TE/i7-12700E Intel® Core™ i5-12500TE/i5-12500E Intel® Core™ i3-12100TE/i3-12100E 13th Generation Intel® Core™, TDP Max. 65W Intel® Core™ i9-13900TE/i9-13900E Intel® Core™ i7-13700E Intel® Core™ i5-13500E Intel® Core™ i3-13100TE 14th Generation Intel® Core™, TDP Max. 65W Intel® Core™ i9-14900/i9-14900T Intel® Core™ i7-14700/i7-14700T Intel® Core™ i5-14500 Intel® Core™ i3-14100/i3-14100T	Intel® Core™ processors Series 2 (formerly Bartlett Lake), TDP Max. 65W: Intel® Core™ 7 Processor 251E, Intel® Core™ 7 Processor 251TE, Intel® Core™ 5 Processor 221E, Intel® Core™ 5 Processor 221TE, Intel® Core™ 5 Processor 211E, Intel® Core™ 5 Processor 211TE, Intel® Core™ 3 Processor 201TE
Chipset	Q670E	Intel® W680 Chipset
System Memory	DDR5 4800Mhz U-DIMM x 4, up to 128GB	DDR5 SODIMM Slot x 2, up to 64GB (Un-buffered ECC / Non-ECC)
Display Interface	HDMI x 2 (Type-A) Display Port x 2	HDMI x 2 (Lockable)
Storage Device	2.5" SATA Drive Bay x 2 (external, swappable) M.2 2280 M-Key x 2 (PCIe Gen 4 [x4]) 3.5" SATA Drive Bay (internal, non-swappable, optional)	2.5" SATA Drive Bay x 2 M.2 2280 M-Key x 2 (NVMe) (Support RAID 0/1)
Ethernet	2.5GbE x 3 (Intel® I226-IT) GbE x 1 with LED Indicator (Intel® i219-LM)	Lockable RJ-45 x 3 for GbE LAN
I/O	HDMI x 2, Display Port x 2 RJ-45 x 4 3.2 Gen 2 x 8 (Type-A) DB-9 Male x 6 for RS-232/422/485 (Autoflow, Programmable) DB-15 Male x 1 for 8-bit DIO Audio (Mic-in/Line-out) DC 19 ~ 36V 3-pin Terminal Block Connector Power Button with LED x 1 Remote Power On/Off x 1 Reset Button x 1	USB 3.2 (10Gbps) x 2 USB 2.0 x 2 DB-9 for RS-232/422/485 x 2 Mic-in x 1 Line-out x 1 DB-15 for DIO 8-bit x 1 Remote Power Switch x 1 Power Button with LED Indicator x 1 Reset Button x 1 Antenna Opening x 10
Expansion	M.2 2230 E-Key x 1 M.2 3052 B-Key w/SIM x 1 M.2 2280 M-Key/B-M-Key x 2 Full-Size Mini Card x 1 (PCIe + USB) A1: PCIe [x4] x 1 + PCIe [x16] x 1 A2: PCIe [x4] x1 + PCIe [x8] (in x16 slot) x 2 Max. Power Consumption of GPU card 300W Max. Size of GPU card 305mm x 120mm x 50mm	M.2 2230 E-Key x 1 (Wi-Fi) M.2 3052 B-Key x 1 w/ Front Access Nano SIM Slot (LTE/5G) M.2 3052 B-Key x 1 (PCIe [x1] + USB 3) Front Access Nano SIM Slot x 1 with cover Optional OOB function (by request) Riser Card Expansion: A1 SKU: PCIe [x16] + PCIe [x4] Total share 150W by power cable Max. GPU card power consumption: 150W Max. GPU card length: 221mm A2 SKU: PCIe [x4] + PCI x 1
Indicator	—	System Power
OS Support	Windows® 10 IoT Enterprise LTSC 2021 Windows® 11 Pro Linux Ubuntu 22.04	Windows® 10 IoT 2021 LTSC Windows® 11 IoT LTSC Linux Ubuntu 24.04
Power Supply		
Power Requirement	DC 19 ~ 36V 3-pin Terminal Block	12V-24V 4-pin DC Terminal Block Connector with protection circuit
Mechanical		
Mounting		Wallmount
Dimensions (W x H x D)	7.35" x 8.92" x 14.76" (186.8 x 226.5 x 375 mm)(Without brackets) 7.35" x 9.19" x 16.50" (186.8 x 233.5 x 419 mm)(With brackets)	5.9" x 10.6" x 8.8" (150mm x 270mm x 225mm) without brackets
Gross Weight	20.9 lb (9.5Kg)	18.1 lb (8.2 Kg)
Net Weight	18.1 lb (8.2 Kg)	14.3 lb (6.5 Kg)
Environmental		
Operating Temperature	-4°F ~ 113°F (-20°C ~ 45°C), according to IEC68-2 with 0.5 m/s AirFlow (w/ Industrial wide Temp. SSD/RAM)	-4°F ~ 113°F (-20°C ~ 45°C) with 0.7 m/s airflow(with industrial wide temp. SSD/RAM, without add-on card)
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)	50G @ Wallmount, half sine, 11 ms duration (with SSD)
Certification		CE/FCC Class A
Note		

Note: All specifications are subject to change without notice.

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02-24



Model	
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
Chipset	C246, No H310 downward support
System Memory	DDR4 SODIMM socket x4 (double deck) Support max. 2666MHz up to 128GB Support un-buffered and ECC / non-ECC type SODIMM
Display Interface	HDMI x 2 Support Dual Independent Display, 4K Ultra HD displays
Storage Device	2.5" SATA Drive Bay x2 (4 SATA Port w/ RAID Function) mSATA x 1 (optional) M.2 2280 NVMe SSD slot x 1
Ethernet	RJ-45 x 3 for GbE (Intel i211AT x 2, i219LM x 1)
I/O	HDMI x 2 Audio (Mic-in, Line-out) USB 3.2 Gen1 x 6 DB-9 x4 for RS-232/422/485 with automatic flow control 3 pin DC Power input x 1 (+, -, GND) Power ON/OFF switch x 1 2 pin Remote power on/off connector Reset switch
Expansion	A2/A3/A4/A5 Full-size Minicard x 1 (PCIE + USB with 1 SIM Slot) Half-size Minicard x 1 (PCIE + USB, optional for mSATA) M.2 M key (2280) x 1 (PCIEx4) - Max. Power Consumption of GPU card 250W - Max. Size of GPU card 280mm x150mm x 40mm A2 PCIE [x4] x 1 + PCIE [x16] x 1 A3 PCIE [x4] x1 + PCIE [x8] (in x16 slot) x 2 A4 PCIE [x4] x1 + PCIE [x8] (in x16 slot) x2 Support dual Graphics Cards with two power inputs A5 Built in Nvidia 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.
Reserved Connector	Internal, SATA x 2; Internal, 8bit DIO x 1; Internal, USB 2.0 x 4; Internal, LPC x 1; Internal, Secondary System Fan Connector x 1
Indicator	System Power LED x 1 (Green), Storage Active LED x 1 (Red)
OS Support	Windows® 10 Enterprise 64 bit, Ubuntu 18.04.4
Power Supply	
Power Requirement	A2/A3/A4 DC In 12~24V with 3-pin terminal block No Graphics Card: CPU 35W->120W Adapter x 1, CPU 71W->240W Adapter x 1 With 250W Graphics Card x1: 480W Adapter x 1 A4 DC In 12~24V with 3-pin terminal block With 250W Graphics Card x2: 330W Adapter x 1 + 480W Adapter x 1 A5 DC In 12~24V with 3-pin terminal block With A2 x 1: 240W Power Adapter x 1 With A2 x 2: 330W Power Adapter x 1
Mechanical	
Mounting	Wallmount
Dimensions (W x H x D)	A2/A3/A5: 6.17" x 8.92" x 12.8" (156.7mm x 226.5mm x 325mm) A4: 7.77" x 8.92" x 12.8" (197.3mm x 226.5mm x 325mm)
Gross Weight	A2/A3: 18.52 lb (8.4 Kg); A4: 20.72 lb (9.4 Kg); A5: 20.5 lb (9.3 Kg)
Net Weight	A2/A3: 15.65 lb (7.1 Kg); A4: 17.86 lb (8.1 Kg); A5: 17.64 (8 Kg)
Environmental	
Operating Temperature	Without Graphics Cards: -4°F ~ 149°F (-20°C ~ 65°C) with 0.5m/s airflow With 250W Graphics Card: 32°F ~ 113°F (0°C ~ 45°C) with 0.5m/s airflow A5: 32°F ~ 113°F (0°C ~ 40°C) with 0.5m/s airflow
Storage Temperature	-49°F ~ 176°F (-45°C ~ 80°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing
Anti-Vibration	HDD: Random, 1Grm, 5~500Hz
Anti - Shock	—
Certification	CE / FCC class A
Note	



Model	BOXER-6314-TWL	VPC-5640S
System Form Factor	Multi-PoE & Fanless Appliance	Multi-PoE & Fanless Appliance
Processor	Intel® Core™ Processor N-series & Intel® Processor N-series : -Intel® Core™ 3 Processor N355, TDP 15W -Intel® Processor N150, TDP 6W Intel Atom® Processor X Series: -Intel Atom® x7213E Processor, TDP 10W	Default: 12th Generation Intel® Core™ i7-1265UE Processor Project Based: Intel® Core™ i5-1245UE Intel® Core™ i3-1215UE
Chipset	—	—
Main Memory	DDR5 4800MHz SODIMM x 1, max. up to 32GB	DDR5 SODIMM x 2, up to 64GB
Display	HDMI x 1 DisplayPort++ x 1	HDMI x 2
Ethernet	—	2.5GbE x 1 (Intel® I226-LM)
Smart PoE	2.5GbE x 3 + GbE x 1 (IEEE802.3 at/af, sharing 80W of power budget for every four PoE ports) Note: The system only supports total 20W PoE when input voltage is at or below 10V	2.5GbE x 4 (Intel® Ethernet Controller I226-LM) (IEEE 802.3 at/af, sharing total 60W of power budget for all four PoE ports) *Note: The system only supports total 20W PoE when input voltage is at or below 10V
RAID support	—	—
Expansion Slot	M.2 2280 M-Key x 1 (PCIe [x2], Support NVMe SSD) M.2 2230 E-Key x 1 (PCIe [x1], for WiFi/Bluetooth Module) M.2 3052 B-Key w/ sim x 2 (USB3.2, for LTE/5G Module)	M.2 2230 E-Key x 1 (PCIe [x1] + USB 2.0, for WiFi/Bluetooth Module) M.2 3052 B-Key w/ Dual-SIM x 2 (USB 3.0 + USB 2.0, for LTE/5G Module) M.2 2280 M-Key x 1 (PCIe [x4]), support NVMe PCIe [x4] SSD)
GPS, G-Sensor	Built-in GPS, NEO-M9V & G-Sensor	VS: Built-in GPS, NEO-M9V & G-Sensor
Front I/O Panel	2.5GbE PoE LAN x 3 (IEEE802.3 at/af) GbE PoE LAN x 1 (IEEE802.3 at/af) HDMI x 1 DP++ x 1 USB 3.2 Gen 2 x 2 USB 2.0 x 2 Jack x 1 for Line-out & MIC-in Remote Switch x 1 Power Button x 1	USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 (Type-A) x 2 2.5GbE LAN x 1 2.5GbE PoE LAN x 4 (IEEE802.3 at/af) Jack x 1 for Line-out & MIC-in Reset Button x 1 Power Button x 1
Rear I/O Panel	DB-9 Male x 2 for RS-232/422/485 DB-9 Male x 1 for Isolated CANBus FD x 2 DB-15 Male x 1 for DIO 8 bit DIP Switch x 1 SIM Slot x 2 3-pin Terminal Block x 1	DB-9 Male x 2 for RS-232/422/485 DB-9 Male x 1 for Isolated CANBus FD x 2 DB-15 Male x 1 for DIO 8 bit HDMI 1.4b x 2 3-pin Terminal Block x 1 DIP Switch x 1 SIM Slot x 4
Storage	—	—
HDD Tray	2.5" HDD/SSD Bay x 1	2.5" HDD/SSD Bay x 1
CF/CFast/mSATA Slot	—	—
Environmental	—	—
Operating Temperature	-40°F ~ 158°F (-40°C ~ 70°C), IEC68-2 with 0.7 m/s AirFlow	-40°F ~ 158°F (-40°C ~ 70°C), IEC68-2 with 0.5 m/s AirFlow
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Storage Humidity	5 ~ 95% @ 40°C, non-condensing	5 ~ 95% @ 40°C, non-condensing
Vibration/Shock	MIL-STD-810H	MIL-STD-810H
Certification	CE/FCC Class A, UKCA, E-Mark	CE/FCC Class A, UKCA, E-Mark
Power Requirement	—	—
Power Supply	DC-in 9~36V x 1 for 3-pin Terminal Block with power ignition	IS: DC-in 9~36V x 1 for 3-pin Terminal Block VS: DC-in 9~36V x 1 for 3-pin Terminal Block with power ignition
Mechanical	—	—
Removable HDD Tray	—	—
Internal System HDD Bay	2.5" HDD/SSD Bay x 1	2.5" HDD/SSD Bay x 1
Dimension	8.3" x 5.6" x 2.5" (210mm x 143mm x 63.6mm) w/o brackets	9.45" x 6.58" x 2.99" (240mm x 167.1mm x 76mm) Without brackets 11.69" x 6.58" x 3.27" (297mm x 167.1mm x 83mm) With brackets
Gross Weight	TBD	7.93 lb (3.6 Kg)
Note		



Model	UP 4000 Edge	UP 7000 Edge	UP 710S Edge
System			
CPU	Intel® Celeron® Processor N3350 Intel® Pentium® Processor N4200 Intel Atom™ x7-E3950	Intel® Processor N200 Intel® Processor N97 Intel® Processor N100 Intel® Processor N50 (formerly Alder Lake-N)	Intel® Processor N200 Intel® Processor N97 Intel® Processor N100 Intel® Processor N50 Intel Atom™ x7425E (formerly Alder Lake-N)
Memory	Up to 8GB onboard LPDDR4	Up to 8GB LPDDR5	
Graphics	Intel® HD Graphics	Intel® UHD Graphics for 12th Gen Intel® Processors	
Storage	Up to 64GB onboard eMMC	Up to 64GB eMMC	
Ethernet	1GbE RJ-45 x 1 (Realtek RTL8111H-CG)	1GbE RJ-45 x 1 (Realtek RTL8111H CG)	1GbE RJ-45 x 1
WiFi/BT			Optional with M.2 2230 E-key x 1
Expansion Slot	—	HDMI 1.4b/USB 3.2 Gen 2 STACK Connector x 1 (Type-A) Power Button x 1	M.2 2230 E-Key x 1 (PCIe x1, USB2.0 x1)
Security	Onboard TPM 2.0		
OS Support	Windows 10/11 (64-bit) Linux Ubuntu 22.04 Linux Yocto 4.0	Windows 10/11 (64-bit) Linux: Ubuntu 22.04 LTS/Kernel 5.15, Yocto 4.0	Windows 10/11 Ubuntu 22.04 LTS Yocto 5.1
I/O Placements			
USB	USB 3.2 Gen 1 (Type-A) x 3 USB 3.0 OTG (via USB Type-C) x1	USB 3.2 Gen 2 (Type-A) x 3	
Display Port	HDMI 1.4b x 1 DP x 1 (via USB Type-C)	HDMI 1.4b x 1	
Ethernet	RJ45 x1	1GbE RJ-45 x 1 (Realtek RTL8111H CG)	1GbE RJ-45 x 1
COM		—	RS-232/422/485 x 1
Audio	Audio wafer x 1 (Mic-in+Line-out)	—	—
GPIO		—	GPIO x 8 (Optional: PWM x 1, I2C x 1, SPI x 1; by project base, please contact AAEON sales)
Power Supply			
Power requirement	12V DC-in	12V DC-in, 5A	
Power supply type	AT/ATX (AT as default)	AT/ATX (ATX as default)	AT/ATX
Power Consumption (Typical)	19W~25W	30W~36W	
Mechanical			
Mounting	VESA Mount (optional) / Wallmount (optional) / DIN Rail (optional)	VESA Mount (optional)/Wallmount (optional) / DIN Rail (optional)	DIN Rail, VESA
Dimensions (WxHxD)	3.62" x 2.52" x 1.78" (92mm x 64mm x 45.2mm)	3.62" x 3.03" x 1.51" (92mm x 77mm x 38.5mm)	
Net Weight	0.64lb (0.29Kg)	0.68 lb (0.31Kg)	0.67 lb (0.30Kg)
Gross Weight	1.21lb (0.55Kg)	1.04 lb (0.47Kg)	0.78 lb (0.35Kg)
Environment			
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) with air flow 0.5m/s	32°F ~ 131°F (0°C ~ 55°C) with 0.5m/s air flow	23°F ~ 140°F (-5°C ~ 60°C) with 0.5m/s air flow
Operating Humidity	10% ~ 80% relative humidity, non-condensing		
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)		
MTBF	538,629 @ 30°C	685,218	685,218
Certification	CE/FCC Class A, RoHS Compliant, REACH		
Note			



Model	UP TWL Edge	UP TWLS Edge	UP WCL Edge
System			
CPU	Intel® Core™ 3 Processor N355 Intel® Processor N250 Intel® Processor N150 (formerly Twin Lake)		Intel® Core™ 7 processor 350 Intel® Core™ 5 processor 320 Intel® Core™ 3 processor 304 (formerly Wildcat Lake)
Memory	Up to 8GB LPDDR5		Up to 24GB LPDDR5
Graphics	Intel® UHD Graphics for 12th Gen Intel® Processors		Intel® Graphics
Storage	Up to 64GB eMMC		Up to 256GB UFS
Ethernet	1GbE RJ-45 x 1 (Realtek RTL8111H CG)	1GbE RJ-45 x 1	2.5GbE RJ-45 x 1
WiFi/BT	Optional with M.2 2230 E-key x 1		
Expansion Slot	HDMI 1.4b/USB 3.2 Gen 2 STACK Connector x 1 (Type-A) Power Button x 1	M.2 2230 E-Key x 1 (PCIe x1, USB2.0 x1)	
Security	Onboard TPM 2.0		TPM 2.0 support (fTPM)
OS Support	Windows® 11 LTSC Ubuntu: 24.04 LTS Yocto: 5.1		Windows® 11 LTSC Ubuntu 24.04 LTS
I/O Placements			
USB	USB 3.2 Gen 2 (Type-A) x 3		
Display Port	HDMI 1.4b x 1		
Ethernet	1GbE RJ-45 x 1 (Realtek RTL8111H CG)	1GbE RJ-45 x 1	2.5GbE RJ-45 x 1
COM	—	RS-232/422/485 x 1	—
Audio	—		
GPIO	—	GPIO x 8 (Optional: PWM x 1, I2C x 1, SPI x 1; by project base, please contact AAEON sales)	GPIO x 8
Power Supply			
Power requirement	12V DC-in, 5A		
Power supply type	AT/ATX (ATX as default)	AT/ATX	
Power Consumption (Typical)	30W~36W		
Mechanical			
Mounting	VESA Mount (optional)	DIN Rail, VESA	
Dimensions (WxHxD)	3.62" x 2.52" x 1.78" (92mm x 64mm x 45.2mm)	3.62" x 3.03" x 1.51" (92mm x 77mm x 38.5mm)	TBD
Net Weight	0.68 lb (0.31Kg)	0.67 lb (0.30Kg)	TBD
Gross Weight	1.04 lb (0.47Kg)	0.78 lb (0.35Kg)	TBD
Environment			
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C) with 0.7m/s air flow		23°F ~ 140°F (-5°C ~ 60°C) with 0.5m/s air flow
Operating Humidity	10% ~ 80% relative humidity, non-condensing		
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)		
MTBF	685,218		
Certification	CE/FCC Class A, RoHS Compliant, REACH		
Note			

System Level Products

UP Systems



Model	UPS-GWS01	UP Squared V2 Edge	UP Squared i12 Edge
System			
CPU	Intel® Celeron® Processor N3350 Intel® Pentium® Processor N4200 Intel Atom® x7-E3950	Intel® Celeron® N6210 Processor SoC Intel® Celeron® J6412 Processor SoC Intel® Pentium® J6426 Processor SoC	12th Gen Intel® Core™ Processor SoC Intel® Core™ i7-1270PE Intel® Core™ i7-1260P Intel® Core™ i5-1250PE Intel® Core™ i5-1240P Intel® Core™ i3-1220PE Intel® Celeron® Processor 7305E 13th Gen Intel® Core™ Processor SoC Intel® Core™ i7-1370PE Intel® Core™ i7-1360P Intel® Core™ i5-1340PE Intel® Core™ i3-1320PE
Memory	Up to 8GB onboard LPDDR4	Up to 16GB LPDDR4	Up to 16GB Onboard LPDDR5 (Single-Channel)
Graphics	Intel® HD Graphics		Intel® UHD Graphics
Storage	Up to 128GB onboard eMMC	Up to 64GB eMMC	M.2 2280 M-Key NVMe x 1 (PCIe Gen 4.0 [x4]) SATA 6Gb/s x 1
Ethernet	GbE x 2 (Realtek 8111H CG)	Gb Ethernet (full speed) RJ-45 x 2	1GbE RJ-45 x 2 (Realtek RTL8111H-CG)
WiFi/BT		Optional: M.2 2230 E-Key	
Expansion Slot	40-pin GPIO x 1 Full-sized mPCIe x 1 (PCIe & SATA [x1] , USB2.0 [x1]) M.2 2230 E-Key x 1 (PCIe [x1], USB2.0 [x1]) SATA III x 1	M.2 2230 E-Key x 1 (PCIe Gen 3.0 [x2], USB 2.0 [x1]) M.2 2280 M-key x 1 (PCIe Gen 3.0 [x2]) SATA 6Gb/s x 1	M.2 2230 E-Key x 1 (CNVI & PCIe Gen 3.0 [x1]) M.2 2280 M-Key NVMe x 1 (PCIe Gen 4.0 [x4]) SATA 6Gb/s x 1
Security	TPM		Onboard TPM 2.0
OS Support	Windows® 10 IoT Enterprise LTSC 2021 Windows IoT Core Linux Ubuntu 20.04 LTS Linux Yocto 3.1	Windows 10 (full) Windows IOT Core Ubuntu 20.04 LTS Yocto 3.1	Windows® 10 IoT Enterprise Ubuntu 22.04 LTS Yocto 4
I/O Placements			
USB	USB 2.0 x 2 (via 10 Pin Header x 1) USB 3.2 Gen 1 x 3 (Type-A) USB 3.2 Gen 1 OTG x 1 (Micro B)	USB 2.0 x 2 (via 10 Pin Header x 1) USB 3.2 Gen 2 x 3 (Type-A)	USB 3.2 Gen 2 (Type A) x 2 USB 3.2 Gen2 (Type C) x 1
Display Port		HDMI 1.4b x 1 DP 1.2 x 1	HDMI 1.4b/DP 1.2 STACK Connector x 1 DP 1.4a x 1 (via USB Type-C)
Ethernet COM	Realtek® 8111G x 2	Gigabit LAN (RJ-45) x 2 RS-232/422 x 1	1GbE RJ45 x 2 (Dual Stacked) (Realtek 8111H CG)
Audio	—	Line out x 1 Mic in x 1	Audio Jack (Line out + MIC in) x 1
GPIO		—	
Power Supply			
Power requirement	5V DC-in	12V DC-in, 5A	12V DC-in
Power supply type		AT/ATX (AT as default)	AT (default) /ATX
Power Consumption (Typical)	15.05W	30~38W	Intel® Core™ i7-1270PE, LPDDR5 4800MHz 16GB, 5.86A@+ 12V (Typical) Intel® Core™ i7-1270PE, LPDDR5 4800MHz 16GB, 8.05A@+ 12V (Max)
Mechanical			
Mounting		VESA Mounting	VESA Mount/Wallmount(Optional)
Dimensions (WxHxD)	3.74" x 3.58" x 1.46" (95mm x 91mm x 37mm)	3.74" x 3.74" x 2.16" (95 x 95 x 55 mm)	5.12" x 3.7" x 2.68" (130mm x 94mm x 68mm)
Net Weight		0.99lb (450g)	1.87 lb (0.85Kg)
Gross Weight		1.32lb (600g)	2.36 lb (1.07Kg)
Environment			
Operating Temperature	32°F ~ 113°F (0°C ~ 45°C)	32°F ~ 140°F (0°C ~ 60°) / 0.5 airflow	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow
Operating Humidity	0% ~ 90% relative humidity non-condensing	0% ~ 90% relative humidity, non-condensing	
Storage Temperature		-4°F ~ 158°F (-20°C ~ 70°C)	
MTBF	179,902	465,586	522,716
Certification	CE, FCC Class A, UL		CE/FCC Class A, RoHS Compliant, REACH
Note			



Model	UP Squared 7100 Edge	UP Squared TWL Edge
System		
CPU	Intel® Processor N97 Intel® Processor N100 Intel Atom® x7425E	Intel® Core™ 3 Processor N355 Intel® Processor N250 Intel® Processor N150 (formerly Twin Lake)
Memory	Up to 16GB LPDDR5	
Graphics	Intel® UHD Graphics for 12th Gen Intel® Processors	
Storage	Up to 128GB eMMC	
Ethernet	Gb Ethernet (full speed) RJ-45 x 2	
WiFi/BT	Optional with M.2 2230 E-key x 1	M.2 2230 E-key x 1 (Optional: Intel® Wi-Fi 6E AX210 module)
Expansion Slot	M.2 2230 E-Key x 1 (PCIe x1, USB2.0 x1) M.2 2280 M-key x 1 (PCIe x2)	
Security	Onboard TPM 2.0	
OS Support	Windows 10/11 Ubuntu 22.04 LTS Yocto 5.1	Windows® 11 LTSC Ubuntu: 24.04 LTS Yocto: 5.1
I/O Placements		
USB	USB 2.0 x 2 (via 10 Pin Header x 1) USB 3.2 Gen 2 x 3 (Type-A)	
Display Port	HDMI 2.0b x 1 DP 1.2 x 1	
Ethernet	Gb Ethernet (full speed) RJ-45 x 2	
COM	RS-232/422/485 x 2	
Audio	Line out x 1 Mic in x 1	
GPIO	—	
Power Supply		
Power requirement	12V DC-in, 5A	
Power supply type	AT/ATX	
Power Consumption (Typical)	15W~37W	
Mechanical		
Mounting	VESA Mounting	
Dimensions (WxHxD)	3.74" x 3.74" x 2.16" (95 x 95 x 55 mm)	
Net Weight	0.99lb (450g)	
Gross Weight	1.32lb (600g)	
Environment		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°) / 0.5 airflow	-4°F ~ 140°F (-20°C ~ 60°) / 0.7 airflow
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	
MTBF	1,224,238	
Certification	CE/FCC Class A, RoHS Compliant, REACH	
Note		

System Level Products UP Systems



Model	UPN-Edge Pro
System	
CPU	Intel® Apollo Lake N4200/N3350/E3950 Processor SoC
Memory	onboard DDR4, Max 8GB Single Channel:2GB Dual Channel:4GB,8GB
Graphics	Intel® Graphic ,Gen 9
Storage	Emmc 32G/64G
Ethernet	Intel i210 x2
WiFi/BT	Optional
Audio	Line out+mic in x1
USB	USB 3.2 Gen 1 OTG x 1 USB 3.2 Gen 1 (Type A) x 3
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)
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
Display Port	HDMIx1, DP x1
Ethernet	Gb Ethernet (full speed) RJ-45 x 2 (Intel i210)
COM	RS422/RS232/RS485 x 2
Environment	
Power	12-24VDC
Form Factor	4.61" x4.19" x3.5" (117mm x 106.5mm x 88.8mm)
Gross Weight	2.17 lb (982.5g)
Operating Temperature	32°F ~ 140°F (0°C ~ 55°C) 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
Note	

Model	UP Squared Pro 7000 Edge
System	
CPU	Intel® Core™ i3-N305 Intel Atom™ x7425E Intel® Processor N97 Intel® Processor N50
Memory	Up to 16GB onboard LPDDR5
Graphics	Intel® UHD Graphics for 12th Gen Intel® Processors VPU: Hailo-8™ M.2 2280 B+M key AI module via m.2 2280 (Optional by SKU from ordering information)
Storage	Up to 64GB onboard eMMC
Ethernet	2.5GbE x 2 (Intel® i226-IT)
WiFi/BT	Optional with M.2 2230 E-key x 1
Expansion Slot	M.2 2230 E-Key x 1 (CNVI, PCIe Gen 3 [x1], USB 2.0) M.2 2280 M-Key x 1 (PCIe Gen 3 [x2], USB 2.0) M.2 3052 B-Key x 1 (USB 3.2 Gen 2) with Nano SIM slot (USB 3.0) SATA 6Gb/s x 1
Security	Onboard TPM 2.0
OS Support	Windows® 10 IoT Enterprise Ubuntu 22.04 LTS Yocto 4.0
I/O Placements	
USB	USB 3.2 Gen 2 x 2 (Type-A) USB 3.2 Gen 2 x 1 (Type-C)
Display Port	HDMI 2.0b x 1 DP 1.2 x 1 DP 1.4a via USB Type C
Ethernet	2.5GbE x 2 (Intel® i226-IT)
COM	RS-232/422/485 x 2
Audio	Audio Jack x 1 (Mic-in+Line-out)
GPIO	40 Pin GPIO x 1
Power Supply	
Power requirement	12V DC-in (Lockable plug)
Power supply type	AT/ATX (ATX as default)
Power Consumption (Typical)	26W ~35W
Mechanical	
Mounting	—
Dimensions (WxHxD)	5.27" x 4.13" x 2.56" (134mm x 105mm x 65mm)
Net Weight	2 lbs (0.95kg)
Gross Weight	2.8 lbs (1.3kg)
Environment	
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow
Operating Humidity	0% ~ 90% relative humidity, non-condensing
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)
MTBF	422,053
Certification	CE/FCC Class A, RoHS Compliant, REACH
Note	



Model	UP Squared Pro 710H Edge	UP Squared Pro TWL Edge	UP Nexus WCL Edge
System			
CPU	Intel® Core™ i3-N305 (8C, 1.80 GHz, 15W) Intel® Processor N97 (4C, 2.00 GHz, 12W) Onboard Hailo-8™ edge AI processor	Intel® Core™ 3 Processor N355 Intel® Processor N250 Intel® Processor N150 (formerly Twin Lake)	Intel® Core™ 7 processor 350 Intel® Core™ 5 processor 320
Memory	Up to 16GB onboard LPDDR5		
Graphics	Intel® UHD Graphics for 12th Gen Intel® Processors		Intel® Graphics
Storage	Up to 128GB onboard eMMC	Up to 64GB onboard eMMC	Up to 256GB onboard UFS
Ethernet	2.5GbE x 2 (Intel® I226-IT)		2.5GbE x 2 (Intel® Ethernet Controller I226-IT)
WiFi/BT	Optional with M.2 2230 E-key x 1		Optional with M.2 2230 E-Key x 1
Expansion Slot	M.2 2230 E-Key x 1 (CNVI, PCIe Gen 3 [x1], USB 2.0) M.2 2280 M-Key x 1 (PCIe Gen 3 [x2]), Optional: M.2 3052 B-Key with Nano SIM slot (USB 3.0)	M.2 2230 E-Key x 1 (CNVI, PCIe Gen 3 [x1]) M.2 2280 M-Key x 1 (PCIe Gen 3 [x2], USB 2.0) M.2 3052 B-Key x 1 (USB 3.2 Gen 2) with Nano SIM slot (USB 3.0) SATA 6Gb/s x 1	M.2 2230 E-Key x 1 (CNVI, PCIe Gen 4 [x1], USB 2.0, UART) M.2 2280 M-Key x 1 (PCIe Gen 4 [x2]) M.2 2242 M-Key x 1 (PCIe Gen 4 [x1])
Security	Onboard TPM 2.0		
OS Support	Windows® 10 IoT Enterprise Ubuntu 22.04 LTS	Windows® 11 LTSC Ubuntu: 24.04 LTS Yocto: 5.1	Windows 11 Ubuntu 24.04 Yocto 6.0
I/O Placements			
USB	USB 3.2 Gen 2 x 2 (Type-A)	USB 3.2 Gen 2 x 2 (Type-A) USB 3.2 Gen 2 x 1 (Type-C)	USB 3.2 Gen 2 (Type-A) x 2 USB 3.2 Gen 2x2 (Type-C) x 1
Display Port	HDMI 2.0b x 1 DP 1.2 x 1	HDMI 2.0b x 1 DP 1.2 x 1 DP 1.4a via USB Type C	HDMI 2.1 (TMDS) x 1 DP 1.4a via USB Type C
Ethernet	2.5GbE x 2 (Intel® Ethernet Controller I226-IT)		
COM	RS-232/422/485 x 2		
Audio	Audio Jack x 1 (Mic-in+Line-out)		
GPIO	40-pin GPIO x 1		
Power Supply			
Power requirement	12V-36V DC-in Phoenix connector (Optional: Lockable plug)	12V DC-in (Lockable plug)	12V-24V DC-in (Lockable plug)
Power supply type	AT/ATX (AT as default)	AT/ATX (ATX as default)	AT/ATX
Power Consumption (Typical)	50W~55W	26W~35W	35W
Mechanical			
Mounting	VESA Mount/Wallmount/DIN RAIL (Optional)	—	Wallmount, 75x75 VESA, DIN Rail
Dimensions (WxHxD)	5.28" x 4.13" x 2.36" (134mm x 105mm x 60mm)	5.27" x 4.13" x 2.56" (134mm x 105mm x 65mm)	5.28" x 4.13" x 2.09" (134mm x 105mm x 53mm)
Net Weight	1.8 lb (0.69Kg)	2 lb (0.95Kg)	1.45 lb (0.66Kg)
Gross Weight	2.2 lb (0.97Kg)	2.8 lb (1.3Kg)	2.07 lb (0.94Kg)
Environment			
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow	-4°F ~ 140°F (-20°C ~ 60°C) / 0.7 airflow	
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)		
MTBF	422,053	1,140,040	
Certification	CE/FCC Class A, RoHS Compliant, REACH		
Note			

System Level Products

UP Systems



Model	UP Xtreme i11 Edge	UP Xtreme i12 Edge	UP Xtreme i14 Edge
System			
CPU	11th Gen Intel® Core™/Celeron® Processor SoC Intel® Core™ i7-1185G7E Intel® Core™ i7-1185GRE Intel® Core™ i5-1145G7E Intel® Core™ i5-1145GRE Intel® Core™ i3-1115GRE Intel® Celeron® 6305E	12th Gen Intel® Core™ Processor SoC Intel® Core™ i7-1270PE, Intel® Core™ i7-1260P, Intel® Core™ i5-1250PE, Intel® Core™ i5-1240P, Intel® Core™ i3-1220PE, Intel® Celeron® 7305E 13th Gen Intel® Core™ Processor SoC Intel® Core™ i7-1370PE, Intel® Core™ i7-1360P, Intel® Core™ i5-1340PE, Intel® Core™ i3-1320PE	Intel® Core™ Ultra 5 processor 125U (12M Cache, up to 4.30 GHz) Intel® Core™ Ultra 5 processor 125H (18M Cache, up to 4.50 GHz) Intel® Core™ Ultra 7 processor 155H (24M Cache, up to 4.80 GHz) Intel® Core™ Ultra 7 processor 165H (24M Cache, up to 5.00 GHz)
Memory	DDR4 SODIMM Slot x 2 (up to 64GB)	Up to 32GB onboard LPDDR5	Up to 64GB onboard LPDDR5 (Dual-Channel)
Graphics	Intel UHD Intel® Iris® Xe graphics: i5/7 sku with 128bit (dual channel) memory VPU: Hailo-8™ M.2 2280 B+M key AI module via m.2 2280 (Optional by SKU from ordering information)	Intel® Iris® Xe graphics VPU: Hailo-8™ M.2 2280 B+M key AI module via m.2 2280 (Optional by SKU from ordering information)	Intel® Arc™ graphics
Storage	M.2 2280 M-Key x 1 for NVMe (PCIe x [2]) SATA 6Gb/s x 1	M.2 2280 M-Key x 2 (PCIe Gen 4.0 [x4]) (an additional thermal kit is required when SSD is installed) SATA 6Gb/s x 1	M.2 2280 M-Key x 2 SATA 6Gb/s x 1
Ethernet	Intel® I225-IT x 1 Intel® I219 x 1 (Intel vPro®)	Intel® I226-IT x 1 (TSN), Intel® I219 x 1 (vPRO)	2.5GbE x 1 (via Intel® Ethernet Controller I226-IT) GbE x 1 (Intel® Ethernet Connection I219)
WiFi/BT	Optional via M.2 2230 E-Key x 1	Optional with M.2 2230 E-Key x 1	M.2 2230 E-Key x 1
Expansion Slot	40-pin GPIO x 1 M.2 2230 E-Key x 1 M.2 2280 M-Key x 1 M.2 3052 B-Key x 1 SATA 6Gb/s x 1 PCIe [x4] Slot	40-pin GPIO x 1 M.2 2230 E-Key x 1 M.2 2280 M-Key x 2 (PCIe Gen 4.0 [x4]) SATA 6Gb/s x 1 M.2 3052 B-Key x 1 (an additional thermal kit is required when 5G module is installed) Nano SIM Slot x 1	40-pin GPIO x 1 M.2 2230 E-Key x 1 (PCIe Gen 3 [x1], USB 2.0) M.2 2280 M-Key x 2 (PCIe Gen 4 [x4]) M.2 3052 B-Key x 1 (PCIe Gen 3 [x1], USB 3.2 Gen 2 [x1]) with Nano SIM slot (USB 3.0) SATA 6Gb/s x 1
Security		Onboard TPM 2.0	
OS Support	Windows 10 and Windows IoT Linux Ubuntu 22.04 Linux Yocto 3.1	Windows® 10 Enterprise 2021 LTSC, Ubuntu 22.04, Yocto 4.0	Windows 10/11 (64bit) Ubuntu 22.04/Kernel 6.5 up
I/O Placements			
USB	USB 2.0 (Type-A) x 1 USB 3.2 Gen 2 (Type-A) x 3 USB 4.0 (Type-C) x 1	USB 2.0 (Type-A) x 1, USB 3.2 Gen 2 (Type-A) x 3, USB 4.0 (Type-C) x 1	USB 2.0 x 2 (from 10 pin header x 1) USB 2.0 (Type-A) x 1 USB 3.2 Gen 2 (Type-A) x 2 USB 3.2 Gen 2 (Type-C) x 1
Display Port	HDMI 2.0 x 1 DP 1.4 x 1 (via USB Type-C) eDP x 1	HDMI 2.0b x 1 DP 1.4a x 1 DP 1.4a x 1 (via USB Type-C) eDP1.4b x 1	HDMI 2.1 x 2 DP 2.1 x 1 DP 1.4 via USB Type-C x 1
Ethernet		RJ45 x 2	2.5GbE x 1 (via Intel® Ethernet Controller I226-IT), GbE x 1 (Intel® Ethernet Connection I219)
COM	RS232/422/485 x 2	RS-232/422/485 x 2	RS-232/422/485 10-pin header x 2
Audio		Audio Jack x 1 (Mic-in+Line-out)	
GPIO		16-pin terminal block connector x1	
Power Supply			
Power requirement	12V DC-in (Lockable plug)	12-36V DC-in (Lockable plug)	9-36V DC-in (Lockable plug)
Power supply type		AT/ATX (ATX as default)	
Power Consumption (Typical)	Balance: 32.4W, Max current: 66W	Intel® Core™ i7-1270PE, LPDDR5 4800MHz 16GB, 5.86A@+ 12V (Typical) Intel® Core™ i7-1270PE, LPDDR5 4800MHz 16GB, 8.05A@+ 12V (Max)	67-80W
Mechanical			
Mounting	VESA Mount/Wallmount (optional)		VESA Mount/Wallmount(optional)
Dimensions (WxHxD)	5.98" x 4.88" x 2.62" (152mm x 123.9mm x 66.5mm)		5.98" x 4.87" x 2.81" (152mm x 123.8mm x 71.5mm)
Net Weight	2.76 lb (1.25Kg)		2.95 lb (1.34Kg)
Gross Weight	3.68 lb (1.67Kg)		3.88 lb (1.76Kg)
Environment			
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	With Cooler: 32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow	32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow
Operating Humidity		0% ~ 90% relative humidity, non-condensing	
Storage Temperature		-40°F ~ 176°F (-40°C ~ 80°C)	
MTBF	372,419	366,810	1,014,016
Certification		CE/FCC Class A, RoHS Compliant, REACH	
Note			



Model	UP Xtreme ARL Edge	UP Xtreme 7100 Edge	UP Xtreme PTL Edge
System			
CPU	Intel® Core™ Ultra 5 processor 225H (18M Cache, up to 4.90 GHz) Intel® Core™ Ultra 7 processor 255H (24M Cache, up to 5.10 GHz) Intel® Core™ Ultra 7 processor 265H (24M Cache, up to 5.30 GHz)	Intel® Core™ i3-N305 Intel® Processor N97	Intel® Core™ Ultra 5 processor 325 (12M Cache, up to 4.50 GHz) Intel® Core™ Ultra 7 processor 356H (18M Cache, up to 4.70 GHz) Intel® Core™ Ultra X7 processor 358H (18M Cache, up to 4.80 GHz)
Memory	Up to 64GB onboard LPDDR5 (Dual-Channel)	Up to 16GB LPDDR5	DDR5 SODIMM × 2, Dual Channel, up to 128GB, up to 7200 MT/s
Graphics	Intel® Arc™ graphics	Intel® UHD Graphics for 12th Gen Intel® Processors	Intel® Core™ Ultra 5 processor 325 - Intel® Graphics Intel® Core™ Ultra 7 processor 356H - Intel® Graphics Intel® Core™ Ultra X7 processor 358H - Intel® Arc™ B390 GPU
Storage	M.2 2280 M-Key x 2 SATA 6Gb/s x 1	Up to 64GB eMMC	M.2 2280 M-Key x 2
Ethernet	2.5GbE x 1 (via Intel® Ethernet Controller I226-IT) GbE x 1 (Intel® Ethernet Connection I219)	2.5GbE x 2 (Intel® I226-IT)	2.5GbE x 2 (via Intel® Ethernet Controller I226-IT)
WiFi/BT	M.2 2230 E-key x 1	Optional with M.2 2230 E-key x 1	M.2 2230 E-key x 1
Expansion Slot	40-pin GPIO x 1 M.2 2230 E-Key x 1 (PCIe Gen 3 [x1], USB 2.0) M.2 2280 M-Key x 2 (PCIe Gen 4 [x4]) M.2 3052 B-Key x 1 (PCIe Gen 3 [x1], USB 3.2 Gen 2 [x1]) with Nano SIM slot (USB 3.0) SATA 6Gb/s x 1	M.2 3052 B-Key x 1 with Nano SIM slot (USB 3.0) M.2 2230 E-Key x 1 (USB 2.0/PCIe) M.2 2280 M-Key x 1 (PCIe Gen 3 [x2]) 24V 8-in/8-out Digital I/O x 1 via Terminal Block (Output current: 500mA per channel) 6 pin 2-channel CAN 2.0B x 1 via Terminal Block (10 ~ 1000 kbps) DIP Switch for CANBus function x 1 CAN LED indicator x 2 SATA III x 1	40-pin GPIO x 1 M.2 2230 E-Key x 1 (PCIe Gen 4 [x1], USB 2.0) M.2 2280 M-Key x 2 (PCIe Gen 4 [x4], PCIe Gen 5 [x4])
Security	Onboard TPM 2.0		
OS Support	Windows® 11 LTSC Ubuntu: 24.04 LTS Yocto: 5.1	Ubuntu 22.04 LTS (Kernel 5.15 and kernel 5.19)	Windows 11 IoT Enterprise Ubuntu 24.04 LTS
I/O Placements			
USB	USB 2.0 x 2 (from 10 pin header x 1) USB 2.0 (Type-A) x 1 USB 3.2 Gen 2 (Type-A) x 2	USB 2.0 (Type-A) x 2 USB 3.2 (Type-A) x 2 USB 3.2 Gen 2 (Type-C) x 1 (Supports DP alt mode)	USB 3.2 Gen 2 (Type-A) x 2 USB 4.0 (Type-C) x 2
Display Port	HDMI 2.1 x 2 DP 2.1 x 1	DP 1.4a x 1 (via USB Type-C)	HDMI 2.1 x 2 DP 2.1 x 2 via USB 4.0 Type-C
Ethernet	2.5GbE x 1 (via Intel® Ethernet Controller I226-IT) GbE x 1 (Intel® Ethernet Connection I219)	RJ45 x 2	2.5GbE x 2 (via Intel® Ethernet Controller I226-IT)
COM	RS-232/422/485 10-pin header x 2	RS-232/422/485 x 1 (Terminal Block) (Default RS232)	RS-232/422/485 x 2
Audio	Audio Jack x 1 (Mic-in+Line-out)	—	Audio Jack x 1 (Mic-in+Line-out)
GPIO	16-pin terminal block connector x1	6 pin GPIO x 1 via Terminal Block	40-pin GPIO x 1
Power Supply			
Power requirement	9-36V DC-in (Lockable plug)	9-36V	19-36V DC-in
Power supply type	AT/ATX (ATX as default)	AT/ATX (AT as default)	AT/ATX
Power Consumption (Typical)	57.6W ~ 86.4W	52W~55W	100W
Mechanical			
Mounting	VESA Mount/Wallmount(optional)	75mm x 75mm VESA mount, optional Wallmount kit	VESA Mount/Wallmount(optional)
Dimensions (WxHxD)	5.98" x 4.87" x 2.81" (152mm x 123.8mm x 71.5mm)	5.98" x 4.8" x 1.7" (152mm x 124mm x 40mm)	8.6" x 5.1" x 2" (218mm x 129mm x 49.5mm)
Net Weight	2.95 lb (1.34Kg)	2.21lb (1.0Kg)	3.13 lb (1.42Kg)
Gross Weight	3.88 lb (1.76Kg)	3.31lb (1.5Kg)	4.23 lb (1.92 Kg)
Environment			
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C), 0.7m/s airflow	32°F ~ 131°F (0°C ~ 55°C)/0.5m/s airflow	32°F ~ 140°F (0°C ~ 60°C), 0.5m/s airflow
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-4°F ~ 158°F (-20°C ~ 70°C)	-40°F ~ 176°F (-40°C ~ 80°C)
MTBF	1,014,016	421,998	971,676
Certification	CE/FCC Class A, RoHS Compliant, REACH		
Note			

System Level Products

UP Systems



Model	Intelli i14 Edge	Intelli TWL01 Edge
System		
CPU	Intel® Core™ Processors (14th Gen), up to 65W LGA 1700 socket Default: Intel® Core™ i9-14900T	Intel® Core™ 3 Processor N355 Intel® Processor N250 Intel® Processor N150 Intel® Processor N97
Memory	DDR5 SODIMM x 2, up to 96GB, 4800 MT/s, ECC supported	Up to 16GB LPDDR5
Graphics	NVIDIA RTX™ A2000/NVIDIA® RTX™ A4500 MXM Module Support MXM 3.1 Type A/ B/ B+, Max 115W, PCIe Gen4x16 Only support validated MXM GPU module	Intel® UHD Graphics for 12th Gen Intel® Processors
Storage	via M.2 2280 M-Key x 2 (NVMe)	64GB eMMC (optional: up to 128GB)
Ethernet	2.5GbE x 1 (Intel® Ethernet Controller I226-IT) 1GbE x 1 (Intel® Ethernet Connection I219-LM)	Gb Ethernet RJ-45 x 2
WiFi/BT	via M.2 2230 E-Key	Optional with M.2 2230 E-key x 1
Expansion Slot	M.2 2230 E-Key x 1 (PCIe Gen 3 [x4]) M.2 2280 M-Key x 2 (PCIe Gen 3 [x4])	M.2 2230 E-Key x 1 (PCIe x1, USB2.0 x1) M.2 2280 M-key x 1 (PCIe x2)
Security	TPM 2.0	TPM 2.0 (fTPM, Onboard TPM IC optional by BOM)
OS Support	Windows 10/ 11 IoT Enterprise; Linux 64-bit	Windows® 11 LTSC Ubuntu: 24.04 LTS Yocto: 5.1
I/O Placements		
USB	USB 3.2 Gen 1 (Type A) x 5 USB 3.2 Gen 2 (Type C) x 1	USB 3.2 Gen 2 x 4 (Type-A)
Display Port	Display Port x 2 from MXM GPU Display Port (USB Type C) x1 from MXM GPU (A4500 SKU Max: 7680x4320 @ 60Hz)	HDMI 2.0b x 2
Ethernet	2.5GbE x 1 (Intel® Ethernet Controller I226-IT) 1GbE x 1 (Intel® Ethernet Connection I219-LM)	Gb Ethernet RJ-45 x 2
COM	—	RS-232/422/485 x 1
Audio	—	Line out x 1 Mic in x 1
GPIO	—	10-pin GPIO
Power Supply		
Power requirement	12V DC-In	9V~36V DC-in, 5A
Power supply type	AT(default)/ATX	AT/ATX
Power Consumption (Typical)	300W	15W~37W
Mechanical		
Mounting	—	DIN Rail, Wallmount, VESA mount
Dimensions (WxHxD)	8.07" x 7.48" x 2.76" (205mm x 190mm x 70mm)	5.98" x 4.9" x 1.54" (152mm x 124mm x 39mm)
Net Weight	6.57 lbs (2.99 Kg)	1.4 lb (0.64 Kg)
Gross Weight	6.72 lbs (3.05 Kg)	2.1 lb (0.96 Kg)
Environment		
Operating Temperature	32°F ~122°F (0°C ~ 50°)/0.5m/s airflow	
Operating Humidity	0% ~ 90% relative humidity, non-condensing	
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	
MTBF	1,373,882	1,401,514
Certification	CE/FCC Class A, RoHS Compliant, REACH	
Note		



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

System Level Products

Turn-Key Chassis Solutions



Model		ACS-1U01-H110B
System		
CPU Board		EMB-H110B-A10-HH
CPU		Intel® Skylake 14nm LGA 1151 socket Processor, Max. 65W TDPs (follow thin mini-ITX)
Chipset		Intel® H110
System Memory		2 x SODIMM, Max. 32GB, DDR4 2133/1867 MHz, Non-ECC, Un-buffered
I/O Chipset		NCT6791D
Display Interface		Intel® HD Graphics DP(BOM Change, default HDMI): Up to 1920 x 1200 @60Hz, with Digital Audio HDMI: Up to 4096 x 2304 @24Hz / 2560 x 1600 @60Hz, with Digital Audio LVDS: Up to 1920 x 1200 @60Hz, Dual Channel 18/24-bit coloy eDP: Up to 4096 x 2304 @60Hz
Storage Devices		2.5" HDD x 1, Full-Size Mini-Card(mSATA default, PCIe + USB optional) x 1
LAN		Realtek® PCIe Gb LAN 8111G x 2
I/O		
Front I/O Ports		USB 2.0 port x 4 Power S/W x 1 COM port x 1 HDD LED x 1 POWER LED x 1
Rear I/O Ports		USB 3.2 Gen 1 port x 4 Mic-In (pink) x 1 Line-Out (green) x 1 HDMI x 2 (BOM Changeable to DP) RJ-45 Connector x 2 DC Power jack x 1
Expansion	Mini PCIe	Half-Size Mini-Card slot (PCIe + USB) x 1, Full-Size Mini-Card (Default mSATA, PCIe + USB optional) x 1
	Storage	Full-size Mini-Card slot (mSATA default) x 1, SATA3(6.0Gb/s) x 1, SATA power connector x 1
	Others	RS-232 9-pin int. box header x 1, RS/232/422/485 9-pin box header x 1, 5-pin USB 2.0 header(p=2.00mm) x 2
Power		
Battery		Lithium battery
Power Requirement		DC: 12V
Mechanical		
Dimension (WxHxD)		8" x 8" x 1.75" (203.20mm x 203.20mm x 44.45mm)
VESA Mounting		Wallmount
Anti-Vibration		0.5 Grms/ 5~ 500Hz/ operation – HDD
Anti-Shock		10 G peak acceleration (11 msec. duration)
Environmental		
Operating temperature		32°F ~ 122°F (0°C ~ 50°C)
Certificate		CE & FCC Class A
Operating System		
MS Windows		Windows® 7 32 / 64-bit, Windows® 8.1 32 / 64-bit, Windows® 10 32 / 64-bit
Linux		Ubuntu 16.04.02/Kernal 4.8.0
Note		



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

Note: All specifications are subject to change without notice.

03

► Network Platform Solutions

A large, bold, white number '03' is centered in the lower half of the image. The background is a server room with rows of server racks on both sides, illuminated with blue light. At the end of the aisle, there is a white door with a green exit sign above it. The server racks are filled with various electronic components and have many small, colorful indicator lights (red, green, blue, yellow) that are glowing. The floor is made of light-colored square tiles.

03

Desktop Network Appliances



Model	FWS-2365	FWS-2360	FWS-2280
System Form Factor		Desktop Network Appliance	
Processor	Intel Atom® Processor C Series (4 ~ 16 cores)	Dual/Quad Core Intel Atom® Processor C Series Processors	Intel® Celeron® Processor J Series/Intel® Pentium® Processor N Series/Intel Atom® Processor X Series
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	260-pin DDR4 SODIMM x 1, 3200MT/s
Network			
Ethernet	Intel® I210-AT, Gigabit Ethernet x 6 (2 ports co-lay SFP) 10G SFP+ x 4 (4 cores only support 2 port)	1GbE x 4 (Marvell® Alaska® 88E1543) 1GbE x 2 (Intel® Ethernet Controller I210-AT) (optional Intel® Ethernet Controller I210-IS SFP x 2)	Intel® Ethernet Controller I210-AT GbE x 4 Intel® Ethernet Controller I210 SFP x 1
Bypass	Supports 1 pairs on LAN 3-4	Supports up to 2 pair bypass function	—
Display			
Graphic Controller		—	Intel® UHD Graphics
Connector		—	HDMI x 1
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)	mSATA slot x 1 SATA III port x 1
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)	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		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	USB 2.0 Type A x 2
Miscellaneous			
RTC		Internal RTC	
Watchdog Timer		1~255 steps by software programmable	
Software Button	GPIO programmable push button x 1	—	GPIO Programmable push button x 1
TPM	TPM v2.0 9665	(TPM v1.2 9660/TPM2.0 9665 Optional)	(TPM SLB9670 VQ2.0 FW7.85 Optional)
GPIO	4 bits input/ 4 bits output	(4 bits input, 4bits output optional)	
Fan		System fan x 1	Smart fan x 1
MTBF (Hours)	TBD	149683 Hours	TBD
Color		Black	
Environmental 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	2 x 12V DC Power Input Connector Lockable, 40W power adapter
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)	-4°F ~ 140°F (-20°C ~ 60°C)	32°F ~ 104°F (0°C ~ 40°C)
Storage Temperature			
Operating Humidity		10%~80% relative humidity, non-condensing	
Storage Humidity		10%~80% @40°C; non-condensing	
Vibration	0.5 Grms/ 5 ~ 500Hz / operation (2.5" HDD) 1.5 Grms/ 5 ~ 500Hz / non operation		0.5 Grms/ 5 ~ 500Hz / operation (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	260mm x 178mm x 44mm	8.66" x 4.13" x 1.73" (220mm x 105mm x 44mm)	8.27" x 4.09" x 1.73" (210mm 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)	LEDs (Power, Status, Storage) x 3 Micro-SIM x 1 Antenna Hole x 2
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)	DC Power Input Connector Lockable x 2 Power Button x 1 USB2.0 x 2 1GbE RJ-45 x 4, 1GbE SFP x 1 RJ-45 console x 1 Reset Button x 1 Antenna Hole x 3
Note			



Model	FWS-2276	FWS-2275	FWS-2273
System Form Factor	Desktop Network Appliance		
Processor Chipset	Intel® Celeron® Processor N3350 SoC		Intel® Celeron® N3350 Processor
System Memory	Onboard LPDDR4, 2GB, Optional DDR3L 1866MHz Single-Channel SODIMM x 1 (Max 8GB, up to 1600MHz)	Onboard LPDDR4, 2GB	DDR3L 1866, Single Channel SODIMM x 1 (Max.8GB, up to 1600MHz)
Network			
Ethernet	Intel® Ethernet Controller I210, GbE x 4	Intel® Ethernet Controller I210, GbE x 3 (co-lay with Mini PCIe)	Intel® Ethernet Controller I210, GbE x 4 Intel® Ethernet Controller I210, SFP x 2
Bypass Display	1 pair bypass function	—	Supports up to 2 pair bypass function
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	—	2.5" HDD Bay x 1
CF/CFast/MSATA	Onboard 8GB eMMC, SATA 6.0 Gb/s port x 1	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	(TPM v1.2 9660/TPM2.0 9665 Optional)	(TPM2.0 9665 Optional)	(TPM v1.2 9660/TPM2.0 9665 Optional)
GPIO	4 bits input, 4bits output optional	4 bits input, 4bits output	Reserved internal pin-header 8-bit Digital I/O interface (4-in /4-out)
Fan	1	—	Fanless, reserved pin-header for System fan
MTBF (Hours)	166,000	550,521 Hours	109,725
Color	Black		
Environmental and Dimension			
Power Requirement	12V DC Power	9~24 V DC Power	12V DC Power in connector
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)	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 (2.5" HDD) 1.5 Grms/ 5 ~ 500Hz / non-operation	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	6.5" x 3.62" x 1.57" (165mm x 92mm x 40mm)	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	Power LED x 1 Status LED x 1 HDD Active LED x 1 Bypass LED x 1 LAN LEDs x 8	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	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	1GbE RJ45 Ports x 3 Power Input connector, lockable x 1 Left I/O: SIM Slot x 1 + Micro-SD Slot with Cover x 1 WiFi Antenna Connector x 1 LTE Antenna Connector Right I/O: WiFi Antenna Connector x 1 LTE Antenna Connector	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			

Desktop Network Appliances



Model	FWS-2272	FWS-2271	FWS-2277
System	Desktop Network Appliance	Desktop 6-port Network Appliance	Desktop Network Appliance
Form Factor	Desktop Network Appliance	Desktop 6-port Network Appliance	Desktop Network Appliance
Processor	Intel® Celeron® N3350 Processor	Onboard Intel® Celeron® processor N3350	Intel® Celeron® Processor N3350 SoC
Chipset	Intel® Celeron® N3350 Processor	Integrated	SoC
System Memory	Onboard LPDDR4, 1GB, Optional DDR3L 1866MHz Single-Channel SODIMM x 1 (Max 8GB, up to 1600MHz)	DDR3L 1866, Single Channel SODIMM x 1 (Max.8GB, up to 1600MHz)	Onboard LPDDR4, 4GB
Network			
Ethernet	Intel® Ethernet Controller I210, GbE x 4	Intel® Ethernet Controller I210, GbE x 6	Intel® Ethernet Controller I210, GbE x 2
Bypass	—	Supports up to 2 pair bypass function	—
Display			
Graphic Controller	Intel® HD Graphics 505 Integrated		Intel® UHD Graphics
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)	eMMC 16G
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	Mini-Card Full Size Slot x1
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	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 v1.2 9660/TPM2.0 9665 Optional)	Optional TPM v1.2 9660/TPM2.0 9665	Optional Infineon.SLB9665T12.0(FW5.63)
GPIO	Reserved internal pin-header 8-bit	Digital I/O interface (4-in /4-out)	(4 bits input, 4bits output optional)
Fan	Fanless	System fan x 1	Fan-less
MTBF (Hours)	162,469	118,725	TBD
Color	Silver	White	Black
Environmental and Dimension			
Power Requirement	12V DC Power in connector	12V DC In/ 40W power adapter x 1	12V DC Power Input Connector non-lock, 24W 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	10%~80% @40°C; non-condensing	10%~80% @40°C; non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz / operation (SATA DOM) 1.5 Grms/ 5 ~ 500Hz / non-operation	0.5 Grms/ 5 ~ 500Hz/ operation (2.5" Hard Disk Drive) 1.5 Grms/ 5 ~ 500Hz / non-operation	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 I/O	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)	4.53" x4.53" x 1.26"(115mm x115mm x 32mm)
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	USB 3.2 Gen 1 x 2 Power Button x 1 Reset Button x 1
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	DC Power Input Connector non-lock x 1 1GbE RJ45 Ports x 2 HDMI x 1
Note			



Model	FWS-2290	FWS-2291	FWS-2292
System Form Factor	Desktop Network Appliance		
Processor	Intel® Processor N-series, 2~8 cores	Intel® Processor N-series SoC 2~8 cores	
Chipset	SoC		
System Memory	Onboard LPDDR5, up to 16GB	DDR5 SODIMM x 1, up to 16GB (32GB for Intel Atom® x7000RE/C Series CPU SKUs)	
Network			
Ethernet	Intel® Ethernet Controller I226-V, 2.5GbE x 4	Intel® Ethernet Controller I226-V, 2.5GbE x 4 Intel® Ethernet Controller I210-IS, SFP x 2 (co-lay with Intel® Ethernet Controller I210-AT Copper x 2) by PCIe Bridge	Intel® Ethernet Controller I226-V, 2.5GbE x 6
Bypass Display	1 Pair	2 pair	
Graphic Controller	Intel® UHD Graphics	—	
Connector	HDMI x 1 (Optional)		
Storage			
HDD	2.5" HDD Bay x 1	2.5" HDD Bay x 1 M.2 2242 M-Key x 1	
CF/CFast/MSATA	On board 32G eMMC, up to 128G SATA III port x 1 M.2 M key SATA slot x 1 for M.2 SSD	Onboard 32G eMMC, up to 128G	
Internal/ Expansion Interface			
PCIe Slot	—		
Mini-PCIe Slot	M.2 B Key x 1 (3052 for 5G, Co-lay Mini-Card slot-2 with Push-pin SIM for 4G LTE) M.2 E Key x 1 (2230, Co-lay Mini-Card-1 slot for Wi-Fi)	M.2 3052 B-Key (5G, Colay Mini Card with Push pin SIM for 4G LTE/Wi-Fi) M.2 2230 E-Key (Colay Mini Card slot for Wi-Fi)	M.2 3052 B-Key (5G, Colay Mini Card with Push pin SIM for 4G LTE/Wi-Fi) M.2 2230 E-Key (Colay Mini Card slot for Wi-Fi)
Keyboard and Mouse	—		
USB	USB 3.2 Gen 1 x1 USB 2.0 x 1	USB 3.2 Gen 1 (Type-A) x 2, 4.5W per port, max. 5W total	
Miscellaneous			
RTC	Internal RTC		
Watchdog Timer	1~255 steps by software programmable		
Software Button	GPIO Programmable push button x 1		
TPM	TPM 2.0 (NPCT760AABYX FW7.2.3.1 optional)	TPM 2.0 (optional)	
GPIO	4-bit Input, 4-bit Output (optional)	Reserve internal Pin Header (8-bit Digital I/O Interface, 4-in/4-out)	
Fan	Fan x 1	Fanless/Fan (Default: Fan)	
MTBF (Hours)	952,764	TBD	
Color	Black		
Environmental and Dimension			
Power Requirement	12V Lockable DC Power Input Connector x 1 (40W Power Adapter)	Dual 12V DC Lockable Power Input Connector, 40/60W Power Adapter (Redundant) Reserve 2.54 pin header for power button	Dual 12V DC Lockable Power Input Connector, 40/60W Power Adapter Reserve 2.54 pin header for power button
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)		
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 158°F (-20°C ~ 70°C)	
Operating Humidity	10%~80% relative humidity, non-condensing	10%~90% relative humidity, non-condensing	
Storage Humidity	10%~80% @40°C; non-condensing		
Vibration	0.5 Grms/ 5 ~ 500Hz / operation (mSATA) 1.5 Grms/ 5 ~ 500Hz / non-operation	0.5G / 5 ~ 500Hz / operation 1.5G / 5 ~ 500Hz / non-operation	
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation		
Dimension I/O	6.5" x 3.62" x 1.57" (165mm x 92mm x 40mm)	4.7" x 4.1" x 1.7" (220mm x 105mm x 44mm)	
Front Panel	Power LED x 1 Status LED x 1 Bypass LED x 1 Storage Active LED x 1 Ethernet LED x 8 Accessible SIM slot x 1 Antenna Hole x 2 (Right panel) Antenna Hole x 2 (Left panel)	Power LED x 2 Status LED x 1 Bypass LED x 2 Storage Active LED x 1 Ethernet LED x 12 Antenna Hole x 2 Antenna Hole x 1 (Right Panel) Antenna Hole x 1 (Left Panel) Accessible SIM Slot x 1	Power LED x 2 Status LED x 1 Bypass LED x 2 Storage Active LED x 1 Ethernet LED x 12 Antenna Hole x 2 (Right Panel x 1, Left Panel x 1) Accessible SIM Slot x 1
Rear Panel	Lockable DC Power Input Connector x 1 Power Button x 1 USB 3.2 Gen x 1 USB 2.0 x 1 RJ-45 x 4 RJ-45 Console x 1 Reset Button x 1 Antenna Hole x 2	Lockable DC Power Input Connector x 2 Power Button x 1 USB 3.2 Gen 1 x 2 RJ-45 x 4 Fiber x 2 RJ45 Console x 1 Antenna Hole x 2 Software Programmable Switch x 1	Lockable DC Power Input Connector x 2 Power Button x 1 USB 3.2 Gen 1 x 2 RJ-45 x 6 RJ-45 Console x 1 Antenna Hole x 2 Software Programmable Switch x 1
Note			

Note: All specifications are subject to change without notice.

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Network Appliances

Desktop Network Appliances



Model	FWS-2370
System	
Form Factor	Desktop Network Appliance
Processor	Intel Atom™ Processor C Series/Intel Atom® Processor P Series Default: Intel Atom™ Processor C5315
Chipset	SoC
System Memory	DDR4 SODIMM socket x 2, up to ECC/Non-ECC 64GB
Network	
Ethernet	Intel® Ethernet Controller I226-V 2.5GbE x 4 Marvell® Alaska® 88E1543 GbE x 4 10G SFP+ x 4
Bypass	2 pair
Display	
Graphic Controller	—
Connector	—
Storage	
HDD	SATA 6Gb/s x 2 (co-lay M.2 2242 M-Key x 1)
CF/CFast/MSATA	Default eMMC 32GB, support up to 128GB
Internal/ Expansion Interface	
PCIe Slot	—
Mini-PCIe Slot	M.2 2230 E-Key x 1 (PCIe) for Wi-Fi co-lay half-size Mini Card Slot x 1 (PCIe) M.2 3052 B-Key x 1 (USB 3.0) for 5G/LTE co-lay full-size Mini Card Slot with push-pin SIM Slot x 1 (PCIe + USB 2.0) M.2 3052 B-Key x 1 (USB 3.0 + USB 2.0) for 5G/LTE co-lay full-size Mini Card Slot with push-pin SIM Slot x 1 (USB 3.0 + USB 2.0)
Keyboard and Mouse	—
USB	USB 3.0 x 2 (shared with PCIe Slot for PoE, default USB 2.0 x 2)
Miscellaneous	
RTC	Internal RTC
Watchdog Timer	1~255 steps by software programmable
Software Button	GPIO Programmable push button x 1
TPM	TPM 2.0
GPIO	Reserve Internal Pin Header 8-bit Digital I/O Interface (4-in/4-out)
Fan	Smart Fan x 1 (Default), Internal Smart Fan Pin Header x 1 (Reserve)
MTBF (Hours)	TBD
Color	Black
Environmental and Dimension	
Power Requirement	Dual in 12V 60W Adapter (w/o POE) Dual in 12V 90W Adapter (w/ POE)
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)
Operating Humidity	10%~80% relative humidity, non-condensing
Storage Humidity	10%~80% @40°C; non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz / operation (mSATA) 1.5 Grms/ 5 ~ 500Hz / non-operation
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation
Dimension	10.2" x 7" x 1.7" (260mm x 178mm x 44mm)
I/O	
Front Panel	Optional type c console x 1 Micro SIM socket x 2 Main board LAN LED x 24 Optional module LAN LED via cable x 4 Bypass LED x 2 Storage LED x 1 Status LED x 1 Power LED x 2 Antenna hole x 3
Rear Panel	DC Power Input Connector Lockable x 2 RJ45 console x 1 USB 3.0 Port x 2 Power LED x 2 10G SFP+ x 4 1G Marvell RJ45 Port x 4 2.5G RJ45 Port x 4 SW reset button x 1 Power button x 1 Antenna hole x 4 Optional 2.5G LAN module x 2 (optional with POE af/at)
Note	



Model	FWS-8600	FWS-7541	FWS-7840
System Form Factor	2U Rackmount Network Platform	1U Rackmount Platform Network Appliance	1U Rackmount Network Platform
Processor	Dual 2nd Gen Intel® Xeon® Scalable Processors, up to 56 cores, 112 threads	Intel® Xeon® D-1700 & D-1800 Processors	10th Generation Intel® Core™/ Xeon® processor
Chipset	Intel® C621 Chipset	SoC	Intel® W480E
System Memory	DDR4 2133/2400/2666 R-DIMM x 16 (8 DIMM per CPU), Up to 512 GB	DDR4 SODIMM x 2 (ECC)	2 x DDR4 2666MHz U-DIMM ECC DIMM slots up to 64G
Network			
Ethernet	Intel® i210 Gigabit Ethernet x 2	1GbE RJ-45 x 12 (Intel® i350-AM4 x 3) + up to 10Gb SFP+ x 4 (see note 1)	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)
Bypass	Depend on NIM module	2 pair LAN Bypass 3.1	2 pair
NIM Slot	NIM x 4 (Project based up to 8 slots)	NIM Slot x 1 (Optional)	NIM slot x 2
Display			
Graphic Controller	Optional support via Mini-PCIe module or IPMI	—	Intel® UHD Graphics
Connector	Optional VGA port via module	VGA from IPMI x 1 (Optional by BOM SKU)	(HDMI x1 Optional)
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 present)	SATA III port x 2, 2.5" HDD/SSD up to 2
CF/CFast/mSATA	M.2 2260 M-key x 1 mSATA slot x 1 (share same slot with Mini-Card)	—	1 x Mini card socket (Option mSATA)
Internal/ Expansion Interface			
PCIe slot	Optional PCIe [x16] slots x 2, via riser card	—	Optional PCIe [x8] slot x 1, via riser card
Mini-Card slot	Mini Card slot (full-size) x 1 (PCIe/SATA, USB2.0)	M.2 3052 B-Key x 1 for 4G/5G (USB 3.0 + PCIe) with SIM M.2 2230 E-Key x 1 (PCIe)	Mini Card x 1
IPMI	Optional IPMI via AAEON Module (Project based)	Project base	—
Keyboard and Mouse			
USB	USB 3.2 Gen1 x 2 (Optional 2*10 pin USB 3.2 Gen1 x 2 Box Header 2.0mm)	—	USB 3.2 Gen1 x 2
Miscellaneous			
RTC	Internal RTC		
Watchdog Timer	1~255 steps by software programmable		
Software Button	GPIO Programmable push button x 1		
TPM	(Optional TPM2.0 9665 on board)	TPM 2.0 SPI	TPM v2.0 9665
GPIO	(4 bits input, 4 bits output optional)	N/A, DIO pin header x 1 (4-in/4-out), optional by BOM SKU	4 bits input/4 bits output
FAN	5 x Hotswappable FAN	System fan x 1	System fan x 2
MTBF (Hours)	192,691 Hours	TBD	TBD
Color	Black		
Environmental and Dimension			
Power Requirement	550 ~ 600W Redundant Power	220W Power	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	0%~80% @40°C; non-condensing	10% ~ 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	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non operation		
Dimension	17.48" x 22.83" x3.46" (444mm x 580mm x 88mm)	16.93" x 7.87" x 1.73" (430mm x 200mm x 44mm)	430mm x 305mm x 44mm
I/O Interfaces			
Front Panel	Power LED x 1 Status LED x 1 HDD Active LED x 1 USB 3.2 Gen 1 Ports x 2 RJ-45 Console x 1 Parallel LCM display and 4 keypad x 1 Software Programmable Button x1 RJ-45 LAN x 2 IPMI x 1 (Project based)	1GbE RJ-45 x 12 (Intel® i350-AM4 x 3) + up to 10GbE SFP+ x 4 (SKU optional) Power LED x 1 Status LED x 1 HDD Active LED x 1 USB 3.2 Gen 1 x 2 RJ-45 Console x 1 LCM display with Keypad x 1 Software Programmable Button x 1	Power LED x 1 Status LED x 1 Storage Active LED x 1 Bypass LED x 2 Ethernet LED x 16 USB 3.2 Type A port x 2 Parallel LCM display and 4 keypad x 1 Software Programmable Switch x 1 1 GbE RJ-45 x 8 or 1 GbE RJ45 x 6 + SFP x 2 10 GbE SFP+ x 2LAN port (Option by module) NIM Slot x 2
Rear Panel	AC Power Input x 2, Power Switch x 1, VGA port (Optional), Rear Expansion Slot x 2 (PCIe [x16] Optional)	AC Power Input x 1 Power Switch x 1	AC Power Input x 1, Power Switch x 1, (Rear Expansion Slot x 1 Optional)
Note			

Note: All specifications are subject to change without notice.

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03 Network Appliances

Rackmount Network Appliances



Model	FWS-7830	FWS-7831	FWS-7360
System Form Factor	1U Rackmount Network Platform		
Processor	8th Generation Intel® Core™/ Xeon® processor	Intel® Xeon® processor E-2100 family for Intel® C246 Chipset Intel® Core™/ Celeron® processor for Intel® H310 Chipset	Intel® C3758 processor SoC, optional support up to 16 core
Chipset	Intel® C246	Intel® C246/H310	SoC
System Memory	DDR4 2133/2400/2666 UDIMM Up to 128GB 288-pin DIMM x 4	260-pin DDR4 1600/1866/2133 SODIMM/ECC x 2, upto 64GB	DDR4 Slot x 4, Support ECC UDIMM/RDIMM upto 256GB
Network			
Ethernet	Intel® I350 AM2 Gigabit Ethernet x 2	Intel® i210 Gigabit Ethernet x 8 or Intel® i210 Gigabit Ethernet x 6 + SFP Ethernet ports x2 (C246) Intel® i210 Gigabit Ethernet x 6 (H310)	Intel® X553 RJ45 x 2, Intel® i210 GbE x 3, SFP+ x 2 from CPU
Bypass	Depend on NIM module	2 pair	Onboard 2 pair bypass, others depend on NIM module
NIM Slot	NIM Slot x 3	Need to configure riser card	1
Display			
Graphic Controller	Intel® HD graphics integrated	Intel® UHD Graphics 630	—
Connector	VGA cable (Optional)	(HDMI x1 Optional)	—
Storage			
HDDs	Internal 2.5" SATA HDD x 2 or 3.5" SATA HDD x 1 (Optional)	Internal 2.5" HDD bay x 2 or (3.5" HDD bay x 1 can't use with NIM Optional)	2.5" HDD Bay x 2
CF/CFast/mSATA	Default mSATA Slot (Optional CFast™ Socket)	mSATA	Default SATA III port x 2 (MSATA Slot X 2 Optional)
Internal/ Expansion Interface			
PCIe slot	Optional PCIe [x8] slot x 1, via riser card	—	PCIe [x8] slot x 1, cannot use w/ NIM
Mini-Card slot	Mini Card x 1	Mini-Card x 1 (PCIe[x1] + mSATA)	Default Mini-Card socket (full-size) x1 (Mini-Card socket (full-size) with SIM socket x 1 Optional)
IPMI		—	—
Keyboard and Mouse	Pin-header	—	—
USB	USB 3.2 Gen 1 x 2, Box Header (2.0mm)	—	USB 3.2 Gen 1 x 2
Miscellaneous			
RTC	Internal RTC		
Watchdog Timer	1~255 steps by software programmable, 1 sec per step	1~255 steps by software programmable	
Software Button	GPIO Programmable Button x 1		
TPM	Optional TPM v2.0	(TPM2.0 9665/TPM v1.2 9660 optional)	Optional TPM v1.2 / TPM v2.0
GPIO	8bits, BIOS default 4 bits input, 4bits output.	4 bits input, 4 bits output	4 bits input, 4bits output
FAN	2	2	System fan x 1
MTBF (Hours)	TBD	362,825 Hours	142,412
Color	Black		
Environmental and Dimension			
Power Requirement	220W ATX PSU or 250W ATX PSU	220W ATX PSU	150W Flex ATX PSU
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)	-4°F ~ 140°F (-20°C ~ 60°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 (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation	0.5 Grms/ 5 ~ 500Hz / operation (2.5" HDD) 1.5 Grms/ 5 ~ 500Hz / non operation	
Shock	10G peak acceleration (11 m sec. duration), operation 20G peak acceleration (11 m sec. duration), non-operation	TBD	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non operation
Dimension	16.93" x 18.7" x1.73"(430mm x 475mm x 44mm)	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 Parallel LCM display and 4 keypad x 1 Software Programmable Switch x 1	Power LED x 1, Status LED x 1, HDD Active LED x 1, USB 3.2 Gen 1 Ports x 2 - RJ-45 Console x 1	SFP+ with LED x 2 RJ45 Ethernet Port with LED x 5 USB 3.2 Gen 1 x 2 RJ45 Console x 1 Software Programmable Button x 1 Parallel LCM Display and 4 Keypad x 1 LED for Power/HDD/ Status/ Bypass x 5 NIM Slot x 1 Bypass LED x 2 Power LED x1 HDD LED x1 Status LED x1
Rear Panel	AC Power Input x 1 Power Switch x 1 VGA port (Optional)	AC Power Input x 1, Power Switch x 1, (Rear Expansion Slot x 1 Optional)	Power Switch x 1 AC Power Input x 1 Rear Expansion Slot x 1
Note			



Model	FWS-7851	FWS-7850	FWS-7370
System	1U Rackmount Network Appliance		Rackmount Network Appliance
Form Factor	12th/13th/14th/15th Generation Intel® Core™ Processors		Intel Atom® P5300/C5000 Processors (Max 83W)
Processor	Intel® W680 Chipset (Project Base: Intel® Q670, H610)		Intel® W680
Chipset	Intel® W680 Chipset (Project Base: Intel® Q670, H610)	Intel® W680	SoC
System Memory	DDR5 SODIMM slots x 2	DDR5 U-DIMM x 4, up to 128GB (ECC)	DDR4 SODIMM up to 64GB ECC/Non ECC
Network	Intel® I226-V 2.5GbE RJ-45 x 10 (Including 2 pair Bypass) + Intel® I210-IS GbE SFP x 2, optional: 10GbE SFP+ x 2 (PCIe[x4] via PER-T639 Note: Intel® H610 Chipset SKU limited to 2.5GbE RJ-45 x 8)	10GbE SFP+ x 2 (Intel® X710-BM2 x 1)	Intel® Ethernet Controller I226-V, 2.5GbE RJ-45 x 4 1GbE by Marvell® Alaska® 88E1543, 1GbE RJ-45 x 4 10GbE SFP+ x 4
Ethernet	Intel® I226-V 2.5GbE RJ-45 x 10 (Including 2 pair Bypass) + Intel® I210-IS GbE SFP x 2, optional: 10GbE SFP+ x 2 (PCIe[x4] via PER-T639 Note: Intel® H610 Chipset SKU limited to 2.5GbE RJ-45 x 8)	10GbE SFP+ x 2 (Intel® X710-BM2 x 1)	Intel® Ethernet Controller I226-V, 2.5GbE RJ-45 x 4 1GbE by Marvell® Alaska® 88E1543, 1GbE RJ-45 x 4 10GbE SFP+ x 4
Bypass	2 pair LAN Bypass 3.1 (LAN 3-4, LAN 5-6)	Dependent	2 pair
NIM Slot	1	3	NIM x 1 (Optional)
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 present)	2.5" HDD Bay x 2	2.5" HDD Bay x 2 (1 SATA co-lay with M.2 2242 M-Key)
CF/CFast/mSATA		—	eMMC for optional, up to 128GB
Internal/ Expansion Interface			
PCIe slot		—	PCIe [x4] Slot x 1 (PCIe [x1] x 2 signal) M.2 3042/52 B-Key x 1 (5G)
Mini-Card slot	M.2 2242 M-Key (PCIe [x4]) x 1	M.2 2280 M-Key x 1 (PCIe [x4])	—
IPMI		—	—
Keyboard and Mouse		—	—
USB	USB 3.2 Gen 1 x 2		USB 2.0 (Type-A) x 2
Miscellaneous			
RTC	Internal RTC		
Watchdog Timer	1~255 steps by software programmable		
Software Button	1		GPIO Programmable push button x 1
TPM		TPM 2.0 SPI	
GPIO	Reserved internal pin header 8-bit Digital I/O interface (4-in /4-out)	Reserve internal pin header 8-bit Digital I/O interface (4-in /4-out)	DIO Pin Header x 1 (4-in/4-out) optional
FAN	System fan x 2	Smart Fan x 3, optional System fan x 1	System fan x 2
MTBF (Hours)	TBD	TBD	30,480
Color	Black		
Environmental and Dimension			
Power Requirement	220W Power	1U 300W Redundant PSU x 1	AC/DC open frame 200W PSU
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)		32°F ~ 122°F (0°C ~ 40°C) with 0.2m/s air flow
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)		-4°F ~ 158°F (-20°C ~ 70°C)
Operating Humidity	10%~80% relative humidity, non-condensing		10%~90% relative humidity, non-condensing
Storage Humidity	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		0.5G / 5 ~ 500Hz / operation 1.5G / 5 ~ 500Hz / non-operation
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non operation		
Dimension	16.93" x 7.87" x 1.73" (430mm x 200mm x 44mm)	16.93" x 15.75" x 1.73" (430mm x 400mm x 44mm)	16.9" x 7.8" x 1.7" (430mm x 200mm x 44mm)
I/O Interfaces			
Front Panel	Intel® I226-V 2.5GbE RJ-45 x 10 (Including 2 pair Bypass) + Intel® I210-IS GbE SFP x 2, optional: 10GbE SFP+ x 2 (PCIe[x4] via PER-T639 Power LED x 1 Status LED x 1 HDD Active LED x 1 USB 3.2 Gen 1 x 2 HDMI x 1 RJ-45 Console x 1 LCM display with keypad x 1 Software Programmable Button x 1 NIM Slot x 1	10GbE SFP+ x 2 Power LED x 1 Status LED x 1 HDD Active LED x 1 USB 3.2 Gen 1 x 2 HDMI x 1 RJ-45 Console x 1 LCM display with keypad x 1 Software Programmable Button x 1 NIM Slot x 3	Power LED x 1 Status LED x 1 Bypass LED x 2 Storage Active LED x 1 SW programmable button x 1 USB 2.0 type-A Port x 2 RJ-45 Console Port x 1
Rear Panel	AC Power Input x 1 Power switch x 1	AC Power Input x 1 Power Switch x 1 Rear expansion slot x 1 (PCIe [x8]) Optional	AC Power Input Connector x 1 Power Button x 1
Note			

Rackmount Network Appliances



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



Model	NIM-C13B	NIM-C13D	NIM-S26B
Main Specification			
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)		



Launching in Q3

Model	NIM-S26C	NIM-S26D	NIM-C15A
Main Specification			
Form Factor	10G Fiber 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 colay 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)		



Model	ICS-6270	ICS-6280
System		
Form Factor	DIN Rail/	Desktop
Processor	Intel® Celeron® Processor N3350 SoC	Intel Atom® x6000E Series Processor, 2~4 cores
System Memory	DDR3L 1866, Single Channel SODIMM x 1 (Max.8GB, up to 1600MHz)	260-pin DDR4 3200MT/s SODIMM with IBECC support x 1
Chipset	—	SoC
Ethernet	Intel® i210AT, Gigabit Ethernet x 6	Intel® i210AT Gigabit Ethernet x 4
Bypass	Supports up to 2 Pair	Supports upto 2 Pair LAN Bypass (Optional)
BIOS	—	AMI SPI Flash BIOS
Serial ATA	SATA 6.0 Gb/s port x 1, for 2.5" HDD/SSD	SATA 6.0 Gb/s port x 1 for 2.5"SSD support
CFast/mSATA	CFast™ socket x 1	mSATA (Full size) socket colay SATA 6Gb/s port x 1
Expansion Interface	Supports Mini-Card slot x 1 with SIM socket	Supports Mini-card slot x 1 with Micro SIM socket
USB	USB 3.2 Gen 1 x 2	USB 3.2 Gen 1 x 2
Serial Port	Supports up to RS-232/422/485 COM Port x 2	Supports up to RS-232/422/485 COM Port x 2
Watchdog Timer	1~255 steps by software programmable	1~255 steps by software programmable
RTC	—	Internal RTC
System Fan	—	Fanless
Color	Dark Grey	Black
Power Supply	2 Pin Terminal Block	Dual 2-Pin Phoenix terminal block
Dimension	4.96" x 2.93" x 5.74" (126 x 74.5 x 146mm)	5.12" x 4.96" x 2.83" (130mm x 126mm x 72mm)
Power Requirement	+9 ~ 36V, 2-pin terminal block	Redundant 9~48Vdc power input
MTBF (Hours)	101,292	TBD
Display	—	—
Chipset	Intel® HD Graphics 500	Intel® HD Graphics
Interface	VGA port x 1	HDMI port x 1, VGA port x 1
I/O		
Front I/O Panel	RJ-45 GbE x 6 RS-232/422/485 COM Port x 2 VGA port x 1 USB 3.2 Gen 1 x 2 Software programmable button x 1 Power LED x 1 HDD LED x 1 Status LED x 1 Bypass LED x 2	RJ-45 GbE x 4 RS-232/422/485 COM Ports x 2 HDMI portx1 VGA port x 1 USB 3.2 Gen 1 x 2 Micro SIM slot x 1 Software programmable button x 1 Power LED x 1 HDD LED x 1 Status LED x 1
Rear I/O Panel	—	DIN Rail/ Wallmount Lock
Top Panel	2-Pin Terminal Block +9~36VDC x 1	2-Pin Terminal Block +9~48VDC x 2
Environmental Parameters and Dimension		
Operating Temperature	-40°F ~ 156°F (-40°C ~ 75°C)	-40°F ~ 167°F (-40°C ~ 75°C)
Storage Temperature	—	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	—	10% ~ 80% relative humidity, non-condensing
Storage Humidity	—	10% ~ 80% @40°C; non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz / operation (SSD) 1.5 Grms/ 5 ~ 500Hz / non operation	0.5 Grms/ 5 ~ 500Hz / operation (2.5" SSD) 1.5 Grms/ 5 ~ 500Hz / non operation
Shock	—	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non operation
Note		

04

► Rugged Mobile and Panel PC Solutions



04

Rugged Mobile and Panel PC Solutions

Rugged Tablet Computers



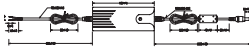
Model	RTC-710RK	RTC-1010
System Architecture		
Processor	Rockchip RK3399K Processor (Quad-Core A53 1.6GHz & Dual-Core A72 2.0GHz)	Intel® Celeron® Processor N3350 1.10 GHz, dual core, up to 2.4 GHz Intel® Pentium® Processor N4200 1.10 GHz, quad core, up to 2.5 GHz
Operating System	Android™ 11 (No NFC function)	Windows® 10 IOT Enterprise SAC
Memory	Onboard LPDDR4 2GB (Default) / 4GB	Onboard DDR3L 4GB (Default)/8GB
Storage	eMMC 16GB (Default) / 32GB / 64GB	eMMC 64GB (Up to 256GB, Optional)
Display	7" WXGA (1280x800) 700-nit TFT LCD With Projected Capacitive Multi-Touch Screen	10.1" WXGA (1280 x 800) 800 nit/300 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)	Micro HDMI Port x 1 SIM Card Slot x 1 MicroSD Card Slot x 1 Audio Jack x 1 (3.5mm) USB 3.2 Gen 1 x 2 (USB Type-C x 1), USB 2.0 x 2 DC-in Jack x 1 RS-232/422/485 COM Port x 1 10/100/1000 Base-T RJ-45 x 1 Smart Card Reader x 1 (Optional, Without IP protection)
Communication	Wi-Fi 802.11 b/g/n, Bluetooth v4.2 (EDR + BLE)	Wi-Fi 802.11 a/b/g/n/ac, Bluetooth v5.1 (EDR + BLE), Intel AC9260
Navigation	GPS + GLONASS (Default), BeiDou (Optional), External Antenna (Optional)	Up to 3 GNSS, GPS + Galileo (Default), GLONASS, BeiDou (Optional)
WWAN(Optional)	LTE via M.2 slot (Optional) Hot-swappable Battery can not be used when LTE module is installed.	LTE via Mini Card slot (Optional)
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	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 via I/O module (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	F1 (Audio On/Off), F2 (Screenprint), F3 (Barcode Scanner Trigger), Volume Up, Volume Down	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	Dark Gray	Black & Dark Grey
Dimension (W x H x D)	8.65" x 5.46" x 0.94" (219.8 x 138.8 x 23.9 mm)	10.71" x 7.48" x 0.80" (272.0mm x 190.0mm x 20.4mm)
Gross Weight	1.54 lb (0.7 Kg) based on configurations	2.2 lb (1.0Kg) based on configurations
Environmental		
Operating Temperature	-4°F ~ 140°F (-20°C ~ 60°C) for high-brightness version	-4°F ~ 122°F (-20°C ~ 50°C)
Storage Temperature	-22°F ~ 158°F (-30°C ~ 70°C)	-67°F ~ 158°F (-55°C ~ 70°C)
Humidity	MIL-STD-810G Method 507.5	0% ~ 90% relative humidity, non-condensing
Environmental Sealing		IP65
Vibration	MIL-STD-810G Method 514.6	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 Method 516.6 Procedure IV Height of Drop: 150 cm 5 ft	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	MIL-STD-810G	—
ESD	Air charge: +/- 8KV, Contact charge: +/- 4KV	
Certifications and Standards	UL62368-1, CE EMC, CE RED WiFi 2.4G+5G; CB; FCC EMC, FCC RF-WiFi 2.4G; UKCA / UL; TELEC WiFi / LTE	CE EMC, CE RED WiFi 2.4G+5G / LTE, LVD, FCC EMC, FCC RF WiFi 2.4G+5G, IC / UKCA / UL, TELEC WiFi
Power Supply		
AC / DC Adapter	AC 100 ~ 240V, 50 ~ 60Hz, Output: 12V / 3.34A / 40W	AC 100 ~ 240V, 50 ~ 60Hz, Output: 12V / 3A / 36W
Battery Life	Li-ion Battery 8-hour battery life based on test configurations	
Master Battery	7.2V, 4540mAh, 32.7W	Hot-swappable battery: 14.4V, 2270mAh, 32.7W
Slave Battery	Hot-swappable battery: 7.4V, 1530mAh, 11.3W (Optional)	7.4V, 1530mAh, 11.3W
Display		
LCD	7" TFT-LCD / 16:10, with LED backlight	10.1" TFT-LCD Display
Resolution	1280 x 800	
Maximum Color	—	16.7M
Dot Size	0.03925(H) X 0.11775(V) mm	0.1692mm (H) x 0.1692mm (V)
Brightness	700 / 300 nits	300 nits (800 nits, Optional)
Viewing Angle	Horizontal: 178° (Typ.), Vertical: 178° (Typ.)	Horizontal: 170°, Vertical: 170° (Typical)
Touch Screen		
Touch Type	7" Projected Capacitive Multi-Touch Screen (700 nits with 10 points)	Projected Capacitive Multi-Touch Screen (PCT)
Light Transmission	Min. 85%	
Note		



Model	RTC-1020	RTC-1030
System Architecture	11th Gen Intel® Core™/Celeron® Processor SoC	
Processor	Intel® Core™ i5-1145G7E Intel® Core™ i3-1115G4E Intel® Celeron® 6305E	Intel® Processor N50, 3.4GHz
Operating System	Windows® 10 IOT Enterprise SAC (Optional) / Windows® 11 IOT Enterprise GAC	Windows® 11 IOT Enterprise GAC (Default)
Memory	Onboard LPDDR4X, 8GB (Default)/16GB/32GB	Onboard LPDDR5, 8GB
Storage	M.2 SSD, Up to 1TB (Default: 64GB)	M.2 SSD, 128GB (Default) / 256GB / 512GB / 1TB
Display	10.1" FHD (1920 x 1200) 450 nit/800 nit TFT LCD with Projected Capacitive Multi Touch Screen	10.1" WUXGA (1920 x 1200) 425-nit TFT LCD with Projected Capacitive Multi-Touch Screen
I/O Port	Micro-HDMI port x 1, SIM card slot x 1, Micro-SD card slot x 1, Audio jack x 1 (3.5mm), USB 3.2 Gen 2 x 2 (Type-C x 1, Type-A x 1), USB 2.0 x 2, DC-in Jack x 1, RS-232/422/485 COM Port x 1, 10/100/1000 Base-T RJ45 x 1	USB Type-C x 1 (Display Port), SIM Card Slot x 1, Micro-SD Card Slot x 1, Audio Jack x 1 (3.5mm), USB 3.2 Gen 1 (Type-A) x 1, USB 2.0 x 2, DC-in Jack x 1, USB Type-C Charger, COM Port x 1 (RS-232/422/485), GbE RJ-45 x 1
Communication	Wi-Fi 802.11 a/b/g/n/ac; Bluetooth v5.1 (EDR + BLE); Intel AC9260	Wi-Fi 802.11 a/b/g/n/ac; Bluetooth v5.3 (EDR + BLE)
Navigation	Up to 3 GNSS, GPS + Galileo (Default), GLONASS, BeiDou (Optional)	Supports GPS, GLONASS, Galileo, BeiDou and QZSS (GPS + GLONASS by default)
WWAN(Optional)	LTE via M.2 slot (Optional)	
Camera	5MP front camera, 8MP rear camera with flash	5MP front camera, 13MP rear camera with flash
Sensor	G-sensor, E-compass, Gyro-sensor, Light-sensor	
Expansion Slot	M.2 M-Key for SSD (PCIe [x4]/ SATA 6Gb/s) M.2 E-Key for WiFi/BT (PCIe [x1]/USB 2.0) M.2 B-Key for LTE (USB2.0/USB3.2 Gen2) Docking Connector: USB 3.2 Gen 2 x 1	M.2 slot x 3 (One for SSD, One for WiFi module, One for LTE module) Docking Connector (Optional) x 1: USB 3.2 Gen 1 x 1
Barcode Scanner (Optional)	2D Barcode scanner, OPTICON MDI-4700-USB (Optional)	2D Barcode scanner, Honeywell N4680
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	Speaker x 1 (1W)
Physical Key	F0 or Windows (Windows Start Key), F1 (BCR Trigger Button (When BCR is enabled)), F2 (Screenprint), F3 (Ctrl+Alt+Del), Volume Up (Speaker Volume Up), Volume Down (Speaker Volume Down)	
Mechanical		
Color	Black	
Dimension (W x H x D)	10.71" x 7.48" x 0.94" (272.0mm x 190.0mm x 24.35mm)	10.71" x 7.48" x 0.94" (272mm x 190mm x 24mm)
Gross Weight	3.3 lb (1.5Kg) based on configurations	2.98 lb (1.35 Kg)
Environmental		
Operating Temperature	-4°F ~ 122°F (-20°C ~ 50°C) Charging Temperature 50°F ~ 113°F (10°C ~ 45°C)	-4°F ~ 122°F (-20°C ~ 50°C)
Storage Temperature	-22°F ~ 158°F (-30°C ~ 70°C)	
Humidity	0% ~ 90% relative humidity, non-condensing	
Environmental Sealing	IP65	
Vibration	MIL-STD-810H: 2019, 514.8 Procedure I, Table 514.8C-I Category 4 common carrier	MIL-STD-810H:2019, Method 514.8 Category 4 – Common Carrier
Drop	MIL-STD-810H: 2019, 516.8 Procedure I Drop height: 122cm Number of Drop: 26 times, for all surfaces, edges and corners Condition: Based on 2" plywood over concrete	MIL-STD-810H:2019, Method 516.8 Procedure IV Drop height: 122 cm 26 drops (8 corners, 12 edges and 6 faces) Condition: 2" plywood over concrete
Shock	MIL-STD-810H: 2019, 516.8 Procedure I	MIL-STD-810H:2019, Method 516.8 Procedure I
ESD	Air: ±8 kV, Contact: ±4 kV	
Certifications and Standards	CE EMC, CE RED WiFi 2.4G+5G / LTE; LVD; FCC EMC, FCC RF WiFi 2.4G+5G; UKCA, TELEC WiFi	CE EMC / CE RED WiFi 2.4G/5G / CE RED LTE FCC EMC / FCC RF WiFi 2.4G/5G LVD / UKCA TELEC WiFi / LTE
Power Supply		
AC / DC Adapter	AC 100 ~ 240 V, 50 ~ 60 Hz, Output: 19W/ 3.42A/ 65W	DC Jack: AC 100 ~ 240 V, 50 ~ 60 Hz, Output: 19W/ 3.42A/ 65W USB Type C charger (Optional)
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	10.1" TFT-LCD Display
Resolution	1920 x 1200	1920 x 1200
Maximum Color	16.7M	16.7M
Dot Size	—	0.1129 (H) x 0.1129 (V) mm
Brightness	450 nits (800 nits, Optional)	550 nits (Before Touch) 425 nits (After Touch)
Viewing Angle	Horizontal: 160° (Typical), Vertical: 160° (Typical)	Horizontal: 170°, Vertical: 170° (Typical)
Touch Screen		
Touch Type	Projected Capacitive Multi-Touch Screen (PCT)	
Light Transmission	Min. 85%	
Note		



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



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



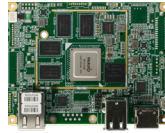
Model	RTC-1200BLT01-000	RTC-1200BLT02-000	RTC-1200BKT01-000
Description	Shoulder Belt for RTC-1200		VESA Mount Bracket for RTC-1200
Mechanical			
Color	Black		
Dimensions (W x H x D)	1050 x 65 x 5 mm	450 x 350 x 50 mm	180 x 203.3 x 45.4 mm



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



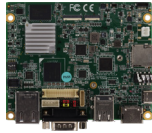
Model	RBC-1020	RTC-1200BAT01-000
Description	4-Bay Battery Charger for RTC-1010, RTC-1020, RTC-1030, and RTC-1200	Battery Pack for RTC-1010, RTC-1010M, RTC-1200, RTC-1010RK, RTC-1020
Mechanical		
Color		Black
Dimensions (W x H x D)	7.1" x 2.6" x 5.1" (180.6 x 67.5 x 130.0 mm)	2.8" x 4.3" x 0.5" (71.5mm x 110mm x 13.3mm)
Power Supply		
AC/DC Adapter	AC-To-DC Power Adaptor AC 100 ~ 240 V, 50 ~ 60 Hz, Output: DC 19V / 120W	14.4V, 2270mAh, 32.7W



Model	RICO-3288	RICO-3288MINI	RICO-3568
System Form Factor	Pico-ITX (100mm x 72mm)		Pico-ITX Plus (100mm x 80mm)
CPU	Rockchip RK3288 ARM Cortex™-A17 Quad-core 1.6 GHz		Rockchip RK3568 Quad-Core Arm® Cortex®-A55 Processor NPU: 0.8 TOPS
GPU	Mali-T764		Arm® Mali™-G52 GPU
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 Encode: 1080P @60fps H.264/H.265 Video Decode: 4K@60fps H.264/H.265/AV1 4KP60 AVS2/VP9 1080P MPEG1/VP8
Memory Capacity	Onboard DDR3L 2GB/4GB (Optional)	Onboard DDR3L 2GB	Onboard LPDDR4 2GB/4GB/8GB (Optional)
Storage/SSD	16GB eMMC and Micro-SD card	16GB eMMC	16GB eMMC and Micro-SD card Full-size mini-PCIe slot x 1 (mSATA / USB)
Operating System	Android 9.0 / Debian 10	Android 9.0 / Debian 9.0	Android™ 12 Debian® 10
Kernel	Kernal 4.4		Kernel 4.19.219 (Android 12)
Watchdog Timer	Integrated		
Power Requirement	+12V DC input		+12V DC input AT: Default, ATX: Optional
Power Consumption (Typical)	0.6A@12V, full load, Quad-core CPU		0.96A @12V, full load, Quad-core CPU
Dimension	3.94" x 2.84" (100mm x 72mm)		3.94" x 3.15" (100mm x 80mm)
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)	-4°F ~ 140°F (-20°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
MTBF (Hours)	80,000		100,000
Certification	CE/FCC		
Display	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	—	eDP 1.3, up to 2560 x 1600 @60Hz
LVDS	Support 18/24-bit up to 1920 x 1080 @60Hz	—	18/24-bit LVDS A1.0: Up to 1280 x 800 @60Hz B1.0: Up to 1920 x 1080 @60Hz JP2, 3.3V/5V: LVDS Power Selection JP3, 5V/12V: Backlight Power Selection LCD Backlight connector
MIPI	Up to 2560 x 1440 @60Hz	—	For A1.0 only Up to 2048 x 1536 @60Hz for Dual-MIPI Mode
RF Function			
WiFi	802.11 a/b/g/n/ac	—	Onboard 802.11 a/b/g/n/ac ANT1 for Antenna
BT	Bluetooth V5.4 + EDR	—	Bluetooth V5.4 + EDR
I/O			
Ethernet	GbE x 1		GbE x 2 RJ-45 x 2 (Onboard x 1 + T650 Daughter Board RJ-45 Port or T650 Wide-Voltage Board RJ-45 Port)
USB Port	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 OTG (Type-C) x 1 USB 3.2 Gen 1 x 1 USB 2.0 x 2 (Type-A x 1, Pin Header with Integrated USB, I2C, 5V x 1)
Serial Port	RS-232/422/485 x 1 RS-232 Pin header x 1 Debug port pin header x 1	—	RS-232/422/485 x 1 JP1, 5V/12V: RS-232/422/485 Voltage Output Selection RS-232 / Debug port 7-pin wafer x 1 CN3: UART (Tx/Rx only), I2C, USB, Others
Audio	2.5W (by 4Ω) Speaker/ Microphone/ Earphone	—	Microphone/ Earphone (3.5mm)
GPIO	8-bit (4-in, 4-out)		GPIO x 8, 2x6 Wafer x 1
Expansion Slot	Full-size mini-PCIe slot x 1 (For 3G/4G card)	—	Full-size mini-PCIe slot x 1 (mSATA / USB) Connect to Daughter board: 40-pin FPC connector x 1
SIM Slot	Nano-SIM	—	Nano-SIM, Push-Push type with tray
SD Socket	Support Micro-SD card	—	Micro-SD card, Push-Push type
Camera	—		
Note			

Rugged Mobile and Panel PC Solutions

RISC Boards



Model	RICO-MX8P	RICO-MX8PLITE	RICO-3568 Developer Kit
System Form Factor	Pico-ITX Plus (100mm x 80mm)		
CPU	NXP i.MX 8M Plus Quad-Core ARM® Cortex®-A53 Processor, 1.66GHz ARM® Cortex®-M7, 800MHz Processor for Low-Power Processing NPU: 2.3 TOPS (Optional)	NXP i.MX 8M Plus Quad Cortex™-A53 1.66GHz Cortex™-M7 800MHz processor for low-power processing	Rockchip RK3568 Quad-Core Arm® Cortex®-A55 Processor NPU: 0.8 TOPS
GPU	GC7000 UltraLite: 3D GPU (2 shaders) OpenGL ES 3.1, Vulkan, OpenCL 1.2 GC520L: 2D GPU	GC7000UltraLite: 3D GPU (2 shaders) OpenGL ES 3.1, Vulkan, OpenCL 1.2 GC520L: 2D GPU	Arm® Mali™-G52 GPU
Graphics	Video Processing Unit (VPU): 720p60 H.265, VP9 decoder 720p60 H.264, VP8 decoder 720p60 H.265, H.264 encoder		Video Encode: 1080P @60fps H.264/H.265 Video Decode: 4K@60fps H.264/H.265/AV1 4K60P AVS2/VP9 1080P MPEG1/VP8
Memory Capacity	Onboard LPDDR4 2GB/4GB/8GB (Optional)		Onboard LPDDR4 4GB
Storage/SSD	16GB eMMC and Micro-SD card	16GB (Default) / 32GB / 64GB eMMC	16GB eMMC and Micro-SD card Full-size mini-PCIe slot x 1 (mSATA / USB)
Operating System	Debian 11	Debian 11 (Default) / Android 13	Android™ 12 Debian® 10
Kernel	Kernel 5.10 (Debian 11)	Kernel 5.15 (Android 13)	Kernel 4.19.219 (Android 12)
Watchdog Timer	Integrated		
Power Requirement	+12V DC Input		+12V DC input AT: Default, ATX: Optional
Power Consumption (Typical)	0.93A@12V, full load, Quad-Core CPU		0.96A @12V, full load, Quad-core CPU
Dimension	3.94" x 3.15" (100mm x 80mm)		Board: 3.94" x 3.15" (100mm x 80mm) Kit: 15.75" x 13.19" x 5.51" (400mm x 335mm x 140mm)
Gross Weight	0.44 lb (0.2Kg)	0.44 lb (0.2 Kg)	Board: 0.44 lb (0.2 Kg) Kit: 7.72 lb (3.5Kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)		-4°F ~ 140°F (-20°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)		
Operating Humidity	0% ~ 90% relative humidity, non-condensing		
MTBF (Hours)	100,000		
Certification	CE/FCC		
Display			
HDMI eDP	HDMI 2.0 (Type-A)		HDMI 2.0, up to 4K x 2K @60Hz eDP 1.3, up to 2560 x 1600 @60Hz
LVDS	4-Lane/8-Lane LVDS Interface JP2, 5V/12V: Backlight Power Selection JP3, 3.3V/5V: LVDS Power Selection LCD Backlight Connector	4-lane or 8-lane LVDS interface JP3, 3.3V/5V: LVDS Power Selection LCD Backlight JP2, 5V/12V	7" WSVGA (1024 x 600) Color TFT LCD Display 10.1" WXGA (1280 x 800) Color TFT LCD Display 18/24-bit LVDS, up to 1280 x 800 @60Hz JP2, 3.3V/5V: LVDS Power Selection JP3, 5V/12V: Backlight Power Selection LCD Backlight connector
MIPI RF Function	4-Lane MIPI DSI Interface	—	Up to 2048 x 1536 @60Hz for Dual-MIPI Mode
WiFi	Supported via M.2 2230 E-Key (Optional, PCIe 3.0 [x1] I/F)		Onboard 802.11 a/b/g/n/ac
BT	Supported via M.2 2230 E-Key (Optional, PCIe 3.0 [x1] I/F)		ANT1 for Antenna
I/O			Bluetooth V5.0 + EDR
Ethernet	Onboard RJ45 GbE Port x 1 RJ45 GbE Port x 1 (via Daughter Board, T650 or T668)	Onboard RJ45 GbE Port x 1	GbE x 2 RJ-45 x 2 (Onboard x 1 + T650 Daughter Board RJ-45 Port or T650 Wide-Voltage Board RJ-45 Port)
USB Port	USB 3.2 Gen 1 x 2 (Type-C OTG x 1, Type-A x 1) USB 2.0 x 1 (Type-A)	USB 3.2 Gen 1 x 2 (Type-C OTG x 1, Type-A x 1) USB 2.0 x 1 (Type-A)	USB 3.2 Gen 1 OTG (Type-C) x 1 USB 3.2 Gen 1 x 1 USB 2.0 x 2 (Type-A x 1, Pin Header with Integrated USB, I2C, 5V x 1)
Serial Port	RS-232/422/485 x 1 JP1, 5V/12V: RS-232/422/485 Voltage Output Selection COM Port Setting via S/W RS-232 Pin Header x 1 Debug Port x 1 UART x 2 (Tx/Rx Only)	RS-232/422/485 x 1 JP1, 5V/12V: RS-232/422/485 Voltage Output Selection COM Port Setting via S/W Debug Port x 1 UART x 2 (Tx/Rx Only)	RS-232/422/485 x 1 JP1, 5V/12V: RS-232/422/485 Voltage Output Selection RS-232 / Debug port 7-pin wafer x 1 CN3: UART (Tx/Rx only), I2C, USB, Others
Audio	Audio Combo Jack x 1 (3.5mm)	—	Microphone/ Earphone (3.5mm)
GPIO	GPIO x 8, 2x7P Wafer x 1		GPIO x 8, 2x6 Wafer x 1
Expansion Slot	Full Size Mini-PCIe Slot x 1 (For LTE, USB I/F) 40-Pin FPC Connector x 1 (Connect to Daughter Board)	—	Full-size mini-PCIe slot x 1 (mSATA / USB) Connect to Daughter board: 40-pin FPC connector x 1
SIM Slot	Push-Push Nano-SIM Slot with Tray	—	Nano-SIM, Push-Push type with tray
SD Socket	Push-Push Micro-SD Card Slot x 1	—	Micro-SD card, Push-Push type
Camera	4-Lane MIPI CSI Interface	—	—
Note			



Model	BOXER-RK88	BOXER-RK99
System		
CPU	Rockchip RK3288 ARM Cortex™-A17 Quad-core 1.6GHz	Rockchip RK3399 ARM Cortex™-A72 Dual-core 1.8GHz and Cortex™-A53 Quad-core 1.4GHz
GPU	Mali-T764	Mali-T864
Chipset		
Graphics	Video Decode: MPEG-1, MPEG-2, MPEG-4, H.263, H.264, AVS, VC-1, VP8, MVC Video Encode: H.264 (BP@level4.0, MP@level4.0, HP@level4.0), MVC and VP8	Video Decode: MPEG-1, MPEG-2, MPEG-4, H.263, H.264, H.265, VC-1, VP8, VP9, MVC Video Encode: H.264 UP to HP@level4.1, MVC and VP8
System Memory	DDR3L 2GB/4GB (Optional)	LPDDR3 2GB/4GB (Optional)
Display Interface	HDMI (1.4)	HDMI (2.0) up to 4K x 2K @ 60Hz
Storage/SSD		16GB eMMC and Micro-SD card
I/O	Micro-SD Card Slot x 1 HDMI (1.4) Port x 1 Antenna Connector for WiFi 802.11 b/g/n, BT V4.2 Antenna Connector for LTE (Optional) GbE: RJ45 x 1 USB 2.0: Micro-USB OTG x 1, Type A x 2 RS-232/422/485 x 1, RS-232 x 1 (Optional)	Micro-SD Card Slot x 1 HDMI (2.0) Port x 1 Antenna Connector for WiFi 802.11 b/g/n, BT V4.2 Antenna Connector for LTE (Optional) GbE: RJ45 x 1 USB 3.2 Gen 1: Type C OTG x 1, Type A x 1 USB 2.0: Type A x 1 RS-232/422/485 x 1, RS-232 x 1 (Optional)
Expansion		mPCIe Slot x 1 for LTE module
Indicator		Power LED x 1
OS Support	Android 9.0 / Debian 10	Android 8.1 / Debian 10
Power Supply		
Power Requirement		+12V DC input
Mechanical		
Mounting		VESA mount, 75mm x 75mm
Dimension		4.07" x 3.78" x 1.97" (103.4 mm x 96 mm x 50 mm)
Gross Weight		1.1 lb (0.5 Kg)
Net Weight		0.66 lb (0.3 Kg)
Environmental		
Operating Temperature		32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature		-40°F ~ 176°F (-40°C ~ 80°C)
Storage Humidity		0% ~ 90% relative humidity, non-condensing
Anti-Vibration		
Certification		CE/FCC/IC
Note		

Note: All specifications are subject to change without notice.

Rugged Mobile and Panel PC Solutions

RISC Boxes



Model	BOXER-RK3568	BOXER-MX8P
System		
CPU	Rockchip RK3568 Quad-Core Arm® Cortex®-A55 NPU: 1 TOPS	NXP i.MX 8M Plus: Quad-Core Arm® Cortex® A53, 1.6 GHz Arm® Cortex®-M7, up to 800 MHz NPU: 2.3 TOPS
GPU	Arm® Mali™-G52	Vivante GC7000UL: 3D GPU (2 shaders) OpenGL ES 3.1, Vulkan, OpenCL 1.2 Vivante GC520L: 2D GPU
Chipset		
Graphics	Video Encode: 1080P@60fps H.264/H.265 Video Decode: 4K@60fps H.264/H.265/AV1 4KP60 AVS2/VP9 1080P MPEG1/VP8	Video Processing Unit (VPU): • 1080p60 H.265, VP9 decoder • 1080p60 H.264, VP8 decoder • 1080p60 H.265, H.264 encoder
System Memory	LPDDR4 2GB/4GB/8GB (Optional)	
Display Interface	HDMI 2.0	
Storage/SSD	16GB eMMC and Micro-SD card	
I/O	HDMI 2.0 x 1 Antenna Connector for Wi-Fi 802.11 b/g/n, BT V5.0 Antenna Connector for LTE (Optional) RJ-45, GbE x 1 USB 3.2 Gen 1 (Type-C OTG) x 1 USB 3.2 Gen 1 (Type-A) x 1 USB 2.0 x 1 RS-232/422/485 x 1, RS-232 x 1 (Optional) SIM Card Slot x 1 Audio Jack x 1	Micro-SD Card Slot x 1 HDMI 2.0 x 1 Antenna Connector for Wi-Fi 802.11 b/g/n, BT V5.0 Antenna Connector for LTE (Optional) RJ-45, GbE x 1 USB 3.2 Gen 1 (Type-C OTG) x 1 USB 3.2 Gen 1 (Type-A) x 1 USB 2.0 x 1 RS-232/422/485 x 1, RS-232 x 1 (Optional) SIM Card Slot x 1 Audio Jack x 1
Expansion	mPCIe Slot x 1 (mSATA / USB) for LTE module	mPCIe Slot x 1 (USB) for LTE module
Indicator	Power LED x 1	
OS Support	Android 12, Debian 11 (Optional)	Debian 11, Android 13 (Optional)
Power Supply		
Power Requirement	+12V DC input	
Mechanical		
Mounting	VESA mount, 75mm x 75mm	
Dimension	4.2" x 3.37" x 1.97" (106.5 mm x 85.6 mm x 50 mm)	
Gross Weight	1.1 lb (0.5 Kg)	
Net Weight	0.66 lb (0.3 Kg)	
Environmental		
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 122°F (0°C ~ 50°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	
Storage Humidity	0% ~ 90% relative humidity, non-condensing	
Anti-Vibration		
Certification	CE/FCC	
Note		

Rugged Mobile and Panel PC Solutions

All in One Panel PC Solutions: ACP Series

04

All in One Panel PC Solutions: ACP Series



Model	ACP-2076	ACP-1108	ACP-1106
System	Aluminum Front Bezel & Metal Chassis		
Processor	Intel® Processor N50 Intel® Processor N97 *Turbo Mode is disabled by default. If enabling it, please ensure the system in a well-ventilated area.	Rockchip™ RK3568 Quad-Core Arm® Cortex®-A55 Processor	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	DDR5 4800MHz SODIMM x 1, up to 32GB	LPDDR4 2GB/4GB (Optional)	DDR3L 1866, Single Channel SODIMM x 1, Non-ECC (Max.8GB, up to 1600MHz)
LCD/CRT controller	CPU Integrated	—	Integrated in processor
Ethernet	Intel® Ethernet Controller I226 GbE x 2	10/100/1000 Base TX x 2	10/100/1000 Base-TX, RJ-45 x 2
I/O Port	USB 3.2 x 2 USB 2.0 x 2 via Cables DB-9 x 2 for RS-232/422/485 (Set By BIOS) DB-9 x 2 for RS-232 (Optional) HDMI 1.4b x 1 2.5GbE x 2 12V DC Jack, 9~36V (Optional) 8-bit GPIO x 1 Power on/off Switch with LED Light x 1	LAN x 2 COM x 2 USB 3.2 Gen 1 (Type-C OTG) x 1 (For System Recovery) USB 3.2 Gen 1 x 1 USB 2.0 x 3 HDMI x 1 Audio x 1	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	Full size mPCIe (PCIe [x1]/SATA)	16GB eMMC and Micro-SD card	Full Size mSATA x 1
Expansion Slot	M.2 3052 B-Key x 1 with Nano SIM M.2 2230 E-Key x 1	Full-size mini-PCIe slot x 1 (PCIe 3.0 [x1] or mSATA)	Half size mini card x 1 (Internal)
OS support	Windows® 10 IoT Enterprise LTSC 2021 Windows® 10/11	Android™ 12 / Debian	Windows® 10
Mechanical	Aluminum Front Bezel & Metal Chassis		
Construction	Aluminum Front Bezel & Metal Chassis		
Mounting	Panel Mount/VESA Mount (VESA 100)	VESA / Panel Mount	VESA 75, Panel Mount
Dimension	7.74" x 5.31" x 1.69" (196.5mm x 135mm x 43mm)	10.5" x 7.2" x 1.5" (266.9mm x 184.5mm x 40mm)	10.47" x 7.24 x 1.89" (266 x 184 x 48mm)
Carton Dimension	11.0" x 8.7" x 6.1" (280mm x 220mm x 154mm)	13.3" x 10.2" x 5.9" (339mm x 260mm x 152mm)	13.38" x 7.64 x 9.96" (340 x 194 x 253mm)
Gross Weight	2.1 lb (0.95Kg)	3.5 lb (1.6Kg)	6.38 lb (2.9 Kg)
Environmental	90% @40°C; non-condensing		
Operating Temperature	23°F ~ 122°F (-5°C ~ 50°C) with 0.5 m/s airflow	23°F ~ 131°F (-5°C ~ 50°C) with 0.5 m/s airflow	23°F ~ 122°F (-5°C ~ 50°C) with 0.5 m/s airflow
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	90% @40°C; non-condensing		
Vibration	1Grm s/5~500Hz/ operation - with mSATA	1Grms / 5~ 500Hz / operation	1 Grms/ 5~ 500Hz/ operation – with HDD
Shock	15 G peak acceleration (11 m sec. duration) with mSATA	15 G peak acceleration (11 msec. duration)	15 G peak acceleration (11 msec. duration) – with HDD
EMC	CE/FCC Class A		
Power Supply	DC 12V		
DC Input	DC 12V	DC 12~24V	DC 9~30V
LCD	LED		
Display Type	7" TFT LCD, LED	10.1" WXGA (1280 x 800) Color TFT LCD Display	10.1" TFT-LCD, LED
Max Resolution	1024 x 600	1280 x 800	1280 x 800
Max. Colors	16.7M	262K colors (6 bit for R,G,B)	262K colors (6 bit for R,G,B)
Luminance	320 cd/m²	300 cd/m²	300 cd/m²
Viewing Angle	145° (H); 150° (V)	170° (H); 170° (V)	170° (H), 170° (V)
Back Light	LED		
Back Light MTBF (Hours)	20,000	25,000	—
Touchscreen	Projected Capacitive Multi-Touch		
Type	P-CAP Touchscreen		
Light Transmission	90%		
Note			

Note: All specifications are subject to change without notice.

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04-8

All in One Panel PC Solutions: ACP Series



Model	ACP-1104	ACP-1076	ACP-1074
System			
Processor	Intel® Celeron® J1900 processor, 2 GHz Intel® N2807 processor, 1.58 GHz	Intel® Pentium® N4200 processor, 1.1 GHz (Quad-Core), Burst frequency 2.5GHz Intel® Celeron® N3350 processor, 1.1 GHz (Dual-Core), Burst frequency 2.4GHz	Intel® N2807 processor, 1.58 GHz Intel® Celeron® J1900 processor, 2 GHz
System Memory	204-pin DDR3L 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)	DDR3L 1866, Single Channel SODIMM x 1, Non-ECC (Max.8GB, up to 1600MHz)	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, 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 DVI/D (4 Di, 2 DO) BIOS selection Power button x 1 Lockable power connector x 1	DB9 Type RS-232 x 1 USB 3.2 Gen 1 x 2 HDMI x 1 RJ-45 10/100/1000 LAN x 2 2 Pin terminal block for power input Power Button x 1 Type A USB 2.0 x 1 Expansion I/O Slot	RJ-45 type RS-232/422/485 x 2 USB 2.0 x 3 USB 3.2 Gen 1 x 1 HDMI x 1 DVI/D (4Di, 2DO) BIOS Selection Lockable power input connector Power switch x 1
Storage Disk Drive	Half size mSATA x 1 (Installation by AAEON recommended)	Full Size mSATA x 1	Half size mSATA storage x 1 (Installation by AAEON recommended)
Expansion Slot	Full size Mini-Card x 1	Half size mini card x 1 (Internal)	Full size Mini-Card x 1
OS support	Windows® 7, Windows® 8.1, Windows® 10	Windows® 10	Windows® 7, Windows® 8.1, Windows® 10, Linux kernel 2.6.3 or higher
Mechanical Construction	Aluminum Design	Aluminum Front Bezel + Metal Chassis	Aluminum Design
Mounting	VESA 75/ Panel mount/ Stand	VESA 75, Panel Mount	VESA 75/ Panel mount/ Stand
Dimension	10.47" x 7.22" x 1.18" (266 x 183.5 x 30mm)	7.72" x 5.28" x 1.89" (196 x 134 x 48 mm)	7.71" x 5.27" x 1.18" (196mm x 134mm x 30mm)
Carton Dimension	13.58" x 7.87" x 9.65" (345 x 200 x 245mm)	10.87" x 9.41" x 6.69" (276 x 239 x 170 mm)	13.58" x 7.87" x 9.64" (345mm x 200mm x 245mm)
Gross Weight	5.5 lb (2.5 Kg)	4.62 lb (2.1 Kg)	4.8 lb (2.2 Kg)
Environmental			
Operating Temperature	32°F ~ 113°F (0°C ~ 45°C) without airflow 32°F ~ 122°F (0°C ~ 50°C) with airflow	23°F ~ 122°F (-5°C ~ 50°C) with 0.5 m/s airflow	32°F ~ 122°F (0°C ~ 50°C) without airflow 23°F ~ 131°F (-5°C ~ 55°C) with airflow
Storage Temperature		-4°F ~ 158°F (-20°C ~ 70°C)	
Storage Humidity	5%~90% @40°C, non-condensing	90% @40°C, non-condensing	5%~90% @40°C, non-condensing
Vibration	1 Grms/ 5~ 500Hz/ operation	1 Grms/ 5~ 500Hz/ operation	operation – with HDD
Shock	15 G peak acceleration (11 msec. duration)	15 G peak acceleration (11 msec. duration) – with HDD	15G peak acceleration (11 msec. duration) – with HDD
EMC	CE/FCC Class A		
Power Supply			
DC Input	DC 12V with lockable power adapter	DC 9~30V	DC12V, with lockable power adapter
LCD			
Display Type	10.1" TFT-LCD, LED		7" TFT-LCD, LED
Max Resolution	1280 x 800		1024 x 600
Max. Colors	262k		16.7M
Luminance	300 cd/m²		320 cd/m²
Viewing Angle	170° (H), 170° (V)		150° (H), 145° (V)
Back Light		LED	
Back Light MTBF (Hours)	—		20,000
Touchscreen			
Type	Projected capacitive multi-touch	P-CAP Touchscreen	Projected capacitive multi-touch (2-point)
Light Transmission	—		90%
Note			

Rugged Mobile and Panel PC Solutions

OMNI Series : Modular Builder - Panel Kit

04

OMNI Series : Modular Builder - Panel Kit



Model	OMNI-215D	OMNI-221D	OMNI-224D
Mechanical	Aluminum Front Bezel		Aluminum Front Bezel + Metal Chassis
Construction	Panel Mount		VESA / Panel Mount
Mounting			
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)	22.8" x 13.8" x 0.8" (578.60mm x 350.60mm x 20.00mm)
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)	28.15" x 20.08" x 8.58" (715mm x 510mm x 218mm)
Gross Weight	11 lb (5 Kg)		TBD
Environmental			
Operating Temperature	-4°F ~ 131°F (-20°C ~ 55°C) with 0.7 m/s airflow		-40F~122oF (-20°C~50°C) with airflow
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)		-4°F~140°F (-20°C~60°C)
Storage Humidity	90% @40°C, non-condensing		
Vibration	1 Grms/ 5~ 500Hz/ operation – with HDD		1Grms / 5~ 500Hz / operation
Shock	15G peak acceleration (11 msec. duration) – with HDD		15 G peak acceleration (11 msec. duration)
EMC	CE/FCC Class A		CE/FCC Class A Compatible
Power Supply			
DC input	—		DC 9~30V
LCD			
Display Type	15.6" TFT-LCD, LED	21.5" TFT-LCD, LED	23.8" TFT-LCD, LED
Max Resolution	Regular 1366 (H) x 768 (V) Full HD 1920 (H) x 1080 (V)	1920 x 1080	
Max. Colors	Regular :16.7M (8 bit/color) Full HD: 16.2M	16.7M colors	
Luminance	Regular : 400 cd/m² Full HD : 450 cd/m²	250 cd/m²	450 cd/m²
Viewing Angle	Regular : 170° (H) ; 130° (V) Full HD: 178° (H) ; 178° (V)	178° (H), 178° (V)	178° (H) ; 178° (V)
Back Light	LED		
Back Light MTBF (hours)	50,000		50,000
Touch Screen			
Type	P-CAP/ Full-flap resistive		Projective Touch (Max. 10 Point)
Light Transmission	90%		86%
Others	1. Connect with OMNI CPU Box Kit 2. Connect with LVDS/USB Type Touch		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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04-10

OMNI Series : Modular Builder - Panel Kit



Model	OMNI-227D	OMNI-312D
Mechanical		
Construction	Aluminum Front Bezel + Metal Chassis	Aluminum Front Bezel
Mounting	VESA / Panel Mount	Panel Mount
Dimension	25.3" x 15.8" x 0.8" (641.60 mm x 402.50 mm x 20.00 mm)	12.95" x 11.34" x 0.98" (329mm x 288mm x 25mm)
Carton Dimension	30.70" x 22.24" x 8.58" (780mm x 565mm x 218mm)	20.87" x 17.52" x 7.87" (530mm x 445mm x 200mm)
Gross Weight	TBD	4.4 lb (2 Kg)
Environmental		
Operating Temperature	32oF~113oF (0°C~45°C) with airflow	-4°F ~ 131°F (-20°C ~ 55°C) with 0.7 m/s airflow
Storage Temperature	-4oF~140oF (-20°C~60°C)	-4°F~140°F (-20°C~60°C)
Storage Humidity	90% @40°C; non-condensing	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)	15G peak acceleration (11 msec. duration) – with HDD
EMC	CE/FCC Class A Compatible	CE/FCC Class A
Power Supply		
DC input	DC 9~30V	—
LCD		
Display Type	27" TFT-LCD, LED	12.1" TFT-LCD, LED
Max Resolution	1920 x 1080	1024 x 768
Max. Colors	16.7M colors	16.2M colors
Luminance	300 cd/m ²	500 cd/m ²
Viewing Angle	178° (H) ; 178° (V)	160° (H), 160° (V)
Back Light	LED	LED
Back Light MTBF (hours)	30,000	50,000
Touch Screen		
Type	Projective Touch (Max. 10 Point)	P-CAP/ Full-flap resistive
Light Transmission	86%	90%
Others	1. Connect with OMNI-Box Kit 2. Connect with LVDS/USB Type Touch	1. Connect with OMNI CPU Box Kit 2. Connect with LVDS/USB Type Touch
Note		

Rugged Mobile and Panel PC Solutions

OMNI Series : Modular Builder - Panel Kit

04

OMNI Series : Modular Builder - Panel Kit



Model	OMNI-315D	OMNI-317D	OMNI-319D
Mechanical	Aluminum Front Bezel		
Construction	Panel Mount		
Mounting			
Dimension	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)	18.13" x 16.12" x 1.1" (460.4mm x 409.4mm x 28mm)
Carton Dimension	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)	26.02" x 8.11" x 19.53" (661mm x 206mm x 496mm)
Gross Weight	11.66 lb (5.3 Kg)	8.8 lb(4 Kg)	11 lb (5 Kg)
Environmental			
Operating Temperature	-4°F ~ 131°F (-20°C ~ 55°C) with 0.7 m/s airflow		
Storage Temperature	-4°F~140°F (-20°C~60°C)		
Storage Humidity	90% @40°C; non-condensing		
Vibration	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" TFT-LCD, LED	17" TFT-LCD, LED	19" TFT-LCD, LED
Max Resolution	1024 x 768		1280 x 1024
Max. Colors	16.2M (8bit/color)		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
Touch Screen			
Type	P-CAP/ Full-flap resistive		
Light Transmission	90%		
Others	1. Connect with OMNI CPU Box Kit 2. Connect with LVDS/USB Type Touch		
Note			

Note: All specifications are subject to change without notice.

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04-12

Rugged Mobile and Panel PC Solutions

OMNI Series : Modular Builder - BOX Kit



Model	OMNI-ADP CPU-BOX Kit	OMNI-ADN CPU-BOX Kit
System		
Processor	Intel® Core™ i7-1265UE Intel® Core™ i5-1245UE Intel® Core™ i3-1215UE Intel® Celeron® Processor 7305E	Intel® Processor N50 Intel® Processor N97
System Memory	DDR5 4800MHz, Dual Channel SODIMM x 2, up to 64GB	DDR5 4800 MHz, up to 16GB SODIMM x 1
LCD CRT Controller	—	CPU Integrated
Ethernet	Intel® Ethernet Connection I219 Series, 10/100/1000Base Intel® Ethernet Controller I226 Series, 10/100/1000/2500Base	Intel® Ethernet Controller I226, GbE x 3
IO Port	RJ-45 LAN x 2 USB 3.2 Gen 2 (Type-A) x 3 USB 3.2 Gen 2 (Type-C) x 1 HDMI 2.0b x 1 DB-9 x 2 (RS-232/422/485)	USB 3.2 x 2 USB 2.0 x 2 via Cables DB-9 RS-232/422/485 x 2 (set By BIOS) HDMI 1.4b x 1 RJ-45 x 3 DC 9V ~ 30V 3-pin Terminal Block Connector Power On/Off Switch x 1 with LED Light
Storage Disk Drive	2.5" SATA 6Gb/s x 1 M.2 2280 M-Key (PCIe [x4]) (NVMe)	2.5" SATA Drive Bay x 1 (SATA 6Gb/s) Full-size mPCIe (PCIe [x1]/SATA)
Expansion Slot	M.2 3052 B-Key x 1 (BOM Optional: PCIe [x2], Default: USB 3.2 Gen 2 + SATA) M.2 2230 E-Key x 1 (PCIe, USB 2.0)	M.2 3052 B-Key x 1 with Nano SIM M.2 2230 E-Key x 1
OS Support	Windows 10/Windows 11	Windows® 10 IoT Enterprise LTSC 2021 Windows® 10/11
Construction	Aluminum design	Aluminum Front Bezel + Metal Chassis
Mounting	VESA	Panel Mount/VESA Mount (VESA 100)
Dimension	7.8" x 1.7" x 7" (200mm x 45mm x 180mm)	
Gross Weight	2.5 lb (1.15kg)	
Operating Temperature	-4°F ~ 122°F (-20°C ~ 50°C) with 0.7 m/s airflow	-4°F~122°F (-20°C~50°C) with airflow
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C	
Storage Humidity	90% @40°C; non-condensing	
Anti Vibration	1Grms / 5~ 500Hz / operation	1Grm s/5~500Hz/ operation - with mSATA
Anti-Shock	15 G peak acceleration (11 msec. duration)	15 G peak acceleration (11 m sec. duration) with mSATA
Certification	CE/FCC Class A	CE/FCC Class A Compatible
DC Input	DC 9~30V, Suggest Minimum 120W Power Adapter	DC 9~30V
Display Type	OMNI Series Panel Kit from 10.4" to 27"	OMNI Series Panel Kit from 10.4" to 21.5"
Others	All size: PCAP multitouch (Support Gloves) 10" ~ 21.5": Flat 5-Wire Resistive	12.1" and 15": Flat 5-Wire Resistive Touch All Size: PCAP Multitouch
Note		

Rugged Mobile and Panel PC Solutions

OMNI Series : Modular Touch Panel Solutions

04

OMNI Series : Modular Touch Panel Solutions



Model	OMNI-2155-ADP	OMNI-2215-ADP	OMNI-2245-ADP
System			
Processor	12th Generation Intel® Core™/Celeron® Processors: Intel® Core™ i7-1265UE Intel® Core™ i5-1245UE Intel® Core™ i3-1215UE Intel® Celeron® Processor 7305E	12th Generation Intel® Core™/Celeron® Processors	
System Memory	DDR5 4800 MHz, Dual Channel SODIMM x 2, up to 64GB		
LCD/CRT Controller	—		
Ethernet	Intel® Ethernet Connection I219, 10/100/1000Base Intel® Ethernet Controller I226, 10/100/1000/2500Base		
I/O Port	RJ-45 LAN x 2 USB 3.2 Gen 2 (Type-A) x 3 USB 3.2 Gen 2 (Type-C) x 1 HDMI 2.0b x 1 DB-9 x 2 (RS-232/422/485)		
Storage Disk Drive	2.5" HDD Bay for SATA 6Gb/s x 1 M.2 2280 M-Key x 1 (PCIe [x4] for NVMe Storage)		
Expansion Slot	M.2 3052 B-Key x 1 (Default: USB 3.2 Gen 2 + SATA, PCIe [x2] optional by BOM) M.2 2230 E-Key x 1 (PCIe, USB 2.0)		
OS support	Windows® 10 IoT Enterprise LTSC 2021 Windows® 10/11		
Mechanical Construction	Aluminum Front Bezel + Metal Chassis		
Mounting	VESA / Panel Mount		
Dimension	16.5" x 10.41" x 2.9" (420.2mm x 264.5mm x 73.8mm)	21.63" x 14.66" x 2.64" (549.4mm x 372.4mm x 67mm)	22.78" x 13.80" x 2.95" (578.60mm x 350.60mm x 74.90mm)
Carton Dimension	20.86" x 17.51" x 7.87" (530 mm x 445 mm x 200mm)	26.38" x 20.67" x 7.87" (670mm x 525mm x 200mm)	28.15" x 20.08" x 8.58" (715mm x 510mm x 218mm)
Gross Weight	11.46 lb (5.2Kg)	14.9 lb (6.8Kg)	22.8 lb (10.36Kg)
Environmental			
Operating Temperature	-4°F ~ 122°F (-20°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		
Vibration	1Grms / 5~ 500Hz / operation		
Shock	15 G peak acceleration (11 msec. duration)		
EMC	CE/FCC Class A Compatible		
Power Supply			
DC input	DC 9~30V		
LCD			
Display Type	15.6" TFT-LCD, LED	21.5" TFT-LCD, LED	23.8" TFT-LCD, LED
Max Resolution	Regular 1366 (H) x 768 (V) Full HD 1920 (H) x 1080 (V)	1920 x 1080	
Max. Colors	Regular :16.7M (8 bit/color) Full HD: 16.2M	16.7M colors	
Luminance	Regular : 400 cd/m² Full HD : 450 cd/m²	250 cd/m²	450 cd/m²
Viewing Angle	Regular : 170° (H) ; 130° (V) Full HD: 178° (H) ; 178° (V)	178° (H) ; 178° (V)	
Back Light	LED		
Back Light MTBF (Hours)	50,000	50,000	
Touchscreen			
Type	P-CAP/ 5-wire resistive		Projective Touch (Max. 10 Point)
Light Transmission	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)	P-CAP (≥85%), 5-wire Resistive (80% ± 3%)	≥ 86%
Note			

Note: All specifications are subject to change without notice.

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04-14

OMNI Series : Modular Touch Panel Solutions



Model	OMNI-2275-ADP	OMNI-3125-ADP	OMNI-3155-ADP
System Processor	12th Generation Intel® Core™/Celeron® Processors		
System Memory	DDR5 4800MHz, Dual Channel SODIMM x 2, up to 64GB	DDR5 4800 MHz, Dual Channel SODIMM x 2	
LCD/CRT Controller	—		
Ethernet	Intel® Ethernet Connection I219, 10/100/1000Base Intel® Ethernet Controller I226, 10/100/1000/2500Base	Intel® Ethernet Connection I219, 10/100/1000Base Intel® Ethernet Controller I226, 10/100/1000/2500Base	
I/O Port	RJ-45 LAN x 2 USB 3.2 Gen 2 (Type-A) x 3 USB 3.2 Gen 2 (Type-C) x 1 HDMI 2.0b x 1 DB-9 x 2 (RS-232/422/485)	RJ-45 LAN x 2 USB 3.2 Gen 2 (Type-A) x 3 USB 3.2 Gen 2 (Type-C) x 1 HDMI 2.0b x 1 DB-9 x 2 (RS-232/422/485)	
Storage Disk Drive	2.5" HDD Bay for SATA 6Gb/s x 1 M.2 2280 M-Key x 1 (PCIe [x4] NVMe Storage)	2.5" HDD Bay for SATA 6Gb/s x 1 M.2 2280 M-Key x 1 (PCIe [x4] NVMe Storage)	
Expansion Slot	M.2 3052 B-Key x 1 (Default: USB 3.2 Gen 2 + SATA) PCIe [x2] optional by BOM) M.2 2230 E-Key x 1 (PCIe, USB 2.0)	M.2 3052 B-Key x 1 (BOM Optional: PCIe [x2], default: USB 3.2 Gen 2 + SATA) M.2 2230 E-Key x 1 (PCIe, USB 2.0)	
OS support	Windows® 10 IoT Enterprise LTSC 2021 Windows® 10/11	Windows® 10 IoT Enterprise LTSC 2021 Windows® 10/11	
Mechanical Construction	Aluminum Front Bezel + Metal Chassis		
Mounting	VESA / Panel Mount		
Dimension	25.26" x 15.85" x 2.94" (641.60mm x 402.50mm x 74.70mm)	12.9" x 11.3" x 2.7" (328.5mm x 288mm x 69.7mm)	14.52" x 12.35" x 2.83" (368.9mm x 313.7mm x 72mm)
Carton Dimension	30.70" x 22.24" x 8.58" (780mm x 565mm x 218mm)	20.9" x 17.5" x 7.9" (530mm x 445mm x 200mm)	20.1" x 18.1" x 9.8" (510mm x 460mm x 250mm)
Gross Weight	27.1 lb (12.30Kg)	7.6 lb (3.48Kg)	8.5 lb (3.9Kg)
Environmental			
Operating Temperature	32°F ~ 113°F (0°C ~ 45°C) with airflow	-4°F~122°F (-20°C~50°C) with airflow	
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F~140°F(-20°C~60°C)	
Storage Humidity	90% @40°C; non-condensing		
Vibration	1Grms / 5~ 500Hz / operation		
Shock	15 G peak acceleration (11 msec. duration)		
EMC	CE/FCC Class A Compatible		
Power Supply			
DC input	DC 9~30V		
LCD			
Display Type	27" TFT-LCD, LED	12.1" TFT-LCD, LED	15" TFT-LCD, LED
Max Resolution	1920 x 1080	1024(H) x 768(V)	
Max. Colors	16.7M colors	16.2M colors	16.2M (8 bit/color)
Luminance	300 cd/m²	500 cd/m²	300 cd/m²
Viewing Angle	178° (H) ; 178° (V)	160° (H) ; 160° (V)	176° (H), 176° (V)
Back Light	LED		
Back Light MTBF (Hours)	30,000	50,000	70,000
Touchscreen			
Type	Projective Touch (Max. 10 Point)	P-CAP/ 5-wire resistive	
Light Transmission	>= 86%	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)	P-CAP (90% ± 2%), 5-wire Resistive (80% ± 2%)
Note			

Rugged Mobile and Panel PC Solutions

OMNI Series : Modular Touch Panel Solutions

04

OMNI Series : Modular Touch Panel Solutions



Model	OMNI-3175-ADP	OMNI-3195-ADP	OMNI-2155-ADN
System	12th Generation Intel® Core™/Celeron® Processors		Intel® Processor N50 Intel® Processor N97
Processor	DDR5 4800 MHz, Dual Channel SODIMM x 2		DDR5 4800 MHz, up to 16GB SODIMM x 1
System Memory	—		CPU Integrated
LCD/CRT Controller	—		—
Ethernet	Intel® Ethernet Connection I219, 10/100/1000Base Intel® Ethernet Controller I226, 10/100/1000/2500Base		Intel® Ethernet Controller I226, 2.5GbE LAN x 3
I/O Port	RJ-45 LAN x 2 USB 3.2 Gen 2 (Type-A) x 3 USB 3.2 Gen 2 (Type-C) x 1 HDMI 2.0b x 1 DB-9 x 2 (RS-232/422/485)		USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 x 2 via Cables DB-9 x 2 (RS-232/422/485, set by BIOS) HDMI 1.4b x 1 2.5GbE RJ-45 x 3 9V ~ 30V 3-pin DC Terminal Block Connector Power on/off Switch with LED Light x 1
Storage Disk Drive	2.5" HDD Bay for SATA 6Gb/s x 1 M.2 2280 M-Key x 1 (PCIe [x4] NVMe Storage) M.2 3052 B-Key x 1 (BOM Optional: PCIe [x2], default: USB 3.2 Gen 2 + SATA) M.2 2230 E-Key x 1 (PCIe, USB 2.0)		2.5" SATA Drive Bay x 1 (SATA 6Gb/s) Full-size mPCIe (PCIe [x1]/SATA)
Expansion Slot	—		M.2 3052 B-Key x 1 with Nano SIM M.2 2230 E-Key x 1
OS support	Windows® 10 IoT Enterprise LTSC 2021 Windows® 10/11		Windows® 10 IoT Enterprise LTSC 2021 Windows® 10/11
Mechanical	—		—
Construction	Aluminum Front Bezel + Metal Chassis		—
Mounting	VESA / Panel Mount		Panel Mount/VESA Mount (VESA 100)
Dimension	16.14" x 14.56" x 2.87" (409.9mm x 369.9mm x 73mm)	18.15" x 16.14" x 2.87" (460.8mm x 410mm x 72.8mm)	16.5" x 10.4" x 2.9" (420mm x 264mm x 73mm)
Carton Dimension	20.1" x 18.1" x 9.8" (510mm x 460mm x 250mm)	26.02" x 19.53" x 8.11" (661mm x 496mm x 206mm)	20.9" x 17.5" x 7.9" (530mm x 445mm x 200mm)
Gross Weight	12.4 lb (5.63Kg)	13.9 lb (6.34Kg)	11.7 lb. (5.3Kg)
Environmental	—		—
Operating Temperature	-4°F ~ 122°F (-20°C ~ 50°C) with airflow		-4°F ~ 122°F (-20°C ~ 50°C) with 0.7m/s airflow
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)		-4°F ~ 140°F (-20°C ~ 60°C)
Storage Humidity	90% @40°C; non-condensing		—
Vibration	1Grms / 5~ 500Hz / operation		1Grms / 5~500Hz/ operation - with mSATA
Shock	15 G peak acceleration (11 msec. duration)		15G peak acceleration (11 msec. duration) with mSATA
EMC	CE/FCC Class A Compatible		CE/FCC Class A
Power Supply	—		—
DC input	DC 9~30V		—
LCD	—		—
Display Type	17" TFT-LCD, LED	19" TFT-LCD, LED	15.6" TFT-LCD, LED
Max Resolution	1280(H) x 1024(V)		Regular 1366 (H) x 768 (V) Full HD 1920 (H) x 1080 (V)
Max. Colors	16.7M colors (RGB 6-bits + Hi-FRC data)	16.7M colors	Regular :16.7M (8 bit/color) Full HD: 16.2M
Luminance	350 cd/m²		Regular: 400 cd/m² Full HD: 450 cd/m²
Viewing Angle	170° (H), 160° (V)		Regular: 170° (H); 130° (V) Full HD: 178° (H); 178° (V)
Back Light	LED		—
Back Light MTBF (Hours)	50,000		—
Touchscreen	—		—
Type	P-CAP/ 5-wire resistive		Projected Capacitive Multi-Touch
Light Transmission	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)		90%
Note	—		—

Note: All specifications are subject to change without notice.

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04-16

OMNI Series : Modular Touch Panel Solutions



Model	OMNI-2215-ADN	OMNI-3125-ADN	OMNI-3155-ADN
System			
Processor	Intel® Processor N50 Intel® Processor N97		
System Memory	DDR5 4800 MHz, up to 16GB SODIMM x 1		
LCD/CRT Controller	CPU Integrated		
Ethernet	Intel® Ethernet Controller I226, 2.5GbE LAN x 3	Intel® Ethernet Controller I226, GbE x 3	Intel® Ethernet Controller I226, 2.5GbE LAN x 3
I/O Port	USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 x 2 via Cables DB-9 x 2 (RS-232/422/485, set by BIOS) HDMI 1.4b x 1 2.5GbE RJ-45 x 3 9V ~ 30V 3-pin DC Terminal Block Connector Power on/off Switch with LED Light x 1	USB 3.2 Gen 2 (Type-A) x 3 USB 2.0 x 2 DB-9 x 2 (RS-232/422/485, set by BIOS) HDMI 1.4b x 1 2.5GbE RJ-45 x 3 9V ~ 30V 3-pin DC Terminal Block Connector Power on/off Switch with LED Light x 1	USB 3.2 Gen 2 (Type-A) x 2 USB 2.0 x 2 via Cables DB-9 x 2 (RS-232/422/485, set by BIOS) HDMI 1.4b x 1 2.5GbE RJ-45 x 3 9V ~ 30V 3-pin DC Terminal Block Connector Power on/off Switch with LED Light x 1
Storage Disk Drive	SATA-III x1 (6 Gb/s, for 2.5" SATA drive bay) Full Size mPCIe (Support PCIe(x1) / SATA)	2.5" SATA Drive Bay x 1 (SATA 6Gb/s) Full-size mPCIe (PCIe [x1]/SATA)	2.5" SATA Drive Bay x 1 (SATA 6Gb/s) Full-size mPCIe (PCIe [x1]/SATA)
Expansion Slot	M.2 B-Key 3052 x1 with Nano SIM M.2 E-Key 2230 x1	M.2 3052 B-Key x 1 with Nano SIM M.2 2230 E-Key x 1	
OS support	Windows® 10 IoT Enterprise LTSC 2021 Windows® 10/11		
Mechanical			
Construction	Aluminum Front Bezel + Metal Chassis		
Mounting	Panel Mount/VESA Mount (VESA 100)		
Dimension	21.6" x 14.7" x 2.6" (549mm x 372mm x 67mm)	12.9" x 11.3" x 2.7" (328.5mm x 288mm x 69.7mm)	14.5" x 12.4" x 2.8" (368.9mm x 313.7mm x 72mm)
Carton Dimension	26.4" x 7.9" x 20.7" (670mm x 200mm x 525mm)	20.9" x 17.5" x 7.9" (530mm x 445mm x 200mm)	20.1" x 9.8" 18.1" (510mm x 250mm x 460mm)
Gross Weight	15.2 lb. (6.9Kg)	10.7 lb (4.84Kg)	8.9lb (4.05Kg)
Environmental			
Operating Temperature	-4°F ~ 122°F (-20°C ~ 50°C) with 0.7m/s airflow	-4°F~122°F (-20°C~50°C) with airflow	-4°F ~ 122°F (-20°C ~ 50°C) with 0.7m/s airflow
Storage Temperature	-4°F~140°F (-20°C~60°C)		
Storage Humidity	90% @40°C; non-condensing		
Vibration	1Grms /5~500Hz/ operation - with mSATA		
Shock	15G peak acceleration (11 m sec. duration) with mSATA		
EMC	CE/FCC Class A		
Power Supply			
DC input	DC 9~30V		
LCD			
Display Type	21.5" TFT-LCD, LED	12.1" TFT LCD, LED	15" TFT-LCD, LED
Max Resolution	1920 (H) x 1080 (V)	1024 (H) x 768 (V)	
Max. Colors	16.7M	16.2M	16.2M (8 bit/color)
Luminance	250 cd/m²	500 cd/m²	300 cd/m²
Viewing Angle	178° (H) ; 178° (V)	160° (H) ; 160° (V)	176° (H) x 176° (V)
Back Light	LED		
Back Light MTBF (Hours)	50,000		70,000
Touchscreen			
Type	Projected Capacitive Multi-Touch	P-CAP/ 5-wire resistive	Projected Capacitive Multi-Touch
Light Transmission	90%	P-CAP (90% ± 3%), 5-wire Resistive (80% ± 3%)	90%
Note			

Rugged Mobile and Panel PC Solutions

OMNI Series : Modular Display Solutions - Panel Kit

04

OMNI Series : Modular Display Solutions - Panel Kit



Model	OMNI-215M	OMNI-221M
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)	
Os Support	Windows® 7 32/64-bit, Windows® 8 32/64-bit, Windows® 10 64-bit, Linux Ubuntu 16.04	
Mechanical		
Construction	IP65 aluminum front bezel & SGCC chassis	
Mounting	Panel Mount / VESA 100x100 / Stand	
Dimension	16.5" x 10.4" x 2.4" (420.2mm x 264.5mm x 60.2mm)	21.6" x 14.6" x 2.1" (549mm x 372mm x 53mm)
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)
Gross Weight	14.1 lb (6.4 Kg)	18.5 lb (8.4 Kg)
Net Weight	11.2 lb (5.1 Kg)	15.4 lb (7.0 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
Max. Resolution	1366 x 768	1920 x 1080
Max. Colors	16.7M	
Luminance	400 cd/m²	250 cd/m²
Viewing Angle	170° (H), 160° (V)	178° (H), 178° (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		

OMNI Series : Modular Display Solutions - Panel Kit



Model	OMNI-312M	OMNI-315M	OMNI-317M
System			
Input Signal	VGA / HDMI		
On Screen Display Control	5 keys OSD keypad (Up, Down, Menu, Auto, Power)		
I/O Port	DB-15 VGA x 1 HDMI x 1 USB x 1 (For Enable T/S Function) Line in x 1 (For optional internal Speaker) Power Input x 1(Terminal Block 3pin)		
Os Support	Windows® 7 32/64-bit, Windows® 8 32/64-bit, Windows® 10 64-bit, Linux Ubuntu 16.04		
Mechanical			
Construction	IP65 aluminum front bezel & SGCC chassis		
Mounting	Panel Mount / VESA 100 x 100 / Stand		
Dimension	12.9" x 11.3" x 2.2" (328.5mm x 288.1mm x 55.9mm)	14.5" x 12.4" x 2.3" (369mm x 314mm x 58mm)	16.1" x 14.6" x 2.3" (410mm x 370mm x 59.1mm)
Carton Dimension	20.9" x 17.5" x 7.9" (530mm x 445mm x 200mm)	20.1" x 18.1" x 9.8" (510mm x 460mm x 250mm)	20.6" x 19.3" x 10.3" (522mm x 490mm x 262mm)
Gross Weight	10.4 lb (4.7 Kg)	14 lb (6.35 Kg)	14.8 lb (6.7 Kg)
Net Weight	7.7 lb (3.5 Kg)	11.2 lb (5.1 Kg)	11.7 lb (5.3 Kg)
Environmental			
Operating Temperature	14°F ~ 131°F (-10°C ~ 55°C) With 0.5m/s Airflow		
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)		
Storage Humidity	10%~90% @104°F (40°C); non-condensing		
Vibration	1 Grms / 5~500Hz/random Operation		
Shock			
EMC	CE/FCC, Class A		
Power Supply			
Dc Input	DC 12~30V Power Input with 3 Pin Terminal Block		
LCD			
Display Type	12.1" TFT-LCD	15" TFT-LCD	17" TFT-LCD
Max. Resolution	1024 x 768		1280 x 1024
Max. Colors	16.2M	16.2M (8bit/color)	16.7M
Luminance	500 cd/m ²	300 cd/m ²	350 cd/m ²
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			

Rugged Mobile and Panel PC Solutions

OMNI Series : Modular Display Solutions - Panel Kit

04

OMNI Series : Modular Display Solutions - Panel Kit



Model	OMNI-319M
System	
Input Signal	VGA / HDMI
On Screen Display Control	5 keys OSD keypad (Up, Down, Menu, Auto, Power)
I/O Port	DB-15 VGA x 1 HDMI x 1 USB x 1 (For Enable T/S Function) Line in x 1 (For optional internal Speaker) Power Input x 1(Terminal Block 3pin)
Os Support	Windows® 7 32/64-bit, Windows® 8 32/64-bit, Windows® 10 64-bit, Linux Ubuntu 16.04
Mechanical	
Construction	IP65 aluminum front bezel & SGCC chassis
Mounting	Panel Mount / VESA 100 x 100 / Stand
Dimension	18.1" x 16.1" x 2.3" (460.8mm x 410mm x 59.1mm)
Carton Dimension	26.0" x 19.5" x 8.1 (661mm x 496mm x 206mm)
Gross Weight	18.1 lb (8.2 Kg)
Net Weight	15.2 lb (6.9 Kg)
Environmental	
Operating Temperature	14°F ~ 131°F (-10°C ~ 55°C) With 0.5m/s Airflow
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)
Storage Humidity	10%~90% @104°F (40°C); non-condensing
Vibration	1 Grms / 5~500Hz/random Operation
Shock	—
EMC	CE/FCC, Class A
Power Supply	
Dc Input	DC 12~30V Power Input with 3 Pin Terminal Block
LCD	
Display Type	19" TFT-LCD
Max. Resolution	1280 x 1024
Max. Colors	16.7M
Luminance	350 cd/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	

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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04-20



Model	ACP-4070-NANO	ACP-4100-NANO
System		
Processor	NVIDIA® Jetson Orin Nano™	
System Memory	LPDDR5 8GB	
LCD/CRT controller	—	
Ethernet	GbE LAN x 2	
I/O Port	USB 3.2 Gen 2 (Type-A) x 4 GbE LAN x 2 Micro USB x 1 for OS Flash DB-9 x 1 for CANBus DB-9 x 1 for RS-232/422/485 DB-15 x 1 for 8-bit DIO Power ON/OFF Switch x 1 Recovery Button x 1 Antenna Hole x 6	
Storage Disk Drive	M.2 2280 M-Key x 1 for Storage (Default: 128GB)	
Expansion Slot	M.2 2230 E-Key x 1	
OS support	M.2 3042/3052 B-Key x 1	
Mechanical	NVIDIA® Jetson™ Linux 36.4.4	
Construction	Aluminum Front Bezel + Metal Chassis	
Mounting	VESA 75/100	
Dimension	7.7" x 5.3" x 2.2" (196.5mm x 135.0mm x 55.0mm)	10.29" x 7.05" x 2.17" (261.46mm x 179.1mm x 55mm)
Carton Dimension	11.0" x 8.7" x 6.1" (280mm x 220mm x 154mm)	13.35" x 10.24" x 5.98" (339mm x 260mm x 152mm)
Gross Weight	4.98 lb (2.26Kg)	3.75 lb (1.7Kg)
Environmental		
Operating Temperature	23°F ~ 131°F (-5°C ~ 55°C) with airflow	
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)	
Storage Humidity	90% @ 40°C, non-condensing	
Vibration	1Grms / 5~ 500Hz / operation	
Shock	15 G peak acceleration (11 msec. duration)	
EMC	CE/FCC Class A	
Power Supply		
DC Input	DC 12~24V	
LCD		
Display Type	7" TFT LCD, LED	10.1" TFT-LCD, LED
Max Resolution	1024 x 600	1280 (H) x 800 (V)
Max. Colors	16.7M	262K Colors
Luminance	320 cd/m2	400 nit cd/m² (Typical)
Viewing Angle	150° (H) / 145° (V)	170° (H) / 170° (V)
Back Light	LED	
Back Light MTBF (Hours)	30,000	25,000
Touchscreen		
Type	Projected Capacitive Multi-Touch	
Light Transmission	80% ± 3%	≥ 84%
Note		



Model	ACP-4160-NX	ACP-4210-NX
System		
Processor	NVIDIA® Jetson Orin™ NX 6-core Arm® Cortex®-A78AE v8.2 64-bit CPU	NVIDIA® Jetson Orin™ NX 16GB: 8-core Arm® Cortex®-A78AE v8.2 64-bit CPU NVIDIA® Jetson Orin™ NX 8GB: 6-core Arm® Cortex®-A78AE v8.2 64-bit CPU
System Memory	8GB LPDDR5	LPDDR5 8GB / 16GB (dependent on module SKU)
LCD/CRT controller		
Ethernet	GbE LAN x 2	
I/O Port	USB 3.2 Gen 2 (Type-A) x 4 GbE LAN x 2 Micro USB x 1 for OS Flash DB-9 x 1 for CANBus DB-9 x 1 for RS-232/422/485 DB-15 x 1 for 8-bit DIO Power ON/OFF Switch x 1 Recovery Button x 1 Antenna Hole x 6	
Storage Disk Drive	M.2 2280 M-Key x 1 for Storage (Default: 128GB)	
Expansion Slot	M.2 2230 E-Key x 1 M.2 3042/3052 B-Key x 1	
OS support	Ubuntu 22.04	
Mechanical		
Construction	Aluminum Front Bezel + Metal Chassis	
Mounting	VESA 100 / Panel Mount	
Dimension	15.2" x 9.3" x 2.6" (385.6mm x 235.0mm x 66.6mm)	20.3" x 12.4" x 2.7" (516.4mm x 316.0mm x 69.6mm)
Carton Dimension	20.3" x 15.2" x 7.8" (515mm x 385mm x 198mm)	27.4" x 19.1" x 7.4" (695mm x 485mm x 188mm)
Gross Weight	9.39 lb (4.26Kg)	17.68 lb (8.02 Kg)
Environmental		
Operating Temperature	23°F ~ 131°F (-5°C ~ 55°C) with 0.7 m/s airflow	
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)	
Storage Humidity	90% @ 40°C, non-condensing	
Vibration	1Grms / 5~ 500Hz / operation	
Shock	15 G peak acceleration (11 msec. duration)	
EMC	CE/FCC Class A	
Power Supply		
DC Input	DC 12~24V	
LCD		
Display Type	15.6" TFT-LCD, LED	21.5" TFT-LCD, LED
Max Resolution	1920 (H) x 1080 (V)	
Max. Colors	16.7M	
Luminance	350 cd/m²	
Viewing Angle	160° (H) / 160° (V)	178° (H) ; 178° (V)
Back Light	LED	
Back Light MTBF (Hours)	35,000	30,000
Touchscreen		
Type	P-CAP	Projected Capacitive Multi-Touch
Light Transmission	≥ 85%	
Note		



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