Embedded Systems

Our Durable Embedded Systems for Your
Industrial-grade Applications

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Embedded Systems Index

AI Inference / Training System

EC180-CS

X6-MTH-ORN

X6-ORN

EC633D-RPS

EC622-RPS

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Ultra Compact Fanless PC

EB100-MTU

EC70A-MTH

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EC900-QCS

Processor	Model	Index
Intel® Core™ Ultra Processor	EB100-MTU	P15
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Embedded PC

	Processor	Model	Index
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Ruggedized Embedded System

	Processor	Model	Index
ECX700-ASL	Intel® Atom® Amston Lake Processor	ECX700-ASL	P30
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	Intel® Atom® Processor E3900	ECX700-AL	
	NVIDIA® Jetson Orin™ Nano/NX	X6X-ORN	P31

Innovative Design & Services

Rugged Design

- Industrial-rated components with high MTBF over 100,000 hours
- Extended operating temperatures
- High ESD protection for I/O ports
- Comprehensive signal integrity measurement
- Wide range power design
- 100% Japan-made solid capacitor
- Power hot plug protection for DC-in type SBC and Industrial Motherboards

Software Support

- Embedded BIOS and OS customization services
- Ubuntu IoT Hardware Certification
- Multiple Android, Linux distribution support
- DFI developing embedded API
  (Hardware monitor, SMBus, I^{2}C, Brightness Control, GPIO, Watchdog)
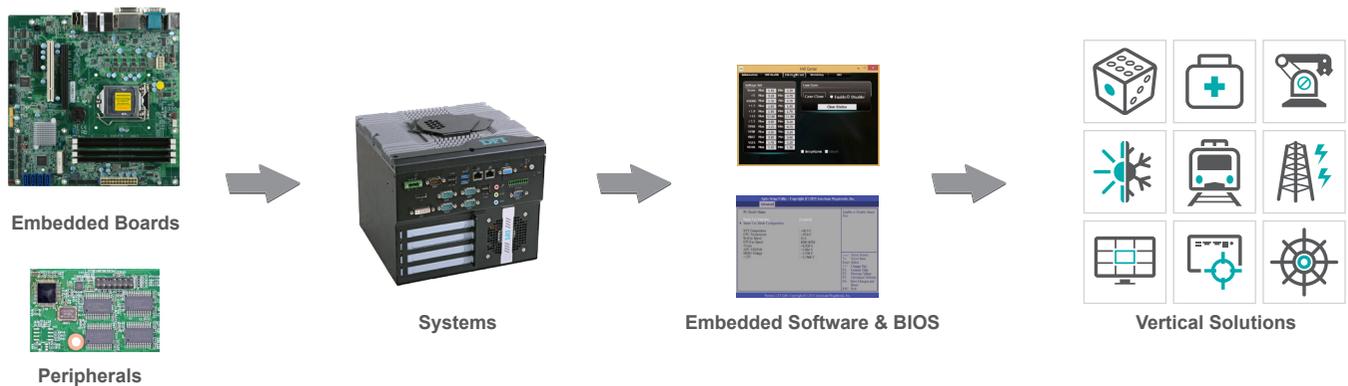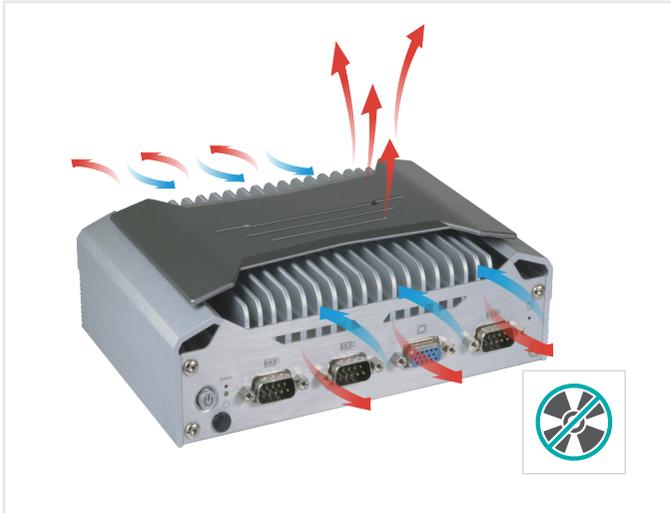- DFI Out of Band Management

ubuntu

Embedded Total Solution

- Express customization service: 30 days (NRE cost: based on project)
- Strict revision control
- Long product life cycle support
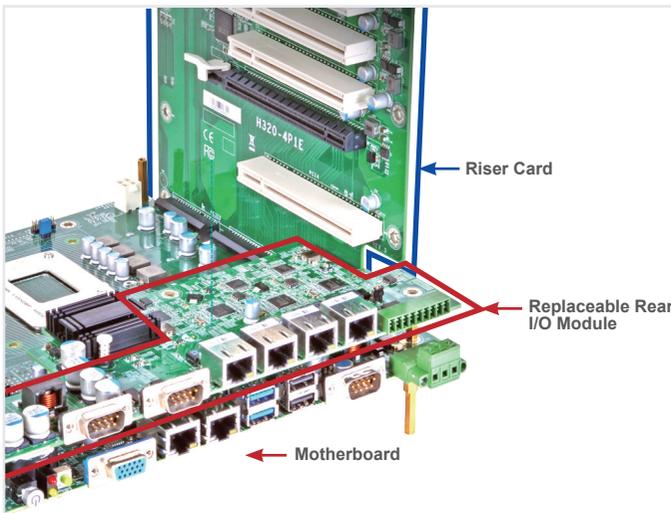- High volume OEM/ODM production capabilities

We Provide a Total Solution Designed for Your Embedded Applications

Embedded Boards

Peripherals

Systems

Embedded Software & BIOS

Vertical Solutions

4

Features on Our Embedded Systems

Small and Lightweight, but Powerful

- Equipped with up to date Intel® Core™ and AMD Ryzen™ Processors with reliable memory design
- Optimized low profile thermal solution to improve system durability and reliability
- With ruggedized construction, the system survives a wide operating temperature range
- Various types of compact designed system, smallest dimension up to 110 x 80mm x 60mm (W x H x D)

Riser Card

Replaceable Rear I/O Module

Motherboard

Ultra-Flexible and Time-Effective Design

- Innovative modular concept designed to meet OEM requirements
- Replaceable I/O modules to provide I/O variations targeting industrial automation applications
- Multiple expansion configuration via different riser cards to offer flexibility to satisfy dedicated demands

Various Form-Factor Configurable Systems

- Full range of standard industrial motherboards like Mini-ITX, ATX, microATX
- Multiple rack-mount, wall-mount chassis Options
- Designed for fast and easy implementation with minimal setup in a cost-effective manner
- Provides the configurable Options with well-integrated hardware and software to boost applications

AI Inference/ Training System
GPU & High Performance CPU

Actual AI applications are often composed of several AIs

In real-world scenarios, AI applications are rarely singular in function. Instead, they are composed of multiple AI models working together to process complex data streams, perform predictive analytics, and enhance automation. From machine vision and natural language processing to industrial anomaly detection, integrating several AI models into a single system is essential for achieving comprehensive intelligence. The challenge lies in efficiently managing these AI models within an edge computing environment, ensuring seamless execution without performance bottlenecks.

Currently Available: X6-MTH-ORN

DFI's X6-MTH-ORN is designed as a highly flexible AI computing platform, capable of supporting multiple AI ecosystems within a single, compact industrial system. With its robust architecture and compatibility with leading AI accelerators such as NVIDIA, Intel, the X6-MTH-ORN eliminates the need for multiple dedicated AI boxes. This refined approach reduces hardware redundancy, lowers costs, and simplifies system integration, allowing businesses to deploy and scale AI applications with minimal effort. By providing a unified platform for diverse AI workloads, the X6-MTH-ORN enhances adaptability in industrial environments.

X6-MTH-ORN

Automated Optical Inspection

DFI Product x PEG

With a dedicated graphics card installed, the system enjoys maximum performance in both graphics and AI computing. Discrete graphics cards typically have more than an adequate number of cores and a higher bandwidth, as well as a large amount of video memory to handle both large-scale deep learning and high-intensity AI operations. To match the performance of the discrete graphics card, the powerful CPU is nothing but the must for I/O expandability and general-purpose applications.

Automation and Flaw Analysis

RM645-SO630

RM646-ERX810

DFI Product x MXM

Powers the same performance as its discrete counterpart, the MXM module allows more flexibility in layout, from size, weight to heat dissipation, achieves a more compact system. Systems with MXM module also enjoys the possibility of future upgrades and has no worries about the overall solution layout.

Supported MXM-compliant module: NVIDIA

5G

EC300-CS

Driver Assistance

CPU+NPU

Intel

EB100-MTU
Ultra Core NUC

EC700-ADN
Alder Lake N with M.2 Hailo

AMD

EC70A-HPT
Embedded 8000

Qualcomm

EC900-QCS
QCS6490

MXM

Type A	Type B / B+ / C		
EC180-CS	DT200-CS	EC300-CS	VC500-CMS-MXM
60W MXM	115W MXM	150W MXM	150W MXM

NVIDIA Jetson

ORIN

X6-ORN	X6-ORN-GMSL	X6X-ORN	V6Xa-ORN
ORIN NX or Nano	ORIN NX or Nano	ORIN NX or Nano	ORIN NX or Nano

NVIDIA Jetson

AGX

X6a-AGX
ORIN AGX

PCI Express GPU Card

Expandable

EC622-RPS	EC633-RPS	EC633D-RPS	RM641	RM645
4.4"H x 6.6"L	4.4"H x 9.5"L	4.4"H x 10.5"L or longer	4.4"H x 10.5"L or longer	4.4"H x 10.5"L or longer

WM130	WM343	WM646	RM646	RM840
4.4"H x 6.6"L	4.4"H x 9.5"L	4.4"H x 9.5"L	4.4"H x 10.5"L or longer	4.4"H x 10.5"L or longer

Model Name		X6-ORN	X6-ORN-GMSL	X6X-ORN	V6Xa-ORN
Platform		-	-	-	-
System	Processor	6/8-core Arm® Cortex®-A78AE v8.2 64-bit CPU	6/8-core Arm® Cortex®-A78AE v8.2 64-bit CPU	6/8-core Arm® Cortex®-A78AE v8.2 64-bit CPU	6/8-core Arm® Cortex®-A78AE v8.2 64-bit CPU
	Socket	-	-	-	-
	Max. Speed	-	-	-	-
	CPU TDP	7-25W / 10-40W	7-25W / 10-40W	7-25W / 10-40W	7-15W / 10-25W
	Cache	-	-	-	-
	Chipset	-	-	-	-
	BIOS	-	-	-	-
GPU / AI Accelerator Card Support		NVIDIA® Jetson Orin Nano™/ NX, up to 157TOPS	NVIDIA® Jetson Orin Nano™/ NX, up to 157TOPS	NVIDIA® Jetson Orin Nano™/ NX, up to 157TOPS	NVIDIA® Jetson Orin Nano™/ NX, up to 100TOPS
Memory	Technology	128-bit/64-bit LPDDR5	128-bit/64-bit LPDDR5	128-bit/64-bit LPDDR5	128-bit/64-bit LPDDR5
	Max. Capacity	8/16GB	8/16GB	8/16GB	8/16GB
	Socket	onboard	onboard	onboard	onboard
Storage		M.2 2242/2280 M key	M.2 2242/2280 M key	M.2 2242/2280 M key	M.2 2242/2280 M key (NVMe)
Expansion	PCIe, PCI, Mini PCIe	-	-	-	-
	M.2	1 M.2 Key E 2230, 1 M.2 Key B 3042/3052	1 M.2 Key E 2230, 1 M.2 Key B 3042/3052	1 M.2 Key E 2230, 1 M.2 Key B 3042/3052	1 M.2 Key E 2230, 1 M.2 Key B 3042/3052
	SIM	1 Nano SIM	1 Nano SIM	1 Nano SIM	1 Nano SIM
Audio	Audio Codec	HS-100B	-	-	-
Ethernet	Controller	4 Intel I210, 2 PoE (Opt.)	4 Intel I210, 2 PoE (Opt.)	4 Intel I210, 2 PoE (Opt.)	2 Intel I210
LED	Indicators	Power, PoE, OOB	Power, PoE, OOB	Power	Power
I/O	Ethernet	4 GbE	4 GbE	4 GbE	2 GbE M12 X code with PoE
	Camera I/F	-	2 GMSL2	2 GMSL2	8 GMSL2 or 4 x PoE
	Serial	1 RS-232/485, CAN bus	1 RS-232, 1 CAN bus	1 RS-232, 1 CAN bus	1 M12 A Code (Isolated CAN BUS 2.0)
	USB	4 USB 3.2 Gen1, 1 micro USB for OS Flash	4 USB 3.2 Gen1, 1 micro USB for OS Flash	4 x USB 3.0 Type-A, M20 1 x USB 2.0 M20 (type A for recovery)	1 USB 2.0 M20, 2 USB 3.0 M20
	Display	1 HDMI	1 HDMI	1 HDMI	1 HDMI
	DIO	4 DI, 4 DO	4 DI, 4 DO	4 DI, 4 DO	-
	Buttons	Power, Reset, Recover	Power, Reset, Recover	Power, Reset, Recover	Power, Reset Button, Recover
	Antenna	6 holes	6 holes	6 holes	6 holes
	Audio	Mic-in, Line-out	Mic-in, Line-out		-
Power		9-36V DC-in	9-36V DC-in	9-36V DC-in	9-36V DC-in, Ignition control
Cooling		Fanless	Fanless	Fanless	Fanless
OS Support		Linux Ubuntu 22.04	Linux Ubuntu 22.04	Linux Ubuntu 22.04	Linux Jetpack 6.2
Mechanism	Construction	Aluminum + SGCC	Aluminum + SGCC	Aluminum + SGCC	Aluminum + SGCC
	Mounting	Wall mount / DIN mount (Opt.)	Wall mount / DIN mount (Opt.)	Wall mount / DIN mount (Opt.)	Wall mount
	Dimensions (W x H x D)	165 x 65 x 150 mm	165 x 65 x 150 mm	237 x L: 194 x H: 105.3 mm	237 x L: 194 x H: 105.3 mm
Environment	Operating Temp.	-20°C ~ 60°C	-20°C ~ 60°C	-20°C ~ 60°C	-20°C ~ 70°C Optional -40°C

Model Name		X6a-AGX	X6-MTH-ORN
Platform		-	-
System	Processor	8/12-core Arm® Cortex®-A78AE v8.2 64-bit CPU	Intel® Core™ Ultra Processor/ 8-core Arm® Cortex®-A78AE v8.2 64-bit CPU
	Socket	-	BGA 2049
	Max. Speed	-	1.3~1.7GHz
	CPU TDP	15-75W	15W / 7-40W
	Cache	-	12M
	Chipset	-	-
	BIOS	-	AMI SPI
GPU / AI Accelerator Card Support		NVIDIA® Jetson Orin AGX™, up to 275 TOPs	Nvidia Orin NX / Nvidia Orin Nano, up to 157OPS
Memory	Technology	256-bit LPDDR5	Dual Channel DDR5 5600MHz
	Max. Capacity	64GB	64GB / 16GB
	Socket	onboard	2 SO-DIMM
Storage		M.2 2242/2280 M key (NVMe), micro-SD card	1 on board SSD up to 1024GB (Opt.) Optional 2x 2.5" SATA tray kit, M.2 2242/2280 M key SSD
Expansion	PCIe, PCI, Mini PCIe	-	-
	M.2	1 M.2 Key E 2230, 1 M.2 Key B 3042/3052	1 M.2 3042/3052 B key 1 M.2 2230 E key, 1 M.2 2242/2280 M key
	SIM	1 Nano SIM	1 Nano SIM
Audio	Audio Codec	-	-
Ethernet	Controller	1 I210 1 AQR113	5 Intel i210, Optional 2x 15W PoE
LED	Indicators	Power LED	Power, PoE, OOB
I/O	Ethernet	1 GbE RJ-45, 1 10G RJ-45	2 GbE, 2x2 stacked RJ45 GbE
	Camera I/F	8 GMSL2 (Opt.)	-
	Serial	CAN bus	1 RS-232, 1 combo RS-232/CAN bus
	USB	2 USB 3.2 Gen1, 2 USB 2.0 USB type B for OTG recovery	8 USB 3.2, 1 micro USB
	Display	1 HDMI	1 VGA, 3 HDMI
	DIO	-	-
	Buttons	Power, Recovery	Power, Reset Button
	Antenna	6 holes	6 holes
	Audio	Mic-in, Line-out	Mic-in, Line-out
Power		12~54V DC-in	9-36V DC-in
Cooling		Fanless	Fanless
OS Support		Linux Jetpack 6.2	Win10, Win11, Linux Ubuntu 22.04
Mechanism	Construction	Aluminum + SGCC	Aluminum + SGCC
	Mounting	Wall mount	Wall / DIN Mount (Opt.)
	Dimensions (W x H x D)	221 x L: 200 x H: 80 mm	250 x 65 x 150 mm
Environment	Operating Temp.	-20°C ~ 60°C	-20°C ~ 60°C

Model Name		EC622-RPS	EC633-RPS	EC633D-RPS
Platform		Desktop	Desktop	Desktop
System	Processor	14th/13th/12th Gen Intel® Core™ Processor	14th/13th/12th Gen Intel® Core™ Processor	14th/13th/12th Gen Intel® Core™ Processor
	Socket	LGA1700	LGA1700	LGA1700
	Max. Speed	1.1~5.2GHz	1.1~5.2GHz	1.1~5.2GHz
	CPU TDP	35/46/60/65W	35/46/60/65W	35/46/60/65W
	Cache	4/6/12/18/20/24/25/30/33/36M	4/6/12/18/20/24/25/30/33/36M	4/6/12/18/20/24/25/30/33/36M
	Chipset	Intel® R680E	Intel® R680E	Intel® R680E
	BIOS	AMI SPI 256Mbit	AMI SPI 256Mbit	AMI SPI 256Mbit
GPU / AI Accelerator Card Support		-	-	-
Memory	Technology	Dual Channel DDR5 4800MHz	Dual Channel DDR5 4800MHz	Dual Channel DDR5 4800MHz
	Max. Capacity	64GB	64GB	64GB
	Socket	2 SODIMM	2 SODIMM	2 SODIMM
Storage		2 M.2 2280 M key	2 M.2 2280 M key	2 M.2 2280 M key
Expansion	PCIe, PCI, Mini PCIe	1 Full mPCIe, 1 PCIe x16, 1 PCIe x4	1 Full mPCIe, 2 PCIe x8, 1 PCIe x4	1 Full mPCIe, 2 PCIe x8, 1 PCIe x4
	M.2	2 M.2 2280 M key 1 M.2 3042/3052 B key 1 M.2 2230 E key 1 M.2 3042 A key	2 M.2 2280 M key 1 M.2 3042/3052 B key 1 M.2 2230 E key 1 M.2 3042 A key	2 M.2 2280 M key 1 M.2 3042/3052 B key 1 M.2 2230 E key 1 M.2 3042 A key
	SIM	2 Nano SIM	2 Nano SIM	2 Nano SIM
Audio	Audio Codec	-	-	-
Ethernet	Controller	1 Intel® I219LM, 3 Intel® I210IT, 2 Intel® I226IT	2 Intel® I226IT, 1 Intel® I219LM, 3 Intel® I210IT	2 Intel® I226IT, 1 Intel® I219LM, 3 Intel® I210IT
LED	Indicators	Status, HDD LED	Status, HDD LED	Status, HDD LED
I/O	Ethernet	4 GbE + 2 2.5GbE or 2 GbE + 2 2.5GbE + 2 PoE (Opt.)	4 GbE + 2 2.5GbE or 2 GbE + 2 2.5GbE + 2 PoE (Opt.)	4 GbE + 2 2.5GbE or 2 GbE + 2 2.5GbE + 2 PoE (Opt.)
	Camera I/F	-	-	-
	Serial	1 RS-232/422/485/DIO, 8 RS-232	2 RS-232/422/485/DIO, 8 RS-232	2 RS-232/422/485/DIO, 8 RS-232
	USB	5 USB 3.2 Gen2, 1 Type-C	5 USB 3.2 Gen2, 1 Type-C	5 USB 3.2 Gen2, 1 Type-C
	Display	1 VGA, 1 DP++, 1 HDMI	1 VGA, 1 DP++, 1 HDMI	1 VGA, 1 DP++, 1 HDMI
	DIO	8bits (share with COM1)	8bits (share with COM1)	8bits (share with COM1)
	Buttons	Power, Reset	Power, Reset	Power, Reset
	Antenna	4 Holes	4 Holes	4 Holes
	Audio	-	-	-
Power		9~36V DC-in	9~36V DC-in	9~36V DC-in
Cooling		Fan (optional Fanless)	Fan (optional Fanless)	Fan (optional Fanless)
OS Support		Win10 IoT, Win11, Linux(Opt.)	Win10 IoT, Win11, Linux(Opt.)	Win10 IoT, Win11, Linux(Opt.)
Mechanism	Construction	Metal + Aluminum	Metal + Aluminum	Metal + Aluminum
	Mounting	Wall Mount	Wall Mount	Wall Mount
	Dimensions (W x H x D)	249.5 x 120 x 223 mm	249.5 x 193 x 275 mm	249.5 x 193 x 342 mm
Environment	Operating Temp.	CPU TDP 35W: -20°C~70°C CPU TDP 65W: -20°C~50°C	CPU TDP 35W: -20°C~70°C CPU TDP 65W: -20°C~50°C	CPU TDP 35W: -20°C~70°C CPU TDP 65W: -20°C~50°C

AI Inference / Training System

Model Name		EC180-CS	DT200-CS	EC300-CS
Platform		Desktop	Desktop	Desktop
System	Processor	9th/8th Gen Intel® Core™ Processor	9th/8th Gen Intel® Core™ Processor	9th/8th Gen Intel® Core™ Processor
	Socket	LGA 1151 Socket	LGA 1151 Socket	LGA 1151
	Max. Speed	3.1~4.0GHz	3.1~4.6GHz	1.8~2.6GHz
	CPU TDP	35/58W	35/54/58/65W	35/65W
	Cache	6~12MB	6~12MB	9/12M
	Chipset	Intel® H310/Q370	Intel® H310/Q370	Intel® Q370
	BIOS	AMI SPI 128Mbit (supports UEFI/Legacy mode)	AMI SPI 128Mbit (supports UEFI/Legacy mode)	AMI SPI 128Mbit
GPU / AI Accelerator Card Support		1 MXM 3.1 slot, Type-A/B up to 60W	1 MXM 3.1 slot, Type-A/B up to 110W	MXM Type A, B, C on x16 PCIe 3.0
Memory	Technology	DDR4 2400/2666MHz	DDR4 2400/2666MHz	Dual Channel DDR4 2400/2666MHz
	Max. Capacity	64GB	64GB	64GB
	Socket	2 SODIMM	2 SODIMM	2 SODIMM
Storage		1x SATA 3.0 for 1x 2.5" SSD, 1 M.2 2242/2280 M Key	1x SATA 3.0 for 1x 2.5" SSD, 1 M.2 2242/2280 M Key	4 Swappable 2.5" SSD Storage Bays, 1 M.2 2280 M Key
Expansion	PCIe, PCI, Mini PCIe	-	-	1 Half mPCIe, 2 Full mPCIe
	M.2	1 M.2 2242/2280 M key, 1 M.2 3052 B key, 1 M.2 2230 E key	1 M.2 2242/2280 M key, 1 M.2 3052 B key, 1 M.2 2230 E key	1 M.2 3042/3052 B Key, 1 M.2 2280 M Key
	SIM	-	-	3 SIM
Audio	Audio Codec	Realtek ALC888S	Realtek ALC888S	Realtek ALC888
Ethernet	Controller	1 Intel® I219V/LM, 3 Intel® I210AT	1 Intel® I219V/LM, 3 Intel® I210AT	5 Intel® I210IT, 1 Intel® I219LM
LED	Indicators	PWD, HDD LED	PWD, HDD LED	Power, Storage, POE LED
I/O	Ethernet	4 GbE	4 GbE	2 GbE, 4 PoE
	Camera I/F	-	-	-
	Serial	2 RS-232/422/485	2 RS-232	2 RS-232/422/485 (DB-9), 2 RS-232/422/485 (onboard)
	USB	4 USB 3.2	4 USB 3.2, 6 USB 2.0	4 USB 3.2, 2 USB 2.0
	Display	1 DP++, 4 DP++ (from MXM)	1 DP++, 4 DP++ (from MXM)	1 VGA, 1 DP++, 1 HDMI
	DIO	-	-	1 isolated DI, 1 isolated DO
	Buttons	Power	Power	Power, Reset
	Antenna	6 holes	6 holes	7 holes
	Audio	Line-out, Mic-in	Line-out, Mic-in	Line-out, Mic-in
Power		19V DC-in	19V DC-in	12V DC-in
Cooling		Fanless	Fan	Fanless
OS Support		Win10 IoT, Linux	Win10 IoT, Linux	Win10 IoT, Linux Ubuntu
Mechanism	Construction	Aluminum + SGCC	Aluminum + SGCC	Metal + Aluminum
	Mounting	Wall Mount	Wall Mount	Wall Mount
	Dimensions (W x H x D)	250 x 180 x 76 mm	320 x 220 x 87 mm	340.5 x 132 x 223 mm
Environment	Operating Temp.	0°C~45°C	0°C~55°C	-20°C~70°C / -20°C~55°C

Model Name		RM645-ICX610	RM645-ERX810	RM840-PR810	RM811-ERX810
Platform		Server-Grade	Server-Grade	Server-Grade	Server-Grade
System	Processor	3rd Gen Intel® Xeon® Scalable Processor Family	5th/4th Gen Intel® Xeon® Scalable Processor Family	2nd/1st Gen Intel® Xeon® Scalable Processor Family	5th/4th Gen Intel® Xeon® Scalable Processor Family
	Socket	LGA 4189	LGA 4677 Socket	LGA 3647	LGA 4677 Socket
	Max. Speed	3.6GHz	~4.1GHz	3.0~3.9GHz	~4.1GHz
	CPU TDP	Max. 205W	Max. 250W	Max. 150W	Max. 165W
	Cache	Max 48M	Max. 60MB	Max. 35.75M	Max. 22.5M
	Chipset	Intel® C621A	Intel® C741	Intel® C622	Intel® C741
	BIOS	Insyde SPI 128Mbit	Insyde	Insyde SPI 256Mbit	Insyde
GPU / AI Accelerator Card Support		3 x PCIe x16 Gen4 slot 3 x PCIe x8 Gen4 slot	4 x PCIe x16 Gen5 slot 2 x PCIe x8 Gen5 slot	4 x PCIe x16 Gen3 slot 1 x PCIe x8 Gen3 slot	1 x PCIe x16 Gen5 slot
Memory	Technology	DDR4 Max. 3200MHz	DDR5 Max. 5600MHz	Single Channel DDR4 2133/2400/2666/2933 MHZ	DDR5 Max. 5600MHz
	Max. Capacity	512GB	1024GB	384GB	1024GB
	Socket	8 ECC-RDIMM	16 ECC-RDIMM	12 RDIMM	16 ECC-RDIMM
Storage		6 SATA 3.0, 1 M.2 2280 M key	4 x 2.5" hot-swap 1 M.2 2280 M Key 4 x E1.S NVME Gen5	2x 5.25" (1x 2.5"), 1x 3.5" (1x 2.5"), 1 M.2 2280 M Key	4 x 3.5"/2.5" hot-swap 1 M.2 2280 M Key
Expansion	PCIe, PCI, Mini PCIe	3 PCIe x16, 3 PCIe x8	4 PCIe x16, 2 PCIe x8	4 PCIe x16, 1 PCIe x8, 1 PCI	1 PCIe x16
	M.2	1 M.2 M key 2280	1 M.2 M key 2280	1 BMC Module slot for SEM2500/2510 (IPMI), 1 100GbE slot (x4 + x8)	1 M.2 M key 2280
	SIM	-	-	-	-
Audio	Audio Codec	ALC888S	ALC888S	Realtek ALC888	ALC888S
Ethernet	Controller	2 Intel® I210AT, 2 Intel® x550-AT2, IPMI: RTL8211F	4 Intel® I210AT, IPMI: RTL8211F	2 Intel® I210AT, 1 Intel® x557-AT2	2 Intel® I210AT, IPMI: RTL8211F
LED	Indicators	Power, HDD LED	Power, HDD LED	Power, HDD LED	Power, HDD LED
I/O	Ethernet	2x GbE, 2x 10GbE, 1 IPMI LAN	4 GbE, 1 IPMI LAN	2 GbE, 2 10GbE, IPMI 2.0: 1 share w/ i210AT (Opt.)	2 GbE, 1 IPMI LAN
	Camera I/F	-	-	-	
	Serial	1 RS-232	1 RS-232/422/485	1 RS-232	1 RS-232/422/485
	USB	4 USB 3.2, 2 USB 2.0	4 USB 3.2 Gen1	4 USB 3.2, 2 USB 2.0	4 USB 3.2 Gen1
	Display	1 VGA (Opt.)	1 DP	1 VGA (Opt.)	1 DP
	DIO	-	-	-	-
	Buttons	Power Button	Power, Reset	Power, Reset	Power, Reset
	Antenna	-	-	-	-
	Audio	Onboard Front Audio Pin Header	Onboard Front Audio Pin Header	Onboard Front Audio Pin Header	Onboard Front Audio Pin Header
Power		ATX PS/2 or Mini Redundant PSU	ATX PS/2 or Redundant PSU	ATX PS/2 Power Supply 650W	FlexATX or Redundant PSU
Cooling		Fan	Fan	Fan	Fan
OS Support		Win10 IoT, Windows Server 2019, Linux Ubuntu	Windows 11 LTSC Widows server 2022 LTSC	Win 10 IoT, Windows Server 2016 & 2019, Linux	Windows 11 LTSC Widows server 2022 LTSC
Mechanism	Construction	Heavy Industrial Steel	Heavy Industrial Steel	Heavy Industrial Steel	Heavy Industrial Steel
	Mounting	Rackmount kit	Rackmount kit	Rackmount kit	Rackmount kit
	Dimensions (W x H x D)	481.6 x 175.6 x 470.8 mm	481.6 x 175.6 x 470.8mm	483 x 177 x 510 mm	438 x 44 x 673.2 mm
Environment	Operating Temp.	0°C ~ 40°C	0°C ~ 40°C	0°C ~ 40°C	0°C ~ 40°C

AI Inference / Training System

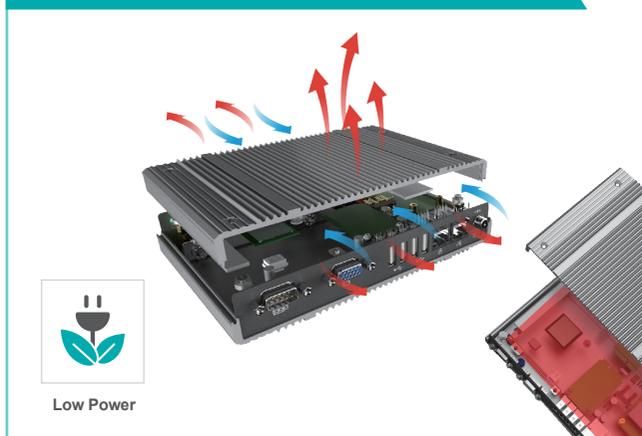| Model Name		EB100-MTU	EC70A-MTH	EC700-ADN	EC710-ADN
Platform		ULT	ULT	Atom	Atom
System	Processor	Intel® Core™ Ultra Processor	Intel® Core™ Ultra Processor	Intel® Atom® Alder Lake-N Processors	Intel® Atom® Alder Lake-N Processors
	Socket	BGA2049	FCBGA2049	BGA 1264	BGA 1264
	Max. Speed	1.3~1.7GHz	4.3~4.9GHz	2.7~3.4GHz	3.0GHz
	CPU TDP	12W	15W(Fanless), 28W(w/Fan)	6/10/12W	15W
	Cache	12M	12M	6 MB Smart Cache	SOC
	Chipset	-	-	SOC	SOC
	BIOS	AMI SPI 256Mbit	AMI SPI 256Mbit	AMI SPI 256Mbit (supports UEFI boot only)	AMI SPI 256Mbit (supports UEFI boot only)
Memory	Technology	Single Channel DDR5 5600MHz	Dual Channel LPDDR5 6400MHz	LPDDR5 4800MHz	LPDDR5 4800MHz
	Max. Capacity	48GB	16/32GB (Opt.)	8GB/16GB	8GB/16GB
	Socket	1 SODIMM	Memory down	Memory down	Memory down
Storage		1 M.2 2280 M Key	1 M.2 2280 M Key	1 M.2 2280 M Key	1 M.2 2280 M Key
Expansion	PCIe, PCI, Mini PCIe	-	-	-	-
	M.2	1 M.2 2230 E Key 1 M.2 2280 M Key	1 M.2 M Key 2280 1 M.2 B Key 3052 1 M.2 E Key 2230	1 M.2 2230 E key, 1 M.2 3042/3052 B key, 1 M.2 2242/2280 M key	1 M.2 2230 E key, 1 M.2 3042/3052 B key, 1 M.2 2242/2280 M key
	SIM	-	1	1	1
Audio	Audio Codec	-	-	Realtek ALC888S	Realtek ALC888S
Ethernet	Controller	2 Intel® I226IT	2 Intel® I226IT 1 Intel® I210IT	2 Intel I226, 1 Intel I210	2 Intel I226, 1 Intel I210
LED	Indicators	Power, Storage LED	Power, Storage LED	Power, Storage LED	Power, Storage LED
I/O	Ethernet	2 2.5GbE	2 2.5GbE, 1 GbE	2 2.5GbE, 1 GbE	2 2.5GbE, 1 GbE
	Serial	1 RS-232/422/485 (default RS-232) 1 RS-232	1 RS-232/422/485, 2 RS-232, 1 RS-232/422/485/8-bit DIO	2 RS-232/422/485, 1 RS-232, 1 RS-232/DIO	2 RS-232/422/485, 1 RS-232, 1 RS-232/DIO
	USB	4 USB 3.2 + 2 USB-C or 5 USB 3.2 + 1 USB-C (USB-C w/DP Alt. Mode)	5 USB 3.2 or 4 USB 3.2 + 1 USB 2.0, 1 USB Type C	3 USB 3.2 type A, 1 USB-C 3.2	3 USB 3.2 type A, 1 USB-C 3.2
	Display	1/2 USB-C DP Alt. mode	1 HDMI, 1 Type-C DP Alt. Mode	1 VGA, 1 HDMI, 1 USB-C (DP1.2 Alt. Mode)	1 VGA, 1 HDMI, 1 USB-C (DP1.2 Alt. Mode)
	DIO	-	8-bit DIO (share w/ COM4)	COM4: RS232/DIO	COM4: RS232/DIO
	Buttons	Power, Reset Button	Power, Reset Button	Power, Reset Button	Power, Reset Button
	Antenna	2 Holes	3 Holes	4 Holes	4 Holes
	Audio	-	-	Mic-in / Line-out	Mic-in / Line-out
Power		12V DC-in	9~36V DC-in	9~36V DC-in	9~36V DC-in
Cooling		Fanless	Fanless (optional w/ Fan)	Fanless	Fanless
OS Support		Win10 IoT, Win11	Win10 IoT, Win11 IoT, Linux	Win10 IoT, Win11 IoT, Linux Ubuntu 22.04	Win10 IoT, Win11 IoT, Linux Ubuntu 22.04
Mechanism	Construction	Aluminum + Metal Aluminum	Aluminum + Metal Aluminum	Aluminum + Metal	Aluminum + Metal
	Mounting	Wall/VESA rail mount	Wall/VESA/DIN Rail Mount	Wall/DIN Rail/VESA Mount	Wall/DIN Rail/VESA Mount
	Dimensions (W x H x D)	111 x 50 x 106 mm	181.6 x 57 x 118.4 mm	180 x 33 x 127.8 mm	180 x 43 x 127.8 mm
Environment	Operating Temp.	-20°C ~ 50°C	Fanless: -20°C ~ 60°C W/Fan: -20°C ~ 70°C	-5°C ~ 60°C	-5°C ~ 60°C

Ultra Compact Fanless PC

Low Power & Compact Solutions

Features

Our industrial compact embedded systems, powered by 12th/11th/7th/6th Gen IntelCore. ULV processors and/or low power Atom/ARM processors, deliver extremely low power consumption for efficient fanless thermal solution in an ultra-small size.
The systems are also equipped with extensive I/O interfaces and have efficient wireless connectivity to the cloud.
Fanless & Compact Embedded Systems are ideal for a wide range of industrial applications such as factory automation, IoT gateways, and smart healthcare.
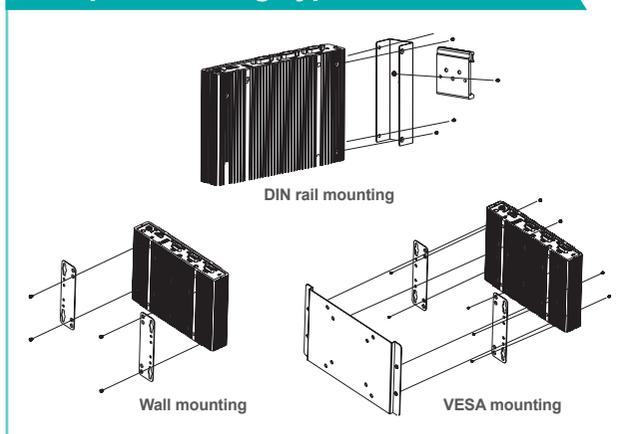
Excellent Thermal Dissipation Design

Low Power

Compact and Rugged Design

-40℃~70℃

Multiple Mounting Type

DIN rail mounting

Wall mounting

VESA mounting

Rich Wireless Connectivity

Wi-Fi
3G/4G/5G

Bluetooth

Ultra Compact Fanless PC

Model Name		EB100-MTU	EC70A-MTH	EC70A-ADP	EC70A-TGU
Platform		ULT	ULT	ULT	ULT
System	Processor	Intel® Core™ Ultra Processor	Intel® Core™ Ultra Processor	12th Gen Intel® Core™ Processor	11th Gen Intel® Core™ Processor
	Socket	BGA2049	FCBGA2049	BGA 1744	FCBGA 1449
	Max. Speed	1.3~1.7GHz	4.3~4.9GHz	4.4~4.7GHz	3.9~4.4GHz
	CPU TDP	12W	15W(Fanless), 28W(w/Fan)	15W(Fanless), 28W(w/Fan)	15W
	Cache	12M	12M	10/12M	6/8/12M
	Chipset	-	-	-	-
	BIOS	AMI SPI 256Mbit	AMI SPI 256Mbit	AMI SPI 256Mbit	AMI SPI 256Mbit
Memory	Technology	Single Channel DDR5 5600MHz	Dual Channel LPDDR5 6400MHz	Dual Channel DDR4 3200MHz	Dual Channel DDR4
	Max. Capacity	48GB	16/32GB (Opt.)	40GB (8GB memory onboard + 32GB memory DIMM)	40GB (8GB memory onboard + 32GB memory DIMM)
	Socket	1 SODIMM	Memory down	Memory Onboard, 1 SODIMM	Memory Onboard, 1 SODIMM
Storage		1 M.2 2280 M Key	1 M.2 2280 M Key	1 M.2 2280 M Key	1 M.2 2280 M Key
Expansion	PCIe, PCI, Mini PCIe	-	-	-	-
	M.2	1 M.2 2230 E Key 1 M.2 2280 M Key	1 M.2 M Key 2280 1 M.2 B Key 3052 1 M.2 E Key 2230	1 M.2 2280 M Key, 1 M.2 3042/3052 B Key, 1 M.2 2230 E Key	1 M.2 3042/3052 B Key, 1 M.2 2230 E Key, 1 M.2 2280 M Key
	SIM	-	1	1 SIM	-
Audio	Audio Codec	-	-	Realtek ALC888	-
Ethernet	Controller	2 Intel® I226IT	2 Intel® I226IT 1 Intel® I210IT	3 Intel® I226IT	1 Intel® I226IT, 1/2 Intel® I210IT, 1 LAN7500i (Opt.)
LED	Indicators	Power, Storage LED	Power, Storage LED	Power, HDD LED	Power, HDD LED
I/O	Ethernet	2 2.5GbE	2 2.5GbE, 1 GbE	1 2.5GHz, 2 GbE	2/3/4 GbE
	Serial	1 RS-232/422/485 (default RS-232) 1 RS-232	1 RS-232/422/485 2 RS-232 1 RS-232/422/485/8-bit DIO	2 RS-232/422/485, 1 RS-232, 1 RS-232/DIO	2 RS-232/422/485, 1 RS-232, 1 RS-232/DIO
	USB	4 USB 3.2 + 2 USB-C or 5 USB 3.2 + 1 USB-C (USB-C w/DP Alt. Mode)	5 USB 3.2 or 4 USB 3.2 + 1 USB 2.0, 1 USB Type C	4 USB 3.2 (4 Type A or 2 Type A + 2 Type C)	2/4/6 USB 3.2 (type A)
	Display	1/2 USB-C DP Alt. mode	1 HDMI, 1 Type-C DP Alt. Mode	1 HDMI, 1 DP, 2 Type-C DP Alt. Mode	1 VGA, 2 HDMI
	DIO	-	8-bit DIO (share w/ COM4)	8-bit DIO (share with COM3)	8-bit DIO (share with COM3)
	Buttons	Power, Reset Button	Power, Reset Button	Power, Reset Button	Power, Reset Button
	Antenna	2 Holes	3 Holes	6 Holes	6 Holes
	Audio	-	-	Mic-in, Line-out	-
Power		12V DC-in	9~36V DC-in	9~36V DC-in	9~36V DC-in
Cooling		Fanless	Fanless (optional w/ Fan)	Fanless (optional with Fan)	Fanless
OS Support		Win10 IoT, Win11	Win10 IoT, Win11 IoT, Linux	Win10 IoT, Win11 IoT, Linux	Win10 IoT, Linux
Mechanism	Construction	Aluminum + Metal Aluminum	Aluminum + Metal Aluminum	Aluminum + Metal Aluminum	Aluminum + Metal Aluminum
	Mounting	Wall/VESA rail mount	Wall/VESA/DIN Rail Mount	Wall/VESA/DIN Rail Mount	Wall/VESA/DIN Rail Mount
	Dimensions (W x H x D)	111 x 50 x 106 mm	181.6 x 57 x 118.4 mm	181.6 x 57 x 118.4 mm	181.6 x 57 x 118.4 mm
Environment	Operating Temp.	-20°C ~ 50°C	Fanless: -20°C ~ 60°C W/Fan: -20°C ~ 70°C	Fanless: -20°C~60°C W/Fan: -20°C~70°C	-20°C~60°C

Model Name		EC70A-SU	EC700-ASL
Platform		ULT	Atom
System	Processor	7th/6th Gen Intel® Core™ Processor	Intel® Atom® Amston Lake Processor
	Socket	BGA 1356	BGA1264
	Max. Speed	2.3~3.9GHz	3.2~3.6GHz
	CPU TDP	15W	6/9/12W
	Cache	3/4M	6 MB Smart Cache
	Chipset	-	SOC
	BIOS	Insyde SPI 128Mbit	AMI SPI 256Mbit (supports UEFI boot only)
Memory	Technology	Dual Channel DDR4 2133MHz	LPDDR5 4800MHz
	Max. Capacity	4/8GB	8GB/16GB
	Socket	Memory Onboard	Memory down
Storage		1x 2.5" SATA 3.0 Drive Bay	1 M.2 2280 M key
Expansion	PCIe, PCI, Mini PCIe	1 Full mPCIe, 1 Half mPCIe	-
	M.2	-	1 M.2 2230 E key, 1 M.2 3042/3052 B key, 1 M.2 2242/2280 M key
	SIM	-	1 SIM
Audio	Audio Codec	Realtek ALC888	Realtek ALC888S
Ethernet	Controller	1 Intel® I210IT, 1 Intel® I219LM	2 Intel® I226, 1 Intel® I210
LED	Indicators	Power, HDD LED	Power, Storage LED
I/O	Ethernet	2 GbE	2 2.5GbE, 1 GbE
	Serial	2 RS-232/422/485, 1 RS-232, 1 RS-232/DIO	2 RS-232/422/485, 1 RS-232, 1 RS-232/DIO
	USB	4 USB 3.2	3 USB 3.2 type A, 1 USB-C 3.2
	Display	1 VGA, 1 DP++	1 VGA, 1 HDMI, 1 USB-C (DP1.2 Alt. Mode)
	DIO	8-bit DIO (share with COM)	COM4: RS232/DIO
	Buttons	Power, Reset Button	Power, Reset Button
	Antenna	3 Holes	4 Holes
	Audio	Mic-in, Line-out	Mic-in / Line-out
Power		15~36V DC-in	9~36V DC-in
Cooling		Fanless	Fanless
OS Support		Win7, WES 7, Win8.1, WE8S, Win10	Win10 IoT, Win11 IoT, Linux Ubuntu 22.04
Mechanism	Construction	Aluminum + Metal Aluminum	Aluminum + Metal
	Mounting	Wall/VESA/Din Rail Mount	Wall/DIN Rail/VESA Mount
	Dimensions (W x H x D)	181.6 x 57 x 118.4 mm	180 x 33 x 127.8 mm
Environment	Operating Temp.	-20°C ~ 60°C / 0°C ~ 50°C	-40°C ~ 60°C

Ultra Compact Fanless PC

Model Name		EC70A-ADN	EC700-ADN	EC710-ADN
Platform		Atom	Atom	Atom
System	Processor	Intel® Atom® Alder Lake-N Processors	Intel® Atom® Alder Lake-N Processors	Intel® Atom® Alder Lake-N Processors
	Socket	BGA1264	BGA 1264	BGA 1264
	Max. Speed	3.8GHz	2.7~3.4GHz	3.0GHz
	CPU TDP	15W	6/10/12W	15W
	Cache	6 MB Smart Cache	6 MB Smart Cache	SOC
	Chipset	SOC	SOC	SOC
	BIOS	AMI SPI 256Mbit	AMI SPI 256Mbit (supports UEFI boot only)	AMI SPI 256Mbit (supports UEFI boot only)
Memory	Technology	DDR5 4800MHz	LPDDR5 4800MHz	LPDDR5 4800MHz
	Max. Capacity	32GB	8GB/16GB	8GB/16GB
	Socket	1 SODIMM	Memory down	Memory down
Storage		1 M.2 2280/2242 M Key	1 M.2 2280 M Key	1 M.2 2280 M Key
Expansion	PCIe, PCI, Mini PCIe	-	-	-
	M.2	1 M.2 2280/2242 M key, 1 M.2 3052/3042 B key, 1 M.2 2230 E key	1 M.2 2230 E key, 1 M.2 3042/3052 B key, 1 M.2 2242/2280 M key	1 M.2 2230 E key, 1 M.2 3042/3052 B key, 1 M.2 2242/2280 M key
	SIM	1 SIM	1	1
Audio	Audio Codec	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S
Ethernet	Controller	3 Intel® I226V/IT	2 Intel® I226, 1 Intel I210	2 Intel® I226, 1 Intel I210
LED	Indicators	Power, HDD LED	Power, Storage LED	Power, Storage LED
I/O	Ethernet	3 2.5GbE	2 2.5GbE, 1 GbE	2 2.5GbE, 1 GbE
	Serial	1 RS-232/422/485 (Opt.)	2 RS-232/422/485, 1 RS-232, 1 RS-232/DIO	2 RS-232/422/485, 1 RS-232, 1 RS-232/DIO
	USB	4 USB 3.2, 2 USB 2.0	3 USB 3.2 type A, 1 USB-C 3.2	3 USB 3.2 type A, 1 USB-C 3.2
	Display	1 HDMI, 1 Type-C DP Alt. Mode	1 VGA, 1 HDMI, 1 USB-C (DP1.2 Alt. Mode)	1 VGA, 1 HDMI, 1 USB-C (DP1.2 Alt. Mode)
	DIO	-	COM4: RS232/DIO	COM4: RS232/DIO
	Buttons	Power	Power, Reset Button	Power, Reset Button
	Antenna	2 Holes	4 Holes	4 Holes
	Audio	Mic-in, Line-out	Mic-in / Line-out	Mic-in / Line-out
Power		9~36V DC-in	9~36V DC-in	9~36V DC-in
Cooling		Fanless	Fanless	Fanless
OS Support		Win10 IoT, Linux	Win10 IoT, Win11 IoT, Linux Ubuntu 22.04	Win10 IoT, Win11 IoT, Linux Ubuntu 22.04
Mechanism	Construction	Aluminum + Metal Aluminum	Aluminum + Metal	Aluminum + Metal
	Mounting	Wall/DIN Rail/VESA Mount	Wall/DIN Rail/VESA Mount	Wall/DIN Rail/VESA Mount
	Dimensions (W x H x D)	181.6 x 52 x 118.4 mm	180 x 33 x 127.8 mm	180 x 43 x 127.8 mm
Environment	Operating Temp.	-5°C ~ 60°C	-5°C ~ 60°C	-5°C ~ 60°C

Model Name		ED700-EHL22I	ED700-EHL
Platform		Atom	Atom
System	Processor	Intel® Atom® Elkhart Lake Processors	Intel® Atom® Elkhart Lake Processors
	Socket	BGA 1493	BGA 1493
	Max. Speed	1.8~3GHz	1.8~3GHz
	CPU TDP	6.5/9/10/12W	6.5/9/10/12W
	Cache	1.5 MB L2 Cache	1.5 MB L2 Cache
	Chipset	-	-
	BIOS	AMI SPI 256Mbit (supports UEFI boot only)	AMI SPI 256Mbit (supports UEFI boot only)
Memory	Technology	Dual Channel DDR4 3200MHz (in-band ECC support in embedded/industrial SKU)	Dual Channel DDR4 3200MHz (in-band ECC support in embedded/industrial SKU)
	Max. Capacity	32GB	32GB
	Socket	Memory onboard + 1 SODIMM	Memory onboard + 1 SODIMM
Storage		1 M.2 2280, 16GB/32GB eMMC	1 M.2 2280, 16GB/32GB eMMC
Expansion	PCIe, PCI, Mini PCIe	-	-
	M.2	1 M.2 2230, 1 M.2 3042/3052	1 M.2 2230, 1 M.2 3042/3052
	SIM	2 SIM	2 SIM
Audio	Audio Codec	Realtek ALC888	Realtek ALC888
Ethernet	Controller	2/3 Intel® I210/I211, 1 Intel® 2.5GbE LAN	2/3 Intel® I210/I211, 1 Intel® 2.5GbE LAN
LED	Indicators	1 Power, 1 HDD, 1 WiFi, 1 4G/5G, 2 COM, 8 DIO LED	1 Power, 1 HDD, 1 WiFi, 1 4G/5G, 2 COM, 8 DIO LED
I/O	Ethernet	2/3 GbE, 1 2.5GbE TSN, 1 Allxon OOB Enabler (Opt.)	2/3 GbE, 1 2.5GbE TSN, 1 Allxon OOB Enabler (Opt.)
	Serial	2 RS-232/422/485, 2 Isolated COM	2 RS-232/422/485
	USB	2/4 USB 3.2, 2 USB 2.0	2/4 USB 3.2, 2 USB 2.0
	Display	1 VGA, 1 DP (Opt.)	1 VGA, 1 DP (Opt.)
	DIO	8-bit DIO, 12-bit isolated DIO	8-bit DIO
	Buttons	-	-
	Antenna	6 Holes	6 Holes
	Audio	-	-
Power		9~36V DC-in	9~36V DC-in
Cooling		Fanless	Fanless
OS Support		Win10 IoT, Linux Ubuntu 20.04	Win10 IoT, Linux Ubuntu 20.04
Mechanism	Construction	Aluminum + Metal	Aluminum + Metal
	Mounting	Wall/DIN Rail Mount	Wall/DIN Rail Mount
	Dimensions (W x H x D)	72 x 172 x 118.2 mm	72 x 172 x 118.2 mm
Environment	Operating Temp.	0°C ~ 60°C / -40°C ~ 60°C	0°C ~ 60°C / -40°C ~ 60°C

Model Name		EC90A-AL	EC800-AL	EC700-AL
Platform		Atom	Atom	Atom
System	Processor	Intel® Atom® Processor E3900	Intel® Atom® Processor E3900	Intel® Atom® Processor E3900
	Socket	BGA 1296	BGA 1296	BGA 1296
	Max. Speed	1.8GHz	1.8~2.5GHz	1.8~2.5GHz
	CPU TDP	6.5/9W	6/9/12W	6/9/10/12W
	Cache	2M	2M	2M
	Chipset	-	-	-
	BIOS	Insyde SPI 128Mbit (supports UEFI boot only)	Insyde SPI 128Mbit (supports UEFI boot only)	AMI SPI 128Mbit (support UEFI/legacy mode)
Memory	Technology	Single Channel LPDDR4 2400MHz	Dual Channel LPDDR4 2400MHz	Dual Channel DDR3L 1866MHz
	Max. Capacity	2/4GB	2/4/8GB	2/4/8GB
	Socket	Memory Onboard	Memory Onboard	Memory Onboard, 1 SODIMM
Storage		eMMC up to 64GB	1 mSATA, 1 M.2 2242 B Key	eMMC up to 64GB (Opt.), 1 x 2.5" SATA bay, 1 Full mSATA"
Expansion	PCIe, PCI, Mini PCIe	1 Full mPCIe	1 Full mPCIe	1 Full mPCIe
	M.2	-	1 M.2 2230 E Key, 1 M.2 2242 B Key	1 M.2 2230 E Key
	SIM	-	-	1 Nano SIM
Audio	Audio Codec	-	Realtek ALC262	Realtek ALC262
Ethernet	Controller	2 Intel® I210IT	2 Intel® I210AT	2/4 Intel® I210
LED	Indicators	Power, HDD LED	Power, HDD LED	Power, Status LED
I/O	Ethernet	2 GbE	2 GbE	2/4 GbE
	Serial	1 RS-232/422/485/DIO	1 RS-232/422/485, 1 RS-232/422/485/DIO	2 RS-232/422/485, 2 RS-232/422/485/DIO (Opt.)
	USB	1 USB 2.0, 2 USB 3.2	2 USB 2.0, 2 USB 3.2	4/2 USB 3.2
	Display	1 Mini DP++	1 VGA + 2 Micro-HDMI or 1 DVI-D + 2 Mini-DP	1 DP/VGA, 1 DP
	DIO	8-bit DIO (via COM)	8-bit DIO (via COM)	8-bit DIO (via COM) (Opt.)
	Buttons	Power Button	Power Button	Power, Reset Button
	Antenna	2 Holes	2 Holes	3 Holes
	Audio	-	Line-out, Mic-in	-
Power		12V DC-in	9~36V DC-in	9~36V DC-in
Cooling		Fanless	Fanless	Fanless
OS Support		Win10 IoT, Linux, Linux Yocto	Win10 IoT, Linux, Linux Yocto	Win10 IoT, Win7, Linux
Mechanism	Construction	Sheet Metal	Aluminum	Aluminum + Metal
	Mounting	Wall/Din Rail Mount	Wall/VESA/Din Rail Mount (Opt.)	Wall/VESA/Din Rail Mount (Opt.)
	Dimensions (W x H x D)	127 x 42 x 80.4 mm	161 x 35.1 x 108.2 mm	180 x 33 x 127.8 mm
Environment	Operating Temp.	-20°C ~ 60°C	-20°C ~ 60°C / -40°C ~ 70°C	-20°C ~ 60°C / -40°C ~ 70°C

Ultra Compact Fanless PC

Model Name		EC700-BT	EC70A-HPT
Platform		Atom	AMD
System	Processor	Intel® Atom® Processor E3800	AMD® Ryzen™ Embedded 8000 Series
	Socket	BGA 1170	BGA1140
	Max. Speed	1.33~2.41GHz	3.3~5.1GHz
	CPU TDP	4.3/6/10W	15/28W
	Cache	1/2M	16M
	Chipset	-	-
	BIOS	AMI SPI 64Mbit	AMI SPI 256Mbit
Memory	Technology	Single Channel DDR3L 1066/1333MHz	Dual Channel DDR5 5600MHz
	Max. Capacity	2/4GB	96GB
	Socket	ECC/non-ECC Memory Onboard	2 SODIMM
Storage		1x 2.5" SATA 2.0 Drive Bay, eMMC up to 32GB (Opt.), mSATA (Opt.)	1 M.2 2280 M Key
Expansion	PCIe, PCI, Mini PCIe	2 Full mPCIe, 1 Half mPCIe	-
	M.2	-	1 M.2 2230 E key, 1 M.2 3042/3052 B key, 1 M.2 2242/2280 M key
	SIM	1	1 Nano SIM
Audio	Audio Codec	-	-
Ethernet	Controller	2 Intel® I210IT	2 Intel® I226IT 1 Intel® I210IT
LED	Indicators	Status, HDD LED	Status, HDD LED
I/O	Ethernet	2 GbE	2 2.5GbE 1 GbE
	Serial	3 RS-232/422/485, 1 RS-232/422/485/DIO (Opt.)	1 RS-232/422/485 2 RS-232 1 RS-232/422/485/8-bit DIO
	USB	4 USB 2.0, 1 USB 3.2	1 USB 2.0, 2 USB 3.2 1 USB-C
	Display	1 VGA + 1 HDMI or 1 DVI-I	1 HDMI, 1 DP 1 USB-C(DP Alt mode)
	DIO	8-bit DIO (via COM)	8-bit DIO (via COM)
	Buttons	Power, Reset Button	Power, Reset Button
	Antenna	3 Holes	3 Holes
	Audio	-	-
Power		9~36V DC-in	9~36V DC-in
Cooling		Fanless	Fanless
OS Support		Win7, WES 7, Win8, WES 8, Win8.1, Win10, Linux	Win10 IoT, Win11 IoT, Linux
Mechanism	Construction	Aluminum + Metal Aluminum	Aluminum + Metal Aluminum
	Mounting	Wall/VESA/Din Rail Mount	Wall/VESA/DIN Rail Mount
	Dimensions (W x H x D)	180 x 33 x 121.2 mm	181.6 x 57 x 118.4 mm
Environment	Operating Temp.	-20°C ~ 60°C / 0°C ~ 50°C, 0°C ~ 60°C / 0°C ~ 50°C	Fanless: -20°C ~ 60°C W/Fan: -20°C ~ 70°C

Ultra Compact Fanless PC

Model Name		EC90A-GH	EC900-QCS
Platform		AMD	ARM
System	Processor	AMD® Ryzen™ Embedded R1000 Series	QCS6490 Qualcomm® Kryo™ 670
	Socket	BGA1140	-
	Max. Speed	2.6~3.5GHz	2.7 GHz
	CPU TDP	up to 12W	5W
	Cache	1M	-
	Chipset	-	-
	BIOS	AMI SPI 64bit	-
Memory	Technology	Single DDR4 2400MHz	LPDDR5x
	Max. Capacity	4/8GB	4/8GB
	Socket	Memory Down	Memory Down
Storage		eMMC up to 128GB	UFS 3.1 (128GB), 1 uSD 3.0 card
Expansion	PCIe, PCI, Mini PCIe	1 Full mPCIe	-
	M.2	-	1 M.2 3052 B key, 1 M.2 2230 E key
	SIM	-	1 Nano SIM
Audio	Audio Codec	-	-
Ethernet	Controller	1 Intel® I211AT/ I210IT (Opt.)	AX88179A USB3 to GbE controller
LED	Indicators	Power status	Status LED
I/O	Ethernet	1 GbE	1 GbE
	Serial	2 RS-232 or 8-bit DIO + 1 SMBus	1 RS-232
	USB	1 USB 3.2 Gen2 type C	2 USB 3.2 Gen1 Type A, 3 USB 2.0, 1 USB Type C
	Display	2 Micro HDMI	1 HDMI
	DIO	8-bit DIO (Opt.)	8-bit DIO
	Buttons	-	-
	Antenna	2 Holes (LTE or WiFi)	3 Holes
	Audio	-	-
Power		12V DC-in	5V DC-in
Cooling		Fanless	-
OS Support		Win10 IoT, Ubuntu	Linux Yocto, Ubuntu 20.04 (Opt.)
Mechanism	Construction	Aluminum + Metal	Sheet Metal
	Mounting	Wall/VESA Mount	DIN Rail Mount
	Dimensions (W x H x D)	112.29 x 80 x 56.20 mm	145 x 34 x 96 mm
Environment	Operating Temp.	-20°C ~ 45°C	-20°C ~ 60°C

Model Name		EC900-8MM	EC910-8MM	EC900-FS6
Platform		ARM	ARM	ARM
System	Processor	i.MX 8M Mini Processor	i.MX 8M Mini Processor	NXP i.MX 6 Series Processor
	Socket	BGA type	BGA type	21x21 BGA
	Max. Speed	1.6/1.8Ghz	1.6/1.8Ghz	1.0GHz
	CPU TDP	-	-	-
	Cache	-	-	-
	Chipset	-	-	-
	BIOS	-	-	-
Memory	Technology	LPDDR4 die size	LPDDR4 die size	Single Channel DDR3L 1600MHz
	Max. Capacity	1/4/8GB	1/4/8GB	1/2GB
	Socket	Memory Onboard	Memory Onboard	SDRAM Memory Down
Storage		eMMC up to 64GB, MicroSD	eMMC up to 64GB, MicroSD	4MB NOR Flash, 8GB/16GB eMMC, 1 micro SD
Expansion	PCIe, PCI, Mini PCIe	-	-	1 Full mPCIe
	M.2	1 M.2 2230 E key, 1 M.2 3042/2242 B key	1 M.2 2230 E key, 1 M.2 3042/2242 B key	-
	SIM	1 Nano SIM	1 Nano SIM	-
Audio	Audio Codec	-	-	-
Ethernet	Controller	1 ATHEROS Ethernet RTL8211, 1 Ethernet	1 ATHEROS Ethernet RTL8211, 1 Ethernet	1 ATHEROS Ethernet, 1 Microchip USB to Ethernet LAN7500-ABZJ
LED	Indicators	Status LED	Status LED	Status LED
I/O	Ethernet	2 GbE	2 GbE	2 GbE
	Serial	1 RS-485, 1 RS-422	1 RS-485, 1 RS-422, 2 RS-232	1 RS-485, 1 RS-422,
	USB	2 USB 2.0, 1 USB 2.0 (Internal), 1 OTG USB Type C (Internal)	2 USB 2.0, 1 USB 2.0 (Internal), 1 OTG USB Type C (Internal)	2 USB 2.0 1 USB 2.0 (Internal) 1 OTG USB (Internal)
	Display	1 HDMI	1 HDMI	1 HDMI
	DIO	4-bit DIO	4-bit DIO	4-bit DIO
	Buttons	1 Power reset button	1 Power reset button	1 Power Reset Button
	Antenna	2 Holes	6 Holes	2 Holes
	Audio	-	-	-
Power		9~36V DC-in	9~36V DC-in	9~36V DC-in
Cooling		Fanless	Fanless	Fanless
OS Support		Linux Yocto 3.3, Kernel 5.10.72	Linux Yocto 3.3, Kernel 5.10.72	Yocto 1.8 beta, Kernel 3.14.52
Mechanism	Construction	Sheet Metal	Sheet Metal	Sheet Metal
	Mounting	Din Rail Mount	Din Rail Mount	Din Rail Mount
	Dimensions (W x H x D)	145 x 34 x 96 mm	145 x 40 x 96 mm	145 x 34 x 96.4 mm
Environment	Operating Temp.	-5°C ~ 60°C, -40°C ~ 70°C (Opt.)	-5°C ~ 60°C, -40°C ~ 70°C (Opt.)	-20°C ~ 60°C / -40°C ~ 70°C

Embedded Fanless PC
Advanced Computing Solutions

Features

DFI's performance embedded PC series is based on the powerful 9th/8th/7th/6th Gen Intel® Core™ Desktop platform with advanced graphics and computing performance, which are available in solid designs and expansibility. Their high flexibility and reliability will fulfill your various I/O requirements and deliver high computing performance in industry environments.

Desktop Platforms

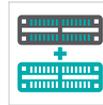**Next-Gen Intel® Core™ Processor**

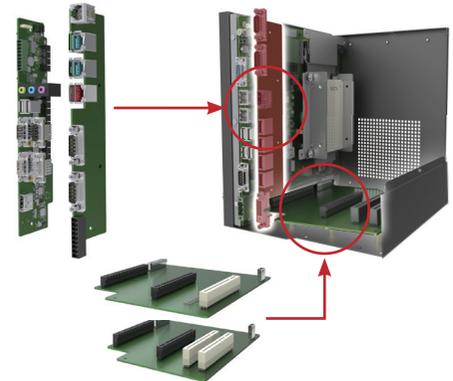**High-Performance CPU**

Customization & Scalability

We accept custom-made I/O board on a MOQ basis

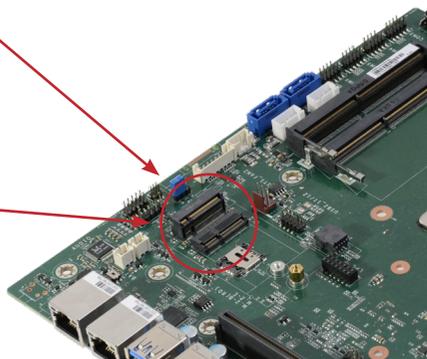**Customized I/O Board**

Multiple Expansions

5G & Wifi 6 Module

5G

Wifi 7

Rugged Design

Up to 65W

Wide-Temperature

Wide-Voltage

Model Name		SF101-ADS	EC600-RPS	EC622-RPS
Platform		Desktop IPC	Desktop	Desktop
System	Processor	14th/13th/12th Gen Intel® Core™ Processor	14th/13th/12th Gen Intel® Core™ Processor	14th/13th/12th Gen Intel® Core™ Processor
	Socket	LGA1700	LGA1700	LGA1700
	Max. Speed	2.4~5.5GHz	1.1~5.2GHz	1.1~5.2GHz
	CPU TDP	35W	35/46/60/65W	35/46/60/65W
	Cache	4~36M	4/6/12/18/20/24/25/30/33/36M	4/6/12/18/20/24/25/30/33/36M
	Chipset	Intel® R680E	Intel® H610E/R680E	Intel® R680E
	BIOS	AMI SPI 128Mbit	AMI SPI 256Mbit	AMI SPI 256Mbit
GPU / AI Accelerator Card Support		-	-	-
Memory	Technology	Dual Channel DDR4 3200 MHz (ECC/Non-ECC)	Dual Channel DDR5 4800MHz	Dual Channel DDR5 4800MHz
	Max. Capacity	64GB	64GB	64GB
	Socket	2 SODIMM	2 SODIMM	2 SODIMM
Storage		1x 2.5" SATA bay, 1 M.2 2280 M Key	1 M.2 2280 B Key or 2 M.2 2280 M Key	2 M.2 2280 M key
Expansion	PCIe, PCI, Mini PCIe	-	1 Full mPCIe	1 Full mPCIe, 1 PCIe x16, 1 PCIe x4
	M.2	1 M.2 2230 E Key, 1 M.2 2280 M Key, 1 M.2 2242/3042/3052 B Key	2 M.2 2280 M key(or 1 M.2 2280 B key) 1 M.2 3042/3052 B key 1 M.2 2230 E key 1 M.2 3042 A key	2 M.2 2280 M key 1 M.2 3042/3052 B key 1 M.2 2230 E key 1 M.2 3042 A key
	SIM	-	2 Nano SIM	2 Nano SIM
Audio	Audio Codec	Realtek ALC888S	-	-
Ethernet	Controller	1 Intel® I226V, 1 Intel® I219LM	1 Intel® I219LM, 3 Intel® I210IT, 2 Intel® i226IT	1 Intel® I219LM, 3 Intel® I210IT, 2 Intel® I226IT
LED	Indicators	Power, HDD LED	Status, HDD LED	Status, HDD LED
I/O	Ethernet	1 2.5GbE, 1 GbE	4 GbE + 2 2.5GbE or 2 GbE + 2 2.5GbE + 2 PoE (Opt.)	4 GbE + 2 2.5GbE or 2 GbE + 2 2.5GbE + 2 PoE (Opt.)
	Serial	2 COM	1 RS-232/422/485, 1 RS-232/422/485/DIO, 4/8 RS-232	1 RS-232/422/485/DIO, 8 RS-232
	USB	6 USB 3.2 Gen2, 2 USB 2.0	3/5 USB 3.2, 2 USB 2.0, 1 USB Type-C (Alt. mode)	5 USB 3.2 Gen2, 1 Type-C
	Display	2 DP++	1 VGA, 1 DP++, 1 HDMI	1 VGA, 1 DP++, 1 HDMI
	DIO	-	8-bits DIO (via COM1)	8bits (share with COM1)
	Buttons	Power	Power, Reset	Power, Reset
	Antenna	-	4 Holes	4 Holes
	Audio	Line-out	-	-
Power		15~36V DC-in	9~36V DC-in	9~36V DC-in
Cooling		-	Fanless (optional with Fan)	Fan (optional Fanless)
OS Support		Win10 IoT, Linux	Win10 IoT, Win11, Linux (Opt.)	Win10 IoT, Win11, Linux(Opt.)
Mechanism	Construction	Metal chassis + Aluminum front bezel	Metal + Aluminum	Metal + Aluminum
	Mounting	Wall Mount, Rack Mount	Wall Mount	Wall Mount
	Dimensions (W x H x D)	220 x 43 x 197.2 mm	249.5 x 85 x 223 mm	249.5 x 120 x 223 mm
Environment	Operating Temp.	-5°C~45°C	CPU TDP 35W: -20°C ~ 70°C CPU TDP 65W: -20°C ~ 50°C	CPU TDP 35W: -20°C ~ 70°C CPU TDP 65W: -20°C ~ 50°C

Desire For Innovation

Embedded Fanless PC

Model Name		EC633-RPS	EC633D-RPS
Platform		Desktop	Desktop
System	Processor	14th/13th/12th Gen Intel® Core™ Processor	14th/13th/12th Gen Intel® Core™ Processor
	Socket	LGA1700	LGA1700
	Max. Speed	1.1~5.2GHz	1.1~5.2GHz
	CPU TDP	35/46/60/65W	35/46/60/65W
	Cache	4/6/12/18/20/24/25/30/33/36M	4/6/12/18/20/24/25/30/33/36M
	Chipset	Intel® R680E	Intel® R680E
	BIOS	AMI SPI 256Mbit	AMI SPI 256Mbit
GPU / AI Accelerator Card Support		-	-
Memory	Technology	Dual Channel DDR5 4800MHz	Dual Channel DDR5 4800MHz
	Max. Capacity	64GB	64GB
	Socket	2 SODIMM	2 SODIMM
Storage		2 M.2 2280 M key	2 M.2 2280 M key
Expansion	PCIe, PCI, Mini PCIe	1 Full mPCIe, 2 PCIe x8, 1 PCIe x4	1 Full mPCIe, 2 PCIe x8, 1 PCIe x4
	M.2	2 M.2 2280 M key 1 M.2 3042/3052 B key 1 M.2 2230 E key 1 M.2 3042 A key	2 M.2 2280 M key 1 M.2 3042/3052 B key 1 M.2 2230 E key 1 M.2 3042 A key
	SIM	2 Nano SIM	2 Nano SIM
Audio	Audio Codec	-	-
Ethernet	Controller	2 Intel® I226IT, 1 Intel® I219LM, 3 Intel® I210IT	2 Intel® I226IT, 1 Intel® I219LM, 3 Intel® I210IT
LED	Indicators	Status, HDD LED	Status, HDD LED
I/O	Ethernet	4 GbE + 2 2.5GbE or 2 GbE + 2 2.5GbE + 2 PoE (Opt.)	4 GbE + 2 2.5GbE or 2 GbE + 2 2.5GbE + 2 PoE (Opt.)
	Serial	2 RS-232/422/485/DIO, 8 RS-232	2 RS-232/422/485/DIO, 8 RS-232
	USB	5 USB 3.2 Gen2, 1 Type-C	5 USB 3.2 Gen2, 1 Type-C
	Display	1 VGA, 1 DP++, 1 HDMI	1 VGA, 1 DP++, 1 HDMI
	DIO	8bits (share with COM1)	8bits (share with COM1)
	Buttons	Power, Reset	Power, Reset
	Antenna	4 Holes	4 Holes
	Audio	-	-
Power		9~36V DC-in	9~36V DC-in
Cooling		Fan (optional Fanless)	Fan (optional Fanless)
OS Support		Win10 IoT, Win11, Linux(Opt.)	Win10 IoT, Win11, Linux(Opt.)
Mechanism	Construction	Metal + Aluminum	Metal + Aluminum
	Mounting	Wall Mount	Wall Mount
	Dimensions (W x H x D)	249.5 x 193 x 275 mm	249.5 x 193 x 342 mm
Environment	Operating Temp.	CPU TDP 35W: -20°C ~ 70°C CPU TDP 65W: -20°C ~ 50°C	CPU TDP 35W: -20°C ~ 70°C CPU TDP 65W: -20°C ~ 50°C

Model Name		EC500-ADS	EC510-ADS/EC511-ADS	EC543-ADS
Platform		Desktop	Desktop	Desktop
System	Processor	12th Gen Intel® Core™ Processor	12th Gen Intel® Core™ Processor	12th Gen Intel® Core™ Processor
	Socket	LGA1700	LGA1700	LGA1700
	Max. Speed	2.4~4.8GHz	2.4~4.8GHz	2.4~4.8GHz
	CPU TDP	35W	35W	35W
	Cache	4/6/12/18/25/30M	4/6/12/18/25/30M	4/6/12/18/25/30M
	Chipset	Intel® H610E/Q670E/R680E	Intel® Q670E	Intel® Q670E
	BIOS	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit
GPU / AI Accelerator Card Support		--	--	--
Memory	Technology	Dual Channel DDR4 3200MHz	Dual Channel DDR4 2400/2666MHz	Dual Channel DDR4 3200MHz
	Max. Capacity	64GB	64GB	64GB
	Socket	2 SODIMM	2 SODIMM	2 SODIMM
Storage		2x 2.5" SATA 3.0 Drive Bays	2x 2.5" SATA 3.0 Drive Bays	2x 2.5" SATA 3.0 Drive Bays
Expansion	PCIe, PCI, Mini PCIe	-	1 PCI / 1 PCIe x16	1 PCIe x16, 1 PCIe x4, 1 PCIe x1, 1 PCI
	M.2	1 M.2 2230 E key 1 M.2 2280 M key 1 M.2 3042/3052 B key	1 M.2 2230 E key, 1 M.2 2280 M key 1 M.2 3042/3052 B key	1 M.2 2230 E key, 1 M.2 2280 M key 1 M.2 3042/3052 B key
	SIM	1 Nano SIM	1 Nano SIM	1 Nano SIM
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	2 Intel® I225IT	2 Intel® I225IT	2 Intel® I225IT
LED	Indicators	Status, HDD LED	Status, HDD LED	Status, HDD LED
I/O	Ethernet	2 GbE	2 GbE/ 6 GbE/ 2 GbE+4 PoE/ 4 GbE/ 2 GbE+ 2 PoE	2 GbE/ 6 GbE/ 2 GbE+4 PoE/ 4 GbE/ 2 GbE+ 2 PoE
	Serial	4 RS-232/422/485, 2 RS-232	4/8 RS232/422/485, 2 RS232	4/8 RS232/422/485, 2 RS232
	USB	4 USB 3.2, 2 USB 2.0	4/6/10 USB 3.2, 4 USB 2.0	4/6/10 USB 3.2, 4 USB 2.0
	Display	1 VGA, 2 DP++	1 VGA, 2 DP++	1 VGA, 2 DP++
	DIO	8-bits DIO	8/16/32-bits	8/16/32-bits
	Buttons	Power, Reset	Power, Reset	Power, Reset
	Antenna	4 Holes	6 Holes	6 Holes
	Audio	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out
Power		9~36V DC-in	9~36V DC-in	9~36V DC-in
Cooling		Fanless	Fanless	Fanless
OS Support		Win10 IoT, Linux (Opt.)	Win10 IoT, Linux (Opt.)	Win10 IoT, Linux (Opt.)
Mechanism	Construction	Metal + Aluminum	Metal + Aluminum	Metal + Aluminum
	Mounting	Wall Mount	Wall Mount	Wall Mount
	Dimensions (W x H x D)	255.3 x 85 x 224 mm	255.3 x 124.6 x 224 mm	255.3 x 195 x 221.1 mm
Environment	Operating Temp.	-20°C ~ 70°C	-20°C ~ 60°C	-20°C ~ 60°C

Model Name		EC500-CS	EC510/EC511-CS	EC543-CS
Platform		Desktop	Desktop	Desktop
System	Processor	9th/8th Gen Intel® Core™ Processor	9th/8th Gen Intel® Core™ Processor	9th/8th Gen Intel® Core™ Processor
	Socket	LGA 1151	LGA 1151	LGA 1151
	Max. Speed	3.1~4.0GHz	3.1~4.0GHz	3.1~4.0GHz
	CPU TDP	35W	35W	35W
	Cache	2/4/6/9/12M	2/4/6/9/12M	2/4/6/9/12M
	Chipset	Intel® H310/Q370/C246	Intel® H310/Q370	Intel® Q370
	BIOS	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit
GPU / AI Accelerator Card Support		MXM 3.1 Type A/B/C: RTX2080, RTX2070	Intel® movidius™ AI accelerator card (Opt.) (EC511)	Intel® movidius™ AI accelerator card (Opt.)
Memory	Technology	Dual Channel DDR4 2666/2400MHz	Dual Channel DDR4 2666/2400MHz	Dual Channel DDR4 2666/2400MHz
	Max. Capacity	64GB	64GB	64GB
	Socket	2 SODIMM	2 SODIMM	2 SODIMM
Storage		2x 2.5" SATA 3.0 Drive Bays	2x 2.5" SATA 3.0 Drive Bays	2x 2.5" SATA 3.0 Drive Bays
Expansion	PCIe, PCI, Mini PCIe	-	1 PCI or 1 PCIe	1 PCI, 1 PCIe x16, 1 PCIe x4, 1 PCIe x1
	M.2	1 M.2 2230 E key 1 M.2 2280 M key 1 M.2 3042/3052 B key	1 M.2 2230 E key 1 M.2 2280 M key 1 M.2 3042/3052 B key	1 M.2 2230 E key 1 M.2 2280 M key 1 M.2 3042/3052 B key
	SIM	1 Nano SIM	1 Nano SIM	1 Nano SIM
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I219LM/V	1 Intel® I210AT, 1 Intel® I219LM/V	1 Intel® I210AT, 1 Intel® I219LM
LED	Indicators	Status, HDD LED	Status, HDD LED	Status, HDD LED
I/O	Ethernet	2 GbE	2 GbE + 4 PoE / 6 GbE / 2 GbE	2 GbE + 4 PoE / 6 GbE / 2 GbE
	Serial	4 RS-232/422/485, 2 RS-232	4/7 RS-232/422/485, 2 RS-232	4/7 RS-232/422/485, 2 RS-232
	USB	4 USB 3.2, 2 USB 2.0	4 USB 3.2 + 4 USB 2.0 / 8 USB 3.2 + 2 USB 2.0	4 USB 3.2 + 4 USB 2.0 / 8 USB 3.2 + 2 USB 2.0
	Display	1 VGA, 1/2 DP++	1 VGA, 1/2 DP++	1 VGA, 2 DP++
	DIO	8-bits	8/16-bits	8/16-bits
	Buttons	Power, Reset	Power, Reset	Power, Reset
	Antenna	4 Holes	4 Holes	4 Holes
	Audio	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out
Power		9~36V DC-in	9~36V DC-in	9~36V DC-in
Cooling		Fanless	Fanless	Fanless
OS Support		Win10 IoT, Linux (Opt.)	Win10 IoT, Linux (Opt.)	Win10 IoT, Linux (Opt.)
Mechanism	Construction	Metal + Aluminum	Metal + Aluminum	Metal + Aluminum
	Mounting	Wall Mount	Wall Mount	Wall Mount
	Dimensions (W x H x D)	255.3 x 85 x 224 mm	255.3 x 124.6 x 224 mm	255.3 x 195 x 224 mm
Environment	Operating Temp.	-20°C ~ 70°C	-20°C ~ 60°C	-20°C ~ 60°C

Model Name		ES220-CS	ES220F-CS
Platform		Desktop	Desktop
System	Processor	9th/8th Gen Intel® Core™ Processor	9th/8th Gen Intel® Core™ Processor
	Socket	LGA 1151	LGA 1151
	Max. Speed	2.9GHz~4GHz	2.9GHz~4GHz
	CPU TDP	35W	35W
	Cache	2/4/6/9/12M	2/4/6/9/12M
	Chipset	Intel® C246/Q370/H310	Intel® C246/Q370/H310
	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit
GPU / AI Accelerator Card Support		-	-
Memory	Technology	Dual Channel DDR4 2666MHz (C246 support ECC)	Dual Channel DDR4 2666MHz (C246 support ECC)
	Max. Capacity	64GB	64GB
	Socket	2 SODIMM	2 SODIMM
Storage		2x 2.5" SATA bay (Opt.)	2x 2.5" SATA bay (Opt.)
Expansion	PCIe, PCI, Mini PCIe	-	-
	M.2	1 M.2 2280 M key 1 M.2 2230 E key	1 M.2 2280 M key 1 M.2 2230 E key
	SIM	-	-
Audio	Audio Codec	-	-
Ethernet	Controller	2 Intel® I219/I210IT	2 Intel® I219/I210IT
LED	Indicators	Power, HDD LED	Power, HDD LED
I/O	Ethernet	2 GbE	2 GbE
	Serial	2 RS-232/422/485 or 1 RS-232/422/485 + 8-bit DIO	2 RS-232/422/485 or 1 RS-232/422/485 + 8-bit DIO
	USB	4 USB 3.2, 2 USB 2.0	4 USB 3.2, 2 USB 2.0
	Display	2 HDMI	2 HDMI
	DIO	8-bits DIO	8-bits DIO
	Buttons	Reset, Power Button	Reset, Power Button
	Antenna	2 Holes	2 Holes
	Audio	-	-
Power		12V DC-in	12V DC-in
Cooling		Active Fan	Fanless
OS Support		Win10 IoT, Win10 Professional	Win10 IoT, Win10 Professional
Mechanism	Construction	Metal + Aluminum	Metal + Aluminum
	Mounting	Wall mount / VESA mount (Opt.)	Wall mount / VESA mount (Opt.)
	Dimensions (W x H x D)	175 x 48.5 x 120 mm / 175 x 73.5 x 120 mm	175 x 69.4 x 120 mm / 175 x 90.4 x 120 mm
Environment	Operating Temp.	-5°C ~ 45°C	-5°C ~ 45°C / -20°C ~ 60°C

Ruggedized Embedded System

Application-Oriented Solutions

Ultra Ruggedized

Featuring the IP66 white enclosure and wide-temperate from -40 to 70°C, our ultra-ruggedized system can operate as the edge computer outdoor 24/7 without any shelter. The smart vent design can easily drains off water automatically to remain dry inside the system.

Our system also delivers versatile water-proof I/O including external SIM slot, high-gain antenna, combo port, and selective display ports (HDMI/VGA) were also delivered to help integrator meet the demand for various applications. It's an ideal candidate as outdoor IoT edge computing in the critical environment.

IP66 Enclosure Withstand Water and Dust

IP66 Grade

Outdoor IoT Edge Computing

Outdoor Application

Model Name		ECX700-ASL	ECX700-ADP	ECX700-AL
Platform		Atom	ULT	Atom
System	Processor	Intel® Atom® Amston Lake Processor	12th Gen Intel® Core™ Processor	Intel Atom® Processor E3900
	Socket	FCBGA 1264	BGA 1744	BGA 1296
	Max. Speed	3.4~3.6GHz	4.4~4.7GHz	1.8~2.0GHz
	CPU TDP	9 / 12W	15W	6/9.5/12W
	Cache	6M	12M	2M
	BIOS	AMI SPI 256Mbit (supports UEFI boot only)	AMI SPI 256Mbit	AMI SPI 128Mbit (supports UEFI/Legacy mode and Security Boot (Opt.))
Memory	Technology	Single Channel LPDDR5 4800MHz	Dual Channel DDR4 3200MHz	Dual Channel DDR3L 1866MHz
	Max. Capacity	8/16GB	40GB (8GB memory onboard + 32GB memory DIMM)	8GB
	Socket	Memory Down	Memory Onboard, 1 SODIMM	Memory Onboard, 1 SODIMM
Storage		eMMC up to 128GB (Opt.)	M.2 SSD (M Key) up to 2TB (Opt.)	eMMC up to 64GB (Opt.)
Expansion	PCIe, PCI, Mini PCIe	-	-	2 Full mPCIe
	M.2	1 M.2 2242/2280 M key 1 M.2 2230 E key 1 M.2 3042/3052 B key	1 M.2 3042/3052 B Key, 1 M.2 2230 E Key	1 M.2 2230 E Key
	SIM	1 SIM	1 SIM	1 SIM
Audio	Audio Codec	ALC888S	-	-
Ethernet	Controller	2 Intel® I226V	2 Intel® I226IT	2 Intel® I210AT
LED	Indicators	Power Status	Power Status	Power Status
I/O	Ethernet	2 2.5GbE	2 GbE	2 GbE
	Serial	2 RS-232, 2 Can bus protocol	2 RS-232, 1 Can bus protocol	2 RS-232, 2 Can bus protocol
	USB	2 USB 3.2	4 USB 3.2	2 USB 3.2
	Display	1 HDMI	1 HDMI	1 HDMI, 1 VGA(opt.)
	Antenna	2 (LTE), 2 (WiFi)	4 (LTE), 2 (WiFi)	2 (LTE), 2 (WiFi)
Power		9~36V DC-in	9~36V DC-in	9~36V DC-in
Cooling		Fanless	Fanless	Fanless
OS Support		Win11 IoT, Linux	Win10 IoT, Win11 IoT, Linux	Win10 IoT, Linux
Mechanism	Construction	Construction Metal + Aluminum, IP67/ IP69K enclosure	Metal + Aluminum, IP67/ IP69K enclosure	Aluminum, IP67/ IP69K enclosure
	Mounting	Wall Mount	Wall Mount	Wall Mount
	Dimensions (W x H x D)	217 x 188 x 87 mm	239.24 x 194 x 101 mm	217 x 188 x 87 mm (with wall-mount bracket)
Environment	Operating Temp.	-40°C ~ 70° C	-20°C ~ 70° C	-40°C ~ 70° C

Model Name		X6X-ORN
Platform		-
System	Processor	6/8-core Arm® Cortex®-A78AE v8.2 64-bit CPU
	Socket	-
	Max. Speed	-
	CPU TDP	7-25W / 10-40W
	Cache	-
	Chipset	-
	BIOS	-
GPU / AI Accelerator Card Support		NVIDIA® Jetson Orin Nano™/ NX, up to 157TOPS
Memory	Technology	128-bit/64-bit LPDDR5
	Max. Capacity	8/16GB
	Socket	onboard
Storage		M.2 2242/2280 M key
Expansion	PCIe, PCI, Mini PCIe	-
	M.2	1 M.2 Key E 2230, 1 M.2 Key B 3042/3052
	SIM	1 Nano SIM
Audio	Audio Codec	-
Ethernet	Controller	4 Intel I210, 2 PoE (Opt.)
LED	Indicators	Power
I/O	Ethernet	4 GbE
	Camera I/F	2 GMSL2
	Serial	1 RS-232, 1 CAN bus
	USB	4 x USB 3.0 Type-A, M20 1 x USB 2.0 M20 (type A for recovery)
	Display	1 HDMI
	DIO	4 DI, 4 DO
	Buttons	Power, Reset, Recover
	Antenna	6 holes
	Audio	
Power		9-36V DC-in
Cooling		Fanless
OS Support		Linux Ubuntu 22.04
Mechanism	Construction	Aluminum + SGCC
	Mounting	Wall mount / DIN mount (Opt.)
	Dimensions (W x H x D)	237 x L: 194 x H: 105.3 mm
Environment	Operating Temp.	-20°C ~ 60°C

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