

ECX

3000

12th Gen Intel® Core™ i9/i7/i5/i3 Processor (Alder Lake)  
Workstation-grade Fanless Embedded System

10GigE

5G



Machine Vision



- 16-core 12th Gen Intel® Core™ i9/i7/i5/i3 Processor (Alder Lake-S) with Intel® Thread Director to deliver intelligent workload optimization
- Intel® UHD Graphics 770 by Intel® X® Architecture with up to 32 graphics execution units to support AI workload parallelization
- 8 Independent 2.5G LAN with 4 IEEE 802.3at PoE+
- 4 Front-access M.2 SSD Tray, 6 USB 3.2 Gen 2
- DC 9V to 50V Power Input, Software Ignition Control
- Supports TPM 2.0 and Time-Sensitive Networking (TSN)
- Optional supports multiple 10G LAN/2.5G LAN/GigE LAN/ SIM Socket Configuration
- Optional VHub One-Stop AIoT Solution Service supports OpenVINO based AI accelerator and advanced Edge AI applications

Public Security



In-Vehicle Computing

intel  
partner

Gold



VHub

Vecow

Alcom  
electronics

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# Specifications

## System

Processor	12th Gen Intel® Core™ i9/i7/i5/i3 Processor (Alder Lake-S)
Chipset	Intel® 600 Series Chipset
BIOS	AMI
SIO	IT8786E
Memory	2 DDR4 3200MHz SO-DIMM, up to 64GB (ECC/Non-ECC)
OS	Windows 10, Linux

## I/O Interface

Serial	Up to 4 COM RS-232/422/485
USB	6 USB 3.2 Gen 2
Isolated DIO	16 Isolated DIO : 8 DI, 8 DO (Optional)
LED	Power, HDD, PoE, Wireless
SIM Card	2 External SIM Card Sockets
RTC Battery	Front-access RTC Battery

## Expansion

Mini PCIe	1 Mini PCIe Socket for PCIe/USB/SIM Card/Optional mSATA
M.2	- 1 M.2 Key B Socket (3042/3052) - 1 M.2 Key E Socket (2230)
SUMIT	- 2 SUMIT Slot (Optional)

## Graphics

Graphics Processor	Intel® UHD Graphics 770 driven by Intel® X® Architecture
Interface	- 2 DisplayPort : Up to 7680 x 4320 @60Hz/5120 x 2880 @60Hz - 1 DVI-I : Up to 1920 x 1080 @60Hz - 1 HDMI : Up to 4096 x 2160 @60Hz

## Storage

SATA	2 SATA III (6Gbps) support S/W RAID 0, 1
mSATA	1 SATA III (Mini PCIe Type, 6Gbps)
M.2	1 M.2 Key M Socket (2280, PCIe x4)
Storage Device	- 2 Front-access 2.5" SSD/HDD Tray - 4 Front-access M.2 Key M SSD Tray (ECX-3000 PoES)

## Audio

Audio Codec	Realtek® ALC888S-VD, 7.1 Channel HD Audio
Audio Interface	1 Mic-in, 1 Line-out

## Ethernet

LAN 1	Intel® I219LM GigE LAN
LAN 2	Intel® I225 2.5GigE LAN supports TSN

## PoE

LAN 3 to LAN 6	2.5GigE IEEE 802.3at (25.5W/48V) PoE* by Intel® I225
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## Power

Power Input	DC 9V to 50V
Power Interface	- 3-pin Terminal Block : V+, V-, Frame Ground - 4-pin Mini-DIN
Ignition Control	16-mode Software Ignition Control
Remote Switch	3-pin Terminal Block

## Others

TPM	Infineon SLB9670 supports TPM 2.0, SPI Interface
Watchdog Timer	Reset : 1 to 255 sec./min. per step
Smart Mgmt.	Wake on LAN, PXE supported
HW Monitor	Monitoring temperature, voltages. Auto throttling control when CPU overheats.

## Mechanical

Dimensions	260.0mm x 175.0mm x 79.0mm (10.24" x 6.89" x 3.11")
Weight	3.8 kg (8.38 lb)
Mounting	- Wallmount by mounting bracket - DIN Rail Mount (Optional) - 2U Rackmount (Optional)

## Environment

Operating Temp.	<b>35W TDP CPU</b> : -40°C to 75°C (-40°F to 167°F), Fanless
	<b>65W TDP CPU</b> : -40°C to 55°C (-40°F to 131°F), Fanless
	<b>2.5G Series</b> : -40°C to 70°C (-40°F to 158°F), Fanless
	<b>10G Series</b> : 0°C to 50°C (32°F to 122°F), with Internal Fan
Storage Temp.	-40°C to 85°C (-40°F to 185°F)
Humidity	5% to 95% Humidity, non-condensing
Relative Humidity	95% @75°C
Shock	- IEC 60068-2-27
	- SSD : 50G @wallmount, Half-sine, 11ms
Vibration	- IEC 60068-2-64
	- SSD : 5Grms, 5Hz to 500Hz, 3 Axis
EMC	CE, FCC, EN50155, EN50121-3-2

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# Order Information

Model	LAN				COM	SSD Tray		Isolate DIO (GPIO)
	10G	2.5G	2.5G PoE*	GigE		M.2	2.5"	
ECX-3000(F)-PoE	-	5	4	-	4	-	-	16
ECX-3000(F)-PoER	-	5	4	-	4	-	2	16
ECX-3000(F)-PoES	-	5	4	-	4	4	-	16
ECX-3000(F)-4G	-	3	-	-	4	-	-	(16)
ECX-3000(F)-4R	-	3	-	-	4	-	2	(16)
ECX-3000(F)-2G	-	1	-	1	4	-	-	(16)
ECX-3000(F)-2R	-	1	-	-	4	-	2	(16)
ECX-3025(F)	-	8	4	-	2	-	-	16
ECX-3025(F)R	-	8	4	-	2	-	2	16
ECX-3071X(F)	2	5	4	-	2	-	-	16
ECX-3071X(F)R	2	5	4	-	2	-	2	16

\*\* ECX-3000F Series are Fan Sink Models.  
\*\* ECX-3071X Series requires internal fan

## CPU List

Series	CPU	Cores	GHz	TDP (W)	CPU	Cores	GHz	TDP (W)
Intel® Core™	i9-12900E	16	5	65	i9-12900TE	16	4.8	35
	i7-12700E	12	4.8		i7-12700TE	12	4.7	
	i5-12500E	6	4.5		i5-12500TE	6	4.3	
	i3-12100E	4	4.2		i3-12100TE	4	4	

## Optional Software

VHub AI Developer	AI Developer Kit
VHub ROS	AMR Developer Kit
VHub EtherCAT	I/O Control Platform

## Accessories

DDR4 32G	Certified DDR4 32GB 3200MHz RAM
DDR4 16G	Certified DDR4 16GB 3200MHz RAM
DDR4 8G	Certified DDR4 8GB 3200MHz RAM
DDR4 4G	Certified DDR4 4GB 3200MHz RAM
PWA-160W-WT	160W, 24V, 85V AC to 264V AC Power Adaptor with 3-pin Terminal Block, Wide Temperature -30°C to +70°C
PWA-180W	180W, 24V, 90V AC to 132V AC/ 180V AC to 264V AC Power Adapter with 3-pin Terminal Block, 0°C to +40°C
PWA-280W-WT	280W, 24V, 85V AC to 264V AC Power Adaptor with 3-pin Terminal Block, Wide Temperature -30°C to +70°C
VESA Mount	VESA Mounting Kit
DIN-RAIL	DIN Rail and VESA Mounting Kit
Rack Mount	2U Rackmount Kit
TMK2-20P-100	Terminal Block 20-pin to Terminal Block 20-pin Cable, 100cm
TMK2-20P-500	Terminal Block 20-pin to Terminal Block 20-pin Cable, 500cm
TMB-TMBK-20P	Terminal Board with One 20-pin Terminal Block Connector and DIN-Rail Mounting
M.2 Storage Module	M.2 Key M Storage Module
5G Module	5G Module with Antenna
4G Module	4G/GPS Module with Antenna
WiFi & Bluetooth	WiFi & Bluetooth Module with Antenna

# Dimensions & Drawing

Unit : mm (inch)

