

ECX-2000 Series



10th Generation Intel® Xeon®/Core™ i9/i7/i5/i3 Processor (Comet Lake)
Workstation-grade Fanless Embedded System

- Workstation-grade Platform : 10-core 10th Gen Intel® Xeon®/Core™ i9/i7/i5/i3 Processor (CML-S) running with Intel® W480E chipset supports max 95W TDP CPU
- 2 DDR4 2933MHz Memory supports up to 64GB, optional with ECC
- 9V to 50V wide range DC Power Input with 80V Surge Protection
- Fanless, -40°C to 75°C Operating Temperature
- 9 Independent GigE LAN with 4 IEEE 802.3at PoE+
- Nano SIM Sockets for 5G/WiFi 6/4G/3G/LTE/GPRS/UMTS
- Expansion : 1 M.2 Key B, 1 M.2 Key E, 1 Mini PCIe, optional SUMIT A, B
- 6-port USB 3.2 supports up to 10Gbps data transfer
- Front Access : 2 2.5" SSD Tray, 2 Nano SIM Socket, 1 Micro SD Card
- Supports Configurable Software Ignition Power Control and TPM 2.0
- Optimized user-friendly design for easier system maintenance
- Supports multiple Ethernet Configuration options such as: 10G LAN/2.5G LAN/10G SFP+/1G SFP
- Optional VHub One-Stop AIoT Solution Service supports OpenVINO based AI accelerator and advanced Edge AI applications

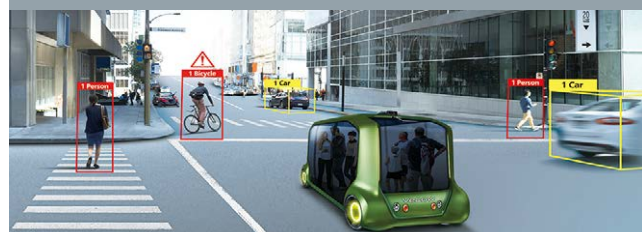
Factory Automation



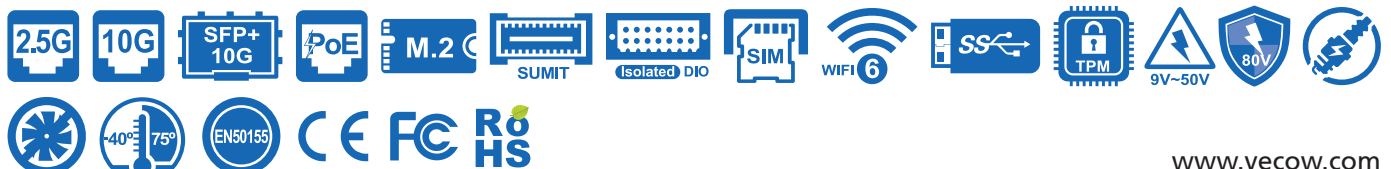
Intelligent Vending



Intelligent Transportation System (ITS)



AMR/AGV



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Specifications

System

Processor	10th Gen Intel® Xeon®/Core™ i9/i7/i5/i3 Processor (Comet Lake-S)
Chipset	Intel® W480E
BIOS	AMI
SIO	IT8786E
Memory	2 DDR4 2933MHz Memory, up to 64GB (ECC/Non-ECC)
OS	Windows 10, Linux

I/O Interface

Serial	4 COM RS-232/422/485 (ESD 8kV)
USB	- 6 USB 3.2 (External) - 1 USB 2.0 (Internal)
Isolated DIO	16 Isolated DIO : 8 DI, 8 DO (Optional)
LED	Power, HDD, PoE, Wireless
SIM Card	2 External Nano SIM Card Socket

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, supports CNVi)
SUMIT A, B	2 SUMIT Slot (Optional)

Graphics

Graphics Processor	Intel® UHD Graphics 630
Interface	- DVI-I : Up to 1920 x 1080 @60Hz - DVI-D : Up to 1920 x 1080 @60Hz - DisplayPort : Up to 4096 x 2304 @60Hz

Storage

SATA	2 SATA III (6Gbps) support S/W RAID 0, 1
mSATA	2 SATA III (Mini PCIe Type, 6Gbps)
M.2	1 M.2 Key M Socket (2280, PCIe x4)
Storage Device	- 1 Micro SD Card, Push-in/Push-out Ejector - 2 Front-access 2.5" SSD/HDD Tray

Audio

Audio Codec	Realtek ALC892, 5.1 Channel HD Audio
Audio Interface	1 Mic-in, 1 Line-out

Ethernet

LAN 1	Intel® I219LM GigE LAN supports iAMT 14.0
LAN 2	Intel® I210 GigE LAN

PoE

LAN 3 to LAN 6	GigE IEEE 802.3at (25.5W/48W) PoE* by Intel® I210
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2.5G Ethernet (ECX-2025R/2025)

LAN 7 to LAN 9	Intel® I225 2.5GigE LAN
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SFP (ECX-2000-6FR/6F)

LAN 5 & LAN 6	1000BASE SFP by Intel® I350
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10G Ethernet/LAN (ECX-2055R/2055)

LAN 7 & LAN 8	Intel® X550-AT2 10GigE LAN
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10G Ethernet/SFP+ (ECX-2071R/2071)

LAN 7 & LAN 8	Intel® X710-BM2 supports IEEE 802.3 10GBASE-T SFP+
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Power

Power Input	9V to 50V, DC-in
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
Surge Protection	Up to 80V/1ms Transient Power

Others

TPM	Infineon SLB9665 supports TPM 2.0, LPC 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.	35W TDP CPU : -40°C to 75°C (-40°F to 167°F), Fanless
	65W TDP CPU : -40°C to 55°C (-40°F to 131°F), Fanless
	80W & 95W TDP CPU : -40°C to 55°C (-40°F to 131°F), with Fan Sink
	2.5G Series : -40°C to 70°C (-40°F to 158°F), Fanless
	10G SFP+ Series : -40°C to 55°C (-40°F to 131°F), Fanless
Storage Temp.	10G LAN Series : -40°C to 55°C (-40°F to 131°F), with Internal Fan
	-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	Ethernet				PoE*	SFP	SSD Tray	USB 3.2	Iso. DIO (GPIO)
	2.5G LAN	10G LAN	10G SFP+	1G LAN					
ECX-2025R/2025FR*	3	-	-	6	4	-	2	6	16
ECX-2025/2025F*	3	-	-	6	4	-	-		16
ECX-2000-PoE/2000F-PoE*	-	-	-	6	4	-	2		16
ECX-2000-PoE/2000F-PoE*	-	-	-	6	4	-	-		16
ECX-2000-6FR/2000F-6FR*	-	-	-	4	-	2	2		(16)
ECX-2000-6F/2000F-6F*	-	-	-	4	-	2	-		(16)
ECX-2000-4R/2000F-4R*	-	-	-	4	-	-	2		(16)
ECX-2000-4G/2000F-4G*	-	-	-	4	-	-	-		(16)
ECX-2000-2R/2000F-2R*	-	-	-	2	-	-	2		(16)
ECX-2000-2G/2000F-2G*	-	-	-	2	-	-	-		(16)
ECX-2055R**/2055FR*	-	2	-	6	4	-	2		16
ECX-2055**/2055F*	-	2	-	6	4	-	-		16
ECX-2071R/2071FR*	-	-	2	6	4	-	2		16
ECX-2071/2071F*	-	-	2	6	4	-	-		16

* ECX-2000F Series are Fan Sink Model for high TDP CPU (80W, 95W)

** ECX-2055 Series requires Internal Fan

CPU List

Series	CPU	GHz	TDP (W)	CPU	GHz	TDP (W)	ECC RAM
Intel® Xeon®	W-1290E	4.8	95	W-1290TE	4.5	35	Y
	W-1270E	4.8	80	W-1270TE	4.4	35	Y
	W-1250E	4.7	80	W-1250TE	3.8	35	Y
Intel® Core™	i9-10900E	4.7	65	i9-10900TE	4.5	35	N/A
	i7-10700E	4.5	65	i7-10700TE	4.4	35	N/A
	i5-10500E	4.2	65	i5-10500TE	3.7	35	N/A
	i3-10100E	3.8	65	i3-10100TE	3.6	35	Y

Optional Software

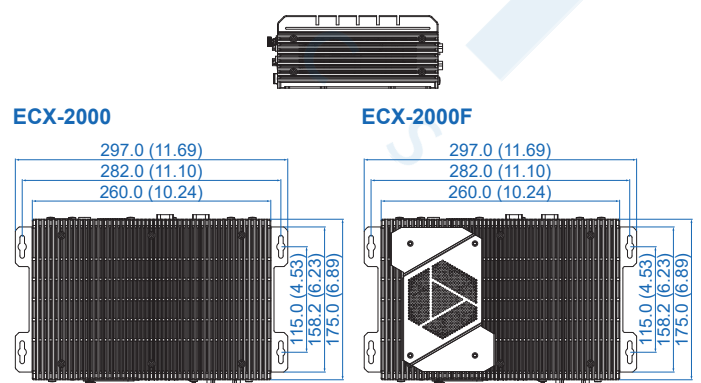
VHub AI Developer	AI Development Kit
VHub ROS	AMR Development Kit
VHub EtherCAT	I/O Control Platform

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-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/Key B PCIe 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)



ECX-2000

ECX-2000F