

# 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+
- SIM Sockets for 5G/WiFi/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 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

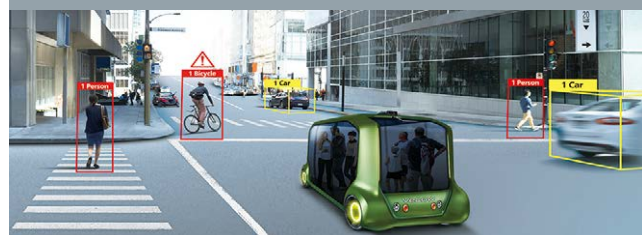
Factory Automation



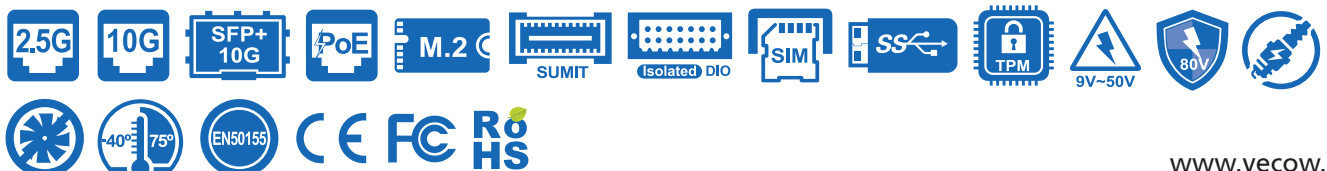
Intelligent Vending



Intelligent Transportation System (ITS)



AMR/AGV



# 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)
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 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/48V) 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)

## 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>80W &amp; 95W TDP CPU</b> : -40°C to 55°C (-40°F to 131°F), with Fan Sink
	<b>10G Series</b> : -40°C to 55°C (-40°F to 131°F), with 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	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 2933MHz RAM
DDR4 16G	Certified DDR4 16GB 2933MHz RAM
DDR4 8G	Certified DDR4 8GB 2933MHz RAM
DDR4 4G	Certified DDR4 4GB 2933MHz 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 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)

