

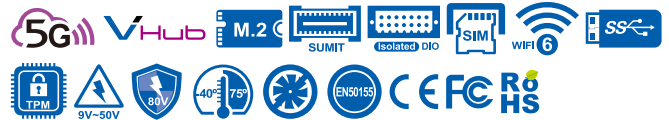
# ECX-2000-4G/2000F-4G

10th Gen Intel® Xeon®/Core™ i9/i7/i5/i3 (Comet Lake) Fanless Embedded System with optional Fan Sink, 4 GigE LAN, 2 SSD Bracket, 3 M.2 Socket, 16 GPIO, 9V to 50V DC, High Performance, Rugged, -40°C to 75°C Extended Temperature



## Features

- 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
- 4 Independent GigE LAN
- 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 Nano SIM Socket, 1 SD Card
- Supports Configurable Software Ignition Power Control and TPM 2.0



## Specifications

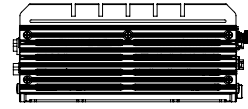
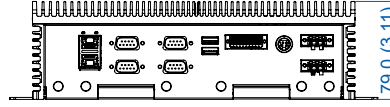
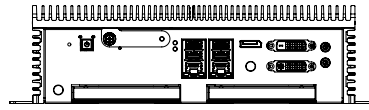
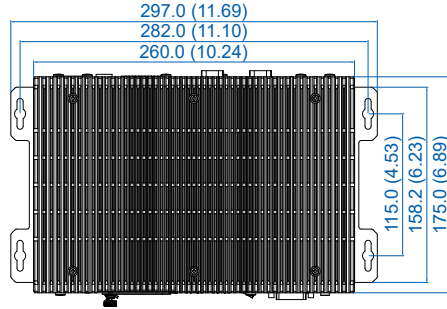
System	
Processor	Intel® 10th Generation Xeon®/Core™ i7/i5/i3 Processor (Comet Lake)
Chipset	Intel® W480E
BIOS	AMI
SIO	IT8786E
Memory	2 DDR4 2933MHz Memory, up to 64GB (ECC/Non-ECC)
I/O Interface	
Serial	4 COM RS-232/422/485 (ESD 8kV)
USB	<ul style="list-style-type: none"> <li>▪ 6 USB 3.2 (External)</li> <li>▪ 1 USB 2.0 (Internal)</li> </ul>
Isolated DIO	16 GPIO
LED	Power, HDD, 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	<ul style="list-style-type: none"> <li>▪ 1 M.2 Key B Socket (3042/3052)</li> <li>▪ 1 M.2 Key E Socket (2230, supports CNV1)</li> </ul>
SUMIT	2 SUMIT Slot (Optional)
Graphics	
Graphics Processor	Intel® UHD Graphics 630
Interface	<ul style="list-style-type: none"> <li>▪ DVI-I : Up to 1920 x 1080 @ 60Hz</li> <li>▪ DVI-D : Up to 1920 x 1080 @ 60Hz</li> <li>▪ DisplayPort : Up to 4096 x 2304 @ 60Hz</li> </ul>
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	<ul style="list-style-type: none"> <li>▪ 1 Micro SD Card, Push-in/Push-out Ejector</li> <li>▪ 2 2.5" SSD/HDD Bracket (Internal)</li> </ul>
Audio	
Audio Codec	Realtek ALC888S-VD, 7.1 Channel HD Audio
Audio Interface	1 Mic-in, 1 Line-out
Ethernet	
LAN 1	Intel® I219LM Gigabit LAN supports iAMT 14.0
LAN 2	Intel® I210 Gigabit LAN
LAN 3	Intel® I210 Gigabit LAN
LAN 4	Intel® I210 Gigabit LAN

Power	
Power Input	9V to 50V, DC-in
Power Interface	<ul style="list-style-type: none"> <li>▪ 3-pin Terminal Block : V+, V-, Frame Ground</li> <li>▪ Mini-DIN 4-pin</li> </ul>
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 Management	Wake on LAN, PXE supported
HW Monitor	Monitoring temperature, voltages. Auto throttling control when CPU overheats.
Software Support	
OS	Windows 10, Linux
Mechanical	
Dimensions (W x L x H)	260.0mm x 175.0mm x 79.0mm (10.24" x 6.89" x 3.11")
Weight	3.8 kg (8.38 lb)
Mounting	<ul style="list-style-type: none"> <li>▪ Wallmount by mounting bracket</li> <li>▪ DIN Rail Mount (Optional)</li> <li>▪ 2U Rackmount (Optional)</li> </ul>
Environment	
Operating Temperature	<b>35W TDP CPU</b> : -40°C to 75°C (-40°F to 167°F) <b>65W TDP CPU</b> : -40°C to 55°C (-40°F to 131°F), Fanless <b>80W, 95W TDP CPU</b> : -40°C to 55°C (-40°F to 131°F), with fan sink
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Humidity	5% to 95% Humidity, non-condensing
Relative Humidity	95% @ 75°C
Shock	<ul style="list-style-type: none"> <li>▪ IEC 60068-2-27</li> <li>▪ SSD : 50G @ wallmount, Half-sine, 11ms</li> </ul>
Vibration	<ul style="list-style-type: none"> <li>▪ IEC 60068-2-64</li> <li>▪ SSD : 5Grms, 5Hz to 500Hz, 3 Axis</li> </ul>
EMC	CE, FCC, EN 50155, EN 50121-3-2

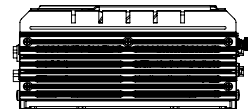
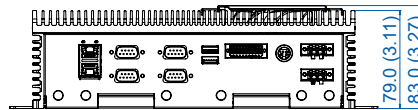
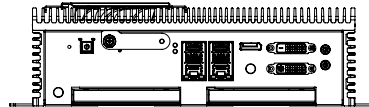
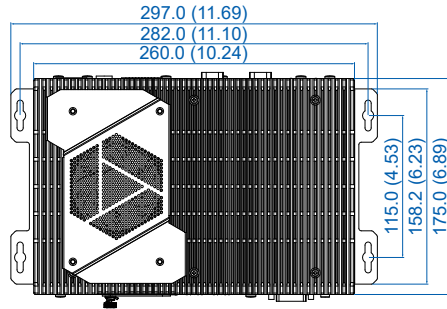
# Dimensions

Unit : mm/ inch

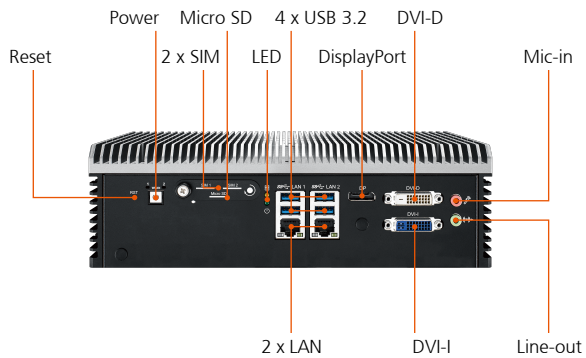
**ECX-2000-4G**



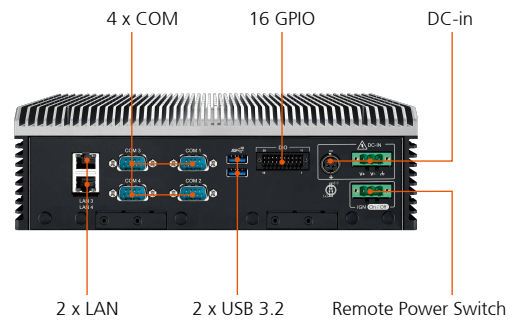
**ECX-2000F-4G**



## Front I/O



## Rear I/O



## Order Information

<b>ECX-2000-4G</b>	ECX-2000, 4 GigE LAN, 4 COM, 2 Nano SIM, 6 USB 3.2, 16 GPIO, Fanless
<b>ECX-2000F-4G</b>	ECX-2000, 4 GigE LAN, 4 COM, 2 Nano SIM, 6 USB 3.2, 16 GPIO, with Fan Sink

### Accessories

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

### Optional Software

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

### CPU List

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