

# ECX-1000-6F

9th Generation Intel® Xeon®/Core™ i7/i5/i3 (Coffee Lake Refresh) Fanless Embedded System with Intel® C246 Chipset, 6 GigE LAN with 2 SFP, 6 USB 3.1, 2 M.2 Socket, 16 GPIO, High Performance, Rugged, -40°C to 75°C Extended Temperature



## Features

- 8 Cores 9th Generation Intel® Xeon®/Core™ i7/i5/i3 Processor (Coffee Lake Refresh) with Intel® C246 Chipset
- Fanless, -40°C to 75°C Operating Temperature
- 6 Independent GigE LAN with 2 SFP
- SIM Sockets for WiFi/4G/3G/LTE/GPRS/UMTS
- 2 SIM Socket, 1 CFast Socket, 2 M.2 Socket
- 6 USB 3.1, 4 COM RS-232/422/485, 16 GPIO
- Expansion : M.2, up to 5 Mini PCIe
- 6V to 36V DC Power Input with 80V Surge Protection
- Configurable Ignition Power Control



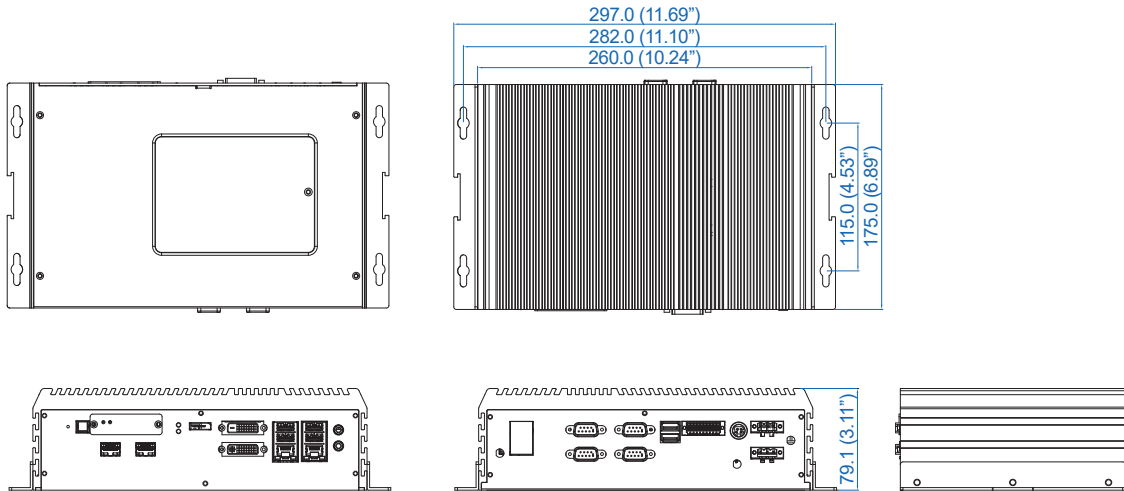
## Specifications

System	
Processor	Intel® Xeon®/Core™ i7/i5/i3 Processor (CFL-R S/CFL-S)
Chipset	Intel® C246
BIOS	AMI
SIO	IT8786E
Memory	2 DDR4 2666MHz SO-DIMM, 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 3.1 (6 External)</li> <li>▪ 1 USB 2.0 (Internal)</li> </ul>
Isolated DIO	16 GPIO
LED	Power, HDD, Wireless
SIM Card	2 External SIM Card Socket
Expansion	
Mini PCIe	2 Full-size Mini PCIe Socket for PCIe/USB/External SIM Card/ mSATA
M.2	1 M.2 Key E Socket
Graphics	
Graphics Processor	Intel® UHD Graphics 630
Interface	<ul style="list-style-type: none"> <li>▪ DVI-I : Up to 1920 x 1200 @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	2 SATA III (Mini PCIe Type, 6Gbps)
Storage Device	<ul style="list-style-type: none"> <li>▪ 1 CFast Socket, Push-in/Push-out Ejector</li> <li>▪ 2 2.5" SSD/HDD Bracket (Internal)</li> <li>▪ 1 M.2 Key M Socket</li> </ul>
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 12.0
LAN 2	Intel® I210 GigE LAN
LAN 3	Intel® I210 GigE LAN
LAN 4	Intel® I210 GigE LAN
SFP	
LAN 5	1000BASE SFP by Intel® I350
LAN 6	1000BASE SFP by Intel® I350

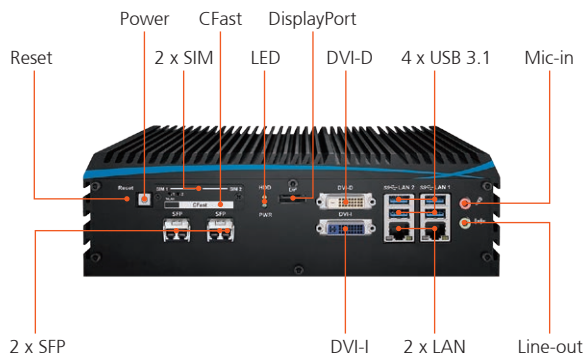
Power	
Power Input	6V to 36V, DC-in
Power Interface	3-pin Terminal Block : V+, V-, Frame Ground
Ignition Control	16 Mode (Internal)
Remote Switch	3-pin Terminal Block : On, Off, IGN
Surge Protection	Up to 80V/1ms Transient Power
Others	
TPM	Optional Infineon SLB9665 supports TPM 2.0, LPC Interface
Watchdog 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)	260mm x 175mm x 79mm (10.2" x 6.9" x 3.1")
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	35W TDP CPU : -40°C to 75°C (-40°F to 167°F) 65W TDP CPU : -40°C to 55°C (-40°F to 131°F) 80W TDP CPU : -40°C to 45°C (-40°F to 113°F)
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, EN50155, EN50121-3-2

## Dimensions

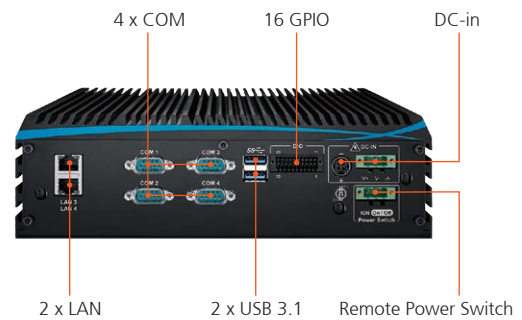
Unit : mm/ inch



## Front I/O



## Rear I/O



## Order Information

<b>ECX-1000-6F</b>	ECX-1000, 6 GigE LAN w/2 SFP, 4 COM, 2 SIM, 6 USB 3.1, 16 GPIO
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### Accessories

<b>DDR4 32G</b>	Certified DDR4 32GB 2666MHz RAM
<b>DDR4 16G</b>	Certified DDR4 16GB 2666MHz RAM
<b>DDR4 8G</b>	Certified DDR4 8GB 2666MHz RAM
<b>DDR4 4G</b>	Certified DDR4 4GB 2666MHz RAM
<b>PWA-120W</b>	120W, 24V, 90VAC to 264VAC Power Adapter with 3-pin Terminal Block
<b>PWA-160W-WT</b>	160W, 24V, 85V AC to 264V AC Power Adapter with 3-pin Terminal Block, Wide Temperature -30°C to +70°C
<b>PWA-280W-WT</b>	280W, 24V, 85V AC to 264V AC Power Adapter 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 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>4G Module</b>	Mini PCIe 4G/GPS Module with Antenna
<b>WiFi &amp; Bluetooth</b>	WiFi & Bluetooth Module with Antenna

### CPU List

Series	CPU	Cores	GHz	TDP (W)	ECC RAM
Intel® Xeon®	E-2176G	6	4.6	80	Yes
	E-2124G	4	4.5	71	
	E-2278GE	8	4.7	80	
	E-2278GEL	8	3.9	35	
	E-2226GE	6	4.6	80	
Intel® Core™	i7-8700	6	4.6	65	N/A
	i7-8700T	6	4	35	
	i7-9700E	8	4.4	65	
	i7-9700TE	8	3.8	35	
	i5-8500	6	4.1	65	
	i5-8500T	6	3.5	35	Yes
	i5-9500E	6	4.2	65	
	i5-9500TE	6	3.6	35	
	i3-8100	4	3.6	65	
	i3-8100T	4	3.1	35	
i3-9100E	4	3.7	65	Yes	
i3-9100TE	4	3.2	35		