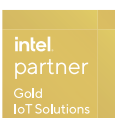


# ECX-1000 Series

# 10GigE

9th Generation Intel® Xeon®/Core™ i7/i5/i3 Processor  
Workstation-grade Fanless Embedded System

- 8 Cores 9th Generation Intel® Xeon®/Core™ i7/i5/i3 (Coffee Lake Refresh) with Workstation-grade Intel® C246 Chipset
- 2 DDR4 2666MHz Memory, up to 64GB (ECC/Non-ECC)
- Fanless, -40°C to 75°C Operating Temperature
- 9 Independent GigE LAN with 4 IEEE 802.3at PoE+
- SIM Sockets for WiFi/4G/3G/LTE/GPRS/UMTS
- 2 2.5" SSD Tray, 2 SIM Socket, 1 CFAST Socket, 2 M.2 Socket
- 6 USB 3.1, 4 COM RS-232/422/485, 16 Isolated DIO
- Expansion : SUMIT A, B, M.2, up to 5 Mini PCIe
- 6V to 36V DC Power Input with 80V Surge Protection
- Configurable Ignition Power Control
- Optional supports multiple 10GigE RJ45/10GigE SFP+/GigE SFP LAN Configuration



Robotic Control



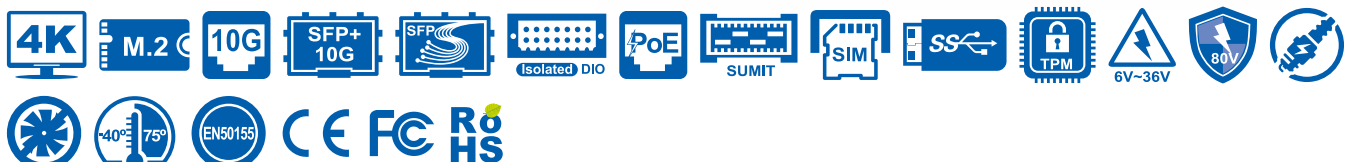
Vehicle Computing



Machine Vision



Intelligent Surveillance



# Specifications

## System

|           |                                                         |
|-----------|---------------------------------------------------------|
| Processor | 8 Cores Intel® Xeon®/Core™ i7/i5/i3 Processor (CFL-R S) |
| Chipset   | Intel® C246 Chipset                                     |
| BIOS      | AMI                                                     |
| SIO       | IT8786E                                                 |
| Memory    | 2 DDR4 2666MHz SO-DIMM, 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 3.1 (External)<br>- 1 USB 2.0 (Internal) |
| Isolated DIO | 16 Isolated DIO : 8 DI, 8 DO (Optional)          |
| LED          | Power, HDD, PoE, 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 (2230, PCIe x2/USB)                            |
| SUMIT A, B | 2 SUMIT Slot (Optional)                                           |

## Graphics

|                    |                                                                                                                   |
|--------------------|-------------------------------------------------------------------------------------------------------------------|
| Graphics Processor | Intel® UHD Graphics 630                                                                                           |
| Interface          | - DVI-I : Up to 1920 x 1200 @60Hz<br>- DVI-D : Up to 1920 x 1080 @60Hz<br>- DisplayPort : Up to 4096 x 2304 @60Hz |

## Storage

|                |                                                                                                                               |
|----------------|-------------------------------------------------------------------------------------------------------------------------------|
| SATA           | 2 SATA III (6Gbps) support 5W RAID 0, 1                                                                                       |
| mSATA          | 2 SATA III (Mini PCIe Type, 6Gbps)                                                                                            |
| Storage Device | - 1 CFast Socket, Push-in/Push-out Ejector<br>- 2 Front-access 2.5" SSD/HDD Tray<br>- 1 M.2 Key M Socket (2280, PCIe x4/SATA) |

## 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 supports iAMT 12.0 |
| LAN 2          | Intel® I210 GigE LAN                      |
| LAN 7 to LAN 9 | Intel® I210 GigE LAN                      |

## PoE

|                |                                                   |
|----------------|---------------------------------------------------|
| LAN 3 to LAN 6 | GigE IEEE 802.3at (25.5W/48V) PoE+ by Intel® I210 |
|----------------|---------------------------------------------------|

## SFP (ECX-1000-6FR/6F)

|               |                             |
|---------------|-----------------------------|
| LAN 5 & LAN 6 | 1000BASE SFP by Intel® I350 |
|---------------|-----------------------------|

## 10G Ethernet (ECX-1055R/1055/1071R/1071)

|               |                                                                                                 |
|---------------|-------------------------------------------------------------------------------------------------|
| LAN 7 & LAN 8 | - Intel® X550-AT2 10GigE LAN<br>- Intel® X710-BM2 10GigE LAN supports IEEE 802.3 10GBASE-T SFP+ |
|---------------|-------------------------------------------------------------------------------------------------|

## 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                        |
| 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 Mgmt.    | Wake on LAN, PXE supported                                                    |
| HW Monitor     | Monitoring temperature, voltages. Auto throttling control when CPU overheats. |

## Mechanical

|            |                                                                                             |
|------------|---------------------------------------------------------------------------------------------|
| Dimensions | 260mm x 175mm x 79mm (10.24" x 6.89" x 3.11")                                               |
| Weight     | 3.8 kg (8.38 lb)                                                                            |
| Mounting   | - Wallmount by mounting bracket<br>- DIN Rail Mount (Optional)<br>- 2U Rackmount (Optional) |

## Environment

|                   |                                                                                                                                                                                                                         |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Temp.   | <b>35W TDP CPU</b> : -40°C to 75°C (-40°F to 167°F)<br><b>65W TDP CPU</b> : -40°C to 55°C (-40°F to 131°F)<br><b>80W TDP CPU</b> : -40°C to 45°C (-40°F to 113°F)<br><b>10G Series</b> : -40°C to 55°C (-40°F to 131°F) |
| 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<br>- SSD : 50G @ wallmount, Half-sine, 11ms                                                                                                                                                            |
| Vibration         | - IEC 60068-2-64<br>- SSD : 5Grms, 5Hz to 500Hz, 3 Axis                                                                                                                                                                 |
| EMC               | CE, FCC, EN50155, EN50121-3-2                                                                                                                                                                                           |

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# Order Information

| Model Name    | GigE LAN | PoE+ | SFP | 10G RJ45 | 10G SFP+ | SSD Tray | USB 3.1 | Isolated DIO | GPIO | Fanless |
|---------------|----------|------|-----|----------|----------|----------|---------|--------------|------|---------|
| ECX-1000-9R   | 9        | 4    | -   | -        | -        | 2        | 6       | 16           | -    | Yes     |
| ECX-1000-9GD  | 9        | 4    | -   | -        | -        | -        |         |              |      |         |
| ECX-1000-PoER | 6        | 4    | -   | -        | -        | 2        |         |              |      |         |
| ECX-1000-PoE  | 6        | 4    | -   | -        | -        | -        |         |              |      |         |
| ECX-1000-6FR  | 6        | -    | 2   | -        | -        | 2        |         |              |      |         |
| ECX-1000-6F   | 6        | -    | 2   | -        | -        | -        |         |              |      |         |
| ECX-1000-4R   | 4        | -    | -   | -        | -        | 2        | 6       | -            | 16   | Yes     |
| ECX-1000-4G   | 4        | -    | -   | -        | -        | -        |         |              |      |         |
| ECX-1000-2R   | 2        | -    | -   | -        | -        | 2        |         |              |      |         |
| ECX-1000-2G   | 2        | -    | -   | -        | -        | -        |         |              |      |         |
| ECX-1055R     | 6        | 4    | -   | 2        | -        | 2        |         |              |      |         |
| ECX-1055      | 6        | 4    | -   | 2        | -        | -        |         |              |      |         |
| ECX-1071R     | 6        | 4    | -   | -        | 2        | 2        | 6       | 16           | -    | Yes     |
| ECX-1071      | 6        | 4    | -   | -        | 2        | -        |         |              |      |         |

## CPU List

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

## Accessories

|                  |                                                                                                       |
|------------------|-------------------------------------------------------------------------------------------------------|
| DDR4 32G         | Certified DDR4 32GB 2666MHz RAM                                                                       |
| DDR4 16G         | Certified DDR4 16GB 2666/2400/2133MHz RAM                                                             |
| DDR4 8G          | Certified DDR4 8GB 2666/2400/2133MHz RAM                                                              |
| DDR4 4G          | Certified DDR4 4GB 2666/2400/2133MHz RAM                                                              |
| PWA-120W1        | 120W, 24V, 90V AC to 264V AC Power Adapter with 3-pin Terminal Block                                  |
| PWA-120WM4P1     | 120W, 24V, 90V AC to 264V AC Power Adapter with 4-pin Mini-DIN Connector                              |
| PWA-160W-WT      | 160W, 24V, 85V AC to 264V AC Power Adapter with 3-pin Terminal Block, Wide Temperature -30°C to +70°C |
| PWA-180W         | 180W, 24V, 90V AC to 264V AC Power Adapter with 3-pin Terminal Block                                  |
| PWA-280W-WT      | 280W, 24V, 85V AC to 264V AC Power Adapter with 3-pin Terminal Block, Wide Temperature -30°C to +70°C |
| VESA Mount       | VESA Mounting Kit                                                                                     |
| DIN-RAIL Kit     | 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                         |
| 4G Module        | Mini PCIe 4G/GPS Module with Antenna                                                                  |
| WiFi & Bluetooth | WiFi & Bluetooth Module with Antenna                                                                  |

# Dimensions & Drawing

Unit : mm (inch)

