

DS-1301

10th Generation Intel® Xeon/Core™ Series Processors, High Performance, Expandable and Modular Rugged Embedded Computer with 1x PCI/PCIe Expansion Slot



High Performance, Highly Expandable

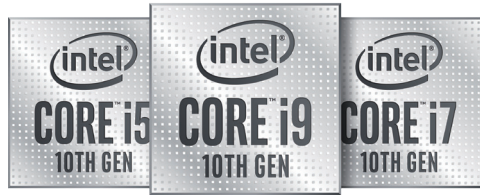


Overview

The DS-1301 is a powerful embedded computer and brings unrivalled performance. It has versatile functionalities and rich industrial I/O. And most importantly, it has one PCI/PCIe expansion capability. Equipped with Cincoze’s CMI, CFM, MEC modular expansion, customization for additional I/O or other functionality to fulfill different applications couldn’t be easier. The DS-1301 meets the requirements of industrial environments and is certified with industry standards. It delivers ultimate and reliable performance for factory automation, industrial automation and rolling stock applications.

- 10-core 10th-gen Intel® Xeon® and Core™ i9/i7/i5/i3 CPU (max 80 W TDP)
- 2x GbE LAN and optional 2x 10GbE LAN
- 2x 2.5" SATA storage, 3x mSATA sockets, 1x M.2 key M for NVMe SSD
- 1x PCI/PCIe expansion slot
- 3x full-size Mini PCIe sockets, 2x SIM card slots
- Optional CMI modules for I/O expansion
- Optional CFM modules for ignition sensing & PoE
- Wide operating temperature -40°C to 70°C
- MIL-STD-810G military standard and EN50155 (EN 50121-3-2 only)





10-CORE & 80W

Workstation Grade Processor Support!

**10-Core,
Up To 80 W CPU**

The DS-1300 series, powered by a workstation-grade 10th-gen Intel® Xeon® or Core™ i9/i7/i5/i3 CPU with up to 10-core architecture, provides superior processing performance. The DS-1300 supports Xeon® CPU up to 80 W TDP. It incorporates DDR4 2933/2666 MHz memory up to 64 GB, delivering unparalleled performance in a rugged, fanless system.

**More Powerful & Faster
Multiplies Productivity**

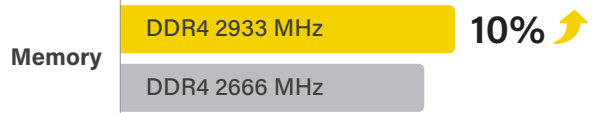
The DS-1300 series's 10th-gen CPU brings to 31% better integer multi-tasking for compute-intensive application performance than 9th-gen CPUs*. DDR4 2933 MHz memory further increases speed by 10%**.

* 31% increase for 10th-gen i9-10900E 65W vs 9th-gen i7-9700 65W CPU
** 10% increase for 2933 MHz of DS-1300 vs 2666 MHz of DS-1200.

multi-tasking compute-intensive application



Transfer rate

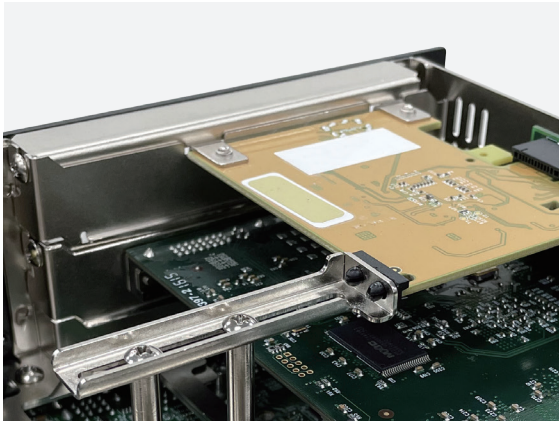


**Industrial I/O and
Modular Expansion**

The DS-1300 series offers a vast array of industrial-focused I/O including up to 2x GbE LAN, 6x USB 3.2, and 2x USB 2.0, 2x RS232/422/485, 2x 2.5" SATA, 3x mSATA, 1x M.2 key M for NVMe SSD, 2x SIM card slots, 3x full-size Mini-PCIe and triple independent displays (DisplayPort, HDMI, VGA). It also features modular expansion through Cincoze's CMI/CFM modules, adding additional I/O or other functionality such as high-speed 10GbE LAN, PoE, and ignition sensing.

PCI/PCIe Add-on Cards

DS-1301 can accommodate one PCI/PCIe add-on card up to 111 mm x 235 mm. Flexible PCI/PCIe expansion allows the addition of I/O, GPU, image capture, data acquisition, and motion control cards for specific applications.



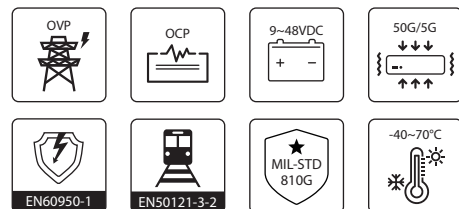
Adjustable PCIe Card Retainer

The PCI/PCIe expansion slot includes an adjustable card retainer that firmly secures the PCI/PCIe add-on card. The retainer is a cool feature that provides the extra protection needed to prevent add-on cards from shaking loose in high-vibration environments like rolling stock.

PATENT PENDING

Rugged Reliability Against Rigorous Environments

The DS-1300 series's fanless and cableless industrial-grade design can withstand rigorous environments. Its unique thermal design supports an extended operating temperature range from -40°C to 70°C. It has also passed stringent industry standards, including MIL-STD-810G military standard and EN50155 (EN 50121-3-2 only) for rolling stock environments.



Specifications

System

| | |
|-----------|--|
| Processor | <p>Intel® Xeon® Series Processor (80W / 35W):</p> <ul style="list-style-type: none"> • Intel® Xeon® W-1270E 8 Cores Up to 4.8 GHz, TDP 80W • Intel® Xeon® W-1250E 6 Cores Up to 4.7 GHz, TDP 80W • Intel® Xeon® W-1290TE 10 Cores Up to 4.5 GHz, TDP 35W • Intel® Xeon® W-1270TE 8 Cores Up to 4.4 GHz, TDP 35W • Intel® Xeon® W-1250TE 6 Cores Up to 3.8 GHz, TDP 35W <p>Intel® Core® Series Processor (65W / 35W):</p> <ul style="list-style-type: none"> • Intel® Core™ i9-10900E 10 Cores Up to 4.7 GHz, TDP 65W • Intel® Core™ i7-10700E 8 Cores Up to 4.5 GHz, TDP 65W • Intel® Core™ i5-10500E 6 Cores Up to 4.2 GHz, TDP 65W • Intel® Core™ i3-10100E 4 Cores Up to 3.8 GHz, TDP 65W • Intel® Core™ i9-10900TE 10 Cores Up to 4.5 GHz, TDP 35W • Intel® Core™ i7-10700TE 8 Cores Up to 4.5 GHz, TDP 35W • Intel® Core™ i5-10500TE 6 Cores Up to 3.7 GHz, TDP 35W • Intel® Core™ i3-10100TE 4 Cores Up to 3.6 GHz, TDP 35W <p>Intel® Pentium® Series Processor (58W / 35W):</p> <ul style="list-style-type: none"> • Intel® Pentium® G6400E 2 Cores Up to 3.8 GHz, TDP 58W • Intel® Pentium® G6400TE 2 Cores Up to 3.2 GHz, TDP 35W <p>Intel® Celeron® Series Processor (58W / 35W):</p> <ul style="list-style-type: none"> • Intel® Celeron® G5900E 2 Cores Up to 3.2 GHz, TDP 58W • Intel® Celeron® G5900TE 2 Cores Up to 3.0 GHz, TDP 35W |
| Chipset | <ul style="list-style-type: none"> • Intel® W480E Chipset |
| Memory | <ul style="list-style-type: none"> • 2x DDR4 SO-DIMM Socket, Support Up to 64GB (Un-buffered and non-ECC) • Xeon / i9 / i7 Processor Supports Up to 2933MHz • i5 / i3 Processor Supports Up to 2666 MHz • Pentium / Celeron Processor Supports Up to 2400MHz |
| BIOS | <ul style="list-style-type: none"> • AMI BIOS |

Graphics

| | |
|------------------------|--|
| Graphics Engine | <ul style="list-style-type: none"> • Integrated Intel® UHD-630 Graphics |
| Maximum Display Output | <ul style="list-style-type: none"> • Supports Triple Independent Display |
| HDMI | <ul style="list-style-type: none"> • 1 x HDMI Connector (4096 x 2160@30Hz) |
| DP | <ul style="list-style-type: none"> • 2 x DisplayPort Connector (4096 x 2340@60Hz) |
| VGA | <ul style="list-style-type: none"> • 1 x VGA Connector (1920 x 1200 @60Hz) |

Audio

| | |
|-------------|--|
| Audio Codec | <ul style="list-style-type: none"> • Realtek® ALC888, High Definition Audio |
| Line-out | <ul style="list-style-type: none"> • 1 x Line-out, Phone Jack 3.5mm |
| Mic-in | <ul style="list-style-type: none"> • 1 x Mic-in, Phone Jack 3.5mm |

I/O

| | |
|------|--|
| LAN | <ul style="list-style-type: none"> • 2 x GbE LAN, RJ45 - GbE1: Intel® I219 - GbE2: Intel® I210 |
| COM | <ul style="list-style-type: none"> • 2 x RS-232/422/485 with Auto Flow Control (Supports 5V / 12V), DB9 |
| USB | <ul style="list-style-type: none"> • 2 x 10Gbps USB 3.2 Gen2, Type A • 4 x 5Gbps USB 3.2 Gen1, Type A • 2 x 480Mbps USB 2.0, Type A |
| PS/2 | <ul style="list-style-type: none"> • 1 x PS/2, 6 Pin Mini-DIN Female Connector |

Storage

| | |
|---------|--|
| SSD/HDD | <ul style="list-style-type: none"> • 1x 2.5" Front Accessible SATA HDD/SSD Bay (SATA 3.0) • 1x 2.5" Internal SATA HDD/SSD Bay (SATA 3.0) |
| mSATA | <ul style="list-style-type: none"> • 3x mSATA Socket (SATA 3.0, shared by Mini-PCIe socket) |
| M.2 SSD | <ul style="list-style-type: none"> • 1x M.2 Key M Type 2280 Socket, Support PCIe x4 NVMe SSD or SATA SSD (SATA 3.0) |
| RAID | <ul style="list-style-type: none"> • Support RAID 0/1/5/10 |

Expansion

| | |
|---|---|
| PCI Express | <ul style="list-style-type: none"> • 1 x PCI/PCIe Expansion Slot with Optional Riser Card * Supports maximum dimensions of add-on card (H x L): 111.15 x 235 mm |
| Mini PCI Express | <ul style="list-style-type: none"> • 3 x Full-size Mini-PCIe Socket |
| SIM Socket | <ul style="list-style-type: none"> • 2 x SIM Socket |
| CMI (Combined Multiple I/O) Interface | <ul style="list-style-type: none"> • 2 x High Speed CMI Interface for optional CMI Module Expansion • 2 x Low Speed CMI Interface for optional CMI Module Expansion |
| CFM (Control Function Module) Interface | <ul style="list-style-type: none"> • 1 x CFM IGN Interface for optional CFM-IGN Module Expansion |

Other Function

| | |
|------------------------|--|
| External FAN Connector | <ul style="list-style-type: none"> • 1 x External FAN Connector, 4-pin Terminal Block (Support Smart Fan by BIOS) |
| Power Ignition Sensing | <ul style="list-style-type: none"> • Support Power Ignition Sensing Function with Delay Time Management and Selectable 12V/24V (With Optional CFM Module) |
| Clear CMOS Switch | <ul style="list-style-type: none"> • 1 x Clear CMOS Switch |
| Rest Button | <ul style="list-style-type: none"> • 1 x Rest Button |
| Instant Reboot | <ul style="list-style-type: none"> • Support 0.2sec Instant Reboot Technology |
| Watchdog Timer | <ul style="list-style-type: none"> • Software Programmable Supports 256 Levels System Reset |

Power

| | |
|---------------------|---|
| Power Button | <ul style="list-style-type: none"> • 1 x ATX Power On/Off Button |
| Power Mode Switch | <ul style="list-style-type: none"> • 1 x AT/ATX Mode Switch |
| Power Input | <ul style="list-style-type: none"> • 9 - 48VDC, 3-pin Terminal Block |
| Remote Power On/Off | <ul style="list-style-type: none"> • 1 x Remote Power On/Off, 2-pin Terminal Block |
| Remote Power LED | <ul style="list-style-type: none"> • 1 x Remote Power LED, 2-pin Terminal Block |
| Total Power Budget | <ul style="list-style-type: none"> • 180W |

Physical

| | |
|-------------------------|--|
| Dimension (W x D x H) | <ul style="list-style-type: none"> • 227 x 261 x 108 mm |
| Weight Information | <ul style="list-style-type: none"> • 5.04 KG |
| Mechanical Construction | <ul style="list-style-type: none"> • Extruded Aluminum with Heavy Duty Metal |
| Mounting | <ul style="list-style-type: none"> • Wall Mount |
| Physical Design | <ul style="list-style-type: none"> • Fanless Design • Cableless Design • Jumper-less Design • Unibody Design |

Reliability & Protection

| | |
|--------------------------------|--|
| Reverse Power Input Protection | <ul style="list-style-type: none"> • Yes |
| Over Voltage Protection | <ul style="list-style-type: none"> • Protection Range: 51~58V • Protection Type: shut down operating voltage, re-power on at the preset level to recover |
| Over Current Protection | <ul style="list-style-type: none"> • 15A |
| Surge Protection | <ul style="list-style-type: none"> • 3.84 kV (impedance 12 ohm 1.2/50us waveform) |
| CMOS Battery Backup | <ul style="list-style-type: none"> • SuperCap Integrated for CMOS Battery Maintenance-free Operation |
| MTBF | <ul style="list-style-type: none"> • 371,393 Hours - Database: Telcordia SR-332 Issue 3, Method 1, Case 3 |

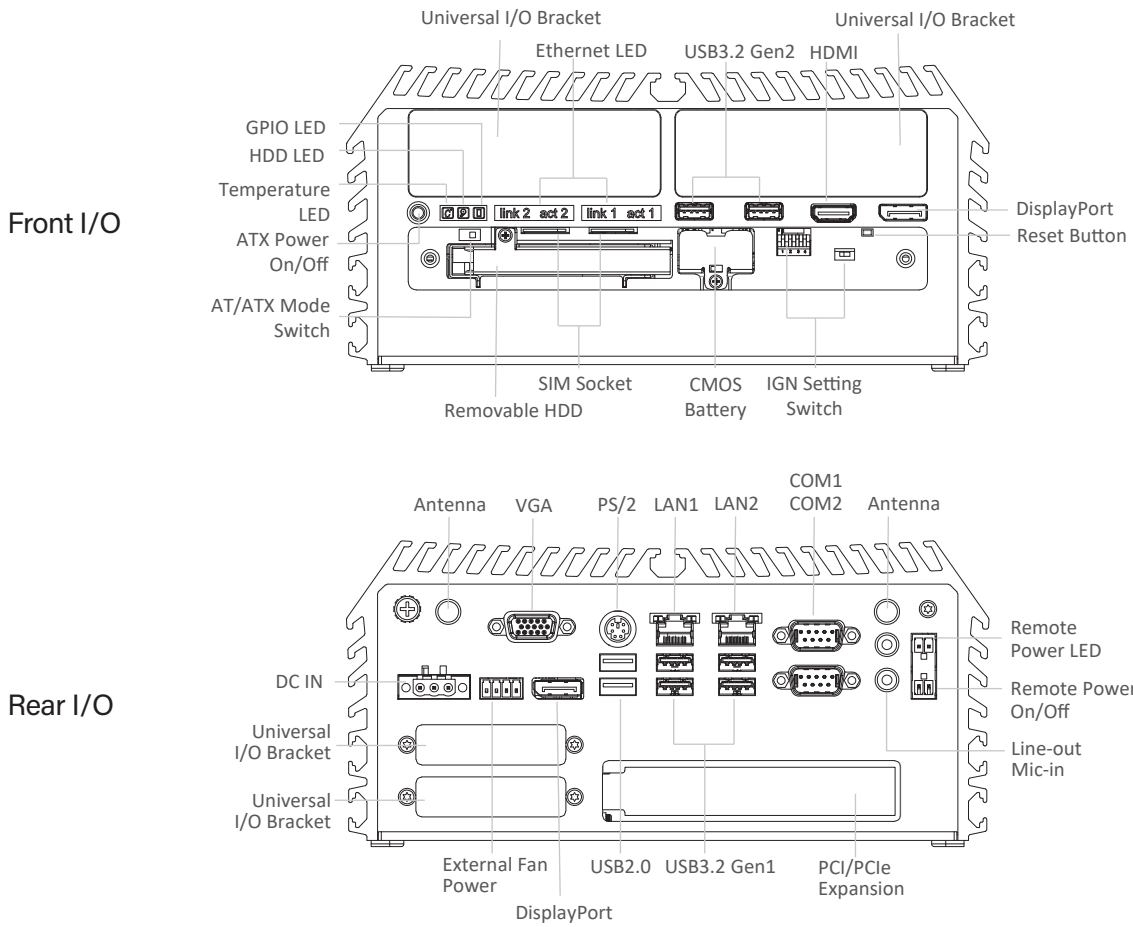
Operating System

| | |
|---------|---|
| Windows | <ul style="list-style-type: none"> • Windows® 10 |
| Linux | <ul style="list-style-type: none"> • Supports by project |

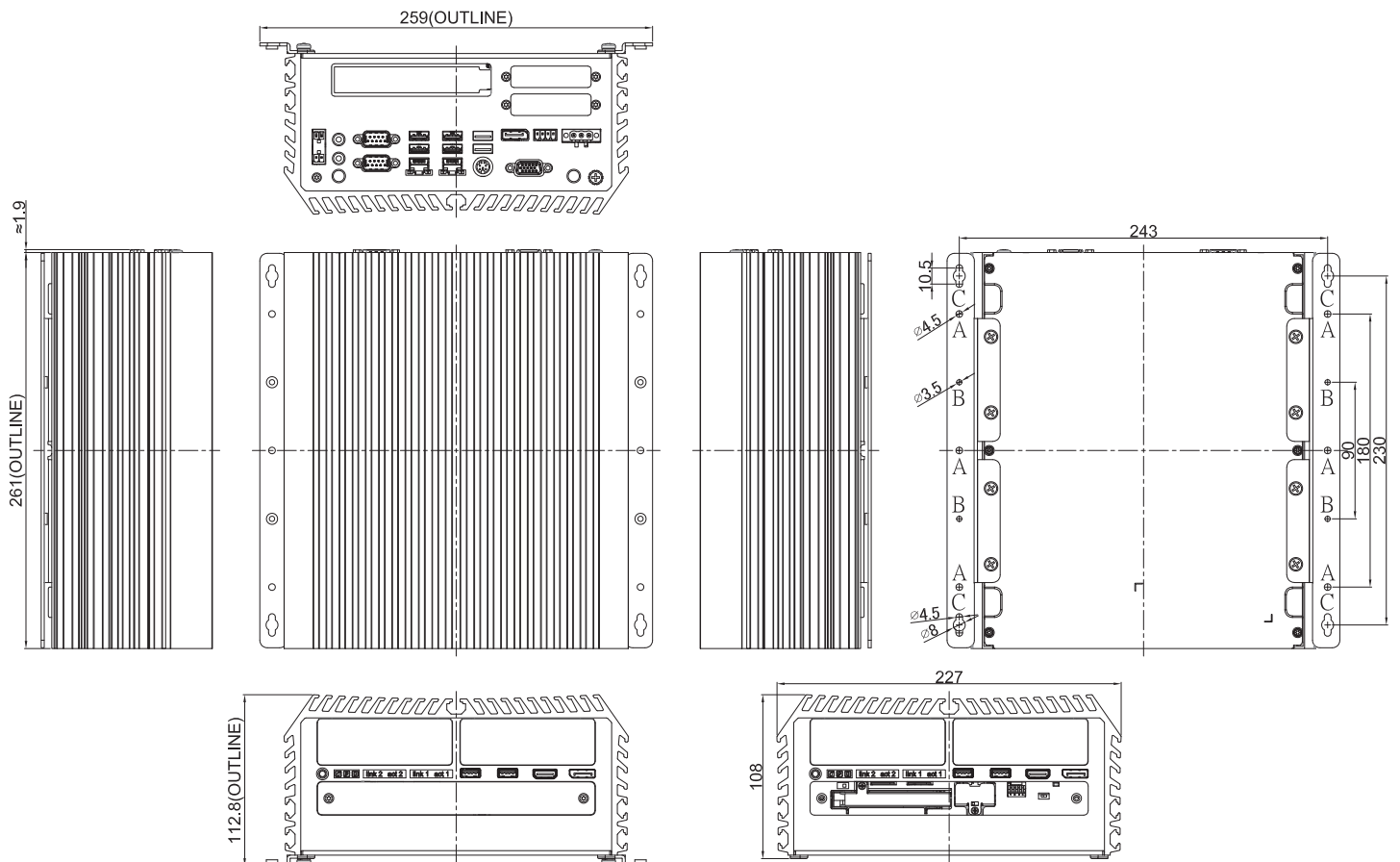
Environment

| | |
|-----------------------|--|
| Operating Temperature | <ul style="list-style-type: none"> • 35W TDP Processor: -40°C to 70°C • 58W – 65W TDP Processor: -40~50°C (With External Fan Kit) • 80W TDP Processor: -40~40°C (With External Fan Kit) <p>* PassMark BurnInTest: 100% CPU, 2D/3D Graphics (without thermal throttling) * With extended temperature peripherals; Ambient with air flow * According to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14</p> |
| Storage Temperature | <ul style="list-style-type: none"> • -40°C to 85°C |
| Relative Humidity | <ul style="list-style-type: none"> • 95%RH @ 70°C (non-Condensing) |
| Shock | <ul style="list-style-type: none"> • MIL-STD-810G |
| Vibration | <ul style="list-style-type: none"> • MIL-STD-810G |
| EMC | <ul style="list-style-type: none"> • CE, FCC, ICES-003 Class A, EN50121-3-2 (Railway) |
| Safety | <ul style="list-style-type: none"> • IEC/EN 62368-1 |

External Layout



Dimensions



Unit: mm

Ordering Information

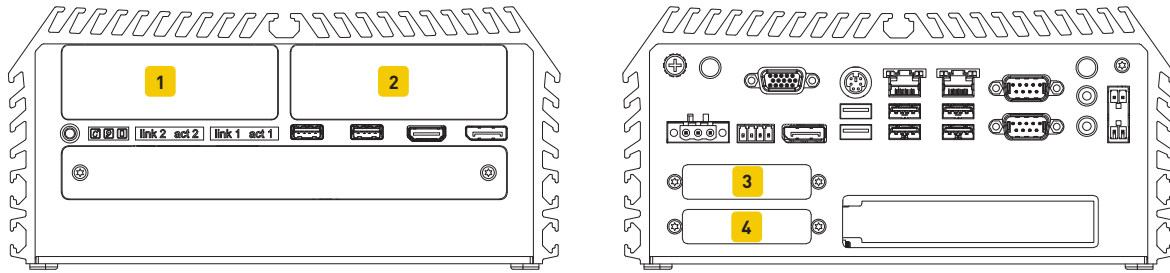
Available Models







| Model No. | Description |
|-----------|--|
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Package Checklist

| | |
|--|-------------------------------------|
| • DS-1301 Embedded System x1 | • Heatsink Pack x1 |
| • Utility DVD Driver x1 | • Screw Pack x1 |
| • Wall Mount Kit x1 | • Power Terminal Block Connector x1 |
| • Remote Function Terminal Block Connector x 2 | • Fan Terminal Block Connector x 1 |

Optional I/O Modules



| Model No. | Description | 1 | 2 | 3 | 4 |
|---|--|---|----|----|----|
| CMI-LAN01-R12/ UB1012  | CMI Module with 4x Intel I210 GbE LAN, RJ45 Port / 1x Universal Bracket with 4x RJ45 Cutout | V | V | -- | -- |
| CMI-M12LAN01-R12/ UB1010  | CMI Module with M12 Connector, 4x Intel GbE LAN / 1x Universal Bracket with 4x M12 Cutout | V | V | -- | -- |
| CMI-10GLAN03-R10/UB1028  | CMI Module with 2x Intel X550 10GbE LAN, RJ45 Port / 1x Universal Bracket with 2x RJ45 Cutout | V | -- | -- | -- |
| CMI-COM02/UB1004  | CMI Module with 4x RS232/422/485 Ports (Support 5V/12V) / 1x Universal Bracket with 4x DB9 Cutout | V | V | -- | -- |
| CMI-ICOM01/UB1004  | CMI Module with 4x Isolated RS232 Ports (Support 5V/12V) / 1x Universal Bracket with 4x DB9 Cutout | V | V | -- | -- |
| CMI-DIO02/UB1018  | CMI Module with 16DIO (8in 8out) / 1x Universal Bracket with DIO Cutout | V | V | -- | -- |

| Model No. | Description | 1 | 2 | 3 | 4 |
|---|---|----|----|---|---|
| MEC-COM-M212-DB9 /UB0303  | Mini-PCle Module with 2x RS-232 Ports, 1x Standard DB9 Cable / 2x Universal Bracket each with 1x DB9 Cutout | -- | -- | V | V |
| MEC-USB-M102-15 /UB0314  | Mini-PCle Module with 2x USB 3.0 Ports, 1x 15cm cable / 1x Universal Bracket with 2x USB Cutout | -- | -- | V | V |
| MEC-LAN-M002-30 /UB0311  | Mini-PCle Module with 2x LAN Ports, 2x 30cm cable / 1x Universal Bracket with 2x RJ45 Cutout | -- | -- | V | V |

Remark:

Maximum one CMI-COM02 or CMI-ICOM01 module can be installed in this system.

V : Compatible

Optional Function Modules

| Model No. | Description |
|------------|---|
| CFM-PoE03 | CFM Module with PoE Function, Individual Port 25.5W |
| CFM-IGN101 | CFM Module with Power Ignition Sensing Function, 12V/24V Selectable |

Optional Riser Cards

| Model No. | Description |
|-----------|------------------------------------|
| RC-E16-01 | Riser Card with 1 x PCIe x 16 Slot |
| RC-PI-01 | Riser Card with 1 x PCI Slot |

Optional Accessories

| Model No. | Description |
|---------------|--|
| FAN-EX101 | External Fan with 4pin Terminal Block Plug and Mounting Bracket, Support Smart Fan |
| GST120A24-CIN | Adapter AC/DC 24V 5A 120W with 3pin Terminal Block Plug and Tubes, Level VI |
| GST220A24-CIN | Adapter AC/DC 24V 9.2A 220W with 3pin Terminal Block Plug and Tubes, Level VI |