

DS-1200 Series

9/8th Generation Intel® Core™ Series Processors, High Performance, Expandable and Modular Rugged Embedded Computer and PCIe Expandable Rugged Embedded Computer, Supports up to 2x PCI/PCIe Expansion Slot



Overview

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DS-1200 Series is a high performance fanless embedded computer, powered by 9/8th Generation Intel® Core™ processor (Coffee Lake) with up to 8 cores and 64GB DDR4 memory capacity for unprecedented performance to fulfill all kinds of high-end computing requirements. The system also incorporates rich I/O, such as 2x Intel® GbE ports, 2x USB 3.1 (Gen2), 4x USB 3.0, 1x DVI-I, 2x DisplayPort, and 1x M.2 Key M 2280 socket for ultra-fast data transfer speed. Based on Cincoze' innovative CMI & CFM Technology, it allows users to expand I/O and functionalities through ready-to-use modules, such as GbE/PoE ports, serial ports, optical isolated digital I/O and power ignition function. Furthermore, DS-1200 Series is available with two PCI(e) expansion slots to accommodate versatile add-on cards. Designed to operate under harsh conditions, DS-1202 has passed rigorous testing like EN50121-3-2 and EN60950-1 to fulfill industrial applications such as rolling stock. Besides, DS-1202 features with wide operating temperature (-40°C to 70°C), wide range DC power input (from 9V to 48V), high tolerance of shock/vibration (5G/50G), and industrial-grade protections (OVP, OCP, ESD Surge, ...etc).

Key Features

- Supports 9/8th Generation Intel® Core™ / Pentium® / Celeron® Octa Cores 35W/65W LGA 1151 Processors
- 2x DDR4 SO-DIMM Socket, Supports Up to 2666MHz, 64GB
- Triple Independent Displays: 1x DVI-I and 2x DP (4K Resolution)
- 1x M.2 2280 M Key Socket, Auto-detection for PCIe4 NVMe SSD or SATA Gen3 SSD
- 2x Front Accessible SIM Card Slots for Signal Redundancy
- Up to 2x PCI/PCIe expansion slots
- 4x CMI Slots for Modular I/O Expansions
- 1x CFM Slot for Power Ignition Sensing Function
- Wide Operating Temperature (-40°C to 70°C)
- EN50121-3-2 Certified / LVD EN62368-1

Certifications



High Performance

The new 9/8th Generation Intel® Core™ processor (Coffee Lake) offers for the first time up to 8 cores, 16 threads and 1.4 times computing performance improvement comparing to the previous generation (Kaby Lake).



Fully Modular and Expandable

Featuring Mini-PCIe slots, CMI (Combined Multiple I/O), CFM (Control Function Module), and versatile ready-to-use modules, DS-1200 Series provides great flexibility to configure the system according to your need.

Wide Temperature

DS-1200 Series is designed for continuous operation in wide temperature range from -40°C to 70°C. In addition, it also features with anti-shock/vibration and ESD/surge protection for tough industrial environments.



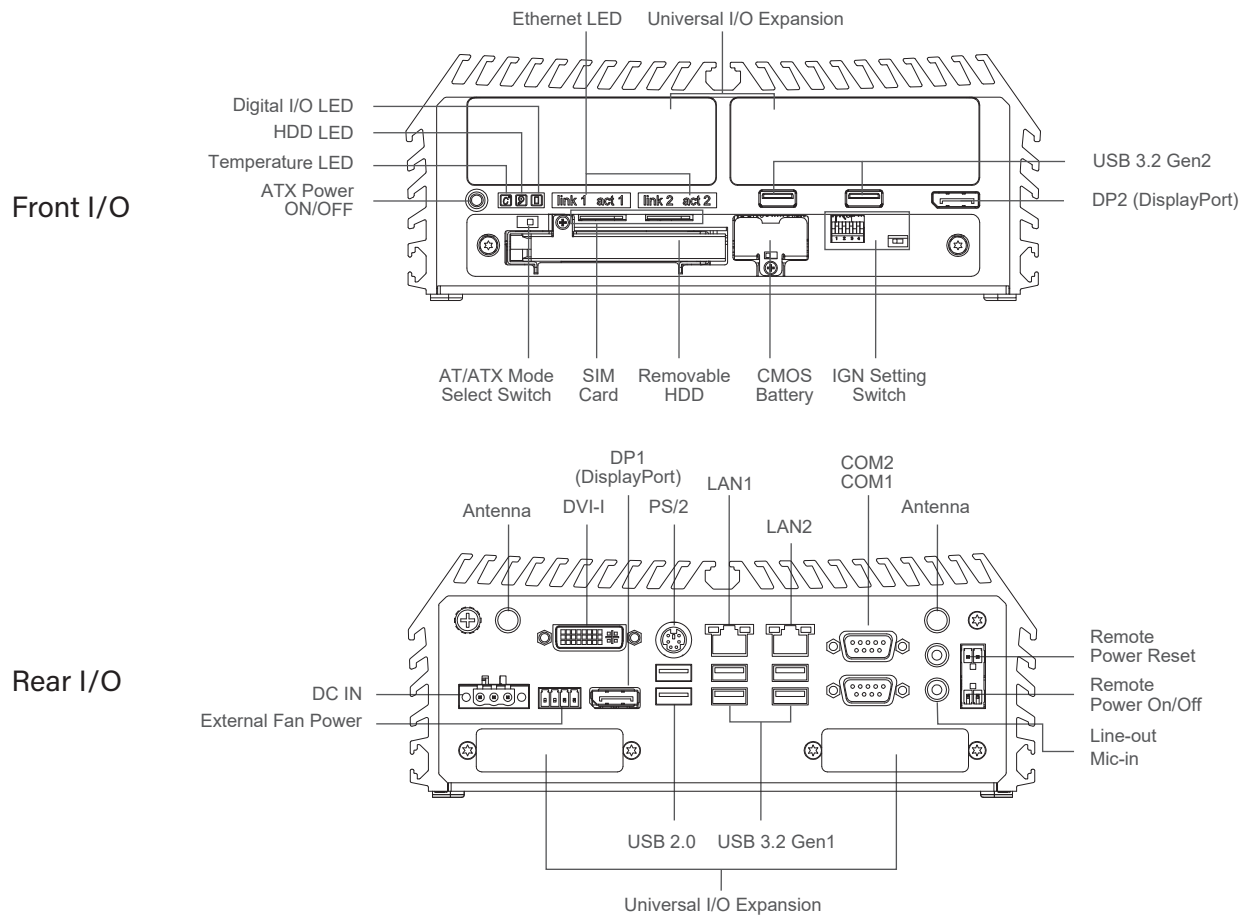
Specifications

Model Name	DS-1200	DS-1201	DS-1202
System			
Processor	9th Generation Intel® Coffee Lake-R S Series CPU: - Intel® Core™ i7-9700E 8 Cores Up to 4.4 GHz, TDP 65W - Intel® Core™ i5-9500E 6 Cores Up to 4.2 GHz, TDP 65W - Intel® Core™ i3-9100E 4 Cores Up to 3.7 GHz, TDP 65W - Intel® Core™ i7-9700TE 8 Cores Up to 3.8 GHz, TDP 35W - Intel® Core™ i5-9500TE 6 Cores Up to 3.6 GHz, TDP 35W - Intel® Core™ i3-9100TE 4 Cores Up to 3.2 GHz, TDP 35W 8th Generation Intel® Coffee Lake S Series CPU: - Intel® Core™ i7-8700 6 Cores Up to 4.6 GHz - 12M Cache, TDP 65W - Intel® Core™ i5-8500 6 Cores Up to 4.1 GHz - 9M Cache, TDP 65W - Intel® Core™ i3-8100 4 Cores 3.6 GHz - 6M Cache, TDP 65W - Intel® Core™ i7-8700T 6 Cores Up to 4.0 GHz - 12M Cache, TDP 35W - Intel® Core™ i5-8500T 6 Cores Up to 3.5 GHz - 9M Cache, TDP 35W - Intel® Core™ i3-8100T 4 Cores 3.1 GHz - 6M Cache, TDP 35W - Intel® Pentium® G5400 2 Cores 3.7 GHz - 4M Cache, TDP 58W - Intel® Pentium® G5400T 2 Cores 3.1 GHz - 4M Cache, TDP 35W - Intel® Celeron® G4900 2 Cores 3.1 GHz - 2M Cache, TDP 54W - Intel® Celeron® G4900T 2 Cores 2.9 GHz - 2M Cache, TDP 35W		
Chipset	Intel® Q370		
BIOS	AMI 32MB SPI BIOS		
Memory	2x DDR4 2400/2666 MHz SO-DIMM Sockets - Supports Un-buffered and Non-ECC Type Up to 64 GB		
Graphics			
Graphics Engine	- Integrated Intel® UHD Graphics 630: Core™ i7/i5/i3 - Integrated Intel® UHD Graphics 610: Pentium® /Celeron® - Supports Triple Independent Display (1x DVI-I, 2x DisplayPort)		
Audio			
Audio Codec	- Realtek® ALC888 - High Definition Audio		
I/O			
Connector	1x DVI-I (DVI-D: 1920 x 1200 @60Hz / VGA: 1920 x 1080 @60Hz)		
DisplayPort	2x DisplayPort Connector (4096 x 2304 @ 60Hz, According to CPU Specifications) * Verified maximum resolution: 3840x2160.		
LAN	2x GbE LAN (Supports WoL, Teaming, Jumbo Frame & PXE), RJ45 - GbE1: Intel® I210 - GbE2: Intel® I219-LM		
COM	2x RS-232/422/485 with Auto Flow Control (Supports 5V/12V), DB9		
USB	2x USB 3.2 Gen2 (TypeA) 4x USB 3.2 Gen1 (TypeA) 2x USB 2.0 (Type A)		
mini-DIN	1x PS/2, 6-pin mini-DIN Female Connector		
Mic-in	1x Line-out & 1x Mic-in, Phone Jack 3.5mm		
Power On/Off Switch Button	1x ATX Power On/Off Switch		
Mode Switch	1x AT/ATX Mode Switch		
CMOS Switch	1x Clear CMOS Switch		
Remote Power On/Off Connector	1x Remote Power On/Off Connector, 2-Pin Terminal Block		

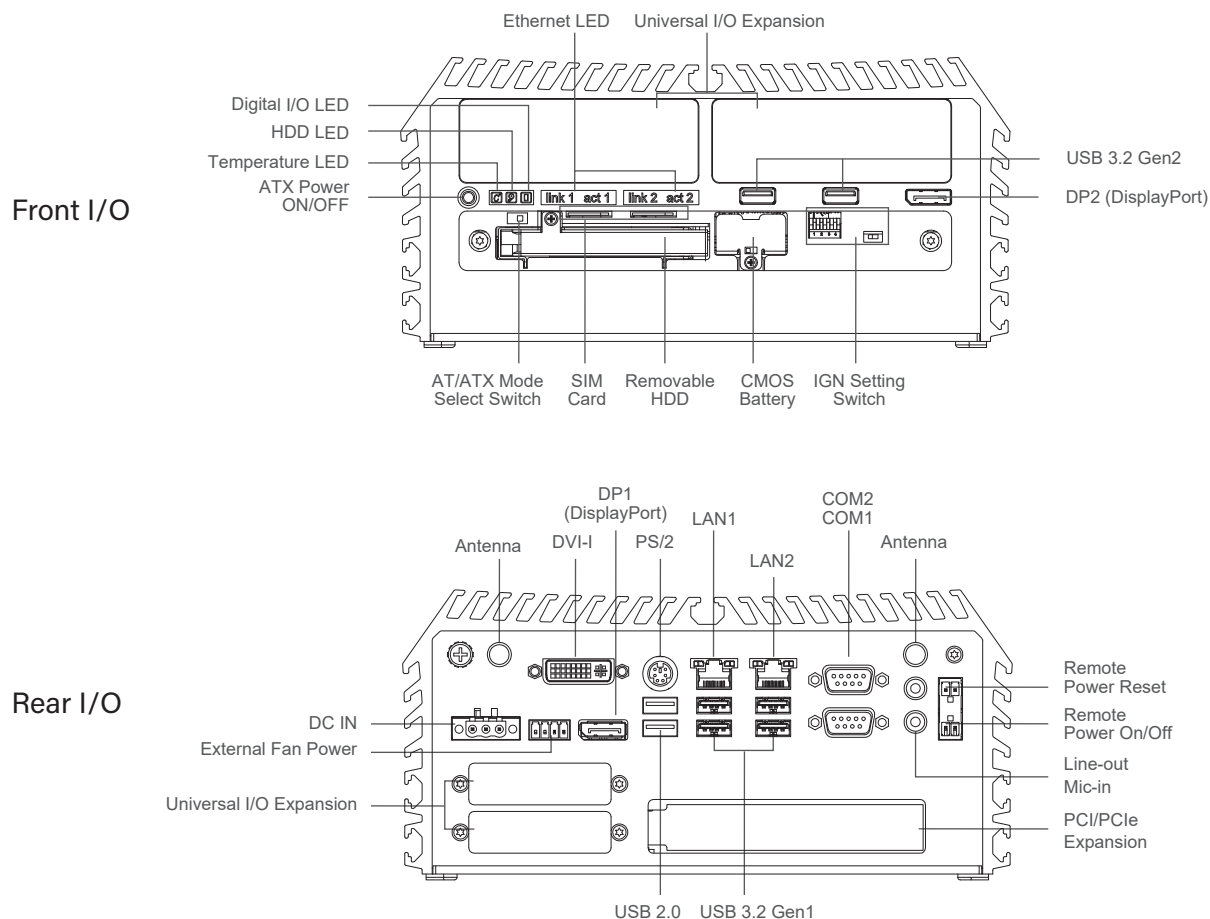
Terminal Block	▪ 1x Remote Reset Connector, 2-pin Terminal Block ▪ 1x External Fan Connector, 4-Pin Terminal Block (Supports smart fan function)		
Storage			
SSD / HDD	▪ 2x 2.5" SATA HDD/SSD bay (Gen3), 1x Internal, 1x Front Accessable Supports RAID 0/1		
mSATA	▪ 3x mSATA (shared by Mini-PCle socket) (Gen3), BIOS Selectable		
M.2	▪ 1x M.2 Key M 2280 Socket, Supports PCIe x4 NVMe SSD or SATA SSD (Gen3)		
Expansion			
Mini PCIe	▪ 3x Full-size Mini-PCle Socket		
SIM Socket	▪ 2x SIM Socket		
CFM (Control Function Module) Interface	▪ 1x CFM (Control Function Module) Interface		
CMI (Combined Multiple I/O) Interface	▪ 2x CMI (Combined Multiple I/O) High Speed Interface ▪ 2x CMI (Combined Multiple I/O) Low Speed Interface		
Antenna	▪ 2x Antenna Hole		
PCI/PCle Expansion		▪ 1x PCI/PCle Expansion slot (with Optional Riser Card) * Supports maximum dimensions of add-on card (H x L) : 111 x 235 mm	▪ 2x PCI/PCle Expansion slot (with Optional Riser Card) * Supports maximum dimensions of add-on card (H x L) : 111 x 235 mm
Other Function			
Instant Reboot	▪ Support Instant Reboot Technology (0.2 sec)		
CMOS	▪ SuperCap Integrated for CMOS Battery Maintenance-free Operation		
WatchDog Timer	▪ Software Programmable Supports 256 Levels System Reset		
Power Requirement			
Power Type	▪ AT / ATX		
Power Supply Voltage	▪ 9~48VDC		
Terminal	▪ 1x 3-Pin Terminal Block		
Power Adapter	▪ Power Adapter AC/DC 24V/5A 120W or 24V/9.2A 220W (Optional)		
Physical			
Dimension (W x D x H)	▪ 227 x 261 x 88 mm	▪ 227 x 261 x 108 mm	▪ 227 x 261 x 128 mm
Weight	▪ 4.3 kg	▪ 4.92 kg	▪ 5.14 kg
Construction	▪ Extruded Aluminum with Heavy Duty Metal		
Mounting	▪ Wall Mounting		
Physical Design	▪ Unibody Design ▪ Fanless Design ▪ Jumper-less Design		
Protection			
Reverse Power Input Protection	▪ Yes		
Over Voltage Protection	▪ Protection Range: 51~58V ▪ Protection Type: shut down operating voltage, re-power on at the preset level to recover		
Over Current Protection	▪ 15A		
Operating System			
Windows	▪ Windows® 10		

Linux	• Supports by project
Environment	
Operating Temperature	• 35W TDP Processor: -40°C to 70°C • 51~65W TDP Processor: -40°C to 45°C * 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
Storage Temperature	• -40°C to 85°C
Relative Humidity	• 95%RH @ 70°C (non-Condensing)
Shock	• Operating, 50 Grms, Half-sine 11 ms Duration * w/ SSD, according to IEC60068-2-27
Vibration	• Operating, 5 Grms, 5-500 Hz, 3 Axes * w/ SSD, according to IEC60068-2-64
MTBF	• 396,565 Hours
EMC	• CE, UKCA, FCC, ICES-003 Class A • EN 50155 (EN 50121-3-2 Only)
EMI	• CISPR 32 Conducted & Radiated: Class A • EN/BS EN 50121-3-2 Conducted & Radiated: Class A • EN/BS EN IEC 61000-3-2 Harmonic current emissions: Class A • EN/BS EN61000-3-3 Voltage fluctuations & flicker • FCC 47 CFR Part 15B, ICES-003 Conducted & Radiated: Class A
EMS	• EN/IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV • EN/IEC 61000-4-3 RS: 80 MHz to 1000 MHz: 20 V/m • EN/IEC 61000-4-4 EFT: AC Power: 2 kV; Signal: 2 kV • EN/IEC 61000-4-5 Surges: AC Power: 2 kV • EN/IEC 61000-4-6 CS: 10V • EN/IEC 61000-4-8 PFMF: 50 Hz, 1A/m • EN/IEC 61000-4-11 Voltage Dips & Voltage Interruptions: 0.5 cycles at 50 Hz
Safety	• LVD IEC/EN 62368-1

DS-1200 External Layout

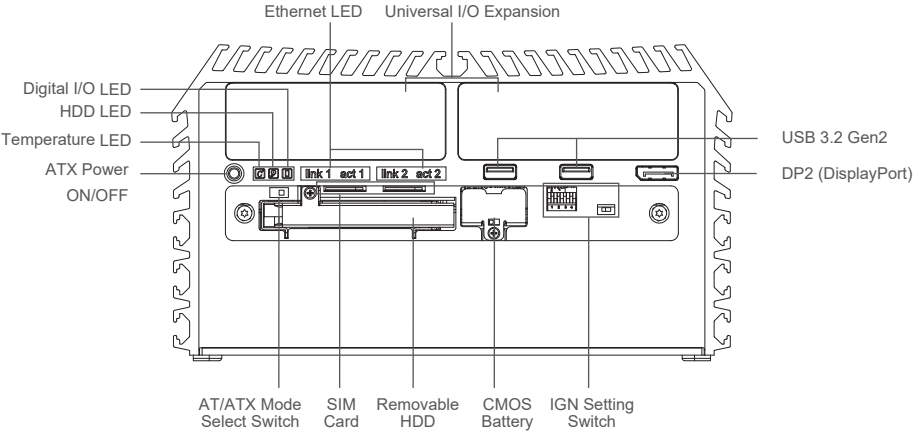


DS-1201 External Layout

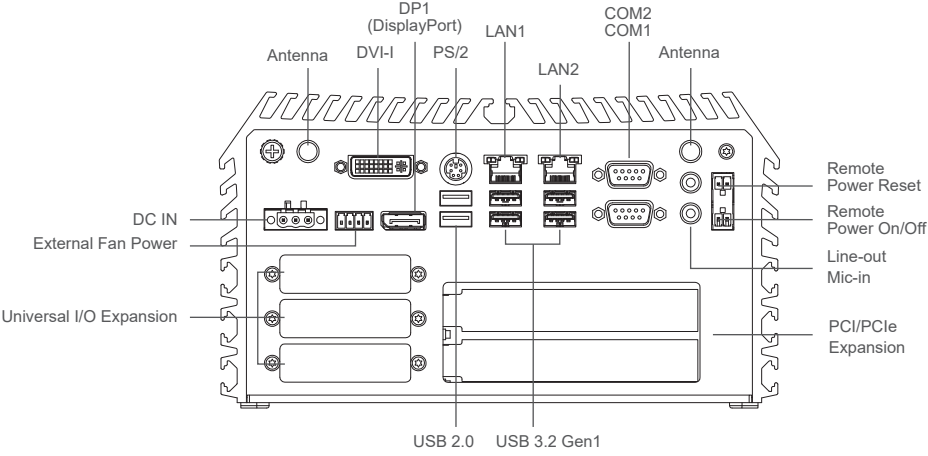


DS-1202 External Layout

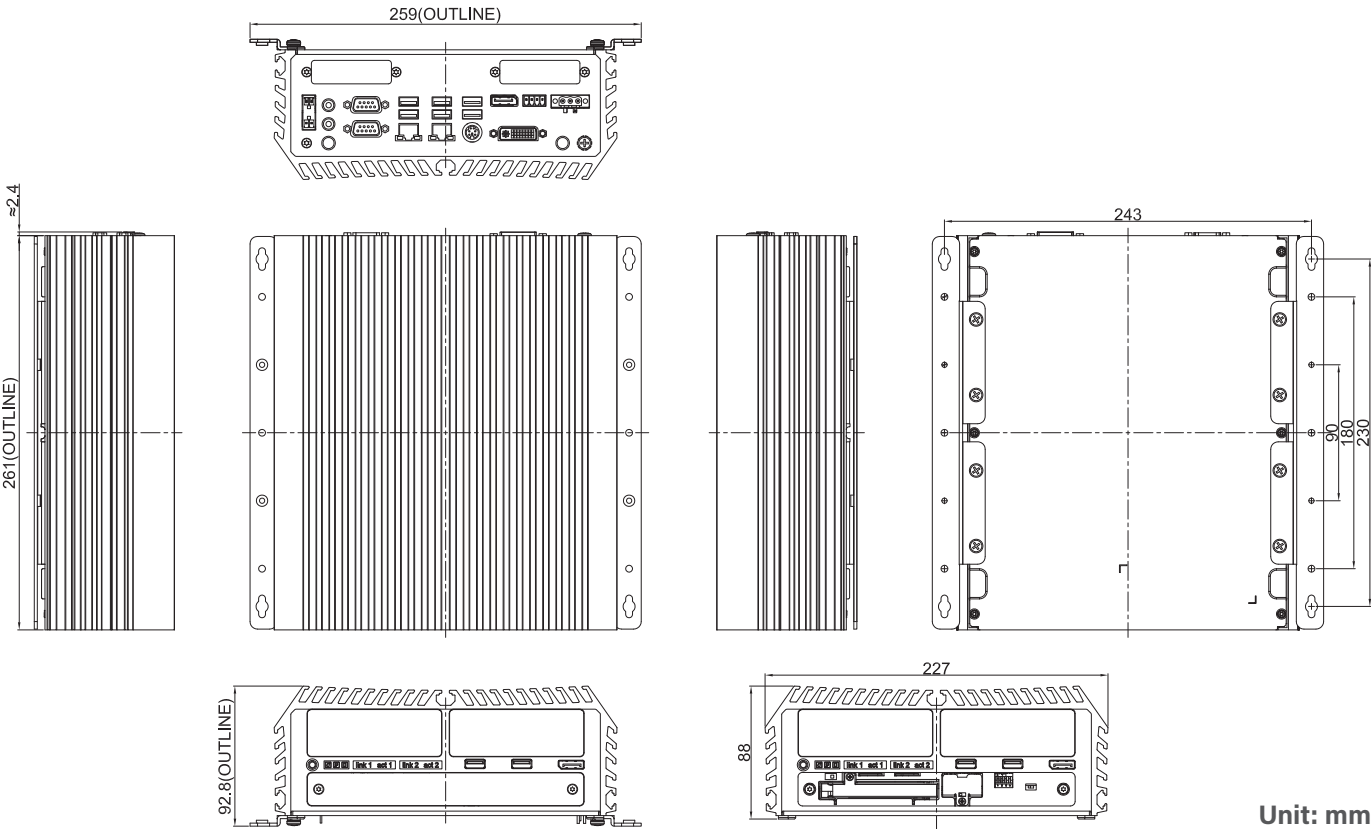
Front I/O



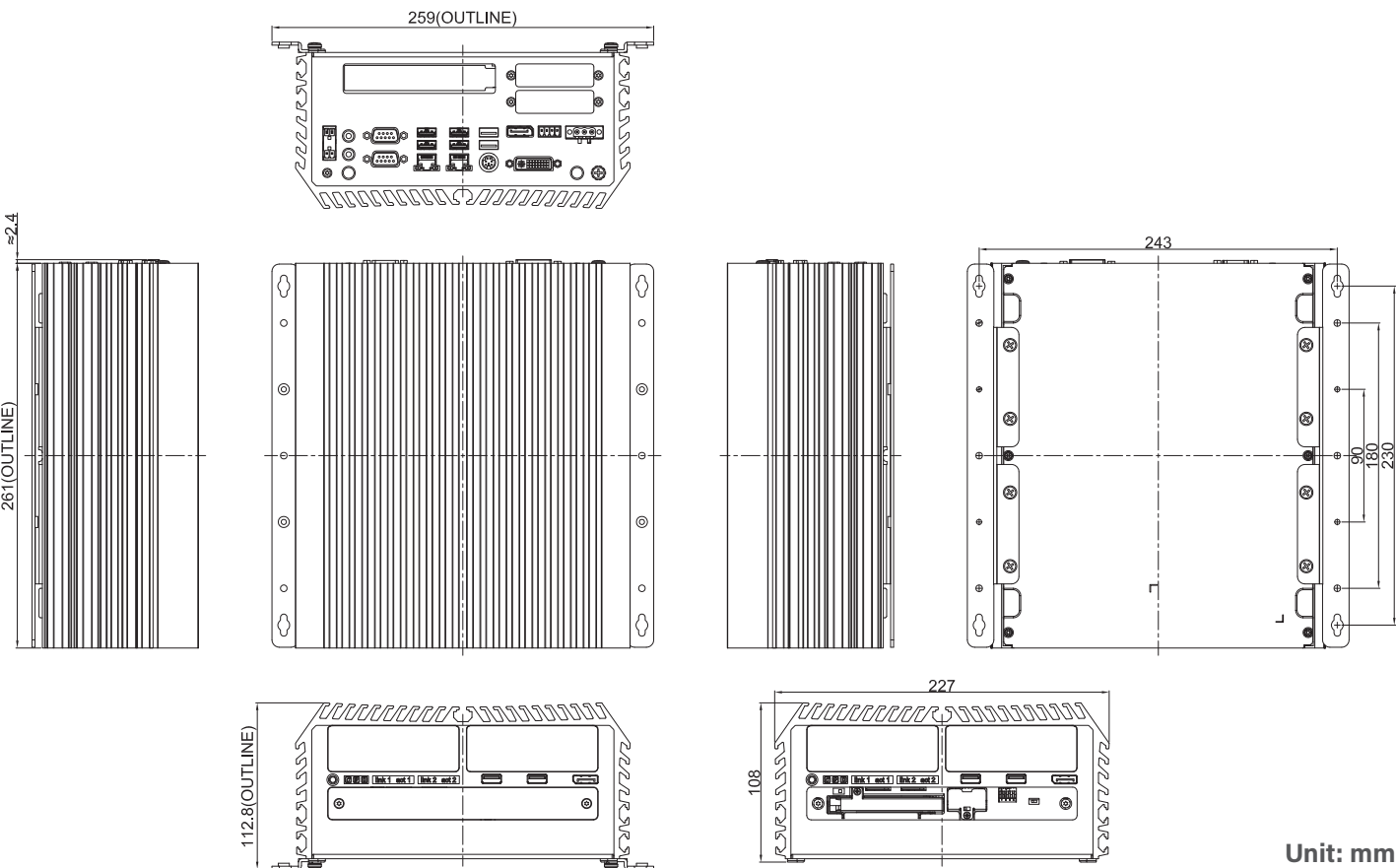
Rear I/O



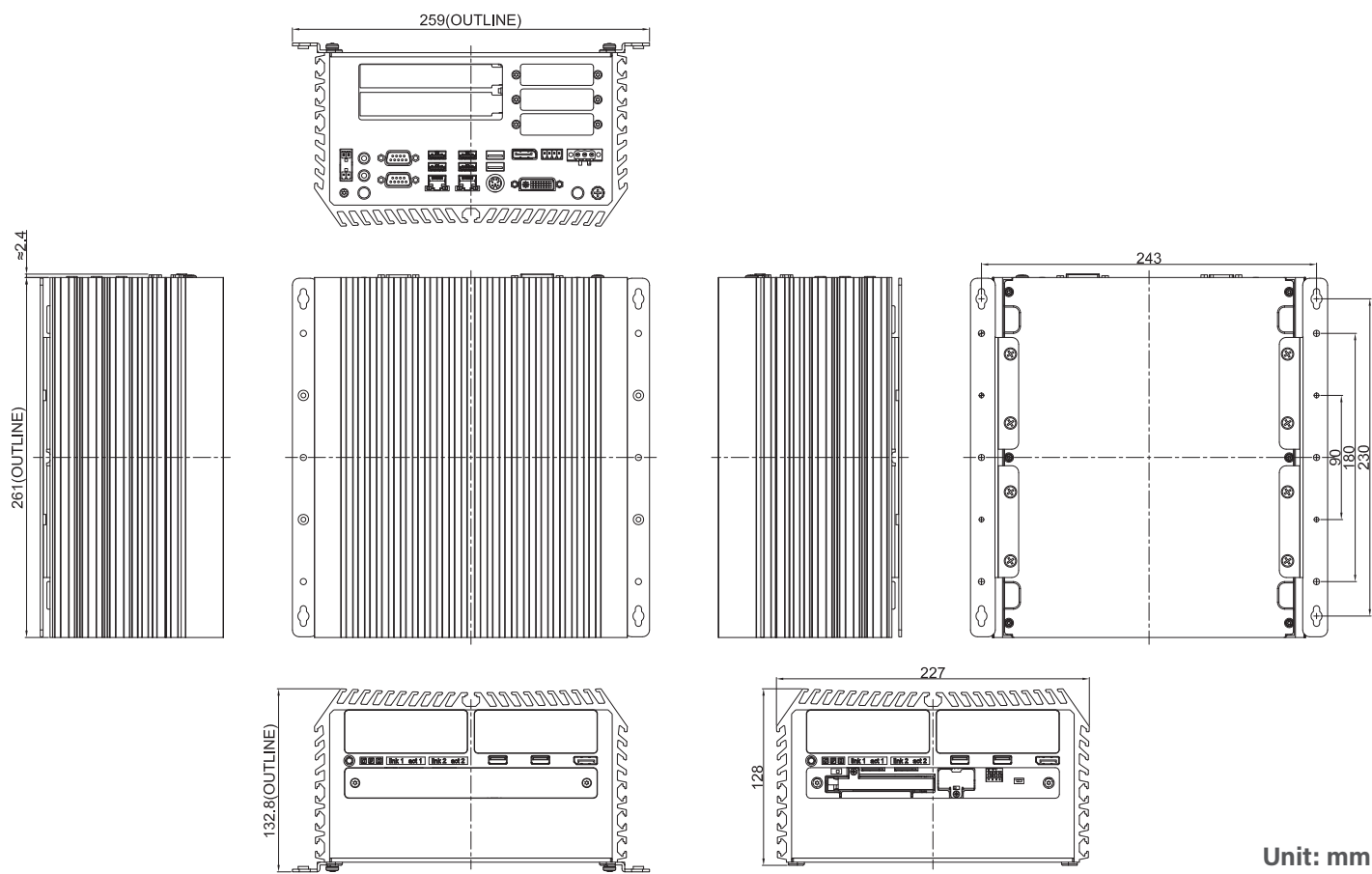
DS-1200 Dimensions



DS-1201 Dimensions



DS-1202 Dimensions



Unit: mm

Ordering Information

Available Models

Model No.	Description
DS-1200-R10	9/8th Generation Intel® Core™ Series Processors, High Performance, Expandable and Modular Rugged Embedded Computer
DS-1201-R10	9/8th Generation Intel® Core™ Series Processors, High Performance, Expandable and Modular Rugged Embedded Computer with 1x PCI/PCIe Expansion Slot
DS-1202-R10	9/8th Generation Intel® Core™ Series Processors, High Performance, Expandable and Modular Rugged Embedded Computer with 2x PCI/PCIe Expansion Slots

Package Checklist

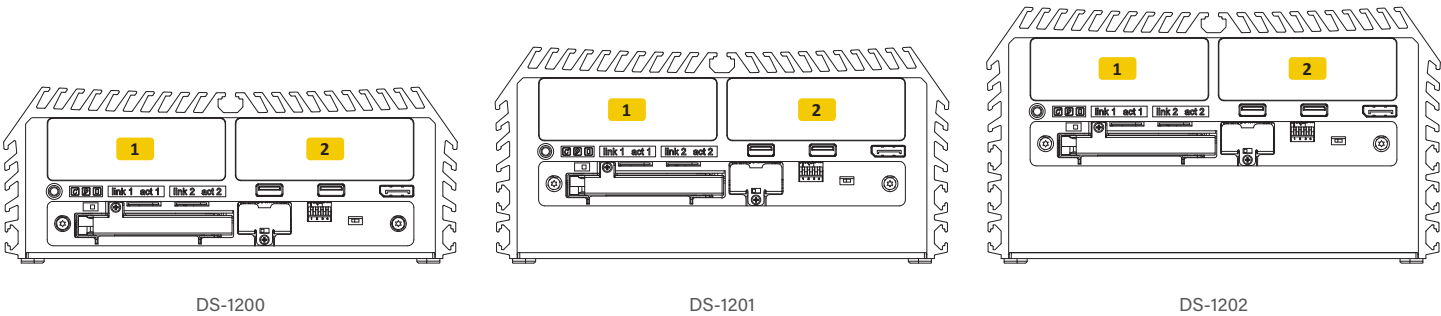
• DS-1200 Series Embedded System x 1	• Power Terminal Block Connector x 1
• Heat Sink Pack x 1	• Remote Power On/Off Terminal Block Connector x 1
• Screw Pack x 1	• Remote Power Reset Terminal Block Connector x 1
• Wall Mounting Kit x 1	• Fan Terminal Block Connector x 1
• DVI-I to VGA Adaptor	

Optional Modules and Accessories

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
CMI-LAN01-R12/UB1012	CMI Module with 4x Intel I210 GbE LAN, RJ45 Port / 1x Universal Bracket with 4x RJ45 Cutout
CMI-M12LAN01-R12/UB1010	CMI Module with M12 Connector, 4x Intel GbE LAN / 1x Universal Bracket with 4x M12 Cutout
CMI-XM12LAN01-R10/UB1030-R10	CMI Module with M12 X-Coded Connector, 4x Intel I210 GbE LAN Ports / Universal Bracket with 4x M12 X-Coded Cutout
CMI-DIO02/UB1018	CMI Module with 16DIO (8in 8out) / 1x Universal Bracket with DIO Cutout
CMI-COM02/UB1004	CMI Module with 4x RS232/422/485 Ports (Support 5V/12V) / 1x Universal Bracket with 4x DB9 Cutout
CMI-ICOM01/UB1004	CMI Module with 4x Isolated RS232 Ports / 1x Universal Bracket with 4x DB9 Cutout
MEC-COM-M212-DB9/UB0303	Mini-PCIe Module with 2x RS-232 Ports, 1x Standard DB9 Cable / 2x Universal Bracket each with 1x DB9 Cutout
MEC-USB-M102-30/UB0314	Mini-PCIe Module with 2x USB 3.2 Gen1 Ports, 1x30 cm cable, 1x Universal Bracket with 2x USB Cutout
MEC-LAN-M102-30/UB0311	Mini-PCIe Module with 2x LAN Ports, 2x 30cm cable / 1x Universal Bracket with 2x RJ45 Cutout
FAN-EX101	External Fan with 4pin Terminal Block Plug and Mounting Bracket, Support Smart Fan
FAN-UB100	Exhaling fan with 4pin Connector and Mounting Bracket
FAN-UB101	Inhaling fan with 4pin Connector and Mounting Bracket
PAH01	Power Adapter Holder for GST120A24
PAH02	Power Adapter Holder for GST220A24
GST120A24-CIN	Adapter AC/DC 24V 5A 120W, with 3pin Terminal Block Plug 5.0mm Pitch, with TUBES, level VI
GST220A24-CIN	Adapter AC/DC 24V 9.2A 220W with 3pin Terminal Block Plug 5.0mm Pitch, with TUBES, level VI

RC-E16-01	Riser Card with 1 x PCIe16 Slot
RC-PI-01	Riser Card with 1 x PCI Slot
RC-E8E8-R10	Riser Card with 2x PCIe8 Slots
RC-E16E1-01	Riser Card with 1x PCIe16, 1x PCIe1 slots, and auxiliary power connector, supports add-on cards up to 75W
RC-E16E1-02	Riser Card with 1x PCIe16, 1x PCIe1 slots, and auxiliary power connector, supports add-on cards up to 130W
RC-E16PI-01	Riser Card with 1x PCIe16 and 1x PCI Slots (PCIe x16 Slot Supports Single Deck Add-on Card)
RC-PIPI-01	Riser Card with 2x PCI Slots

Optional Module Configuration - Front side

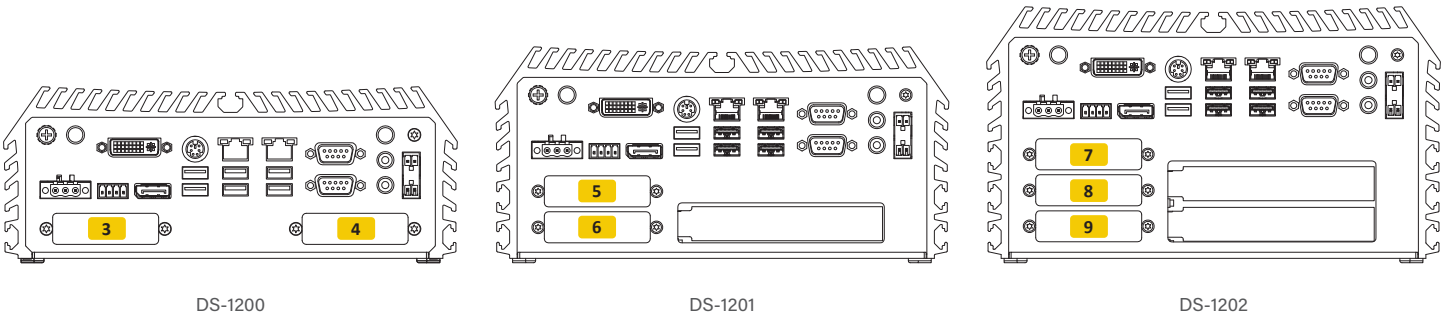


		2	
Model No.	Description	1	
CMI-LAN01-R12/UB1012	CMI Module with 4x Intel I210 GbE LAN, RJ45 Port / 1x Universal Bracket with 4x RJ45 Cutout	V	V
CMI-M12LAN01-R12/UB1010		V	V
CMI-XM12LAN01-R10/UB1030-R10	CMI Module with M12 X-Coded Connector, 4x Intel I210 GbE LAN Ports / Universal Bracket with 4x M12 X-Coded Cutout	V	V
CMI-COM02/UB1004		V	V
CMI-ICOM01/UB1004	CMI Module with 4 x isolated RS232 / 1x Universal Bracket with 4x DB9 Cutout	V	V
CMI-DIO02/UB1018		V	V

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

V : Compatible

Optional Module Configuration - Rear side

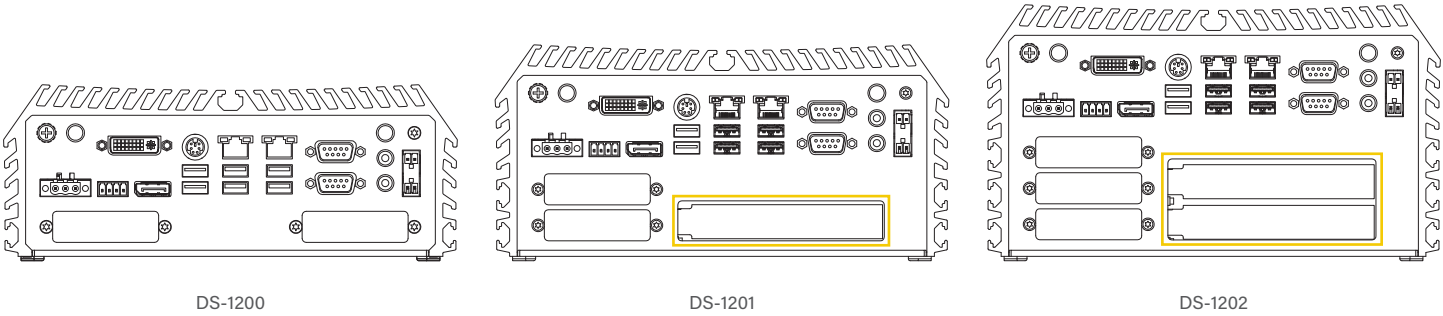


Model No.	Description	DS-1200		DS-1201		DS-1202		
		3	4	5	6	7	8	9
MEC-LAN-M102-30/UB0311 	Mini-PCle Module with 2x LAN Ports, 2x 30cm cable / 1x Universal Bracket with 2x RJ45 Cutout	V	V	V	V	V	V	V
MEC-USB-M102-30/UB0314 	Mini-PCle Module with 2x USB 3.2 Gen1 Ports, 1x 30cm cable, 1x Universal Bracket with 2x USB Cutout	V	-	V	V	V	V	V
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	V	V	V	V	V
FAN-UB100 	Exhaling Fan with 4pin Connector, Universal Bracket	-	-	-	-	V		
FAN-UB101 	Inhaling Fan with 4pin Connector, Universal Bracket	-	-	-	-	V		

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

V : Compatible

Riser Card Configuration



Model No.	Description	DS-1200	DS-1201	DS-1202
 RC-E16-01	Riser Card with 1 x PCIe16 Slot	-	V	-
 RC-PI-01	Riser Card with 1 x PCI Slot	-	V	-
 RC-E8E8-R10	Riser Card with 2 x PCIe8 Slots	-	-	V
 RC-E16E1-01	Riser Card with 1x PCIe16, 1x PCIe1 slots, and auxiliary power connector, supports add-on cards up to 75W	-	-	V
 RC-E16E1-02	Riser Card with 1x PCIe16, 1x PCIe1 slots, and auxiliary power connector, supports add-on cards up to 130W	-	-	V
 RC-E16PI-01	Riser Card with 1x PCIe16 and 1x PCI Slots (PCIe x16 Slot Supports Single Deck Add-on Card)	-	-	V
 RC-E16PI-01	Riser Card with 2x PCI Slots	-	-	V

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

V : Compatible