

DS-1300 Series

10th Generation Intel® Xeon/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



High Performance, Highly Expandable



Overview

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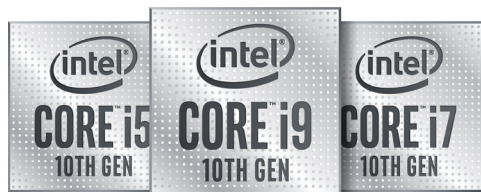
The DS-1300 Series is a powerful embedded computer and brings unrivalled performance. It has versatile functionalities and rich industrial I/O. And most importantly, it has dual PCI/PCIe expansion capability. Equipped with Cincoze's CMI, CFM, MEC modular expansion, customization for additional I/O or other functionality to fulfill different applications couldn't be easier. The DS-1300 Series 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.

Key Features

- 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
- Up to 2x PCI/PCIe expansion slots
- 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)

Certifications





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 Series supports Xeon® CPU up to 80 W TDP. It incorporates DDR4 2933/2666 MHz memory up to 128 GB, delivering unparalleled performance in a rugged, fanless system.

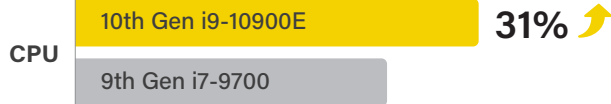
**More Powerful & Faster
Multiplies Productivity**

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%**. The processing platform delivers the performance required to consolidate multiple workloads for intelligent devices and applications.

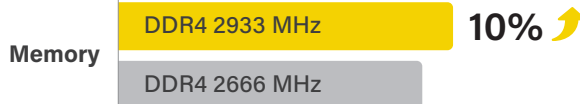
* 31% increase for 10th-gen i9-10900E 65W vs 9th-gen i7-9700 65W CPU

** 10% increase for 2933 MHz of DS-1300 vs 2666 MHz of DS-1200.

multi-tasking compute-intensive application



Transfer rate

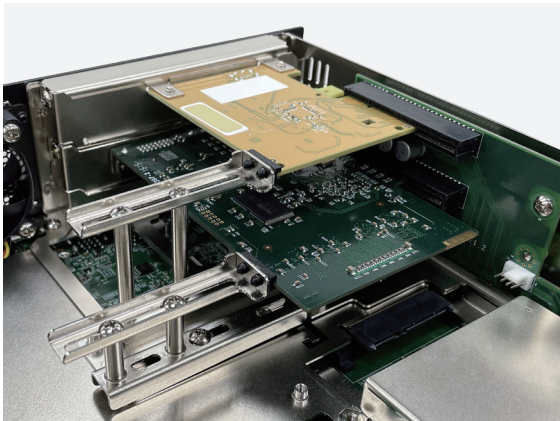


**Industrial I/O and
Modular Expansion**

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-1300 Series can accommodate up to dual PCI/PCIe add-on cards up to 111 mm x 235 mm (combined max 110 W). Flexible PCI/PCIe expansion allows the addition of I/O, GPU, image capture, data acquisition, and motion control cards for specific applications.



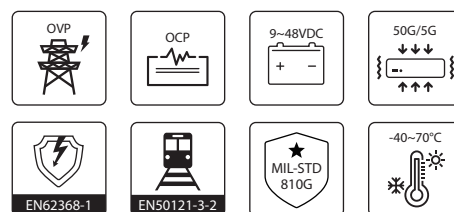
Adjustable PCIe Card Retainer

The PCI/PCIe expansion slots include two adjustable card retainers that firmly secure the PCI/PCIe add-on cards. 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 No. I773359

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.



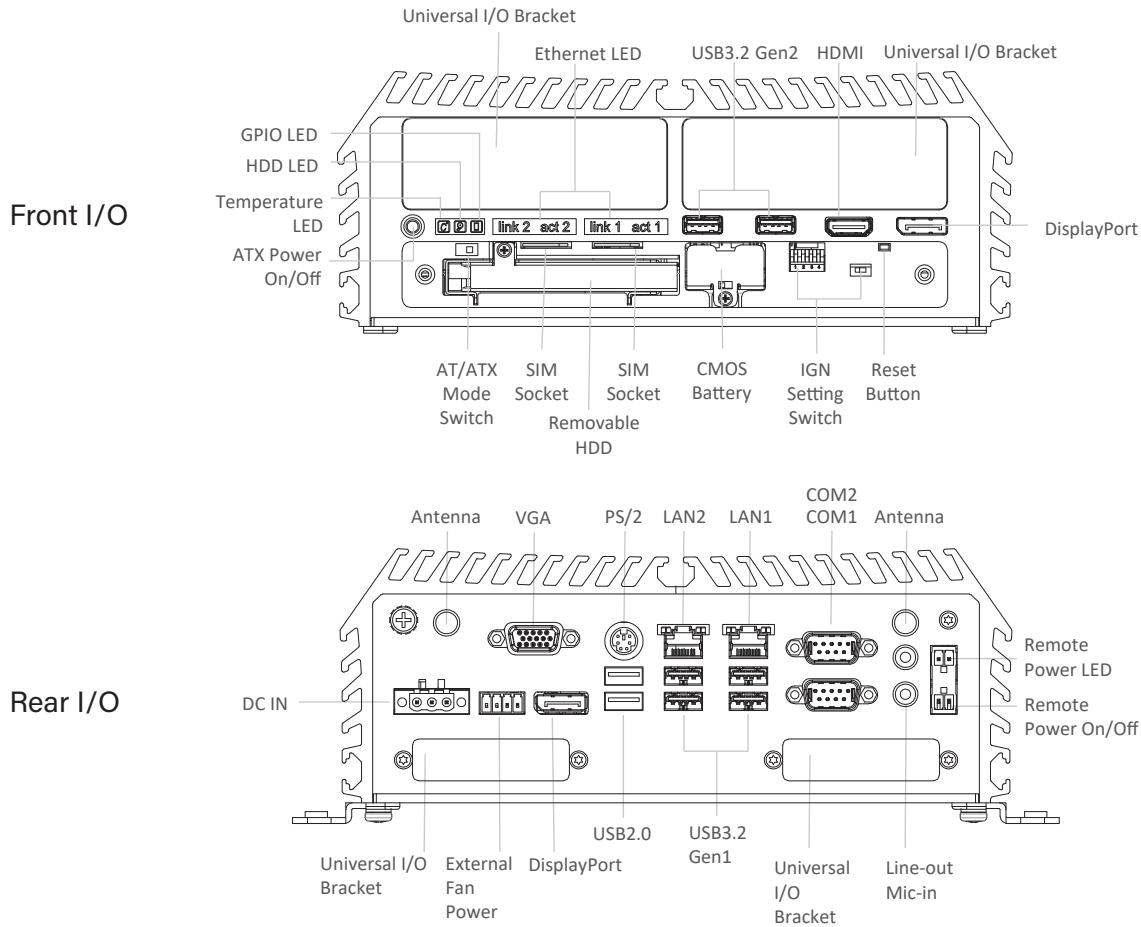
Specifications

Model Name	DS-1300	DS-1301	DS-1302
System			
Processor	Intel® Xeon® Series Processor (80W / 35W): <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 Intel® Core® Series Processor (65W / 35W): <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 		
Chipset	<ul style="list-style-type: none"> • Intel® W480E Chipset 		
Memory	<ul style="list-style-type: none"> • 2x DDR4 2933/2666/2400 SO-DIMM Socket * Xeon / i9 / i7 Processor Supports Up to 2933MHz * i5 / i3 Processor Supports Up to 2666 MHz • Supports Un-buffered and Non-ECC Type Up to 64GB 		
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"> • 2x DisplayPort Connector (4096 x 2304 @ 60Hz, According to CPU Specifications) * Verified maximum resolution: 3840x2160. 		
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) 		

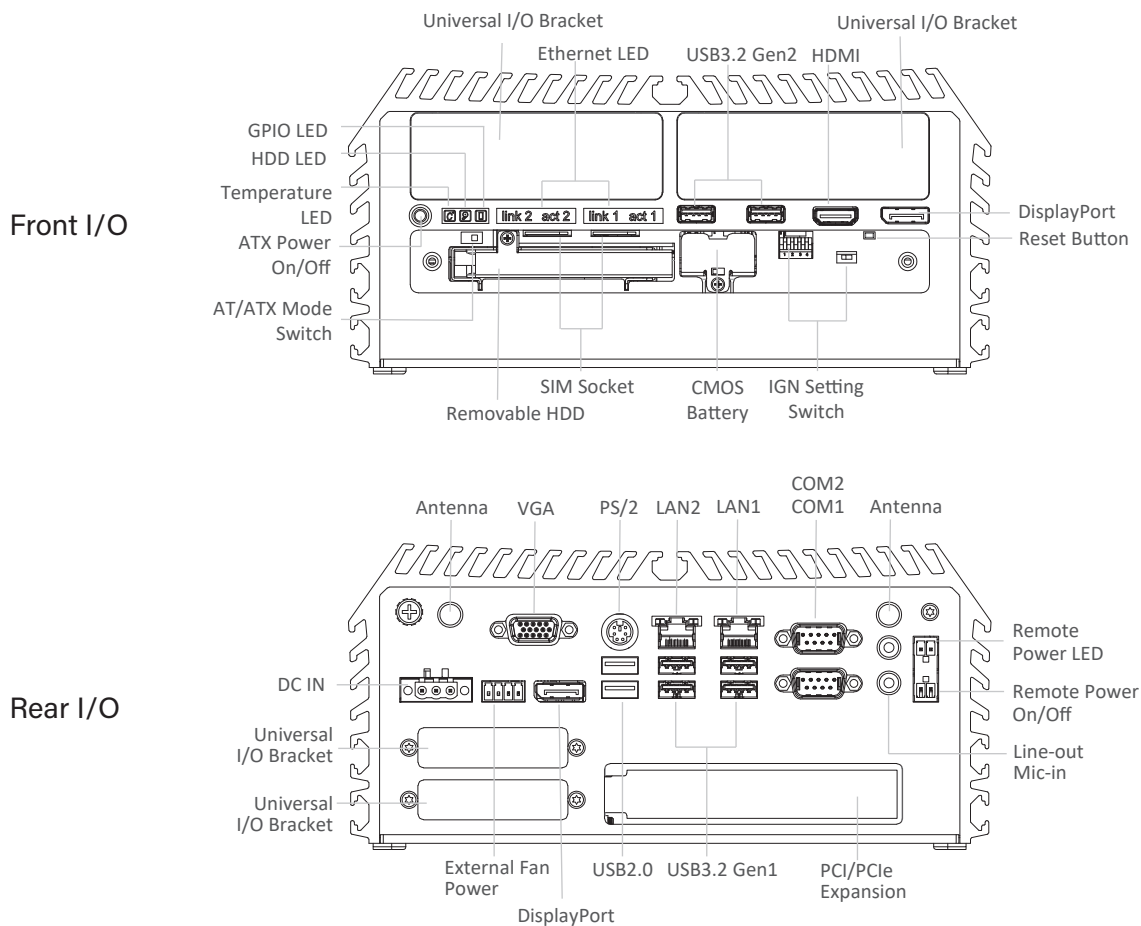
RAID	• Support RAID 0/1/5/10		
Expansion			
PCI Express		• 1 x PCI/PCIe Expansion Slot with Optional Riser Card * Supports maximum dimensions of add-on card (H x L) : 111 x 235 mm	• 2 x PCI/PCIe Expansion Slot with Optional Riser Card * Supports maximum dimensions of add-on card (H x L) : 111 x 235 mm
Mini PCI Express	• 3 x Full-size Mini-PCIe Socket		
SIM Socket	• 2 x SIM Socket		
CMI (Combined Multiple I/O) Interface	• 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	• 1 x CFM IGN Interface for optional CFM-IGN Module Expansion		
Other Function			
External FAN Connector	• 1 x External FAN Connector, 4-pin Terminal Block (Support Smart Fan by BIOS)		
Power Ignition Sensing	• Support Power Ignition Sensing Function with Delay Time Management and Selectable 12V/24V (With Optional CFM Module)		
Clear CMOS Switch	• 1 x Clear CMOS Switch		
Reset Button	• 1 x Reset Button		
Instant Reboot	• Support 0.2sec Instant Reboot Technology		
Watchdog Timer	• Software Programmable Supports 256 Levels System Reset		
Power			
Power Button	• 1 x ATX Power On/Off Button		
Power Mode Switch	• 1 x AT/ATX Mode Switch		
Power Input	• 9 - 48VDC, 3-pin Terminal Block		
Remote Power On/Off	• 1 x Remote Power On/Off, 2-pin Terminal Block		
Remote Power LED	• 1 x Remote Power LED, 2-pin Terminal Block		
Total Power Budget	• 180W		
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 Information	• 4.5 kg	• 5.04 kg	• 5.4 kg
Mechanical Construction	• Extruded Aluminum with Heavy Duty Metal		
Mounting	• Wall Mount		
Physical Design	• Fanless Design • Cableless Design • Jumper-less Design • Unibody Design		
Reliability & 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		
CMOS Battery Backup	• SuperCap Integrated for CMOS Battery Maintenance-free Operation		
MTBF	• 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)
Ingress Protection	<ul style="list-style-type: none"> • IP30 Compliant * According to IEC60529
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, UKCA, FCC, ICES-003 Class A • EN 50155 (EN 50121-3-2 Only)
EMI	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • IEC/EN 62368-1

DS-1300 External Layout

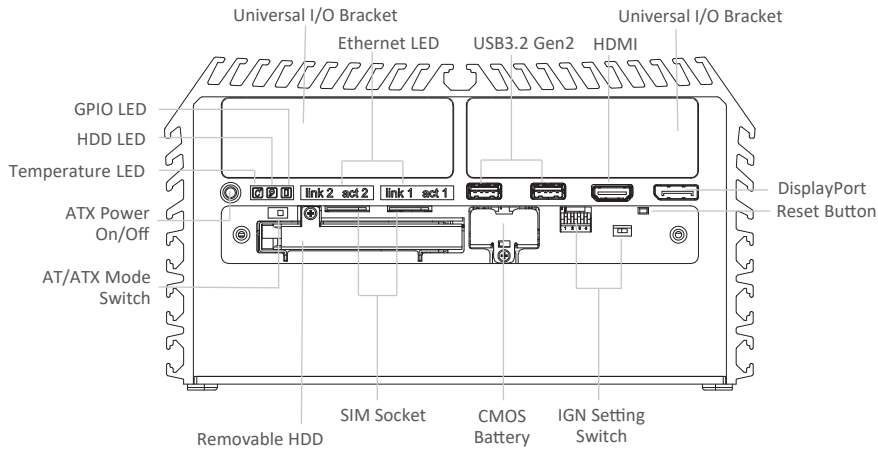


DS-1301 External Layout

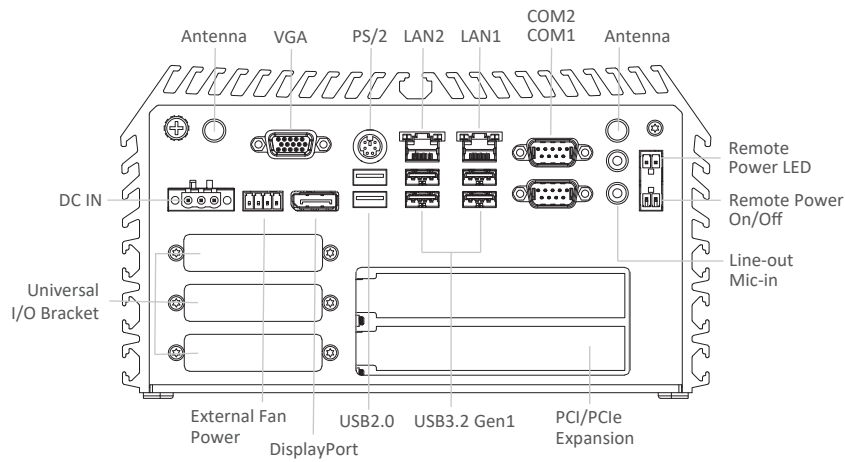


DS-1302 External Layout

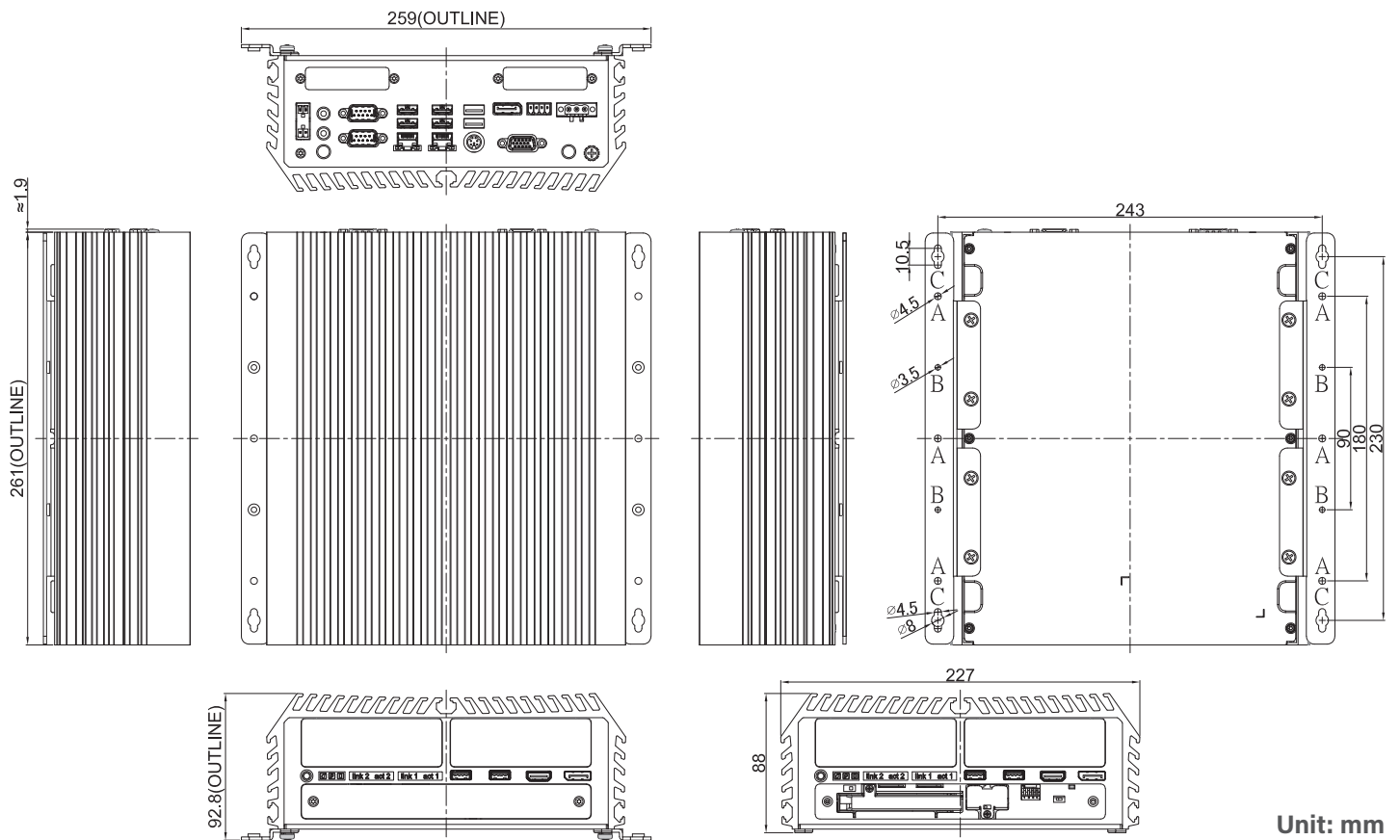
Front I/O



Rear I/O

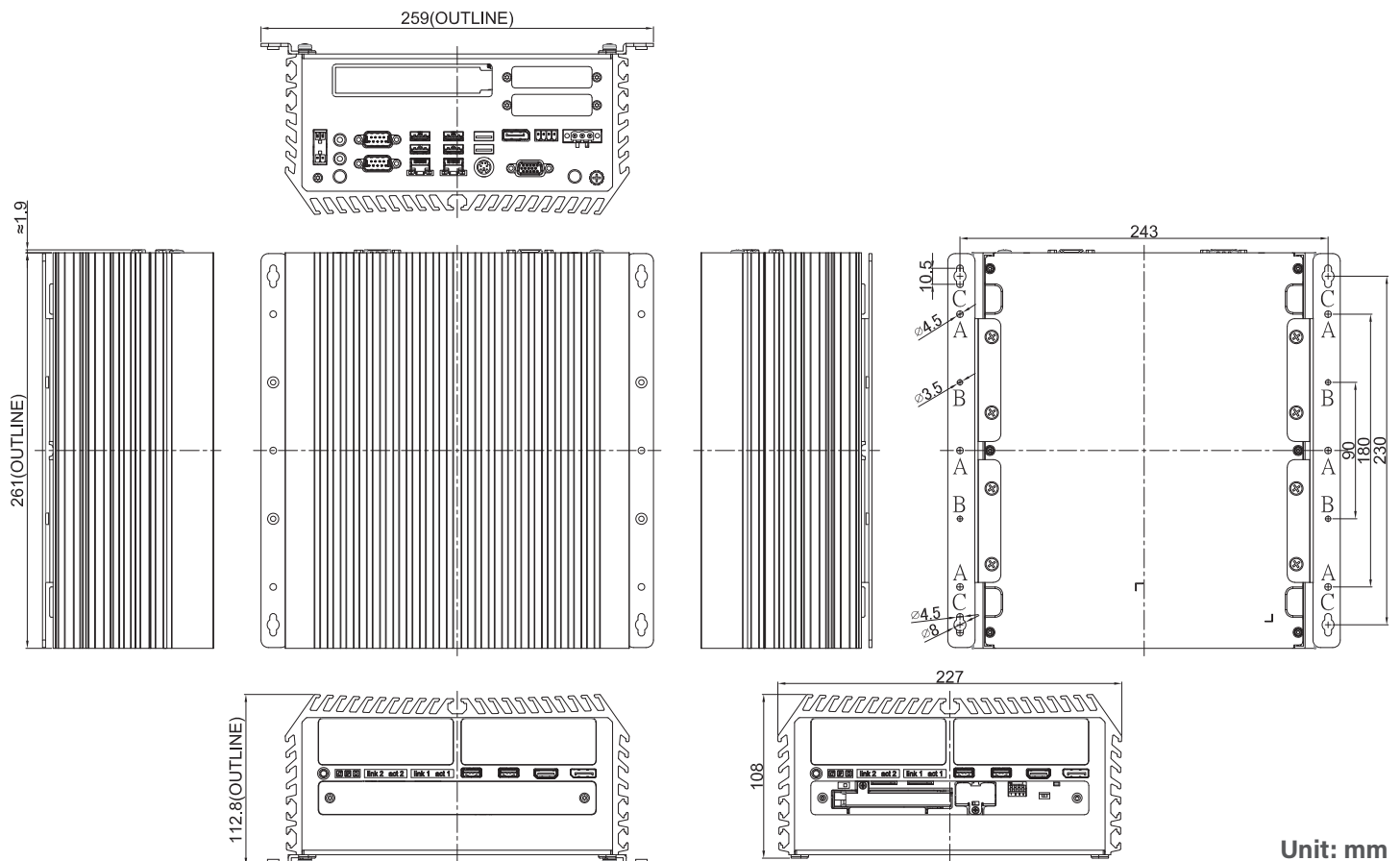


DS-1300 Dimensions



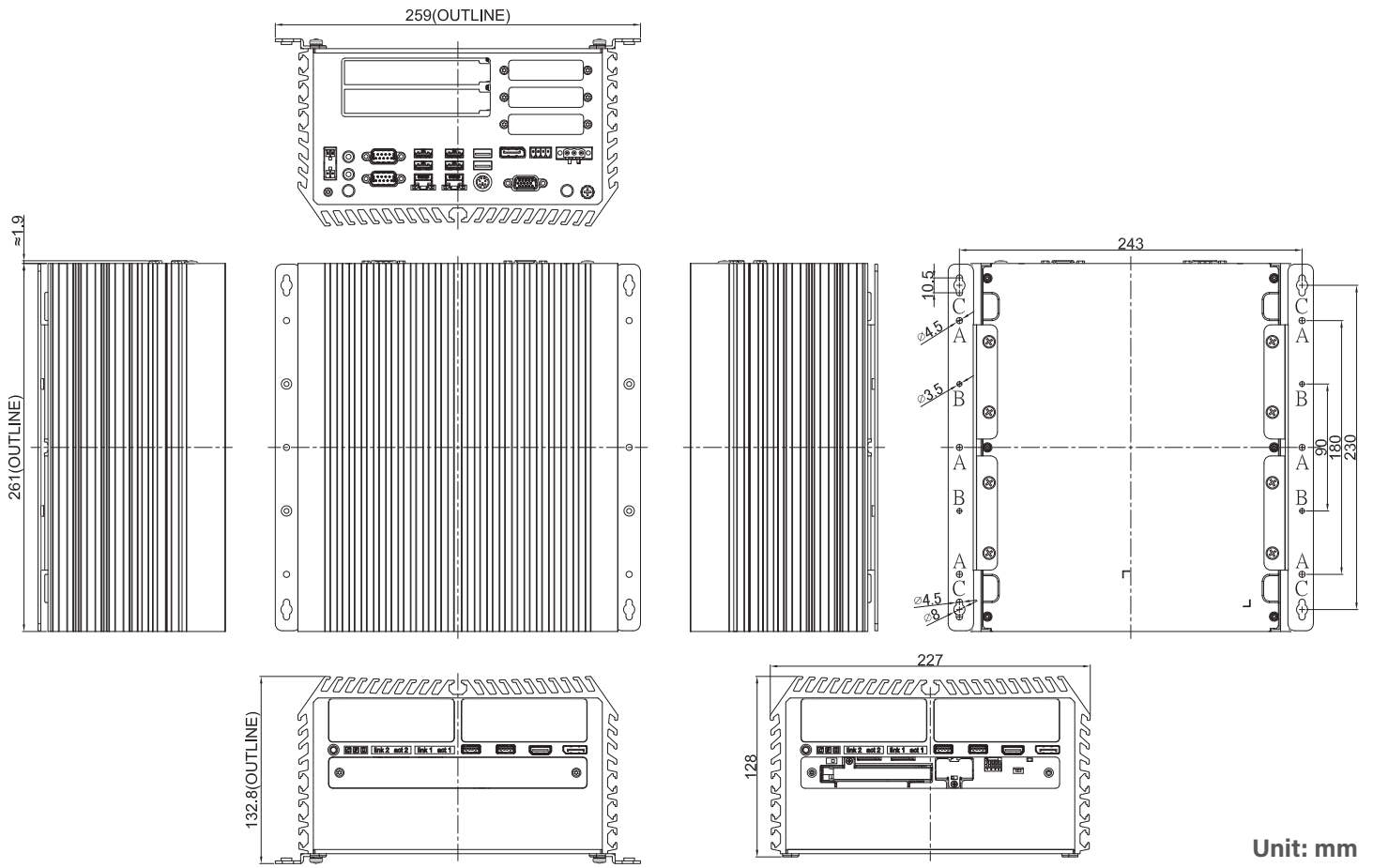
Unit: mm

DS-1301 Dimensions



Unit: mm

DS-1302 Dimensions



Unit: mm

Ordering Information

Available Models

Model No.	Description
DS-1300-R10	10th Generation Intel® Xeon/Core™ Series Processors, High Performance, Expandable and Modular Rugged Embedded Computer
DS-1301-R10	10th Generation Intel Xeon/Core Series Processors, High Performance, Expandable and Modular Rugged Embedded Computer with 1x PCI/PCIe Expansion Slot
DS-1302-R10	10th Generation Intel Xeon/Core Series Processors, High Performance, Expandable and Modular Rugged Embedded Computer with 2 PCI/PCIe Expansion Slot

Package Checklist

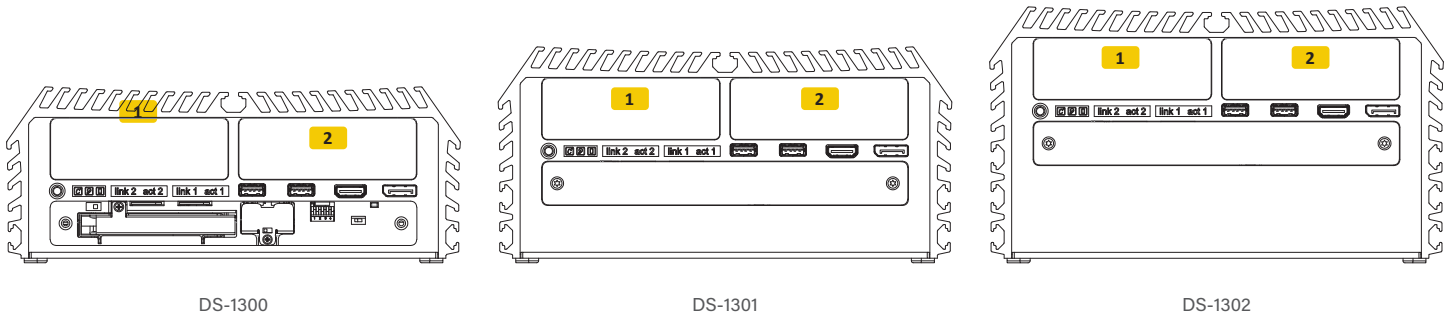
• DS-1300 Series Embedded System x1	• Heatsink Pack x1
• Wall Mounting Kit x 1	• Screw Pack x1
• Remote Function Terminal Block Connector x 2	• Power Terminal Block Connector x1
• Fan Terminal Block Connector x 1	






Optional Modules and Accessories



Model No.	Description
CMI-LAN01-R12	CMI Module with 4x RJ45 Intel I210 GbE LAN Ports
CMI-M12LAN01-R12	CMI Module with 4x M12 Intel I210 GbE LAN Ports
CMI-XM12LAN01-R10	CMI Module with M12 X-Coded Connector, 4x Intel I210 GbE LAN Ports
CMI-10GLAN03-R10	CMI Module with 2x Intel X550 10GbE LAN, RJ45 Port
CMI-COM02	CMI Module with 4x RS232/422/485 Serial Ports
CMI-ICOM01	CMI Module with 4x Electrical Isolated RS-232 Serial Ports
CMI-DIO02	CMI Module with 16x Optical Isolated DIO (8 in/8 out)
MEC-LAN-M102-30	Mini-PCIe Module with 2x LAN Ports, 2x 30cm cable
MEC-USB-M102-30	Mini-PCIe Module with 2x USB 3.2 Gen1 Ports, 1x 30cm cable
MEC-COM-M212-DB9	Mini-PCIe Module with 2x RS-232 Serial Ports, 1x Standard DB9 Cable
UB1004	Universal Bracket with 4x DB9 Cutout
UB1010	Universal Bracket with 4x M12 Cutout
UB1012	Universal Bracket with 4x RJ45 Cutout
UB1018	Universal Bracket with DIO Cutout
UB1028	Universal Bracket with 2x RJ45 Cutout
UB1030-R10	Universal Bracket with 4x M12 X-Coded Cutout
UB0303	2x Universal Bracket each with 1x DB9 Cutout
UB0311	Universal Bracket with 2x RJ45 Cutout
UB0314	Universal Bracket with 2x USB Cutout
CFM-PoE03	CFM Module with PoE Control Function, Individual Port 25.5W

CFM-IGN101	CFM Module with Power Ignition Sensing Control Function, 12V/24V Selectable
FAN-EX101	External Fan with 4pin Terminal Block Plug, Mounting Bracket, Support smart fan
FAN-UB100	Exhaling fan with 4pin Connector, Universal Bracket
FAN-UB101	Inhaling fan with 4pin Connector, Universal Bracket
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
GST360A24-CIN	Adapter AC/DC 24V 15A 360W with 3pin Terminal Block Plug and TUBES, Level VI
RSD-200D-24	Railway Single Output DC-DC Converter 200W / DC 24V
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 2 x 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



Model No.	Description	1	2
<p>CMI-LAN01-R12/UB1012</p> 	CMI Module with 4x Intel I210 GbE LAN, RJ45 Port / 1x Universal Bracket with 4x RJ45 Cutout	V	V
<p>CMI-M12LAN01-R12/UB1010</p> 	CMI Module with M12 Connector, 4x Intel GbE LAN / 1x Universal Bracket with 4x M12 Cutout	V	V
<p>CMI-XM12LAN01-R10/UB1030-R10</p> 	CMI Module with M12 X-Coded Connector, 4x Intel I210 GbE LAN Ports / Universal Bracket with 4x M12 X-Coded Cutout	V	V
<p>CMI-10GLAN03-R10/UB1028</p> 	CMI Module with 2x Intel X550 10GbE LAN, RJ45 Port / 1x Universal Bracket with 2x RJ45 Cutout	V	-
<p>CMI-COM02/UB1004</p> 	CMI Module with 4x RS232/422/485 Ports (Support 5V/12V) / 1x Universal Bracket with 4x DB9 Cutout	V	V

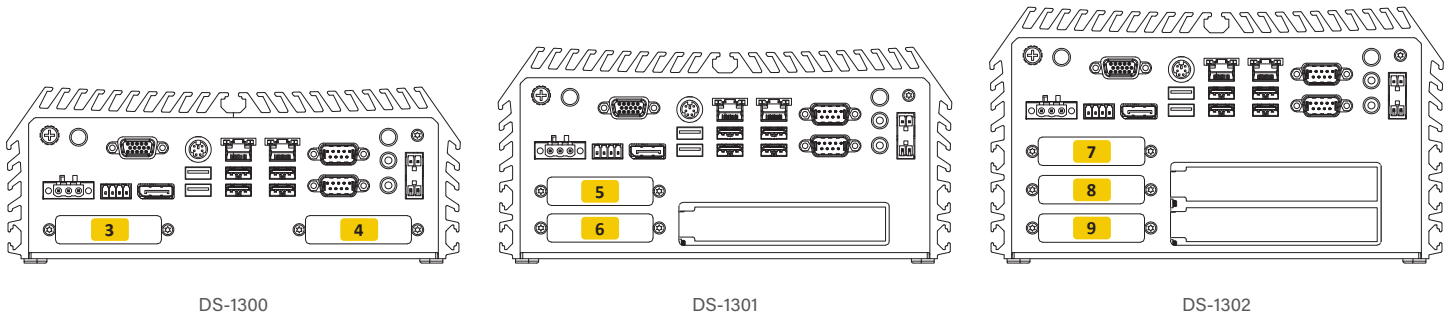
Model No.	Description	1	2
 CMI-ICOM01/UB1004	CMI Module with 4x Isolated RS232 Ports (Support 5V/12V) / 1x Universal Bracket with 4x DB9 Cutout	V	V
 CMI-DIO02/UB1018	CMI Module with 16DIO (8in 8out) / 1x Universal Bracket with DIO Cutout	V	V






Remark:

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

V : Compatible

Optional Module Configuration - Rear side



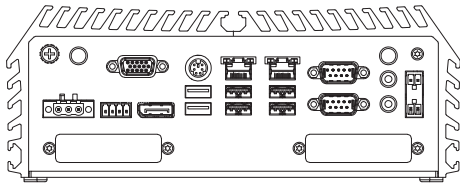
Model No.	Description	DS-1300		DS-1301		DS-1302		
		3	4	5	6	7	8	9
 MEC-LAN-M102-30/UB0311	Mini-PCIe Module with 2x LAN Ports, 2x 30cm cable / 1x Universal Bracket with 2x RJ45 Cutout	V	V	V	V	V	V	V
 MEC-USB-M102-30/UB0314	Mini-PCIe Module with 2x USB 3.2 Gen1 Ports, 1x 30cm cable, 1x Universal Bracket with 2x USB Cutout	V	V	V	V	V	V	V
 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	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:

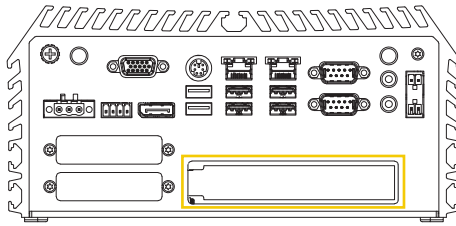
Maximum one CMI-COM02 or CMI-ICOM01 module can be installed in this system.

V : Compatible

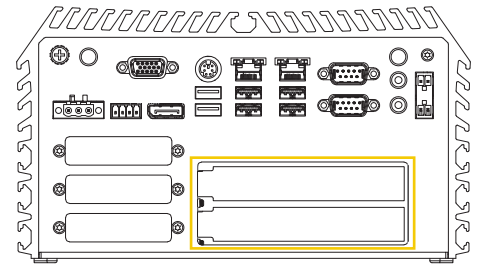
Riser Card Configuration










DS-1300



DS-1301



DS-1302

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