

DS-1100 Series

7/6th Generation Intel Core Series Processors, High Performance, Expandable & Modular Rugged Embedded Computer and PCIe Expandable Rugged Embedded Computer, Supports up to 2x PCI/PCIe Expansion Slot



Overview

Cincoze DS-1100 Series is a high-performance fanless embedded computer powered by 7/6th generation Intel® Core™ platform supporting a wide range of desktop CPUs (socket-type, LGA1151), and accommodates two DDR4 sockets up to 64 GB which allows DS-1100 Series to fulfill all kinds of high-end computing requirements. DS-1100 Series provides powerful functionalities such as rich I/Os, Power over Serial, Electrical Isolated Serial Ports, Optical Isolated Digital I/O, multiple LAN, Power over Ethernet, M12 connectors, RAID 0/1, Power Ignition Sensing and Instant Reboot. Thanks to Cincoze's CMI & CFM Technology, it allows you to configure DS-1100 Series according to your specific needs with ready-to-use modules.

DS-1100 Series also supports maximum 2 PCI/PCIe expansion slots with different combination of interfaces for expanding all kinds of application add-on cards. DS-1100 Series is truly a rugged computing system with features of wide operating temperature (-40°C to 70°C), wide range DC power input (from 9V to 48V), high tolerance of shock and vibration, high-standard industrial protections and the integrated SuperCap for battery maintenance-free operation. DS-1100 Series is suitable to deploy in a harsh environment and for critical applications, and it is totally maintenance-free.

Key Features

- Supports 7/6th-Gen Intel® Core™ i3 / i5 / i7 Socket-type CPU (LGA1151)
- 2x DDR4 SO-DIMM Socket, 2,133 / 2,400 MHz, Supports Up to 64 GB
- Triple Independent Display (1x DVI-I, 2x DP)
- 2x 2.5" SATA HDD/SSD bay (Gen3), Supports RAID 0/1
- Up to 2x PCI/PCIe expansion slots
- 2x CMI Interfaces with 6 Types of Optional Modules for I/O Expansion
- 1x CFM Interface for Adding Optional Power Ignition Sensing (IGN) Module
- Supports 3x Full-size Mini-PCIe Slot for Wireless & I/O Expansion
- Wide Operating Temperature (-40°C to 70°C)
- EN50121-3-2 Certified/ LVD EN62368-1
- E-Mark (E13, No.10R-0514229) Certified

Certifications



High Performance

- Supports Intel® 7/6th Generation Processors (65W/35W)
- Performance Enhanced by Intel® 14 nm Technology
- Intel® HD Graphics Supports Triple Independent Display Resolution Up to 4K

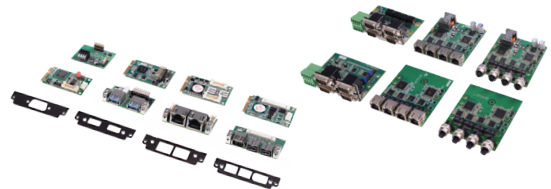


Powerful Functionalities

- Rich I/Os
- Power over Serial
- Electrical Isolated Serial Port
- Optical Isolated Digital I/O
- Power Ignition Sensing
- Multiple LAN
- Power over Ethernet
- RAID 0/1
- Instant Reboot
- M12 Connectors

Fully Modular and Expandable

- CMI (Combined Multiple I/O) Technology for I/O Expansion
- CFM (Control Function Module) Technology for Adding Power Ignition Sensing Function
- Mini-PCIe Modules and Dedicated I/O Brackets Are Available



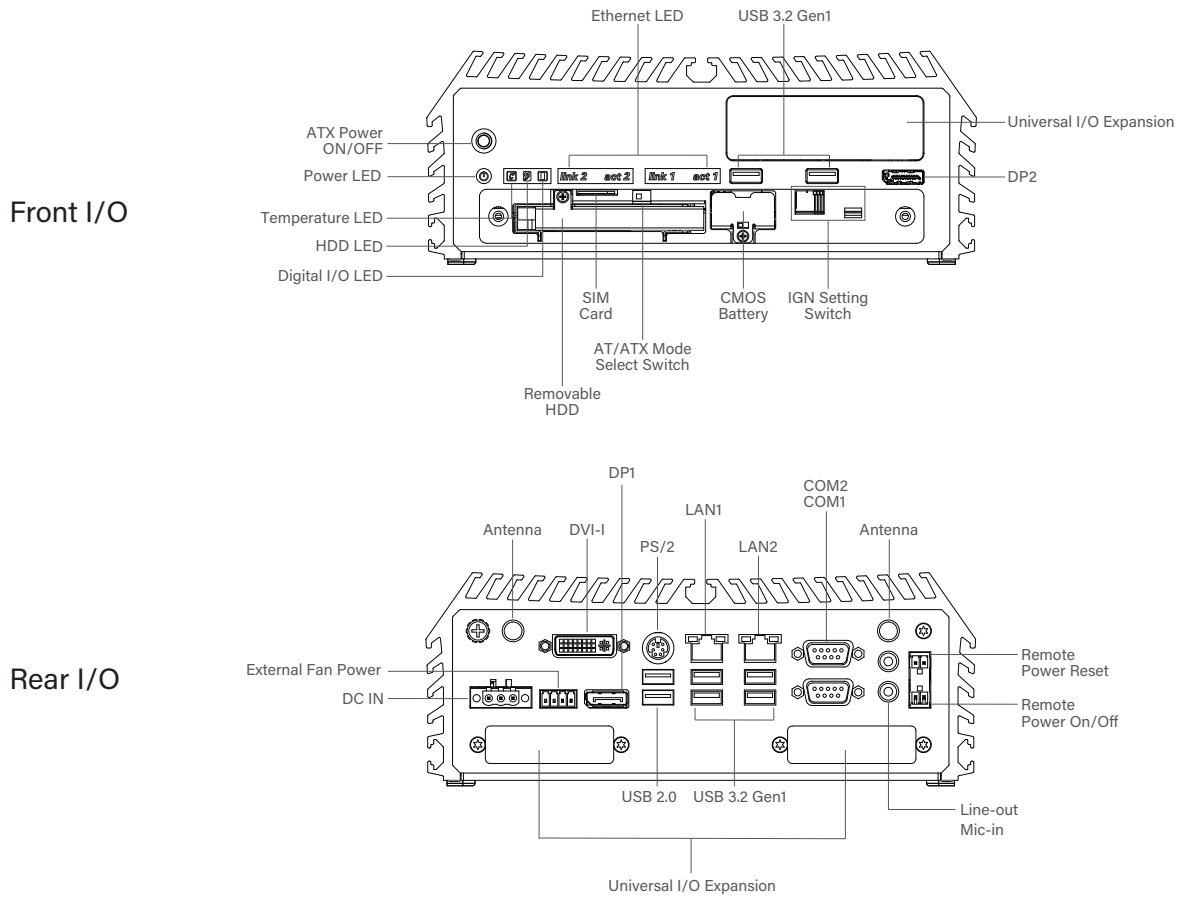
Specifications

Model Name	DS-1100	DS-1101	DS-1102
System			
Processor	<ul style="list-style-type: none"> • 7th Generation Intel® CPU (Kaby Lake-S) <ul style="list-style-type: none"> - Intel® Core™ i7-7700T Processor (8M Cache, up to 3.8 GHz, 35W TDP) - Intel® Core™ i5-7500T Processor (6M Cache, up to 3.30 GHz, 35W TDP) - Intel® Core™ i3-7101TE Processor (3M Cache, 3.40 GHz, 35W TDP) - Intel® Celeron® G3930TE Processor (2M Cache, 2.70 GHz, 35W TDP) - Intel® Core™ i7-7700 Processor (8M Cache, up to 4.20 GHz, 65W TDP) - Intel® Core™ i5-7500 Processor (6M Cache, up to 3.80 GHz, 65W TDP) - Intel® Celeron® G3930E Processor (2M Cache, 2.90 GHz, 54W TDP) • 6th Generation Intel® CPU (Skylake-S) <ul style="list-style-type: none"> - Intel® Core™ i7-6700TE Processor (8M Cache, up to 3.40 GHz, 35W TDP) - Intel® Core™ i5-6500TE Processor (6M Cache, up to 3.30 GHz, 35W TDP) - Intel® Core™ i3-6100TE Processor (4M Cache, 2.70 GHz, 35W TDP) - Intel® Pentium® Processor G4400TE (3M Cache, 2.40 GHz, 35W TDP) - Intel® Celeron® Processor G3900TE (2M Cache, 2.30 GHz, 35W TDP) - Intel® Core™ i7-6700 Processor (8M Cache, up to 4.00 GHz, 65W TDP) - Intel® Core™ i5-6500 Processor (6M Cache, up to 3.60 GHz, 65W TDP) - Intel® Core™ i3-6100 Processor (3M Cache, 3.70 GHz, 51W TDP) - Intel® Pentium® Processor G4400 (3M Cache, 3.30 GHz, 54W TDP) - Intel® Celeron® Processor G3900 (2M Cache, 2.80 GHz, 51W TDP) 		
Chipset	• Intel® Q170		
BIOS	• AMI 16Mbit SPI BIOS		
Memory	<ul style="list-style-type: none"> • 2x DDR4 2133/2400 MHz SO-DIMM Sockets * Core I 7th Generation / Celeron Processor Supports Up to 2400MHz * Core I 6th Generation / Pentium / Celeron Processor Supports Up to 2133MHz • Supports Un-buffered and Non-ECC Type Up to 64 GB 		
Graphics			
Graphics Engine	• Intel® HD Graphics supports triple independent display (1x DVI-I, 2x DisplayPort)		
Audio			
Audio Codec	<ul style="list-style-type: none"> • Realtek® ALC888-GR • High Definition Audio 		
I/O			
Connector	• 1x DVI-I Connector, Resolution 1920 x 1080		
DisplayPort	<ul style="list-style-type: none"> • 2x DisplayPort Connector (4096 x 2304 @ 60Hz, According to CPU Specifications) * Verified maximum resolution: 3840x2160 		
LAN	<ul style="list-style-type: none"> • 2x GbE LAN (Support WoL, Teaming, Jumbo Frame and PXE), RJ45 - GbE1: Intel I219-LM - GbE2: Intel I210 		
COM	• 2x RS-232/422/485 with Auto Flow Control Support 5V/12V, DB9		
USB	<ul style="list-style-type: none"> • 6x USB 3.2 Gen1, Type-A • 2x USB 2.0, Type-A 		
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	<ul style="list-style-type: none"> • 1x Remote Reset Connector, 2-Pin Terminal Block • 1x External FAN Connector, 4-Pin Terminal Block 		

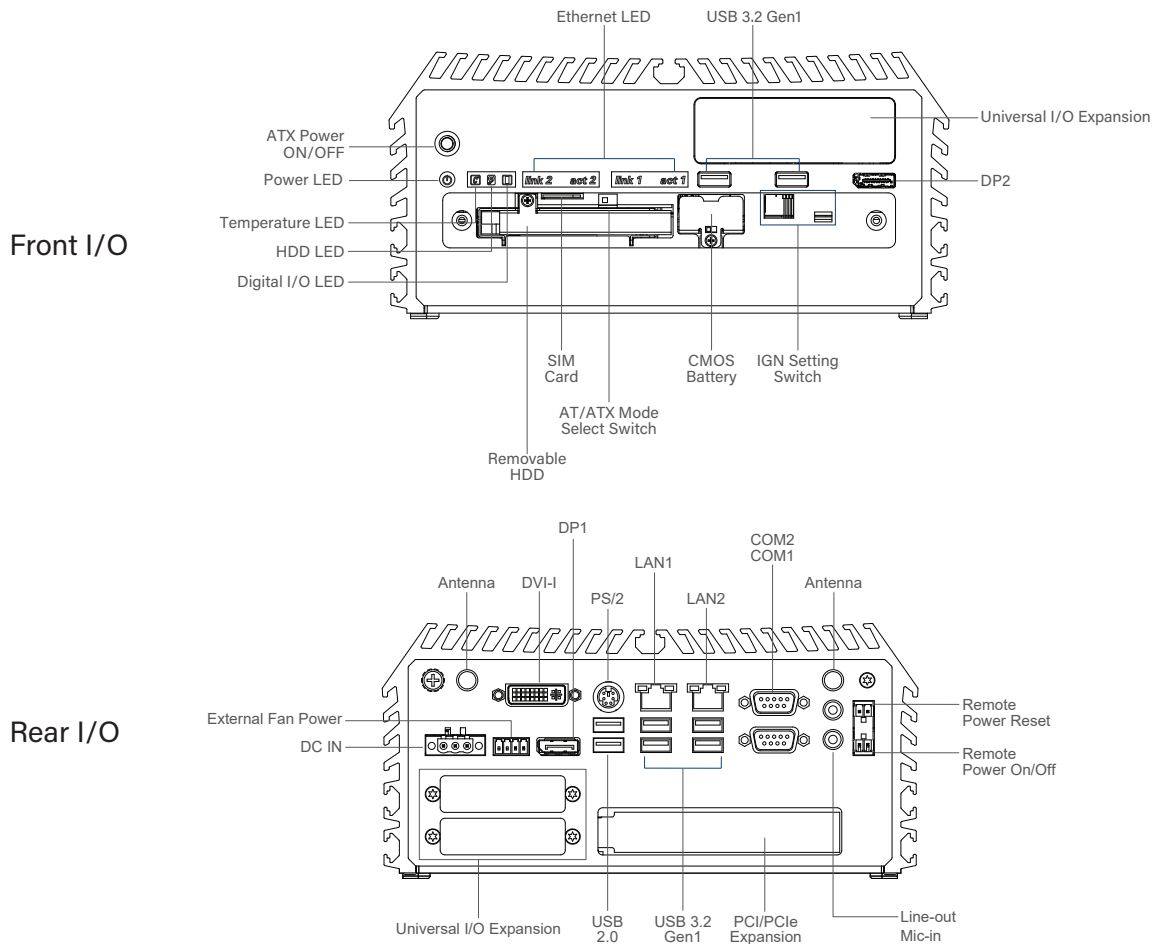
Storage			
SSD / HDD	• 2x 2.5" SATA HDD/SSD Bay, Support RAID 0/1 (Gen3)		
mSATA	• 3x mSATA (shared by Mini-PCIe socket) (Gen3)		
Power Requirement			
Power Type	• AT / ATX		
Power Supply Voltage	• 9~48VDC		
Terminal	• One 3-Pin Terminal Block Connector		
Power Adapter	• Power Adapter AC/DC 24V/5A 120W or 24V/9.2A 220W (Optional)		
Expansion			
CFM (Control Function Module) Interface	• Supports CFM (Control Function Module) Technology - CFM IGN Module		
CMI (Combined Multiple I/O) Interface	• Supports CMI (Combined Multiple I/O) Technology - 4x RJ45 GbE LAN Module - 4x M12 GbE LAN Module - 4x RJ45 GbE PoE+ Module - 4x M12 GbE PoE+ Module - 4x RS-232/422/485 + 8x Optical Isolated DIO Module - 4x Isolated RS-232/422/485 + 8x Optical Isolated DIO Module		
PCI/PCIe Expansion		• 1x PCI/PCIe Expansion slots Support maximum dimension of add-on card (H x L) : 110 x 237 mm	• 2x PCI/PCIe Expansion slots Support maximum dimension of add-on card (H x L) : 110 x 237 mm
Mini PCIe	• 3x Full-size Mini-PCIe Sockets		
SIM Socket	• 1x SIM Socket		
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 Ignition Sensing	• Power Ignition Sensing (IGN) Function (with Optional CFM module) 12V/24V Selectable		
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	• 4.7 kg	• 5.22 kg	• 5.7 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	• 7th Generation Intel® CPU (Kaby Lake-S): Windows® 10 • 6th Generation Intel® CPU (Skylake-S): Windows® 10/ 8.1/ 7		

Linux	<ul style="list-style-type: none"> • Supports by project
Environment	
Operating Temperature	<ul style="list-style-type: none"> • 7th Generation Intel® CPU (Kaby Lake-S) <ul style="list-style-type: none"> - 35W TDP CPU: -40°C to 50°C - 51W~65W TDP CPU: -40°C to 45°C • 6th Generation Intel® CPU (Skylake-S) <ul style="list-style-type: none"> - 35W TDP CPU: -40°C to 70°C - 51~65W TDP CPU: -40°C to 50°C (With extended temperature peripherals; Ambient with air flow; According to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14)
Storage Temperature	<ul style="list-style-type: none"> • -40°C to 85°C
Relative Humidity	<ul style="list-style-type: none"> • 70°C @ 95% RH (Non-condensing)
EMC	<ul style="list-style-type: none"> • CE, UKCA, FCC, ICES-003 Class A • EN 50155 (EN 50121-3-2 Only) • E-mark
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"> • LVD IEC/EN 62368-1

DS-1100 External Layout

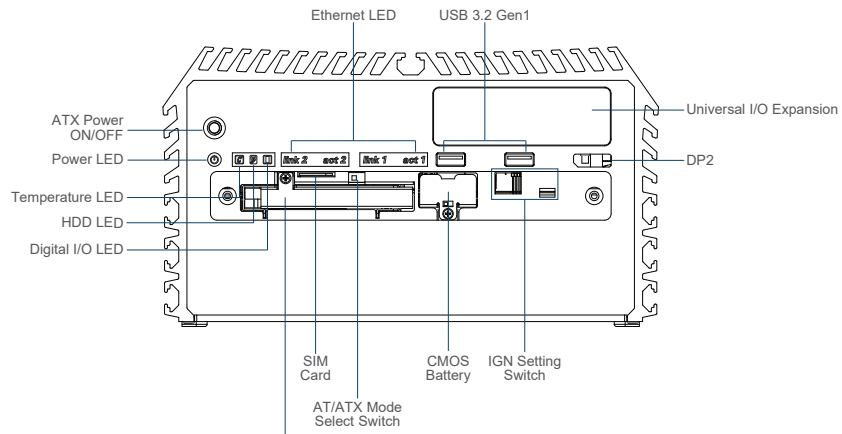


DS-1101 External Layout

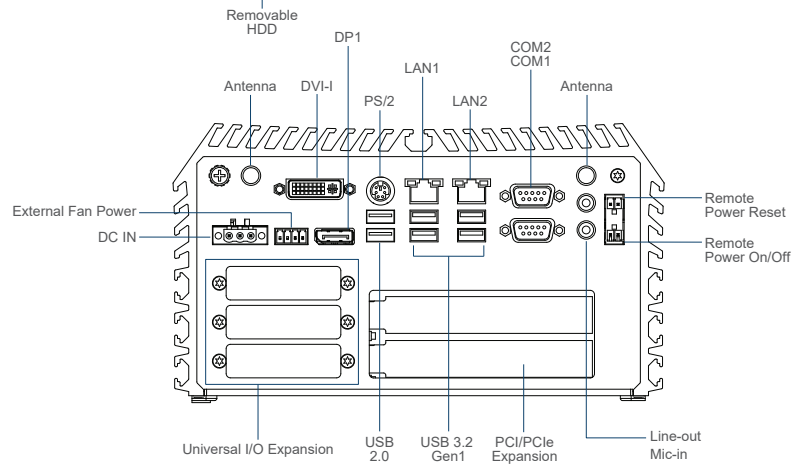


DS-1101 External Layout

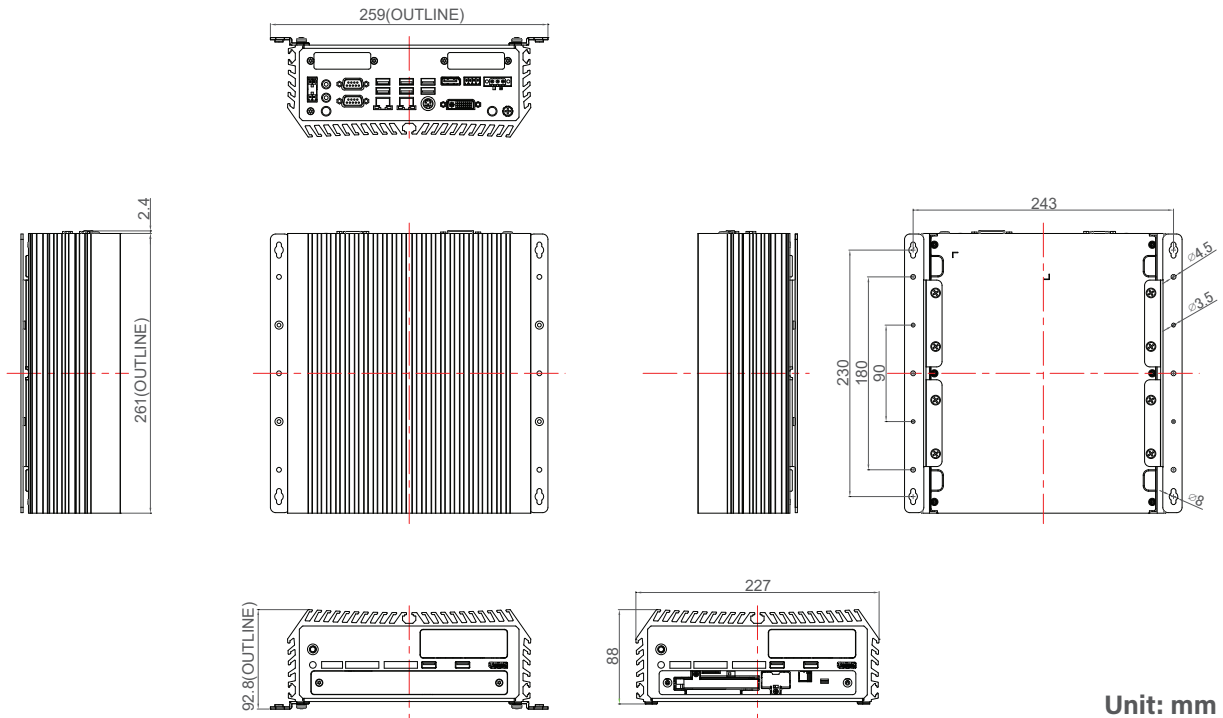
Front I/O



Rear I/O

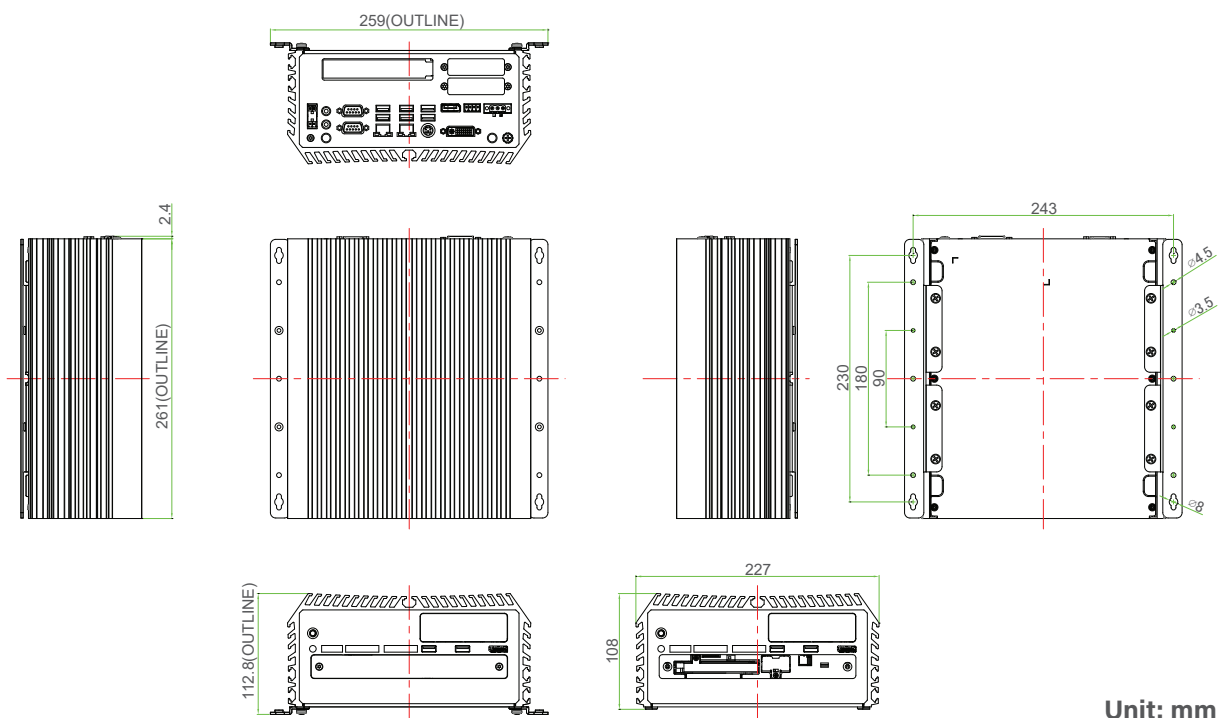


DS-1100 Dimensions



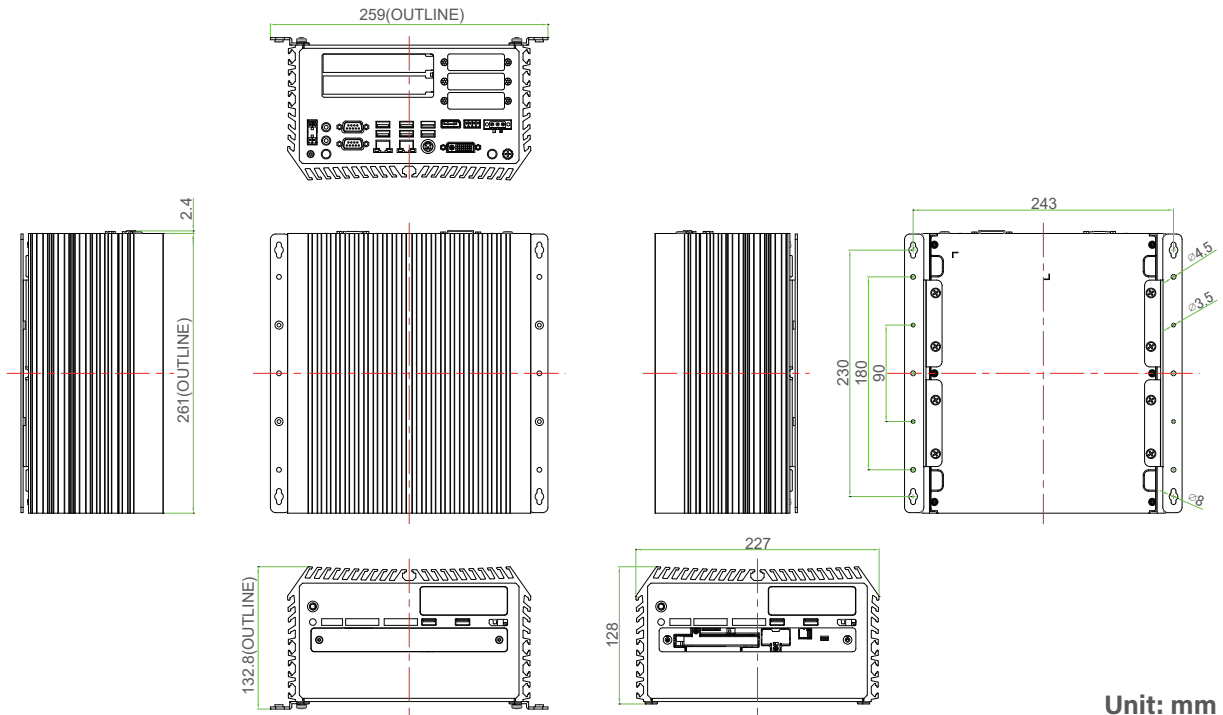
Unit: mm

DS-1101 Dimensions



Unit: mm

DS-1102 Dimensions



Unit: mm

Ordering Information

Available Models

Model No.	Description
DS-1100-R20	7/6th Generation Intel Core Series Processors, High Performance, Expandable and Modular Rugged Embedded Computer
DS-1101-R20	7/6th Generation Intel Core Series Processors, High Performance, Expandable and Modular Rugged Embedded Computer with 1x PCI/PCIe Expansion Slot
DS-1102-R20	7/6th Generation Intel Core Series Processors, High Performance, Expandable and Modular Rugged Embedded Computer with 2x PCI/PCIe Expansion Slot

Package Checklist

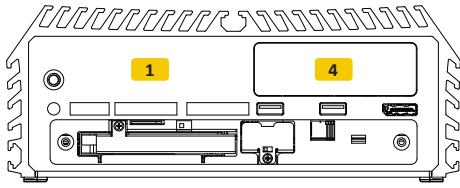
• DS-1100 Series Embedded System x 1	• Power Terminal Block Connector x 1
• Heat Sink Pack x 1	• Remote Power On/Off Terminal Block Connector x 2
• Screw Pack x 1	• Fan Terminal Block Connector x 1
• Wall Mounting Kit x 1	• DVI-I to VGA Adaptor

Optional Modules and Accessories

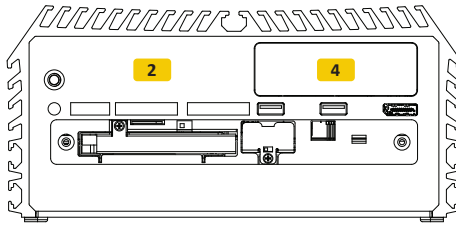
Model No.	Description
CFM-IGN101	CFM Module with Power Ignition Sensing Control Function, Selectable 12V/24V (43 x 36 mm)
CFM-PoE03	CFM Module with PoE Control Function for DS series, Individual Port 25.5W
CMI-CD100	CMI Module with 4x RS-232/422/485 Serial Ports, 8x Optical Isolated DIO (4 in/4 out)
CMI-ICD100	CMI Module with 4x Electrical Isolated RS-232/422/485 Serial Ports, 8x Optical Isolated DIO (4 in/4 out)
CMI-LAN01-R12	CMI Module with 4x Intel I210 GbE LAN, RJ45 Port
CMI-M12LAN01-R12	CMI Module with M12 Connector, 4x Intel I210 GbE LAN
CMI-XM12LAN01-R10	CMI Module with M12 X-Coded Connector, 4x Intel I210 GbE LAN Ports
FAN-EX101	External Fan with 4pin Terminal Block Plug, Mounting Bracket, Support smart fan
FAN-UB100	Exhaling Fan with 4pin Connector, Universal Bracket (For DS-1102 Only)
FAN-UB101	Inhaling Fan with 4pin Connector, Universal Bracket (For DS-1102 Only)
MEC-LAN-M102-30	Mini-PCIe Module with 2x LAN Ports, 2x 30cm cable / 1x Universal Bracket with 2x RJ45 Cutout
MEC-USB-M102-30	Mini-PCIe Module with 2x USB 3.2 Gen1 Ports, 1x 30cm cable, 1x Universal Bracket with 2x USB Cutout
MEC-COM-M212-DB9	Mini-PCIe Module with 2x COM Ports, 1x Standard DB9 Cable, 2x Universal Bracket each with 1x DB9 Cutout
PAH-101	Power Adapter Holder for GST120A24 (200 x 78 x 46 mm)
PAH-201	Power Adapter Holder for GST220A24 (243 x 95 x 57 mm)
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
FB20	DS-1100 Front Bezel with 4x DB9, DIO
FB21	DS-1101 Front Bezel with 4x DB9, DIO

Model No.	Description
UB0610	Universal Bracket with 4x M12 Cutout
UB0612	Universal Bracket with 4x RJ45
UB0630	Riser Card with 1x PCIe16 and 1x PCIe1 Slots (PCIe x16 Slot Supports Dual Deck Add-on Card)
UB0303	2x Universal Bracket each with 1x DB9 Cutout
UB0311	Universal Bracket with 2x RJ45 Cutout
UB0314	Universal Bracket with 2x USB Cutout
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 and 1x PCIe1 Slots (PCIe x16 Slot Supports Dual Deck Add-on Card)
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

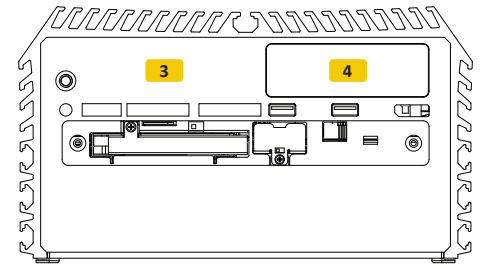
Optional Module Configuration - Front side











DS-1100



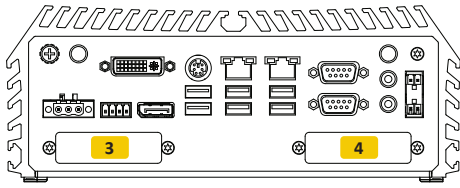
DS-1101



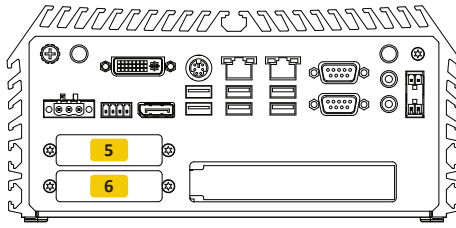
DS-1102

Model No.	Description	1	2	3	4
 <p>CMI-CD100/FB20</p>	CMI Module with 4x RS-232/422/485 Serial Ports, 8x Optical Isolated DIO (4 in/4 out), 1x DS-1100 Front Bezel	V	-	-	-
 <p>CMI-ICD100/FB20</p>	CMI Module with 4x Electrical Isolated RS-232/422/485 Serial Ports, 8x Optical Isolated DIO (4 in/4 out), 1x DS-1100 Front Bezel	V	-	-	-
 <p>CMI-CD100/FB21</p>	CMI Module with 4x RS-232/422/485 Serial Ports, 8x Optical Isolated DIO (4 in/4 out), 1x DS-1101 Front Bezel	-	V	-	-
 <p>CMI-ICD100/FB21</p>	CMI Module with 4x Electrical Isolated RS-232/422/485 Serial Ports, 8x Optical Isolated DIO (4 in/4 out), 1x DS-1101 Front Bezel	-	V	-	-
 <p>CMI-CD100/FB22</p>	CMI Module with 4x RS-232/422/485 Serial Ports, 8x Optical Isolated DIO (4 in/4 out), 1x DS-1102 Front Bezel	-	-	V	-
 <p>CMI-ICD100/FB22</p>	CMI Module with 4x Electrical Isolated RS-232/422/485 Serial Ports, 8x Optical Isolated DIO (4 in/4 out), 1x DS-1102 Front Bezel	-	-	V	-
 <p>CMI-LAN01-R12/UB0612</p>	CMI Module with 4x Intel I210 GbE LAN, RJ45 Port / 1x Universal Bracket with 4x RJ45 Cutout for DS-1100 Series	-	-	-	V
 <p>CMI-M12LAN01-R12/UB0610</p>	CMI Module with M12 Connector, 4x Intel I210 GbE LAN / 1x Universal Bracket with 4x M12 Cutout for DS-1100 Series	-	-	-	V
 <p>CMI-XM12LAN01-R10/UB0630</p>	CMI Module with M12 X-Coded Connector, 4x Intel I210 GbE LAN Ports / Universal Bracket with 4x M12 X-Coded Cutout	-	-	-	V

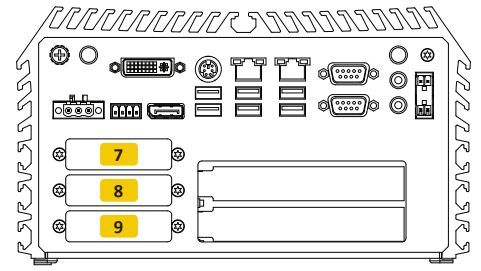
Optional Module Configuration - Rear side








DS-1100



DS-1101



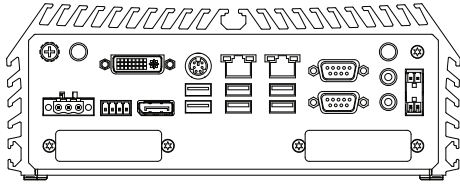
DS-1102

Model No.	Description	DS-1100		DS-1101		DS-1102		
		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
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		

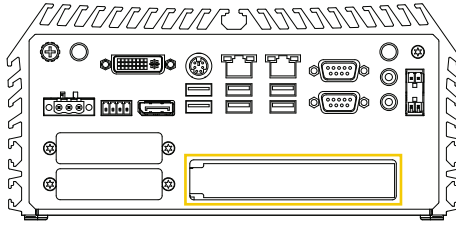
Remark:
Maximum one CMI-COM02 or CMI-ICOM01 module can be installed in this system.

V : Compatible

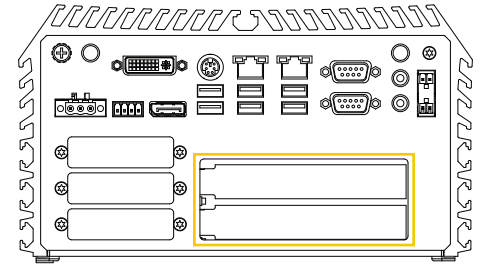
Riser Card Configuration









DS-1100



DS-1101



DS-1102

Model No.	Description	DS-1100	DS-1101	DS-1102
 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 and 1x PCIe1 Slots (PCIe x16 Slot Supports Dual Deck Add-on Card)	-	-	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