DS-1201

8th Generation Intel® Core™ Series Processors, High Performance, Expandable and Modular Rugged Embedded Computer with 1x PCI/PCIe Expansion Slot



Key Features

- Supports 8th Gen Intel® Core™ / Pentium® / Celeron® Hexa Cores 35W/65W LGA 1151 Processors
- 2x DDR4 SO-DIMM Socket, Supports Up to 2666MHz, 32GB
- Triple Independent Displays: 1x DVI-I and 2x DP (4K Resolution)
- 1x M.2 2280 M Key Socket, Auto-detection for PCIex4 NVMe SSD or SATA Gen3 SSD
- 2x Front Accessible SIM Card Slots for Signal Redundancy
- 1x PCI/PCIe Slot for Add-on Cards (Maximum Length: 235 mm)
- 4x CMI Slots for Modular I/O Expansions
- 1x CFM Slot for Power Ignition Sensing Function
- Wide Operating Temperature (-40°C to 70°C)
- EN50155 (EN50121-3-2) Certified/ EN60950-1 (Pending)

Overview

DS-1201 is a high performance fanless embedded computer, powered by 8th generation Intel® Core™ processor (Coffee Lake) with up to 6 cores and 32GB 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-1201 is available with one PCI(e) expansion slot to accommodate versatile add-on cards.

Designed to operate under harsh conditions, DS-1201 has passed rigorous testing like EN50155 (EN50121-3-2) and EN60950-1 to fulfill industrial applications such as rolling stock. Besides, DS-1201 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).

Highlights



High Performance

The new 8th generation Intel® Core™ processor (Coffee Lake) offers for the first time up to 6 cores, 12 threads and 1.4 times computing performance improvement comparing to the previous generation (Kaby Lake).



Fully Modular and Expandable

Featuring PCI/PCIe expansion slot, Mini-PCIe slots, CMI (Combined Multiple I/O), CFM (Control Function Module), and versatile ready-to-use modules, DS-1201 provides great flexibility to configure the system according to your need.



Wide Temperature

DS-1201 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

Processor
- Core™ i:
  Intel® Core™ i7-8700 Hexa Core 12M Cache, up to 4.6 GHz, TDP 65W
  Intel® Core™ i5-8500 Hexa Core 9M Cache, up to 4.1 GHz, TDP 65W
  Intel® Core™ i3-8100 Quad Core 6M Cache, 3.60 GHz, TDP 65W
  Intel® Core™ i7-8700T Hexa Core 12M Cache, up to 4.0 GHz, TDP 35W
  Intel® Core™ i5-8500T Hexa Core 9M Cache, up to 3.5 GHz, TDP 35W
  Intel® Core™ i3-8100T Quad Core 6M Cache, 3.10 GHz, TDP 35W
- Pentium®:
  Intel® Pentium® G5400 Quad Core 4M Cache, 3.70 GHz, TDP 58W
  Intel® Pentium® G5400T Quad Core 4M Cache, 3.10 GHz, TDP 35W
- Celeron®:
  Intel® Celeron® G4900 Quad Core 2M Cache, 3.10 GHz, TDP 54W
  Intel® Celeron® G4900T Quad Core 2M Cache, 2.90 GHz, TDP 35W

BIOS
- AMI 32MB SPI BIOS

Chipset
- Intel® Q370

Memory
- 2x DDR4-2400/2666 MHz SO-DIMM Sockets, Supports up to 32 GB (Un-buffered and Non-ECC Type)

Graphics
- 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
- Realtek® ALC888
- High Definition Audio

External I/O Interface
- 1x DVI-I (DVI-D: 1920 x 1200 @60Hz / VGA: 1920 x 1080 @60Hz)
- 2x DisplayPort (DisplayPort: 4096 x 2304 @60Hz)
- 2x GbE LAN (Supports WoL, Teaming, Jumbo Frame & PXE), RJ45
  - GbE1: Intel® I219
  - GbE2: Intel® I210
- 2x USB 3.1 Gen2 (Type A)
- 4x USB 3.0 (Type A)
- 2x USB 2.0 (Type A)
- 2x RS-232/422/485 with Auto Flow Control (Supports 5V/12V), DB9
- 1x PS/2, 6-pin mini-DIN Female Connector
- 1x Line-out & 1x Mic-in, Phone Jack 3.5mm
- 1x ATX Power On/Off Button
- 1x AT/ATX Mode Switch
- 1x Clear CMOS Switch
- 1x Remote Reset Connector, 2-pin Terminal Block
- 1x Remote Power On/Off Connector, 2-pin Terminal Block
- 1x External Fan Connector, 4-Pin Terminal Block (Supports smart fan function)

Storage
- 2x 2.5" SATA HDD/SSD bay (Gen3), 1x Internal, 1x Front Accessable Supports RAID 0/1
- 3x mSATA (shared by Mini-PCIe socket) (Gen3), BIOS Selectable
- 1x M.2 Key M 2280 Socket, Supports PCIe x4 NVMe SSD or SATA SSD (Gen3)

Expansion
- 3x Full-size Mini-PCIe Socket
- 2x SIM Socket
- 1x CFM (Control Function Module) Interface
- 2x CMI (Combined Multiple I/O) High Speed Interface
- 2x CMI (Combined Multiple I/O) Low Speed Interface
- 2x Antenna Hole
- 1x PCI/PCIe Expansion slot (with Optional Riser Card)
  * Supports maximum dimensions of add-on card (H x L):111.15 x 235 mm

Other Functions
- Supports Instant Reboot Technology (0.2 sec)
- SuperCap Integrated for CMOS Battery Maintenance-free Operation
- Watchdog Timer: Software Programmable Supports 1~255 sec. System Reset

Power Requirement
- Supports AT/ATX Power Type
- Power Input Voltage 9~48VDC
- 1x 3-Pin Terminal Block
- Power Adapter AC/DC 24V/5A 120W or 24V/9.2A 220W (Optional)

Physical
- Dimensions (WxDxH): 227 x 261 x 108 mm
- Weight: 4.92 kg
- Construction: Extruded Aluminum with Heavy Duty Metal
- Mounting: Wall Mount
- Unibody Chassis
- Fanless Design
- Jumper-less Design

Protection
- Reverse Power Input Protection
- Over Voltage Protection: 58V
- Over Current Protection: 15A
- ESD Protection: +/-15kV (air), +/-8kV (contact)
- Surge Protection: 3.84 kV (impedance 12 ohm 1.2/50us waveform)

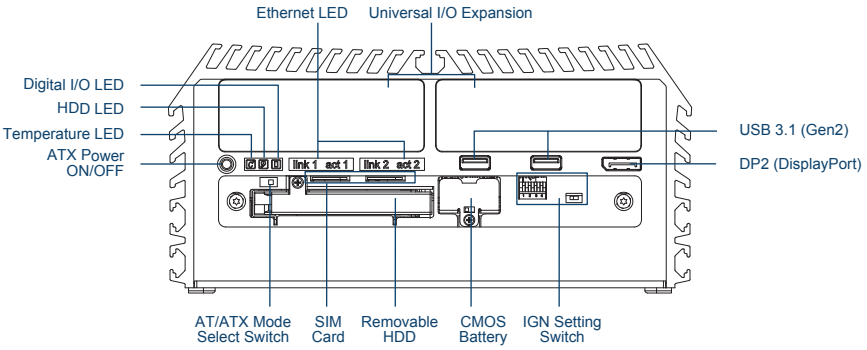
Operating System
- Windows® 10
- Linux: Supports by project

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

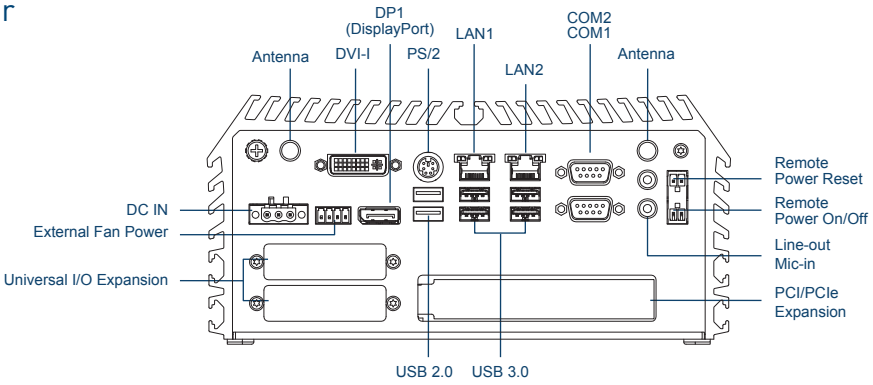
Certification
- EMC: CE, FCC Class A
- Safety: LVD, EN60950-1 (Pending)
- Railway: EN50155, EN50121-3-2

External Layout

Front

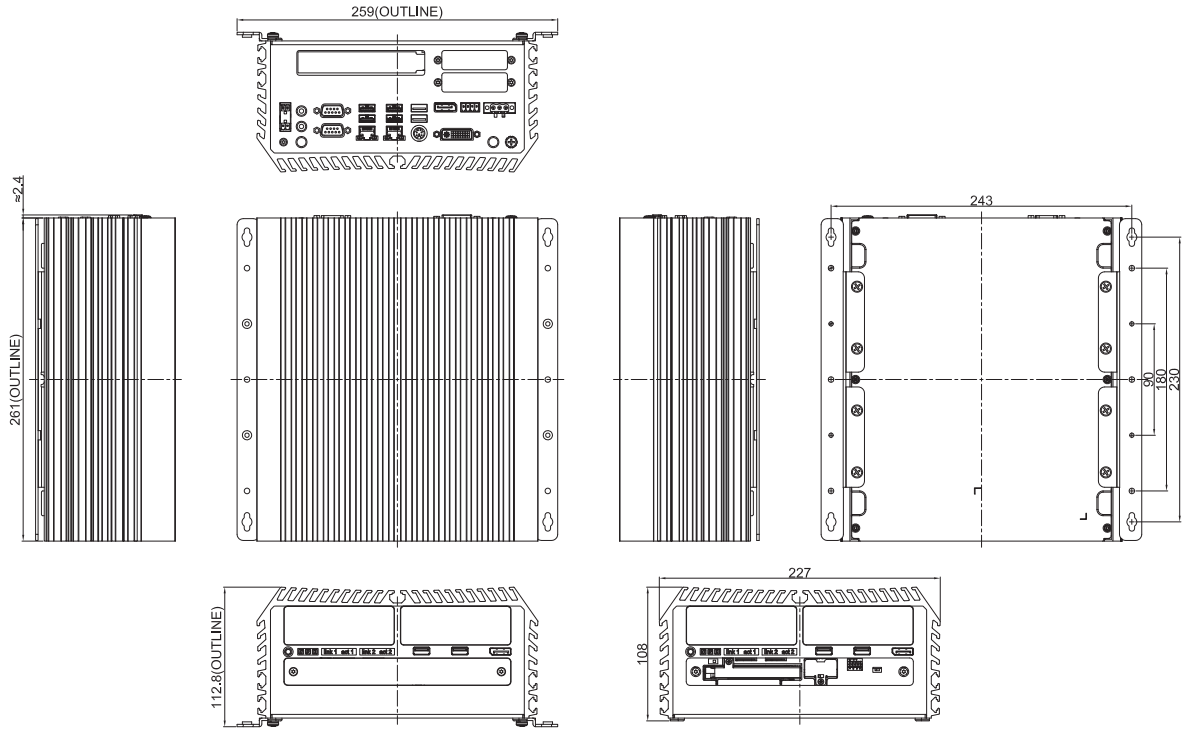


Rear



Dimensions

Unit: mm



Ordering Information

Available Models

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

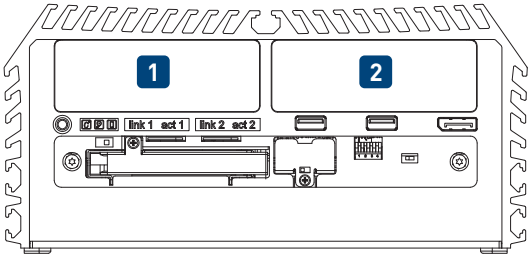
Package Checklist

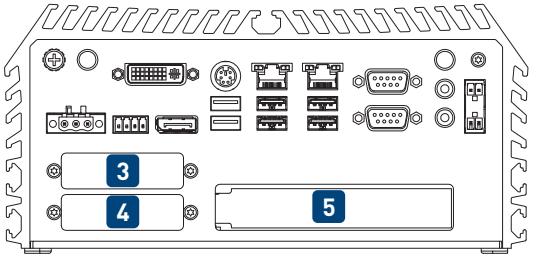
- DS-1201 Embedded System x 1
- Utility DVD Driver x 1
- Heat Sink Pack x 1
- Screw Pack x 1
- Wall Mount Kit x1
- Power Terminal Block Connector x 1
- Remote Power On/Off Terminal Block Connector x 1
- Remote Power Reset Terminal Block Connector x 1
- Fan Terminal Block Connector x 1
- DVI-I to VGA Adaptor

Optional Modules & Accessories

Model No.	Description
CFM-PoE03	CFM Module with PoE Function, Individual Port 25.5W for DS-1200 Series
CFM-IGN101	CFM Module with Power Ignition Sensing Function, 12V/24V Selectable for DS-1200/ DS-1100/ P1101 Series
CMI-LAN01/UB1012	CMI Module with 4x Intel I210-AT GbE LAN, RJ45 Port / 1x Universal Bracket with 4x RJ45 Cutout for DS-1200 Series
CMI-M12LAN01/UB1010	CMI Module with M12 Connector, 4x Intel GbE LAN / 1x Universal Bracket with 4x M12 Cutout for DS-1200 Series
CMI-DIO02/UB1018	CMI Module with 16DIO (8in 8out) / 1x Universal Bracket with DIO Cutout for DS-1200 Series
CMI-COM02/UB1004	CMI Module with 4x RS232/422/485 Ports (Support 5V/12V) / 1x Universal Bracket with 4x DB9 Cutout for DS-1200 Series
CMI-ICOM01/UB1004	CMI Module with 4x Isolated RS232/422/485 Ports (Support 5V/12V) / 1x Universal Bracket with 4x DB9 Cutout for DS-1200 Series
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 for DS / P1000 Series
MEC-USB-M002-30/UB0314	Mini-PCIe Module with 2x USB 3.0 Ports, 1x 30cm cable / 1xUniversal Bracket with 2x USB Cutout for DS Series
MEC-LAN-M002-30/UB0311	Mini-PCIe Module with 2x LAN Ports, 2x 30cm cable / 1x Universal Bracket with 2x RJ45 Cutout for DS Series
FAN-EX101	External Fan with 4pin Terminal Block Plug, Mounting Bracket, Support smart fan
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 1x PCIex16 Slot
RC-PI-01	Riser Card with 1x PCI Slot

CMI & MEC Module Configuration





Model No.	1	2	3	4	5
CMI-LAN01	V		--		--
CMI-M12LAN01	V		--		--
CMI-DIO02	V		--		--
CMI-COM02*	V		--		--
CMI-ICOM01*	V		--		--
MEC-COM-M212-DB9	--		V		--
MEC-USB-M002-30	--		V		--
MEC-LAN-M002-30	--		V		--
RC-E16-01	--		--		V
RC-PI-01	--		--		V

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

V : Compatible