

# DS-1101

6th Generation Intel® Core™ i3 / i5 / i7 (Skylake-S) High Performance, Modular and Expandable Rugged Embedded Computer with One PCI/PCIe Expansion Slot



- Supports 6th-Gen Intel® Core™ i3 / i5 / i7 Socket-type CPU (LGA1151)
- 2x DDR4 SO-DIMM Socket, 2,133MHz, Supports Up to 32 GB
- Triple Independent Display (DVI-I, DP, DP/HDMI)
- 2x 2.5" SATA HDD/SSD bay (Gen3), Supports RAID 0/1
- 1x PCI/PCIe Slot with Different Combination of Interfaces
- 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)
- EN50155 / EN50121-3-2 Certified for Railway Application



## Overview

Cincoze DS-1100 Series is a high-performance fanless embedded computer powered by 6th generation Intel® Core™ platform (Skylake-S) supporting a wide range of desktop CPUs (socket-type, LGA1151), and accommodates two DDR4 sockets up to 32 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-free operation. DS-1100 Series is suitable to deploy in a harsh environment and for critical applications, and it is totally maintenance-free.

## Highlights

### High Performance

- Supports Intel® 6th-gen Skylake-S Series Processors (65W/35W)
- Performance Enhanced by Intel® 14 nm Technology
- Intel® HD Graphics Supports Triple Independent Display Resolution Up to 4K
- Intel® Q170 Chipset Brings More High-speed I/Os



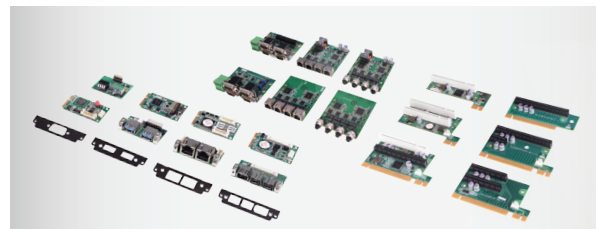
### Powerful Functionalities

- 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 Available
- PCI/PCIe Slot with Different Combination of Interfaces



## » Specifications

### System

#### Processor

- 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

- 2x DDR4 260-pin SO-DIMM socket, support up to 32 GB (2133MHz, un-buffered and non-ECC type)

#### Graphics

- Intel® HD Graphics supports triple independent display (DVI-I, DP, DP/HDMI)

#### Audio

- Realtek® ALC888-GR
- High Definition Audio

### I/O Interface

- 1x DVI-I Connector, Resolution 1920 x 1080
- 1x DisplayPort Connector, Resolution 3840 x 2160 (DP1)
- 1x DisplayPort/HDMI Connector, DP Resolution 3840 x 2160 (DP2)  
HDMI Resolution 1920 x 1080 (DP2)
- 2x GbE LAN (Support WoL, Teaming, Jumbo Frame and PXE), RJ45
  - GbE1: Intel I219LM
  - GbE2: Intel I210AT
 Optional CMI module available:
  - 4x GbE LAN, RJ45 Port
  - 4x GbE LAN, M12 Port
- PoE+ (with optional CMI module)
  - 4x PoE+, RJ45 Port (IEEE 802.3at, Offers Up to 25.5W Per Port)
  - 4x PoE+, M12 Port (IEEE 802.3at, Offers Up to 25.5W Per Port)
- 2x RS-232/422/485 with Auto Flow Control (Support 5V/12V), DB9  
Optional CMI module available:
  - 4x RS-232/422/485 (Support 5V/12V), DB9
  - 4x Electrical Isolated RS-232/422/485, DB9
- 6x USB 3.0 & 2x USB 2.0 (Type-A)
- Optical Isolated DIO (with optional CMI module)
  - 4x DI/4x DO, 10-Pin Terminal Block
- 1x Line-out & 1x Mic-in, Phone Jack 3.5mm
- 1x ATX Power On/Off Switch
- 1x AT/ATX Mode Switch
- 1x Clear CMOS Switch
- 1x Remote Power On/Off Connector, 2-Pin Terminal Block
- 1x Remote Reset Connector, 2-Pin Terminal Block
- 1x External FAN Connector, 4-Pin Terminal Block

### Storage

- 2x 2.5" SATA HDD/SSD Bay, Support RAID 0/1 (Gen3)
- 3x mSATA (shared by Mini-PCIe socket) (Gen2)

### Expansion

- 1x CFM Interface
- 2x CMI Interfaces
- 1x PCI/PCIe Expansion slot  
Optional Riser Card: • 1x PCIe16 • 1x PCI
- 3x Full-size Mini-PCIe Sockets
- 1x SIM Socket

### Other Function

- Support CFM (Control Function Module) Technology
- Support CMI (Combined Multiple I/O) Technology
- Support Instant Reboot Technology (0.2 sec)
- SuperCap Integrated for CMOS Battery-free Operation
- Watchdog Timer: Software Programmable Supports 1~255 sec. System Reset
- Power Ignition Sensing (IGN) Function (with Optional CFM module)  
12V/24V Selectable

### Power Requirement

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

### Physical

- Dimension (WxDxH): 227 x 261 x 108 mm
- Weight: 5.22 kg
- Extruded Aluminum with Heavy Duty Metal
- Support Wall Mounting
- 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: 3kW

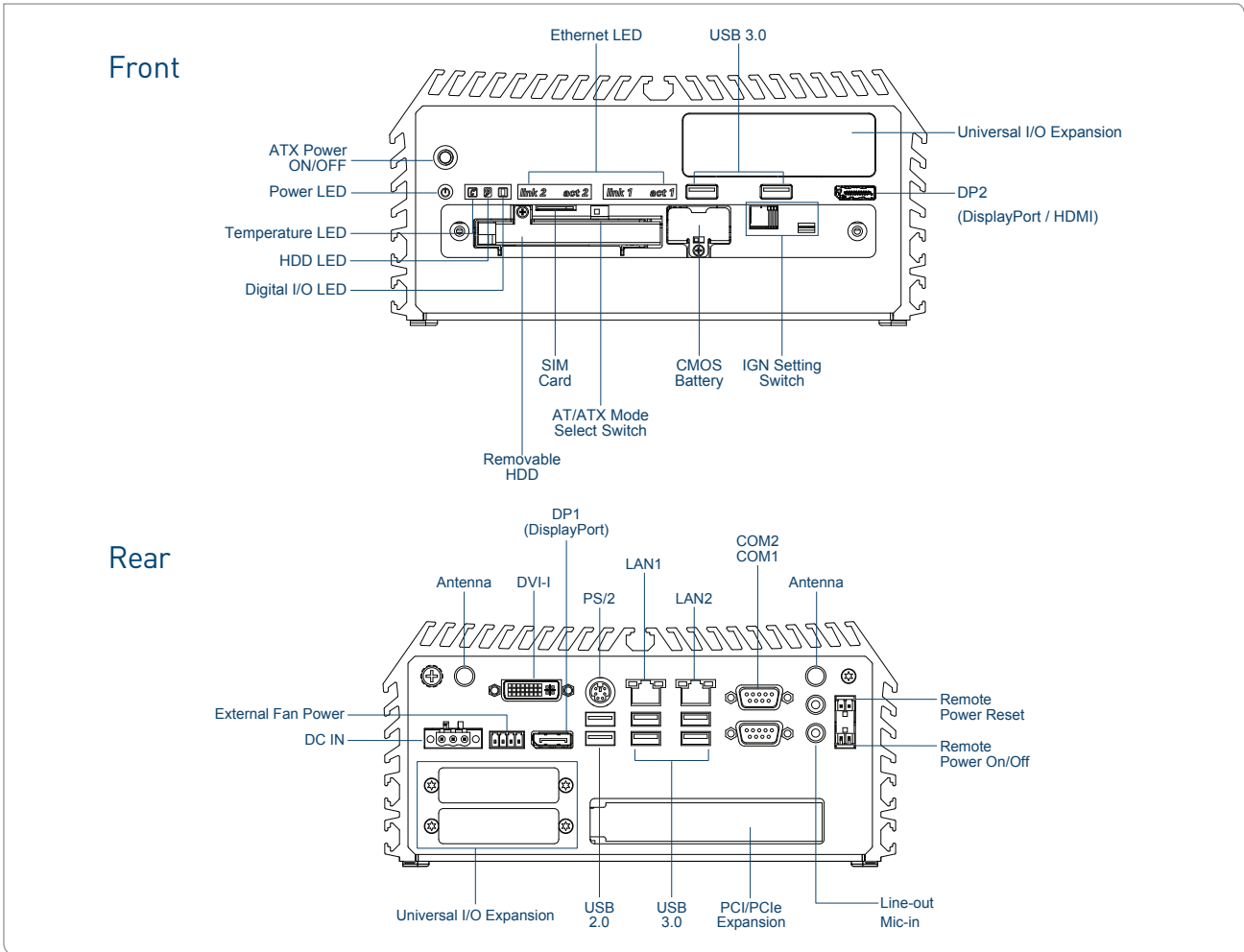
### Operating System

- Windows® 10 / 8.1 / 7
- Linux® Kernel 4.4

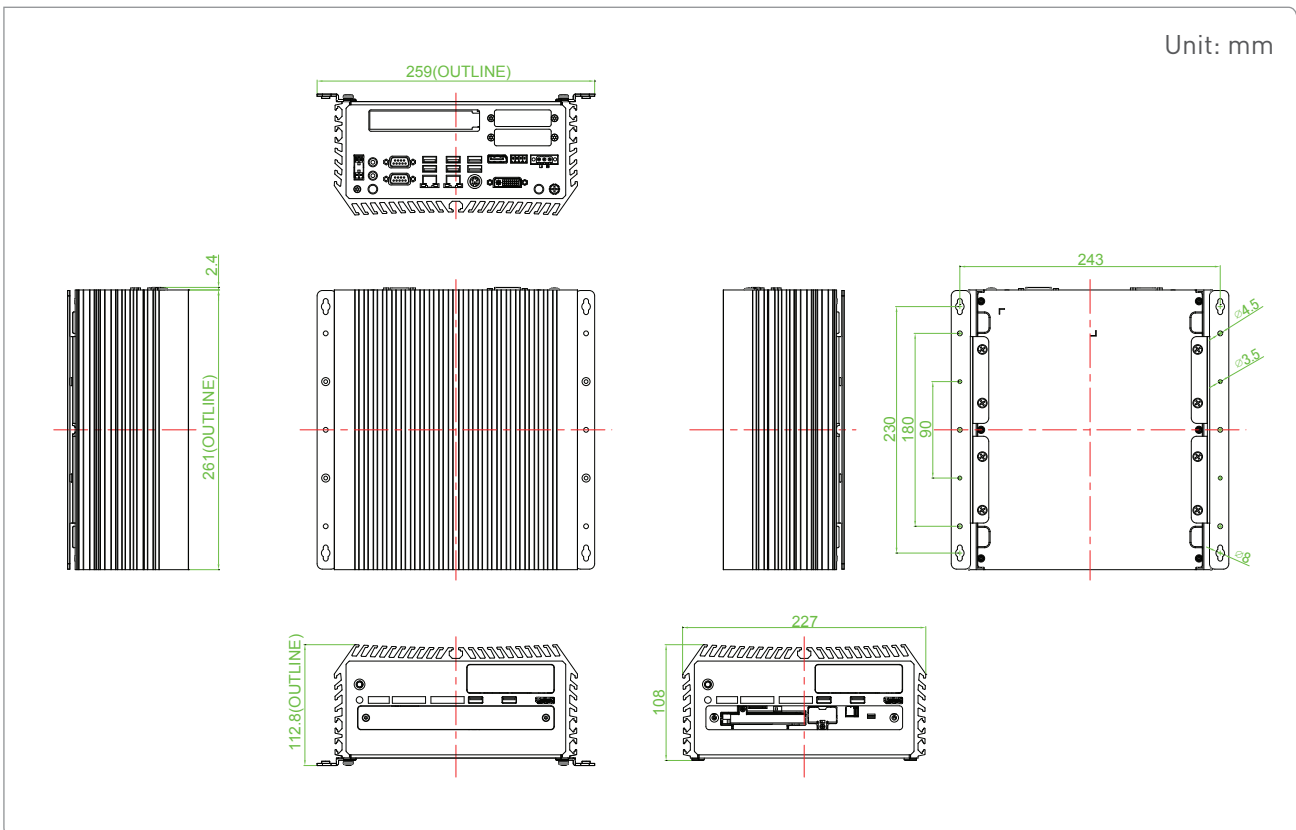
### Environment

- Operating Temperature:
  - 35W TDP Processor: -40°C to 70°C
  - 51~65W TDP Processor: -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: -40°C to 85°C
- Relative Humidity: 40°C @ 95% RH (Non-condensing)
- EMC: CE, FCC Class A
- Railway: EN50155, EN50121-3-2

External Layout



Dimensions



## Ordering Information

### Available Models

Model No.	Product Description
<b>DS-1101-R10</b>	<b>6th Gen. Intel® Core™ i3 / i5 / i7 (Skylake-S) High Performance, Modular and Expandable Rugged Embedded Computer with One PCI/PCIe Expansion Slot</b>

### Optional Modules & Accessories

Model No.	Description
CFM-IGN101	CFM Module with Power Ignition Sensing Control Function, Selectable 12V/24V (43 x 36 mm)
CMI-CD100/FB21	CMI Module with 4x RS-232/422/485 Serial Ports, 8x Optical Isolated DIO (4 in/4 out), 1x DS-1101 Front Bezel
CMI-ICD100/FB21	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
CMI-LAN104/UB0612	CMI Module with 4x Intel GbE LAN, RJ45 Port, 1x Universal Bracket (67 x 15 mm)
CMI-PoE104/UB0612	CMI Module with 4x PoE+, Intel GbE LAN, RJ45 Port, Individual Port 25.5W, 1x Universal Bracket (67 x 15 mm)
CMI-M12LAN104/UB0610	CMI Module with M12 Connector, 4x Intel GbE LAN, 1x Universal Bracket (67 x 15 mm)
CMI-M12PoE104/UB0610	CMI Module with M12 Connector, 4x PoE+, Intel GbE LAN, Individual Port 25.5W, 1x Universal Bracket (67 x 15 mm)
FAN-EX100	External Fan with 4pin Terminal Block Plug, Mounting Bracket
MEC-COM-M212/UB0303	Mini-PCIe Module with 2x COM Ports, 2x Universal Brackets (65 x 16 mm)
MEC-FIR-M003/UB0301	Mini-PCIe Module with 1x 1394A Port, 2x 1394B Ports, 1x Universal Bracket (65 x 16 mm)
MEC-LAN-M002-R1/UB0311	Mini-PCIe Module with 2x LAN Ports, 1x Universal Bracket (65 x 16 mm)
MEC-USB-M002/UB0314	Mini-PCIe Module with 2x USB 3.0 Ports, 1x Universal Bracket (65 x 16 mm)
PAH-101	Power Adapter Holder for GS120A24 (200 x 78 x 46 mm)
PAH-201	Power Adapter Holder for GS220A24 (243 x 95 x 57 mm)
GS120A24-CIN1	Adapter AC/DC 24V 5A 120W with 3pin Terminal Block Plug 5.0mm Pitch, TUBES
GS220A24-CIN1	Adapter AC/DC 24V 9.2A 220W with 3pin Terminal Block Plug 5.0mm Pitch, with TUBES
RC-E16-01	Riser Card with 1x PCIe16 Slot
RC-PI-01	Riser Card with 1x PCI Slot

### Package Checklist

- DS-1101 Embedded System x 1
- Utility DVD Driver x 1
- Heat Sink Pack x 1
- Screw Pack x 1
- Wall Mounting Kit x1
- Power Terminal Block Connector x 1
- Remote Power On/Off Terminal Block Connector x 2
- Fan Terminal Block Connector x 1
- DVI-I to VGA Adaptor