cincoze™

DV-1000

Rugged Embedded Computer

Key Benefits

- **High-Performance** Processing with 8th and 9th Generation Intel® Core™ processors
- **Compact Fanless Design** with a 224 × 162 × 64 mm footprint
- **Flexible Expansion** with dual Mini PCIe sockets and optional CMI/MEC modules
- **Industrial Connectivity** with dual GbE LAN, USB, COM and display interfaces
- **Rugged Reliability** with wide operating temperatures and MIL-STD-810G shock and vibration compliance



Overview

The DV-1000 is a compact, fanless rugged embedded computer designed for industrial edge computing applications. Powered by 8th and 9th Generation Intel® Core™ processors, it supports up to 32 GB DDR4 memory and provides flexible storage and connectivity options. Dual Mini PCIe sockets and optional CMI, MEC and CFM modules enable additional I/O and functionality. Its robust construction, wide-range DC power input and industrial-grade protection make it suitable for machine vision, manufacturing, railway infotainment and smart city applications.

Certifications

-40~70°C

MIL-STD 810G

EN50121-3-2

MEC TECHNOLOGY CMI TECHNOLOGY CFM TECHNOLOGY





TRIED, TESTED & **TRUSTED**

Specifications

Model Name	DV-1000
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 H310 Chipset
Memory	▪ 1x DDR4 2666 MHz 260-Pin SO-DIMM Socket, Supports Up to 32 GB (Un-buffered and non-ECC)
BIOS	▪ AMI BIOS
Graphics	
Graphics Engine	▪ Integrated Intel® UHD Graphics 630: Core™ i7/i5/i3 ▪ Integrated Intel® UHD Graphics 610: Pentium® /Celeron®
Maximum Display Output	▪ Supports Dual Independent Display
DP	▪ 1x DisplayPort Connector (4096 x 2304@60Hz)
VGA	▪ 1x VGA Connector (1920 x 1200 @60Hz)
Audio	
Audio Codec	▪ Realtek® ALC888, High Definition Audio
Line-out	▪ 1x Line-out, Phone Jack 3.5mm
Mic-in	▪ 1x Mic-in, Phone Jack 3.5mm
I/O	
LAN	▪ 2x GbE LAN, RJ45 - GbE1: Intel® I219 - GbE2: Intel® I210
COM	▪ 2x RS-232/422/485 with Auto Flow Control (Supports 5V/12V), DB9
USB	▪ 3x 5Gbps USB 3.2 Gen1, Type A ▪ 3x 480Mbps USB 2.0, Type A
Storage	
SSD/HDD	▪ 1x 2.5" SATA HDD/SSD Bay (SATA 3.0)
mSATA	▪ 2x mSATA Socket (SATA 3.0)
M.2 SSD	▪ 1x M.2 Key M 2280 Socket, Supports SATA SSD (SATA 3.0) and NVMe PCIe
RAID	▪ Do not Support RAID Function
Expansion	
Mini PCI Express	▪ 2x Full-size Mini-PCIe Socket

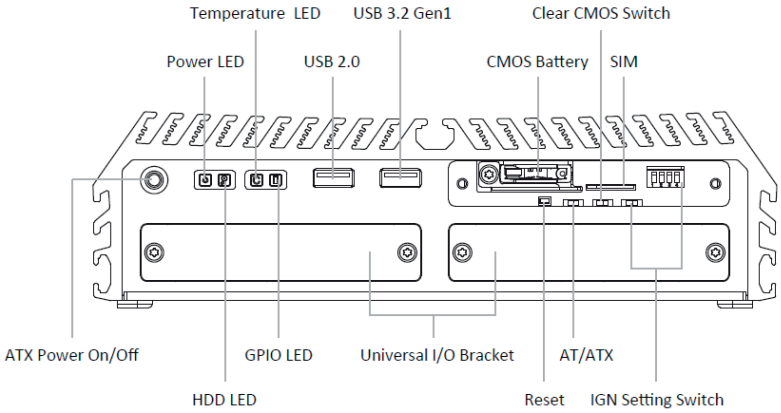
SIM Socket	▪ 1x SIM Socket
M.2	▪ 1x M.2 Key E 2230 Socket, Support Intel CNVi Module
CMI (Combined Multiple I/O) Interface	▪ 1x CMI Interface for optional CMI Display Module Expansion ▪ 2x CMI Interface for optional CMI I/O Module Expansion
CFM (Control Function Module) Interface	▪ 1x CFM IGN Interface for optional CFM-IGN Module Expansion
Other Function	
External FAN Connector	▪ 1x 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	▪ 1x Clear CMOS Switch
Reset Button	▪ 1x Reset Button
Instant Reboot	▪ Support 0.2sec Instant Reboot Technology
Watchdog Timer	▪ Software Programmable Supports 256 Levels System Reset
Power	
Power Button	▪ 1x ATX Power On/Off Button
Power Mode Switch	▪ 1x AT/ATX Mode Switch
Power Input	▪ 9 - 48VDC, 3-pin Terminal Block
Remote Power On/Off	▪ 1x Remote Power On/Off, 2-pin Terminal Block
Remote Power LED	▪ 1x Remote Power LED, 2-pin Terminal Block
Physical	
Dimension (W x D x H)	▪ 224.1 x 162 x 64.2 mm
Weight Information	▪ 2.22 KG
Mechanical Construction	▪ Extruded Aluminum with Heavy Duty Metal
Mounting	▪ Wall / DIN-RAIL / VESA Mount
Physical Design	▪ Fanless Design ▪ Cableess 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
Surge Protection	▪ 2 kV
CMOS Battery Backup	▪ SuperCap Integrated for CMOS Battery Maintenance-free Operation
MTBF	▪ 458,722 Hours - Database: Telcordia SR-332 Issue3, Method 1, Case 3
Operating System	
Windows	▪ Windows® 10
Linux	▪ Supports by project

Environment	
Operating Temperature	▪ 35W TDP Processor: -40°C to 70°C ▪ 65W TDP Processor: -40°C to 60°C (With External Fan Kit) - 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	▪ MIL-STD-810G
Vibration	▪ MIL-STD-810G
EMC	▪ CCE, 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 (with optional PPM module): AC Power: 2 kV; DC Power: 1 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	▪ IEC/EN 62368-1
Fire Protection	▪ EN 45545-2

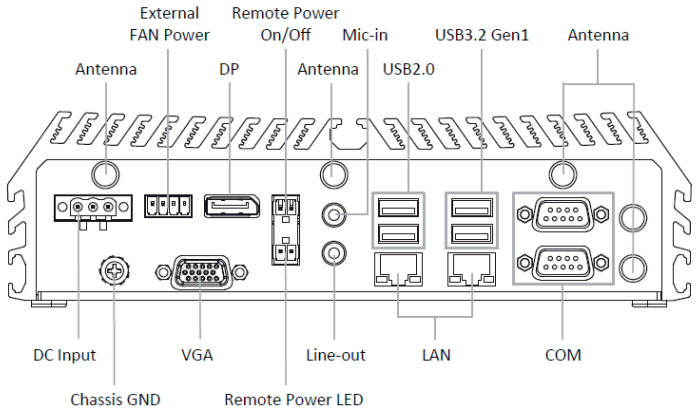
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External Layout

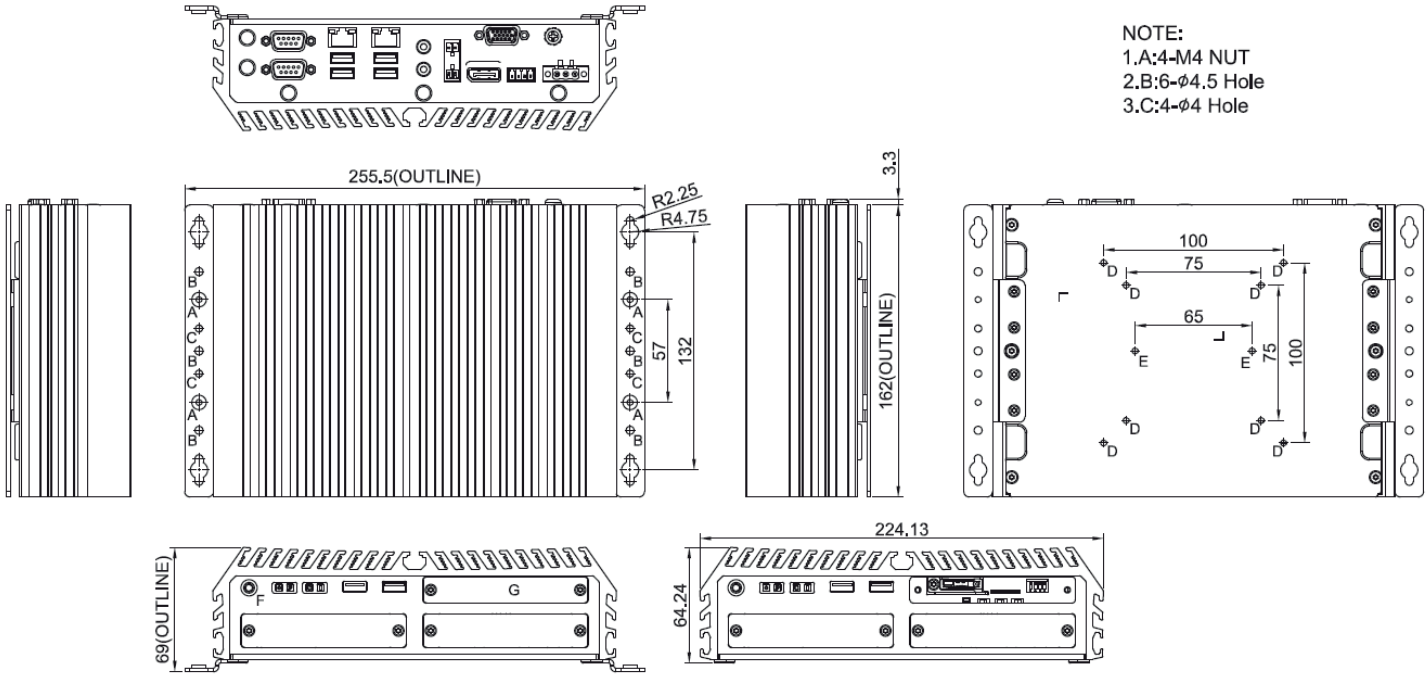
Front



Rear

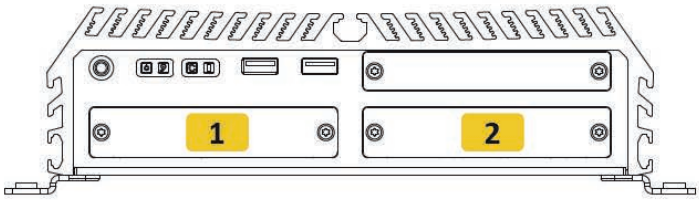


Dimensions



Unit: mm

Optional Module Configuration



Model No.	Description	1	2
CMI-DP01/UB1606 	CMI Module with 1x DisplayPort / 1x Universal Bracket with DP Cutout for DV Series	-	V
CMI-HD03/UB1608 	CMI Module with 1x HDMI® / 1x Universal Bracket with HDMI® Cutout for DV Series	-	V
CMI-COM06/UB1603 	CMI Module with 2x RS232/422/485 Ports (Support 5V/12V) / 1x Universal Bracket with 2x DB9 Cutout for DV Series	V	V
CMI-DIO06/UB1618 	CMI Module with 16DIO (8in 8out) / 1x Universal Bracket with DIO Cutout for DV Series	V	V
MEC-USB-M102-30/UB1614 	Mini-PCIe Modulewith 2x USB 3.0 Ports, 1x 30cm cable / 1x Universal Bracket with 2x USB Cutout for DV Series	V	V
MEC-LAN-M102-15/UB1611 	Mini-PCIe Module with 2x LAN Ports, 2x 15cm cable / 1x Universal Bracket with 2x RJ45 Cutout for DV Series	V	V

V : Compatible

Delivering end-to-end, like no one else.
Bring us your challenge & experience the difference.

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