

DA-1200

Intel Alder Lake-N Processor N97 Rugged Embedded Computer

POWERFUL & TINY

DA-1200, a Rugged & Cost-effective Intel Alder Lake-N Computer



Overview

The palm-sized DA-1200, equipped with an Intel® N97 processor (Alder Lake-N platform), is the smallest and an affordable model in the DIAMOND product line. It inherits the rugged features consistent throughout the Cincoze lineup and has passed or complies with many international certification standards, such as EMC standards in industrial environments (IEC 61000-6-2 and IEC 61000-6-4) and US military shock vibration standards (MIL-STD-810H). The DA-1200 is best for IoT gateway applications in smart manufacturing, smart logistics, and factory automation.

Key Features

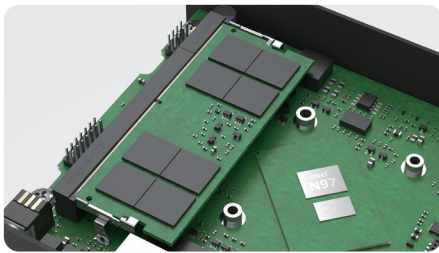
- Onboard Intel® Alder Lake-N Processor N97
- Ultra Compact Size (150 x 105 x 52.3 mm)
- 1 x DDR5 SO-DIMM Sockets, Supports Up to 4800MHZ, 16GB
- 1 x M.2 Key B Type 3052/3042 Socket for 5G/Storage/Add-on Card Expansion
- 1 x M.2 Key B Type 2242 Socket for Storage/Add-on Card Expansion
- Optional CMI modules for I/O expansion
- Wide Operating Temperature -40°C to 70°C
- Safety Standard: UL, cUL, CB, IEC, EN 62368-1

Certifications



Palm-Sized

The DA-1200 measures 150 x 105 x 52.3 mm and can fit in the palm of your hand.

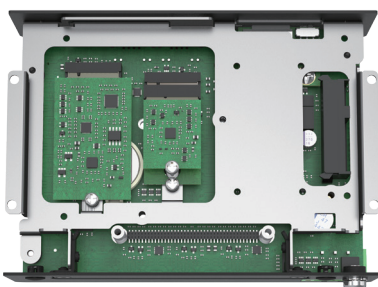


Affordable High Performance

The DA-1200 has an Intel® N97 processor based on the Intel® 7 process and up to 16GB of DDR5 memory, giving it excellent overall performance at a highly competitive price.

Easy Maintenance

Setup and adjustment of the DA-1200 is quick because key buttons and functions, including the reset switch, clear CMOS switch, AT/ATX switch, and SIM card slot, are all accessible on the front panel maintenance area.

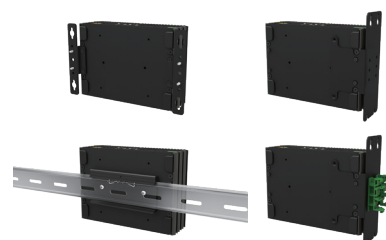


Modular Expansion

The DA-1200 has two M.2 Key B slots (convertible to Key E with an optional M.2 Key B Adapter Card) for wireless cards (5G, Wi-Fi, and GNSS) and storage options that include 2.5" SSD, half-slim SSD, and M.2 SSD.

Various Installation

The DA-1200 supports various mounting methods, including wall mount, side mount, and DIN Rail mount, for installation in various applications.



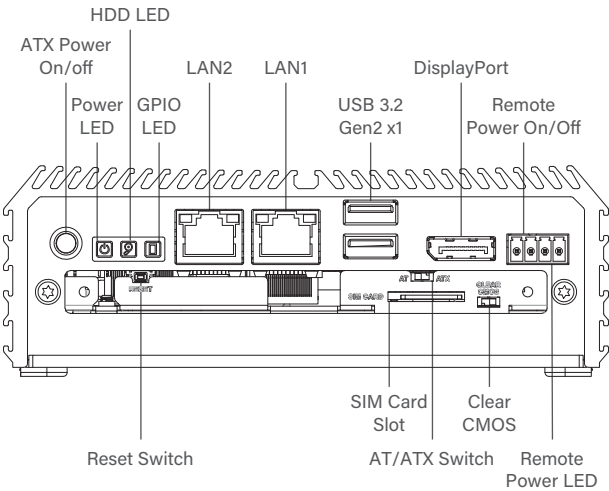
Specifications

Model Name	DA-1200
System	
Processor	Onboard Intel® Alder Lake-N Processor N97 Quad Core, up to 3.6 GHz
Memory	1x DDR5 SO-DIMM Socket - Supports DDR5 4800MHz Memory Up to 16GB (un-buffered and non-ECC)
BIOS	AMI BIOS
Graphics	
Graphics Engine	Integrated Intel® UHD Graphics
Maximum Display Output	Supports Two Independent Display (Onboard 1x DisplayPort + Optional CMI 1x Display)
DP	1x DisplayPort Connector (4096 x 2304 @ 60Hz, According to CPU Specifications) * Verified maximum resolution: 3840 x 2160 @60Hz
I/O	
LAN	2x 2.5 GbE LAN, RJ45 - GbE1: Intel® I225 - GbE2: Intel® I225
USB	2x 10Gbps USB 3.2 Gen2 x1, Type A
Storage	
SSD/HDD	1x 2.5" SATA HDD/SSD or 1x Half-Slim SSD (SATA 3.0)
M.2 SSD	1x M.2 SSD shared by M.2 Key B Type 3042/3052 Socket, Support SATA SSD (SATA3.0) 1x M.2 SSD shared by M.2 Key B Type 2242 Socket, Support NVMe SSD (PCIe Gen 3x2)
Expansion	
M.2 Key B Socket	1x M.2 Key B Type 3042/3052 Socket (PCIe Gen 3x1/ USB3.2 Gen2 x1 / SATA), Support 5G/Storage/Add-on Card Expansion 1x M.2 Key B Type 2242 (PCIe Gen 3x2), Support Storage/Add-on Card Expansion
SIM	1 x Front Accessible SIM Socket
CMI (Combined Multiple I/O) Interface	1x CMI Interface for optional CMI Module Expansion
Other Function	
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
Antenna	2x Antenna Holes
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

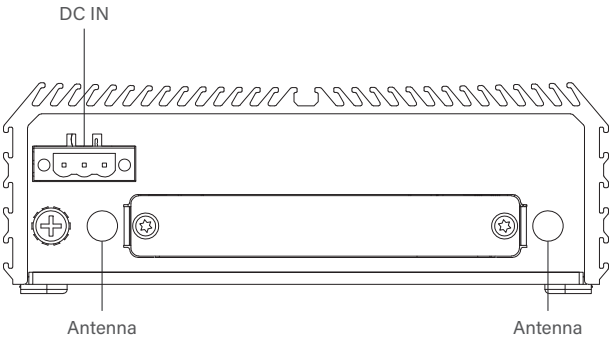
Max. Power Consumption	• N97 CPU: 47.04W - Test conducted with CPU, 1x RAM, and 1x storage - 100% load during burn-in testing
Inrush Current (Peak)	• N97 CPU: 4.356 A@12V
Physical	
Dimension (W x D x H)	• 150 x 105 x 52.3 mm
Weight Information	• 0.81 kg
Mechanical Construction	• Extruded Aluminum with Heavy Duty Metal
Mounting	• Wall / Side / DIN-RAIL / VESA Mount
Physical Design	• Fanless Design • Cableless Design • Jumper-less Design • Unibody Design
Reliability & Protection	
Reverse Power Input	• 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
MTBF	• 614,831 Hours - Database: Telcordia SR-332 Issue3, Method 1, Case 3
Operating System	
Windows	• Windows® 11, Windows® 10
Linux	• Ubuntu Desktop 22.04 LTS
Environment	
Operating Temperature	• -40°C to 70°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 70°C
Relative Humidity	• 95% RH @ 70°C (Non-condensing)
Shock	• MIL-STD-810H
Vibration	• MIL-STD-810H
EMC	• CE, UKCA, FCC, ICES-003 Class A • EN61000-6-4, EN61000-6-2 (24VDC Input Only)
EMI	• CISPR 32 Conducted & Radiated: Class A • EN/BS EN 55032 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: 4 kV; Air: 8 kV • EN/IEC 61000-4-3 RS: 80 MHz to 1000 MHz: 10 V/m • EN/IEC 61000-4-4 EFT: AC Power: 2 kV; DC Power: 1 kV; Signal: 1 kV • EN/IEC 61000-4-5 Surges: AC Power: 2 kV; Signal: 1 kV • EN/IEC 61000-4-6 CS: 10V (**Compliant with the standard when utilizing shielded ethernet cable.) • EN/IEC 61000-4-8 PFMF: 50 Hz, 30A/m • EN/IEC 61000-4-11 Voltage Dips & Voltage Interruptions: 1 cycles at 60 Hz
Safety	• UL, cUL, CB, IEC, EN 62368-1

External Layout

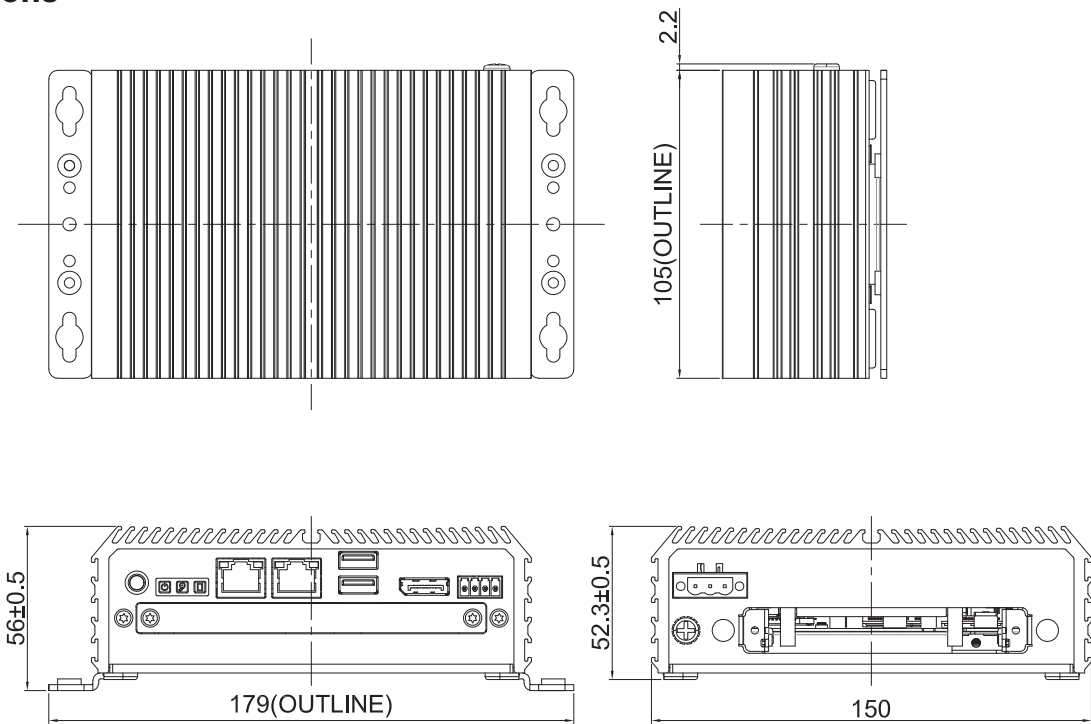
Front I/O



Rear I/O



Dimensions



Unit: mm

Ordering Information

Available Models

Model No.	Description
DA-1200-N97-R10	Intel Alder Lake-N Processor N97 Rugged Embedded Computer

Package Checklist

• DA-1200 Embedded System x1	• Wall Mounting Kit x1
• Thermal Pad (for CPU Thermal Block) x 1	• Power Terminal Block Connector x 1
• Screw Pack x 1	• Remote Function Terminal Block Connector x 1
• M.2 Key B Type 3052 to 3042 Adapter Bracket x1	

Optional Stackable Expansion Box

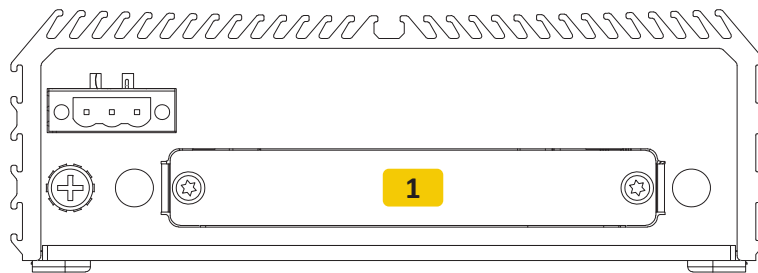
Model No.	Description
SEB-DA01-R10	Stackable Expansion Box with 2x Expansion Area for DA Series

Optional Modules and Accessories

Model No.	Description
CMI-DP101	CMI Module with 1x DisplayPort
CMI-HD01	CMI Module with 1x HDMI Port
CMI-DV1101	CMI Module with 1x DVI Connector
CMI-VGA101	CMI Module with 1x VGA Port
CMI-LPPS102	CMI Module with 1x LPT Port, 1x PS/2 Port
CMI-COM102	CMI Module with 2x RS232/422/485 Ports(Support 5V/12V), 2x DB9 Connector
CMI-DIO100	CMI Module with 8x DIO (4in 4out) Ports, 1x 10 Pin Terminal Block
MEC-COM-2012	M.2 2242/2260/2280 (B+M key) 2-port RS-232 serial board (-40°C~+85°C), 2x DB9 Connector
MEC-COM-2032i	M.2 2242/2260/2280 (B+M key) 2-port RS-232/422/485 isolated serial board (-40°C~+85°C), 2x DB9 Connector
MEC-CAN-2812i	M.2 2242/2260/2280 (B+M key) dual isolated CAN bus 2.0B board (-40°C~+85°C), 2x DB9 Connector
MEC-CAN-2814i	M.2 2242/2260/2280 (B+M key) quad isolated CAN bus 2.0B board (-40°C~+85°C), 4x DB9 Connector
MEC-LAN-2002i	M.2 2242/2260/2280 (B+M key) 2-port 10/100/1000 isolated Ethernet board(-40°C~+85°C), 2x RJ45 Connector
MEC-LAN-2002i-S	M.2 2242/2260/2280 (B+M key) 2-port 10/100/1000 isolated Ethernet board(0°C~+70°C), 2x RJ45 Connector
MEC-USB-2002-SP	M.2 2242/2260/2280 (B+M key) 2-port USB 3.2 board(0°C~+70°C), w/ IDE 20P 90° Cable, 2x USB Type A Connector
UB0403	Universal Bracket with 2x DB9 Cutout for CMI-COM, MEC-COM & MEC-CAN Expansion
UB0415	Universal Bracket with 1x 10 Pin Terminal Block Cutout for CMI-DIO Expansion
UB0409	Universal Bracket with 1x LPT, 1x PS/2 Cutout for CMI-LPPS Expansion

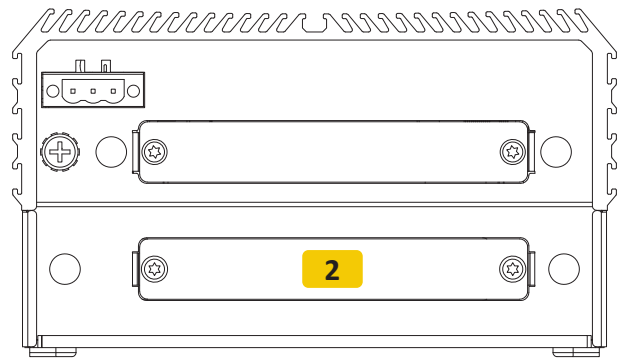
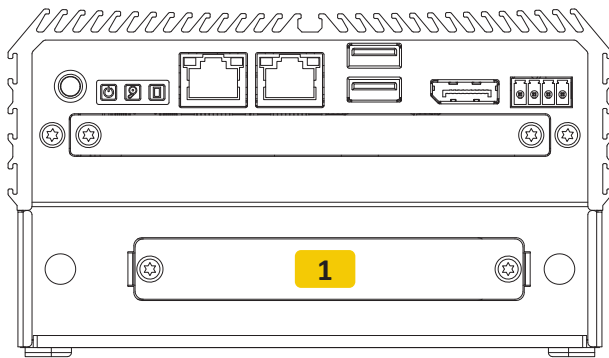
UB0406	Universal Bracket with 1x DP Cutout for CMI-DP Expansion
UB0407	Universal Bracket with 1x DVI Cutout for CMI-DVI-D Expansion
UB0411	Universal Bracket with 2x RJ45 Cutout for MEC-LAN Expansion
UB0416	Universal Bracket with 1x VGA Cutout for CMI-VGA Expansion
UB0408	Universal Bracket with 1x HDMI Cutout for CMI-HDMI Expansion
UB0429-R10	Universal Bracket with 2x Antenna Cutout
UB0434-R10	Universal Bracket with 2x USB Type A Cutout for MEC-USB (M.2 interface) Expansion
SIDE02	Side Mount Kit for DA Series, with KMRH-K175 for DIN-Rail option
DINRAIL-R10	Diamond series DIN-RAIL Mount Kit
AC-BE01-R10	M.2 Key B Type 2242 to M.2 Key E Type 2230 Adapter Card
GST60A12-CIN-1	Adapter AC/DC 12V 5A 60W, GST60A12-CIN1, wide temp(-30°C ~ +70°C)

Optional Module Configuration



Model No.	Description	1
CMI-COM102/UB0403	CMI Module with 2x RS232/422/485 Ports(Support 5V/12V), 2x DB9 Connector / Universal Bracket with 2x DB9 Cutout for CMI-COM, MEC-COM & MEC-CAN Expansion	V
CMI-DIO100/UB0415	CMI Module with 8x DIO (4in 4out) Ports, 1x 10 Pin Terminal Block / Universal Bracket with 1x 10 Pin Terminal Block Cutout for CMI-DIO Expansion	V
CMI-LPPS102/UB0409	CMI Module with 1x LPT Port, 1x PS/2 Port / Universal Bracket with 1x LPT, 1x PS/2 Cutout for CMI-LPPS Expansion	V
CMI-DP101/UB0406	CMI Module with 1x DisplayPort / Universal Bracket with 1x DP Cutout for CMI-DP Expansion	V
CMI-DVI101/UB0407	CMI Module with 1x DVI-D Connector / Universal Bracket with 1x DVI Cutout for CMI-DVI-D Expansion	V
CMI-VGA101/UB0416	CMI Module with 1x VGA Port / Universal Bracket with 1x VGA Cutout for CMI-VGA Expansion	V
CMI-HD01/UB0408	CMI Module with 1x HDMI Port / Universal Bracket with 1x HDMI Cutout for CMI-HDMI Expansion	V
UB0429-R10	Universal Bracket with 2x Antenna Cutout	V

Optional Module Configuration for Stackable Expansion Box



Model No.	Description	1	2
MEC-COM-2012/UB0403 	M.2 2242/2260/2280 (B+M key) 2-port RS-232 serial board (-40°C~+85°C), 2x DB9 Connector / Universal Bracket with 2x DB9 Cutout for CMI-COM, MEC-COM & MEC-CAN Expansion	V	V
MEC-COM-2032i/UB0403 	M.2 2242/2260/2280 (B+M key) 2-port RS-232/422/485 isolated serial board (-40°C~+85°C), 2x DB9 Connector / Universal Bracket with 2x DB9 Cutout for CMI-COM, MEC-COM & MEC-CAN Expansion	V	V
MEC-CAN-2812i/UB0403 	M.2 2242/2260/2280 (B+M key) dual isolated CAN bus 2.0B board (-40°C~+85°C), 2x DB9 Connector / Universal Bracket with 2x DB9 Cutout for CMI-COM, MEC-COM & MEC-CAN Expansion	V	V
MEC-CAN-2814i/UB0403 	M.2 2242/2260/2280 (B+M key) quad isolated CAN bus 2.0B board (-40°C~+85°C), 4x DB9 Connector / Universal Bracket with 2x DB9 Cutout for CMI-COM, MEC-COM & MEC-CAN Expansion	V	
MEC-LAN-2002i/UB0411 	M.2 2242/2260/2280 (B+M key) 2-port 10/100/1000 isolated Ethernet board(-40°C~+85°C), 2x RJ45 Connector / Universal Bracket with 2x RJ45 Cutout for MEC-LAN Expansion	V	V
MEC-LAN-2002i-S/UB0411 	M.2 2242/2260/2280 (B+M key) 2-port 10/100/1000 isolated Ethernet board(0°C~+70°C), 2x RJ45 Connector / Universal Bracket with 2x RJ45 Cutout for MEC-LAN Expansion	V	V
MEC-USB-2002-SP/UB0434-R10 	M.2 2242/2260/2280 (B+M key) 2-port USB 3.2 board(0°C~+70°C), w/ IDE 20P 90° Cable, 2x USB Type A Connector / Universal Bracket with 2x USB Type A Cutout for MEC-USB (M.2 interface) Expansion	V	V
UB0429-R10 	Universal Bracket with 2x Antenna Cutout	V	V

V : Compatible

Updated: Feb. 20, 2025