

# DC-1300

Intel® Alder Lake-N Processor Entry Performance and Compact Rugged Embedded Computer

## RUGGED · COMPACT · STACKABLE

DC-1300, an Intel Alder Lake-N Core i3/N97 Computer



### Overview

[CONTACT](#)

The DC-1300 is the entry-level option in the DIAMOND product line specially designed for basic industrial applications. It supports an Intel® Core™ i3 or N97 (Alder Lake-N) processor and maximum expansion flexibility in a compact design, providing a robust and reliable solution for space-constrained industrial automation applications.

### Key Features

- Onboard Intel® Alder Lake-N Processor N97 and Core™ i3-N305 Processor
- 1 x DDR5 SO-DIMM Sockets, Supports up to 4800MHz 16GB Memory
- 1x M.2 Key B Type 3052/3042 Socket for 5G Module Expansion
- 1x M.2 key B Type 2242 Socket for I/O Module Expansion
- CMI Technology for Optional I/O Module Expansions
- CFM Technology for Power Ignition Sensing Function

### Certifications



EN 61000-6-2



EN 61000-6-4



MIL-STD-810H

### 4.5X Performance

The Intel® Core™ i3-N305 processor (Alder Lake-N) option boasts 4.5 times the computing performance of the previous generation model, and features a DDR5 memory slot and multiple storage options (2.5" HDD/SSD, Half-Slim SSD, M.2 SSD, etc.) to flexibly meet various application needs.

#### Intel Alder Lake-N Platform



### Compact Design for Flexible Installation

The compact size of only 185 x 131 x 56.5 mm is suitable for space-constrained installs and it supports various installation methods, including wall mount, side mount and DIN-Rail.

### Complete Wireless Solution

A full range of wireless transmission options, including GSM, GNSS and Wi-Fi, are supported through the built-in SIM card slot, M.2 Key B slot, or M.2 Key E slot (using an adapter to convert from M.2 Key B).



### Rich Expandability

The new Stackable Expansion Box (SEB) adds support for more I/O, CANbus, and Fieldbus modules via the DC-1300's dual M.2 B Key slots, while CMI/CFM technology enables extra I/O ( COM, DIO, display), and IGN functions.

### International Certification

Industrial-grade protection supports wide temperatures (-40 to 70°C) and wide voltages (9-48 VDC), and passes the EMC standard for industrial environments (IEC 61000-6-2/61000-6-4). US military standard (MIL-STD-810H) ensure reliable operation across various application scenarios.



**EN 61000-6-2**



**EN 61000-6-4**



**MIL-STD-810H**



**-40 – 70°C  
-40 – 158°F**



**9 - 48VDC**

## Specifications

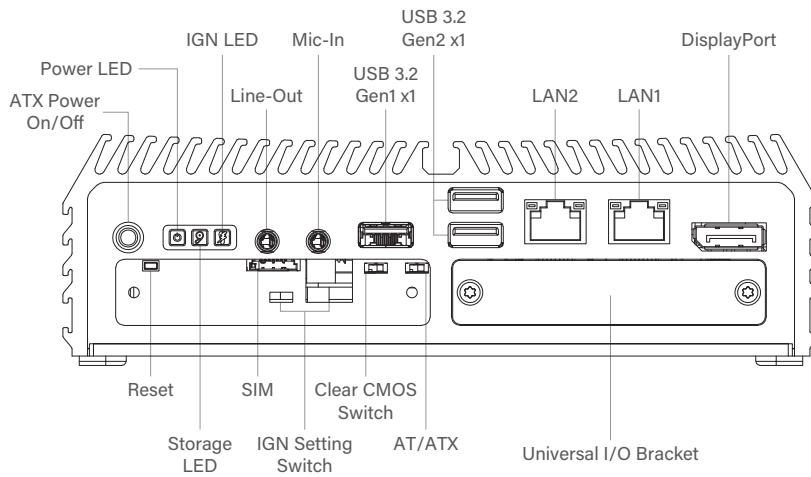
Model Name	DC-1300
<b>System</b>	
Processor	<ul style="list-style-type: none"> <li>Onboard Intel® Alder Lake-N Series Processor:                             <ul style="list-style-type: none"> <li>Intel® Core™ i3-N305 8 Cores Up to 3.80 GHz, TDP 15W</li> <li>Intel® Processor N97 4 Cores Up to 3.60 GHz, TDP 12W</li> </ul> </li> </ul>
Memory	<ul style="list-style-type: none"> <li>1x DDR5 4800 MHz SO-DIMM Socket, Supports Un-buffered and non-ECC Type, Up to 16GB</li> </ul>
BIOS	<ul style="list-style-type: none"> <li>AMI</li> </ul>
<b>Graphics</b>	
Graphics Engine	<ul style="list-style-type: none"> <li>Integrated Intel® UHD Graphics</li> </ul>
Maximum Display Output	<ul style="list-style-type: none"> <li>Supports Two Independent Display (Onboard 1x DisplayPort + Optional CMI 1x Display)</li> </ul>
DP	<ul style="list-style-type: none"> <li>1x DisplayPort Connector (4096 x 2304 @60Hz)</li> <li>* Verified maximum resolution: 3840 x 2160 @ 60Hz</li> </ul>
<b>Audio</b>	
Audio Codec	<ul style="list-style-type: none"> <li>Realtek® ALC888, High Definition Audio</li> </ul>
Line-out	<ul style="list-style-type: none"> <li>1x Line-out, Phone Jack 3.5mm</li> </ul>
Mic-in	<ul style="list-style-type: none"> <li>1x Mic-in, Phone Jack 3.5mm</li> </ul>
<b>I/O</b>	
LAN	<ul style="list-style-type: none"> <li>2x 2.5GbE LAN, RJ45                             <ul style="list-style-type: none"> <li>GbE1: Intel® I225</li> <li>GbE2: Intel® I225</li> </ul> </li> </ul>
USB	<ul style="list-style-type: none"> <li>2 x USB 3.2 Gen2x1 (10Gbps), Type A</li> <li>1 x USB 3.2 Gen1x1 (5Gbps), Type A</li> <li>1 x USB 2.0 (480Mbps), Type A</li> </ul>
COM	<ul style="list-style-type: none"> <li>2x RS-232/422/485 with Auto Flow Control (Support 5V/12V), DB9</li> </ul>
<b>Storage</b>	
SSD/HDD	<ul style="list-style-type: none"> <li>1x 2.5" SATA HDD/SSD or 1x Half-Slim SSD (SATA 3.0)</li> </ul>
M.2 SSD	<ul style="list-style-type: none"> <li>1x M.2 SSD Shared by M.2 Key B Type 3042/3052 Socket, Support SATA SSD (SATA3.0)</li> </ul>
<b>Expansion</b>	
M.2 B Key Socket	<ul style="list-style-type: none"> <li>1x M.2 Key B Type 3042/3052 Socket (PCIe Gen 3x1/ USB3.2 Gen2 x1 / SATA), Support 5G/Storage/Add-on Card Expansion</li> <li>1x M.2 Key B Type 2242 (PCIe Gen 3x1), Support Add-on Card Expansion</li> </ul>
SIM Socket	<ul style="list-style-type: none"> <li>1x Front Accessible Dual Nano SIM Socket</li> </ul>
CMI (Combined Multiple I/O) Interface	<ul style="list-style-type: none"> <li>1x CMI Interface for optional Display or I/O Module Expansion</li> <li>1x CMI Interface for optional I/O Module Expansion</li> </ul>
CFM (Control Function Module) Interface	<ul style="list-style-type: none"> <li>1x CFM Interface for optional IGN Module Expansion</li> </ul>
<b>Other Function</b>	
Clear CMOS Switch	<ul style="list-style-type: none"> <li>1x Clear CMOS Switch</li> </ul>
Reset Button	<ul style="list-style-type: none"> <li>1x Reset Button</li> </ul>
Instant Reboot	<ul style="list-style-type: none"> <li>Support 0.2sec Instant Reboot Technology</li> </ul>
Watchdog Timer	<ul style="list-style-type: none"> <li>Software Programmable Supports 256 Levels System Reset</li> </ul>
Status LED Indicator	<ul style="list-style-type: none"> <li>Power LED, Storage LED, IGN LED</li> </ul>

Antenna Holes	<ul style="list-style-type: none"> <li>• 2x Antenna Holes</li> </ul>
<b>Power</b>	
Power Button	<ul style="list-style-type: none"> <li>• 1x ATX Power On/Off Button</li> </ul>
Power Mode Switch	<ul style="list-style-type: none"> <li>• 1x AT/ATX Mode Switch</li> </ul>
Power Input	<ul style="list-style-type: none"> <li>• 9 - 48VDC, 3-pin Terminal Block</li> </ul>
Remote Power On/Off	<ul style="list-style-type: none"> <li>• 1x Remote Power On/Off, 2-pin Terminal Block</li> </ul>
Max. Power Consumption	<ul style="list-style-type: none"> <li>• i3-N305 CPU: 49.4W</li> <li>• N97 CPU: 35.9W</li> <li>- Test conducted with CPU, 1x RAM, and 1x storage</li> <li>- 100% load during burn-in testing</li> </ul>
Inrush Current (Peak)	<ul style="list-style-type: none"> <li>• i3-N305 CPU: 4.572 A@12V</li> <li>• N97 CPU: 4.475 A@12V</li> </ul>
Remote Power LED	<ul style="list-style-type: none"> <li>• 1x Remote Power LED, 2-pin Terminal Block</li> </ul>
<b>Physical</b>	
Dimension( W x D x H )	<ul style="list-style-type: none"> <li>• 185 x 131 x 56.5 mm</li> </ul>
Weight Information	<ul style="list-style-type: none"> <li>• 1.5 Kg</li> </ul>
Mechanical Construction	<ul style="list-style-type: none"> <li>• Extruded Aluminum with Heavy Duty Metal</li> </ul>
Mounting	<ul style="list-style-type: none"> <li>• Wall / Side / DIN-RAIL / VESA Mount</li> </ul>
Physical Design	<ul style="list-style-type: none"> <li>• Fanless Design</li> <li>• Cableless Design</li> <li>• Jumper-less Design</li> <li>• Unibody Design</li> </ul>
<b>Reliability &amp; Protection</b>	
Reverse Power Input Protection	<ul style="list-style-type: none"> <li>• Yes</li> </ul>
Over Voltage Protection	<ul style="list-style-type: none"> <li>• Protection Range: 51~58V</li> <li>• Protection Type: shut down operating voltage, re-power on at the preset level to recover</li> </ul>
Over Current Protection	<ul style="list-style-type: none"> <li>• 15A</li> </ul>
MTBF	<ul style="list-style-type: none"> <li>• 520,224 Hours</li> <li>- Database: Telcordia SR-332 Issue 3, Method 1, Case 3</li> </ul>
<b>Operating System</b>	
Windows	<ul style="list-style-type: none"> <li>• Windows®11, Windows®10</li> </ul>
Linux	<ul style="list-style-type: none"> <li>• Ubuntu Desktop 22.04 LTS</li> </ul>

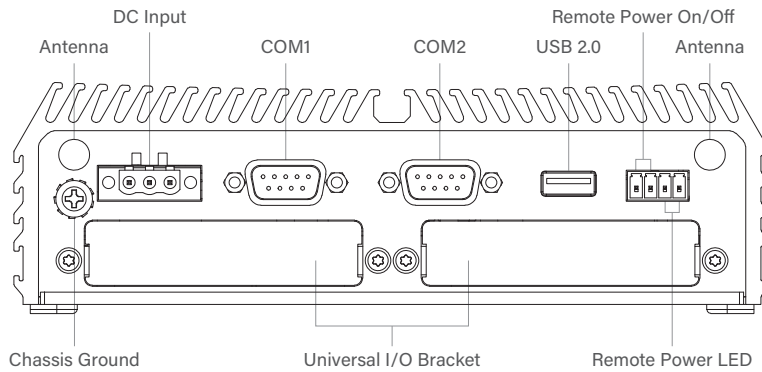
<b>Environment</b>	
Operating Temperature	<ul style="list-style-type: none"> <li>• 12W TDP Processor: -40°C to 70°C</li> <li>• 15W TDP Processor: -40°C to 60°C</li> <li>* PassMark BurnInTest: 100% CPU, 2D/3D Graphics (without thermal throttling)</li> <li>* With extended temperature peripherals; Ambient with air flow</li> <li>* According to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14</li> </ul>
Storage Temperature	<ul style="list-style-type: none"> <li>• -40°C to 70°C</li> </ul>
Relative Humidity	<ul style="list-style-type: none"> <li>• 12W TDP Processor: 95% RH @ 70°C (Non-condensing)</li> <li>• 15W TDP Processor: 95% RH @ 60°C (Non-condensing)</li> </ul>
Shock	<ul style="list-style-type: none"> <li>• MIL-STD-810H</li> </ul>
Vibration	<ul style="list-style-type: none"> <li>• MIL-STD-810H</li> </ul>
EMC	<ul style="list-style-type: none"> <li>• CE, UKCA, FCC, ICES-003 Class A</li> </ul>
EMI	<ul style="list-style-type: none"> <li>• CISPR 32 Conducted &amp; Radiated: Class A</li> <li>• EN/BS EN 55032 Conducted &amp; Radiated: Class A</li> <li>• EN/BS EN IEC 61000-3-2 Harmonic current emissions: Class A</li> <li>• EN/BS EN61000-3-3 Voltage fluctuations &amp; flicker</li> <li>• FCC 47 CFR Part 15B, ICES-003 Conducted &amp; Radiated: Class A</li> </ul>
EMS	<ul style="list-style-type: none"> <li>• EN/IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV</li> <li>• EN/IEC 61000-4-3 RS: 80 MHz to 1000 MHz: 10 V/m</li> <li>• EN/IEC 61000-4-4 EFT: AC Power: 2 kV; DC Power: 1 kV; Signal: 1 kV</li> <li>• EN/IEC 61000-4-5 Surges: AC Power: 2 kV; Signal: 1 kV</li> <li>• EN/IEC 61000-4-6 CS: 10V</li> <li>(*Compliant with the standard when utilizing shielded ethernet cable.)</li> <li>• EN/IEC 61000-4-8 PFMF: 50 Hz, 30A/m</li> <li>• EN/IEC 61000-4-11 Voltage Dips &amp; Voltage Interruptions: 1 cycles at 60 Hz</li> </ul>
Industrial Environment	<ul style="list-style-type: none"> <li>• EMC :</li> <li>- EN/BS/IEC 61000-6-4: 2019 Class A</li> <li>- EN/BS/IEC 61000-6-2: 2019</li> </ul>

**External Layout**

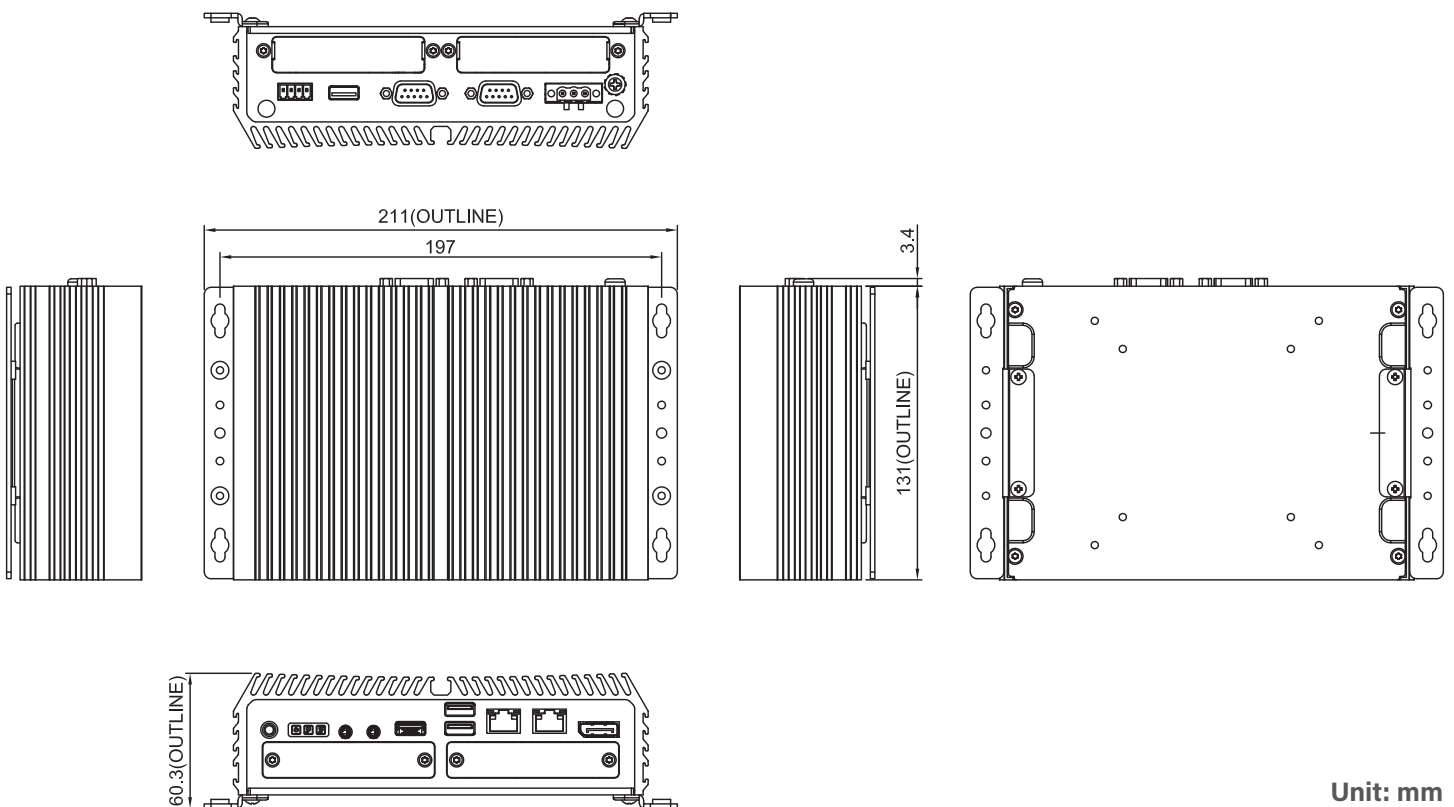
**Front I/O**



**Rear I/O**



**Dimensions**



Unit: mm

## Ordering Information

### Available Models

Model No.	Description
DC-1300-i3-R10	Intel® Core™ i3-N305 Entry Performance and Compact Rugged Embedded Computer
DC-1300-N97-R10	Intel® Processor N97 Entry Performance and Compact Rugged Embedded Computer

### Package Checklist

• DC-1300 Embedded Computer x1	• Power Terminal Block Connector x1
• CPU Thermal Pad x1	• Remote Power On/Off + Remote Power LED Connector x1
• Screw Pack x1	• M.2 Key B Type 3052 to 3042 Adapter Bracket x1
• Wall Mounting Kit x1	

### Optional Stackable Expansion Box

Model No.	Description
SEB-DC01-R10	Stackable Expansion Box with 4x Expansion Area for DC Series

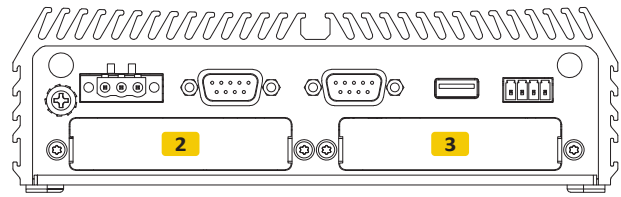
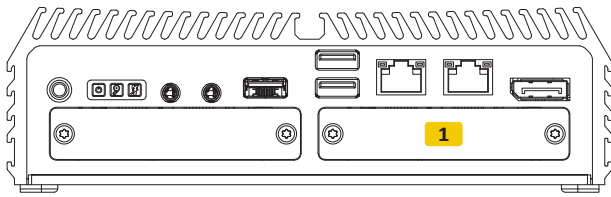
### Optional Modules and Accessories






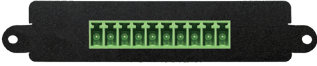

Model No.	Description
CMI-VGA01	CMI Module with 1x VGA Port
CMI-DVI01	CMI Module with 1x DVI-D Connector
CMI-HD02	CMI Module with 1x HDMI Port
CMI-DP03-R10	CMI Module with 1x DisplayPort
CMI-COM03	CMI Module with 2x RS232/422/485 Ports (Support 5V/12V), 2x DB9 Connector
CMI-DIO03	CMI Module with 8x DIO (4in 4out) Ports, 1x 10 Pin Terminal Block
CFM-IGN02	CFM Module with Power Ignition Sensing Function, Select 12V/24V
MEC-LAN-2002i	M.2 2242/2260/2280 2-port 10/100/1000 isolated Ethernet board (-40°C~+85°C), 2x RJ45 Connector
MEC-LAN-2002i-S	M.2 2242/2260/2280 2-port 10/100/1000 isolated Ethernet board (0°C~+70°C), 2x RJ45 Connector
MEC-USB-2002	M.2 2242/2260/2280 2-port USB 3.2 board (0°C~+70°C), 2x USB Type A Connector
MEC-USB-2002C	M.2 2242/2260/2280 2-port USB 3.2 board (0°C~+70°C), 2x USB Type C Connector
MEC-CAN-2812i	M.2 2242/2260/2280 (B+M key) 2x 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
UB1103	Universal Bracket with 2x DB9 Cutout for CMI-COM & MEC-CAN Expansion
UB1106-R10	Universal Bracket with 1x DP Cutout for CMI-DP Expansion
UB1107	Universal Bracket with 1x DVI Cutout for CMI-DVI Expansion
UB1108	Universal Bracket with 1x HDMI Cutout for CMI-HDMI Expansion

UB1111	Universal Bracket with 2x RJ45 Cutout for MEC-LAN Expansion
UB1114-R10	Universal Bracket with 2x USB Type A Cutout for MEC-USB Expansion
UB1115	Universal Bracket with 1x 10 Pin Terminal Block Cutout for CMI-DIO Expansion
UB1116	Universal Bracket with 1x DB9 Cutout for CMI-VGA Expansion
UB1131-R10	Universal Bracket with 2x Antenna Cutout
UB1133-R10	Universal Bracket with 2x USB Type C Cutout for MEC-USB Expansion
AC-BE01-R10	M.2 Key B Type 2242 to M.2 Key E Type 2230 Adapter Card
SIDE03	Side Mount Kit for DC Series, with KMRH-K175 for DIN-Rail Mount
DIN01	DIN-RAIL Mount Kit, KMRH-K175
VESA-DC	DC series VESA Mount Kit
GST60A12-CIN1	Adapter AC/DC 12V 5A 60W with 3pin Terminal Block Plug and Tubes, Level VI
GST120A24-CIN	Adapter AC/DC 24V 5A 120W with 3pin Terminal Block Plug and Tubes, Level VI



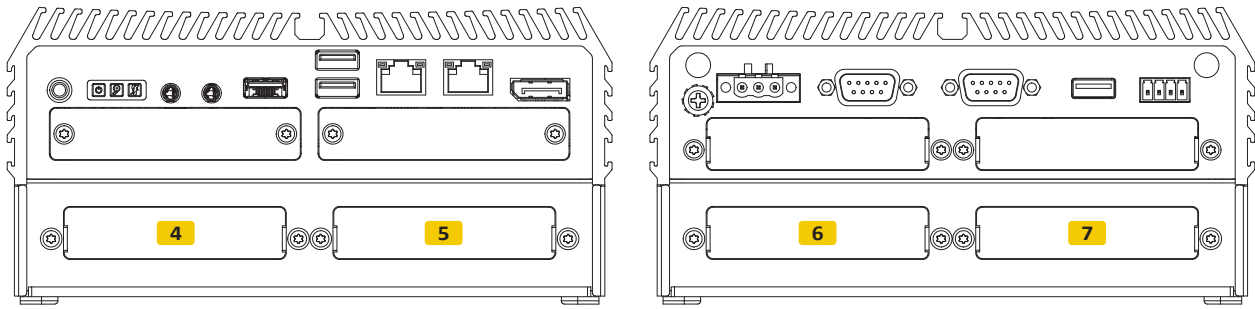
**Optional Module Configuration for DC-1300**










Model No.	Description	1	2	3
 <p>CMI-VGA01-R10/UB1116</p>	CMI Module with 1x VGA Port / Universal Bracket with 1x DB9 Cutout for CMI-VGA Expansion	-	-	V
 <p>CMI-DVI01-R10/UB1107</p>	CMI Module with 1x DVI-D Connector / Universal Bracket with 1x DVI Cutout for CMI-DVI Expansion	-	-	V
 <p>CMI-HD02-R10/UB1108</p>	CMI Module with 1x HDMI Port / Universal Bracket with 1x HDMI Cutout for CMI-HDMI Expansion	-	-	V
 <p>CMI-DP03-R10/UB1106-R10</p>	CMI Module with 1x DisplayPort / Universal Bracket with 1x DP Cutout for CMI-DP Expansion	-	-	V
 <p>CMI-COM03-R10/UB1103</p>	CMI Module with 2x RS232/422/485 Ports (Support 5V/12V), 2x DB9 Connector / Universal Bracket with 2x DB9 Cutout for CMI-COM & MEC-CAN Expansion	-	V	V
 <p>CMI-DIO03-R10/UB1115</p>	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	V
 <p>UB1131-R10</p>	Universal Bracket with 2x Antenna Cutout	-	V	V

V : Compatible

**Optional Module Configuration for Stackable Expansion Box**



Model No.	Description	4	5	6	7
 <p>MEC-LAN-2002i/UB1111</p>	M.2 2242/2260/2280 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	V	V
 <p>MEC-LAN-2002i-S/UB1111</p>	M.2 2242/2260/2280 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	V	V
 <p>MEC-USB-2002/UB1114-R10</p>	M.2 2242/2260/2280 2-port USB 3.2 board (0°C~+70°C), 2x USB Type A Connector / Universal Bracket with 2x USB Type A Cutout for MEC-USB Expansion	V	V	V	V
 <p>MEC-USB-2002C/UB1133-R10</p>	M.2 2242/2260/2280 2-port USB 3.2 board (0°C~+70°C), 2x USB Type C Connector / Universal Bracket with 2x USB Type C Cutout for MEC-USB Expansion	V	V	V	V
 <p>MEC-CAN-2812i/UB1103</p>	M.2 2242/2260/2280 (B+M key) 2x isolated CAN bus 2.0B board (-40°C~+85°C), 2x DB9 Connector / Universal Bracket with 2x DB9 Cutout for CMI-COM & MEC-CAN Expansion	V	V	V	V
 <p>MEC-CAN-2814i/UB1103</p>	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-CAN Expansion	V	V	V	V
 <p>UB1131-R10</p>	Universal Bracket with 2x Antenna Cutout	V	V	V	V

V : Compatible