iBASE CMI212 Mini-ITX Standard Systems User Manual

CMI212 System Family
Mini-ITX Standard Systems
User's Manual
Version 1.1/(December 2021)

Disclaimer
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Trademarks
All the trademarks, registrations, and brands mentioned herein are used for identification purposes only and may be trademarks and/or registered trademarks of their respective
owners.

Compliance

CE This product has passed CE tests (pre-scan) for environmental specifications and limits. This product is in accordance with the directives of the Union European (EU). If users modify and/or install other devices in this equipment, the CE conformity declaration may no longer apply.

This product has been tested and found to comply with the limits for a Class B (prescan) device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instructions, may cause harmful interference to radio communications.

WEEK

This product must not be disposed of as normal household waste, in accordance with the EU directive for waste electrical and electronic equipment (WEEE – 2012/19/EU). Instead, it should be disposed of by returning it to a municipal recycling collection point. Check local regulations for disposal of electronic products.

Green IBASE

This product is compliant with the current RoHS restrictions and prohibits use of the following substances in concentrations exceeding 0.1% by weight (1000 ppm) except for cadmium, limited to 0.01% by weight (100 ppm).

- Lead (Pb)
- Mercury (Hg)
- Cadmium (Cd)
- Hexavalent chromium (Cr6+)
- Polybrominated biphenyls (PBB)
- Polybrominated diphenyl ether (PBDE)

Contents

Important Safety Information

Carefully read the precautions before using the device.

Environmental conditions:

- Lay the device horizontally on a stable and solid surface in case the device may fall, causing serious damage.
- Leave plenty of space around the device and do not block the openings for ventilation. NEVER DROP OR INSERT ANY OBJECTS OF ANY KIND INTO THE VENTILATION OPENINGS.
- Slots and openings on the chassis are for ventilation. Do not block or cover these openings. Make sure you leave plenty of space around the device for ventilation. NEVER INSERT OBJECTS OF ANY KIND INTO THE

VENTILATION OPENINGS.

- Use this product in environments with ambient temperatures between 0˚C and 45˚C.
- DO NOT LEAVE THIS DEVICE IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20˚C OR ABOVE 80˚C. This could damage the device. The device must be used in a controlled environment.

Care for your IBASE products:

- Before cleaning the device, turn it off and unplug all cables such as power in case a small amount of electrical current may still flow.
- Use neutral cleaning agents or diluted alcohol to clean the device chassis with a cloth. Then wipe the chassis with a dry cloth.
- Vacuum the dust with a computer vacuum cleaner to prevent the air vent or slo Is from being clogged.

 **WARNING**

Attention during use:

- Do not use this product near water.
- Do not spill water or any other liquids on your device.
- Do not place heavy objects on the top of the device.
- Operate this device from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your distributor or local power company.
- Do not walk on the power cord or allow anything to rest on it.
- If you use an extension cord, make sure that the total ampere rating of the product plugged into the extension cord does not exceed its limits.

Avoid Disassembly

You are not suggested to disassemble, repair, or make any modification to the device. Disassembly, modification, or any attempt at repair could generate hazards and cause damage to the device, even bodily injury or property damage, and will void any warranty.

 **CAUTION**

The danger of explosion if internal lithium-ion battery is replaced by an incorrect type. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Warranty Policy

- **IBASE standard products:**

  24-month (2-year) warranty from the date of shipment. If the date of shipment cannot be ascertained, the product serial numbers can be used to determine the approximate shipping date.
- **3 rd -party parts:**

  12-month (1-year) warranty from delivery for the 3 rd -party parts that are not manufactured by IBASE, such as CPU, memory, HDD, power adapter, panel, and touchscreen.

PRODUCTS, HOWEVER, THAT FAIL DUE TO MISUSE, ACCIDENT, IMPROPER INSTALLATION, OR UNAUTHORIZED REPAIR SHALL BE TREATED AS OUT OF WARRANTY AND CUSTOMERS SHALL BE BILLED FOR REPAIR AND SHIPPING CHARGES.

Technical Support & Services
1. Visit the IBASE website at **www.ibase.com.tw** to find the latest information about the product.
2. If you need any further assistance from your distributor or sales representative, prepare the following information of your product and elaborate upon the problem.

- Product model name
- Product serial number
- A detailed description of the problem
- The error messages in text or in screenshots if there is any
- The arrangement of the peripherals
- Software in use (such as OS and application software, including the version numbers)

3. If repair service is required, you can download the RMA form at **http://www.ibase.com.tw/english/Supports/RMAService/**. Fill out the form and contact your distributor or sales representative.

Chapter 1
General Information

The information provided in this chapter includes:

- Features
- Specifications
- Overview
- Dimensions

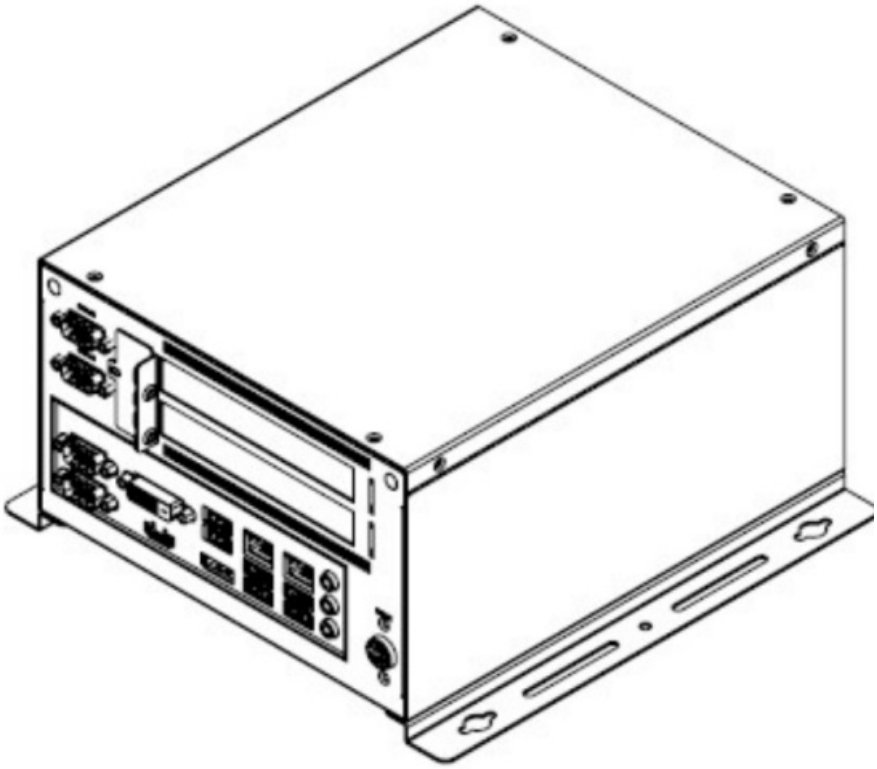
Introduction

The CMI212 System Family is a chassis applicable to different IBASE Mini-ITX motherboards listed below.

Models & Compatible Motherboards:

CMI212-991	CMI212-990	CMI212-999
MI991	MI990	MI999

This system family is able to be operated at the ambient operating temperature ranging from 0 ~ 45 °C, and even from -20 ~ 80 °C for storage.



1.2 Features

- Expandable Mini-ITX system designed for IBASE Mini-ITX motherboards
- 65W TDP (Max.) CPU
- Dual memory slot
- Triple channel for display
- Eight USB ports
- Dual LAN
- Audio Jacks
- 2.5” HDD and/or mSATA, M.2 storage
- PCIe (x16) expansion (2 slots x8)
- Internal ATX power supply DC/DC adapter with wide range DC in 19-24V

Specifications – CMI212-991 & CMI212-990

CMI212-990	CMI212-991		CMI212-990	
System				
Motherboard	MI991AF	MI991EF	M1990VF	MI990EF
CPU	Intel® 6th Gen. CoreTM i7/i5/i3 / Pentium ® / Celeron® DT Processor		Intel” 6th Gen. CoreTM i7/i5/i3 / Pentium’ / Celeron” MB Processor	
Chipset	Intel’ Q170	Intel’ H110	Intel’ CM236	Intel’ HM170
Memory	2 x DDR4-2133 SO-DIMM, upgradable to 32 GB			
Graphics	Integrated HD graphics			
Super I/O	Fintek F81846AD-I			
Storage	•2.5″ drive bay for HDD •1 x SATA			
Audio Codec	Realtek ALC888S			
Network (GbE)	Intel’ 1219LM Intel® 1211AT	Intel® I219V Intel® I211AT	Intel’ 1219LM Intel’ 1211AT	Intel’ 1219V Intel® 1211AT
Power Supply	150W AC/DC external power adapter Internal 150W DC-In 24V DC/ATX converter			
BIOS	AMI BIOS			
Watchdog	Watchdog Timer 256 segments, 0, 1, 2…255 sec/min			
Chassis	SGCC black			
Mounting	Desktop or wall mount			
Dimensions (W x H x D)	198 x 118 x 235 mm (7.8″ x 4.65″ x 9.25″)			
Net Weight	3 kg (6.61 lb)		2.7 kg (5.95 lb)	
Certificate	CE / LVD / FCC Class B (Pre-scan only)			
Operating System	•Windows 10 (64-bit) / 8.1 (64-bit) / 7 (32-bit / 64-bit) •Linux Ubuntu (64-bit)		•Windows 10 (64-bit) / 8.1 (64-bit) / 7 (64-bit) •Linux Ubuntu (64-bit)	

Product Name	**CMI212-991**	**CMI212-990**
I/O Ports		
Front Panel	2 x USB 2.0	
Rear Panel	·1 x DC Power Connector · 2 x Antenna hole · 4 x COM ports (2 RS-232 ports thru pin header) · 1 x DVI-D · 1 x HDMI · 1 x DisplayPort ·6 x USB 3.0 ·2 x RJ45 GbE LAN · 3 x Audio Jack (Line-In, Line-Out, MIC-In)	
Expansion	2 x PCIe (x16) slot [with PCIe (x8) signal] PCIe card maximum dimension: 170 x 120 x 40 mm	
Environment		
Temperature	· **Operating:** 0 ~ 45 °C (32 ~ 113 °F) · **Storage:** -20~ 80 °C (-4 ~ 176 °F)	
Relative Humidity	5 ~ 90% at 45 °C (non-condensing)	
Vibration Protection	· **Operating:** 0.25 Grms / 5 ~ 500 Hz · **Non-operating:** 1 Grms / 5 ~ 500Hz	

All specifications are subject to change without prior notice.

For detailed MB specifications, refer to the respective user manuals on our website.

Specifications – CMI212-999

Product Name	**CMI212-999W**	**CMI212-999Q**	**CMI212-999H**
System			
Motherboard	MI999AFE-W	MI999AFE-Q	MI999EFE-H
CPU	Intel® 10th Gen. Xeon®-W / Core™ / Pentium® / Celeron® 65W max	Intel® 10th Gen. Core™ / Pentium® / Celeron® 65W max	
Chipset	Intel® W480E PCH	Intel® Q470E PCH	Intel® H420E PCH
Memory	2xSO-DIMM@260-pin for DDR4-2933/ 2666 @1.2V, Max. =64GB **ECC supported	2xSO-DIMM@ 260-pin for DDR4-2933/ 2666 @1.2V, Max. =64GB	
Graphics	Integrated Intel® UHD 630 / Intel® UHD 610 (based on SKU)		
Super I/O	Fintek F81964AD-I		
Storage	· 2.5” drive bay for HDD/SSD SATA 3.0 6Gbps ·1 x M.2 Key M 2280 NVMe		
Audio Codec	Realtek ALC888S		

Network (GbE)	Intel® I219LM Intel® I210AT	Intel® I219LM Intel® I211AT	Intel® I219V Intel® I211AT
Power Supply	330W AC/DC external Power adapter Internal 300W DC-In 24V DC/ATX converter		
BIOS	AMI BIOS		
iAMT	Yes		NO
TPM	2.0		
Watchdog	Watchdog Timer 256 segments, 0, 1, 2…255 sec/min		
Chassis	SGCC black		
Mounting	Desktop or wall mount		
Dimensions (W x H x D)	198 x 118 x 235 mm (7.8” x 4.65” x 9.25”)		
Net Weight	3 kg (6.61 lb)		
Certificate	CE / LVD / FCC Class B (Pre-scan only), RoHS 2.0		
Operating System	· Windows 10 · Linux Ubuntu (64-bit)		

Product Name	**CMI212-999W**	**CMI212-999Q**	**CMI212-999H**

I/O Ports		
Front Panel	2 x USB 2.0 2 x LED (HDD, Power) 2 x button(Reset, Power)	
Rear Panel	· 1 x DC Power Connector · 2 x Antenna hole · 2 x COM RS232 · 2 x COM RS232/RS422/RS485 · 1 x DVI-D – FHD · 1 x HDMI 1.4b – 4K@30Hz ·1 x DisplayPort 1.2 – 4K@60Hz · 6 x USB 3.2 Gen 1 · 2 x RJ45 GbE LAN · 3 x Audio Jack (Line-In, Line-Out, MIC-In)	· 1 x DC Power Connector · 2 x Antenna hole ·4 x COM RS-232 · 1 x DVI-D · 1 x HDMI 1.4b ·1 x DisplayPort 1.2 · 6 x USB 3.2 Gen 1 · 2 x RJ45 GbE LAN · 3 x Audio Jack (Line-In, Line-Out, MIC-In)
Expansion	2 x PCIe (x16) slot [with PCIe (x8) signal] PCIe card maximum dimension: 170 x 120 x 40 mm GPU maximum power cumsuption: 120W (CPU 65W)	
Environment		
Temperature	· **Operating:** 0 ~ 45 °C (32 ~ 113 °F) · **Storage:** -20~ 80 °C (-4 ~ 176 °F)	
Relative Humidity	5 ~ 90% at 45 °C (non-condensing)	
Vibration Protection	· **Operating:** 0.25 Grms / 5 ~ 500 Hz · **Non-operating:** 1 Grms / 5 ~ 500Hz	

All specifications are subject to change without prior notice.
For detailed MB specifications, refer to the respective user manuals on our website.

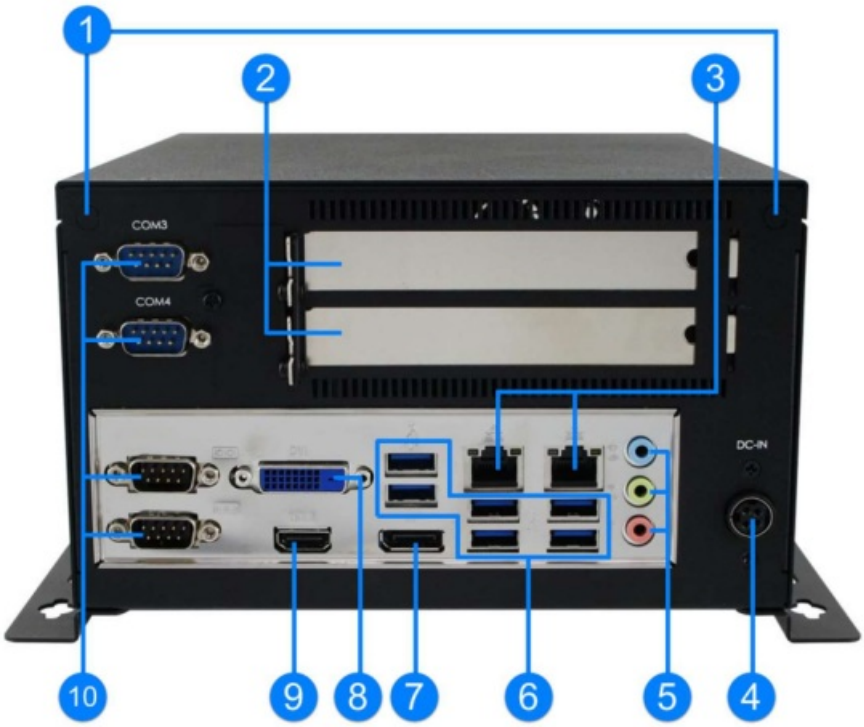
Tested CPU	
I9-10900TE	· 1.8GHz ~ 4.5GHz (benchmark 17900) 10/20 Cores
I7-10700	· 2.9GHz ~ 4.8GHz (benchmark 17200) 8/16 Cores
I7-10700TE	· 2.0GHz ~ 4.4GHz (benchmark 16300) 8/16 Cores
I5-10500TE	· 2.3GHz ~ 3.7GHz (benchmark 10700) 6/12 Cores
I3-10100TE	· 2.3GHz ~ 3.6GHz (benchmark 7500) 4/8 Cores
Pentium Gold G6400TE	· 3.2GHz (benchmark 3600) 2/4 Cores
Celeron G5900TE	· 3.0GHz (benchmark 2700) 2/2 Cores

Overview

Oblique View

No.	Name
1	Wall Mount Brackets
2	USB 2.0 Ports
3	LED Indicators for HDD & Power
4	Reset Button
5	Power Button

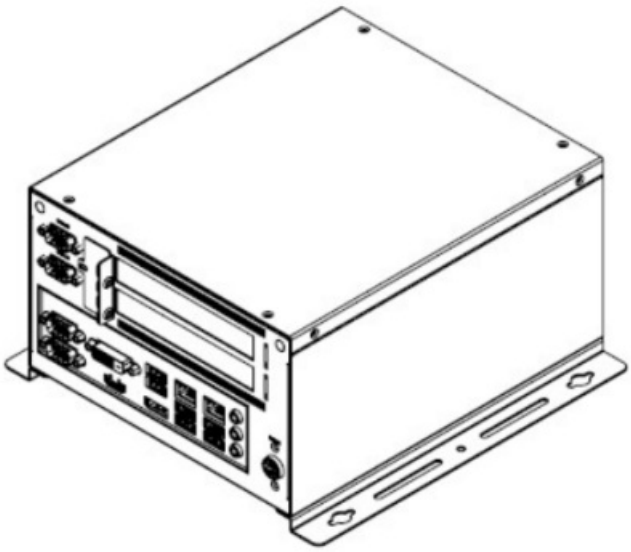
Rear View

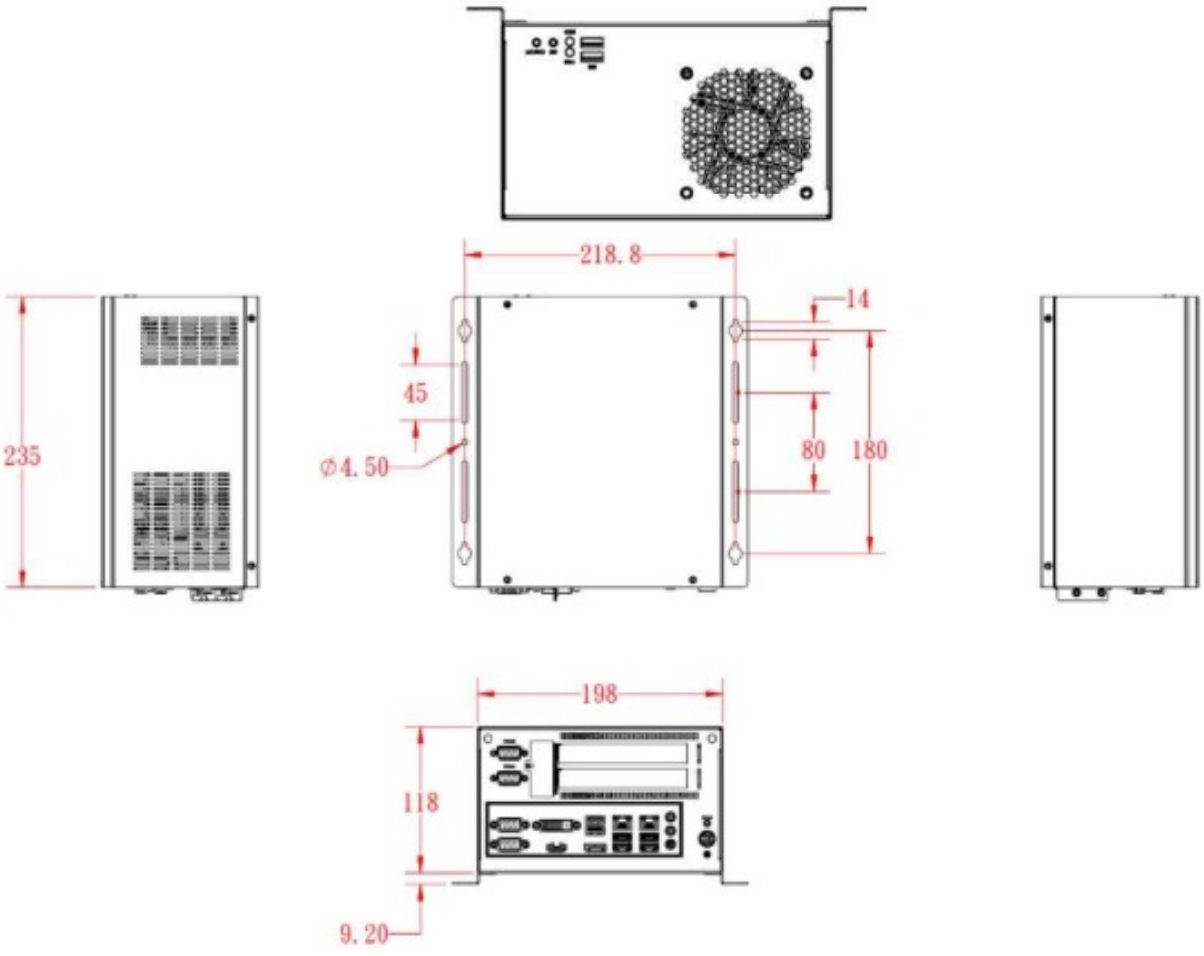


No.	**Name**	**No.**	**Name**
1	Antenna Holes	6	USB Ports *
2	2x PCIe (x8) Expansion Slot	7	DisplayPort
3	GbE LAN Ports	8	DVI-D Port
4	DC Power Connector	9	HDMI Port
5	Audio Jacks (From top to bottom: Line-In, Line-Out, Mic-In)	10	COM Ports

* CMI212-990 / CMI212-991 USB 3.0 CMI212-999 USB 3.2

Dimensions





Chapter 2
Hardware Configuration

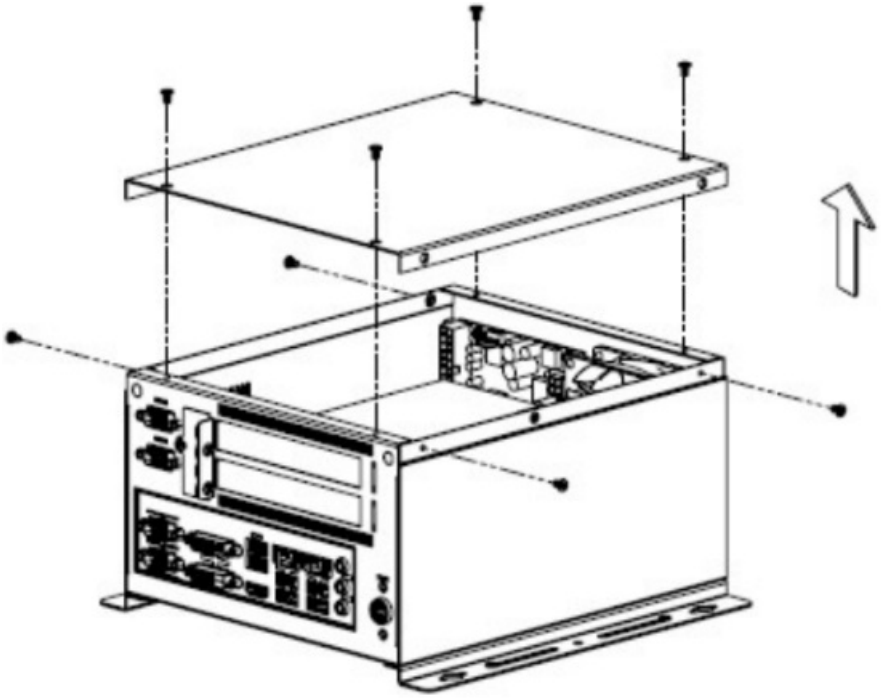
The information provided in this chapter includes:

- Essential installations before you begin: memory and HDD
- Expansion card, antenna, fan, and wall mount installation

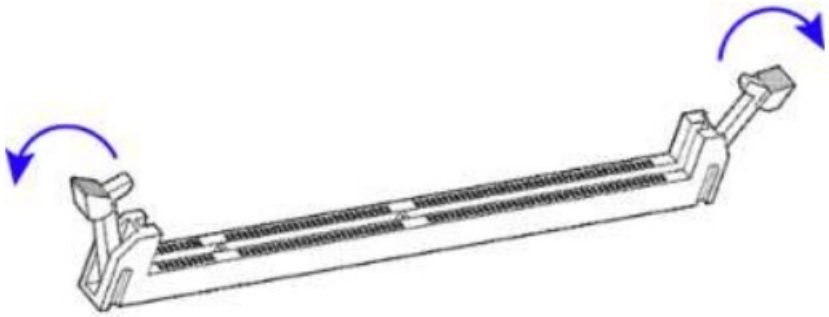
2.1 Essential Installations Before You Begin
2.1.1 Memory Installation

There are 2 memory slots inside the device. If you need to install or replace a memory module, disassemble the device cover first and then follow the instructions below for installation.

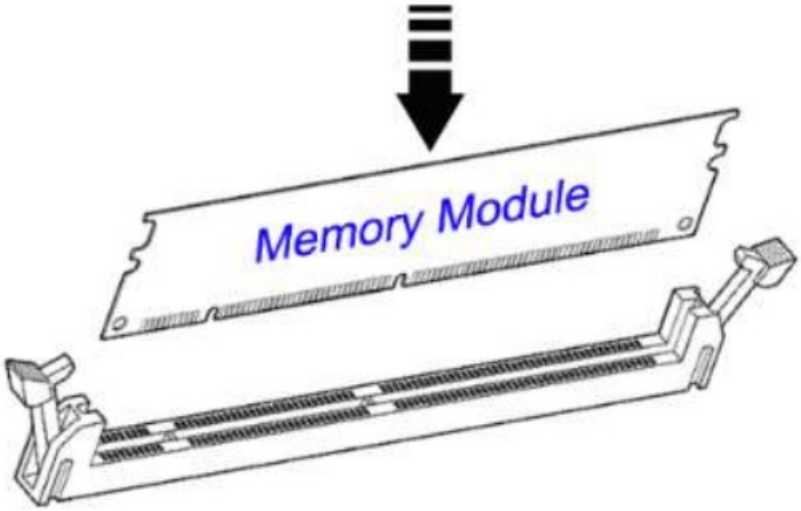
1. Loosen 8 srews from the device cover and remove the cover.



2. Press the ejector tab of the memory slot down and outwards with your fingertips.



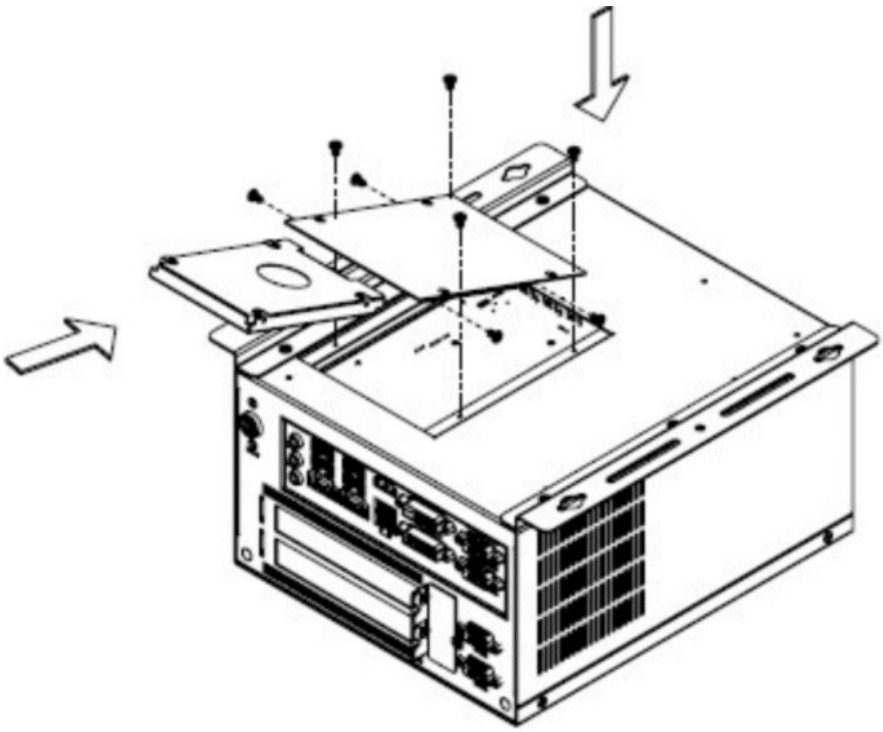
3. Hold the memory module and align the key of the module with that on the memory slot.
4. Gently push the module in an upright position until the ejector tabs of the memory slot close to hold the module in place when the module touches the bottom of the slot.



To remove the module, press the ejector tabs outwards with your fingertips to eject the module.

2.1.2 HDD Installation

If you are using a model type of CMI212 System that doesn't include an HDD, you will need to install one. Follow the instructions below for HDD installation or replacement. Loosen 4 screws to open the tray up. Loosen another 4 screws to attach your HDD, tighten the screws to fix the HDD, and connect the related cables to the motherboard.



Close and secure the tray back.

2.1.3 WiFi / 3G / 4G Antenna Installation

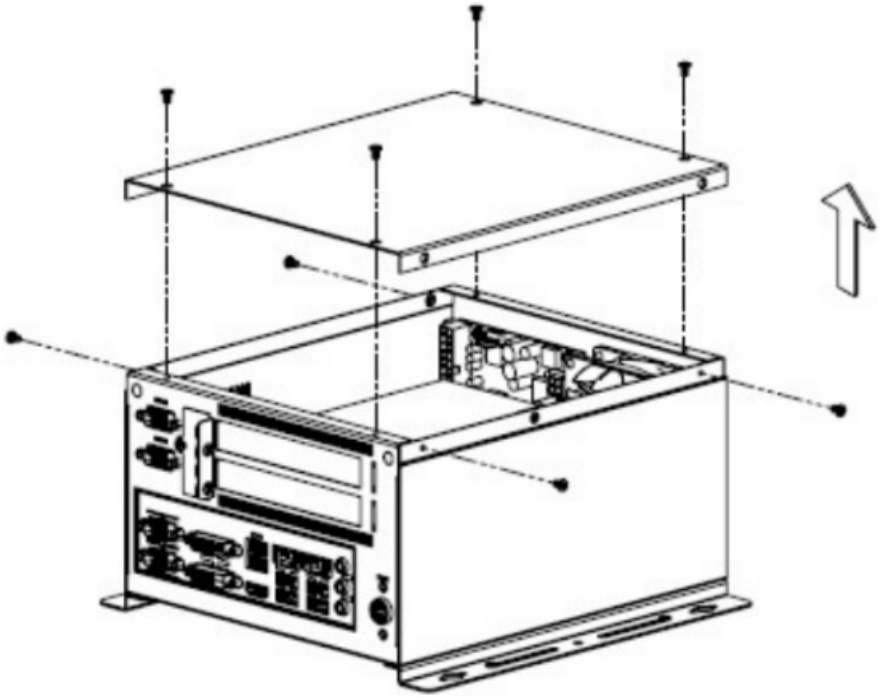
Thread the WiFi / 3G / 4G antenna extension cable through an antenna hole of the front I/O cover and fasten the antenna as shown below. Then apply adhesive to the edge of the hex nut behind the front I/O cover to prevent the extension cable from falling if the cable becomes loose.

1. Thread and fasten the hex nut and the washer. Then install the antenna.
2. Apply adhesive around here.

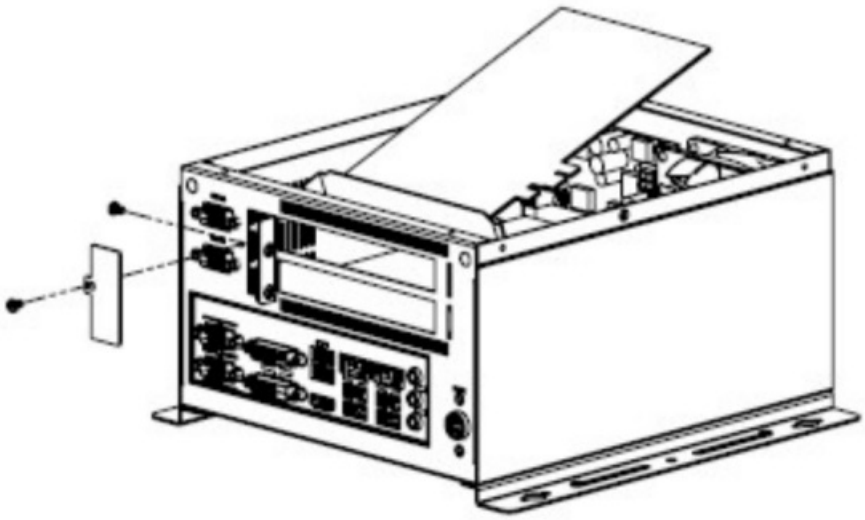
Info: The diameter of the nut is around 6.35 mm (0.25"-36UNC).

2.2 PCIe (x16) Expansion Card Installation

1. Loosen 8 srews from the device cover and remove the cover.



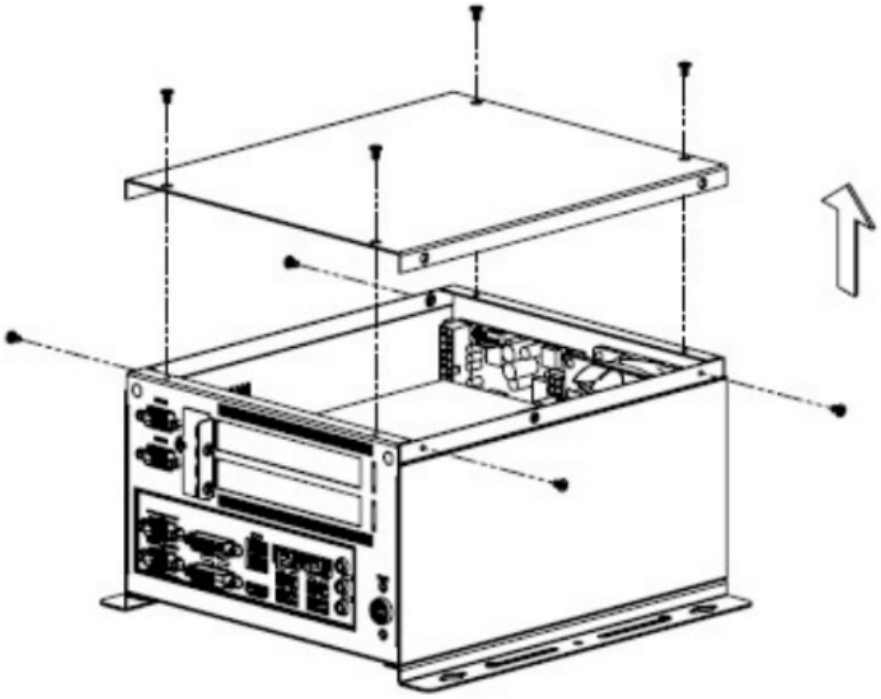
2. Release a screw to remove a small plate and another screw(s) to take out the expansion slot filler. Then install your PCIe (x16) expansion card slantwise.



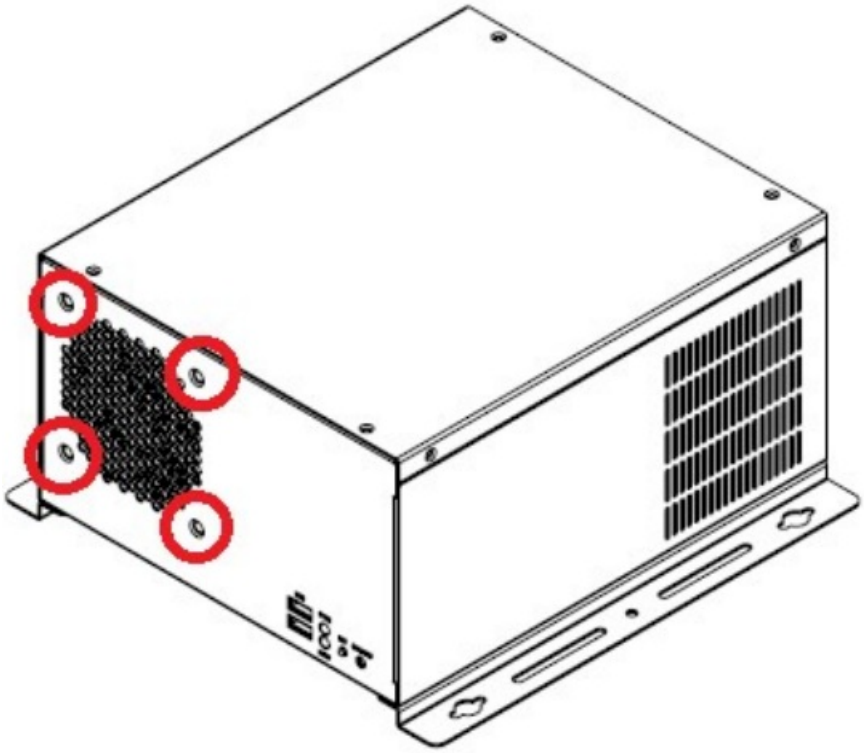
3. Fix the card by tightening the screws mentioned above.
   After installation, tighten 8 screws mentioned in Step 1 to secure the device cover.

2.3 Fan Replacement

1. Loosen 8 srews from the device cover and remove the cover.



2. Release 4 screws for a fan for replacement and tighten the screws after installation.



After installation, tighten the 6 screws mentioned in Step 1 to secure the device cover.

2.4 Mounting Brackets Installation

Note: Before mounting the system on the wall, ensure that you are following all applicable building and electric codes.

Requirements

When mounting, ensure that you have enough room for power and signal cable routing. And have good ventilation for power adapter. The method of mounting must be able to support the weight of the CMI212 System plus the suspended weight of all the cables to be attached to the system. Use the following methods for mounting your system:

Selecting the Location

Plan the mounting location thoroughly. Locations such as walkway areas, hallways, and crowded areas are not

recommended. Mount the product to a flat, sturdy, structurally sound column or wall surface.
The best mounting surface is a standard countertop, cabinet, table, or other structure that is minimally the width and length of the product. This will reduce the risk that someone may accidentally wall into and damage the product. Local laws governing the safety of individuals might require this type of consideration.
Selecting the type of wall construction

1. Mounting on a hollow wall

- **Wood surface**

  Use construction-grade wood and the recommended minimum thickness is 38 x 25.4 mm (1.5” x 10”).

Note: This method provides the most reliable attachment for the product with little risk that the product may come loose or require ongoing maintenance.

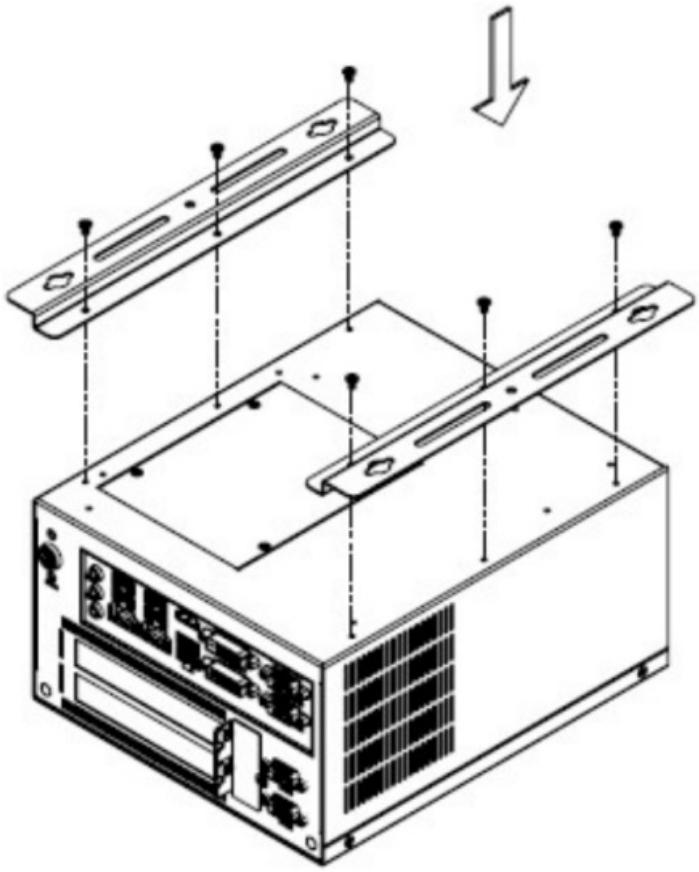
- **Drywall**

  Drywall over wood studs is acceptable.

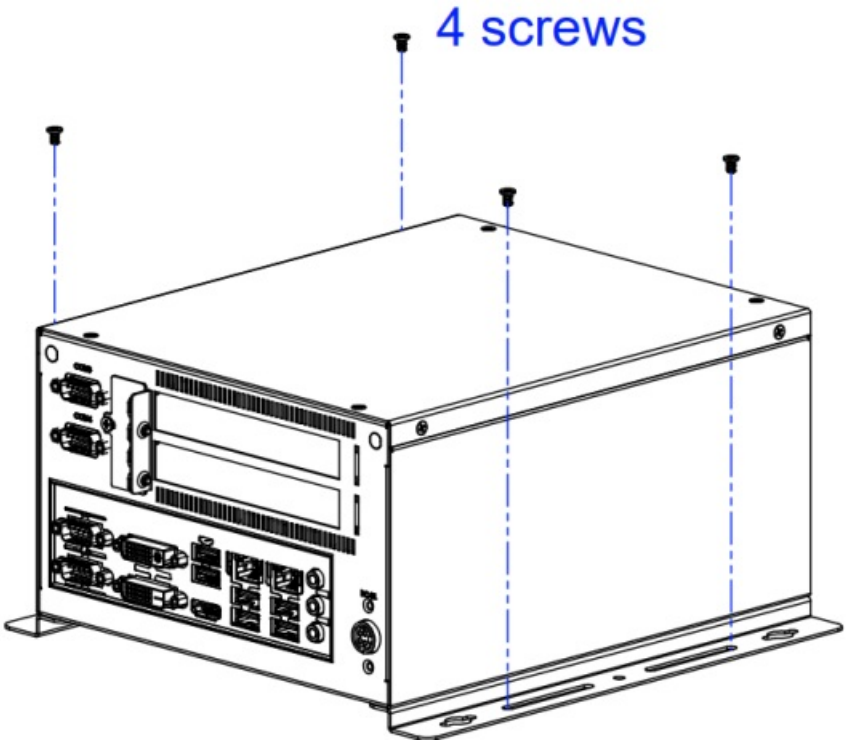
2. Mounting on a solid concrete or brick wall with flat and smooth surface

Wall Mount Installation instructions:

1. Attach the mounting brackets to your CMI212 System, and secure with the supplied six screws as below.



2. Prepare at least four screws (M3, 6 mm) to mount the device on wall.



You can install CMI212 System on plastic (LCD monitor), wood, drywall surface over studs, or a solid concrete or metal plane directly. The types of fasteners required are dependent on the type of wall construction. Fasteners are not supplied in the product package. You will need to prepare the fasteners. Choose fasteners that are rated either Medium Duty or Heavy Duty. To assure proper fastener selection and installation, follow the fastener manufacturer's recommendations.

Documents / Resources

	iBASE CMI212 Mini-ITX Standard Systems [pdf] User Manual CMI212 Mini-ITX Standard Systems, CMI212, Mini-ITX Standard Systems