CMI211 System Family
Mini-ITX Standard Systems

User's Manual

Version 1.1
(August 2021)

iBASE

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Copyright

Disclaimer

Trademarks

Compliance

$C \epsilon$

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.

FC

This product has been tested and found to comply with the limits for a Class B (pre-scan) 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 manufacturer's instructions, may cause harmful interference to radio communications.

WEEE

This product must not be disposed of as normal household waste, in accordance with the EU directive of 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)

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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 VENTIILATION 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 VENTILATIN 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 slots 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**

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.

- **3rd-party parts:**

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

∗ PRODUCTS, HOWEVER, THAT FAILS 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
    - 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.

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Table of Contents

Chapter 1
General Information

The information provided in this chapter includes:

- Features
- Specifications
- Product View
- Dimensions

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1.1 Introduction

The CMI211 System Family uses four IBASE Mini-ITX motherboards, namely, MI989, MI992, MI991 and MI990. The system family and the compatible motherboards are listed as below.

Models & Compatible Motherboards:

CMI211-989	CMI211-992	CMI211-991	CMI211-990
MI989	MI992VF	MI991	MI990

This system family has an ambient operating temperature ranging from 0°C~45°C, and -20°C~80°C for storage.

1.2 Features

- Expandable Mini-ITX system designed for IBASE Mini-ITX motherboards
- Dual memory slots
- Triple display (MI990/MI991/MI992)
- 4x DisplayPort 1.4 (MI989)
- Dual LAN
- Audio jacks
- 2.5" HDD and/or mSATA storage
- PCIe (x16) expansion slot
- ATX power supply and AC 100V~240V power input

1.3 Specifications – CMI211-989 & CMI211-992

Product Name	CMI211-989		CMI211-992
System			
Motherboard	MI989F-2748	MI989F-2718	MI992VF
CPU	AMD Ryzen™ Embedded V2000 Series on board		Intel® 7th Gen. Core™ i7-7820EQ
Chipset	SoC		Intel® CM238 PCH
Memory	2x DDR4-3200 SO-DIMM Max 64GB ECC compatible		2x DDR4 SO-DIMM Max. 32GB
Graphics	AMD Radeon Graphics		Intel HD graphics
Super I/O	Fintek F81966D-I		Fintek F81846AD-I
Storage	• 2.5" drive bay for HDD • 1 x M.2 2280		• 2.5" drive bay for HDD • 1 x mSATA
Audio Codec	Realtek ALC888S		
Network (GbE)	2x Intel® I211AT		Intel® I219LM Intel® I211AT
Power Supply	250W industrial ATX power supply AC-In 100V ~ 240V Input frequency 47Hz~63 Hz		
BIOS	AMI BIOS		
Watchdog	Watchdog Timer 256 segments, 0, 1, 2…255 sec/min		
Chassis	SECC black		
Mounting	Desktop or wall mount		
Dimensions (W x H x D)	300 x 72 x 205 mm (11.81" x 2.83" x 8.07")		
Net Weight	2.8 kg (6.17 lb)		
Certificate	CE / LVD / FCC Class B (Pre-scan only)		
Operating System	• Windows 10 (64-bit) • Linux Ubuntu (64-bit)		

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Product Name	CMI211-989	CMI211-992
I/O Ports		
Front Panel	2 x USB 2.0	
	• 2 x Antenna hole	
Rear Panel	• 1 x AC power inlet • 2 x COM ports (plus 4 reserved holes) • 2 x RJ45 Gigabit LAN • 3 x Audio Jack (Line-In, Line-Out, MIC-In)	
	• 4 x DisplayPort • 2 x USB 3.1 • 2 x USB 2.0	• 1 x Antenna hole • 1 x DVI-D • 1 x HDMI • 1 x DisplayPort • 6 x USB 3.0
Expansion	1 x PCIe (x16) slot * Maximum dimensions (W x H x D) for the add-on PCIe card is 111 x 18 x 168 mm (4.37" x 0.7" x 6.61").	
Environment		
Temperature	• **Operating:** 0°C ~ 45°C (32 ~ 113 °F) • **Storage:** -20°C ~ 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.

1.4 Specifications – CMI211-991 & CMI211-990

Product Name	CMI211-991		CMI211-990	
System				
Motherboard	MI991AF	MI991EF	MI990VF	MI990EF
CPU	Intel® 6th Gen. Core™ i7/i5/i3 / Pentium® / Celeron® DT Processor		Intel® 6th Gen. Core™ 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 mSATA			
Audio Codec	Realtek ALC662			
Network (GbE)	Intel® I219LM Intel® I211AT	Intel® I219V Intel® I211AT	Intel® I219LM Intel® I211AT	Intel® I219V Intel® I211AT
Power Supply	Industrial ATX power 250W AC-In 100 ~ 240V Input frequency 47 ~ 63 Hz			
BIOS	AMI BIOS			
Watchdog	Watchdog Timer 256 segments, 0, 1, 2…255 sec/min			
Chassis	SECC black			
Mounting	Desktop or wall mount			
Dimensions (W x H x D)	300 x 72 x 205 mm (11.81" x 2.83" x 8.07")			
Net Weight	3.1 kg (6.83 lb)		2.8 kg (6.17 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)	

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Product Name	CMI211-991	CMI211-990
I/O Ports		
Front Panel	2 x USB 2.0	
Rear Panel	• 1 x AC power inlet • 1 x Antenna hole • 2 x COM ports (plus 4 reserved holes) • 1 x DVI-D • 1 x HDMI • 1 x DisplayPort • 6 x USB 3.0 • 2 x RJ45 Gigabit LAN • 3 x Audio Jack (Line-In, Line-Out, MIC-In)	
Expansion	1 x PCIe (x16) slot * Maximum dimensions (W x H x D) for the add-on PCIe card is 111 x 18 x 168 mm (4.37" x 0.7" x 6.61").	
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.

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Product View

Oblique View

No.	Name	No.	Name
1	USB 2.0 Ports	3	Wall Mount Brackets
2	2.5" HDD Drive Bay		

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Rear View

CMI211-**992 &** CMI211-**991** & CMI211-**990**:

No.	Name	No.	Name
1	Reserved Holes (for COM Ports)	8	Audio Jacks (From top to bottom: Line-In, Line-Out, Mic-In)
2	GbE LAN Ports	9	USB 3.0 Ports
3	LED Indicators for HDD & Power	10	DisplayPort
4	PCIe (x16) Expansion Slot	11	DVI-D Port
5	AC Power Inlet	12	HDMI Port
6	Power Switch	13	COM Ports
7	Antenna Hole		

Rear View

CMI211-**989**:

No.	Name	No.	Name
1	Reserved Holes (for COM Ports)	7	GbE LAN Ports
2	LED Indicators for HDD & Power	8	Audio Jacks (From top to bottom: Line-In, Line-Out, Mic-In)
3	COM Ports	9	Power Switch
4	DP Ports	10	AC Power Inlet
5	USB 3.1 Ports	11	PCIe (x16) Expansion Slot
6	USB 2.0 Ports		

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1.5 Dimensions

Unit: mm

CMI211-991EFM-P1000 only

326
314
3-Ø4.2
2-Ø5.5
140
70
205
11.8
38.2

300
72
74
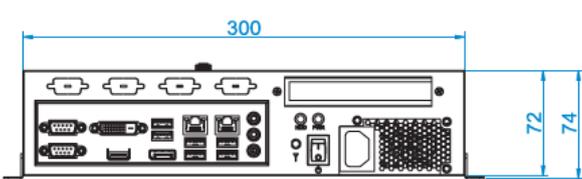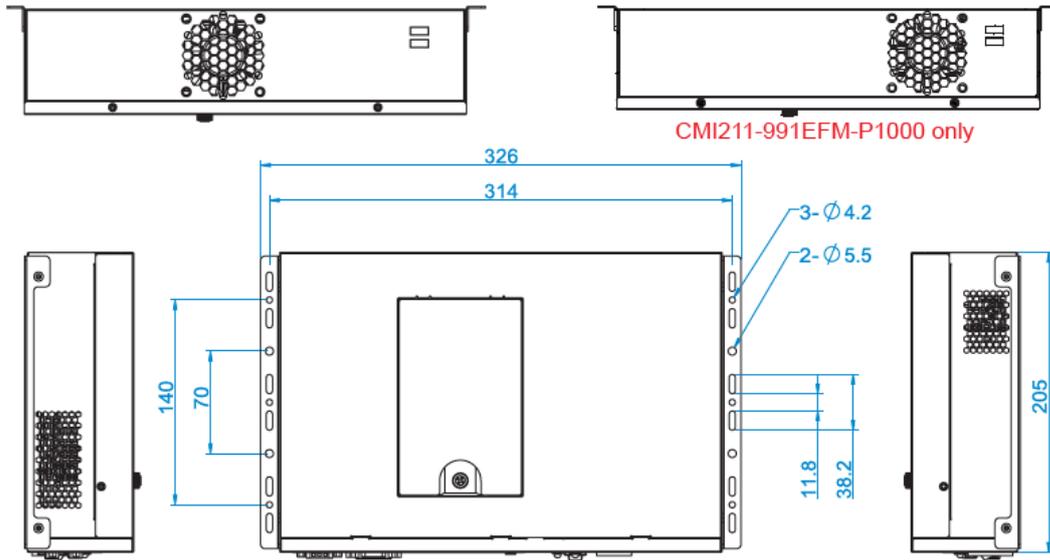
Based on MI992VF-7820 & MI991 & MI990 I/O

300
72
74
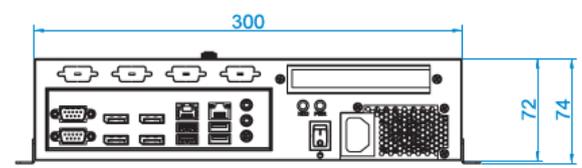
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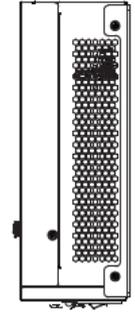
CMI211-991EFM-P1000
& CMI211-989

Chapter 2
Hardware Configuration

The information provided in this chapter includes:

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

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2.1 Essential Installations

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.

1. Loosen 4 screws on the device cover and remove the cover.
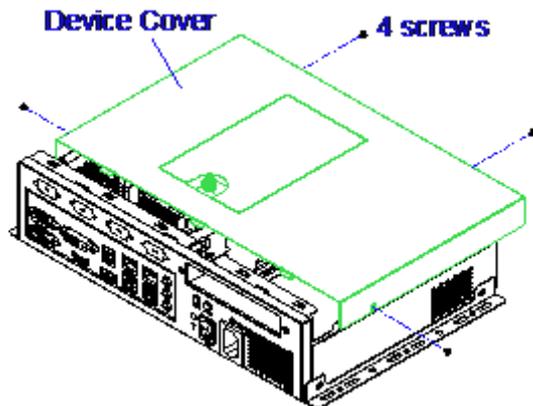
2. Press the ejector tab of the memory slot down and outwards with your fingertips.

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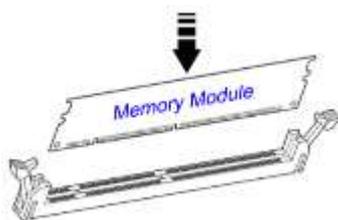
To remove the module, press the ejector tabs outwards with your fingertips to eject the module.
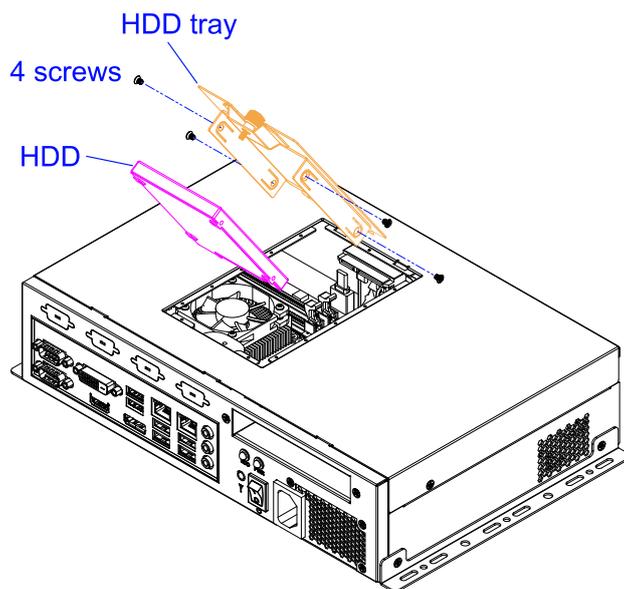
2.1.2 HDD Installation

If you are using a CMI211 system model that doesn't include a HDD, you will need to install one. Follow the instructions below for HDD installation.

1. Loosen the screw and remove the HDD tray.

Screw for HDD tray
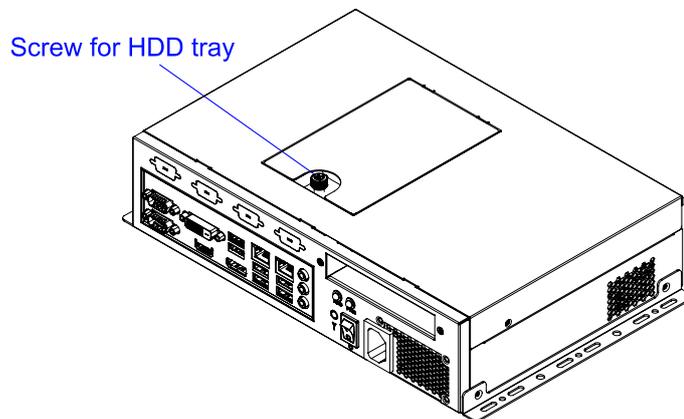
2. Use the 4 screws shown to install the HDD onto the tray and connect the related cables to the motherboard.

HDD tray

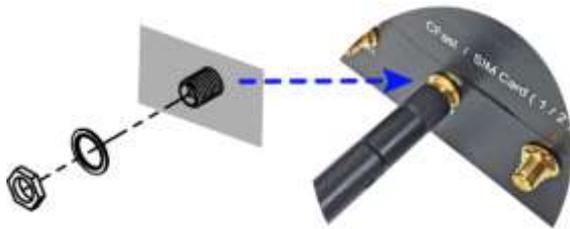4 screws

HDD

3. Return the tray back to its original position and tighten it with the screw.

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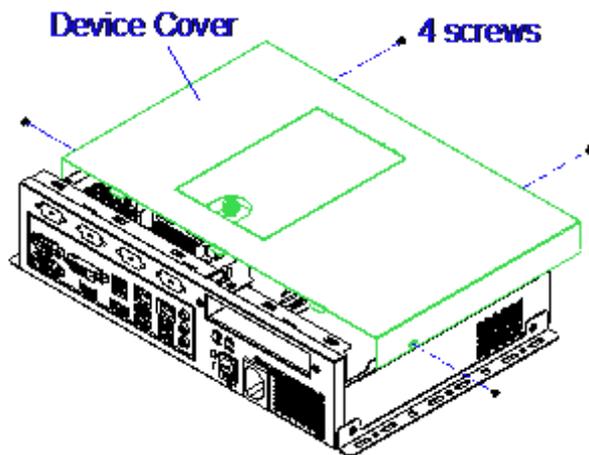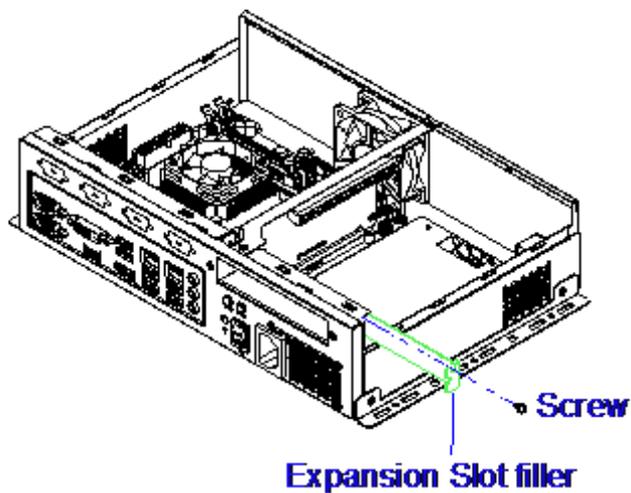
2. Apply adhesive around here.
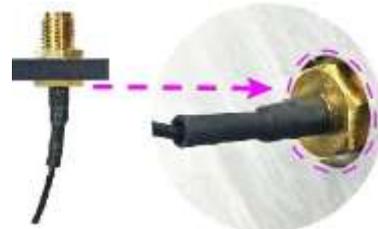
Info: The diameter of the nut is around 6.35 mm (0.25"-36UNC).

2.2 PCIe (x16) Expansion Card Installation

1. Loosen 4 screws from the device cover and remove the cover.

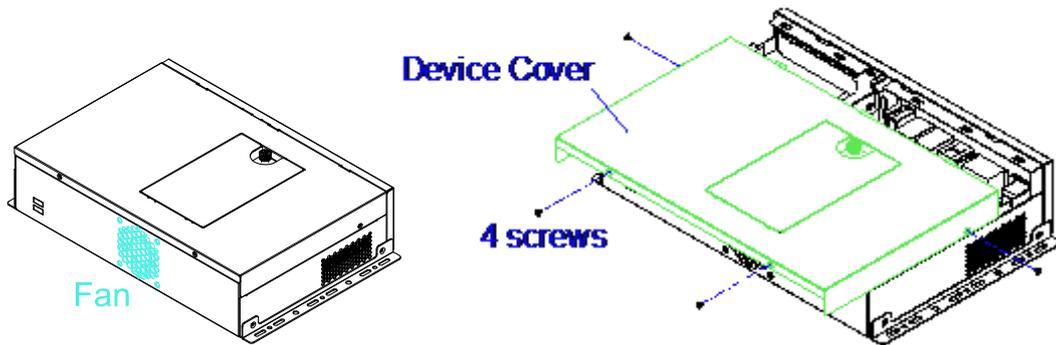2. Release a screw to take out the expansion slot filler.

3. Install your PCIe (x16) expansion card and fix the card by tightening the screw mentioned above.
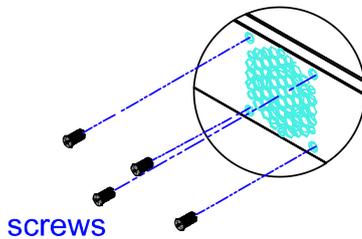
After installation, tighten 4 screws mentioned in Step 1 to secure the device cover.

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2.3 Fan Replacement

1. Loosen 4 screws to release the device cover.

2. Remove the 4 screws shown below for fan replacement and tighten the screws after fan installation.

After the fan installation, tighten the screws that are securing the device cover.

2.4   Mounting Brackets Installation

Note: Before mounting the system on 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 weight of the CMI211 System plus the suspend 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.
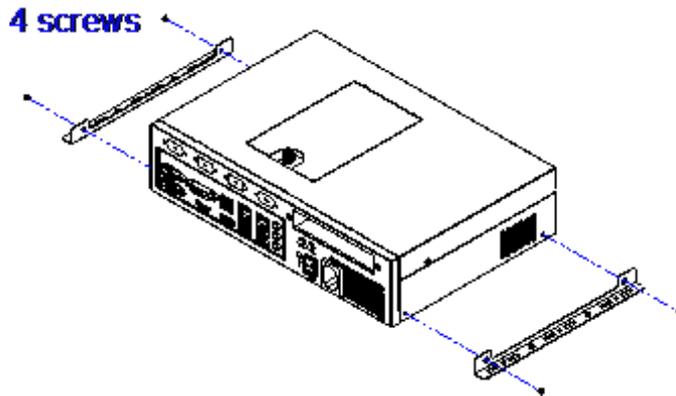
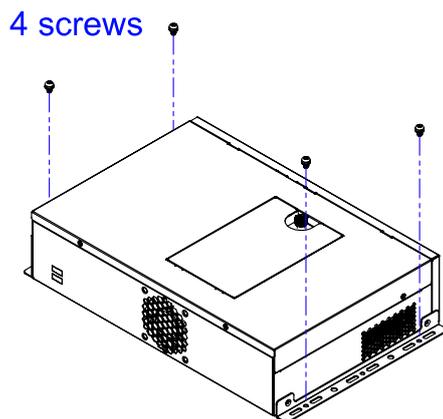   - **Drywall**
     Drywall over wood studs is acceptable.

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

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Wall Mount Installation instructions:

1. Attach the mounting brackets to the CMI211 System, and secure them with the supplied screws as shown below.

2. Prepare another four screws (M3, 6 mm) to mount the device on the target wall surface.

You can install CMI211 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.