Rugged Embedded Computer

cincoze

# DS-1400 Series

## User Manual



**Rugged Embedded Computer**

BTL-S/14/13/12th Generation Intel Core Series Processors, High Performance, Expandable and Modular Rugged Embedded Computer

Version: V1.21

# Contents

**Preface** ..... **5**
Revision ..... 5
Copyright Notice ..... 5
Acknowledgement ..... 5
Disclaimer ..... 5
Declaration of Conformity ..... 6
Product Warranty Statement ..... 6
Technical Support and Assistance ..... 7
Conventions Used in this Manual ..... 8
Safety Precautions ..... 8
Ordering Information ..... 10
**Chapter 1 Product Introductions** ..... **11**
1.1 Overview ..... 12
1.2 Specifications ..... 14
1.3 External Layout ..... 20
1.3.1 Front ..... 20
1.3.2 Rear ..... 21
1.4 Dimensions ..... 22
**Chapter 2 Introduction to Switches and Connectors** ..... **24**
2.1 Location of Switches and Connectors ..... 25
2.1.1 Top View ..... 25
2.1.2 Bottom View ..... 26
2.2 Switches and Connectors Definition ..... 27
2.3 Definition of Switches ..... 29
2.4 Definition of Connectors ..... 31
2.5 Optional Module Pin Definition & Settings ..... 38
2.5.1 CMI-2P5GLAN03/ UB1012 Module ..... 38
2.5.2 CMI-10GXM12LAN03/ UB1037 Module ..... 38
2.5.3 CMI-M12LAN01-R12/UB1010 Module ..... 39
2.5.4 CMI-XM12LAN01-R10/UB1030 Module ..... 39
2.5.5 CMI-DIO02/UB1018 Module ..... 40
2.5.6 CMI-CAN01-R10/UB1038 Module ..... 41
2.5.7 CMI-COM02/UB1004 Module ..... 42
2.5.8 CMI-ICOM01/UB1004 Module ..... 43
2.5.9 CFM-IGN101 Module ..... 44
**Chapter 3 System Setup** ..... **45**
3.1 Removing Top Cover ..... 46

3.2 Installing CPU ..... 48
3.3 Installing SO-DIMM ..... 52
3.4 Installing Mini-PCIe Card ..... 54
3.5 Installing M.2 M Key Card ..... 55
3.6 Installing Antenna ..... 56
3.7 Installing Antenna Cutout Universal Bracket (Rear) ..... 58
3.8 Installing Antenna Cutout Universal Bracket (Front) ..... 59
3.9 Installing SATA Hard Drive on Top Side ..... 60
3.10 Installing Riser Card ..... 61
3.10.1 Method 1 ..... 61
3.10.2 Method 2 ..... 65
3.11 Assembling Top Cover ..... 76
3.12 Installing SATA Hard Drives at Front Panel ..... 78
3.13 Installing SIM Card ..... 80
3.14 Replacing CMOS Battery ..... 81
3.15 Installing Wall Mount ..... 83
3.16 Connecting to Power Supply ..... 84
3.17 Installing CMI Modules ..... 86
3.17.1 CMI-LAN01/UB1012 Module ..... 86
3.17.2 CMI-2P5GLAN03/UB1012 Module ..... 87
3.17.3 CMI-10GXM12LAN03/UB1037 Module ..... 90
3.17.4 CMI-M12LAN01/UB1010 Module ..... 94
3.17.5 CMI-XM12LAN01/UB1030 Module ..... 96
3.17.6 CMI-10GLAN03/UB1028 Module ..... 99
3.17.7 CMI-CAN01/UB1038 Module ..... 102
3.17.8 CMI-DIO02/UB1018 Module ..... 104
3.17.9 CMI-COM02/UB1004 Module ..... 105
3.17.10 CMI-ICOM02/UB1004 Module ..... 107
3.18 Installing CFM Modules ..... 109
3.18.1 CFM-PoE03 Module ..... 109
3.18.2 CFM-IGN101 Module ..... 112
3.19 Installing MEC Modules ..... 113
3.19.1 MEC-COM-M212-DB9/UB0303 Module ..... 113
3.19.2 MEC-USB-M102-30/UB0314 Module ..... 116
3.19.3 MEC-LAN-M102-30/UB0311 Module ..... 119
3.20 Installing External FAN ..... 122
3.21 Installing Internal FAN ..... 124
3.22 Installing Power Protection Module ..... 126
**Chapter 4 BIOS Setup ..... 128**

4.1 BIOS Introduction ..... 129
4.2 Main Setup ..... 130
4.3 Advanced Setup ..... 131
4.3.1 CPU Configuration ..... 131
4.3.2 Power & Performance ..... 133
4.3.3 SATA Configuration ..... 133
4.3.4 PCH-FW Configuration ..... 134
4.3.5 Trusted Computing ..... 135
4.3.6 ACPI Settings ..... 136
4.3.7 F81966 Super IO Configuration ..... 137
4.3.8 Hardware Monitor ..... 138
4.3.9 S5 RTC Wake Settings ..... 139
4.3.10 Serial Port Console Redirection ..... 139
4.3.11 USB Configuration ..... 140
4.3.12 Network Stack Configuration ..... 140
4.3.13 CSM Configuration ..... 141
4.3.14 NVMe Configuration ..... 141
4.4 Chipset Setup ..... 142
4.4.1 System Agent (SA) Configuration ..... 142
4.4.2 PCH-IO Configuration ..... 146
4.5 Security Setup ..... 149
4.6 Boot Setup ..... 150
4.7 Save & Exit ..... 151
4.8 MEBx..... ..... 152
**Chapter 5 Product Application ..... 155**
5.1 Where to download drivers? ..... 156
5.2 Where to find the technical documents? ..... 156

# Preface

## Revision

| Revision | Description | Date |
|---|---|---|
| 1.00 | First Released | 2023/08/31 |
| 1.01 | Correction Made | 2023/09/22 |
| 1.02 | Correction Made | 2023/12/08 |
| 1.10 | Processor and OS Spec Updated | 2024/04/26 |
| 1.11 | Correction Made | 2024/06/03 |
| 1.12 | Riser Card (RC-E16E1-02) Installation Added and System Power Spec Updated | 2024/12/18 |
| 1.13 | Intel 14th CPU support Added | 2025/05/12 |
| 1.14 | Antenna Cutout Universal Bracket (Model No. UB0331) Installation Added | 2025/06/27 |
| 1.15 | Correction Made | 2025/08/26 |
| 1.16 | Correction Made | 2025/09/26 |
| 1.17 | Added CMI-2P5GLAN, CMI-10GXM12LAN | 2025/12/08 |
| 1.18 | Antenna Cutout Universal Bracket (Model No. UB1032) Installation Added | 2026/01/05 |
| 1.19 | Added CMI-CAN01 | 2026/04/28 |
| 1.20 | Added PPM-I360-02 | 2026/09/18 |
| 1.21 | Intel BTL-S CPU support Added | 2026/10/13 |

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## Acknowledgement

Cincoze is a registered trademark of Cincoze Co., Ltd. All registered trademarks and product names mentioned herein are used for identification purposes only and may be trademarks and/or registered trademarks of their respective owners.

## Disclaimer

This manual is intended to be used as a practical and informative guide only and is subject to change without notice. It does not represent a commitment on the part of Cincoze. This product might include unintentional technical or typographical errors. Changes are periodically made to the

information herein to correct such errors, and these changes are incorporated into new editions of the publication.

## Declaration of Conformity



**FCC**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



**CE**

The product(s) described in this manual complies with all application European Union (CE) directives if it has a CE marking. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques.




**UL**

A product that carries the “UL Listed” approval mark means that the product has been tested by UL to nationally recognized Safety Standards and has been found to be free from reasonably foreseeable risk of fire, electric shock and related hazards

## Product Warranty Statement

**Warranty**

Cincoze products are warranted by Cincoze Co., Ltd. to be free from defect in materials and workmanship for 2 years from the date of purchase by the original purchaser. During the warranty period, we shall, at our option, either repair or replace any product that proves to be defective under normal operation. Defects, malfunctions, or failures of the warranted product caused by damage resulting from natural disasters (such as by lightening, flood, earthquake, etc.), environmental and atmospheric disturbances, other external forces such as power line disturbances, plugging the board in under power, or incorrect cabling, and damage caused by misuse, abuse, and unauthorized alteration or repair, and the product in question is either software, or an expendable item (such as a fuse, battery, etc.), are not warranted.

**RMA**

Before sending your product in, you will need to fill in Cincoze RMA Request Form and obtain a RMA number from us. Our staff is available at any time to provide you with the most friendly and

immediate service.

- **RMA Instruction**
  - Customers must fill in Cincoze Return Merchandise Authorization (RMA) Request Form and obtain an RMA number prior to returning a defective product to Cincoze for service.
  - Customers must collect all the information about the problems encountered and note anything abnormal and describe the problems on the “Cincoze Service Form” for the RMA number apply process.
  - Charges may be incurred for certain repairs. Cincoze will charge for repairs to products whose warranty period has expired. Cincoze will also charge for repairs to products if the damage resulted from acts of God, environmental or atmospheric disturbances, or other external forces through misuse, abuse, or unauthorized alteration or repair. If charges will be incurred for a repair, Cincoze lists all charges, and will wait for customer’s approval before performing the repair.
  - Customers agree to ensure the product or assume the risk of loss or damage during transit, to prepay shipping charges, and to use the original shipping container or equivalent.
  - Customers can be sent back the faulty products with or without accessories (manuals, cable, etc.) and any components from the system. If the components were suspected as part of the problems, please note clearly which components are included. Otherwise, Cincoze is not responsible for the devices/parts.
  - Repaired items will be shipped along with a "Repair Report" detailing the findings and actions taken.

**Limitation of Liability**

Cincoze’ liability arising out of the manufacture, sale, or supplying of the product and its use, whether based on warranty, contract, negligence, product liability, or otherwise, shall not exceed the original selling price of the product. The remedies provided herein are the customer’s sole and exclusive remedies. In no event shall Cincoze be liable for direct, indirect, special or consequential damages whether based on contract of any other legal theory.

## Technical Support and Assistance

1. Visit the Cincoze website at www.cincoze.com where you can find the latest information about the product.
2. Contact your distributor or our technical support team or sales representative for technical support if you need additional assistance. Please have following information ready before you call:
   - Product name and serial number
   - Description of your peripheral attachments
   - Description of your software (operating system, version, application software, etc.)

- A complete description of the problem
- The exact wording of any error messages

## Conventions Used in this Manual



**WARNING (AVERTIR)**

**This indication alerts operators to an operation that, if not strictly observed, may result in severe injury.**
**(Cette indication avertit les opérateurs d'une opération qui, si elle n'est pas strictement observée, peut entraîner des blessures graves.)**




**CAUTION (ATTENTION)**

**This indication alerts operators to an operation that, if not strictly observed, may result in safety hazards to personnel or damage to equipment.**
**(Cette indication avertit les opérateurs d'une opération qui, si elle n'est pas strictement observée, peut entraîner des risques pour la sécurité du personnel ou des dommages à l'équipement.)**




**NOTE (NOTE)**

**This indication provides additional information to complete a task easily.**
**(Cette indication fournit des informations supplémentaires pour effectuer facilement une tâche.)**

## Safety Precautions

Before installing and using this device, please note the following precautions.

1. Read these safety instructions carefully.
2. Keep this User's Manual for future reference.
3. Disconnected this equipment from any AC outlet before cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
8. Use a power cord that has been approved for using with the product and that it matches the voltage and current marked on the product's electrical range label. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid

damage by transient overvoltage.

12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.

    If one of the following situations arises, get the equipment checked by service personnel:

    - The power cord or plug is damaged.
    - Liquid has penetrated into the equipment.
    - The equipment has been exposed to moisture.
    - The equipment does not work well, or you cannot get it work according to the user's manual.
    - The equipment has been dropped and damaged.
    - The equipment has obvious signs of breakage.
14. CAUTION: Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to the Instructions.

    ATTENTION: Risque d'explosion si la batterie est remplacée par un type incorrect. Mettre au rebus les batteries usagées selon les instructions.
15. Equipment intended only for use in a RESTRICTED ACCESS AREA.
16. Output of the external power source shall be complied with ES1, PS3 requirements, output rating between 9-48 VDC, minimum 9-2A, with minimum rated maximum ambient temperature 70°C, and has to be evaluated according to UL/IEC/EN 60950-1 and/or UL/IEC/EN 62368-1. If need further assistance, please contact Cincoze for further information.
17. Ensure to connect the power cord of power adapter to a socket-outlet with earthing connection.
18. Dispose of used battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire.

## Package Checklist

| Item | Description | Q'ty |
|---|---|---|
| 1 | Embedded System | 1 |
| 2 | Heatsink Pack | 1 |
| 3 | Wall Mount Kit | 1 |
| 4 | Screw Pack | 1 |
| 5 | Power Terminal Block Connector | 1 |
| 6 | Remote Function Terminal Block Connector | 2 |
| 7 | Fan Terminal Block Connector | 1 |

*Note: Notify your sales representative if any of the above items are missing or damaged.*

## Ordering Information

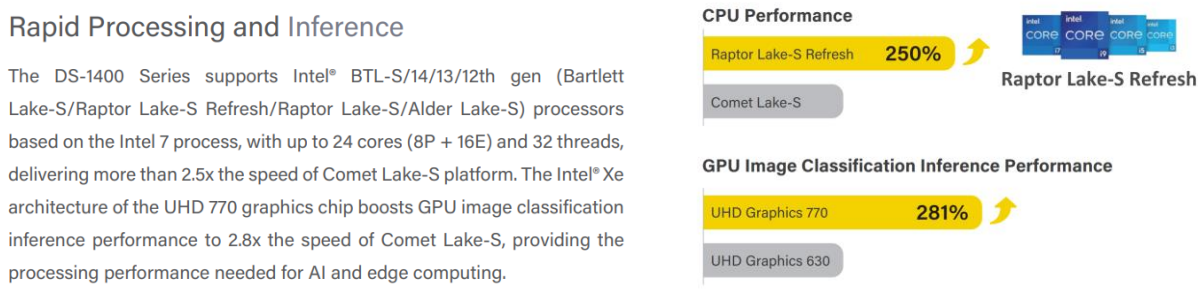
| Model No. | Product Description |
|---|---|
| DS-1400 | BTL-S/14/13/12th Generation Intel Core Series Processors, High Performance, Expandable and Modular Rugged Embedded Computer |
| DS-1401 | BTL-S/14/13/12th Generation Intel Core Series Processors, High Performance, Expandable and Modular Rugged Embedded Computer with 1x PCI/PCIe Expansion Slot |
| DS-1402 | BTL-S/14/13/12th Generation Intel Core Series Processors, High Performance, Expandable and Modular Rugged Embedded Computer with 2x PCI/PCIe Expansion Slot |

# Chapter 1
# Product Introductions

# 1.1 Overview

The DS-1400 series is a high-performance, expandable, and rugged embedded computer, boasting outstanding performance as well as rich industrial I/O interfaces and robust functionalities. To meet various application needs, it can flexibly expand the required I/O and specific functions through Cincoze's unique CMI, CFM, and MEC expansion modules. Moreover, the DS-1400 has passed multiple international certifications, ensuring stable and reliable performance in diverse harsh environments. It is an ideal choice for manufacturing and railway applications.

- Intel® BTL-S/14/13/12th Gen. Bartlett Lake-S / Raptor Lake-S Refresh / Raptor Lake-S / Alder Lake-S Platform (max 65 W TDP)
- 2 x DDR5 SO-DIMM Sockets, Supports ECC/non ECC type Memory, Up to 5600MHZ, 96GB
- 2x GbE LAN and optional 2x 10GbE LAN
- 2x 2.5" SATA storage, 3x mSATA sockets, 1x M.2 key M for NVMe SSD
- 1x PCI/PCIe expansion slots (DS-1401 only), 2x PCI/PCIe expansion slots (DS-1402 only)
- Optional CMI modules for I/O expansion
- Optional CFM modules for ignition sensing & PoE
- Wide operating temperature -40°C to 70°C
- MIL-STD-810G military standard and EN50155 (EN 50121-3-2 only)
- Safety: UL, cUL, CB, IEC, EN 62368-1







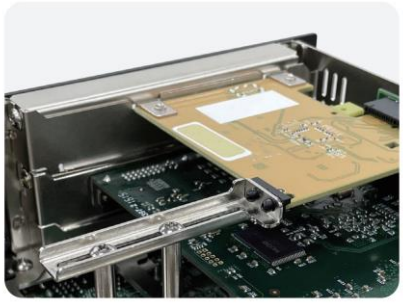

## Industrial I/O and Modular Expansion

The DS-1402 offers a vast array of industrial-focused I/O including up to 2x GbE LAN, 6x USB 3.2, and 2x USB 2.0, 2x RS232/422/485, 2x 2.5" SATA, 3x mSATA, 1x M.2 key M for NVMe SSD, 2x SIM card slots, 3x full-size Mini-PCIe and quad independent displays (DisplayPort, HDMI, VGA). It also features modular expansion through Cincoze's CMI/CFM modules, adding additional I/O or other functionality such as high-speed 10GbE LAN, PoE, and IGN (power ignition sensing).

## PCI/PCIe Add-on Cards

The DS-1402 accommodates dual PCI/PCIe expansion slots. It can support a maximum of one 110W add-on card with dimensions of 111 x 235 mm. This flexible slot allows integration of I/O, GPU, image capture, data acquisition, and motion control cards to suit specific application needs.





## Adjustable PCIe Card Retainer

A patented adjustable PCIe card retainer can securely fasten add-on cards. This unique design effectively prevents the cards from loosening due to vibrations in high-vibration environments, ensuring the stable operation of the system.

Patent No. I773359

## Robust and Reliable

The DS-1400 is built tough, reflected in its industrial-grade protection design and industry certifications in different fields. In addition to features such as wide temperature (-40 - 70°C), wide voltage input (9 - 48 VDC), overvoltage, overcurrent, and ESD protection, it also complies with the US military shock vibration standard MIL-STD-810G. Product safety and reliability are further ensured with internationally recognized UL 62368-1 safety certification. For more secure railway computing, it also passes the EMC EN 50121-3-2 standard in EN 50155.



# 1.2 Specifications

| Model Name | DS-1400 | DS-1401 | DS-1402 |
|---|---|---|---|
| **System** | | | |
| Processor | • Bartlett Lake-S Intel® Core Series 2 P-Core Only CPU:<br>- Intel Core™ Processor 9 273PE 12 Cores Up to 5.7 GHz, TDP 65 W<br>- Intel Core™ Processor 7 253PE 10 Cores Up to 5.5 GHz, TDP 65 W<br>- Intel Core™ Processor 5 223PE 8 Cores Up to 5.4 GHz, TDP 65 W<br>- Intel Core™ Processor 5 213PE 8 Cores Up to 5.2 GHz, TDP 65 W<br>- Intel Core™ Processor 3 201E 4 Cores Up to 4.8 GHz, TDP 60 W<br>- Intel Core™ Processor 9 273PTE 12 Cores Up to 5.5 GHz, TDP 45 W<br>- Intel Core™ Processor 7 253PTE 10 Cores Up to 5.4 GHz, TDP 45 W<br>- Intel Core™ Processor 5 223PTE 8 Cores Up to 5.4 GHz, TDP 45 W<br>- Intel Core™ Processor 5 213PTE 8 Cores Up to 5.2 GHz, TDP 45 W<br>- Intel Core™ Processor 3 201TE 4 Cores Up to 4.6 GHz, TDP 45 W<br>• Bartlett Lake-S Intel® Core Series 2 Hybrid CPU:<br>- Intel Core™ Processor 7 251E 24 Cores Up to 5.6 GHz, TDP 65 W<br>- Intel Core™ Processor 5 221E 14 Cores Up to 5.2 GHz, TDP 65 W<br>- Intel Core™ Processor 5 211E 10 Cores Up to 4.9 GHz, TDP 65 W<br>- Intel Core™ Processor 7 251TE 24 Cores Up to 5.4 GHz, TDP 45 W<br>- Intel Core™ Processor 5 221TE 14 Cores Up to 5.0 GHz, TDP 45 W<br>- Intel Core™ Processor 5 211TE 10 Cores Up to 4.8 GHz, TDP 45 W<br>• 14th Generation Intel® Raptor Lake-S Refresh Series P-Core Only CPU:<br>- Intel® Core™ i9-14901E 8 Cores Up to 5.6 GHz, TDP 65W<br>- Intel® Core™ i7-14701E 8 Cores Up to 5.4 GHz, TDP 65W<br>- Intel® Core™ i5-14501E 6 Cores Up to 5.2 GHz, TDP 65W<br>- Intel® Core™ i5-14401E 6 Cores Up to 4.7 GHz, TDP 65W<br>- Intel® Core™ i3-14100 4 Cores Up to 4.7 GHz, TDP 60W<br>- Intel® Core™ i9-14901TE 8 Cores Up to 5.5 GHz, TDP 45W<br>- Intel® Core™ i7-14701TE 8 Cores Up to 5.2 GHz, TDP 45W<br>- Intel® Core™ i5-14501TE 6 Cores Up to 5.1 GHz, TDP 45W<br>- Intel® Core™ i5-14401TE 6 Cores Up to 4.5 GHz, TDP 45W<br>- Intel® Core™ i3-14100T 4 Cores Up to 4.4 GHz, TDP 35W<br>- Intel® Processor 300 2 Cores Up to 3.9 GHz, TDP 46W<br>- Intel® Processor 300T 2 Cores Up to 3.4 GHz, TDP 35W<br>• 14th Generation Intel® Raptor Lake-S Refresh Series Hybrid CPU:<br>- Intel® Core™ i9-14900 24 Cores Up to 5.8 GHz, TDP 65W<br>- Intel® Core™ i7-14700 20 Cores Up to 5.4 GHz, TDP 65W<br>- Intel® Core™ i5-14500 14 Cores Up to 5.0 GHz, TDP 65W | | |

| | |
|---|---|
| | - Intel® Core™ i5-14400 10 Cores Up to 4.7 GHz, TDP 65W<br>- Intel® Core™ i9-14900T 24 Cores Up to 5.5 GHz, TDP 35W<br>- Intel® Core™ i7-14700T 20 Cores Up to 5.2 GHz, TDP 35W<br>- Intel® Core™ i5-14500T 14 Cores Up to 4.8 GHz, TDP 35W<br>- Intel® Core™ i5-14400T 10 Cores Up to 4.5 GHz, TDP 35W<br>• 13th Generation Intel® Raptor Lake-S Series P-Core Only CPU:<br>- Intel® Core™ i3-13100E 4 Cores Up to 4.4 GHz, TDP 60W<br>- Intel® Core™ i3-13100 4 Cores Up to 4.5 GHz, TDP 60W<br>- Intel® Core™ i3-13100TE 4 Cores Up to 4.1 GHz, TDP 35W<br>- Intel® Core™ i3-13100T 4 Cores Up to 4.2 GHz, TDP 35W<br>• 13th Generation Intel® Raptor Lake-S Series Hybrid CPU:<br>- Intel® Core™ i9-13900E 24 Cores Up to 5.2 GHz, TDP 65W<br>- Intel® Core™ i9-13900 24 Cores Up to 5.6 GHz, TDP 65W<br>- Intel® Core™ i7-13700E 16 Cores Up to 5.1 GHz, TDP 65W<br>- Intel® Core™ i7-13700 16 Cores Up to 5.2 GHz, TDP 65W<br>- Intel® Core™ i5-13500E 14 Cores Up to 4.6 GHz, TDP 65W<br>- Intel® Core™ i5-13400E 10 Cores Up to 4.6 GHz, TDP 65W<br>- Intel® Core™ i5-13500 14 Cores Up to 4.8 GHz, TDP 65W<br>- Intel® Core™ i5-13400 10 Cores Up to 4.6 GHz, TDP 65W<br>- Intel® Core™ i9-13900TE 24 Cores Up to 5.0 GHz, TDP 35W<br>- Intel® Core™ i7-13700TE 16 Cores Up to 4.8 GHz, TDP 35W<br>- Intel® Core™ i7-13700T 16 Cores Up to 4.9 GHz, TDP 35W<br>- Intel® Core™ i5-13500TE 14 Cores Up to 4.5 GHz, TDP 35W<br>- Intel® Core™ i5-13500T 14 Cores Up to 4.6 GHz, TDP 35W<br>• 12th Generation Intel® Alder Lake-S Series P-Core Only CPU:<br>- Intel® Core™ i5-12500E 6 Cores Up to 4.5 GHz, TDP 65W<br>- Intel® Core™ i5-12500 6 Cores Up to 4.6 GHz, TDP 65W<br>- Intel® Core™ i5-12400 6 Cores Up to 4.4 GHz, TDP 65W<br>- Intel® Core™ i3-12100E 4 Cores Up to 4.2 GHz, TDP 60W<br>- Intel® Core™ i3-12100 4 Cores Up to 4.3 GHz, TDP 60W<br>- Intel® Core™ i5-12500TE 6 Cores Up to 4.3 GHz, TDP 35W<br>- Intel® Core™ i3-12100TE 4 Cores Up to 4.0 GHz, TDP 35W<br>- Intel® Pentium® G7400E 2 Cores Up to 3.6 GHz, TDP 46W<br>- Intel® Pentium® G7400TE 2 Cores Up to 3.0 GHz, TDP 35W<br>- Intel® Celeron® G6900E 2 Cores Up to 3.0 GHz, TDP 46W<br>- Intel® Celeron® G6900TE 2 Cores Up to 2.4 GHz, TDP 35W<br>- Intel® Pentium® G7400 2 Cores Up to 3.7 GHz, TDP 46W<br>- Intel® Pentium® G7400T 2 Cores Up to 3.1 GHz, TDP 35W<br>- Intel® Celeron® G6900 2 Cores Up to 3.4 GHz, TDP 46W |

| | |
|---|---|
| | - Intel® Celeron® G6900T 2 Cores Up to 2.8 GHz, TDP 35W<br>• 12th Generation Intel® Alder Lake-S Series Hybrid CPU:<br>- Intel® Core™ i9-12900E 16 Cores Up to 5 GHz, TDP 65W<br>- Intel® Core™ i9-12900 16 Cores Up to 5.1 GHz, TDP 65W<br>- Intel® Core™ i7-12700E 12 Cores Up to 4.8 GHz, TDP 65W<br>- Intel® Core™ i7-12700 12 Cores Up to 4.9 GHz, TDP 65W<br>- Intel® Core™ i9-12900TE 16 Cores Up to 4.8 GHz, TDP 35W<br>- Intel® Core™ i7-12700TE 12 Cores Up to 4.7 GHz, TDP 35W |
| Chipset | • Intel R680E Chipset |
| Memory | • 2x DDR5 SO-DIMM sockets, support Un-buffered and ECC Type memory, up to 96GB.<br>- Core™ i9/i7: Support 5600/4800 MHz with Single Rank memory and 5200/4800 MHz with Dual Rank memory.<br>- Core™ i5/i3/Pentium®/Celeron®/Intel® Processor: Supp |
| BIOS | • AMI BIOS |
| **Graphics** | |
| Graphics Engine | • Integrated Intel® UHD Graphics 770: Core™ i9/i7/i5<br>• Integrated Intel® UHD Graphics 730: Core™ i3<br>• Integrated Intel® UHD Graphics 710: Pentium®/Celeron® |
| Maximum Display Output | • Supports Quad Independent Display |
| VGA | • 1x VGA Connector: 1920 x 1080@60Hz |
| DP | • 2x DP Connector: 4096 x 2304@60Hz<br>* Verified maximum resolution: 3840 x 2160@60Hz |
| HDMI | • 1x HDMI Connector: 4096 x 2160@30Hz<br>* Verified maximum resolution: 3840 x 2160@30Hz |
| **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<br>- GbE1: Intel® I219<br>- GbE2: Intel® I210 |
| COM | • 2x RS-232/422/485 with Auto Flow Control (Supports 5V/12V), DB9 |
| USB | • 2 x USB 3.2 Gen2x1 (10Gbps), Type A<br>• 4 x USB 3.2 Gen1x1 (5Gbps), Type A<br>• 2 x USB 2.0 (480Mbps), Type A |
| PS/2 | • 1x PS/2, 6 Pin Mini-DIN Female Connector |
| **Storage** | |

| | | | |
|---|---|---|---|
| SSD/HDD | • 1x 2.5" Front Accessible SATA HDD/SSD Bay Supporting Hot Swap Function (SATA 3.0)<br>• 1x 2.5” Internal SATA HDD/SSD Bay ( SATA 3.0 ) | | |
| mSATA | • 3x mSATA Socket ( SATA 3.0, shared by Mini-PCIe socket ) | | |
| M.2 SSD | • 1x M.2 Key M Type 2280 Socket, Support PCIe Gen3 x4 NVMe SSD or SATA SSD ( SATA 3.0 ) | | |
| RAID | • Support RAID 0/1/5/10 | | |
| **Expansion** | | | |
| PCI Express | | • 1 x PCI/PCIe Expansion Slot with Optional Riser Card<br>* Supports maximum dimensions of add-on card (L x H): 235 x 124mm<br>* Supports GPU card up to 75W | • 2x PCI/PCIe Expansion Slot with Optional Riser Card<br>* Supports maximum dimensions of add-on card (L x H): 235 x 124mm<br>* Supports GPU card up to 130W |
| Mini PCI Express | • 2x Full-size Mini PCIe Socket (mPCIe / USB 2.0 / mSATA), Support Storage/Add-on Card Expansion<br>• 1x Full-size Mini PCIe Socket (mPCIe / USB 3.2 / mSATA), Support 5G/GNSS/Storage/Add-on Card Expansion | | |
| SIM Socket | • 2x SIM Socket | | |
| CMI (Combined Multiple I/O) Interface | • 2x High Speed CMI Interface for optional CMI Module Expansion<br>• 2x Low Speed CMI Interface for optional CMI 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 | | |
| Max. Power Consumption | • 35W CPU: 206.93W<br>• 65W CPU: 250.56W<br>- Test conducted with CPU, 1x RAM, and 1x storage<br>- 100% load during burn-in | | |
| Inrush Current (Peak) | • 35W CPU: 6.283 A@24V<br>• 65W CPU: 6.655 A@24V | | |
| **Reliability & Protection** | | | |
| Reverse Power Input Protection | • Yes | | |
| Over Voltage Protection | • Protection Range: 51-58V<br>• Protection Type: shut down operating voltage, re-power on at the present level to recover | | |
| Over Current Protection | • 15A | | |
| CMOS Battery Backup | • SuperCap Integrated for CMOS Battery Maintenance-free Operation | | |
| MTBF | • 371,274 Hours<br>- Database: Telcordia SR-332 Issue3, Method 1, Case 3 | | |
| **Physical** | | | |
| Dimensions (W x D x H) | • 227 x 261 x 88 mm | • 227 x 261 x 108 mm | • 227 x 261 x 128 mm |
| Weight Information | • 4.5 KG | • 5.02 KG | • 5.44 KG |
| Mechanical Construction | • Extruded Aluminum with Heavy Duty Metal | | |
| Mounting | • Wall | | |
| Physical Design | • Fanless Design<br>• Cableless Design<br>• Jumper-less Design<br>• Unibody Design | | |
| **Operating System** | | | |
| Windows | • Windows®11, Windows®10 | | |
| Linux | • Ubuntu Desktop 22.04 LTS | | |
| **Environment** | | | |
| Operating Temperature | • 35W TDP Processor: -40°C to 70°C (-40°F to 158°F)<br>• 45W TDP Processor: -40°C to 60°C (-40°F to 140°F) (With External Fan Kit)<br>• 65W TDP Processor: -40°C to 50°C (-40°F to 122°F) (With External Fan Kit)<br>- With extended temperature peripherals; Ambient with air flow<br>- According to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14 | | |

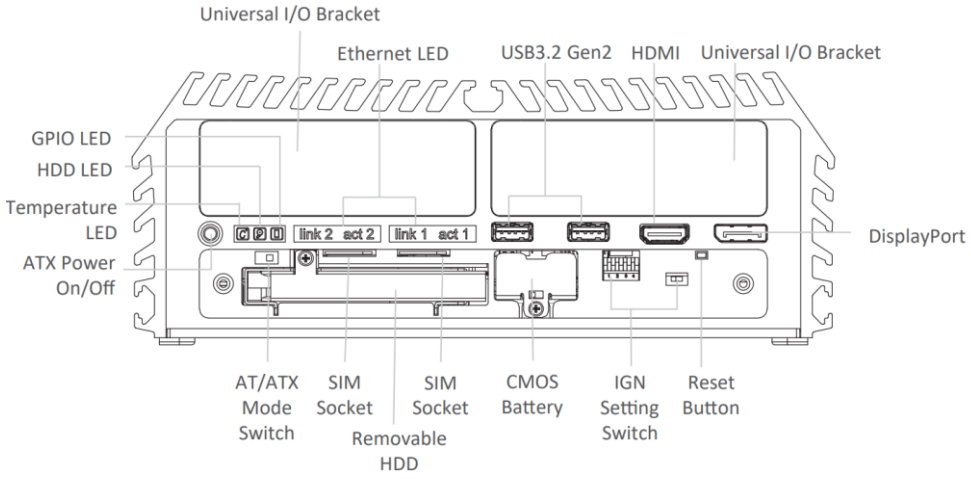
| | |
|---|---|
| Storage Temperature | • -40°C to 85°C (-40°F to 185°F) |
| Relative Humidity | • 95%@70°C (non-Condensing) |
| Shock | • MIL-STD-810G |
| Vibration | • MIL-STD-810G |
| EMC | • CE, UKCA, FCC, ICES-003 Class A<br>• EN 50155 (EN 50121-3-2 Only) |
| EMI | • CISPR 32 Conducted & Radiated: Class A<br>• EN/BS EN 50121-3-2 Conducted & Radiated: Class A<br>• EN/BS EN IEC 61000-3-2 Harmonic current emissions: Class A<br>• EN/BS EN61000-3-3 Voltage fluctuations & flicker<br>• FCC 47 CFR Part 15B, ICES-003 Conducted & Radiated: Class A |
| EMS | • EN/IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>• EN/IEC 61000-4-3 RS: 80 MHz to 1000 MHz: 20 V/m<br>• EN/IEC 61000-4-4 EFT (with optional PPM module):<br>AC Power: 2 kV; DC Power: 1 kV; Signal: 2 kV<br>• EN/IEC 61000-4-5 Surges: AC Power: 2 kV<br>• EN/IEC 61000-4-6 CS: 10V<br>• EN/IEC 61000-4-8 PFMF: 50 Hz, 1A/m<br>• EN/IEC 61000-4-11 Voltage Dips & Voltage Interruptions: 0.5 cycles at 50 Hz |
| Railway | • EMC:<br>- EN 50155: 2021 Clause 4.4.6, 13.4.9<br>- EN 50121-1: 2017<br>- EN 50121-3-2: 2016 + A1: 2019 |
| Safety | • UL, cUL, CB, IEC, EN 62368-1 |

** Product Specifications and features are for reference only and are subject to change without prior notice. For more information, please refer to the latest product datasheet from Cincoze's website.*

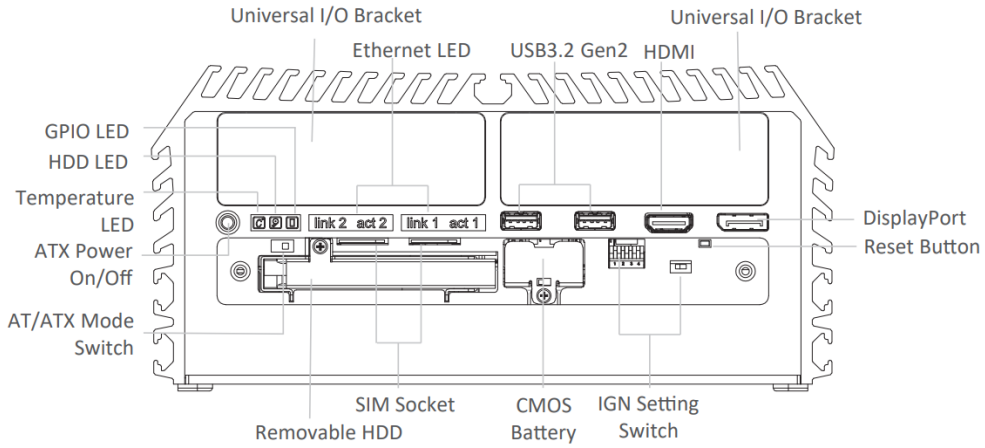
# 1.3 External Layout

## 1.3.1 Front

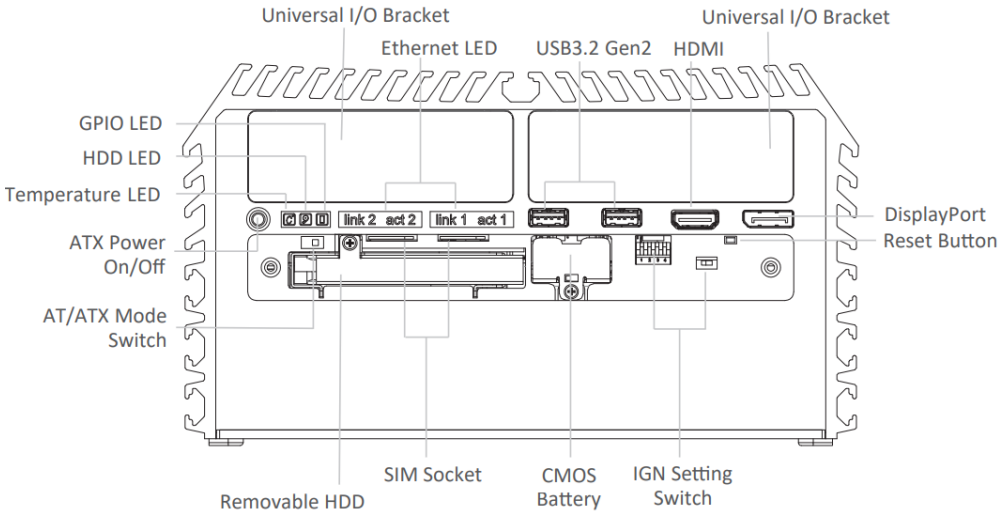
### DS-1400




### DS-1401

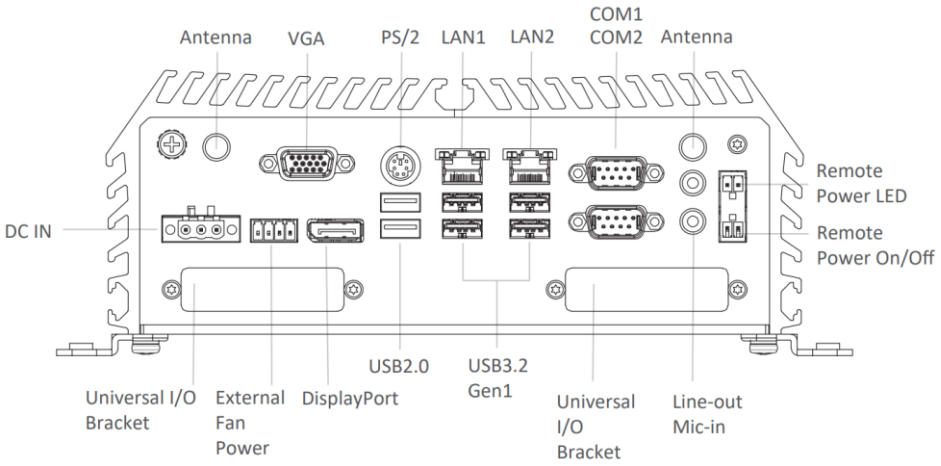



### DS-1402

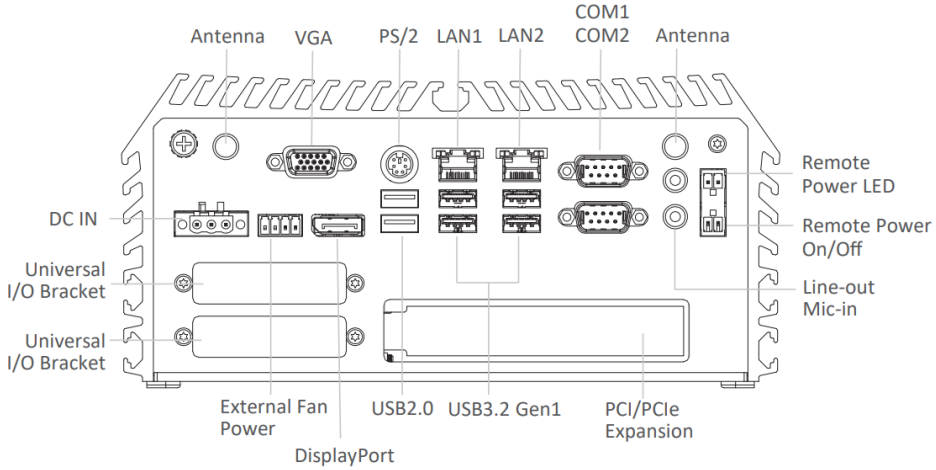


## 1.3.2 Rear

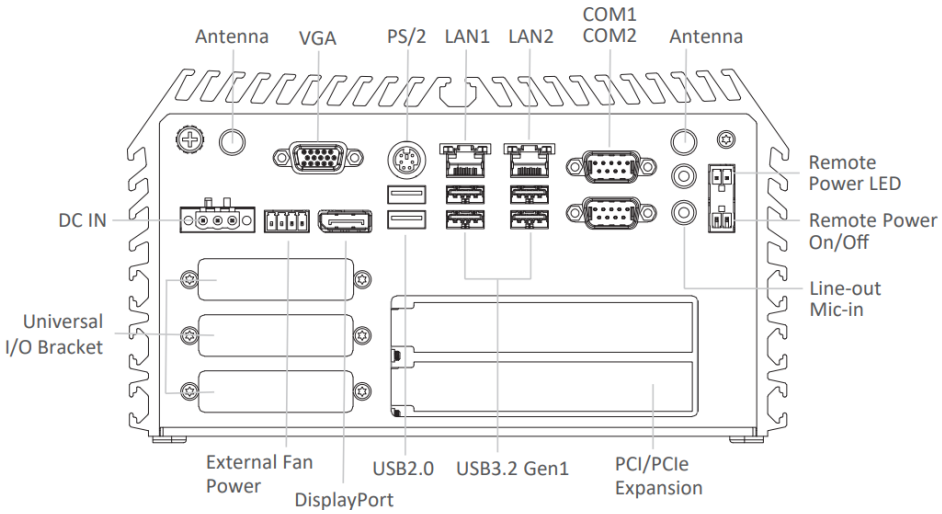
### DS-1400




### DS-1401



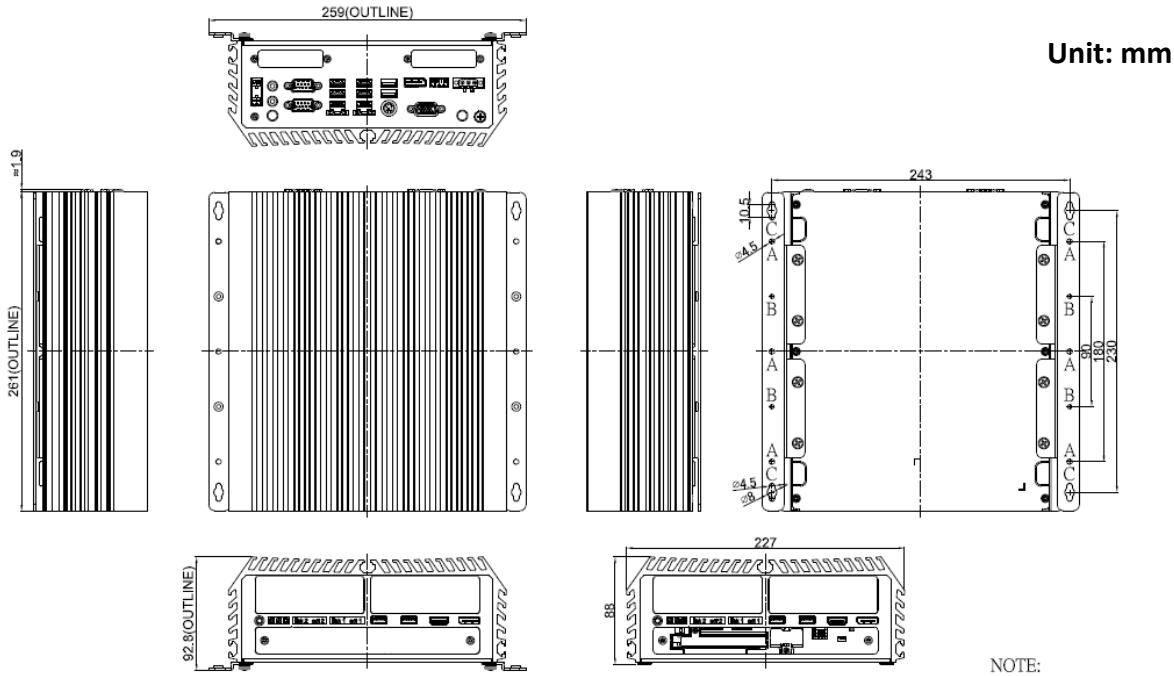

### DS-1402



# 1.4 Dimensions

## DS-1400

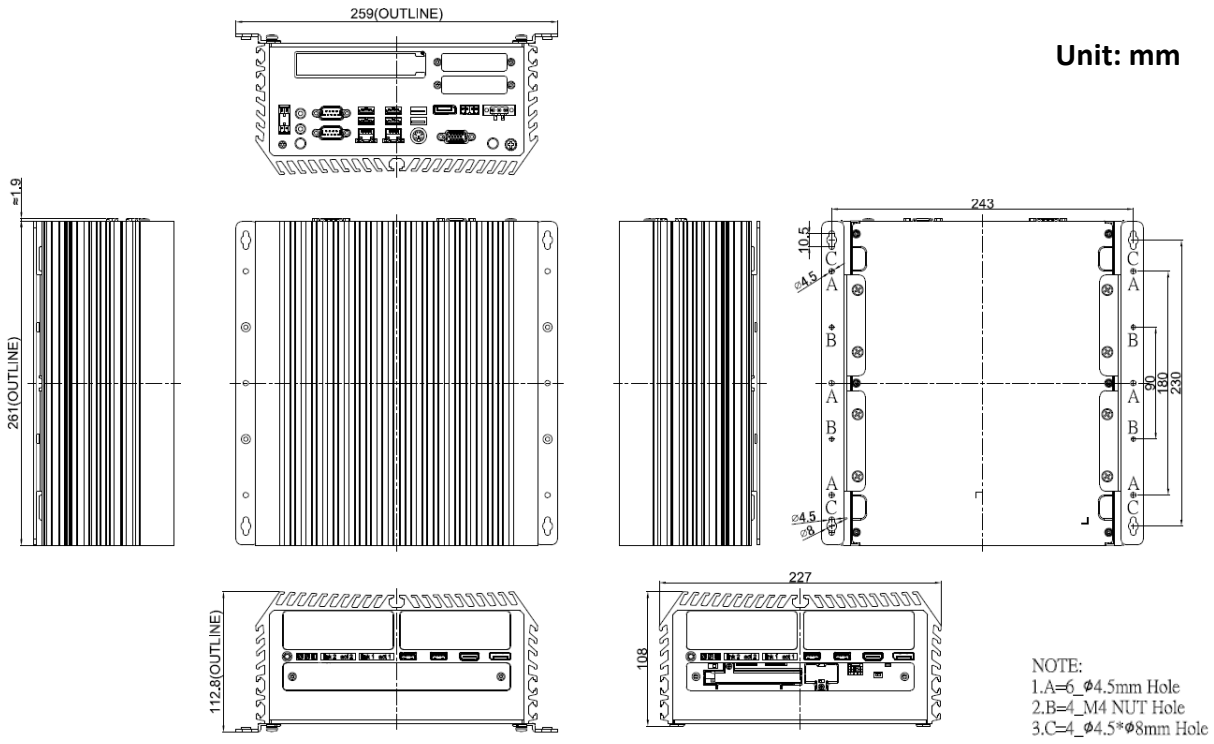
**Unit: mm**




NOTE:
1.A=6_Φ4.5mm Hole
2.B=4_M4 NUT Hole
3.C=4_Φ4.5*Φ8mm Hole

## DS-1401

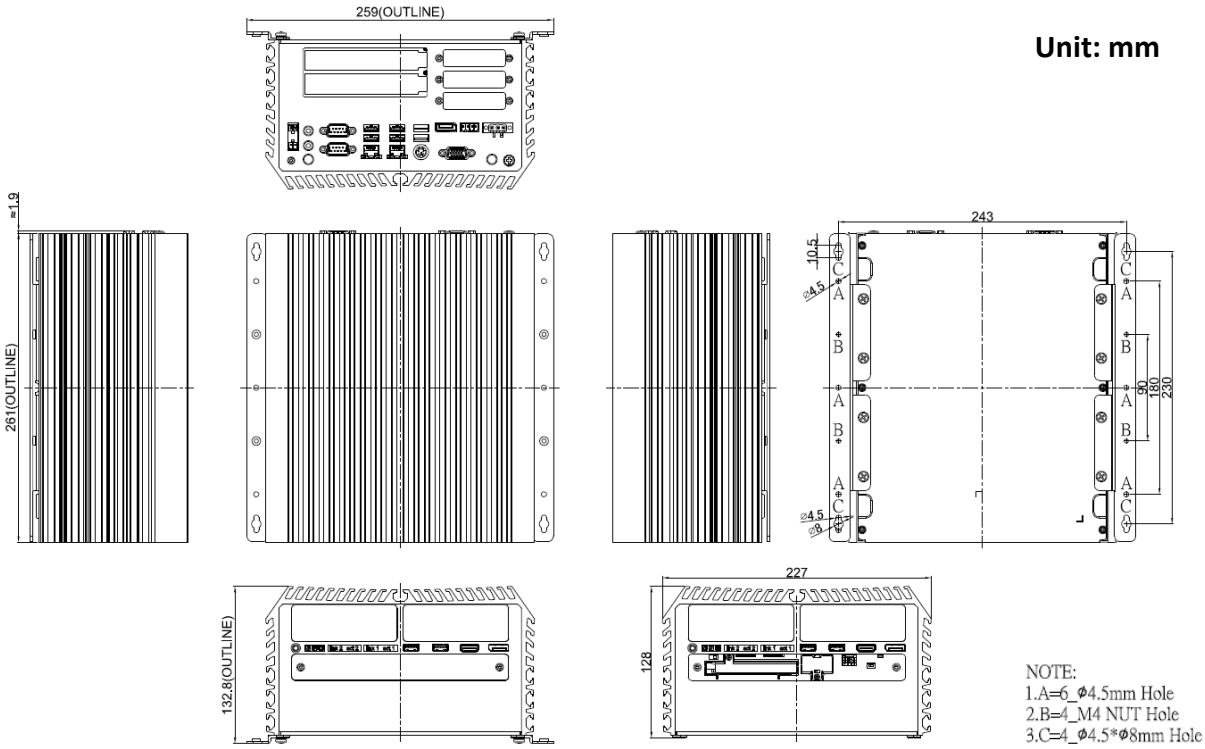
**Unit: mm**




NOTE:
1.A=6_Φ4.5mm Hole
2.B=4_M4 NUT Hole
3.C=4_Φ4.5*Φ8mm Hole

## DS-1402

**Unit: mm**

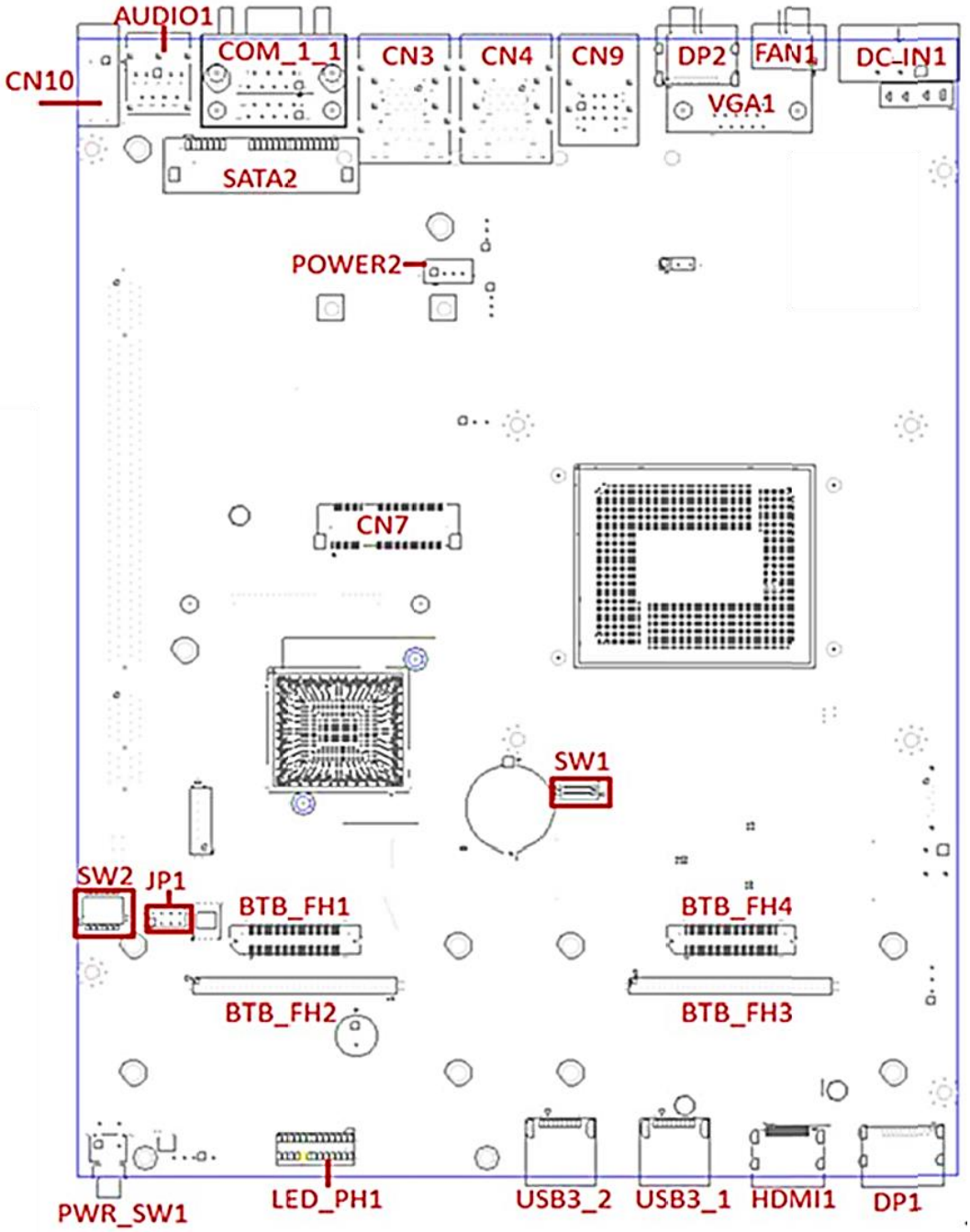



NOTE:
1.A=6_Φ4.5mm Hole
2.B=4_M4 NUT Hole
3.C=4_Φ4.5*Φ8mm Hole

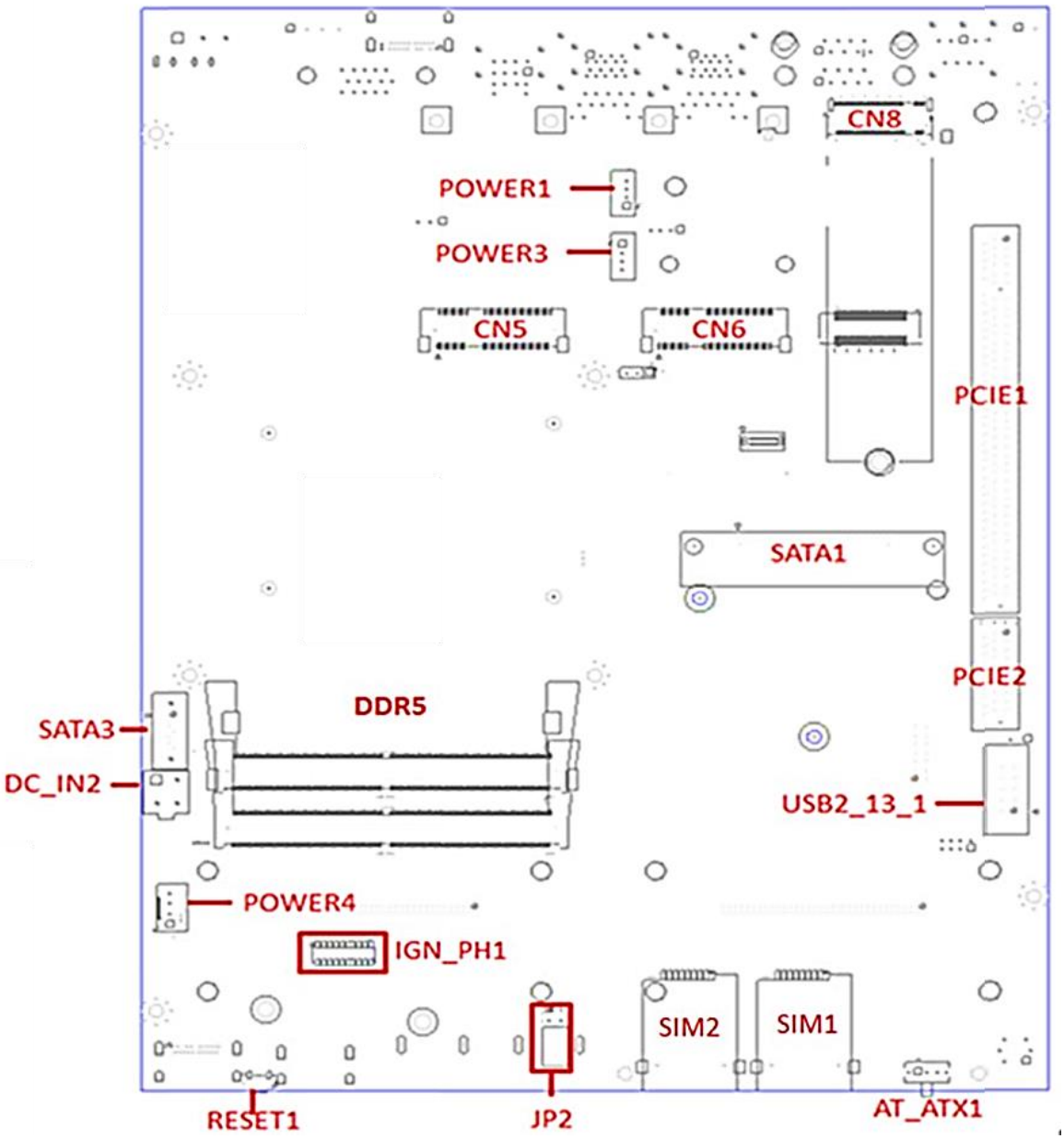
# Chapter 2
# Introduction to Switches and Connectors

## 2.1 Location of Switches and Connectors

### 2.1.1 Top View



### 2.1.2 Bottom View



## 2.2 Switches and Connectors Definition

### List of Switch & Connector

| Connector | Definition |
|---|---|
| DC_IN1 | 3-pin DC 9~48V Power Input with Power Ignition Connector |
| DP1, DP2 | DisplayPort Connector |
| VGA1 | VGA Connector |
| HDMI1 | HDMI Connector |
| FAN1 | Exter al PWM Fan Connector |
| CN9 | PS/2 and USB2.0 Ports |
| CN4 | LAN2 and USB3.0 Ports |
| CN3 | LAN1 and USB3.0 Ports |
| COM_1_1 | COM1 /COM2, RS232 / RS422 / RS485 Connector |
| AUDIO1 | Audio Jack / MIC_IN / LINE_OUT |
| CN10 | Remote Power on / off & LED. |
| SATA1,2 | 22 Pin SATA Connector |
| SATA3 | 7 Pin SATA Connector |
| Power 1~4 | 5V 12V Power Connector |
| CN5, CN6 | Mini PCI-Express Socket (Support mPCIE/ mSATA/ USB2) |
| CN7 | Mini PCI-Express Socket (Support mPCIE/ mSATA / USB3 + 4G module) |
| SW1 | Super CAP/ Engineering use |
| SW2 | SATA DOM / COM1 / COM2 Power Select |
| BTB_FH1, BTB_FH4 | PSE LAN Port Board to Board Connector |
| BTB_FH2, BTB_FH3 | DIO or COM Port Board to Board Connector |
| USB3_1, USB3_2 | USB 3.1 Gen2 Ports |
| PWR_SW1 | Power button with power on LED |
| LED_PH1 | IGN Temperature, HDD, GPIO, LAN2 LED, LAN1 LED |
| CN8 | M.2 Key M Socket (Support AHCI or NVMe PCIe / SATA Storage) |
| PCIE1 | PCI-Express X16 Socket |
| PCIE2 | PCI-Express X1 Socket /FAN |
| USB2_13_1 | Internal USB 2.0 Ports |
| DDR5 | DDR5 SODIMM Socket |
| IGN_PH1 | IGN Board to Board connector |
| SIM1, SIM2 | SIM Card Socket |

| | |
|---|---|
| AT_ATX1 | AT / ATX Power Mode Switch |
| RESET | Reset button |
| PWR_SW1 | Power Switch |
| DC_IN2 | 4-Pin DC Out |
| JP1 | BIOS SPI interface (Optional) |
| JP2 | RTC Battery board to board connector |

## 2.3 Definition of Switches

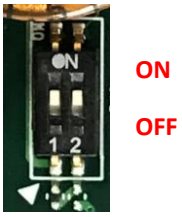
**PWR_SW1: Power button with power on LED**



| Switch | Definition |
|---|---|
| Push | Power System |

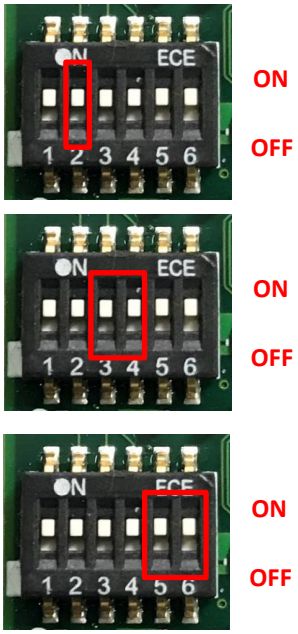
| LED Type | LED Status | Status |
|---|---|---|
| Power LED | Blue | Power off (S4/S5) |
| | Green | Power on (S0) |
| | Blinking Blue & Green | Stand by (S3) |

**SW1: Super CAP Switch**




| Location | Function | | DIP1 | DIP2 |
|---|---|---|---|---|
| SW1 | Super CAP | Enabled | ON (Default) | ON (Default) |
| | | Disabled | OFF | |

**SW2: SATA DOM / COM1 / COM2 Power Select**




| Location | Function | | DIP1 | DIP2 |
|---|---|---|---|---|
| SW2 | SATA DOM | Disable | N/A | ON (Default) |
| | | Enable | | OFF |
| **Location** | **Function** | | **DIP3** | **DIP4** |
| SW2 | COM1 | 0V(RI) | ON (Default) | ON (Default) |
| | | 5V | ON | OFF |
| | | 12V | OFF | OFF |
| **Location** | **Function** | | **DIP5** | **DIP6** |
| SW2 | COM2 | 0V(RI) | ON (Default) | ON (Default) |
| | | 5V | ON | OFF |
| | | 12V | OFF | OFF |

**RESET1: Reset Button**

| Switch | Definition |
|---|---|
| Push | Reset System |




**AT_ATX: AT / ATX Power Mode Switch**

| Switch | Definition |
|---|---|
| Left | AT Power Mode |
| Right | ATX Power Mode (Default) |




**JP2: Clear BIOS Switch**

| Pin | Definition |
|---|---|
| 1-2 (Left) | Normal Status (Default) |
| 2-3 (Right) | Clear BIOS |



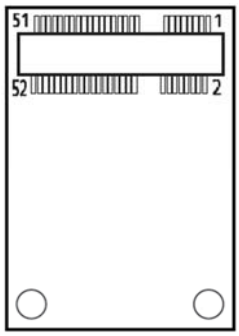

**WARNING (AVERTIR)**

**After performing Clear CMOS, the system will take several minutes to start. This is normal. During this process, the system will POST three times, and the system's Power LED will alternate between green and blue lights.**

**(Après avoir effectué Clear CMOS, le système prendra plusieurs minutes pour démarrer. Cela est normal. Pendant ce processus, le système effectuera trois fois le POST, et la LED d'alimentation du système alternera entre les lumières verte et bleue.)**

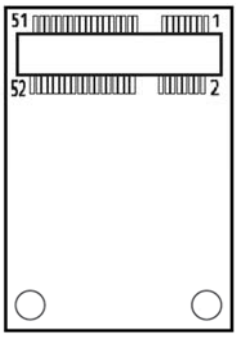
## 2.4 Definition of Connectors

**CN5：Mini PCI-Express Socket (Support mPCIE/ mSATA/ USB2)**



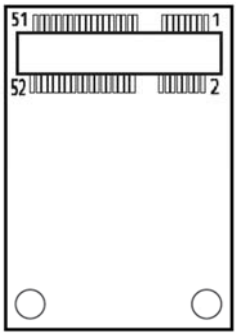

| PIN | Definition | PIN | Definition |
|---|---|---|---|
| 1 | WAKE# | 27 | GND |
| 2 | 3.3V | 28 | +1.5V |
| 3 | NA | 29 | GND |
| 4 | GND | 30 | SMB_CLK |
| 5 | NA | 31 | PETN/SATATN |
| 6 | 1.5V | 32 | SMB_DATA |
| 7 | CLKREQ# | 33 | PETP/SATATP |
| 8 | NA | 34 | GND |
| 9 | GND | 35 | GND |
| 10 | NA | 36 | USB_D- |
| 11 | REFCLK- | 37 | GND |
| 12 | NA | 38 | USB_D+ |
| 13 | REFCLK+ | 39 | 3.3V |
| 14 | NA | 40 | GND |
| 15 | GND | 41 | 3.3V |
| 16 | NA | 42 | NA |
| 17 | NA | 43 | GND |
| 18 | GND | 44 | NA |
| 19 | NA | 45 | NA |
| 20 | 3.3V | 46 | NA |
| 21 | GND | 47 | NA |
| 22 | PERST# | 48 | +1.5V |
| 23 | PERN/SATARP | 49 | NA |
| 24 | +3.3VAUX | 50 | GND |
| 25 | PERP/SATARN | 51 | NA |
| 26 | GND | 52 | +3.3V |

**CN6：Mini PCI-Express Socket (Support mPCIE/ mSATA/ USB2)**




| PIN | Definition | PIN | Definition |
|---|---|---|---|
| 1 | WAKE# | 27 | GND |
| 2 | 3.3V | 28 | +1.5V |
| 3 | NA | 29 | GND |
| 4 | GND | 30 | SMB_CLK |
| 5 | NA | 31 | PETN/SATATXN |
| 6 | 1.5V | 32 | SMB_DATA |
| 7 | NA | 33 | PETP/SATATXP |
| 8 | NA | 34 | GND |
| 9 | GND | 35 | GND |
| 10 | NA | 36 | USB_D- |
| 11 | NA | 37 | GND |
| 12 | NA | 38 | USB_D+ |
| 13 | NA | 39 | 3.3V |
| 14 | NA | 40 | GND |
| 15 | GND | 41 | 3.3V |
| 16 | NA | 42 | NA |
| 17 | NA | 43 | GND |
| 18 | GND | 44 | NA |
| 19 | NA | 45 | NA |
| 20 | 3.3V | 46 | NA |
| 21 | GND | 47 | NA |
| 22 | PERST# | 48 | +1.5V |
| 23 | PERN/SATARXP | 49 | NA |
| 24 | 3.3V | 50 | GND |
| 25 | PERPSATARXN | 51 | NA |
| 26 | GND | 52 | +3.3V |

**CN7：Mini PCI-Express Socket (Support mPCIE/ mSATA / USB3 + 4G module)**

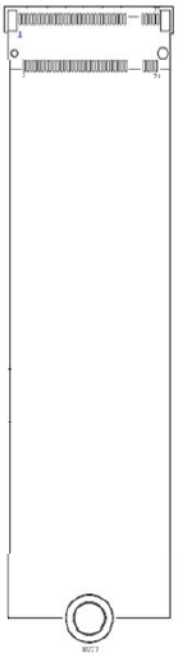



| PIN | Definition | PIN | Definition |
|---|---|---|---|
| 1 | WAKE# | 27 | GND |
| 2 | 3.3V | 28 | +1.5V |
| 3 | NA | 29 | GND |
| 4 | GND | 30 | SMB_CLK |
| 5 | NA | 31 | PETN/SATATN/USB3TN |
| 6 | 1.5V | 32 | SMB_DATA |
| 7 | UIM_RST2 | 33 | PETP/SATAP/USB3TP |
| 8 | SIM_PWR1 | 34 | GND |
| 9 | GND | 35 | GND |
| 10 | SIM_DATA1 | 36 | USB_D- |
| 11 | REFCLK- | 37 | RESERVED |
| 12 | SIM_CLK | 38 | USB_D+ |
| 13 | REFCLK+/SIM_PWR2 | 39 | RESERVED |
| 14 | SIM_Reset1 | 40 | GND |
| 15 | GND | 41 | 3.3V |
| 16 | SIM_VPP1 | 42 | NA |
| 17 | SIM_CLK2 | 43 | GND |
| 18 | GND | 44 | NA |
| 19 | SIM_DATA2 | 45 | NA |
| 20 | 3.3V | 46 | NA |
| 21 | GND | 47 | NA |
| 22 | PERST# | 48 | +1.5V |
| 23 | PERN/SATARP/USB3RN | 49 | NA |
| 24 | 3.3V | 50 | GND |
| 25 | PERP/SATARN/USB3RP | 51 | NA |
| 26 | GND | 52 | +3.3V |

**CN8：M.2 Key M 2280 Socket (Support AHCI or NVMe PCIe / SATA Storage)**

(Pin 59-66 are connector keys)

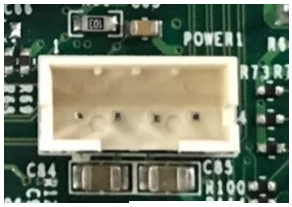
| Pin | Definition | Pin | Definition | Pin | Definition |
|---|---|---|---|---|---|
| 1 | CFG3 | 27 | GND | 53 | REFCLKN |
| 2 | +3.3V | 28 | NC | 54 | PEWAKE# |
| 3 | GND | 29 | PERN1 | 55 | REFCLKP |
| 4 | +3.3V | 30 | NC | 56 | NC |
| 5 | PERN3 | 31 | PERP1 | 57 | GND |
| 6 | NC | 32 | NC | 58 | NC |
| 7 | PERP3 | 33 | GND | 59 | key |
| 8 | NC | 34 | NC | 60 | key |
| 9 | GND | 35 | PETN1 | 61 | key |
| 10 | LED | 36 | NC | 62 | key |
| 11 | PETN3 | 37 | PETP1 | 63 | key |
| 12 | +3.3V | 38 | DEVSLP | 64 | key |
| 13 | PETP3 | 39 | GND | 65 | key |
| 14 | +3.3V | 40 | SMB_CLK | 66 | key |
| 15 | GND | 41 | PERN0/SATARP0 | 67 | NC |
| 16 | +3.3V | 42 | SMD_DATA | 68 | SUSCLK |
| 17 | PERN2 | 43 | PERP0/SATARN0 | 69 | PEDET |
| 18 | +3.3V | 44 | ALERT# | 70 | +3.3V |
| 19 | PERP2 | 45 | GND | 71 | GND |
| 20 | NC | 46 | NC | 72 | +3.3V |
| 21 | CFG0 | 47 | PETN0/SATATN0 | 73 | GND |
| 22 | NC | 48 | NC | 74 | +3.3V |
| 23 | PETN2 | 49 | PETP0/SATATP0 | 75 | CFG2 |
| 24 | NC | 50 | RESET# | 76 | NC |
| 25 | PETP2 | 51 | GND | | |
| 26 | NC | 52 | NC | | |



**POWER1, POWER2, POWER3: +5V/+12V Power Output Connector**

Connector Type: 1X4 4-pin Wafer, 2.0 mm pitch

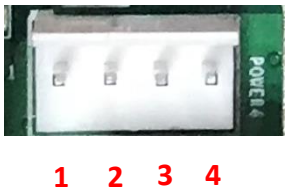
| Pin | Definition |
|---|---|
| 1 | +5V |
| 2 | GND |
| 3 | GND |
| 4 | +12V |




**POWER4: Power Connector**

Connector Type: 1X4 4-pin Wafer, 2.54mm pitch

| Pin | Definition |
|---|---|
| 1 | +5V |
| 2 | GND |
| 3 | GND |
| 4 | +12V |

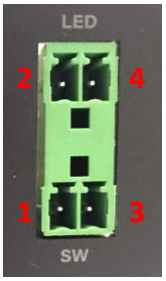



**CN10：Remote Power On/Off + Remote Power LED Connector**

Remote Power LED connector can connect an external LED indicator up to 10mA @ 3.3V.

Connector Type: Terminal Block 2X2 4-pin, 3.5mm pitch

| Pin | Definition |
|---|---|
| 1 | PWR_SW |
| 2 | LED |
| 3 | GND |
| 4 | GND |






WARNING (AVERTIR)

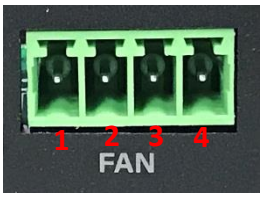
**Do not apply power to this connector! This port is used to connect a SWITCH!**

**(Ne mettez pas sous tension ce connecteur! Ce port est utilisé pour connecter un SWITCH!)**

**FAN1: CPU Smart Fan Connector**

Connector Type: Terminal Block 1X4 4-pin, 3.5mm pitch

| Pin | Definition |
|---|---|
| 1 | GND |
| 2 | +12V |
| 3 | SENSE |
| 4 | Control |



**SATA3: 7 PINs SATA/SATA DOM Connector**

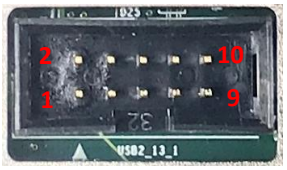
| Pin | Definition | Pin | Definition |
|---|---|---|---|
| 1 | GND | 5 | B- |
| 2 | A+ | 6 | B+ |
| 3 | A- | 7 | +5V |
| 4 | GND | | |




**USB2_13_1: USB2.0 BOX Header (2 Ports)**

Connector Type: Box Header, 2x5 10-pin, 2.54mm pitch

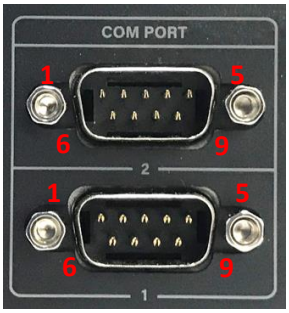
| Pin | Definition | Pin | Definition |
|---|---|---|---|
| 1 | VBUS (+5V) | 6 | USB2_P1_DP |
| 2 | VBUS (+5V) | 7 | GND |
| 3 | USB2_P0_DN | 8 | GND |
| 4 | USB2_P1_DN | 9 | CGND |
| 5 | USB2_P0_DP | 10 | CGND |




**COM1 / COM2：RS232 / RS422 / RS485 Connector**

Connector Type: 9-pin D-Sub

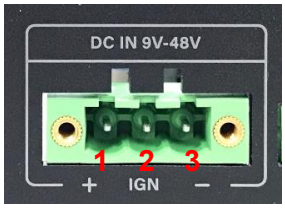
| Pin | RS232 Definition | RS422 / 485 Full Duplex Definition | RS485 Half Duplex Definition |
|---|---|---|---|
| 1 | DCD | TX- | DATA - |
| 2 | RXD | TX+ | DATA + |
| 3 | TXD | RX+ | |
| 4 | DTR | RX- | |
| 5 | GND | | |
| 6 | DSR | | |
| 7 | RTS | | |
| 8 | CTS | | |
| 9 | RI | | |




**DC_IN1: 3 PINs DC 9-48V power input with power ignition connector**

Connector Type: Terminal Block 1x3 3-pin, 5.0mm pitch

| Pin | Definition |
|---|---|
| 1 | +9-48VIN |
| 2 | Ignition (IGN) |
| 3 | GND |







CAUTION (ATTENTION)

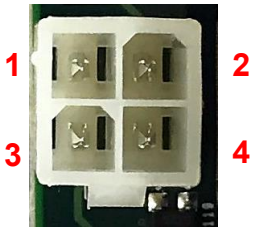
**Please disconnect the power source before mounting the DC power cables or connecting the DC power connector to system.**

**(Veuillez débrancher la source d'alimentation avant de monter les câbles d'alimentation CC ou de connecter le connecteur d'alimentation CC au système.)**

### DC_IN2: 4 PINs DC 9-48V Power Connector

Connector Type: 2x2 4-pin, 4.2mm pitch

| Pin | Definition |
|---|---|
| 1 | GND |
| 2 | GND |
| 3 | +9-48VIN |
| 4 | +9-48VIN |



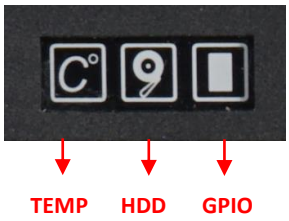

**WARNING (AVERTIR)**

**Before using this connector, make sure that the PIN3 & PIN4 voltage meets the power requirements of the device.**

**(Avant d'utiliser ce connecteur, assurez-vous que la tension PIN3 et PIN4 répond aux exigences d'alimentation de l'appareil.)**

### LED_PH1: LED board connector

| LED type | Status | LED Color |
|---|---|---|
| TEMP LED | System Temp ≤ 65°C | Green |
| | 65°C < System Temp ≤ 70°C | Blue |
| | 70°C < System Temp ≤ 75°C | Red |
| | 75°C < System Temp | Blinking Red |
| HDD LED | Data activity | Yellow |
| | No activity | Off |
| GPIO LED | GPIO activity | Green |
| | No activity | Off |



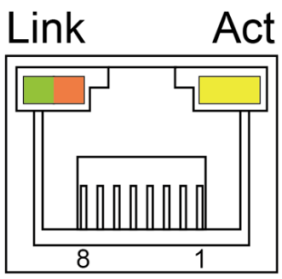

**NOTE (NOTE)**

**The TEMP LED is only available when IGN module is installed.**

**(La LED TEMP n'est disponible que lorsque le module IGN est installé.)**

### LAN LED Status Definition

| Link LED Status | Definition |
|---|---|
| Steady Green | 1 Gbps Network Link |
| Steady Orange | 100 Mbps Network Link |
| Off | 10 Mbps Network Link |
| **Act LED Status** | **Definition** |
| Blinking Yellow | Data Activity |
| Steady Yellow | No Activity |

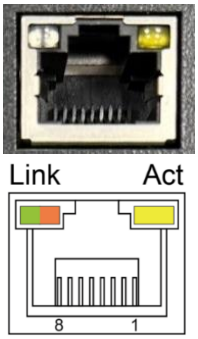


# 2.5 Optional Module Pin Definition & Settings

## 2.5.1 CMI-2P5GLAN03/ UB1012 Module

**LAN (I225) LED Status Definition**

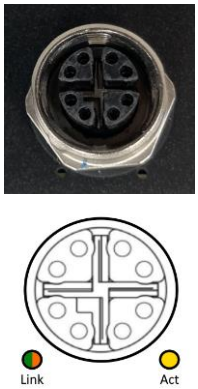
| Link Speed LED Status | Definition |
|---|---|
| Steady Green | 2.5 Gbps Network Link |
| Steady Orange | 1 Gbps Network Link |
| Off | 100 Mbps Network Link |
| Off | 10 Mbps Network Link |
| **Link Act LED Status** | **Definition** |
| Blinking Yellow | Link and Data Activity |
| Steady Yellow | Link but No Activity |




## 2.5.2 CMI-10GXM12LAN03/ UB1037 Module

**LAN (X550) LED Status Definition**

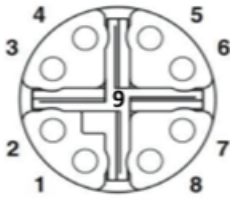
| Link Speed LED Status | Definition |
|---|---|
| Steady Green | 10 Gbps Network Link |
| Steady Orange | 1 Gbps Network Link |
| Off | 100 Mbps Network Link |
| **Link Act LED Status** | **Definition** |
| Blinking Yellow | Link and Data Activity |
| Steady Yellow | Link but No Activity |




**LAN Port Pin Definitions**

Connector Type: M12 X coded 8pin connector

| Pin | Definition | Pin | Definition |
|---|---|---|---|
| 1 | MDX0+ | 2 | MDX0- |
| 3 | MDX1+ | 4 | MDX1- |
| 5 | MDX3+ | 6 | MDX3- |
| 7 | MDX2- | 8 | MDX2+ |
| 9 | GND | | |



### 2.5.3 CMI-M12LAN01-R12/UB1010 Module

**CMI-M12 LAN Module Pin Definitions**

Connector Type: M12 A coded 8pin connector

| Pin | Definition | Pin | Definition |
|---|---|---|---|
| 1 | 2_LAN1_0+ | 2 | 2_LAN1_0- |
| 3 | 2_LAN1_1+ | 4 | 2_LAN1_2+ |
| 5 | 2_LAN1_2- | 6 | 2_LAN1_1- |
| 7 | 2_LAN1_3+ | 8 | 2_LAN1_3- |

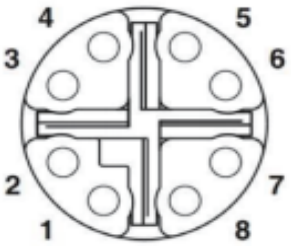



### 2.5.4 CMI-XM12LAN01-R10/UB1030 Module

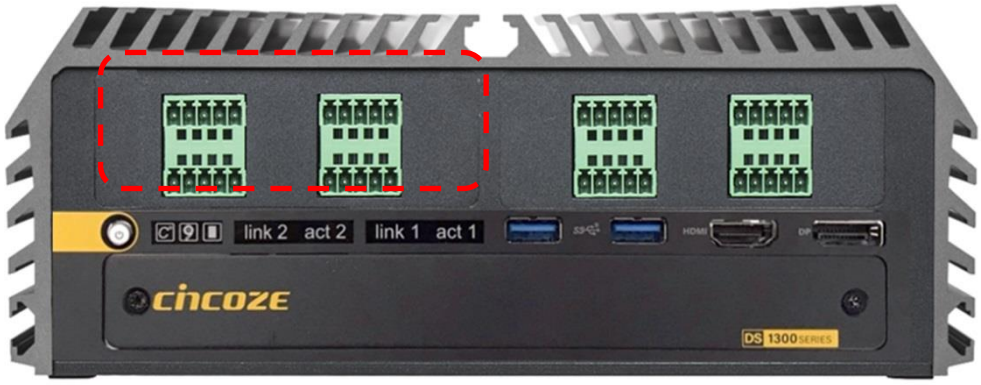
**CMI-XM12LAN01 Module Pin Definitions**

Connector Type: M12 X coded 8pin connector

| Pin | Definition | Pin | Definition |
|---|---|---|---|
| 1 | D1+ | 2 | D1- |
| 3 | D2+ | 4 | D2- |
| 5 | D4+ | 6 | D4- |
| 7 | D3- | 8 | D3+ |



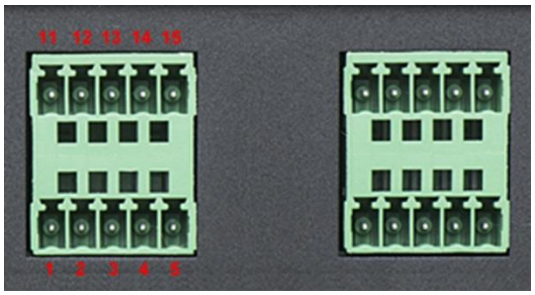
### 2.5.5 CMI-DIO02/UB1018 Module



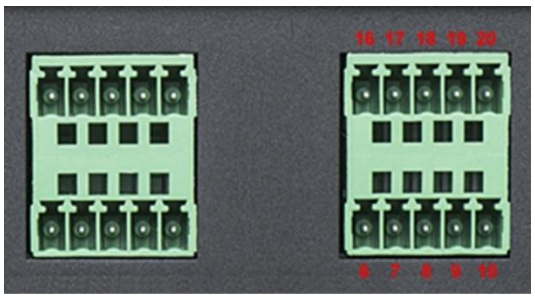

**DIO1: Digital Input / Output Connector**

Connector Type: Terminal Block 2X5 10-pin, 3.5mm pitch

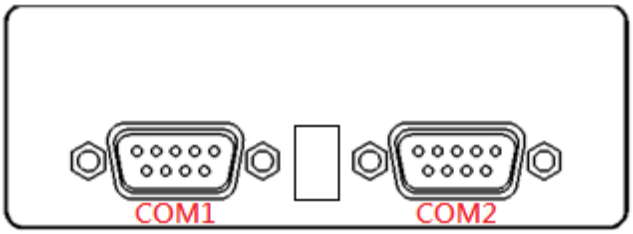
| Pin | Definition | Pin | Definition |
|---|---|---|---|
| 1 | DI1 | 11 | DO1 |
| 2 | DI2 | 12 | DO2 |
| 3 | DI3 | 13 | DO3 |
| 4 | DI4 | 14 | DO4 |
| 5 | XCOM+<br>(DC INPUT) | 15 | XCOM-<br>(GND) |




| Pin | Definition | Pin | Definition |
|---|---|---|---|
| 6 | DI5 | 16 | DO5 |
| 7 | DI6 | 17 | DO6 |
| 8 | DI7 | 18 | DO7 |
| 9 | DI8 | 19 | DO8 |
| 10 | 2XCOM+<br>(DC INPUT) | 20 | 2XCOM-<br>(GND) |



## 2.5.6 CMI-CAN01-R10/UB1038 Module




**COM1 and COM2 (on the module) : CAN BUS Connector**

Connector Type: 9-pin D-Sub



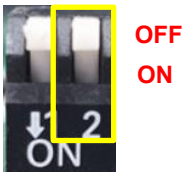

| Pin | CAN BUS1 Definition | CAN BUS2 Definition |
|---|---|---|
| 1 | N.C | N.C |
| 2 | CAN1L | CAN2L |
| 3 | GND | GND |
| 4 | N.C | N.C |
| 5 | N.C | N.C |
| 6 | GND | GND |
| 7 | CAN1H | CAN2H |
| 8 | N.C | N.C |
| 9 | N.C | N.C |

**SW1: COM1/COM2 120Ω Terminating Resistor Select**

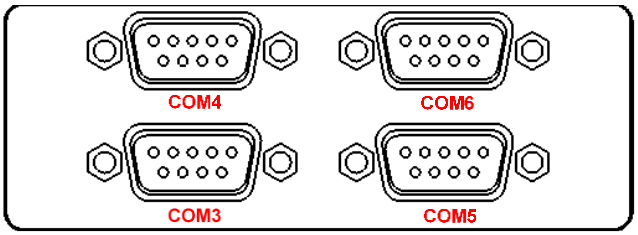
| Location | Function | | DIP1 | DIP2 |
|---|---|---|---|---|
| SW1 on CMI-CAN Module | COM1 | Enabled | OFF (Default) | OFF (Default) |
| | | Disabled | ON | ON |




| Location | Function | | DIP1 | DIP2 |
|---|---|---|---|---|
| SW1 on CMI-CAN Module | COM2 | Enabled | OFF (Default) | OFF (Default) |
| | | Disabled | ON | ON |



## 2.5.7 CMI-COM02/UB1004 Module




**COM3~COM6：RS232 / RS422 / RS485 Connector**

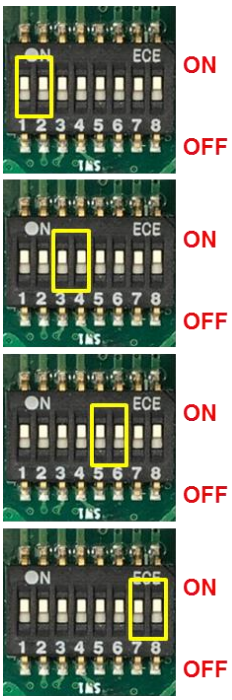
Connector Type: 9-pin D-Sub



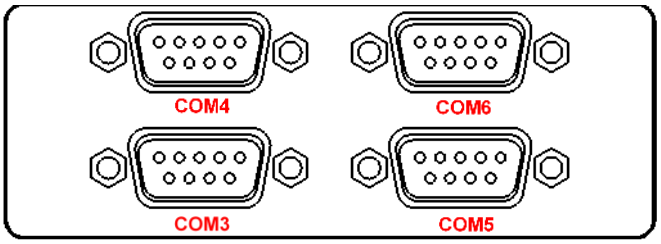

| Pin | RS232 Definition | RS422 / 485 Full Duplex Definition | RS485 Half Duplex Definition |
|---|---|---|---|
| 1 | DCD | TX- | DATA - |
| 2 | RXD | TX+ | DATA + |
| 3 | TXD | RX+ | |
| 4 | DTR | RX- | |
| 5 | GND | | |
| 6 | DSR | | |
| 7 | RTS | | |
| 8 | CTS | | |
| 9 | RI | | |

**SW1 on CMI-COM02 Module：COM3~COM6 Power Select**

| Location | Function | | DIP1 | DIP2 |
|---|---|---|---|---|
| SW1 | COM6 | 0V(RI) | ON (Default) | ON (Default) |
| | | 5V | ON | OFF |
| | | 12V | OFF | OFF |
| **Location** | **Function** | | **DIP3** | **DIP4** |
| SW1 | COM5 | 0V(RI) | ON (Default) | ON (Default) |
| | | 5V | ON | OFF |
| | | 12V | OFF | OFF |
| **Location** | **Function** | | **DIP5** | **DIP6** |
| SW1 | COM4 | 0V(RI) | ON (Default) | ON (Default) |
| | | 5V | ON | OFF |
| | | 12V | OFF | OFF |
| **Location** | **Function** | | **DIP7** | **DIP8** |
| SW1 | COM3 | 0V(RI) | ON (Default) | ON (Default) |
| | | 5V | ON | OFF |
| | | 12V | OFF | OFF |



## 2.5.8 CMI-ICOM01/UB1004 Module




**COM3~COM6：RS232 / RS422 / RS485 Connector**

Connector Type: 9-pin D-Sub




| Pin | RS232 Definition | RS422 / 485 Full Duplex Definition | RS485 Half Duplex Definition |
|---|---|---|---|
| 1 | DCD | TX- | DATA - |
| 2 | RXD | TX+ | DATA + |
| 3 | TXD | RX+ | |
| 4 | DTR | RX- | |
| 5 | GND | | |
| 6 | DSR | | |
| 7 | RTS | | |
| 8 | CTS | | |
| 9 | RI | | |

NOTE (NOTE)

**COM3/4/5/6 are isolated COM, each pin5 (GND) is independent.**

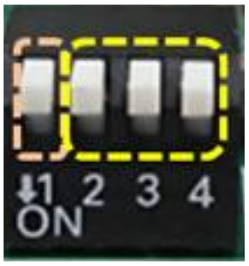
**(COM3/4/5/6 sont des COM isolés, chaque pin5 (GND) est indépendant.)**

### 2.5.9 CFM-IGN101 Module

**SW2：IGN Module Timing Setting Switch**

Set shutdown delay timer when ACC is turned off

| Pin 1 | Pin 2 | Pin 3 | Pin 4 | Definition |
|---|---|---|---|---|
| ON (IGN Enabled) / OFF (IGN Disabled) | ON | ON | ON | 0 second |
| | ON | ON | OFF | 1 minute |
| | ON | OFF | ON | 5 minutes |
| | ON | OFF | OFF | 10 minutes |
| | OFF | ON | ON | 30 minutes |
| | OFF | ON | OFF | 1 hour |
| | OFF | OFF | ON | 2 hours |
| | OFF | OFF | OFF | Reserved (0 second) |




OFF
ON

Default setting of Pin1 to Pin4 is OFF / OFF / OFF / OFF.

**24V_12V_1：IGN Module Voltage Mode Setting Switch**

**12V / 24V Car Battery Switch**

| Switch | Definition |
|---|---|
| Left | 12V Car Battery Input |
| Right | 24V Car Battery Input (Default) |



# Chapter 3
# System Setup

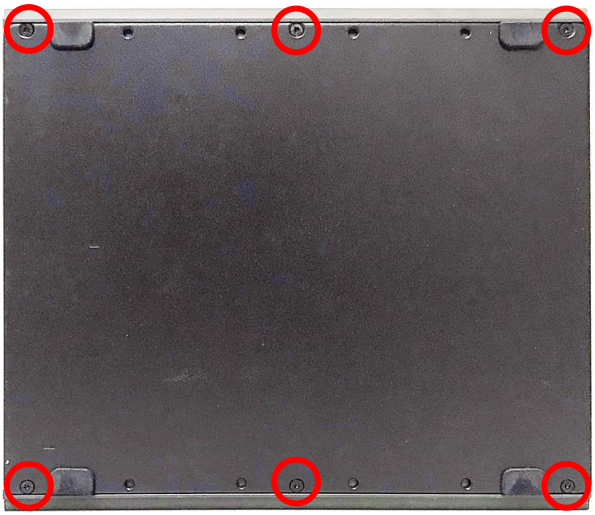
## 3.1 Removing Top Cover

**WARNING (AVERTIR)**

**In order to prevent electric shock or system damage, must turn off power and disconnect the unit from power source before removing the chassis cover.**
**(Afin d'éviter tout risque d'électrocution ou d'endommagement du système, vous devez couper l'alimentation et débrancher l'appareil de la source d'alimentation avant de retirer le couvercle du châssis.)**

All the steps in Chapter 3 are demonstrated using the DS-1402 as an example.

Step 1. Turn over the unit to have the bottom side face up, loosen the 6 screws on the bottom cover and place them aside for later use.



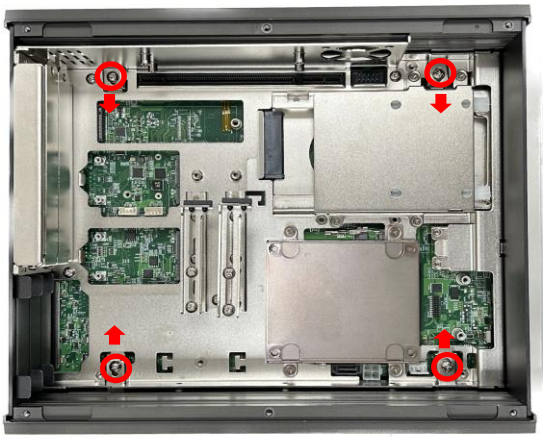
Step 2. Remove the bottom cover from the chassis.



Step 3. Unscrew the 2 screws at the rear bezel as indicated and place them aside for later use.



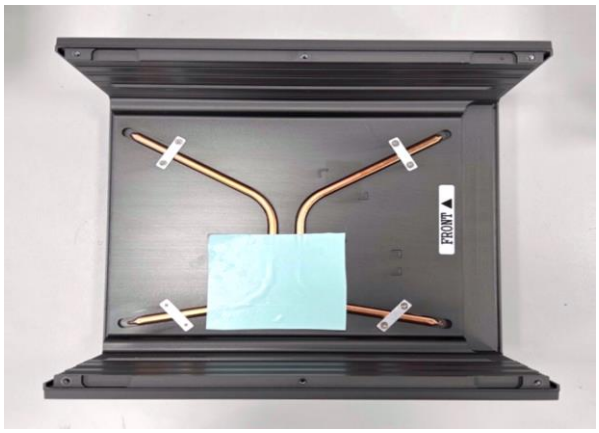
Step 4. Loosen the 4 screws. Pull out the 4 latches as marked.



Step 5. Lift up the unit vertically by holding the front and rear panel.



Step 6. Turn over the body of the unit and place it gently.





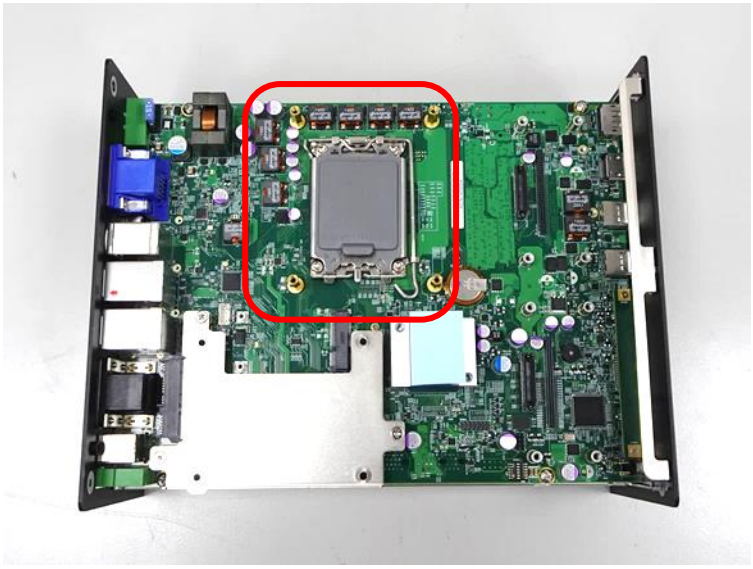

## 3.2 Installing CPU

**WARNING (AVERTIR)**

**After replacing the CPU, please perform a Clear CMOS before powering on. According to Intel documentation (Clear CMOS after Hardware Configuration Change, Document Number: 337986-001), if you do not perform a Clear CMOS, the BIOS will apply settings from the old CPU to the new CPU, which may cause performance issues or startup failures. Therefore, Cincoze performs a Clear CMOS procedure before shipping. When customers power on the system for the first time, it will take several minutes to start. This is normal. During this process, the system will POST three times, and the Power LED will alternate between green and blue lights.**

**(Après avoir remplacé le CPU, veuillez effectuer un Clear CMOS avant de mettre sous tension. Selon la documentation Intel (Clear CMOS after Hardware Configuration Change, Document Number: 337986-001), si vous n'effectuez pas un Clear CMOS, le BIOS appliquera les paramètres de l'ancien CPU au nouveau CPU, ce qui peut entraîner des problèmes de performance ou des échecs de démarrage. Par conséquent, Cincoze effectue une procédure de Clear CMOS avant l'expédition. Lorsque les clients mettent le système sous tension pour la première fois, il faudra plusieurs minutes pour démarrer. Cela est normal. Pendant ce processus, le système effectuera trois fois le POST et la LED d'alimentation alternera entre les lumières verte et bleue.)**

Step 1. Locate the CPU socket.



Step 2. Pull up the lever.





Step 3. Lift up the holder.



Step 4. Align the CPU with the fool-proof protrusions on the socket and put on the CPU.



Step 5. Press down the holder, the cover will be automatically removed, and then place the cover aside.





Step 6. Press the lever back to its original place to lock the CPU.

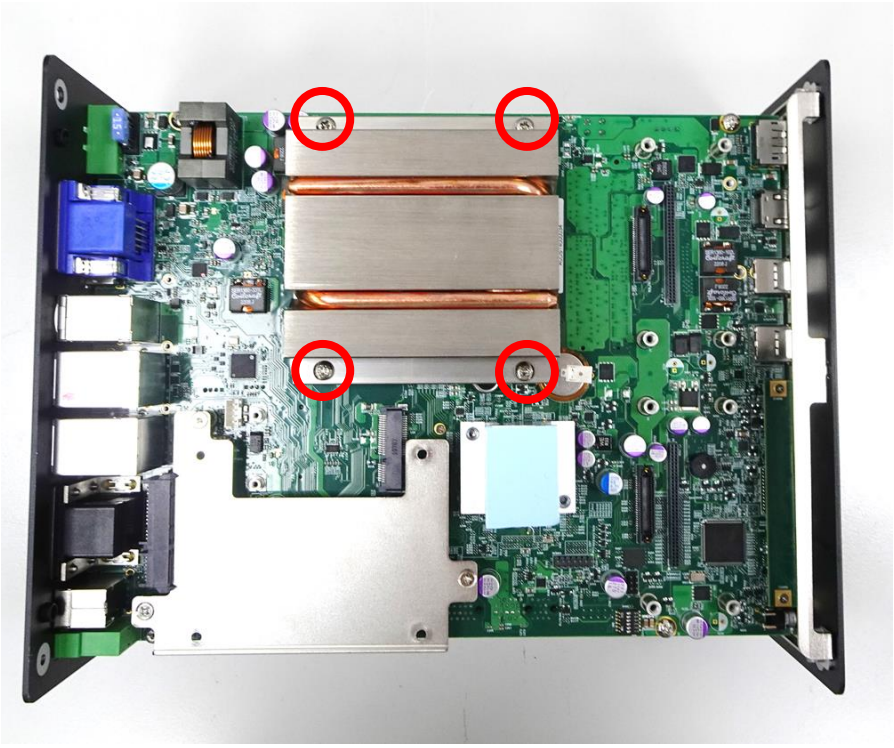




Step 7. Make sure that the CPU is clean, and apply the thermal paste onto the center of the CPU's surface as shown below. For more information about the thermal paste application, please find the Intel official website.

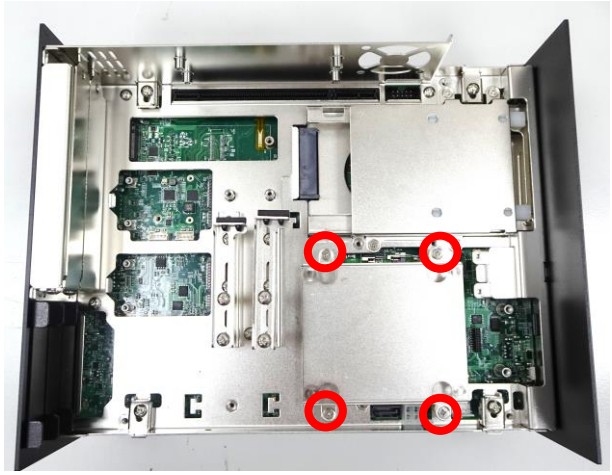


Step 8. Place the CPU heatsink on with aligning the four mounting holes of the heatsink and the nut studs and then fasten the heatsink with the provided 4 screws.

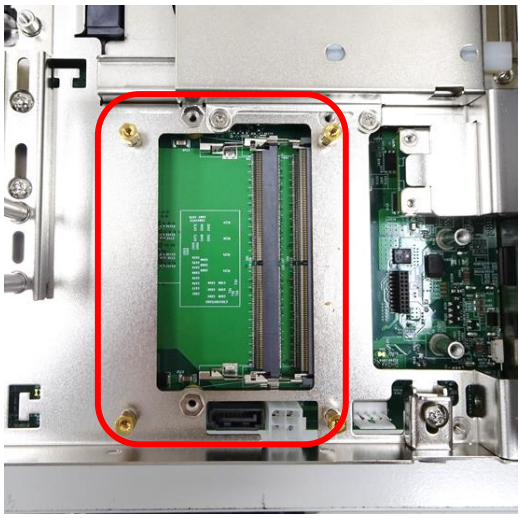


## 3.3 Installing SO-DIMM

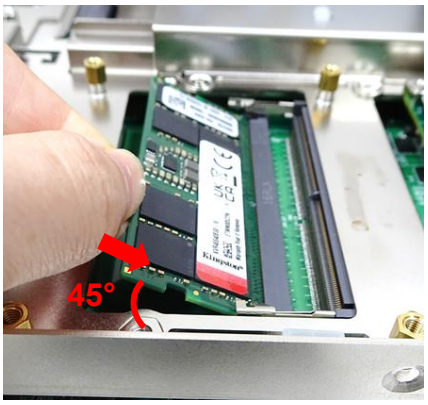
Step 1. Turn the system to the bottom side. Unscrews the 4 screws and remove the bracket.



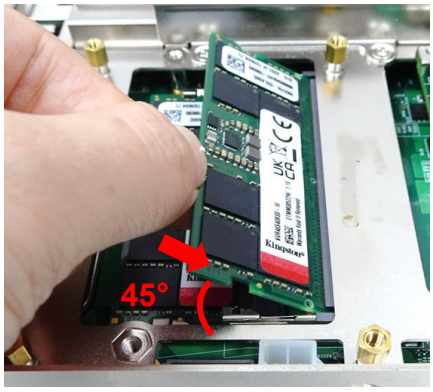
Step 2. Locate two SO-DIMM sockets at the bottom.



Step 3. Insert the SO-DIMM at a 45-degree angle until its edge connector is connected to the SO-DIMM socket firmly.




Lower socket




Upper socket

Step 4. Press down the module until the retaining clips snap back in place.

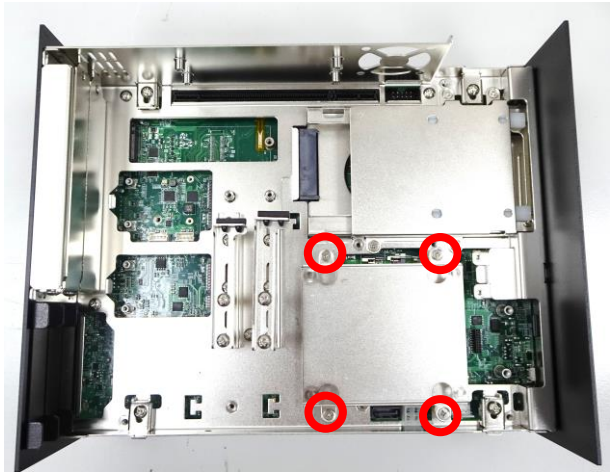


Lower socket



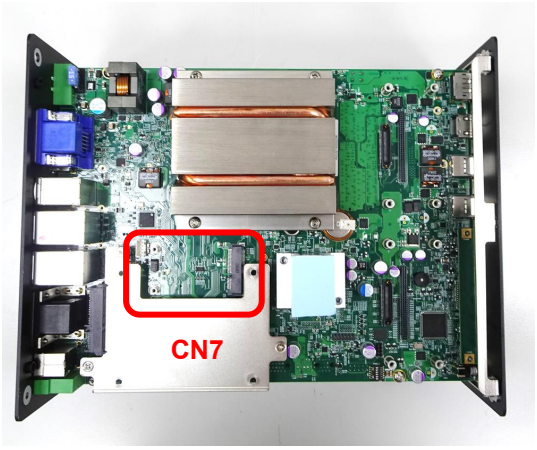
Upper socket

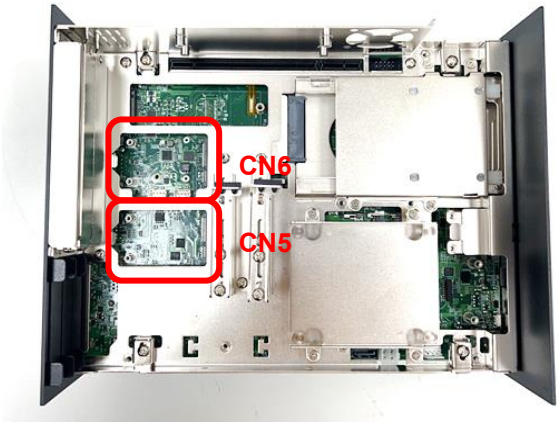
Step 5. Put the cover back and fix the cover with 4 screws.



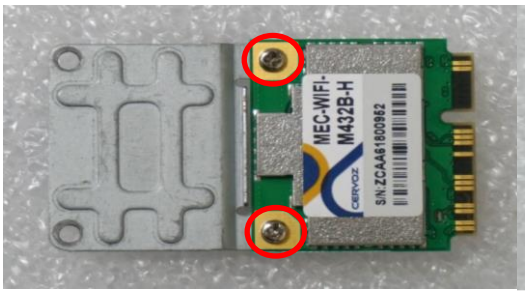
## 3.4 Installing Mini-PCIe Card

Step 1. Locate the Mini PCIe socket CN7 on the top side and CN5/CN6 on the bottom side of the system.




Step 2. Use provided two screws fasten the half size module and adapter bracket together as shown in Fig (a) below.

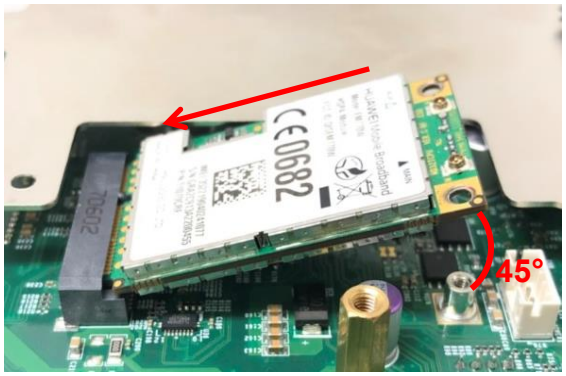



(a) Half Size Mini-PCIe Card



(b) Full Size Mini-PCIe Card

Step 3. Tilt a Mini PCIe card at a 45-degree angle and insert it to the socket until the golden finger connector of the card seated firmly.

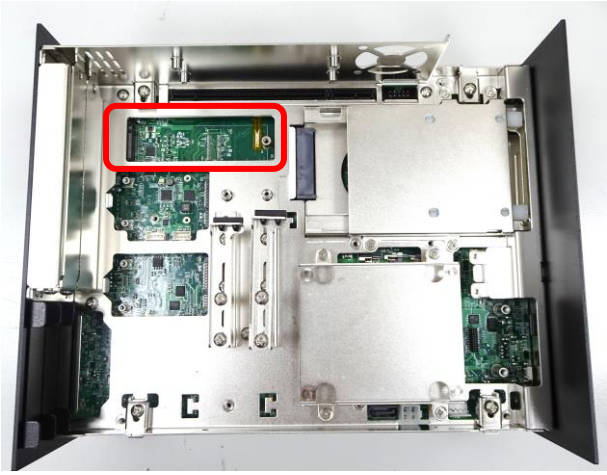


Step 4. Press the card down and secure it with 2 screws.




## 3.5 Installing M.2 M Key Card

Step 1. Turn the system to the bottom side, and locate the M.2 M Key slot (CN8).



Step 2. Tilt the M.2 M Key card at a 45-degree angle and insert it to the socket until the golden finger connector of the card seated firmly.



Step 3. Press the card down and secure it with the screw.



## 3.6 Installing Antenna

Step 1. Remove the antenna rubber cover on the rear panel.



Step 2. Penetrate the antenna jack through the hole.



Step 3. Put on the washer and fasten the nut of antenna jack.




Step 4. Assemble the antenna and antenna jack together.




Step 5. Attach the RF connector of the cable's another end onto the card.



## 3.7 Installing Antenna Cutout Universal Bracket (Rear)

An optional Universal Bracket (Model No. UB0331) features two antenna cutouts for wireless application. This bracket allows users to mount antennas in the designated cutouts. For Antenna installation details, refer to Chapter 3.6.

Step 1. Loosen and remove the two screws from either the left-side or right-side bracket of the system rear panel (this example uses the left-side bracket for demonstration).



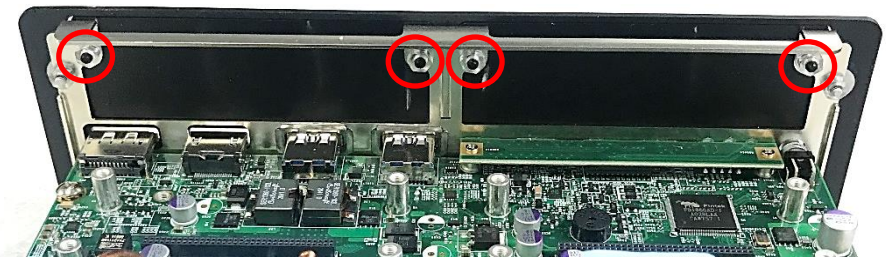

Step 2. Attach the I/O bracket on to the system as indicated below, and fasten the screws back to fix it. For guidance on antenna installation methods, please refer to chapter 3.6.



## 3.8 Installing Antenna Cutout Universal Bracket (Front)

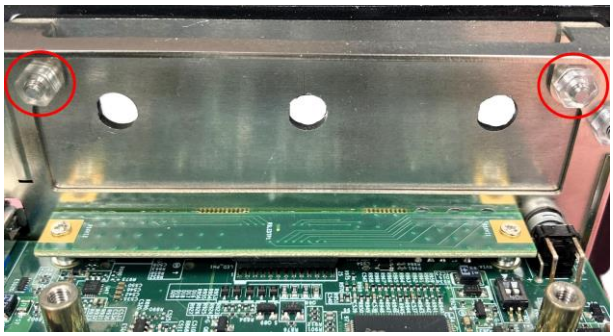
An optional Universal Bracket (Model No. UB1032) features three antenna cutouts. This bracket allows users to mount antennas in the designated cutouts. For Antenna installation details, refer to chapter 3.6.

Step 1. From the rear of the front panel, remove two hex nuts on either the left or the right side and remove the corresponding cover plate (see below). The cover plate on the right is used as the example here.



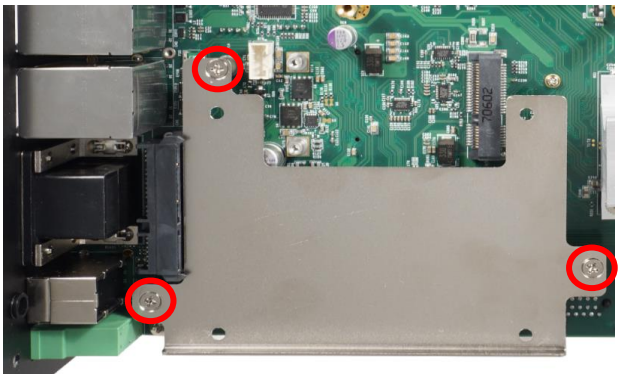
Step 2. Install the UB and secure it in place with two hex nuts as indicated below.



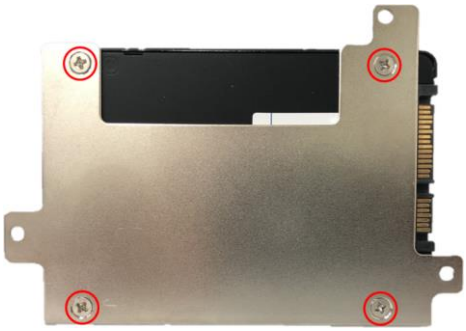



## 3.9 Installing SATA Hard Drive on Top Side

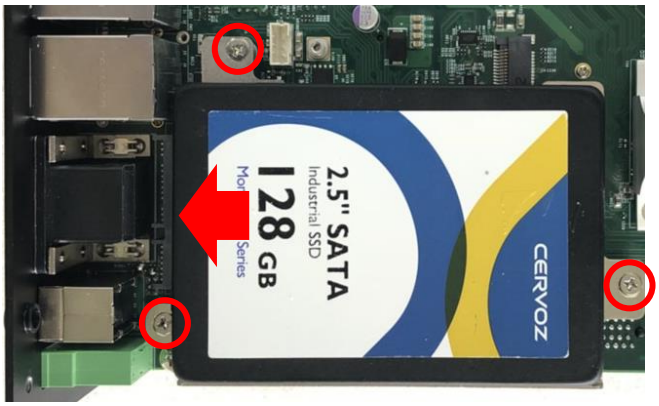
Step 1. Unscrew the 3 screws on the HDD bracket and remove the bracket.



Step 2. Make the PCB side of the HDD face up, and place the HDD bracket on it. Ensure the direction of bracket is correct and use the provided 4 screws to assemble HDD and HDD bracket together.



Step 3. Turn over the HDD bracket. Connect the HDD bracket to the SATA connector and fasten the 3 screws.



## 3.10 Installing Riser Card

The applicable riser cards for the DS-1400 series are listed in the following table. Please kindly note that this installation guide is intended only for the DS-1401 or DS-1402 models.

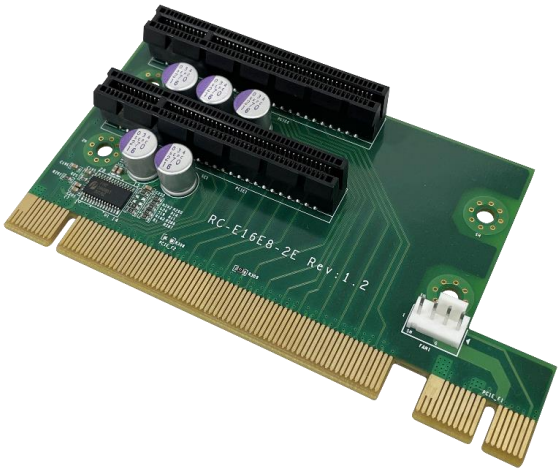
| Item | Model No. | Description | Compatible Model |
|---|---|---|---|
| 1 | RC-E16-01 | Riser Card with 1 x PCIex16 Slot | DS-1401 |
| 2 | RC-PI-01 | Riser Card with 1 x PCI Slot | DS-1401 |
| 3 | RC-E8E8-R10 | Riser Card with 2 x PCIex8 Slots | DS-1402 |
| 4 | RC-E16E1-01 | Riser Card with 1 x PCIex16 and 1 x PCIex1 Slots, supports add-on cards up to 75W. | DS-1402 |
| 5 | RC-E16PI-01 | Riser Card with 1 x PCIex16 and 1 x PCI Slots | DS-1402 |
| 6 | RC-PIPI-01 | Riser Card with 2 x PCI Slots | DS-1402 |
| 7 | RC-E16E1-02 | Riser Card with 1 x PCIex16 and 1 x PCIex1 Slots, and auxiliary power connector, supports add-on cards up to 130W. | DS-1402 |

The installation for items 1 to 6 should refer to Section 3.9.1 for the installation instructions, while the installation for item 7 should follow the instructions in Section 3.9.2.

### 3.10.1 Method 1

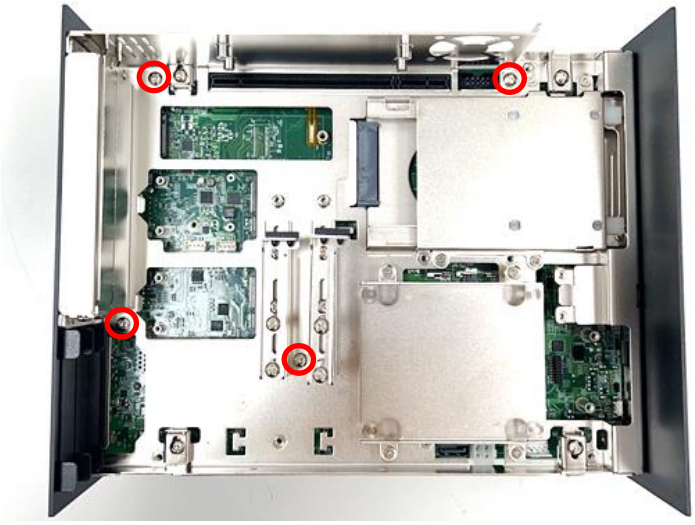
Please note that this section uses Riser Card Model No. RC-E8E8-R10 as an example for the installation instructions.

Step 1. Prepare the Riser Card intended for installation.

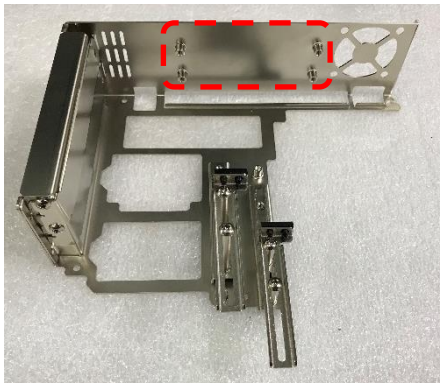


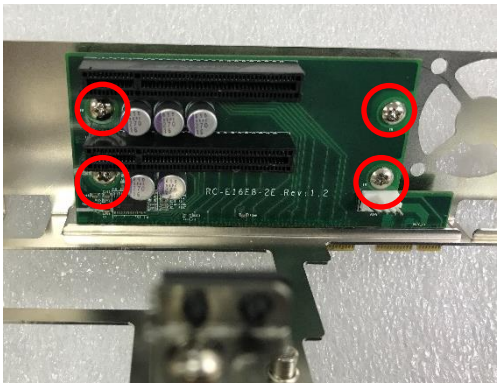

Riser Card (Model No. RC-E8E8-R10)

Step 2. Unscrew the 4 screws to remove the extension bracket.

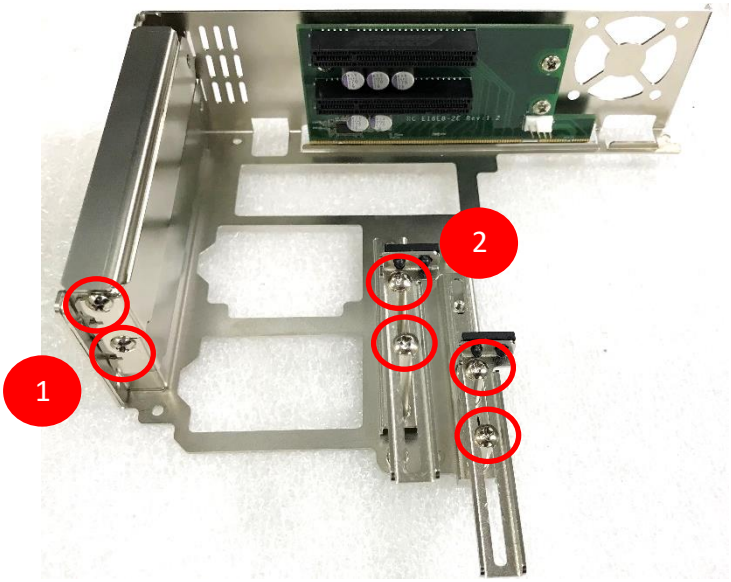


Step 3. Assemble the riser card with extension bracket together and fasten with the 4 screws.

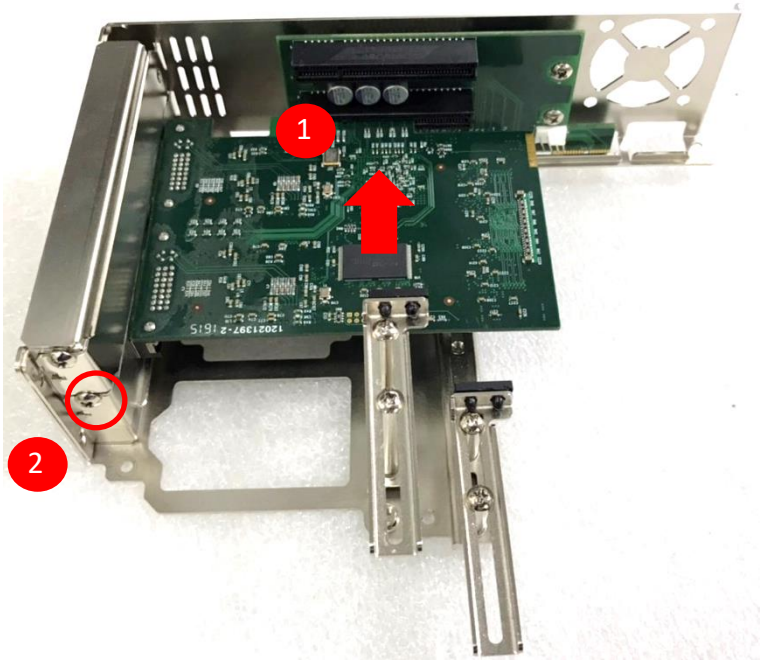




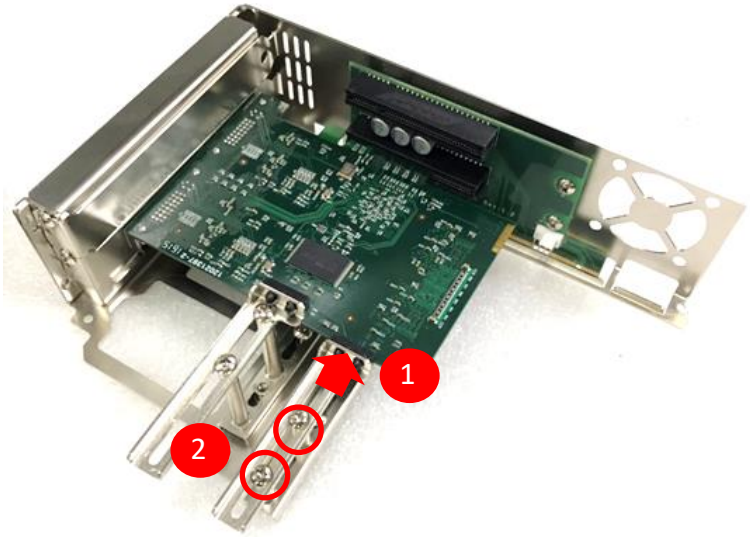
Step 4. (1) Loosen the screw(s) to remove I/O bracket(s). (2) Loosen the screws halfway to allow the card retainer to be adjustable.



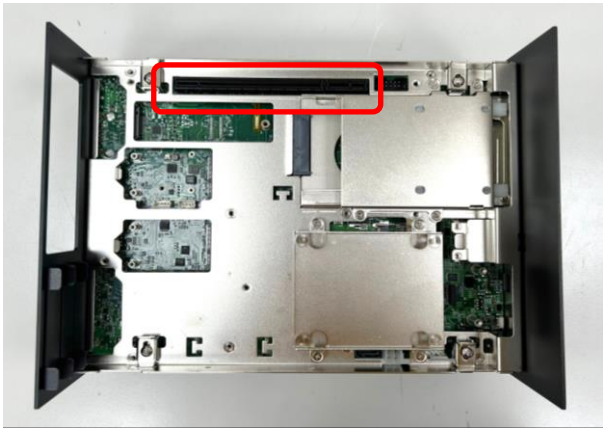
Step 5. (1) Insert PCI(e) add-on card to the slot. (2) Fasten the screw to secure it



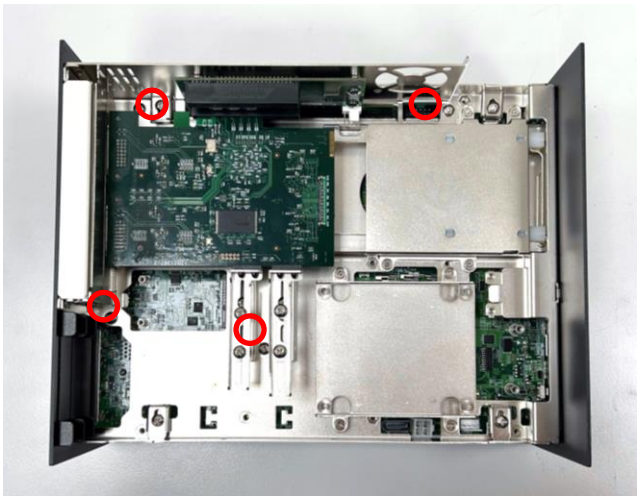

Step 6. (1) Push the card retainer forward to against the edge of the add-on card. (2) Fasten the screws to fix the card retainer.

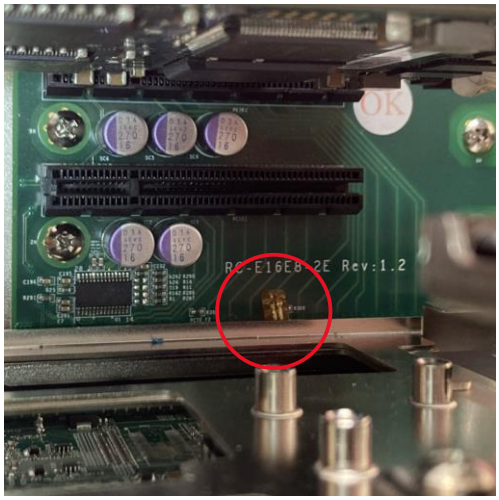


Step 7. Locate the riser card slot on bottom side of system.



Step 8. Install the module assembled in step 6 into the riser card slot, and fasten the 4 screws to secure it. Loosen the latches (see Section 3.1, step 4) if necessary for ease of installation. Ensure the bracket or the riser card does not crush the thermistor.





**WARNING (AVERTIR)**

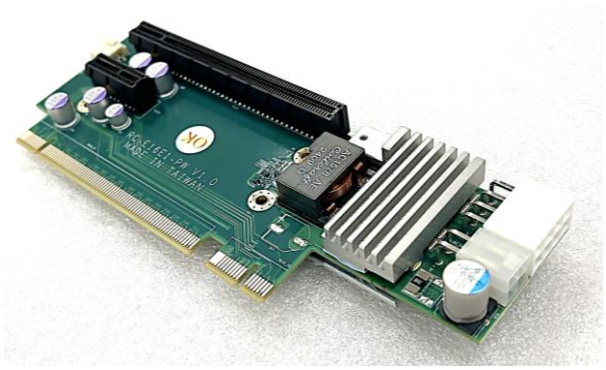
**Ensure the bracket or the riser card does not crush the thermistor. Failure to follow this step may damage the sensor.**

**(S'assurer que le support ou la carte d'extension ne comprime pas la thermistance. Le non-respect de cette étape peut endommager le capteur.)**

### 3.10.2 Method 2

This chapter uses Riser Card Model No. RC-E16E1-02 as an example for the installation instructions.

Step 1. Prepare the Riser Card intended for installation.

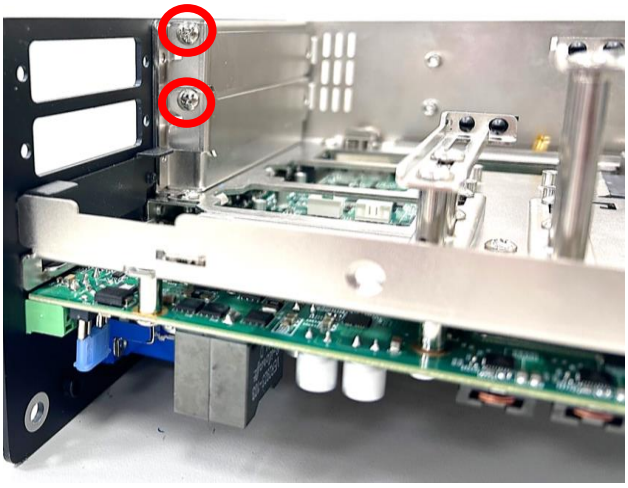


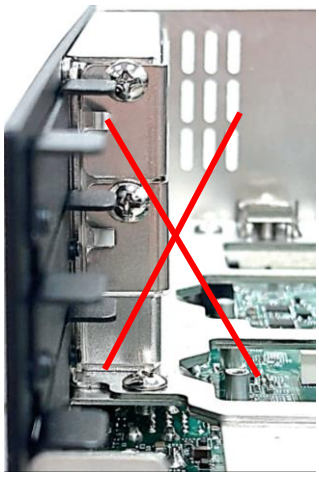
Riser Card (Model No. RC-E16E1-02)

Step 2. Unscrew the screws securing the panels and remove the panels.

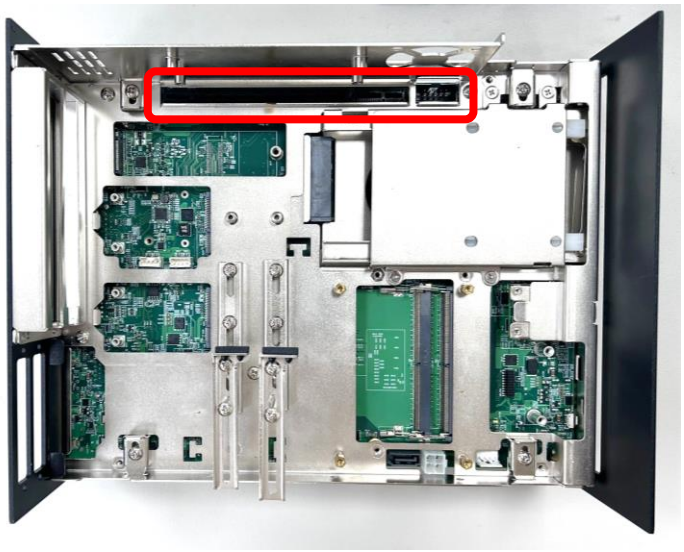


Step 3. Unscrew the screws securing the L-shaped bracket and remove the brackets. If the panel is not removed in Step 2 (as shown in the image on the right side below), it will be difficult to proceed with Step 3 due to interference, preventing the screws from being removed smoothly. Therefore, please ensure Step 2 is completed first.

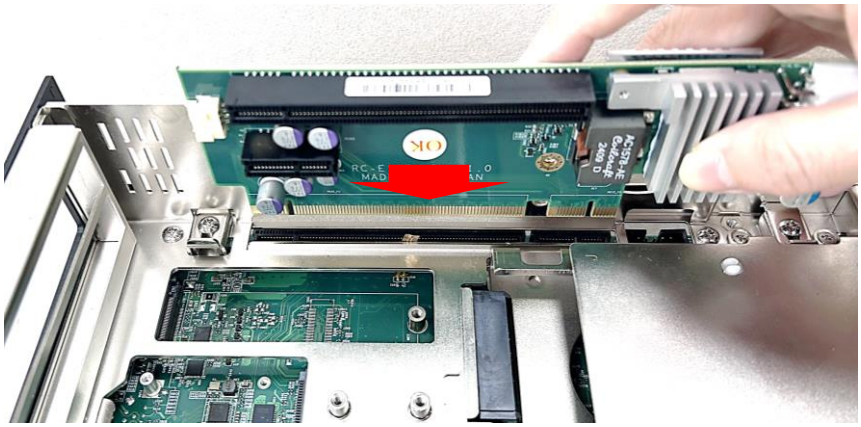


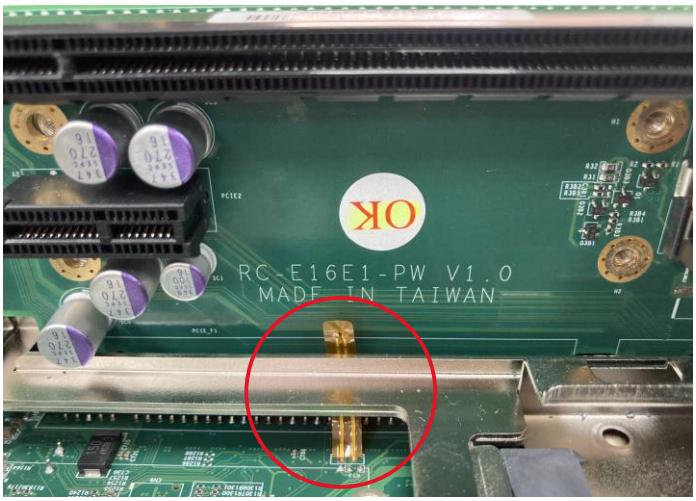


Step 4. Identify the riser card slot on bottom side of system.



Step 5. Ensure the golden fingers of the riser card are properly aligned with the slot, then insert the riser card vertically into place. Ensure the riser card does not crush the thermistor.

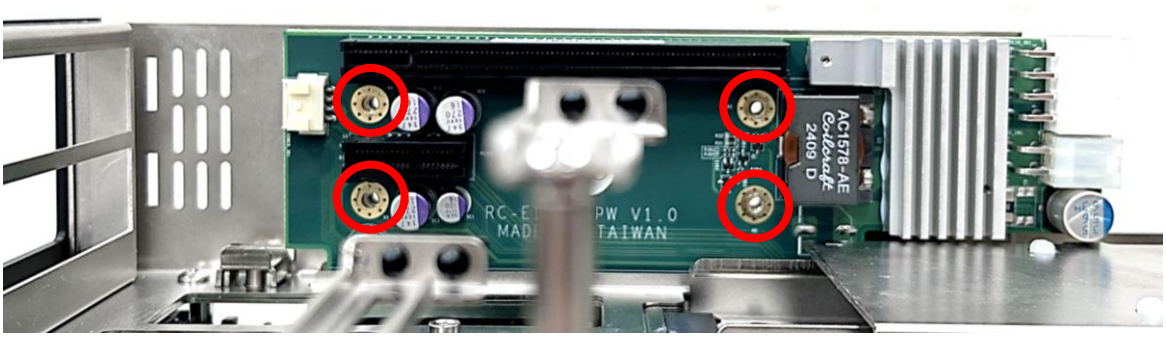




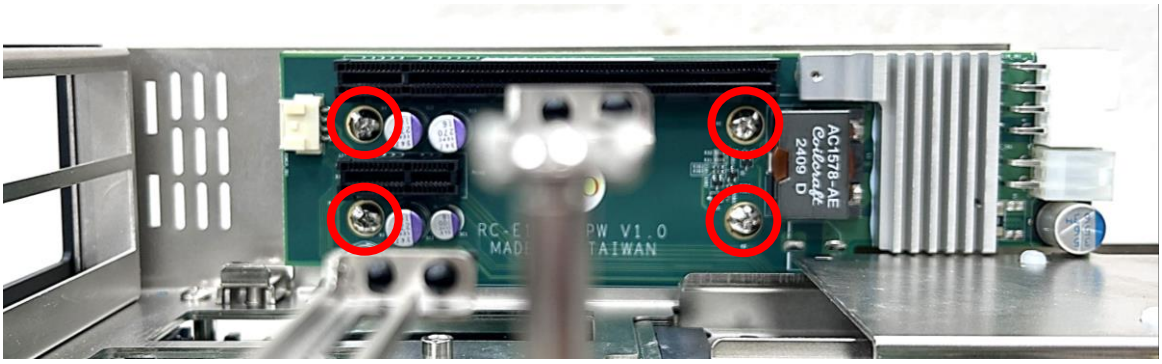
**WARNING (AVERTIR)**

**Ensure the riser card does not crush the thermistor. Failure to follow this step may damage the sensor.**
**(S'assurer que la carte d'extension ne comprime pas la thermistance. Le non-respect de cette étape peut endommager le capteur.)**

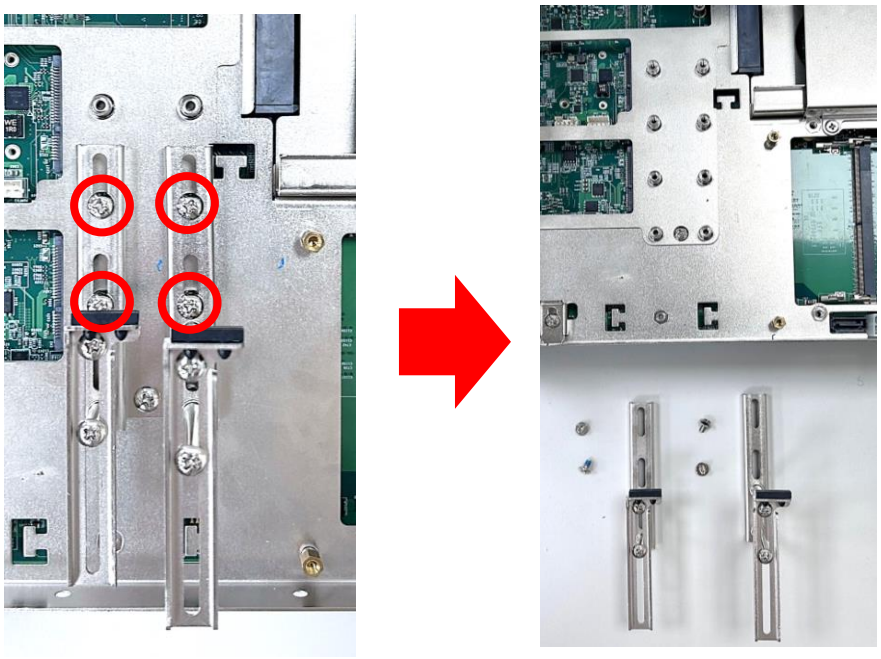
Step 6. Ensure the screw holes are properly aligned



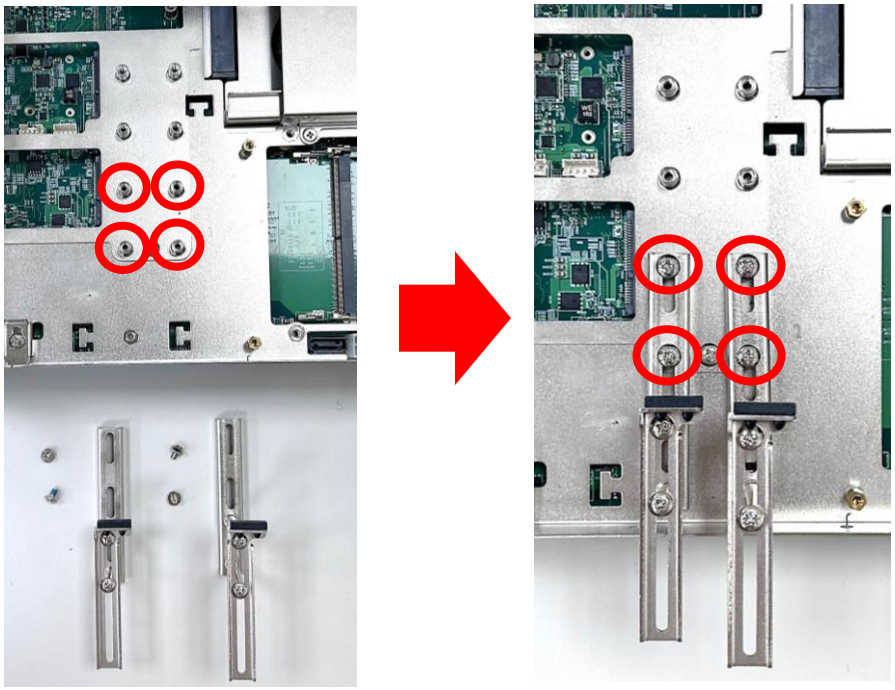

Step 7. Fasten the 4 screws (M3x5L) to fix the riser card.



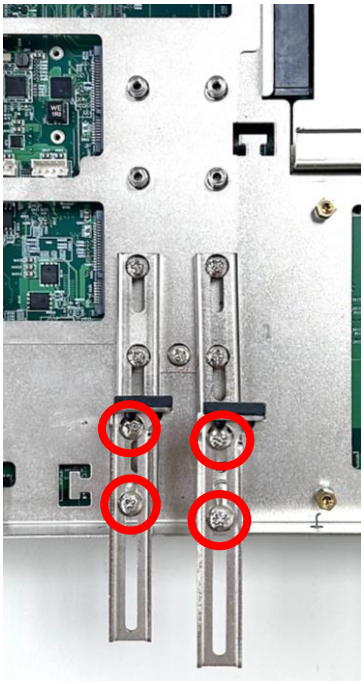

Step 8. Adjust the card retainer stand's position according to the size of the PCIe card. In this example, we are using the maximum card size (235 x 124 mm) supported by the DS-1402. To accommodate this size, the card retainer stand must be repositioned by unscrewing the screws and removing the card retainer, as illustrated below. If the size of your card does not require repositioning, you may skip step 8 and step 9.



Step 9. Locate the screw holes on the motherboard, then fix the card retainer stand’s position by fastening the screws back as indicated below.



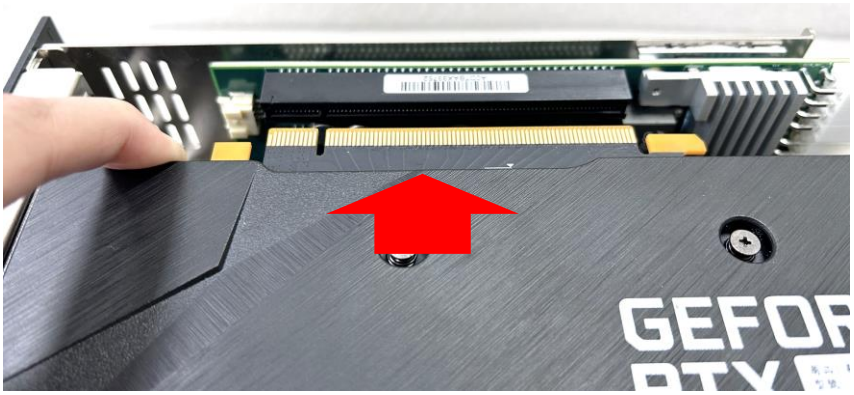
Step 10. Adjust the card retainer by loosening the screws as indicated below. In this example, we are using the maximum card size (235 x 124 mm) supported by the DS-1402. To accommodate this size, the card retainer must be repositioned by loosening the screws and removing the card retainer, as illustrated below.



Step 11. Identify the PCIe card slots on the riser card. (In this example, the selected PCIe card requires us to use the PCIe x16 slot.)



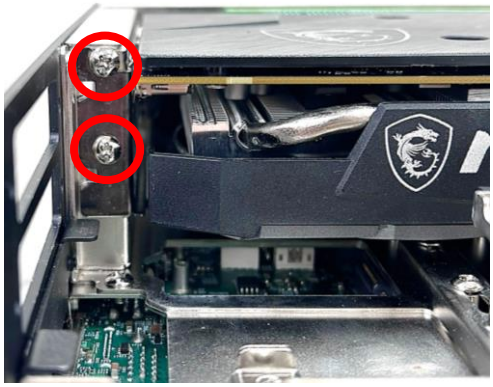
Step 12. Ensure the golden fingers of the PCIe card are properly aligned with the slot, then insert the riser card vertically into place. (In this example, the selected PCIe card requires us to use the PCIe x16 slot.)



Step 13. The L-shaped bracket should be inserted into the hole before securing it with screws



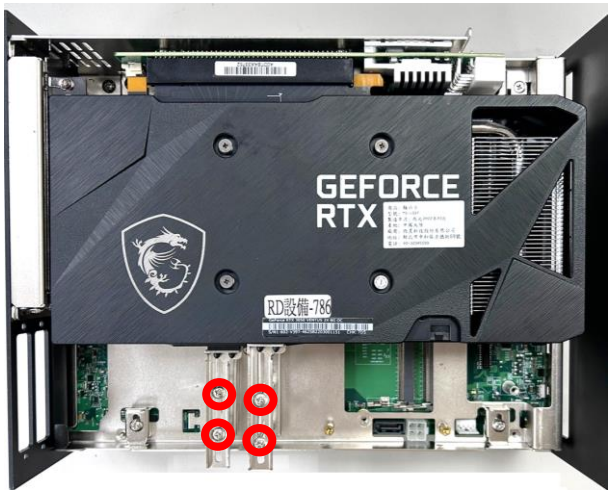
Step 14. Fasten the screws back for securing.



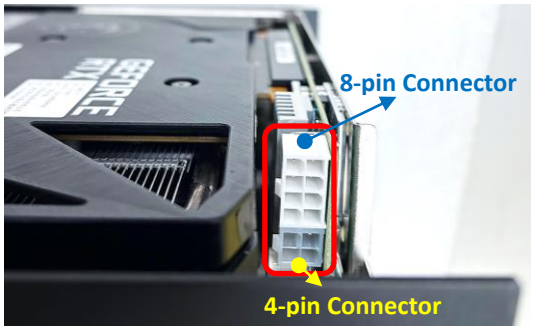
Step 15. Push the card retainer until it holds the PCIe card. (Since the selected PCIe card is installed in the top slot of the riser card, the top card retainer should properly hold the PCIe card. Please adjust according to your specific application on site.)




Step 16. Fasten the screws to secure the PCIe card.



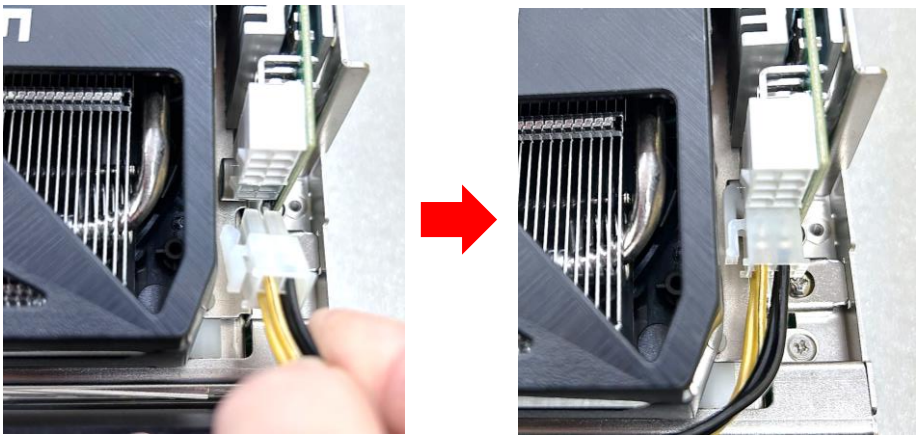

Step 17. Identify the location of the power connectors on the riser card. The 8-pin Connector is for connecting power cord into the PCIe card. As for the 4-pin Connector, it's for connecting power cord to the DC_IN2 on the system motherboard.



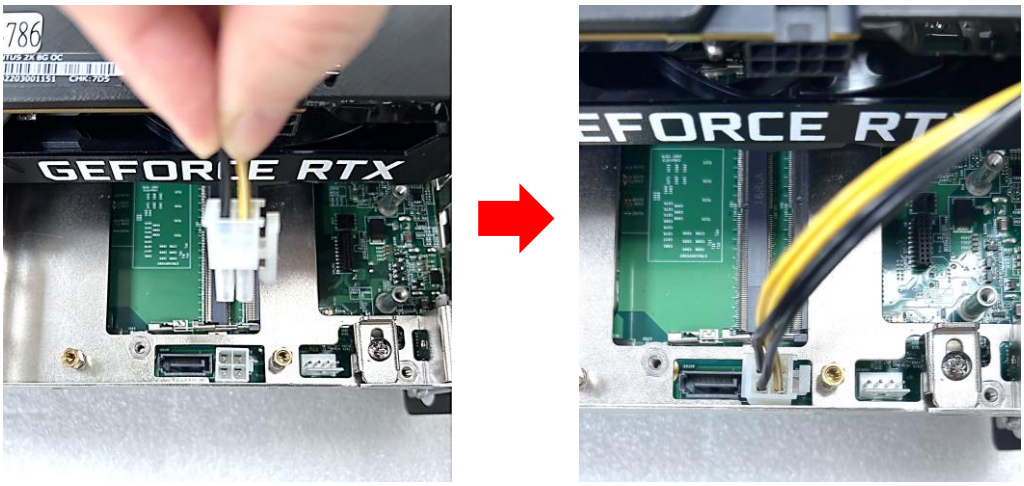
Step 18. Get the 4-to-4-pin power cord prepared. (Included in the Riser Card Package)



Step 19. Take note of the foolproof design and orient the 4-to-4-pin power cord in the correct direction. Align it with the 4-pin connector, then insert it firmly into place.



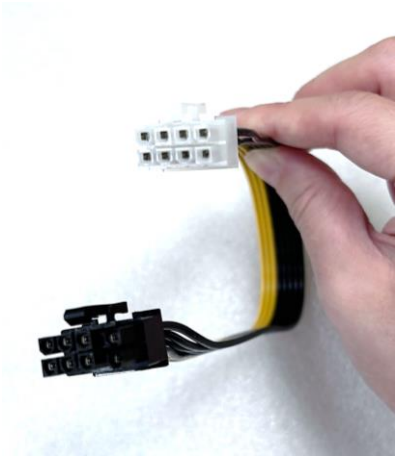
Step 20. Take note of the foolproof design and orient the power cord in the correct direction. Align it with the DC_IN2 connector on the motherboard, then insert it firmly into place.



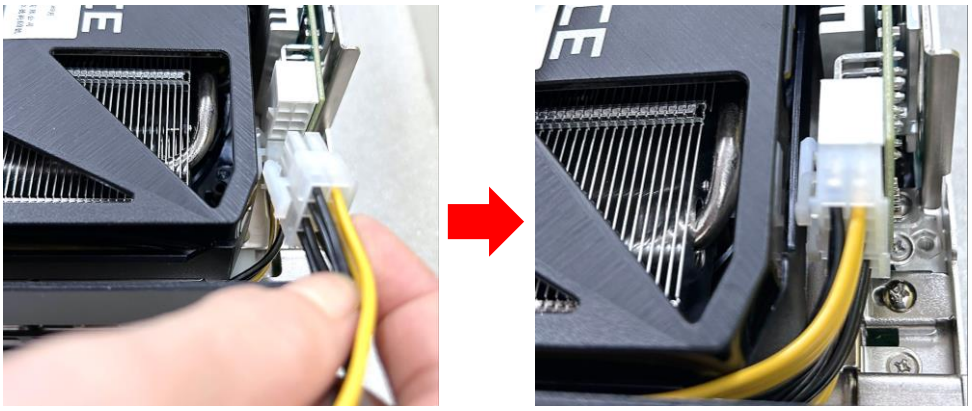
**NOTE (NOTE)**

**The 4-pin power cord must be plugged in correctly for the RC-E16E1-02 Riser Card to function properly.**
**(Le câble d'alimentation à 4 broches doit être branché correctement pour que la carte d'extension RC-E16E1-02 Riser Card fonctionne correctement.)**

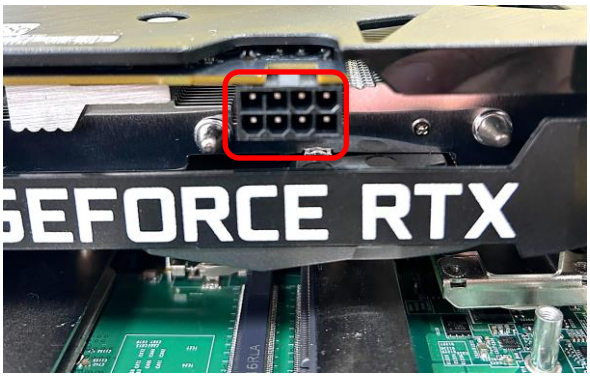
Step 21. Get the 8-to-8-pin power cord prepared. (Included in the Riser Card Package)



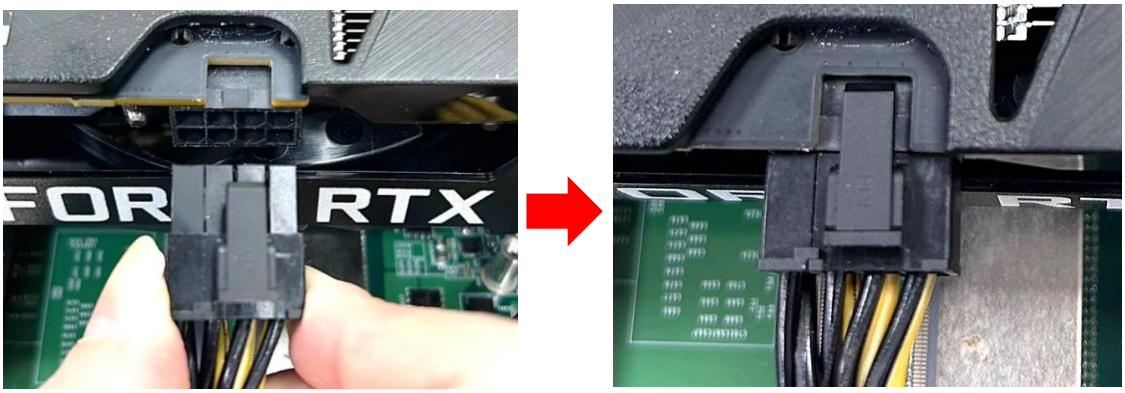
Step 22. Take note of the foolproof design and orient the 8-to-8-pin power cord in the correct direction. Align it with the 8-pin connector, then insert it firmly into place.



Step 23. Identify the location of the power connector on the PCIe card.



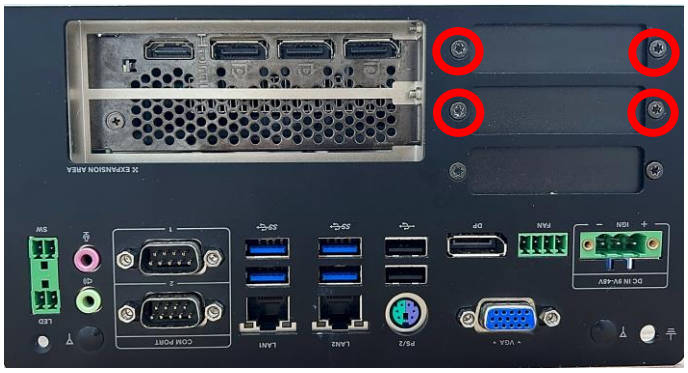

Step 24. Take note of the foolproof design and orient the power cord in the correct direction. Align it with the power connector, then insert it firmly into place.



Step 25. Arrange the wiring appropriately, as shown in the picture below.

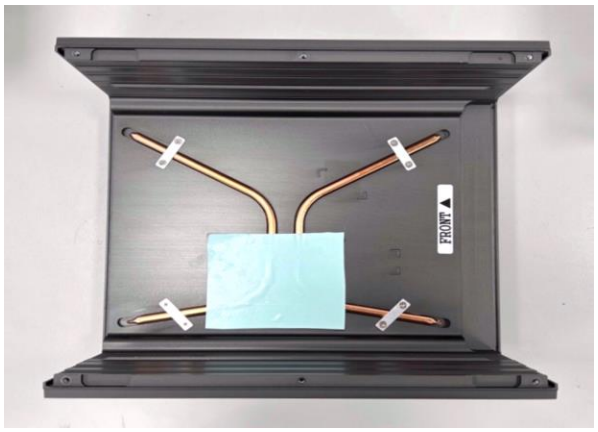


Step 26. Fasten the screws back to secure the panels to complete the installation.



## 3.11 Assembling Top Cover

Step 1. Make sure the notch on the chassis and the front bezel of the unit body are on the same side.

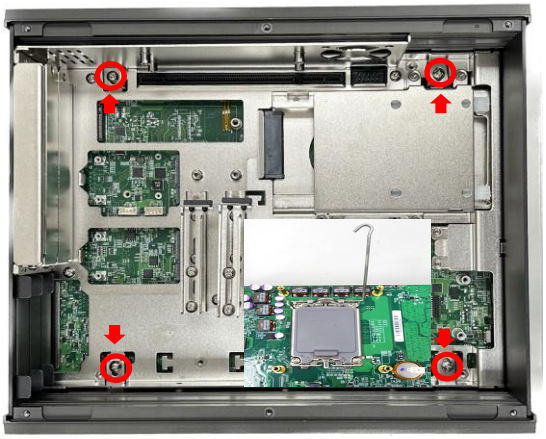





Step 2. Lift the body of the unit, make sure that the front and rear panels are in the chassis groves, and then assemble the body into the chassis.



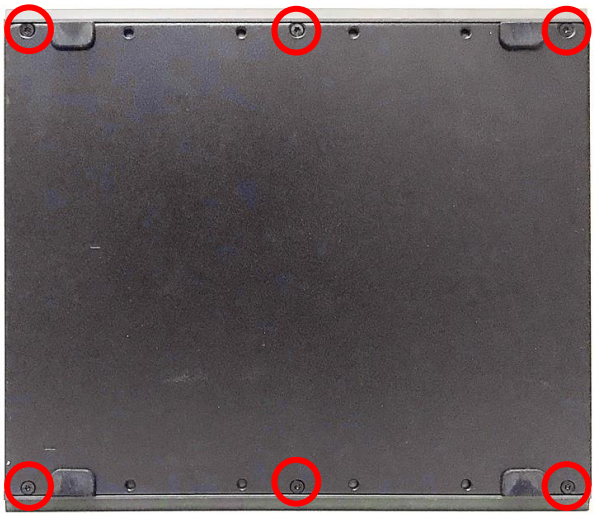
Step 3. Push into the 4 latches as indicated and fasten the 4 screws.



Step 4. Fasten the 2 screws at rear panel.



Step 5. Be sure to align the grooves with fzront and rear panels. Put the bottom cover back on and fasten the 6 screws to fix the cover.



## 3.12 Installing SATA Hard Drives at Front Panel

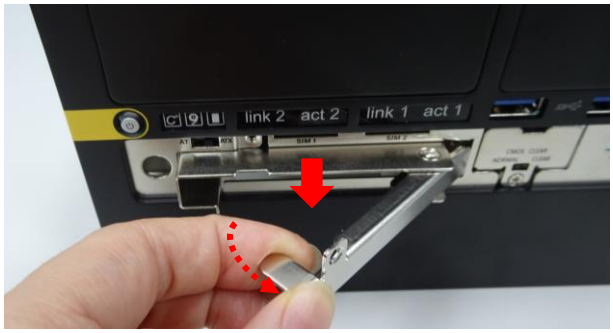
Step 1. Loosen the two screws to remove the cover plate of maintenance zone.



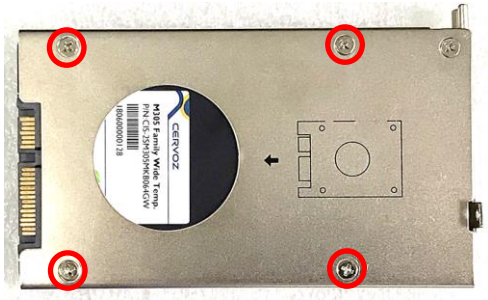

Step 2. Loosen the screw to remove the HDD bay cover bracket.




Step 3. Pull the rotating arm and pull the HDD bracket out of system.




Step 4. Make HDD bottom side face up, place the HDD bracket on it. Ensure the direction of bracket is correct and use 4 provided screws to assemble HDD and HDD bracket together.



Step 5. Align the HDD bracket with the entrance of HDD bay. Insert the HDD bracket and push it until the HDD connector is fully inserted into the SATA slot.




Step 6. Place the rotating arm back and fasten the screw.




Step 7. Fix the cover plate of maintenance zone by fastening the two screws.

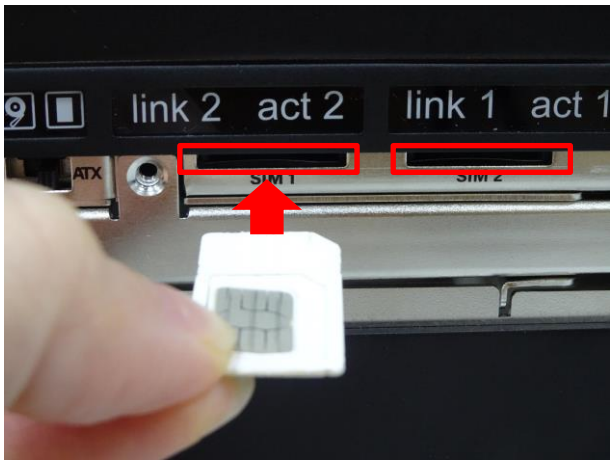


## 3.13 Installing SIM Card

Step 1. Loosen the two screws to remove the cover plate of maintenance zone.




Step 2. Locate the SIM card slot at front side and insert a SIM card into a SIM slot with the gold contacts facing up. Please pay attention to the insert orientation as illustrated. (When SIM cards are inserted into both sockets, the network connection will prioritize SIM1.)




Step 3. Fix the cover plate of maintenance zone by fastening the two screws.



## 3.14 Replacing CMOS Battery

This chapter is only for the situation that is required to replace the CMOS battery.

Step 1. Loosen the two screws to remove the cover plate of maintenance zone.



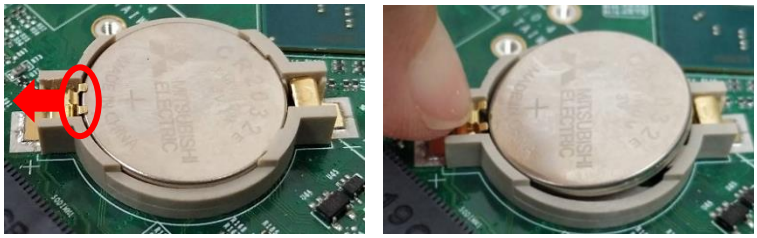

Step 2. Locate the removable CMOS Battery and loosen the screw.



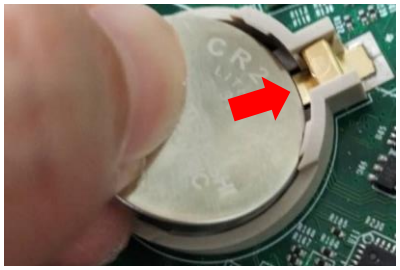
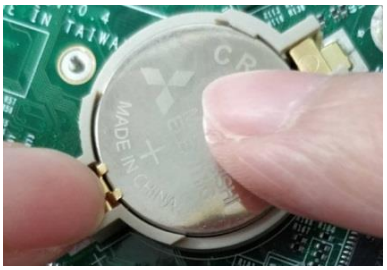

Step 3. Pull out the CMOS battery bracket with assistance of a tweezer.




Step 4. Remove the battery by pressing the metal tab backwards slightly as indicated.



Step 5. Pay attention to the direction of “+” and “– “signs on the battery. Push the battery into the slot from the "-" side and pull the metal tab backwards to make the battery fully installed in the slot.

Step 6. Insert the battery bracket firmly.




Step 7. Fasten the screw.




Step 8. Fix the cover plate of maintenance zone by fastening the two screws.



## 3.15 Installing Wall Mount

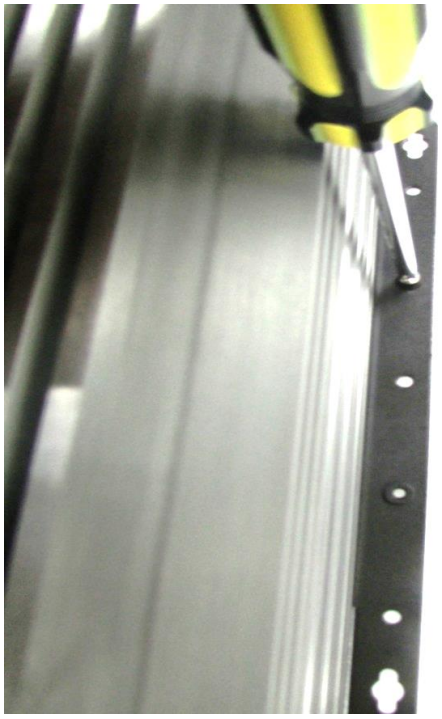
DS-1400 series offers wall mount kit that customers can install the system on the wall in a convenient and economical way.



Step 1. The mounting holes are at the bottom side of the system. Use the provided 8 screws (M5x6L) to fasten the bracket and the system together.



Step 2. Fasten the screws through the bracket mounting holes to mount the system onto the wall.

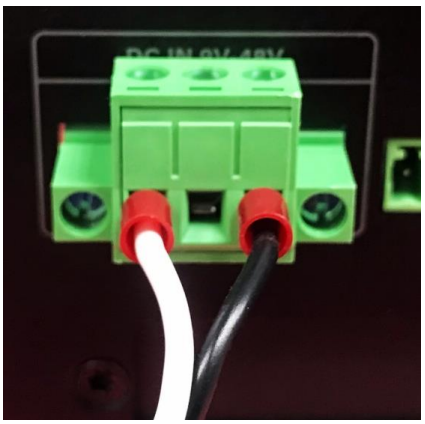


## 3.16 Connecting to Power Supply

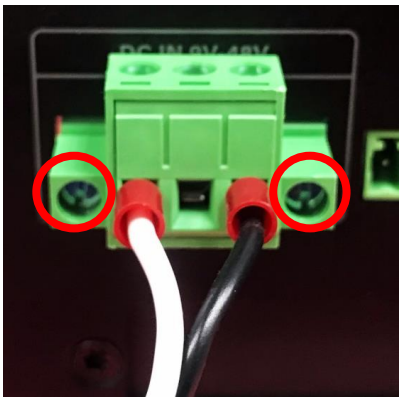
Step 1. Locate the DC_IN1 power connector.



Step 2. Aim the V- wire at the V- port of the connector, and aim the V+ wire at the V+ port of the connector. Then connect the phoenix contacts of the power supply to the DC_IN connector.



Step 3. Fasten the two screws to fix the phoenix contacts.



**WARNING (AVERTIR)**

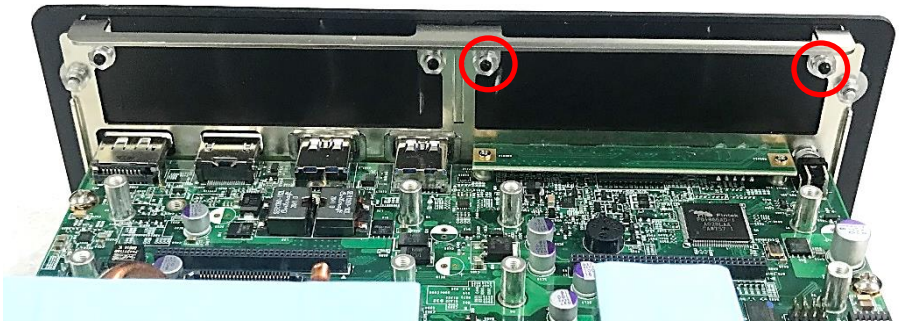
**In formal use, please use new Phoenix contacts and make sure the screws are tightened to avoid poor connection.**

**(En utilisation formelle, veuillez utiliser de nouveaux contacts Phoenix et assurez-vous que les vis sont bien serrées pour éviter une mauvaise connexion.)**

## 3.17 Installing CMI Modules

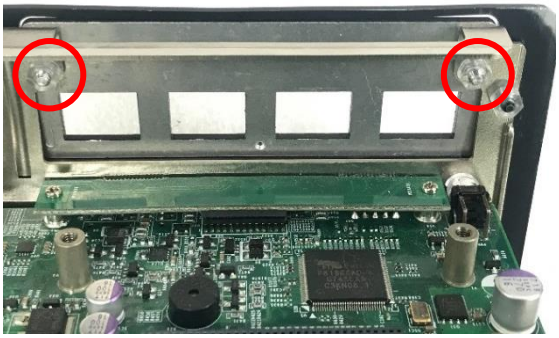
### 3.17.1 CMI-LAN01/UB1012 Module

Step 1. Loosen the 2 hex nuts from back side of front bezel. Remove the front bezel.

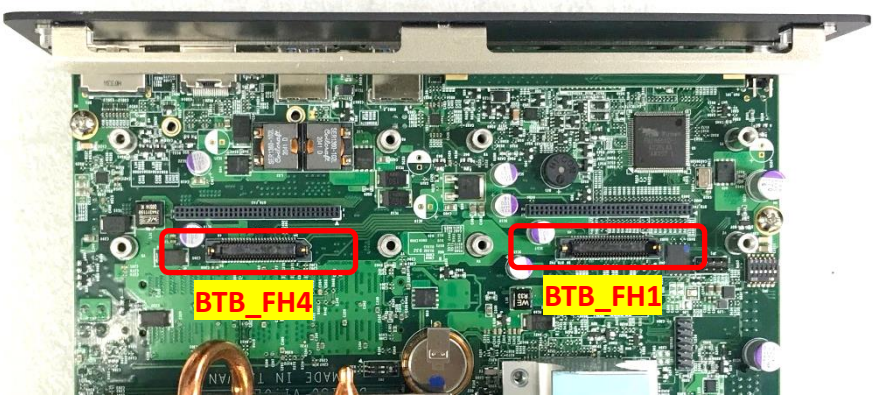


Step 2. Attach the CMI-LAN bracket, and fasten the 2 hex nuts to fix it as indicated.

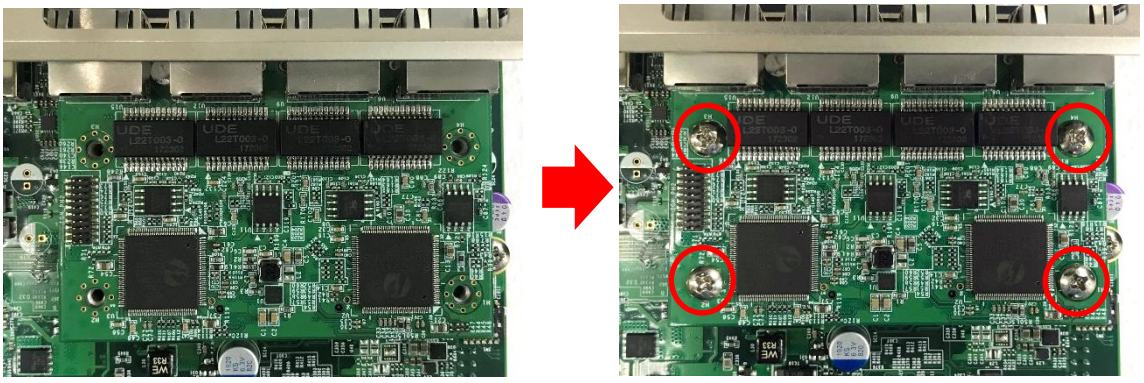


Step 3. Locate the connector(s) of CMI-LAN module on top side of system.

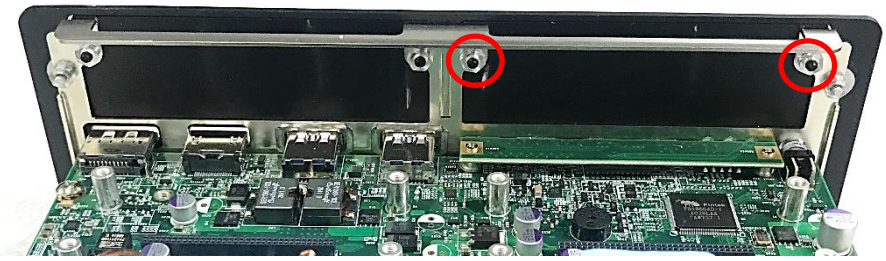


Step 4. Insert the CMI module vertically into the female connector on system's mainboard until it's connected firmly and fasten 4 screws to fix it.

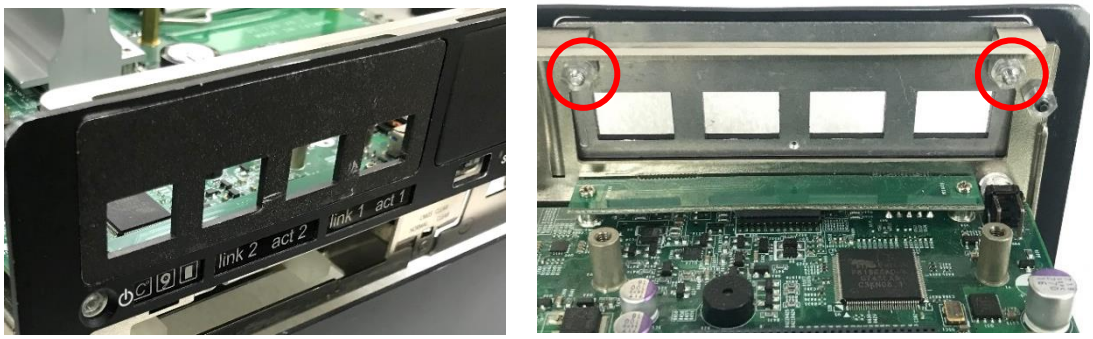


### 3.17.2 CMI-2P5GLAN03/UB1012 Module

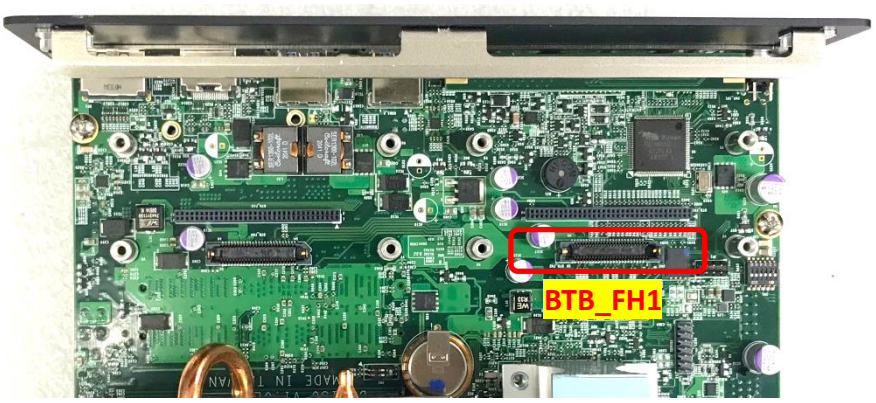
Step 1. From the rear of the front panel, remove two hex nuts on the right side and remove the corresponding cover plate (see below).



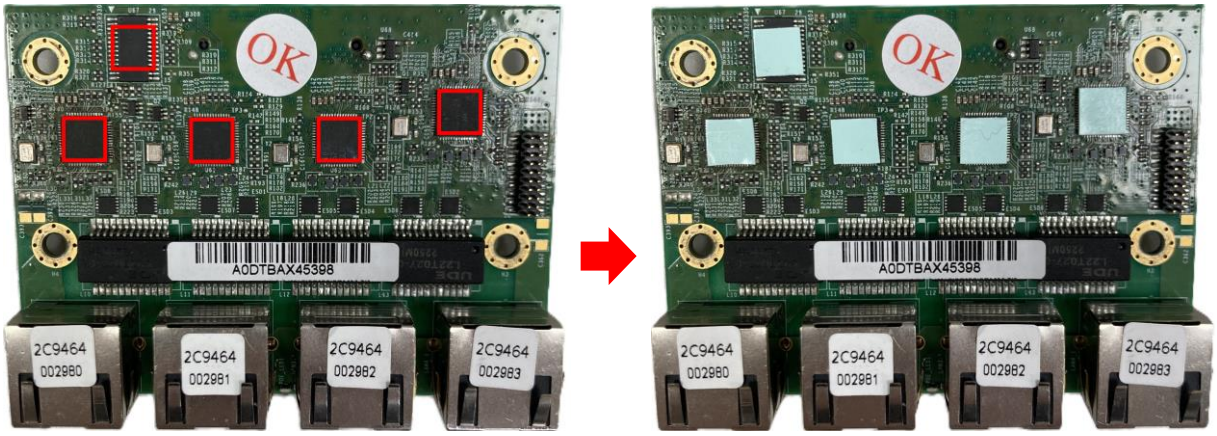
Step 2. Install the CMI-LAN bracket and fasten the two hex nuts as indicated to secure it to the system.



Step 3. Locate the BTB_FH1 connector on the top side of the motherboard. Only this connector supports the CMI-2P5GLAN module.




Step 4. Locate the 5 chips on the CMI-2P5GLAN module indicated by the red squares below. Carefully apply thermal pads to each chip.




Step 5. Align the CMI module with the BTB connector and gently insert the module onto the motherboard.

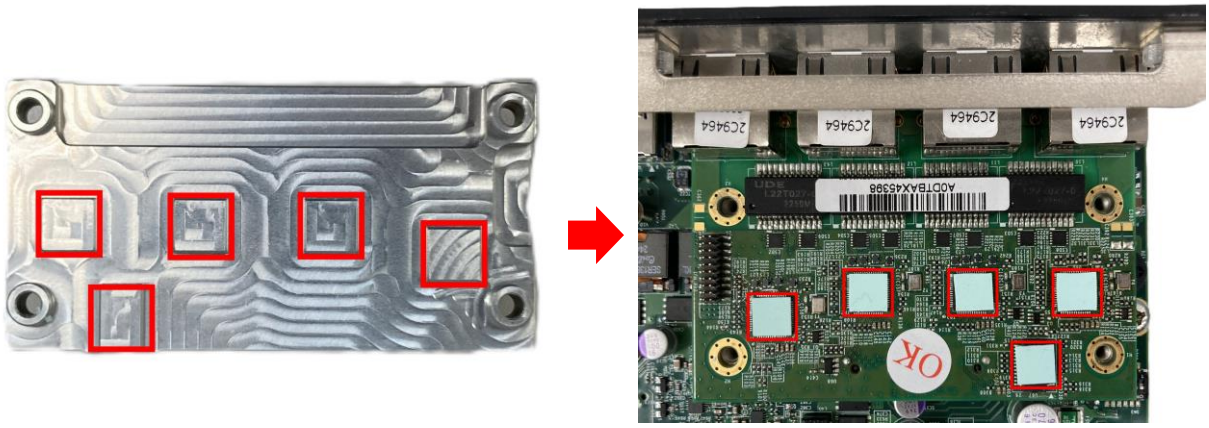


CAUTION (ATTENTION)

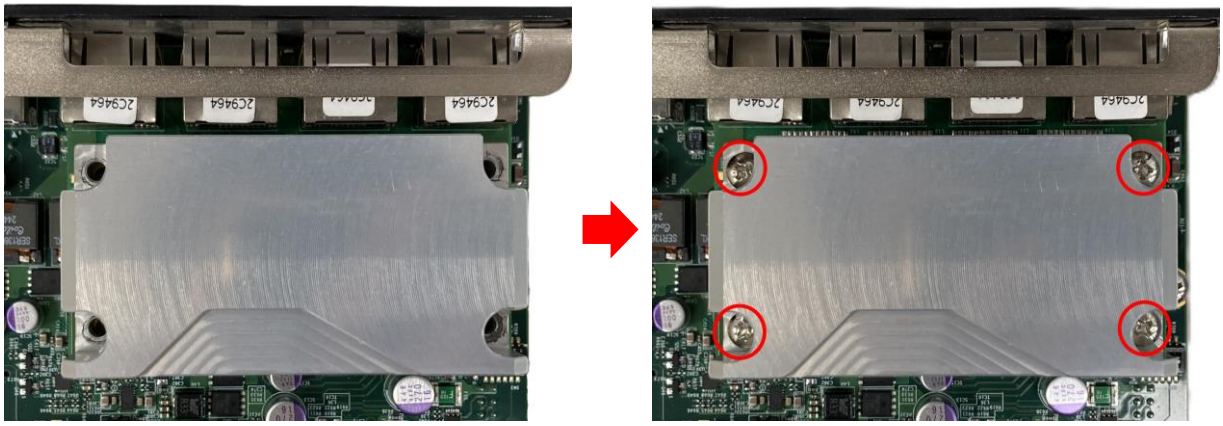
**Before installing the heatsink (in the next step), please make sure the protective films on both sides of the thermal pad have been removed!**

**(Avant d'installer le dissipateur thermique (à l'étape suivante), veuillez vous assurer que les films protecteurs des deux côtés du tampon thermique ont été retirés !)**

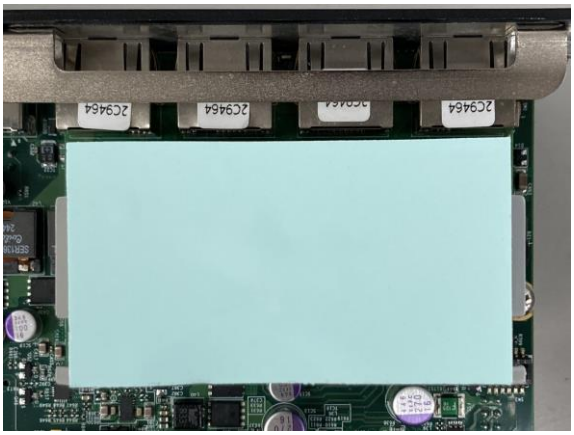
Step 6. Align the heatsink protrusions with the chip pads on the CMI module and place it onto the module.



Step 7. Secure the CMI module to the motherboard using 4 screws as indicated below.



Step 8. Carefully apply a thermal pad to the heatsink.





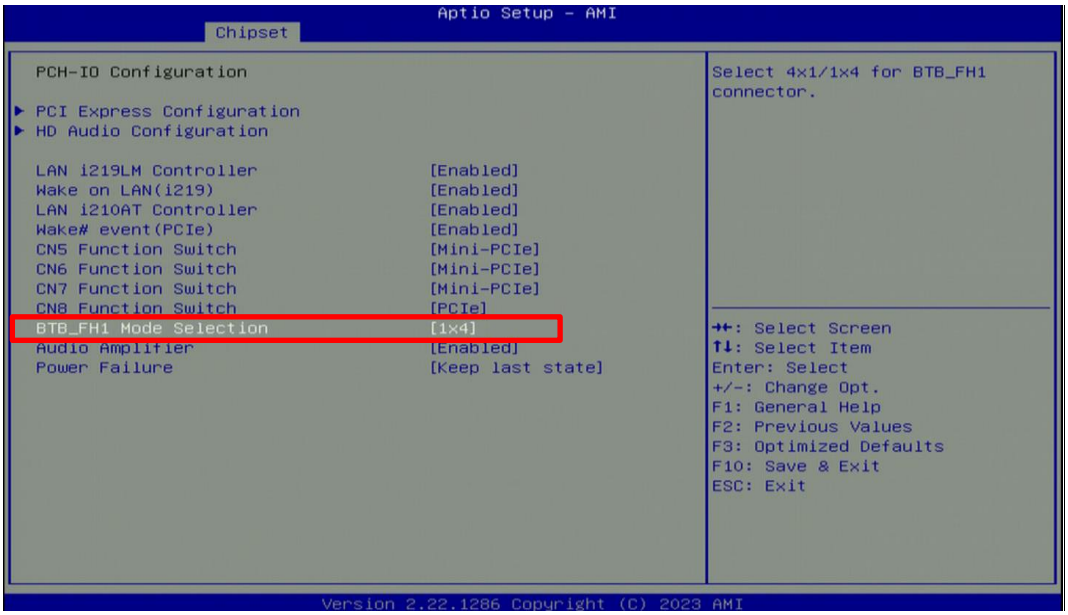

CAUTION (ATTENTION)

**Before assembling the system, please make sure the protective films on both sides of the thermal pad have been removed!**

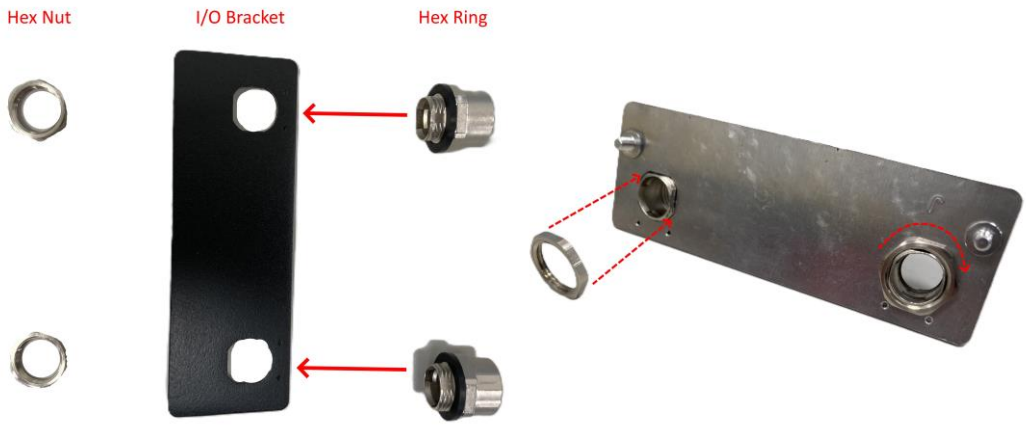
**(Avant d'assembler le système, veuillez vous assurer que les films protecteurs des deux côtés du pad thermique ont été retirés !)**

### 3.17.3 CMI-10GXM12LAN03/UB1037 Module

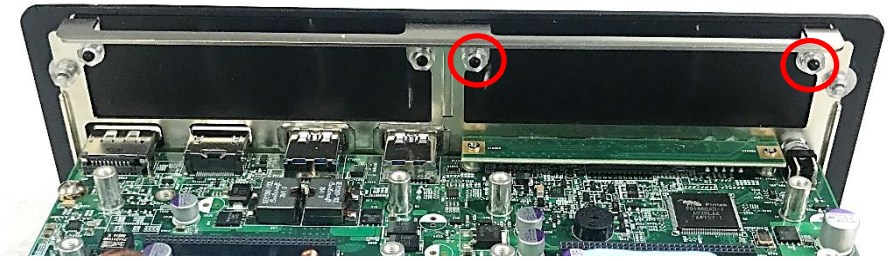
A BIOS setting must be configured before this module can be installed. After entering BIOS, navigate to **Chipset** > **PCH-IO**, then change the **BTB_FH1 Mode Selection** setting from **4x1** (default) to **1x4**.



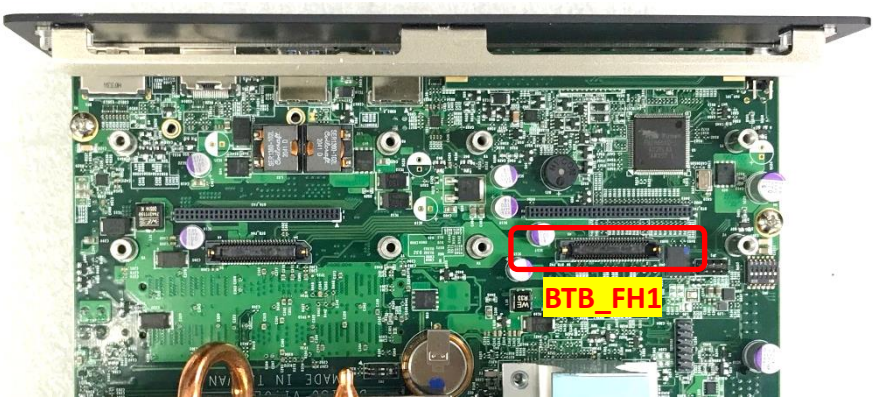

Step 1. Assemble the 10GXM12LAN bracket as indicated below: slot the hex rings through the XM12 I/O bracket and secure them from the inside with the hex nuts.



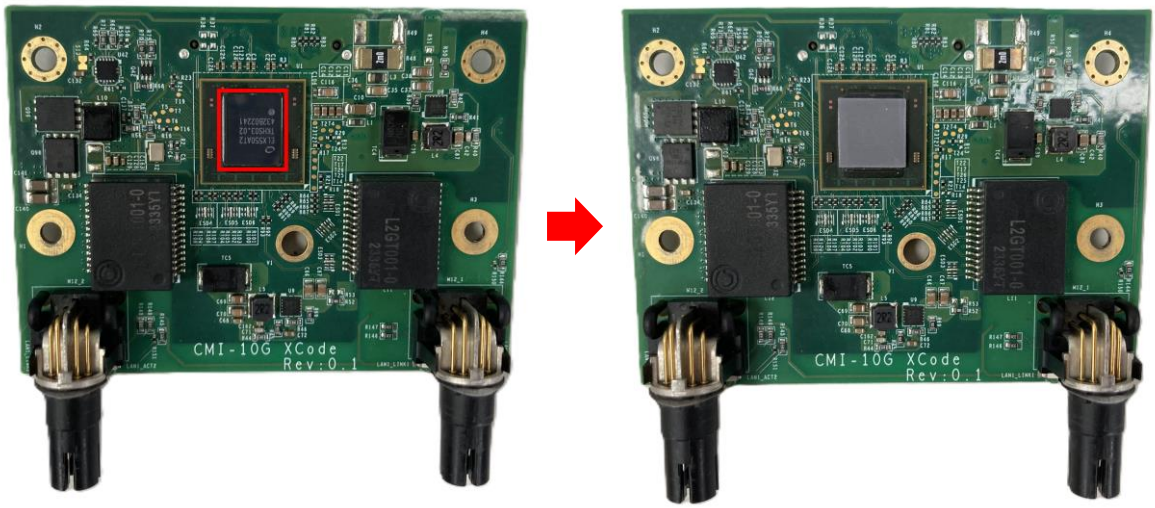
Step 2. From the rear of the front panel, remove two hex nuts on the right side and remove the corresponding cover plate (see below).



Step 3. Locate the BTB_FH1 connector on the top side of the motherboard. Only this connector supports the 10GXM12LAN module.



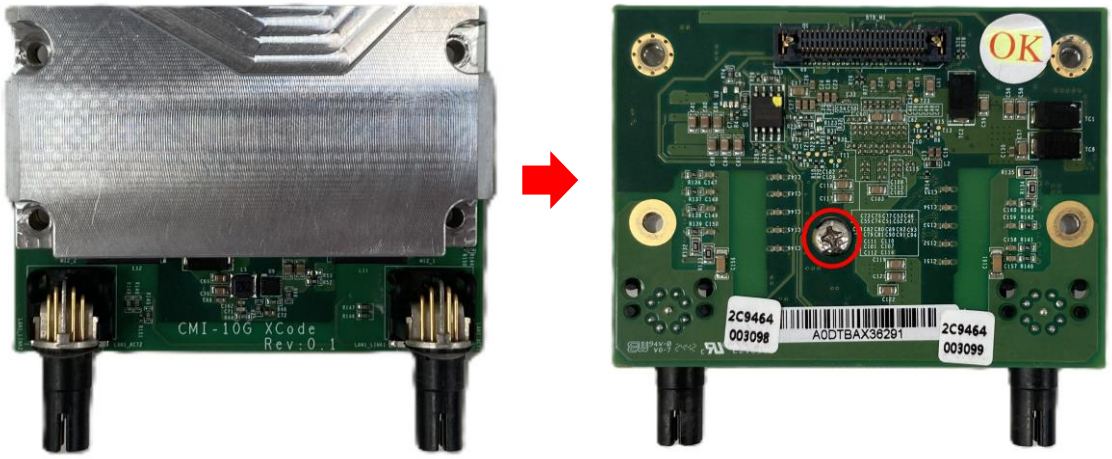

Step 4. Locate the chip on the 10GXM12LAN module indicated by the red square below. Carefully apply a thermal pad to the chip.



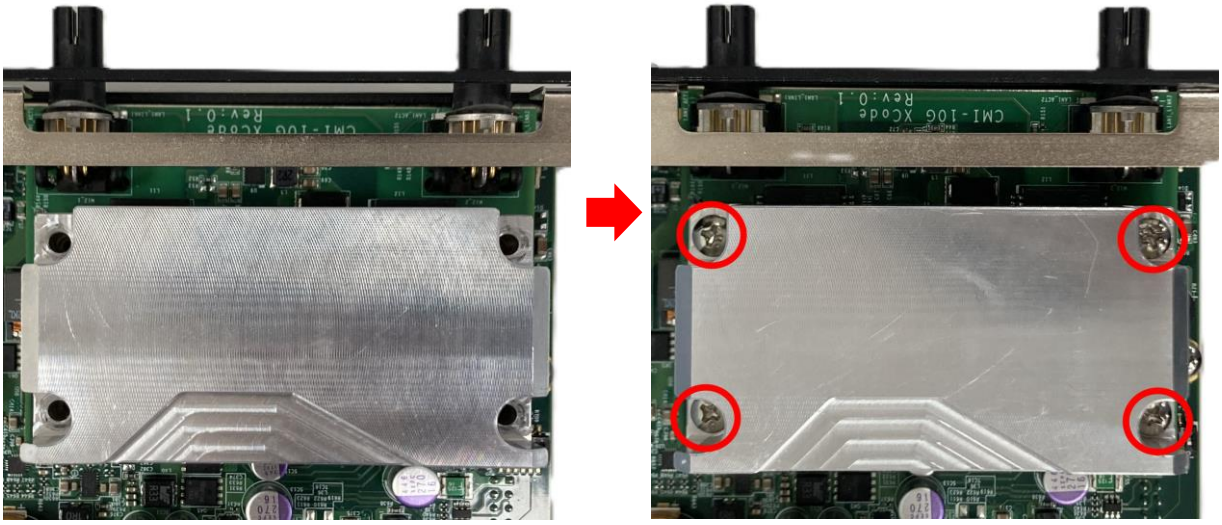
CAUTION (ATTENTION)

**Before installing the heatsink (in the next step), please make sure the protective films on both sides of the thermal pad have been removed!**
**(Avant d'installer le dissipateur thermique (à l'étape suivante), veuillez vous assurer que les films protecteurs des deux côtés du tampon thermique ont été retirés !)**

Step 5. Install the heatsink and flip the module over. Secure the heatsink with a screw as indicated.

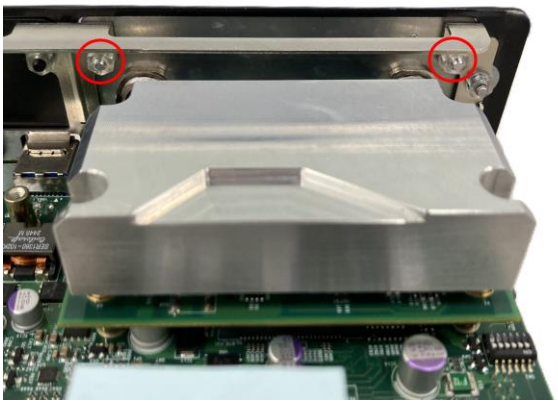



Step 6. Align the CMI module with the BTB connector and gently insert the module onto the motherboard. Secure the module to the motherboard using 4 screws as indicated below.



Step 7. Install the 10GXM12LAN bracket and fasten the two hex nuts as indicated to secure it to the system.



Step 8. Carefully apply a thermal pad to the heatsink.



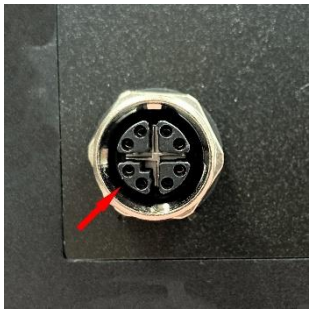
CAUTION (ATTENTION)

**Before assembling the system, please make sure the protective films on both sides of the thermal pad have been removed!**

**(Avant d'assembler le système, veuillez vous assurer que les films protecteurs des deux côtés du pad thermique ont été retirés !)**

Step 9. Insert the rubber rings into the XM12LAN ports. Tweezers are recommended.





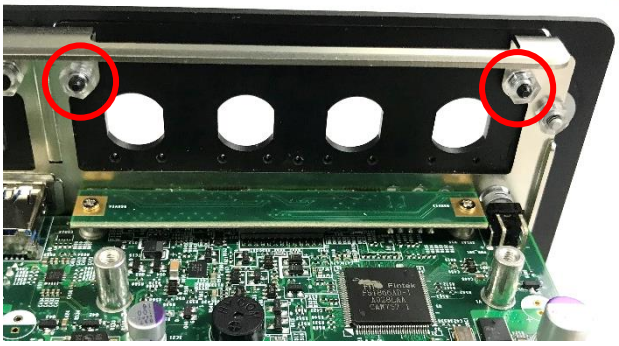
### 3.17.4 CMI-M12LAN01/UB1010 Module

Step 1. Loosen the 2 hex nuts from back side of front bezel. Remove the front bezel.

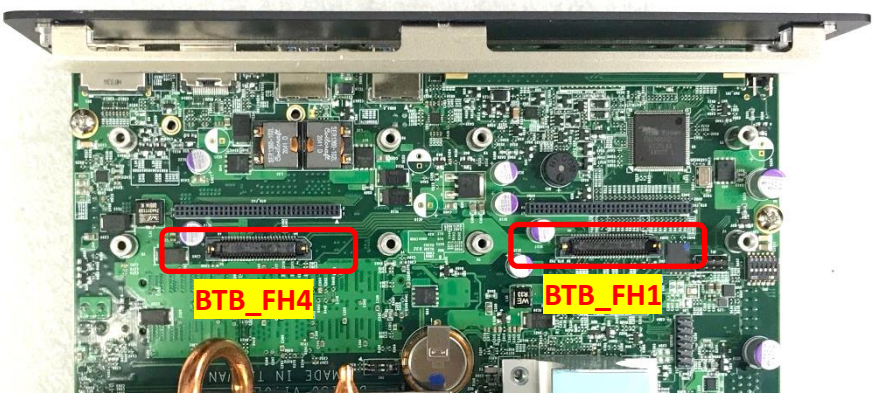


Step 2. Attach the CMI-M12LAN bracket, and fasten the 2 hex nuts to fix it as indicated.

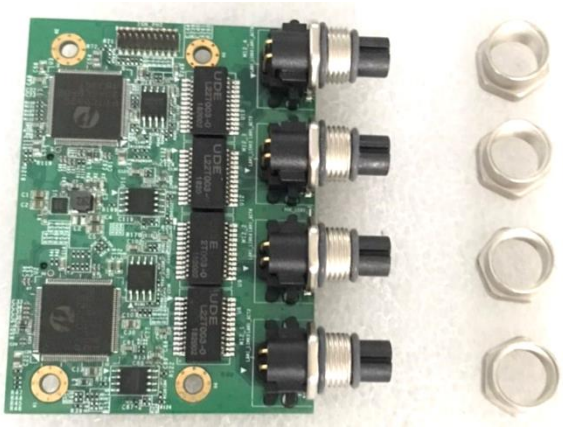


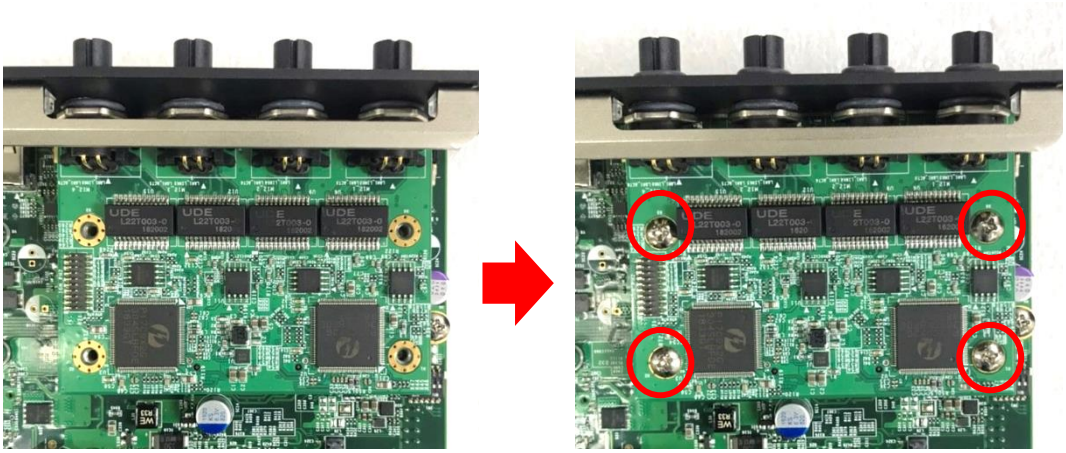
Step 3. Locate the connector(s) of CMI-M12LAN module on top side of system.



Step 4. Remove the four hex rings from the CMI-M12LAN module.



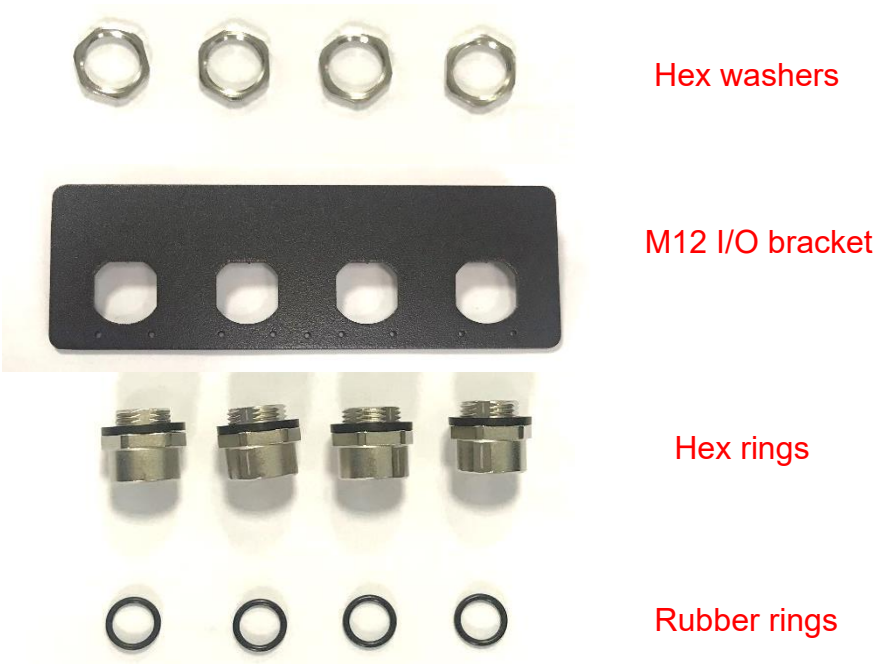
Step 5. Penetrate the CMI-M12LAN ports through the holes on the bracket. Insert the CMI module vertically into the female connector on system's mainboard until it's connected firmly and fasten 4 screws to fix it.



Step 6. Fasten the four hex rings to fix the cover plate.



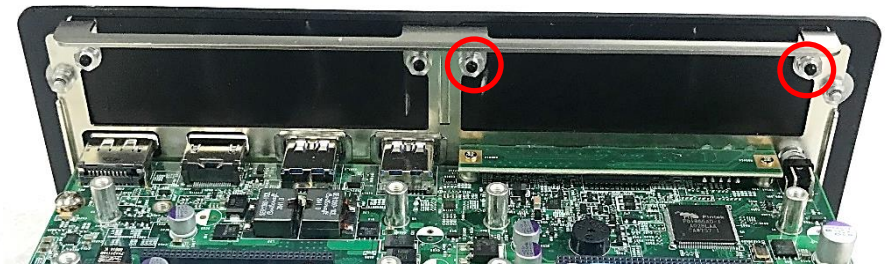

### 3.17.5 CMI-XM12LAN01/UB1030 Module



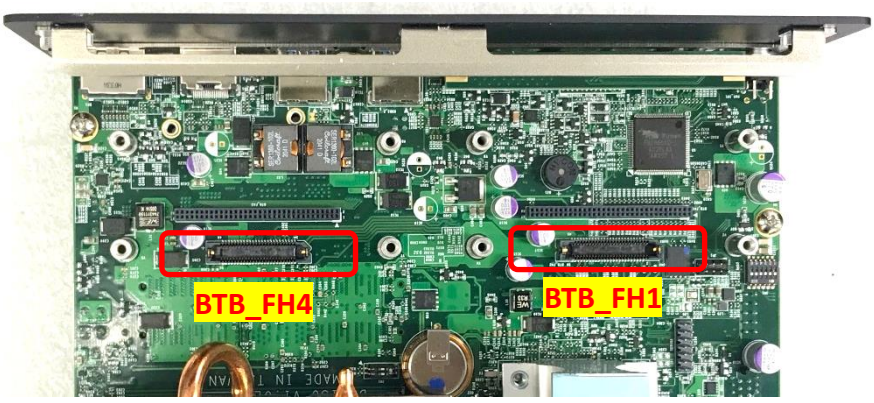
Step 1. Assemble the hex rings, M12 I/O bracket and hex washers together as indicated below: Penetrate hex rings through the M12 I/O bracket holes, and fix them with hex washers.



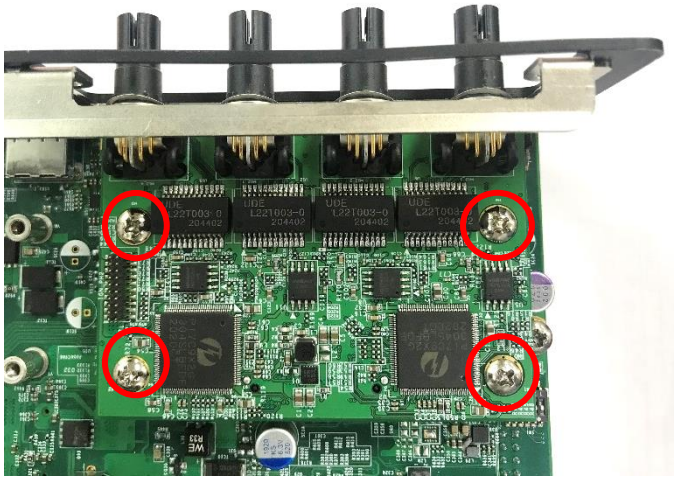
Step 2. Loosen the 2 hex nuts from back side of front bezel. Remove the front bezel.



Step 3. Locate the connector(s) of CMI-M12LAN module on top side of system.

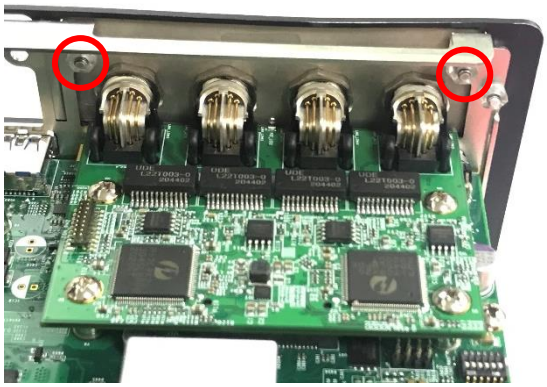


Step 4. Insert the CMI module vertically into the female connector on system's mainboard until it's connected firmly and fasten 4 screws to fix it.



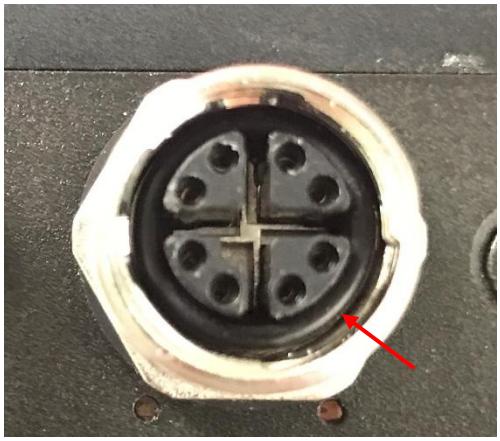
Step 5. Attach the assembled M12 I/O bracket on to the system, and fasten the hex nuts to fix it.





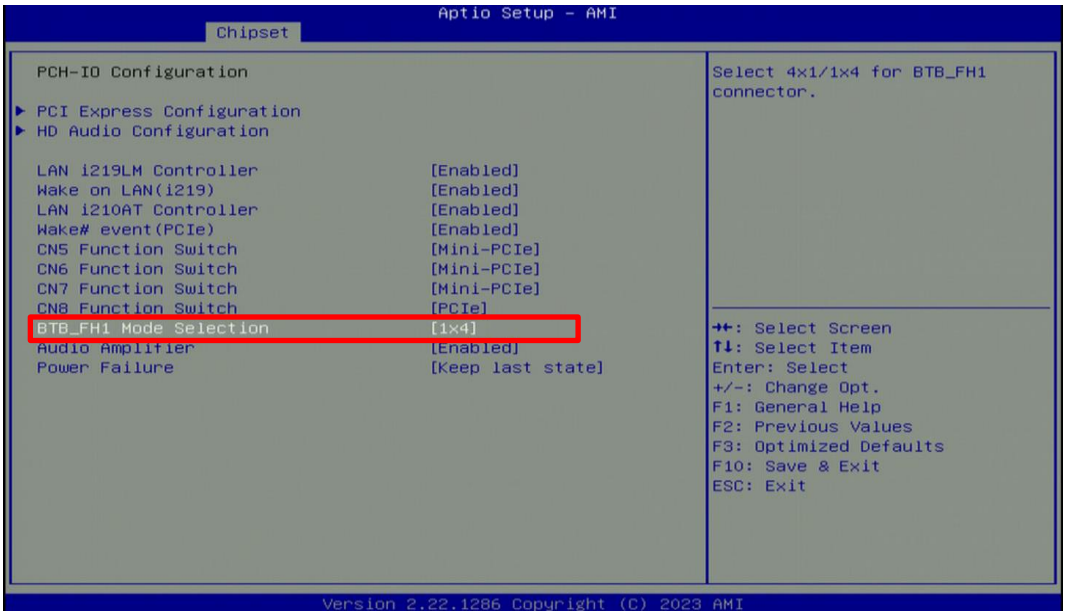
Step 6. Put on the rubber rings to the four M12 LAN ports.



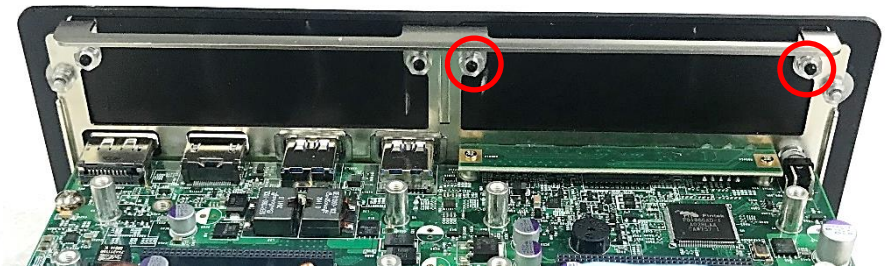


### 3.17.6 CMI-10GLAN03/UB1028 Module

Before installing this module, users need to enter BIOS to complete the following setting first. When entering BIOS, get to Chipset > PCH-IO Configuration page, and change the [BTB_FH1 Mode Selection] setting from default mode [4x1] to mode [1x4].




Step 1. Loosen the 2 hex nuts from back side of front bezel. Remove the front bezel.

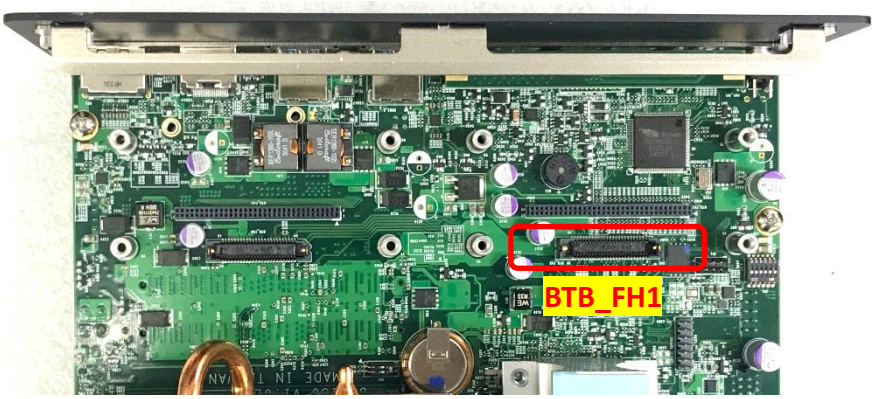


Step 2. Attach the CMI-10GLAN bracket, and fasten the 2 hex nuts to fix it as indicated.

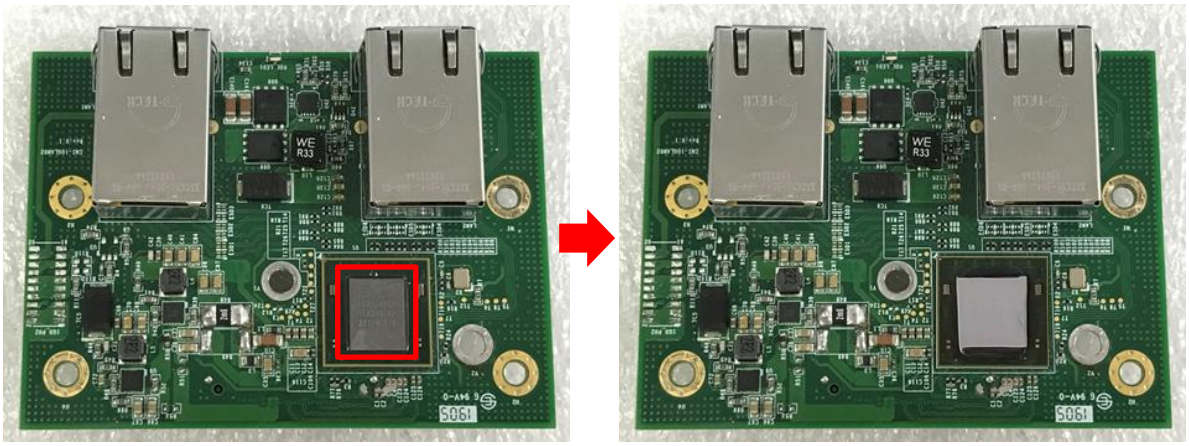





Step 3. Locate the connector of CMI-10GLAN module on top side of system. (Only the BTB_FH1 connector supports the CMI-10GLAN module. Select this connector precisely to install the module.)




Step 4. Locate the chip place on the CMI-10GLAN module marked by red square. Paste the thermal pad on it carefully.

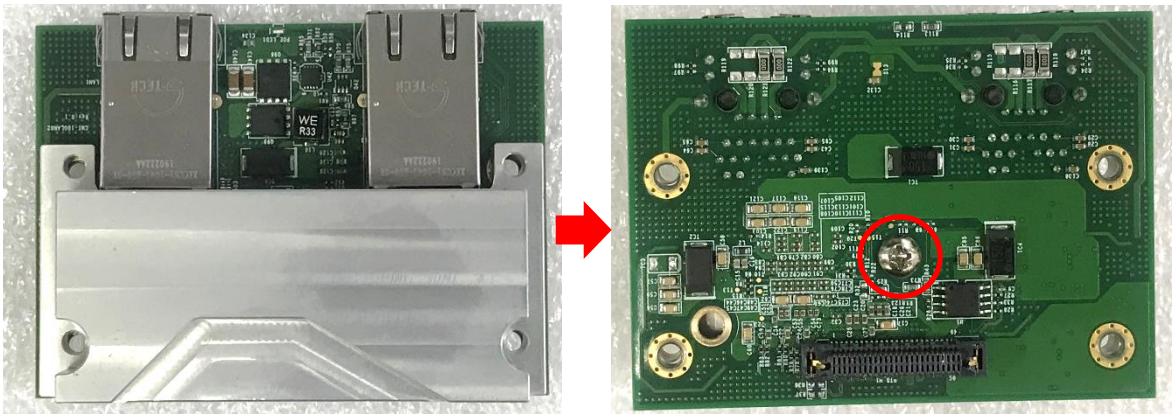


CAUTION (ATTENTION)

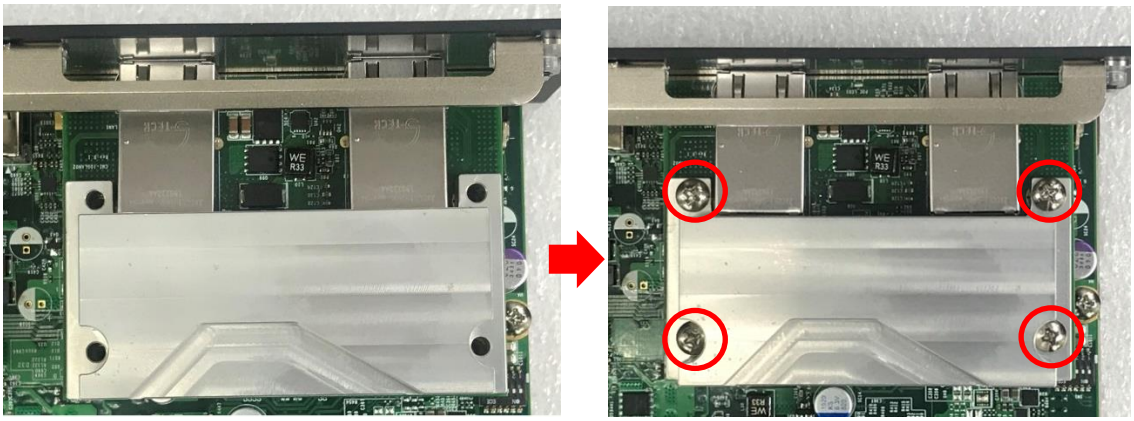
**Before putting on the heatsink (in the next step), please make sure the protective film on the Thermal Pad has been removed!**

**(Avant de mettre le bloc thermique (à l'étape suivante), veuillez vous assurer que le film protecteur sur le coussin thermique a été retiré!)**

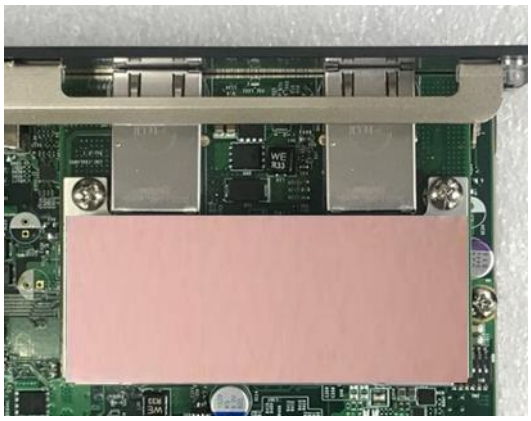
Step 5. Put on the heatsink and turn over the module. Fasten the screw to fix the heatsink.



Step 6. Insert the CMI module vertically into the female connector on system's mainboard until it's connected firmly and fasten 4 screws to fix it.



Step 7. Paste the thermal pad onto the heatsink carefully.





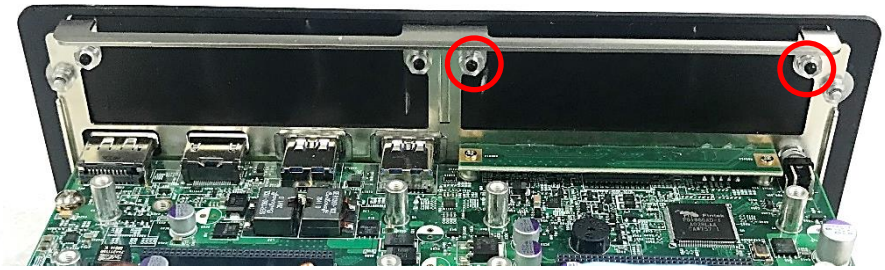

CAUTION (ATTENTION)

**Before assembling the system's chassis cover, please make sure the protective film on the Thermal Pad has been removed!**

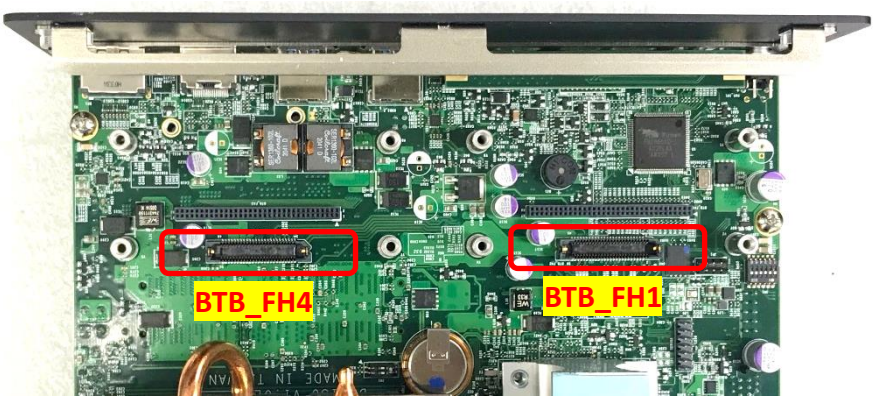
**(Avant d'assembler le couvercle du châssis du système, assurez-vous que le film protecteur sur le coussin thermique a été retiré !)**

### 3.17.7 CMI-CAN01/UB1038 Module

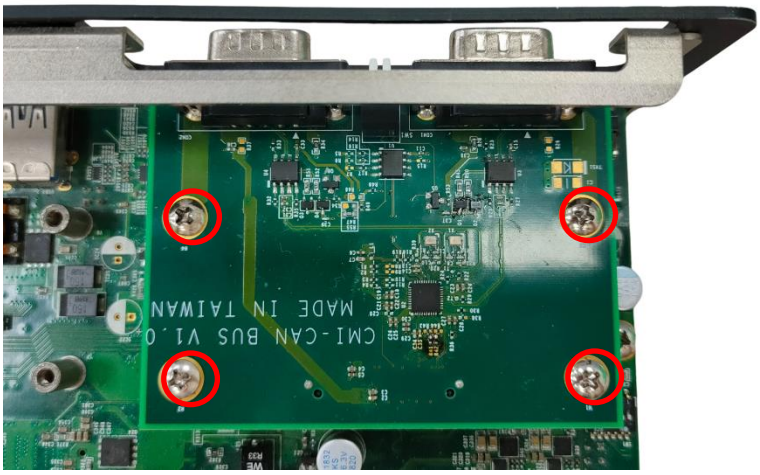
Step 1. Loosen the 2 hex nuts from back side of front bezel. Remove the front bezel.



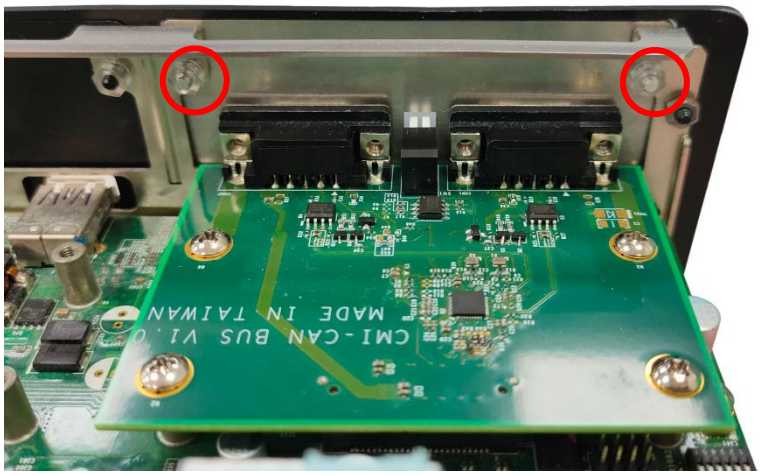
Step 2. Locate the connector(s) of CMI-CAN module on top side of system.




Step 3. Insert the CMI module vertically into the female connector on system's mainboard until it's connected firmly and fasten 4 screws to fix it.



Step 4. Fasten the 2 hex nuts from the back side of front bezel.

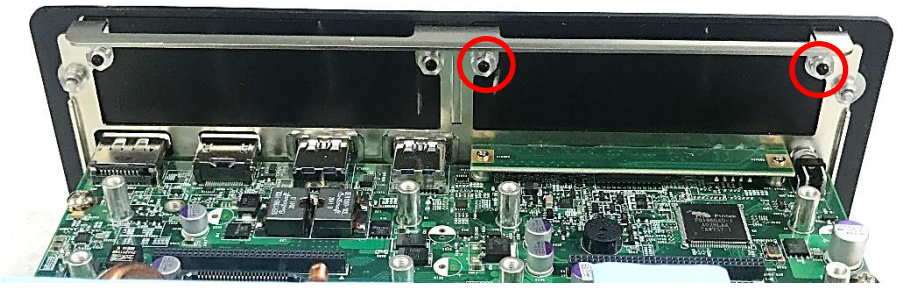


Step 5. Fasten 4 D-Sub jack screws to secure it.



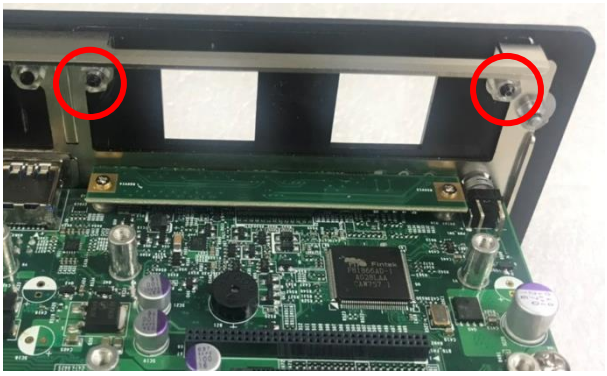
### 3.17.8 CMI-DIO02/UB1018 Module

Step 1. Loosen the 2 hex nuts from back side of front bezel. Remove the front bezel.

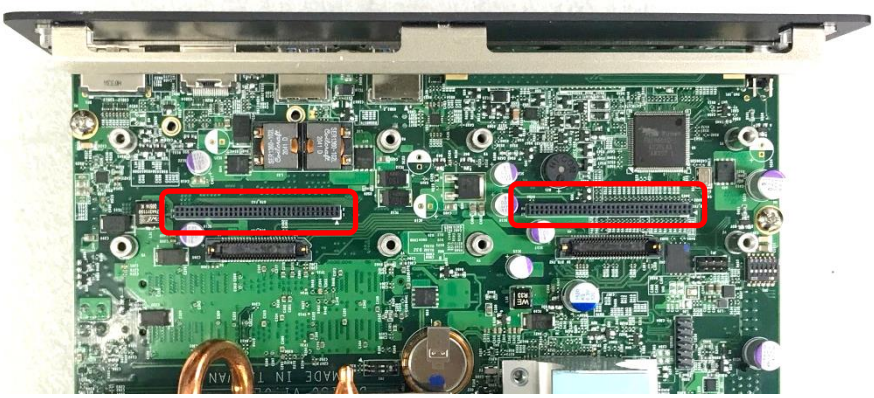


Step 2. Attach the CMI-DIO bracket, and fasten the 2 hex nuts to fix it as indicated.

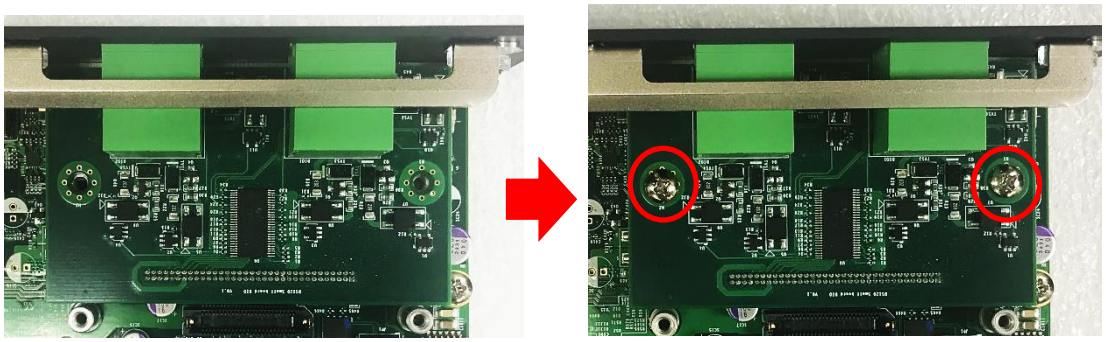


Step 3. Locate the connector(s) of CMI-DIO module on top side of system.

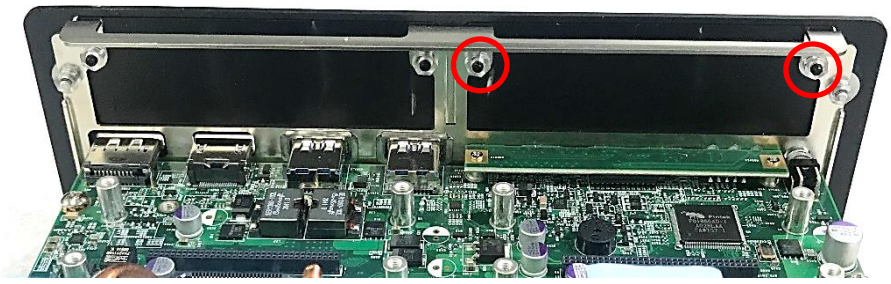


Step 4. Insert the CMI module vertically into the female connector on system's mainboard until it's connected firmly and fasten the 2 screws to fix it.

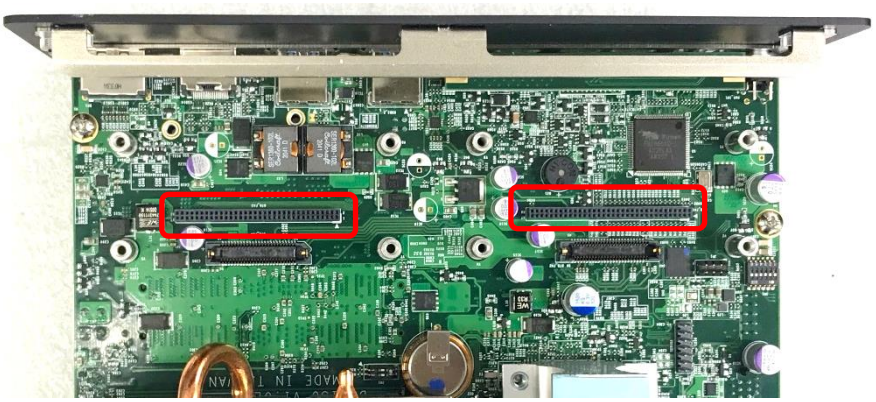


### 3.17.9 CMI-COM02/UB1004 Module

Step 1. Loosen the 2 hex nuts from back side of front bezel. Remove the front bezel.



Step 2. Locate the connector(s) of the CMI-COM module on the top side of the system. Choose one connector to install the module.

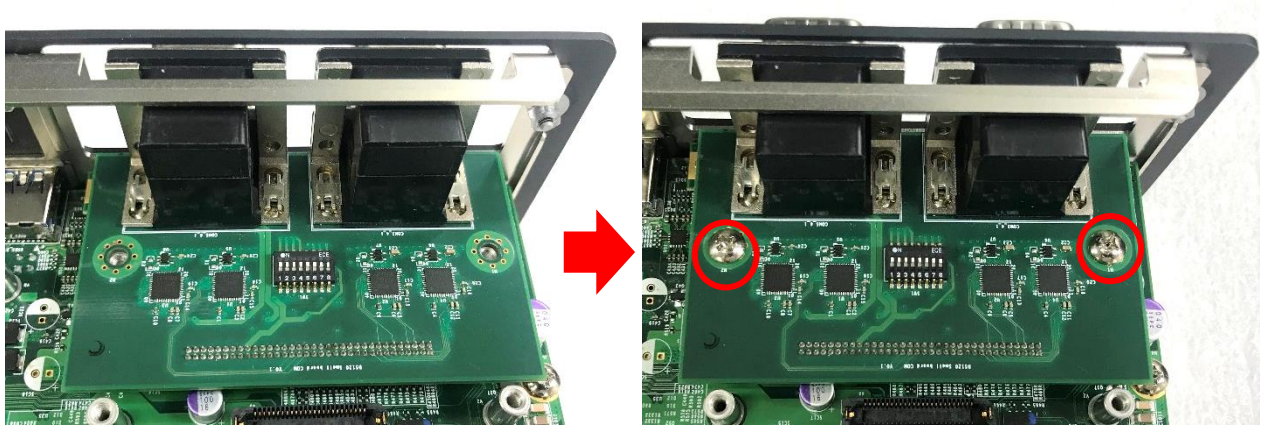


NOTE (NOTE)

**DS-1400 series supports one CMI-COM module installed on the system at most.**

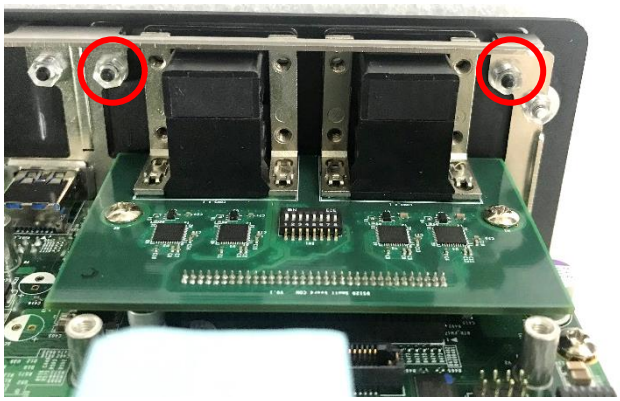
**(La série DS-1400 prend en charge au maximum un module CMI-COM installé sur le système.)**

Step 3. Penetrate the COM ports of the CMI-COM module through the holes on the bracket. Insert the CMI module vertically into the female connector on system's mainboard until it's connected firmly and fasten 2 screws to fix it.

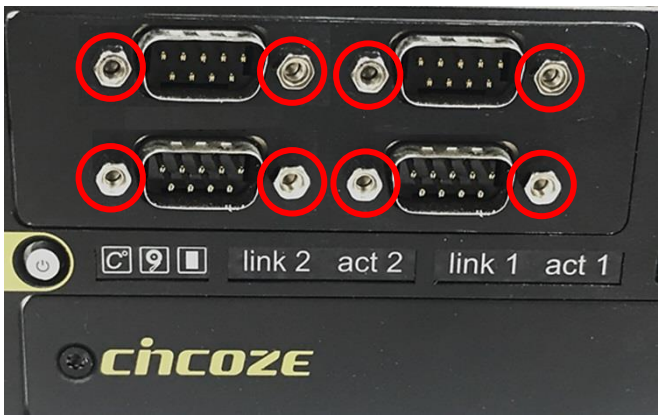


Step 4. Attach the CMI-COM bracket, and fasten the 2 hex nuts to fix it as indicated.



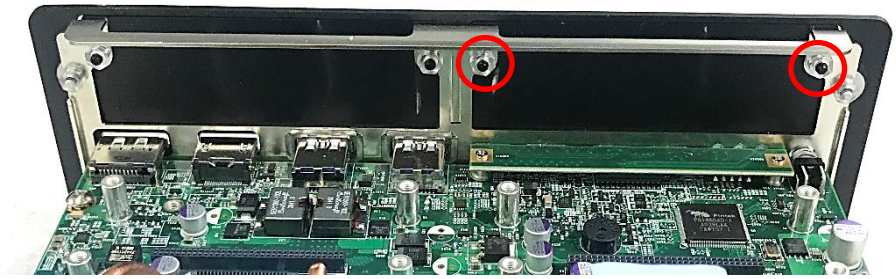



Step 5. Fasten the 8 D-Sub jack screws to fix the module.

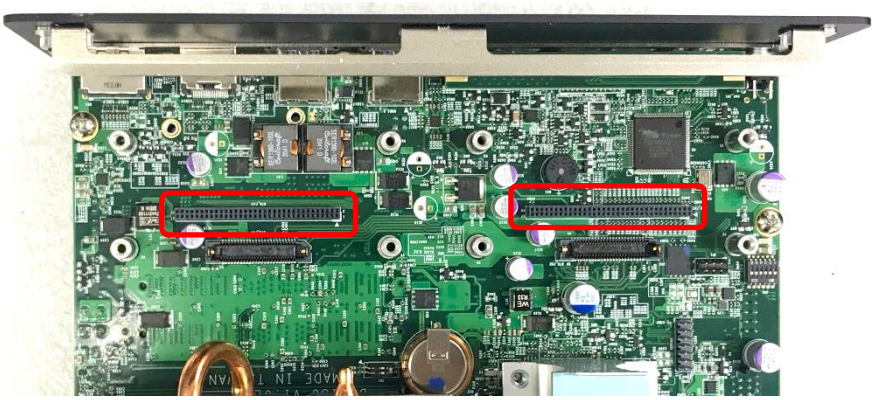


### 3.17.10 CMI-ICOM02/UB1004 Module

Step 1. Loosen the 2 hex nuts from back side of front bezel. Remove the front bezel.



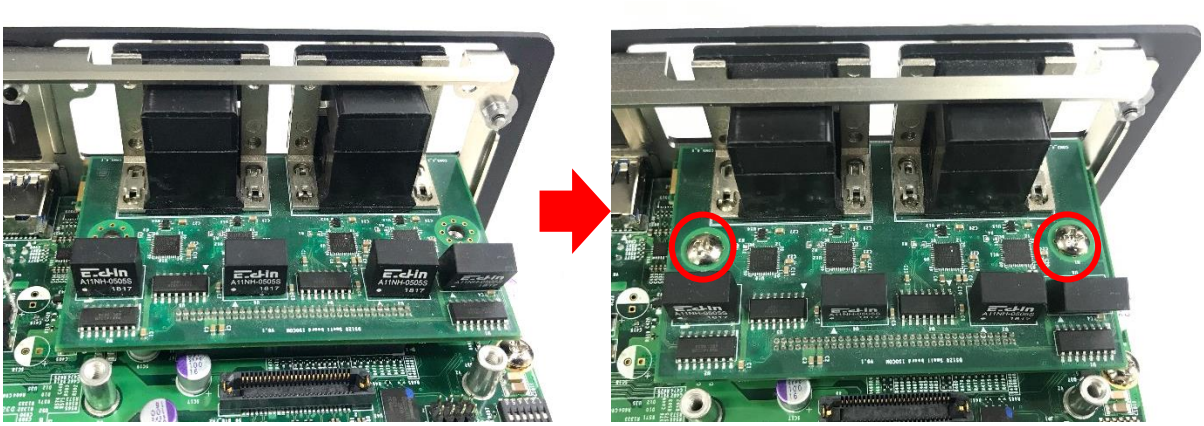
Step 2. Locate the connector(s) of the CMI-ICOM module on the top side of the system. Choose one connector to install the module.



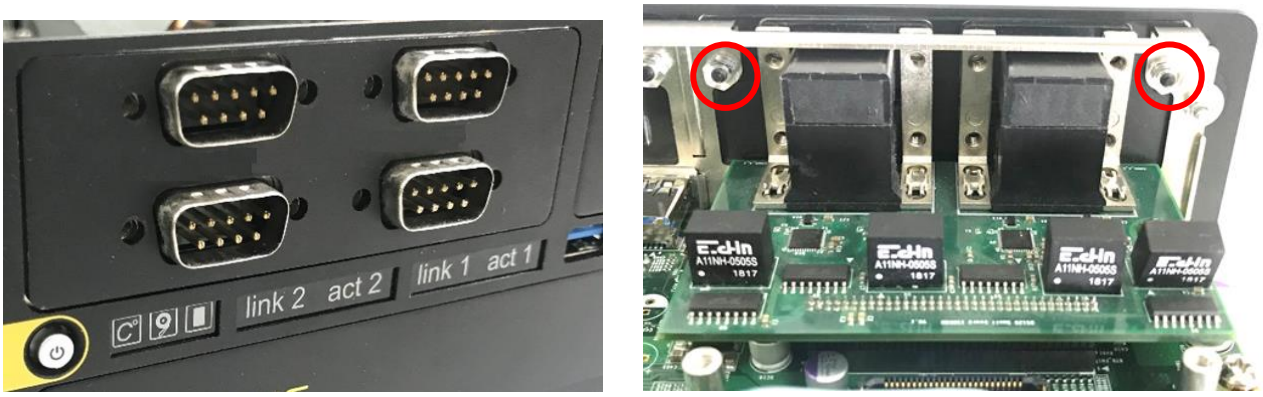
NOTE (NOTE)

**DS-1400 series supports one CMI-ICOM module installed on the system at most.**
**(La série DS-1400 prend en charge au maximum un module CMI-ICOM installé sur le système.)**

Step 3. Penetrate the COM ports of the CMI-ICOM module through the holes on the bracket. Insert the CMI module vertically into the female connector on system's mainboard until it's connected firmly and fasten 2 screws to fix it.



Step 4. Attach the CMI-ICOM bracket, and fasten the 2 hex nuts to fix it as indicated.



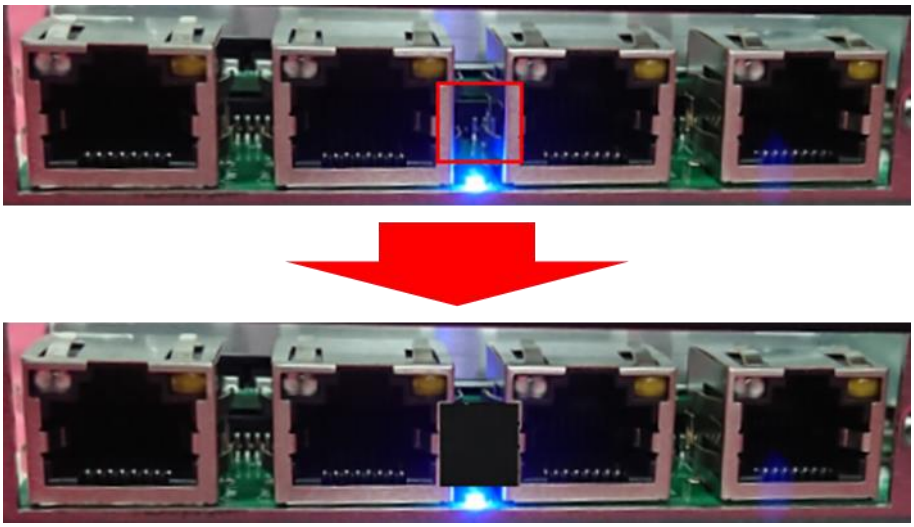

Step 5. Fasten the 8 D-Sub jack screws to fix the module.



# 3.18 Installing CFM Modules

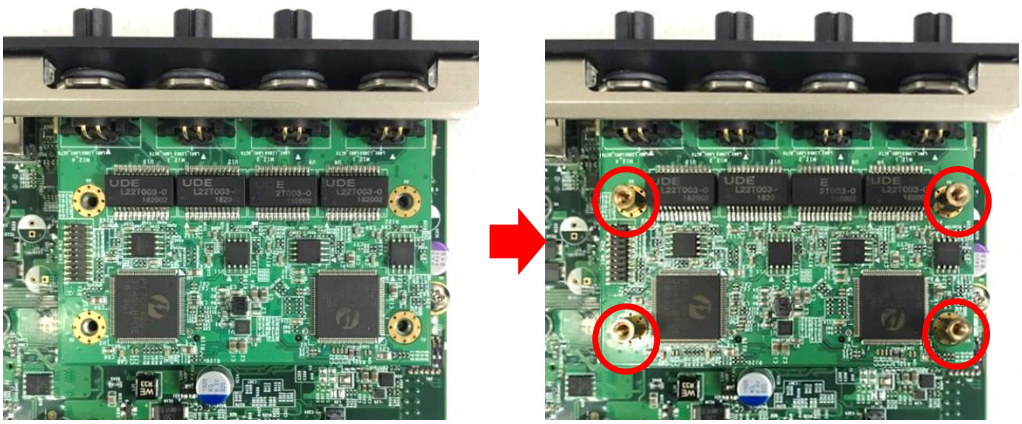
## 3.18.1 CFM-PoE03 Module

CFM-PoE03 module can be installed on CMI-LAN or CMI-M12LAN module. When using CMI-LAN01-R12 Module, please paste the shading tape to the place which was marked by red frame. (Watch out not to block the LED.) If you use CMI-M12LAN01-R12 Module, please skip this step.



In this chapter, CMI-M12LAN module is taken as an example to demonstrate how to install CFM-PoE03 on it. Before this chapter gets started, please execute the installation step 1 to step 4 in chapter 3.16.2 in advance.

Step 1. Penetrate the CMI-M12LAN ports through the holes on the bracket. Insert the CMI module vertically into the female connector on system's mainboard until it's connected firmly and fasten 4 copper pillars to fix CMI-M12LAN module.



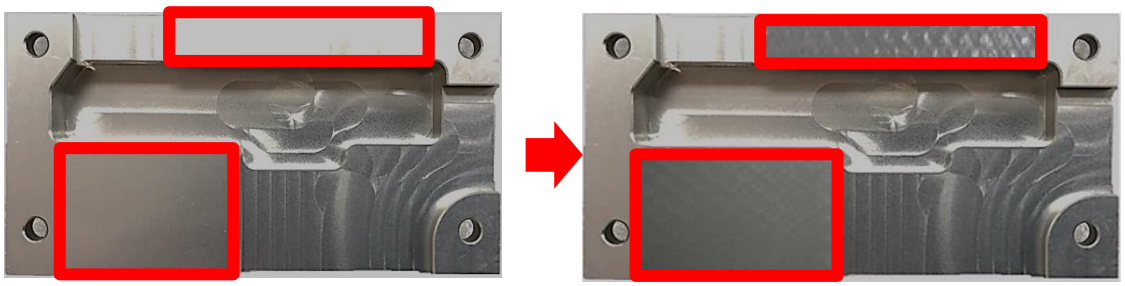
Step 2. Insert the CFM-PoE03 module vertically into the female connector on CMI module until it's connected firmly.



Step 3. Please paste the one thermal pad onto the coil of the CFM-PoE03 module carefully, and then remove the protective film on it.



Step 4. Turn over the heatsink and locate the two places which were marked by red circles, and then paste the 2 thermal pads onto the heatsink carefully.



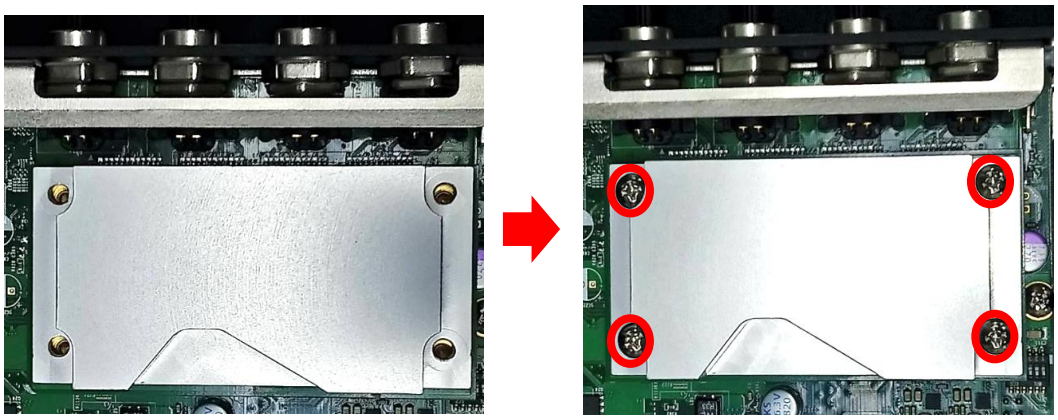



CAUTION
(ATTENTION)

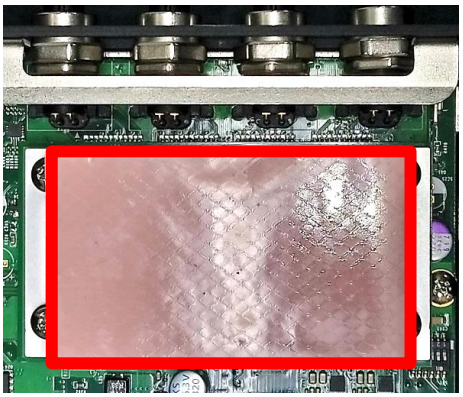
**Before putting on the heatsink (in the next step), please make sure the protective film on the Thermal Pad has been removed!**

**(Avant de mettre le bloc thermique (à l'étape suivante), veuillez vous assurer que le film protecteur sur le coussin thermique a été retiré!)**

Step 5. Please paste the heatsink onto the CFM-PoE03 module carefully, and fasten 4 screws to fix it.



Step 6. Paste the thermal pad onto the heatsink carefully, and execute the step 6 in Chapter 3.15.2.






**CAUTION (ATTENTION)**

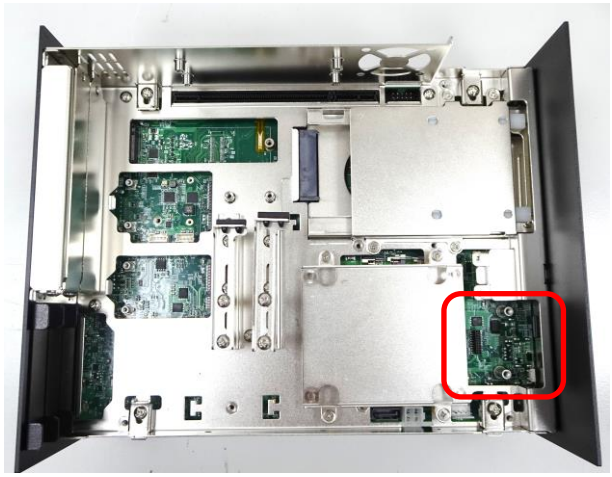
**Before assembling the system's chassis cover, please make sure the protective film on the Thermal Pad has been removed!**
**(Avant d'assembler le couvercle du châssis du système, assurez-vous que le film protecteur sur le coussin thermique a été retiré !)**

*Once the steps are finished, after system power on, PoE LED (on CMI-LAN or CMI-M12 LAN module) will light blue as shown below.*



### 3.18.2 CFM-IGN101 Module

Step 1. Locate the power Ignition connector on the bottom side of the system.



Step 2. Insert the connector of IGN module to the female connector on system motherboard. (Make sure all the pins of IGN module's connector are firmly connected.)



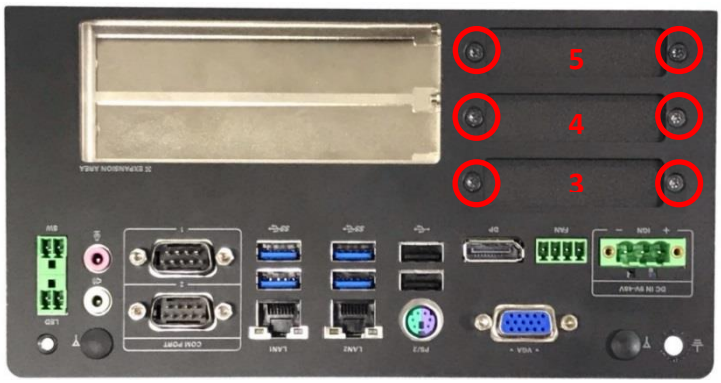
Step 3. Fasten the two screws to secure the power ignition board.



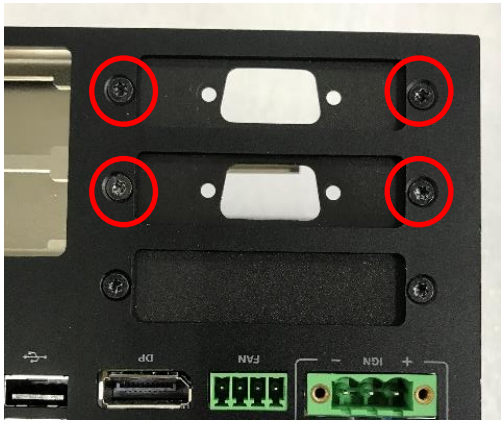
## 3.19 Installing MEC Modules

### 3.19.1 MEC-COM-M212-DB9/UB0303 Module

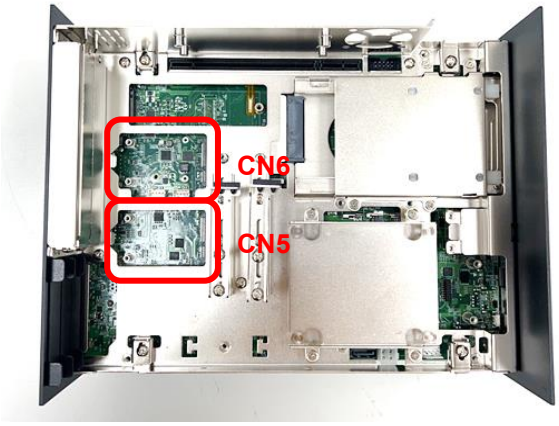
Step 1. Loosen 4 screws on the two cover plates of number 3/4/5 and then remove it. In the following steps, we use cover plate 4 and 5 for example. (To perform this step, users must remove both cover plates located on the rear side of the DS-1400 or DS-1401 system. For more detailed information, please refer to the Ordering Information section of the DS-1400 or DS-1401 datasheet.)




Step 2. Attach the MEC-COM brackets, and fasten the 4 screws to fix it as indicated.



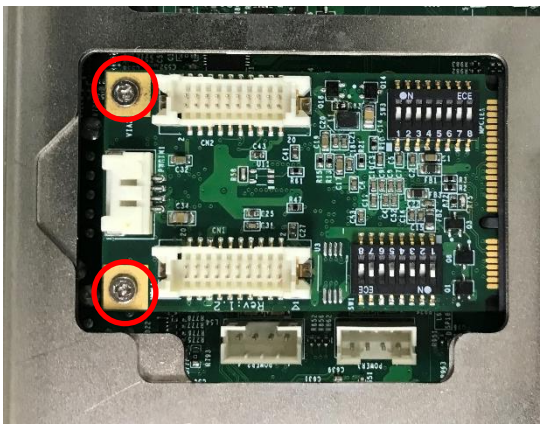
Step 3. Locate one of the Mini PCIe sockets on the bottom side of the system. In this chapter, we use CN6 for example.



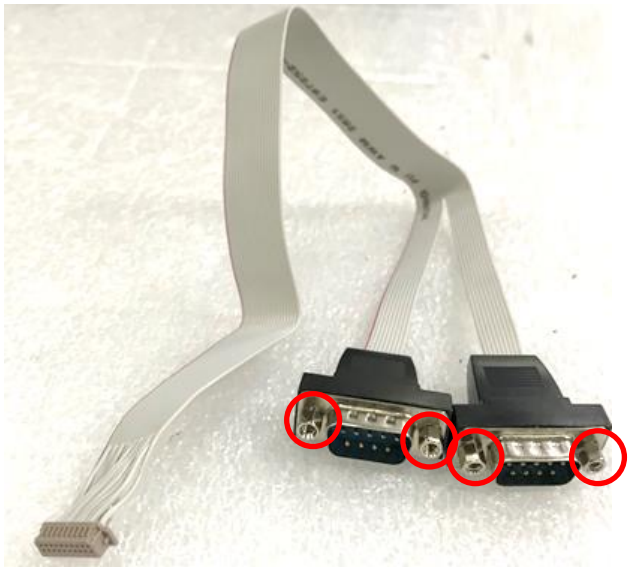

Step 4. Tilt the Mini PCIe card at a 45-degree angle and insert it to the socket until the golden finger connector of the card seated firmly.



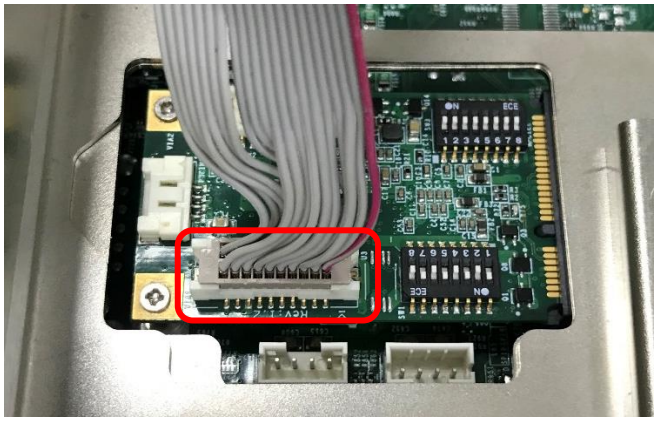

Step 5. Press the card down and secure it with 2 screws.



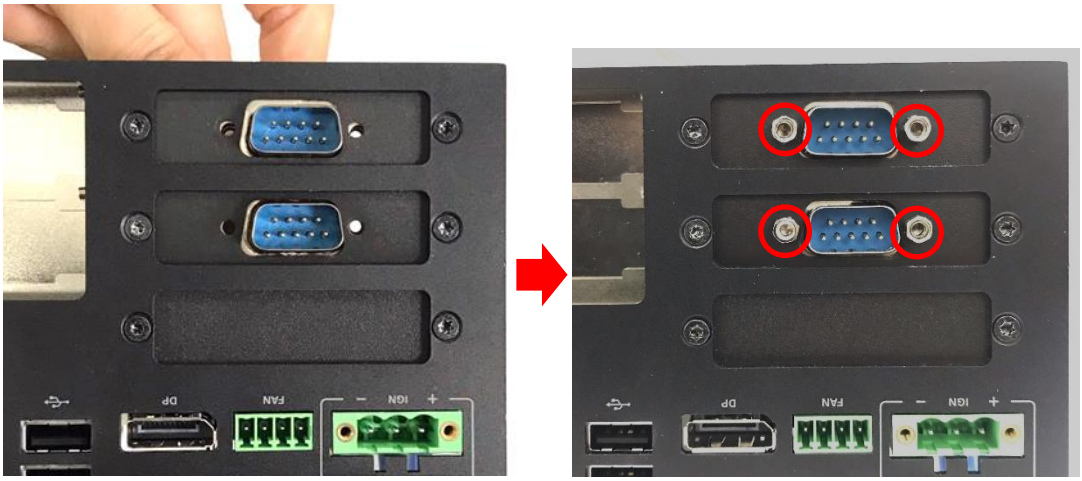
Step 6. Remove the 4 D-Sub jack screws from the COM ports.



Step 7. Connect the other end of the wire to the Mini PCIe card as indicated.

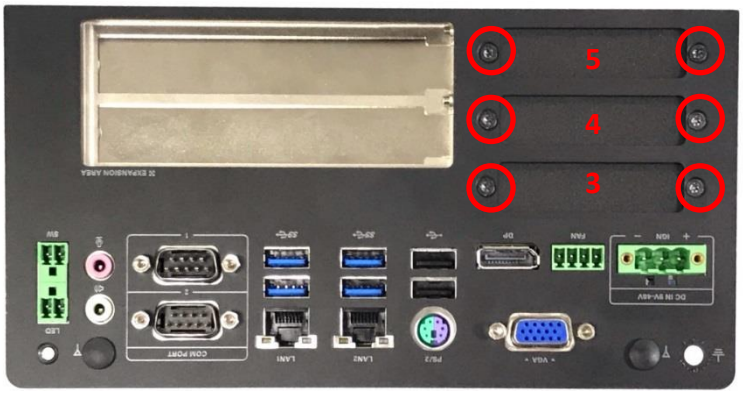


Step 8. Attach the COM ports onto the back side of the cover plates, and then fasten the 4 D-Sub jack screws to secure the COM ports.

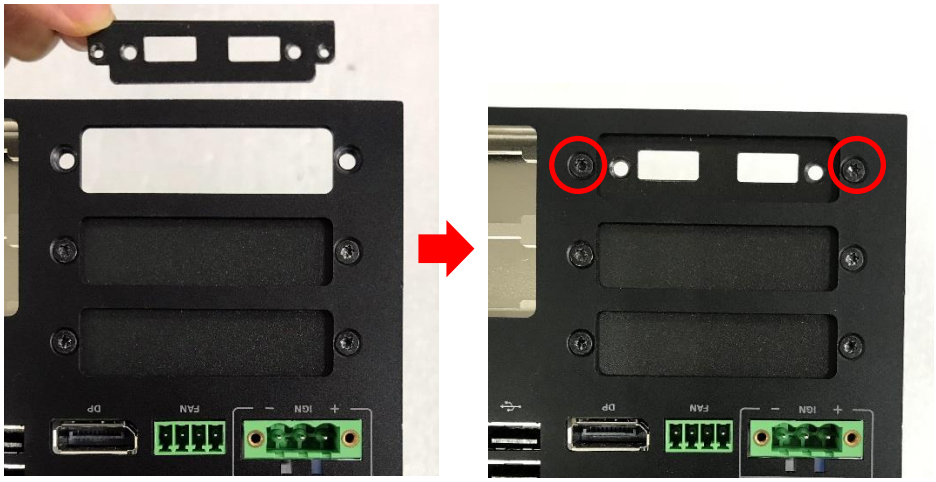


### 3.19.2 MEC-USB-M102-30/UB0314 Module

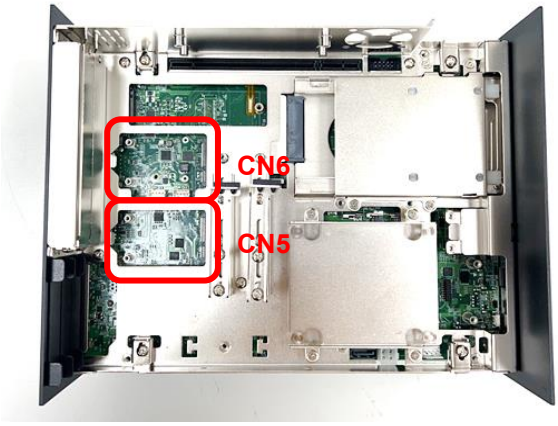
Step 1. Loosen 2 screws on the cover plate of number 3/4/5 and then remove it. In the following steps, we use cover plate 5 for example.




Step 2. Attach the MEC-USB bracket, and fasten the 2 screws to fix it as indicated.



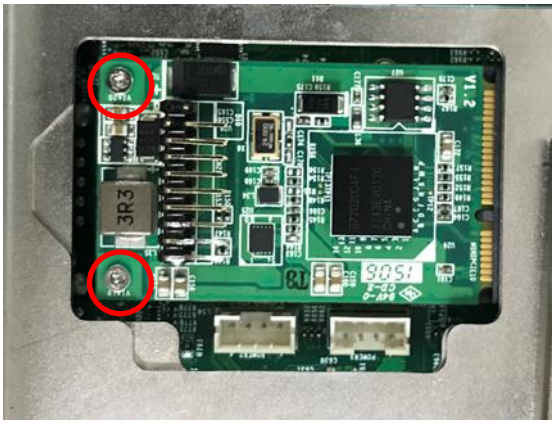
Step 3. Locate one of the Mini PCIe sockets on the bottom side of the system. In this chapter, we use CN6 for example.



Step 4. Tilt the Mini PCIe card at a 45-degree angle and insert it to the socket until the golden finger connector of the card seated firmly.



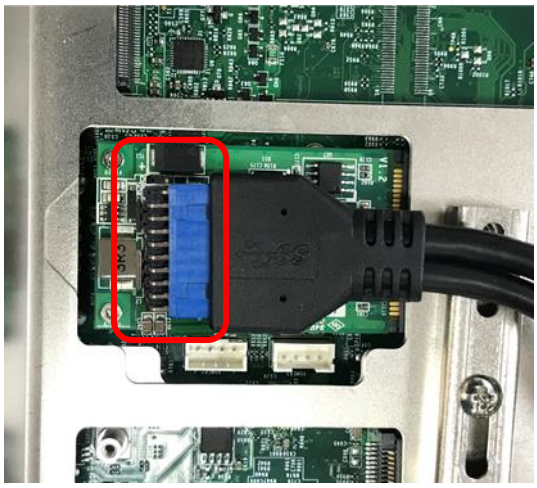

Step 5. Press the card down and secure it with 2 screws.



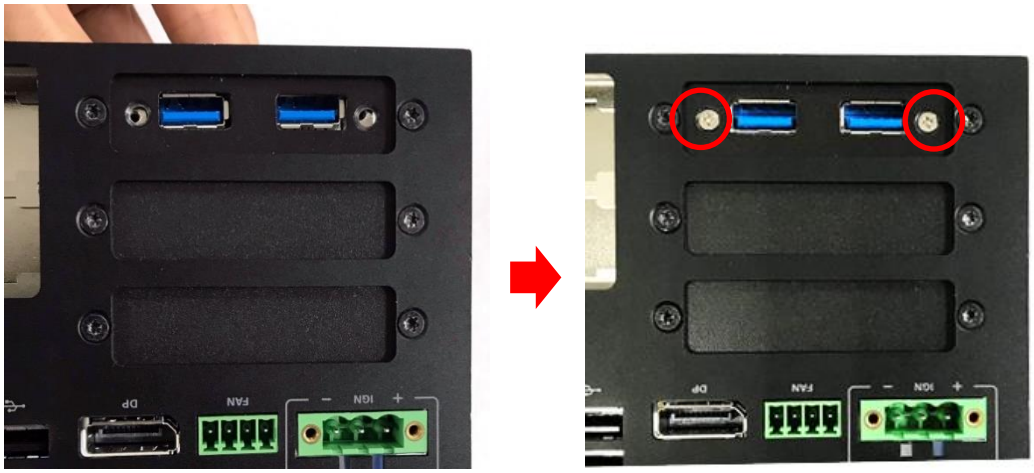

Step 6. Connect the attached wire to the USB board.



Step 7. Connect the other end of the wire to the Mini PCIe card as indicated.

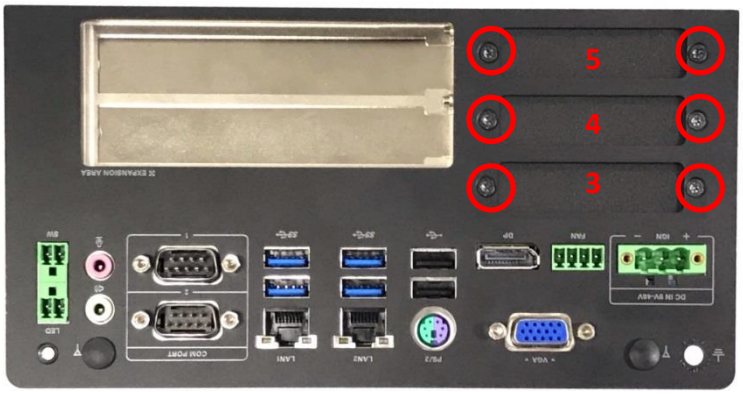


Step 8. Attach the USB board onto the back side of the cover plate, and then fasten the two screws to secure the module.

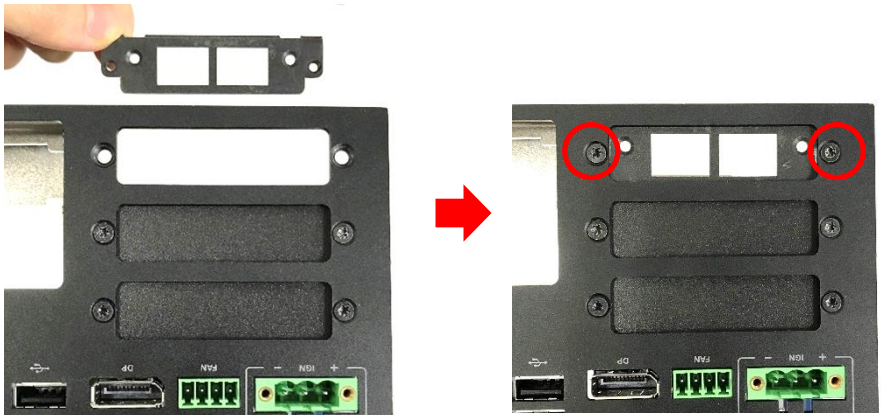


### 3.19.3 MEC-LAN-M102-30/UB0311 Module

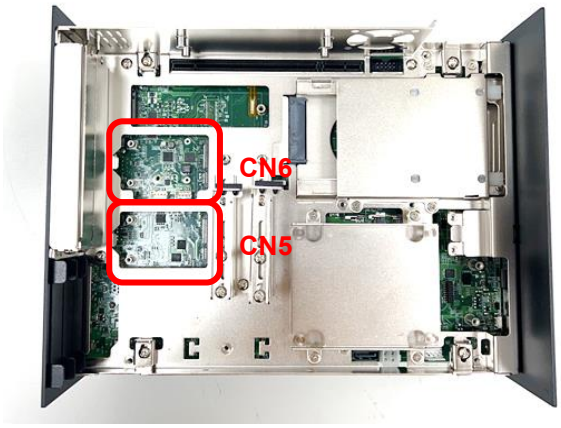
Step 1. Loosen 2 screws on the cover plate of number 3/4/5 and then remove it. In the following steps, we use cover plate 5 for example.




Step 2. Attach the MEC-LAN bracket, and fasten the 2 screws to fix it as indicated.



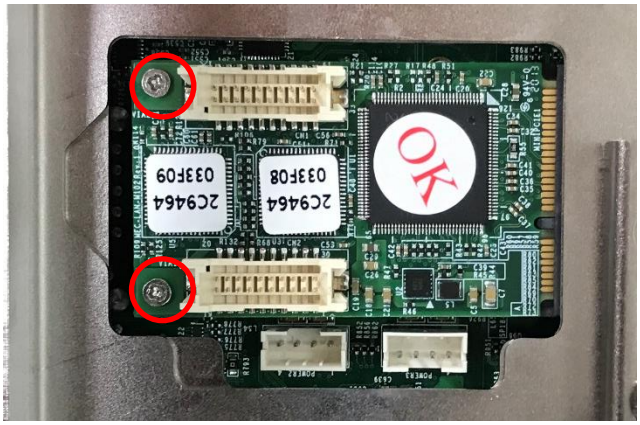
Step 3. Locate one of the Mini PCIe sockets on the bottom side of the system. In this chapter, we use CN6 for example.



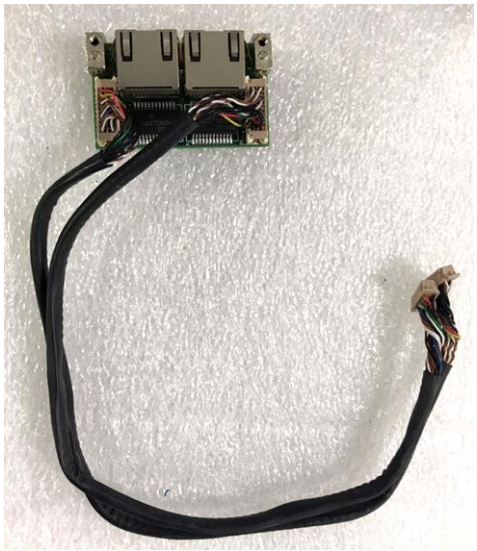
Step 4. Tilt the Mini PCIe card at a 45-degree angle and insert it to the socket until the golden finger connector of the card seated firmly.




Step 5. Press the card down and secure it with 2 screws.



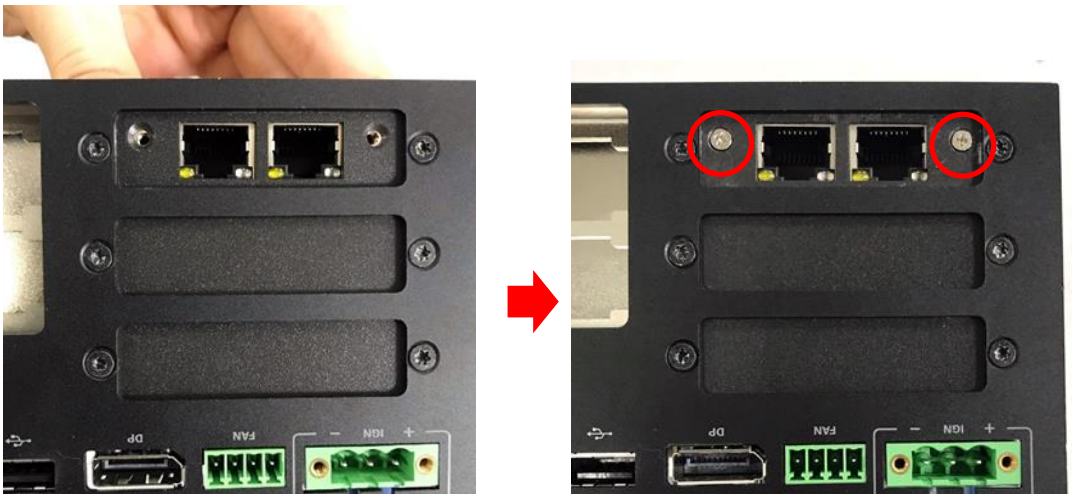

Step 6. Connect the attached wires to the LAN board.



Step 7. Connect the wires to the Mini PCIe card as indicated.



Step 8. Attach the LAN board onto the back side of the cover plate, and then fasten the two screws to secure the module.



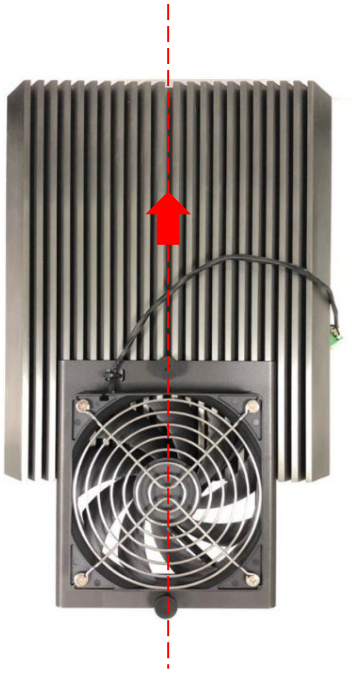
## 3.20 Installing External FAN

| Model No. | Product Description |
|---|---|
| FAN-EX101 | External Fan with 4pin Terminal Block Plug, Mounting Bracket. Support Smart Fan Function |

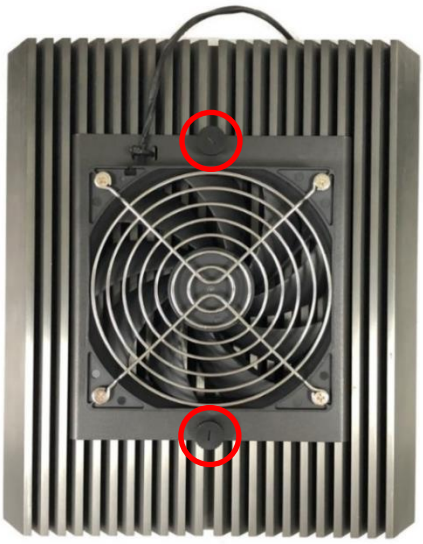
Step 1. Prepare an external fan. Loosen the 2 screws halfway on mounting frame before attempting to install it.



Step 2. Slide the FAN into the middle groove of chassis as illustrated. Tighten the 2 screws to fix it onto chassis.



Step 3. Move the fan to the center of chassis. Tighten the 2 screws marked on photo to secure it.



Step 4. Connect the FAN cable to external fan power connector at rear panel.

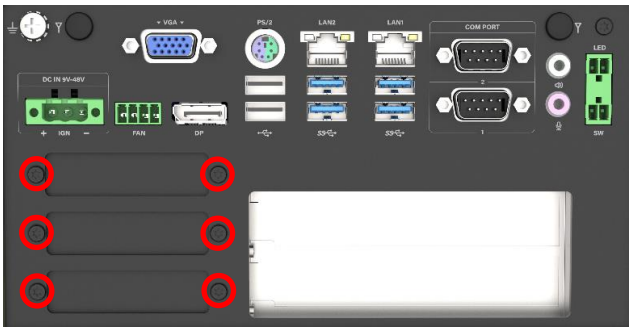


## 3.21 Installing Internal FAN

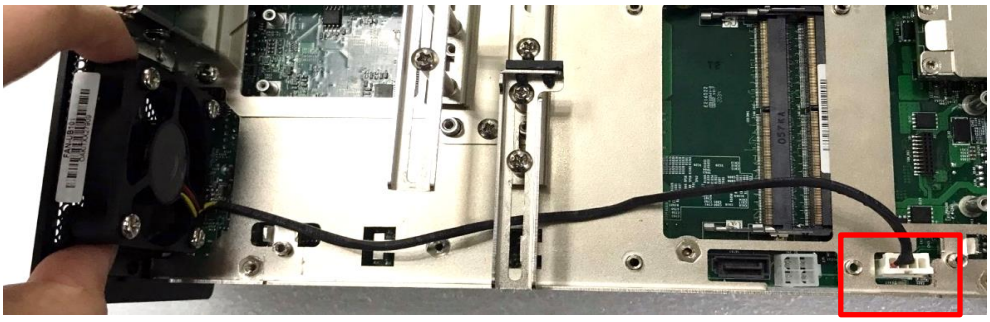
## (For DS-1402 only)

| Model No. | Product Description |
|---|---|
| FAN-UB100 | Exhaling Fan with 4pin Connector, Universal Bracket |
| FAN-UB101 | Inhaling Fan with 4pin Connector, Universal Bracket |

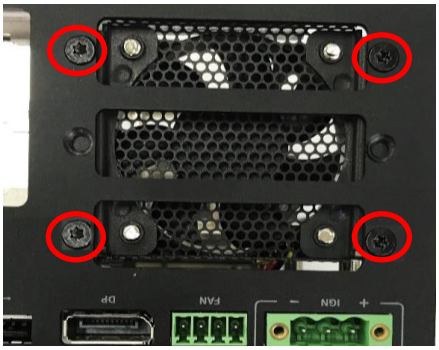
Step 1. Unscrew 6 screws to remove 3 I/O brackets from rear panel.



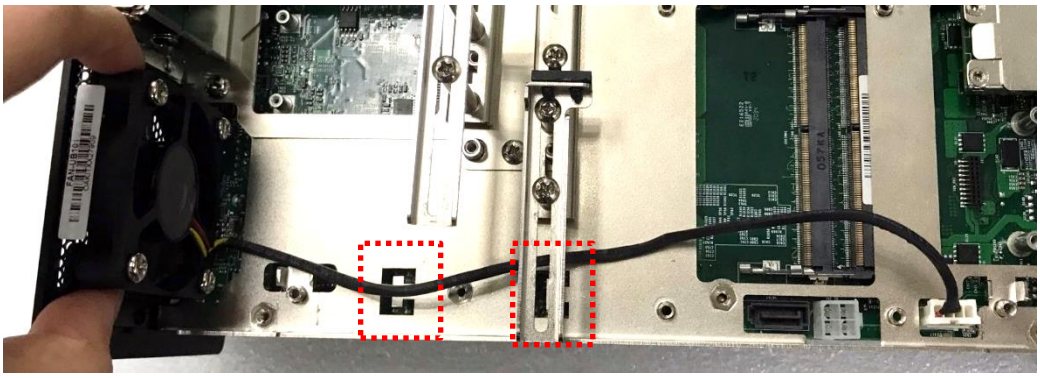
Step 2. Insert the fan connector to the power connector (power4).



Step 3. Attach the FAN from back side of rear panel, and then fasten the 4 screws to fix it.



Step 4. User can use cable ties to tie the wire from the cut holes as indicated.



## 3.22 Installing Power Protection Module

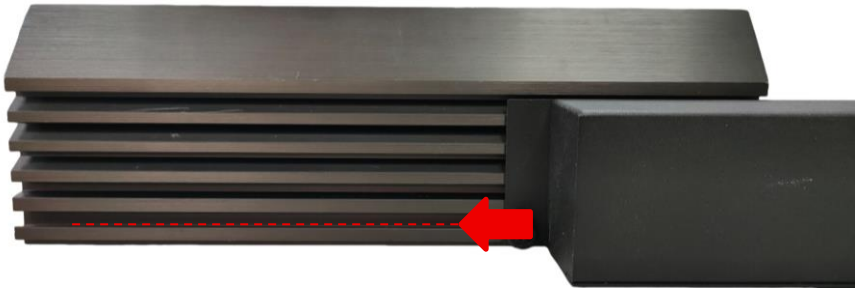
| Model No. | Product Description |
|---|---|
| PPM-I360-02 | 360W Power Protection Module for DS Series |

The DS-1400 series supports an optional Power Protection Module (Model: PPM-I360-02), as shown in Step 1. If you have purchased this accessory, please follow the installation instructions below.

Step 1. Loosen the two screws without removing them.



Step 2. Align the Power Protection Module screws with the slots on the side of the system chassis and slide the moule in, ensuring both screws are firmly seated within the slots.





Step 3. Tighten the two screws to secure the module.



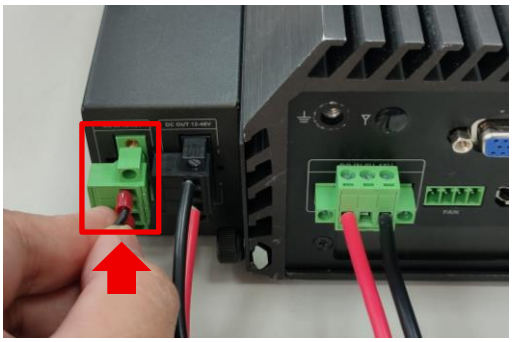
Step 4. Connect the black power connector to the Power Protection Module.



Step 5. Connect the Power Protection Module cable to one of the DC power input connectors firmly on the rear panel of the system in the way as indicated below.



Step 6. Connect the power adapter cable to the green DC power input connector on the Power rotection Module, as shown below.



# Chapter 4
# BIOS Setup

# 4.1 BIOS Introduction

The BIOS (Basic Input/ Output System) is a program located on a Flash Memory on the motherboard. When you start the computer, the BIOS program will gain control. The BIOS first operates an auto-diagnostic test called POST (power on self-test) for all the necessary hardware, it detects the entire hardware device and configures the parameters of the hardware synchronization.

**BIOS Setup**

Power on the computer and by pressing <Del> immediately allows you to enter Setup. If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing <Ctrl>, <Alt> and <Delete> keys.

| **Control Keys** | |
|---|---|
| <←> <→> | Move to select screen |
| <↑> <↓> | Move to select item |
| <Esc> | Quit the BIOS Setup |
| <Enter> | Select item |
| <Page Up/+> | Increases the numeric value or makes changes |
| <Page Down/-> | Decreases the numeric value or makes changes |
| <Tab> | Select setup fields |
| <F1> | General help |
| <F2> | Previous value |
| <F3> | Load Optimized defaults |
| <F10> | Save configuration and Exit |

**Main Menu**

The main menu lists the setup functions you can make changes to. You can use the arrow keys ( ↑↓ ) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

**Sub-Menu**

If you find a right pointer symbol appears to the left of certain fields that means a sub-menu can be launched from this field. A sub-menu contains additional options for a field parameter. You can use arrow keys ( ↑↓ ) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press the <Esc >.

# 4.2 Main Setup

Press <Del> to enter BIOS CMOS Setup Utility, the Main Menu (as shown below) will appears on the screen. Use arrow keys to move among the items and press <Enter> to accept or enter a sub-menu.



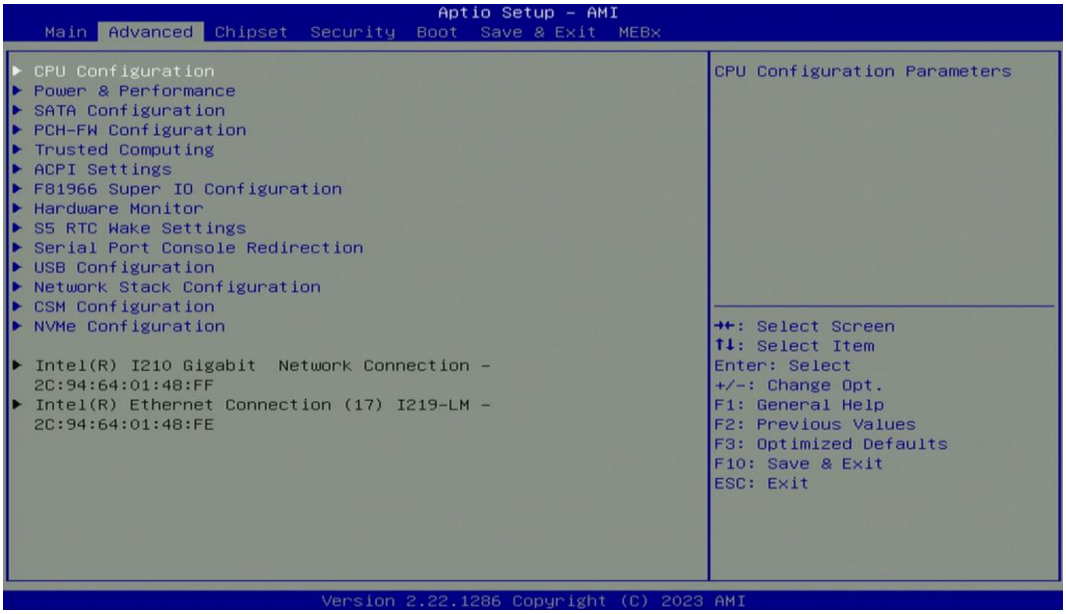

### 4.2.1 System Date

Set the date. Please use <Tab> to switch between date elements.

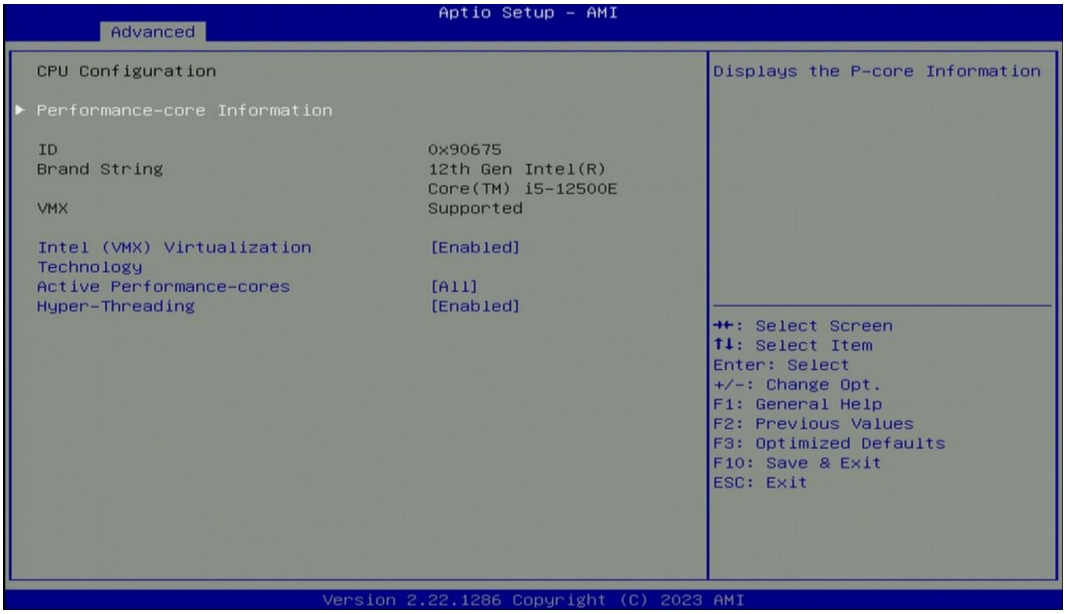
### 4.2.2 System Time

Set the time. Please use <Tab> to switch between time elements.

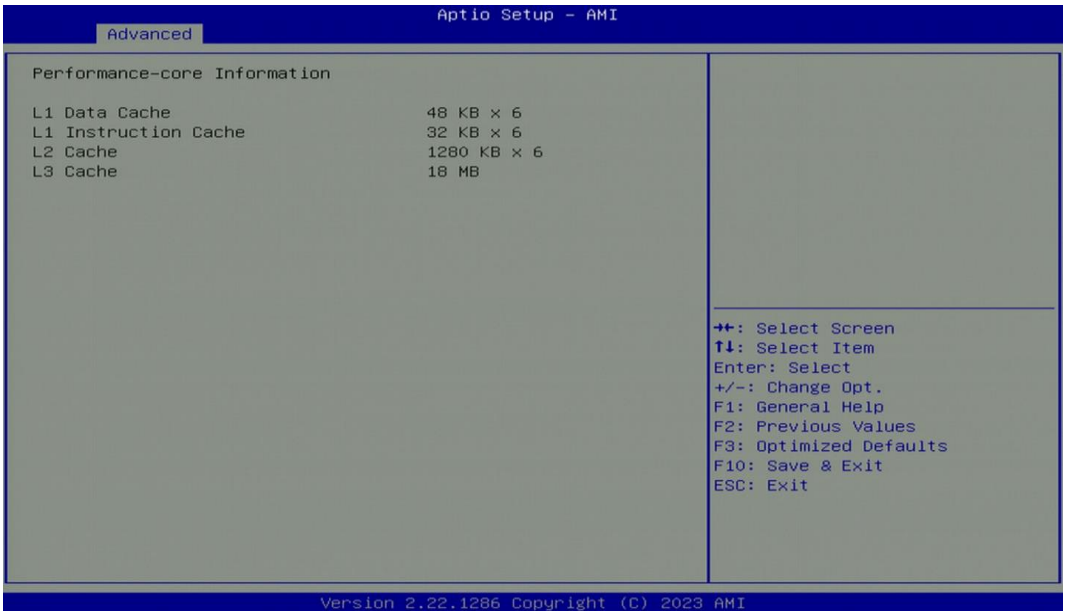
# 4.3 Advanced Setup




## 4.3.1 CPU Configuration



## ■ Performance-core Information




## ■ Intel® (VMX) Virtualization Technology [Enabled]

Enables or disables Intel® Virtualization Technology. Virtualization enhanced by Intel® Virtualization Technology will allow a platform to run multiple operating systems and applications in independent partitions. With virtualization, one computer system can function as multiple virtual systems.

## ■ Active Performance-cores [All]

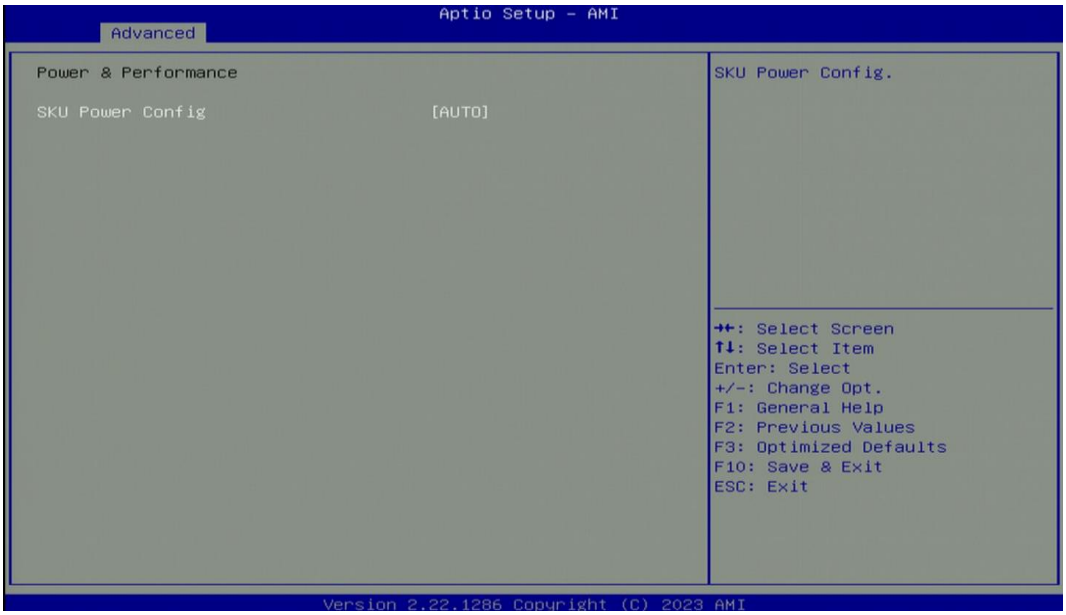
Allows users to choose the number of active performance cores.

Configuration options: [All] [1] [2] [3] [4] [5]

## ■ Hyper-threading

Enables or disables for Hyper-Threading Technology.

### 4.3.2 Power & Performance

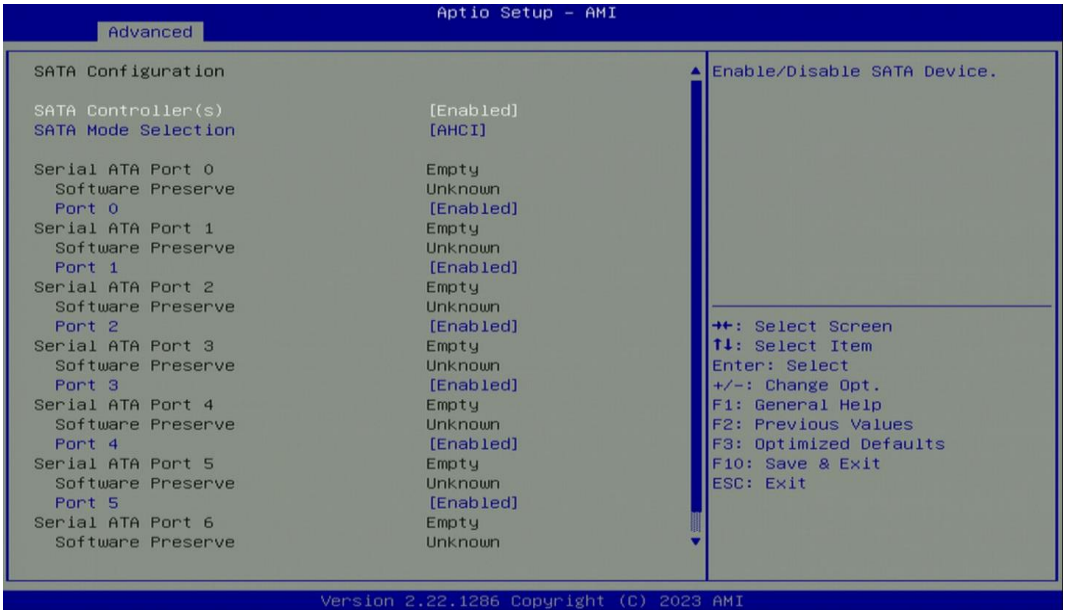



■ **SKU Power Config [Auto]**

Allows users to choose the upper limit of CPU power.

Configuration options: [Auto] [35W]

### 4.3.3 SATA Configuration




■ **SATA Controller(s) [Enabled]**

Enables or disables Serial ATA controller.

■ **SATA Mode Selection [AHCI]**

This item only allows users to choose [AHCI] mode.

- ❑ **Serial ATA Port 0**

  **Port 0 [Enabled]**

  Enables or disables SATA Port 0.

- ❑ **Serial ATA Port 1**

**Port 1 [Enabled]**

Enables or disables SATA Port 1.

- **Serial ATA Port 2**

  **Port 2 [Enabled]**

  Enables or disables SATA Port 2.

- **Serial ATA Port 3**

  **Port 3 [Enabled]**

  Enables or disables SATA Port 3.

- **Serial ATA Port 4**

  **Port 4 [Enabled]**

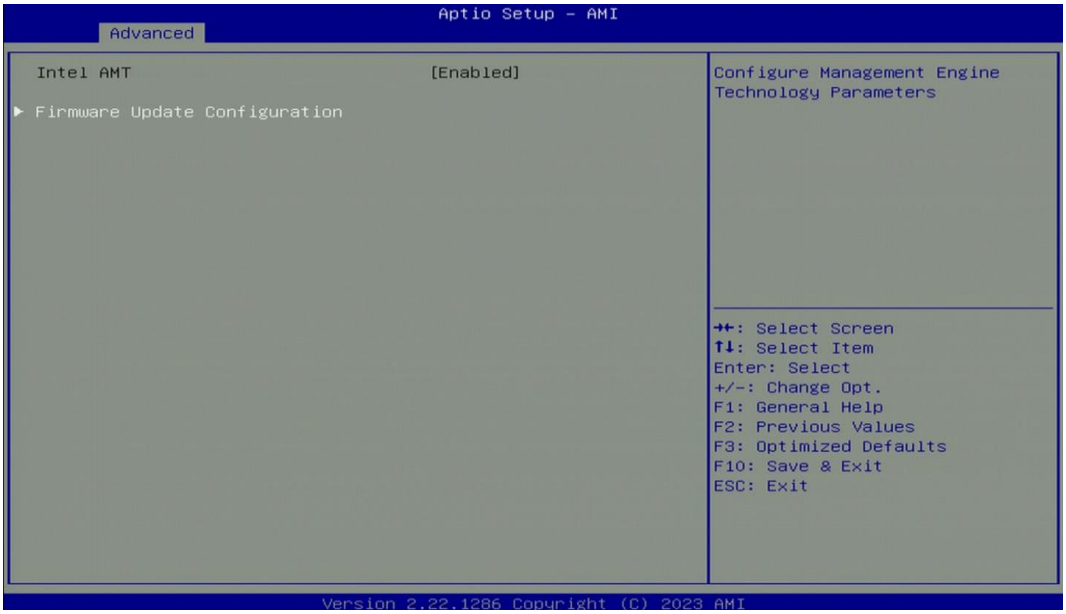
  Enables or disables SATA Port 4.

- **Serial ATA Port 5**

  **Port 5 [Enabled]**

  Enables or disables SATA Port 5.

### 4.3.4 PCH-FW Configuration



### ■ Intel AMT [Enabled]

Allows users to enable or disable Intel® Active Management Technology BIOS execution.

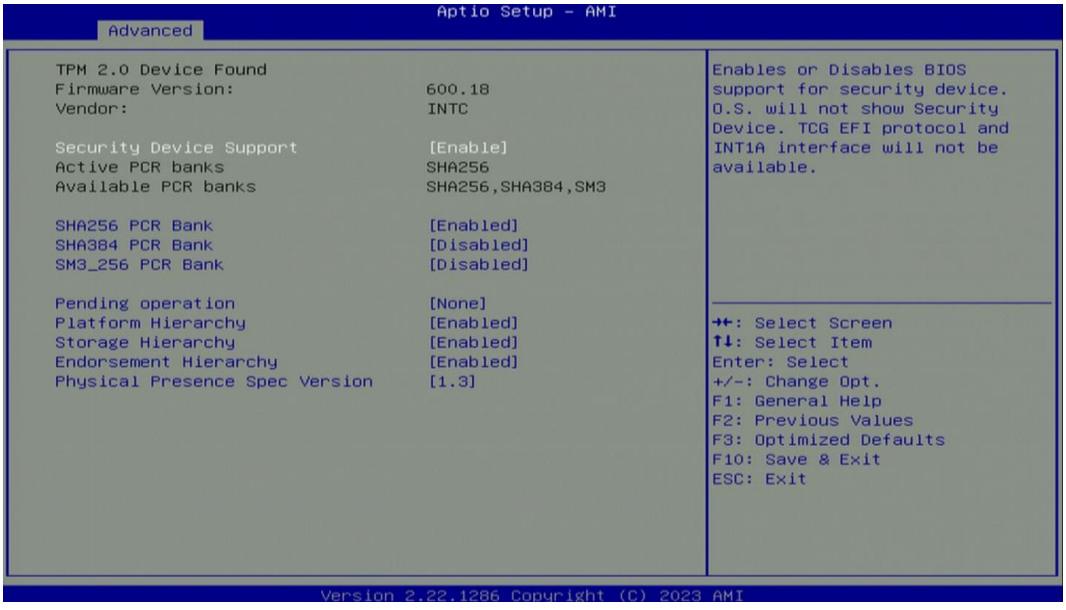
### ■ Firmware Update Configuration




❑ **ME FW Image Re-Flash [Disabled]**

Allows users to enable or disable ME firmware image re-flash function.

## 4.3.5 Trusted Computing




### ■ Security Device Support [Enable]

Allow users to enable or disable Security Device Support function.

### ■ SHA256 PCR Bank [Enabled]

Enables or disables SHA256 PCR Bank function.

### ■ SHA384 PCR Bank [Disabled]

Enables or disables SHA384 PCR Bank function.

**■ SHA3_256 PCR Bank [Disabled]**

Enables or disables SHA3_256 PCR Bank function.

**■ Pending Operation [None]**

Allows users to select which mode Pending Operation will operate.

Configuration options: [None], [TPM Clear]

**■ Platform Hierarchy [Enabled]**

Enables or disables Platform Hierarchy function.

**■ Storage Hierarchy [Enabled]**

Enables or disables Storage Hierarchy function.

**■ Endorsement Hierarchy [Enabled]**

Enables or disables Endorsement Hierarchy function.

**■ Physical Presence Spec Version [1.3]**

Allows users to select which mode Physical Presence Spec Version will operate.

Configuration options: [1.2], [1.3]

### 4.3.6 ACPI Settings

This item allows users to configure ACPI settings.




**■ Enable ACPI Auto Configuration [Enabled]**

Enables or disables BIOS Advanced Configuration Power Interface® (ACPI) auto configuration.

**■ ACPI Sleep State [S3 (Suspend to RAM)]**

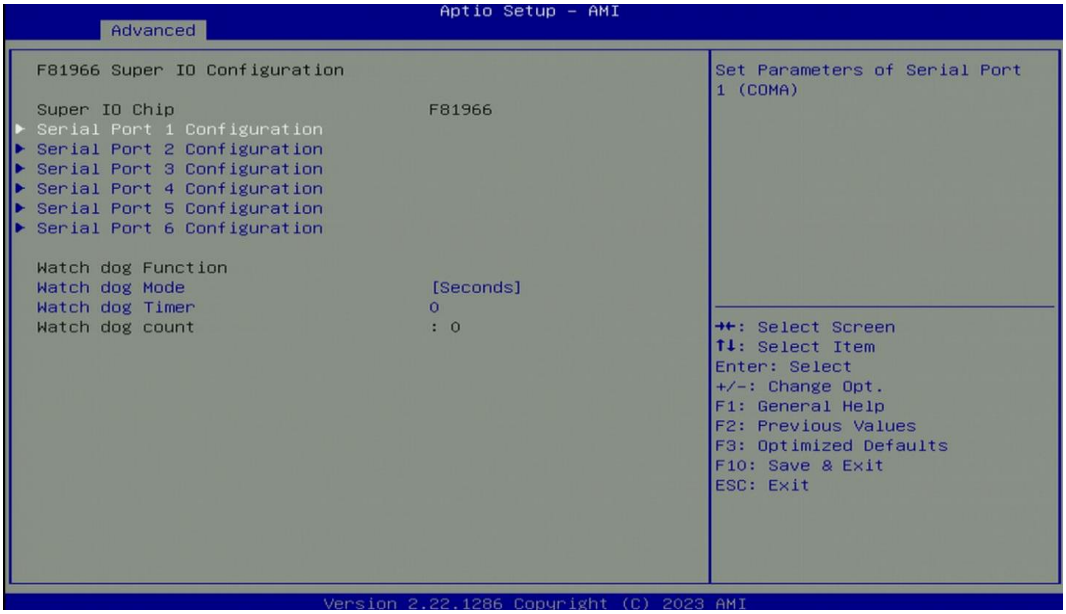
Allows users to select the highest Advanced Configuration Power Interface® (ACPI) sleep state that system will enter when suspend button is pressed.

[Suspend Disabled]: Disables entering suspend state.

[S3 (suspend to RAM)]: Enables suspend to RAM state.

### 4.3.7 F81966 Super IO Configuration

The screen allows users to select options for the Super IO configuration, and change the value of the selected option.




**■ Serial Port 1~4 Configuration**




- ❑ **Serial Port [Enabled]**

  This item allows users to enable or disable serial port.

- ❑ **Change Settings [Auto]**

  This item allows users to change the address & IRQ settings of the specified serial port.

- ❑ **Onboard Serial Port 1 Mode [RS232]**

  This item allows users to select Serial Port Mode.

  Configuration options: [RS232] [RS422/RS485 Full Duplex] [RS485 Half Duplex]

■ **Watch Dog [Disabled]**

Enables or disables watch dog function.

■ **Watch Dog Mode [Sec]**

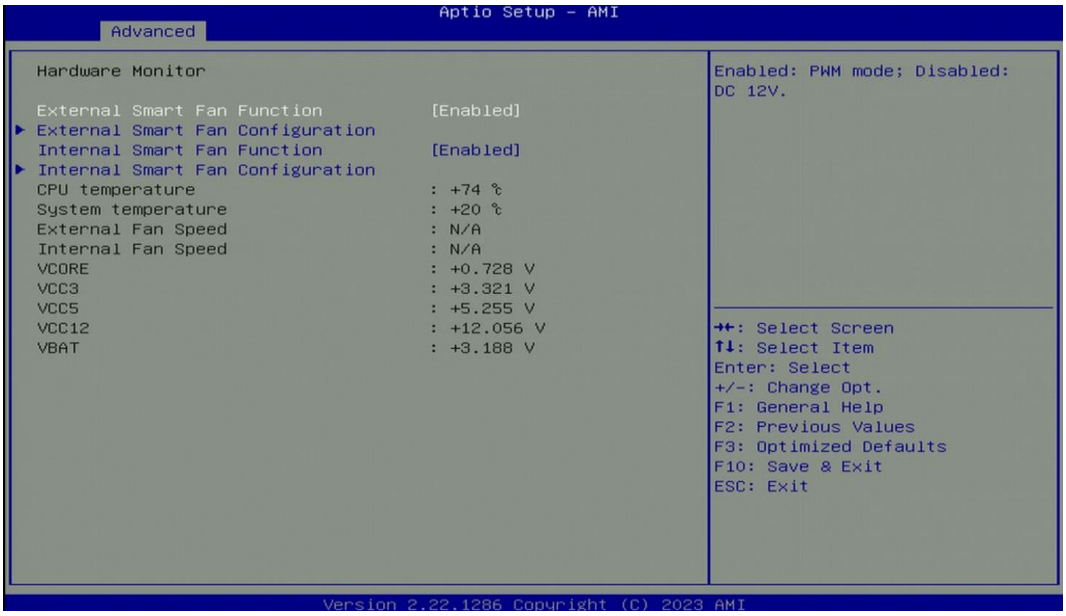
Changes the Watch dog mode. Select [Sec] or [Min] mode.

■ **Watch Dog Timer [0]**

User can set a value in the range of 0 to 255.

### 4.3.8 Hardware Monitor

These items display the current status of all monitored hardware devices/ components such as voltages and temperatures.




■ **External Smart Fan Function [Enabled]**

Enables or disables external smart fan function.

■ **External Smart Fan Configuration**

Allows users to setting external smart fan parameters.

■ **Internal Smart Fan Function [Enabled]**

Enables or disables internal smart fan function.

■ **Internal Smart Fan Configuration**

Allows users to setting internal smart fan parameters.

### 4.3.9 S5 RTC Wake Settings



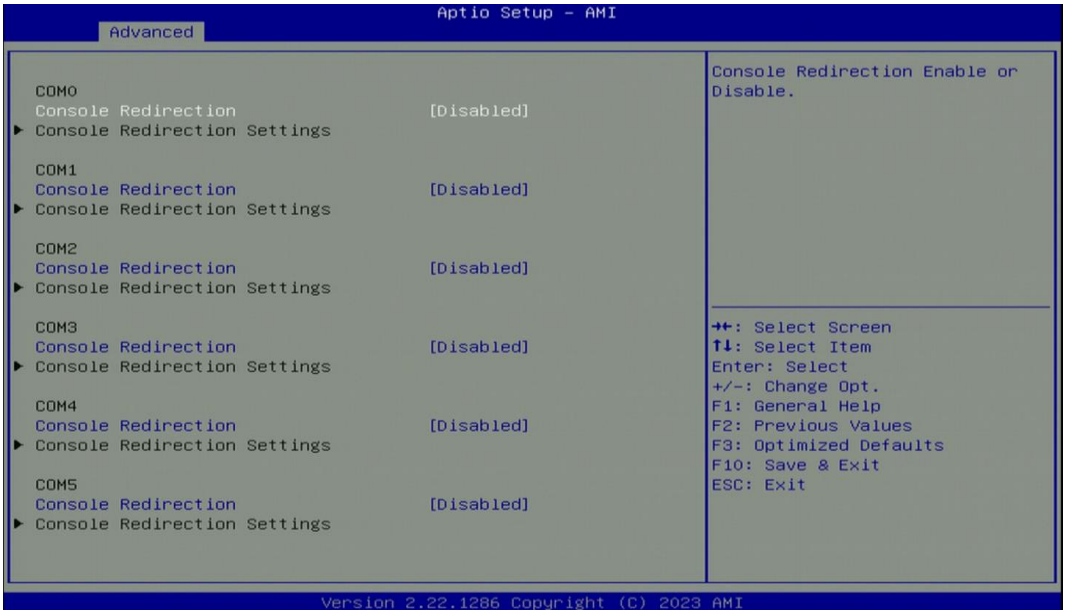

■ **Wake System from S5 [Disabled]**

This item allows users to change the way to wake system from S5 state.

[Fixed Time]: Set the specified time (HH:MM:SS) to wake system.

[Dynamic Time]: Set the increase time from current time to wake system.

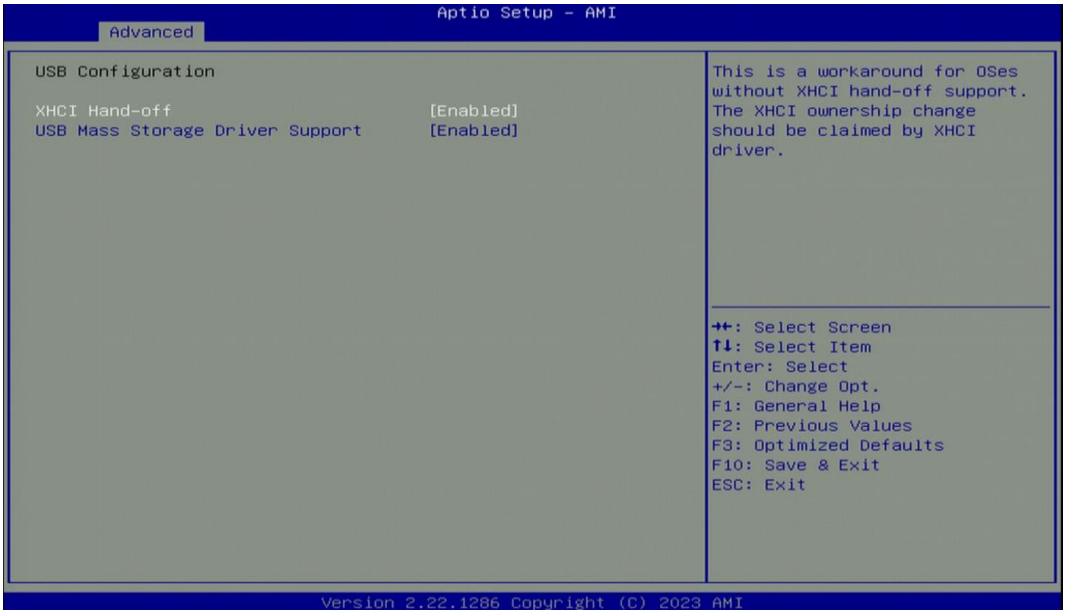
### 4.3.10 Serial Port Console Redirection



■ **Console Redirection [Disabled]**

These items allow users to enable or disable COM0, COM1, COM2, COM3, COM4, COM5 console redirection function.

## 4.3.11 USB Configuration




■ **XHCI Hand-off [Enabled]**

This item allows users to enable or disable XHCI (USB3.2) hand-off function.

■ **USB Mass Storage Driver Support [Enabled]**

Enables or disables support for USB mass storage devices.

## 4.3.12 Network Stack Configuration




■ **Network Stack [Disabled]**

Enables or disables UEFI Network Stack.

### 4.3.13 CSM Configuration




■ **CSM Support [Disabled]**

Enables or disables compatibility support module.

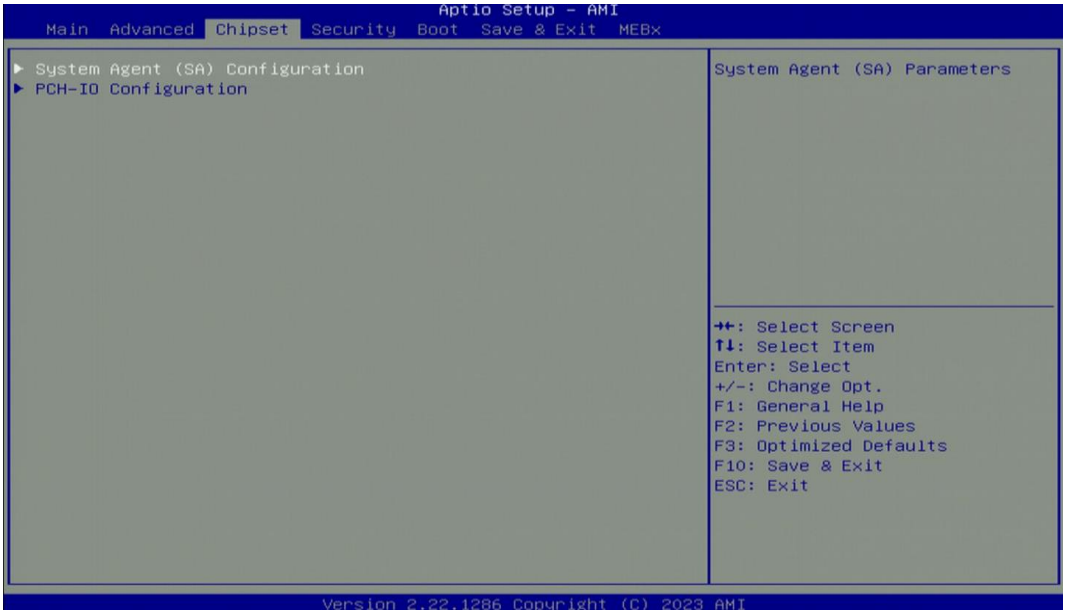
### 4.3.14 NVMe Configuration

The screen allows users to select options for the NVMe configuration, and change the value of the selected option. If there is NVMe Device detected, the options will show as the NVMe Device is found.

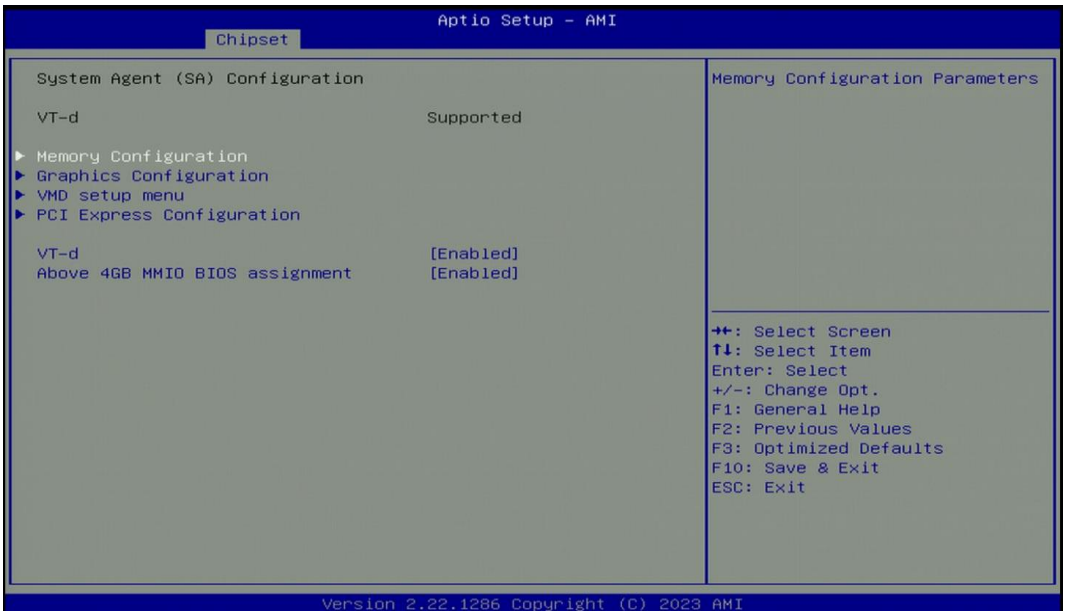


# 4.4 Chipset Setup

This section allows you to configure chipset related settings according to user's preference.

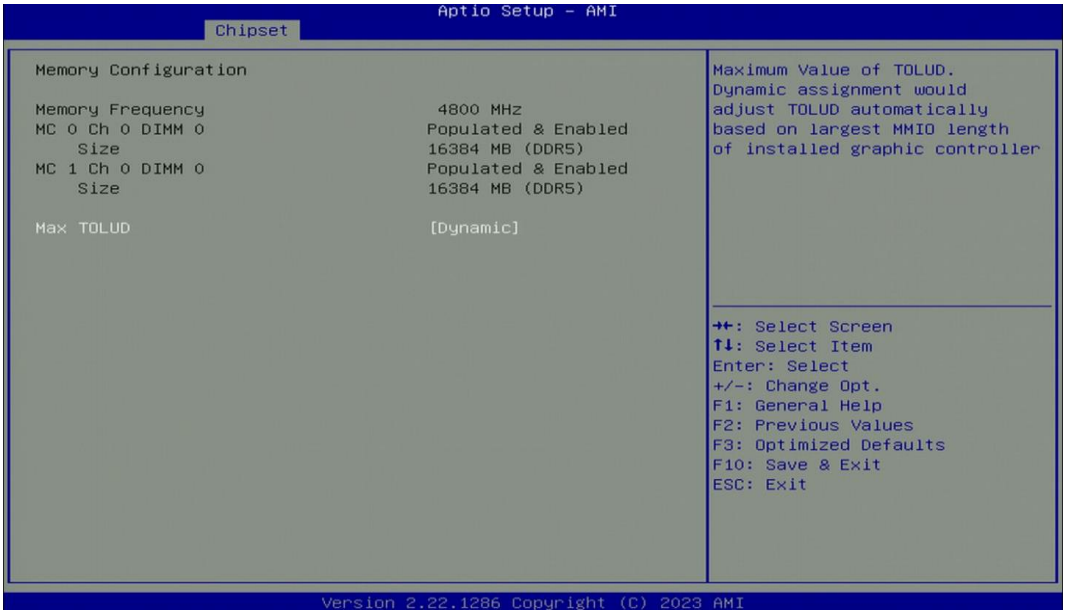



## 4.4.1 System Agent (SA) Configuration

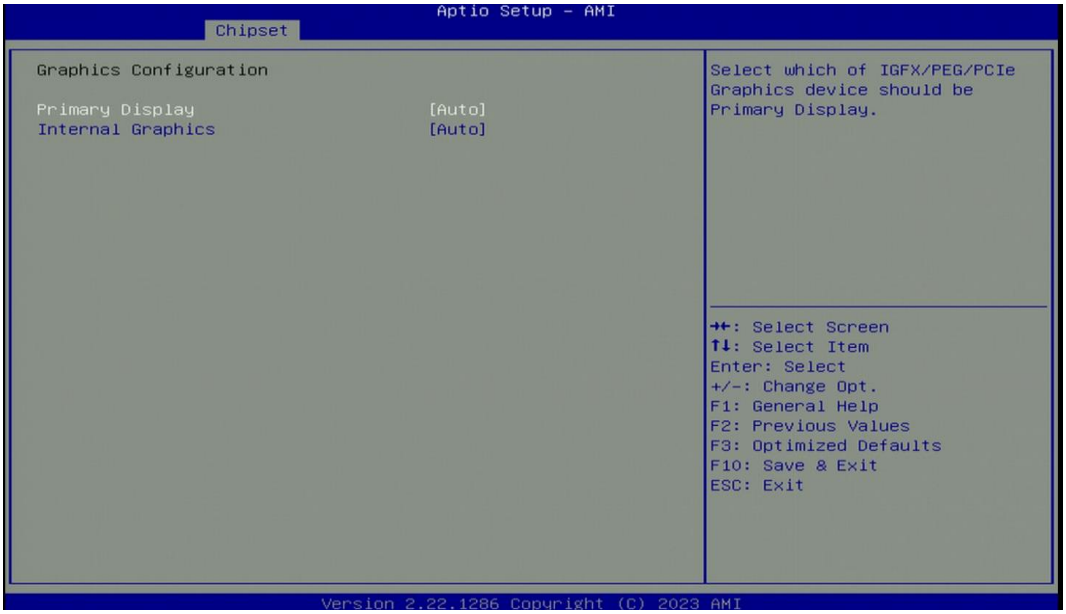


## ■ Memory Configuration

This item displays detailed memory information in the system.




## ■ Graphics Configuration




- ❑ **Primary Display [Auto]**

  Allows users to select which graphics device should be primary display or select SG for switchable graphics.

  Configuration options: [Auto] [IGFX] [PEG Slot] [PCIe]

- ❑ **Internal Graphics [Auto]**

  This item allows users to enable or disable Internal Graphics. When set to [Auto], it will detect by BIOS. Configuration options: [Auto] [Disabled] [Enabled]

## ■ VMD Configuration



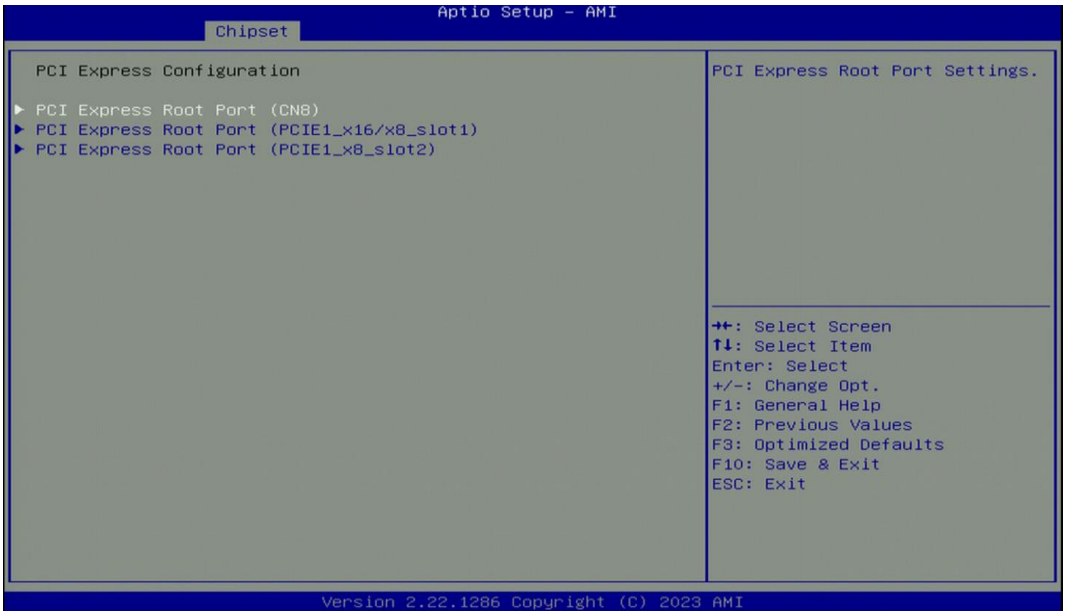

### ❑ Enable VMD controller [Disabled]

Allows users to enable or disable VMD Controller.

Configuration options: [Disabled] [Enabled]

Enable this function can support creating RAID.

## ■ PCI Express Configuration




### ❑ PCI Express Root Port (CN8)

#### ■ PCI Express Root Port [Enabled]

Allows you to enable or disable the PCI Express Port.

#### ■ PCIe Speed [Auto]

Allows you to select PCI Express interface speed.

Configuration options: [Auto] [Gen1] [Gen2] [Gen3].

- **PCI Express Root Port (PCIe x16/x8_slot1)**
  - **PCI Express Root Port [Enabled]**
    Allows you to enable or disable the PCI Express Port.
  - **PCIe Speed [Auto]**
    Allows you to select PCI Express interface speed.
    Configuration options: [Auto] [Gen1] [Gen2] [Gen3].
- **PCI Express Root Port (PCIe x8_slot2)**
  - **PCI Express Root Port [Enabled]**
    Allows you to enable or disable the PCI Express Port.
  - **PCIe Speed [Auto]**
    Allows you to select PCI Express interface speed.
    Configuration options: [Auto] [Gen1] [Gen2] [Gen3].

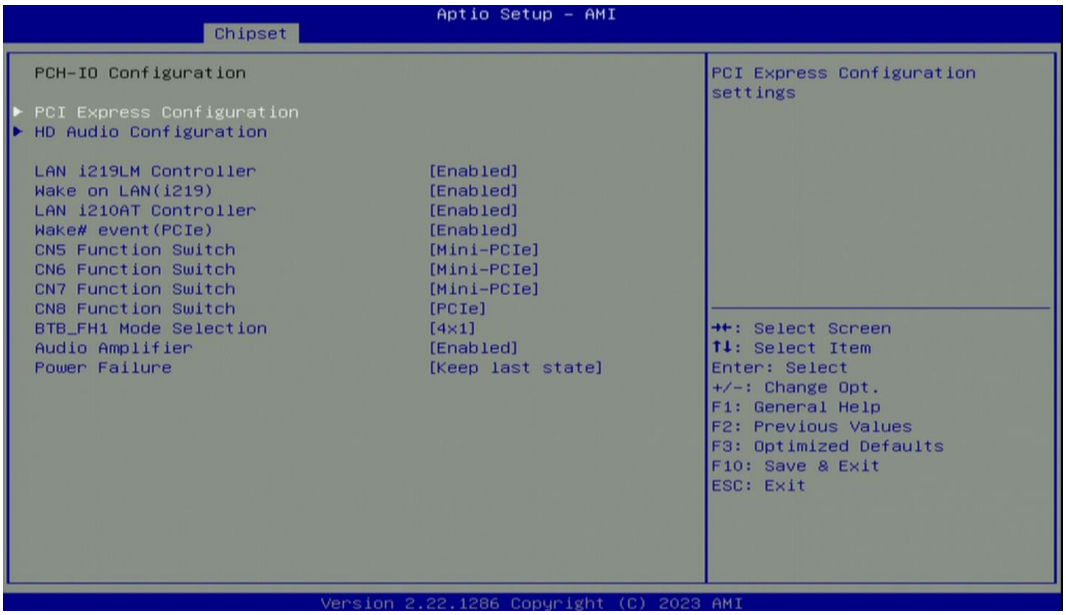
**■ VT-d [Enabled]**

This item allows users to enable or disable Intel® Virtualization Technology for Directed I/O (VT-d) function.

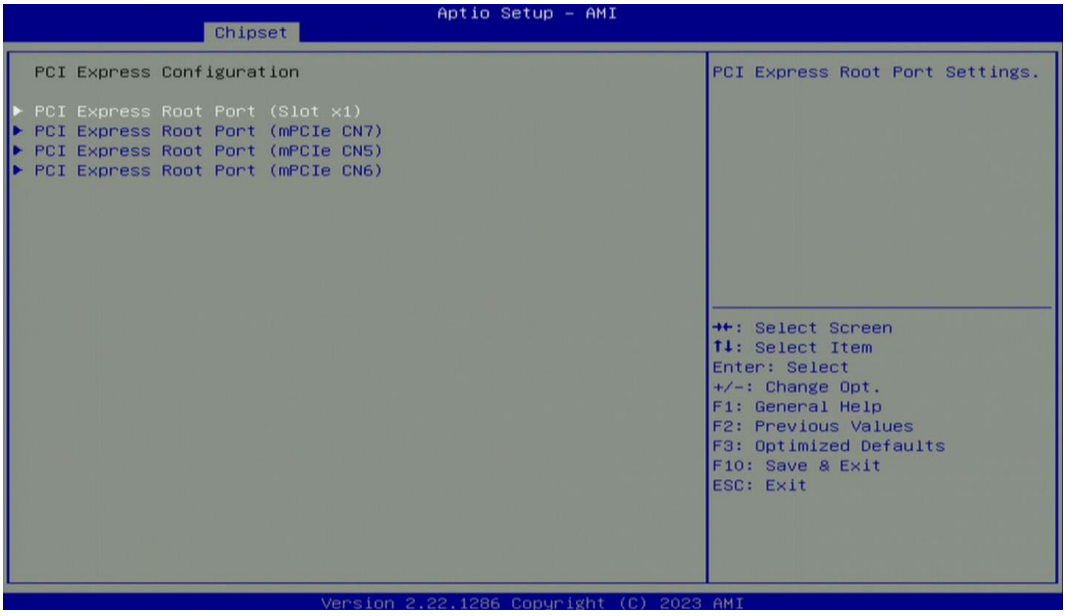
**■ Above 4GB MMIO BIOS assignment [Enabled]**

This item allows users to enable or disable Above 4GB MMIO BIOS assignment function.

### 4.4.2 PCH-IO Configuration




■ **PCI Express Configuration**




❑ **PCI Express Root Port (Slot x1)**

■ **PCI Express Root Port [Enabled]**

Allows you to enable or disable the PCI Express Port.

■ **PCIe Speed [Auto]**

Allows you to select PCI Express interface speed.

Configuration options: [Auto] [Gen1] [Gen2] [Gen3].

❑ **PCI Express Root Port (mPCIe CN7)**

- **PCI Express Root Port [Enabled]**

  Allows you to enable or disable the PCI Express Port.

- **PCIe Speed [Auto]**

  Allows you to select PCI Express interface speed.

  Configuration options: [Auto] [Gen1] [Gen2] [Gen3].

❑ **PCI Express Root Port (mPCIe CN5)**

- **PCI Express Root Port [Enabled]**

  Allows you to enable or disable the PCI Express Port.

- **PCIe Speed [Auto]**

  Allows you to select PCI Express interface speed.

  Configuration options: [Auto] [Gen1] [Gen2] [Gen3].

❑ **PCI Express Root Port (mPCIe CN6)**

- **PCI Express Root Port [Enabled]**

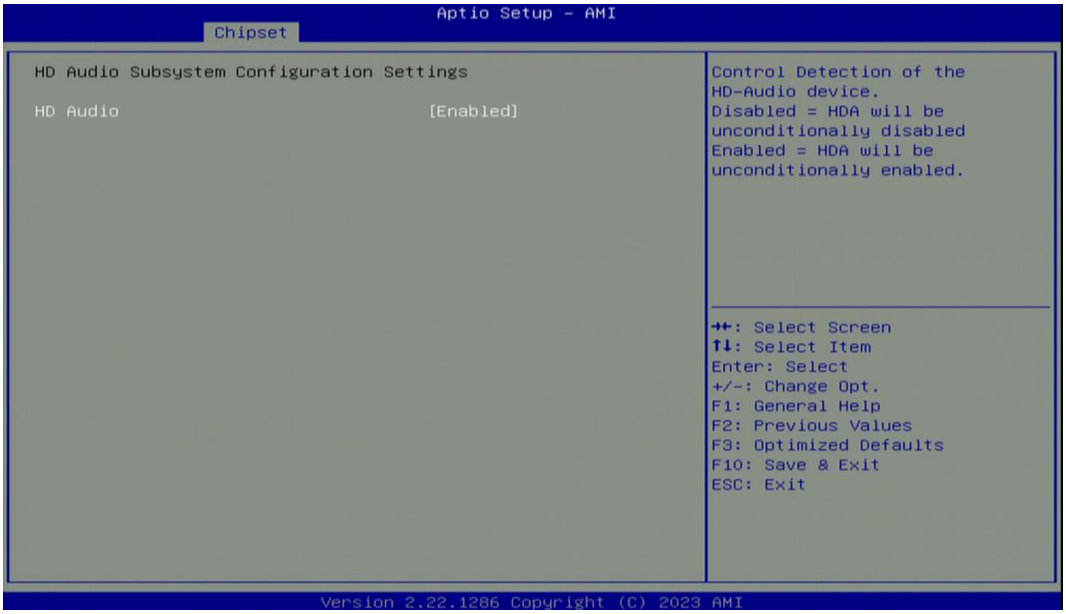
  Allows you to enable or disable the PCI Express Port.

- **PCIe Speed [Auto]**

  Allows you to select PCI Express interface speed.

  Configuration options: [Auto] [Gen1] [Gen2] [Gen3].

## ■ HD Audio Configuration




❑ **HD Audio [Enabled]**

Allows you to select HD Audio options.

[Enabled]: HD Audio device is unconditionally enabled.

[Disabled]: HD Audio device is unconditionally disabled.

## ■ LAN i219LM Controller [Enabled]

Enables or disables i219LM LAN Controller.

■ **Wake On LAN (i219) [Enabled]**

Enables or disables integrated LAN i219LM Wake on LAN function.

■ **LAN i210AT Controller [Enabled]**

Enables or disables I210 LAN Controller.

■ **Wake# event (PCIe) [Enabled]**

Enables or disables integrated LAN i210 Wake on LAN function.

■ **CN5 Function Switch [Mini-PCIe]**

Allows users to select [Mini-PCIe] or [mSATA] for CN5 connector.

■ **CN6 Function Switch [Mini-PCIe]**

Allows users to select [Mini-PCIe] or [mSATA] for CN6 connector.

■ **CN7 Function Switch [Mini-PCIe]**

Allows users to select [Mini-PCIe] or [mSATA] or [USB3.0] for CN7 connector.

■ **CN8 Function Switch [PCIe]**

Allows users to select [PCIe] or [SATA] for CN8 connector.

■ **BTB_FH1 Mode Selection [4x1]**

Allows users to select [4x1] or [1x4] for BTB_FH1 Mode.

■ **Audio Amplifier [Enabled]**

Enables or disables Audio Amplifier Function.

■ **Power Failure [Keep last state]**

Allows you to specify which power state system will enter when power is resumed after a power failure (G3 state).

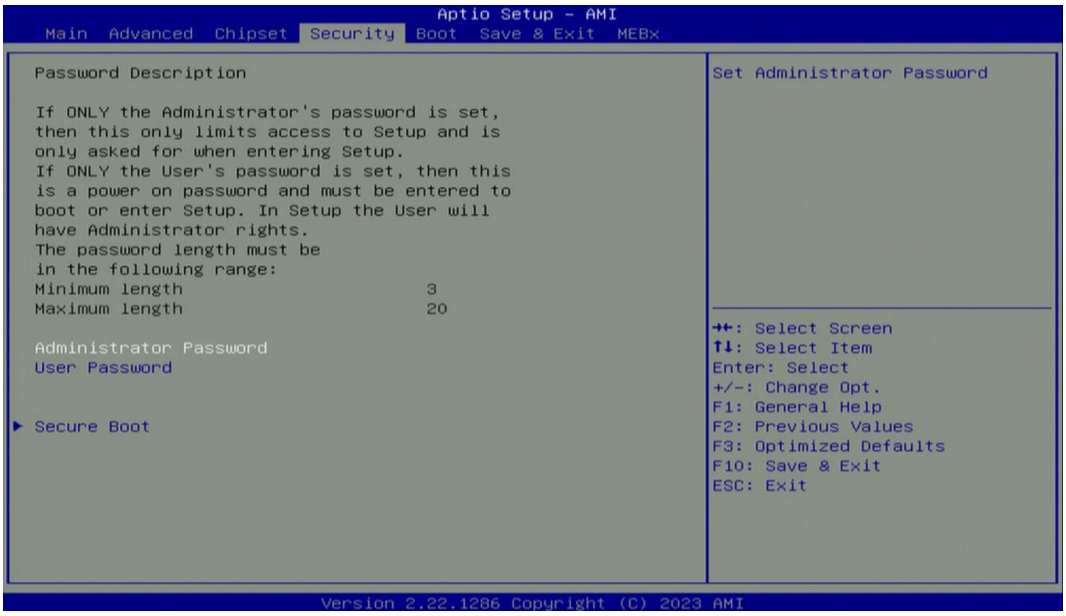
[Always on]: Enters to power on state.

[Always off]: Enters to power off state.

[Keep last state]: Enters to the last power state before a power failure.

# 4.5 Security Setup

This section allows users to configure BIOS security settings.



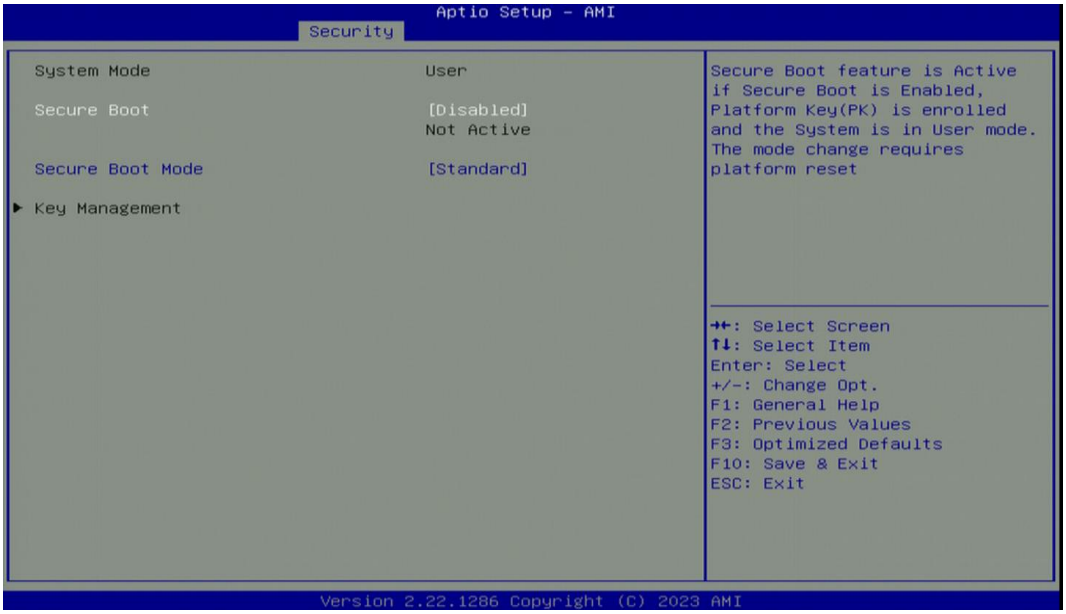

## ■ Administrator Password

Administrator Password controls access to the BIOS Setup utility.

## ■ User Password

User Password controls access to the system at boot and to the BIOS Setup utility.

## ■ Security Boot




- ❑ **Secure Boot [Disabled]**

  Enable or disable Secure Boot function.

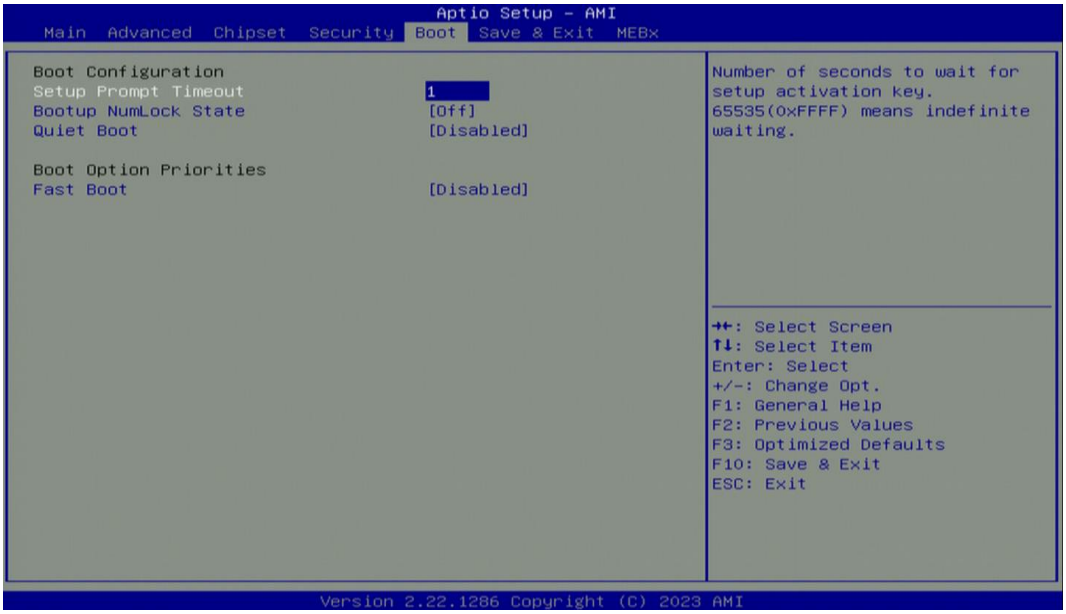
- ❑ **Secure Boot Mode [Standard]**

  Allows you to select Secure Boor Mode.

  Configuration options: [Standard] [Custom].

# 4.6 Boot Setup

This section allows you to configure Boot settings.




### ■ Setup Prompt Timeout [1]

Use this item to set number of seconds (1..65535) to wait for setup activation key.

### ■ Bootup NumLock State [Off]

Allows users to select the power-on state for keyboard NumLock.

### ■ Quiet Boot [Disabled]

Allows users to enable or disable Quiet Boot function.

### ■ Fast Boot [Disabled]

Allows users to enable or disable Fast Boot function.

# 4.7 Save & Exit




### ■ Save Changes and Exit

This item allows users to exit system setup after saving changes.

### ■ Discard Changes and Exit

This item allows users to exit system setup without saving changes.

### ■ Save Changes and Reset

This item allows users to reset the system after saving changes.

### ■ Discard Changes and Reset

This item allows users to reset system setup without saving any changes.

### ■ Save Changes

This item allows users to save changes done so far to any of the setup options.

### ■ Discard Changes

This item allows users to discard changes done so far to any of the setup options.

### ■ Restore Defaults

This item allows users to restore/ load default values for all the options.

### ■ Save as User Defaults

This item allows users to save the changes done so far as user defaults.

### ■ Restore User Defaults

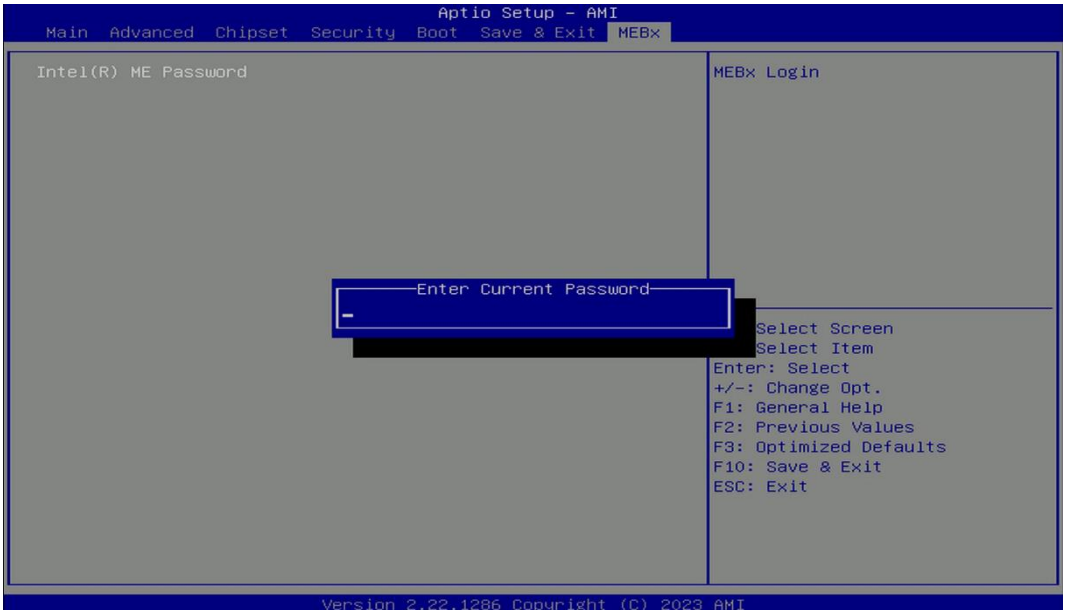
This item allows users to restore the user defaults to all the options.

# 4.8 MEBx

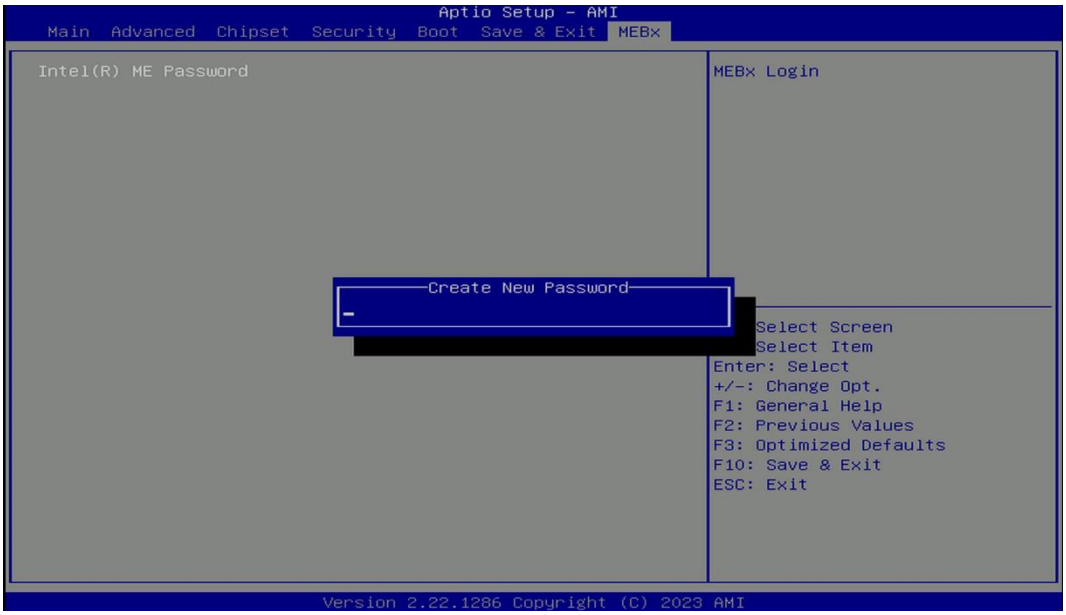
This page is for ME function setting. Press the delete key to enter the BIOS menu then user can see the following MEBx page.



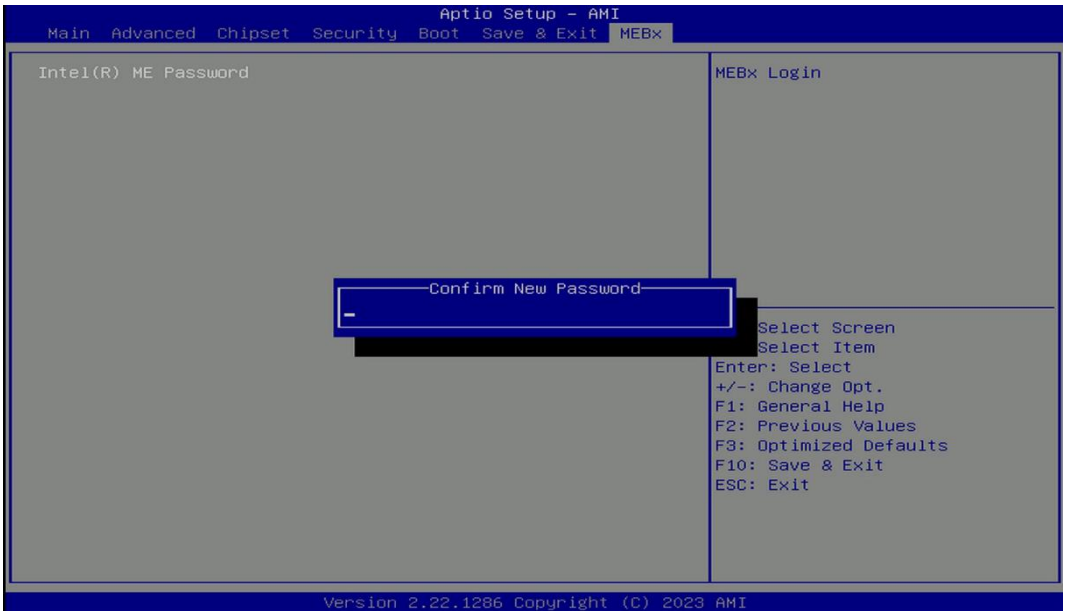

Press enter key to enter the default password "admin" to enter the next step for password creation.



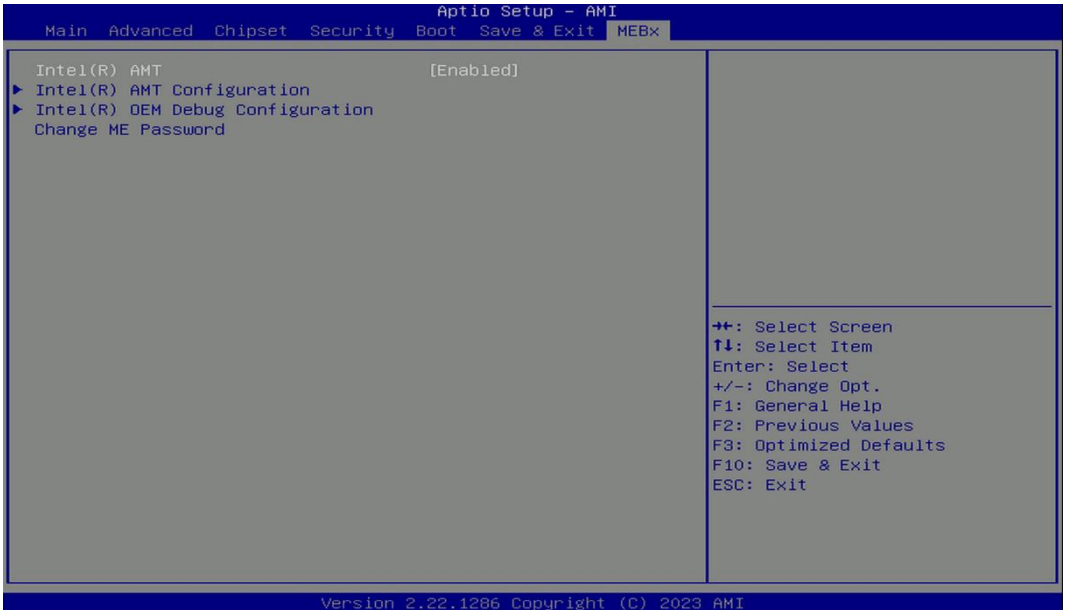
Create a new password using 8 characters including uppercase and lowercase letters, numbers and special symbols.




Enter the created password again for confirmation.



Then you can see the function setting page of MEBx.



# Chapter 5
# Product Application

# 5.1 Where to download drivers?

Drivers for the DS-1400 Series can be downloaded from the CINCOZE website.

# 5.2 Where to find the technical documents?

The following documents are the most relevant technical references for the DS-1400 Series. All documents can be accessed via the CINCOZE Partner Zone:

- **Application Notes**: Navigate to *Home > Partner Zone > Technical Support > Application Notes*.
- **Configure & Installation**: Navigate to *Home > Partner Zone > Technical Support > Configure & Installation*.
- **Other Product Information**: Navigate to *Home > Partner Zone > Product Center > Product Information > Rugged Embedded Computers > High Performance & PCIe Expandable (DS Series) > DS-1400 Series*.

| Catalog | Document Tile |
|---|---|
| Application Notes | DIO Application Guide |
| | DIO Technical Guide |
| | Instant Reboot Application Guide |
| | WDT Application Guide |
| | WDT Technical Guide |
| Configure & Installation | AT ATX Function Manual |
| | BIOS Administrator User Password Function Manual |
| | Clear CMOS Function Manual |
| | COM Function Manual |
| | CSM Function Manual |
| | Digital I/O Function Manual |
| | How to import Secure Boot Key? |
| | How to restore Windows image with Clonezilla? |
| | How to set TPM function under Windows? |
| | How to stop automatic driver update in Windows SOP |
| | How to Update BIOS and ME under UEFI shell? |
| | How to Update BIOS under UEFI shell? |
| | How to Update BIOS under Windows? |
| | IGN Module User Manual |
| | Intel AMT with KVM Remote Control |
| | POE Module User Manual |
| | PXE Function Manual |
| | RAID Function Manual |
| | Remote Switch Function Manual |

| | |
|---|---|
| | Wake On LAN Function Manual |
| | WDT Function Manual |

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