

# USER'S MANUAL

## RCO-6000-RPL

AI Edge Inference Computer



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## Prefaces

### Revision

| Revision | Description                                                      | Date       |
|----------|------------------------------------------------------------------|------------|
| 1.0      | Manual Released                                                  | 2023/10/6  |
| 1.1      | MB Version 11, Add OOB, Modify SL1 and SMBus circuit             | 2025/8/29  |
| 1.2      | Intel® Core™ Series 2 (Bartlett Lake-S) & DDR5 Max. 96 GB Update | 2026/02/06 |

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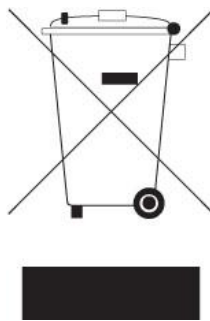
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### Environmental Protection Announcement

Do not dispose this electronic device into the trash while discarding. Please recycle to minimize pollution and ensure environment protection.



## Safety Precautions

Before installing and using the equipment, please read the following precautions:

- Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
- The power outlet shall be installed near the equipment and shall be easily accessible.
- Turn off the system power and disconnect the power cord from its source before making any installation. Be sure both the system and the external devices are turned OFF. Sudden surge of power could ruin sensitive components. Make sure the equipment is properly grounded.
- When the power is connected, never open the equipment. The equipment should be opened only by qualified service personnel.
- Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
- Disconnect this equipment from the power before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
- Avoid the dusty, humidity and temperature extremes.
- Do not place heavy objects on the equipment.
- If the equipment is not used for long time, disconnect it from the power to avoid being damaged by transient over-voltage.
- The storage temperature shall be above -30°C and below 85°C.
- The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.
- If one of the following situation 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 it cannot work according to the user's manual.
  - The equipment has been dropped and damaged.
  - The equipment has obvious signs of breakage.

## Technical Support and Assistance

1. Visit the Premio Inc website at [www.premioinc.com](http://www.premioinc.com) where you can find the latest information about the product.
2. Contact your distributor, our technical support team or sales representative for technical support if you need additional assistance. Please have following information ready before you call:
  - Model 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

This indication alerts operators to an operation that, if not strictly observed, may result in severe injury.



### CAUTION

This indication alerts operators to an operation that, if not strictly observed, may result in safety hazards to personnel or damage to equipment.



### NOTE

This indication provides additional information to complete a task easily.

## Package Contents

Before installation, please ensure all the items listed in the following table are included in the package.

| Item | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Q'ty |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| 1    | <u>Choosing one :</u> <ul style="list-style-type: none"> <li>RCO-6000-RPL Superior Fanless Industrial Computer</li> <li>RCO-6000-RPL-2E16 Superior Fanless Industrial Computer</li> <li>RCO-6000-RPL-2E16-4B7M Flash Storage Computing</li> <li>RCO-6000-RPL-2E16-2B15M Flash Storage Computing</li> <li>RCO-6000-RPL-2E16-2N15M Flash Storage Computing</li> <li>RCO-6000-RPL-2E16-2PWR GPU Computing System</li> <li>RCO-6000-RPL-4NH AI Edge Inference Computer</li> <li>RCO-6000-RPL-4NS AI Edge Inference Computer</li> <li>RCO-6000-RPL-8NS AI Edge Inference Computer</li> <li>RCO-6000-RPL-GPU GPU Computing System</li> <li>RCO-6000-RPL-2N-GPU GPU Computing System</li> <li>RCO-6000-RPL-4N-GPU GPU Computing System</li> </ul> | 1    |
| 2    | Wall Mount Kit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1    |
| 3    | DVI to VGA Adapter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1    |

## Ordering Information

| Model No.         | Product Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RCO-6000-RPL      | <b>Industrial Computer with LGA 1700 for Intel® Core™ (Series 2) / 14th / 13th / 12th Gen Processors &amp; R680E PCH</b><br><br>Available EDGEBoost I/O : <ul style="list-style-type: none"> <li>4L : 4x LAN Ports</li> <li>4P : 4x LAN PoE Ports</li> <li>8L : 8x LAN Ports</li> <li>D10G : 2x 10Gb Ports</li> <li>4U3 : 4x USB 3.2 Gen 1 Ports</li> <li>8U3 : 8x USB 3.2 Gen 1 Ports</li> <li>4LM12 : 4x M12 LAN Ports</li> <li>4PM12 : 4x M12 LAN PoE Ports</li> <li>8LM12 : 8x M12 LAN Ports</li> <li>5G : 2x 5G SIM Slots</li> <li>2x M.2 B-Key (1x 5G SIM)</li> <li>1x M.2 M-Key (4-Lane)</li> </ul>                                                                                                                                                                                                                                                |
| RCO-6000-RPL-2E16 | <b>Industrial Computer with LGA 1700 for Intel® Core™ (Series 2) / 14th / 13th / 12th Gen Processors &amp; R680E PCH, 1x PCIe x16 (Gen4), 1x PCIe x1 (Gen3)</b><br><br>Available Expansion : <ul style="list-style-type: none"> <li>2E16 : 1x PCIe x16 (Gen4), 1x PCIe x1 (Gen3)</li> <li>2E8 (Optional) : 1x PCIe x16 (8-lane, Gen4), 1x PCIe x8 (8-lane, Gen4)</li> </ul><br>Available EDGEBoost I/O : <ul style="list-style-type: none"> <li>4L : 4x LAN Ports</li> <li>4P : 4x LAN PoE Ports</li> <li>8L : 8x LAN Ports</li> <li>D10G : 2x 10Gb Ports</li> <li>4U3 : 4x USB 3.2 Gen 1 Ports</li> <li>8U3 : 8x USB 3.2 Gen 1 Ports</li> <li>4LM12 : 4x M12 LAN Ports</li> <li>4PM12 : 4x M12 LAN PoE Ports</li> <li>8LM12 : 8x M12 LAN Ports</li> <li>5G : 2x 5G SIM Slots</li> <li>2x M.2 B-Key (1x 5G SIM)</li> <li>1x M.2 M-Key (4-Lane)</li> </ul> |

| Model No.                                                                                                                                                                                 | Product Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>RCO-6000-RPL-2E16-2PWR</b>                                                                                                                                                             | <p><b>AI Edge Inference Computer with LGA 1700 for Intel® Core™ (Series 2) / 14th / 13th / 12th Gen Processors and R680E PCH, 1x PCIe x16 (Gen4), 1x PCIe x1 (Gen3), 2x Power input</b></p> <p>Available Expansion :</p> <ul style="list-style-type: none"> <li>• 2E16 : 1x PCIe x16 (Gen4), 1x PCIe x1 (Gen3)</li> <li>• 2E8 (Optional) : 1x PCIe x16 (8-lane, Gen4), 1x PCIe x8 (8-lane, Gen4)</li> </ul> <p>Available EDGEBoost I/O :</p> <ul style="list-style-type: none"> <li>• 4L : 4x LAN Ports</li> <li>• 4P : 4x LAN PoE Ports</li> <li>• 8L : 8x LAN Ports</li> <li>• D10G : 2x 10Gb Ports</li> <li>• 4U3 : 4x USB 3.2 Gen 1 Ports</li> <li>• 8U3 : 8x USB 3.2 Gen 1 Ports</li> <li>• 4LM12 : 4x M12 LAN Ports</li> <li>• 4PM12 : 4x M12 LAN PoE Ports</li> <li>• 8LM12 : 8x M12 LAN Ports</li> <li>• 5G : 2x 5G SIM Slots</li> <li>• 2x M.2 B-Key (1x 5G SIM)</li> <li>• 1x M.2 M-Key (4-Lane)</li> </ul>                                                                                                                                                                                                                                                                             |
| <p><b>RCO-6000-RPL-2E16-4B7M</b></p> <p>Model optional :</p> <ul style="list-style-type: none"> <li>• <b>RCO-6000-RPL-2E16-2B15M</b></li> <li>• <b>RCO-6000-RPL-2E16-2N15M</b></li> </ul> | <p><b>AI Edge Inference Computer with LGA 1700 for Intel® Core™ (Series 2) / 14th / 13th / 12th Gen Processors &amp; R680E PCH, 2x LAN, 6x HDD, 1x PCIe x16 (Gen4), 1x PCIe x1 (Gen3)</b></p> <p>Available Storage Expansion :</p> <ul style="list-style-type: none"> <li>• 4B7M : 4 Bay 7mm Hot-swappable 2.5" SATA HDD/SSD Bay</li> <li>• 2B15M : 2 Bay 15mm Hot-swappable 2.5" SATA HDD/SSD Bay</li> <li>• 2N15M : 2 Bay 15mm Hot-swappable 2.5" NVMe Bay</li> </ul> <p>Available Expansion :</p> <ul style="list-style-type: none"> <li>• 2E16 : 1x PCIe x16 (Gen4), 1x PCIe x1 (Gen3)</li> <li>• 2E8 (Optional) : 1x PCIe x16 (8-lane, Gen4), 1x PCIe x8 (8-lane, Gen4)</li> </ul> <p>Available EDGEBoost I/O :</p> <ul style="list-style-type: none"> <li>• 4L : 4x LAN Ports</li> <li>• 4P : 4x LAN PoE Ports</li> <li>• 8L : 8x LAN Ports</li> <li>• D10G : 2x 10Gb Ports</li> <li>• 4U3 : 4x USB 3.2 Gen 1 Ports</li> <li>• 8U3 : 8x USB 3.2 Gen 1 Ports</li> <li>• 4LM12 : 4x M12 LAN Ports</li> <li>• 4PM12 : 4x M12 LAN PoE Ports</li> <li>• 8LM12 : 8x M12 LAN Ports</li> <li>• 5G : 2x 5G SIM Slots</li> <li>• 2x M.2 B-Key (1x 5G SIM)</li> <li>• 1x M.2 M-Key (4-Lane)</li> </ul> |

| Model No.        | Product Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RCO-6000-RPL-4NS | <p><b>AI Edge Inference Computer with LGA 1700 for Intel® Core™ (Series 2) / 14th / 13th / 12th Gen Processors &amp; R680E PCH, 4x U.2 15mm NVMe, Software RAID</b></p> <p>Available EDGEBoost I/O :</p> <ul style="list-style-type: none"> <li>• 4L : 4x LAN Ports</li> <li>• 4P : 4x LAN PoE Ports</li> <li>• 8L : 8x LAN Ports</li> <li>• D10G : 2x 10Gb Ports</li> <li>• 4U3 : 4x USB 3.2 Gen 1 Ports</li> <li>• 8U3 : 8x USB 3.2 Gen 1 Ports</li> <li>• 4LM12 : 4x M12 LAN Ports</li> <li>• 4PM12 : 4x M12 LAN PoE Ports</li> <li>• 8LM12 : 8x M12 LAN Ports</li> <li>• 5G : 2x 5G SIM Slots</li> <li>• 2x M.2 B-Key (1x 5G SIM)</li> <li>• 1x M.2 M-Key (4-Lane)</li> </ul>                              |
| RCO-6000-RPL-4NH | <p><b>AI Edge Inference Computer with LGA 1700 for Intel® Core™ (Series 2) / 14th / 13th / 12th Gen Processors &amp; R680E PCH, 4x U.2 15mm NVMe, Hardware RAID</b></p> <p>Available EDGEBoost I/O :</p> <ul style="list-style-type: none"> <li>• 4L : 4x LAN Ports</li> <li>• 4P : 4x LAN PoE Ports</li> <li>• 8L : 8x LAN Ports</li> <li>• D10G : 2x 10Gb Ports</li> <li>• 4U3 : 4x USB 3.2 Gen 1 Ports</li> <li>• 8U3 : 8x USB 3.2 Gen 1 Ports</li> <li>• 4LM12 : 4x M12 LAN Ports</li> <li>• 4PM12 : 4x M12 LAN PoE Ports</li> <li>• 8LM12 : 8x M12 LAN Ports</li> <li>• 5G : 2x 5G SIM Slots</li> <li>• 2x M.2 B-Key (1x 5G SIM)</li> <li>• 1x M.2 M-Key (4-Lane)</li> </ul>                              |
| RCO-6000-RPL-8NS | <p><b>AI Edge Inference Computer with LGA 1700 for Intel® Core™ (Series 2) / 14th / 13th / 12th Gen Processors &amp; R680E PCH, Flash Storage 8x U.2 NVMe Bay, 1x PCIe x4 (1-lane) Expansion</b></p> <p>Available EDGEBoost I/O :</p> <ul style="list-style-type: none"> <li>• 4L : 4x LAN Ports</li> <li>• 4P : 4x LAN PoE Ports</li> <li>• 8L : 8x LAN Ports</li> <li>• D10G : 2x 10Gb Ports</li> <li>• 4U3 : 4x USB 3.2 Gen 1 Ports</li> <li>• 8U3 : 8x USB 3.2 Gen 1 Ports</li> <li>• 4LM12 : 4x M12 LAN Ports</li> <li>• 4PM12 : 4x M12 LAN PoE Ports</li> <li>• 8LM12 : 8x M12 LAN Ports</li> <li>• 5G : 2x 5G SIM Slots</li> <li>• 2x M.2 B-Key (1x 5G SIM)</li> <li>• 1x M.2 M-Key (4-Lane)</li> </ul> |

## GPU Computing System

| Model No.                  | Product Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>RCO-6000-RPL-GPU</b>    | <p><b>AI Edge Inference Computer with LGA 1700 for Intel® Core™ (Series 2) / 14th / 13th / 12th Gen Processors and R680E PCH, GPU integrated</b></p> <p>Available EDGEBoost I/O :</p> <ul style="list-style-type: none"> <li>4L : 4x LAN Ports</li> <li>4P : 4x LAN PoE Ports</li> <li>8L : 8x LAN Ports</li> <li>D10G : 2x 10Gb Ports</li> <li>4U3 : 4x USB 3.2 Gen 1 Ports</li> <li>8U3 : 8x USB 3.2 Gen 1 Ports</li> <li>4LM12 : 4x M12 LAN Ports</li> <li>4PM12 : 4x M12 LAN PoE Ports</li> <li>8LM12 : 8x M12 LAN Ports</li> <li>5G : 2x 5G SIM Slots</li> <li>2x M.2 B-Key (1x 5G SIM)</li> <li>1x M.2 M-Key (4-Lane)</li> </ul>                   |
| <b>RCO-6000-RPL-2N-GPU</b> | <p><b>AI Edge Inference Computer with LGA 1700 for Intel® Core™ (Series 2) / 14th / 13th / 12th Gen Processors &amp; R680E PCH, 2 Bay U.2 15mm, GPU integrated</b></p> <p>Available EDGEBoost I/O :</p> <ul style="list-style-type: none"> <li>4L : 4x LAN Ports</li> <li>4P : 4x LAN PoE Ports</li> <li>8L : 8x LAN Ports</li> <li>D10G : 2x 10Gb Ports</li> <li>4U3 : 4x USB 3.2 Gen 1 Ports</li> <li>8U3 : 8x USB 3.2 Gen 1 Ports</li> <li>4LM12 : 4x M12 LAN Ports</li> <li>4PM12 : 4x M12 LAN PoE Ports</li> <li>8LM12 : 8x M12 LAN Ports</li> <li>5G : 2x 5G SIM Slots</li> <li>2x M.2 B-Key (1x 5G SIM)</li> <li>1x M.2 M-Key (4-Lane)</li> </ul> |
| <b>RCO-6000-RPL-4N-GPU</b> | <p><b>AI Edge Inference Computer with LGA 1700 for Intel® Core™ (Series 2) / 14th / 13th / 12th Gen Processors &amp; R680E PCH, 4 Bay U.2 7mm, GPU integrated</b></p> <p>Available EDGEBoost I/O :</p> <ul style="list-style-type: none"> <li>4L : 4x LAN Ports</li> <li>4P : 4x LAN PoE Ports</li> <li>8L : 8x LAN Ports</li> <li>D10G : 2x 10Gb Ports</li> <li>4U3 : 4x USB 3.2 Gen 1 Ports</li> <li>8U3 : 8x USB 3.2 Gen 1 Ports</li> <li>4LM12 : 4x M12 LAN Ports</li> <li>4PM12 : 4x M12 LAN PoE Ports</li> <li>8LM12 : 8x M12 LAN Ports</li> <li>5G : 2x 5G SIM Slots</li> <li>2x M.2 B-Key (1x 5G SIM)</li> <li>1x M.2 M-Key (4-Lane)</li> </ul>  |

## Optional Accessories

| Model No.        | Product Description                                                     |
|------------------|-------------------------------------------------------------------------|
| 1-E09A28001      | Adapter AC/DC 24V/11.67A 280W with 5pin Terminal Block Plug 5.0mm Pitch |
| 1-E09A36003      | Adapter AC/DC 48V/7.5A 360W with 5pin Terminal Block Plug 5.0mm Pitch   |
| 999930           | Power Cord, 3-pin US Type, 180cm                                        |
| 1-TPCD00002      | Power Cord, European Type, 180cm                                        |
| 1-TPCD00001      | Power Cord, 3-pin UK Type, 180cm                                        |
| 3-RC6300EXFAN    | External Double FAN KIT (for Top Cover)                                 |
| 3-EXFANK01S10-S0 | External Double Fan Module Kit (for Product shipment)                   |
| 3-EXFANK01S10-S1 | External Double Fan Module Kit (for system assembly)                    |
| 1-TFAN00005      | FAN Extension Cable                                                     |

## Chapter 1

# Product Introductions

## 1.1 Overview

The Superior Embedded Systems RCO-6000-RPL series are designed with rich I/O, high flexibility and easy expansion capabilities which are ideal for diverse industrial applications. Support 12/13/14<sup>th</sup> Gen. Intel® Core™ i9/i7/i3 or Intel® Pentium®/Intel® Celeron® Desktop processor, RCO-6000-RPL Series is an extreme features integration, outstanding system performance, versatile I/O connections, and rugged reliability fanless embedded systems. It offers dramatically enhanced CPU and graphics performance, wide power and feature advanced features, rich connectivity interfaces, wide range power input, and high reliability even operating in temperature extremes.

| Model No.                                                                                           | Rear Panel                                                                          | Front Panel                                                                           |
|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| RCO-6000-RPL                                                                                        |    |    |
| RCO-6000-RPL-2E16<br>1x PCIe x16 (Gen4), 1x PCIe x1 (Gen3)                                          |  |  |
| RCO-6000-RPL-2E16-2PWR<br>1x PCIe x16 (Gen4), 1x PCIe x1 (Gen3),<br>2x Power input                  |  |  |
| RCO-6000-RPL-2E16-4B7M<br>1x PCIe x16 (Gen4), 1x PCIe x1 (Gen3),<br>4x Removable 2.5" SATA HDD Bay  |  |  |
| RCO-6000-RPL-2E16-2B15M<br>1x PCIe x16 (Gen4), 1x PCIe x1 (Gen3),<br>2x Removable 2.5" SATA HDD Bay |  |  |
| RCO-6000-RPL-2E16-2N15M<br>1x PCIe x16 (Gen4), 1x PCIe x1 (Gen3),<br>2x Removable 2.5" U.2 NVMe Bay |  |  |

| Model No.                                                    | Rear Panel                                                                          | Front Panel                                                                           |
|--------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>RCO-6000-RPL-4NS</b><br>4x U.2 15mm NVMe, Software RAID   |    |    |
| <b>RCO-6000-RPL-4NH</b><br>4 Bay U.2 15mm, Hardware RAID     |    |    |
| <b>RCO-6000-RPL-8NS</b><br>8 Bay U.2 7mm                     |   |   |
| Model No.                                                    | Rear Panel                                                                          | Front Panel                                                                           |
| <b>RCO-6000-RPL-GPU</b><br>GPU integrated                    |  |  |
| <b>RCO-6000-RPL-2N-GPU</b><br>2 Bay U.2 15mm, GPU integrated |  |  |
| <b>RCO-6000-RPL-4N-GPU</b><br>4 Bay U.2 7mm, GPU integrated  |  |  |

### 1.1.1 Key Features

- Intel® Core™ Processors (BTL, Series 2) / 14th / 13th / 12th Gen RPL/ADL Series, LGA1700Intel®
- R680E Chipset
- 2x DDR5 4800/5600 MT/s SODIMM. Max. up to 96GB
- Triple Independent Display by 1x DVI-I and 2x DisplayPort
- 2x Intel® 2.5 GbE supporting Wake-on-LAN and PXE
- 1x Full-size Mini PCIe for communication or expansion modules, 2x SIM socket
- 2x 2.5" SATA HDD Bay (1x Internal) and with RAID 0, 1 support
- 1x M.2 (E Key, PCIe x1, USB 2.0, 2230)
- 1x M.2 (B Key, 2242/3042/3052, PCIe x2, Support AI Module/NVMe Storage, PCIe x1 & USB 3.2 Gen1, Support 4G/5G)
- 6x RS-232/422/485 (4x internal), 8x USB 3.2 Gen 2
- 8x DI + 8x DO with isolation
- 9 to 48VDC Wide Range Power Input Supporting AT/ATX Mode
- Wide Operating Temperature
- TPM 2.0 Supported

| Features                                                                                                     | Model No.                                                                                                                                                                                                       |
|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1x PCIe x16 (Gen4), 1x PCIe x1 (Gen3) Expansion                                                              | <ul style="list-style-type: none"> <li>• RCO-6000-RPL-2E16</li> <li>• RCO-6000-RPL-2E16-2PWR</li> <li>• RCO-6000-RPL-2E16-4B7M</li> <li>• RCO-6000-RPL-2E16-2B15M</li> <li>• RCO-6000-RPL-2E16-2N15M</li> </ul> |
| 1x PCIe x16 (8-lane, Gen4), 1x PCIe x8 (8-lane, Gen4) Expansion                                              | <ul style="list-style-type: none"> <li>• RCO-6000-RPL-2E8</li> <li>• RCO-6000-RPL-2E8-2PWR</li> <li>• RCO-6000-RPL-2E8-4B7M</li> <li>• RCO-6000-RPL-2E8-2B15M</li> <li>• RCO-6000-RPL-2E8-2N15M</li> </ul>      |
| 2x Power input                                                                                               | <ul style="list-style-type: none"> <li>• RCO-6000-RPL-2E16-2PWR</li> <li>• RCO-6000-RPL-2E8-2PWR</li> </ul>                                                                                                     |
| Storage Expansion:<br>4x 7mm Hot-swappable 2.5" SATA HDD/SSD Bay<br>Support RAID 0, 1, 5, 10                 | <ul style="list-style-type: none"> <li>• RCO-6000-RPL-2E16-4B7M</li> <li>• RCO-6000-RPL-2E8-4B7M</li> </ul>                                                                                                     |
| Storage Expansion:<br>2x 15mm Hot-swappable 2.5" SATA HDD/SSD Bay<br>Support RAID 0, 1, 5, 10                | <ul style="list-style-type: none"> <li>• RCO-6000-RPL-2E16-2B15M</li> <li>• RCO-6000-RPL-2E8-2B15M</li> </ul>                                                                                                   |
| Storage Expansion:<br>2x 15mm Hot-swappable 2.5" U.2 NVMe Bay, Support RAID 0, 1                             | <ul style="list-style-type: none"> <li>• RCO-6000-RPL-2E16-2N15M</li> <li>• RCO-6000-RPL-2E8-2N15M</li> </ul>                                                                                                   |
| Storage Expansion:<br>2x Removable 2 Bay NVMe SSD Module (15mm)<br>with RAID 0, 1, 5, 10 support             | <ul style="list-style-type: none"> <li>• RCO-6000-RPL-4NS</li> </ul>                                                                                                                                            |
| Storage Expansion:<br>2x Removable 2 Bay NVMe SSD Module (15mm)<br>with Hardware RAID 0, 1, 5, 6, 10 support | <ul style="list-style-type: none"> <li>• RCO-6000-RPL-4NH</li> </ul>                                                                                                                                            |
| Storage Expansion:<br>2x Removable 4 Bay NVMe SSD Module (7mm)<br>with RAID 0, 1, 5, 10 support              | <ul style="list-style-type: none"> <li>• RCO-6000-RPL-8NS</li> </ul>                                                                                                                                            |
| GPU integrated                                                                                               | <ul style="list-style-type: none"> <li>• RCO-6000-RPL-GPU</li> <li>• RCO-6000-RPL-2N-GPU</li> <li>• RCO-6000-RPL-4N-GPU</li> </ul>                                                                              |

## 1.2 Hardware Specification

### System

#### Processor

#### Intel® Core™ Processors (BTL, Series 2) / 14th / 13th / 12th Gen RPL/ADL Series, LGA1700

|                                               |                       |                                                                                                                                  |            |           |            |           |            |           |            |
|-----------------------------------------------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------|------------|-----------|------------|-----------|------------|-----------|------------|
| Intel® Core™<br>Series 2<br>(Bartlett Lake-S) | CPU Model             | 251TE (Core™ 7) 221TE (Core™ 5) 201TE (Core™ 3)                                                                                  |            |           |            |           |            |           |            |
|                                               | P + E Cores           | 8P + 16E                                                                                                                         | 6P + 8E    | 4P        |            |           |            |           |            |
|                                               | P-core Base Frequency | 1.4 GHz                                                                                                                          | 1.8 GHz    | 2.9 GHz   |            |           |            |           |            |
|                                               | L3 Cache              | 36 MB                                                                                                                            | 24 MB      | 12 MB     |            |           |            |           |            |
|                                               | Processor Base Power  | 45W                                                                                                                              | 45W        | 45W       |            |           |            |           |            |
| Intel® 14th Gen<br>(Raptor Lake-S Refresh)    | CPU Model             | i9-14900                                                                                                                         | i9-14900T  | i7-14700  | i7-14700T  | i5-14500  | i5-14500T  | i3-14100  | i3-14100T  |
|                                               | Total Cores (P + E)   | 8P + 16E                                                                                                                         | 8P + 16E   | 8P + 12E  | 8P + 12E   | 6P + 8E   | 6P + 8E    | 4P        | 4P         |
|                                               | P-core Base Frequency | 2 GHz                                                                                                                            | 1.1 GHz    | 2.1 GHz   | 1.3 GHz    | 2.6 GHz   | 1.7 GHz    | 3.5 GHz   | 2.7 GHz    |
|                                               | L3 Cache              | 36 MB                                                                                                                            | 36 MB      | 33 MB     | 33 MB      | 24 MB     | 24 MB      | 12 MB     | 12 MB      |
|                                               | Processor Base Power  | 65W                                                                                                                              | 35W        | 65W       | 35W        | 65W       | 35W        | 60W       | 35W        |
| Intel® 13th Gen<br>(Raptor Lake-S)            | CPU Model             | i9-13900E                                                                                                                        | i9-13900TE | i7-13700E | i7-13700TE | i5-13500E | i5-13500TE | i3-13100E | i3-13100TE |
|                                               | Total Cores (P + E)   | 8P + 16E                                                                                                                         | 8P + 16E   | 8P + 8E   | 8P + 8E    | 6P + 8E   | 6P + 8E    | 4P        | 4P         |
|                                               | P-core Base Frequency | 1.80 GHz                                                                                                                         | 1.00 GHz   | 1.90 GHz  | 1.10 GHz   | 2.40 GHz  | 1.30 GHz   | 3.30 GHz  | 2.40 GHz   |
|                                               | L3 Cache              | 36 MB                                                                                                                            | 36 MB      | 30 MB     | 30 MB      | 24 MB     | 24 MB      | 12 MB     | 12 MB      |
|                                               | Processor Base Power  | 65W                                                                                                                              | 35W        | 65W       | 35W        | 65W       | 35W        | 60W       | 35W        |
| Intel® 12th Gen<br>(Alder Lake-S)             | CPU Model             | i9-12900E                                                                                                                        | i9-12900TE | i7-12700E | i7-12700TE | i5-12500E | i5-12500TE | i3-12100E | i3-12100TE |
|                                               | Total Cores (P + E)   | 8P + 8E                                                                                                                          | 8P + 8E    | 8P + 4E   | 8P + 4E    | 6P        | 6P         | 4P        | 4P         |
|                                               | P-core Base Frequency | 2.30 GHz                                                                                                                         | 1.10 GHz   | 2.10 GHz  | 1.40 GHz   | 2.90 GHz  | 1.90 GHz   | 3.20 GHz  | 2.10 GHz   |
|                                               | L3 Cache              | 30 MB                                                                                                                            | 30 MB      | 25 MB     | 25 MB      | 18 MB     | 18 MB      | 12 MB     | 12 MB      |
|                                               | Processor Base Power  | 65W                                                                                                                              | 35W        | 65W       | 35W        | 65W       | 35W        | 60W       | 35W        |
| System Chipset                                |                       | Intel® R680E Express Chipset                                                                                                     |            |           |            |           |            |           |            |
| LAN Chipset                                   |                       | 2.5 GbE1: Intel I226, Support Wake-on-LAN and PXE, Support TSN<br>2.5 GbE2: Intel I226, Support Wake-on-LAN and PXE, Support TSN |            |           |            |           |            |           |            |
| Audio Codec                                   |                       | Realtek ALC888S                                                                                                                  |            |           |            |           |            |           |            |
| System Memory                                 |                       | 2x 262-Pin DDR5 4800/5600 MT/s SODIMM.<br>Max. up to 96GB (ECC and Non-ECC)                                                      |            |           |            |           |            |           |            |
| Graphics                                      |                       | Intel® UHD Graphics 770/710                                                                                                      |            |           |            |           |            |           |            |
| BIOS                                          |                       | AMI 256Mbit SPI BIOS                                                                                                             |            |           |            |           |            |           |            |
| Watchdog                                      |                       | Software Programmable Supports 1~255 sec. System Reset                                                                           |            |           |            |           |            |           |            |
| TPM                                           |                       | TPM 2.0                                                                                                                          |            |           |            |           |            |           |            |

### Display

|                  |                                                                        |
|------------------|------------------------------------------------------------------------|
| DisplayPort      | 2x DisplayPort 1.4a, Support resolution 5120 x 3200, Up to 7680 x 4320 |
| DVI              | 1x DVI-I, support resolution 1920 x 1200                               |
| Multiple Display | Triple Display                                                         |
| VGA              | Yes (by optional split cable)                                          |

| Storage                                      | M.2                                                                                                                           | SIM Socket                                        | SATA SSD/HDD                                                                       |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|------------------------------------------------------------------------------------|
| RCO-6000-RPL                                 | 1x M.2 B Key,<br>2242/3042/3052<br>(PCIe x2, Support AI<br>Module/NVMe Storage)<br>(PCIe x1 & USB 3.2<br>Gen1, Support 4G/5G) | 2x External SIM<br>socket<br>(Mini PCIe attached) | 1x Internal 2.5" SATA/SSD HDD Bay (support H=9mm)                                  |
| RCO-6000-RPL-2E16                            |                                                                                                                               |                                                   | 1x Removable 2.5" SATA HDD Bay (support H=7mm, Hot-swappable)                      |
| RCO-6000-RPL-2E16-2PWR /<br>RCO-6000-RPL-GPU |                                                                                                                               |                                                   | Support RAID 0, 1                                                                  |
| RCO-6000-RPL-2E16-4B7M                       |                                                                                                                               |                                                   | 1x Internal 2.5" SATA/SSD HDD Bay (support H=9mm)                                  |
| RCO-6000-RPL-2E16-2B15M                      |                                                                                                                               |                                                   | 5x 7mm Hot-swappable 2.5" SATA HDD/SSD Bay<br>Support RAID 0, 1, 5, 10             |
| RCO-6000-RPL-2E16-2N15M                      |                                                                                                                               |                                                   | 1x Internal 2.5" SATA/SSD HDD Bay (support H=9mm)                                  |
| RCO-6000-RPL-4NS                             |                                                                                                                               |                                                   | 1x 7mm, 2x 15mm Hot-swappable 2.5" SATA<br>HDD/SSD Bay<br>Support RAID 0, 1, 5, 10 |
| RCO-6000-RPL-4NH                             |                                                                                                                               |                                                   |                                                                                    |
| RCO-6000-RPL-8NS                             |                                                                                                                               |                                                   |                                                                                    |
| RCO-6000-RPL-2N-GPU<br>RCO-6000-RPL-4N-GPU   |                                                                                                                               |                                                   | 1x Internal 2.5" SATA/SSD HDD Bay (support H=9mm)                                  |
|                                              |                                                                                                                               |                                                   | 1x Removable 2.5" SATA HDD Bay (support H=7mm, Hot-swappable)                      |
|                                              |                                                                                                                               |                                                   | Support RAID 0, 1                                                                  |

## NVMe Storage

|                         |                                                                                             |
|-------------------------|---------------------------------------------------------------------------------------------|
| RCO-6000-RPL-2E16-2N15M | 2x Removable 2.5" U.2 NVMe Bay (support H=15mm, Hot-swappable, Optional) Support RAID 0, 1  |
| RCO-6000-RPL-4NS        | 2x Removable 2 Bay NVMe SSD Module (15mm) with RAID 0, 1, 5, 10 support                     |
| RCO-6000-RPL-4NH        | 2x Removable 2 Bay NVMe SSD Module (15mm) with Hardware RAID 0, 1, 5, 6, 10 support         |
| RCO-6000-RPL-8NS        | 2x Removable 4 Bay NVMe SSD Module (7mm) with RAID 0, 1, 5, 10 support                      |
| RCO-6000-RPL-2N-GPU     | 1x Removable Cannister Brick with 2.5" 2 Bay U.2 NVMe SSD (Support H=15mm) with RAID 0, 1   |
| RCO-6000-RPL-4N-GPU     | 1x Removable Cannister Brick with 2.5" 4 Bay U.2 NVMe SSD (Support H=7mm) with RAID 0, 1, 5 |

## Expansion

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| M.2                     | 1x M.2 (E Key, PCIe x1, USB 2.0, 2230)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Mini PCIe               | 1x Full-size Mini PCIe (1x shared by 1x mSATA)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| PCIe                    | <ul style="list-style-type: none"> <li>1x PCIe x16 (Gen4), 1x PCIe x1 (Gen3) : Model No<br/>RCO-6000-RPL-2E16<br/>RCO-6000-RPL-2E16-2PWR<br/>RCO-6000-RPL-2E16-4B7M<br/>RCO-6000-RPL-2E16-2B15M<br/>RCO-6000-RPL-2E16-2N15M</li> <li>1x PCIe x16 (8-lane, Gen4), 1x PCIe x8 (8-lane, Gen4) : Model No<br/>RCO-6000-RPL-2E8<br/>RCO-6000-RPL-2E8-2PWR<br/>RCO-6000-RPL-2E8-4B7M<br/>RCO-6000-RPL-2E8-2B15M<br/>RCO-6000-RPL-2E8-2N15M</li> </ul>                                                                                                                                                                                                               |
| Expansion EDGEBoost I/O | Occupied One EDGEBoost I/O Slot: <ul style="list-style-type: none"> <li>4-port GbE module with Intel® I350 Chipset, RJ-45 or M12 connector (PoE optional)</li> <li>2-Port RJ45 10GbE with Intel X710 Chipset</li> <li>4-Port USB with Renesas uPD720201K8 host controller (share PCIe Gen2 x1 bandwidth)</li> <li>1x M.2 for 5G (B Key, PCIe x1, USB 3.0, 3042/3052), Including 2x SIM socket, 1x SIM switch (1x EDGEBoost I/O Slot Only)</li> <li>1x M.2 B-Key, 2242 for AI/NVMe Module, 1x M.2 B-Key, 3042/3052 for 5G/AI/NVMe Module (1x EDGEBoost I/O Slot Only)</li> <li>1x M.2 M-Key, PCIe x4 Lane, 2242/2260 for AI Module and NVMe Storage</li> </ul> |
| Ethernet                | <ul style="list-style-type: none"> <li>4x 802.3at Compliant PoE Port, The Maximum DC Power Delivery on Each PoE is 25.5W [RCO-6000-RPL-4P Series and RCO-6000-RPL-4PM12 Series only]</li> <li>8x 802.3at Compliant PoE Port, The Maximum DC Power Delivery on Each PoE is 25.5W. 80W total power budget [RCO-6000-RPL-8P Series and RCO-6000-RPL-8PM12 Series only]</li> </ul>                                                                                                                                                                                                                                                                                |

## Operating System

|         |               |
|---------|---------------|
| Windows | Windows 10/11 |
| Linux   | Linux kernel  |

## I/O

|                       |                                                                                                                                          |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Audio                 | 1x Mic-in, 1x Line-out                                                                                                                   |
| CAN                   | 2x CAN 2.0 A/B 2-pin Internal header                                                                                                     |
| COM                   | 2x RS-232/422/485 ; 6x RS-232/422/485 (internal)                                                                                         |
| DIO                   | 8 in / 8 out (Isolated)                                                                                                                  |
| LAN                   | 2x RJ45                                                                                                                                  |
| EDGEBoost I/O Bracket | 2x EDGEBoost I/O Bracket (By mini PCIe interface)                                                                                        |
| USB                   | 8x USB 3.2 Gen 2 (10 Gbps)<br>1x USB 2.0 (internal)                                                                                      |
| Others                | 5x WiFi Antenna Holes<br>1x Power Switch, 1x AT/ATX Switch, 1x Remote Power On/Off<br>1x PC/Car Mode Switch<br>1x Removable CMOS Battery |

## Power

|                        |                                                                                                                  |                                                                            |
|------------------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Power Adapter          | Optional AC/DC 24V/11.67A, 280W (GPU/Card Expansion)<br>Optional AC/DC 24V/15A, 360W (i9 CPU/GPU/Card Expansion) |                                                                            |
| Power Mode             | AT, ATX                                                                                                          |                                                                            |
| Power Ignition Sensing | Power Ignition Management                                                                                        |                                                                            |
| Power Supply Voltage   | <ul style="list-style-type: none"> <li><b>RCO-6000-RPL series</b></li> </ul>                                     |                                                                            |
|                        | Power input                                                                                                      | 9~48Vdc (Bare Bom)<br>12~48VDC (with GPU card)<br>14~48VDC, 24.4~6.5A (UL) |
|                        | <ul style="list-style-type: none"> <li><b>RCO-6000-RPL series (with Bottom module)</b></li> </ul>                |                                                                            |
|                        | Power input (Top)                                                                                                | 9~48VDC (Bare Bom)<br>14~48VDC, 24.4~6.5A (UL)                             |
|                        | (Bottom module)                                                                                                  | 12~48VDC (with GPU card)<br>15~48VDC, 24.4~4.58A (UL)                      |

|                  |                                                                                                                                                                                                                            |  |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Power Connector  | <b>RCO-6000-RPL / RCO-6000-RPL-2E16 / RCO-6000-RPL-2E16-4B7M :</b><br>5-pin Terminal Block                                                                                                                                 |  |
|                  | <b>RCO-6000-RPL-2E16-2PWR / RCP-6000-RPL-GPU :</b><br>5-pin Terminal Block<br>4-pin Terminal Block for GPU Expansion                                                                                                       |  |
|                  | <b>RCO-6000-RPL-4NS / RCO-6000-RPL-4NH / RCO-6000-RPL-8NS / RCO-6000-RPL-2N-GPU / RCO-6000-RPL-4N-GPU :</b><br>5-pin Terminal Block<br>4-pin Terminal Block for NVMe EDGEBoost Node<br>(12V requires 4-pin terminal block) |  |
| Power Protection | OVP (Over Voltage Protection);<br>OCP (Over Current Protection)<br>Reverse Protection                                                                                                                                      |  |

## Environment

|                           |                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Temp.           | -25°C to 70°C (35W/45W CPU)<br>-25°C to 60°C (65W CPU)<br><b>RCO-6000-RPL-2E16-2PWR / RCO-6000-RPL-4NH / RCO-6000-RPL-4NS / RCO-6000-RPL-8NS :</b><br>-25°C to 60°C<br><b>RCO-6000-RPL-GPU / RCO-6000-RPL-2N-GPU / RCO-6000-RPL-4N-GPU :</b><br>-25°C to 45°C                                                                                   |
| Storage Temp.             | -30°C to 85°C                                                                                                                                                                                                                                                                                                                                   |
| Relative Humidity         | 10% to 95% (non-condensing)                                                                                                                                                                                                                                                                                                                     |
| Standards / Certification | CE, FCC Class A                                                                                                                                                                                                                                                                                                                                 |
| Vibration                 | With SSD: 5 Grms, 5 - 500 Hz, 0.5 hr/axis<br>With HDD: 1 Grms, 5 - 500 Hz, 0.5 hr/axis<br><br><b>RCO-6000-RPL-2E16-2PWR / RCO-6000-RPL-4NS / RCO-6000-RPL-4NH / RCO-6000-RPL-8NS / RCO-6000-RPL-GPU / RCO-6000-RPL-2N-GPU / RCO-6000-RPL-4N-GPU :</b><br>With SSD: 3 Grms, 5 - 500 Hz, 0.5 hr/axis<br>With HDD: 1 Grms, 5 - 500 Hz, 0.5 hr/axis |
| Shock                     | With SSD: 50G, half sine, 11ms                                                                                                                                                                                                                                                                                                                  |

## Physical

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Construction | Extruded Aluminum with Heavy Duty Metal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Dimension    | <ul style="list-style-type: none"> <li><b>RCO-6000-RPL :</b><br/>240 (W) x 261 (D) x 79 (H) mm</li> <li><b>RCO-6000-RPL-2E16 / RCO-6000-RPL-2E16-4B7M / RCO-6000-RPL-2E16-2B15M / RCO-6000-RPL-2E16-2N15M / RCO-6000-RPL-2E16-2PWR / RCO-6000-RPL-GPU :</b><br/>240 (W) x 261 (D) x 126.8 (H) mm</li> <li><b>RCO-6000-RPL-4NS / RCO-6000-RPL-4NH / RCO-6000-RPL-8NS / RCO-6000-RPL-2N-GPU / RCO-6000-RPL-4N-GPU :</b><br/>240 (W) x 261 (D) x 166.9 (H) mm</li> </ul>                                                                                                                                                            |
| Weight       | <ul style="list-style-type: none"> <li><b>RCO-6000-RPL :</b> 4.5 kg</li> <li><b>RCO-6000-RPL-2E16 :</b> 6.5 ~ 7.5 kg</li> <li><b>RCO-6000-RPL-2E16-2PWR :</b> 6.5 ~ 7.5 kg</li> <li><b>RCO-6000-RPL-2E16-4B7M :</b> 6.5 ~ 7.5 kg</li> <li><b>RCO-6000-RPL-2E16-2B15M :</b> 6.5 ~ 7.5 kg</li> <li><b>RCO-6000-RPL-2E16-2N15M :</b> 6.5 ~ 7.5 kg</li> <li><b>RCO-6000-RPL-4NH :</b> 10.5 ~ 11.5 kg</li> <li><b>RCO-6000-RPL-4NS :</b> 10 ~ 11 kg</li> <li><b>RCO-6000-RPL-8NS :</b> 10.5 ~ 11.5 kg</li> <li><b>RCO-6000-RPL-GPU :</b> 7 ~ 8.5 kg</li> <li><b>RCO-6000-RPL-2N-GPU / RCO-6000-RPL-4N-GPU :</b> 11 ~ 12 kg</li> </ul> |
| Mounting     | Wall Mounting                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

\* All specifications and photos are subject to change without notice.

## 1.3 System I/O

### 1.3.1 RCO-6000-RPL

### Front Panel

**ATX power on/off switch**

Press to power-on or power-off the system

**Power LED**

Indicates the power status of the system

**HDD LED**

Indicates the status of the hard drive

**Antenna hole**

Used to connect an antenna for optional Mini-PCIe WiFi module

**USB 3.2 Gen 2 port (10 Gbps)**

Used to connect USB 3.2 device

**Removable HDD**

Removable 2.5" SATA HDD Bay  
(support H=7mm, hot-swappable)  
Support RAID 0, 1

**AT/ATX mode select switch**

Used to select AT or ATX power mode

**Clear CMOS**

Used to clear CMOS

**SIM card**

Used to insert SIM card

**Line-out**

Used to connect a speaker

**Mic-in**

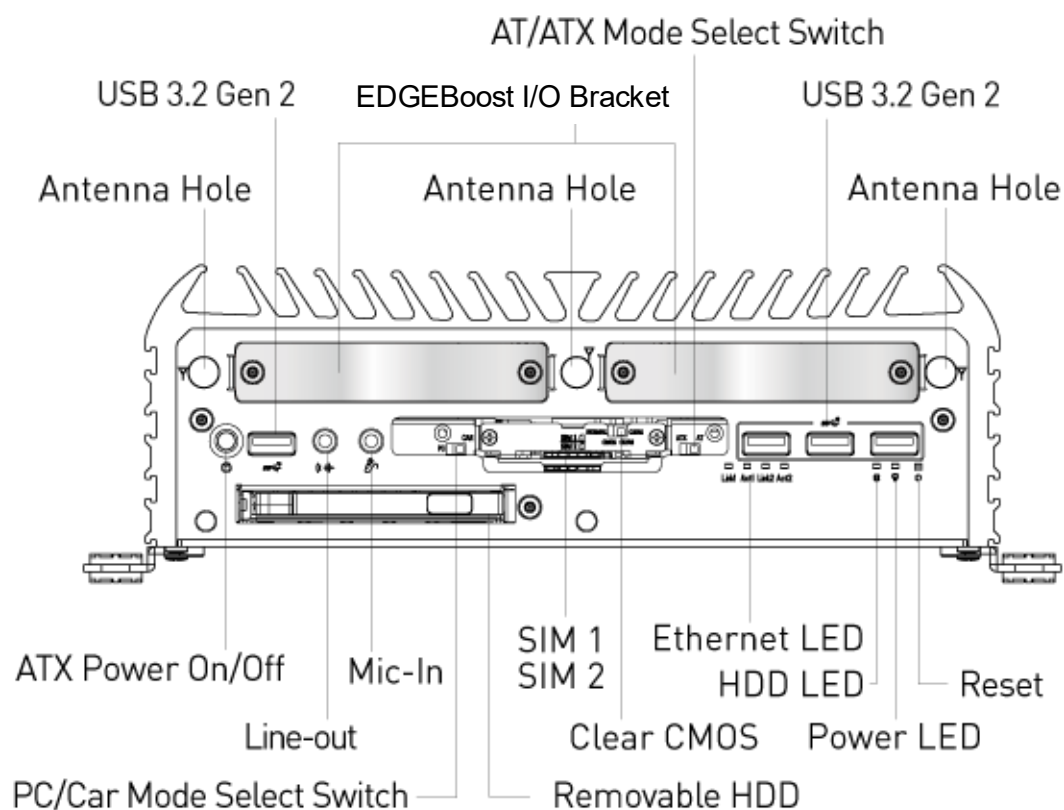
Used to connect a microphone

**Remote Power on/off Terminal Block**

Used to plug a remote power on/off terminal block

**PC/Car mode select switch**

Used to select PC or Car mode

**EDGEBoost I/O bracket (optional)**


## RCO-6000-RPL

## Rear Panel

### DVI-I port

Used to connect a DVI monitor or connect optional split cable for dual display mode

### Digital I/O Terminal Block

The Digital I/O terminal block supports 8 digital input and 8 digital output

### DisplayPort

Used to connect a DisplayPort monitor

### COM port

COM1 ~ COM2 support RS232/422/485 serial device

### USB 3.2 Gen 2 port (10 Gbps)

Used to connect USB 3.2 device

### LAN port

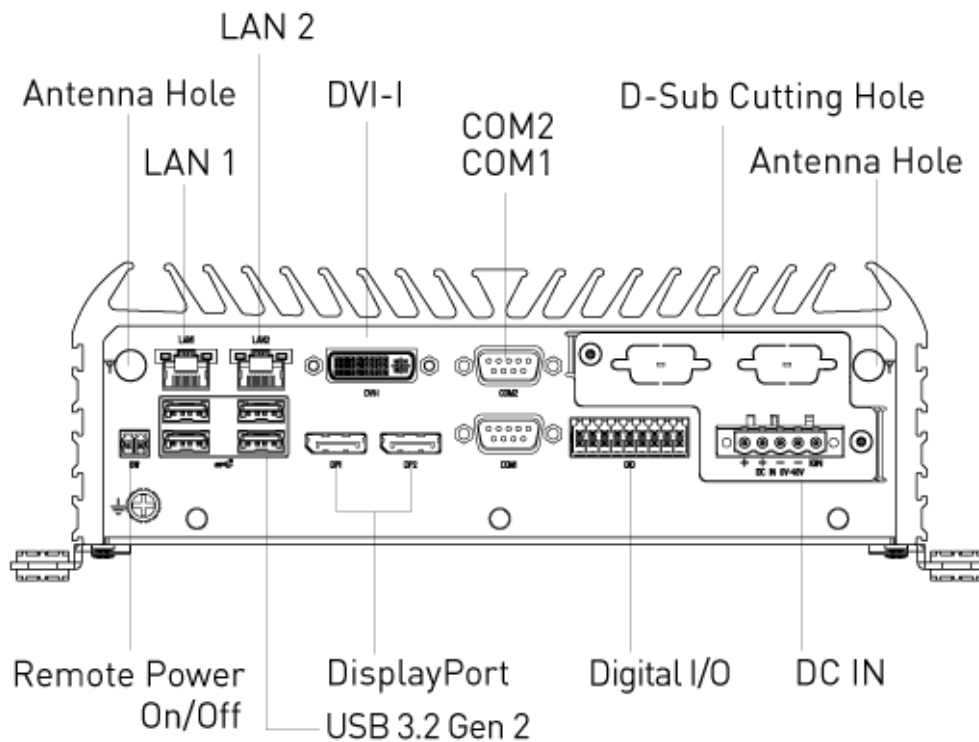
Used to connect the system to a local area network

### Antenna hole

Used to connect an antenna for optional Mini-PCIe WiFi module

### DC IN

Used to plug a DC power input with terminal block



### 1.3.2 RCO-6000-RPL-2E16

## Front Panel

#### Top Module (Industrial Fanless PC on Top)

**ATX power on/off switch**

Press to power-on or power-off the system

**Power LED**

Indicates the power status of the system

**HDD LED**

Indicates the status of the hard drive

**Antenna hole**

Used to connect an antenna for optional Mini-PCIe WiFi module

**USB 3.2 Gen 2 port (10 Gbps)**

Used to connect USB 3.2 device

**Removable HDD**

Removable 2.5" SATA HDD Bay  
(support H=7mm, hot-swappable)  
Support RAID 0, 1

**AT/ATX mode select switch**

Used to select AT or ATX power mode

**Clear CMOS**

Used to clear CMOS

**SIM card**

Used to insert SIM card

**Line-out**

Used to connect a speaker

**Mic-in**

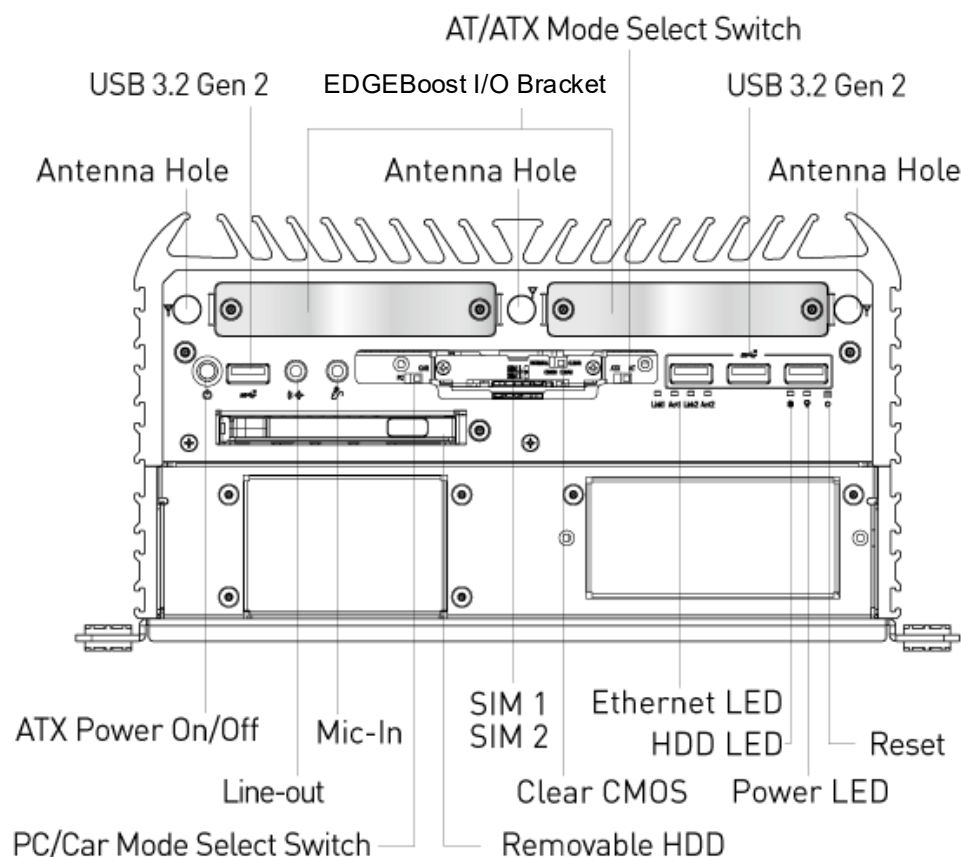
Used to connect a microphone

**Remote Power on/off Terminal Block**

Used to plug a remote power on/off terminal block

**PC/Car mode select switch**

Used to select PC or Car mode

**EDGEBoost I/O bracket (optional)**


## RCO-6000-RPL-2E16

## Rear Panel

### Top Module (Industrial Fanless PC on Top)

#### DVI-I port

Used to connect a DVI monitor or connect optional split cable for dual display mode

#### Digital I/O Terminal Block

The Digital I/O terminal block supports 8 digital input and 8 digital output

#### DisplayPort

Used to connect a DisplayPort monitor

#### COM port

COM1 ~ COM2 support RS232/422/485 serial device

#### USB 3.2 Gen 2 port (10 Gbps)

Used to connect USB 3.2 device

#### LAN port

Used to connect the system to a local area network

#### Antenna hole

Used to connect an antenna for optional Mini-PCIe WiFi module

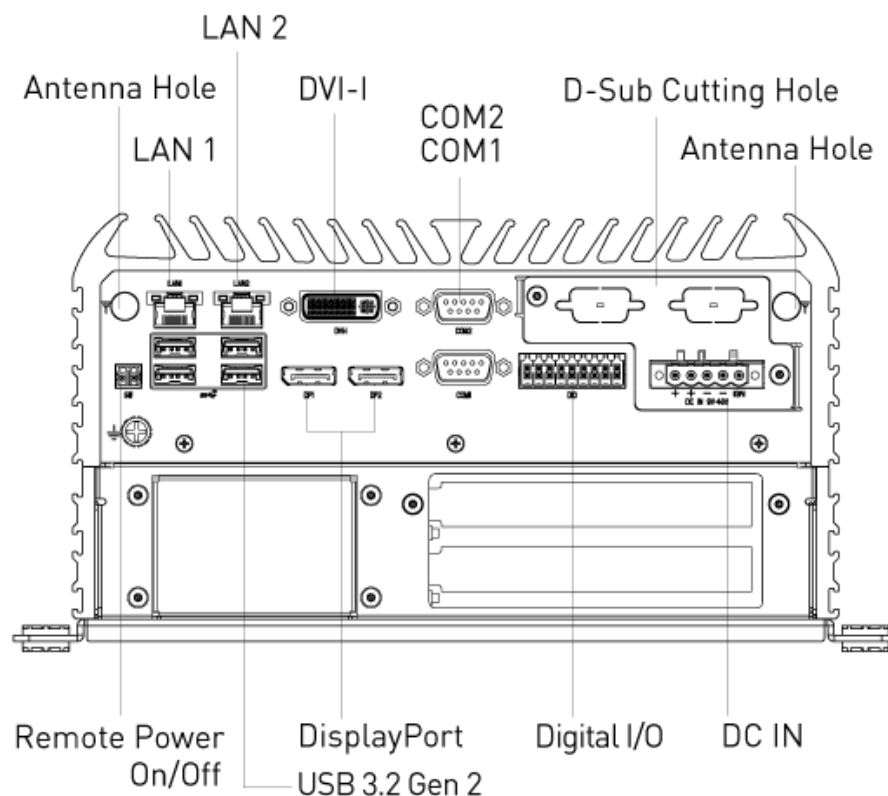
#### DC IN (5-pin Terminal Block)

Used to plug a DC power input with terminal block

### Bottom Module (Flexible and Dedicated "EDGEBoost Nodes" on Bottom)

#### Expansion

PCIe Slot



### 1.3.3 RCO-6000-RPL-2E16-4B7M

## Front Panel

#### Top Module (Industrial Fanless PC on Top)

##### ATX power on/off switch

Press to power-on or power-off the system

##### Power LED

Indicates the power status of the system

##### HDD LED

Indicates the status of the hard drive

##### Antenna hole

Used to connect an antenna for optional Mini-PCIe WiFi module

##### USB 3.2 Gen 2 port (10 Gbps)

Used to connect USB 3.2 device

##### Removable HDD

Removable 2.5" SATA HDD Bay  
(support H=7mm, hot-swappable)  
Support RAID 0, 1

##### AT/ATX mode select switch

Used to select AT or ATX power mode

##### Clear CMOS

Used to clear CMOS

##### SIM card

Used to insert SIM card

##### Line-out

Used to connect a speaker

##### Mic-in

Used to connect a microphone

##### Remote Power on/off Terminal Block

Used to plug a remote power on/off terminal block

##### PC/Car mode select switch

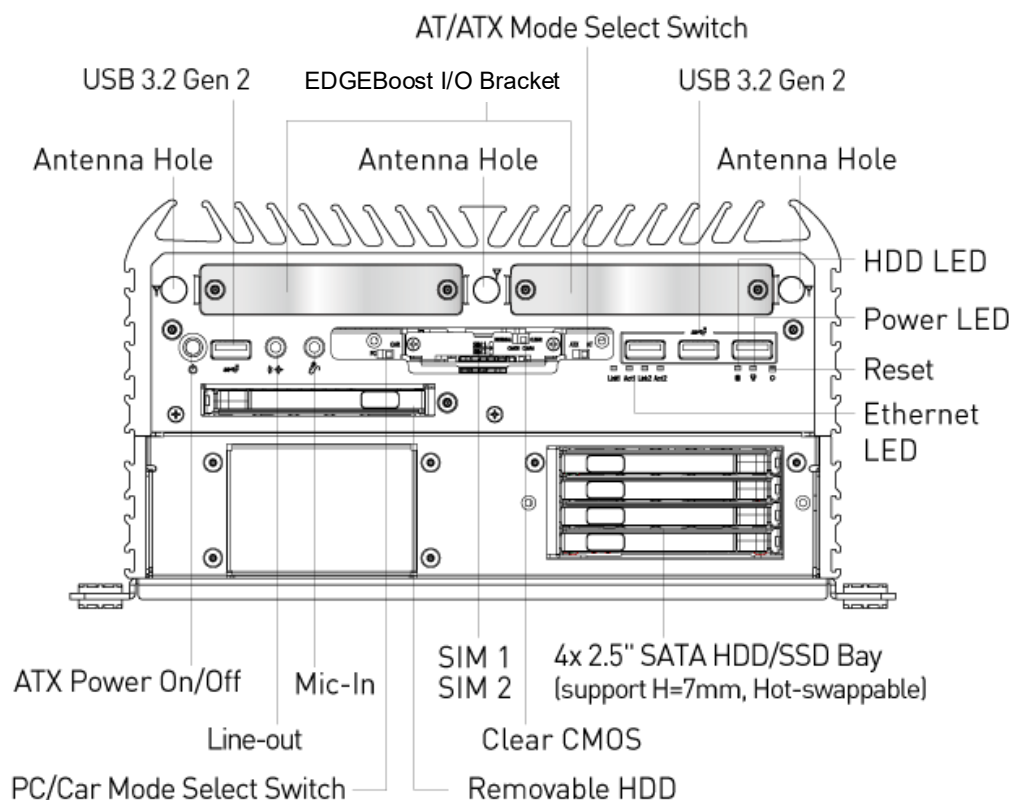
Used to select PC or Car mode

##### EDGEBoost I/O bracket (optional)

#### Bottom Module (Flexible and Dedicated "EDGEBoost Nodes" on Bottom)

##### SSD/HDD

4x 7mm Hot-swappable 2.5" SATA HDD/SSD Bay



## RCO-6000-RPL-2E16-4B7M

### Rear Panel

#### Top Module (Industrial Fanless PC on Top)

##### DVI-I port

Used to connect a DVI monitor or connect optional split cable for dual display mode

##### Digital I/O Terminal Block

The Digital I/O terminal block supports 8 digital input and 8 digital output

##### DisplayPort

Used to connect a DisplayPort monitor

##### COM port

COM1 ~ COM2 support RS232/422/485 serial device

##### USB 3.2 Gen 2 port (10 Gbps)

Used to connect USB 3.2 device

##### LAN port

Used to connect the system to a local area network

##### Antenna hole

Used to connect an antenna for optional Mini-PCIe WiFi module

##### DC IN (5-pin Terminal Block)

Used to plug a DC power input with terminal block

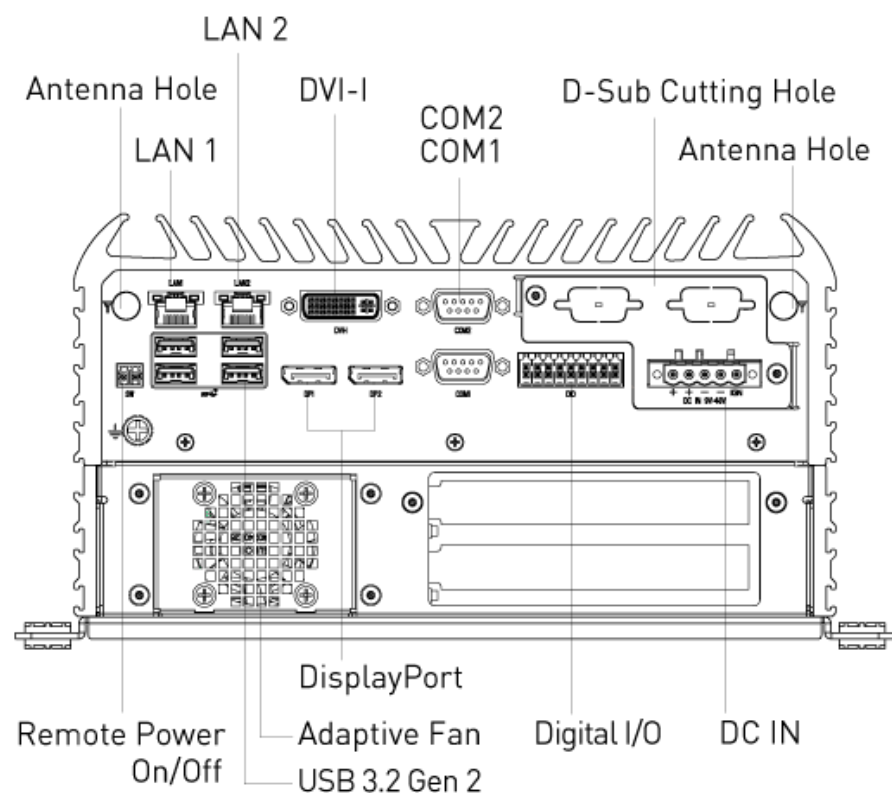
#### Bottom Module (Flexible and Dedicated "EDGEBoost Nodes" on Bottom)

##### Fan

Hot-Swappable Rear-Fan Exhaust design for easy maintenance

##### Expansion

PCIe Slot



### 1.3.4 RCO-6000-RPL-2E16-2B15M / RCO-6000-RPL-2E16-2N15M

## Front Panel

#### Top Module (Industrial Fanless PC on Top)

##### ATX power on/off switch

Press to power-on or power-off the system

##### Power LED

Indicates the power status of the system

##### HDD LED

Indicates the status of the hard drive

##### Antenna hole

Used to connect an antenna for optional Mini-PCIe WiFi module

##### USB 3.2 Gen 2 port (10 Gbps)

Used to connect USB 3.2 device

##### Removable HDD

Removable 2.5" SATA HDD Bay  
(support H=7mm, hot-swappable)  
Support RAID 0, 1

##### AT/ATX mode select switch

Used to select AT or ATX power mode

##### Clear CMOS

Used to clear CMOS

##### SIM card

Used to insert SIM card

##### Line-out

Used to connect a speaker

##### Mic-in

Used to connect a microphone

##### Remote Power on/off Terminal Block

Used to plug a remote power on/off terminal block

##### PC/Car mode select switch

Used to select PC or Car mode

##### EDGEBoost I/O bracket (optional)

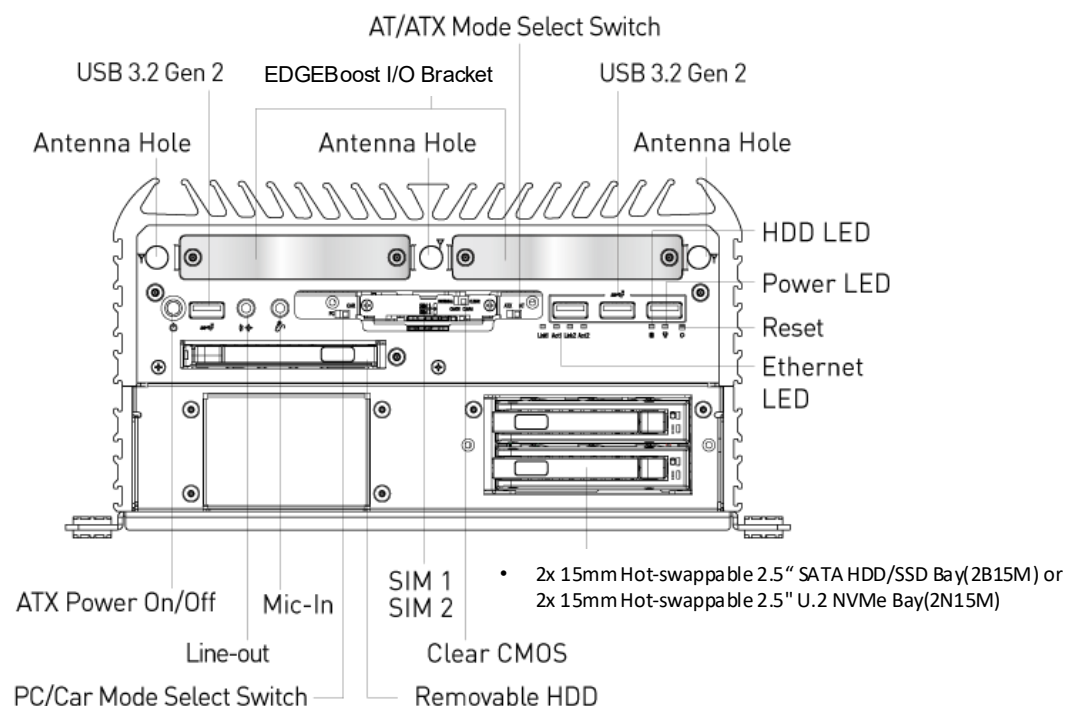
#### Bottom Module (Flexible and Dedicated "EDGEBoost Nodes" on Bottom)

##### • RCO-6000-RPL-2E16-2B15M :

2x 15mm Hot-swappable 2.5" SATA HDD/SSD Bay

##### • RCO-6000-RPL-2E16-2N15M :

2x 15mm Hot-swappable 2.5" U.2 NVMe Bay



## RCO-6000-RPL-2E16-2B15M / RCO-6000-RPL-2E16-2N15M

### Rear Panel

#### Top Module (Industrial Fanless PC on Top)

##### DVI-I port

Used to connect a DVI monitor or connect optional split cable for dual display mode

##### Digital I/O Terminal Block

The Digital I/O terminal block supports 8 digital input and 8 digital output

##### DisplayPort

Used to connect a DisplayPort monitor

##### COM port

COM1 ~ COM2 support RS232/422/485 serial device

##### USB 3.2 Gen 2 port (10 Gbps)

Used to connect USB 3.2 device

##### LAN port

Used to connect the system to a local area network

##### Antenna hole

Used to connect an antenna for optional Mini-PCIe WiFi module

##### DC IN (5-pin Terminal Block)

Used to plug a DC power input with terminal block

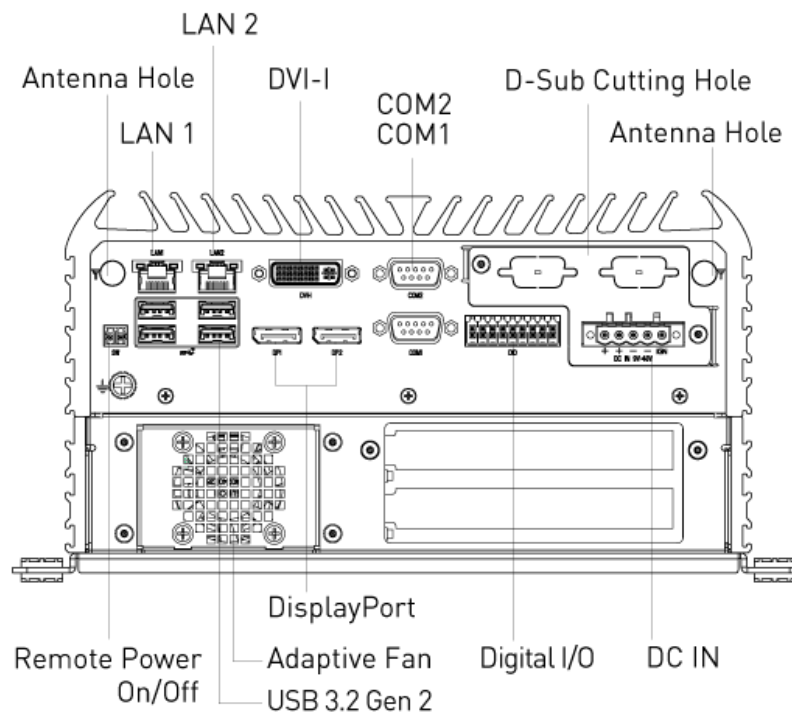
#### Bottom Module (Flexible and Dedicated "EDGEBoost Nodes" on Bottom)

##### Fan

Hot-Swappable Rear-Fan Exhaust design for easy maintenance

##### Expansion

PCIe Slot



### 1.3.5 RCO-6000-RPL-2E16-2PWR

## Front Panel

#### Top Module (Industrial Fanless PC on Top)

##### ATX power on/off switch

Press to power-on or power-off the system

##### Power LED

Indicates the power status of the system

##### HDD LED

Indicates the status of the hard drive

##### Antenna hole

Used to connect an antenna for optional Mini-PCIe WiFi module

##### USB 3.2 Gen 2 port (10 Gbps)

Used to connect USB 3.2 device

##### Removable HDD

Removable 2.5" SATA HDD Bay  
(support H=7mm, hot-swappable)  
Support RAID 0, 1

##### AT/ATX mode select switch

Used to select AT or ATX power mode

##### Clear CMOS

Used to clear CMOS

##### SIM card

Used to insert SIM card

##### Line-out

Used to connect a speaker

##### Mic-in

Used to connect a microphone

##### Remote Power on/off Terminal Block

Used to plug a remote power on/off terminal block

##### PC/Car mode select switch

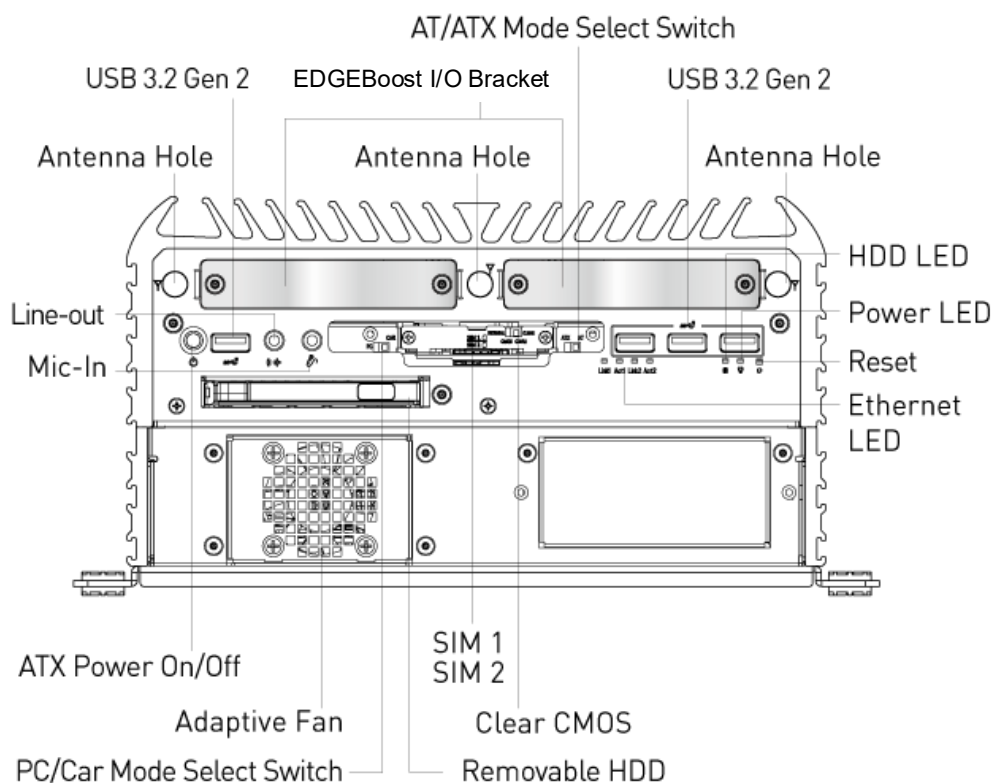
Used to select PC or Car mode

##### EDGEBoost I/O bracket (optional)

#### Bottom Module (Flexible and Dedicated "EDGEBoost Nodes" on Bottom)

##### Fan

Hot-Swappable Rear-Fan Exhaust design for easy maintenance



## RCO-6000-RPL-2E16-2PWR

## Rear Panel

### Top Module (Industrial Fanless PC on Top)

#### DVI-I port

Used to connect a DVI monitor or connect optional split cable for dual display mode

#### Digital I/O Terminal Block

The Digital I/O terminal block supports 8 digital input and 8 digital output

#### DisplayPort

Used to connect a DisplayPort monitor

#### COM port

COM1 ~ COM2 support RS232/422/485 serial device

#### USB 3.2 Gen 2 port (10 Gbps)

Used to connect USB 3.2 device

#### LAN port

Used to connect the system to a local area network

#### Antenna hole

Used to connect an antenna for optional Mini-PCIe WiFi module

#### DC IN (5-pin Terminal Block)

Used to plug a DC power input with terminal block

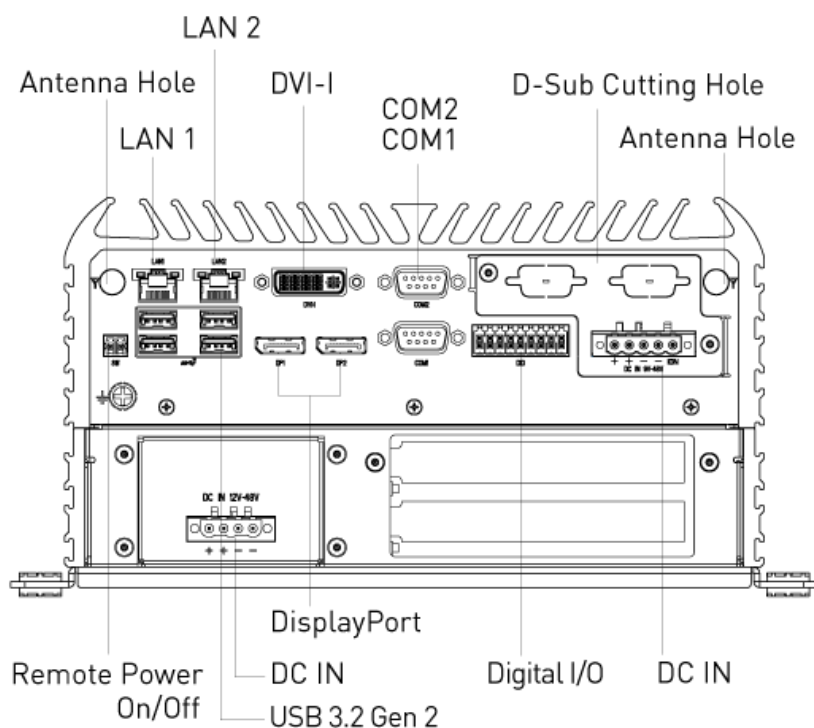
### Bottom Module (Flexible and Dedicated "EDGEBoost Nodes" on Bottom)

#### DC IN

12~48VDC for GPU/Card Expansion

#### Expansion

PCIe Slot



### 1.3.6 RCO-6000-RPL-4NH

## Front Panel

#### Top Module (Industrial Fanless PC on Top)

##### ATX power on/off switch

Press to power-on or power-off the system

##### Power LED

Indicates the power status of the system

##### HDD LED

Indicates the status of the hard drive

##### Antenna hole

Used to connect an antenna for optional Mini-PCIe WiFi module

##### USB 3.2 Gen 2 port (10 Gbps)

Used to connect USB 3.2 device

##### Removable HDD

Removable 2.5" SATA HDD Bay  
(support H=7mm, hot-swappable)  
Support RAID 0, 1

##### AT/ATX mode select switch

Used to select AT or ATX power mode

##### Clear CMOS

Used to clear CMOS

##### SIM card

Used to insert SIM card

##### Line-out

Used to connect a speaker

##### Mic-in

Used to connect a microphone

##### Remote Power on/off Terminal Block

Used to plug a remote power on/off terminal block

##### PC/Car mode select switch

Used to select PC or Car mode

##### EDGEBoost I/O bracket (optional)

#### Bottom Module (Flexible and Dedicated “EDGEBoost Nodes” on Bottom)

- **Data Cartridge A**

Hot swappable NVMe SSD Cannister Bricks,  
1x Removable 2 Bay NVMe SSD Module with Hardware  
RAID 0, 1, 5, 6, 10 support (Support H=15mm)

- **Lock**

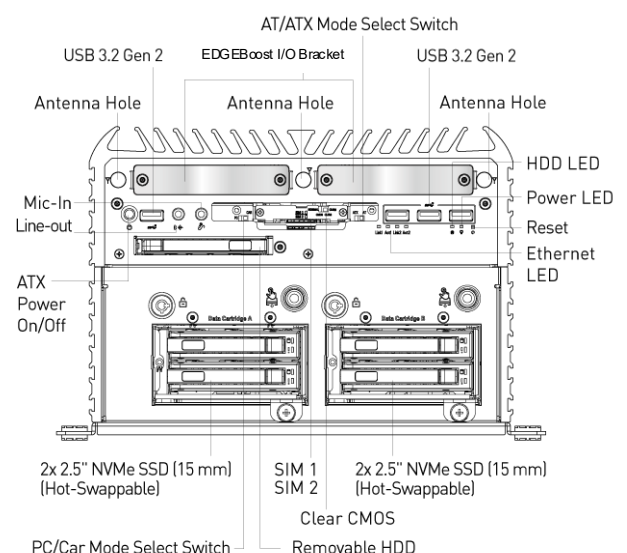
Used to key switch

- **Data Cartridge B**

Hot swappable NVMe SSD Cannister Bricks),  
1x Removable 2 Bay NVMe SSD Module with Hardware  
RAID 0, 1, 5, 6, 10 support (Support H=15mm)

- **Storage Ejection Button**

Safety Storage Ejection Button to suspend all I/O  
operation, read-write to prevent loss or corruption of  
data



## RCO-6000-RPL-4NH

## Rear Panel

### Top Module (Industrial Fanless PC on Top)

#### DVI-I port

Used to connect a DVI monitor or connect optional split cable for dual display mode

#### Digital I/O Terminal Block

The Digital I/O terminal block supports 8 digital input and 8 digital output

#### DisplayPort

Used to connect a DisplayPort monitor

#### COM port

COM1 ~ COM2 support RS232/422/485 serial device

#### USB 3.2 Gen 2 port (10 Gbps)

Used to connect USB 3.2 device

#### LAN port

Used to connect the system to a local area network

#### Antenna hole

Used to connect an antenna for optional Mini-PCIe WiFi module

#### DC IN (5-pin Terminal Block)

Used to plug a DC power input with terminal block

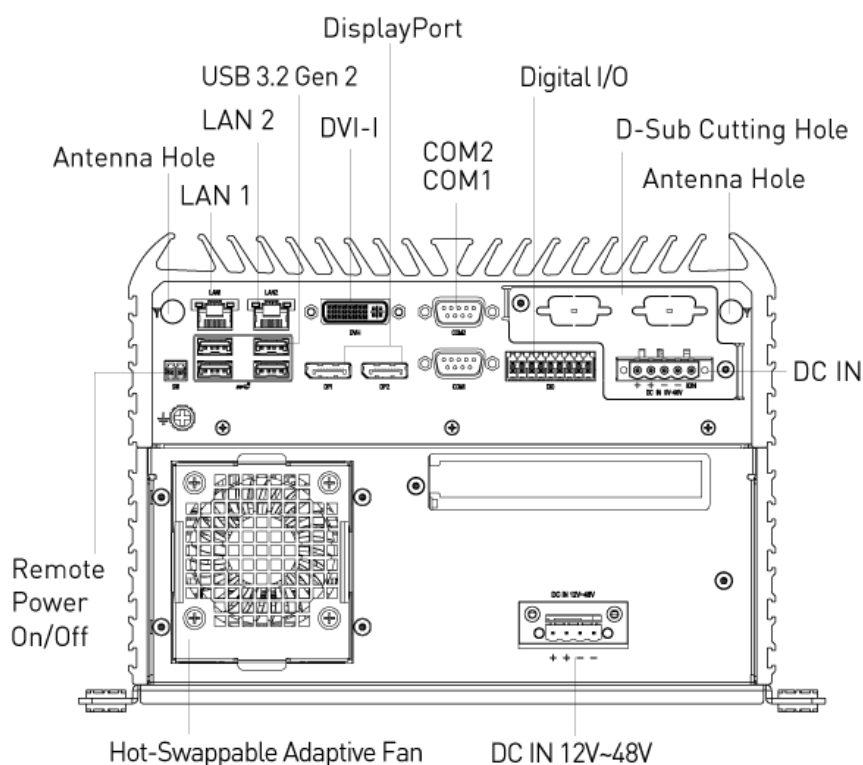
### Bottom Module (Flexible and Dedicated "EDGEBoost Nodes" on Bottom)

- **DC IN (4-pin Terminal Block)**

Used to plug a DC power input with terminal block

- **Fan**

Hot-Swappable Rear-Fan Exhaust design for easy maintenance



### 1.3.7 RCO-6000-RPL-4NS

## Front Panel

#### Top Module (Industrial Fanless PC on Top)

##### ATX power on/off switch

Press to power-on or power-off the system

##### Power LED

Indicates the power status of the system

##### HDD LED

Indicates the status of the hard drive

##### Antenna hole

Used to connect an antenna for optional Mini-PCIe WiFi module

##### USB 3.2 Gen 2 port (10 Gbps)

Used to connect USB 3.2 device

##### Removable HDD

Removable 2.5" SATA HDD Bay  
(support H=7mm, hot-swappable)  
Support RAID 0, 1

##### AT/ATX mode select switch

Used to select AT or ATX power mode

##### Clear CMOS

Used to clear CMOS

##### SIM card

Used to insert SIM card

##### Line-out

Used to connect a speaker

##### Mic-in

Used to connect a microphone

##### Remote Power on/off Terminal Block

Used to plug a remote power on/off terminal block

##### PC/Car mode select switch

Used to select PC or Car mode

##### EDGEBoost I/O bracket (optional)

#### Bottom Module (Flexible and Dedicated "EDGEBoost Nodes" on Bottom)

- **Data Cartridge A**

Hot swappable NVMe SSD Cannister Bricks,  
1x Removable 2 Bay NVMe SSD Module with Software  
RAID 0, 1, 5, 10 support (Support H=15mm)

- **Lock**

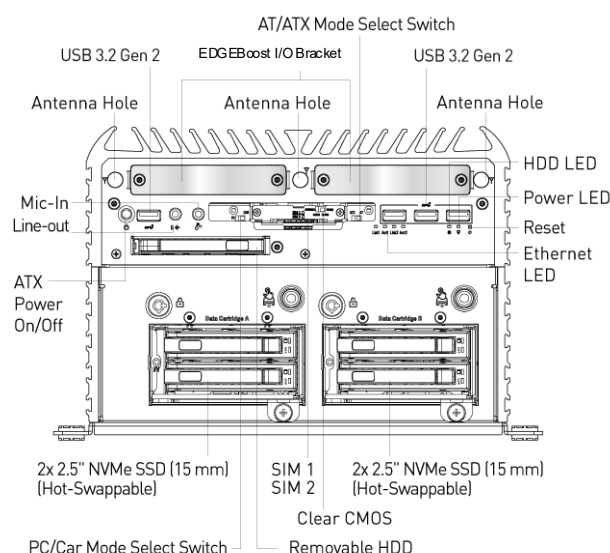
Used to key switch

- **Data Cartridge B**

Hot swappable NVMe SSD Cannister Bricks),  
1x Removable 2 Bay NVMe SSD Module with Software  
RAID 0, 1, 5, 10 support (Support H=15mm)

- **Storage Ejection Button**

Safety Storage Ejection Button to suspend all I/O  
operation, read-write to prevent loss or corruption of  
data



## RCO-6000-RPL-4NS

## Rear Panel

### Top Module (Industrial Fanless PC on Top)

#### DVI-I port

Used to connect a DVI monitor or connect optional split cable for dual display mode

#### Digital I/O Terminal Block

The Digital I/O terminal block supports 8 digital input and 8 digital output

#### DisplayPort

Used to connect a DisplayPort monitor

#### COM port

COM1 ~ COM2 support RS232/422/485 serial device

#### USB 3.2 Gen 2 port (10 Gbps)

Used to connect USB 3.2 device

#### LAN port

Used to connect the system to a local area network

#### Antenna hole

Used to connect an antenna for optional Mini-PCIe WiFi module

#### DC IN (5-pin Terminal Block)

Used to plug a DC power input with terminal block

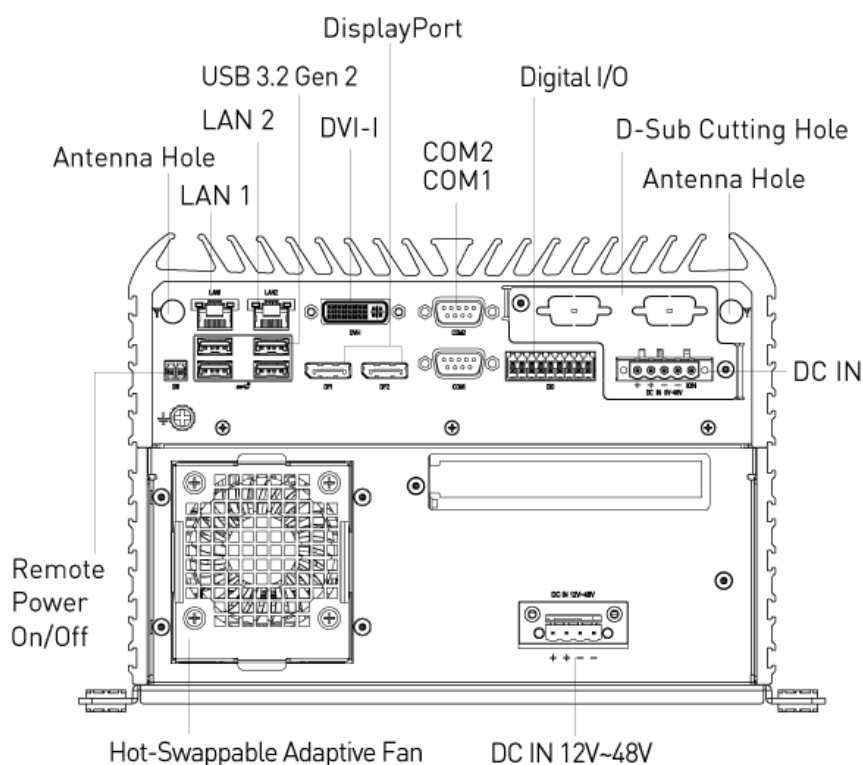
### Bottom Module (Flexible and Dedicated "EDGEBoost Nodes" on Bottom)

- **DC IN (4-pin Terminal Block)**

Used to plug a DC power input with terminal block

- **Fan**

Hot-Swappable Rear-Fan Exhaust design for easy maintenance



### 1.3.8 RCO-6000-RPL-8NS

## Front Panel

#### Top Module (Industrial Fanless PC on Top)

##### ATX power on/off switch

Press to power-on or power-off the system

##### Power LED

Indicates the power status of the system

##### HDD LED

Indicates the status of the hard drive

##### Antenna hole

Used to connect an antenna for optional Mini-PCIe WiFi module

##### USB 3.2 Gen 2 port (10 Gbps)

Used to connect USB 3.2 device

##### Removable HDD

Removable 2.5" SATA HDD Bay  
(support H=7mm, hot-swappable)  
Support RAID 0, 1

##### AT/ATX mode select switch

Used to select AT or ATX power mode

##### Clear CMOS

Used to clear CMOS

##### SIM card

Used to insert SIM card

##### Line-out

Used to connect a speaker

##### Mic-in

Used to connect a microphone

##### Remote Power on/off Terminal Block

Used to plug a remote power on/off terminal block

##### PC/Car mode select switch

Used to select PC or Car mode

##### EDGEBoost I/O bracket (optional)

#### Bottom Module (Flexible and Dedicated "EDGEBoost Nodes" on Bottom)

- **Data Cartridge A**

Hot swappable NVMe SSD Cannister Bricks,  
1x Removable 4 Bay NVMe SSD Module with RAID  
0, 1, 5, 10 support (Support H=7mm)

- **Lock**

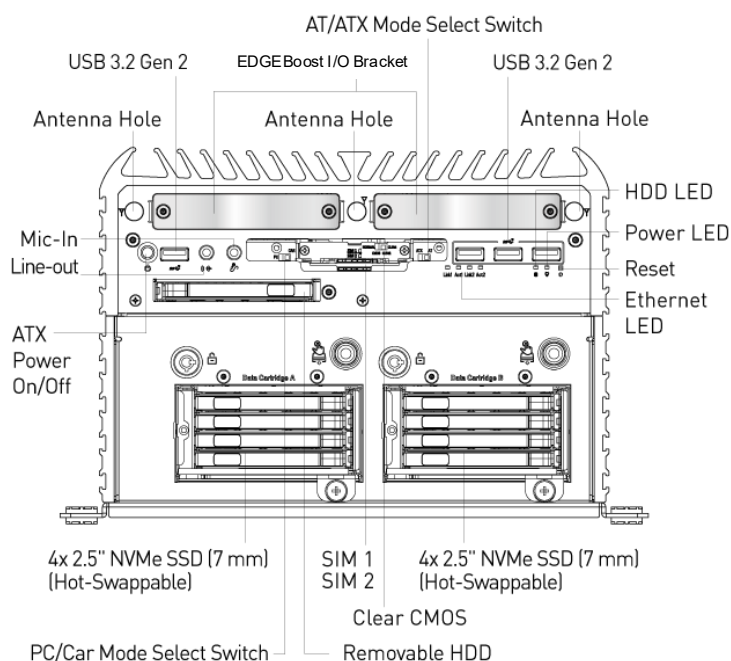
Used to key switch

- **Data Cartridge B**

Hot swappable NVMe SSD Cannister Bricks),  
1x Removable 4 Bay NVMe SSD Module with RAID  
0, 1, 5, 10 support (Support H=7mm)

- **Storage Ejection Button**

Safety Storage Ejection Button to suspend all I/O  
operation, read-write to prevent loss or  
corruption of data



## RCO-6000-RPL-8NS

### Rear Panel

#### Top Module (Industrial Fanless PC on Top)

##### DVI-I port

Used to connect a DVI monitor or connect optional split cable for dual display mode

##### Digital I/O Terminal Block

The Digital I/O terminal block supports 8 digital input and 8 digital output

##### DisplayPort

Used to connect a DisplayPort monitor

##### COM port

COM1 ~ COM2 support RS232/422/485 serial device

##### USB 3.2 Gen 2 port (10 Gbps)

Used to connect USB 3.2 device

##### LAN port

Used to connect the system to a local area network

##### Antenna hole

Used to connect an antenna for optional Mini-PCIe WiFi module

##### DC IN (5-pin Terminal Block)

Used to plug a DC power input with terminal block

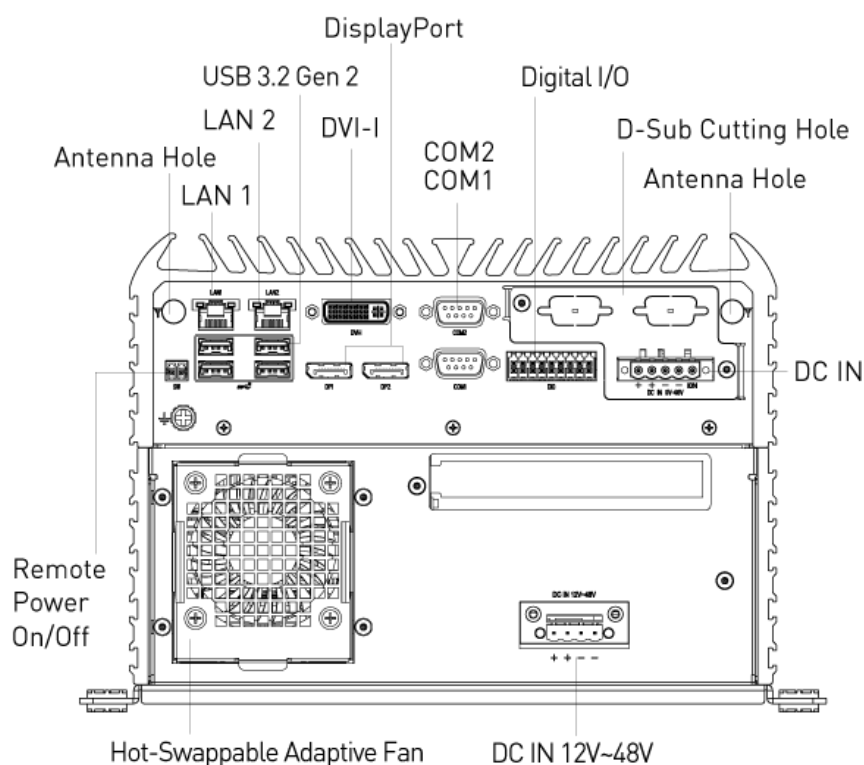
#### Bottom Module (Flexible and Dedicated "EDGEBoost Nodes" on Bottom)

- **DC IN (4-pin Terminal Block)**

Used to plug a DC power input with terminal block

- **Fan**

Hot-Swappable Rear-Fan Exhaust design for easy maintenance



### 1.3.9 RCO-6000-RPL-GPU

## Front Panel

#### Top Module (Industrial Fanless PC on Top)

##### ATX power on/off switch

Press to power-on or power-off the system

##### Power LED

Indicates the power status of the system

##### HDD LED

Indicates the status of the hard drive

##### Antenna hole

Used to connect an antenna for optional Mini-PCIe WiFi module

##### USB 3.2 Gen 2 port (10 Gbps)

Used to connect USB 3.2 device

##### Removable HDD

Removable 2.5" SATA HDD Bay (support H=7mm, hot-swappable)

##### AT/ATX mode select switch

Used to select AT or ATX power mode

##### Clear CMOS

Used to clear CMOS

##### SIM card

Used to insert SIM card

##### Line-out

Used to connect a speaker

##### Mic-in

Used to connect a microphone

##### Remote Power on/off Terminal Block

Used to plug a remote power on/off terminal block

##### PC/Car mode select switch

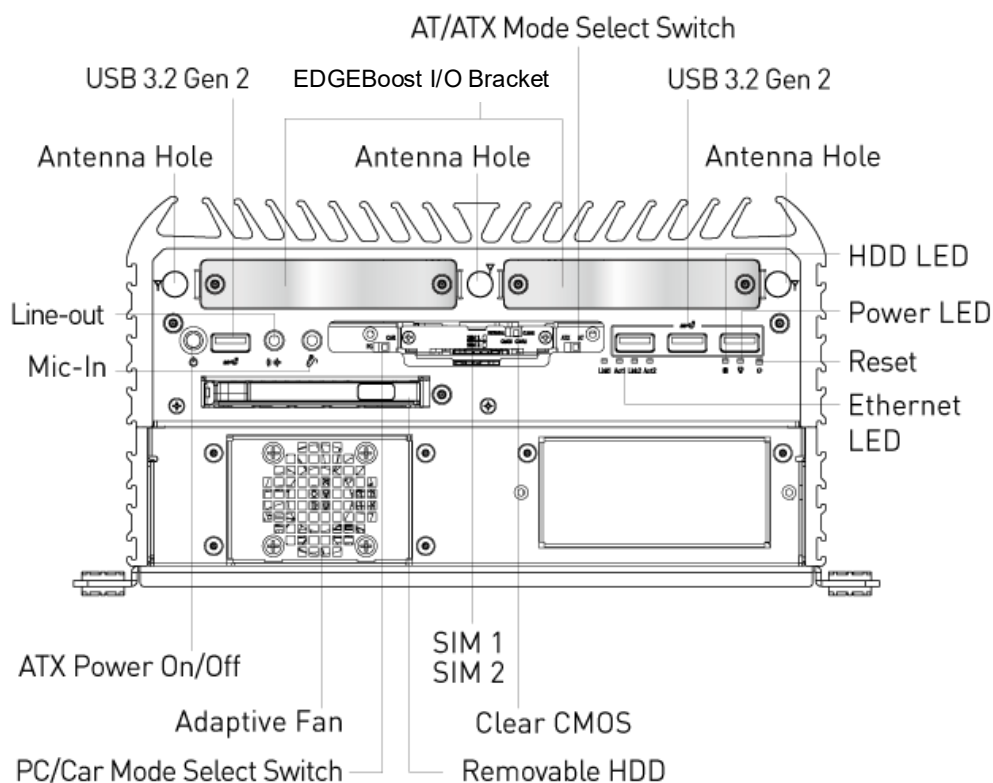
Used to select PC or Car mode

##### EDGEBoost I/O bracket (optional)

#### Bottom Module (Flexible and Dedicated "EDGEBoost Nodes" on Bottom)

##### Fan

Hot-Swappable Rear-Fan Exhaust design for easy maintenance



## RCO-6000-RPL-GPU

### Rear Panel

#### Top Module (Industrial Fanless PC on Top)

##### DVI-I port

Used to connect a DVI monitor or connect optional split cable for dual display mode

##### Digital I/O Terminal Block

The Digital I/O terminal block supports 8 digital input and 8 digital output

##### DisplayPort

Used to connect a DisplayPort monitor

##### COM port

COM1 ~ COM2 support RS232/422/485 serial device

##### USB 3.2 Gen 2 port (10 Gbps)

Used to connect USB 3.2 device

##### LAN port

Used to connect the system to a local area network

##### Antenna hole

Used to connect an antenna for optional Mini-PCIe WiFi module

##### DC IN (5-pin Terminal Block)

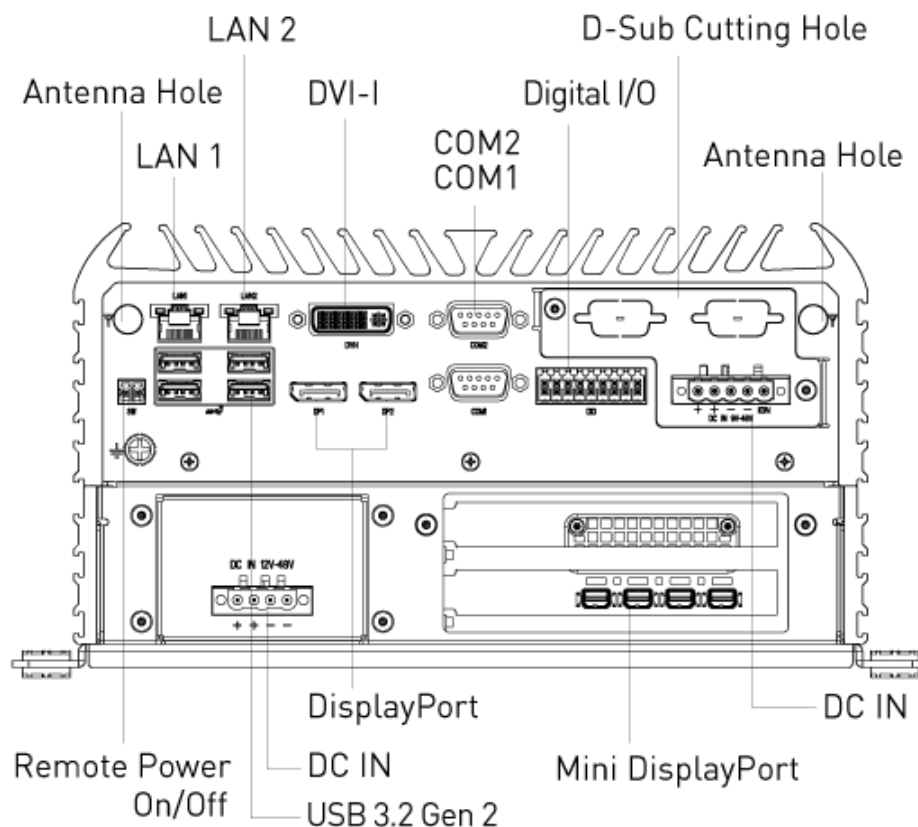
Used to plug a DC power input with terminal block

#### Bottom Module (Flexible and Dedicated "EDGEBoost Nodes" on Bottom)

##### DC IN

12~48VDC for GPU/Card Expansion

##### GPU integrated



### 1.3.10 RCO-6000-RPL-2N-GPU

## Front Panel

#### Top Module (Industrial Fanless PC on Top)

##### ATX power on/off switch

Press to power-on or power-off the system

##### Power LED

Indicates the power status of the system

##### HDD LED

Indicates the status of the hard drive

##### Antenna hole

Used to connect an antenna for optional Mini-PCIe WiFi module

##### USB 3.2 Gen 2 port (10 Gbps)

Used to connect USB 3.2 device

##### Removable HDD

Removable 2.5" SATA HDD Bay  
(support H=7mm, hot-swappable)  
Support RAID 0, 1

##### AT/ATX mode select switch

Used to select AT or ATX power mode

##### Clear CMOS

Used to clear CMOS

##### SIM card

Used to insert SIM card

##### Line-out

Used to connect a speaker

##### Mic-in

Used to connect a microphone

##### Remote Power on/off Terminal Block

Used to plug a remote power on/off terminal block

##### PC/Car mode select switch

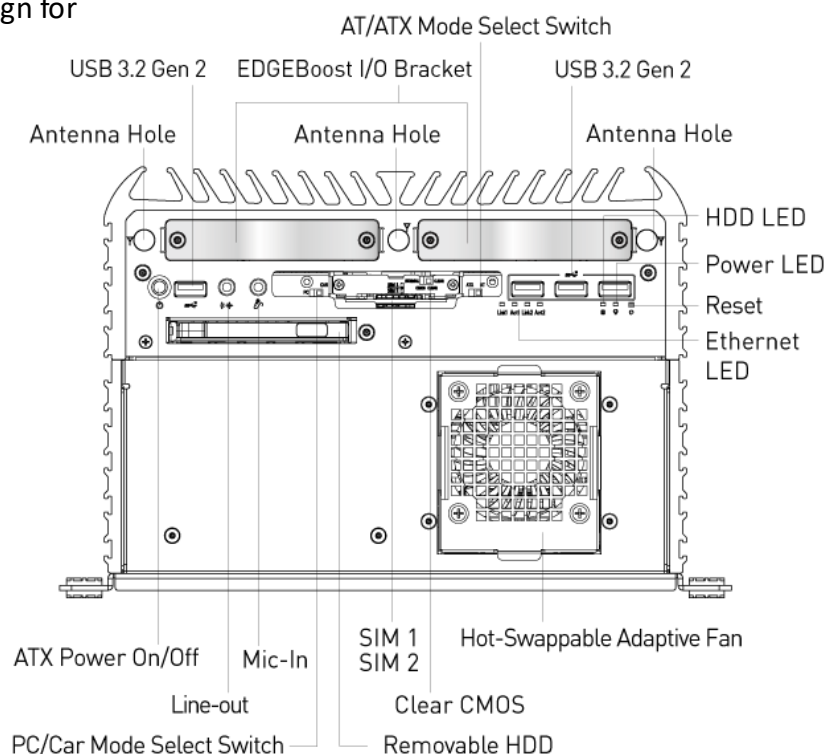
Used to select PC or Car mode

##### EDGEBoost I/O bracket (optional)

#### Bottom Module (Flexible and Dedicated "EDGEBoost Nodes" on Bottom)

##### Fan

Hot-Swappable Rear-Fan Exhaust design for easy maintenance



## RCO-6000-RPL-2N-GPU

### Rear Panel

#### Top Module (Industrial Fanless PC on Top)

##### DVI-I port

Used to connect a DVI monitor or connect optional split cable for dual display mode

##### Digital I/O Terminal Block

The Digital I/O terminal block supports 8 digital input and 8 digital output

##### DisplayPort

Used to connect a DisplayPort monitor

##### COM port

COM1 ~ COM2 support RS232/422/485 serial device

##### USB 3.2 Gen 2 port (10 Gbps)

Used to connect USB 3.2 device

##### LAN port

Used to connect the system to a local area network

##### Antenna hole

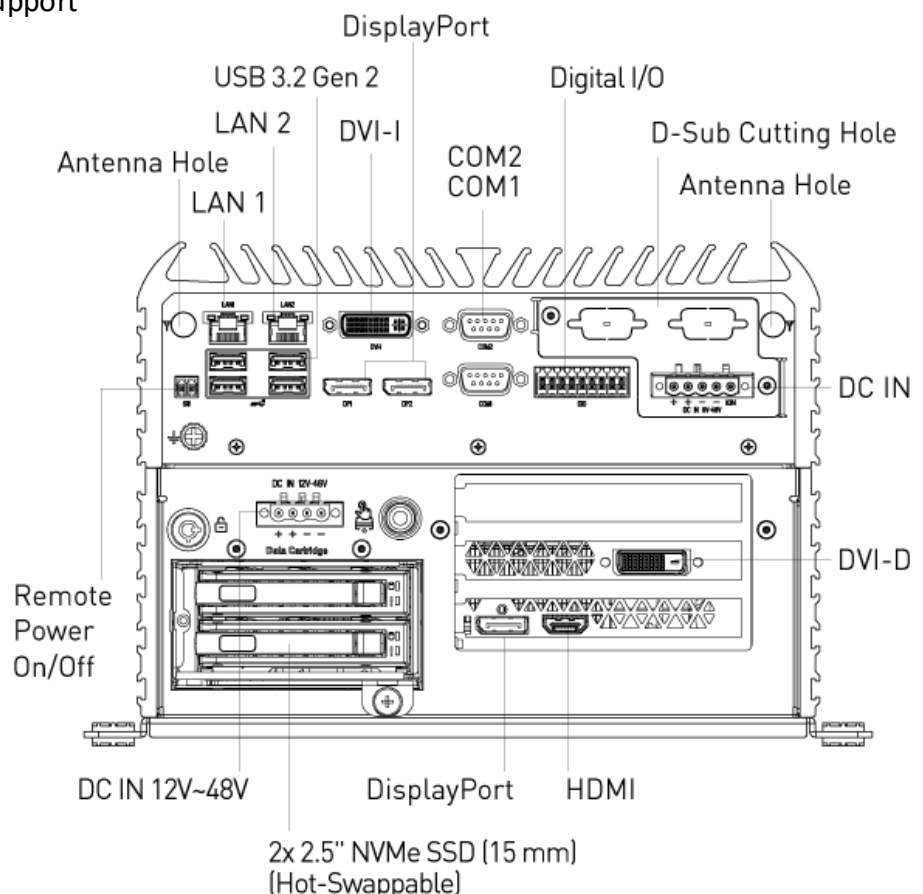
Used to connect an antenna for optional Mini-PCIe WiFi module

##### DC IN (5-pin Terminal Block)

Used to plug a DC power input with terminal block

#### Bottom Module (Flexible and Dedicated "EDGEBoost Nodes" on Bottom)

- **DC IN (4-pin Terminal Block)**  
Used to plug a DC power input with terminal block
- **Data Cartridge**  
1x Removable Cannister Brick with 2.5" 2 Bay U.2 NVMe SSD (Support H=15mm)
- **GPU integrated**
- **Storage Ejection Button**  
Safety Storage Ejection Button to suspend all I/O operation, read-write to prevent loss or corruption of data



### 1.3.11 RCO-6000-RPL-4N-GPU

## Front Panel

#### Top Module (Industrial Fanless PC on Top)

##### ATX power on/off switch

Press to power-on or power-off the system

##### Power LED

Indicates the power status of the system

##### HDD LED

Indicates the status of the hard drive

##### Antenna hole

Used to connect an antenna for optional Mini-PCIe WiFi module

##### USB 3.2 Gen 2 port (10 Gbps)

Used to connect USB 3.2 device

##### Removable HDD

Removable 2.5" SATA HDD Bay  
(support H=7mm, hot-swappable)  
Support RAID 0, 1

##### AT/ATX mode select switch

Used to select AT or ATX power mode

##### Clear CMOS

Used to clear CMOS

##### SIM card

Used to insert SIM card

##### Line-out

Used to connect a speaker

##### Mic-in

Used to connect a microphone

##### Remote Power on/off Terminal Block

Used to plug a remote power on/off terminal block

##### PC/Car mode select switch

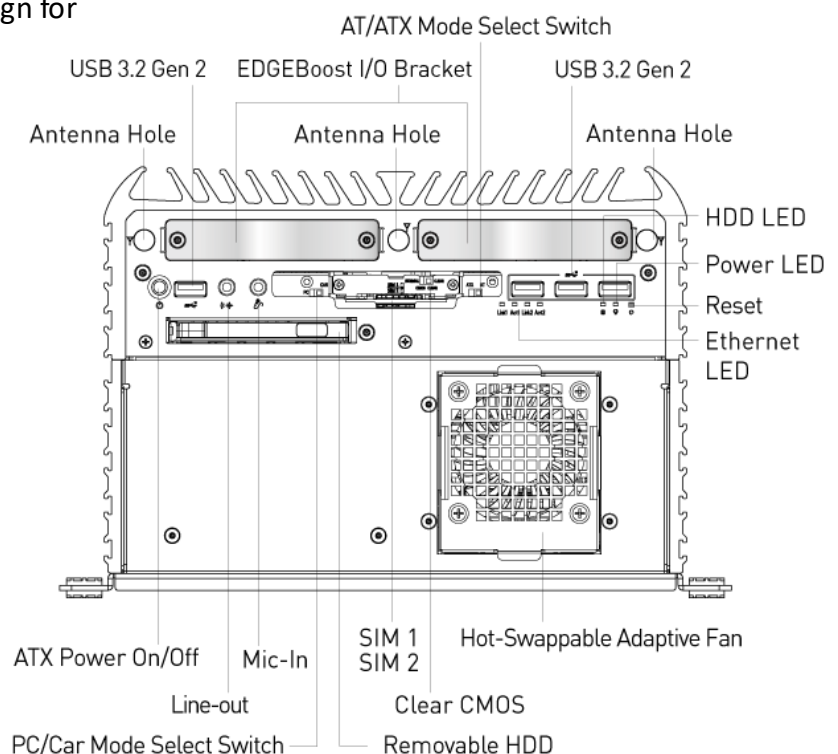
Used to select PC or Car mode

##### EDGEBoost I/O bracket (optional)

#### Bottom Module (Flexible and Dedicated "EDGEBoost Nodes" on Bottom)

##### Fan

Hot-Swappable Rear-Fan Exhaust design for easy maintenance



## RCO-6000-RPL-4N-GPU

### Rear Panel

#### Top Module (Industrial Fanless PC on Top)

##### DVI-I port

Used to connect a DVI monitor or connect optional split cable for dual display mode

##### Digital I/O Terminal Block

The Digital I/O terminal block supports 8 digital input and 8 digital output

##### DisplayPort

Used to connect a DisplayPort monitor

##### COM port

COM1 ~ COM2 support RS232/422/485 serial device

##### USB 3.2 Gen 2 port (10 Gbps)

Used to connect USB 3.2 device

##### LAN port

Used to connect the system to a local area network

##### Antenna hole

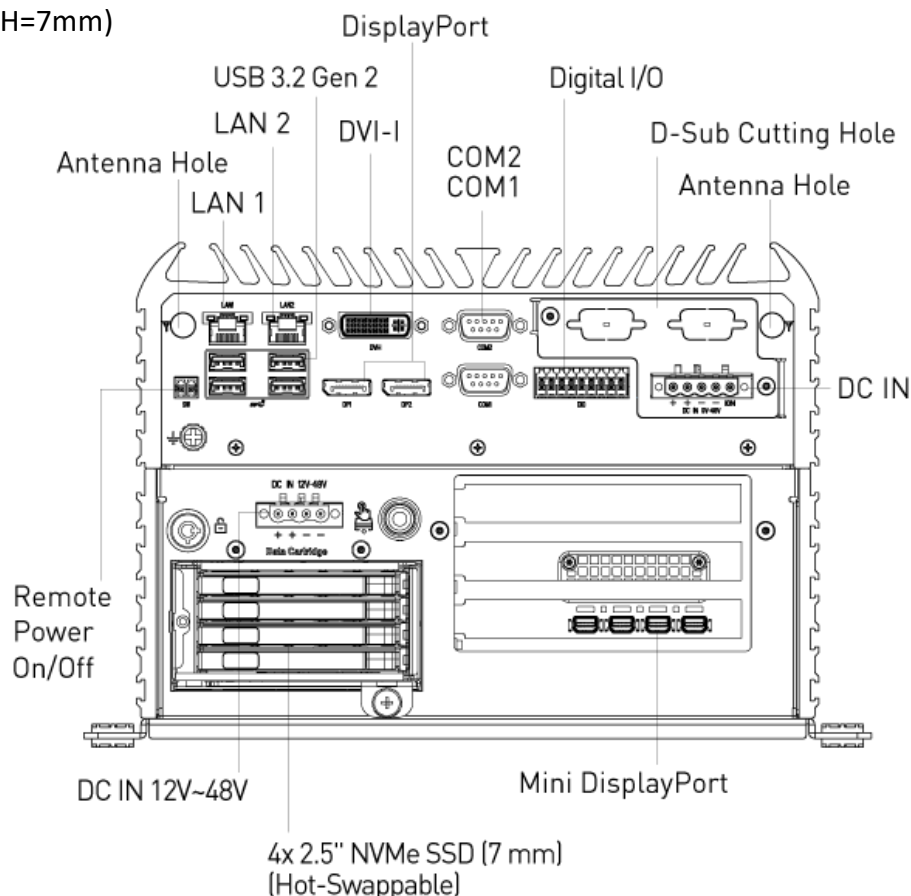
Used to connect an antenna for optional Mini-PCIe WiFi module

##### DC IN (5-pin Terminal Block)

Used to plug a DC power input with terminal block

#### Bottom Module (Flexible and Dedicated "EDGEBoost Nodes" on Bottom)

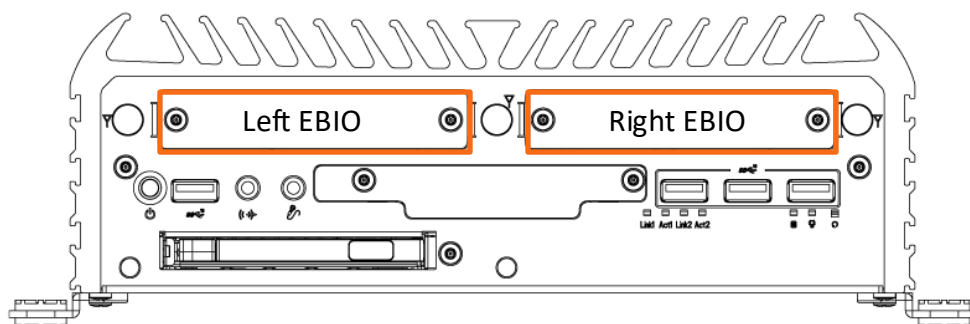
- **DC IN (4-pin Terminal Block)**  
Used to plug a DC power input with terminal block
- **Data Cartridge**  
1x Removable Cannister Brick with 2.5" 4 Bay U.2 NVMe SSD (Support H=7mm)
- **GPU integrated**
- **Storage Ejection Button**  
Safety Storage Ejection Button to suspend all I/O operation, read-write to prevent loss or corruption of data



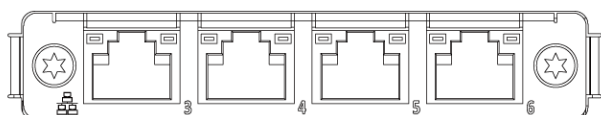
### 1.3.12 EDGEBoost I/O Bracket [EBIO]

#### Model No :

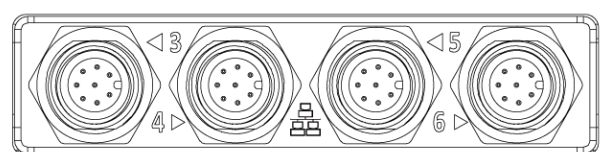
- |                           |                    |                       |
|---------------------------|--------------------|-----------------------|
| • RCO-6000-RPL            | • RCO-6000-RPL-4NH | • RCO-6000-RPL-GPU    |
| • RCO-6000-RPL-2E16       | • RCO-6000-RPL-4NS | • RCO-6000-RPL-2N-GPU |
| • RCO-6000-RPL-2E16-2PWR  | • RCO-6000-RPL-8NS | • RCO-6000-RPL-4N-GPU |
| • RCO-6000-RPL-2E16-4B7M  |                    |                       |
| • RCO-6000-RPL-2E16-2B15M |                    |                       |
| • RCO-6000-RPL-2E16-2N15M |                    |                       |



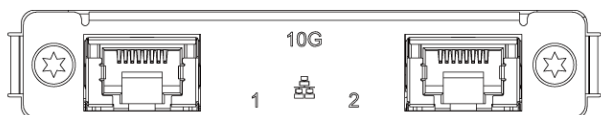
#### Available Module :



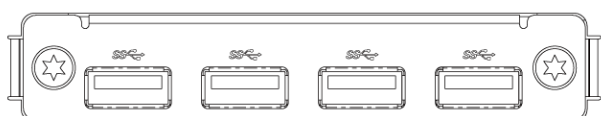
- **4x RJ45 LAN Ports**
- **4x RJ45 PoE Ports** (Left EBIO slot only)



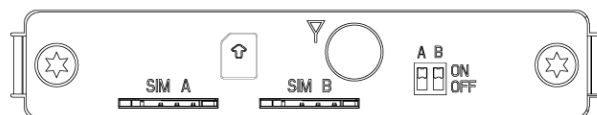
- **4x M12 LAN Ports**
- **4x M12 PoE Ports** (Left EBIO slot only)



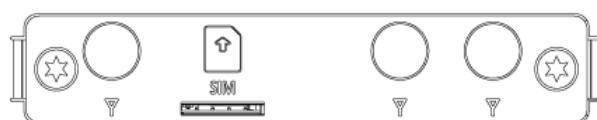
- **2x 10GbE Ports** (Right EBIO slot only)



- **4x USB 3.2 Gen 1 Ports**



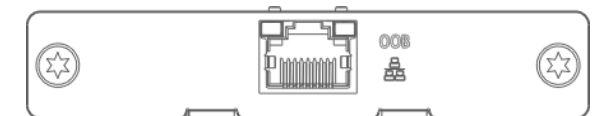
- **2x 5G SIM Slot** (Left EBIO Slot Only)



- **2x M.2 B-Key (1x 5G SIM)** (Right EBIO Slot Only)



- **1x M.2 M-Key (4-Lane)**

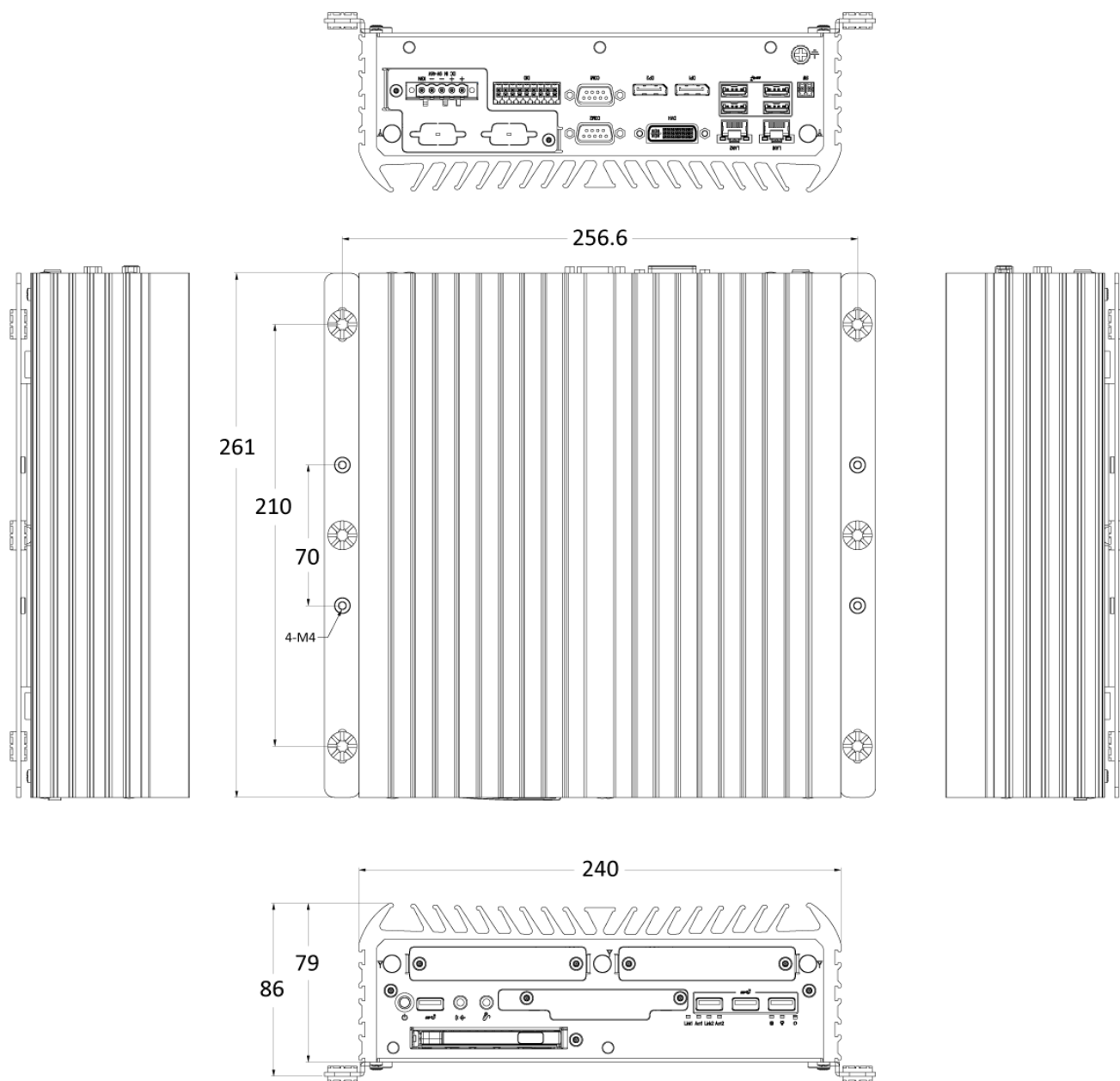


- **1x RJ45 Remote Management**

## 1.4 Mechanical Dimensions

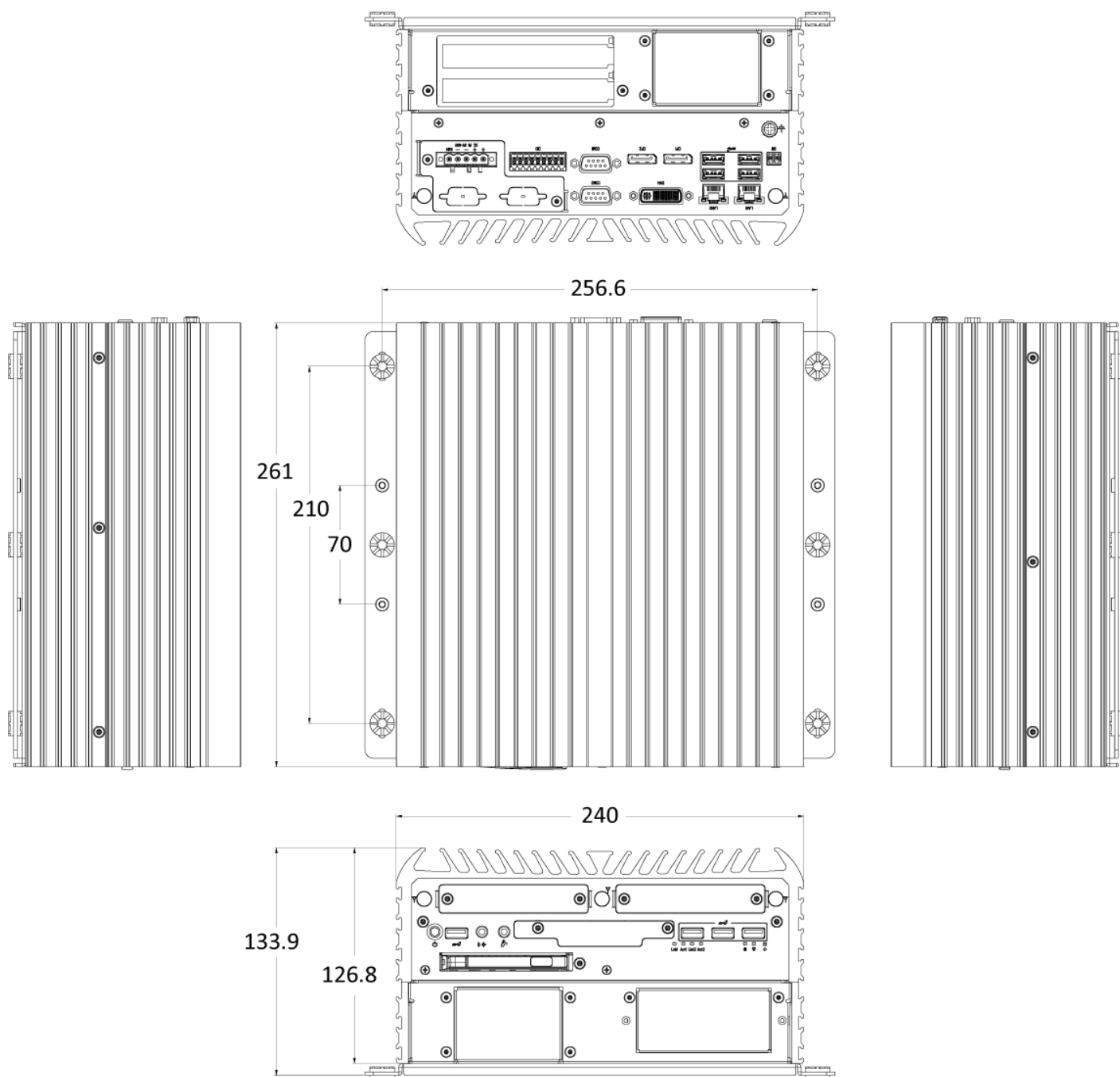
### 1.4.1 RCO-6000-RPL

Unit: mm



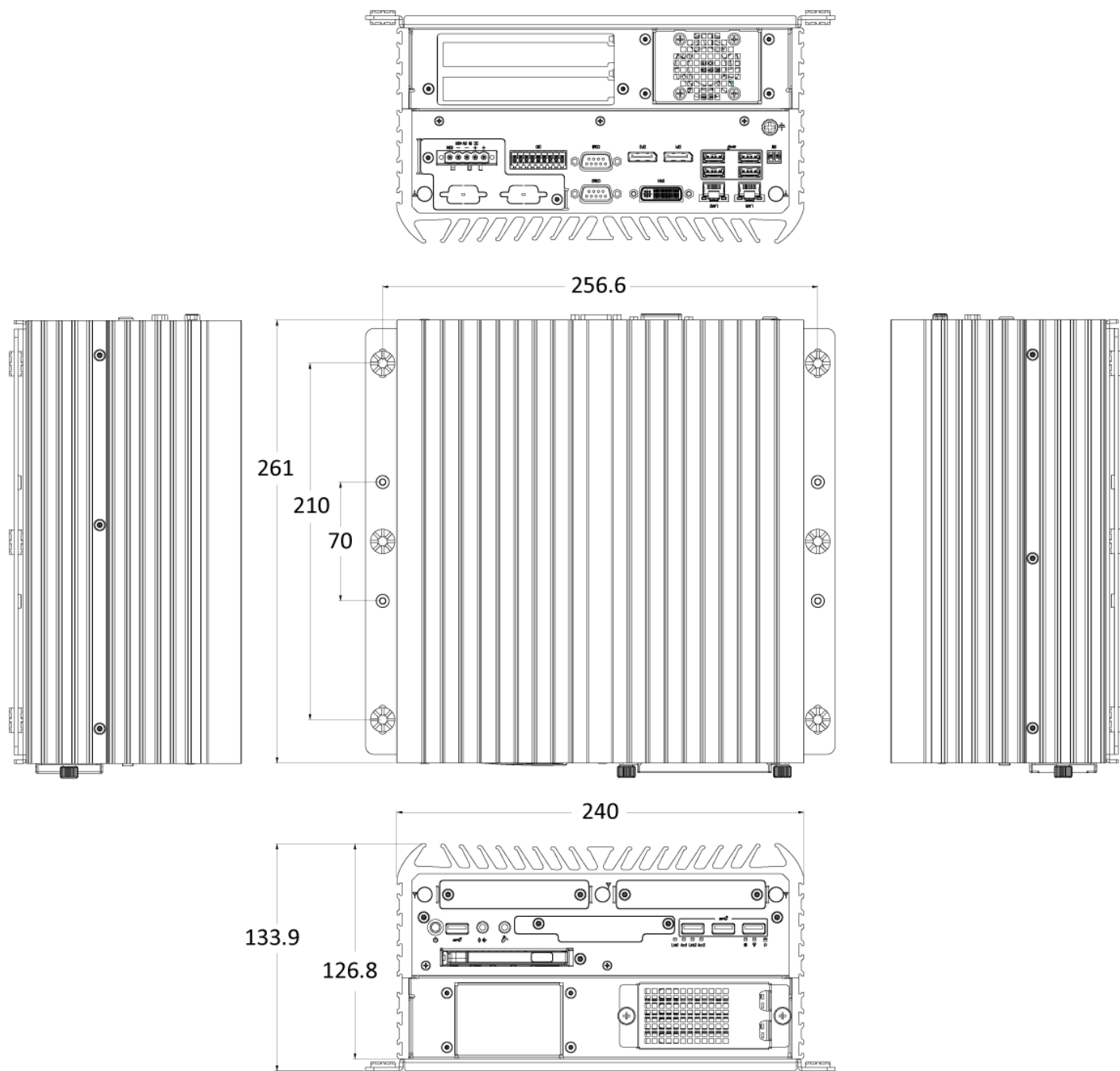
### 1.4.2 RCO-6000-RPL-2E16

Unit: mm



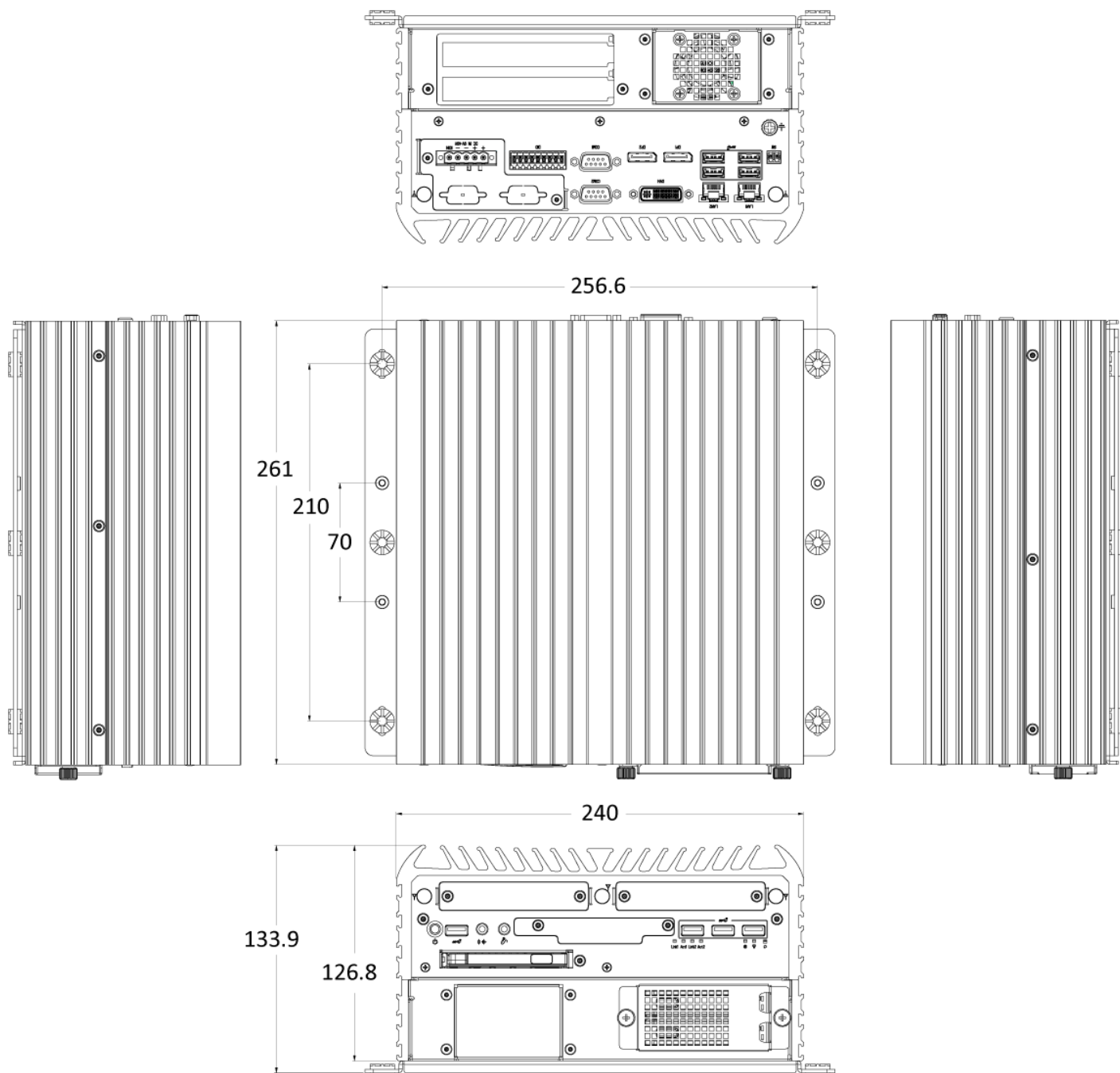
## 1.4.3 RCO-6000-RPL-2E16-4B7M

Unit: mm



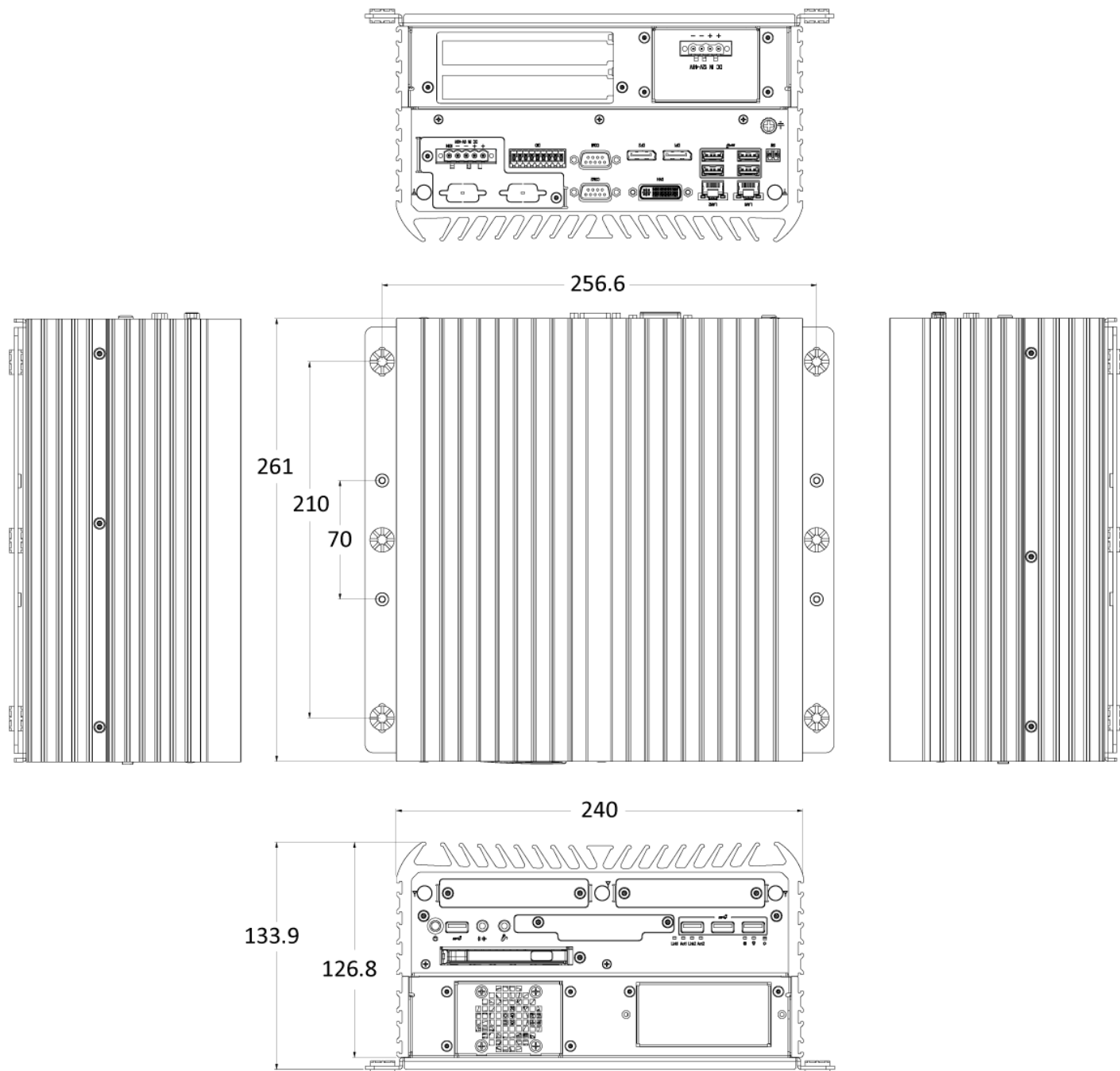
## 1.4.4 RCO-6000-RPL-2E16-2B15M / RCO-6000-RPL-2E16-2N15M

Unit: mm



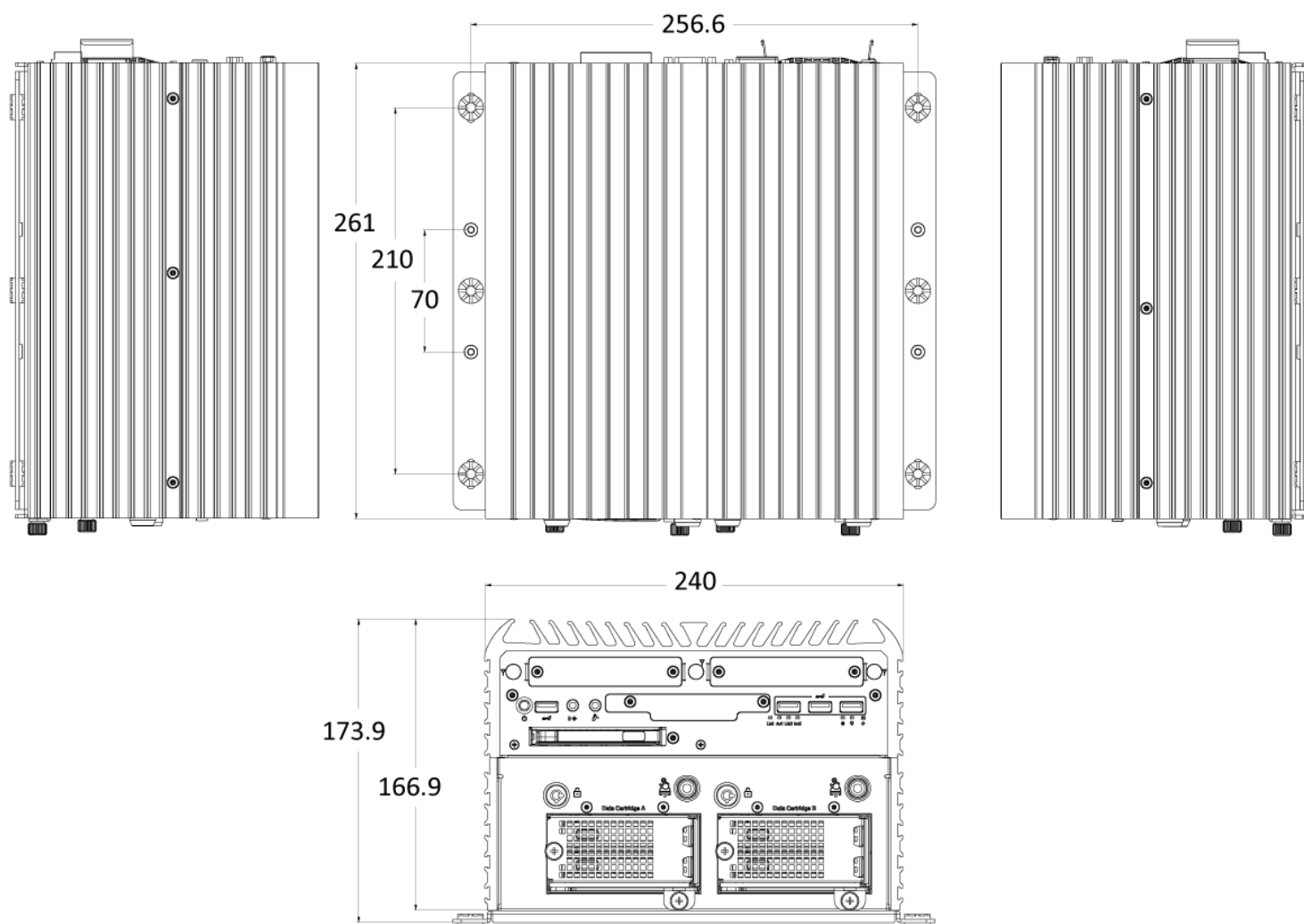
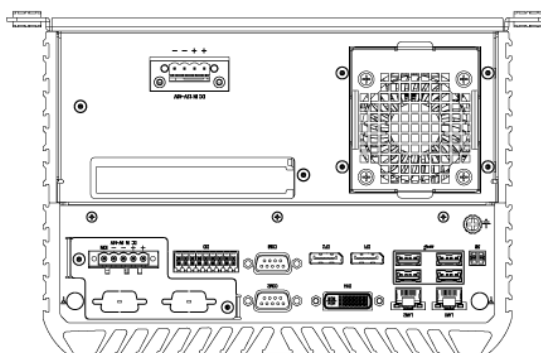
### 1.4.5 RCO-6000-RPL-2E16-2PWR

Unit: mm



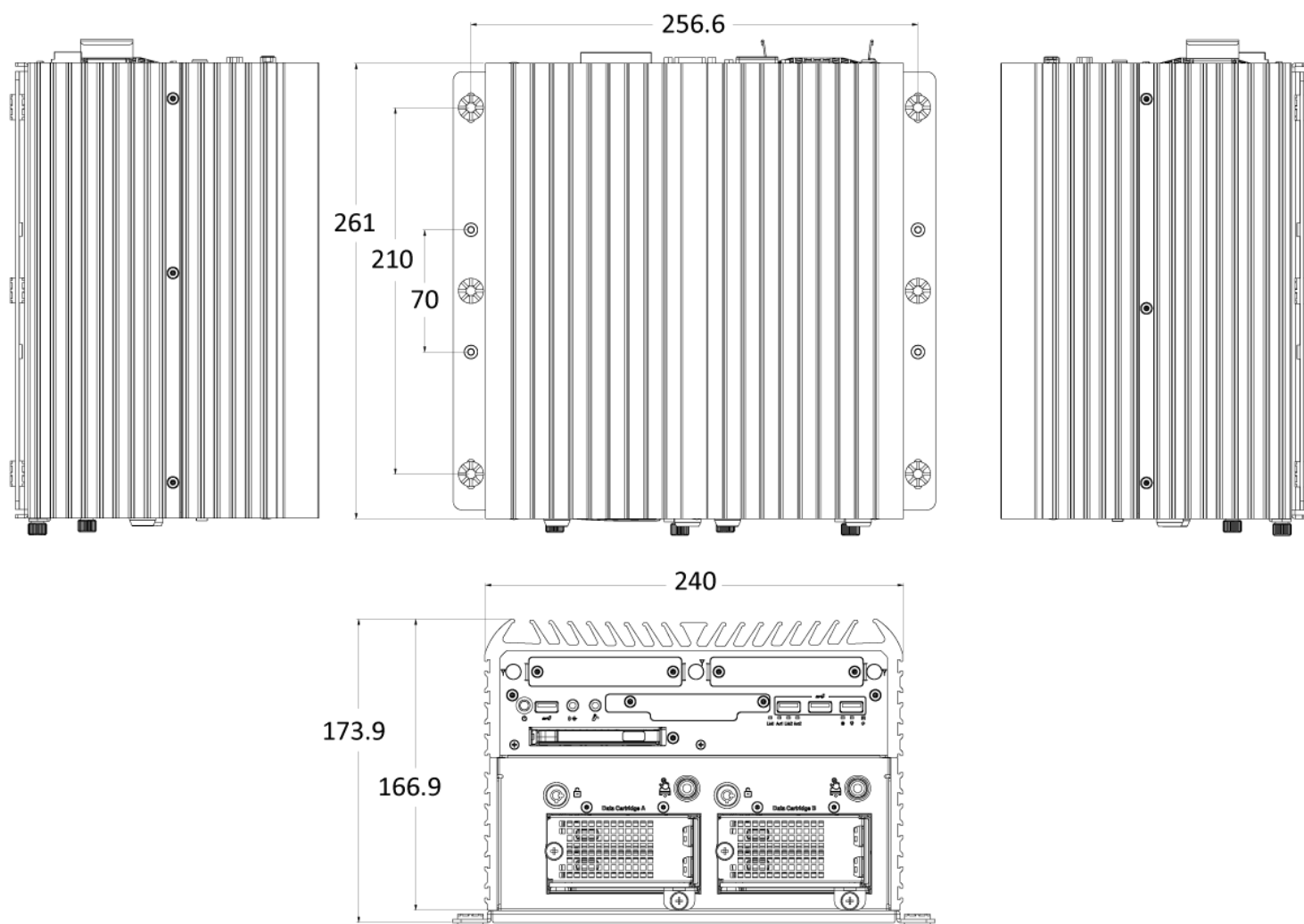
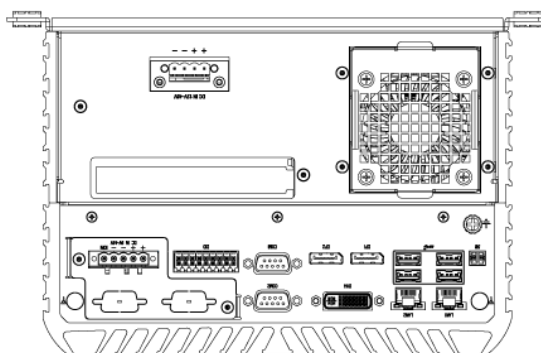
### 1.4.6 RCO-6000-RPL-4NH

Unit: mm



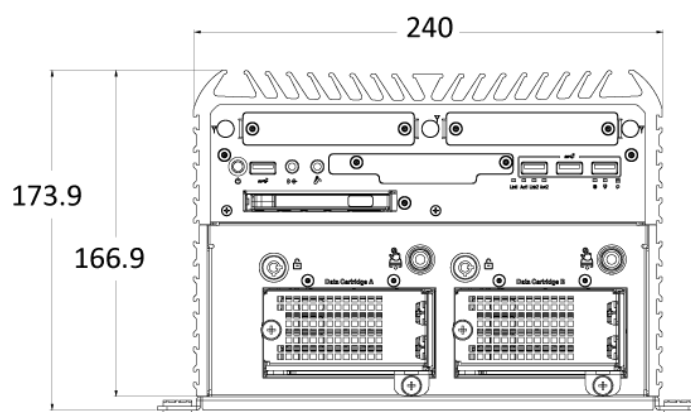
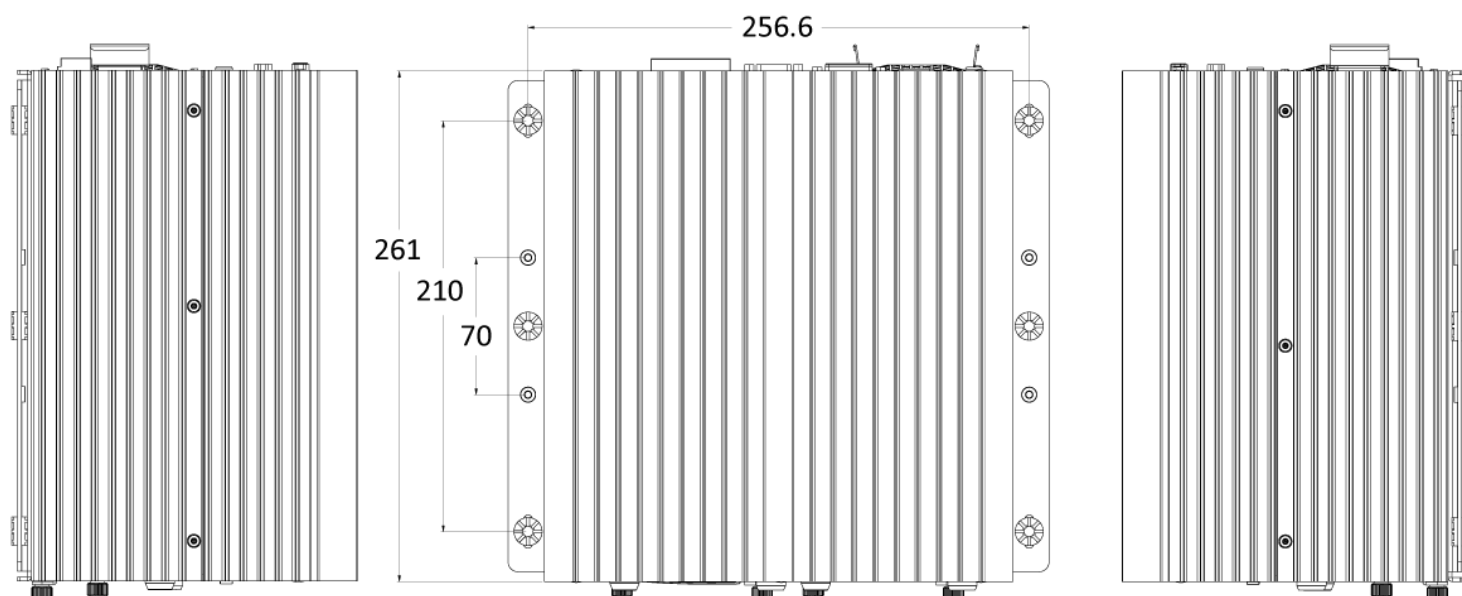
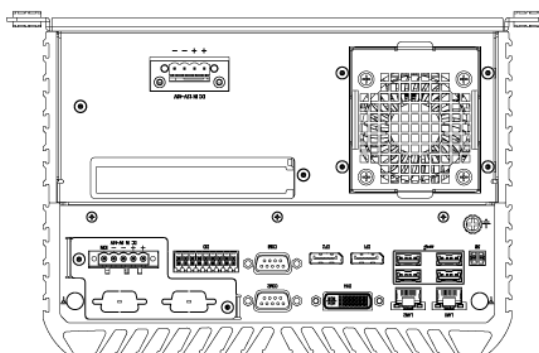
## 1.4.7 RCO-6000-RPL-4NS

Unit: mm



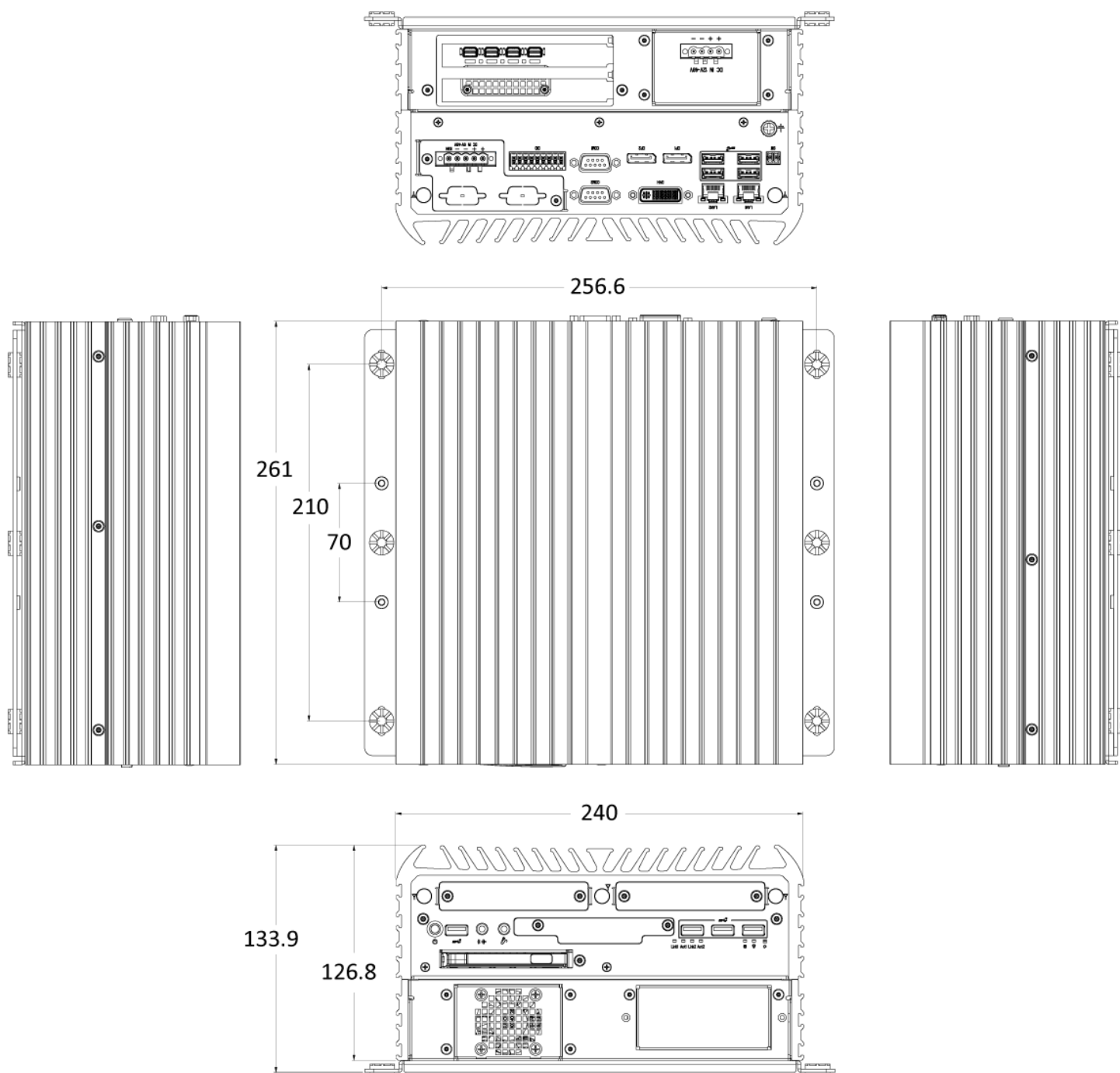
## 1.4.8 RCO-6000-RPL-8NS

Unit: mm



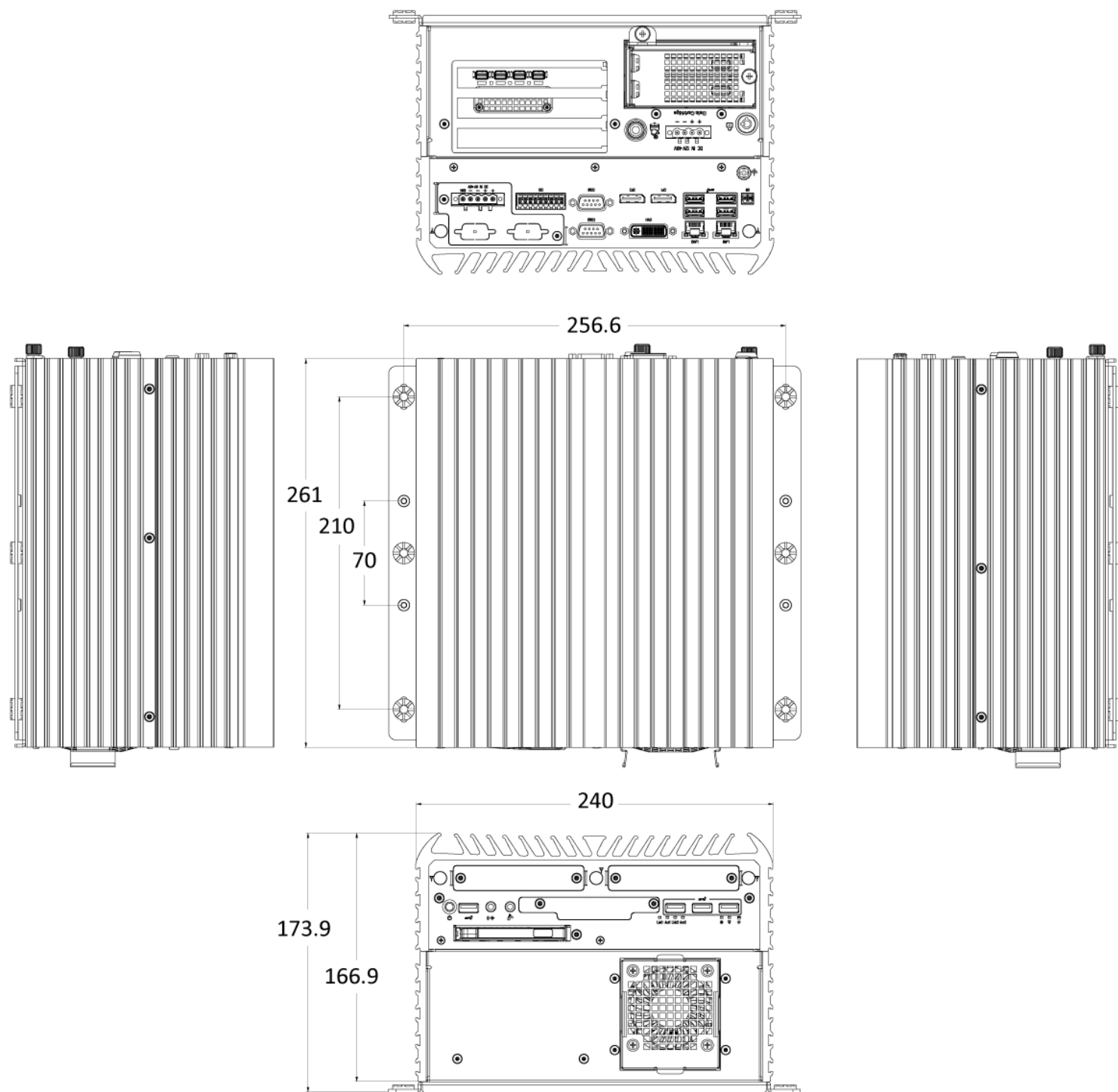
## 1.4.9 RCO-6000-RPL-GPU

Unit: mm



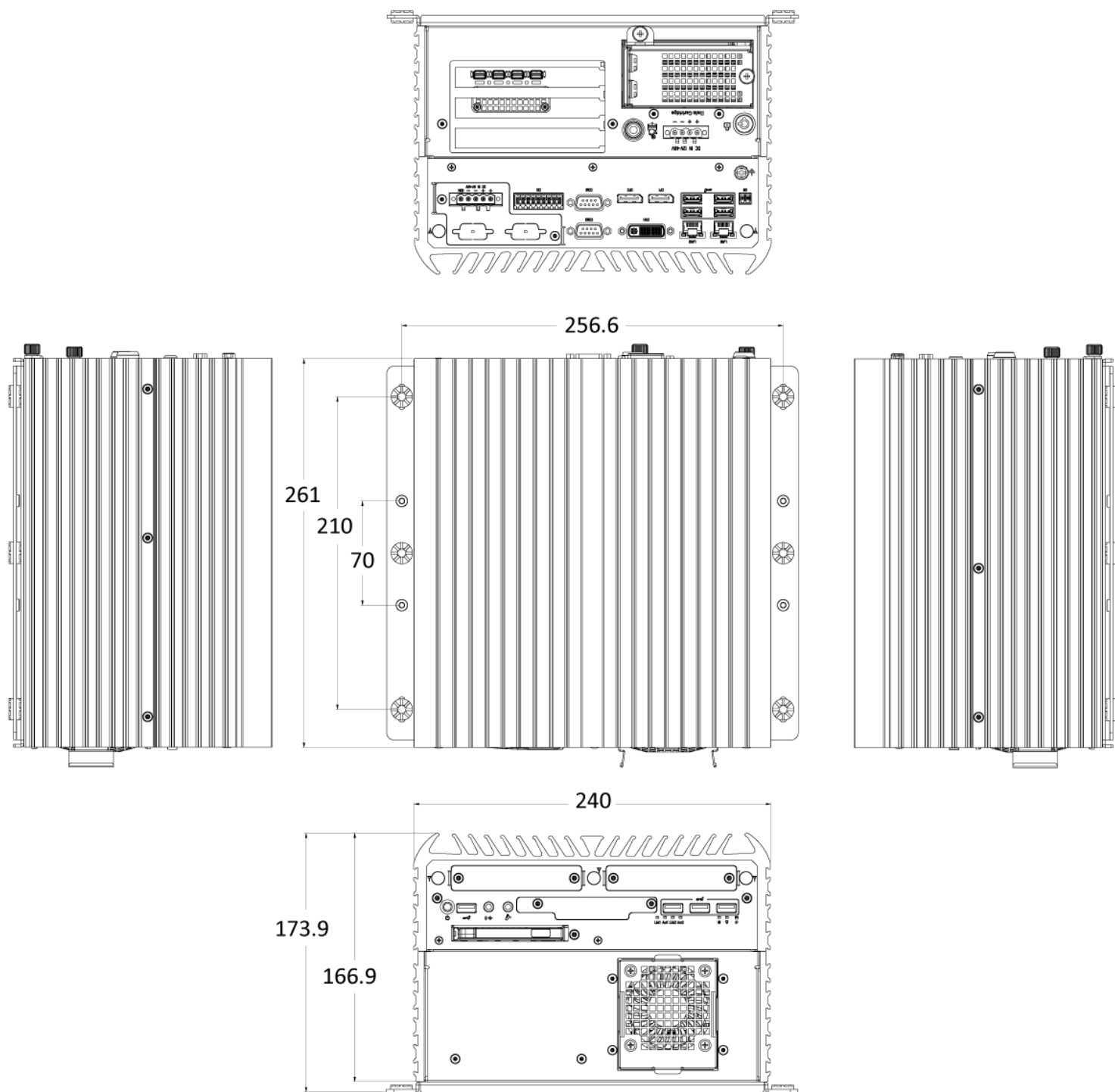
### 1.4.10 RCO-6000-RPL-2N-GPU

Unit: mm



### 1.4.11 RCO-6000-RPL-4N-GPU

Unit: mm

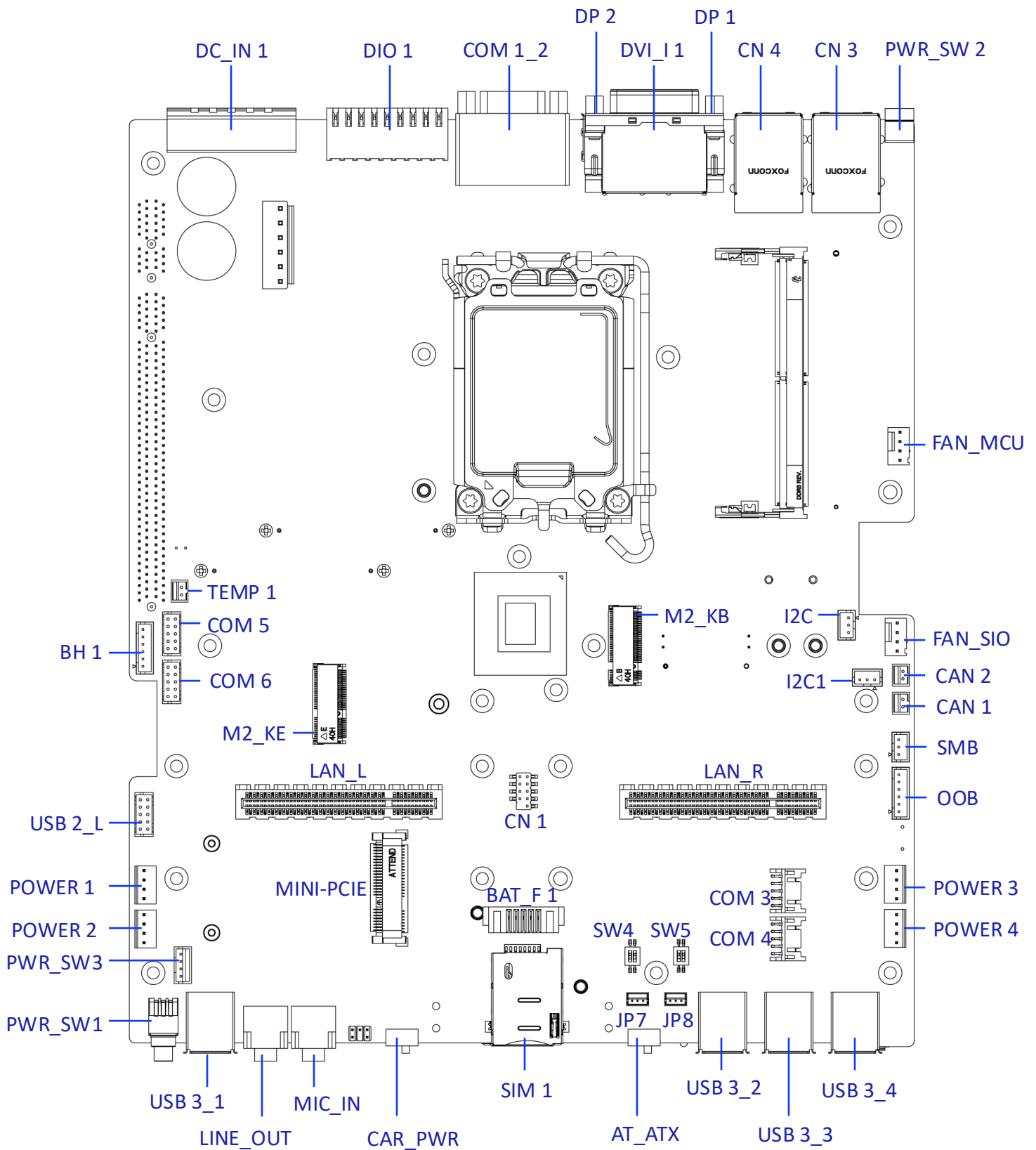


## Chapter 2

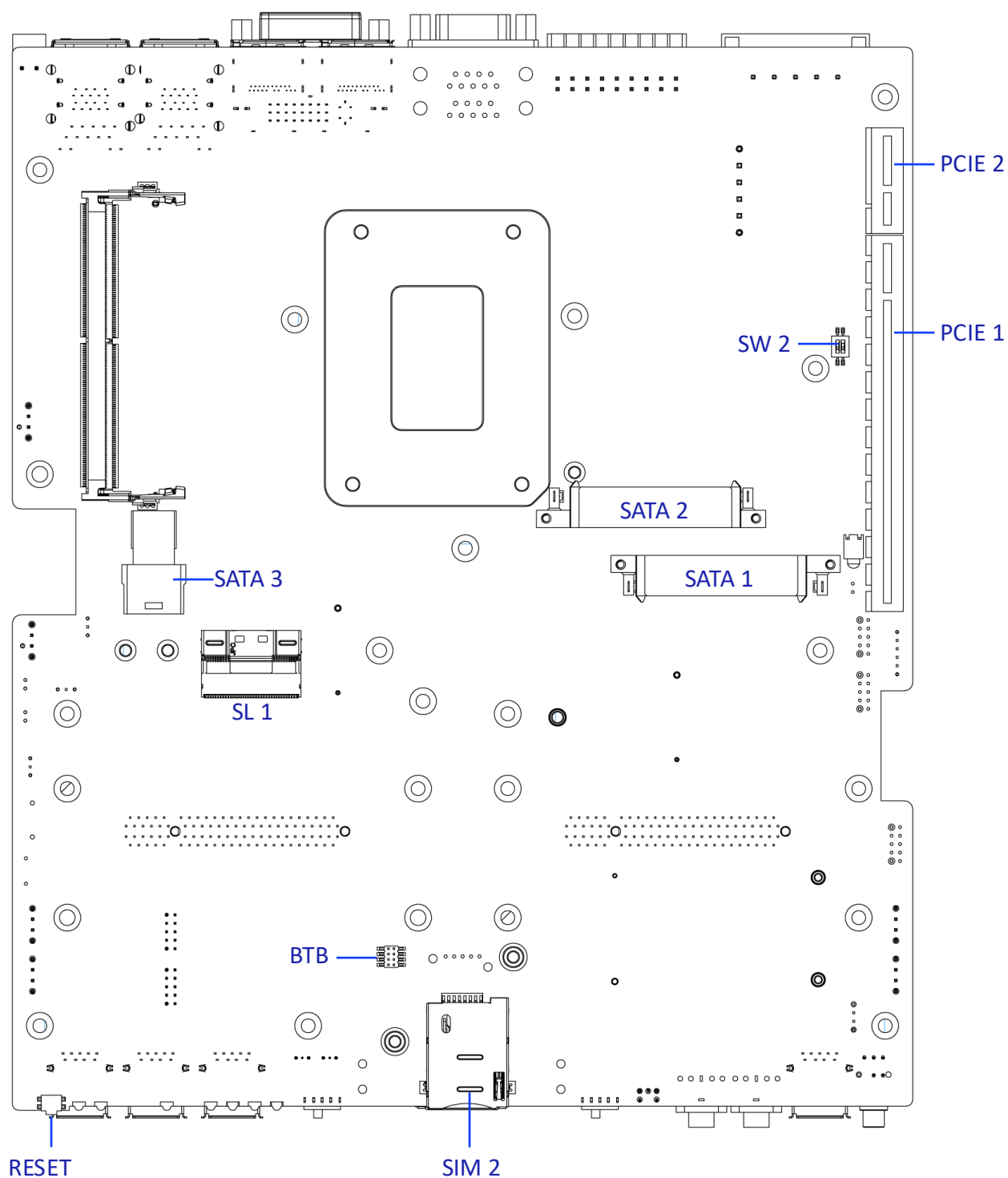
# Mechanical Specifications

## 2.1 Switch and Connector Locations

### 2.1.1 Top View



## 2.1.2 Bottom View

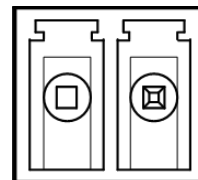
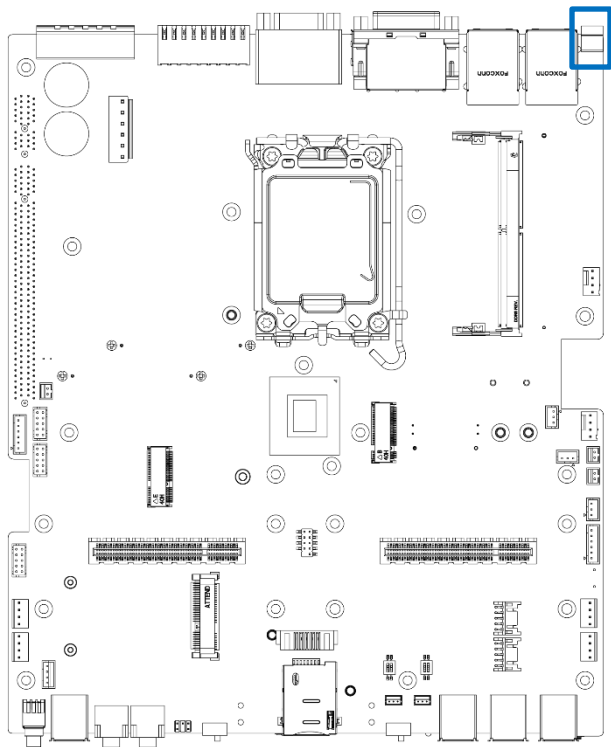


## 2.2 Connector / Switch Definition

| Connector Location | Definition                      | Connector Location | Definition               |
|--------------------|---------------------------------|--------------------|--------------------------|
| PWR_SW2            | Remote Power Switch             | MINI-PCIE          | Mini PCIe / SATA         |
| CN3 , CN4          | LAN_USB3.1 GEN 2 Con            | POWER1~4           | 5V / 12V Con             |
| DVI_I1             | DVI-I Con                       | COM3 , COM4        | COM R/A Con              |
| DP1 , DP2          | DP Con                          | BAT_F1             | Battery Female Con       |
| COM1_2             | RS232 / RS422 / RS485 D-Sub Con | SW4 , SW5          | COM / OOB UART Switch    |
| DIO1               | Digital Input / Output Con      | SIM1               | SIM Socket               |
| DC_IN1             | DC IN Con                       | PWR_SW3            | Remote Control Power Con |
| FAN_MCU            | System FAN Con                  | JP7 , JP8          | OOB UART Con             |
| I2C                | RTC I2C Con                     | USB3_1 ~ 4         | USB3.1 GEN 2 Con         |
| FAN_SIO            | CPU FAN Con                     | AT_ATX             | AT / ATX Switch          |
| M2_KB              | M.2_B Key                       | CAR_PWR            | PC / CAR Switch          |
| TEMP1              | MCU Temp Con                    | MIC_IN<br>LINE_OUT | Audio Phone Jack         |
| COM5 ,<br>COM6     | COM Con                         | PWR_SW1            | Power Button             |
| BH1                | BH Con                          | PCIE2              | Standard PCIe x1 Slot    |
| CAN1 , CAN2        | CAN Bus Con                     | PCIE1              | Standard PEG x16 Slot    |
| I2C1               | I2C Con                         | SW2                | PEG SMBus Disable        |
| M2_KE              | M.2_E Key                       | SATA1 , SATA2      | SATA Con                 |
| SMB                | SMBus Con                       | SATA3              | SATA x4 Con              |
| OOB                | OOB Control Signal Con          | SL1                | Slimline Con             |
| LAN_R ,<br>LAN_L   | Edge I/O Slot                   | BTB                | RTC Board To Board Con   |
| CN1                | Internal USB3.0 Header          | SIM2               | SIM Socket (Mini PCIe)   |
| USB2_L             | USB2.0 Con                      | RESET              | Reset Button             |

## 2.3 I/O Interface Descriptions

### 2.3.1 Remote Power Switch



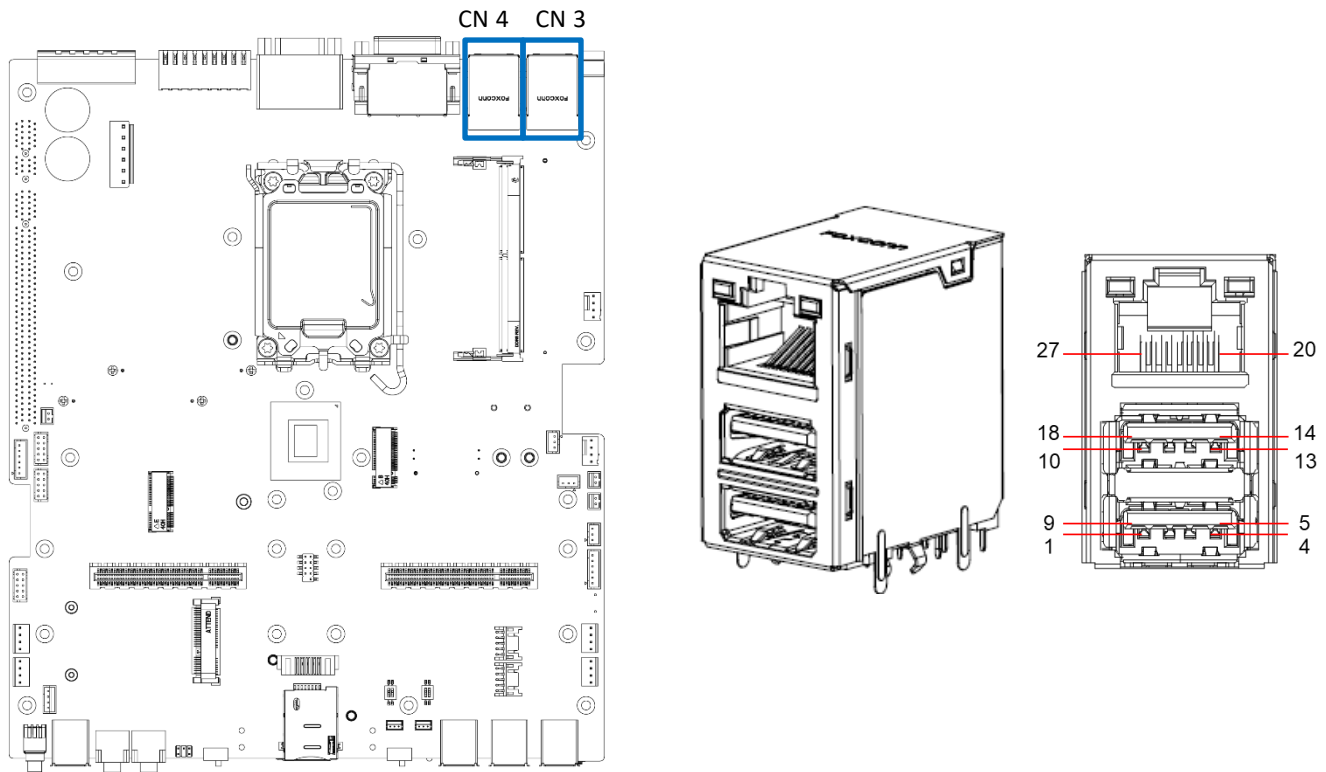
**1      2**

PWR\_SW2

| Pin | Signal       |
|-----|--------------|
| 1   | Power Button |
| 2   | GND          |

### 2.3.2 LAN and USB 3.1 GEN 2 Ports Connector

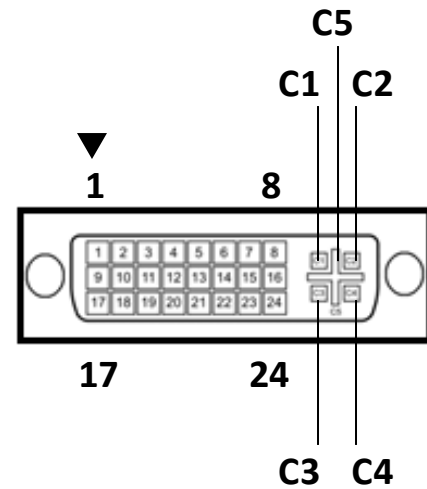
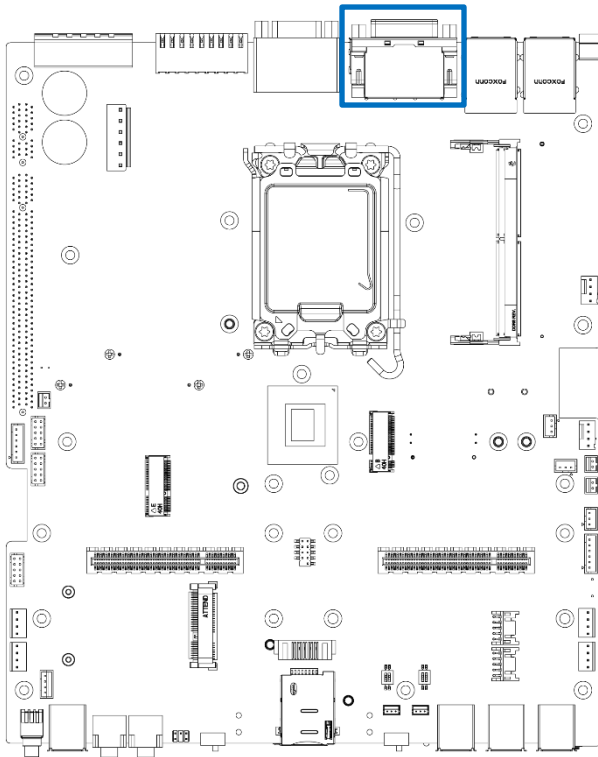
Type: RJ45 port with LEDs and dual USB 3.1 ports



CN3, CN4

| Pin | Signal    | Pin | Signal    | Pin | Signal     |
|-----|-----------|-----|-----------|-----|------------|
| 1   | +5V       | 10  | +5V       | 20  | LAN1_MDI0P |
| 2   | USB2_D1-  | 11  | USB2_D2-  | 21  | LAN1_MDI0N |
| 3   | USB2_D1+  | 12  | USB2_D2+  | 22  | LAN1_MDI1P |
| 4   | GND       | 13  | GND       | 23  | LAN1_MDI2P |
| 5   | USB3_RX1- | 14  | USB3_RX2- | 24  | LAN1_MDI2N |
| 6   | USB3_RX1+ | 15  | USB3_RX2+ | 25  | LAN1_MDI1N |
| 7   | GND       | 16  | GND       | 26  | LAN1_MDI3P |
| 8   | USB3_TX1- | 17  | USB3_TX2- | 27  | LAN1_MDI3N |
| 9   | USB3_TX1+ | 18  | USB3_TX2+ |     |            |

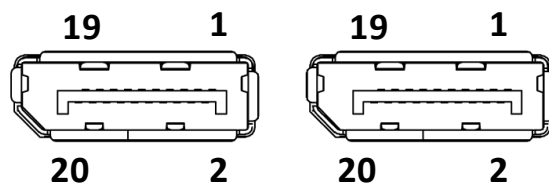
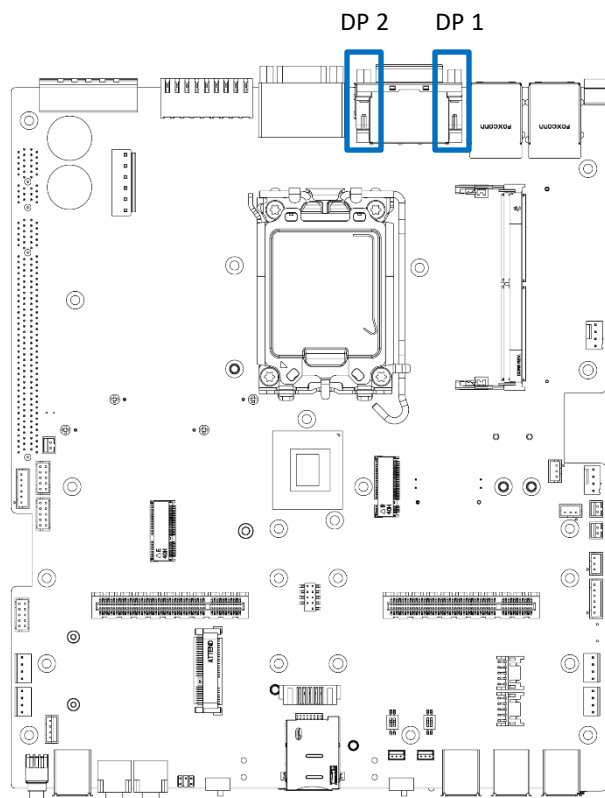
### 2.3.3 DVI-I Connector



DVI\_I 1

| Pin | Signal        | Pin | Signal              |
|-----|---------------|-----|---------------------|
| 1   | DVI_TX2-      | 16  | DVI Hot Plug Detect |
| 2   | DVI_TX2+      | 17  | DVI_TX0-            |
| 3   | GND           | 18  | DVI_TX0+            |
| 4   | NC            | 19  | GND                 |
| 5   | NC            | 20  | VGA_DDC_CLOCK       |
| 6   | DVI_DDC_CLOCK | 21  | VGA_DDC_DATA        |
| 7   | DVI_DDC_DATA  | 22  | GND                 |
| 8   | VGA_VSYNC     | 23  | DVI_TXCLK+          |
| 9   | DVI_TX1-      | 24  | DVI_TXCLK-          |
| 10  | DVI_TX1+      | C1  | VGA_RED             |
| 11  | GND           | C2  | VGA_GREEN           |
| 12  | NC            | C3  | VGA_BLUE            |
| 13  | NC            | C4  | VGA_HSYNC           |
| 14  | +5V           | C5  | GND                 |
| 15  | GND           |     |                     |

### 2.3.4 Display Port Connector

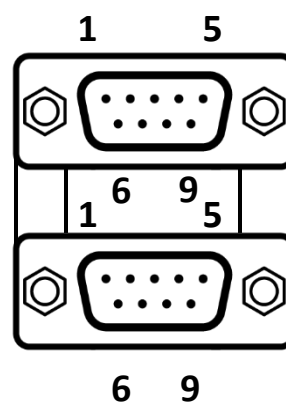
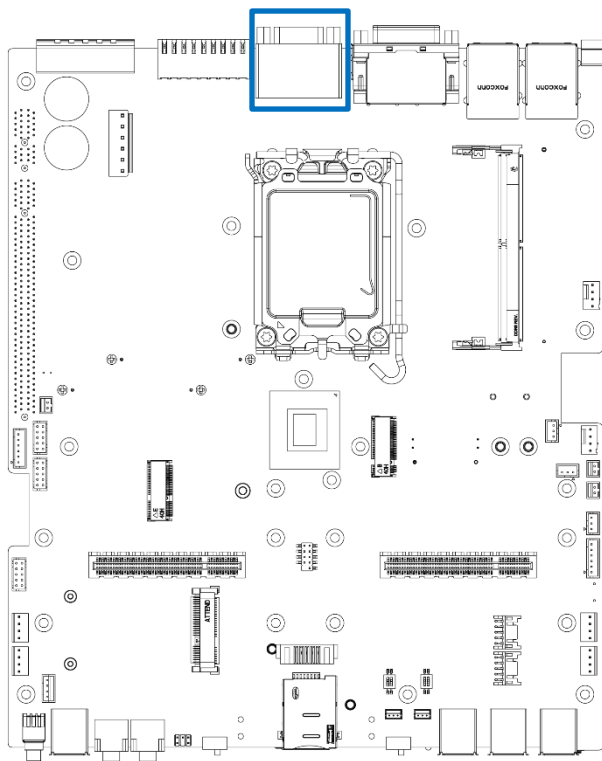


DP 1, DP 2

| Pin | Signal     | Pin | Signal     |
|-----|------------|-----|------------|
| 1   | DP_LANE0_P | 11  | GND        |
| 2   | GND        | 12  | DP_LANE3_N |
| 3   | DP_LANE0_N | 13  | GND        |
| 4   | DP_LANE1_P | 14  | GND        |
| 5   | GND        | 15  | DP_AUX_P   |
| 6   | DP_LANE1_N | 16  | GND        |
| 7   | DP_LANE2_P | 17  | DP_AUX_N   |
| 8   | GND        | 18  | DP_HPD     |
| 9   | DP_LANE2_N | 19  | GND        |
| 10  | DP_LANE3_P | 20  | +3.3V      |

### 2.3.5 RS232 / RS422 / RS485 D-Sub Connector

Type: 9-pin D-Sub

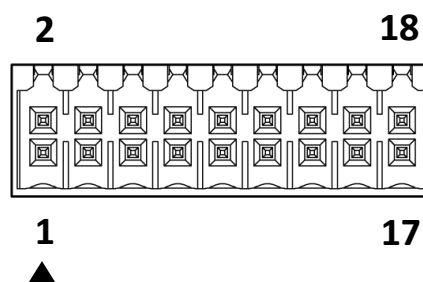
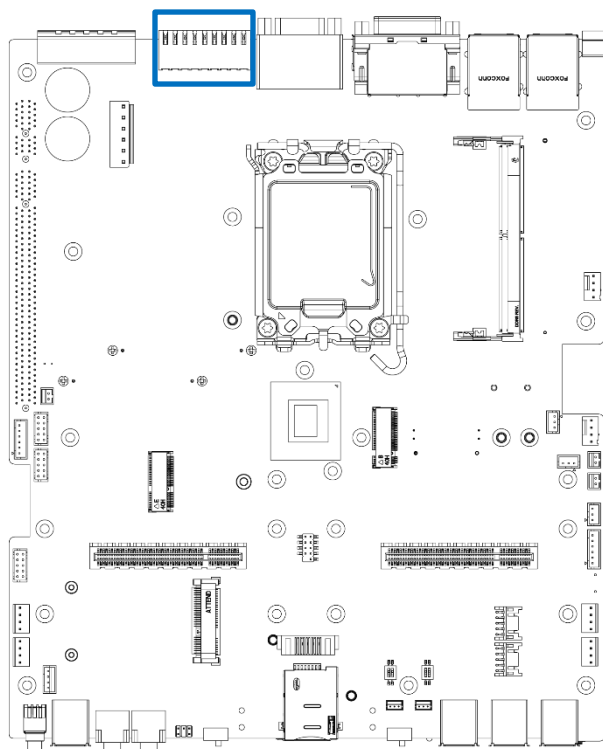


COM 1\_2

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

### 2.3.6 Digital Input / Output Connector

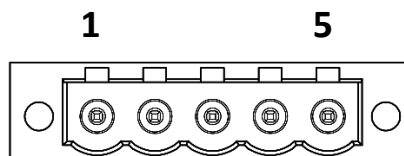
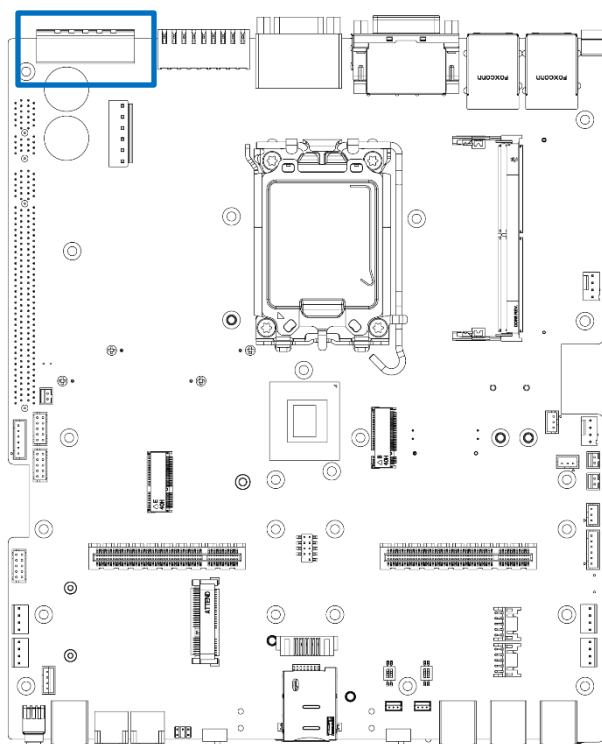
Type: Terminal Block 2x9 18-pin, 3.5mm pitch



#### DIO1

| Pin | Signal                    | Pin | Signal |
|-----|---------------------------|-----|--------|
| 1   | DIN1                      | 2   | DOUT1  |
| 3   | DIN2                      | 4   | DOUT2  |
| 5   | DIN3                      | 6   | DOUT3  |
| 7   | DIN4                      | 8   | DOUT4  |
| 9   | DIN5                      | 10  | DOUT5  |
| 11  | DIN6                      | 12  | DOUT6  |
| 13  | DIN7                      | 14  | DOUT7  |
| 15  | DIN8                      | 16  | DOUT8  |
| 17  | DC power input (+5V~+24V) | 18  | GND    |

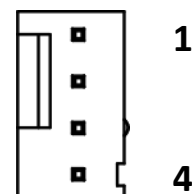
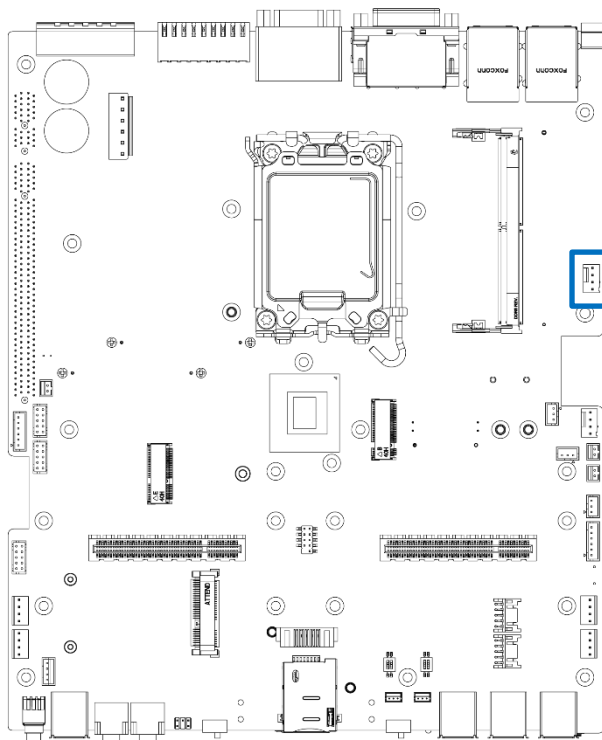
### 2.3.7 DC IN Connector



DC\_IN 1

| Pin | Signal     |
|-----|------------|
| 1   | +9V ~ +48V |
| 2   | +9V ~ +48V |
| 3   | GND        |
| 4   | GND        |
| 5   | IGN        |

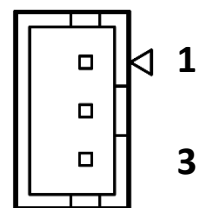
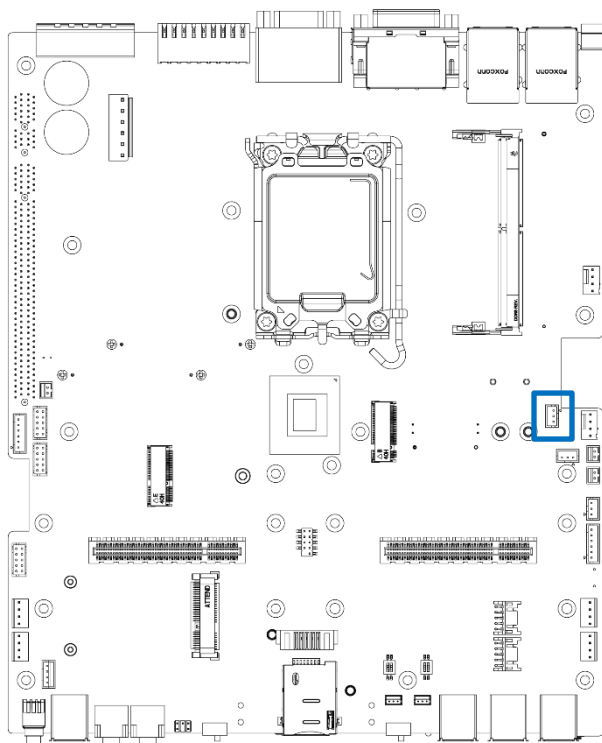
### 2.3.8 System FAN Connector



FAN\_MCU

| Pin | Signal      |
|-----|-------------|
| 1   | GND         |
| 2   | 12V         |
| 3   | SENSE       |
| 4   | PWM Control |

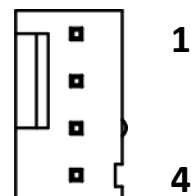
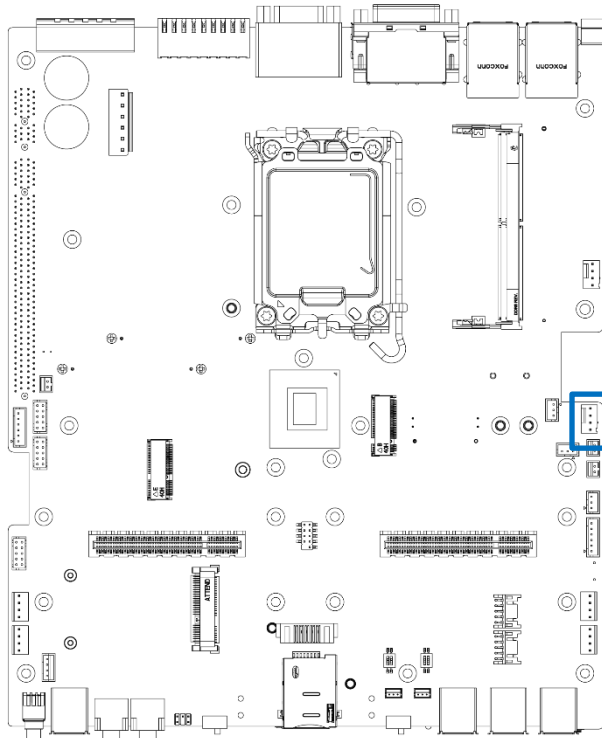
### 2.3.9 RTC I2C Connector



I2C

| Pin | Signal   |
|-----|----------|
| 1   | I2C_DATA |
| 2   | I2C_CLK  |
| 3   | GND      |

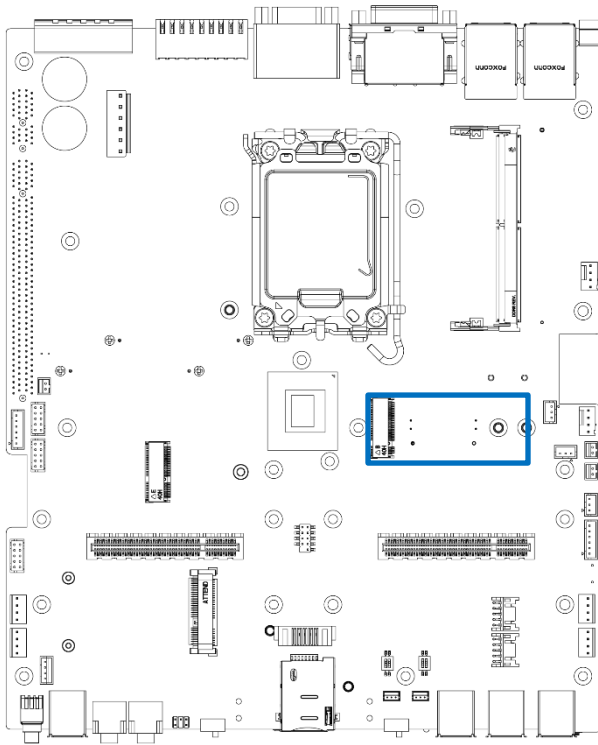
### 2.3.10 CPU FAN Connector



FAN\_SIO

| Pin | Signal      |
|-----|-------------|
| 1   | GND         |
| 2   | 12V         |
| 3   | SENSE       |
| 4   | PWM Control |

### 2.3.11 M.2 B Key Socket

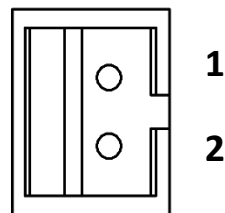
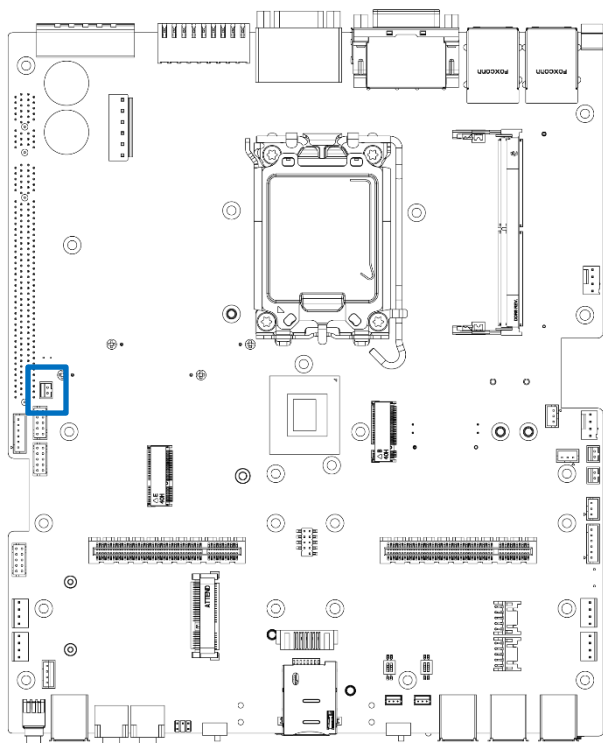


M2\_KB

| Pin | Signal           | Pin | Signal               |
|-----|------------------|-----|----------------------|
| 1   | CONFIG_3         | 2   | +3.3V                |
| 3   | GND              | 4   | +3.3V                |
| 5   | GND              | 6   | FULL_CARD_POWER_OFF# |
| 7   | USB_D+           | 8   | W_DISABLE1#          |
| 9   | USB_D-           | 10  | WWAN_LED#            |
| 11  | GND              | 20  | NC                   |
| 21  | CONFIG_0         | 22  | NC                   |
| 23  | GPIO_11(0/1.8V)  | 24  | NC                   |
| 25  | DPR              | 26  | W_DISABLE2#          |
| 27  | GND              | 28  | NC                   |
| 29  | PERn1/USB3.0-Rx- | 30  | USIM1_RST            |
| 31  | PERp1/USB3.0-Rx+ | 32  | USIM1_CLK            |
| 33  | GND              | 34  | USIM1_DATA           |
| 35  | PETn1/USB3.0-Tx- | 36  | USIM1_VDD            |

| Pin | Signal           | Pin | Signal        |
|-----|------------------|-----|---------------|
| 37  | PETp1/USB3.0-Tx+ | 38  | NC            |
| 39  | GND              | 40  | USIM2_DET     |
| 41  | PERn0/SATA-B+    | 42  | USIM2_DATA    |
| 43  | PERp0/SATA-B-    | 44  | USIM2_CLK     |
| 45  | GND              | 46  | USIM2_RST     |
| 47  | PETn0/SATA-A-    | 48  | USIM2_VDD     |
| 49  | PETp0/SATA-A+    | 50  | PCIE_RST_N    |
| 51  | GND              | 52  | PCIE_CLKREQ_N |
| 53  | PCIE_REFCLK_M    | 54  | NC            |
| 55  | PCIE_REFCLK_P    | 56  | NC            |
| 57  | GND              | 58  | NC            |
| 59  | NC               | 60  | NC            |
| 61  | NC               | 62  | NC            |
| 63  | NC               | 64  | NC            |
| 65  | NC               | 66  | USIM1_DET     |
| 67  | NC               | 68  | NC            |
| 69  | CONFIG_1         | 70  | +3.3VAUX      |
| 71  | GND              | 72  | +3.3VAUX      |
| 73  | GND              | 74  | +3.3VAUX      |
| 75  | CONFIG_2         |     |               |

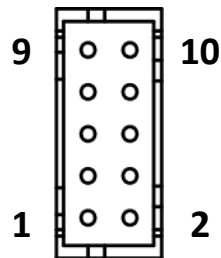
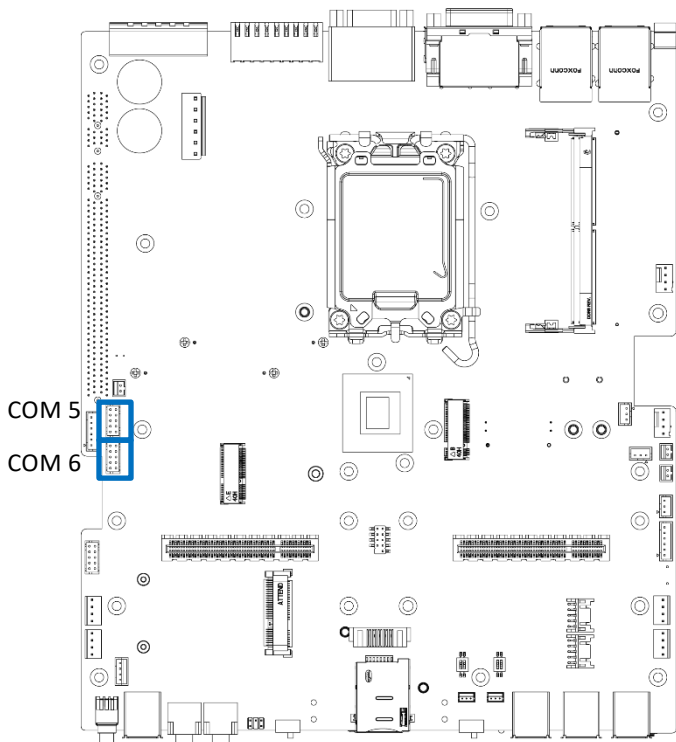
### 2.3.12 MCU Temp Connector



TEMP1

| Pin | Signal |
|-----|--------|
| 1   | GND    |
| 2   | TMP+   |

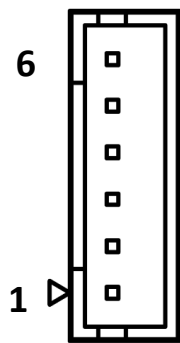
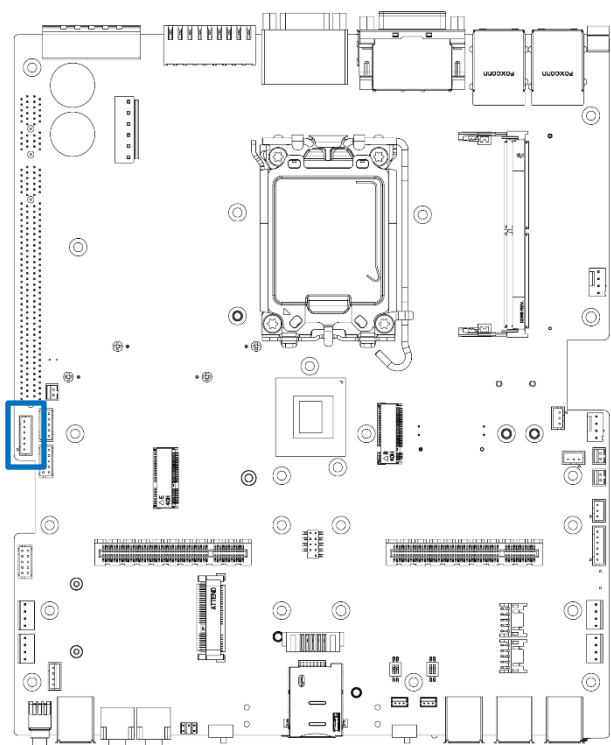
### 2.3.13 COM Connector



COM5 , COM6

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1   | DCD    | 2   | DSR    |
| 3   | RXD    | 4   | RTS    |
| 5   | TXD    | 6   | CTS    |
| 7   | DTR    | 8   | RI     |
| 9   | GND    | 10  | GND    |

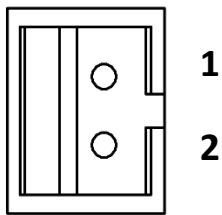
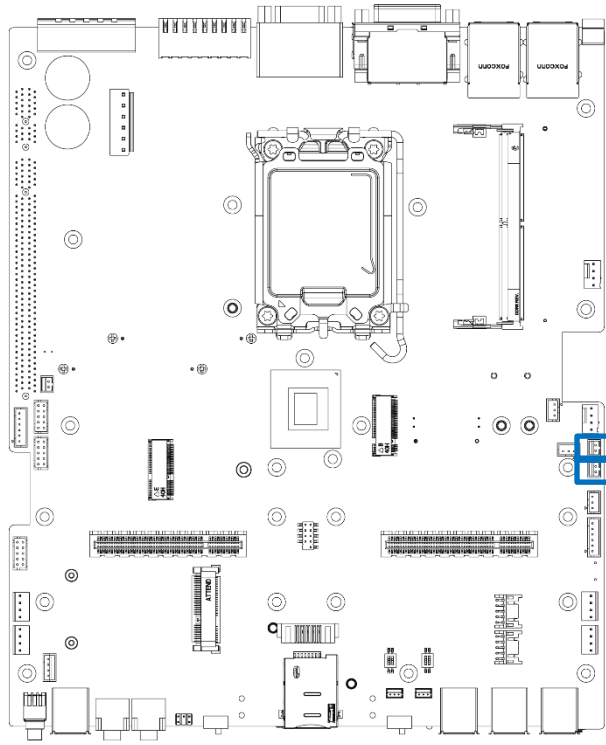
2.3.14 BH Connector



BH1

| Pin | Signal  |
|-----|---------|
| 1   | +3.3V   |
| 2   | PLTRST# |
| 3   | SLP S4  |
| 4   | SLP S5  |
| 5   | RSTBTN# |
| 6   | GND     |

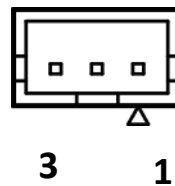
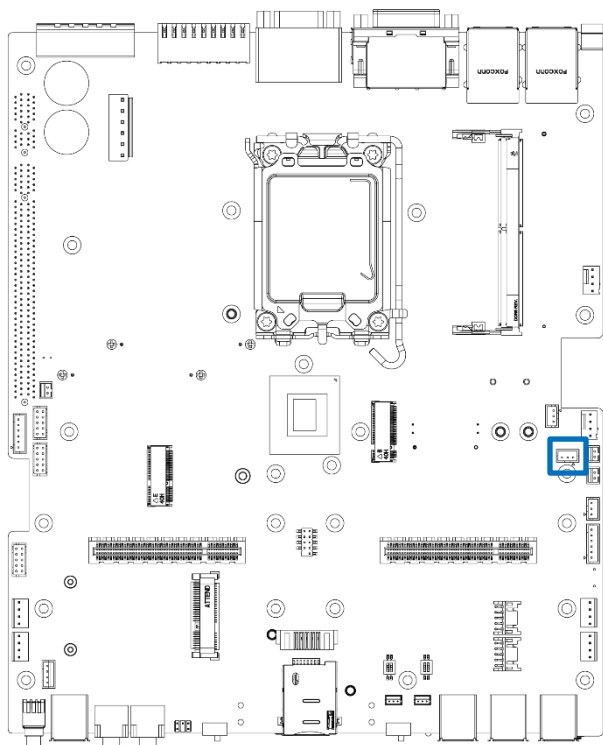
2.3.15 CAN Bus Connector



CAN1, CAN2

| Pin | Signal |
|-----|--------|
| 1   | CAN_L  |
| 2   | CAN_H  |

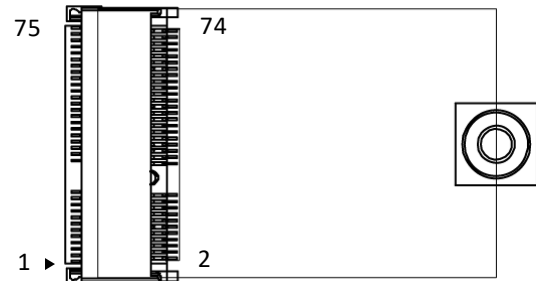
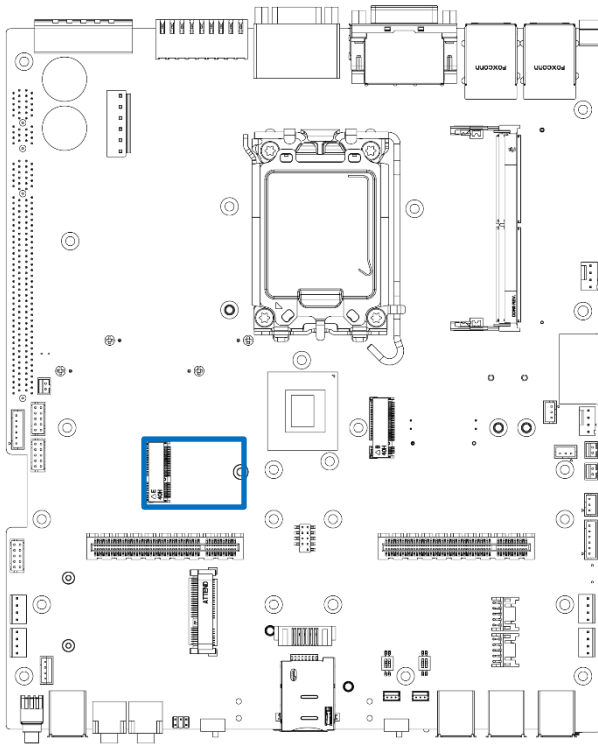
### 2.3.16 I2C Connector



I2C1

| Pin | Signal   |
|-----|----------|
| 1   | I2C_DATA |
| 2   | I2C_CLK  |
| 3   | GND      |

### 2.3.17 M.2 E Key Socket

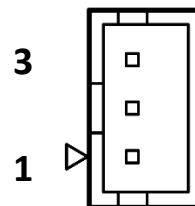
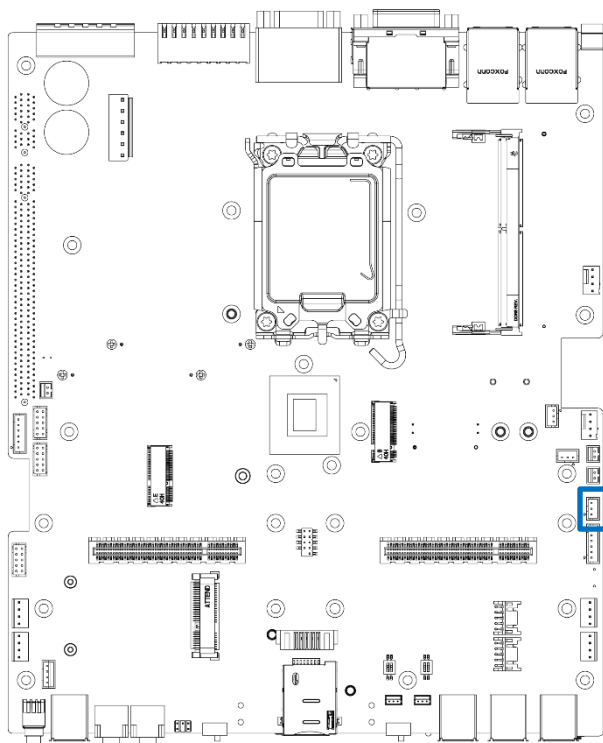


#### M2\_KE

| Pin | Signal        | Pin | Signal        |
|-----|---------------|-----|---------------|
| 1   | GND           | 2   | +3.3VAUX      |
| 3   | USB2_D+       | 4   | +3.3VAUX      |
| 5   | USB2_D-       | 6   | NC            |
| 7   | GND           | 8   | I2S2_SCLK     |
| 9   | CNV_WR_1_DN   | 10  | CNV_RF_RESET# |
| 11  | CNV_WR_1_DP   | 12  | I2S2_RXD      |
| 13  | GND           | 14  | MODEM_CLKREQ  |
| 15  | CNV_WR_0_DN   | 16  | NC            |
| 17  | CNV_WR_0_DP   | 18  | GND           |
| 19  | GND           | 20  | UART_WAKE_L   |
| 21  | CNV_WR_CLK_DN | 22  | CNV_BRI_RSP   |
| 23  | CNV_WR_CLK_DP | 32  | CNV_RGI_DT    |
| 33  | GND           | 34  | CNV_RGI_RSP   |
| 35  | TxP0          | 36  | CNV_BRI_DT    |

| Pin | Signal        | Pin | Signal              |
|-----|---------------|-----|---------------------|
| 37  | TxN0          | 38  | CL_RST#             |
| 39  | GND           | 40  | CL_DATA             |
| 41  | RxP0          | 42  | CL_CLK              |
| 43  | RxN0          | 44  | CNV_PA_BLANKING     |
| 45  | GND           | 46  | CNV_MFUART2_TXD     |
| 47  | REFCLK0+      | 48  | CNV_MFUART2_RXD     |
| 49  | REFCLK0-      | 50  | SUSCLK              |
| 51  | GND           | 52  | PERST0#             |
| 53  | NC            | 54  | M2_KEY-E_BT_DIS2#   |
| 55  | WAKE0#        | 56  | M2_KEY-E_WIFI_DIS1# |
| 57  | GND           | 58  | SMBDATAS_DUAL       |
| 59  | CNV_WT_1_DN   | 60  | SMBCLKS_DUAL        |
| 61  | CNV_WT_1_DP   | 62  | SMBALERT#           |
| 63  | GND           | 64  | Pull Low            |
| 65  | CNV_WT_0_DN   | 66  | PERST1#             |
| 67  | CNV_WT_0_DP   | 68  | NC                  |
| 69  | GND           | 70  | WAKE1#              |
| 71  | CNV_WT_CLK_DN | 72  | +3.3VAUX            |
| 73  | CNV_WT_CLK_DP | 74  | +3.3VAUX            |
| 75  | GND           |     |                     |

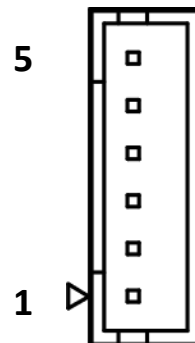
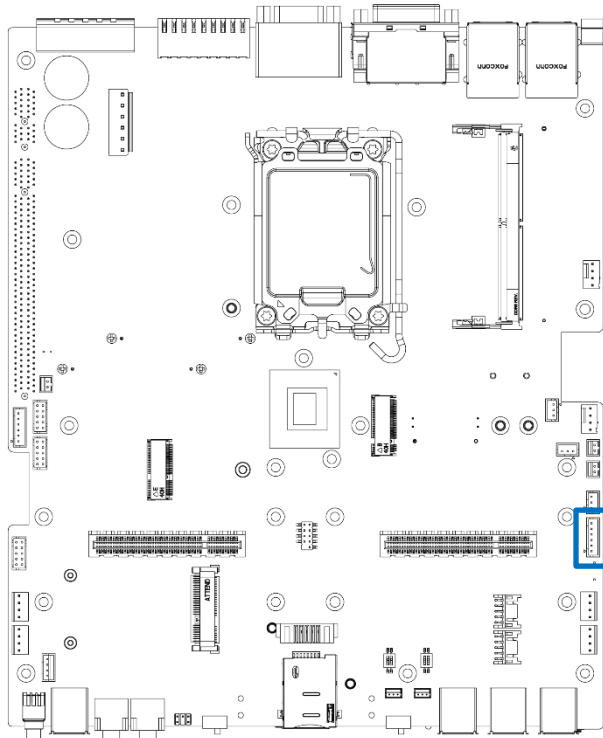
### 2.3.18 SMBus Connector



SMB

| Pin | Signal       |
|-----|--------------|
| 1   | SMBDATA_DUAL |
| 2   | SMBCLK_DUAL  |
| 3   | GND          |

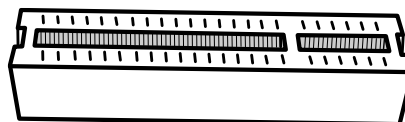
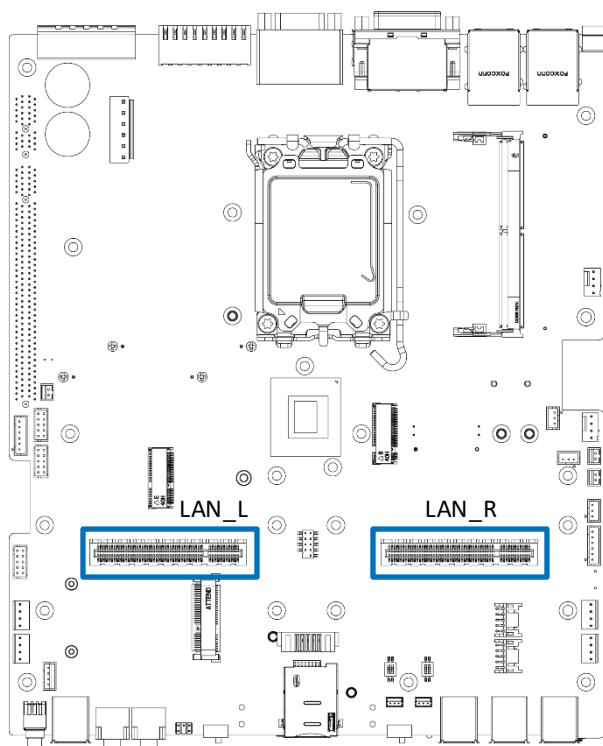
### 2.3.19 OOB Control Signal Connector



OOB

| Pin | Signal    |
|-----|-----------|
| 1   | 5V        |
| 2   | GND       |
| 3   | PWRBTN#   |
| 4   | RSTBTN#   |
| 5   | SYS_PWROK |

### 2.3.20 Edge I/O Slot

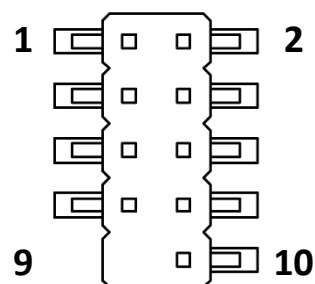
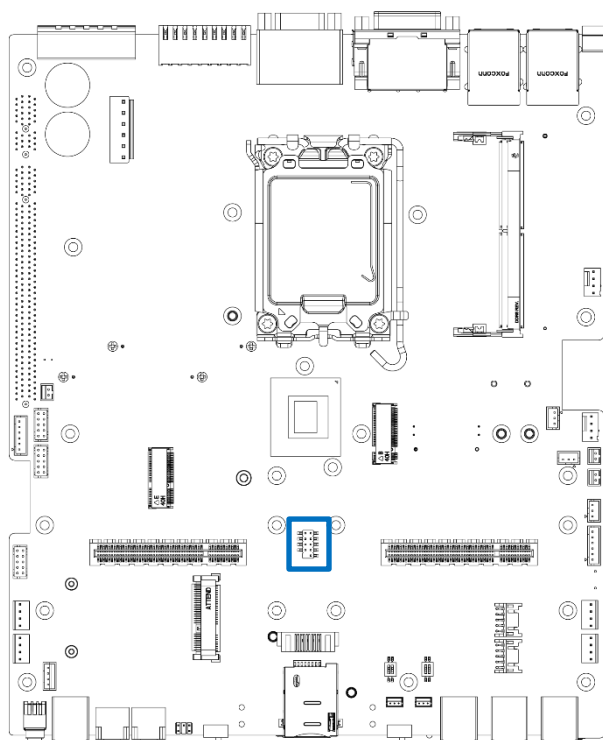


LAN\_L, LAN\_R

| Pin | Signal   | Pin | Signal  |
|-----|----------|-----|---------|
| B1  | +12V     | A1  | NC      |
| B2  | +12V     | A2  | +12V    |
| B3  | +12V     | A3  | +12V    |
| B4  | GND      | A4  | GND     |
| B5  | SMB_CLK  | A5  | NC      |
| B6  | SMB_DATA | A6  | NC      |
| B7  | GND      | A7  | NC      |
| B8  | +3.3V    | A8  | NC      |
| B9  | NC       | A9  | +3.3V   |
| B10 | +3.3VAUX | A10 | +3.3V   |
| B11 | WAKE#    | A11 | RESET#  |
| B12 | NC       | A12 | GND     |
| B13 | GND      | A13 | REFCLK+ |
| B14 | TxP0     | A14 | REFCLK- |
| B15 | TxN0     | A15 | GND     |

| Pin | Signal     | Pin | Signal     |
|-----|------------|-----|------------|
| B16 | GND        | A16 | RxP0       |
| B17 | NC         | A17 | RxN0       |
| B18 | GND        | A18 | GND        |
| B19 | TxP1       | A19 | NC         |
| B20 | TxN1       | A20 | GND        |
| B21 | GND        | A21 | RxP1       |
| B22 | GND        | A22 | RxN1       |
| B23 | TxP2       | A23 | GND        |
| B24 | TxN2       | A24 | GND        |
| B25 | GND        | A25 | RxP2       |
| B26 | GND        | A26 | RxN2       |
| B27 | TxP3       | A27 | GND        |
| B28 | TxN3       | A28 | GND        |
| B29 | GND        | A29 | RxP3       |
| B30 | NC         | A30 | RxN3       |
| B31 | NC         | A31 | GND        |
| B32 | GND        | A32 | NC         |
| B33 | 9_48VSB_IN | A33 | 9_48VSB_IN |
| B34 | 9_48VSB_IN | A34 | 9_48VSB_IN |
| B35 | 9_48VSB_IN | A35 | 9_48VSB_IN |
| B36 | 9_48VSB_IN | A36 | 9_48VSB_IN |
| B37 | 9_48VSB_IN | A37 | 9_48VSB_IN |
| B38 | 9_48VSB_IN | A38 | 9_48VSB_IN |
| B39 | 9_48VSB_IN | A39 | 9_48VSB_IN |
| B40 | 9_48VSB_IN | A40 | 9_48VSB_IN |
| B41 | 9_48VSB_IN | A41 | 9_48VSB_IN |
| B42 | 9_48VSB_IN | A42 | 9_48VSB_IN |
| B43 | +3.3VAUX   | A43 | +5V        |
| B44 | +3.3VAUX   | A44 | +5V        |
| B45 | +3.3VAUX   | A45 | +1.5V      |
| B46 | +3.3VAUX   | A46 | +1.5V      |
| B47 | +1.0VAUX   | A47 | +1.0VAUX   |
| B48 | +1.0VAUX   | A48 | +1.0VAUX   |
| B49 | NC         | A49 | NC         |

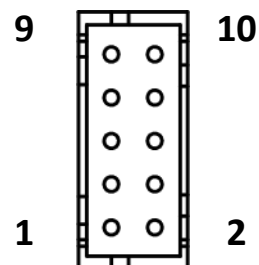
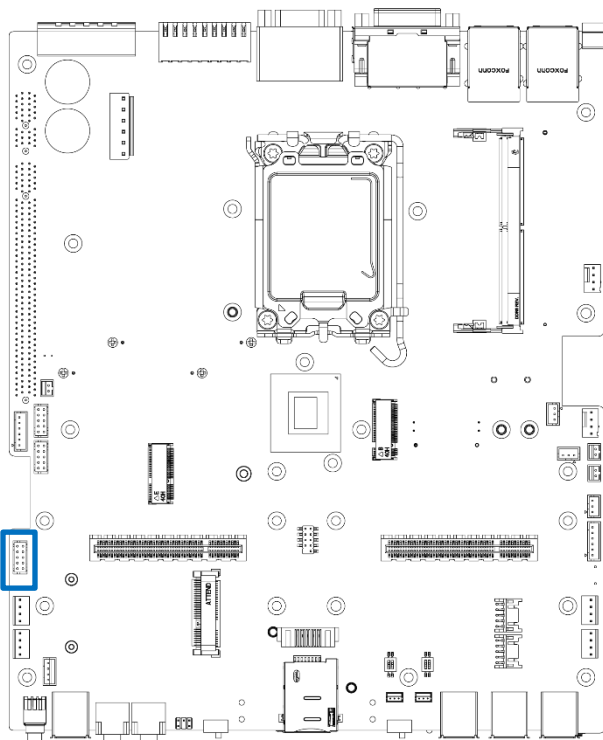
### 2.3.21 Internal USB3.0 Header



CN1

| Pin | Signal | Pin | Signal   |
|-----|--------|-----|----------|
| 1   | +5V    | 2   | USB3_TX- |
| 3   | USB_D- | 4   | USB3_TX+ |
| 5   | USB_D+ | 6   | GND      |
| 7   | GND    | 8   | USB3_RX- |
| 9   | NC     | 10  | USB3_RX+ |

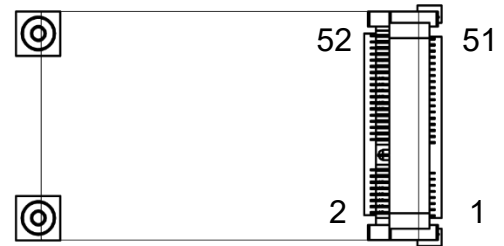
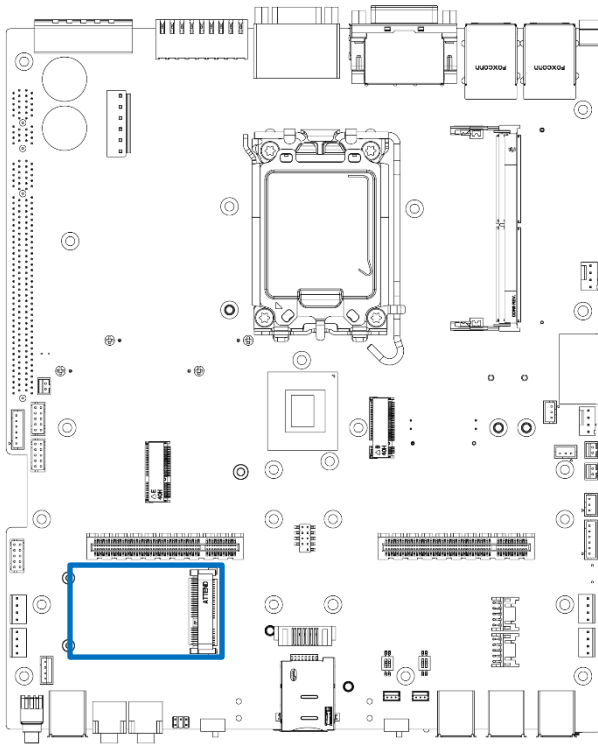
### 2.3.22 USB2.0 Connector



USB 2\_L

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1   | NC     | 2   | 5V     |
| 3   | NC     | 4   | D-     |
| 5   | NC     | 6   | D+     |
| 7   | NC     | 8   | GND    |
| 9   | NC     | 10  | GND    |

### 2.3.23 Mini PCI-Express / mSATA Socket

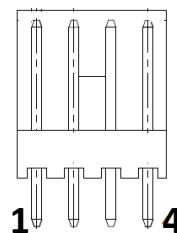
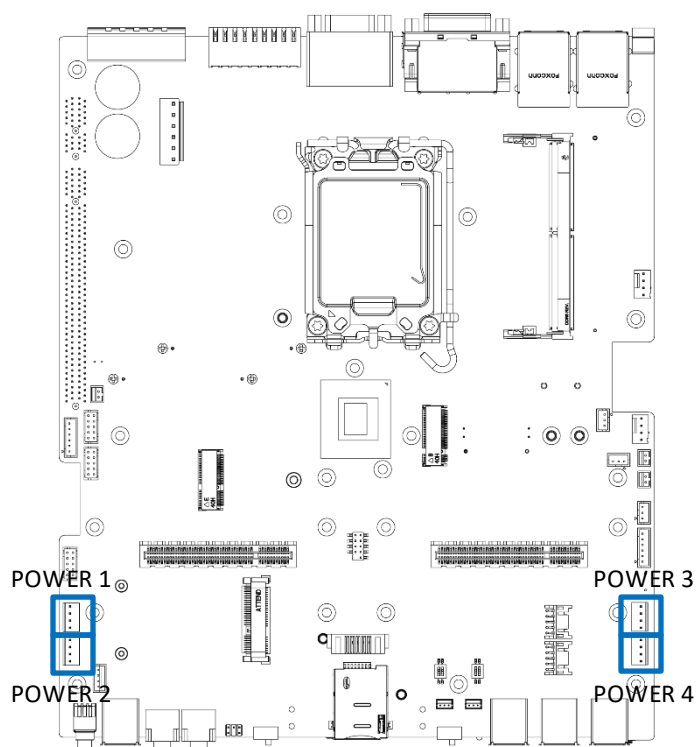


#### MINI-PCIE

| Pin | Signal  | Pin | Signal   |
|-----|---------|-----|----------|
| 1   | WAKE#   | 2   | +3.3V    |
| 3   | NC      | 4   | GND      |
| 5   | NC      | 6   | +1.5V    |
| 7   | CLKREQ# | 8   | UIM_PWR  |
| 9   | GND     | 10  | UIM_DATA |
| 11  | REFCLK- | 12  | UIM_CLK  |
| 13  | REFCLK+ | 14  | UIM_RST  |
| 15  | GND     | 16  | UIM_VPP  |
| 17  | NC      | 18  | GND      |
| 19  | NC      | 20  | NC       |
| 21  | GND     | 22  | RESET#   |
| 23  | RxN     | 24  | +3.3VAUX |
| 25  | RxP     | 26  | GND      |
| 27  | GND     | 28  | +1.5V    |

| Pin | Signal         | Pin | Signal   |
|-----|----------------|-----|----------|
| 29  | GND            | 30  | SMB_CLK  |
| 31  | TxN            | 32  | SMB_DATA |
| 33  | TxP            | 34  | GND      |
| 35  | GND            | 36  | USB2_D-  |
| 37  | GND            | 38  | USB2_D+  |
| 39  | +3.3V          | 40  | GND      |
| 41  | +3.3V          | 42  | NC       |
| 43  | GND            | 44  | DEVSLP   |
| 45  | NC             | 46  | NC       |
| 47  | NC             | 48  | +1.5V    |
| 49  | NC             | 50  | GND      |
| 51  | PCIE_MSATA_SEL | 52  | +3.3V    |

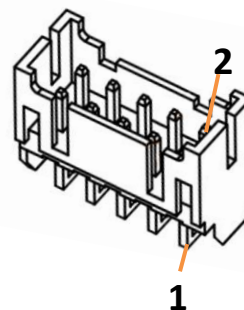
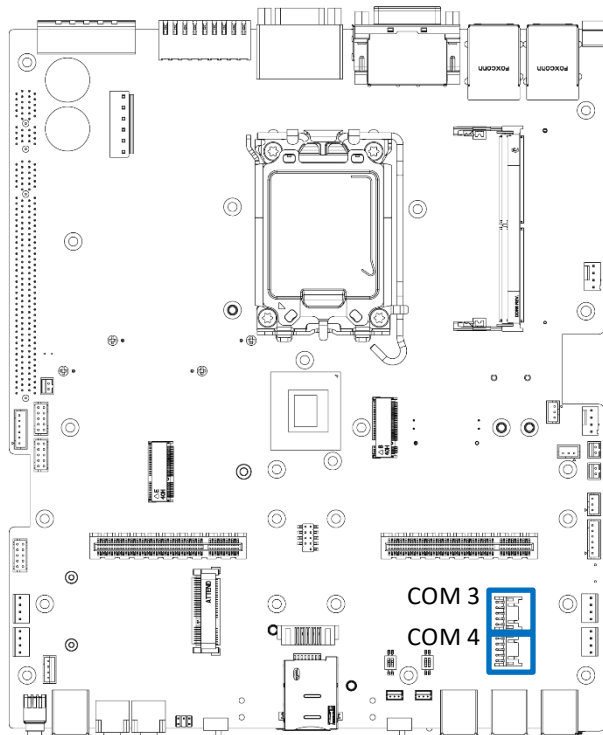
### 2.3.24 5V / 12V Connector



POWER 1, POWER 2, POWER 3, POWER 4

| Pin | Signal |
|-----|--------|
| 1   | 5V     |
| 2   | GND    |
| 3   | GND    |
| 4   | 12V    |

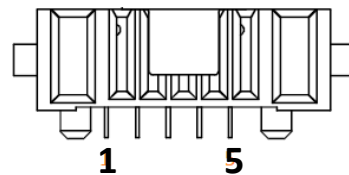
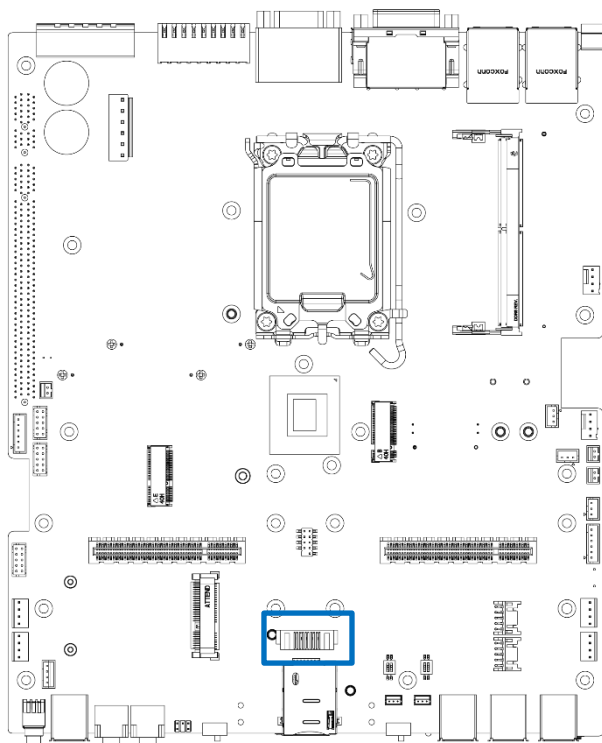
### 2.3.25 COM R/A Connector



COM3 , COM4

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1   | DCD    | 2   | DSR    |
| 3   | RXD    | 4   | RTS    |
| 5   | TXD    | 6   | CTS    |
| 7   | DTR    | 8   | RI     |
| 9   | GND    | 10  | GND    |

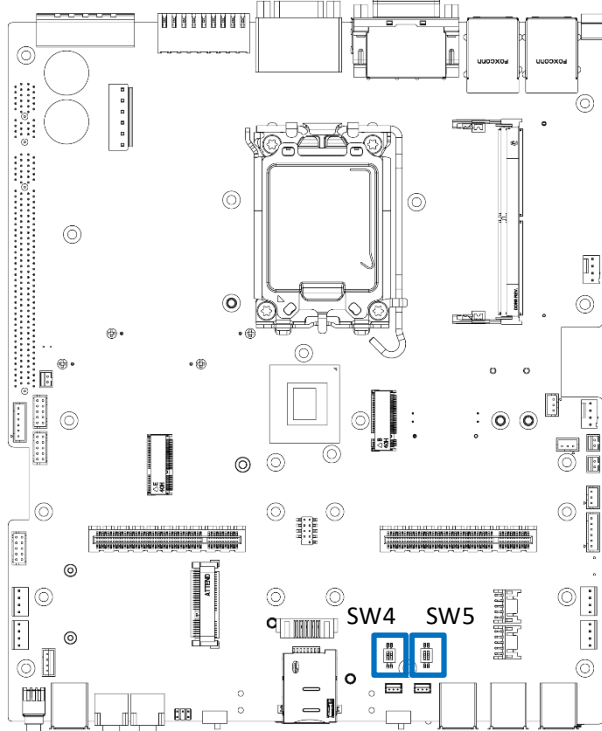
### 2.3.26 Battery Female Connector



BAT\_F1

| Pin | Signal   |
|-----|----------|
| 1   | 3V       |
| 2   | 3V       |
| 3   | CLR_CMOS |
| 4   | GND      |
| 5   | GND      |

### 2.3.27 COM / OOB UART Switch



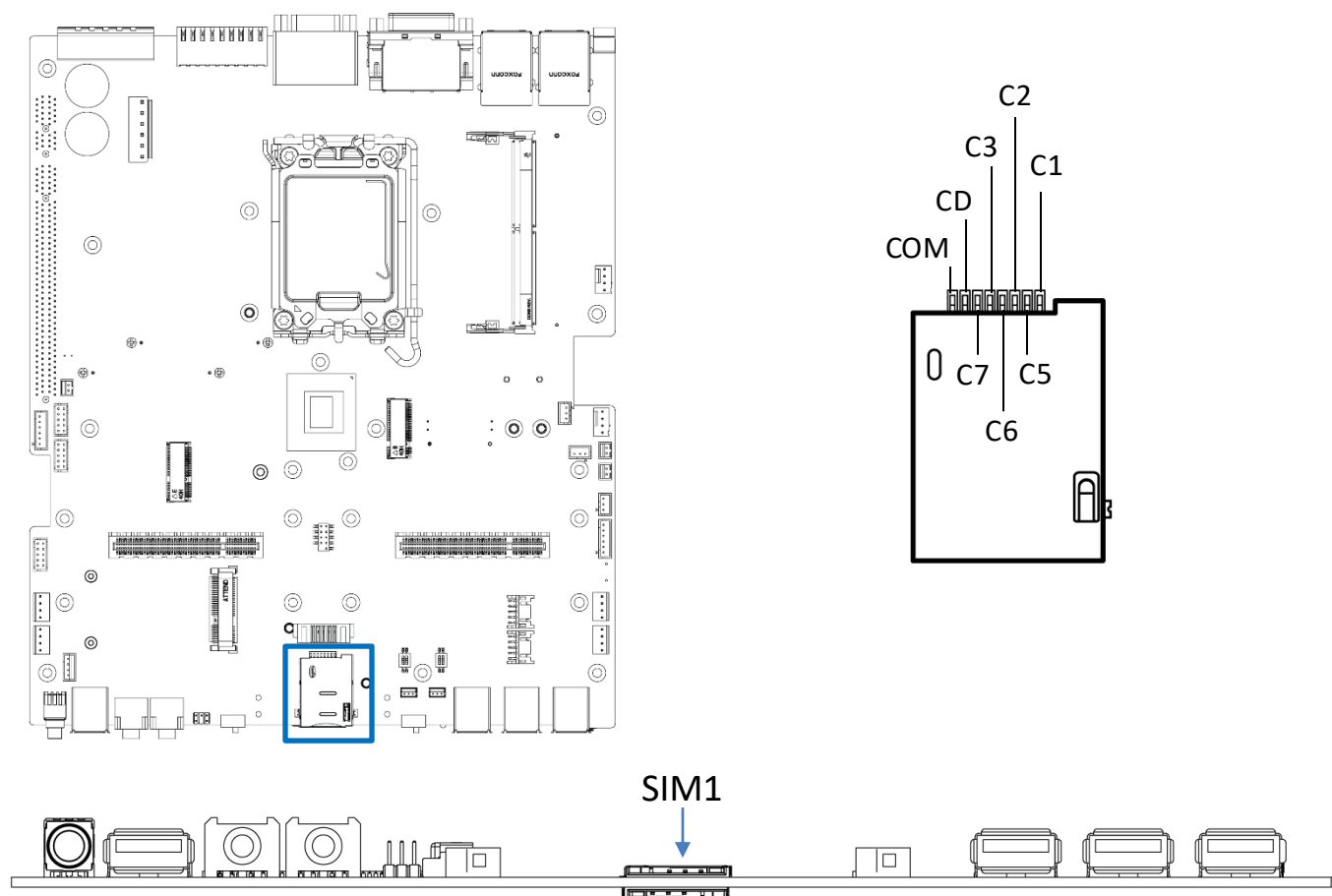
SW4

| Position | Function           |
|----------|--------------------|
| On       | UART Linked To MCU |
| Off      | N/A                |

SW5

| Position | Function                      |
|----------|-------------------------------|
| On       | UART Linked To COM1           |
| Off      | UART Linked To OOB Debug Port |

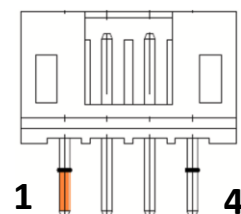
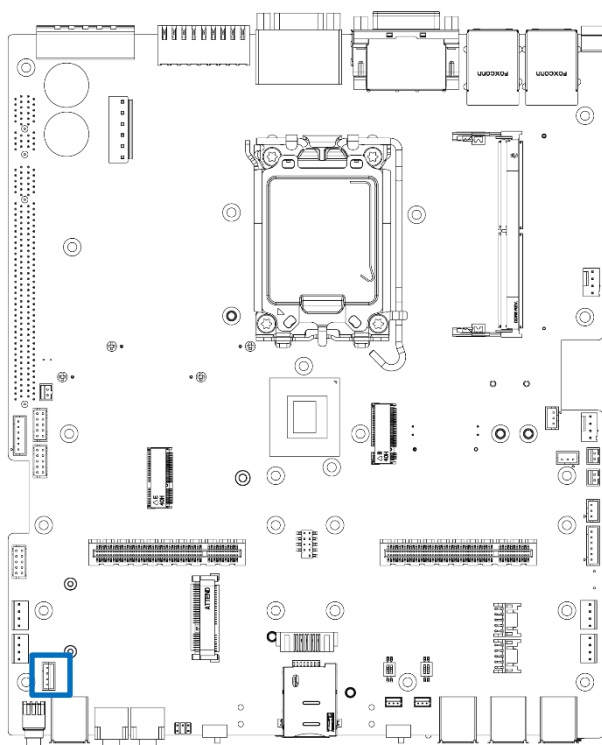
### 2.3.28 SIM Card Socket



#### SIM1

| Pin | Signal    | Pin | Signal   |
|-----|-----------|-----|----------|
| C1  | UIM_PWR   | C6  | UIM_VPP  |
| C2  | UIM_RESET | C7  | UIM_DATA |
| C3  | UIM_CLK   | CD  | NC       |
| C5  | GND       | COM | GND      |

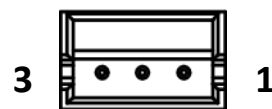
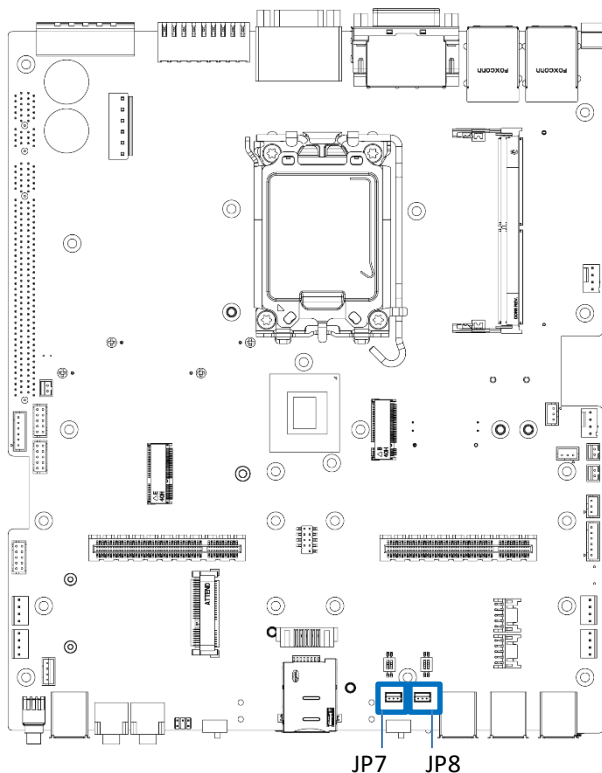
### 2.3.29 Remote Control Power Connector



PWR\_SW 3

| Pin | Signal    |
|-----|-----------|
| 1   | PWRBTN#   |
| 2   | Power Led |
| 3   | Hdd Led   |
| 4   | GND       |

### 2.3.30 OOB UART Connector



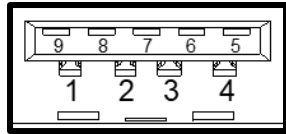
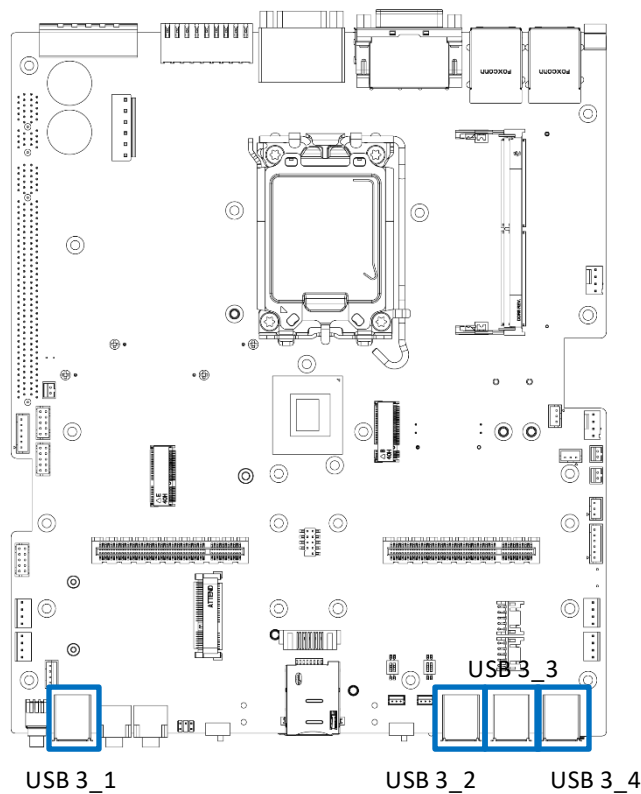
JP7 : OOB Auto Link Con

| Pin | Signal        |
|-----|---------------|
| 1   | MB_RX6_OOB TX |
| 2   | MB_TX6_OOB RX |
| 3   | GND           |

JP8 : OOB Debug Con

| Pin | Signal        |
|-----|---------------|
| 1   | MB_RX1_OOB TX |
| 2   | MB_TX1_OOB RX |
| 3   | GND           |

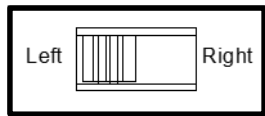
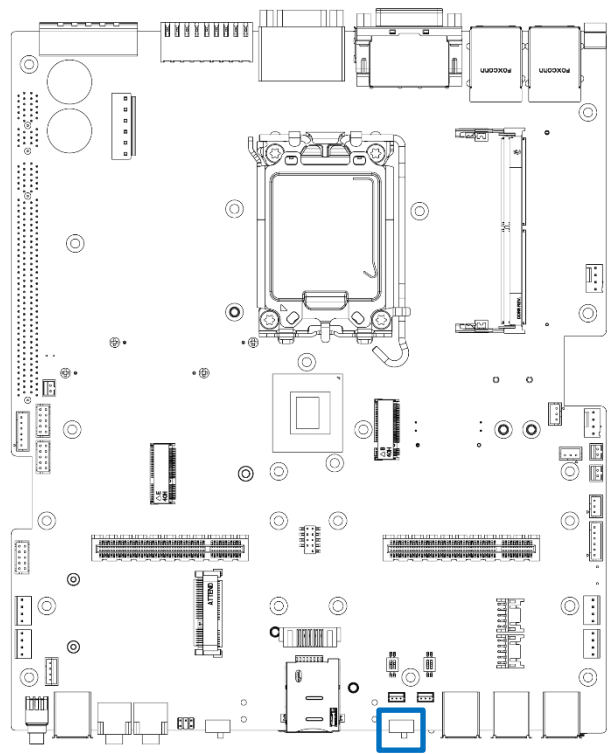
2.3.31 USB3.1 GEN 2 Connector



USB 3\_1 , USB 3\_2 , USB 3\_3 , USB 3\_4

| Pin | Signal |
|-----|--------|
| 1   | 5V     |
| 2   | D-     |
| 3   | D+     |
| 4   | GND    |
| 5   | SSRX-  |
| 6   | SSRX+  |
| 7   | GND    |
| 8   | SSTX-  |
| 9   | SSTX+  |

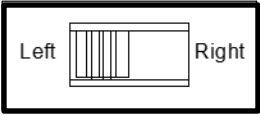
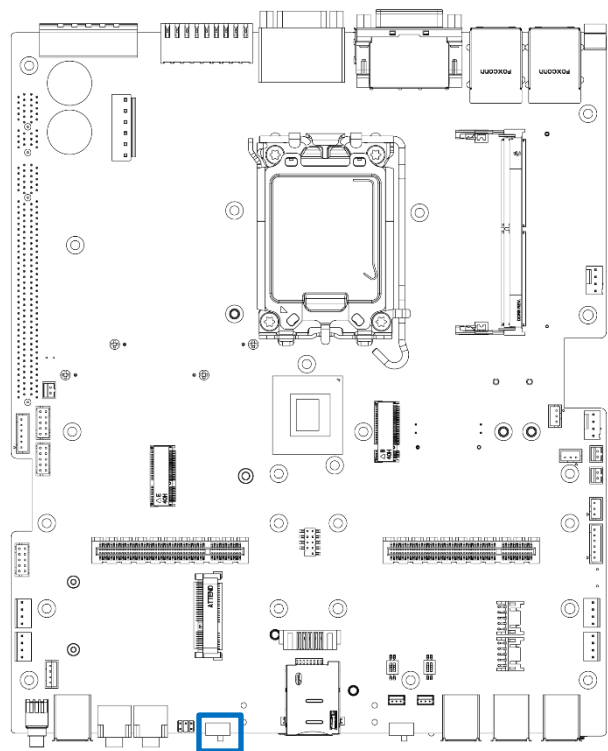
2.3.32 AT / ATX Power Mode Switch



AT\_ATX

| Position | Function                 |
|----------|--------------------------|
| Left     | ATX Power Mode (Default) |
| Right    | AT Power Mode            |

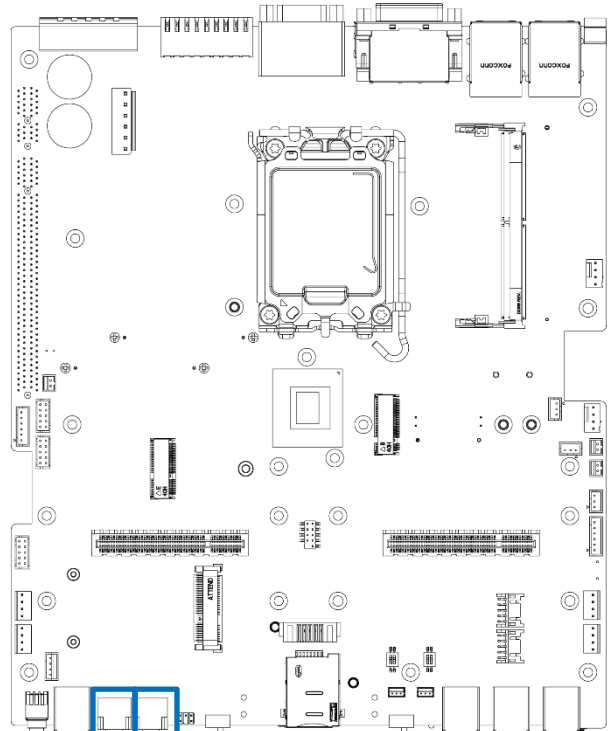
2.3.33 PC / CAR Mode Switch



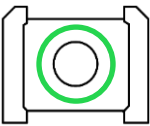
CAR\_PWR

| Position | Function          |
|----------|-------------------|
| Left     | PC Mode (Default) |
| Right    | CAR Mode          |

2.3.34 Audio Phone Jack

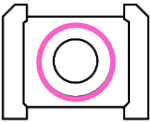


LINE\_OUT    MIC\_IN



MIC\_IN  
Microphone-in Jack (Green) Connector

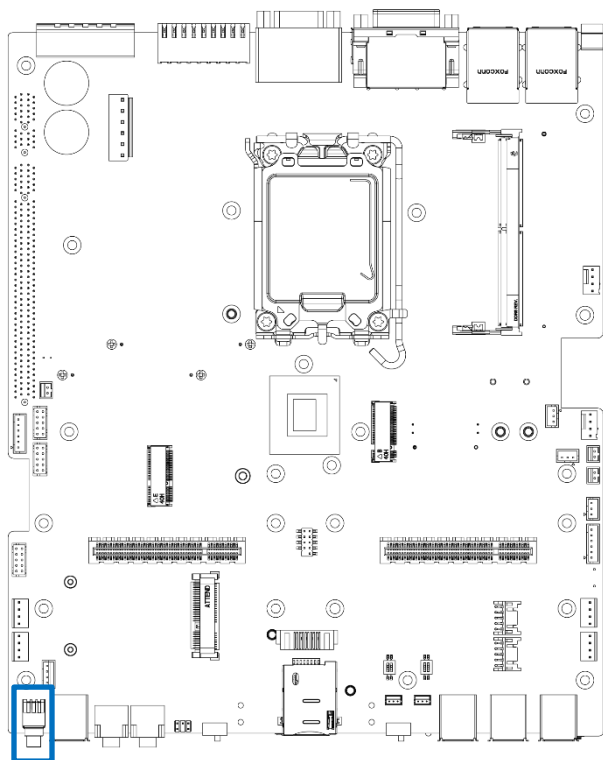
| Position | Function      |
|----------|---------------|
| Normal   | N/A (Default) |
| Plug In  | MIC In        |



LINE\_OUT  
Line-out Jack (Pink) Connector

| Position | Function      |
|----------|---------------|
| Normal   | N/A (Default) |
| Plug In  | Line Out      |

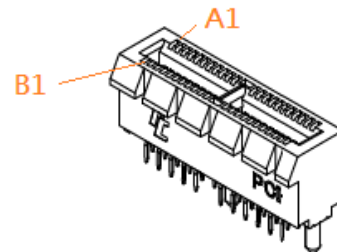
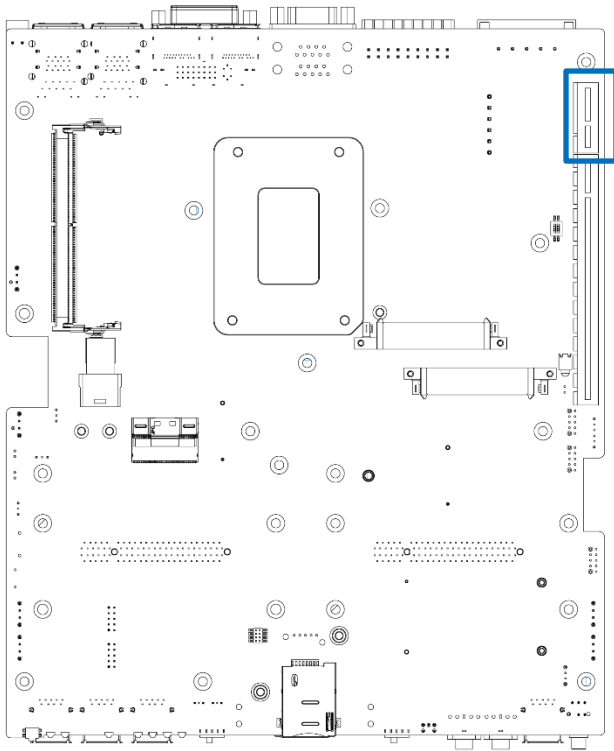
2.3.35 Power Button



PWR\_SW 1

| Position | Function |
|----------|----------|
| Push     | Power On |
| Normal   | N/A      |

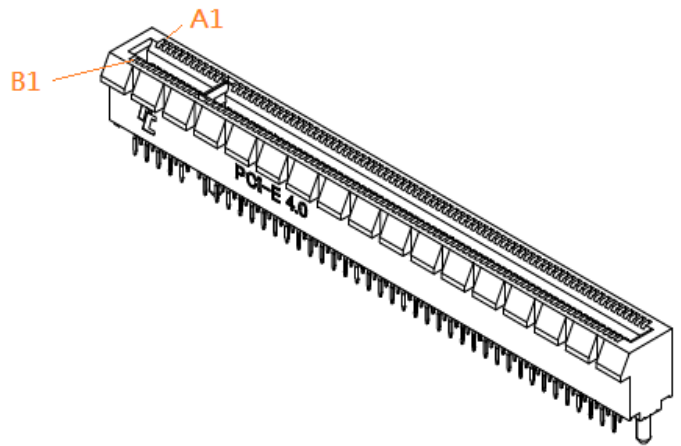
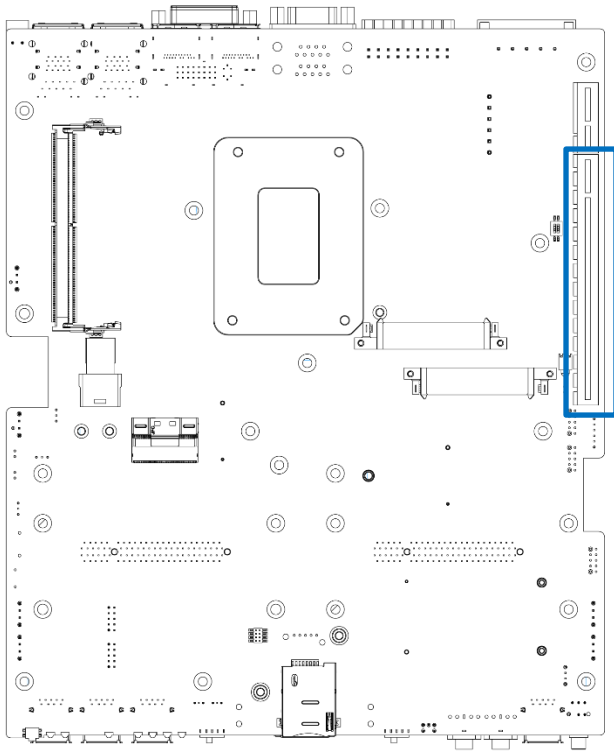
### 2.3.36 PCI-Express x1 Slot



#### PCIE2

| Pin | Signal   | Pin | Signal  |
|-----|----------|-----|---------|
| B1  | +12V     | A1  | FAN_P4  |
| B2  | +12V     | A2  | +12V    |
| B3  | +12V     | A3  | +12V    |
| B4  | GND      | A4  | GND     |
| B5  | SMB_CLK  | A5  | NC      |
| B6  | SMB_DATA | A6  | NC      |
| B7  | GND      | A7  | NC      |
| B8  | +3.3V    | A8  | NC      |
| B9  | NC       | A9  | +3.3V   |
| B10 | +3.3VAUX | A10 | +3.3V   |
| B11 | WAKE#    | A11 | RESET#  |
| B12 | FAN_P3   | A12 | GND     |
| B13 | GND      | A13 | REFCLK+ |
| B14 | TxP0     | A14 | REFCLK- |
| B15 | TxN0     | A15 | GND     |
| B16 | GND      | A16 | RxP0    |
| B17 | FAN_PER  | A17 | RxN0    |
| B18 | GND      | A18 | GND     |

### 2.3.37 PCI-Express x16 Slot



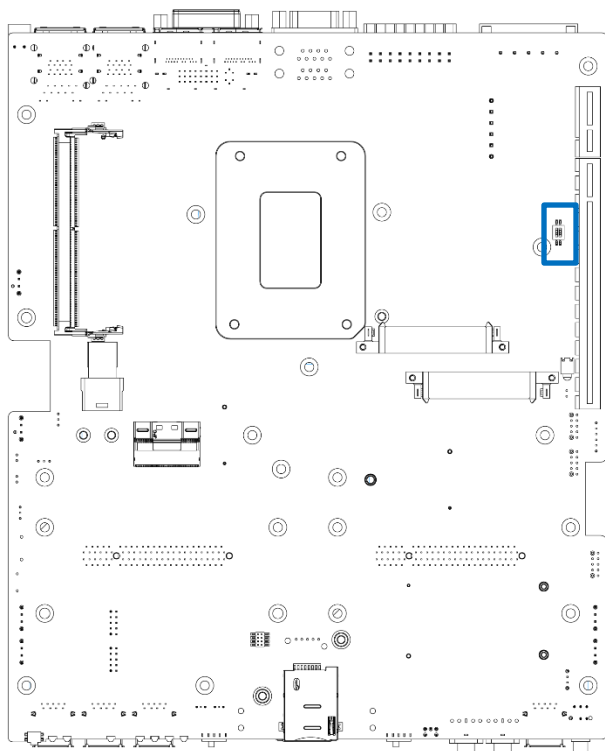
#### PCIE 1

| Pin | Signal   | Pin | Signal  |
|-----|----------|-----|---------|
| B1  | +12V     | A1  | NC      |
| B2  | +12V     | A2  | +12V    |
| B3  | +12V     | A3  | +12V    |
| B4  | GND      | A4  | GND     |
| B5  | SMB_CLK  | A5  | NC      |
| B6  | SMB_DATA | A6  | NC      |
| B7  | GND      | A7  | NC      |
| B8  | +3.3V    | A8  | NC      |
| B9  | NC       | A9  | +3.3V   |
| B10 | +3.3VAUX | A10 | +3.3V   |
| B11 | WAKE#    | A11 | RESET#  |
| B12 | NC       | A12 | GND     |
| B13 | GND      | A13 | REFCLK+ |
| B14 | TxP0     | A14 | REFCLK- |
| B15 | TxN0     | A15 | GND     |
| B16 | GND      | A16 | RxP0    |
| B17 | NC       | A17 | RxN0    |
| B18 | GND      | A18 | GND     |

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| B19 | TxP1   | A19 | NC     |
| B20 | TxN1   | A20 | GND    |
| B21 | GND    | A21 | RxP1   |
| B22 | GND    | A22 | RxN1   |
| B23 | TxP2   | A23 | GND    |
| B24 | TxN2   | A24 | GND    |
| B25 | GND    | A25 | RxP2   |
| B26 | GND    | A26 | RxN2   |
| B27 | TxP3   | A27 | GND    |
| B28 | TxN3   | A28 | GND    |
| B29 | GND    | A29 | RxP3   |
| B30 | NC     | A30 | RxN3   |
| B31 | S3     | A31 | GND    |
| B32 | GND    | A32 | CFG_5  |
| B33 | TxP4   | A33 | CFG_6  |
| B34 | TxN4   | A34 | GND    |
| B35 | GND    | A35 | RxP4   |
| B36 | GND    | A36 | RxN4   |
| B37 | TxP5   | A37 | GND    |
| B38 | TxN5   | A38 | GND    |
| B39 | GND    | A39 | RxP5   |
| B40 | GND    | A40 | RxN5   |
| B41 | TxP6   | A41 | GND    |
| B42 | TxN6   | A42 | GND    |
| B43 | GND    | A43 | RxP6   |
| B44 | GND    | A44 | RxN6   |
| B45 | TxP7   | A45 | GND    |
| B46 | TxN7   | A46 | GND    |
| B47 | GND    | A47 | RxP7   |
| B48 | NC     | A48 | RxN7   |
| B49 | GND    | A49 | GND    |
| B50 | TxP8   | A50 | NC     |
| B51 | TxN8   | A51 | GND    |
| B52 | GND    | A52 | RxP8   |
| B53 | GND    | A53 | RxN8   |
| B54 | TxP9   | A54 | GND    |
| B55 | TxN9   | A55 | GND    |
| B56 | GND    | A56 | RxP9   |
| B57 | GND    | A57 | RxN9   |
| B58 | TxP10  | A58 | GND    |
| B59 | TxN10  | A59 | GND    |
| B60 | GND    | A60 | RxP10  |

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| B61 | GND    | A61 | RxN10  |
| B62 | TxP11  | A62 | GND    |
| B63 | TxN11  | A63 | GND    |
| B64 | GND    | A64 | RxP11  |
| B65 | GND    | A65 | RxN11  |
| B66 | TxP12  | A66 | GND    |
| B67 | TxN12  | A67 | GND    |
| B68 | GND    | A68 | RxP12  |
| B69 | GND    | A69 | RxN12  |
| B70 | TxP13  | A70 | GND    |
| B71 | TxN13  | A71 | GND    |
| B72 | GND    | A72 | RxP13  |
| B73 | GND    | A73 | RxN13  |
| B74 | TxP14  | A74 | GND    |
| B75 | TxN14  | A75 | GND    |
| B76 | GND    | A76 | RxP14  |
| B77 | GND    | A77 | RxN14  |
| B78 | TxP15  | A78 | GND    |
| B79 | TxN15  | A79 | GND    |
| B80 | GND    | A80 | RxP15  |
| B81 | NC     | A81 | RxN15  |
| B82 | NC     | A82 | GND    |

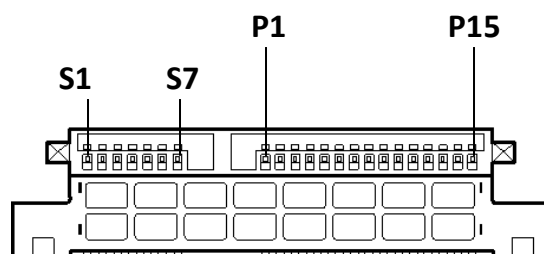
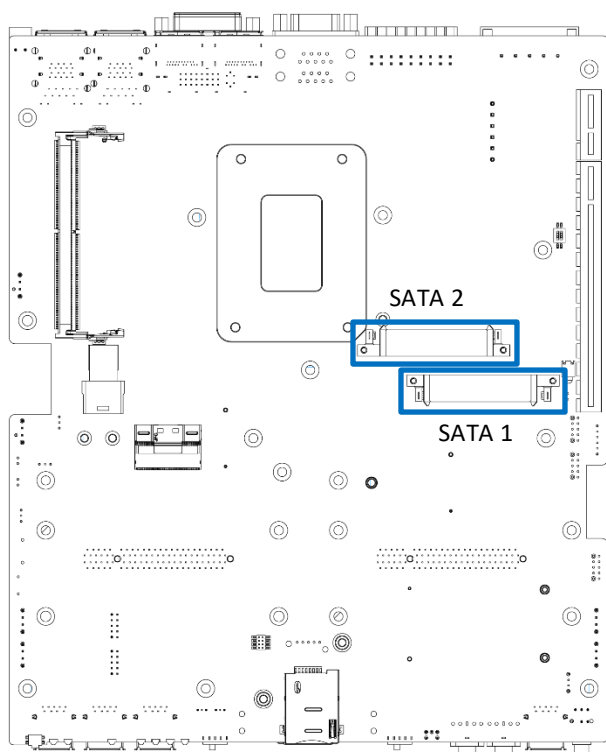
### 2.3.38 PEG SMBus Disable



SW2

| Position | Function                  |
|----------|---------------------------|
| On       | SMBus Connect To PEG Slot |
| Off      | Disconnect PEG SMBus      |

## 2.3.39 SATA with Power Connector

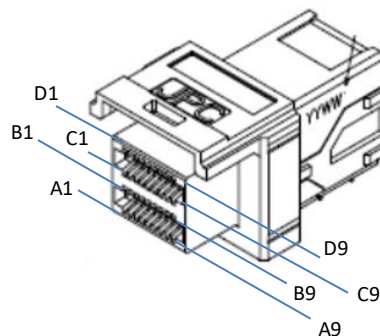
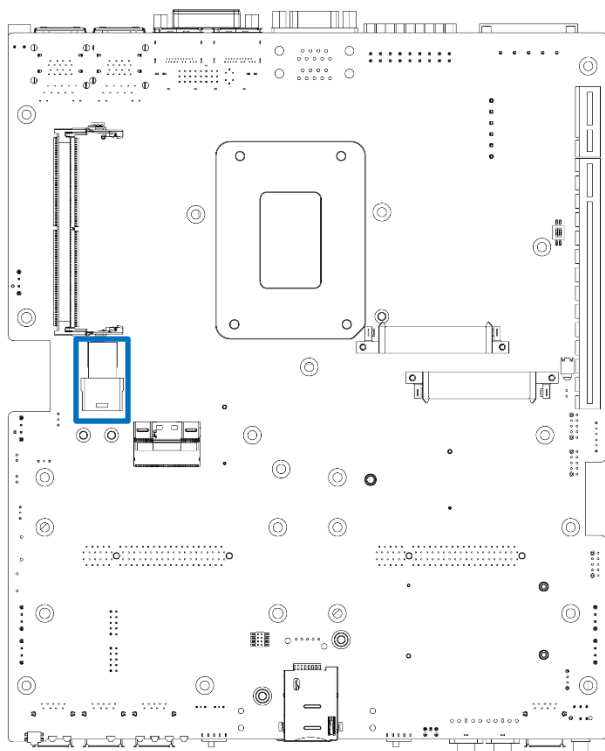


## SATA 1, SATA 2

| Pin | Signal |
|-----|--------|
| S1  | GND    |
| S2  | TxP    |
| S3  | TxN    |
| S4  | GND    |
| S5  | RxN    |
| S6  | RxP    |
| S7  | GND    |

| Pin | Signal |
|-----|--------|
| P1  | NC     |
| P2  | NC     |
| P3  | DEVSLP |
| P4  | GND    |
| P5  | GND    |
| P6  | GND    |
| P7  | +5V    |
| P8  | +5V    |
| P9  | +5V    |
| P10 | GND    |
| P11 | GND    |
| P12 | GND    |
| P13 | NC     |
| P14 | NC     |
| P15 | NC     |

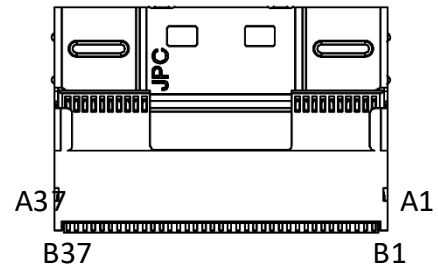
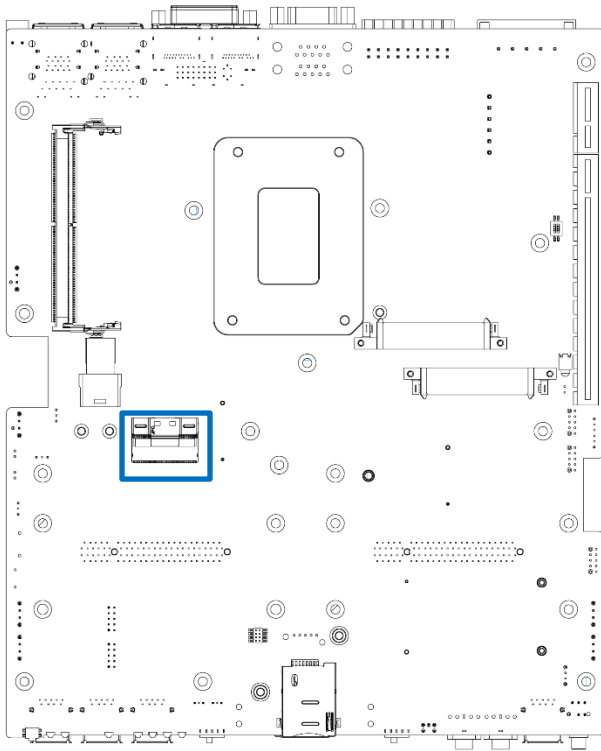
### 2.3.40 SATA x4 Connector



#### SATA 3

| Pin | Definition | Pin | Definition | Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|-----|------------|-----|------------|
| A1  | NC         | B1  | NC         | C1  | NC         | D1  | NC         |
| A2  | NC         | B2  | NC         | C2  | NC         | D2  | NC         |
| A3  | GND        | B3  | GND        | C3  | GND        | D3  | GND        |
| A4  | RxP1       | B4  | RxP0       | C4  | TxP1       | D4  | TxP0       |
| A5  | RxN1       | B5  | RxN0       | C5  | TxN1       | D5  | TxN0       |
| A6  | GND        | B6  | GND        | C6  | GND        | D6  | GND        |
| A7  | RxP3       | B7  | RxP2       | C7  | TxP3       | D7  | TxP2       |
| A8  | RxN3       | B8  | RxN2       | C8  | TxN3       | D8  | TxN2       |
| A9  | GND        | B9  | GND        | C9  | GND        | D9  | GND        |

### 2.3.41 Slimline Connector

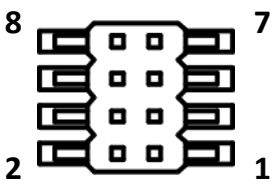
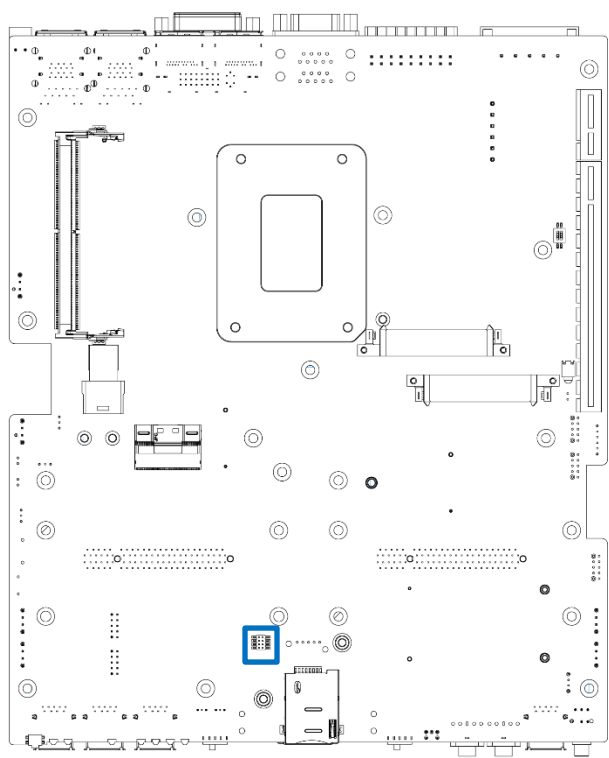


#### SL 1 Slimline PCIe x8

| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| B1  | GND        | A1  | GND        |
| B2  | TxP0       | A2  | RxP0       |
| B3  | TxN0       | A3  | RxN0       |
| B4  | GND        | A4  | GND        |
| B5  | TxP1       | A5  | RxP1       |
| B6  | TxN1       | A6  | RxN1       |
| B7  | GND        | A7  | GND        |
| B8  | NC         | A8  | NC         |
| B9  | NC         | A9  | NC         |
| B10 | GND        | A10 | GND        |
| B11 | RST#       | A11 | CLKP2      |
| B12 | PRSNT#     | A12 | CLKN2      |
| B13 | GND        | A13 | GND        |
| B14 | TxP2       | A14 | RxP2       |
| B15 | TxN2       | A15 | RxN2       |

| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| B16 | GND        | A16 | GND        |
| B17 | TxP3       | A17 | RxP3       |
| B18 | TxN3       | A18 | RxN3       |
| B19 | GND        | A19 | GND        |
| B20 | TxP4       | A20 | RxP4       |
| B21 | TxN4       | A21 | RxN4       |
| B22 | GND        | A22 | GND        |
| B23 | TxP5       | A23 | RxP5       |
| B24 | TxN5       | A24 | RxN5       |
| B25 | GND        | A25 | GND        |
| B26 | NC         | A26 | NC         |
| B27 | NC         | A27 | NC         |
| B28 | GND        | A28 | GND        |
| B29 | RST#       | A29 | CLKP4      |
| B30 | PRSNT#     | A30 | CLKN4      |
| B31 | GND        | A31 | GND        |
| B32 | TxP6       | A32 | RxP6       |
| B33 | TxN6       | A33 | RxN6       |
| B34 | GND        | A34 | GND        |
| B35 | TxP7       | A35 | RxP7       |
| B36 | TxN7       | A36 | RxN7       |
| B37 | GND        | A37 | GND        |

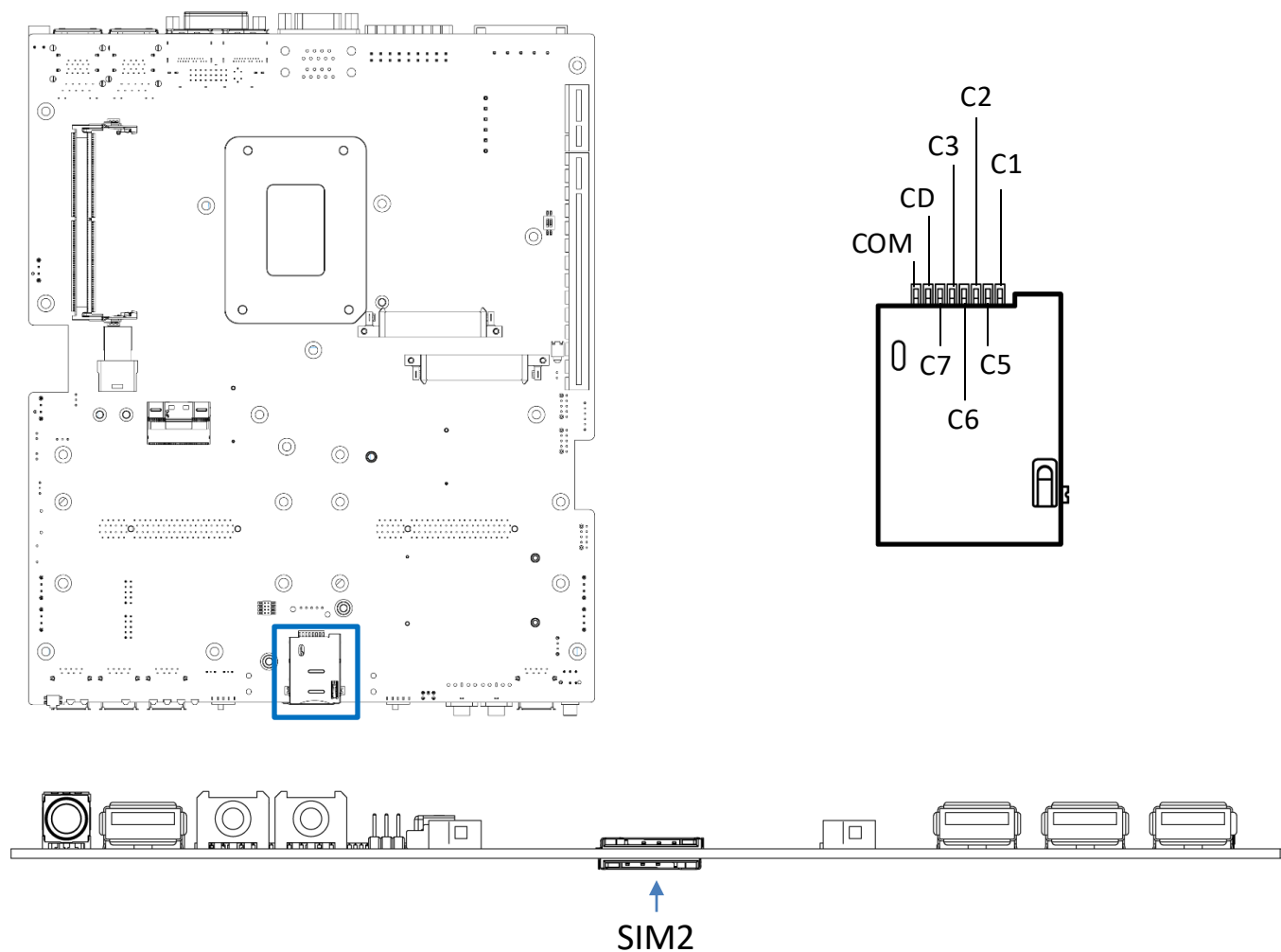
2.3.42 RTC Board To Board Connector



BTB

| Pin | Signal   | Pin | Signal   |
|-----|----------|-----|----------|
| 1   | 3.3V     | 2   | 5V       |
| 3   | I2C_CLK  | 4   | NC       |
| 5   | I2C_DATA | 6   | RTC_INT# |
| 7   | GND      | 8   | GND      |

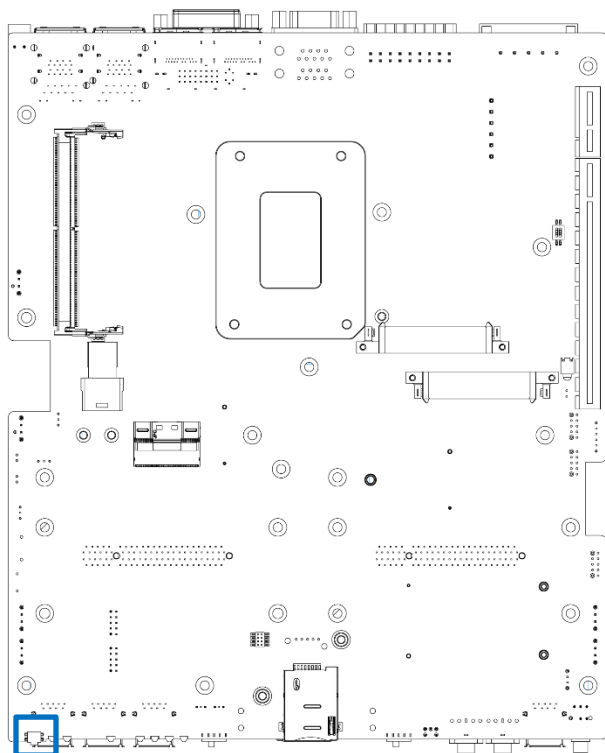
### 2.3.43 SIM Card Socket (Mini PCIe)



SIM2

| Pin | Signal    | Pin | Signal   |
|-----|-----------|-----|----------|
| C1  | UIM_PWR   | C6  | UIM_VPP  |
| C2  | UIM_RESET | C7  | UIM_DATA |
| C3  | UIM_CLK   | CD  | NC       |
| C5  | GND       | COM | GND      |

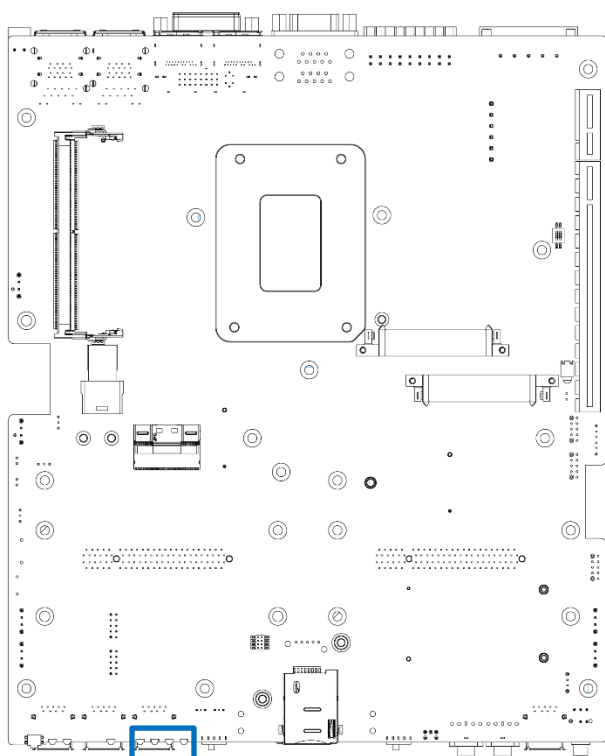
### 2.3.44 Reset Button



#### RESET

| Position | Function |
|----------|----------|
| Push     | Reset    |
| Normal   | N/A      |

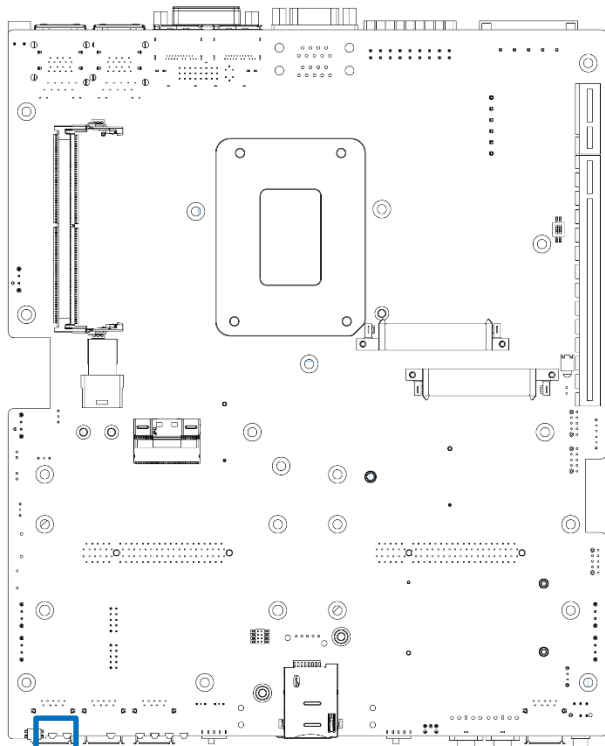
## 2.3.45 LED Status



| Act LED Status  | Signal        |
|-----------------|---------------|
| Blinking Yellow | Data Activity |
| Off             | No Activity   |



| Link LED Status | CN3 Definition        |
|-----------------|-----------------------|
| Steady Orange   | 1 Gbps Network Link   |
| Steady Green    | 100 Mbps Network Link |
| Off             | 10 Mbps Network Link  |
| Link LED Status | CN4 Definition        |
| Steady Orange   | 2.5 Gbps Network Link |
| Steady Green    | 1 Gbps Network Link   |
| Off             | 100 Mbps Network Link |



PWR\_LED1: Power LED Status

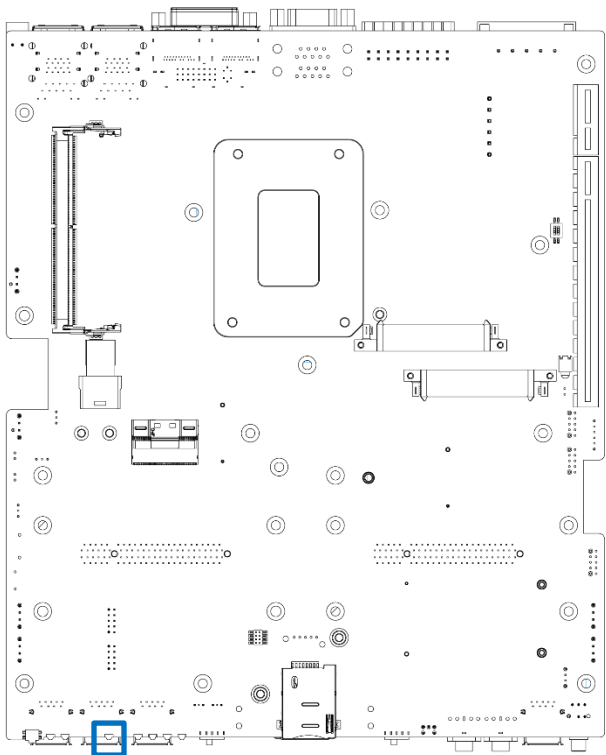
| Pin | Signal      |
|-----|-------------|
| 1   | POWER LED + |
| 2   | POWER LED - |



HDD\_LED1: HDD Access LED Status

| Pin | Signal   |
|-----|----------|
| 1   | HDD LED+ |
| 2   | HDD LED- |

LED Status



WDT\_LED : WDTOUT LED Status

| Pin | Signal      |
|-----|-------------|
| 1   | WDTOUT LED+ |
| 2   | WDTOUT LED- |

## Chapter 3

# System Setup

### 3.1 Set torque force to 3.5 kgf-cm to screw or unscrew system parts.

### 3.2 Separating the expansion module from main computer module.



#### WARNING

To ensure safety and prevent system damage, before disassembly, please switch off the system and disconnect the unit from its power source.



- RCO-6000-RPL
- RCO-6000-RPL-2E16-4B7M
- RCO-6000-RPL-2E16-2B15M
- RCO-6000-RPL-2E16-2N15M
- RCO-6000-RPL-2E16
- RCO-6000-RPL-2E16-2PWR

- RCO-6000-RPL-4NH
- RCO-6000-RPL-4NS
- RCO-6000-RPL-8NS

1. Remove the 3 screws on the left and right side of the system as highlighted in the pictures below.



2. Remove 5 screws located at the front and back of the system as pictured below. The screw locations are highlighted in red.

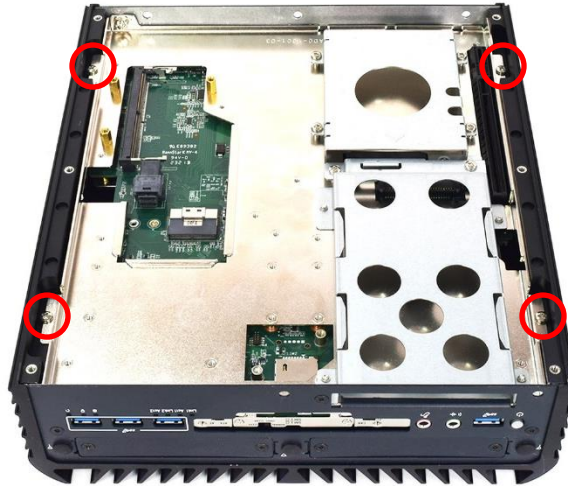


3. After removing all screws, the expansion module (left) can be separated from the main computer module (right) as pictured below.

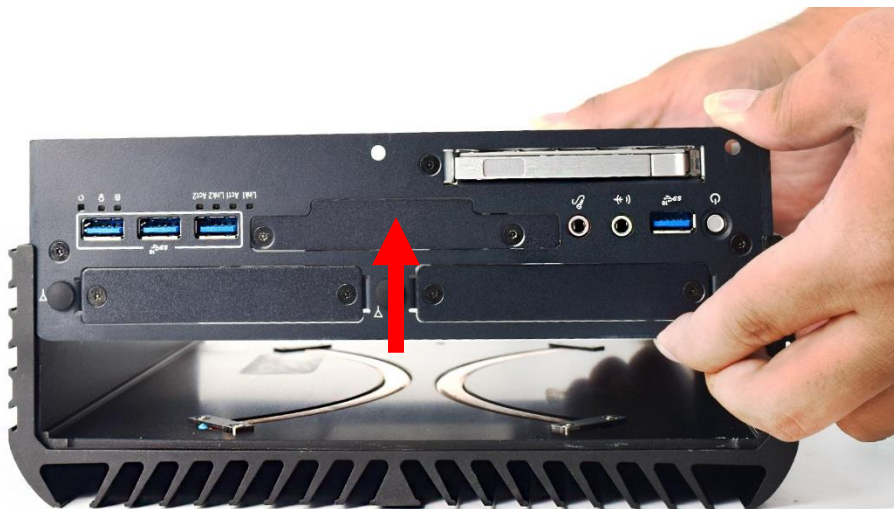


### 3.3 Removing chassis top external cover

1. Place the system faced upside down and unscrew the four screws (M3x5L) located at the red circles highlighted below.



2. Hold the body of the system and remove from the external cover in an upward motion away from the external cover as pictured below.

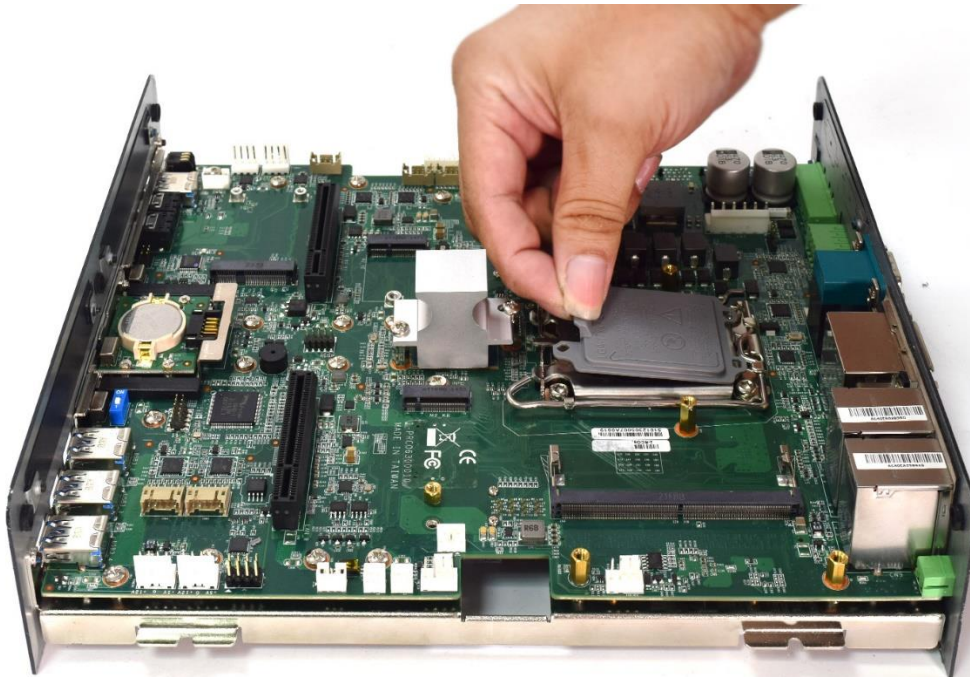


3. Pictured below is the separated system body (left) and external cover (right).

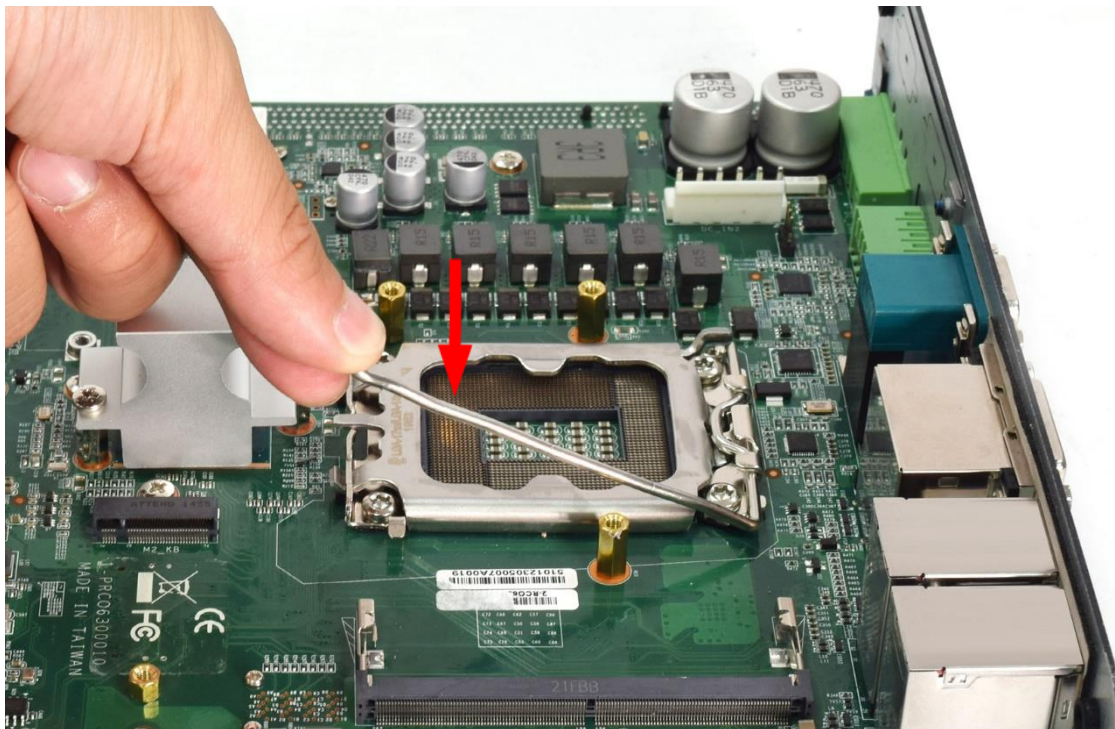


## 3.4 Installing CPU

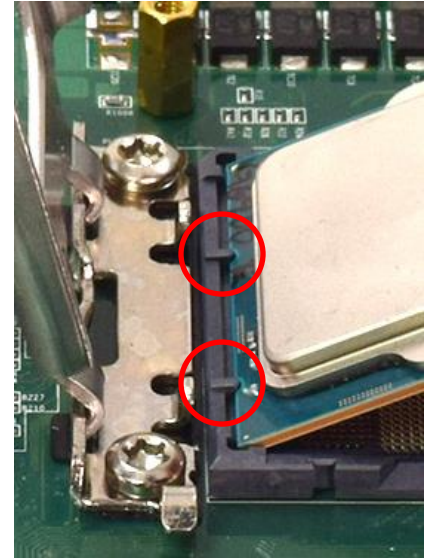
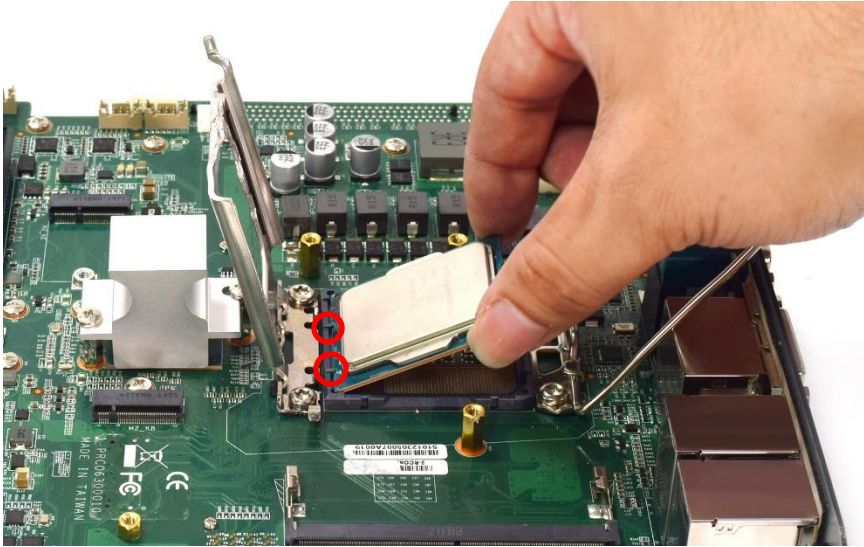
1. Remove the CPU protective cover.



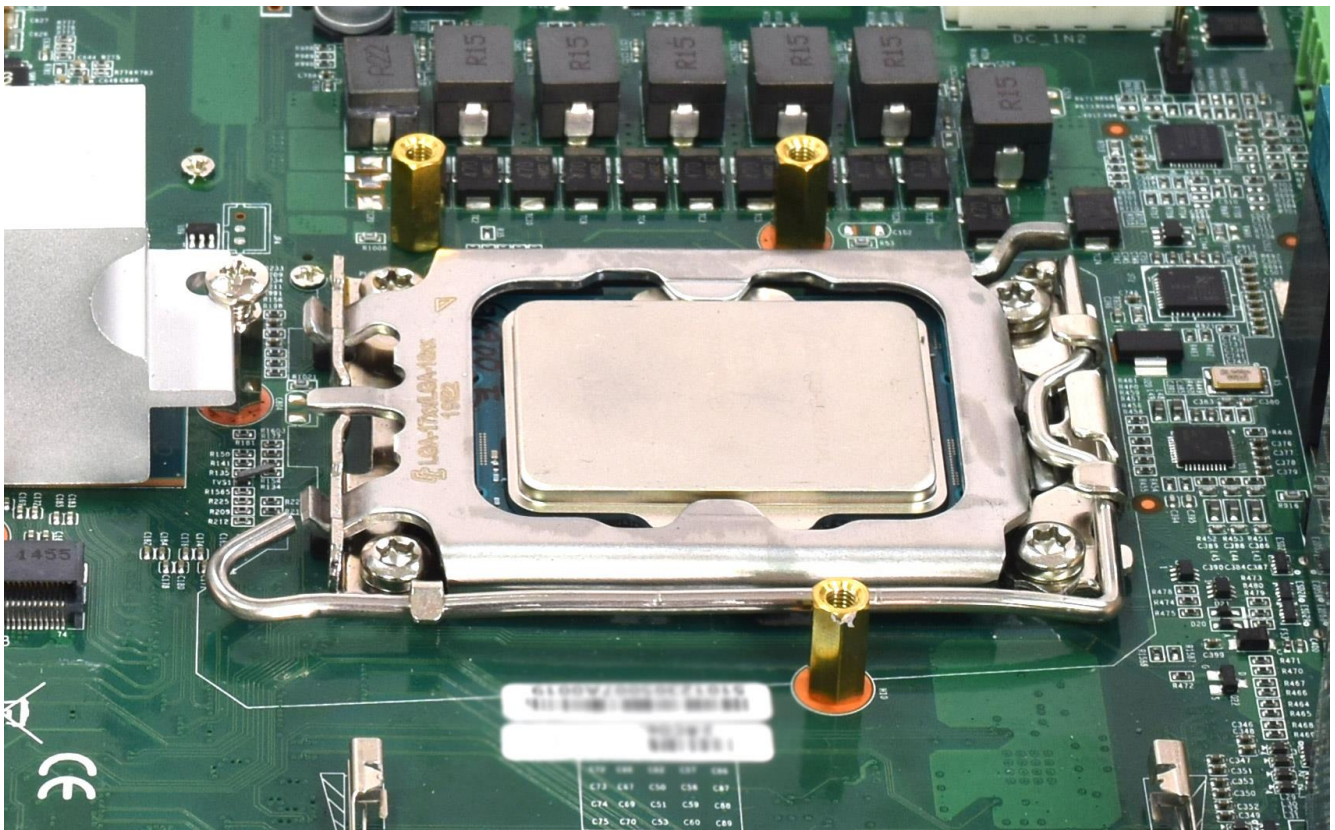
2. Press down on the lever in order to release the socket, as shown below.



Hold the CPU by its edges, and carefully align the notches on the CPU with the notches on the socket indicated by the red circles in the pictures below. Gently lower the CPU into the socket without applying force.

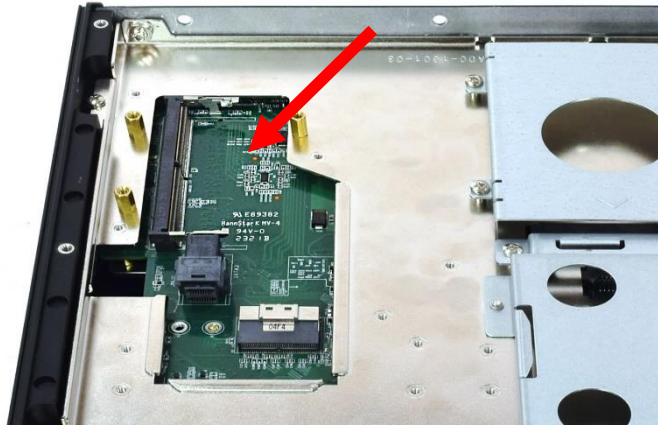


3. Once the CPU has been placed, press down on the lever again to secure the socket. The outcome should look like the photo below.

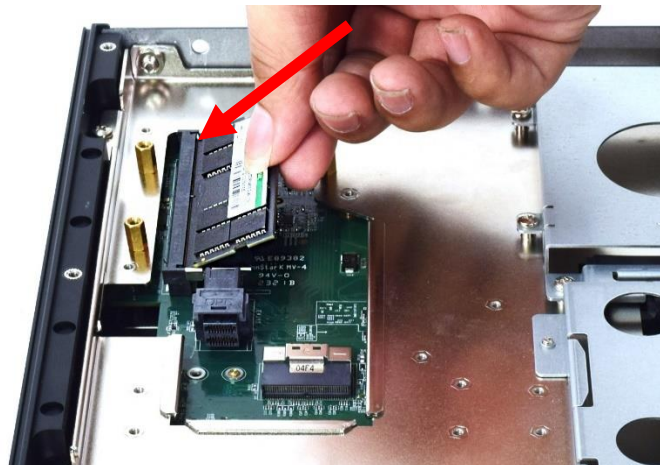


### 3.5 Install the first DRAM and the heating block internally

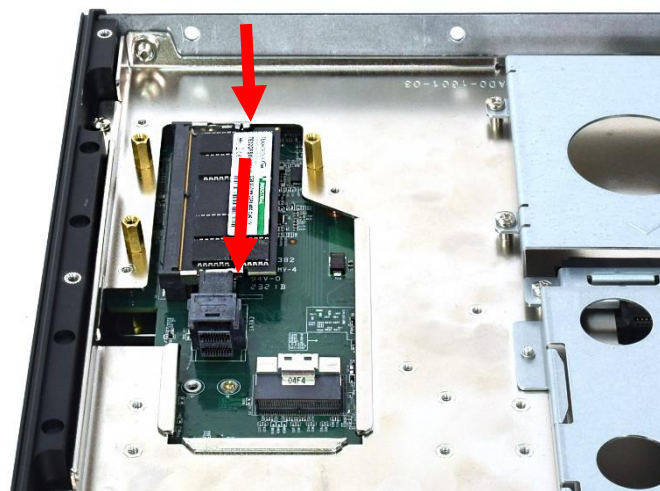
1. The RCO-6000-RPL board has one SODIMM slot on both the front and back sides. The picture below shows the SODIMM slot on the back of the motherboard, and you should prioritize inserting the first DRAM.



2. Insert memory module at a 45 degree angle.



3. Push the memory module down against the board until you hear a “click” sound. Make sure the memory module is secure.

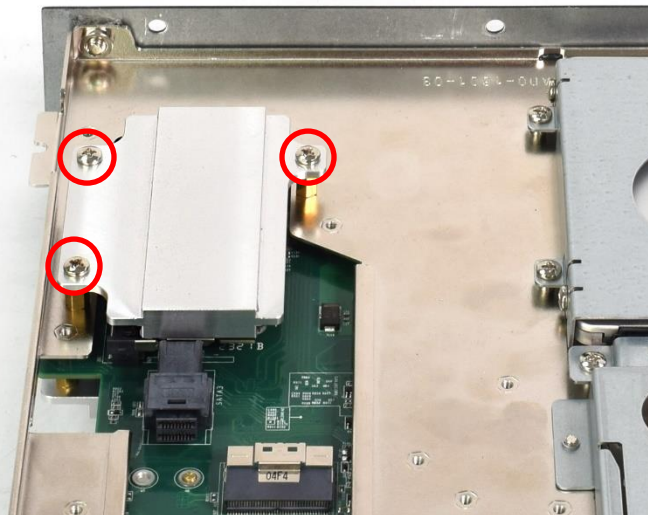


#### 4. Paste the thermal pad on the heat block .

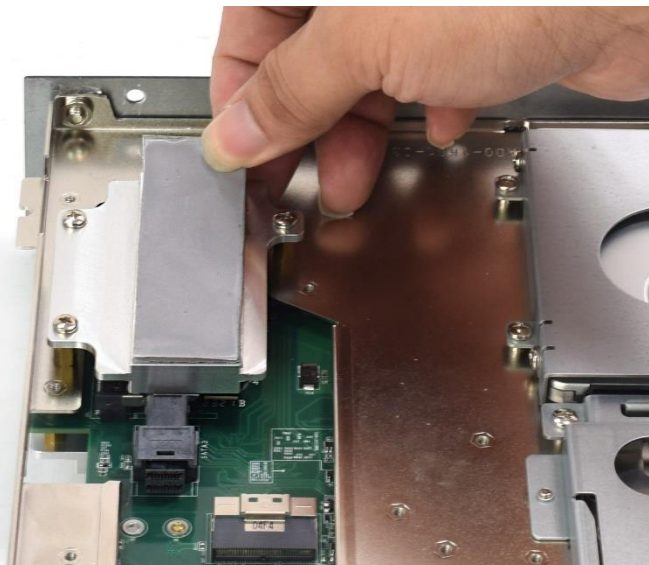


- This thermal pad is designed only for the RCO-6000-RPL single-deck model series machine. It is not compatible with the RCO-6000-RPL double-deck model series (e.g., RCO-6000-RPL-2, -4NH/S, etc.).

#### 5. Apply the heat sink with a thermal pad to the memory and secure the heat sink using three screws (M3x5L). The screws can pass through the top holes and fasten onto the copper pill



#### 6. Paste the thermal pad onto the installed DRAM heat block.



## 3.6 Install the second DRAM externally

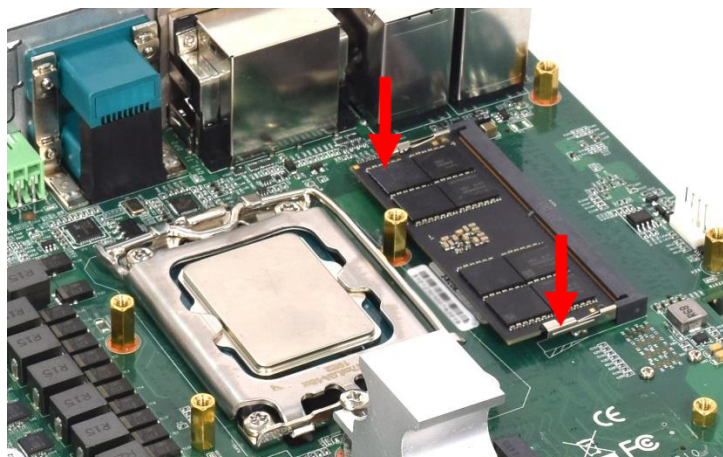
1. The picture below shows the SODIMM slot on the front of the motherboard. Insert the second DRAM in order.



2. Insert the memory module at a 45-degree angle.



3. Gently push the memory module down against the board until you hear a “click” sound. Make sure the memory module is secured.



## 3.7 Installing CPU & SODIMM heat block

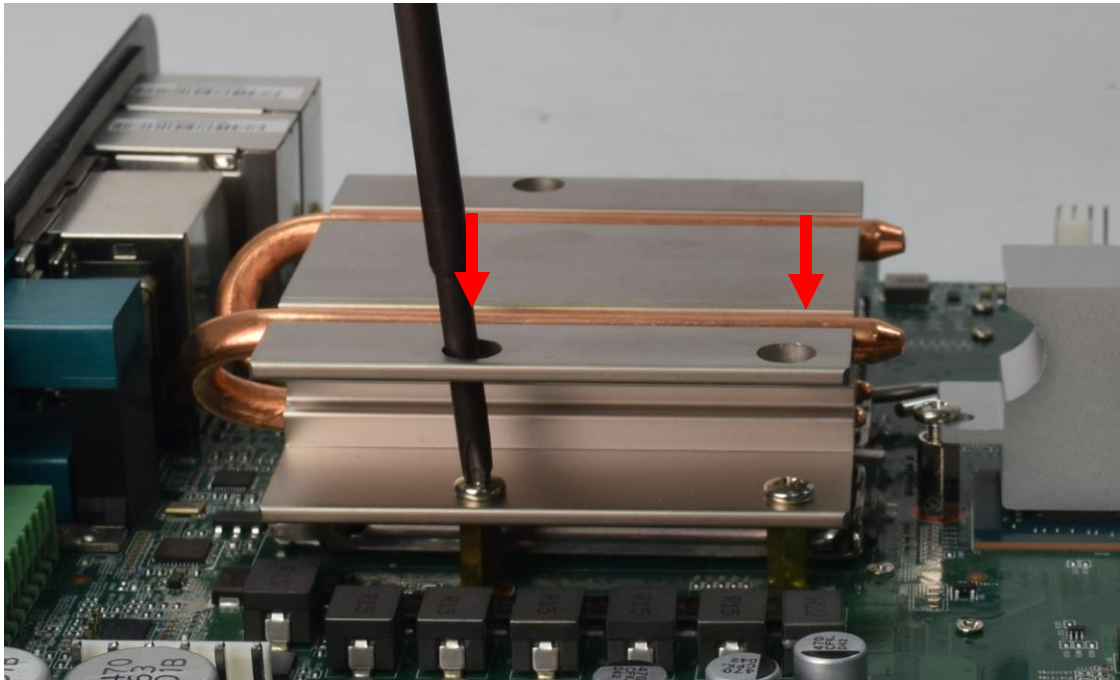
1. Paste the thermal pad on the CPU.



2. Place the designated heat block onto the CPU with thermal pad.



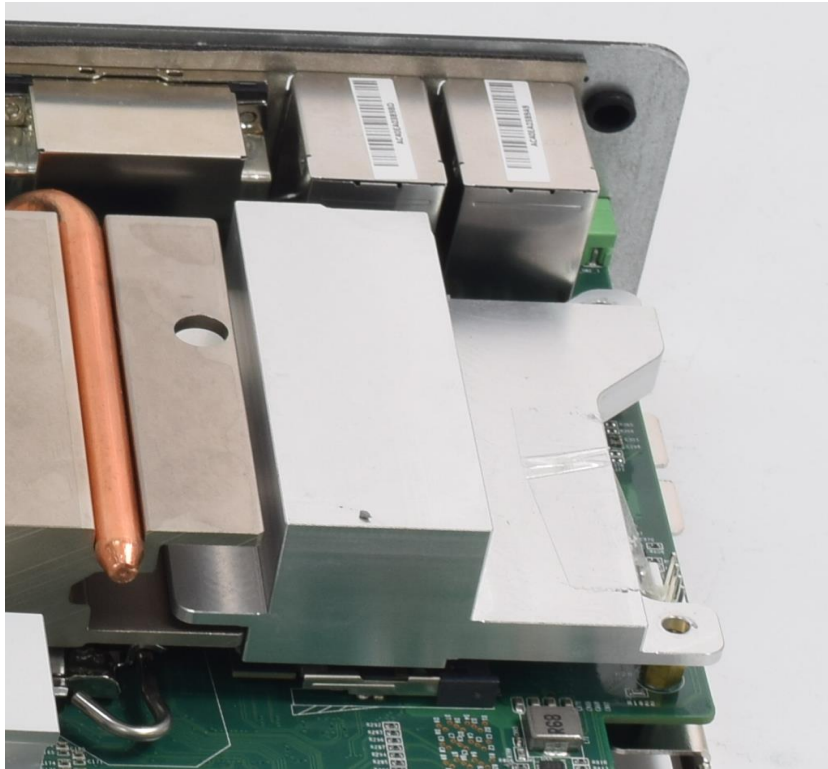
3. Secure the heat block with two screws (M3x8L). The screwdriver can go through the holes on top to fasten the screws below.



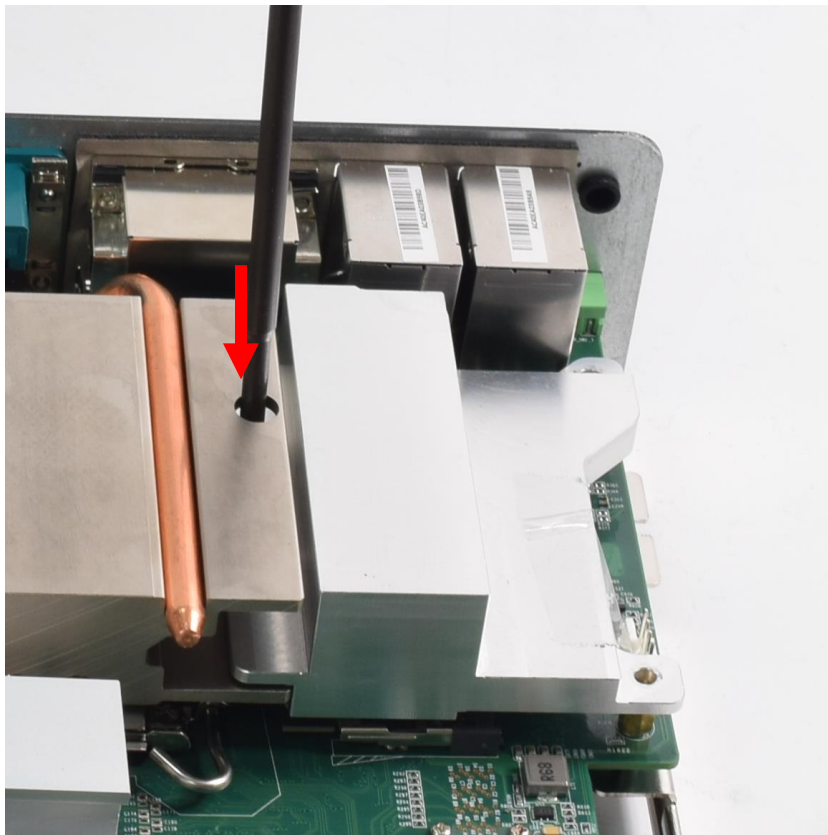
4. Paste the thermal pad on the heat block .



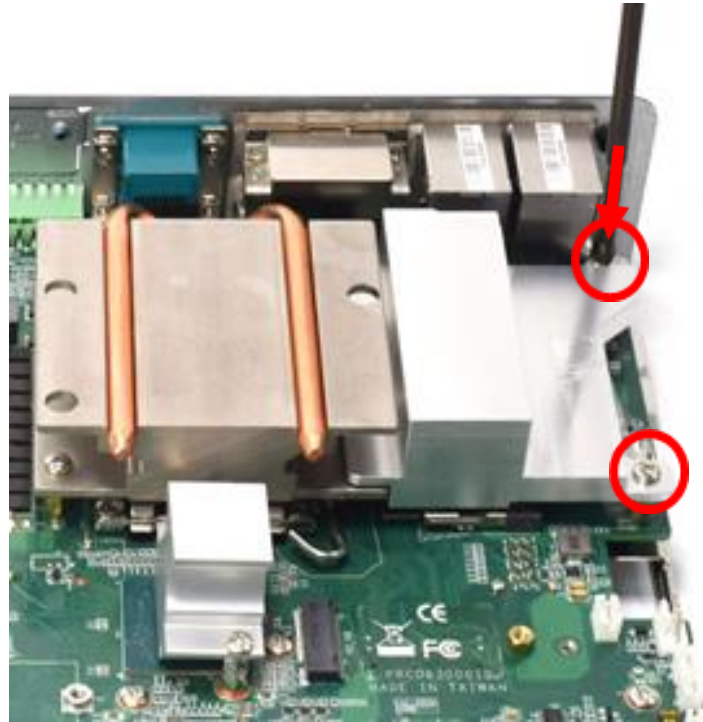
5. Place the designated heat block onto the DRAM with thermal pad.



6. Secure the heat block with one screw (M3x8L). The screwdriver can go through the hole on the top to fasten the screw below.



7. Secure the heat block with two screws (M3x5L). The screwdriver can go through the holes on top to order to fasten the screws below.



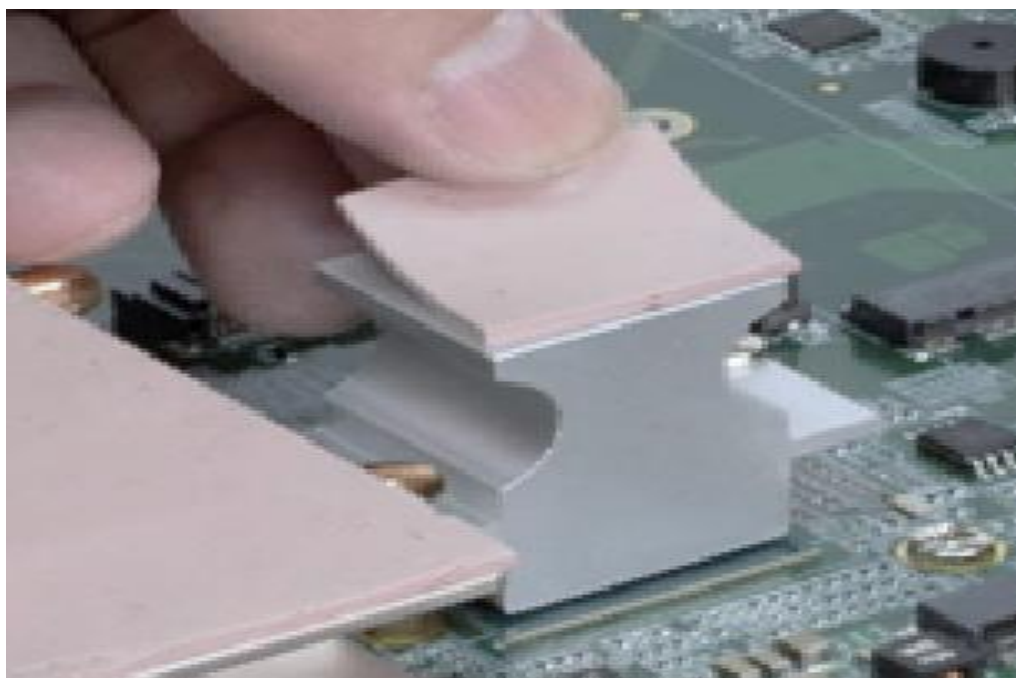
8. Paste the thermal pad onto the installed DRAM heat block.



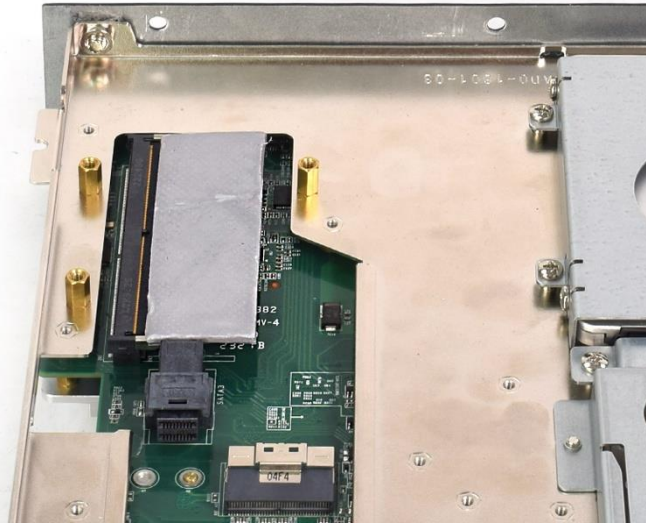
9. Paste the thermal pad onto the installed CPU heat block.



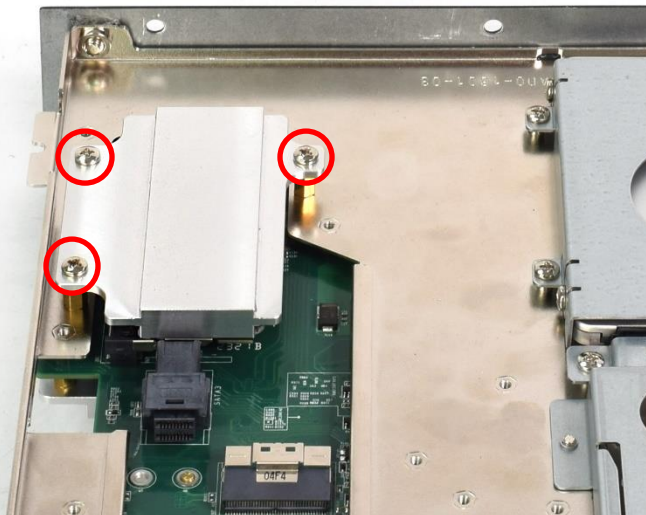
10. Paste the thermal pad onto the PCH heat block.



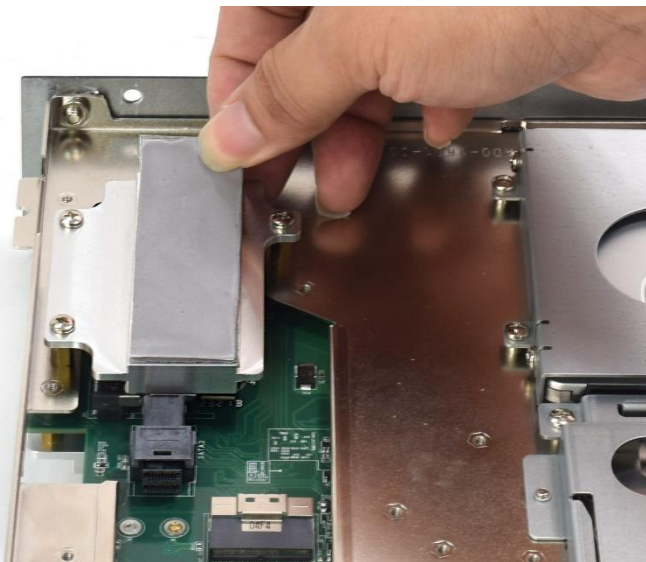
11. Paste thermal pad on the DRAM. (Pictured below is the SODIMM slot on the rear side of the board.)



12. Lock the heat block with three screws (M3x5L). The screwdriver can go through the holes on the top to fasten the screws with a copper stud.

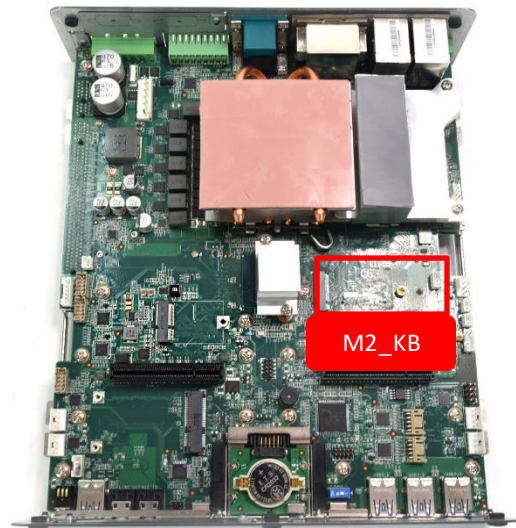


13. Paste the thermal pad onto the installed DRAM heat block.

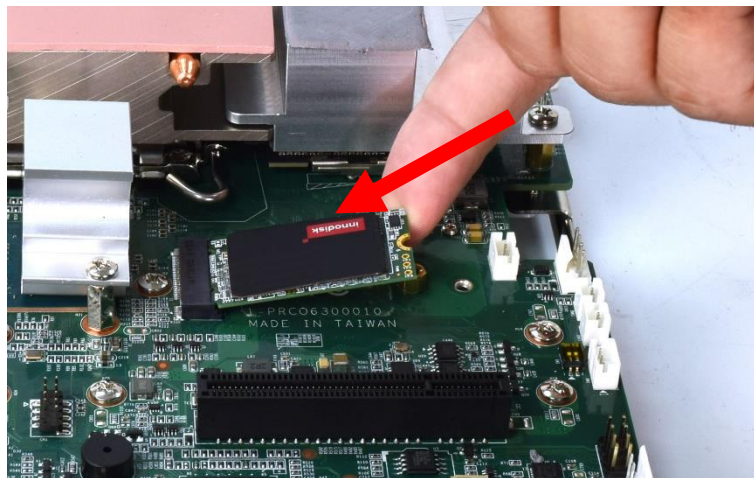


## 3.8 Installing M.2 SSD card

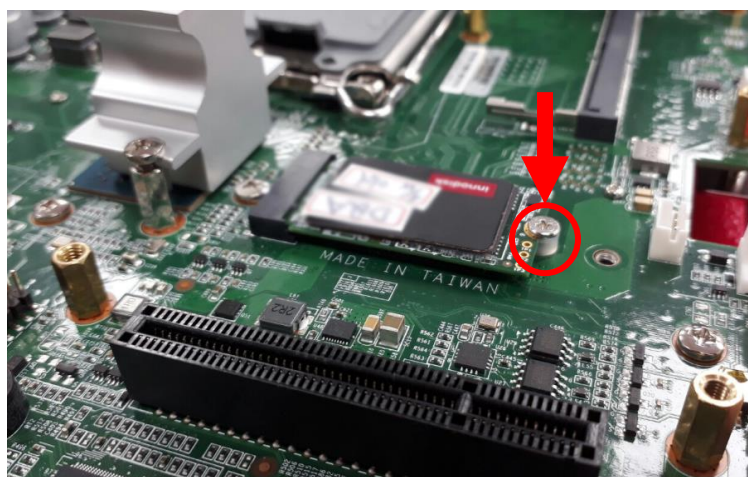
RCO-6000-RPL series PCBA has an M.2 KB slot on the top, M2\_B Key currently supports SSD application



1. Insert Mini PCIe card at a 45 degree angle.



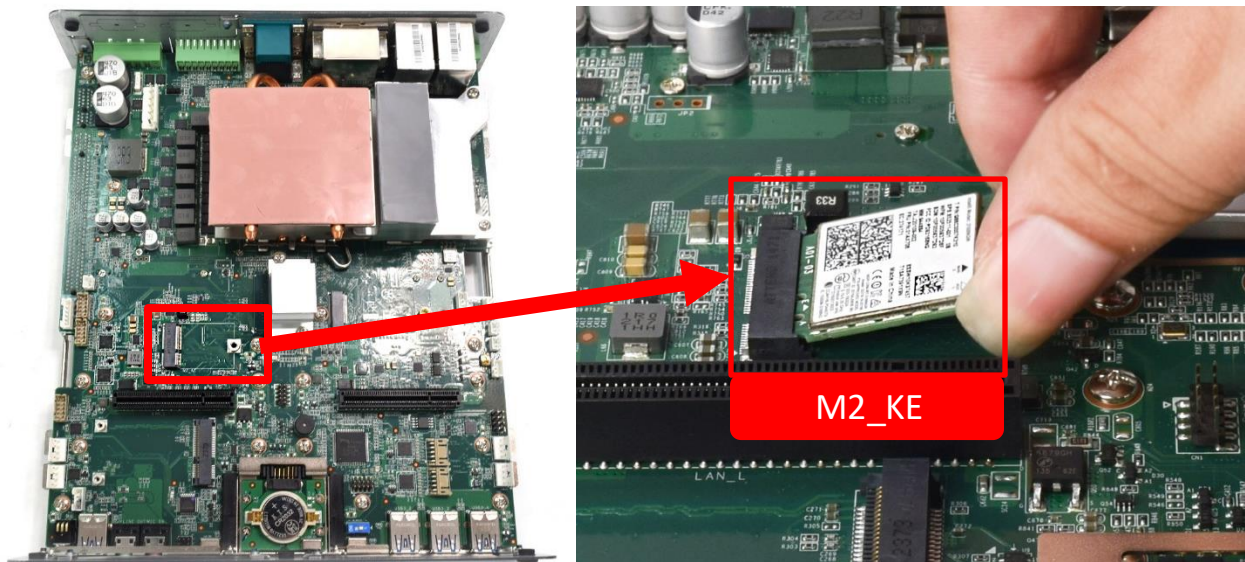
2. Gently press the Mini PCIe card down against the board and secure it with one screw (Round Spacer and M3x6L).



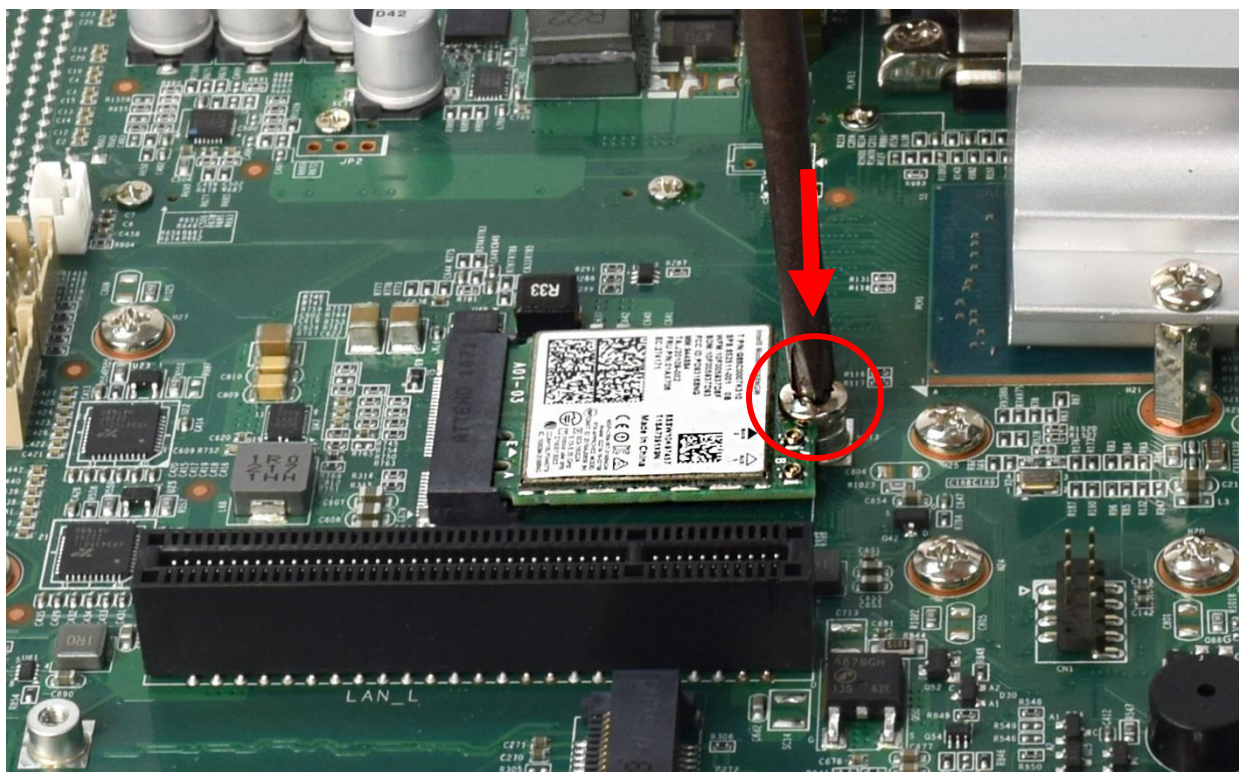
## 3.9 Installing WiFi Module

RCO-6000-RPL series PCBA has an M.2 KE slot on the top, M2\_E Key currently supports WiFi application

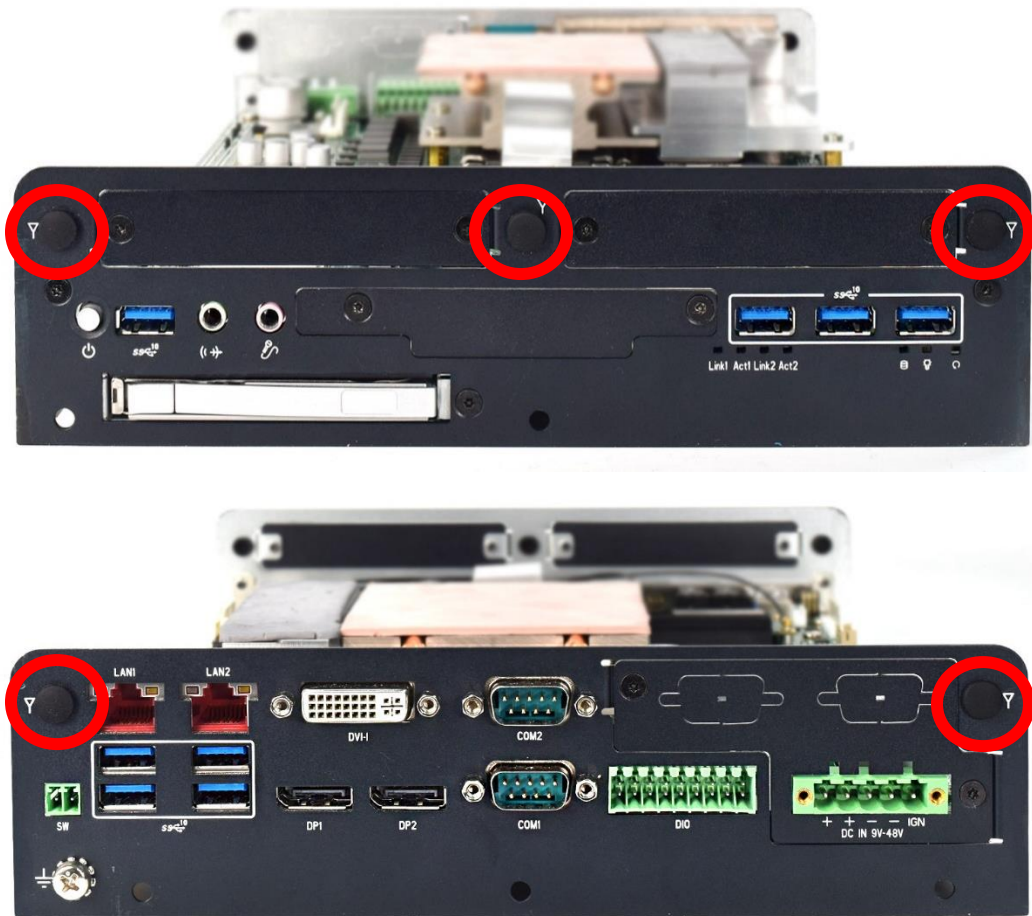
1. Insert M.2 E Key card at 45 degree angle.



2. Press the M.2 E Key card down and secure it with one screw (M3x5L).



3. The RCO-6000-RPL Series system has 5 antenna holes, 2 are located on the rear panel and 3 are located on the front panel as pictured below.



4. Install the SMA female jack through the antenna holes, and then fasten on the SMA male plug.



5. Assemble the antenna and SMA jack together, the outcome should look like the picture below.

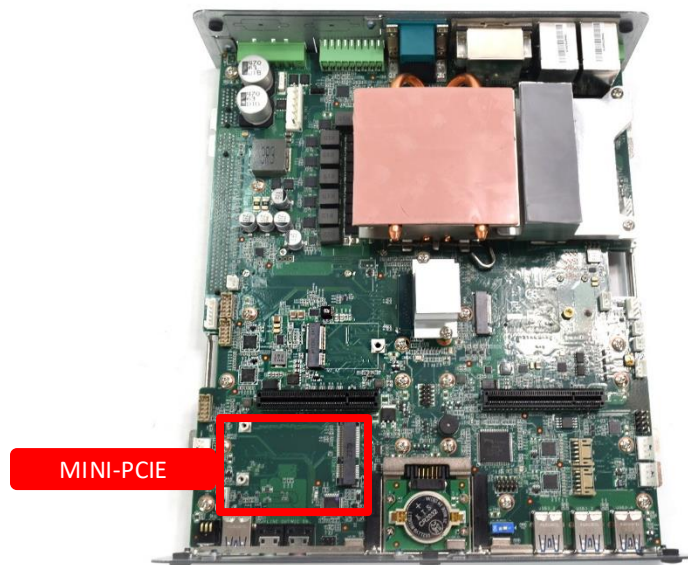


6. Fix the end of the cable of the Wireless RF connector onto the communication module as shown in the picture below.



### 3.10 Installing Mini PCIe card / 4G LTE

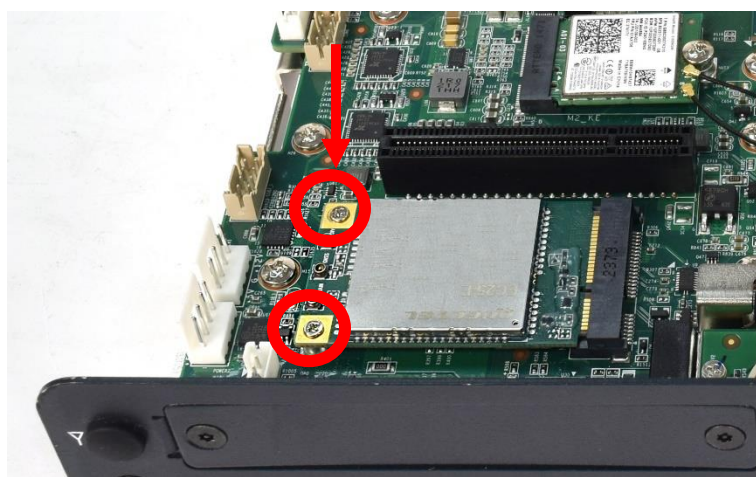
The RCO-6000-RPL Series PCBA has Mini PCIe slots on the top. It currently supports 4G LTE applications.



1. Insert Mini PCIe card at a 45 degree angle.

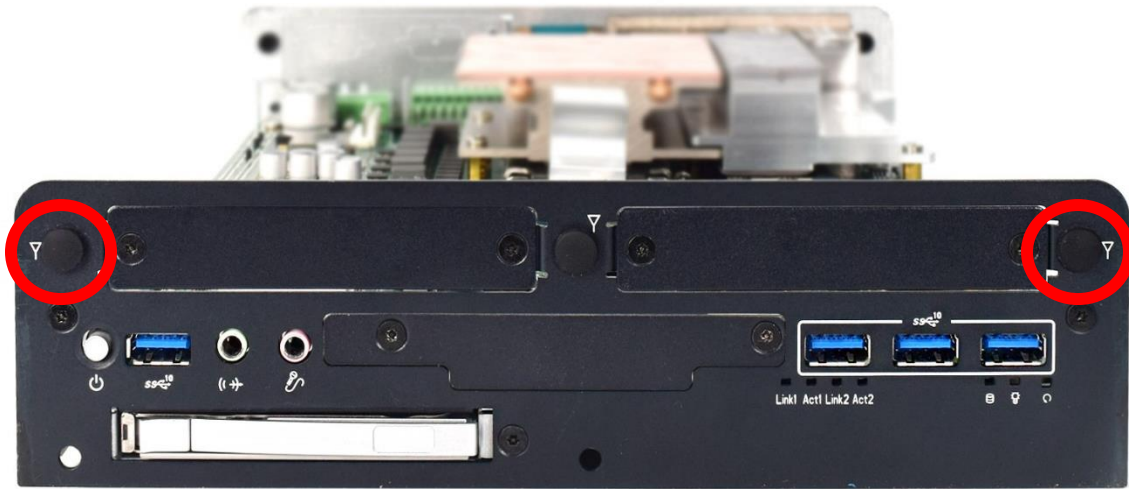


2. Gently press the Mini PCIe card against the board and secure it with two screws (M2x3.7L).

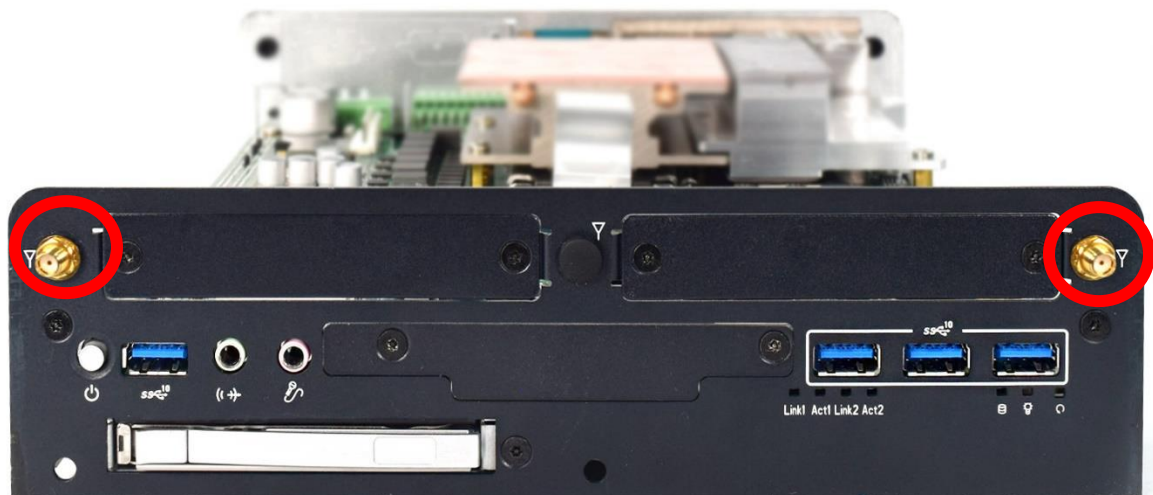


### 3.11 Installing Antenna

1. Remove antenna hole cover on the system panel as indicated by the red circles in the photo below.



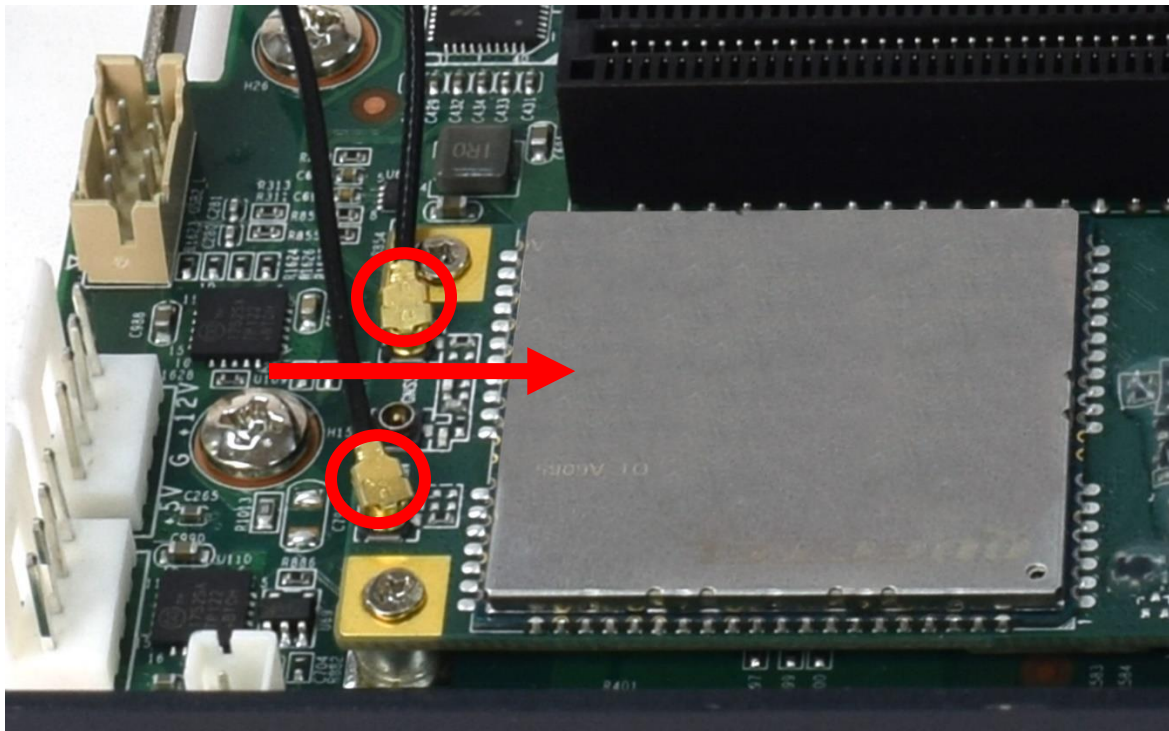
2. Install the SMA female jack through the antenna holes, and then fasten on the SMA male plug as shown below.



3. Assemble the antennas and onto the SMA jack, the outcome should look like the photo below.

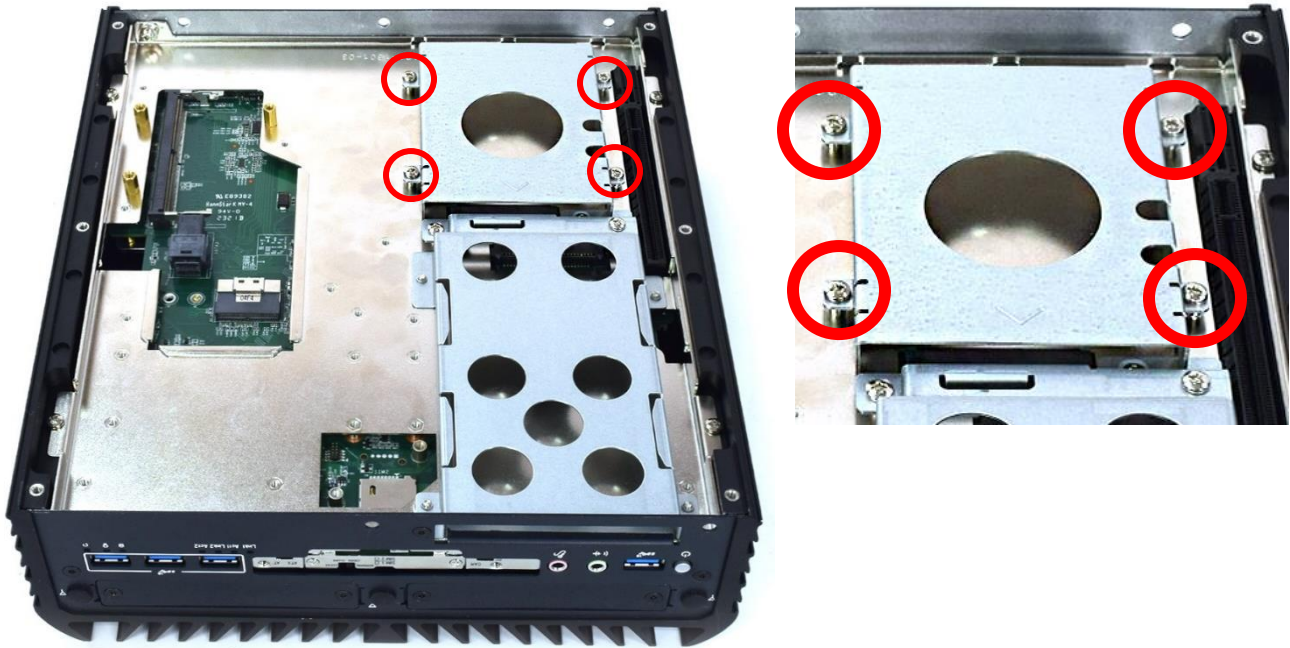


4. Fix the end of the cable of the Wireless RF connector onto the communication module as shown below.

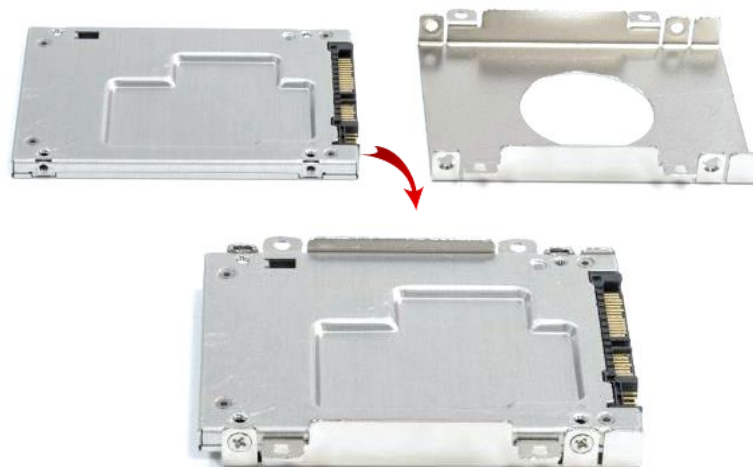


### 3.12 Install HDD/SSD on the internal SATA bay

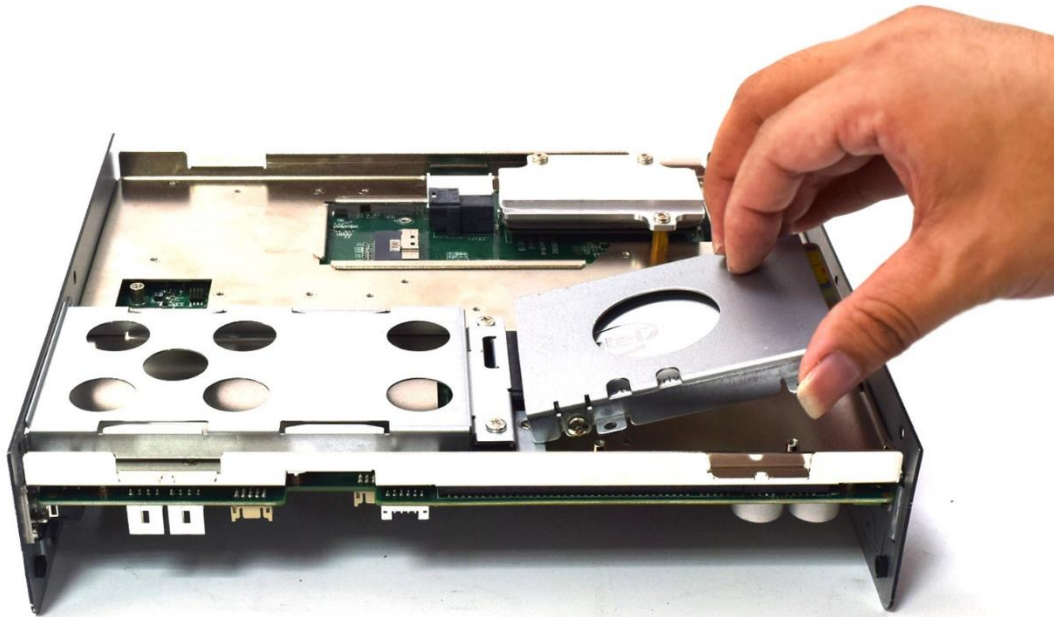
1. One internal SATA HDD/SSD bay is available for RCO-6000-RPL Series.  
Unscrew the 4 screws (M3x5L) highlighted at the locations below in order to remove the SATA HDD/SSD bay.



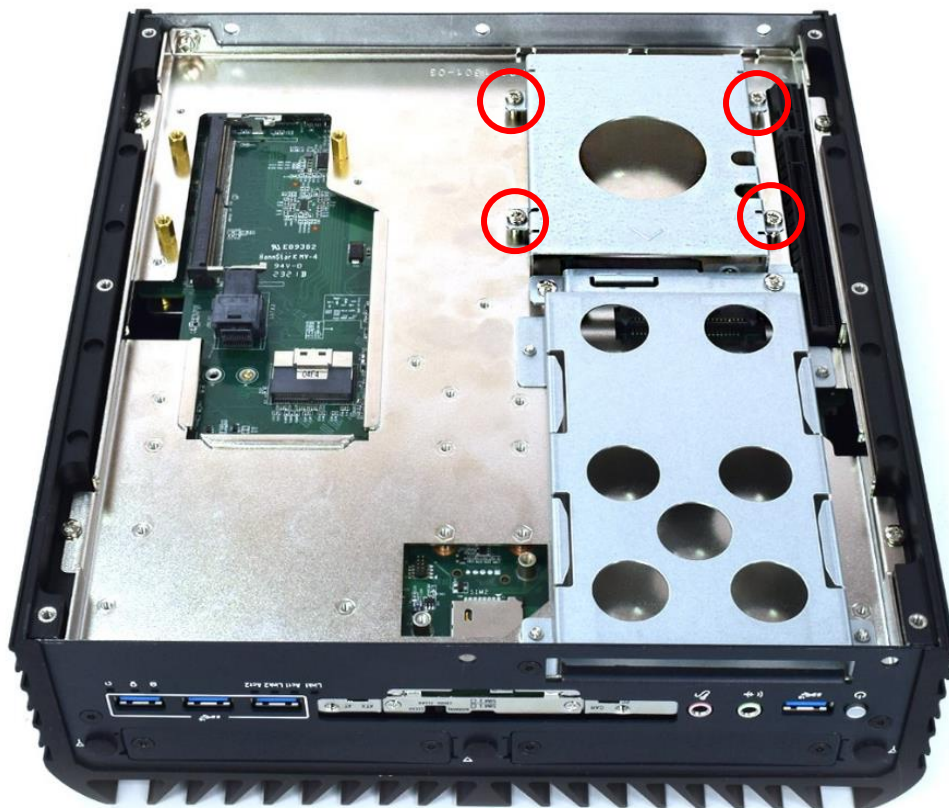
2. Secure the 2.5" HDD with HDD/SSD bracket using four screws (M3x4L).



3. Install the HDD/SSD bracket by aligning the holes with the notches on the board as shown in the picture below.



4. Fasten the 4 screws to secure the internal HDD/SSD bracket.



### 3.13 Installing HDD on removable SATA HDD/SSD bay

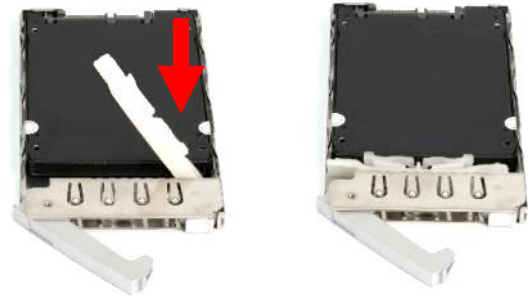
1. To unlock the tray lock press the location highlighted at the red circle below and pull the tray towards you to remove the SATA HDD/SSD bay.



2. Unlock the drive lock by lifting the it up as shown below and insert the HDD/SSD card.



3. Secure the drive lock by pushing it back down as shown below.



4. Once the HDD/SSD card is secure, place the tray back into the bay and secure the tray lock.



### 3.14 Installing HDD on removable HDD bay (for RCO-6000-RPL-2E16-4B7M)

1. Unscrew the toolless screw as shown in the locations below to remove the HDD bracket.



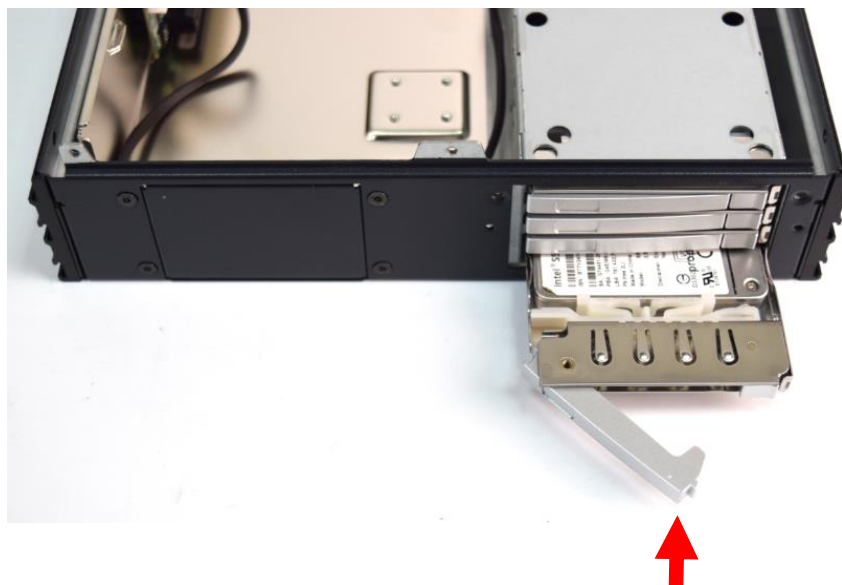
2. To open the tray lock, press down onto the location at the red circle shown below and remove the tray by pulling the tray out towards you.



3. Unlock the drive lock (white color lever) by lifting it up as shown below and insert the HDD/SSD card, then lock the drive lock by pressing it back down.



4. Once the HDD/SSD card is secure, place the tray back into the bay and secure the tray lock.



### 3.15 Installing HDD on removable HDD bay (for RCO-6000-RPL-2E16-2B15M)

1. Unscrew the toolless screw as highlighted in the two circles in the first picture below to remove the HDD bracket.

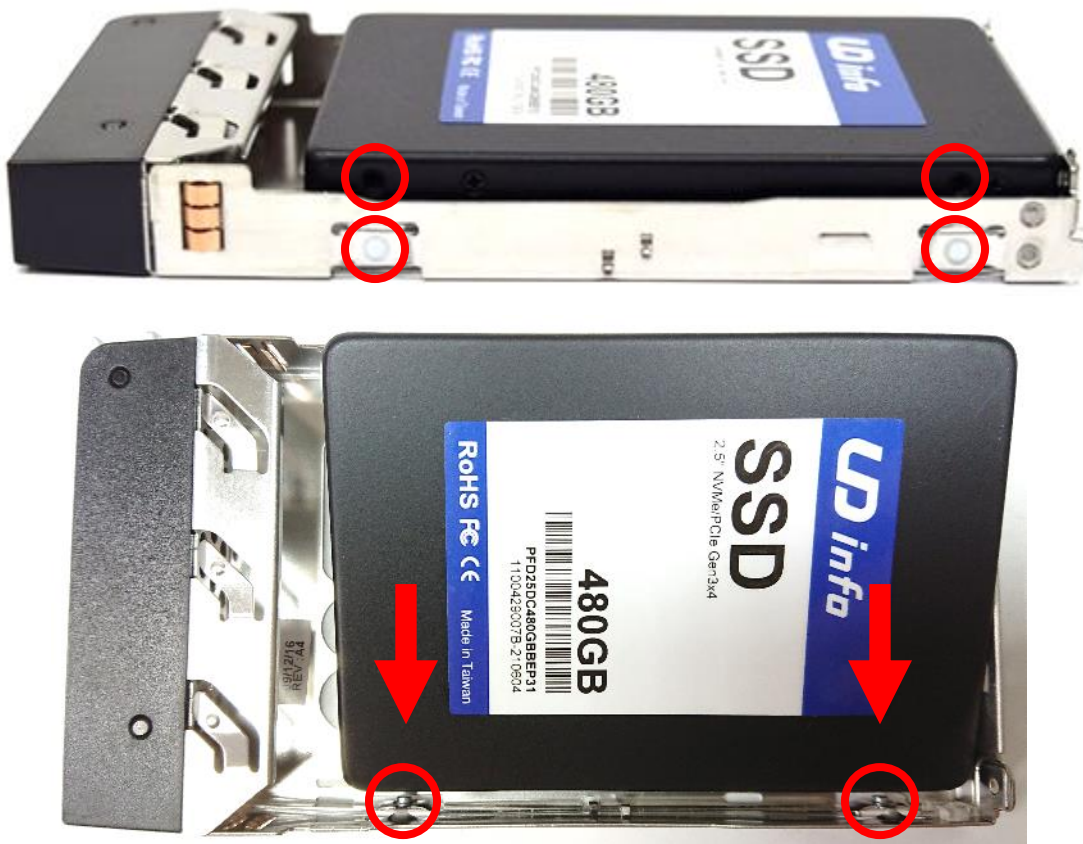
To remove the tray, unlock the tray lock by pressing on the side of the silver tray and pull the tray towards you.



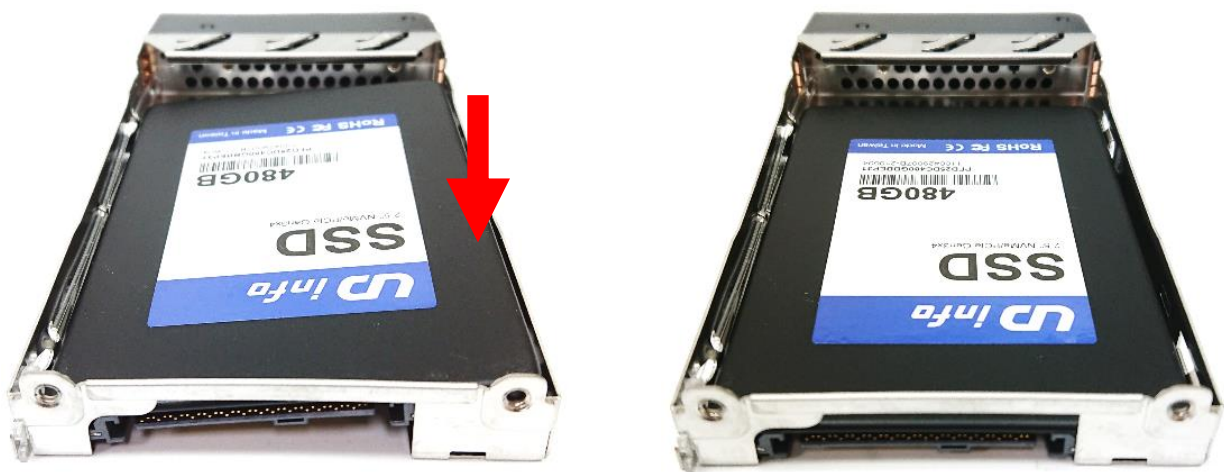
2. Once the tray is removed, place the HDD/SSD card (left) onto the tray (right).



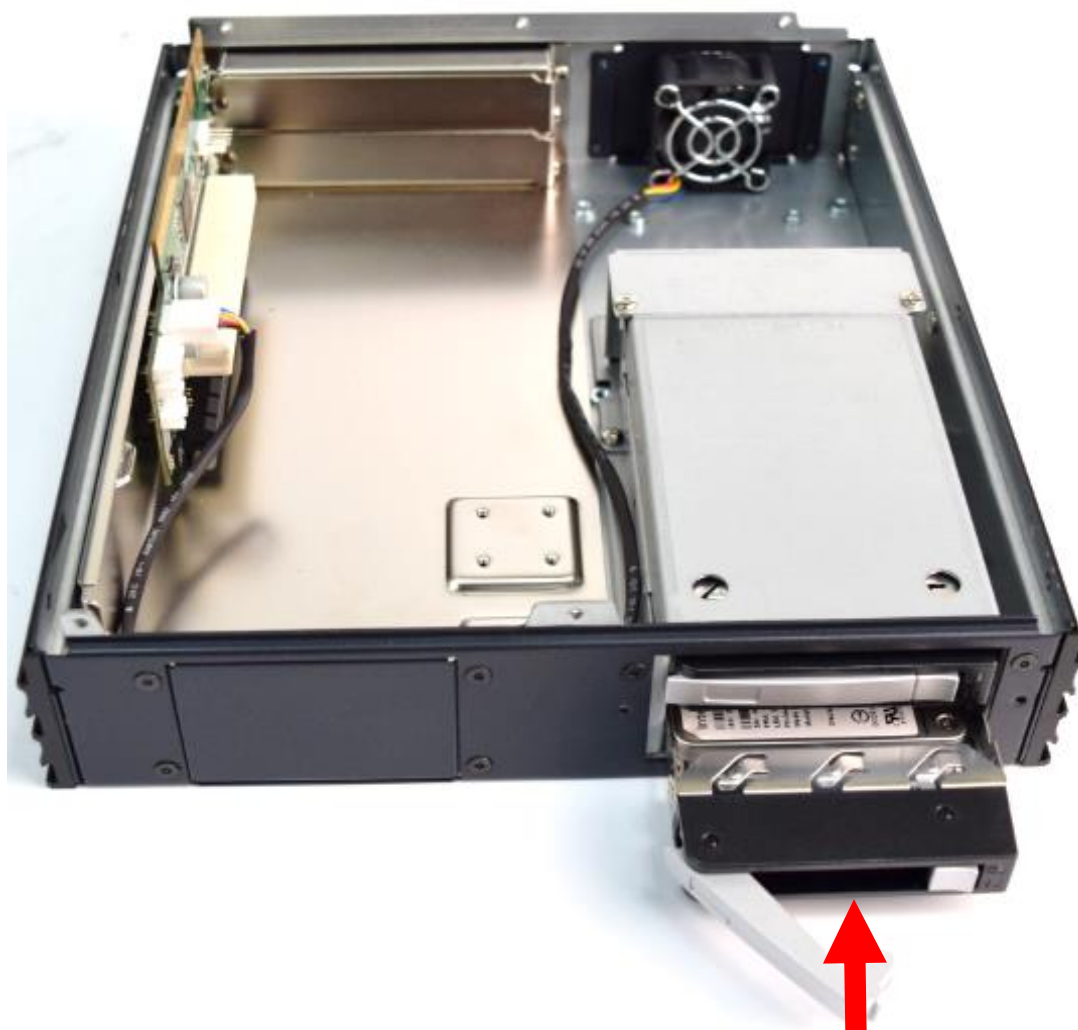
3. Align the HDD single side screw holes with the holes of the HDD tray as shown below.



4. Gently press down on the HDD card on the other side as shown in the photo below until you hear a “click” sound. Ensure the HDD is secured on the HDD tray.

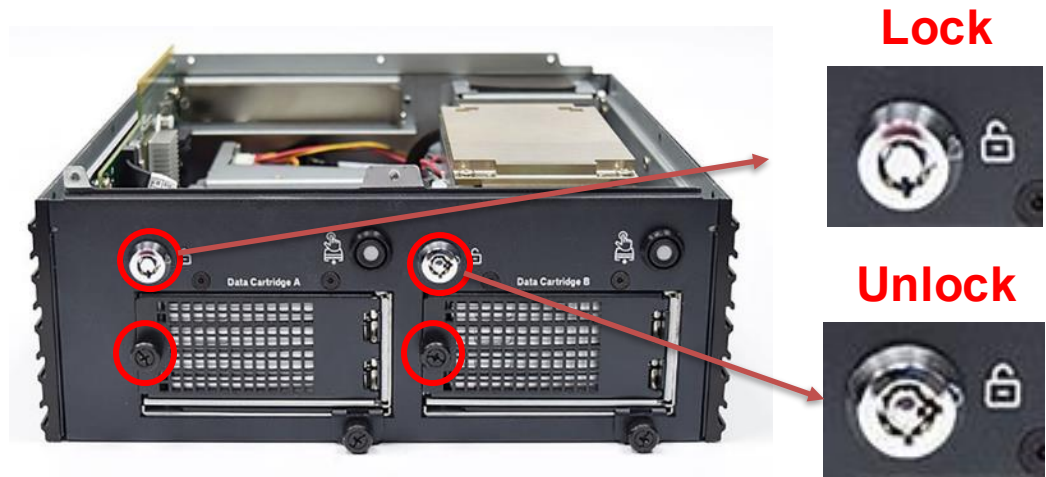


5. Re-insert the tray back into the system and secure the tray lock.



### 3.16 Installing HDD On The Removable HDD bay (for RCO-6000-RPL-8NS)

1. Unscrew the toolless screws at the locations circled below to remove the HDD bracket.



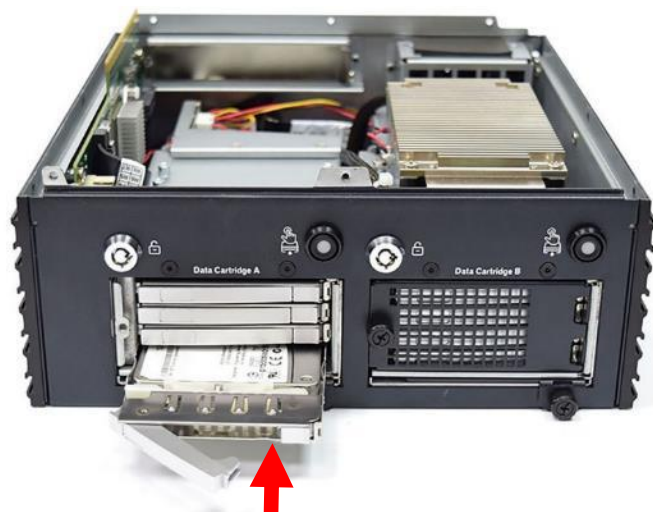
2. Unlock the tray lock by pressing down on the right hand side of the tray indicated by the red circle and remove the tray by pulling it towards you.



3. Unlock the drive lock (white color) by pulling it in an upward direction and insert the HDD/SSD. Then, push the drive lock back down until you hear a “click” sound. Ensure the HDD/SSD card is secure.

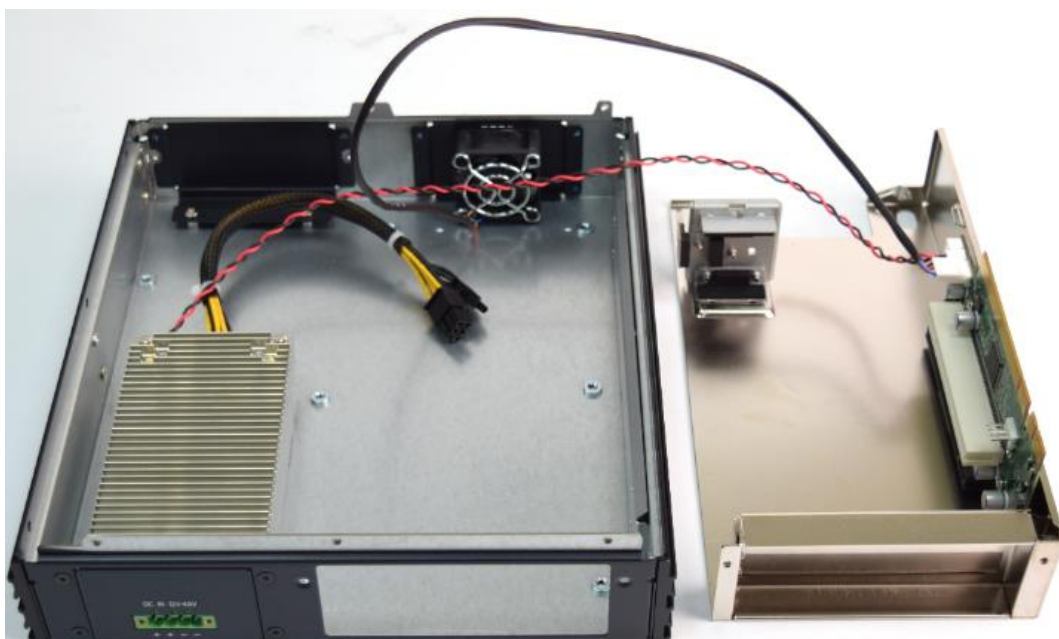


4. Ensure the tray is facing the right way up by aligning the tray lock with the other tray locks, and slide it back inside the slot and secure the tray lock.

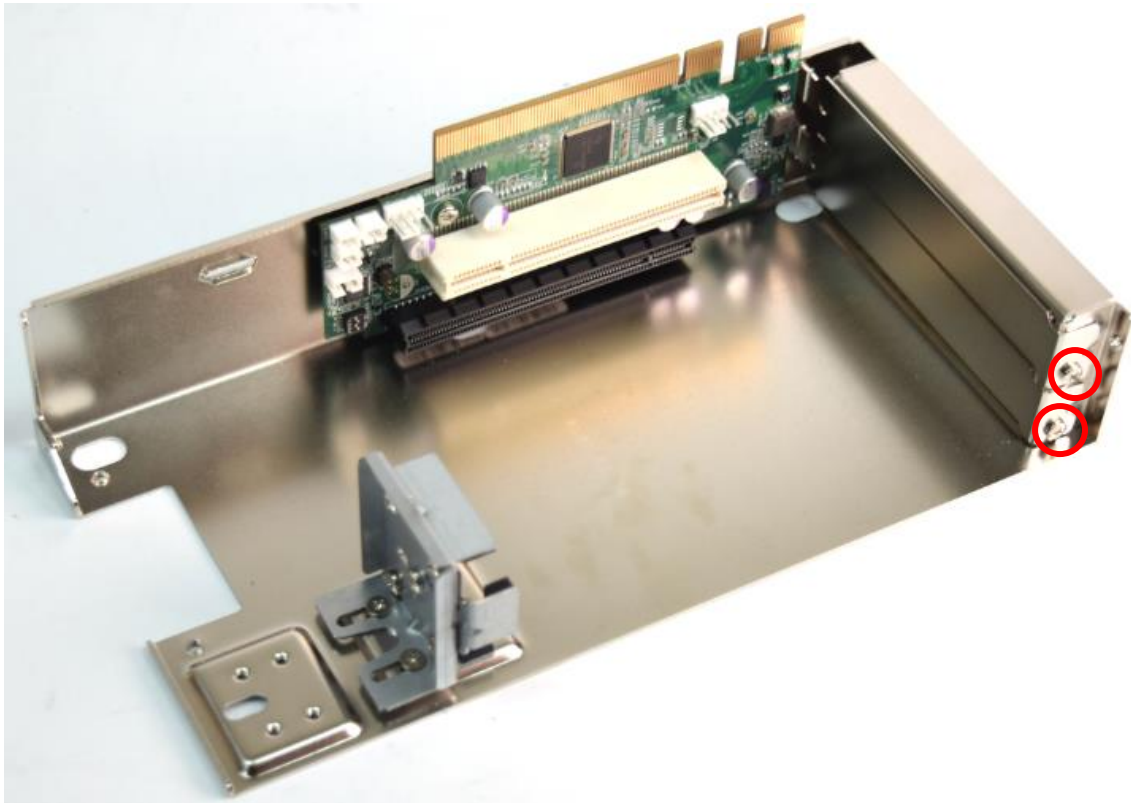


### 3.17 Installing the PCIe Expansion Card (for RCO-6000-RPL-2E16)

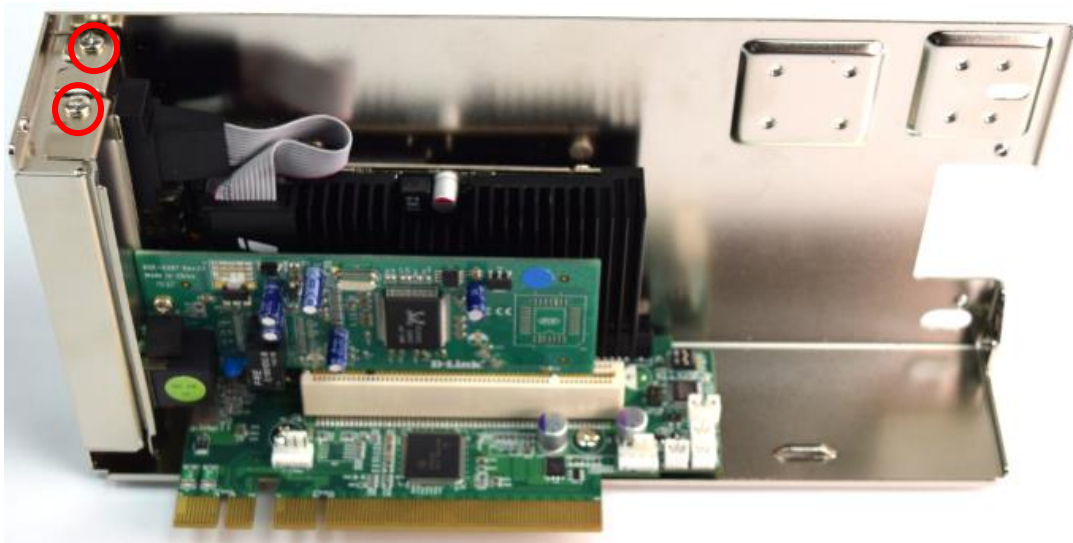
1. First, remove the 4 screws indicated at the locations highlighted with red circles below.



2. Remove the screws located at the highlighted red circles below.

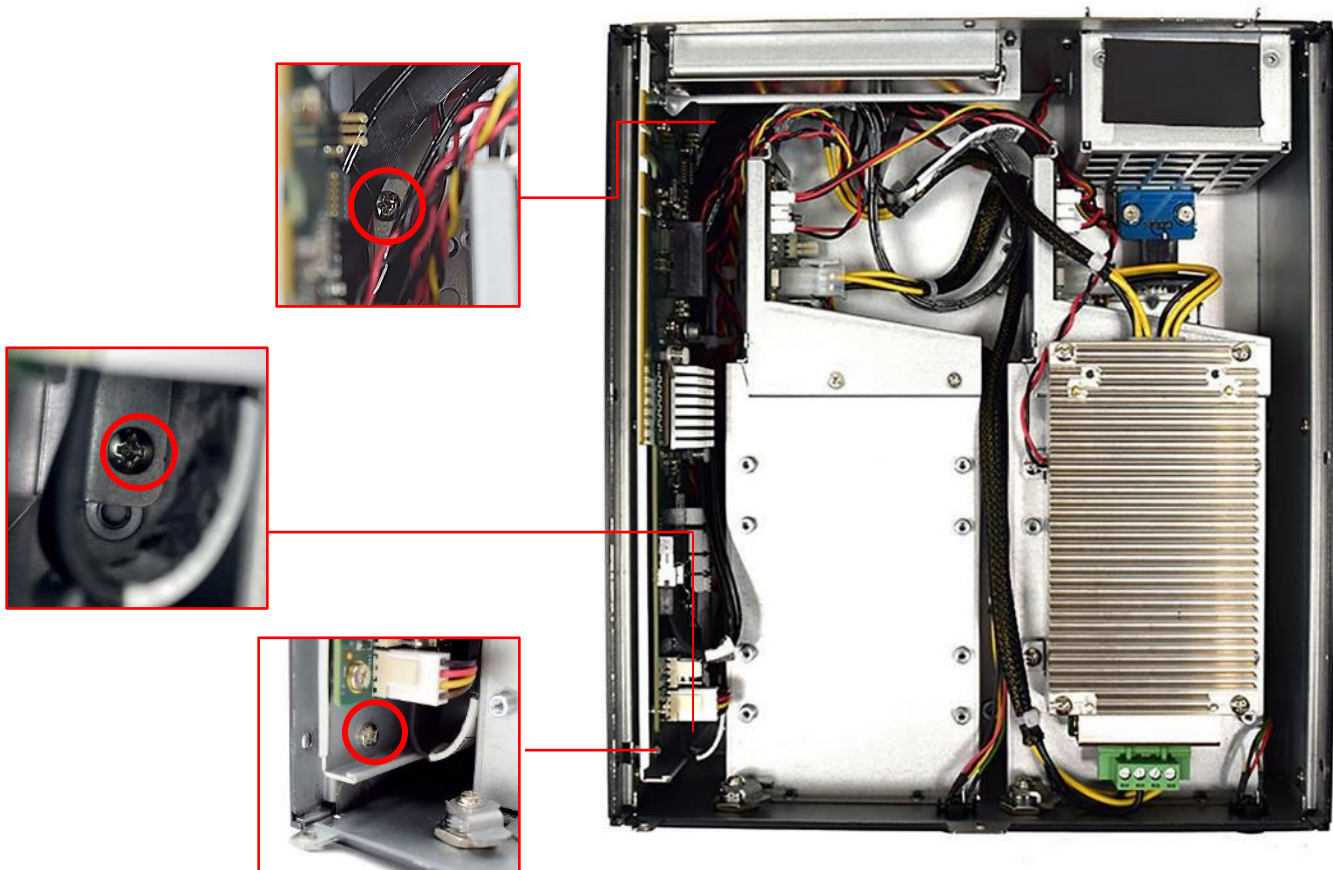
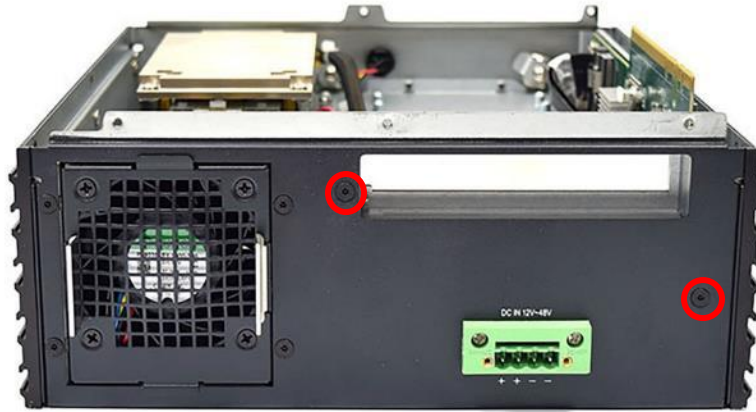


3. Install the PCIe/PCI extension card and ensure the gold finger is inserted properly. Once the card is inserted, fasten the two screws.



### 3.18 Installing PCIe/PCI Expansion Card (for RCO-6000-RPL-8NS)

1. Remove the 5 screws located at the red circles below. Two are located outside of the system, and three are located inside the system.



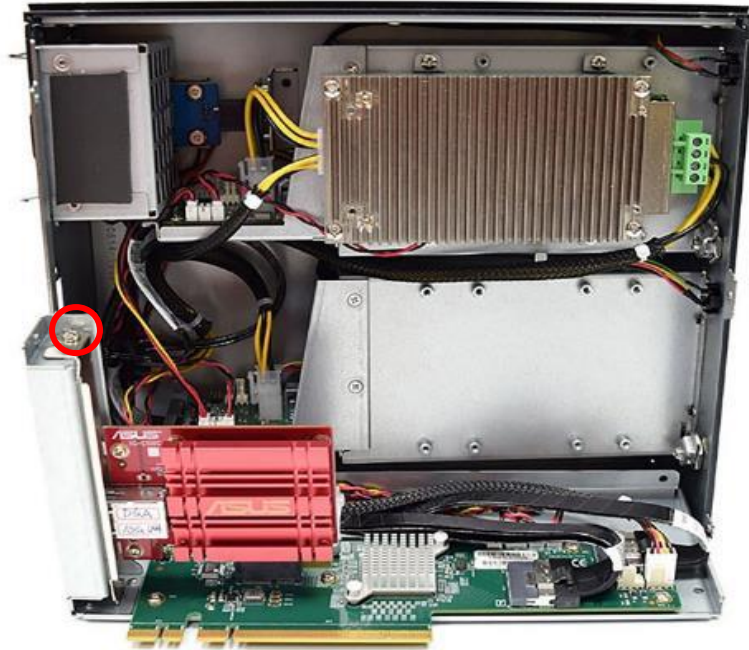
2. Take out the PCIe/PCI expansion card bracket.



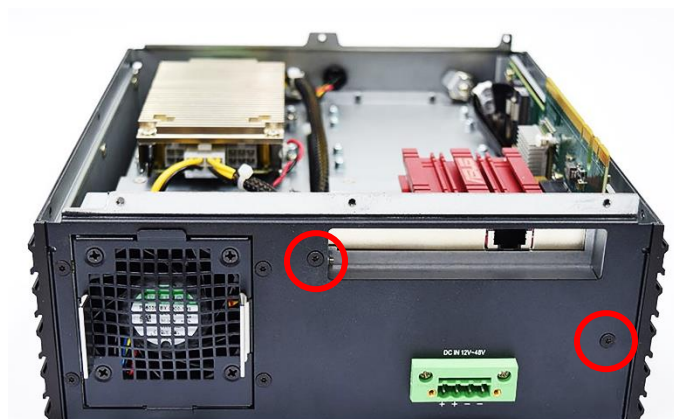
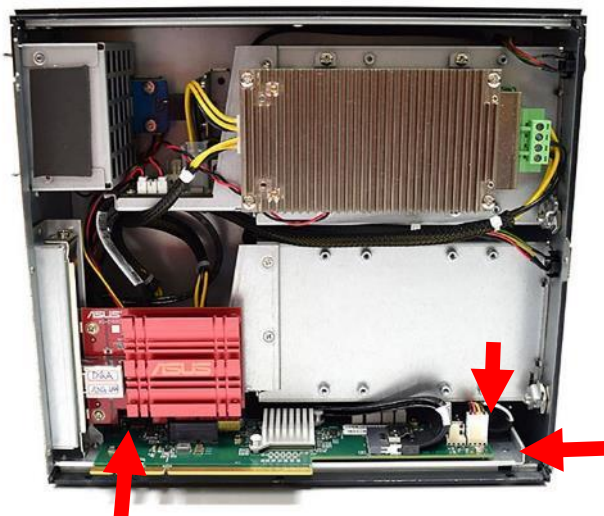
3. Unscrew the screw indicated at the circle below.



4. Install the PCIe/PCI extension card and ensure the gold finger is inserted properly. Once PCIe/PCI extension card is secured, fasten the screw.



5. Re-insert the PCIe/PCI expansion card bracket back into the system. Once the PCIe and PCI Expansion card bracket is secure, fasten the 5 screws.



## 3.19 Appendix A Optional CANBus Cable

### 1. 1-TCAN00001 > Dual Channel



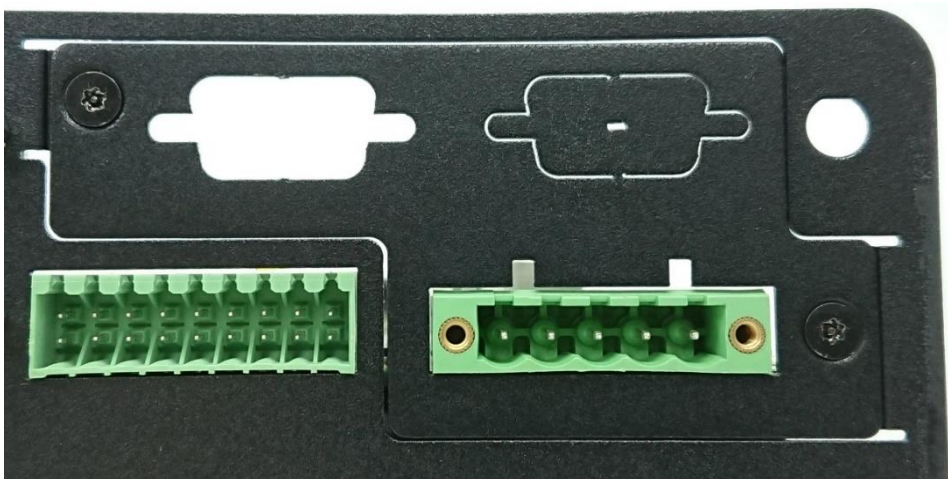
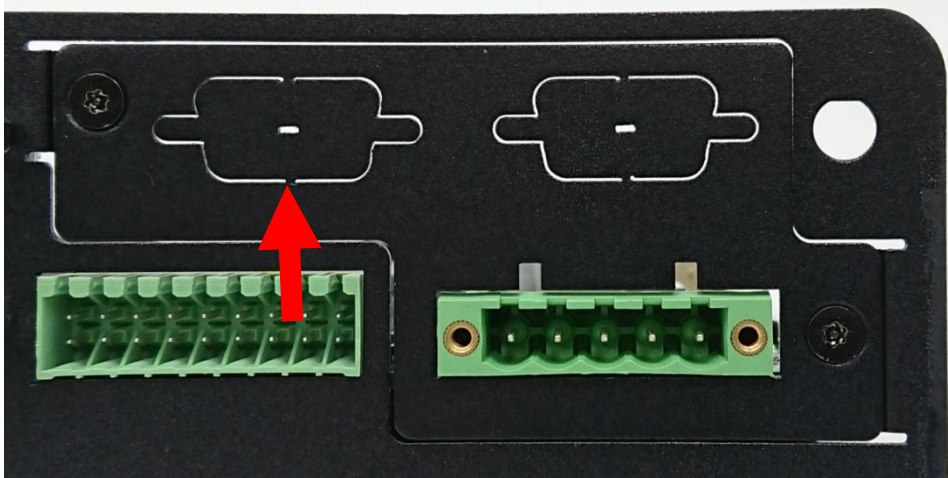
| CONN1   |          |       | CONN2   | CONN3   |
|---------|----------|-------|---------|---------|
| PIN NO. | FUNCTION | COLOR | PIN NO. | PIN NO. |
| 7       | CAN1 H   | Green | 2       | –       |
| 2       | CAN1 L   | White | 1       | –       |
| 5       | CAN2 H   | Blue  | –       | 2       |
| 4       | CAN2 L   | White | –       | 1       |

### 2. 1-TCAN00002 > Single Channel

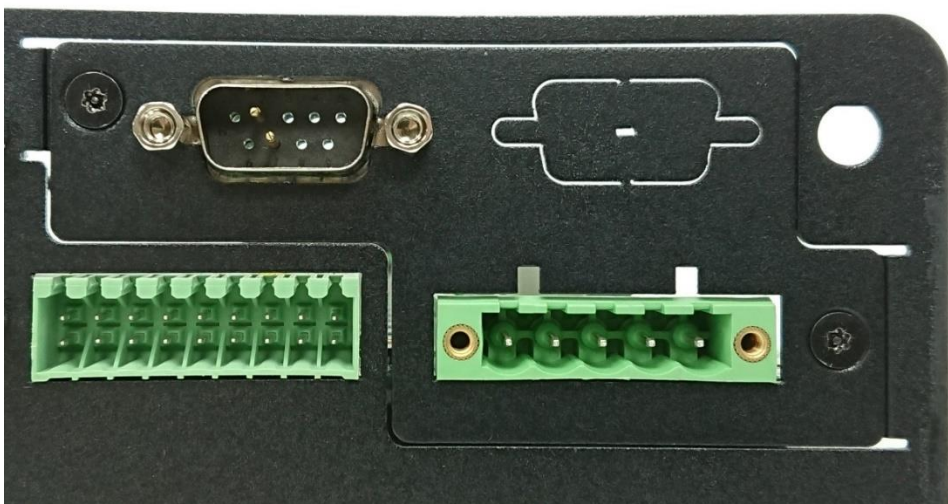


| CONN1   |          |       | CONN2   |
|---------|----------|-------|---------|
| PIN NO. | FUNCTION | COLOR | PIN NO. |
| 7       | CAN1 H   | Green | 2       |
| 2       | CAN1 L   | White | 1       |

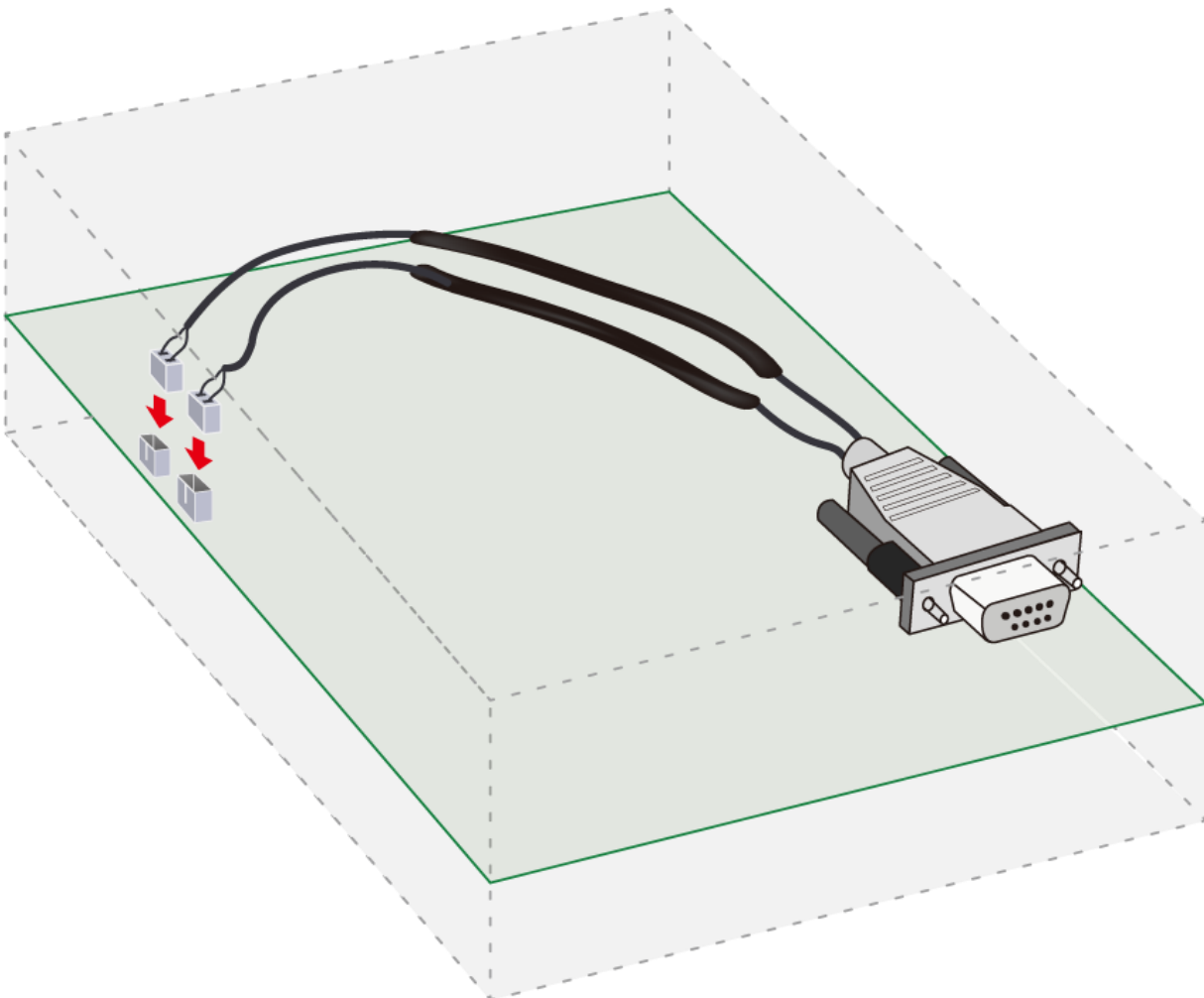
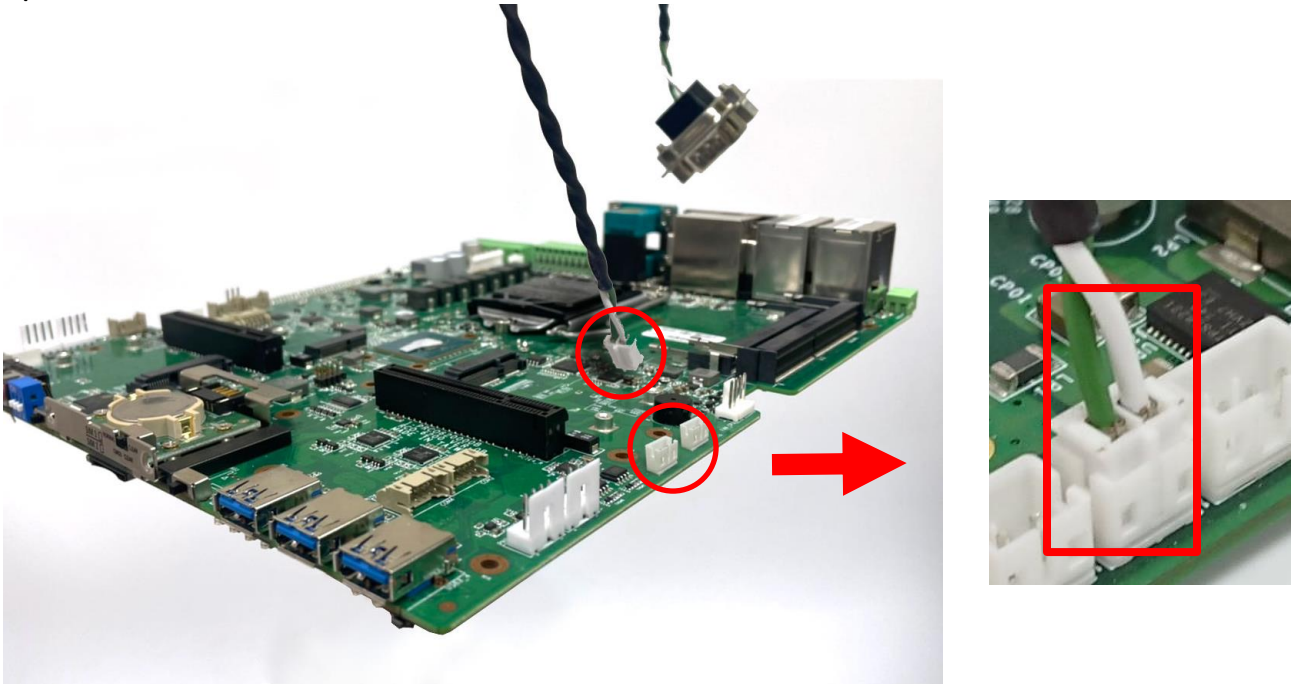
3. Press the cutout indicated by the red arrow below in the top photo to create a hole. The outcome should look like the bottom photo.



4. Insert the CANBus connector in the hole.

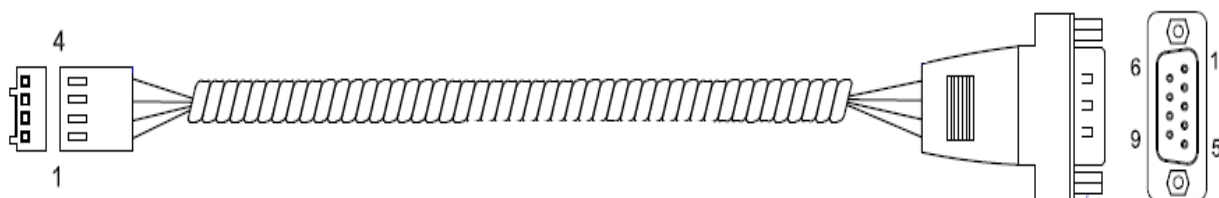


5. Attach the CANBus cable end to the motherboard at the location indicated in the pictures below.



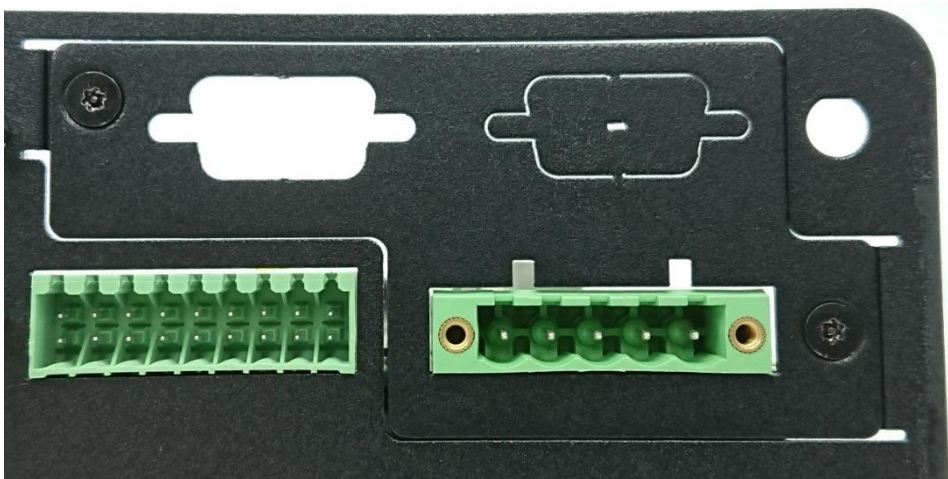
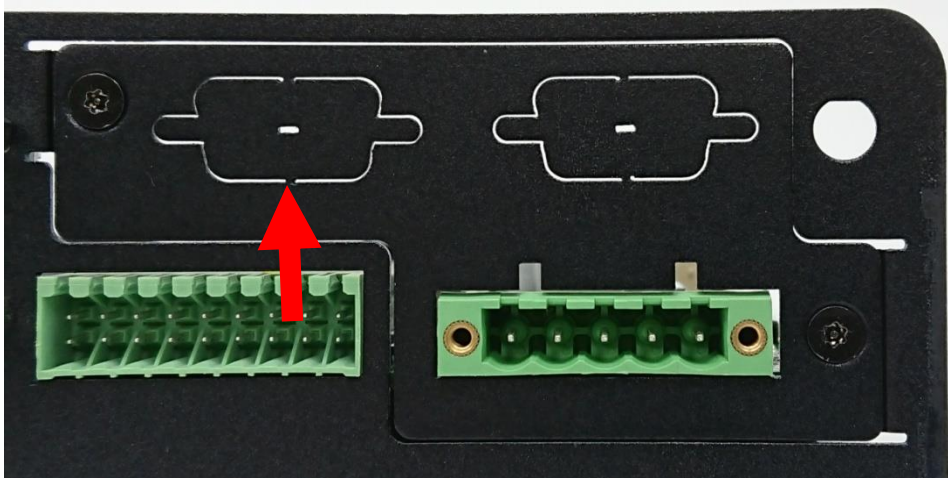
## 3.20 Appendix B Fan Power Cable

### 1. 1-TFAN00005 > Fan Power Cable

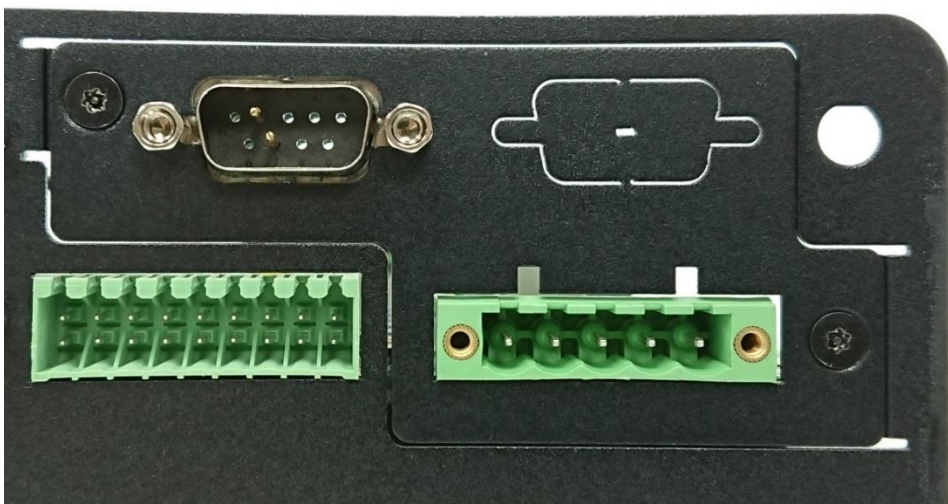


| CONN1   |                 | CONN2   |
|---------|-----------------|---------|
| Pin No# | Color           | Pin No# |
| 1       | Black / GND     | 1       |
| 2       | Red / +12V      | 2       |
| 3       | Yellow / Sense  | 3       |
| 4       | Brown / Control | 4       |

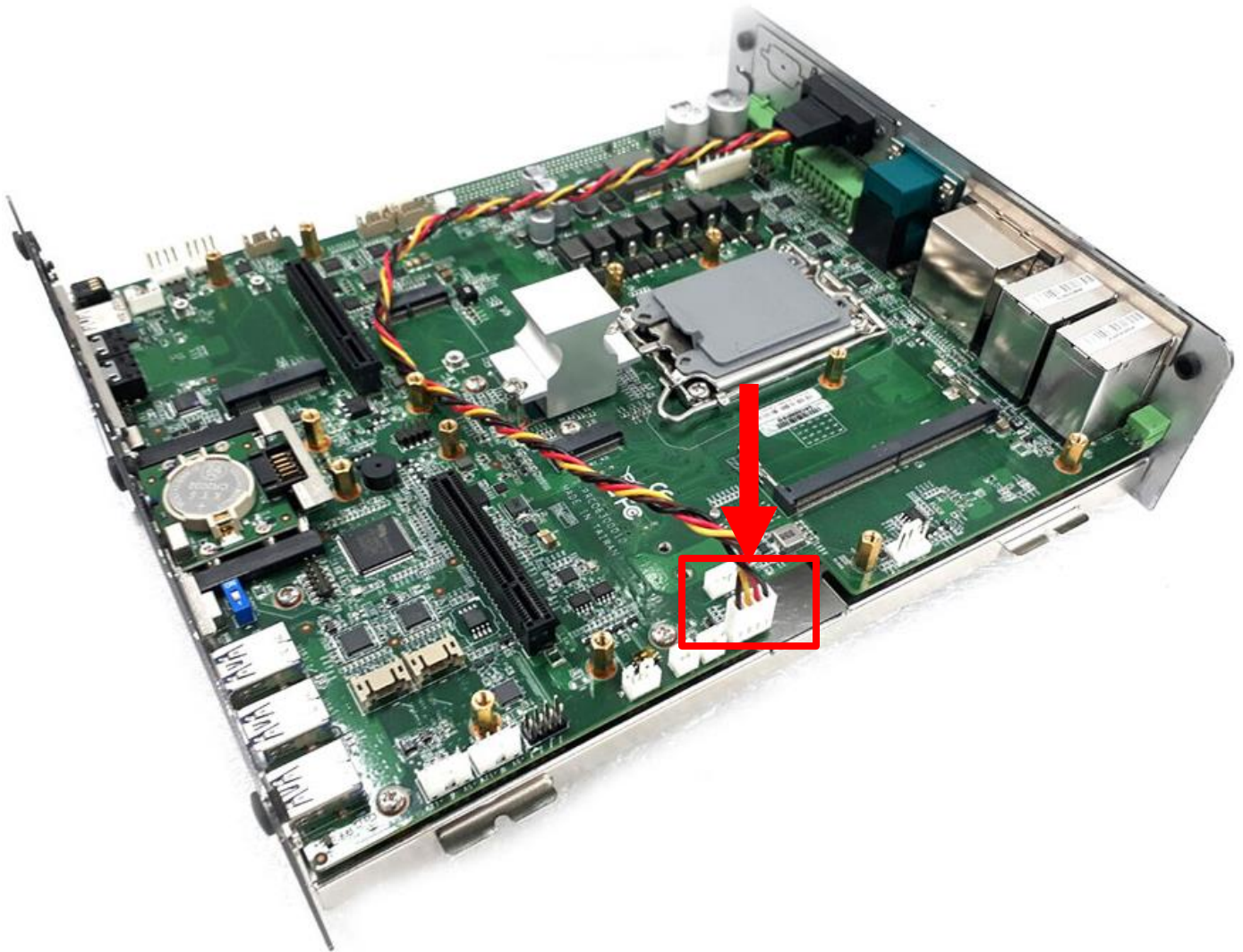
3. Press the cutout indicated by the red arrow below in the top photo to create a hole. The outcome should look like the bottom photo.



4. Insert the Fan Power connector in the hole.



5. Attach the Fan Power cable end to the motherboard at the location indicated in the pictures below.

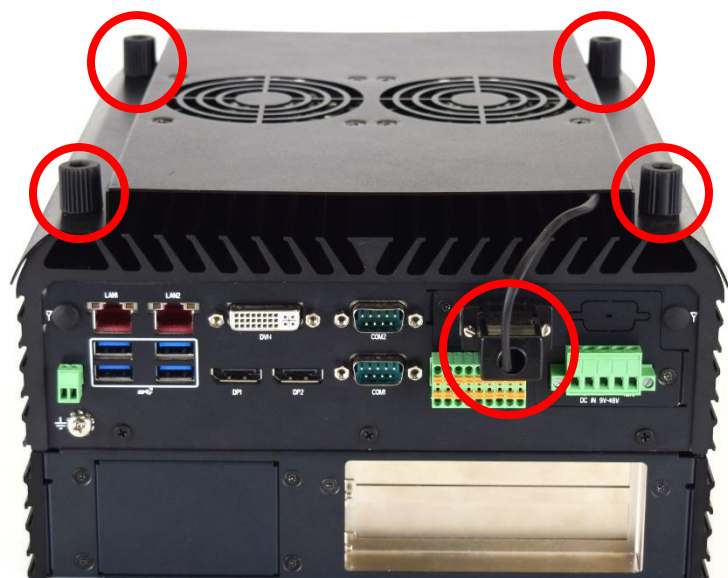
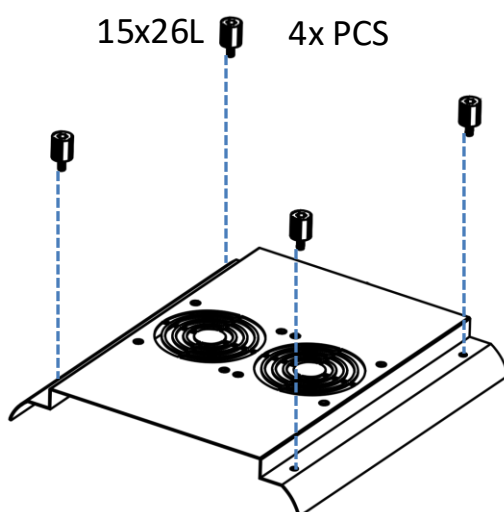


## 3.21 Double Fan Module

1. Slightly loosen the 4 screws on the Double Fan Module and install it on the RCO-6000-RPL. Slide the upper cover from the back to the front.

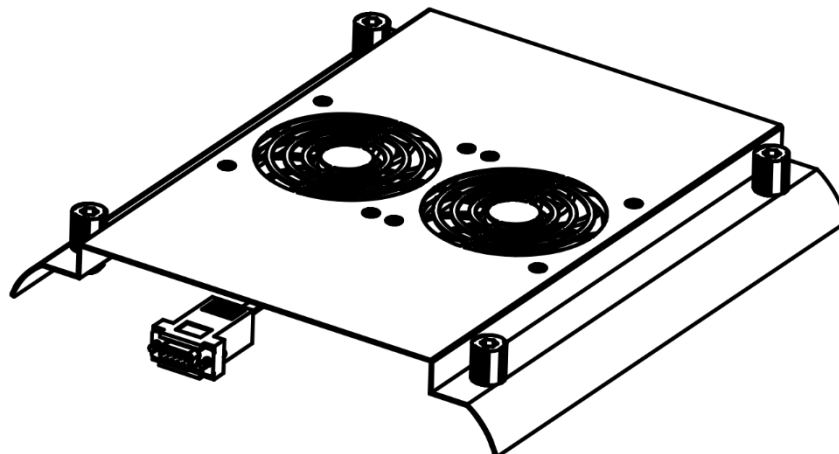
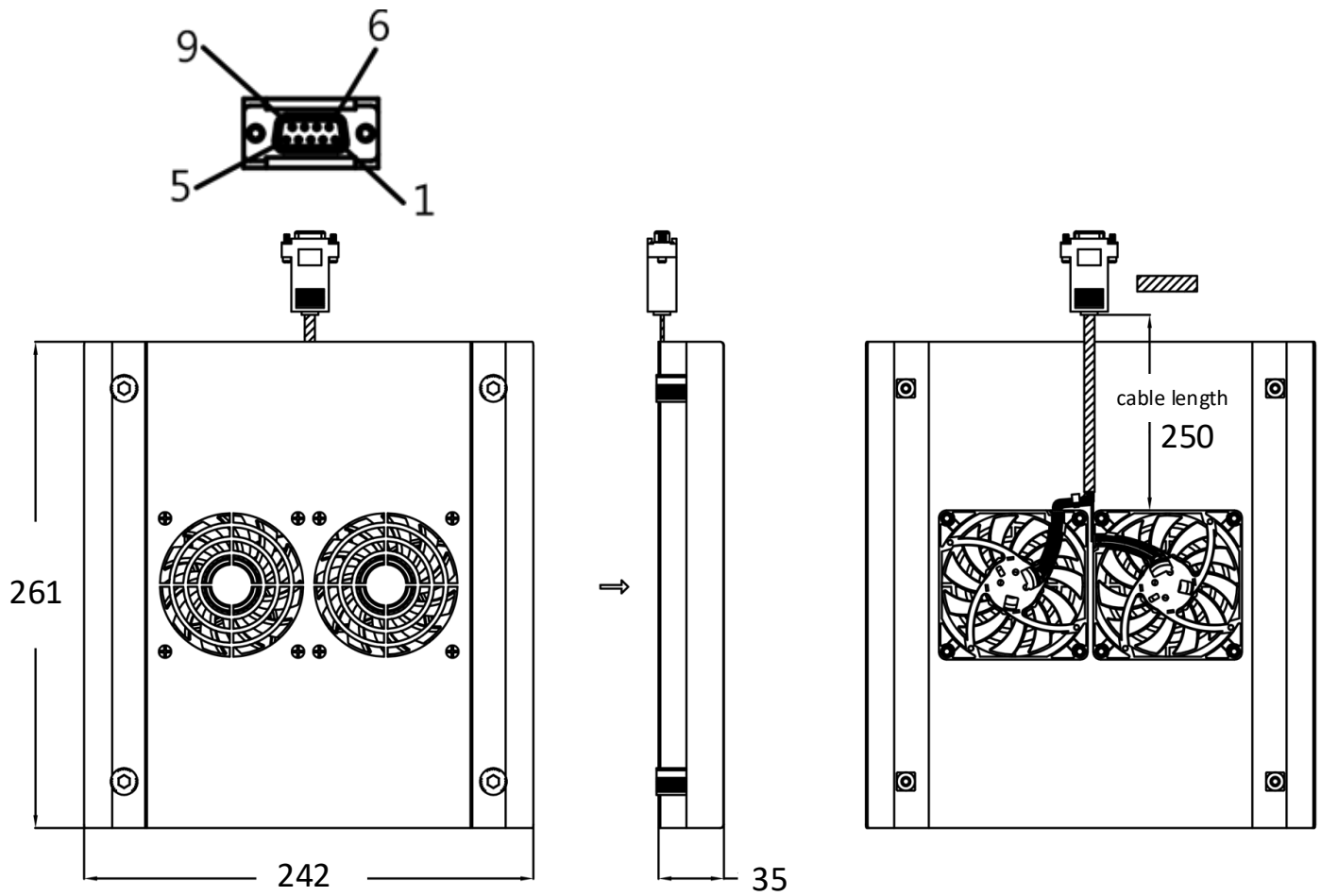


2. Tighten the 4 screws on the Double Fan Module and plug in the Fan Power Cable.



## Double Fan Mechanical Dimensions

Unit: mm



## 3.22 Installing Wall Mount Kit

### RCO-6000-RPL(only)

1. The Wall Mount Kit is provided with the RCO-6000-RPL(only) as a standard package.



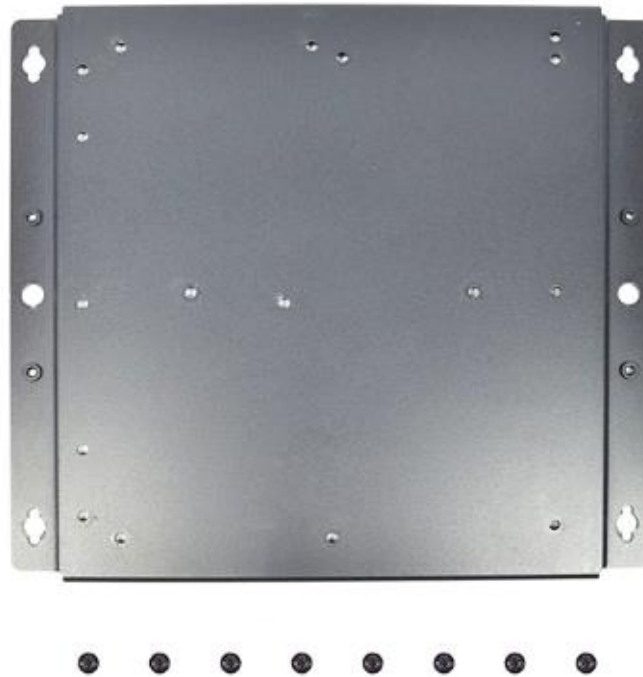
2. Place the system upside down so you can see the bottom cover. Secure the wall-mount kit with eight screws (M3x5L, Nylok) as highlighted in red circles below.



- RCO-6000-RPL

## 3.22 Installing Wall Mount Kit

1. The Wall Mount Kit is provided with the RCO-6000-RPL as a standard package.



2. The Wall Mount Kit requires 8 screws as pictured above. The 8 screws will fasten the left mount piece to the right, as indicated by the picture below.



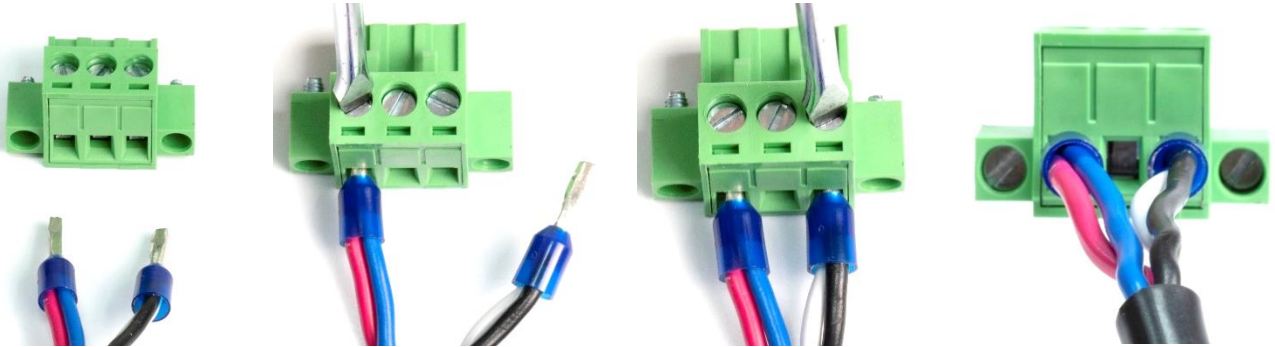
3. If you have a 2-slot expansion module, fasten the 8 screws at the locations indicated by the red circles on the left picture.

If you have a 3-slot expansion module, fasten the 8 screws at the locations indicated by the red circles on the right picture.

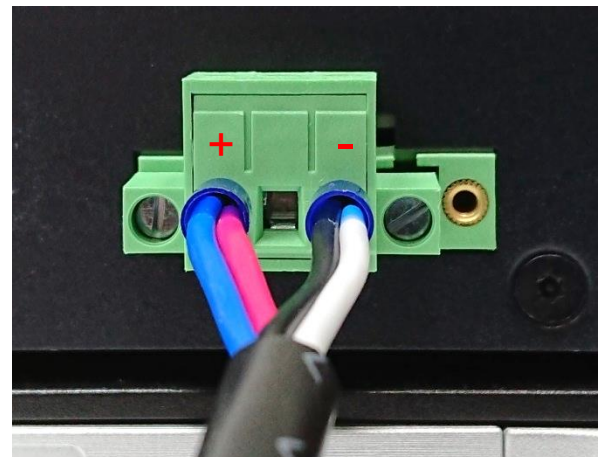
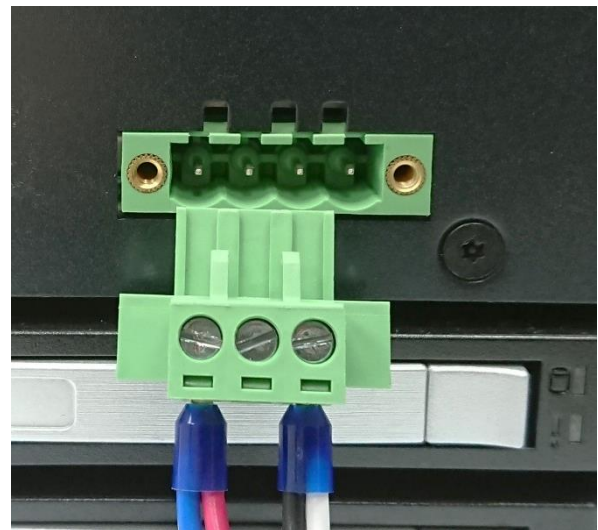
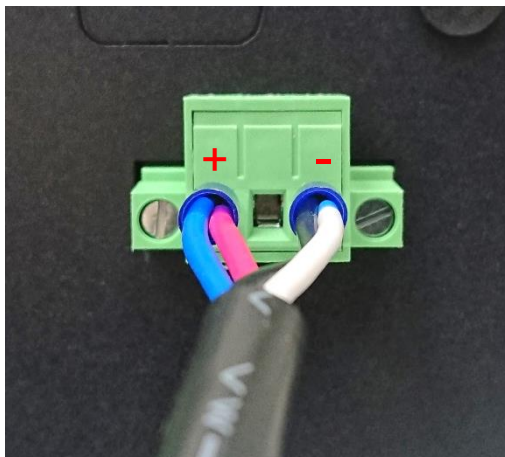
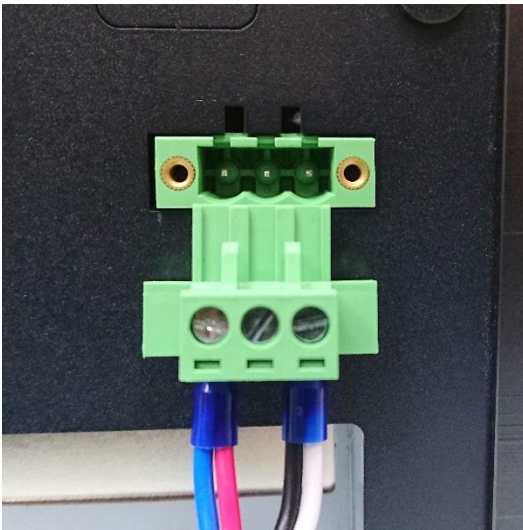


### 3.23 AC Adapter with 3P terminal block

1. Below is a step-by-step photo sequence (from left to right) of how to wire a AC Adapter (3P).



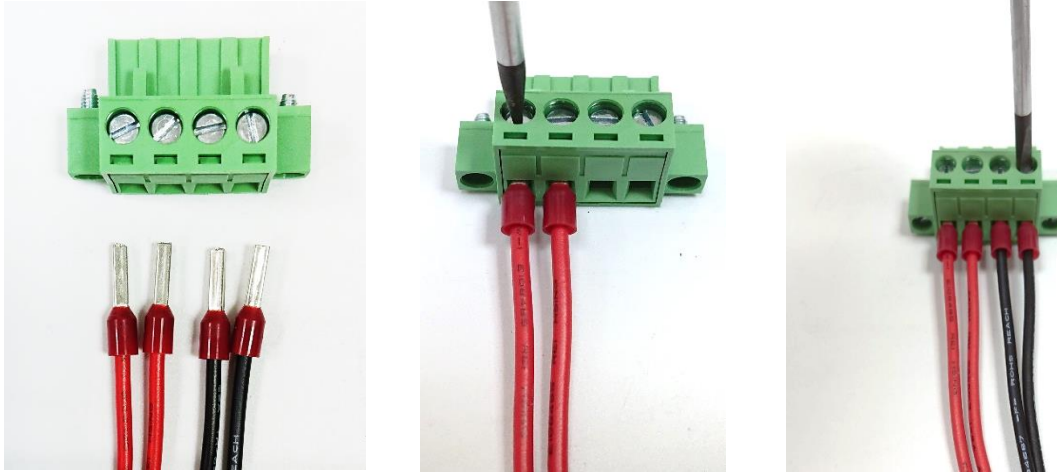
2. Below is a picture of a wired DC Power Supply (3P) input.



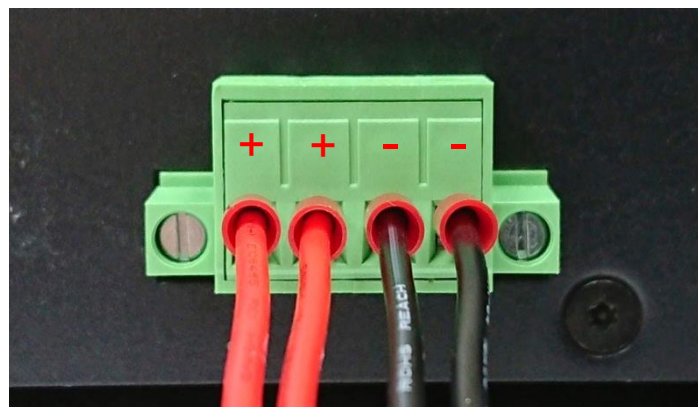
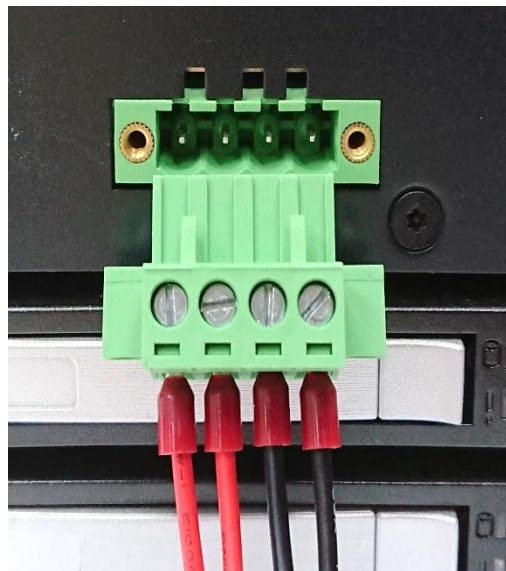
### 3.24 AC Adapter with 4P terminal block

\* 12V requires 4-pin terminal block for card/storage expansion

1. Below is a pictorial diagram of an AC adapter (4P).



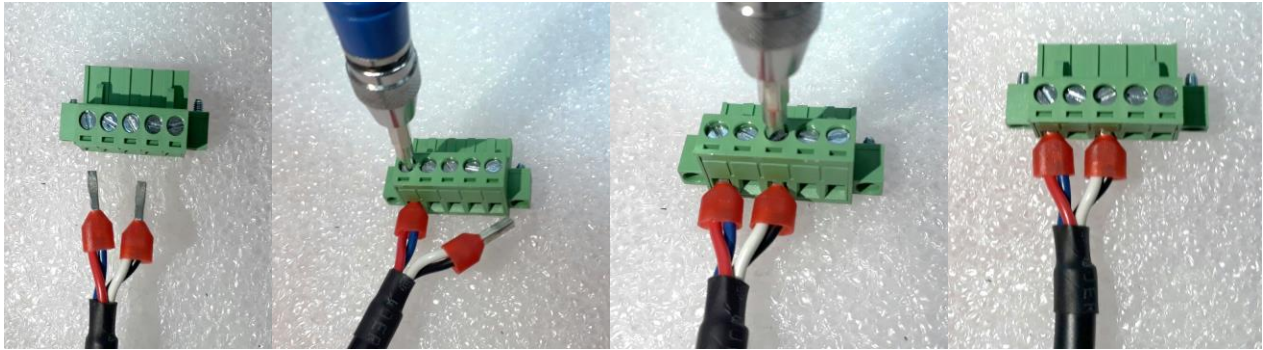
2. Below is a pictorial diagram of a DC power input (4P).



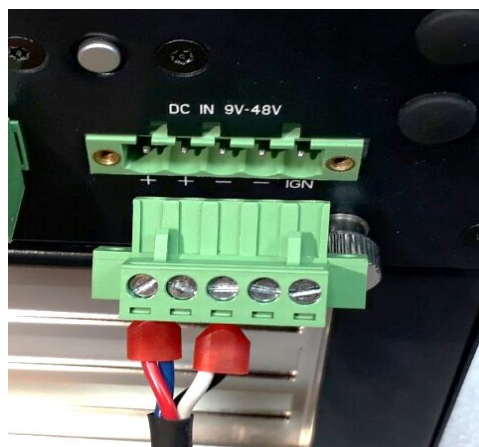
### 3.25 AC Adapter with 5P terminal block

\* 12V requires 4-pin terminal block for card/storage expansion

#### 1. 5P Wiring Diagram of AC Adapter



#### 2. DC power input 5P wiring diagram



# Chapter 4

## BIOS Setup

## 4.1 BIOS Introduction

The BIOS provides an interface to modify the configuration. When the battery is removed, all the parameters will be reset.

### BIOS Setup

Power on the embedded system and by pressing <Del> immediately allows you to enter the setup screens. If the message disappears before you respond and you still wish to enter the Setup, restart the system by turning it OFF and ON or pressing the RESET button.

You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

| Control Keys  |                                              |
|---------------|----------------------------------------------|
| <→> <←>       | Select Screen                                |
| <↑> <↓>       | Select Item                                  |
| <Enter>       | Select                                       |
| <Page Up/+>   | Increases the numeric value or makes changes |
| <Page Down/-> | Decreases the numeric value or makes changes |
| <F1>          | General Help                                 |
| <F2>          | Previous Value                               |
| <F3>          | Load Optimized Defaults                      |
| <F4>          | Save Configuration and Exit                  |
| <Tab>         | Select Setup Fields                          |
| <Esc>         | Exit BIOS Setup                              |

### Main Setup

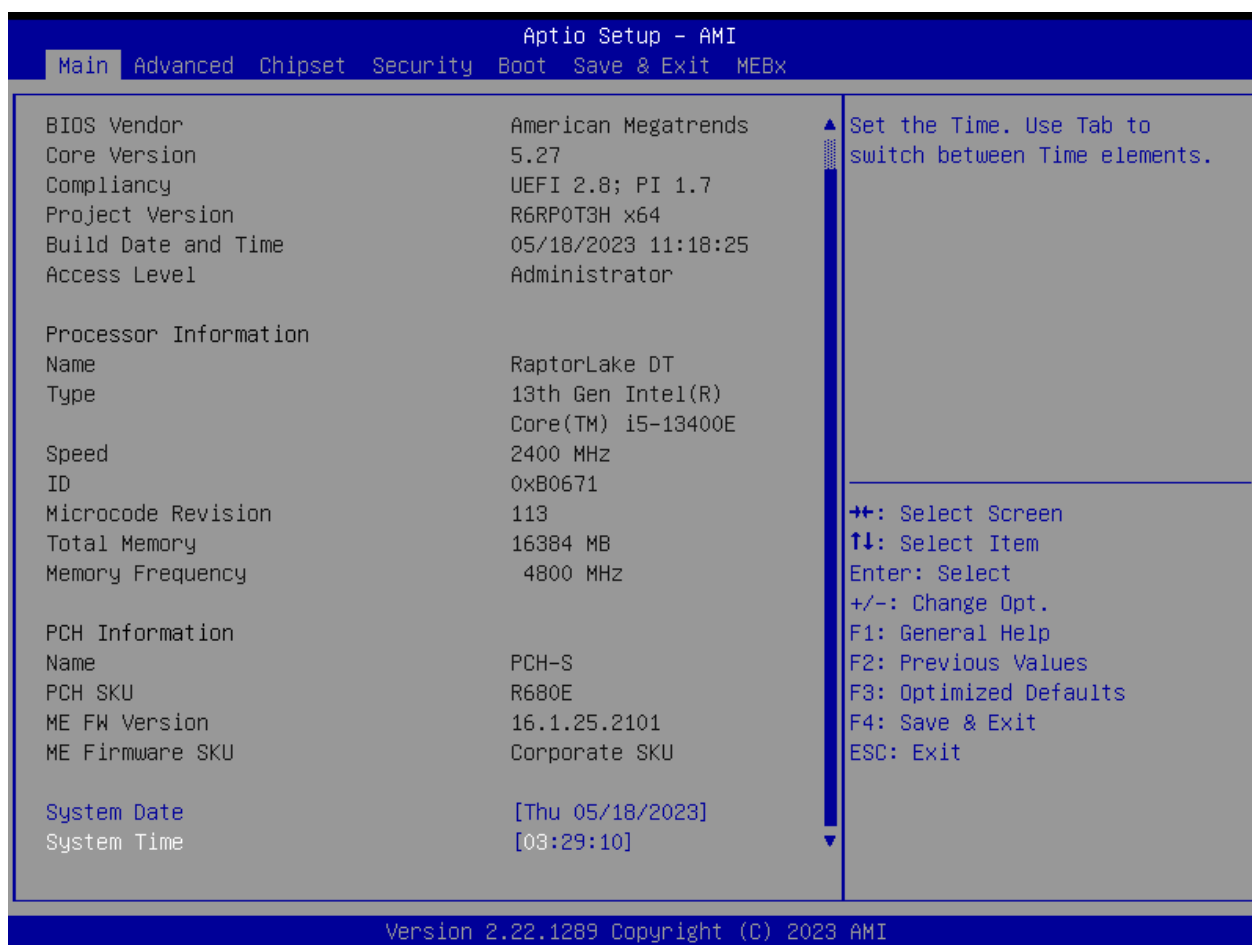
The main menu lists the setup functions you can make changes to. You can use the arrow keys ( ↑↓ ) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

### General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

## 4.2 Main Setup

Press <Del> to enter BIOS CMOS Setup Utility. The Main setup screen is showed as following when the setup utility is entered. System Date/Time is set up in the Main Menu.



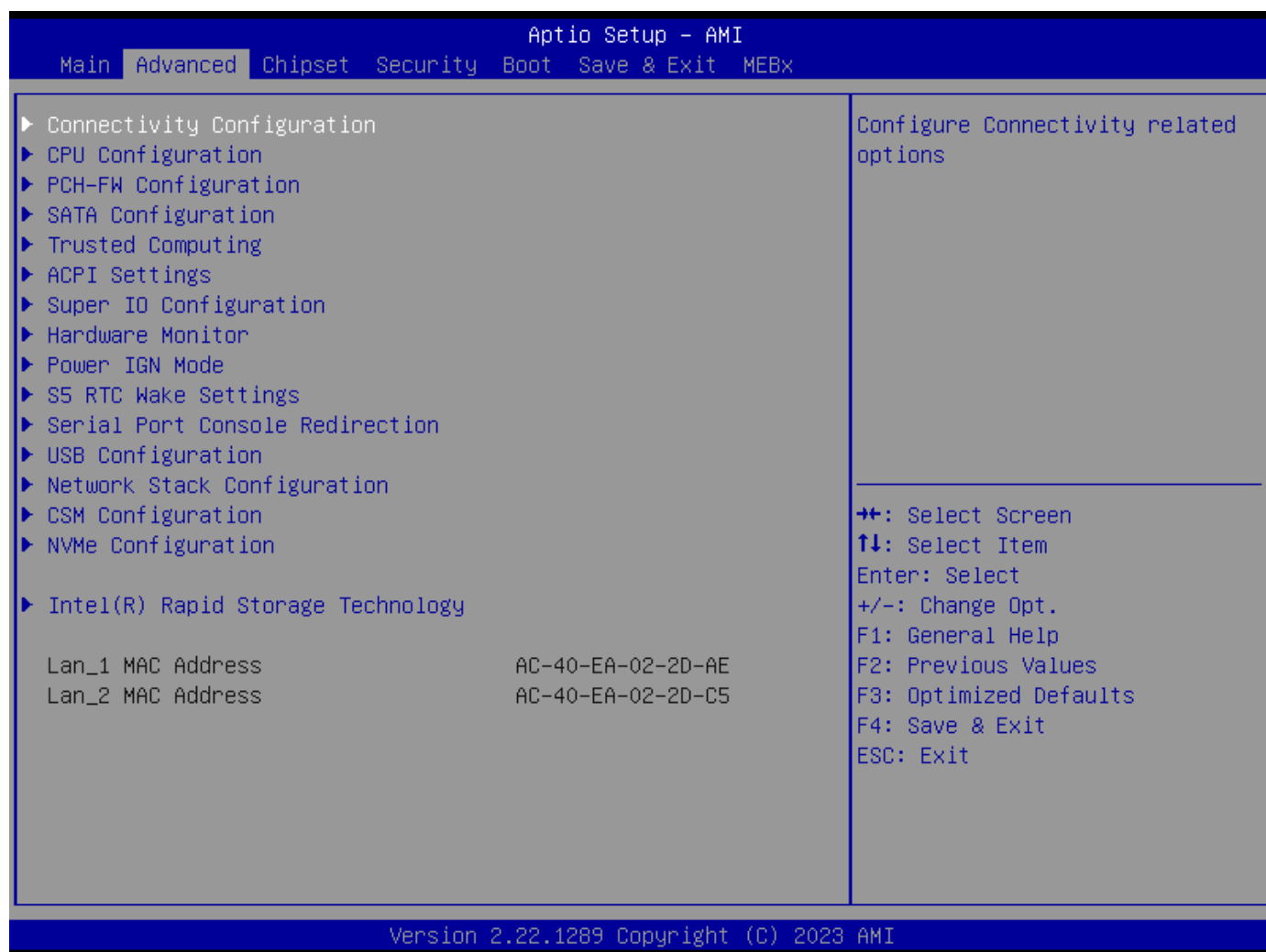
### ■ System Date

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

### ■ System Time

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

## 4.3 Advanced Setup

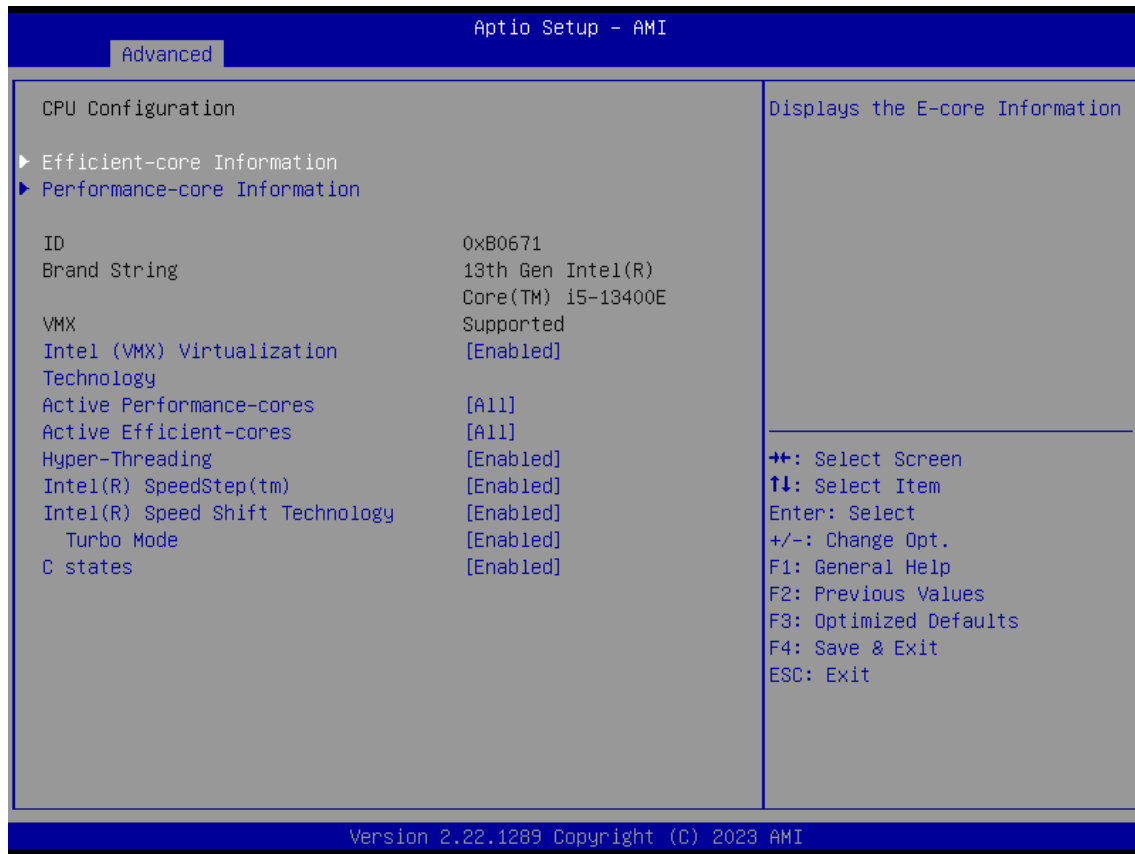


### 4.3.1 Connectivity Configuration



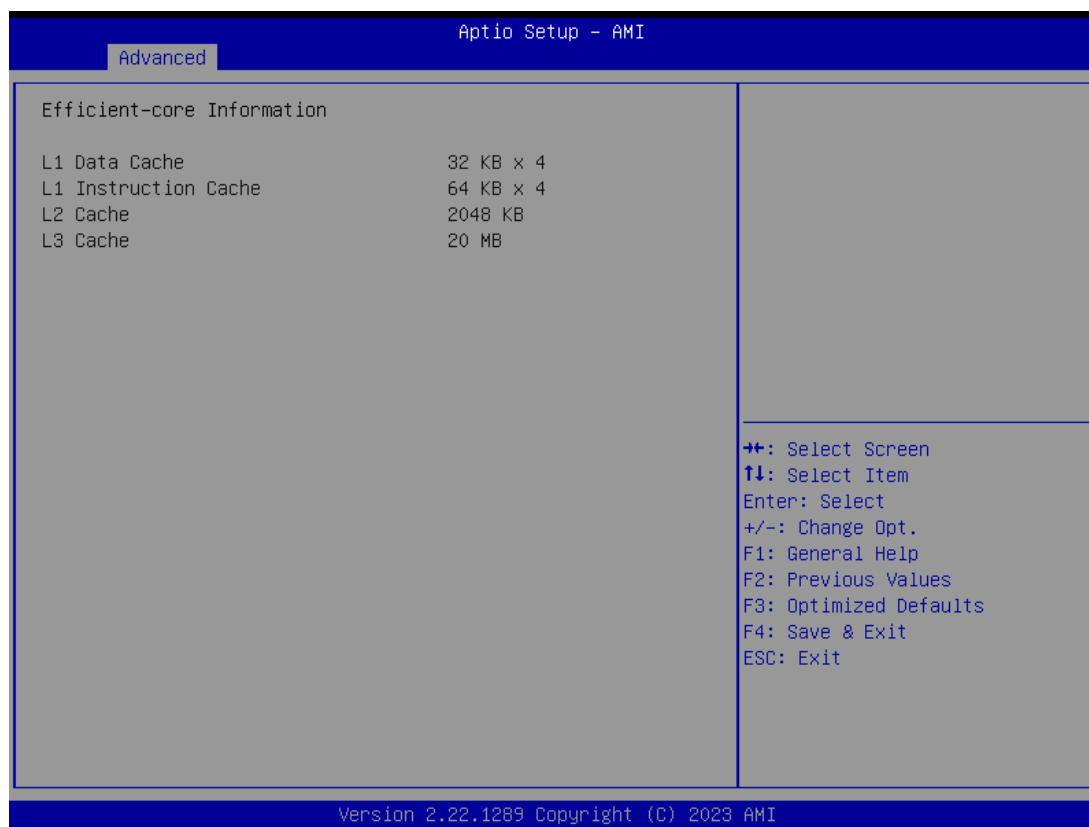
| Item              | Options                                              | Description                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CNVi Mode</b>  | Disable Integrated, Auto Detection[ <b>Default</b> ] | This option configures Connectivity. [Auto Detection] means that if Discrete solution is discovered it will be enabled by default. Otherwise Integrated solution (CNVi) will be enabled; [Disable Integrated] disables Integrated Solution.<br>NOTE: When CNVi is present, the GPIO pins that are used for radio interface cannot be assigned to the other native function. |
| <b>Wi-Fi Core</b> | Enabled[ <b>Default</b> ] , Disabled                 | This is an option intended to Enable/Disable Wi-Fi Core in CNVi                                                                                                                                                                                                                                                                                                             |
| <b>BT Core</b>    | Enabled[ <b>Default</b> ] , Disabled                 | This is an option intended to Enable/Disable BT Core in CNVi.                                                                                                                                                                                                                                                                                                               |

### 4.3.2 CPU Configuration

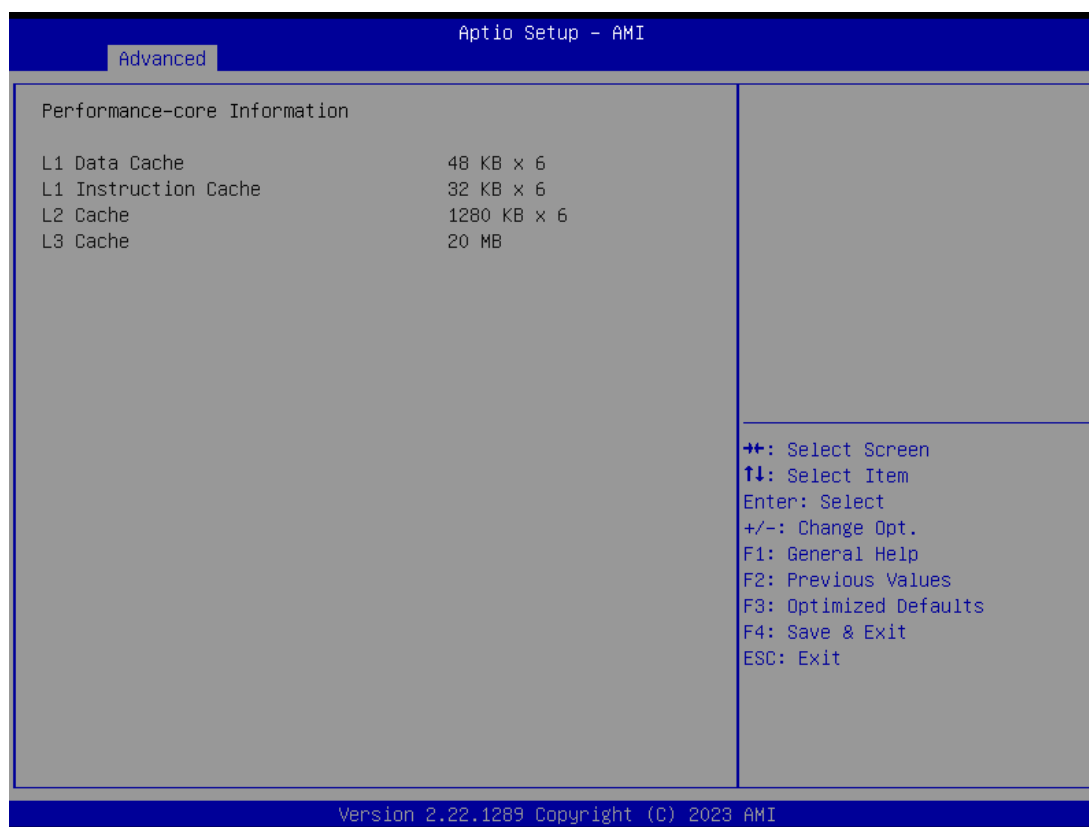


| Item                                         | Options                    | Description                                                                                                                                                        |
|----------------------------------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Intel (VMX) Virtualization Technology</b> | Disabled, Enabled[Default] | When enabled, a VMM can utilize the additional hardware capabilities provided by Virtualization Technology.                                                        |
| <b>Active Performance-cores</b>              | All[Default] , 5,4,3, 2,1  | Number of P-cores to enable in each processor package. Note: Number of Cores and E-cores are looked at together. When both are {0,0}, Pcode will enable all cores. |
| <b>Active Efficient-cores</b>                | All[Default] , 3,2, 1,0    | Number of E-cores to enable in each processor package. Note: Number of Cores and E-cores are looked at together. When both are {0,0}, Pcode will enable all cores. |
| <b>Hyper-Threading</b>                       | Disabled, Enabled[Default] | Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology).        |
| <b>Intel(R) SpeedStep(tm)</b>                | Disabled, Enabled[Default] | Allows more than two frequency ranges to be supported.                                                                                                             |
| <b>Intel(R) Speed Shift Technology</b>       | Disabled, Enabled[Default] | Enable/Disable Intel(R) Speed Shift Technology support. Enabling will expose the CPPC v2 interface to allow for hardware controlled P-states.                      |
| <b>Turbo Mode</b>                            | Disabled, Enabled[Default] | Enable/Disable processor Turbo Mode.                                                                                                                               |
| <b>C states</b>                              | Disabled, Enabled[Default] | Enable/Disable CPU Power Management. Allows CPU to go to C states when it's not 100% utilized.                                                                     |

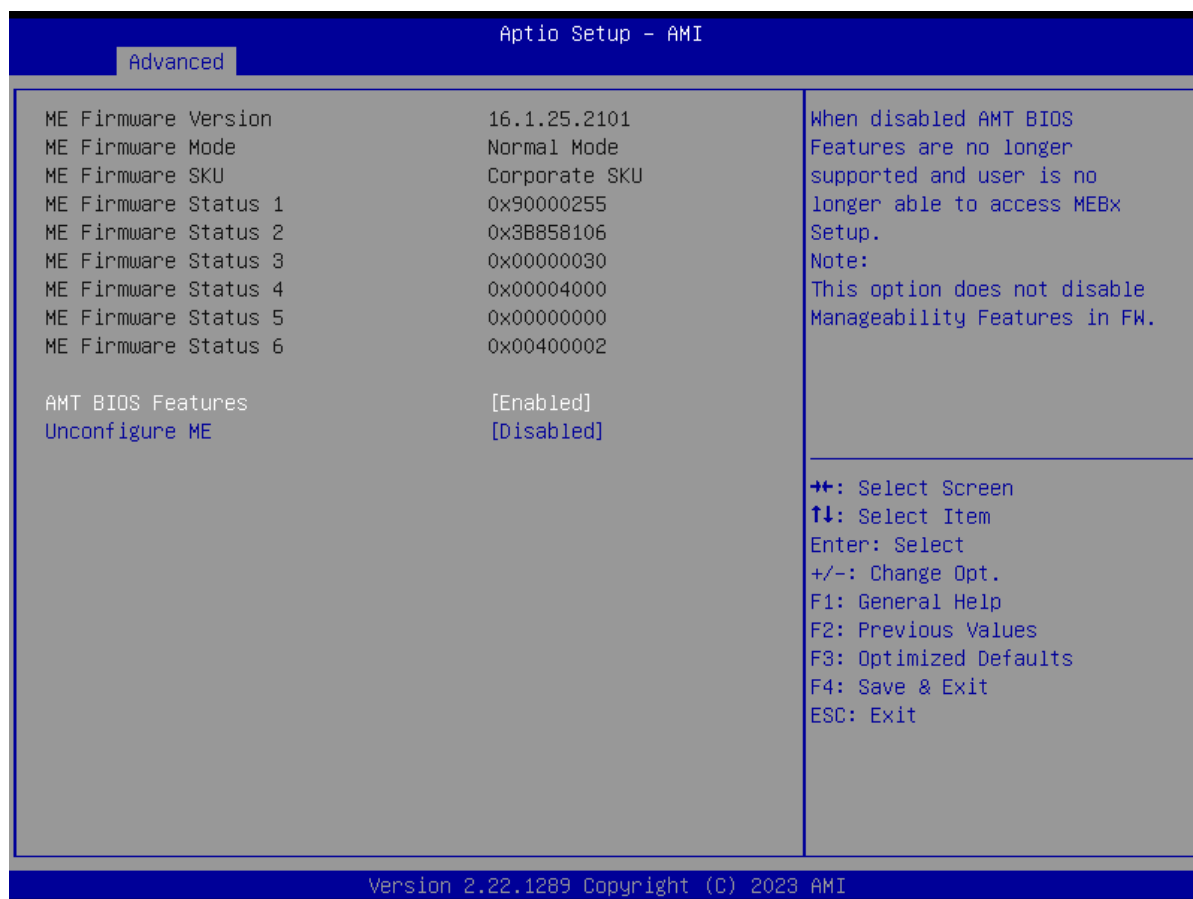
### 4.3.2.1 Efficient-core Information



### 4.3.2.2 Performance-core Information

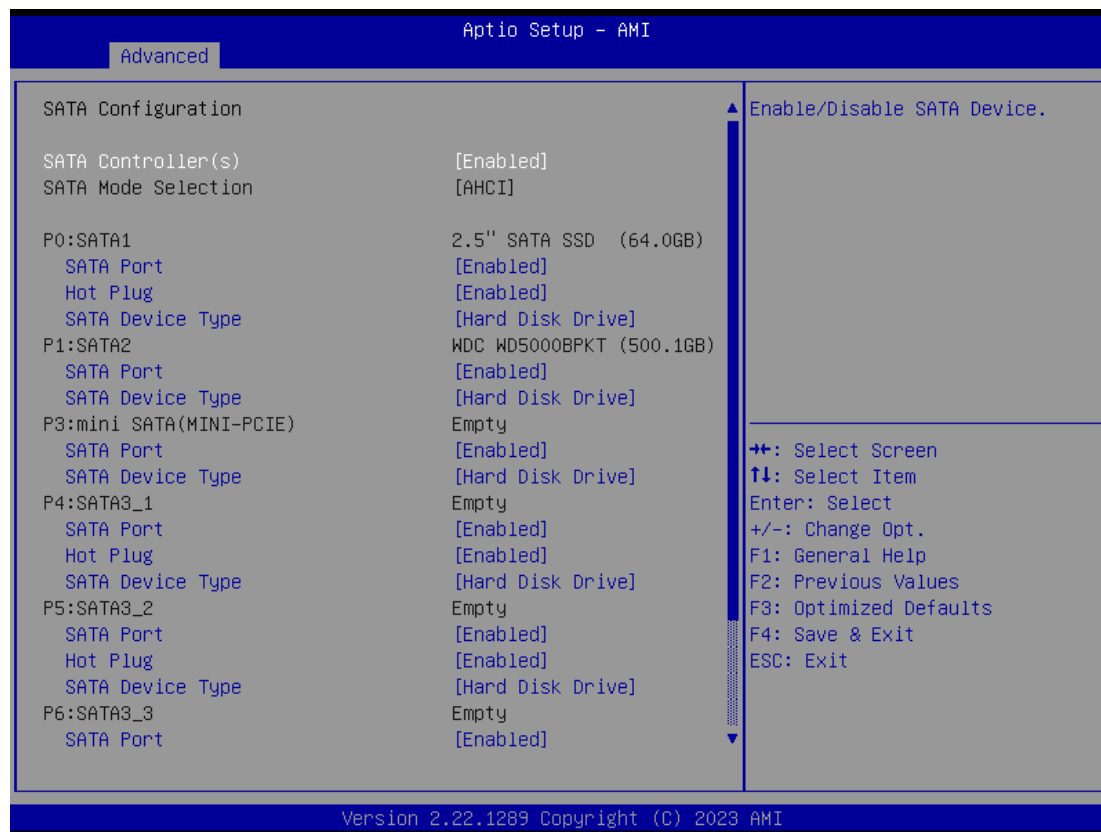


### 4.3.3 PCH-FW Configuration



| Item              | Options                     | Description                                                                                                                                                                  |
|-------------------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AMT BIOS Features | Disabled, Enabled[Default]  | When disabled AMT BIOS Features are no longer supported and user is no longer able to access MEBx Setup.<br>Note: This option does not disable Manageability Features in FW. |
| Unconfigure ME    | Disabled[Default] , Enabled | Unconfigure ME with resetting MEBx password to default on next boot.                                                                                                         |

### 4.3.4 SATA and RST Configuration

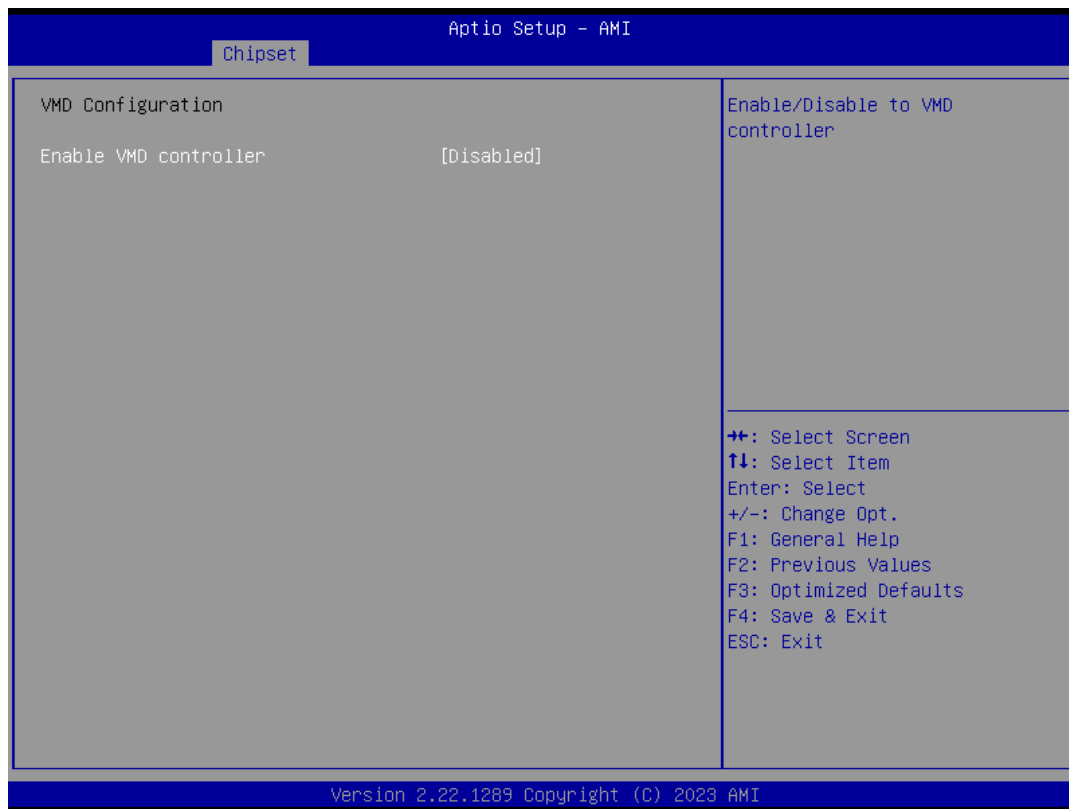


| Item                      | Options                                         | Description                                                                  |
|---------------------------|-------------------------------------------------|------------------------------------------------------------------------------|
| <b>SATA Controller(s)</b> | Enabled[Default]<br>Disabled                    | Enable/Disable SATA Device.                                                  |
| <b>SATA Port</b>          | Disabled,<br>Enabled[Default]                   | Enable/Disable SATA Port.                                                    |
| <b>Hot Plug</b>           | Disabled,<br>Enabled[Default]                   | Designates this port as Hot Pluggable.                                       |
| <b>SATA Device Type</b>   | Hard Disk Drive[Default] ,<br>Solid State Drive | Identify the SATA port is connected to Solid State Drive or Hard Disk Drive. |

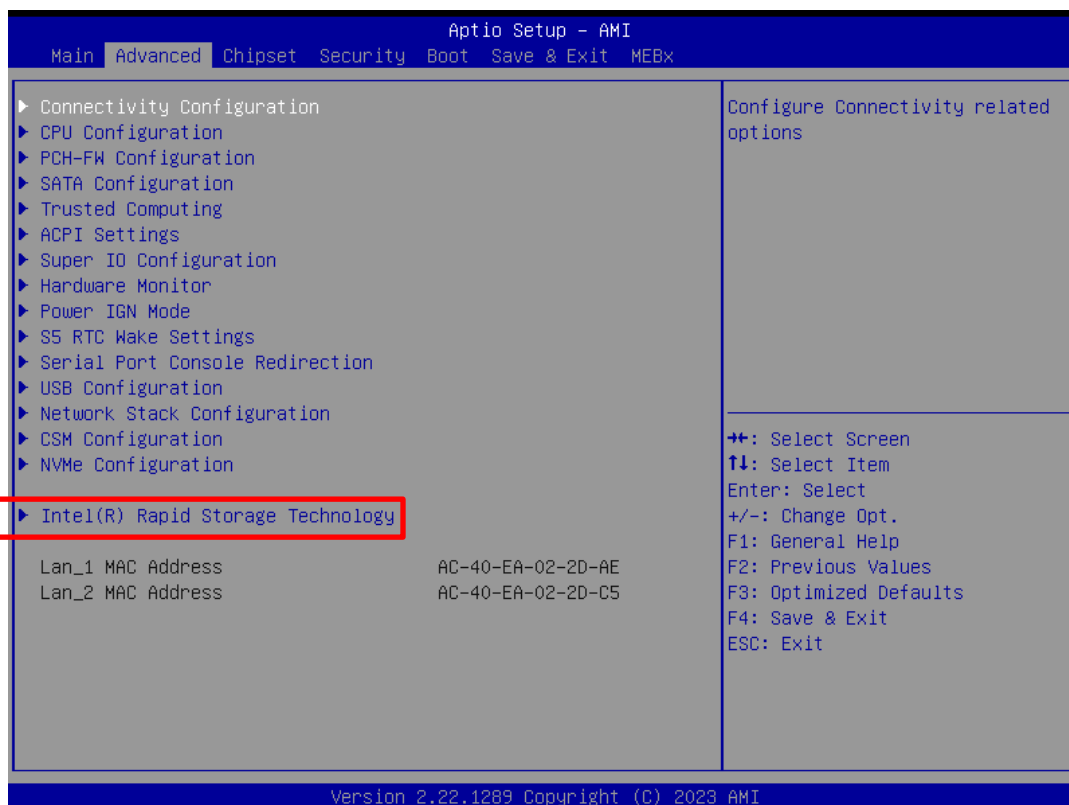
### 4.3.5 RST (UEFI RAID) Configuration

#### How to set the UEFI RAID:

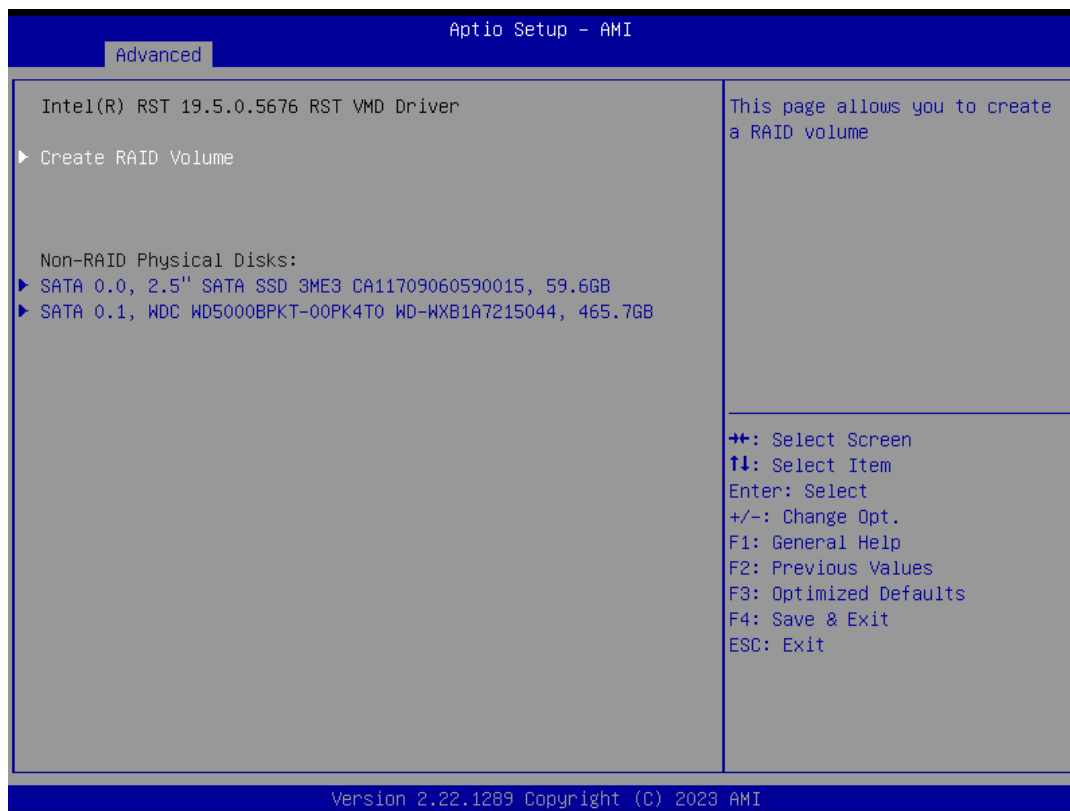
1. When set to “Enable VMD controller”, please save change reset system.



2. After reboot the system, please into BIOS utility and then will see “Intel (R) Rapid Storage Technology”



### 3. Into Intel(R) Rapid Storage Technology, and start create RAID volume.



### 4. Start Create the RAID



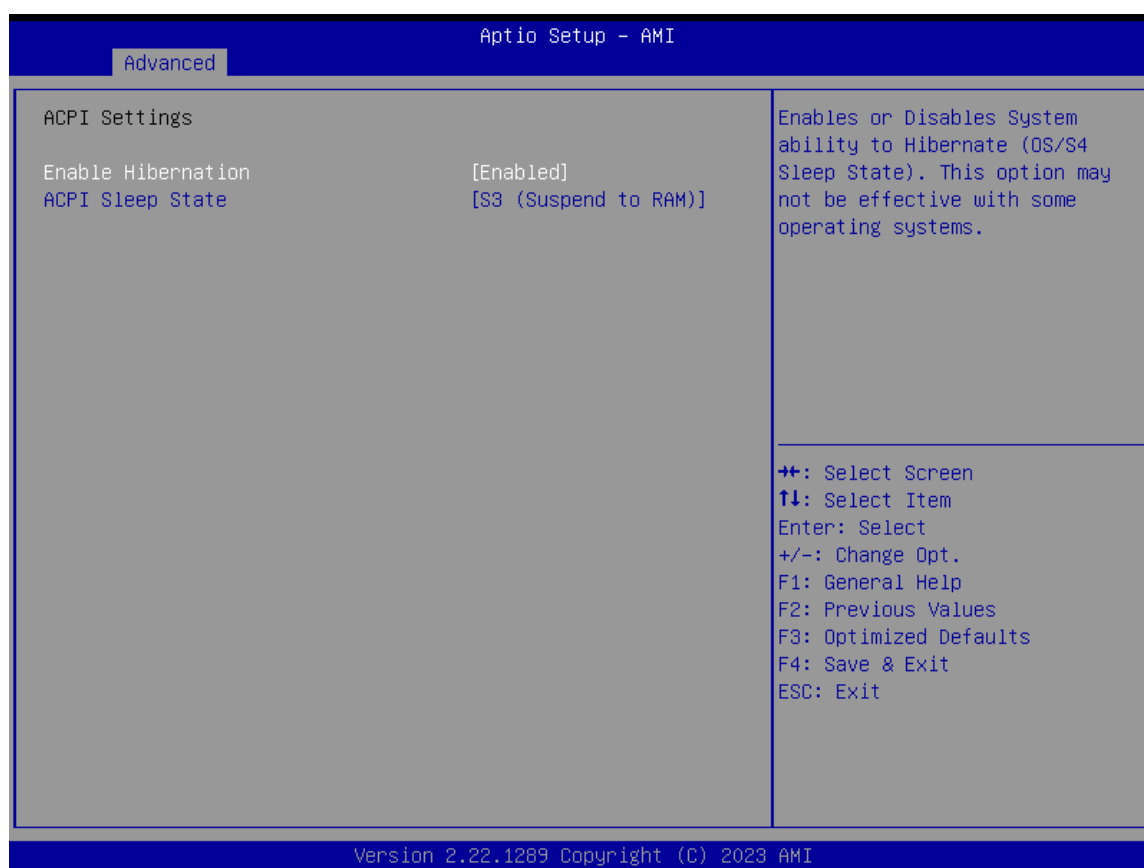
- Select Disk that you want to do the RAID
- Select [x]; No-Select [ ]

### 4.3.6 Trusted Computing



| Item                           | Options                              | Description                                                                                                                                      |
|--------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Security Device Support</b> | Enabled, Disabled <b>[Default]</b> , | Enable/Disable BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available. |
| <b>Pending operation</b>       | None <b>[Default]</b> , TPM Clear    | Schedule an Operation for the Security Device. NOTE: Your Computer will reboot during restart in order to change State of Security Device.       |

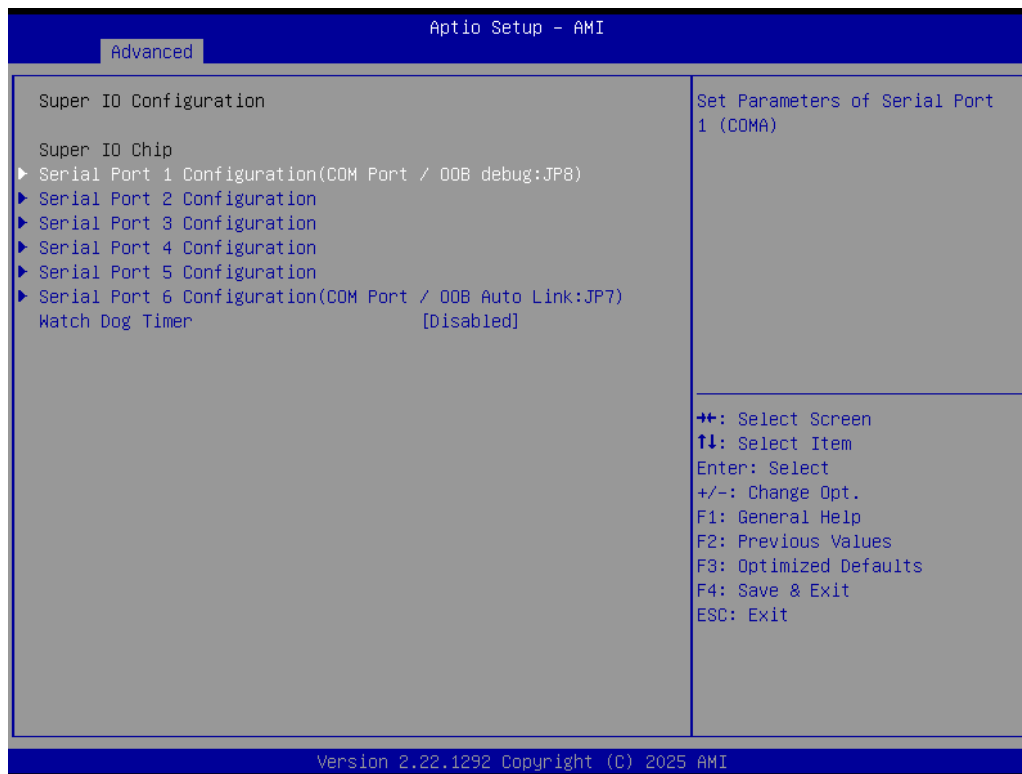
### 4.3.7 ACPI Settings



| Item                      | Options                                                    | Description                                                                                                                         |
|---------------------------|------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <b>Enable Hibernation</b> | Disabled ,<br>Enabled[ <b>Default</b> ],                   | Enables or Disables System ability to Hibernates (OS/S4 Sleep State). This option may not be effective with some operating systems. |
| <b>ACPI Sleep State</b>   | Suspend Disabled,<br>S3 (Suspend to RAM)[ <b>Default</b> ] | Select the highest ACPI sleep state the system will enter when the SUSPEDN button is pressed.                                       |

### 4.3.8 Super IO Configuration

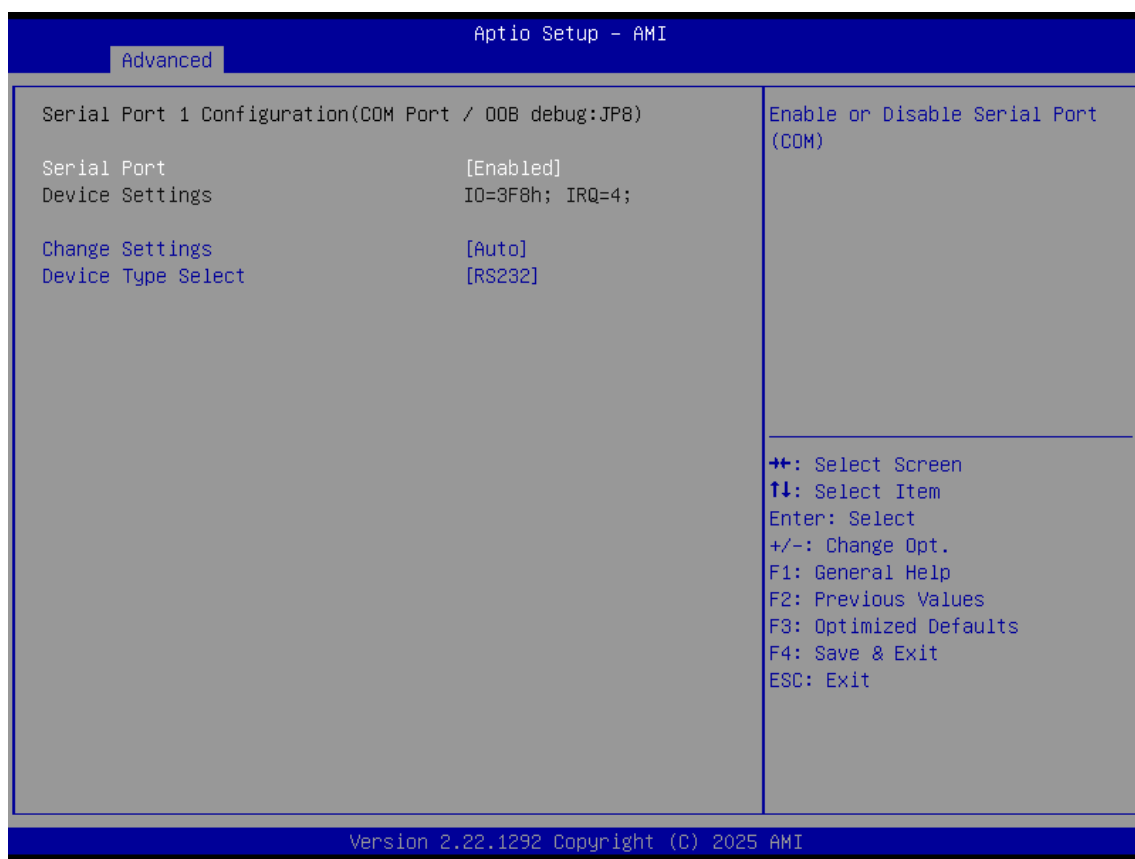
This setting allows you to select options for the Super IO Configuration, and change the value of the selected option.



| Item                                                             | Description                             |
|------------------------------------------------------------------|-----------------------------------------|
| <b>Serial Port 1 Configuration(COM Port / OOB debug:JP8)</b>     | Set Parameters of Serial Port 1 (COMA). |
| <b>Serial Port 2 Configuration</b>                               | Set Parameters of Serial Port 2 (COMB). |
| <b>Serial Port 3 Configuration</b>                               | Set Parameters of Serial Port 3 (COMC). |
| <b>Serial Port 4 Configuration</b>                               | Set Parameters of Serial Port 4 (COMD). |
| <b>Serial Port 5 Configuration</b>                               | Set Parameters of Serial Port 5 (COME). |
| <b>Serial Port 6 Configuration(COM Port / OOB Auto Link:JP7)</b> | Set Parameters of Serial Port 6 (COMF). |

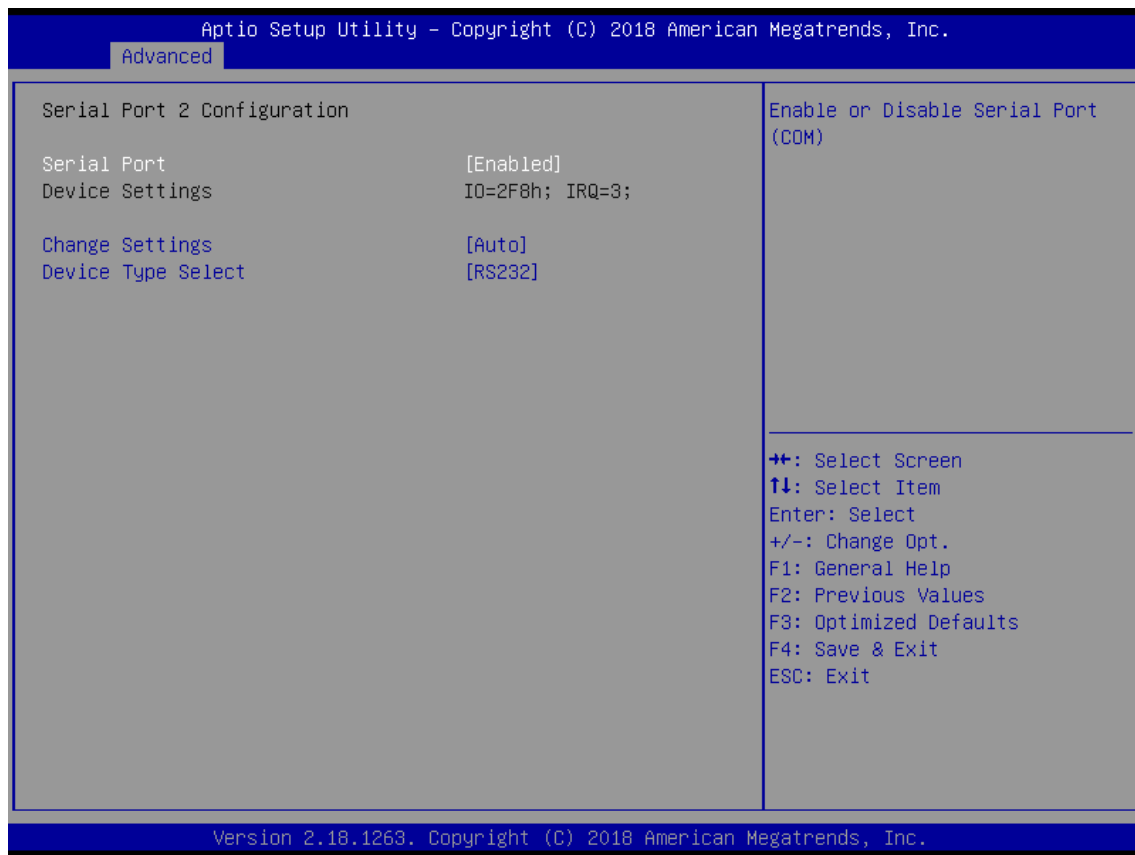
| Item                                  | Options                                            | Description                                   |
|---------------------------------------|----------------------------------------------------|-----------------------------------------------|
| <b>Watch Dog Timer</b>                | Disabled <b>[Default]</b> ,<br>Enabled             | Enabled or Disabled Watch Dog Timer function. |
| <b>Watch Dog Timer Count Mode</b>     | Second Mode <b>[Default]</b> ,<br>Minute Mode      | Select Second Mode or Minute Mode.            |
| <b>Watch Dog Timer Time out Value</b> | 20~255(Second) <b>[Default]</b> ,<br>1~255(Minute) | Watch Dog Timer Time out Value.               |

## Serial Port 1 Configuration



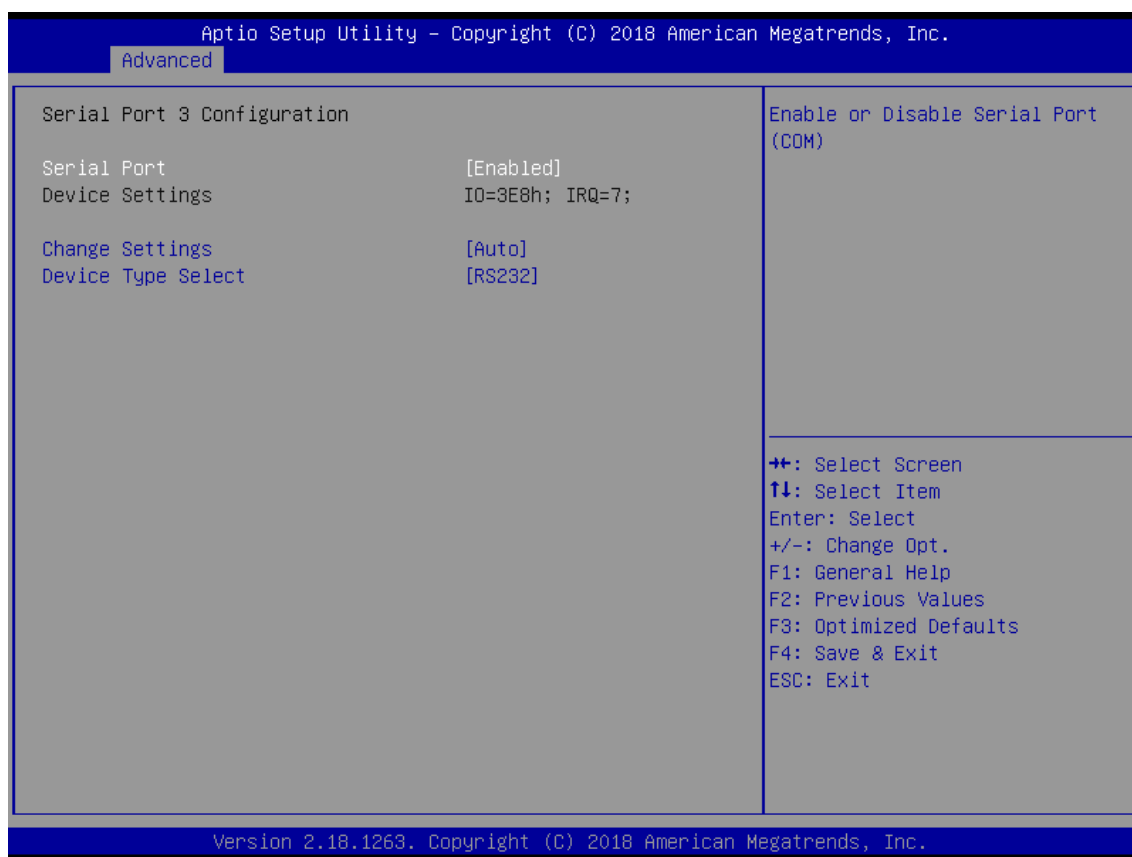
| Item                             | Options                                                                                                                                                                                           | Description                                                                             |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <b>Serial Port</b>               | Disabled,<br>Enabled[Default]                                                                                                                                                                     | Enable or Disable Serial Port (COM).                                                    |
| <b>Change Settings</b>           | Auto[Default],<br>IO=3F8h; IRQ=4; ,<br>IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12; ,<br>IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12; ,<br>IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12; ,<br>IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12; | This item allows you to change the address & IRQ settings of the specified serial port. |
| <b>Device Type Select</b>        | UART 232[Default],<br>UART 422,<br>UART 485                                                                                                                                                       | Set the Serial Port to RS232 & RS422 & RS485                                            |
| <b>RS-485 Auto Flow Function</b> | Disabled,<br>Enabled[Default]                                                                                                                                                                     | Enabled/Disabled RS485 Autoflow Function                                                |

## Serial Port 2 Configuration



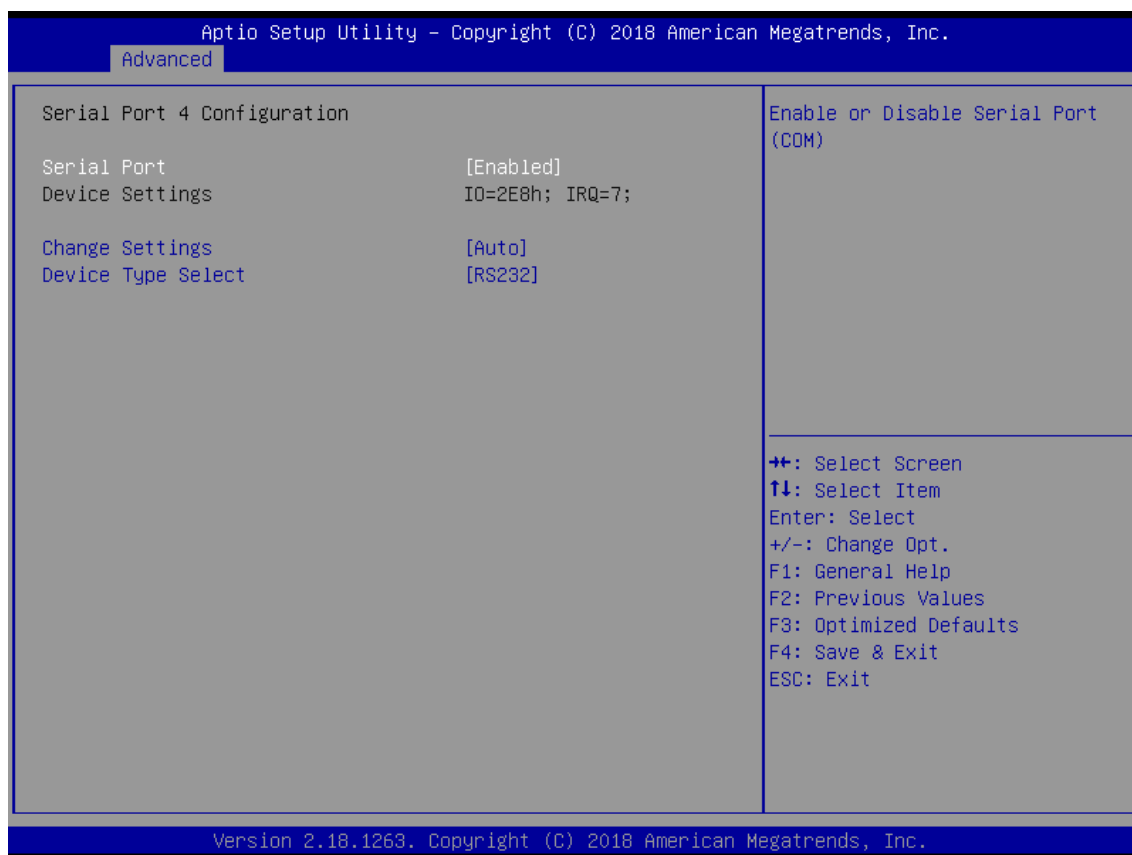
| Item                             | Options                                                                                                                                                                                                  | Description                                                                             |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <b>Serial Port</b>               | Disabled,<br>Enabled[ <b>Default</b> ]                                                                                                                                                                   | Enable or Disable Serial Port (COM).                                                    |
| <b>Change Settings</b>           | Auto[ <b>Default</b> ],<br>IO=2F8h; IRQ=3; ,<br>IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12; ,<br>IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12;;<br>IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;;<br>IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12; | This item allows you to change the address & IRQ settings of the specified serial port. |
| <b>Device Type Select</b>        | UART 232[ <b>Default</b> ],<br>UART 422,<br>UART 485                                                                                                                                                     | Set the Serial Port to RS232 & RS422 & RS485                                            |
| <b>RS-485 Auto Flow Function</b> | Disabled,<br>Enabled[ <b>Default</b> ]                                                                                                                                                                   | Enabled/Disabled RS485 Autoflow Function                                                |

## Serial Port 3 Configuration



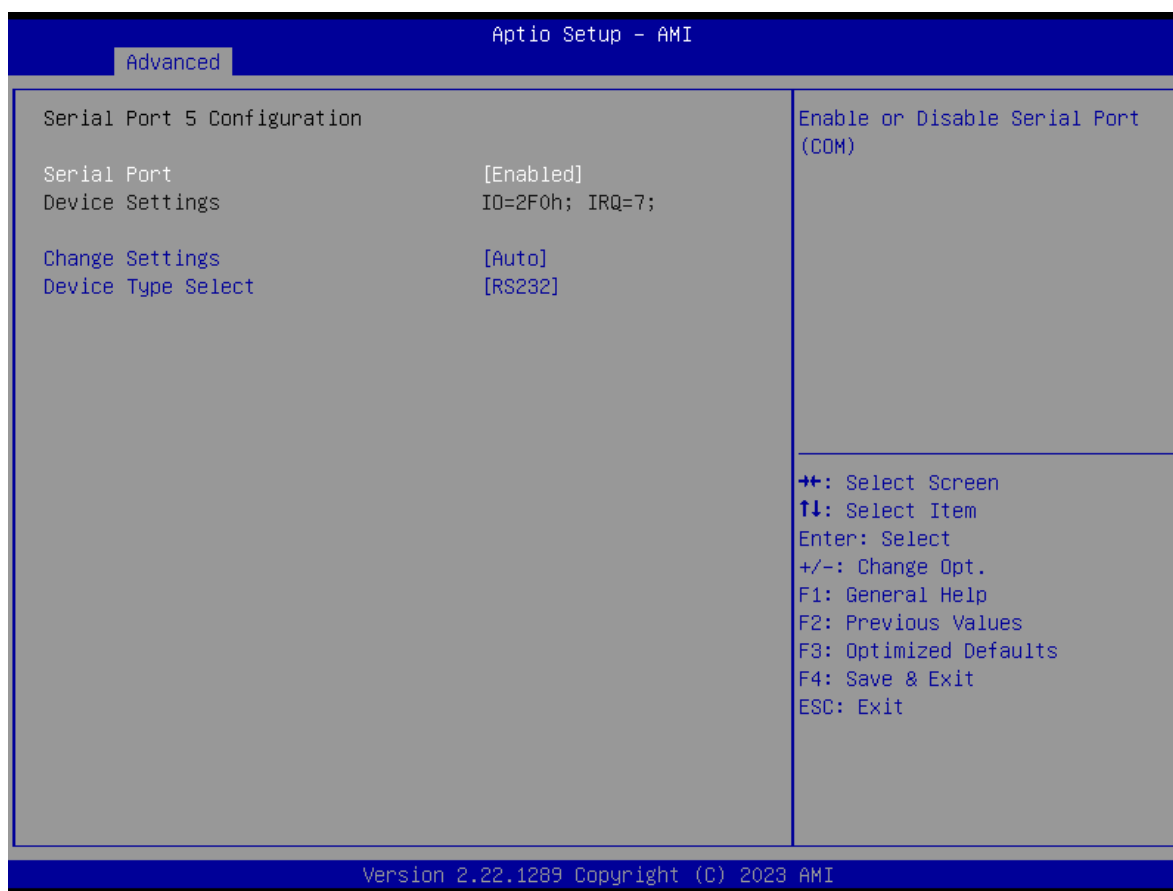
| Item                      | Options                                                                                                                                                                                           | Description                                                                             |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Serial Port               | Disabled,<br>Enabled[Default]                                                                                                                                                                     | Enable or Disable Serial Port (COM).                                                    |
| Change Settings           | Auto[Default],<br>IO=3E8h; IRQ=7; ,<br>IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12; ,<br>IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12; ,<br>IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12; ,<br>IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12; | This item allows you to change the address & IRQ settings of the specified serial port. |
| Device Type Select        | UART 232[Default],<br>UART 422,<br>UART 485                                                                                                                                                       | Set the Serial Port to RS232 & RS422 & RS485                                            |
| RS-485 Auto Flow Function | Disabled,<br>Enabled[Default]                                                                                                                                                                     | Enabled/Disabled RS485 Autoflow Function                                                |

## Serial Port 4 Configuration



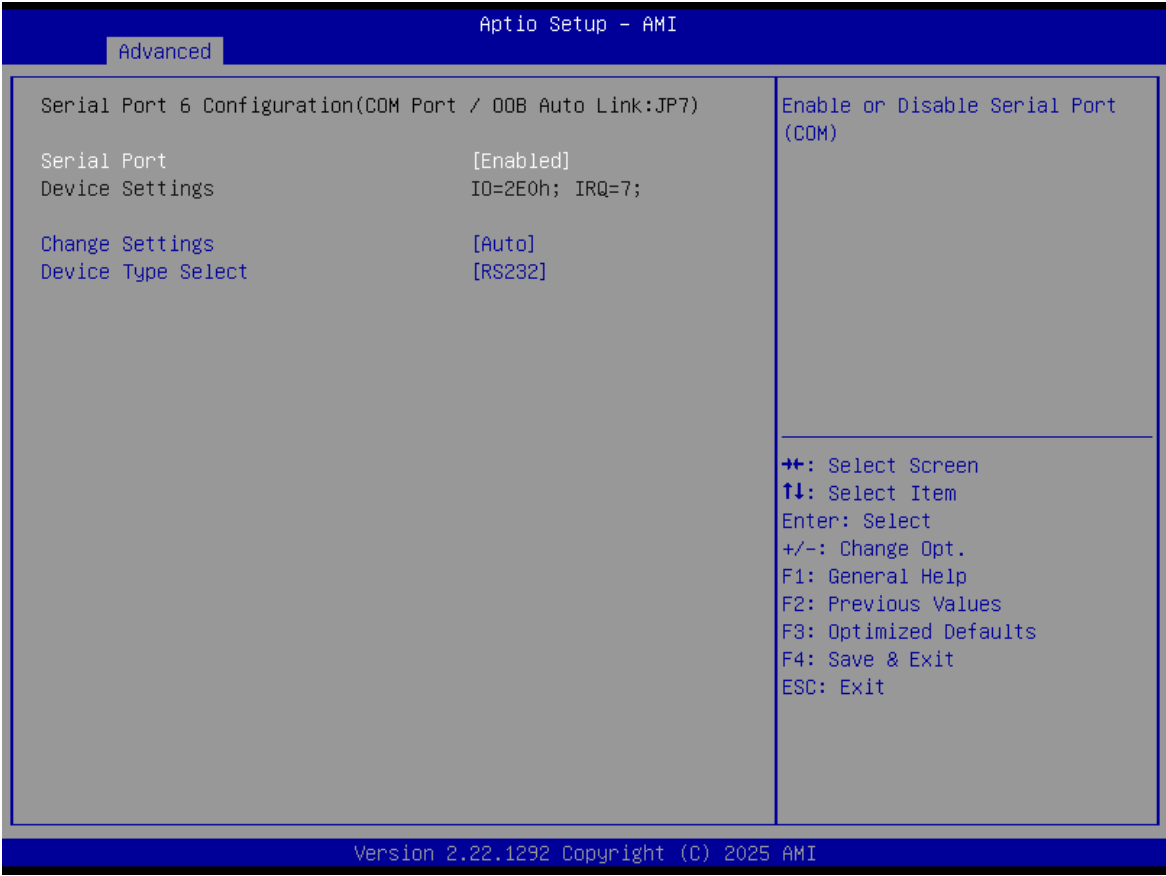
| Item                      | Options                                                                                                                                                                                           | Description                                                                             |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Serial Port               | Disabled,<br>Enabled[Default]                                                                                                                                                                     | Enable or Disable Serial Port (COM).                                                    |
| Change Settings           | Auto[Default],<br>IO=2E8h; IRQ=7; ,<br>IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12; ,<br>IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12; ,<br>IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12; ,<br>IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12; | This item allows you to change the address & IRQ settings of the specified serial port. |
| Device Type Select        | UART 232[Default],<br>UART 422,<br>UART 485                                                                                                                                                       | Set the Serial Port to RS232 & RS422 & RS485                                            |
| RS-485 Auto Flow Function | Disabled,<br>Enabled[Default]                                                                                                                                                                     | Enabled/Disabled RS485 Autoflow Function                                                |

## Serial Port 5 Configuration



| Item                             | Options                                                                                                                                                                                         | Description                                                                             |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <b>Serial Port</b>               | Disabled,<br>Enabled[Default]                                                                                                                                                                   | Enable or Disable Serial Port (COM).                                                    |
| <b>Change Settings</b>           | Auto[Default],<br>IO=2F0h; IRQ=7; ,<br>IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12; ,<br>IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;,<br>IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12;,<br>IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12; | This item allows you to change the address & IRQ settings of the specified serial port. |
| <b>Device Type Select</b>        | UART 232[Default],<br>UART 422,<br>UART 485                                                                                                                                                     | Set the Serial Port to RS232 & RS422 & RS485                                            |
| <b>RS-485 Auto Flow Function</b> | Disabled,<br>Enabled[Default]                                                                                                                                                                   | Enabled/Disabled RS485 Autoflow Function                                                |

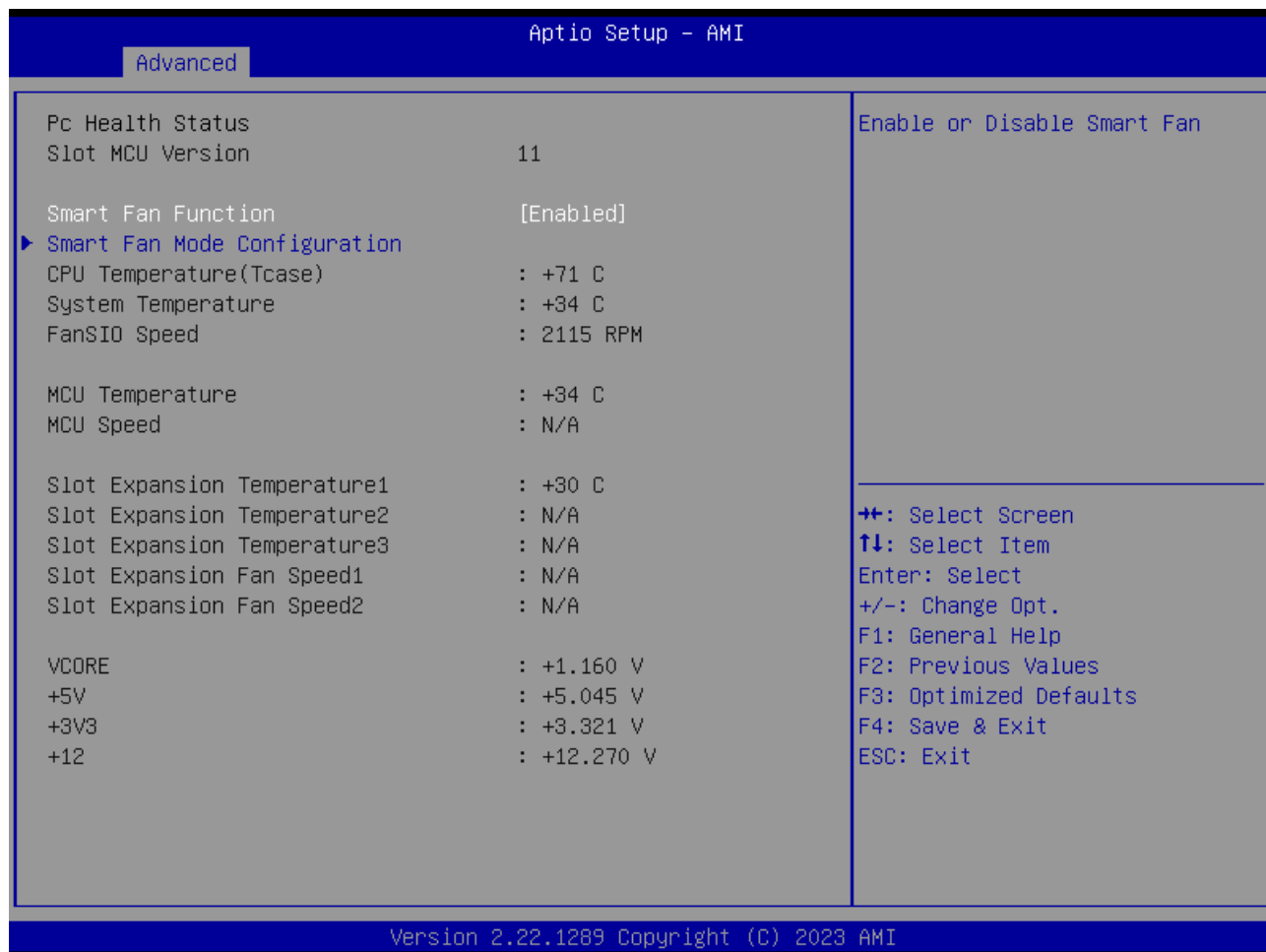
Serial Port 6 Configuration



| Item                            | Options                                                                                                                                                                                                  | Description                                                                             |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Serial Port                     | Disabled,<br>Enabled <b>[Default]</b>                                                                                                                                                                    | Enable or Disable Serial Port (COM).                                                    |
| Change Settings                 | Auto <b>[Default]</b> ,<br>IO=2E0h; IRQ=7; ,<br>IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12; ,<br>IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;;<br>IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12;;<br>IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12; | This item allows you to change the address & IRQ settings of the specified serial port. |
| Device Type Select              | UART 232 <b>[Default]</b> ,<br>UART 422,<br>UART 485                                                                                                                                                     | Set the Serial Port to RS232 & RS422 & RS485                                            |
| RS-485 Auto Flow Function       | Disabled,<br>Enabled <b>[Default]</b>                                                                                                                                                                    | Enabled/Disabled RS485 Autoflow Function                                                |
| RS-422/RS-485 Terminal Function | Disabled,<br>Enabled <b>[Default]</b>                                                                                                                                                                    | RS-422/RS-485 Terminal Function                                                         |

### 4.3.9 Hardware Monitor

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



| Item               | Options                       | Description                  |
|--------------------|-------------------------------|------------------------------|
| Smart Fan Function | Disabled[Default],<br>Enabled | Enabled or Disable Smart Fan |

## Smart Fan Mode Configuration

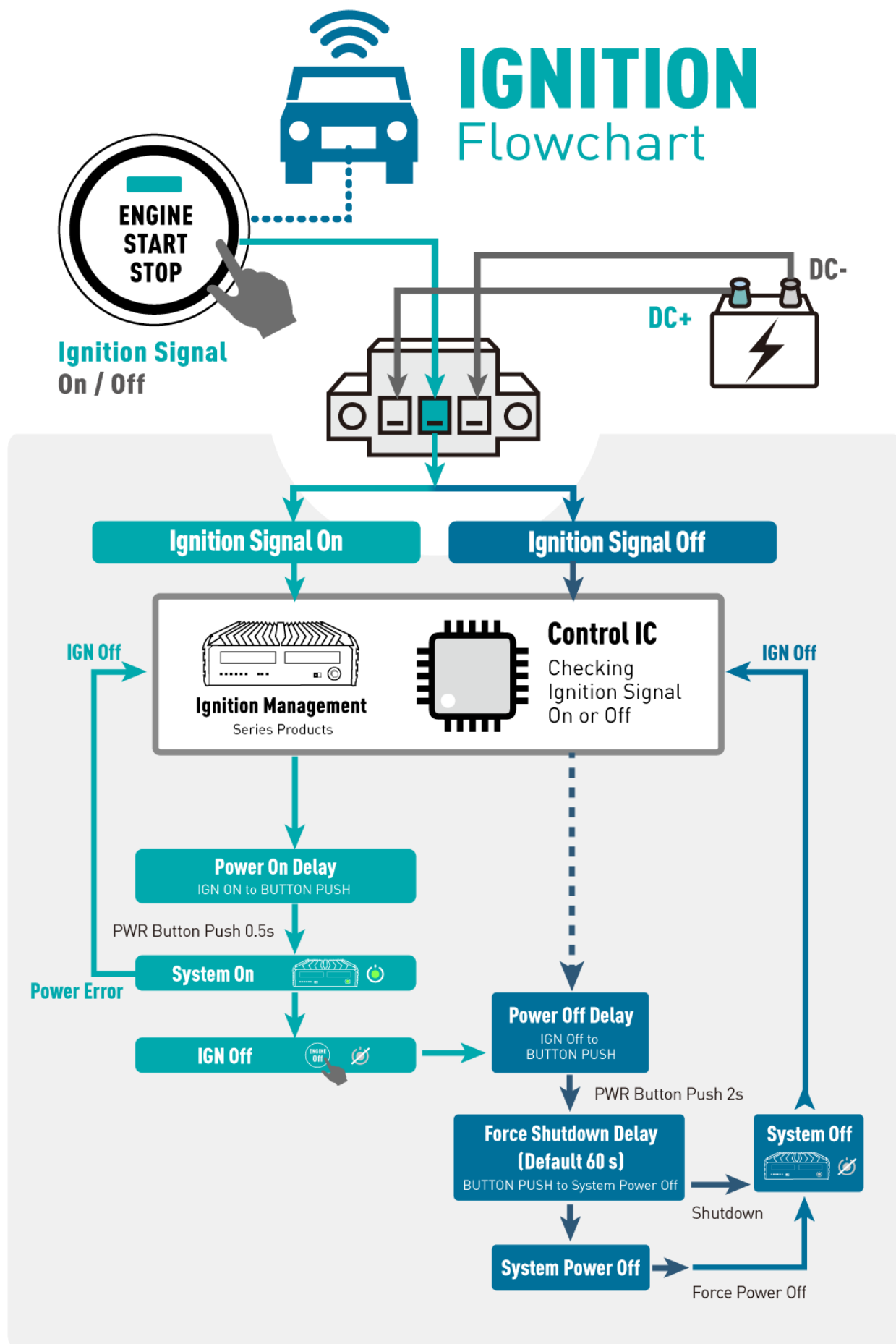


| Item                           | Options                                        | Description                               |
|--------------------------------|------------------------------------------------|-------------------------------------------|
| <b>FanSIO SmartFan Control</b> | Manual Mode,<br>Auto Duty-Cycle Mode[Default], | Smart Fan Mode Select                     |
| <b>Temperature 1~4</b>         | 1~100                                          | Auto fan speed control. Temperature 1-100 |
| <b>Duty Cycle 1~4</b>          | 20~100                                         | Auto fan speed control. Duty 20-100       |

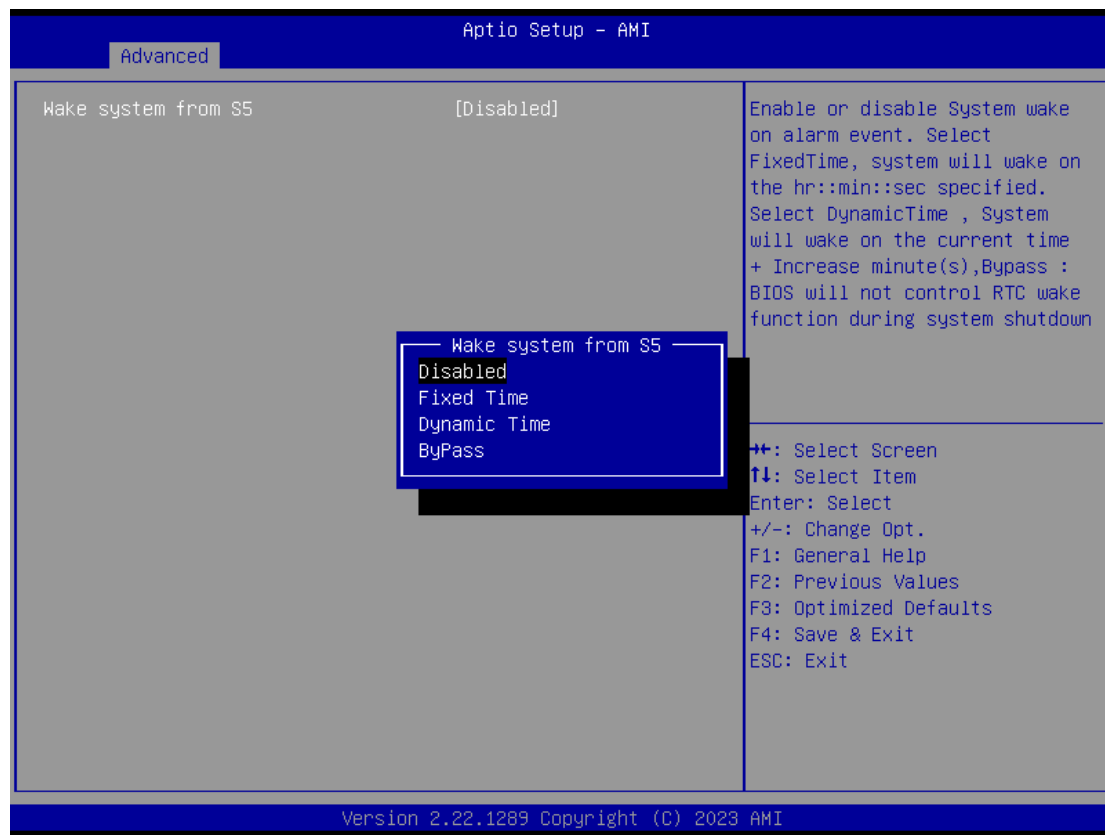
### 4.3.10. Power IGN Mode



| Item                   | Options                                                                                                 | Description                                                                                                    |
|------------------------|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>IGN Setting</b>     | Read mode[ <b>Default</b> ]<br>Write IGN                                                                | Read IGN: BIOS will only read settings from IGN module. Write IGN: BIOS will overwrite settings in IGN module. |
| <b>Power On Delay</b>  | 10 Sec[ <b>Default</b> ]<br>20 Sec<br>30 Sec<br>40 Sec<br>50 Sec<br>1 Min<br>Manual Mode                | Power On Delay Select                                                                                          |
| <b>Manual Mode</b>     | 10 Sec[ <b>Default</b> ]                                                                                | 10~60 Sec                                                                                                      |
| <b>Power Off Delay</b> | 3 Sec[ <b>Default</b> ],<br>1 Min,<br>5 Min,<br>10 Min,<br>30 Min,<br>1 Hour,<br>2 Hour,<br>Manual Mode | Power Off Delay Select                                                                                         |
| <b>Manual Mode</b>     | 3 Sec[ <b>Default</b> ]                                                                                 | 3~7200 Sec                                                                                                     |



### 4.3.11. Wake system from S5



| Item                    | Options                                             | Description                                                                                                                                                                                                                                                            |
|-------------------------|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wake system from S5     | Disabled[Default], Fixed Time, Dynamic Time, ByPass | Enable or disable System wake on alarm event. Select FixedTime, system will wake on the hr::min::sec specified. Select DynamicTime, System will wake on the current time + Increase minute(s), Bypass : BIOS will not control RTC wake function during system shutdown |
| Wake up day             | 0[Default]                                          | Date (of month) Alarm (0 is mean daily or you can setup a specific month)                                                                                                                                                                                              |
| Wake up hour            | 0[Default]                                          | select 0-23 For example enter 3 for 3am and 15 for 3pm                                                                                                                                                                                                                 |
| Wake up minute          | 0[Default]                                          | select 0-59 for Minute                                                                                                                                                                                                                                                 |
| Wake up second          | 0[Default]                                          | select 0-59 for Second                                                                                                                                                                                                                                                 |
| Wake up minute increase | 0[Default]                                          | 1 - 5                                                                                                                                                                                                                                                                  |

4.3.12 Serial Port Console Redirection



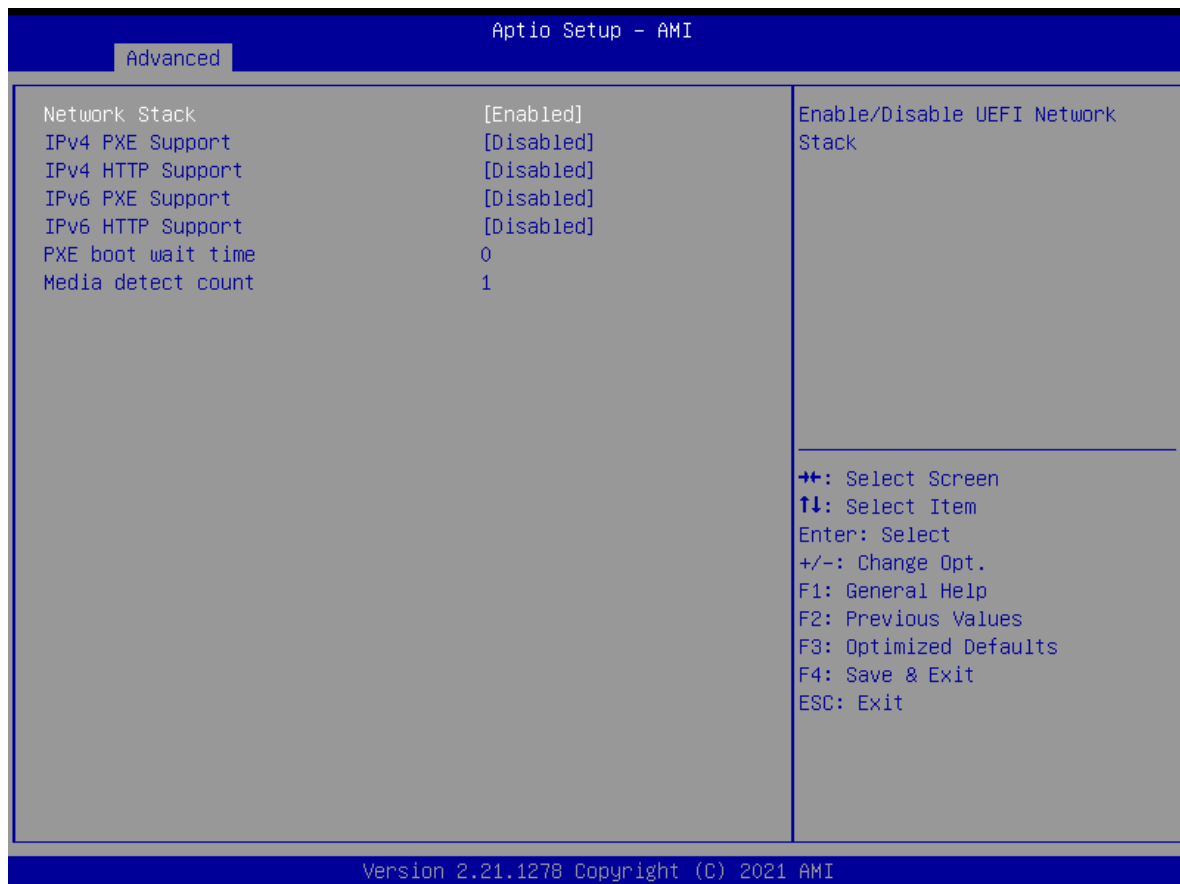
| Item                | Options                    | Description                                                          |
|---------------------|----------------------------|----------------------------------------------------------------------|
| Console Redirection | Disabled[Default], Enabled | These items allows you to enable or disable COM1 console redirection |

### 4.3.13 USB Configuration



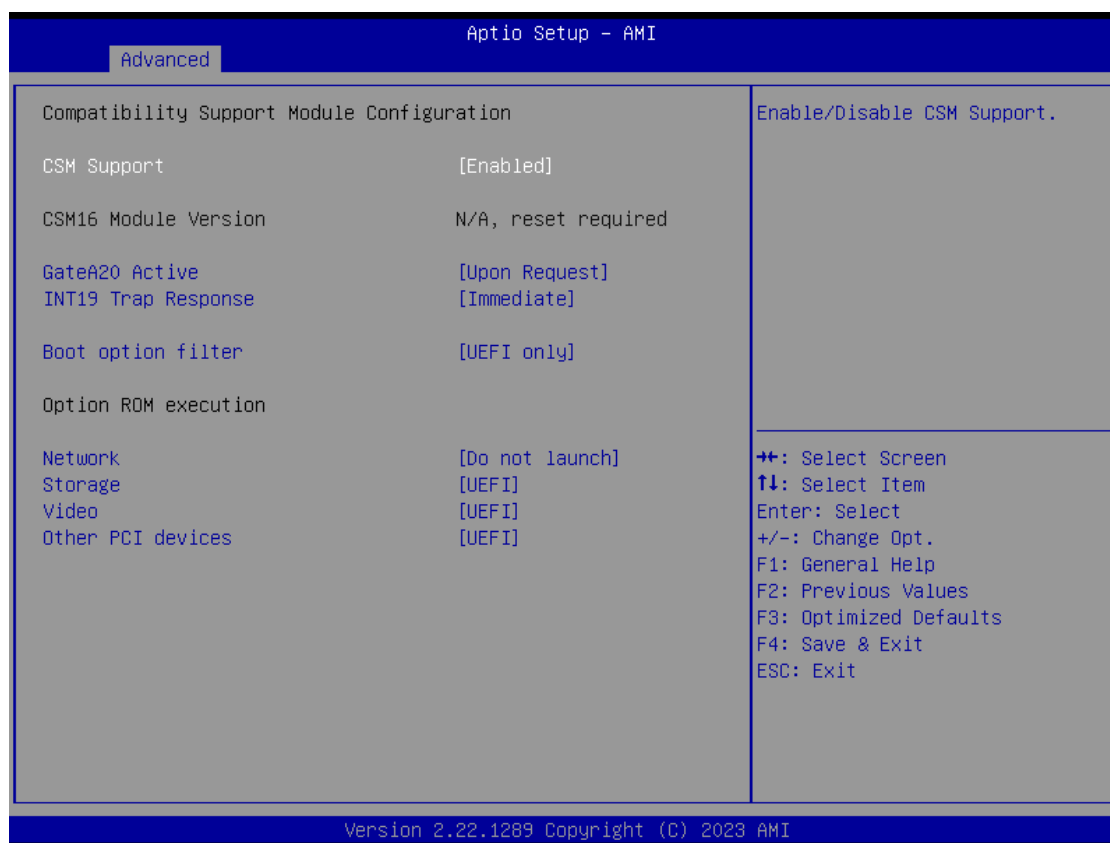
| Item                                   | Options                                                     | Description                                                                                                                                                                                                |
|----------------------------------------|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Legacy USB Support</b>              | Enabled <b>[Default]</b><br>Disabled<br>Auto                | Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.                                 |
| <b>XHCI Hand-off</b>                   | Enabled <b>[Default]</b><br>Disabled                        | This is a workaround for OS without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.                                                                                     |
| <b>USB Mass Storage Driver Support</b> | Enabled <b>[Default]</b><br>Disabled                        | Enable/Disable USB Mass Storage Driver Support.                                                                                                                                                            |
| <b>USB transfer time-out</b>           | 1 sec ,<br>5 sec ,<br>10 sec ,<br>20 sec <b>[Default]</b>   | The time-out value for Control, Bulk, and Interrupt transfers.                                                                                                                                             |
| <b>Device reset time-out</b>           | 10 sec ,<br>20 sec <b>[Default]</b> ,<br>30 sec ,<br>40 sec | USB mass storage device Start Unit command time-out.                                                                                                                                                       |
| <b>Device power-up delay</b>           | Auto <b>[Default]</b><br>Manual                             | Maximum time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value: for a Root port it is 100ms, for a Hub port the delay is taken from Hub descriptor. |

### 4.3.14 Network Stack Configuration



| Item                      | Options                             | Description                                                                                                   |
|---------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------|
| <b>Network Stack</b>      | Disabled <b>[Default]</b> , Enabled | Enable/Disable UEFI Network Stack.                                                                            |
| <b>IPv4 PXE Support</b>   | Disabled <b>[Default]</b> , Enabled | Enable/Disable IPv4 PXE boot support. If disabled, IPv4 PXE boot support will not be available.               |
| <b>IPv4 HTTP Support</b>  | Disabled <b>[Default]</b> , Enabled | Enable/Disable IPv4 HTTP boot support. If disabled, IPv4 HTTP boot support will not be available.             |
| <b>IPv6 PXE Support</b>   | Disabled <b>[Default]</b> , Enabled | Enable/Disable IPv4 PXE boot support. If disabled, IPv6 PXE boot support will not be available.               |
| <b>IPv6 HTTP Support</b>  | Disabled <b>[Default]</b> , Enabled | Enable/Disable IPv6 HTTP boot support. If disabled, IPv6 HTTP boot support will not be available.             |
| <b>PXE boot wait time</b> | <b>0[Default]</b>                   | Wait time in seconds to press ESC key to abort the PXE boot. Use either +/- or numeric keys to set the value. |
| <b>Media detect count</b> | <b>1[Default]</b>                   | Number of times the presence of media will be checked. Use either +/- or numeric keys to set the value.       |

### 4.3.15 CSM Configuration



| Item                       | Options                                                        | Description                                                                                                                                                                       |
|----------------------------|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CSM Support</b>         | Disabled <b>[Default]</b> ,<br>Enabled                         | This item allows users to enable or disable for "CSM Support".                                                                                                                    |
| <b>GateA20 Active</b>      | Upon Request <b>[Default]</b> ,<br>Always                      | This item allows users to set Upon Request or Always for "GateA20 Active".                                                                                                        |
| <b>INT19 Trap Response</b> | Immediate <b>[Default]</b> ,<br>Immediate                      | This item allows users to set the BIOS reaction to INT19 trapping by Option ROM: "Immediate" - execute the trap right away;<br>"postponed" - execute the trap during legacy boot. |
| <b>Boot option filter</b>  | UEFI and Legacy,<br>Legacy only,<br>UEFI only <b>[Default]</b> | This item allows users to select which type of operating system to boot by option.<br><br>This item is configurable only when CSM Support is set to Enabled.                      |
| <b>Network PXE</b>         | Do not launch <b>[Default]</b> ,<br>UEFI,<br>Legacy            | Controls the execution of UEFI and Legacy Video OpROM.                                                                                                                            |
| <b>Storage</b>             | Do not launch,<br>UEFI <b>[Default]</b> ,<br>Legacy            | Controls the execution of UEFI and Legacy Storage OpROM.                                                                                                                          |
| <b>Other PCI devices</b>   | Do not launch,<br>UEFI <b>[Default]</b> ,<br>Legacy            | Determines OpROM execution policy for devices other than Network, Storage, or Video.                                                                                              |

### 4.3.16 NVMe Configuration

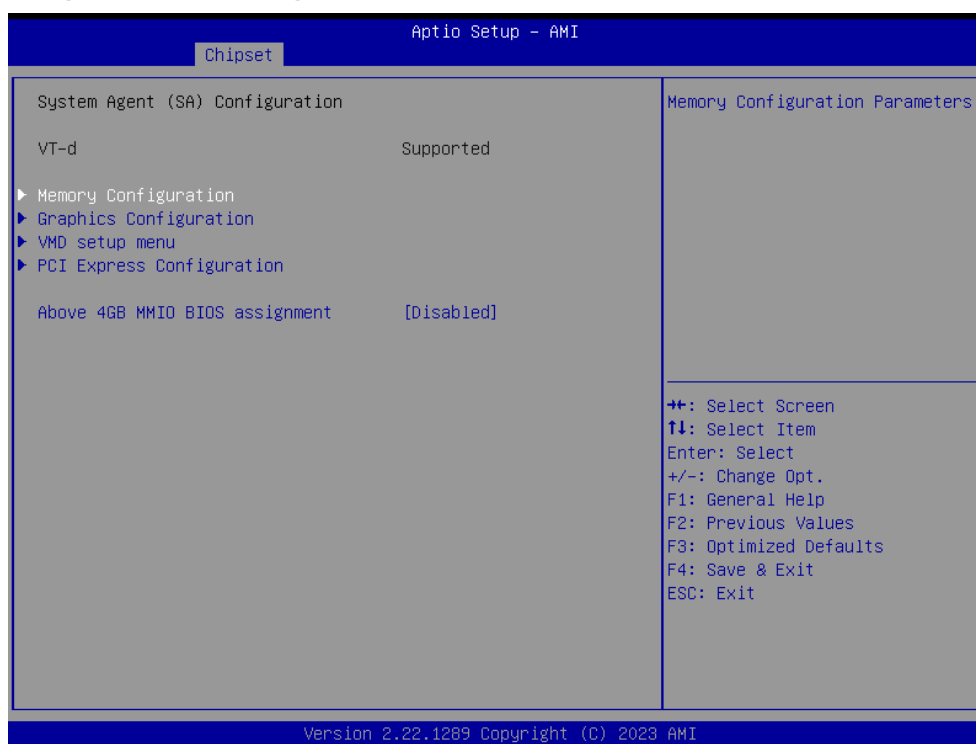


## 4.4 Chipset

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.



### 4.4.1 System Agent (SA) Configuration



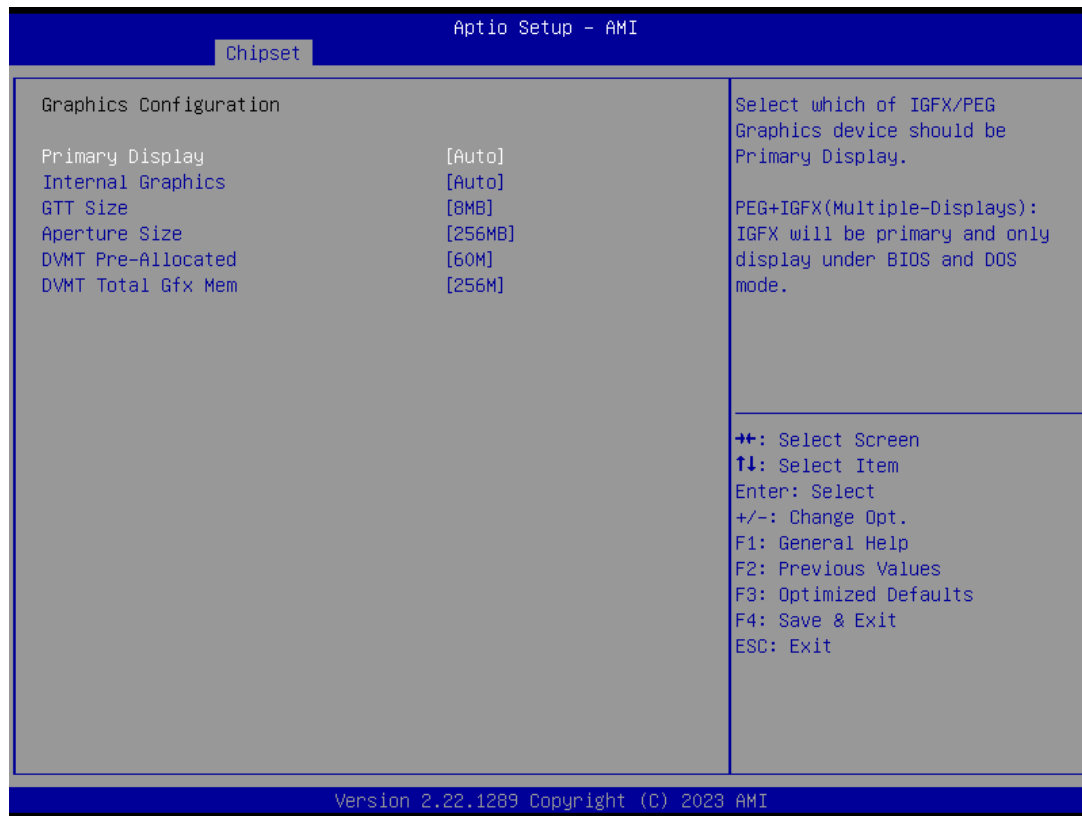
| Item                           | Options                            | Description                                                                                                                   |
|--------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Above 4GB MMIO BIOS assignment | Enabled, Disabled <b>[Default]</b> | Enable/Disable above 4GB MemoryMappedIO BIOS assignment<br>This is enabled automatically when Aperture Size is set to 2048MB. |

■ Memory Configuration



| Item      | Options                                                                                                                                | Description                                                                                                                              |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Max TOLUD | Dynamic[Default],<br>1GB,<br>1.25GB,<br>1.5 GB,<br>1.75 GB,<br>2 GB,<br>2.25 GB,<br>2.5 GB,<br>2.75 GB,<br>3 GB,<br>3.25 GB,<br>3.5 GB | Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller |

## ■ Graphic Configuration



| Item                      | Options                                                                                              | Description                                                                                                                                                                      |
|---------------------------|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Primary Display</b>    | Auto[Default] ,<br>PEG + IGFX                                                                        | Select which of IGFX/PEG Graphics device should be Primary Display.<br><br>PEG+IGFX(Multiple-Displays):<br><br>IGFX will be primary and only display under BIOS and DOS mode.    |
| <b>Internal Graphics</b>  | Auto[Default] ,<br>Disabled,<br>Enabled                                                              | Keep IGFX enabled based on the setup options.                                                                                                                                    |
| <b>GTT Size</b>           | 2MB,<br>4MB,<br>8MB[Default]                                                                         | Select the GTT Size .                                                                                                                                                            |
| <b>Aperture Size</b>      | 128MB,<br>256MB[Default] ,<br>512MB,<br>1024MB                                                       | Select the Aperture Size.<br><br>Note : Above 4GB MMIO BIOS assignment is automatically enabled when selecting 2048MB aperture. To use this feature, please disable CSM Support. |
| <b>DVMT Pre-Allocated</b> | 32M,64M,4M,8M,<br>12M,16M, 20M,<br>24M, 28M,32M/F7,<br>36M, 40M,44M,<br>48M,52M,56M,<br>60M[Default] | Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.                                                                                 |
| <b>DVMT Total Gfx Mem</b> | 128M,<br>256M[Default] ,<br>MAX                                                                      | Select DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device.                                                                                                   |

■ VMD Configuration

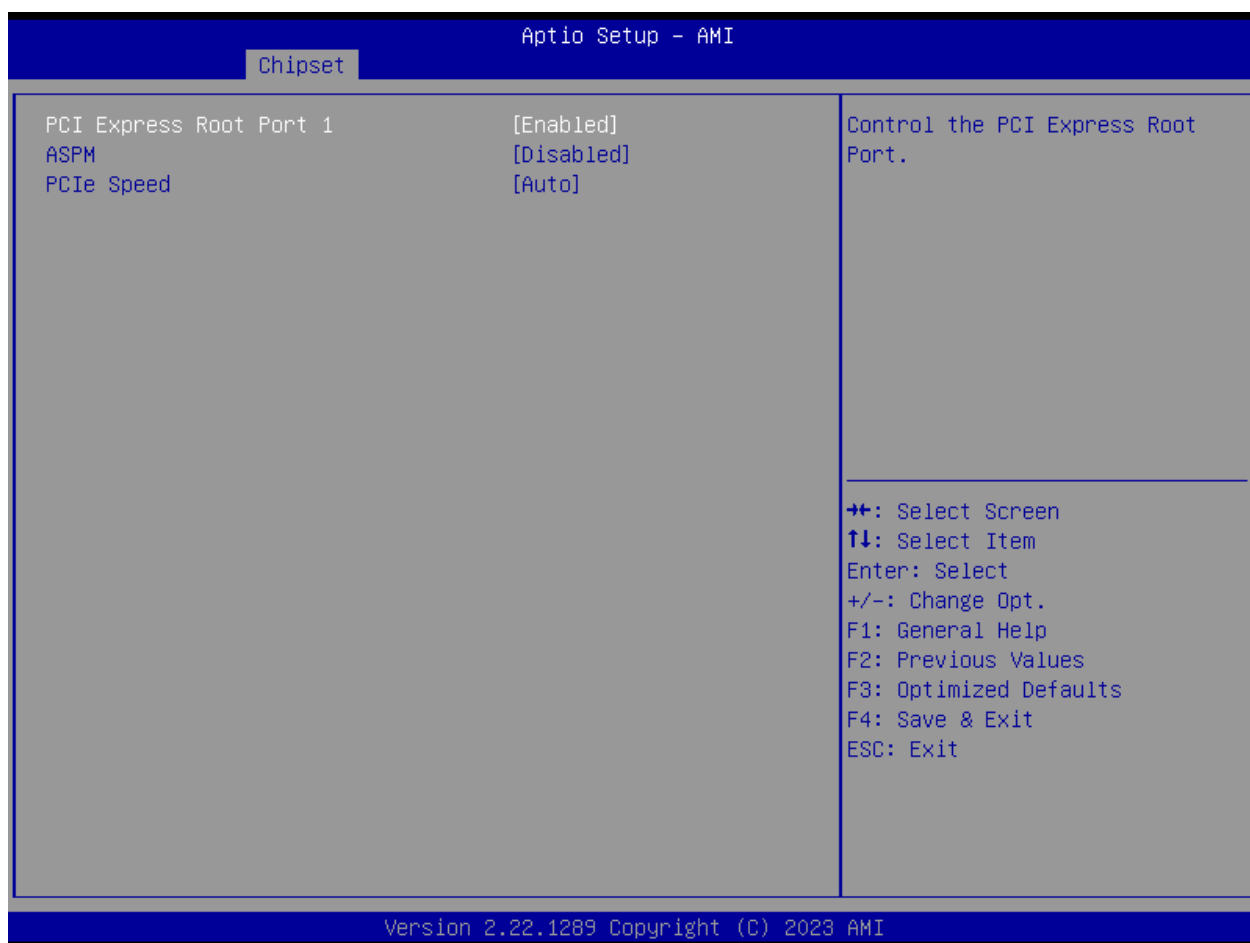


| Item                  | Options                     | Description                      |
|-----------------------|-----------------------------|----------------------------------|
| Enable VMD controller | Enabled[Default] , Disabled | Enable/Disable to VMD controller |

## ■ PCI Express Configuration

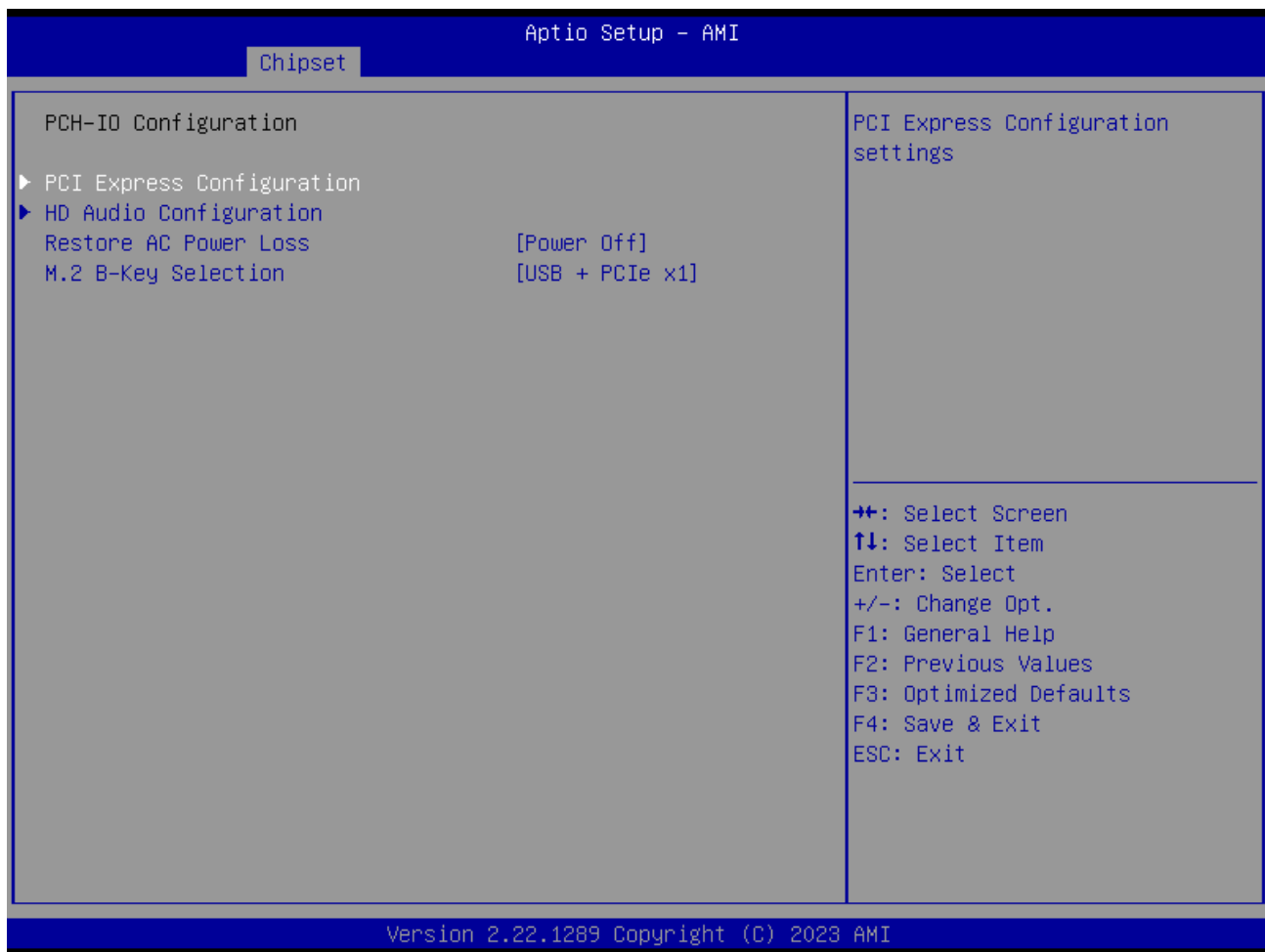


## ■ PCI Express Configuration



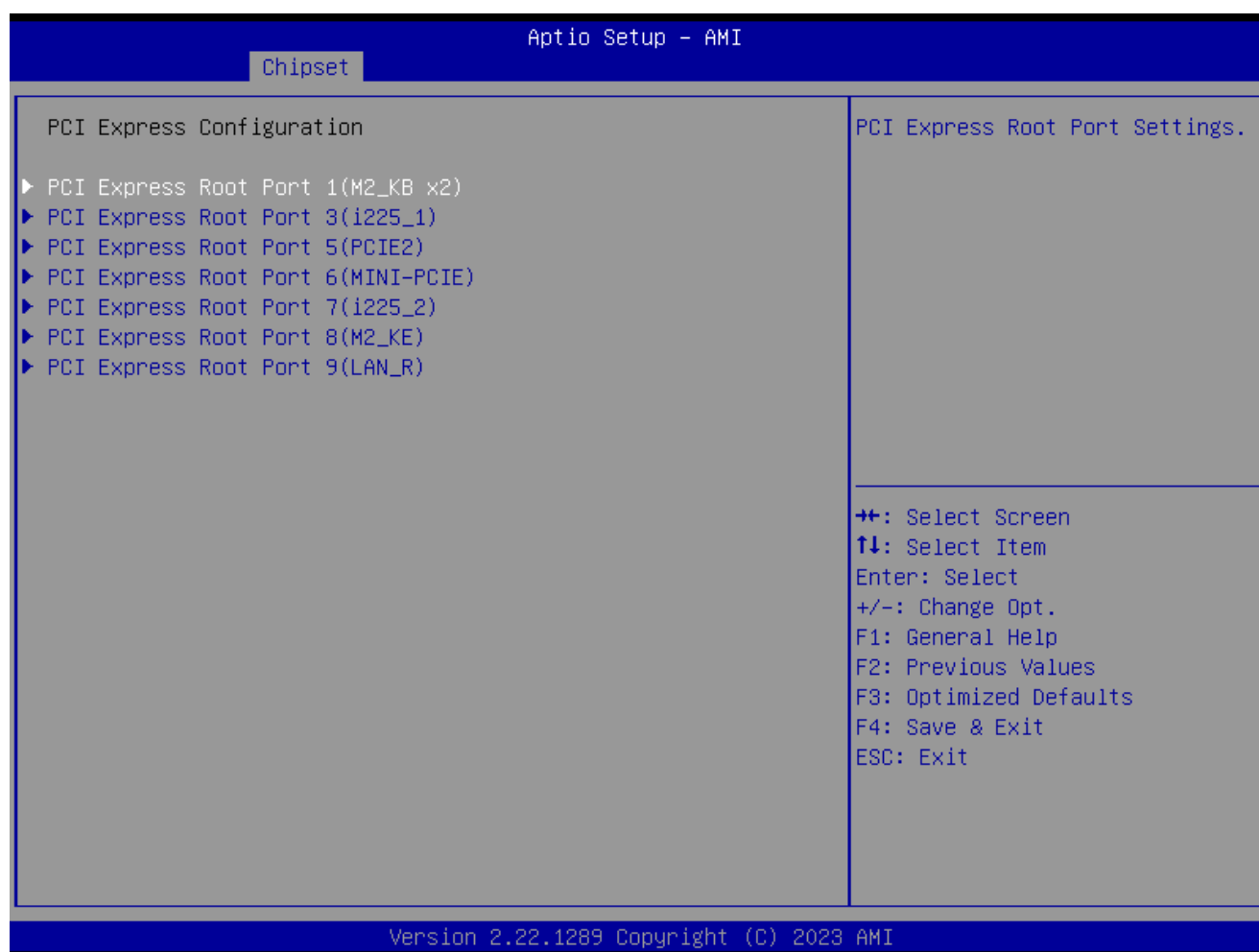
| Item                      | Options                                                      | Description                        |
|---------------------------|--------------------------------------------------------------|------------------------------------|
| PCI Express Root Port 1~3 | Disabled, Enabled[Default] ,                                 | Control the PCI Express Root Port. |
| ASPM                      | Disabled[Default] ,<br>L0s,<br>L1,<br>L0sL1                  | Set the ASPM Level.                |
| PCIe Speed                | Aut0[Default] ,<br>Gen1,<br>Gen2,<br>Gen3,<br>Gen4,<br>Gen5, | Configure PCIe Speed               |

## 4.4.2 PCH-IO Configuration

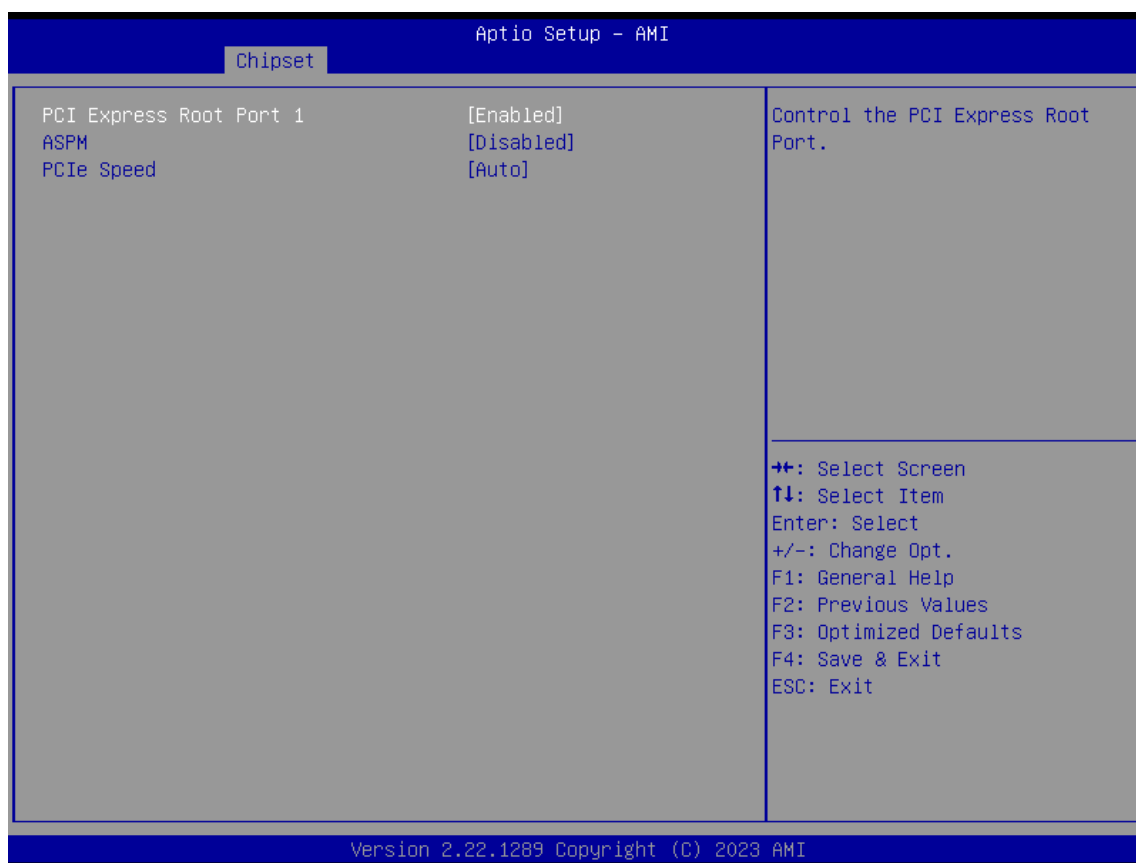


| Item                         | Options                                                 | Description                                                                            |
|------------------------------|---------------------------------------------------------|----------------------------------------------------------------------------------------|
| <b>Restore AC Power Loss</b> | Power On,<br>Power Off <b>[Default]</b> ,<br>Last State | Specify what state to go to when power is re-applied after a power failure (G3 state). |
| <b>M.2 B-Key Selection</b>   | USB + PCIe x1 <b>[Default]</b> ,<br>PCIe x2             | Selects M.2 B-KEY function: PCIe x2 or USB + PCIe x1.                                  |

## ■ PCI Express Configuration



## ■ PCI Express Root Port 1 /3 /5 /6 /7 /8 /9



| Item                                         | Options                                                    | Description                        |
|----------------------------------------------|------------------------------------------------------------|------------------------------------|
| PCI Express Root Port<br>1 /3 /5 /6 /7 /8 /9 | Disabled,<br>Enabled <b>[Default]</b>                      | Control the PCI Express Root Port. |
| ASPM                                         | Disabled <b>[Default]</b> ,<br>L1,<br>Auto                 | Set the ASPM Level.                |
| PCIe Speed                                   | Auto <b>[Default]</b> ,<br>Gen1,<br>Gen2,<br>Gen3,<br>Gen4 | Configure PCIe speed.              |

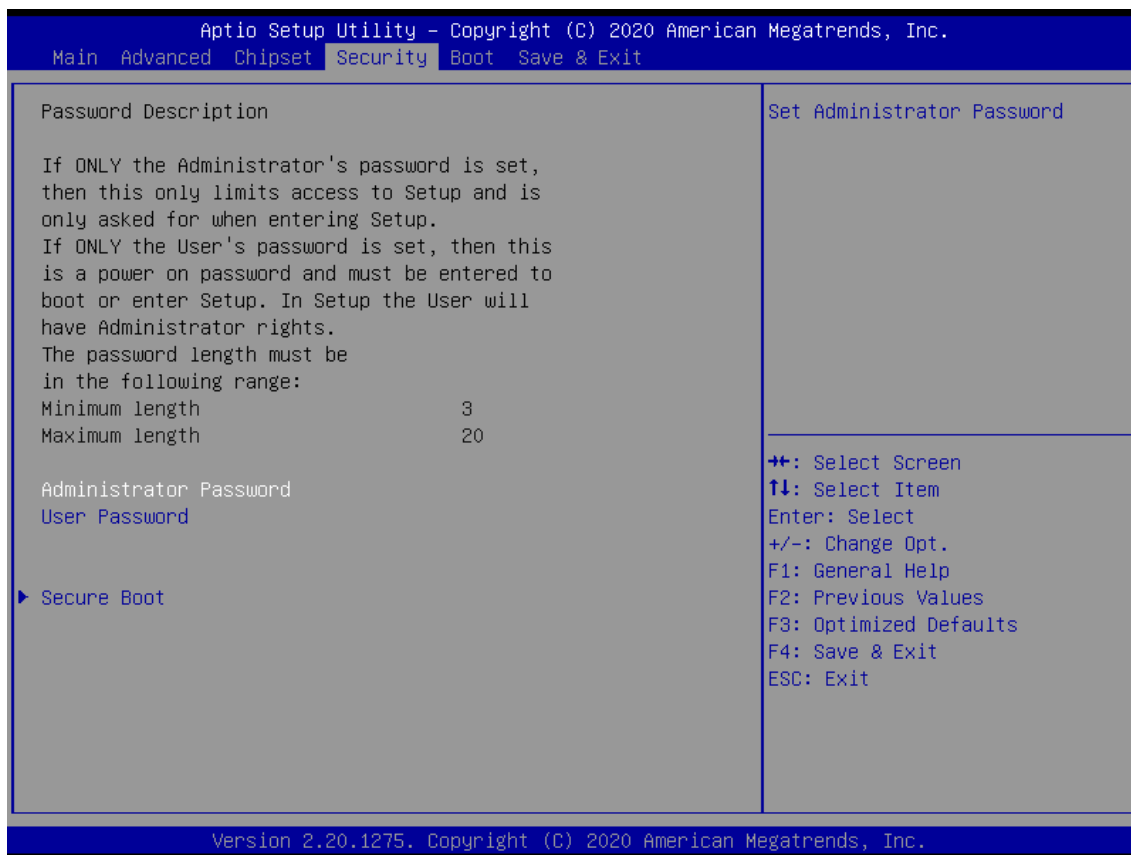
■ HD Audio Configuration



| Item     | Options                               | Description                                                                                                                                    |
|----------|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| HD Audio | Disabled,<br>Enabled <b>[Default]</b> | Control Detection of the HD-Audio device.<br>Disabled = HDA will be unconditionally disabled<br>Enabled = HDA will be unconditionally enabled. |

## 4.5 Security

Security menu allow users to change administrator password and user password settings.



### ■ Administrator Password

This item allows you to set Administrator Password.

### ■ User Password

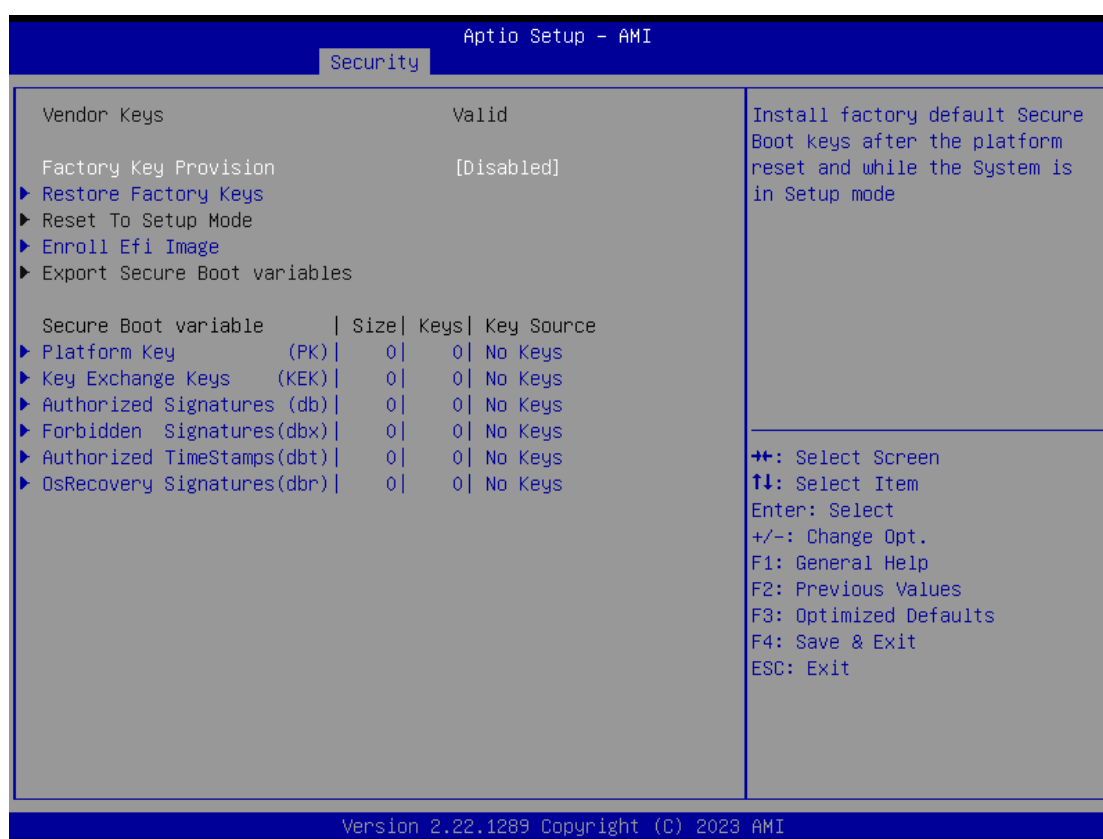
This item allows you to set User Password.

## Security Boot



| Item             | Options                                | Description                                                                                                                                                                  |
|------------------|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Secure Boot      | Disabled <b>[Default]</b> ,<br>Enabled | Secure Boot feature is Active if Secure Boot is Enabled, Platform Key(PK) is enrolled and the System is in User mode.<br><br>The mode change requires platform reset         |
| Secure Boot Mode | Standard,<br>Custom <b>[Default]</b>   | Secure Boot mode options: Standard or Custom.<br><br>In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication |

## ■ Key Management



| Item                  | Options                                | Description                                                                                             |
|-----------------------|----------------------------------------|---------------------------------------------------------------------------------------------------------|
| Factory Key Provision | Disabled <b>[Default]</b> ,<br>Enabled | Install factory default Secure Boot keys after the platform reset and while the System is in Setup mode |

## 4.6 Boot

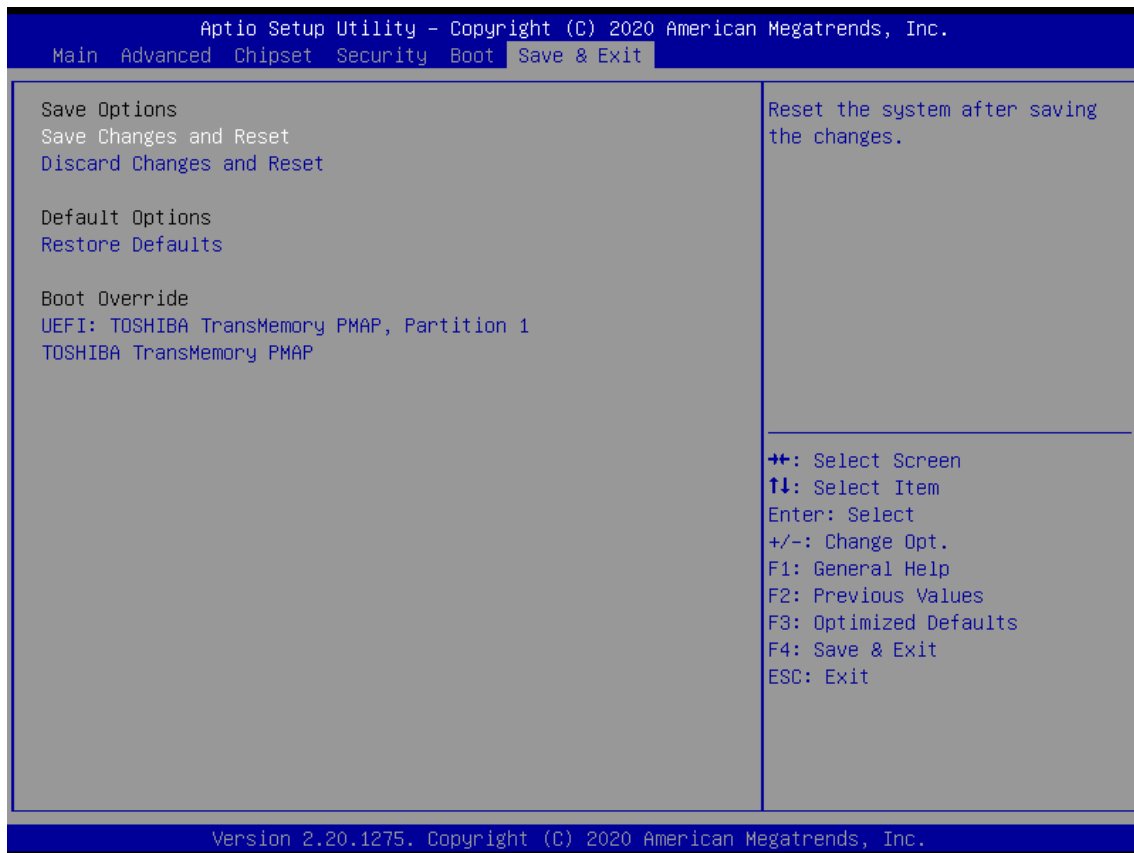
This menu allows you to setup the system boot options.



| Item                 | Options                        | Description                                                                                                                                      |
|----------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Setup Prompt Timeout | 1[Default]                     | Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.                                                      |
| Bootup NumLock State | On[Default] ,<br>Off           | Select the Keyboard NumLock state.                                                                                                               |
| Quiet Boot           | Disabled[Default] ,<br>Enabled | Enables or disables Quiet Boot option.                                                                                                           |
| Fast Boot            | Disabled[Default] ,<br>Enabled | Enables/Disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options. |

## 4.7 Save & Exit

This setting allows users to configure the boot settings.



### ■ Save Changes and Reset

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

### ■ Discard Changes and Reset

This item allows user to reset the system without saving any changes.

### ■ Restore Defaults

Use this item to restore /load default values for all the setup options.

## 4.8 MEBx



| Item                 | Options | Description |
|----------------------|---------|-------------|
| Intel(R) ME Password |         | MEBx Login  |

# Appendix

## WDT & GPIO

This appendix provides the sample codes of WDT (Watch Dog Timer) and GPIO (General Purpose Input/ Output).

## WDT Sample Code

### WDT Setting

The WDT function is provided by Fintek F81966 , and it can be accessed through IO Address. The configuration on the RCO-6000-RPL is described as below.

### **Psuedo Code**

```
// IO Address 0xA16 is time value(second)
// IO Address 0xA15 is WDT enable and configuration
Example, Set 0xA16=-0x03, 0xA15=0x31, it will reset after 3 seconds
```

```
#define TimePort      0xA16
#define TimeEnablePort 0xA15
```

```
WriteByte (TimePort,0x03)
WriteByte (TimeEnablePort,0x31)
```

## GPIO Sample Code

### GPIO Setting

| PIN# | GPIO# | Default Configuration |
|------|-------|-----------------------|
| 18   | XCOM- |                       |
| 17   | XCOM+ |                       |
| 16   | OUT8  | DIO Output8           |
| 15   | IN8   | DIO Input8            |
| 14   | OUT7  | DIO Output7           |
| 13   | IN7   | DIO Input7            |
| 12   | OUT6  | DIO Output6           |
| 11   | IN6   | DIO Input6            |
| 10   | OUT5  | DIO Output5           |
| 9    | IN5   | DIO Input5            |
| 8    | OUT4  | DIO Output4           |
| 7    | IN4   | DIO Input4            |
| 6    | OUT3  | DIO Output3           |
| 5    | IN3   | DIO Input3            |
| 4    | OUT2  | DIO Output2           |
| 3    | IN2   | DIO Input2            |
| 2    | OUT1  | DIO Output1           |
| 1    | IN1   | DIO Input1            |

The GPIO function is provided by Nuvoton M058SSAN , and it can be accessed through Smbus/I2C port. The configuration on the RCO-6000-RPL is described as below.

### Psuedo Code

```
#define GPI_ADDR  0x02      // Define Input port Address
#define GPO_ADDR 0x01      // Define Output port Address
#define Slave_ADDR 0x40    //Slave Address = 0x40( 7-bit address)
```

```
//Set OUT1~OUT8 Value
```

| Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
|-------|-------|-------|-------|-------|-------|-------|-------|
| OUT8  | OUT7  | OUT6  | OUT5  | OUT4  | OUT3  | OUT2  | OUT1  |

```
//Set GPO to 0x55
```

```
//set IO_DO1,IO_DO3,IO_DO5,IO_DO7 to high; Set IO_DO2,IO_DO4,IO_DO6,IO_DO8 to Low
SmbusWrite (Slave_ADDR, GPO_ADDR, 0x55);
```

```
// Read In1~In8 value
```

| Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
|-------|-------|-------|-------|-------|-------|-------|-------|
| IN8   | IN7   | IN6   | IN5   | IN4   | IN3   | IN2   | IN1   |

```
Data= SmbusReads (Slave_ADDR, GPI_ADDR); //Read In1~In8 value
```

