

# USER'S MANUAL

## PC100-EHL Series

PC Module



PC100-EHL



PC100-EHL-1E

# Table of Contents

|                                                                                |           |
|--------------------------------------------------------------------------------|-----------|
| <b>Prefaces</b> .....                                                          | <b>04</b> |
| Revision .....                                                                 | 04        |
| Disclaimer .....                                                               | 04        |
| Copyright Notice .....                                                         | 04        |
| Trademarks Acknowledgment .....                                                | 04        |
| Environmental Protection Announcement .....                                    | 04        |
| Safety Precautions .....                                                       | 05        |
| Technical Support and Assistance .....                                         | 06        |
| Conventions Used in this Manual .....                                          | 06        |
| Package Contents .....                                                         | 07        |
| Ordering Information .....                                                     | 07        |
| Optional Accessory .....                                                       | 07        |
| <b>Chapter 1 Product Introductions</b> .....                                   | <b>08</b> |
| 1.1 Overview .....                                                             | 09        |
| Key Feature .....                                                              | 09        |
| 1.2 Hardware Specification .....                                               | 10        |
| 1.3 System I/O .....                                                           | 13        |
| 1.3.1 PC100-EHL .....                                                          | 13        |
| 1.3.2 PC100-EHL-1E .....                                                       | 15        |
| 1.3.3 VESA Mounting Hole .....                                                 | 17        |
| 1.4 Mechanical Dimension .....                                                 | 18        |
| 1.4.1 PC100-EHL .....                                                          | 18        |
| 1.4.2 PC100-EHL-1E .....                                                       | 19        |
| <b>Chapter 2 Switches and Connectors</b> .....                                 | <b>20</b> |
| 2.1 Switch and Connector Locations .....                                       | 21        |
| 2.1.1 Top View .....                                                           | 21        |
| 2.1.2 Bottom View .....                                                        | 22        |
| 2.2 Connector / Switch Definition .....                                        | 23        |
| <b>Chapter 3 Front Panel Controls</b> .....                                    | <b>38</b> |
| 3.1 Users Controls .....                                                       | 39        |
| 3.2 OSD Operation .....                                                        | 40        |
| 3.2.1 Luminance .....                                                          | 40        |
| 3.2.2 Picture .....                                                            | 40        |
| 3.2.3 Color .....                                                              | 41        |
| 3.2.4 OSD Settings .....                                                       | 41        |
| 3.2.5 Setup .....                                                              | 41        |
| <b>Chapter 4 System Setup</b> .....                                            | <b>42</b> |
| 4.1 Set torque force to 3.5 kgf-cm to execute all the screwing and unscrewing. | 43        |
| 4.2 Installing SODIMM .....                                                    | 43        |
| 4.3 Installing mini PCIe card / mSATA / M.2 E Key .....                        | 44        |
| 4.4 Installing HDD on removable SATA HDD bay .....                             | 45        |
| 4.5 Installing SIM card .....                                                  | 46        |
| 4.6 Removing chassis top cover .....                                           | 48        |
| 4.7 Installing antenna .....                                                   | 49        |
| 4.8 Assembling chassis top cover .....                                         | 52        |
| 4.9 Connecting PC module with VIO display module .....                         | 54        |
| 4.10 PC100-EHL-1E Installing PCIe expansion card .....                         | 55        |

|                  |                                 |           |
|------------------|---------------------------------|-----------|
| <b>Chapter 5</b> | <b>BIOS Setup</b>               | <b>59</b> |
| 5.1              | BIOS Introduction               | 60        |
| 5.2              | Main Setup                      | 61        |
| 5.3              | Advanced Setup                  | 62        |
| 5.3.1            | CPU Configuration               | 63        |
| 5.3.2            | PCH-FW Configuration            | 64        |
| 5.3.3            | SATA and RST Configuration      | 65        |
| 5.3.4            | Trusted Computing               | 66        |
| 5.3.5            | ACPI Settings                   | 67        |
| 5.3.6            | Super IO Configuration          | 68        |
| 5.3.7            | Hardware Monitor                | 75        |
| 5.3.8            | Power IGN Mode                  | 77        |
| 5.3.9            | Wake system from S5             | 78        |
| 5.3.10           | Serial Port Console Redirection | 79        |
| 5.3.11           | USB Configuration               | 80        |
| 5.3.12           | Network Stack Configuration     | 81        |
| 5.4              | Chipset                         | 82        |
| 5.4.1            | System Agent (SA) Configuration | 83        |
| 5.4.2            | PCH-IO Configuration            | 86        |
| 5.5              | Security                        | 90        |
| 5.6              | Boot                            | 93        |
| 5.7              | Save & Exit                     | 94        |
| <b>Appendix</b>  | <b>WDT &amp; GPIO</b>           | <b>95</b> |
|                  | WDT Sample Code                 | 96        |
|                  | GPIO Sample Code                | 97        |

## Prefaces

### Revision

| Revision | Description     | Date       |
|----------|-----------------|------------|
| 1.0      | Manual Released | 2023/08/25 |

### Disclaimer

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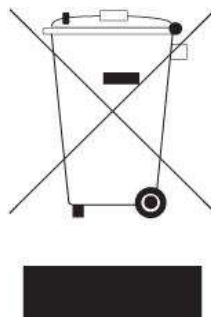
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### Environmental Protection Announcement

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  $-20^{\circ}\text{C}$  and below  $70^{\circ}\text{C}$ .
- 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 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 C&T Solution Inc website at <https://www.candtsolution.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    | P100-EHL Series PC Module | 1    |
| 2    | Screw Pack                | 1    |

## Ordering Information

| Model No.          | Product Description                                                                                                   |
|--------------------|-----------------------------------------------------------------------------------------------------------------------|
| PC100-EHL-J6413    | PC Module for Industrial Display System with Intel® Celeron® J6413 CPU                                                |
| PC100-EHL-1E-J6413 | PC Module for Industrial Display System with Intel® Celeron® J6413 CPU, 1x Universal I/O Bracket, 1x PCIe x4 (1-lane) |

## Optional Accessories

| Model No.   | Product Description                                                |
|-------------|--------------------------------------------------------------------|
| 1-E09A06008 | Adapter AC/DC 12V 5A 60W with 3pin Terminal Block Plug 5.0mm Pitch |
| SFICBL022   | Power Cord, 3-pin US Type, 180cm                                   |
| 1-TPCD00002 | Power Cord, European Type, 180cm                                   |
| 1-TPCD00001 | Power Cord, 3-pin UK Type, 180cm                                   |

## Chapter 1

# Product Introductions



## 1.1 Overview

The PC100-EHL series PC module is based on Intel® Celeron® Processor J6413. It supports Multi-Mode Display Module (MDM) technology which makes it more flexible in system maintaining and upgrading. It also offers modularize expansion I/O, rich connectivity interfaces, wide range (9~36VDC) DC power input, and high reliability even operating in temperature extremes (0~60 °C).

Featuring with completely cable-less designed and high functional, PC100-EHL series are ruggedized display systems that can operate in harsh environments and easy to install and maintain. A build in over voltage protection (OVP), over current protection (OCP), reserve voltage protection, and wide range DC power input makes PC100-EHL series are safety system for all industrial applications.



PC100-EHL

PC100-EHL-1E

### Key Features

- Intel® Celeron® Processor J6413
- 1x 260-pin DDR4 SODIMM. max up to 32GB
- 1x 2.5" SATA HDD bay
- 1x Full-size Mini PCIe (USB 2.0, SATA)
- 2x LAN, 1x DisplayPort, 1x Dual Channel 24 bit LVDS
- 6x RS-232/422/485 (w/ 2x internal), 2x USB 3.2 Gen 2, 2x USB 2.0
- 8x DI + 8x DO with isolation
- 9 to 36VDC wide range power input
- 0°C to 60°C extended operating temperature
- 1x Universal I/O Bracket for Expansion (PC100-EHL-1E Only)

## 1.2 Hardware Specification

| System           |                                                                                                        |                      |
|------------------|--------------------------------------------------------------------------------------------------------|----------------------|
| Processor        | Intel® Celeron® J6413 Processor Quad core (1.5M Cache, 1.8GHz up to 3.00 GHz)<br>FC-BGA16F, Tray 10W   |                      |
| System Chipset   | SoC Integrated                                                                                         |                      |
| LAN Chipset      | GbE1: Intel® I210 (Support Wake-on-LAN and PXE)<br>2.5 GbE2: Intel® I225 (Support Wake-on-LAN and PXE) |                      |
| Audio Codec      | Realtek ALC888S                                                                                        |                      |
| System Memory    | 1x 260-Pin DDR4 2400/2667/3200MT/s SODIMM. Max. up to 32 GB                                            |                      |
| BIOS             | AMI 128Mbit SPI BIOS                                                                                   |                      |
| TPM              | TPM 2.0                                                                                                |                      |
| Watchdog         | Software Programmable Supports 1~255 sec. System Reset                                                 |                      |
| Display          |                                                                                                        |                      |
| DisplayPort      | 1x DisplayPort 1.2 (4096 x 2160@60Hz)                                                                  |                      |
| HDMI             | 1x HDMI 2.0b (4096 x 2160@60Hz) (Optional)                                                             |                      |
| LVDS             | 1x Dual Channel 24 bit LVDS                                                                            |                      |
| Multiple Display | Triple Display                                                                                         |                      |
| Storage          |                                                                                                        |                      |
| M.2              | 1x M.2 (E Key, PCIe x1, USB 2.0, 2230)<br>1x M.2 (B Key, PCIe x2 + USB 3.2 Gen1, 2242/3042/3052)       |                      |
| mSATA            | 1x mSATA                                                                                               |                      |
| SIM Socket       | 2x External SIM socket                                                                                 |                      |
| SSD/HDD          | 1x Removable 2.5" SATA HDD Bay                                                                         |                      |
| Expansion        |                                                                                                        |                      |
| Mini PCIe        | 1x Full-size Mini PCIe (USB 2.0, SATA)                                                                 |                      |
| PCI Express      | <b>PC100-EHL</b>                                                                                       | <b>PC100-EHL-1E</b>  |
|                  | -                                                                                                      | 1x PCIe x4 (1-lanes) |

| I/O                   |                                                                                                               |                                                   |
|-----------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| Audio                 | 1x Mic-in, 1x Line-out                                                                                        |                                                   |
| CAN                   | 2x CAN 2.0 A/B 2-pin Header (Internal)                                                                        |                                                   |
| COM                   | 4x RS-232/422/485<br>2x RS-232/422/485 (internal)                                                             |                                                   |
| DIO                   | 8 in / 8 out (Isolated)                                                                                       |                                                   |
| LAN                   | 2x RJ45                                                                                                       |                                                   |
| Universal I/O Bracket | <b>PC100-EHL</b>                                                                                              | <b>PC100-EHL-1E</b>                               |
|                       | -                                                                                                             | 1x Universal I/O Bracket (By mini PCIe interface) |
| USB                   | 2x USB 3.2 Gen 2 (10 Gbps)<br>2x USB 2.0                                                                      |                                                   |
| DP                    | 1x DisplayPort 1.2 (4096 x 2160@60Hz)                                                                         |                                                   |
| HDMI                  | 1x HDMI 2.0b (4096 x 2160@60Hz) (Optional)                                                                    |                                                   |
| Others                | 4x WiFi Antenna Holes<br>1x Power Switch<br>1x AT/ATX Switch<br>1x Remote Power On/Off<br>1x DB9 Cutting Hole |                                                   |
| Optical Bonding       | Optional, contact us for more information                                                                     |                                                   |
| OSD                   | LCD On/Off, Auto, Menu, Up and Down Multi-language                                                            |                                                   |
| Speaker               | AMP 10W + 10W                                                                                                 |                                                   |
|                       | AMP 2W + 2W<br>(VIO-212-PC100-EHL, VIO-212-PC100-EHL-1E, VIO-110-PC100-EHL, VIO-110-PC100-EHL-1E only)        |                                                   |

### Operating System

|         |                        |
|---------|------------------------|
| Windows | Windows 10, Windows 11 |
| Linux   | Linux kernel 5.X       |

**Power**

|                      |                                                                                      |
|----------------------|--------------------------------------------------------------------------------------|
| Power Adapter        | Optional AC/DC 12V/5A, 60W                                                           |
| Power Management     | Power Ignition Management (by Optional Module)                                       |
| Power Mode           | AT, ATX                                                                              |
| Power Supply Voltage | 9~36 VDC                                                                             |
| Power Connector      | 3-Pin Terminal Block                                                                 |
| Power Protection     | OVP (Over Voltage Protection)<br>OCP (Over Current Protection)<br>Reserve Protection |

**Environment**

|                       |                                                                                        |
|-----------------------|----------------------------------------------------------------------------------------|
| Operating Temperature | 0°C to 60°C                                                                            |
| Storage Temperature   | -20°C to 70°C                                                                          |
| Relative Humidity     | 10% ~ 95% (non-condensing)                                                             |
| Certification         | CE, FCC Class A                                                                        |
| Vibration             | 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: 20G, half sine, 11ms                                                         |

| Physical (Model No.) | Dimensions                      | Weights | Mounting Options                              |
|----------------------|---------------------------------|---------|-----------------------------------------------|
| PC100-EHL            | 246 (W) x 220 (D) x 42 (H) mm   | 1.57 kg | VESA Mounting Holes<br>75 x 75mm, 100 x 100mm |
| PC100-EHL-1E         | 253 (W) x 225 (D) x 61.3 (H) mm | 1.86 Kg |                                               |

**Construction**

Extruded Aluminum with Heavy Duty Metal

## 1.3 System I/O

### 1.3.1 PC100-EHL (Top & Bottom)

**Removable HDD Bay**

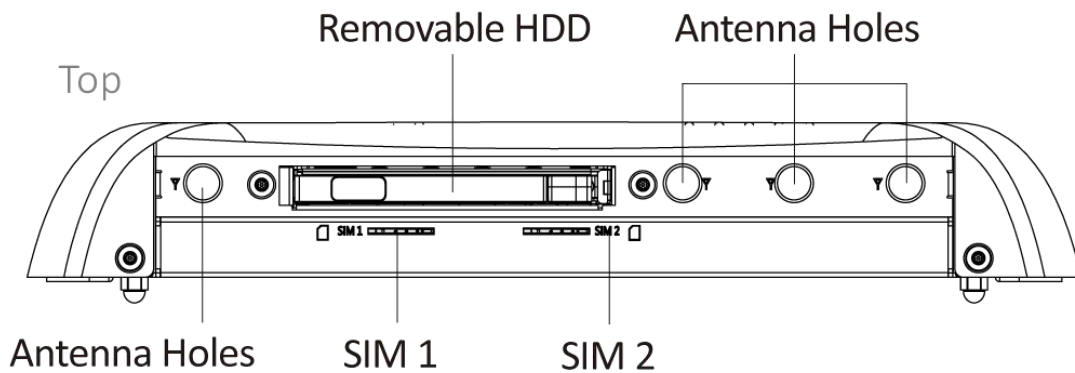
Used to insert a 2.5" HDD device

**SIM Card Socket**

Used to insert SIM card

**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

**4x USB port**

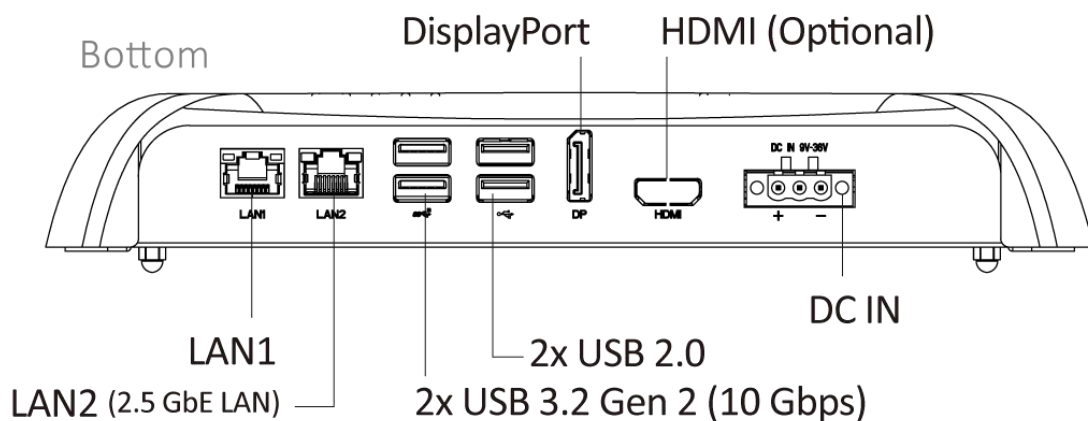
Used to connect USB device

**DisplayPort**

Used to connect a DisplayPort monitor

**LAN port**

Used to connect the system to a local area network



**PC100-EHL (Left & Right)**

**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

**Reset switch**

Press to reset the system

**Digital I/O Terminal Block**

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

**Line-out**

Used to connect a speaker

**Mic-in**

Used to connect a microphone

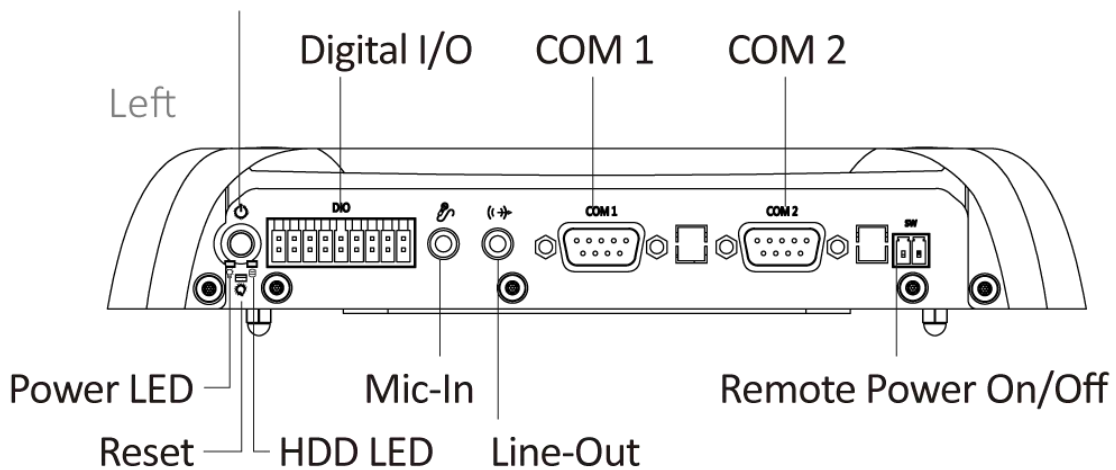
**Remote Power on/off Terminal Block**

Used to plug a remote power on/off terminal block

**COM port**

COM1 ~ COM2 support RS232/422/485 serial device

**ATX Power On/Off Switch**

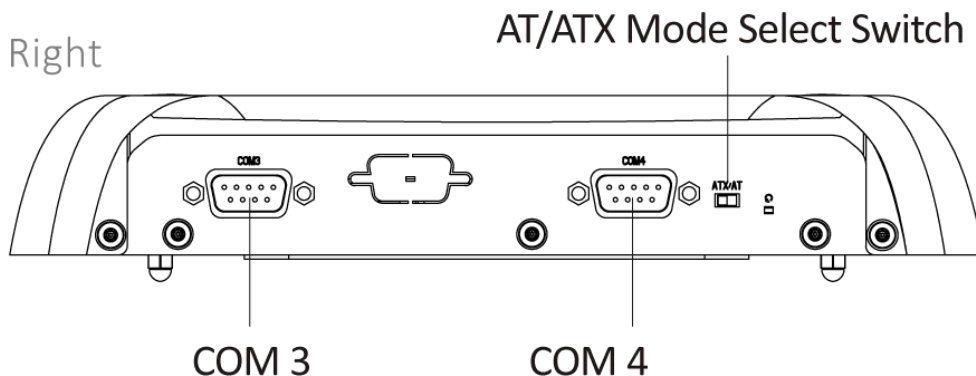


**COM port**

COM3~4 support RS232/422/485 serial device

**AT/ATX mode select switch**

Used to select AT or ATX power mode



### 1.3.2 PC100-EHL-1E (Top & Bottom)

**Removable HDD Bay**

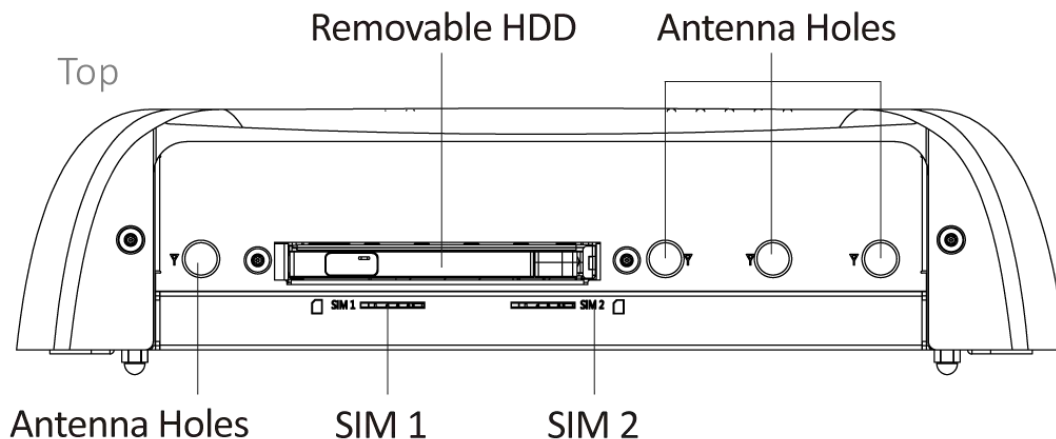
Used to inserts a 2.5" HDD device

**SIM Card Socket**

Used to insert SIM card

**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

**4x USB port**

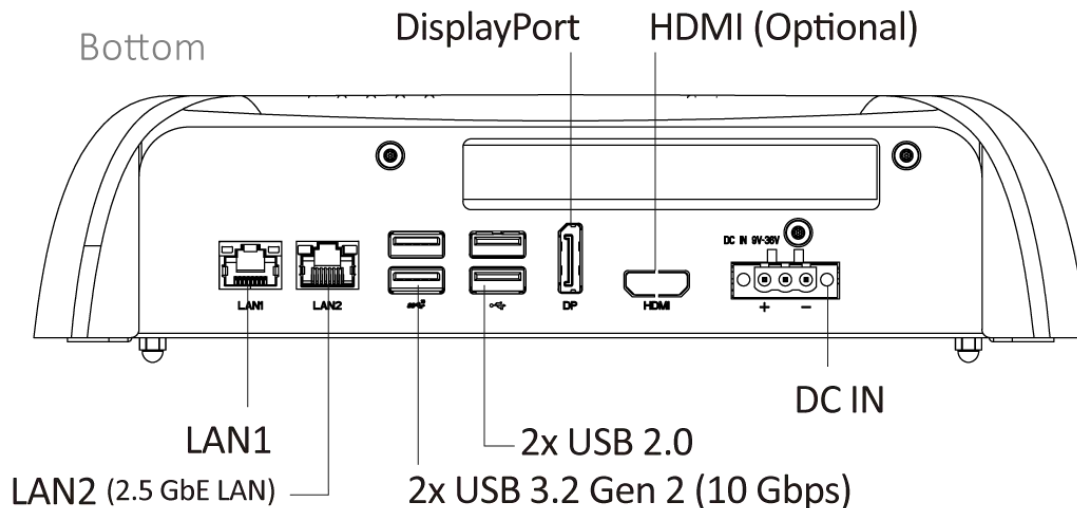
Used to connect USB device

**DisplayPort**

Used to connect a DisplayPort monitor

**LAN port**

Used to connect the system to a local area network



**PC100-EHL-1E (Left & Right)**

**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

**Reset switch**

Press to reset the system

**Digital I/O Terminal Block**

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

**Line-out**

Used to connect a speaker

**Mic-in**

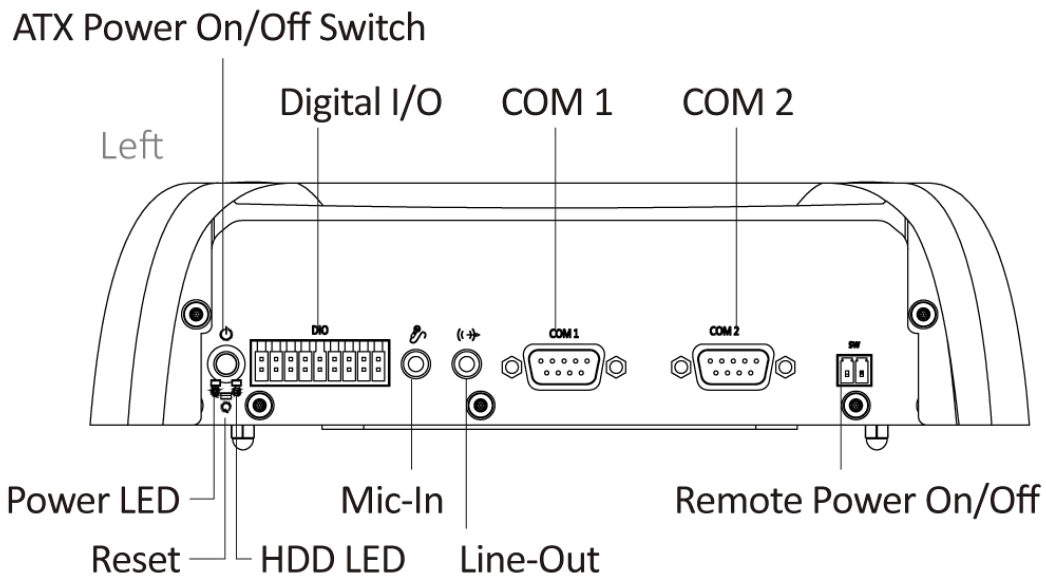
Used to connect a microphone

**Remote Power on/off Terminal Block**

Used to plug a remote power on/off terminal block

**COM port**

COM1 ~ COM2 support RS232/422/485 serial device



**COM port**

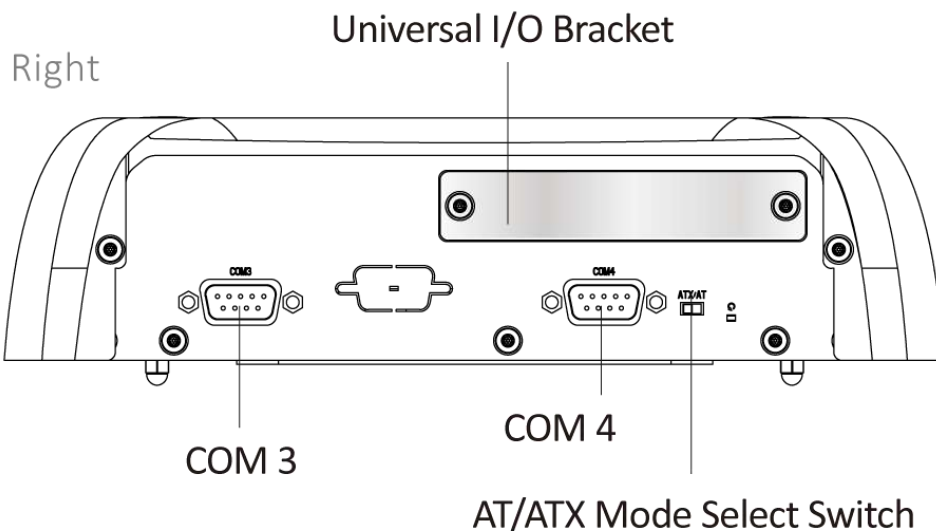
COM3~4 support RS232/422/485 serial device

**AT/ATX mode select switch**

Used to select AT or ATX power mode

**Universal I/O Bracket**

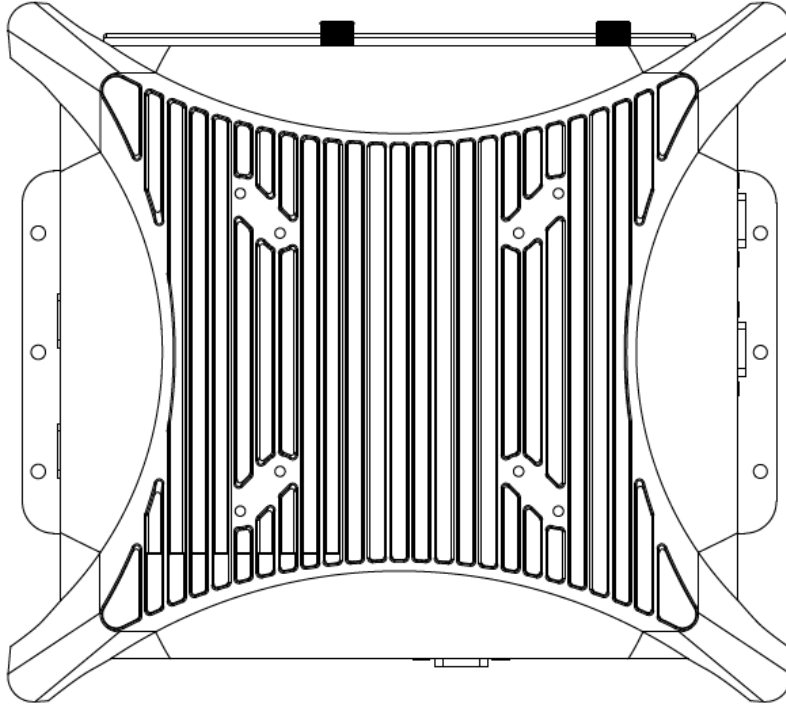
Used to customized I/O output  
(VIO-xxx/PC100-EHL-1E only)





### 1.3.3 VESA Mounting Hole

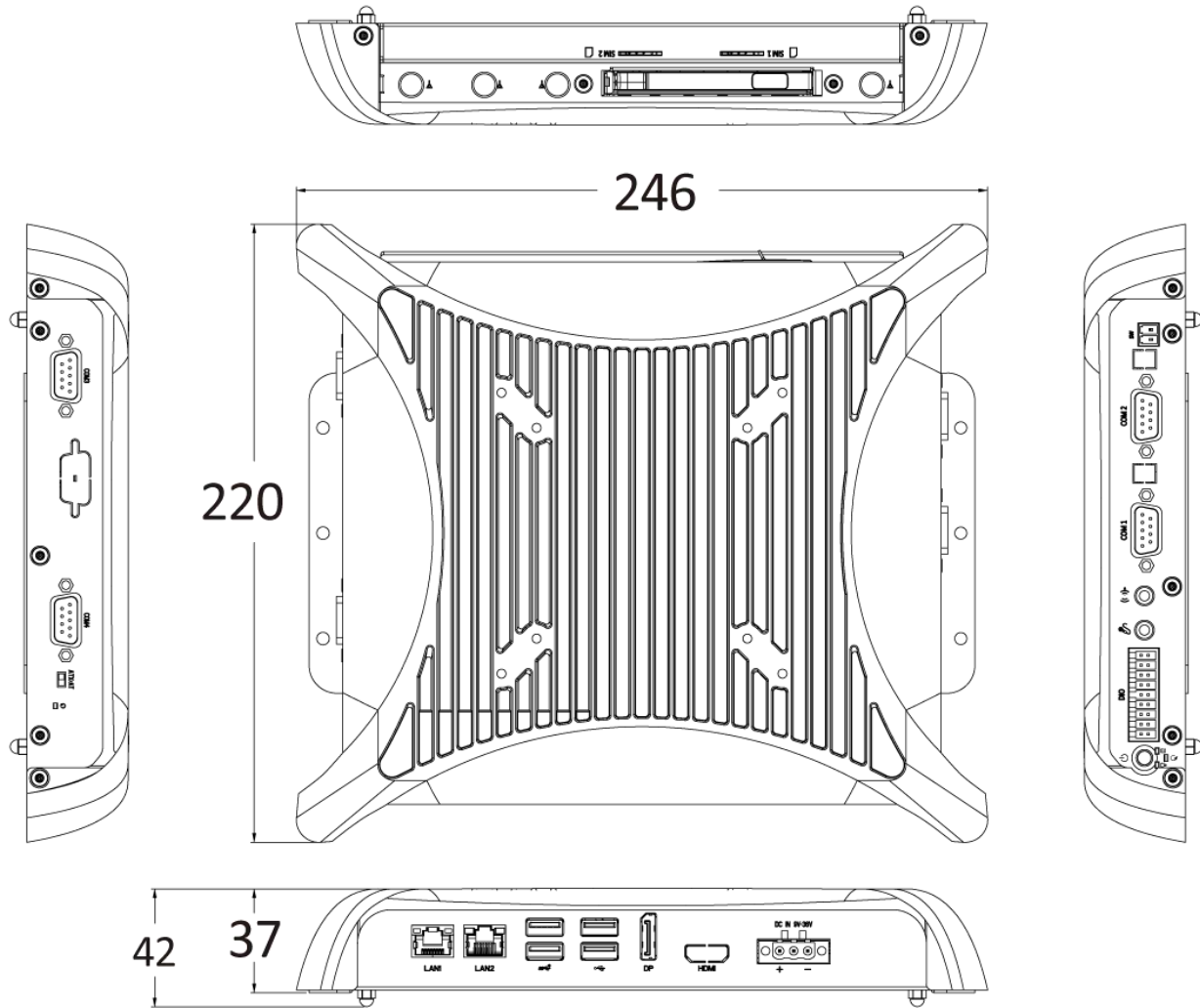
These are mounting holes for VESA mount (75x75mm and 100x100mm)



# 1.4 Mechanical Dimensions

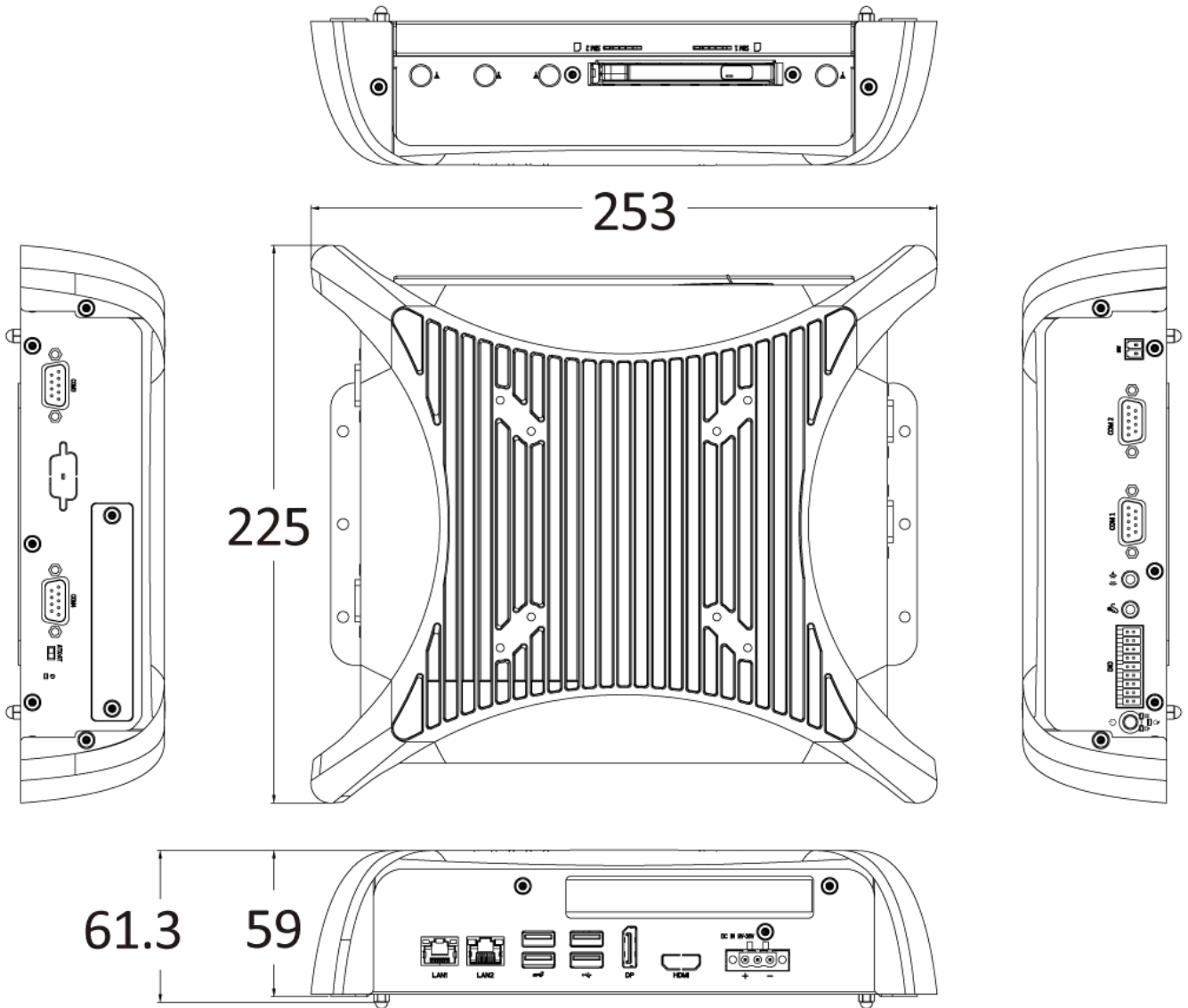
## 1.4.1 PC100-EHL

Unit: mm



1.4.2 PC100-EHL-1E

Unit: mm

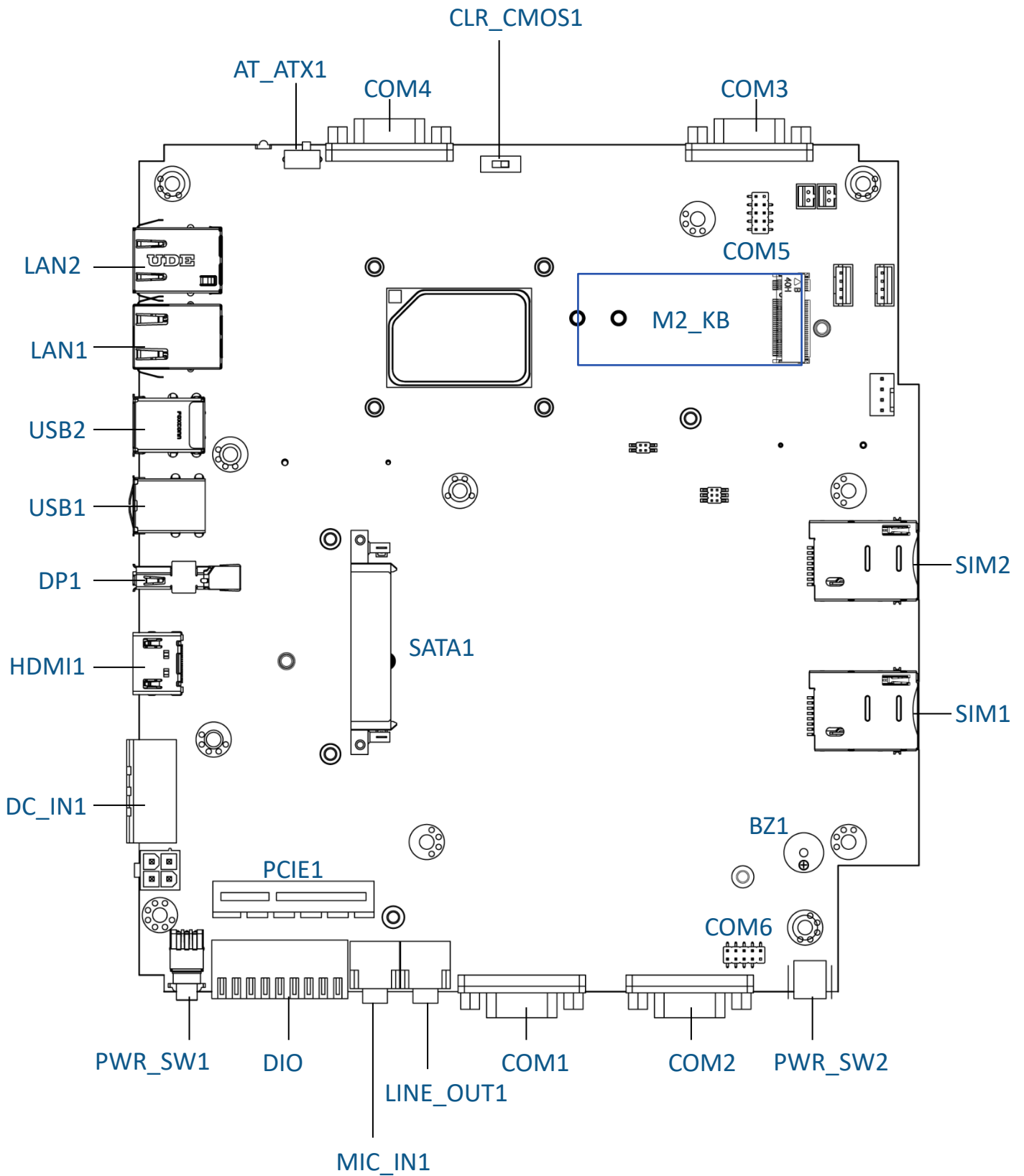


## Chapter 2

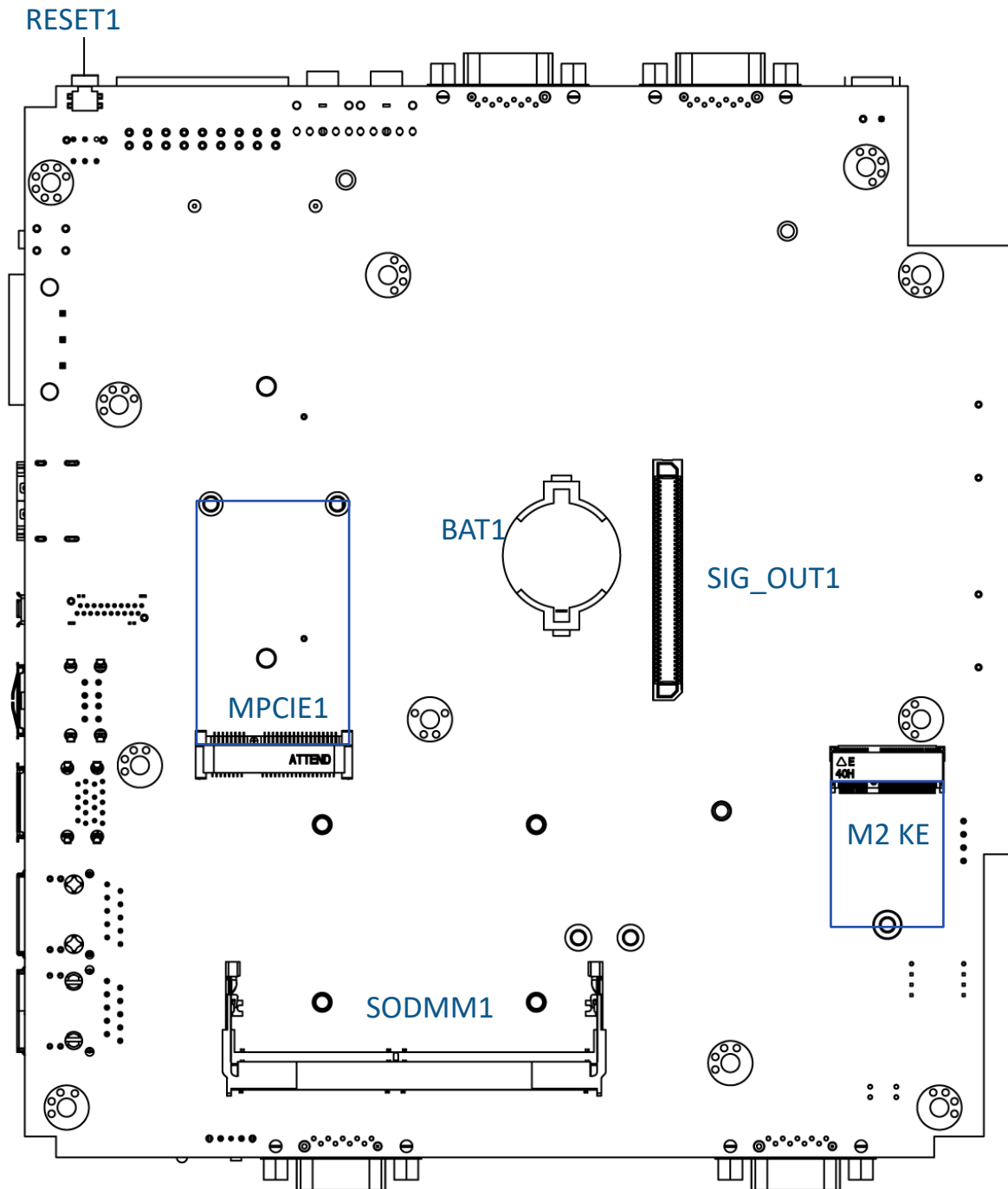
# Switches and Connectors

## 2.1 Switch and Connector Locations

### 2.1.1 Top View



### 2.1.2 Bottom View

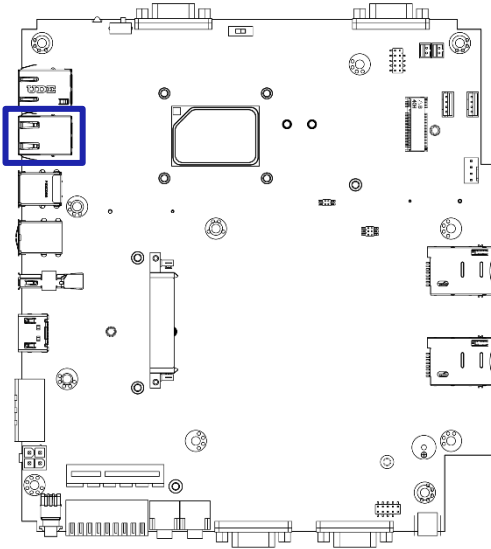
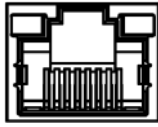


## 2.2 Connector / Switch Definition

### List of Connector / Switch

| Connector Location | Definition                           |
|--------------------|--------------------------------------|
| AT_ATX1            | AT / ATX Power Mode Switch           |
| CLR_CMOS1          | Clear BIOS Switch                    |
| PWR_SW1            | Power Switch                         |
| RESET1             | Reset Switch                         |
| USB2, USB1         | USB Port (3.2 Gen 2 and 2.0)         |
| SIM1, SIM2         | SIM Card Socket                      |
| COM1 ~ COM6        | RS232 / RS422 / RS485 Connector      |
| LAN1, LAN2         | LAN Port                             |
| DC_IN1             | 3-pin DC 9~36V Power Input Connector |
| DP1                | DisplayPort Connector                |
| LINE_OUT1          | Line-out Jack                        |
| MIC_IN1            | Mic-in Jack                          |
| DIO                | 8DI / 8DO Connector                  |
| PWR_SW2            | Remote Power Switch                  |
| MINI-PCIE1         | Mini PCI-Express / mSATA Socket      |
| SATA1              | SATA with Power Connector            |
| BZ1                | Buzzer                               |
| HDMI1              | HDMI signal connector                |
| SODIMM1            | Memory                               |
| BAT1               | Battery                              |
| M2_KB              | M.2 B-Key Socket                     |
| SIG_OUT1           | VIO Display Module Connector         |
| M2 KE              | M.2 E Key Socket                     |

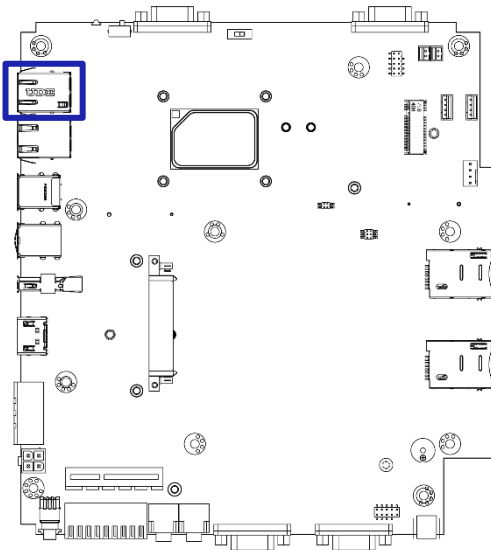
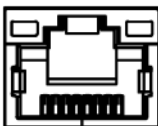
**LAN1**



**LAN Port i225**

| Pin  | Signal         |
|------|----------------|
| 1    | LAN2_MDI0_P    |
| 2    | LAN2_MDI0_N    |
| 3    | LAN2_MDI1_P    |
| 4    | LAN2_MDI1_N    |
| 5    | R5_CT          |
| 6    | R6_CT          |
| 7    | LAN2_MDI2_P    |
| 8    | LAN2_MDI2_N    |
| 9    | LAN2_MDI3_P    |
| 10   | LAN2_MDI3_N    |
| L1_1 | LAN2_SPD_2500# |
| L2_! | L2 LINK1000J   |
| L3_1 | +V3.3A_LAN2    |
| L4_1 | LAN2_LINK_ACT# |

**LAN2**

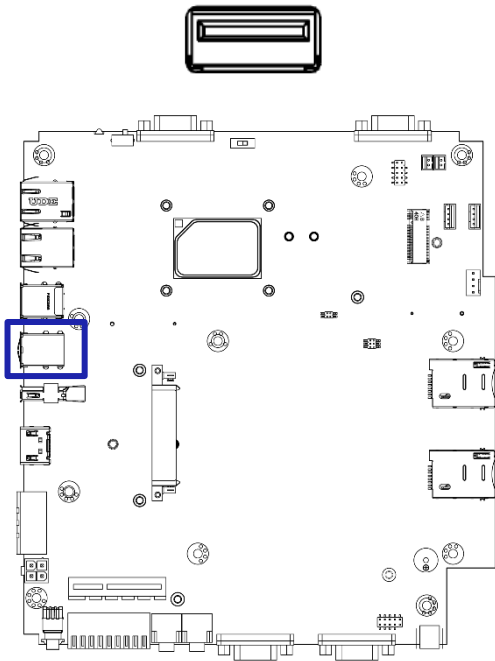


**LAN Port i210**

| Pin  | Signal         |
|------|----------------|
| 1    | LAN1_MDI0_P    |
| 2    | LAN1_MDI0_N    |
| 3    | LAN1_MDI1_P    |
| 4    | LAN1_MDI1_N    |
| 5    | R5_CT          |
| 6    | R6_CT          |
| 7    | LAN1_MDI2_P    |
| 8    | LAN1_MDI2_N    |
| 9    | LAN1_MDI3_P    |
| 10   | LAN2_MDI3_N    |
| L1_1 | LAN1_MDI3_N    |
| L2_! | L2 LINK1000J   |
| L3_1 | +V3.3A_LAN2    |
| L4_1 | LAN2_LINK_ACT# |



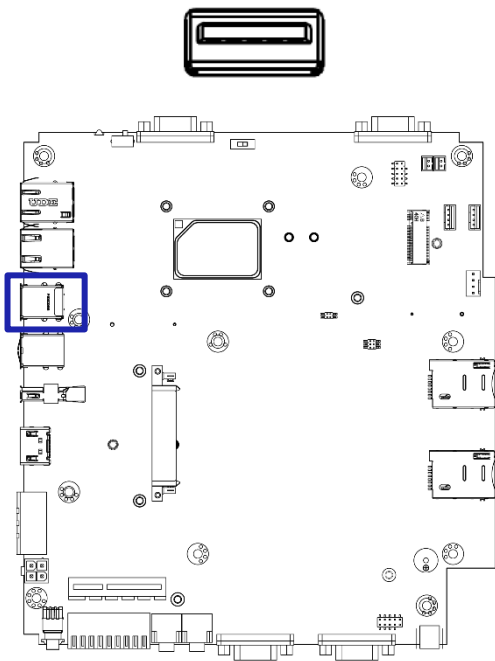
**USB1**



**USB Port 2.0**

| Pin | Signal    | Pin | Signal    |
|-----|-----------|-----|-----------|
| 1   | USB2_VCC1 | 2   | USB2_VCC1 |
| 3   | USB2_P5_N | 4   | USB2_P6_N |
| 5   | USB2_P5_P | 6   | USB2_P6_P |
| 7   | GND       | 8   | GND       |

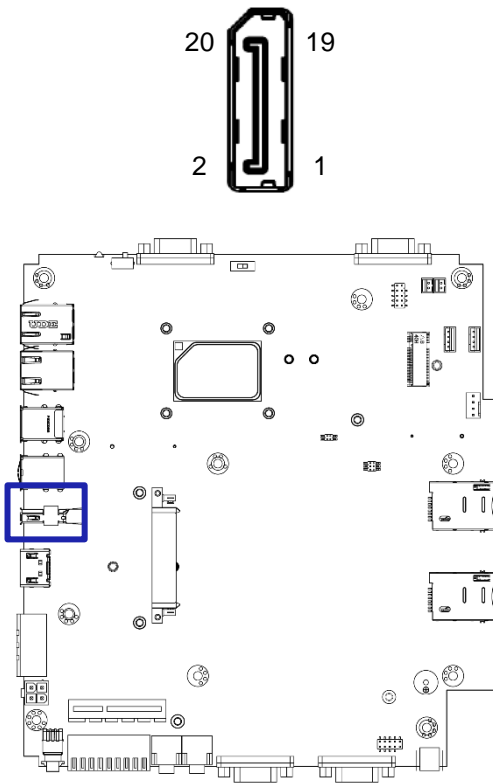
**USB2**



**USB Port 3.2 Gen 2**

| Pin | Signal      | Pin | Signal      |
|-----|-------------|-----|-------------|
| 1   | +V5A_USBP12 | 10  | +V5A_USBP12 |
| 2   | USB2_P1_N   | 11  | USB2_P2_N   |
| 3   | USB2_P1_P   | 12  | USB2_P2_P   |
| 4   | GND         | 13  | GND         |
| 5   | P1_SSRX_N   | 14  | P2_SSRX_N   |
| 6   | P1_SSRX_P   | 15  | P2_SSRX_P   |
| 7   | GND         | 16  | GND         |
| 8   | P1_SSTX_N   | 17  | P2_SSTX_N   |
| 9   | P1_SSTX_P   | 18  | P2_SSTX_P   |

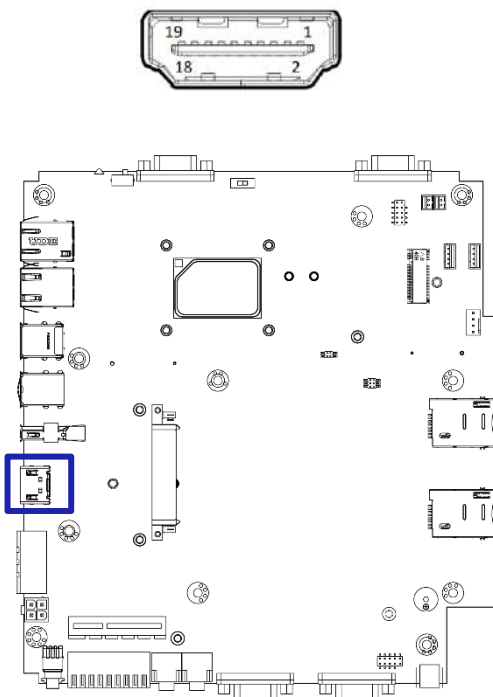
**DP1**



**Display Port**

| Pin | Signal   | Pin | Signal               |
|-----|----------|-----|----------------------|
| 1   | DP1_TXP0 | 11  | GND                  |
| 2   | GND      | 12  | DP1_TXN3             |
| 3   | DP1_TXN0 | 13  | DP1_CFG1             |
| 4   | DP1_TXP1 | 14  | GND                  |
| 5   | GND      | 15  | DP1_AUX+_HDMI_DDCCLK |
| 6   | DP1_TXN1 | 16  | GND                  |
| 7   | DP1_TXP2 | 17  | DP1_AUX-_HDMI_DDCDAT |
| 8   | GND      | 18  | DP1_HPD              |
| 9   | DP1_TXN2 | 19  | DP_PWR Return        |
| 10  | DP1_TXP3 | 20  | DP_PWR               |

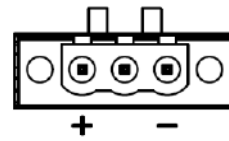
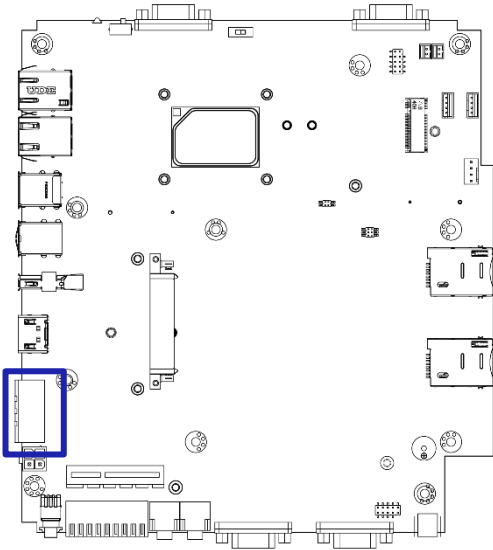
**HDMI1 (Optional)**



**High Definition Multimedia Interface**

| Pin | Signal      | Pin | Signal       |
|-----|-------------|-----|--------------|
| 1   | HDMI_TX2+_C | 11  | GND          |
| 2   | GND         | 12  | HDMI_TXC-_C  |
| 3   | HDMI_TX2-_C | 13  | NC           |
| 4   | HDMI_TX1+_C | 14  | NC           |
| 5   | GND         | 15  | HDMI_SCL     |
| 6   | HDMI_TX1-_C | 16  | HDMI_SDA     |
| 7   | HDMI_TX0+_C | 17  | GND          |
| 8   | GND         | 18  | VCC5_HDMI    |
| 9   | HDMI_TX0-_C | 19  | HDMI_HPD_CON |
| 10  | HDMI_TXC+_C | 20  |              |

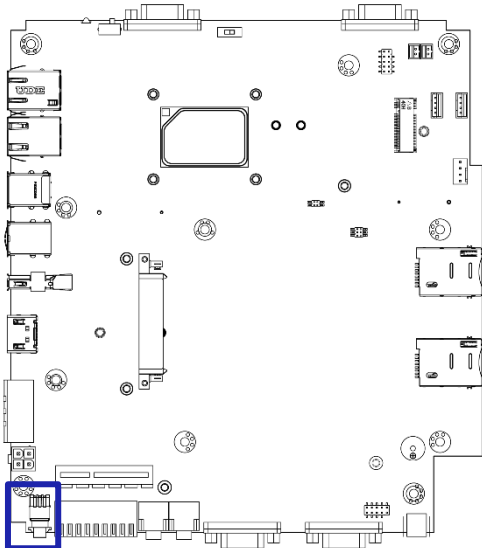
**DC\_IN1**



Power Input DC 9~36V

| Pin | Signal         |
|-----|----------------|
| 1   | Power 9-36V_IN |
| 2   | ACC Ignition   |
| 3   | GND_IN         |

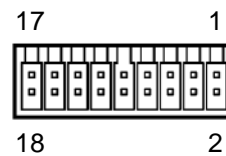
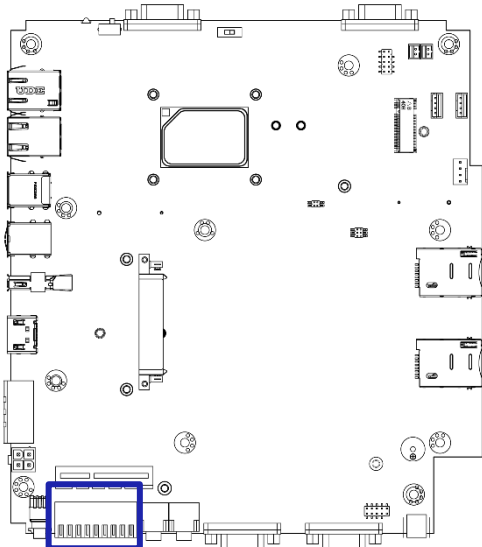
**PWR\_SW1**



Power Button

| Pin | Signal    |
|-----|-----------|
| 1   | NC        |
| 2   | PWRBT_IN# |
| 3   | NC        |
| 4   | GND       |
| 5   | NC        |
| 6   | GND       |

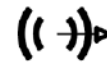
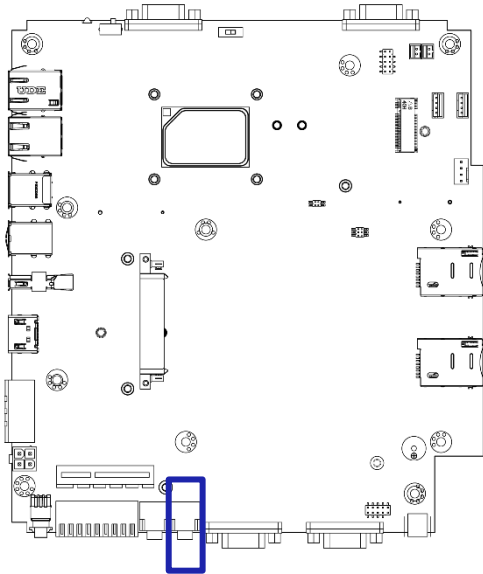
**DIO**



Digital I/O

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1   | IN1_1  | 2   | OUT1_1 |
| 3   | IN2_1  | 4   | OUT2_1 |
| 5   | IN3_1  | 6   | OUT3_1 |
| 7   | IN4_1  | 8   | OUT4_1 |
| 9   | IN5_1  | 10  | OUT5_1 |
| 11  | IN6_1  | 12  | OUT6_1 |
| 13  | IN7_1  | 14  | OUT7_1 |
| 15  | IN8_1  | 16  | OUT8_1 |
| 17  | XCOM+  | 18  | XCOM-  |

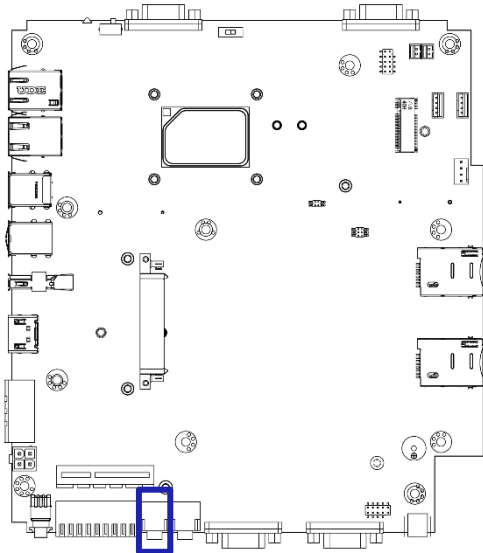
**LINE-OUT1**



Line-out Jack

| Pin | Signal        |
|-----|---------------|
| 1   | AGND          |
| 2   | LINEOUT_RIGHT |
| 3   | AGND          |
| 4   | AGND          |
| 5   | LINEOUT_LEFT  |

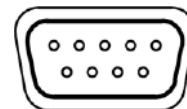
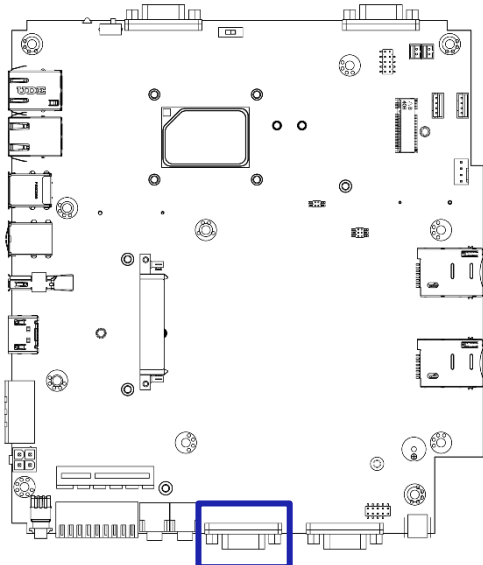
**MIC-IN1**



Mic-in Jack

| Pin | Signal   |
|-----|----------|
| 1   | AGND     |
| 2   | MIC_IN_R |
| 3   | AGND     |
| 4   | AGND     |
| 5   | MIC_IN_L |

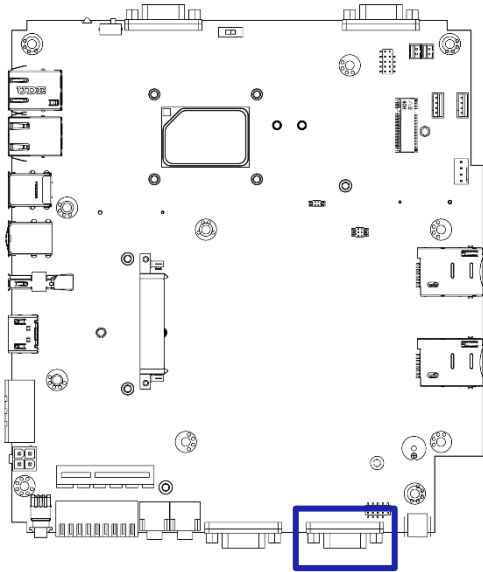
**COM1**



RS232 / RS422 / RS485 Connector

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1   | NDCD1  | 6   | NDSR1  |
| 2   | NRXD1  | 7   | NRTS1  |
| 3   | NTXD1  | 8   | NCTS1  |
| 4   | NDTR1  | 9   | NRI1   |
| 5   | GND    |     |        |

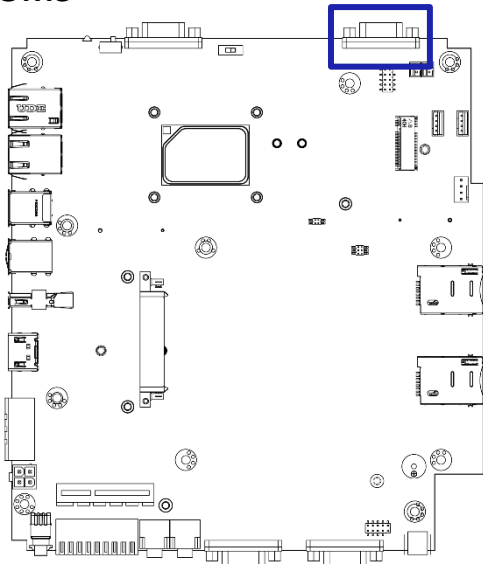
**COM2**



**RS232 / RS422 / RS485 Connector**

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1   | NDCD2  | 6   | NDSR2  |
| 2   | NRXD2  | 7   | NRTS2  |
| 3   | NTXD2  | 8   | NCTS2  |
| 4   | NDTR2  | 9   | NRI2   |
| 5   | GND    |     |        |

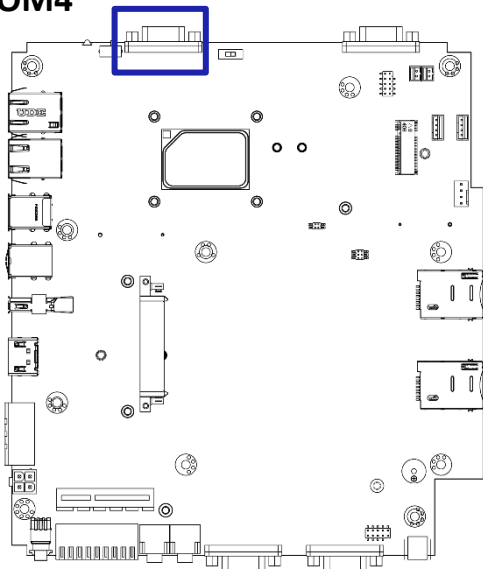
**COM3**



**RS232 / RS422 / RS485 Connector**

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1   | NDCD3  | 6   | NDSR3  |
| 2   | NRXD3  | 7   | NRTS3  |
| 3   | NTXD3  | 8   | NCTS3  |
| 4   | NDTR3  | 9   | NRI3   |
| 5   | GND    |     |        |

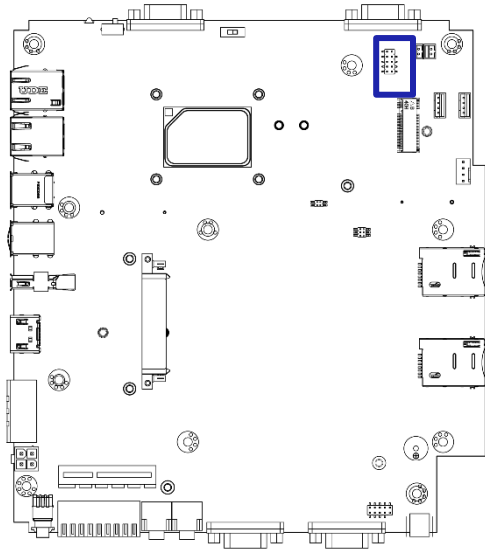
**COM4**



**RS232 / RS422 / RS485 Connector**

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1   | NDCD4  | 6   | NDSR4  |
| 2   | NRXD4  | 7   | NRTS4  |
| 3   | NTXD4  | 8   | NCTS4  |
| 4   | NDTR4  | 9   | NRI4   |
| 5   | GND    |     |        |

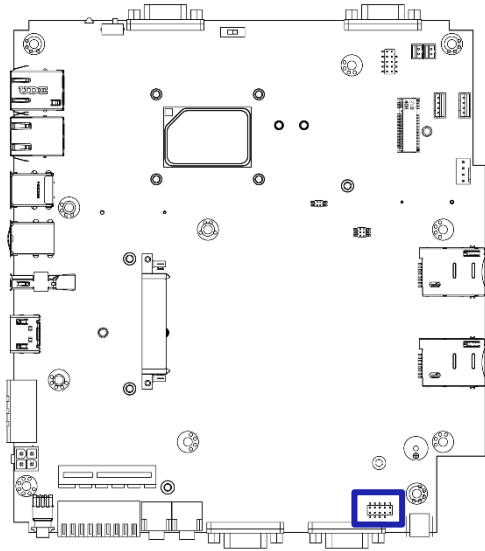
**COM5**



RS232 / RS422 / RS485 Connector

| Pin | Signal  | Pin | Signal  |
|-----|---------|-----|---------|
| 1   | CM5_DCD | 6   | CM5_CTS |
| 2   | CM5_DSR | 7   | CM5_DTR |
| 3   | CM5_RXD | 8   | CM5_RI  |
| 4   | CM5_RTS | 9   | GND     |
| 5   | CM5_TXD |     |         |

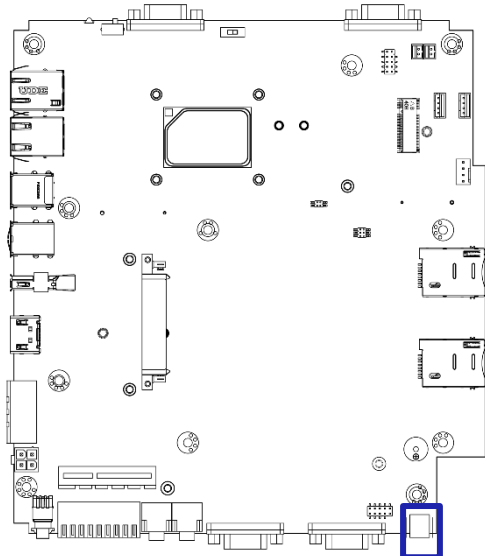
**COM6**



RS232 / RS422 / RS485 Connector

| Pin | Signal  | Pin | Signal  |
|-----|---------|-----|---------|
| 1   | CM6_DCD | 6   | CM6_CTS |
| 2   | CM6_DSR | 7   | CM6_DTR |
| 3   | CM6_RXD | 8   | CM6_RI  |
| 4   | CM6_RTS | 9   | GND     |
| 5   | CM6_TXD |     |         |

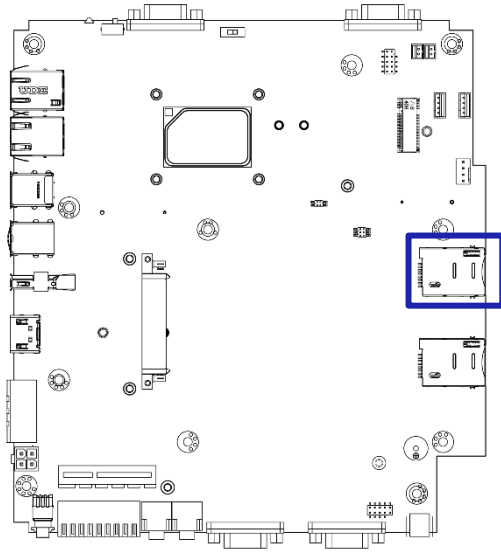
**PWR\_SW2**



Remote Power Switch

| Pin | Signal    |
|-----|-----------|
| 1   | PWRBT_IN# |
| 2   | GND       |

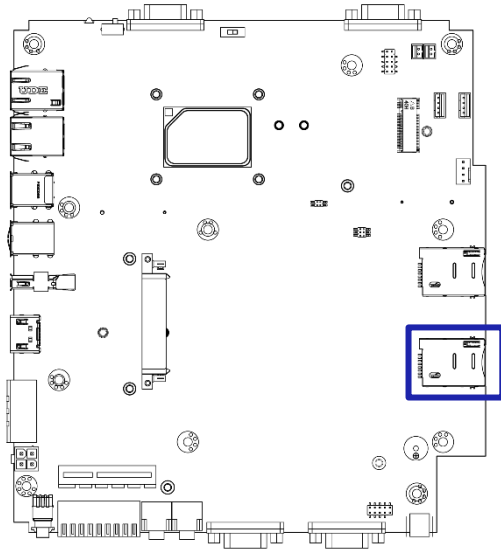
**SIM1**



**SIM Card Socket**

| Pin | Signal    | Pin | Signal     |
|-----|-----------|-----|------------|
| 1   | P_UIM_PWR | 5   | GND        |
| 2   | P_UIM_RST | 6   | P_UIM_VPP  |
| 3   | P_UIM_CLK | 7   | P_UIM_DATA |
| 4   | CD        | 8   | COM        |

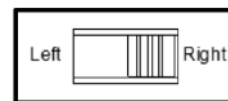
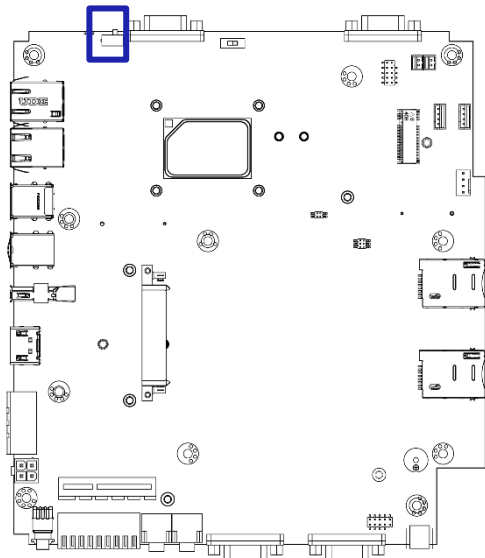
**SIM2**



**SIM Card Socket**

| Pin | Signal     | Pin | Signal      |
|-----|------------|-----|-------------|
| 1   | P1_UIM_VDD | 5   | GND         |
| 2   | P1_UIM_RST | 6   | P1_UIM_VPP  |
| 3   | P1_UIM_CLK | 7   | P1_UIM_DATA |
| 4   | P_UIM_CD   | 8   | COM         |

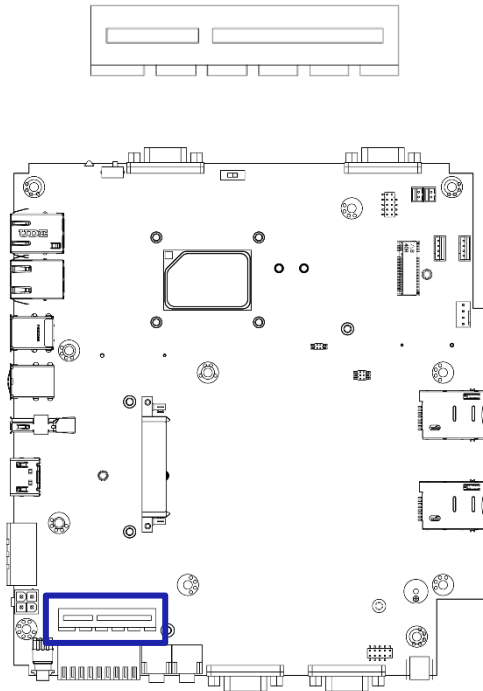
**ATX1**



**AT / ATX Power Mode Switch**

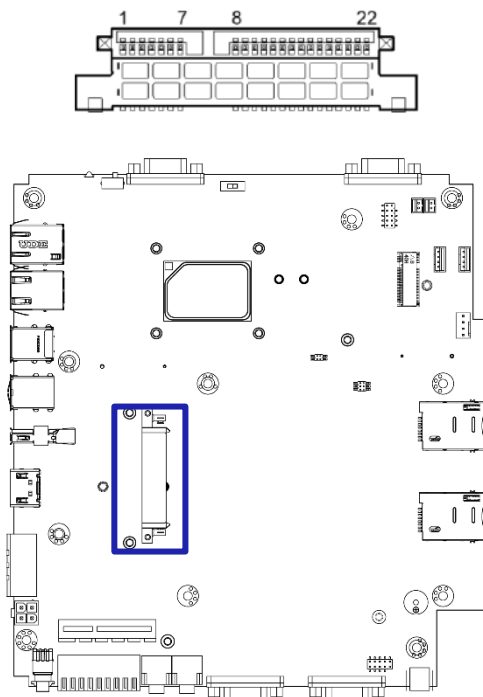
| Switch      | Signal         |
|-------------|----------------|
| 1-2 (Left)  | ATX Power Mode |
| 2-3 (Right) | AT Power Mode  |

**PCIe1**



| Pin         | Signal             | Pin         | Signal             |
|-------------|--------------------|-------------|--------------------|
| A1          | Pull down          | B1          | 12V                |
| A2          | 12V                | B2          | 12V                |
| A3          | 12V                | B3          | 12V                |
| A4          | GND                | B4          | GND                |
| A5          | NC                 | B5          | SMB_CLK            |
| A6          | NC                 | B6          | SMB_DATA           |
| A7          | NC                 | B7          | GND                |
| A8          | NC                 | B8          | 3.3V               |
| A9          | 3.3V               | B9          | NC                 |
| A10         | 3.3V               | B10         | 3.3V               |
| A11         | PCIEX4_RST#        | B11         | PCIEX4_WAKE_N      |
| A12         | GND                | B12         | NC                 |
| A13         | CLKOUT_PCIE_P0     | B13         | GND                |
| A14         | CLKOUT_PCIE_N0     | B14         | X4SLOT_PCIE_6_TX_P |
| A15         | GND                | B15         | X4SLOT_PCIE_6_TX_N |
| A16         | X4SLOT_PCIE_6_RX_P | B16         | GND                |
| A17         | X4SLOT_PCIE_6_RX_N | B17         | PCIEX4_PRSENT#     |
| A18         | GND                | B18         | GND                |
| A19-<br>A32 | NC                 | B19-<br>B32 | NC                 |

**SATA1**

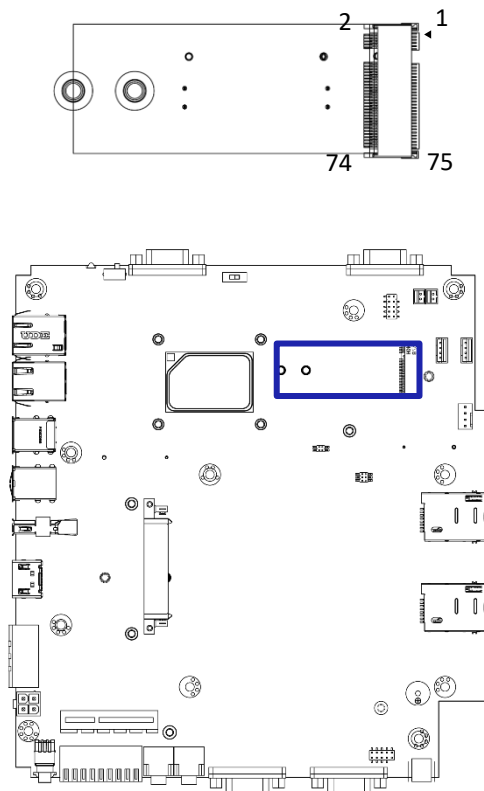


SATA with Power Connector

| Pin | Signal    | Pin | Signal    |
|-----|-----------|-----|-----------|
| 1   | GND       | 2   | SATA_TXP1 |
| 3   | SATA_TXN1 | 4   | GND       |
| 5   | SATA_RXN1 | 6   | SATA_RXP1 |
| 7   | SATA0_PD  | 8   | NC        |
| 9   | NC        | 10  | DEVS_LP   |
| 11  | GND       | 12  | GND       |
| 13  | GND       | 14  | 5V        |
| 15  | 5V        | 16  | 5V        |
| 17  | GND       | 18  | GND       |
| 19  | GND       | 20  | 12V       |
| 21  | 12V       | 22  | 12V       |



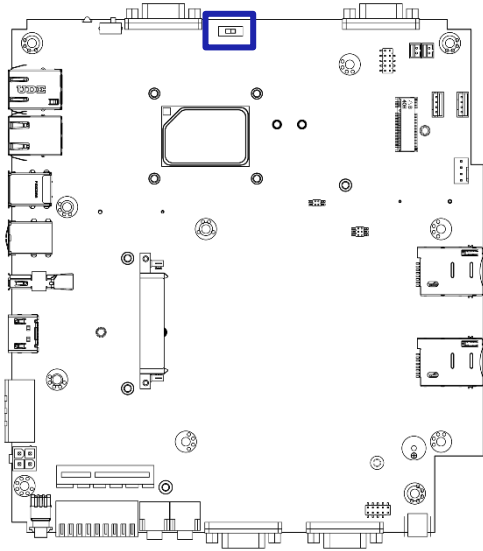
## M2\_KB



## M.2 B-Key Socket

| Pin | Signal           | Pin | Signal               |
|-----|------------------|-----|----------------------|
| 1   | CONFIG_3         | 2   | VCC1                 |
| 3   | GND              | 4   | VCC2                 |
| 5   | GND              | 6   | FULL_CARD_POWER_OFF# |
| 7   | USB_D+           | 8   | W_DISABLE1#          |
| 9   | USB_D-           | 10  | WWAN_LED#            |
| 11  | GND              | 12  | NOTCH                |
| 13  | NOTCH            | 14  | NOTCH                |
| 15  | NOTCH            | 16  | NOTCH                |
| 17  | NOTCH            | 18  | NOTCH                |
| 19  | NOTCH            | 20  | GPIO_5(O/1.8V)       |
| 21  | CONFIG_0         | 22  | GPIO_6(O/1.8V)       |
| 23  | GPIO_11(O/1.8V)  | 24  | GPIO_7(O/1.8V)       |
| 25  | DPR              | 26  | GPIO_10(O/1.8V)      |
| 27  | GND              | 28  | GPIO_8(O/1.8V)       |
| 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            |
| 37  | PETp1/USB3.0-Tx+ | 38  | DEVSLP (O)           |
| 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  | PCIE_WAKE_N          |
| 55  | PCIE_REFCLK_P    | 56  | N/C                  |
| 57  | GND              | 58  | N/C                  |
| 59  | ANTCTL0          | 60  | COEX3(O/1.8V)        |
| 61  | ANTCTL1          | 62  | COEX2(O/1.8V)        |
| 63  | ANTCTL2          | 64  | COEX1(O/1.8V)        |
| 65  | ANTCTL3          | 66  | USIM1_DET            |
| 67  | RESET_N          | 68  | SUSCLK(32kHz)        |
| 69  | CONFIG_1         | 70  | VCC3                 |
| 71  | GND              | 72  | VCC4                 |
| 73  | GND              | 74  | VCC5                 |
| 75  | CONFIG_2         | 76  |                      |

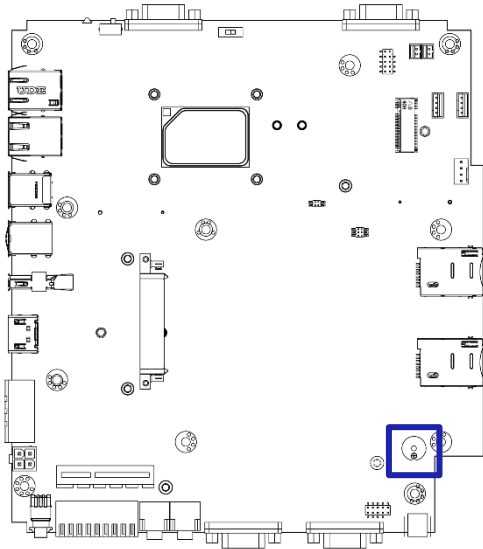
### CLR\_CMOS1



Clear BIOS Switch

| Switch | Signal     |
|--------|------------|
| On     | Clear CMOS |
| Off    | Default    |

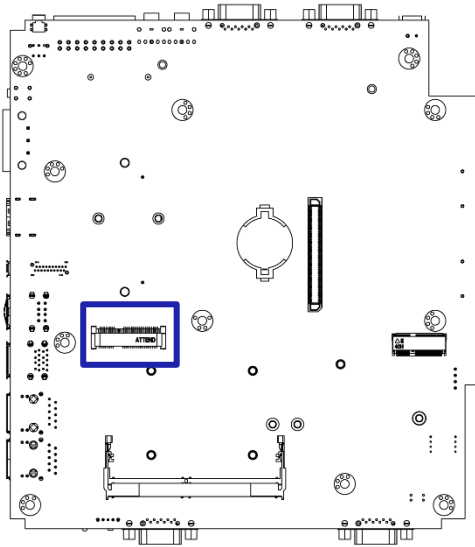
### BZ1



Buzzer

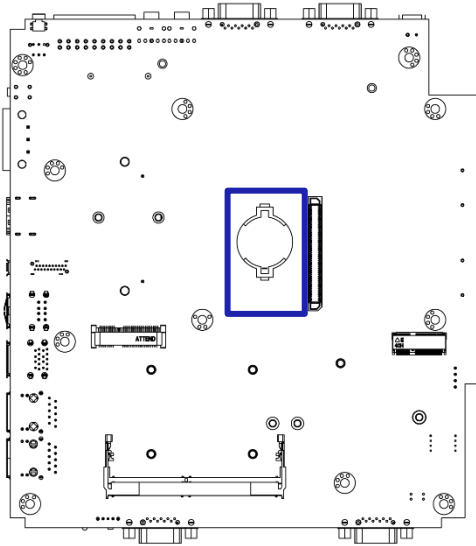
| Pin | Signal   |
|-----|----------|
| 1   | Positive |
| 2   | Negative |

## MPCIE1



| Pin | Signal   | Pin | Signal    |
|-----|----------|-----|-----------|
| 1   | WAKE#    | 2   | +3.3V     |
| 3   | Reserved | 4   | GND       |
| 5   | Reserved | 6   | +1.5V     |
| 7   | CLKREQ#  | 8   | UIM_PWR   |
| 9   | GND      | 10  | UIM_DATA  |
| 11  | REFCLK-  | 12  | UIM_CLK   |
| 13  | REFCLK+  | 14  | UIM_RESET |
| 15  | GND      | 16  | UIM_VPP   |
| 17  | Reserved | 18  | GND       |
| 19  | Reserved | 20  | Reserved  |
| 21  | GND      | 22  | PERST#    |
| 23  | PERn0    | 24  | +3.3Vaux  |
| 25  | PERp0    | 26  | GND       |
| 27  | GND      | 28  | +1.5V     |
| 29  | GND      | 30  | SMB_CLK   |
| 31  | PETn0    | 32  | SMB_DATA  |
| 33  | PETp0    | 34  | GND       |
| 35  | GND      | 36  | USB_D-    |
| 37  | Reserved | 38  | USB_D+    |
| 39  | Reserved | 40  | GND       |
| 41  | Reserved | 42  | LED_WWAN# |
| 43  | Reserved | 44  | LED_WLAN# |
| 45  | Reserved | 46  | LED_WPAN# |
| 47  | Reserved | 48  | +1.5V     |
| 49  | Reserved | 50  | GND       |
| 51  | Reserved | 52  | +3.3V     |
| 53  | GND      | 54  | GND       |

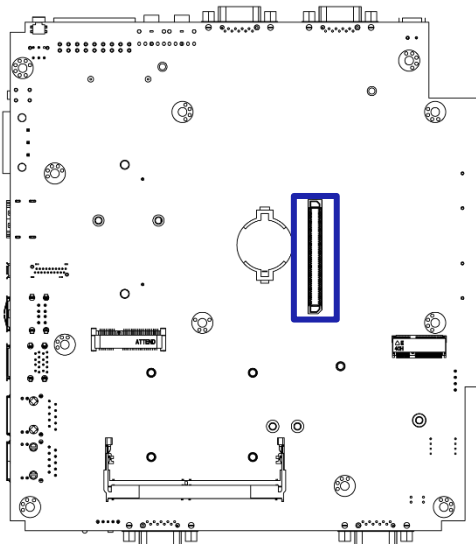
### BAT1



### Battery

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

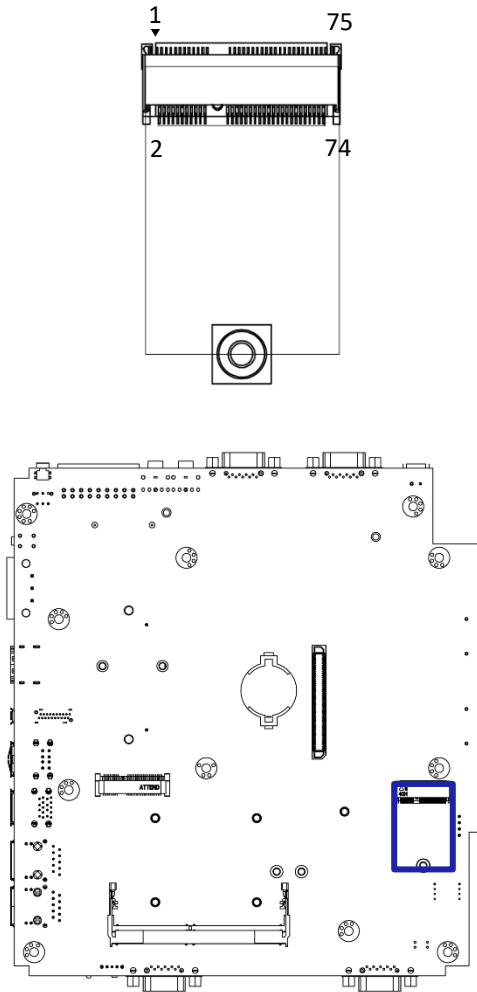
### SIG\_OUT1



### VIO Display Module Connector

| Pin | Signal  | Pin | Signal    |
|-----|---------|-----|-----------|
| 1   | PE1_TX+ | 26  | PE3_RX-   |
| 2   | PE1_TX- | 27  | GND       |
| 3   | GND     | 28  | GND       |
| 4   | GND     | 29  | PE4_TX+   |
| 5   | PE1_RX+ | 30  | PE4_TX-   |
| 6   | PE1_RX- | 31  | GND       |
| 7   | GND     | 32  | GND       |
| 8   | GND     | 33  | PE4_RX+   |
| 9   | PE2_TX+ | 34  | PE4_RX-   |
| 10  | PE2_TX- | 35  | GND       |
| 11  | GND     | 36  | USB_OP    |
| 12  | GND     | 37  | USB_ON    |
| 13  | PE2_RX+ | 38  | Power_BTN |

## M2\_KE



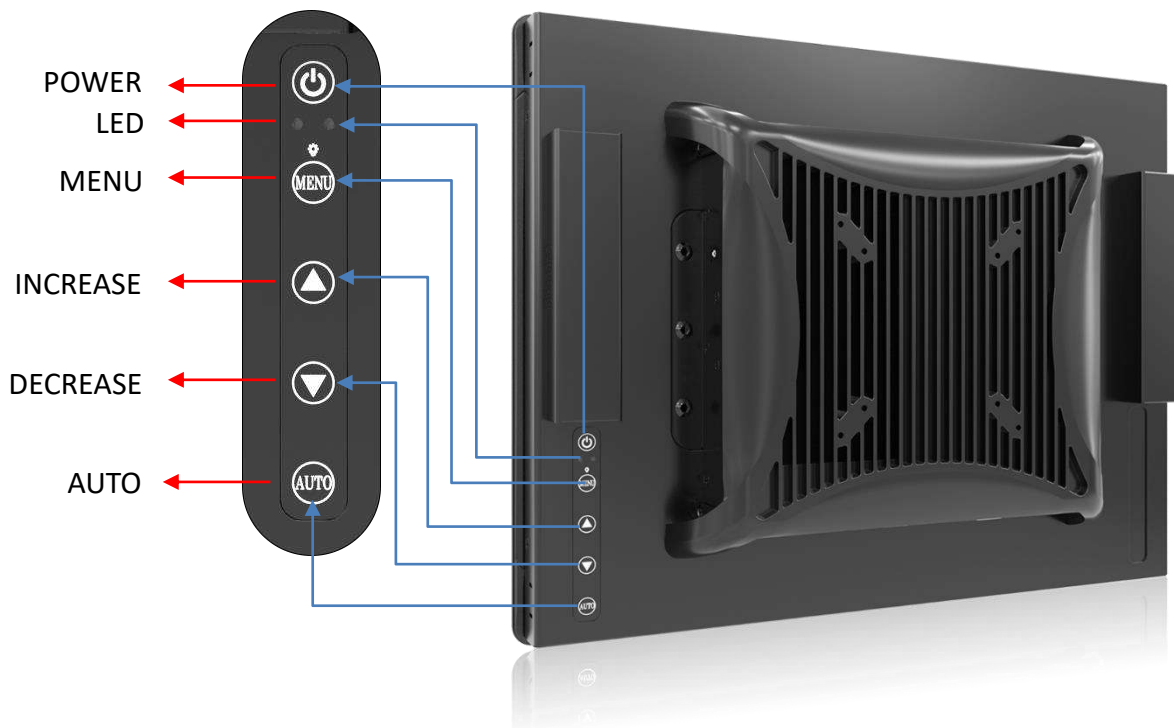
## M.2 E Key Socket

| Pin | Signal         | Pin | Signal        |
|-----|----------------|-----|---------------|
| 1   | GND            | 2   | +V3.3A        |
| 3   | USB_D+         | 4   | +V3.3A        |
| 5   | USB_D-         | 6   | NC            |
| 7   | GND            | 8   | NC            |
| 9   | NC             | 10  | NC            |
| 11  | NC             | 12  | NC            |
| 13  | NC             | 14  | NC            |
| 15  | NC             | 16  | NC            |
| 17  | NC             | 18  | GND           |
| 19  | NC             | 20  | NC            |
| 21  | NC             | 22  | NC            |
| 23  | NC             | 24  | NOTCH         |
| 25  | NOTCH          | 26  | NOTCH         |
| 27  | NOTCH          | 28  | NOTCH         |
| 29  | NOTCH          | 30  | NOTCH         |
| 31  | NOTCH          | 32  | NC            |
| 33  | NOTCH          | 34  | NC            |
| 35  | PCIE_1_TX_DP   | 36  | NC            |
| 37  | PCIE_1_TX_DN   | 38  | NC            |
| 39  | GND            | 40  | NC            |
| 41  | PCIE_1_RX_DP   | 42  | NC            |
| 43  | PCIE_1_RX_DN   | 44  | NC            |
| 45  | GND            | 46  | NC            |
| 47  | CLKOUT_PCIE_P1 | 48  | NC            |
| 49  | CLKOUT_PCIE_N1 | 50  | NC            |
| 51  | GND            | 52  | M.2_E_RST#    |
| 53  | SRCCLKREQ1_N   | 54  | NC            |
| 55  | M.2_E_WAKE_L   | 56  | NC            |
| 57  | GND            | 58  | NC            |
| 59  | NC             | 60  | NC            |
| 61  | NC             | 62  | NC            |
| 63  | GND            | 64  | NC            |
| 65  | NC             | 66  | M.2_E_RST#    |
| 67  | NC             | 68  | NC            |
| 69  | GND            | 70  | M.2_E1_WAKE_L |
| 71  | NC             | 72  | +V3.3A        |
| 73  | NC             | 74  | +V3.3A        |
| 75  | GND            | 76  |               |

## Chapter 3

# Front Panel Controls

## 3.1 Users Controls



- Power Button**  
 Turns the monitor on or off.
  
- LED**
  1. Blue indicates power on.
  2. Yellow indicates HDD access status.
  
- MENU / Enter Button**  
 Press to view the OSD menu. Press it again to enter a selection in the OSD menu.
  
- Increase Button**
  1. Activates the Volume control menu, and increases volume (with audio option).
  2. Scrolls the OSD menu upward.
  3. Increases the value of a selected function.
  
- Decrease Button**
  1. Activates the Volume control menu, and decreases volume (with audio option).
  2. Scrolls the OSD menu downward.
  3. Decreases the value of a selected function.
  
- AUTO / Exit Button**
  1. When the OSD menu is active, press this button to exit the OSD menu.
  2. When the OSD menu is inactive, press this button for two seconds to activate the Auto Adjustment function and the monitor will automatically optimize the display position, focus, and clock of your display.

## 3.2 OSD Operation



### 3.2.1 Luminance



- **Brightness**  
Adjust the luminance level of the screen.
- **Contrast**  
Adjusts the contrast level of the screen.
- **Gamma**  
This item allows you to on or off the Gamma function.
- **SuperResolution**  
This setting allows you to select options for the SuperResolution. Select <Off> , <Weak>, <Median> or <Strong>.

### 3.2.2 Picture



- **Phase**  
Adjust the monitor internal signal phase.
- **Clock**  
Adjust the monitor internal sampling clock rate.
- **H. Position**  
Adjusts the position of the screen image left and right.
- **V. Position**  
Adjusts the position of the screen image up and down.



### 3.2.3 Color



#### ■ Color Temperature

6500K: Select the setting of screen color to be reddish white.

7500K: Select the setting of screen color to be bluish white.

9300K: Select the setting of screen color to be bluish white.

**sRGB:** Set the screen color to fit the sRGB standard color specification.

**User Define:** Individual adjustments for red (R), green (G), blue (B).

### 3.2.4 OSD Settings



#### ■ Horizontal

Changes the viewing position of the OSD menu to the left or right area of the screen.

#### ■ Vertical

Changes the viewing position of the OSD menu to the top or bottom area of the screen.

#### ■ Transparency

Adjust to view the background information through the OSD.

#### ■ OSD Time Out

Sets the time duration in seconds that the OSD is visible after the last button is pressed.

### 3.2.5 Setup



#### ■ Language

Selects the language in which the OSD menu is displayed. The factory default is English.

#### ■ Mute

Allows the user to turn the Mute On or Off.

#### ■ Input

When press Input Select change Input signal to D-SUB, DVI or DP.

#### ■ Reset

Reset monitor parameters back to factory preset values.

## Chapter 4

# System Setup

## 4.1 Set torque force to 3.5 kgf-cm to execute all the screwing and unscrewing

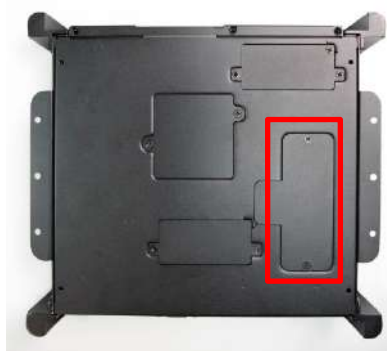


### WARNING

In order to prevent electric shock or system damage, before removing the chassis cover, must turn off power and disconnect the unit from power source.

## 4.2 Installing SODIMM

1. Remove the SODIMM cover in the below circled area.



2. Insert the memory card at a 45 degree angle.

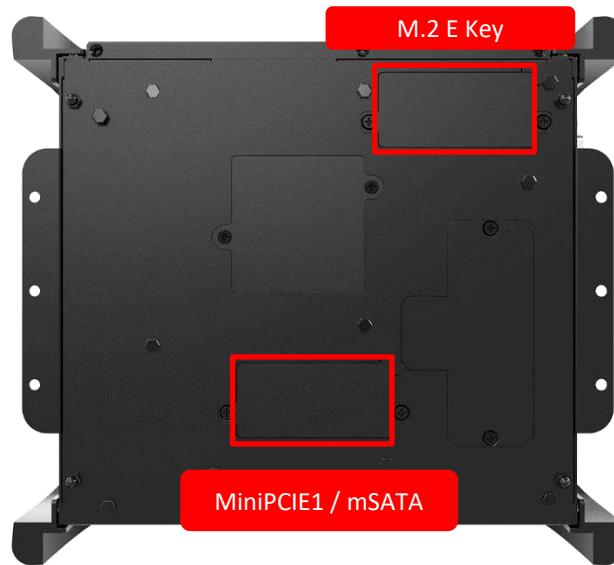


3. Press the memory card down until you hear a click. Ensure the memory card is secure before replacing the cover.



## 4.3 Installing mini PCIe card / mSATA / M.2 E Key.

1. Two mini PCIe slots with M.2 E Key Support is available on PC100 Series.



2. Insert mini PCIe card/mSATA module at a 45 degree angle.

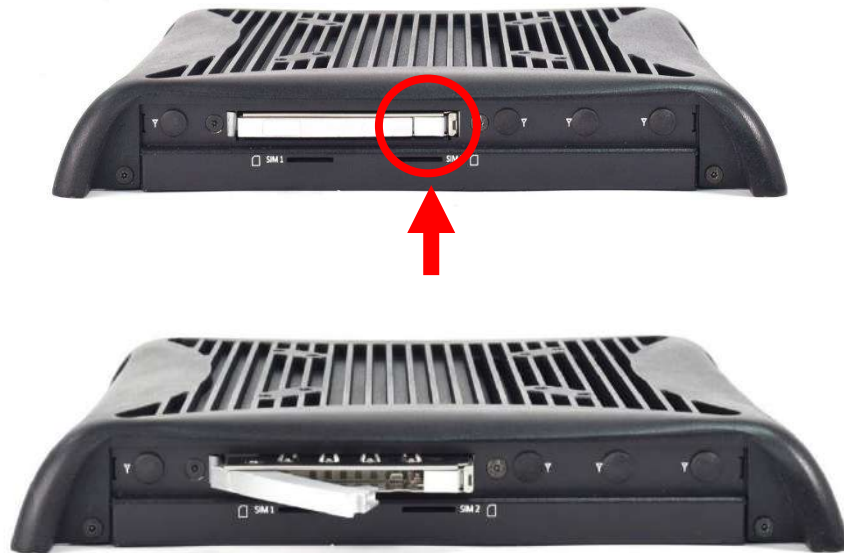


3. Press the mini PCIe card or mSATA module down and ensure it is secure before screwing the cover back on.

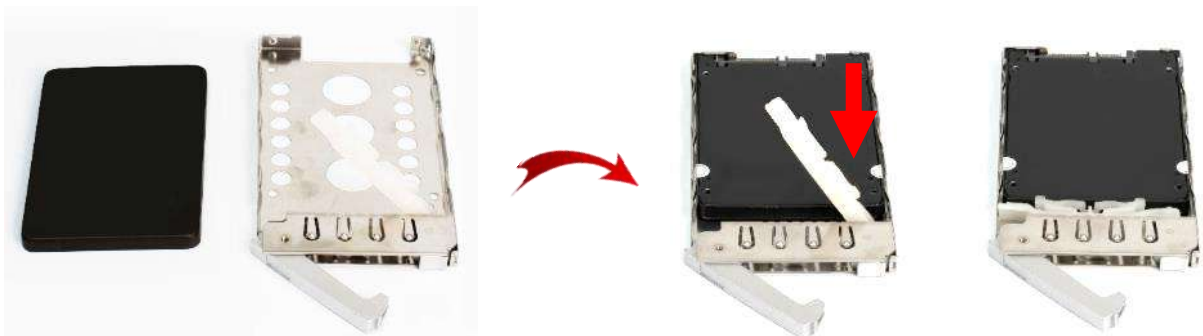


## 4.4 Installing HDD on removable STAT HDD bay

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 plastic insert up, then insert the HDD/SSD card.
3. Once the HDD/SSD card is inserted, push the plastic insert back down and to secure it.



4. Place the tray back into the bay and ensure the tray lock is secured.



## 4.5 Installing SIM card

1. There are two SIM card slots are available on system chassis located next to the removable HDD bay, as shown below.

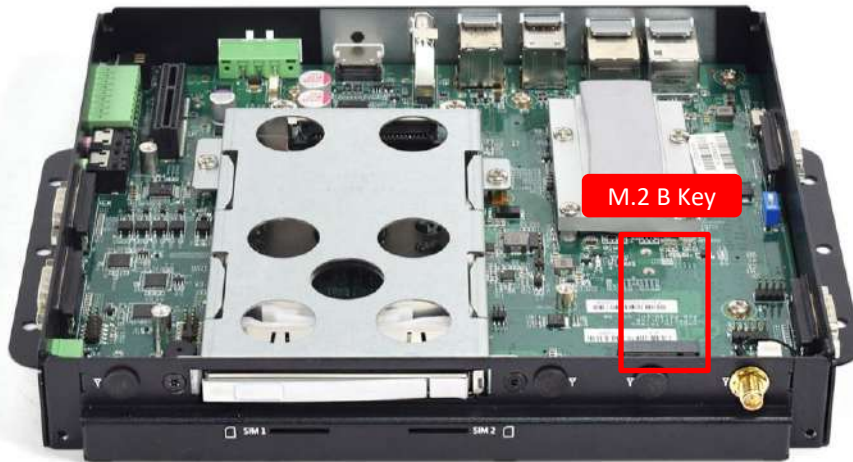


2. Place the SIM card inside the SIM slot until you hear a click.



- Please refer to the table below to note which SIM slot to insert your SIM card into according to the matching Mini PCIe type.

| SIM Card Socket Number | Matching Mini PCIe Slot |
|------------------------|-------------------------|
| SIM 1                  | M.2 B Key               |
| SIM 2                  | Mini PCIe / mSATA       |



- To remove the SIM card, push the SIM card into the slot and it will be released from the slot.



## 4.6 Removing chassis top cover

1. To remove the chassis top cover, there are 6 screws to be unscrewed at the locations highlighted by the red circles below.



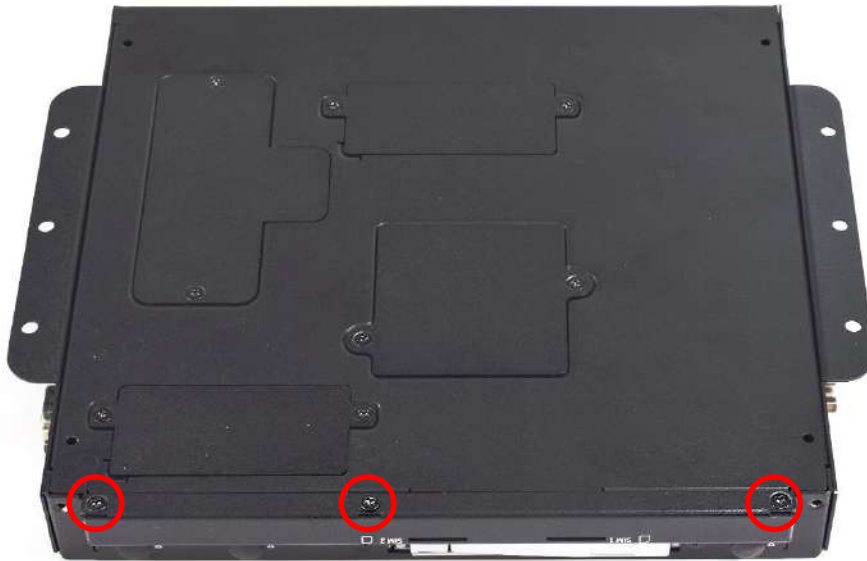
2. Once all six screws are removed, the chassis top cover can be lifted up as shown below.





## 4.7 Installing antenna

1. Remove 3 screws located at the back of the system as pictured below. The screw locations are highlighted in red.



2. Remove 4 screws located at the front and side face of the system as pictured below. The screw locations are highlighted in red.



3. Remove antenna hole cover on the system panel as indicated below.



4. Pass the RF connector at the end of the cable around the gap between the iron piece and the motherboard and connect it to the communication module.



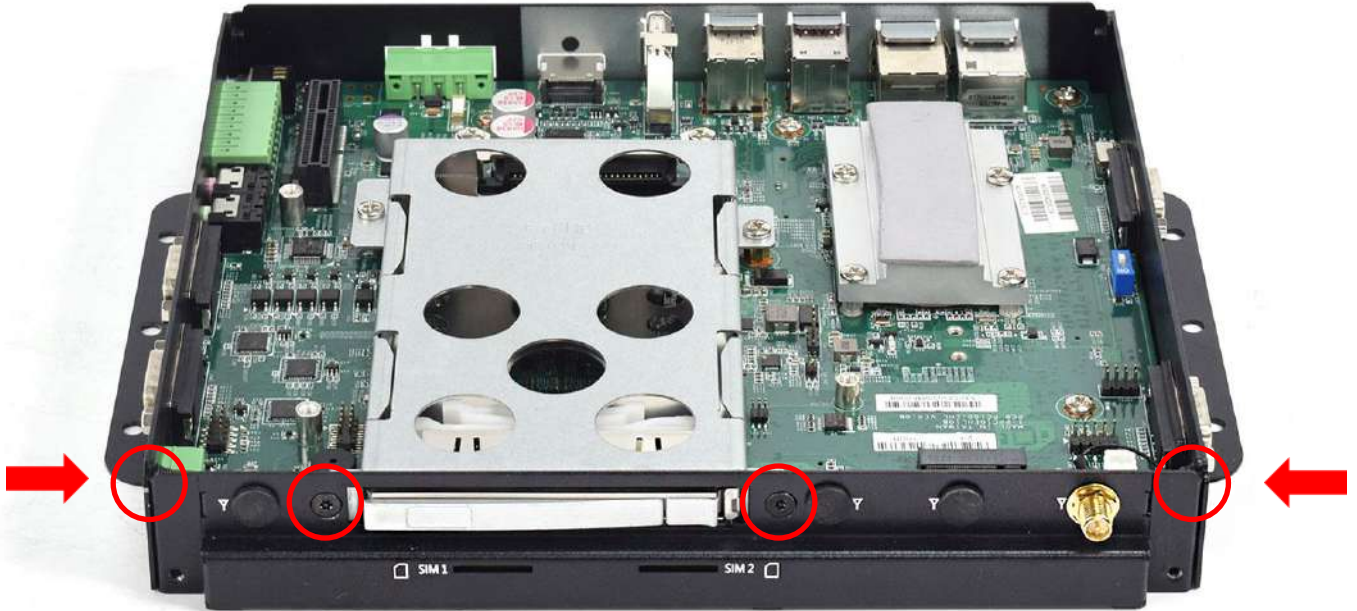
5. Put on washer and fasten the nut with antenna jack as indicated below.



6. Fasten the 5 screws at the locations indicated by the red circles.



7. Fasten the 4 screws located at the front and side face of the system as pictured below. The screw locations are highlighted in red.



8. Assemble the antenna and antenna jack together.



## 4.8 Assembling chassis top cover

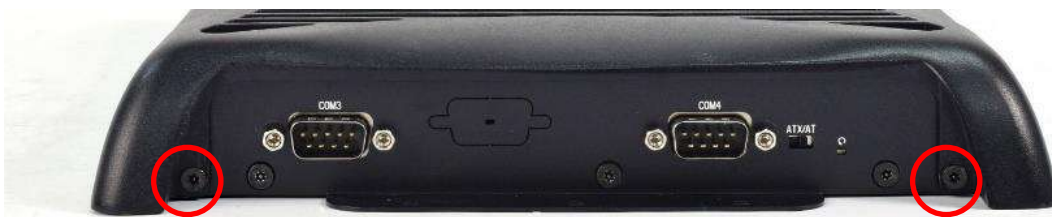
1. Ensure thermal pad is in place on the CPU thermal block.



2. Close the chassis top cover following the below direction and make sure the aluminum part on the top cover is touching the thermal pad on CPU thermal block.



3. Fasten the 6 screws to lock the system body with top cover. The locations are highlighted by the red circles below.



## 4.9 Connecting PC module with VIO display module

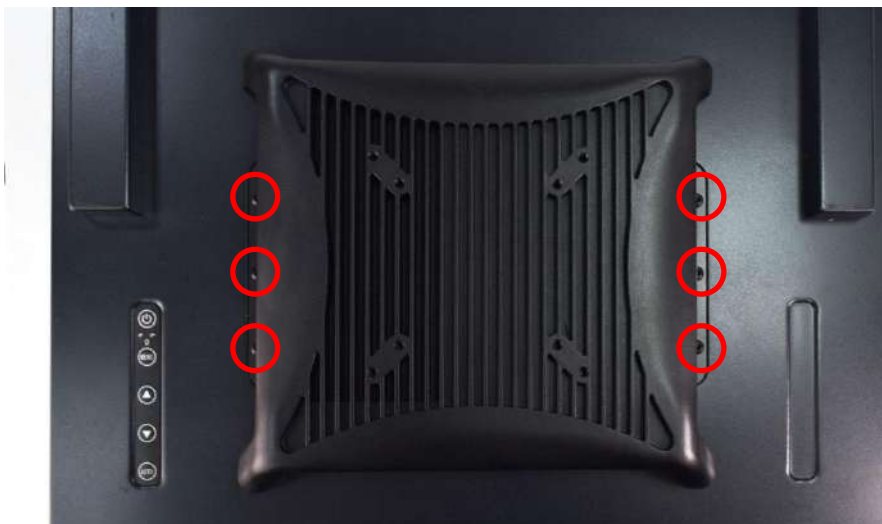
1. Place the PC module with its connector facing the back of VIO display module as shown in the picture below.



2. Ensure the PC Module is aligned with the VIO Display Module and push it down gently.



3. Screw the PC Module onto the Display Module at the locations highlighted below.



## 4.10 PC100-EHL-1E Installing PCIe expansion card

1. Unscrew the 6 screws indicated at the circles in the photos below.



2. Once unscrewed, remove the top cover of PC module as shown below.



3. Unscrew the 3 screws below indicated at the locations highlighted below.



4. Then, unscrew the screw indicated in the red circle below.



5. Attach the PCIe expansion card and then fasten the screw in the circle indicated below.





6. Install the PCIe/PCI card according to direction indicated in the picture below.



7. Ensure the gold fingers are inserted properly into the slot.



8. Fasten the 3 screws indicated at the locations in the red circles below.



9. Replace the chassis top cover and make sure the aluminum part on the top cover is touching the thermal pad on CPU thermal block.



10. Fasten the 6 screws indicated by the red circles in the pictures below.



# Chapter 5

## BIOS Setup

## 5.1 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

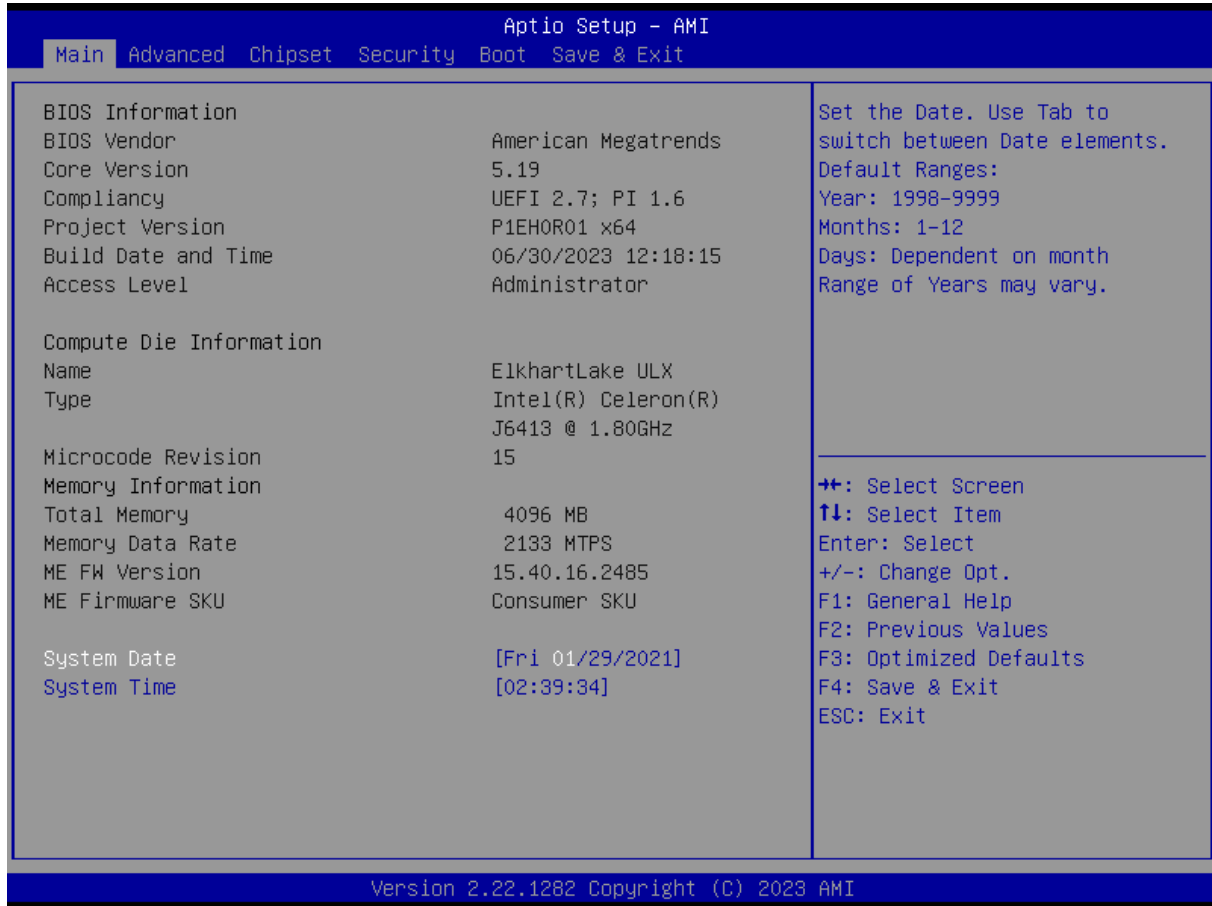
The main menu lists the setup functions you can make changes to. You can use the arrow keys ( ↑↓ ) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

### 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.

## 5.2 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.



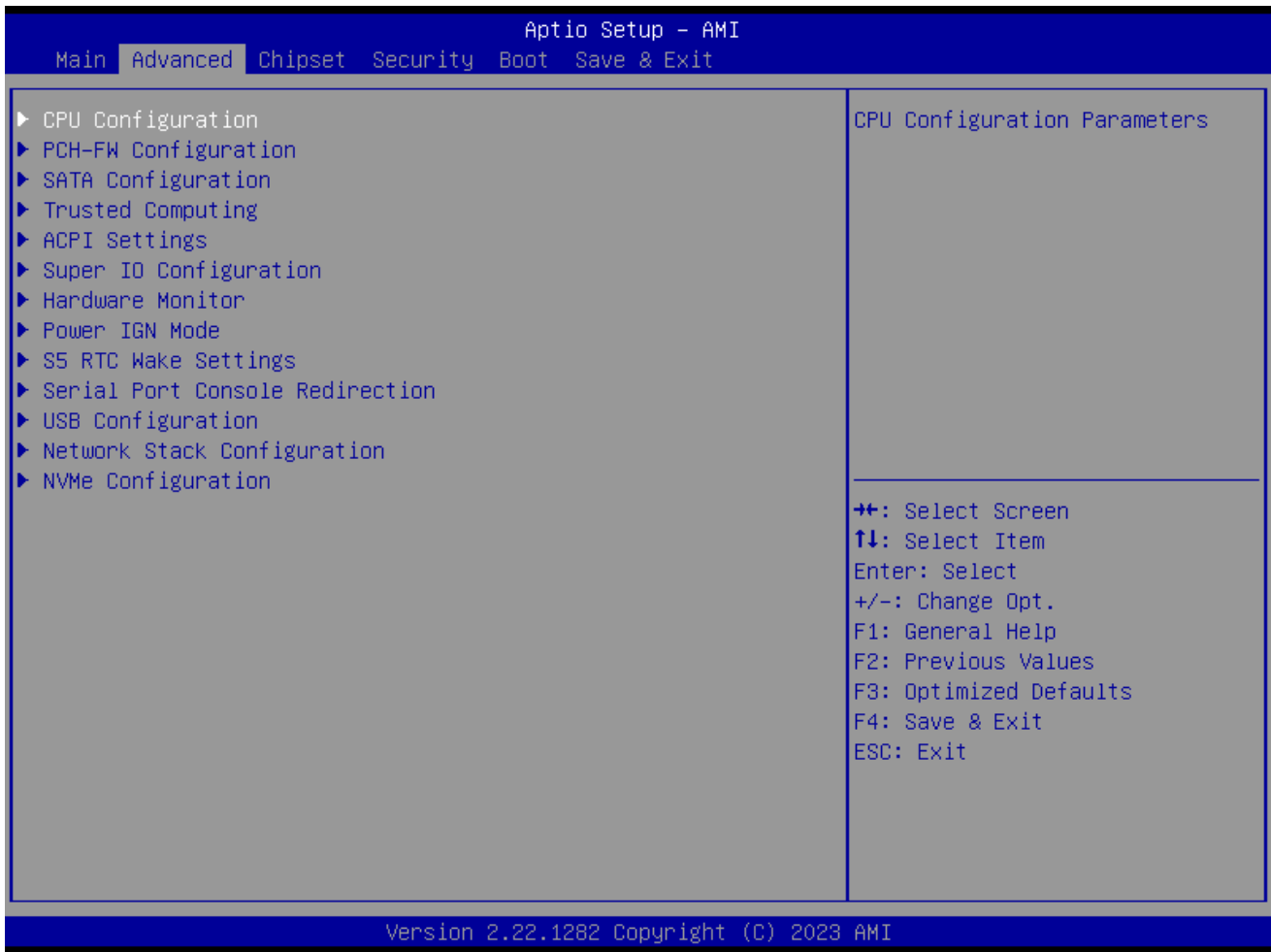
### ■ System Date

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.

## 5.3 Advanced Setup



### 5.3.1 CPU Configuration

Aptio Setup - AMI

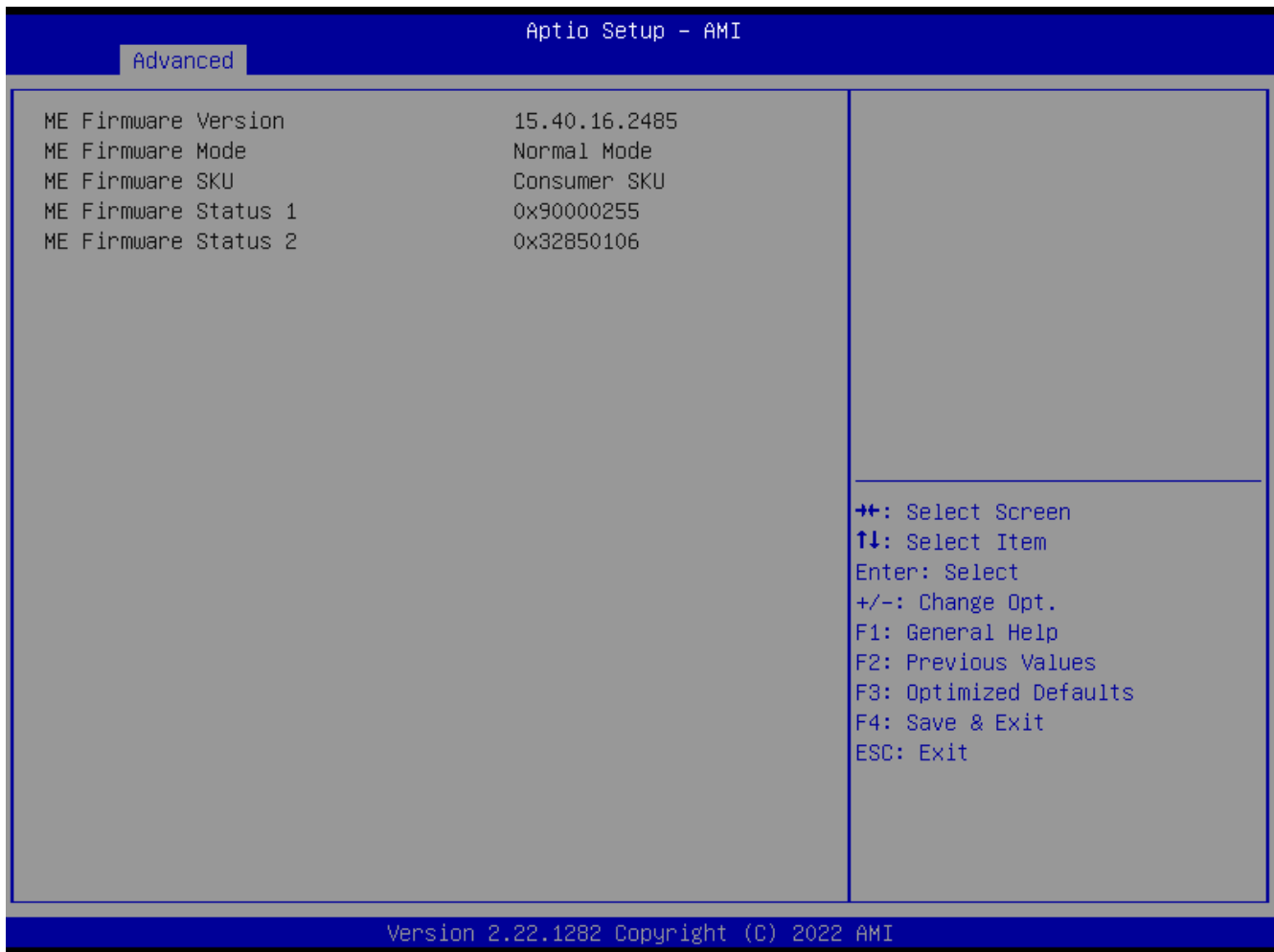
Advanced

|                                       |                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CPU Configuration                     |                                           | <p>When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.</p> <hr/> <p>           ++: Select Screen<br/>           ↑↓: Select Item<br/>           Enter: Select<br/>           +/-: Change Opt.<br/>           F1: General Help<br/>           F2: Previous Values<br/>           F3: Optimized Defaults<br/>           F4: Save &amp; Exit<br/>           ESC: Exit         </p> |
| Type                                  | Intel Atom(R) x6425RE Processor @ 1.90GHz |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| ID                                    | 0x90661                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Speed                                 | 1900 MHz                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| L1 Data Cache                         | 32 KB x 4                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| L1 Instruction Cache                  | 32 KB x 4                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| L2 Cache                              | 1536 KB x 4                               |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| L3 Cache                              | 4 MB                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| L4 Cache                              | N/A                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| VMX                                   | Supported                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| SMX/TXT                               | Not Supported                             |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Intel (VMX) Virtualization Technology | [Enabled]                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Active Processor Cores                | [All]                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| C states                              | [Enabled]                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                    |

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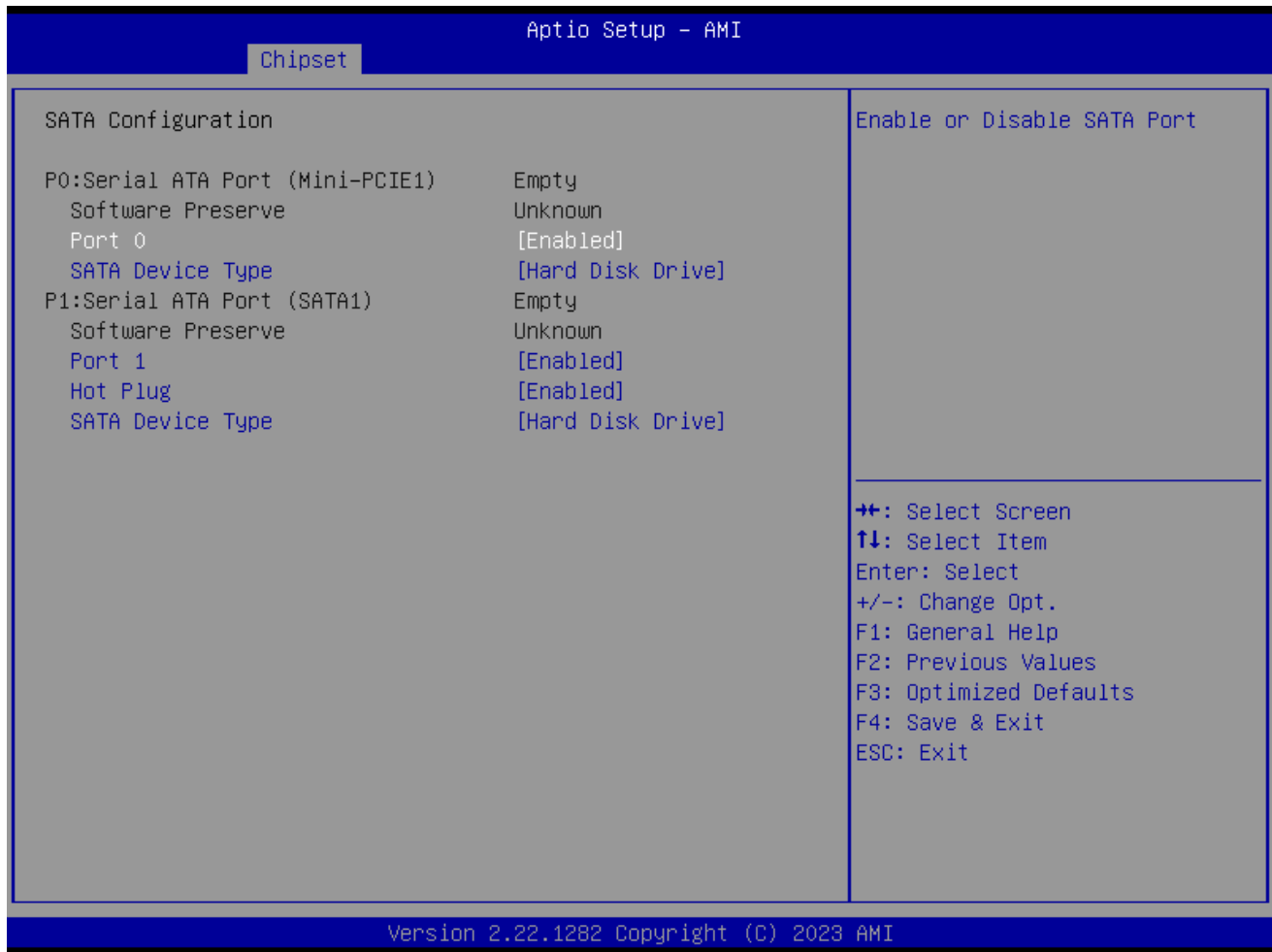
| Item                                         | Options                                | Description                                                                                                 |
|----------------------------------------------|----------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>Intel (VMX) Virtualization Technology</b> | Disabled,<br>Enabled[ <b>Default</b> ] | When enabled, a VMM can utilize the additional hardware capabilities provided by Virtualization Technology. |
| <b>Active Processor Cores</b>                | All[ <b>Default</b> ]<br>1<br>2<br>3   | Number of cores to enable in each processor package.                                                        |
| <b>C states</b>                              | Disabled,<br>Enabled[ <b>Default</b> ] | Enable/Disable CPU Power Management. Allows CPU to go to C states when it's not 100% utilized.              |

### 5.3.2 PCH-FW Configuration





### 5.3.3 SATA and RST Configuration



| Item             | Options                                     | Description                                                                  |
|------------------|---------------------------------------------|------------------------------------------------------------------------------|
| Port0 ~1         | Disabled, Enabled[Default]                  | Enable or Disable SATA Port.                                                 |
| Hot Plug         | Disabled, Enabled[Default]                  | Designates this port as Hot Pluggable.                                       |
| SATA Device Type | Hard Disk Drive[Default], Solid State Drive | Identify the SATA port is connected to Solid State Drive or Hard Disk Drive. |

### 5.3.4 Trusted Computing

Aptio Setup - AMI

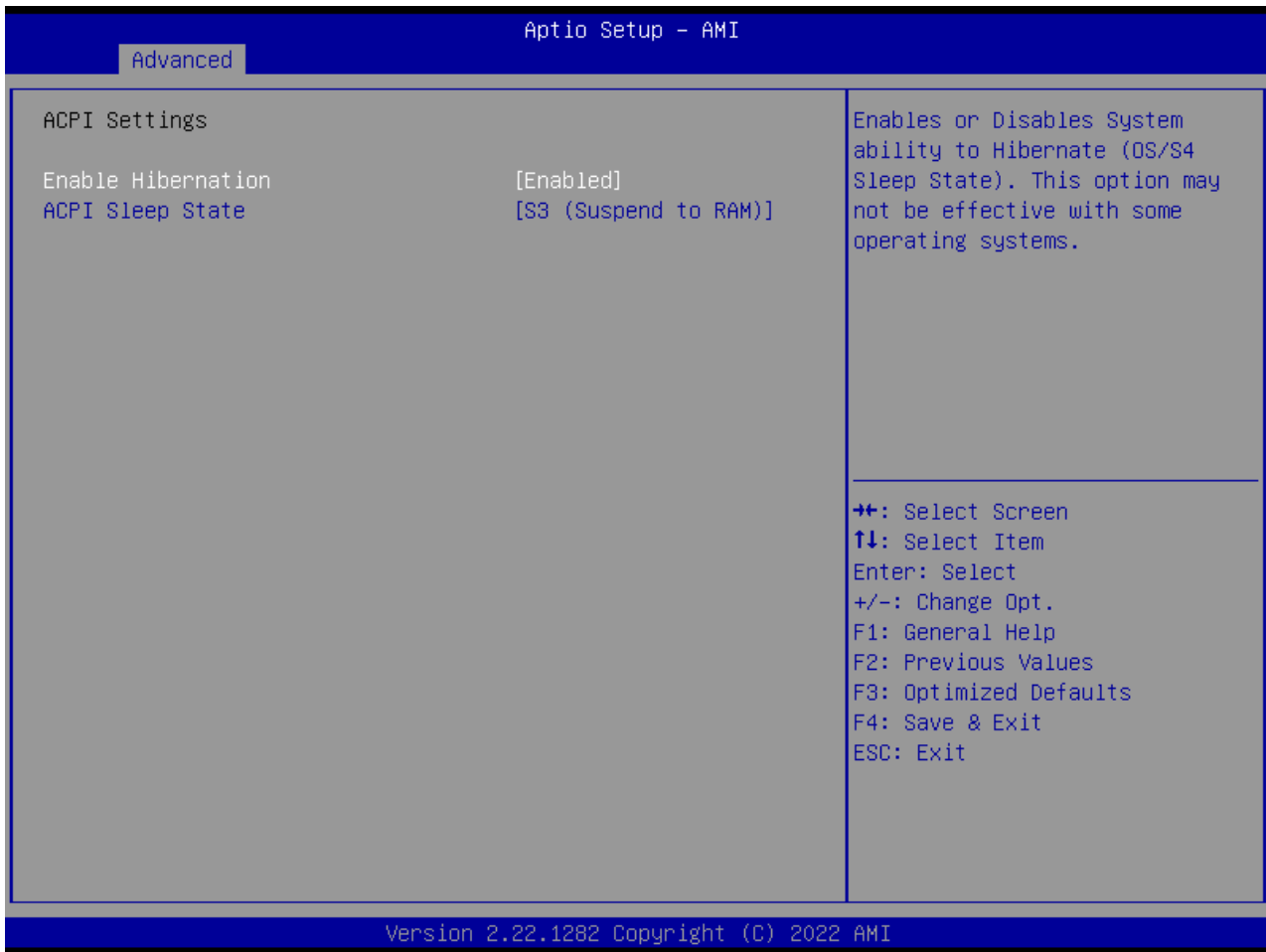
Advanced

|                                                                                                                                                                                                           |                                                                                                                                                              |                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>TPM 2.0 Device Found<br/>Firmware Version: 7.85<br/>Vendor: IFX</p> <p>Security Device Support [Enable]<br/>Active PCR banks SHA256<br/>Available PCR banks SHA256</p> <p>Pending operation [None]</p> | <p>Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.</p> | <p>⇧⇧: Select Screen<br/>⇧⇩: Select Item<br/>Enter: Select<br/>+/-: Change Opt.<br/>F1: General Help<br/>F2: Previous Values<br/>F3: Optimized Defaults<br/>F4: Save &amp; Exit<br/>ESC: Exit</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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| Item                           | Options                     | Description                                                                                                                                     |
|--------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Security Device Support</b> | Enabled[Default], Disabled, | 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[Default], TPM Clear    | Schedule an Operation for the Security Device. NOTE: Your Computer will reboot during restart in order to change State of Security Device.      |

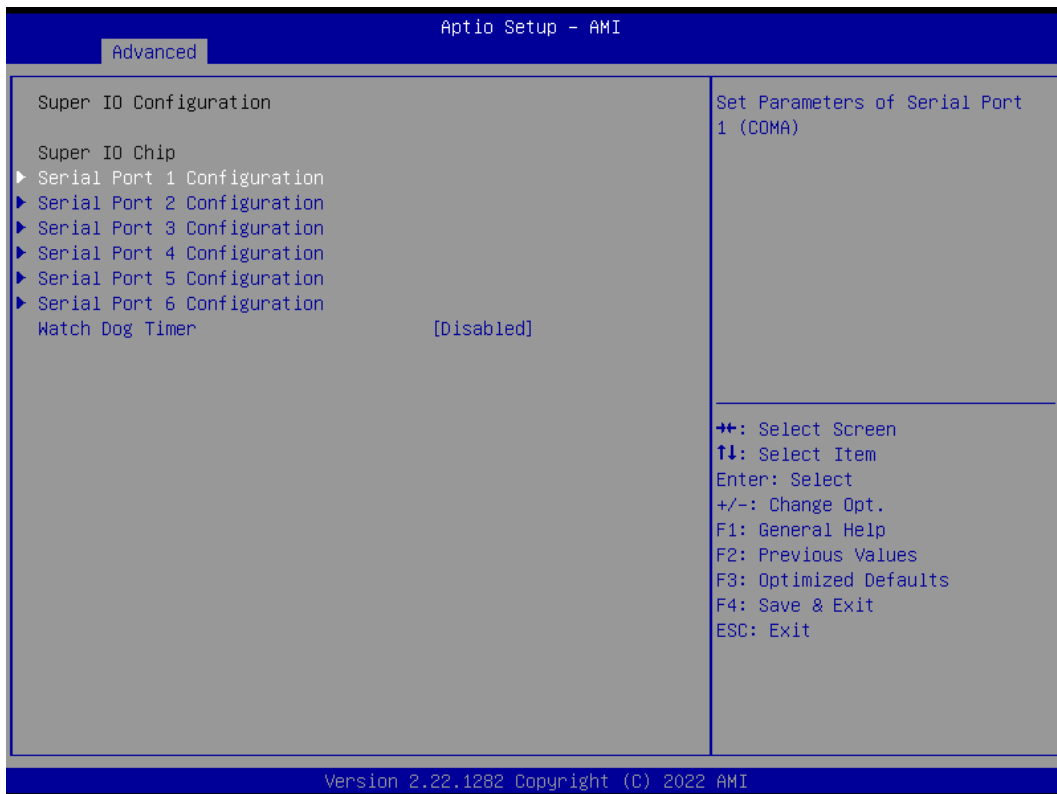
### 5.3.5 ACPI Settings



| Item                      | Options                                                   | Description                                                                                                                        |
|---------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <b>Enable Hibernation</b> | Disabled ,<br>Enabled <b>[Default]</b> ,                  | Enables or Disables System ability to Hibernate (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.                                      |

### 5.3.6 Super IO Configuration

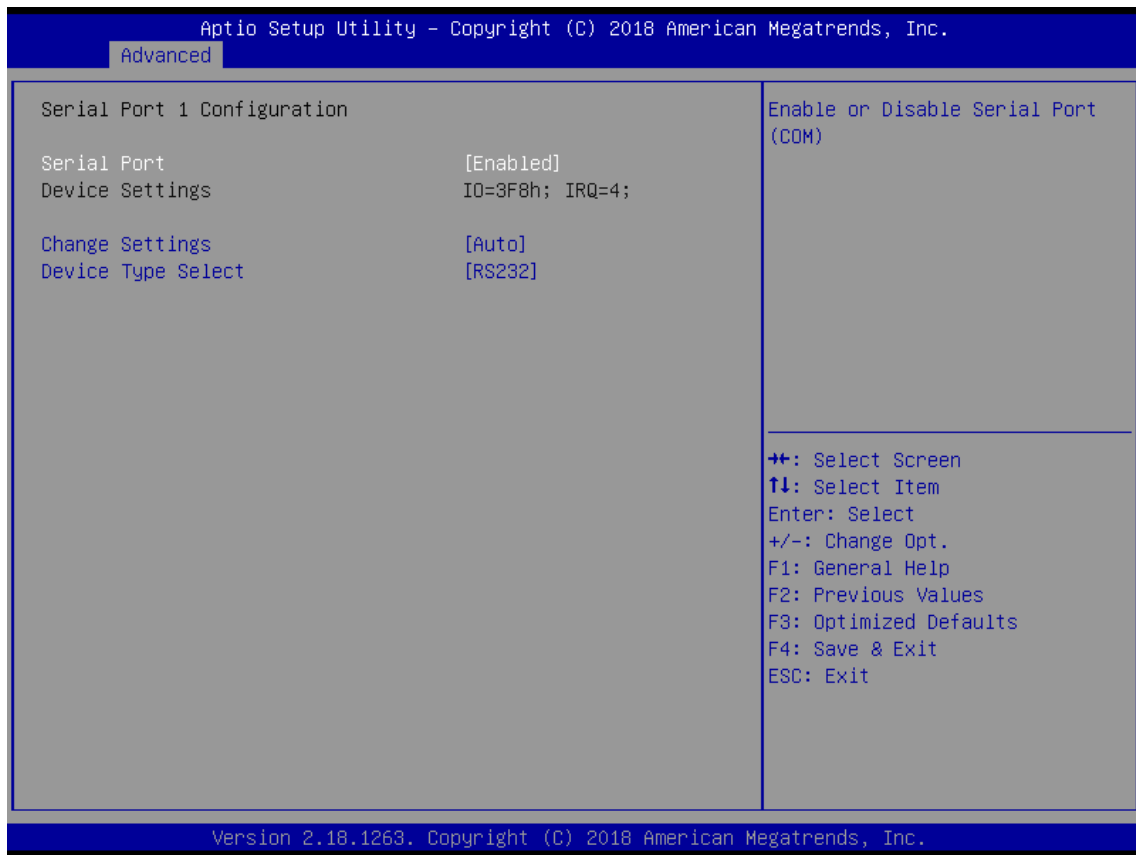
This setting allows you to select options for the Super IO Configuration, and change the value of the selected option.



| Item                               | Description                             |
|------------------------------------|-----------------------------------------|
| <b>Serial Port 1 Configuration</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</b> | Set Parameters of Serial Port 6 (COMF). |

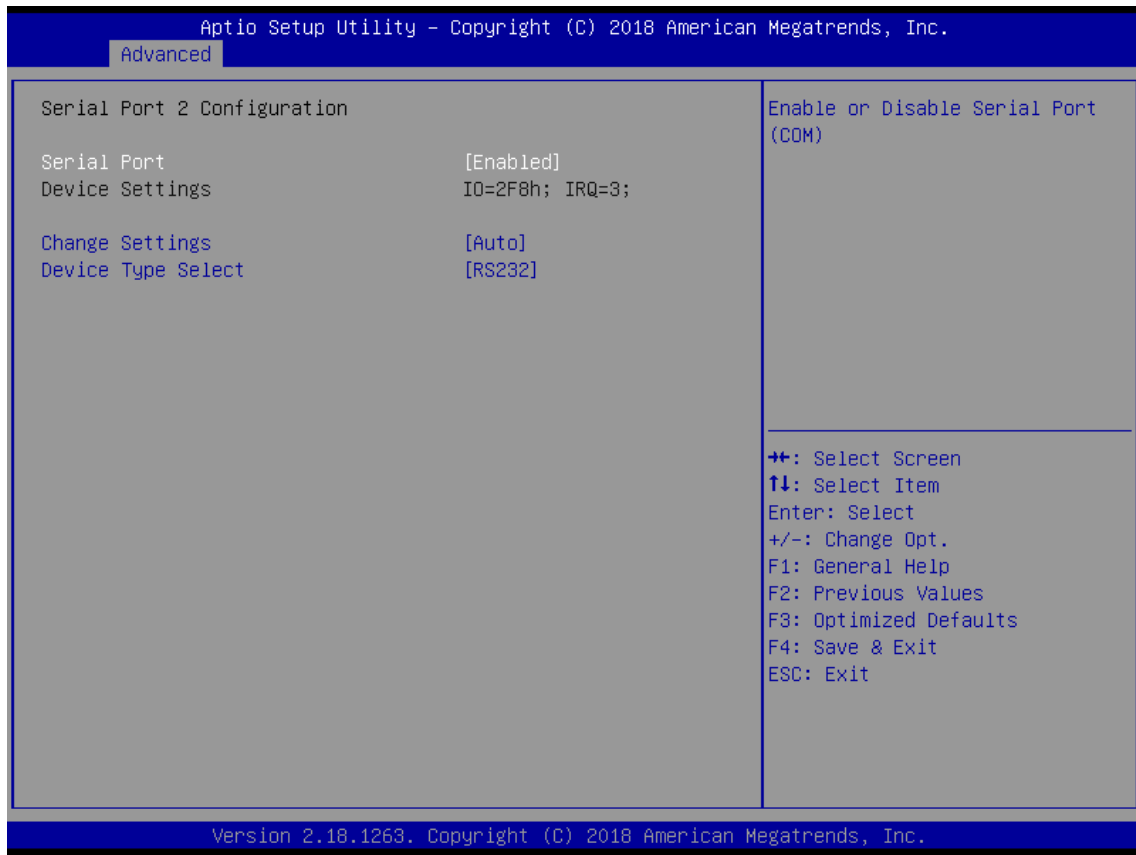
| Item                                  | Options                                            | Description                                   |
|---------------------------------------|----------------------------------------------------|-----------------------------------------------|
| <b>Watch Dog 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



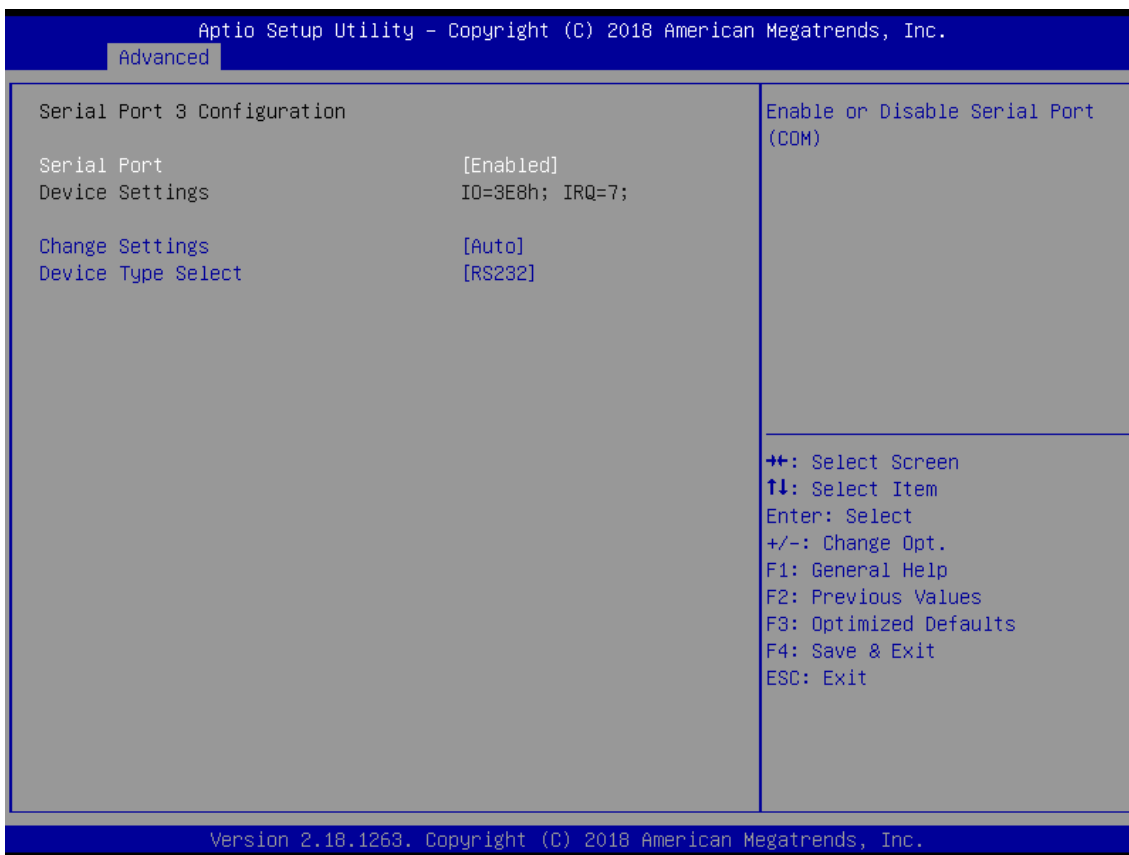
| Item                             | Options                                                                                                                                                                                     | Description                                                                             |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <b>Serial Port</b>               | Disabled, Enabled[ <b>Default</b> ]                                                                                                                                                         | Enable or Disable Serial Port (COM).                                                    |
| <b>Change Settings</b>           | Auto[ <b>Default</b> ], IO=3F8h; IRQ=4; , IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12; , IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12; , IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12; , 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> ], UART 422, UART 485                                                                                                                                              | Set the Serial Port to RS232 & RS422 & RS485                                            |
| <b>RS-485 Auto Flow Function</b> | Disabled, Enabled[ <b>Default</b> ]                                                                                                                                                         | Enabled/Disabled RS485 Autoflow Function                                                |

## Serial Port 2 Configuration



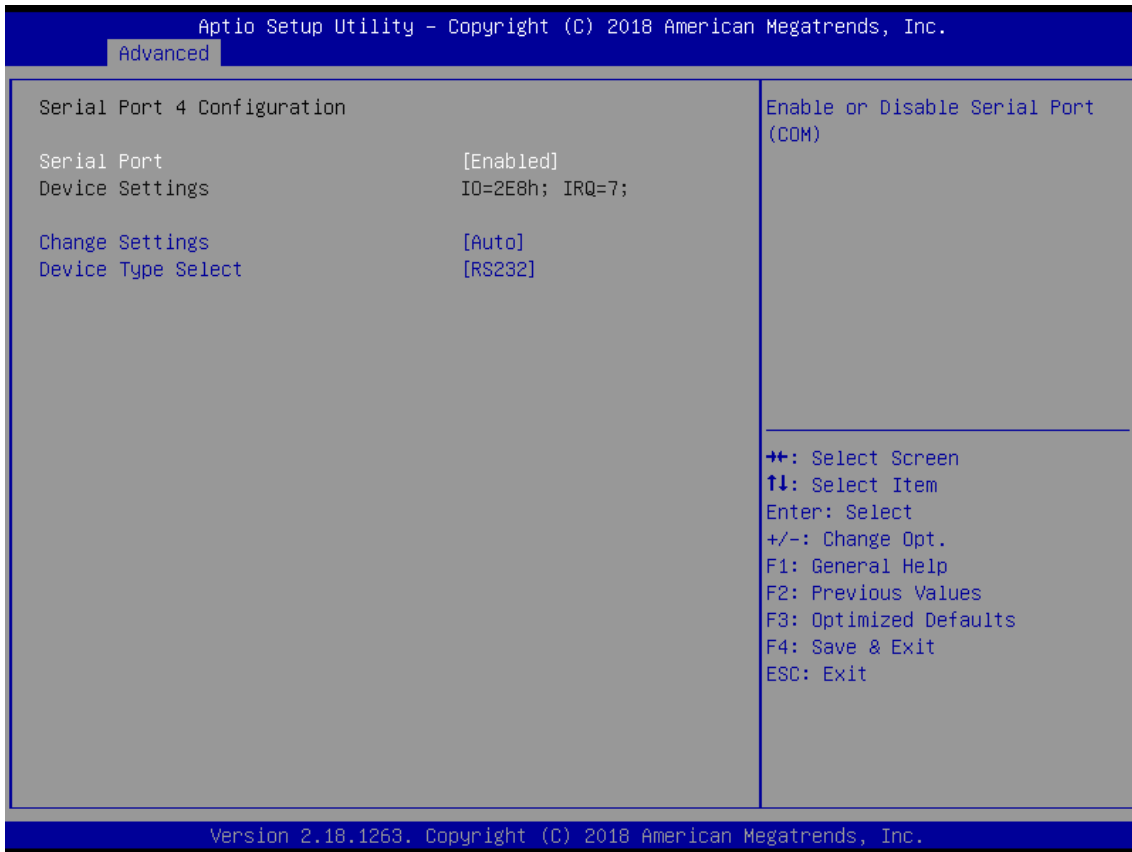
| Item                             | Options                                                                                                                                                                                                  | Description                                                                             |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <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                                                                             |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <b>Serial Port</b>               | Disabled,<br>Enabled[Default]                                                                                                                                                                     | Enable or Disable Serial Port (COM).                                                    |
| <b>Change Settings</b>           | 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. |
| <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                                                |

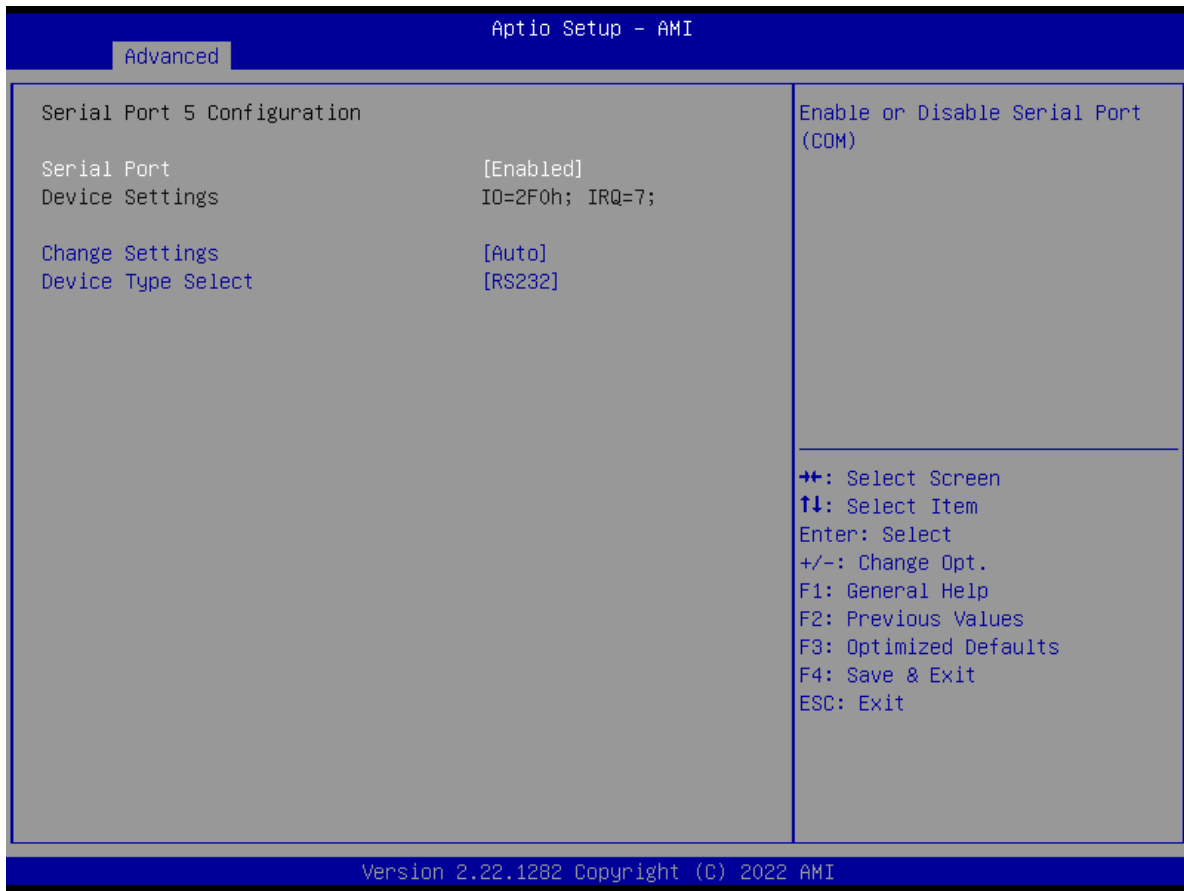
## Serial Port 4 Configuration



| 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=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. |
| <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                                                |

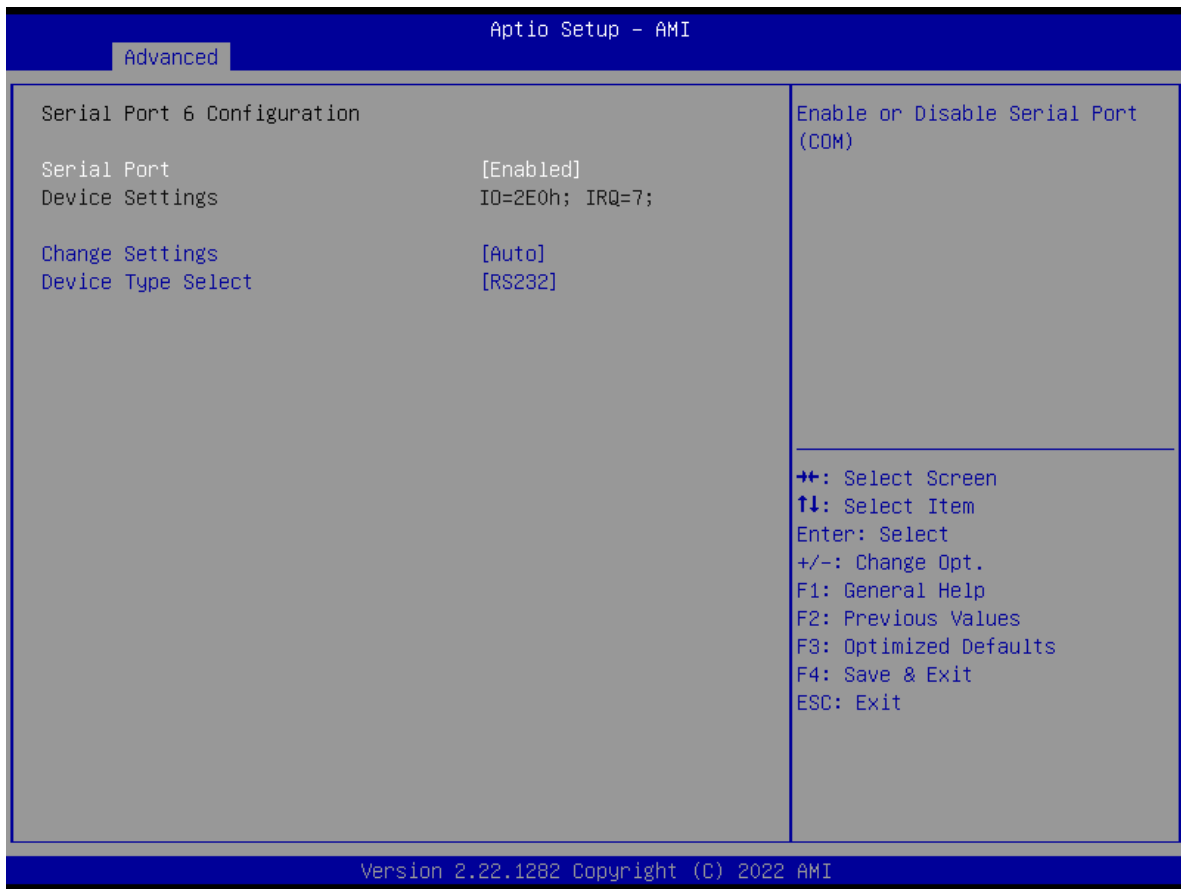


## Serial Port 5 Configuration



| 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=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. |
| <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                                                |

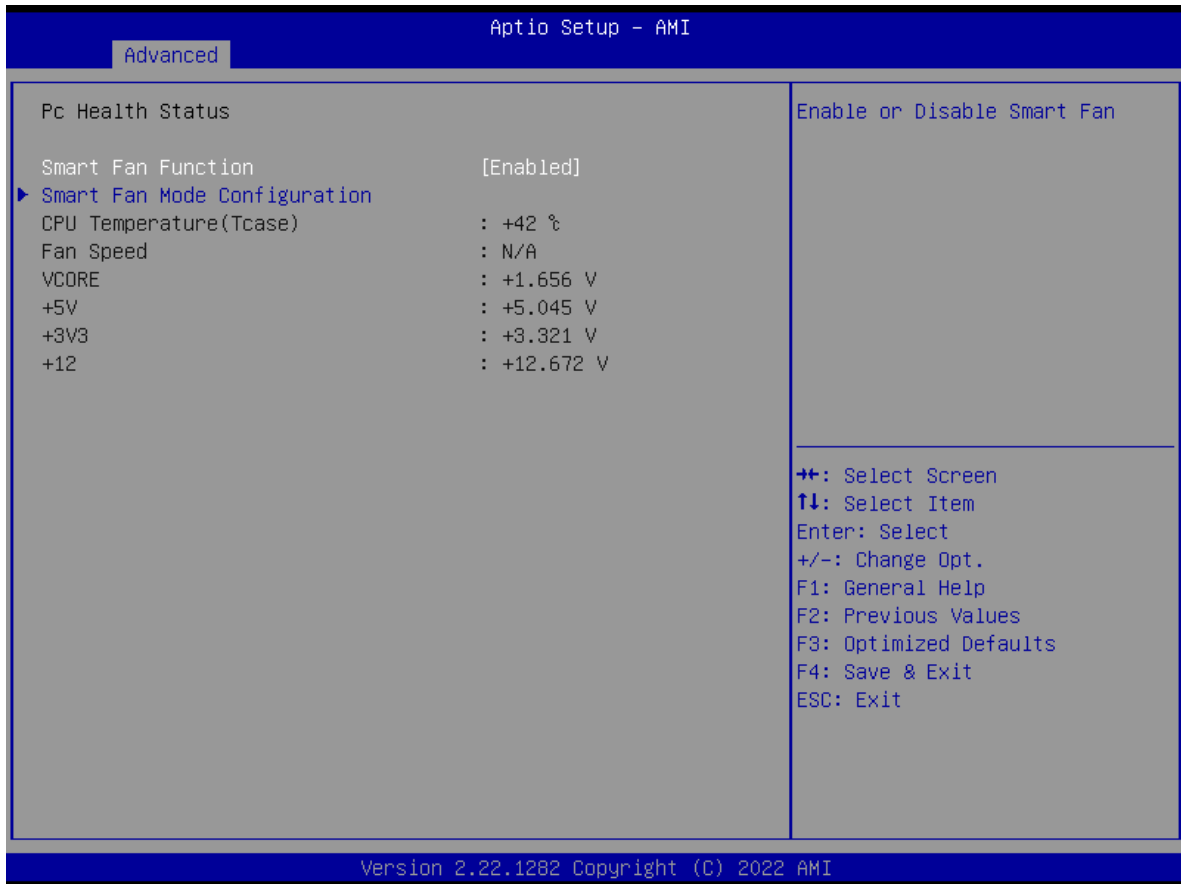
## Serial Port 6 Configuration



| Item                             | Options                                                                                                                                                                                                    | Description                                                                             |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <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=2E0h; 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. |
| <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                                                |

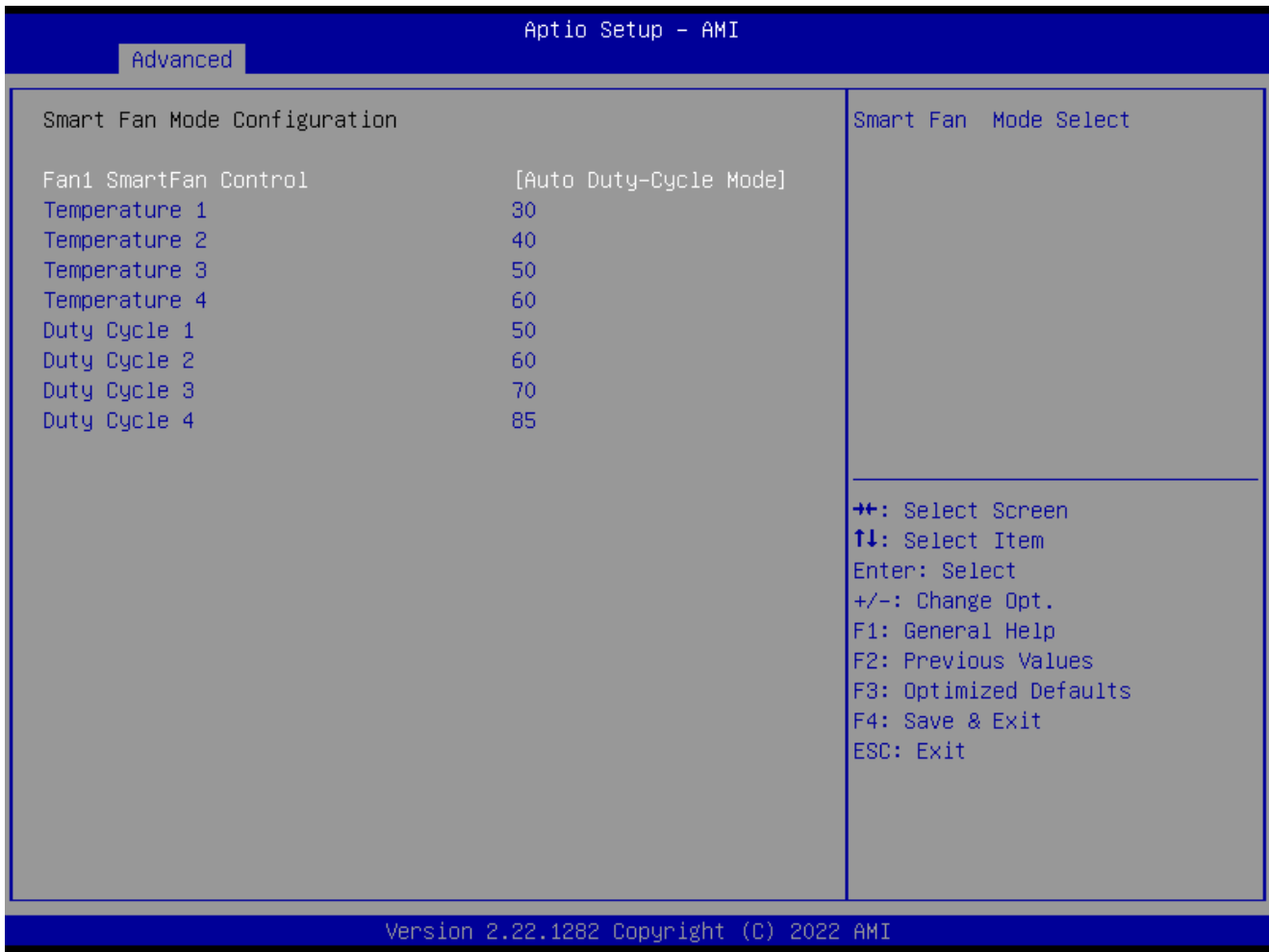
### 5.3.7 Hardware Monitor

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



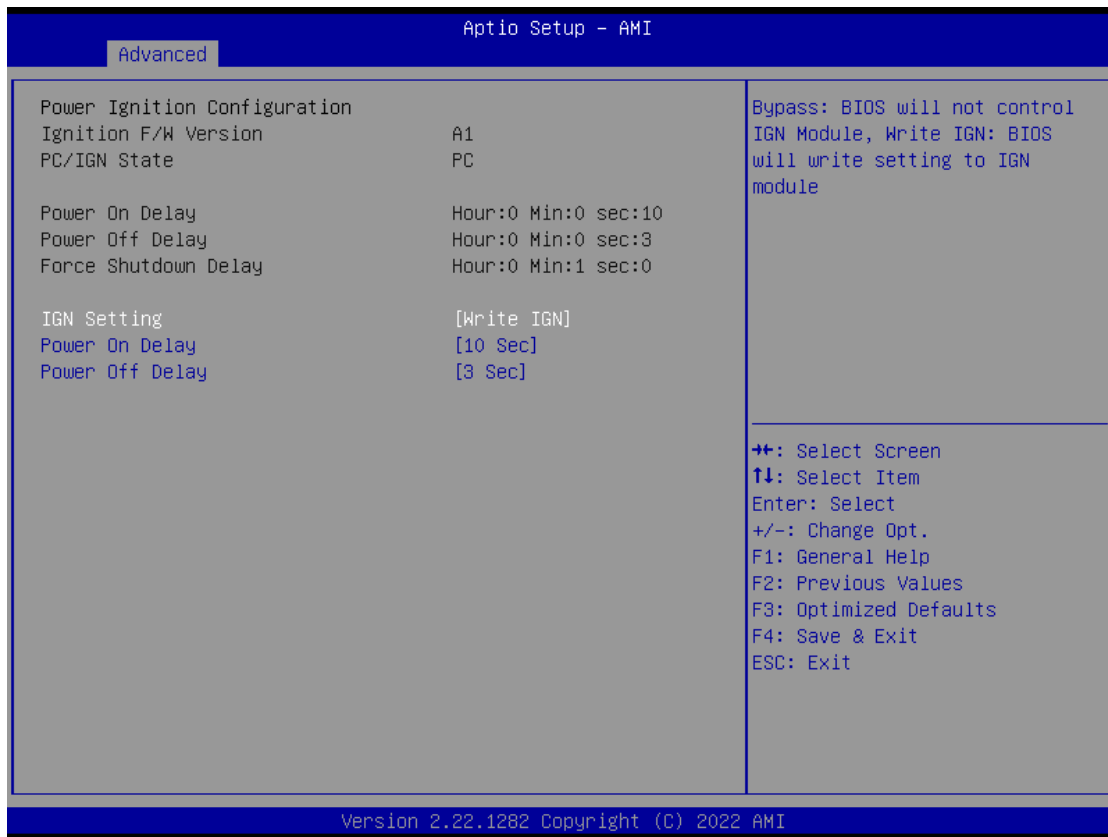
| Item                      | Options                       | Description                  |
|---------------------------|-------------------------------|------------------------------|
| <b>Smart Fan Function</b> | Disabled[Default],<br>Enabled | Enabled or Disable Smart Fan |

### ■ Smart Fan Mode Configuration



| Item                         | Options                                                      | Description                          |
|------------------------------|--------------------------------------------------------------|--------------------------------------|
| <b>Fan1 SmartFan Control</b> | Manual Duty Mode,<br>Auto Duty-Cycle Mode[ <b>Default</b> ], | Smart Fan Mode Select                |
| <b>Temperature 1~4</b>       | 1~100                                                        | Auto fan speed control. SMART FAN IV |
| <b>Duty Cycle 1~4</b>        | 20~100                                                       | Auto fan speed control. SMART FAN IV |

### 5.3.8 Power IGN Mode



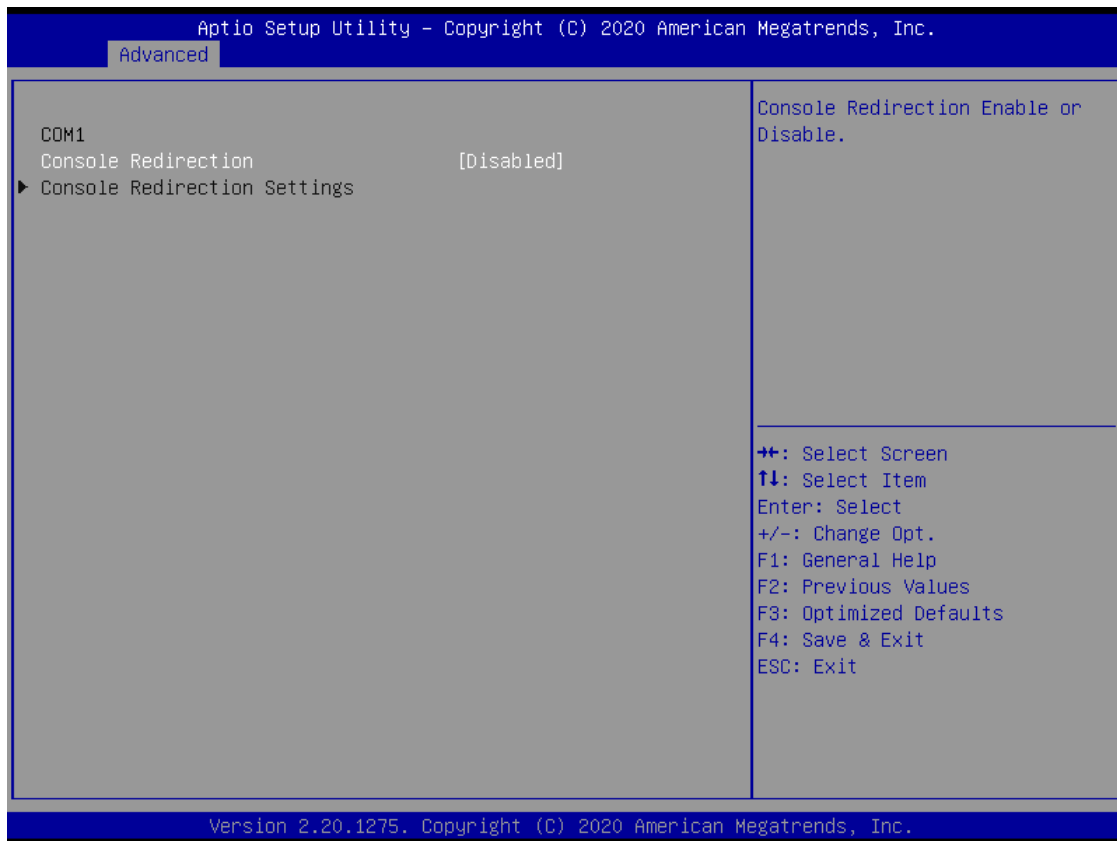
| Item                   | Options                                                                                         | Description                                                                                      |
|------------------------|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| <b>IGN Setting</b>     | Bypass mode[Default]<br>Write IGN                                                               | Bypass: BIOS will not control IGN Module,<br>Write IGN: BIOS will write setting to IGN<br>module |
| <b>Power On Delay</b>  | 10 Sec[Default]<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[Default]                                                                                 | 10~60 Sec                                                                                        |
| <b>Power Off Delay</b> | 3 Sec[Default] ,<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[Default]                                                                                  | 3~7200 Sec                                                                                       |

## 5.3.9 Wake system from S5



| Item                    | Options                                                      | Description                                                                                                                                                                                                                                                           |
|-------------------------|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wake system from S5     | Disabled[Default],<br>Fixed Time,<br>Dynamic Time,<br>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                                                                                                                                                                                                                                                                 |

### 5.3.10 Serial Port Console Redirection



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

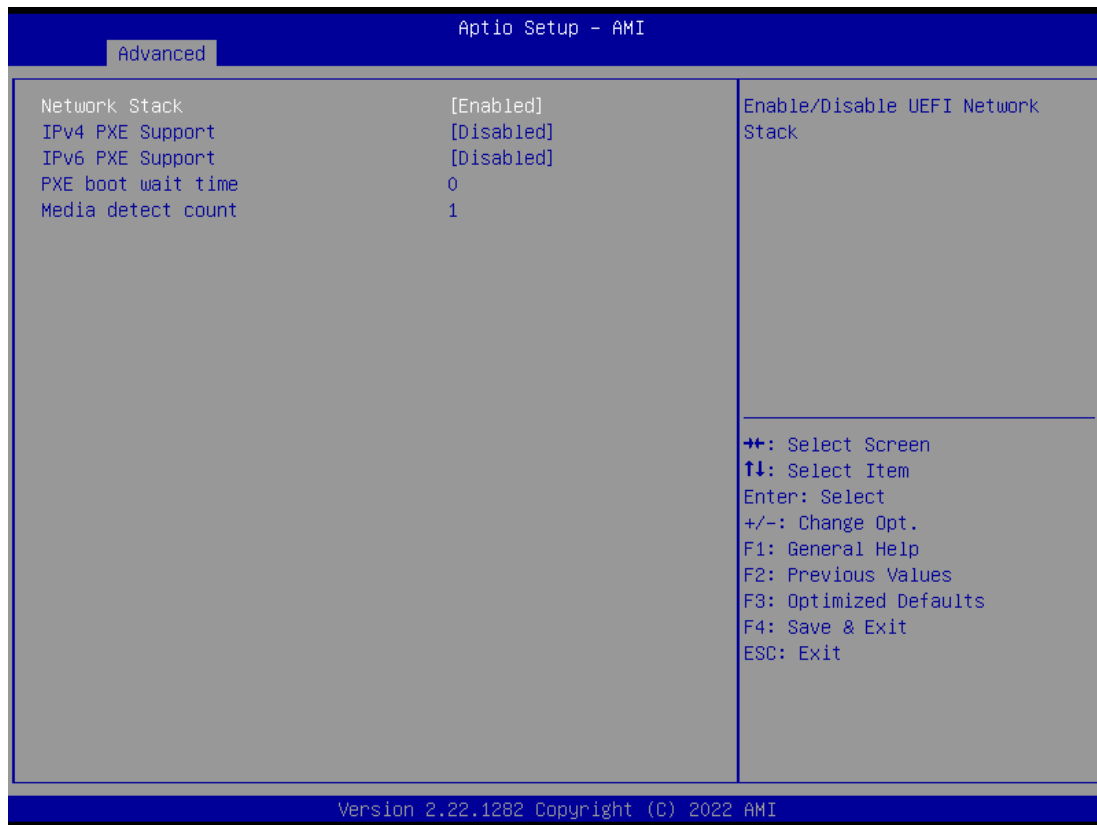
### 5.3.11 USB Configuration



| Item                                   | Options                                            | Description                                                                                                                                                                                                |
|----------------------------------------|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Legacy USB Support</b>              | Enabled[Default]<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[Default]<br>Disabled                       | This is a workaround for OSew without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.                                                                                   |
| <b>USB Mass Storage Driver Support</b> | Disabled<br>Enabled[Default]                       | Enable/Disable USB Mass Storage Driver Support.                                                                                                                                                            |
| <b>USB transfer time-out</b>           | 1 sec ,<br>5 sec ,<br>10 sec ,<br>20 sec[Default]  | The time-out value for Control, Bulk, and Interrupt transfers.                                                                                                                                             |
| <b>Device reset time-out</b>           | 10 sec ,<br>20 sec[Default] ,<br>30 sec,<br>40 sec | USB mass storage device Start Unit command time-out.                                                                                                                                                       |
| <b>Device power-up delay</b>           | Auto[Default]<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 form Hub descriptor. |



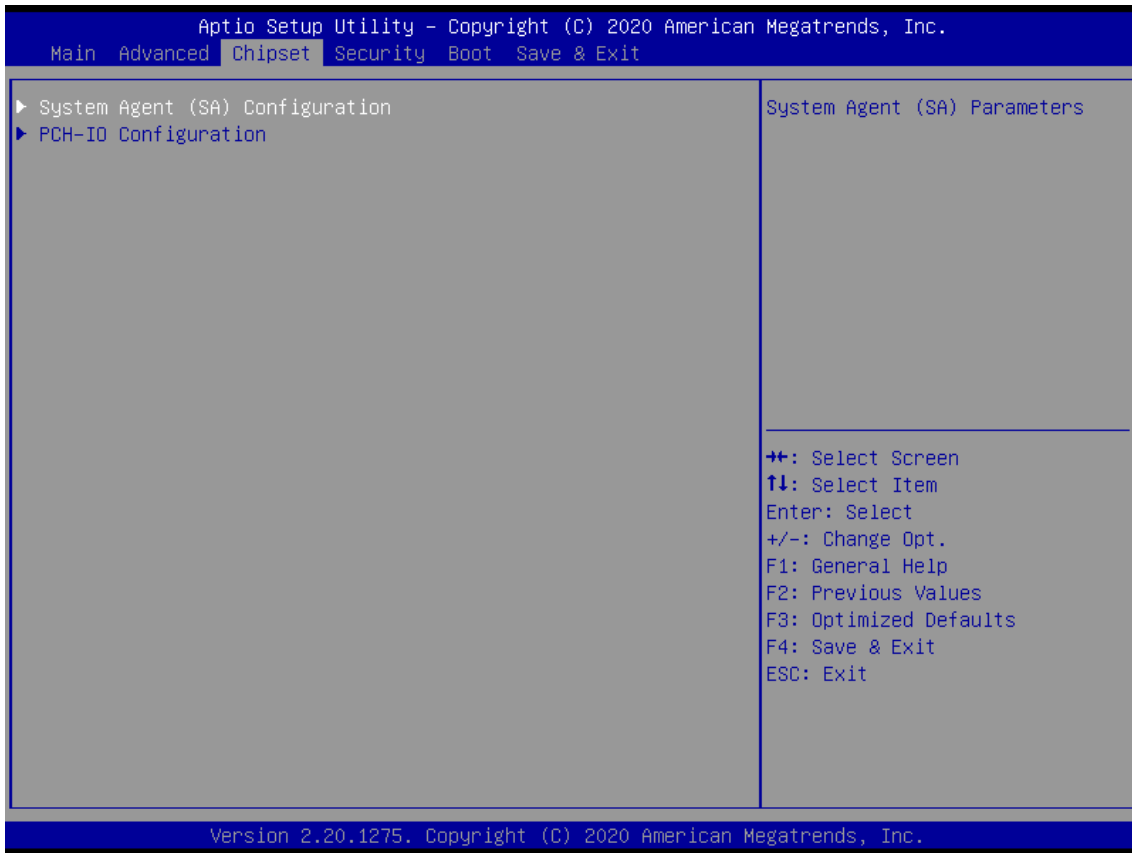
### 5.3.12 Network Stack Configuration



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

## 5.4 Chipset

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

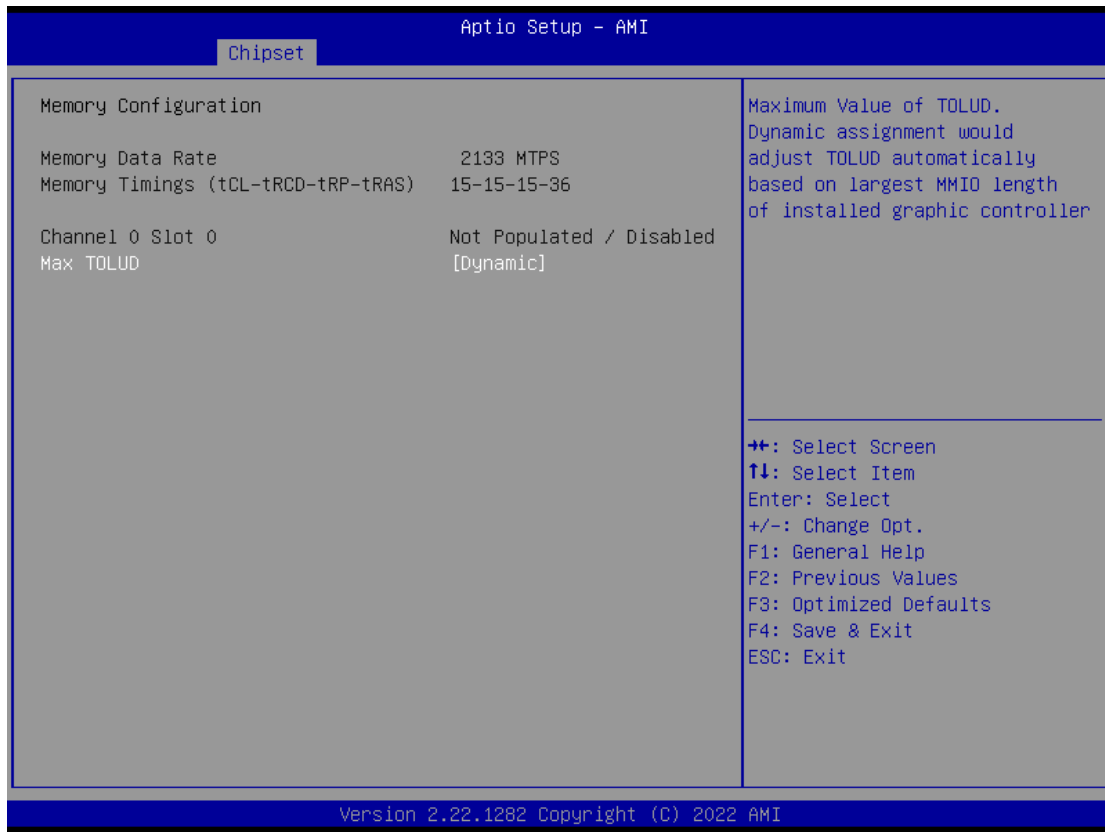


### 5.4.1 System Agent (SA) Configuration



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

## ■ Memory Configuration



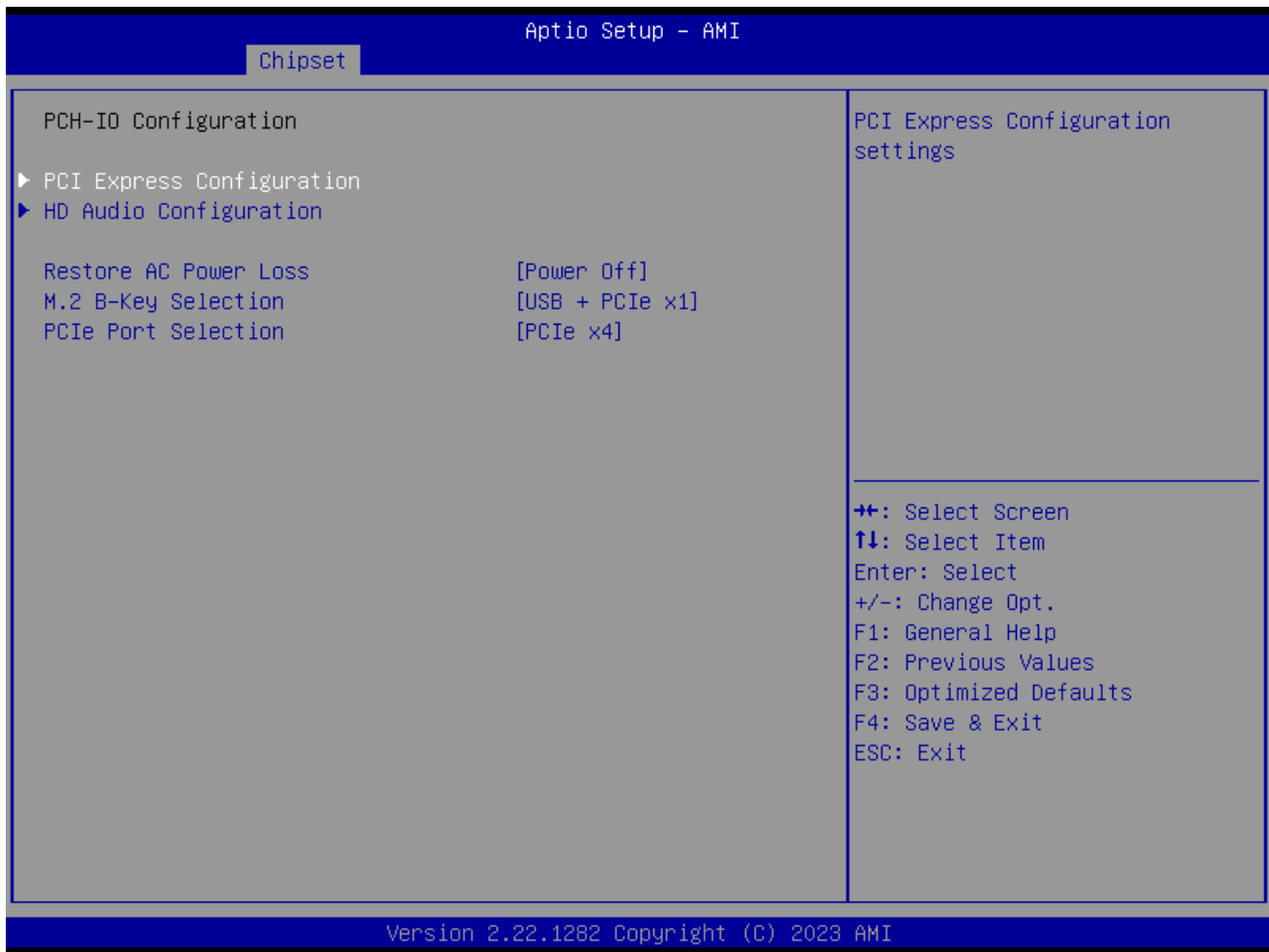
| Item             | Options                                                                                     | Description                                                                                                                              |
|------------------|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Max TOLUD</b> | 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, | Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller |

## ■ Graphic Configuration



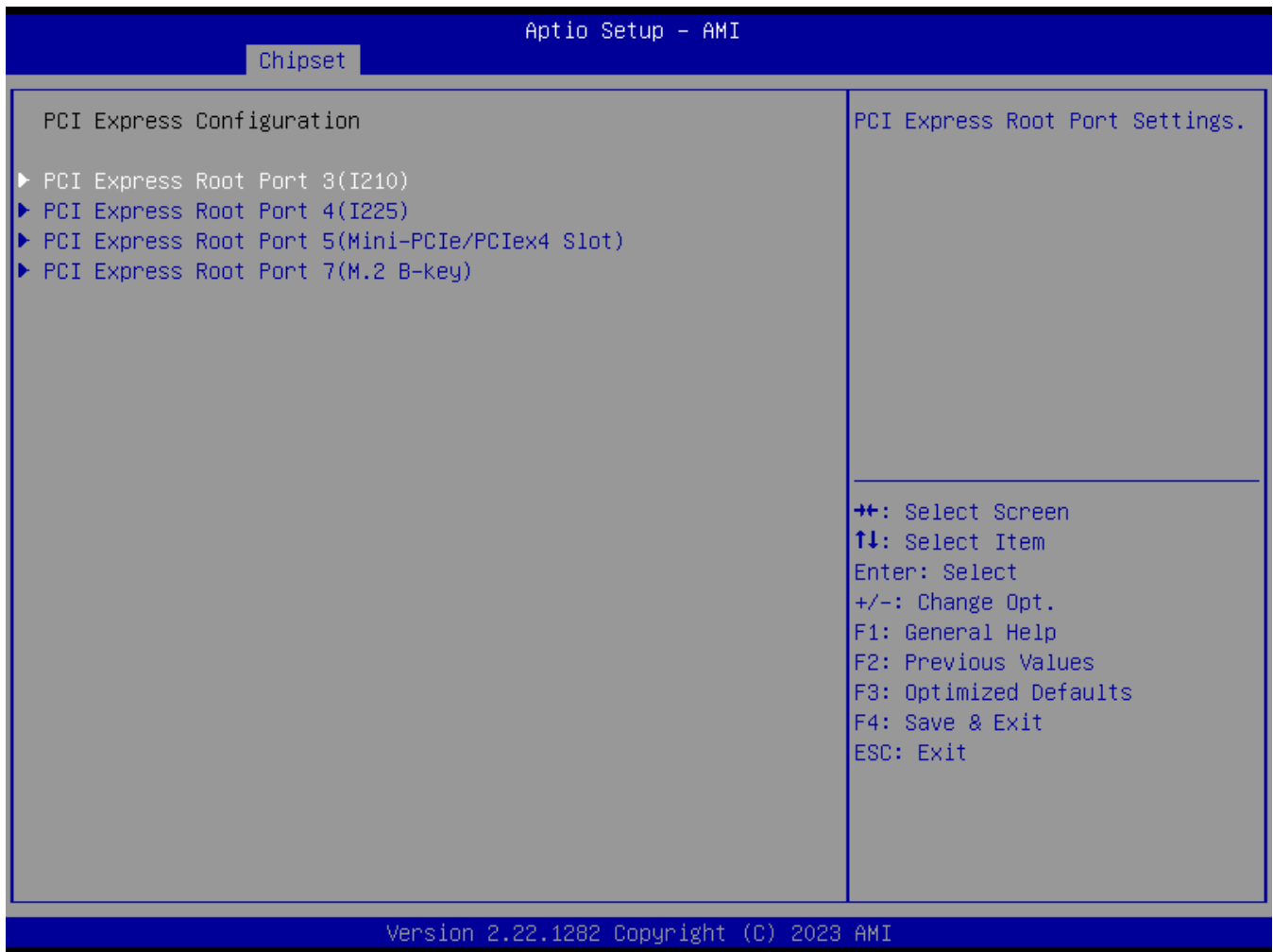
| Item                      | Options                                                                                                            | Description                                                                                                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>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>PSMI SUPPORT</b>       | Disabled [Default] ,<br>Enabled                                                                                    | PSMI Enable/Disable.                                                                                                                                                             |
| <b>DVMT Pre-Allocated</b> | 32M,64M,96M,128M,<br>160M,4M, 8M,12M,<br>16M,20M,24M, 28M,<br>32M/F7,36M, 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.                                                                                                   |
| <b>DDI2 Selection</b>     | DP[Default] ,<br>HDMI                                                                                              | Selects DDI2 function: DP or HDMI                                                                                                                                                |

## 5.4.2 PCH-IO Configuration

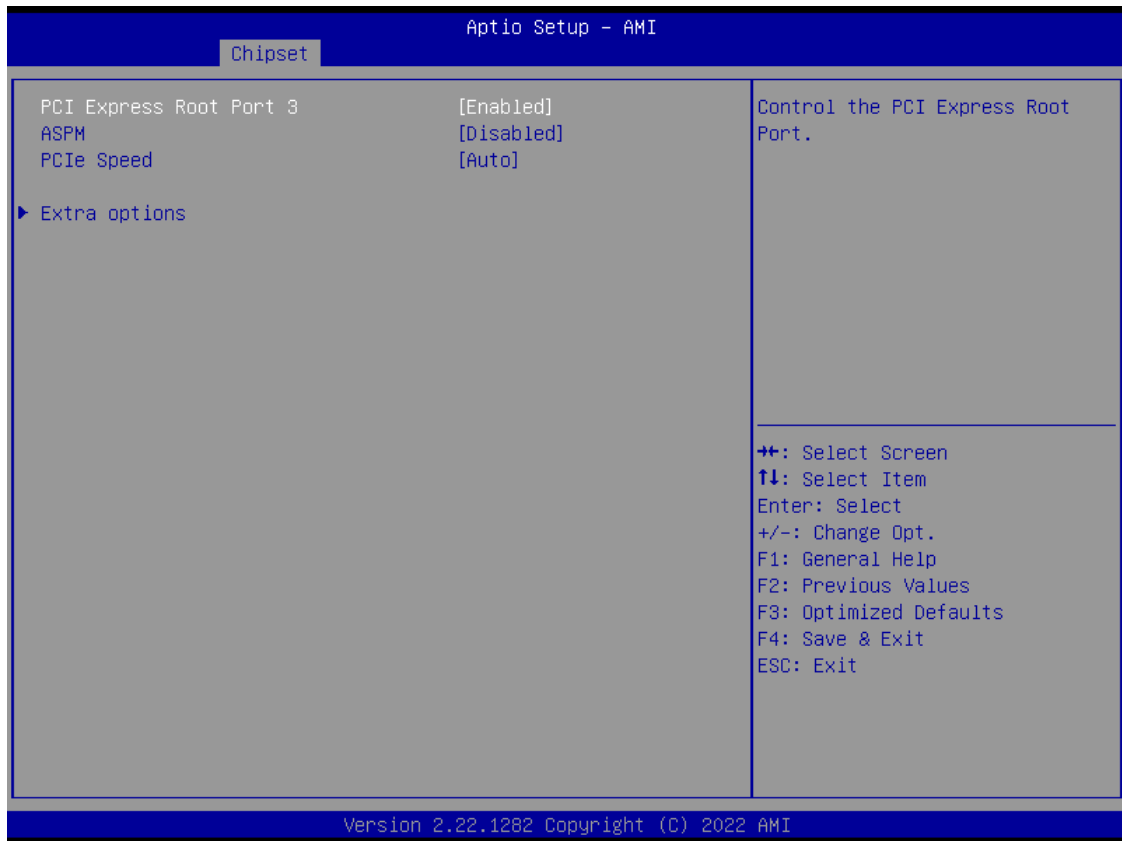


| Item                         | Options                                                 | Description                                                                                                                                     |
|------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Restore AC Power Loss</b> | Power On,<br>Power Off <b>[Default]</b> ,<br>Lase 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.                                                                                           |
| <b>PCIe Port Selection</b>   | PCIe x4 <b>[Default]</b> ,<br>MiniPCIe1                 | This setting controls PCIe Port configuration for [PCIex4 slot] or [MiniPCIe1].<br><br>This PCIe4 slot connector only have support PCIe1 lanes. |

## ■ PCI Express Configuration



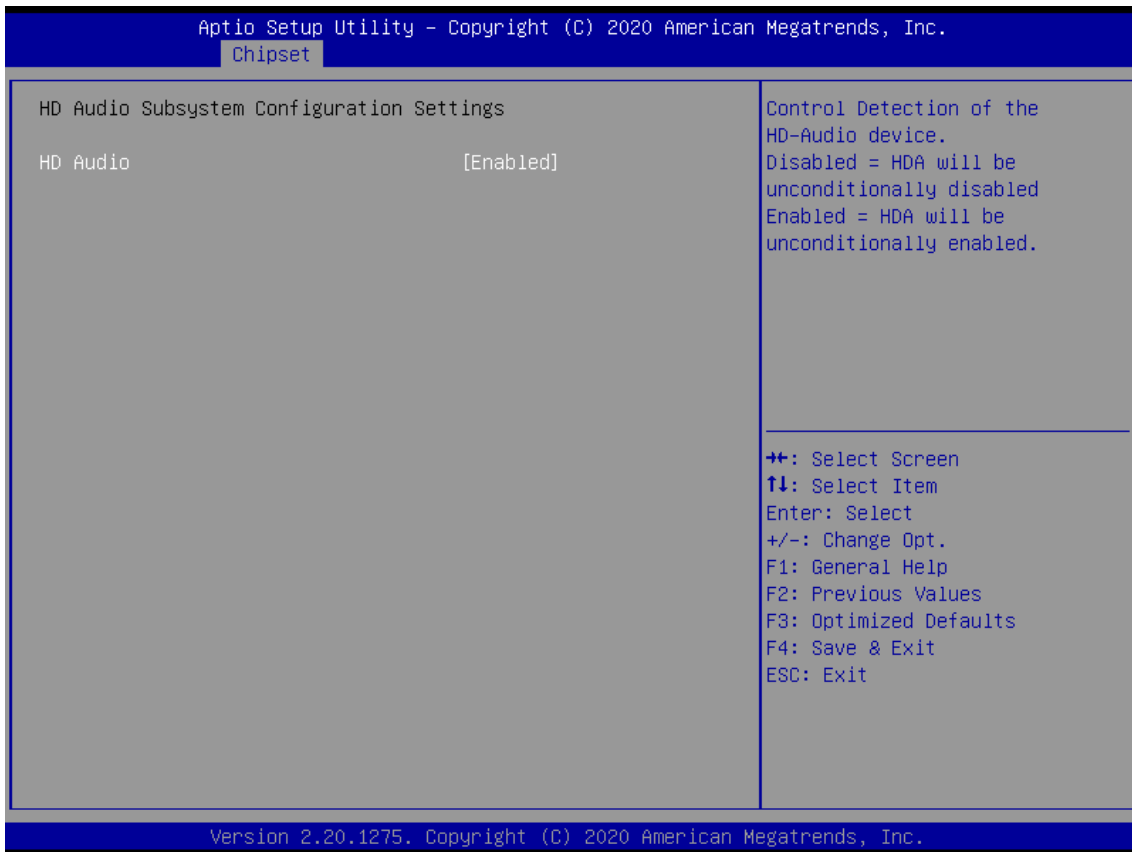
■ PCI Express Root Port 3 /4 /5 /7



| Item                                        | Options                                                      | Description                                                                                                                 |
|---------------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <b>PCI Express Root Port<br/>3 /4 /5 /7</b> | Disabled,<br>Enabled <b>[Default]</b>                        | Control the PCI Express Root Port.                                                                                          |
| <b>ASPM</b>                                 | Disabled <b>[Default]</b> ,<br>L0s,<br>L1,<br>L0sL1,<br>Auto | Set the ASPM Level:<br>Force L0s - Force all links to L0s State,<br>AUTO - BIOS auto configure,<br>DISABLE - Disables ASPM, |
| <b>PCIe Speed</b>                           | Auto <b>[Default]</b> ,<br>Gen1,<br>Gen2,<br>Gen3            | Configure PCIe speed.                                                                                                       |
| <b>Detect Non-Compliance Device</b>         | Disabled <b>[Default]</b> ,<br>Enabled                       | Detect Non-Compliance PCI Express Device. If enable, it will take more time at POST time.                                   |



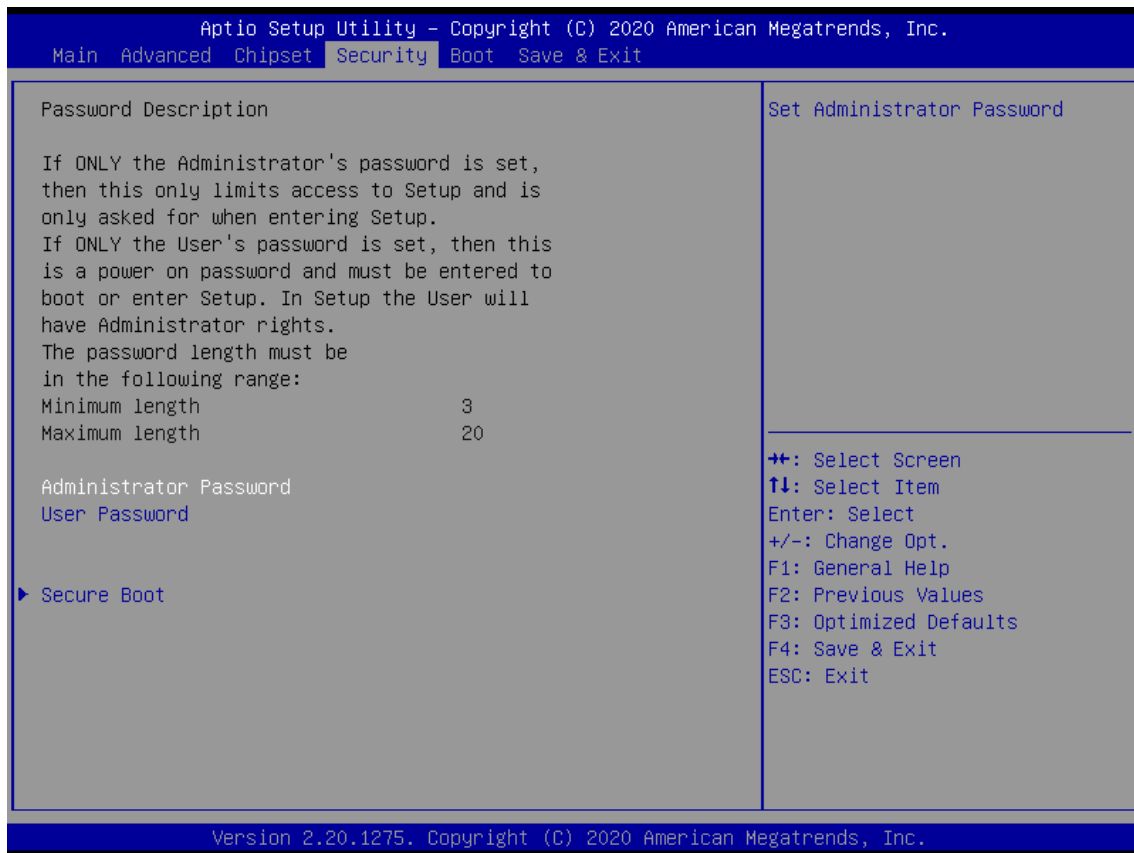
## ■ HD Audio Configuration



| 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. |

## 5.5 Security

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



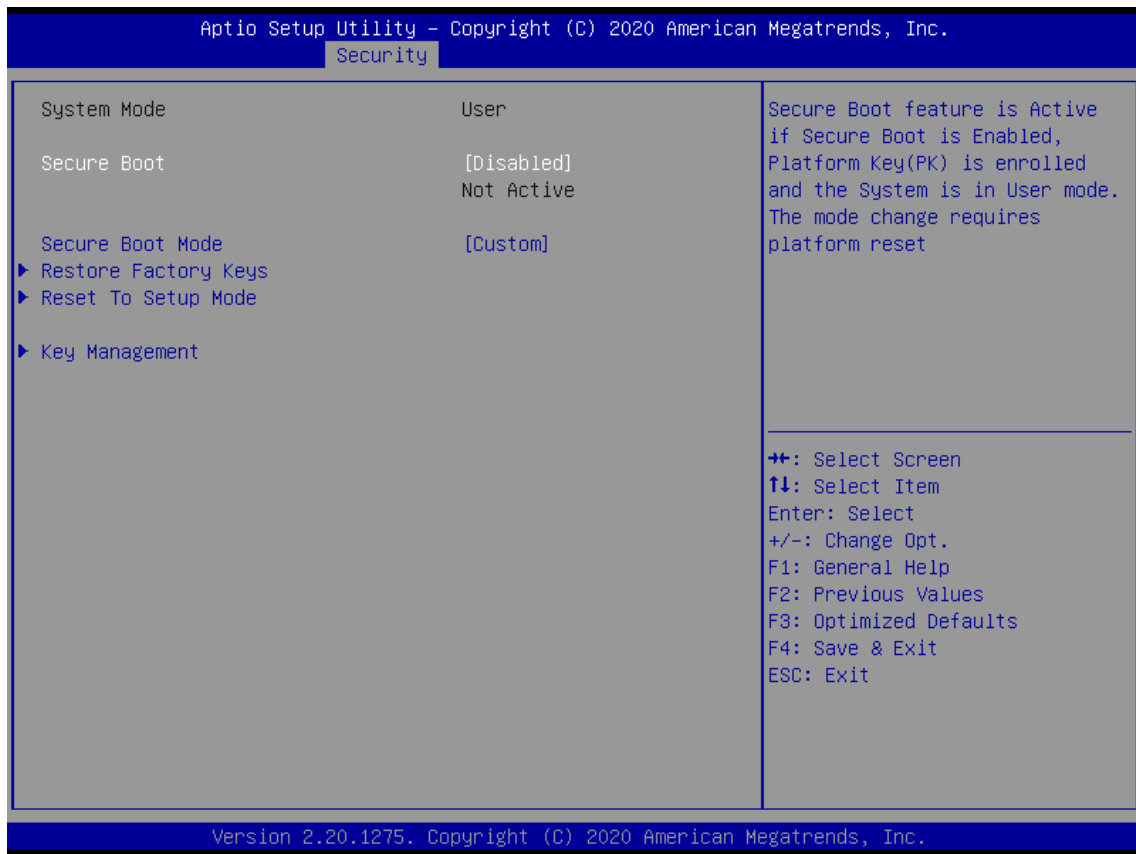
- **Administrator Password**

This item allows you to set Administrator Password.

- **User Password**

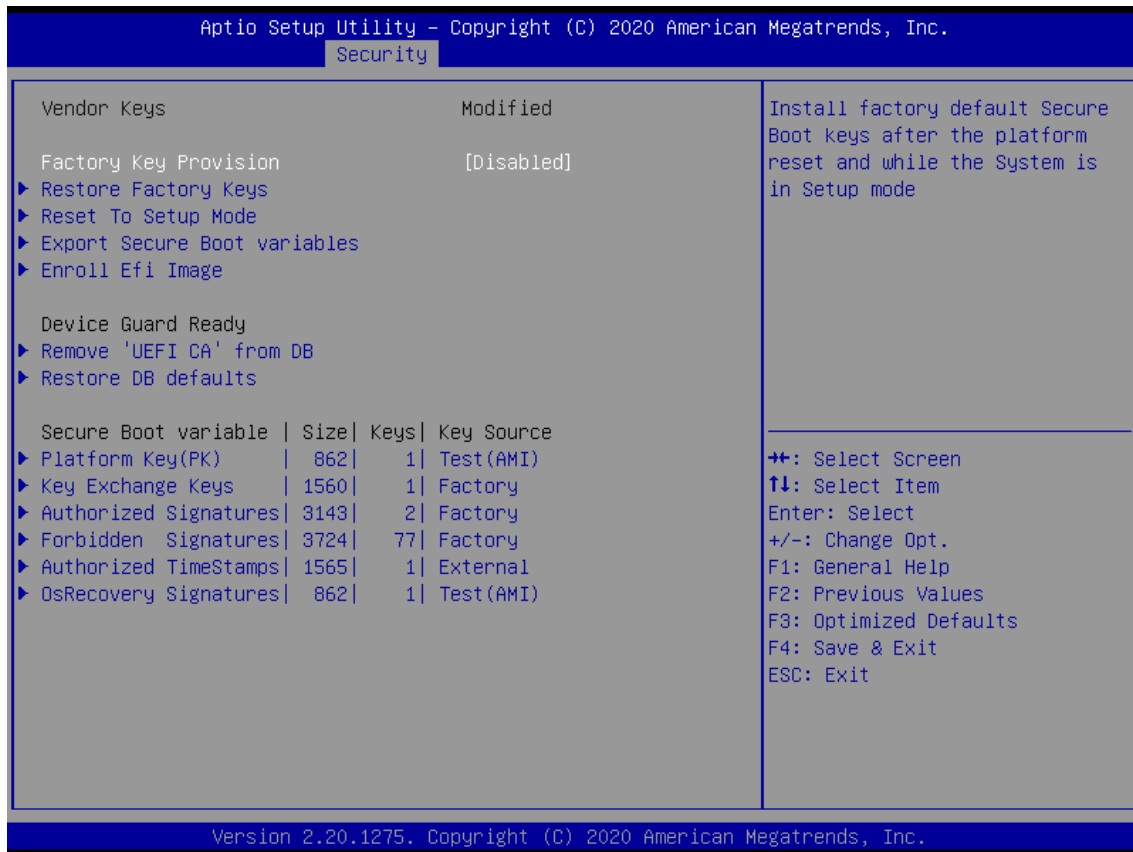
This item allows you to set User Password.

## ■ 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 |

## 5.6 Boot

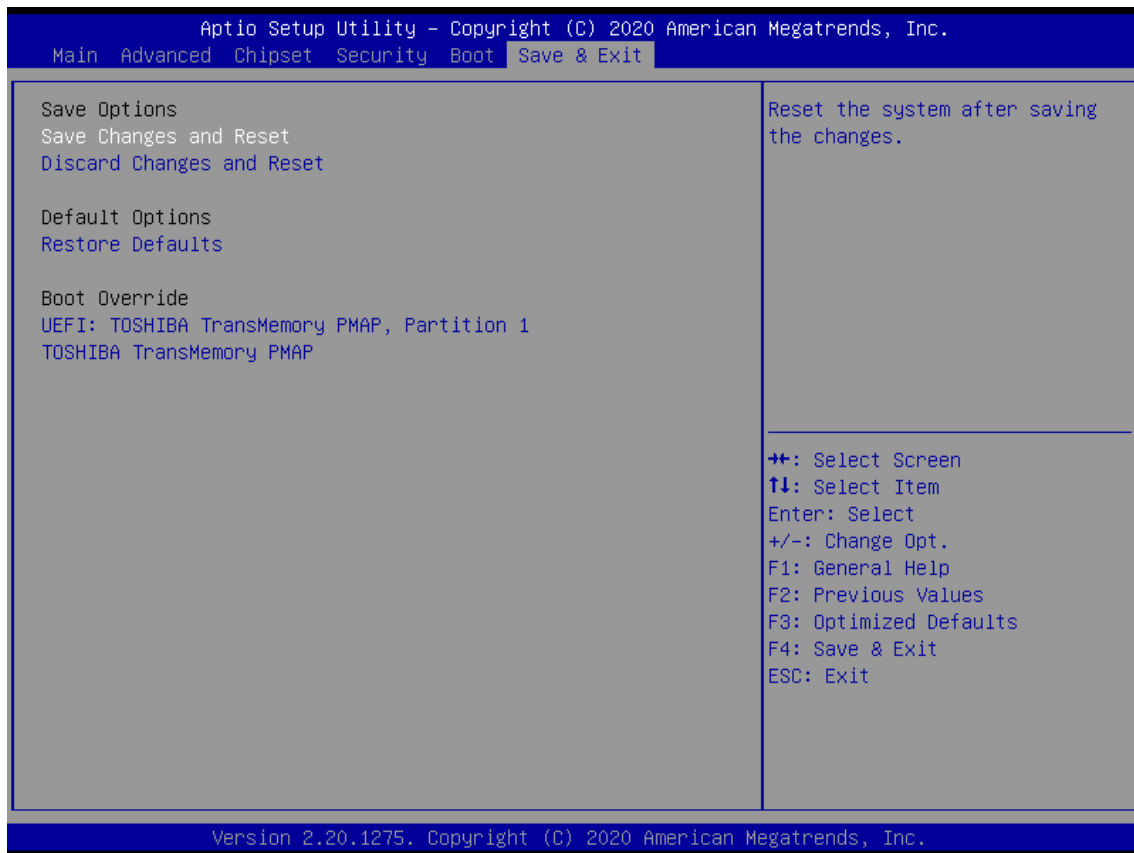
This menu allows you to setup the system boot options.



| 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.                                                                                                                  |
| Full Screen Logo Show | Disabled[Default] ,<br>Enabled | Enables or disables Full Screen Logo Show option.                                                                                                   |
| Fast Boot             | Disabled[Default] ,<br>Enabled | Enables or disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options. |
| Boot Option #1        |                                | Set the system boot order.                                                                                                                          |

## 5.7 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.

# 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

#### **Pseudo Code**

// IO Address 0xA16 is time value

// 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

|        |                 |        |                 |
|--------|-----------------|--------|-----------------|
| IO_DI8 | I/O 0xA03h Bit7 | IO_DO8 | I/O 0xA02h Bit7 |
| IO_DI7 | I/O 0xA03h Bit6 | IO_DO7 | I/O 0xA02h Bit6 |
| IO_DI6 | I/O 0xA03h Bit5 | IO_DO6 | I/O 0xA02h Bit5 |
| IO_DI5 | I/O 0xA03h Bit4 | IO_DO5 | I/O 0xA02h Bit4 |
| IO_DI4 | I/O 0xA03h Bit3 | IO_DO4 | I/O 0xA02h Bit3 |
| IO_DI3 | I/O 0xA03h Bit2 | IO_DO3 | I/O 0xA02h Bit2 |
| IO_DI2 | I/O 0xA03h Bit1 | IO_DO2 | I/O 0xA02h Bit1 |
| IO_DI1 | I/O 0xA03h Bit0 | IO_DO1 | I/O 0xA02h Bit0 |

The GPIO function is provided by SIO, and it can be accessed through its GPIO port. To access the GPIO register, write value to data port. The configuration on the PC100-EHL is described as below.

### Pseudo Code

```
#define GPI_ADDR 0xA03h
#define GPO_ADDR 0xA02h
```

```
// 0xA03h is Pin Status(default 0xFF )(at IO_DI1(Bit0) ~ IO_DI8(Bit7))
ByteData = ReadByte (GPI_ADDR) //Read current Pin Status
```

```
//Offset 0xA02h default setting is 0x5F (output pin set to output high) (at IO_DO1(Bit0) ~ IO_DO8(Bit7))
ByteData = 0xFF //set IO_DO1~ IO_DO8 to high
WriteByte (GPO_ADDR, ByteData)
```

