IEI Integration Corp.

MODEL:

TANK-XM810 Series

Embedded System with 10th/11th Generation Intel® Core™ Processor, Two DDR4 Slot, Digital I/O, HDMI, DP, Two Gigabit Ethernet, RS-232/422/485, RoHS Compliant

User Manual

Rev. 1.01 – September 23, 2022

RoHS Lead Free

Revisions

Date	Version	Changes
September 22, 2022	1.01	Added BIOS Section Added System Jumper Configuration in Section 4.4 Added RAID Configuration in Section 3.8
May 30, 2022	1.00	Initial release

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Manual Conventions

WARNING

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously.

CAUTION

Cautionary messages should be heeded to help reduce the chance of losing data or damaging the product.

NOTE

These messages inform the reader of essential but non-critical information. These messages should be read carefully as any directions or instructions contained therein can help avoid making mistakes.

HOT SURFACE

This symbol indicates a hot surface that should not be touched without taking care.

Table of Contents

List of Figures

List of Tables

Chapter

1

Introduction

1.1 Overview

Figure 1-1: TANK-XM810 Series

The TANK-XM810 Series is an embedded system for wide range temperature environments. It is powered by 10th/11th generation Intel® Core™ processor with Q470 chipset, and has two 260-pin DDR4 SDRAM SO-DIMM slots supporting up to 64GB memory (8GB preinstalled). The TANK-XM810 Series includes one digital I/O port, one HDMI, one DP++, two GbE LAN, six USB 3.2 Gen 2, two USB 2.0, two RS-232/422/485 and four RS-232 connectors.

1.2 Model Variations

The model variations of the TANK-XM810 Series are listed below.

Model No.	CPU
TANK-XM810-i3BC-R10	Intel® Core™ i3-10320 3.8GHz (up to 4.6GHz, 4-core, TDP 65W)
TANK-XM810-i5AC-R10	Intel® Core™ i5-10500TE 2.3GHz (up to 3.7GHz, 6-core, TDP 35W)
TANK-XM810-i5BC-R10	Intel® Core™ i5-10500E 3.1GHz (up to 4.2GHz, 6-core, TDP 65W)
TANK-XM810-i7AC-R10	Intel® Core™ i7-10700TE 2.0GHz (up to 4.4GHz, 8-core, TDP 35W)
TANK-XM810-i7BC-R10	Intel® Core™ i7-10700E 2.9GHz (up to 4.5GHz, 8-core, TDP 65W)

Table 1-1: TANK-XM810 Series Model Variations

1.3 Features

The TANK-XM810 Series features are listed below:

- 10th/11th Gen. Intel® Core™ processor platform with Intel® Q470 chipset and DDR4 memory
- Dual independent displays with high resolution support
- Rich high-speed I/O interfaces
- One 2.5" HDD/SSD SATA 6Gb/s bay
- Great flexibility for hardware expansion

1.4 Technical Specifications

The TANK-XM810 Series technical specifications are listed **in Table 1-2**

Specifications	
Chassis	
Color	Black C
Dimensions (WxDxH) (mm)	230.6 x 256.04 x 76.2
System Fan	Fanless
Chassis Construction	Extruded aluminum alloy
Motherboard	
CPU	10/11th Gen. Intel® Core™ CPU: Intel® Core™ i7-10700TE 2.0GHz (up to 4.4GHz, 8-core, TDP 35W) Intel® Core™ i5-10500TE 2.3GHz (up to 3.7GHz, 6-core, TDP 35W) Intel® Core™ i3-10320 3.8GHz (up to 4.6GHz,4-core, TDP 65W)
Chipset	Intel® Q470/Q470E
System Memory	2 x SO-DIMM DDR4 2933MHz (up to 64GB)
Storage	
Hard Drive	1 x 2.5" HDD/SSD SATA 6Gb/s bay
I/O Interfaces	
USB 3.2 Gen 2 (10Gb/s)	6
USB 2.0	2
RS-232/422/485	2 x RS-232/422/485 2 x RS232
Ethernet	Two RJ-45 2 x Intel 2.5GbE by Intel® I225 controller
TPM 2.0	Intel PTT
Digital I/O	12-bit (6-in/6-out)
Display	HDMI/DP++

Specifications	
Expansions	
M.2	2 x 2280 M key (PCIe x2)
Backplane	Optional
Power	
Power Input	DC jack: 12 V~28 V DC Terminal block: 12 V~28 V DC
Power Consumption	12V @ 8.8A (Intel ® Core™ i9-10900TE with 16GB memory)
Remote Power	1 x 2-pin
Reliability	
Mounting	Wall mount
Operating Temperature	-20°C ~ 60°C with air flow (CPU TDP 35W & SSD) -20°C ~ 50°C with air flow (CPU TDP 65W & SSD), 10% ~ 95% non-condensing
Storage Temperature	-40°C ~ 85°C, 10% ~ 95%, non-condensing
Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
Operating Vibration	MIL-STD-810G 514.6C-1 (with SSD)
Weight (Net/Gross)	3.33 kg / 3.7 kg
Safety/EMC	CE/FCC
Watchdog Timer	Programmable 1~255 sec/min
OS	
Supported OS	Microsoft Windows 10 IoT Enterprise / Windows 11 Linux

Table 1-2: Technical Specifications

1.5 Front Panel

The front panel of the TANK-XM810 Series has the following features **(See Figure 1-2):**

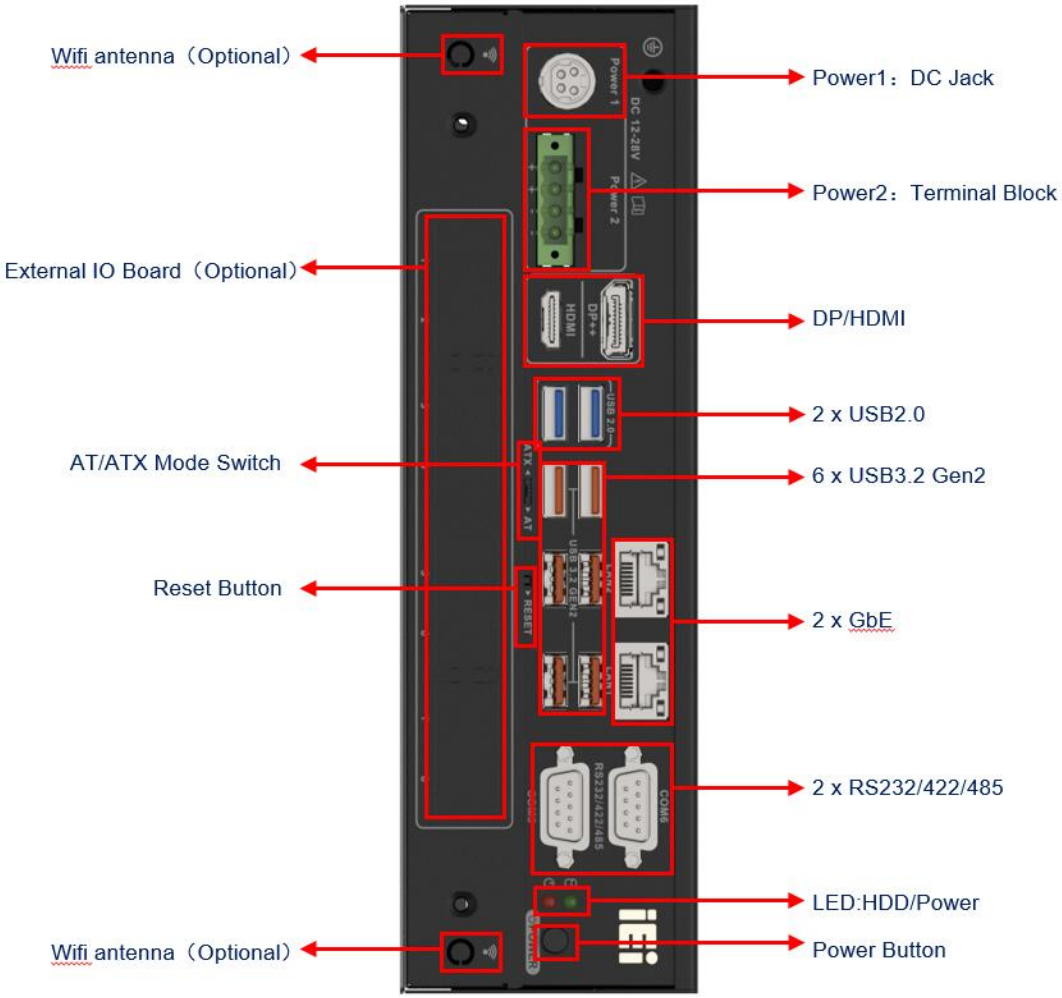


Figure 1-2: Front Panel

1.6 Rear Panel

The rear panel of the TANK-XM810 Series is shown below **(See Figure 1-3):**

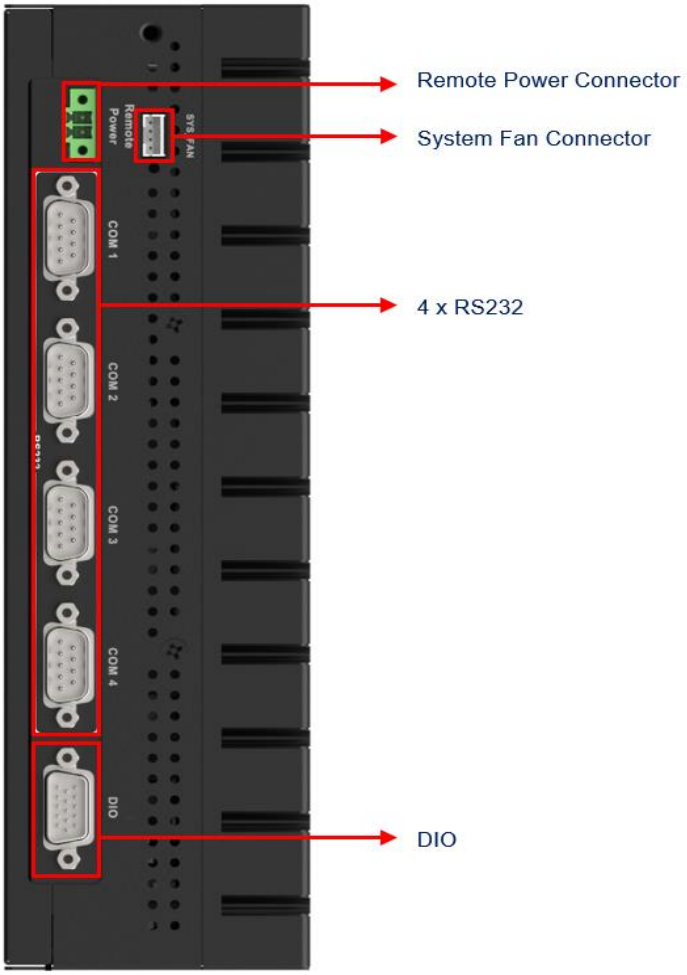


Figure 1-3: Rear Panel

1.7 Physical Dimensions

The physical dimensions of the TANK-XM810 are shown below **(See Figure 1-4):**

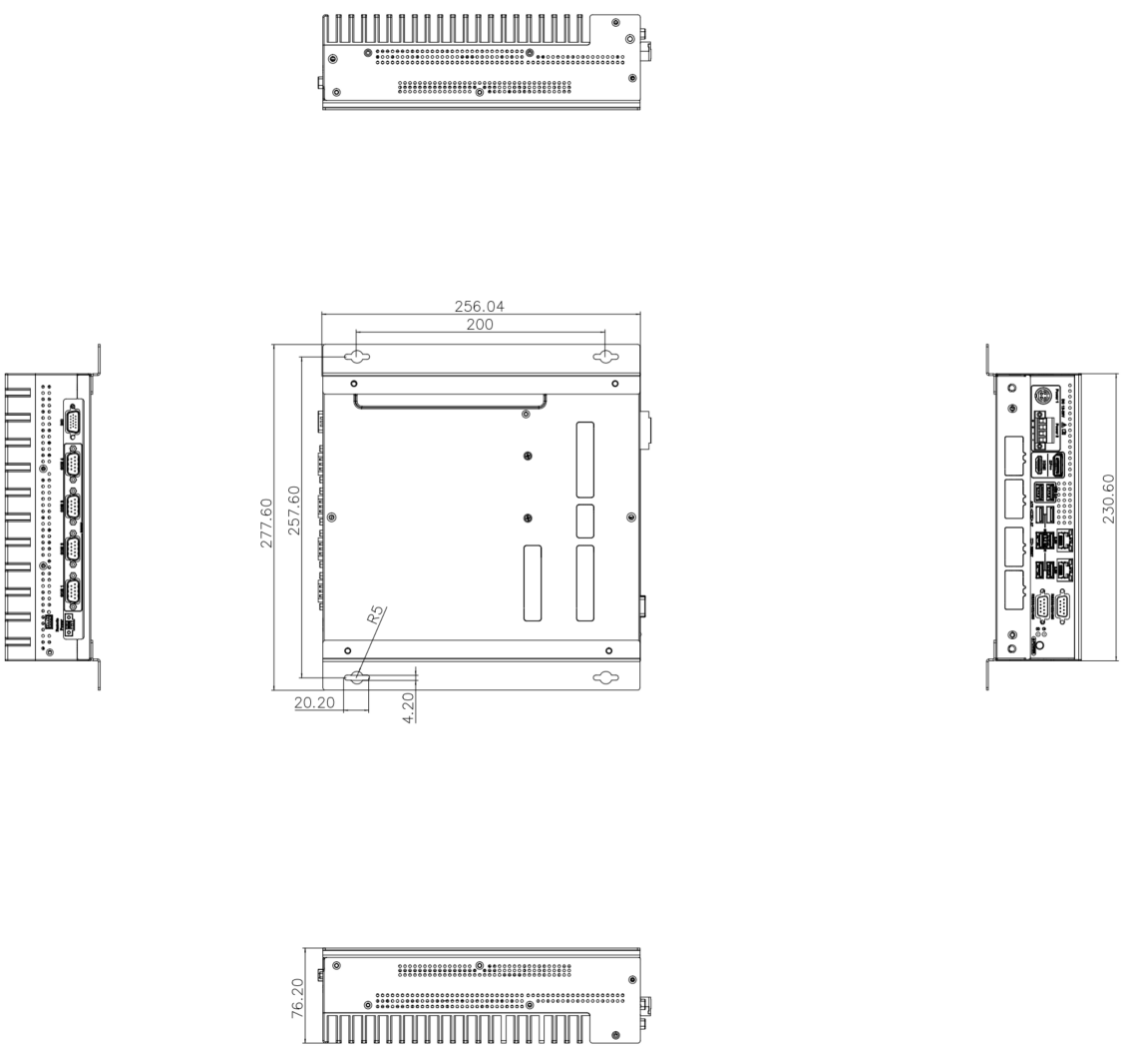


Figure 1-4: Physical Dimensions

Chapter

2

Unpacking

2.1 Anti-static Precautions

WARNING:

Failure to take ESD precautions during installation may result in permanent damage to the TANK-XM810 Series and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the TANK-XM810 Series. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the TANK-XM810 Series or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding***: Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring the TANK-XM810 Series, place it on an antic-static pad. This reduces the possibility of ESD damaging the TANK-XM810 Series.

2.2 Unpacking Precautions

When the TANK-XM810 Series is unpacked, please do the following:

- Follow the anti-static precautions outlined in **Section 2.1**.
- Make sure the packing box is facing upwards so the TANK-XM810 Series does not fall out of the box.
- Make sure all the components shown in **Section 2.2** are present.

2.3 Unpacking Checklist

NOTE:

If some of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the TANK-XM810 Series from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@ieiworld.com.

The TANK-XM810 Series is shipped with the following components:

Quantity	Item and Part Number	Image
Standard		
1	TANK-XM810 Series	
2	Mounting brackets	

Quantity	Item and Part Number	Image
Standard		
1	2-pin Terminal block	
1	4-pin Terminal block	
1	Chassis screws	

Table 2-1: Standatd Packing List

The following table lists the optional items that can be purchased separately.

Optional	
Wi-Fi module (**P/N:** EMB-WIFI-KIT02I3-R10)	

Optional	
Power adapter (**P/N:** 63040-010180-200-RSSS)	
Power cord (**P/N:** 32000-000002-RS)	
8-Port POE LAN Card (**P/N:** GPOE-XM81-8P-R10)	
M.2 & PCIe Mini expansion card (**P/N:** TXIOB-XM81-A-R10)	
2-Slot Backplane (PCIe x16 & PCIe x4) (**P/N:** TXCBP-XM81-2A-R10)	
2-Slot Backplane (Two PCIe x8) (**P/N:** TXCBP-XM81-2B-R10)ss	

Optional	
4-Slot Backplane (PCIe x16 & Two PCIe x4 & PCIe x1) (**P/N:** TXCBP-XM81-4A-R10)	
4-Slot Backplane (Two PCIe x8 & Two PCIe x4) (**P/N:** TXCBP-XM81-4B-R10)	
4-Slot Backplane (PCIe x16 & PCIe x4 & Two PCI) (**P/N:** TXCBP-XM81-4C-R10)	
4-Slot Backplane (PCIe x16 & Two PCIe x4 & PCIe x1) (**P/N:** TXCBP-XM81-G1-PW-R10)	
4-Slot Backplane (Two PCIe x8 & Two PCIe x4) (**P/N:** TXCBP-XM81-G2-PW-R10)	
Expansion Power Board (**P/N:** IDD-X1228150-R10)	

Optional	
3-Slot Chassis (**P/N:** TXC-XM81-3S-R10)	
4-Slot Chassis (**P/N:** TXC-XM81-4S-R10)	
4-Slot Chassis (Full-length graphics card support) (**P/N:** TXC-XM81-G1-R10)	
6-Slot Chassis (Two Full-length graphics card support) **(P/N:** TXC-XM81-G2-R10)	
Expansion Fan Module (**P/N:** SF-TANK-XM81-R10)	

Table 2-2: Optional Packing List

NOTE:

1.EMB-WIFI-KIT02I3-R10 needs to be used with TXIOB-XM81-A-R10.

2.TXCBP-XM81 series backplane needs to be used with TXC-XM81 series chassis

Chapter

3

Installation

3.1 Installation Precautions

CAUTION:

The TANK-XM810 Series has more than one power supply connection point.

To reduce the risk of electric shock, disconnect all power sources before installing or servicing the TANK-XM810 Series.

During installation, be aware of the precautions below:

- **Read the user manual**: The user manual provides a complete description of the TANK-XM810 Series, installation instructions and configuration options.
- **DANGER! Disconnect Power**: Power to the TANK-XM810 Series must be disconnected during the installation process, or before any attempt is made to access the rear panel. Electric shock and personal injury might occur if the rear panel of the TANK-XM810 Series is opened while the power cord is still connected to an electrical outlet.
- **Qualified Personnel**: The TANK-XM810 Series must be installed and operated only by trained and qualified personnel. Maintenance, upgrades, or repairs may only be carried out by qualified personnel who are familiar with the associated dangers.
- **Air Circulation**: Make sure there is sufficient air circulation when installing the TANK-XM810 Series. The TANK-XM810 Series's cooling vents must not be obstructed by any objects. Leave at least 5 cm of clearance around the TANK-XM810 Series to prevent overheating.
- **Grounding**: The TANK-XM810 Series should be properly grounded. The voltage feeds must not be overloaded. Adjust the cabling and provide external overcharge protection per the electrical values indicated on the label attached to the back of the TANK-XM810 Series.

3.2 CPU/RAM/Storage Installation

To install the CPU /RAM/ Storage, please follow the steps below:

Step 1: Remove the 6 screws on the side, and then remove the top cover **(See Figure 3-1).**

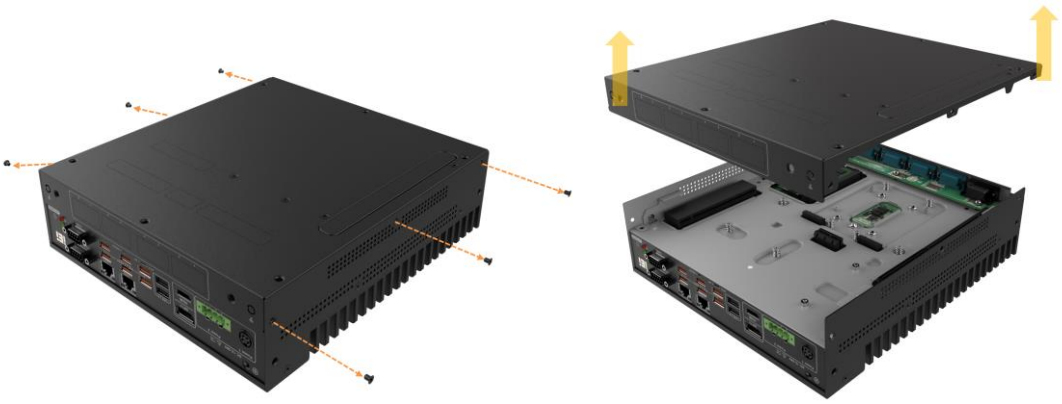


Figure 3-1: Remove the Cover

Step 2: Remove the 11 spring screws on the motherboard, and then take out the motherboard (including the motherboard holder) **(See Figure 3-2).**

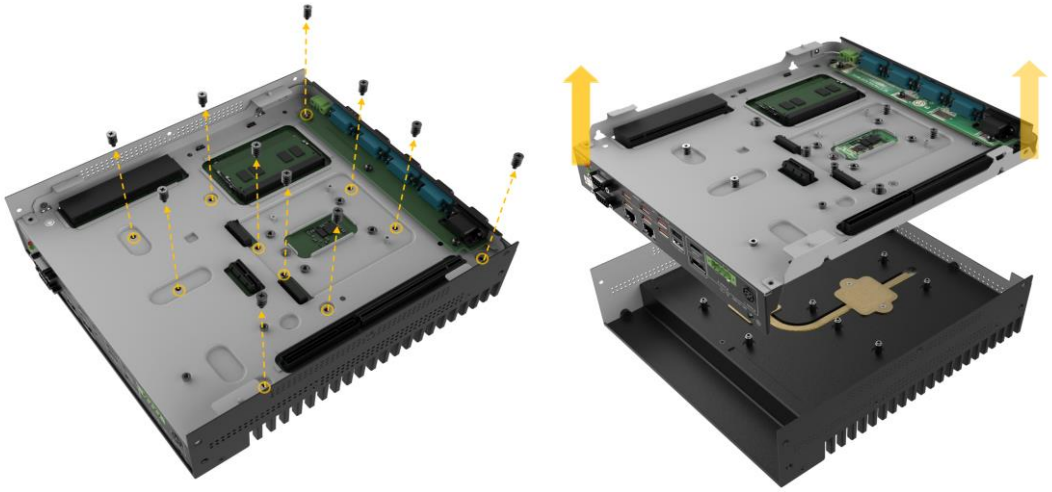


Figure 3-2: Take out the motherboard

Step 3: Pull the lever of the CPU buckle, remove the CPU protection cover, install the CPU at the notch, and fasten the lever down in the buckle **(See Figure 3-3).**

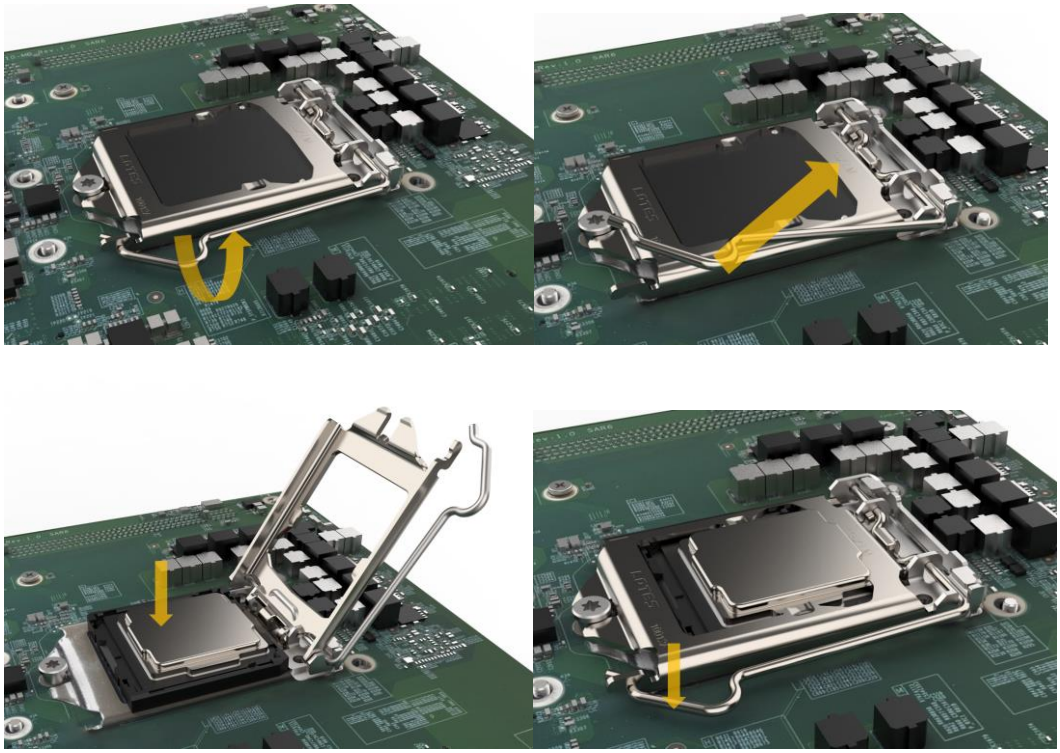


Figure 3-3: CPU Installation

Step 4: Place a thermal pad on the heat conductive block of CPU **(See Figure 3-4).**

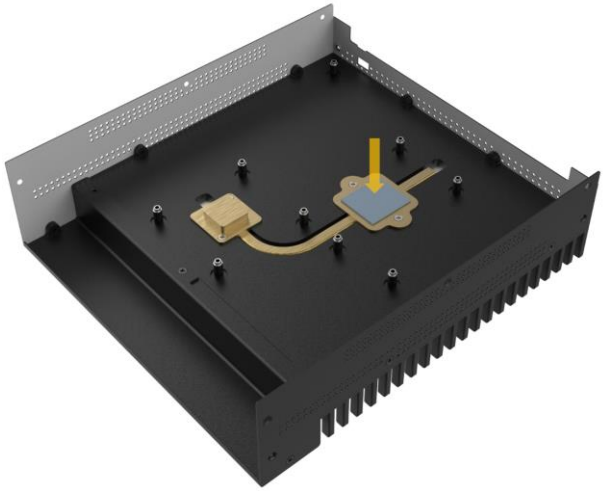


Figure 3-4: CPU Thermal Pad Installation

Step 5: Align the motherboard (together with the motherboard holder) with the 4 positioning rods on the 2 sides, place it on the heat sink, and lock the motherboard with 11 spring screws. **(See Figure 3-5)**

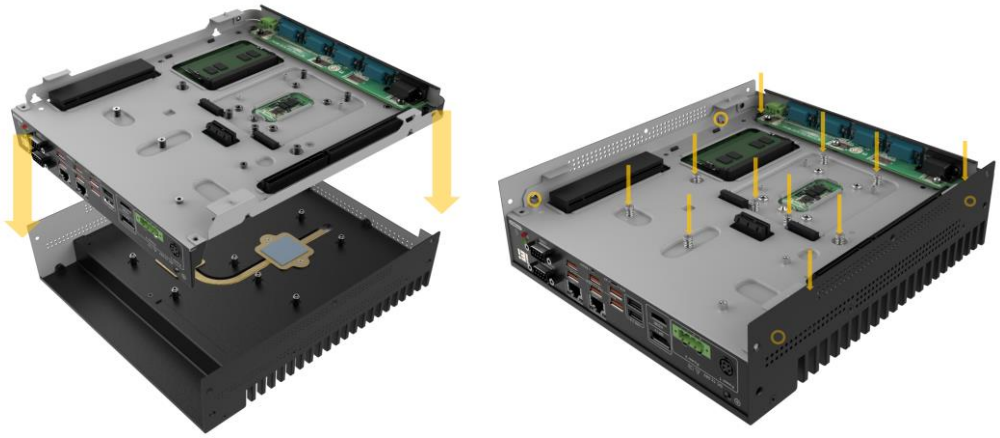


Figure 3-5: Motherboard Installation

Step 6: Insert the memory into the motherboard memory slot and press it into place **(See Figure 3-6)**

Figure 3-6: RAM Installation

Step 7: Remove the M.2 2280 reserved screws, install the M.2 2280 NVME card, and re-lock the fixing screws **(See Figure 3-7)**

Figure 3-7: M.2 Installation

Step 8: Place the hard drive into the hard drive bracket and secure the HDD bracket and the hard drive with four screws **(See Figure 3-8)**

Figure 3-8: HDD Installation

Step 9: Install the back cover. And lock the 6 screws on the side **(See Figure 3-9)**

Figure 3-9: Back Cover Installation

3.3 Mounting the System with Mounting Brackets

To mount the embedded system onto a wall or some other surface using the two mounting brackets, please follow the steps below.

Step 1: Turn the embedded system over.

Step 2: Align the retention screw holes in each bracket with the corresponding retention screw holes on the bottom surface

Step 3: Secure the brackets to the system by inserting retention screws into each bracket **(See Figure 3-10).**

Figure 3-10: Mounting Bracket Retention Screws

Step 4: Drill holes in the intended installation surface.

Step 5: Align the mounting holes in the sides of the mounting brackets with the predrilled holes in the mounting surface.

Step 6: Insert four retention screws, three in each bracket, to secure the system to the wall.

3.4 External Peripheral Interface Connectors

The TANK-XM810 Series has the following connectors. Detailed descriptions of the connectors can be found in the subsections below.

- AT/ATX power mode switch
- Digital I/O
- Ethernet
- Power button
- Power DC jack
- Power terminal block
- HDMI
- DP++
- RS-232/422/485
- USB

3.4.1 AT/ATX Power Mode Selection

The TANK-XM810 Series supports AT and ATX power modes. The setting can be made through the AT/ATX power mode switch on the external peripheral interface panel as shown below **(See Figure 3-11).**

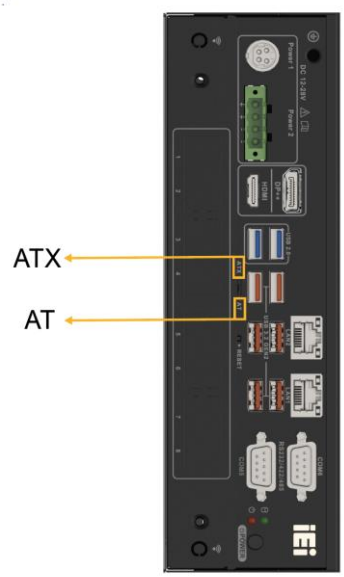


Figure 3-11: AT/ATX Power Mode Switch

3.4.2 SYS_FAN Connector

The SYS_FAN connector can be connected to an external expansion fan **(See Figure 3-12).**

Figure 3-12: SYS_FAN Connector

3.4.3 Digital Input / Output Connector

The digital I/O connector provides programmable input and output for external devices. The pinouts for the digital I/O connector are listed in the table below **(See Table 3-1 & Figure 3-13).**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	DIN0
3	DIN1	4	DIN2
5	DIN3	6	DIN4
7	DIN5	8	GND
9	DOUT0	10	DOUT1
11	DOUT2	12	DOUT3
13	DOUT4	14	DOUT5
15	+5VS		

Table 3-1: Digital I/O Connector Pinouts

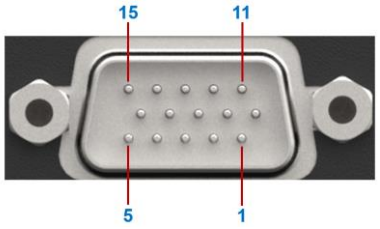


Figure 3-13: DIO Connector

3.4.4 HDMI/DP Connector

To connect the HDMI/DP devices, please plug in HDMI/DP connector in the right direction as shown below **(See Figure 3-14):**

Figure 3-14: HDMI/DP Connection

3.4.5 LAN Connectors

The LAN connectors allow connection to an external network.

Step 1: **Locate the RJ-45 connectors**. The locations of the RJ-45 connectors are shown **in Figure 3-16.**

Step 2: **Align the connectors.** Align the RJ-45 connector on the LAN cable with one of the RJ-45 connectors on the TANK-XM810 Series. **(See Figure 3-15).**

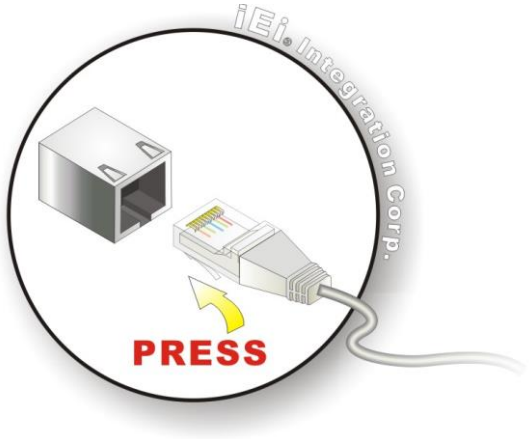


Figure 3-15: LAN Connection

Step 3: **Insert the LAN cable RJ-45 connector.** Once aligned, gently insert the LAN cable RJ-45 connector into the on-board RJ-45 connector. **(See Figure 3-16).**

Figure 3-16: RJ-45 Ethernet Connector

The RJ-45 Ethernet connector has two status LEDs, one green and one yellow. The green LED indicates activity on the port and the yellow LED indicates the port is linked. **(See Table 3-2).**

Activity/Link LED		Speed LED	
STATUS	**DESCRIPTION**	**STATUS**	**DESCRIPTION**
Off	No link	Off	100 Mbps connection
SSYellow	Linked	Orange	1 Gbp connection
Blinking	TX/RX activity	Green	2.5 Gbps connection

Table 3-2: RJ-45 Ethernet Connector LEDs

3.4.6 Power Input, 4-pin Terminal Block

The power connector connects the leads of a 12 V ~ 28 V DC power supply into the terminal block. Make sure that the power and ground wires are attached to the correct sockets of the connector **(See Figure 3-17).**

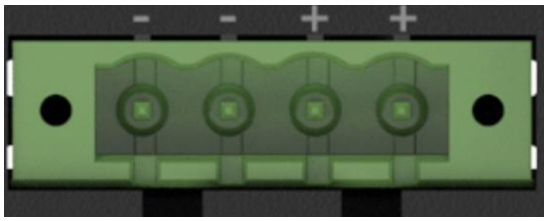


Figure 3-17: 4-pin Terminal Block

3.4.7 Power Input, 4-pin DIN Connector

The power connector connects to the 12 V~28 V DC power adapter **(See Figure 3-18).**

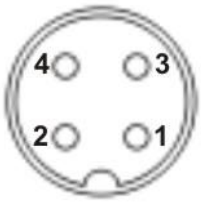


Figure 3-18: Power Input Connector

3.4.8 DB-9 RS-232/422/485 Serial Port Connection

The system has two RS-232 serial ports and two RS-422/485 serial ports. The pinouts for the serial ports are listed **in the Table 3-3.**

PIN NO.	RS232	RS422	RS485
1	DCD#	TX-	TX-
2	RXD	TX+	TX+
3	TXD	RX+	
4	DTR#	RX-	
5	GND		
6	DSR#		
7	RTS#		
8	CTS#		
9	RI#		

Table 3-3: RS-232 (COM1~COM4) & RS-422/485 (COM5/6) Connector Pinouts

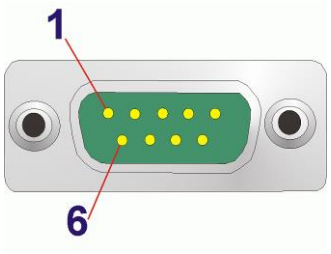


Figure 3-19: DB-9 RS-232/422/485 Serial Port Connector

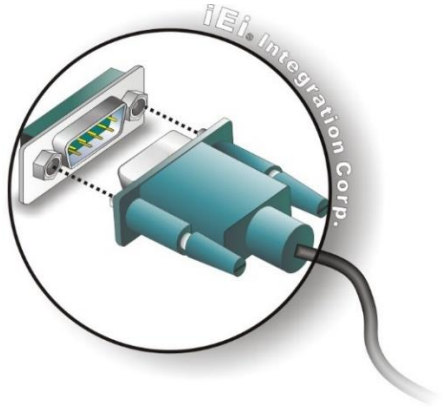


Figure 3-20: Serial Device Connection

3.4.9 Remote Power Connector

This remote power switch connector can be connected to an external switch for remote control of power on and off **(See Figure 3-21).**

Figure 3-21: Remote Power Connector

3.5 Powering On/Off the System

WARNING:

Make sure a power supply with the correct input voltage is being fed into the system. Incorrect voltages applied to the system may cause damage to the internal electronic components and may also cause injury to the user.

- **Power on** the system: press the power button for 3 seconds
- **Power off** the system: press the power button for 6 seconds
- The power of this system can be less than 250w-20A.

Figure 3-22: Power Button

3.6 Power

There are two power connectors on the rear panel. Power 1 connector is a 4-pin terminal block that supports ACC On signal. Power 2 connector is a DIN connector that can directly connect to a power adapter. The supported power input voltages are:

- **Power 1 (Terminal block)**: 12 V ~ 28 V
- **Power 2 (DC jack)**: 12 V ~ 28 V

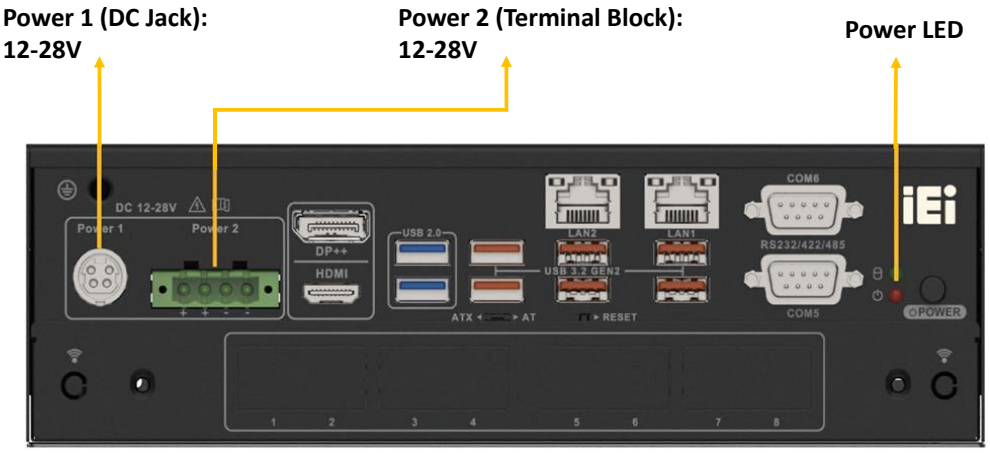


Figure 3-23: Power Connectors

LED Indicator	Description
Power LED1 (Breathing Orange)	Standby mode.
Power LED2 (Solid blue)	Power-on mode.

Table 3-4: Power LED Indicators Description

NOTE:

The power LED turns off when the power cable is unplugged from the system.

3.7 Available Drivers

All the drivers for the TANK-XM810 Series are available on IEI Resource Download Center (https://download.ieiworld.com). Type TANK-XM810 Series and press Enter to find all the relevant software, utilities, and documentation.

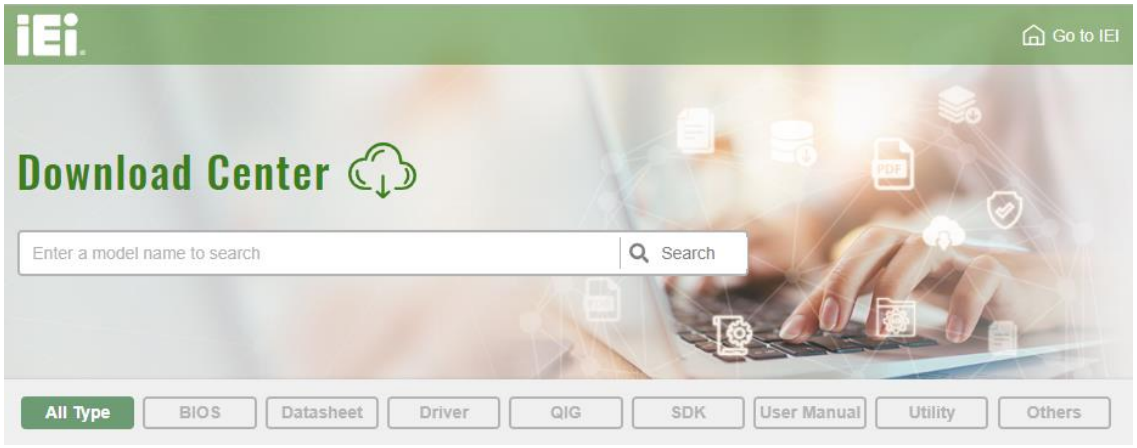
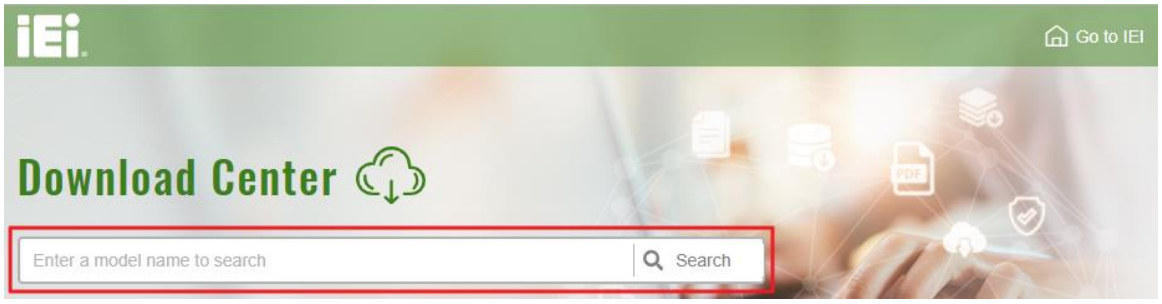


Figure 3-24: IEI Resource Download Center

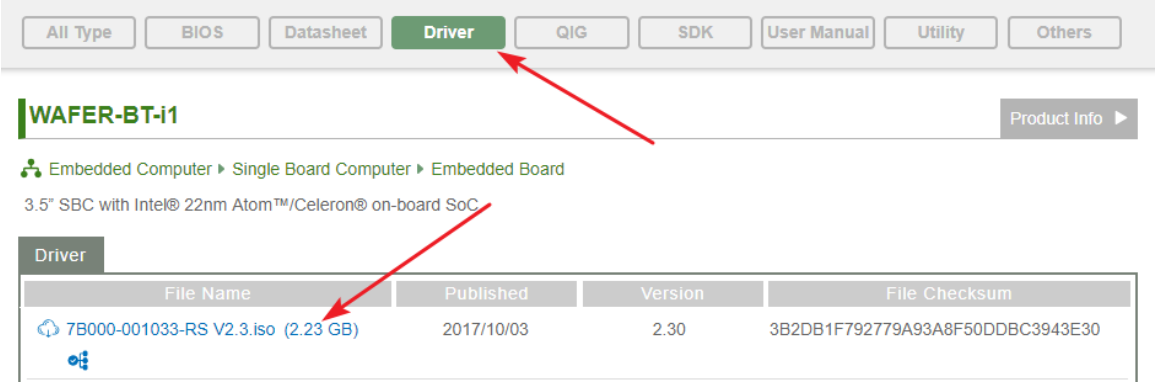
3.7.1 Driver Download

To download drivers from IEI Resource Download Center, follow the steps below.

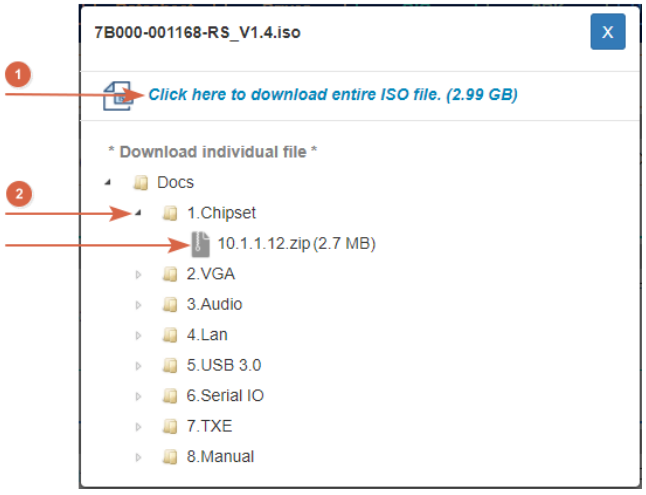
Step 1: Go to https://download.ieiworld.com. Type TANK-XM810 Series and press Enter.



Step 2: All product-related software, utilities, and documentation will be listed. You can choose **Driver** to filter the result.



Step 3: Click the driver file name on the page and you will be prompted with the following window. You can download the entire ISO file (❶), or click the small arrow to find an individual driver and click the file name to download (❷).



NOTE:

To install software from the downloaded ISO image file in Windows 10 (or later), double-click the ISO file to mount it as a virtual drive to view its content.

3.8 RAID Configuration

The **TANK-XM810 Series** can provide data protection for using two NVMe (PCIe) disks via the Intel® Rapid Storage Technology. To access the Intel® Rapid Storage Technology, please follow the steps below.

WARNING!

Irrecoverable data loss occurs if a working drive is removed when trying to remove a failed drive. It is strongly recommended to mark the physical connections of all disk drives. Drive locations can be identified by attaching stickers to the drive bays. If a drive member of a RAID array should fail, the failed drive can then be correctly identified.

CAUTION!

Do not accidentally disconnect the drive cables. Carefully route the cables within the chassis to avoid system down time.

Step 1: **Connect the drives to the system**. Connect two or more drives to the system. Make sure the drives have the same capacity, are the same type and have the same speed.

NOTE:

Make sure the drives type are EXACTLY the same when they are configured in a RAID configuration. If they are not the same size, disk drive capacity will be sacrificed and overall performance affected.

Step 2: **Enable the drives in BIOS**. Start the computer and access the BIOS setup program. Go to **Chipset → PCH-IO Configuration → SATA and RST Configuration → SATA Mode Selection**. Enable RAID support for all devices **(See Figure 3-25).**

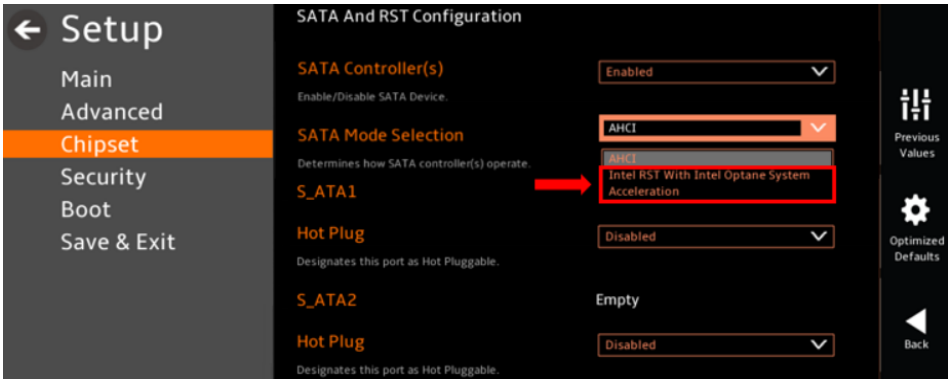


Figure 3-25: RAID Configuration–BIOS Setting (1)

Step 3: **Save and Exit BIOS**. After the option: **Intel RST With Intel Optane System Acceleration** is enabled, save and exit the BIOS.

Step 4: **Reboot the system**. Reboot the system after saving and exiting the BIOS.

Step 5: **Configure the RAID settings in BIOS**. Go to **Advanced → Intel® Rapid Storage Technology**. Use the option to configure the RAID array. **(See Figure 3-26)**

Figure 3-26: RAID Configuration–BIOS Setting (2)

Step 6: Select the option to **Create RAID Volume** from the Main Menu and press Enter.

Figure 3-27: Create RAID Volume from the Main Menu

Step 7: Press the up/down arrows on the keyboard to choose the **RAID Level** and select the disks for the RAID configuration. **(See Figure 3-28)**

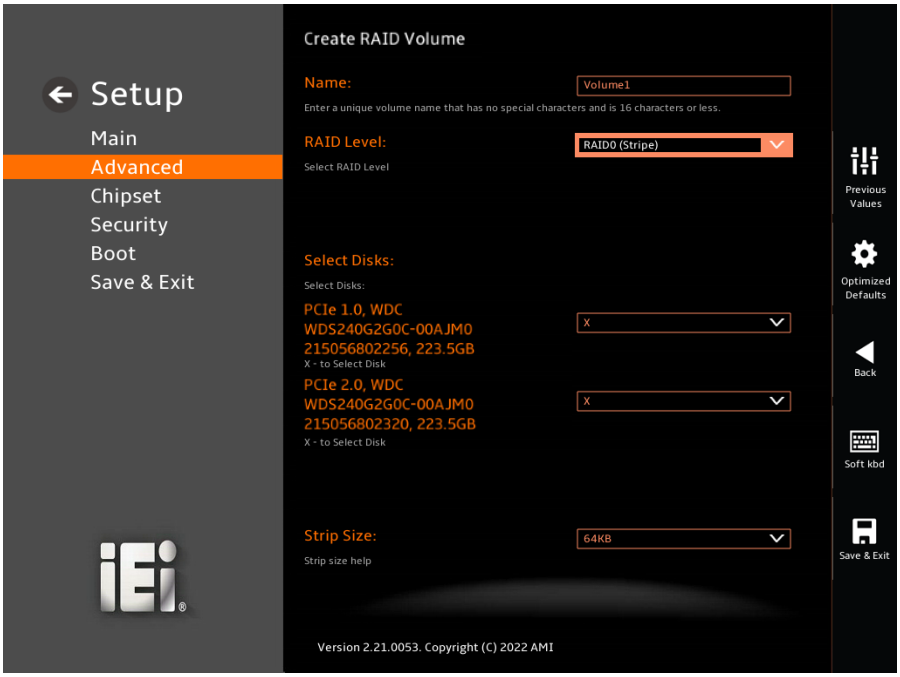


Figure 3-28: Choose the RAID Level and select the Disks

Step 8: **Create RAID Volume.** Highlight **Create Volume** and press Enter, then choose Y when the warning prompt appears to create volume. **(See Figure 3-29)**

Figure 3-29: Confirm to create the RAID Volume

3.9 Maintenance

To configure the jumper settings, please follow the steps below.

Step 1: Remove the top cover. See **Figure 3-2**.

Step 2: Locate the jumper on the embedded motherboard.

Step 3: Make the jumper settings in accordance with the settings described and defined in the following sections.

3.9.1 Flash Descriptor Security Override Jumper

The Descriptor Security Override jumper (J_FLASH1) allows users to enable or disable the ME firmware update. Refer to **Figure 3-30** and **Table 3-5** for the jumper location and settings.

Setting	Description
Short 1-2	Disabled (default)
Short 2-3	Enabled

Table 3-5: Flash Descriptor Security Override Jumper Settings

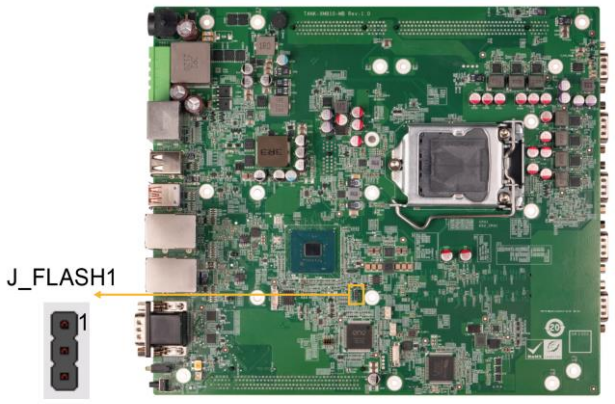


Figure 3-30 Flash Descriptor Security Override Jumper Location

To update the ME firmware, please follow the steps below.

Step 1: Before turning on the system power, short the Flash Descriptor Security Override jumper.

Step 2: Update the BIOS and ME firmware, and then turn off the system power.

Step 3: Remove the metal clip on the Flash Descriptor Security Override jumper or return to its default setting (open).

Step 4: Restart the system. The system will reboot to complete the ME firmware update.

Chapter

4

System Motherboard

4.1 Overview

This chapter details all the jumpers and connectors of the system motherboard.

4.1.1 Layout

The figures below show all the connectors and jumpers of the system motherboard.

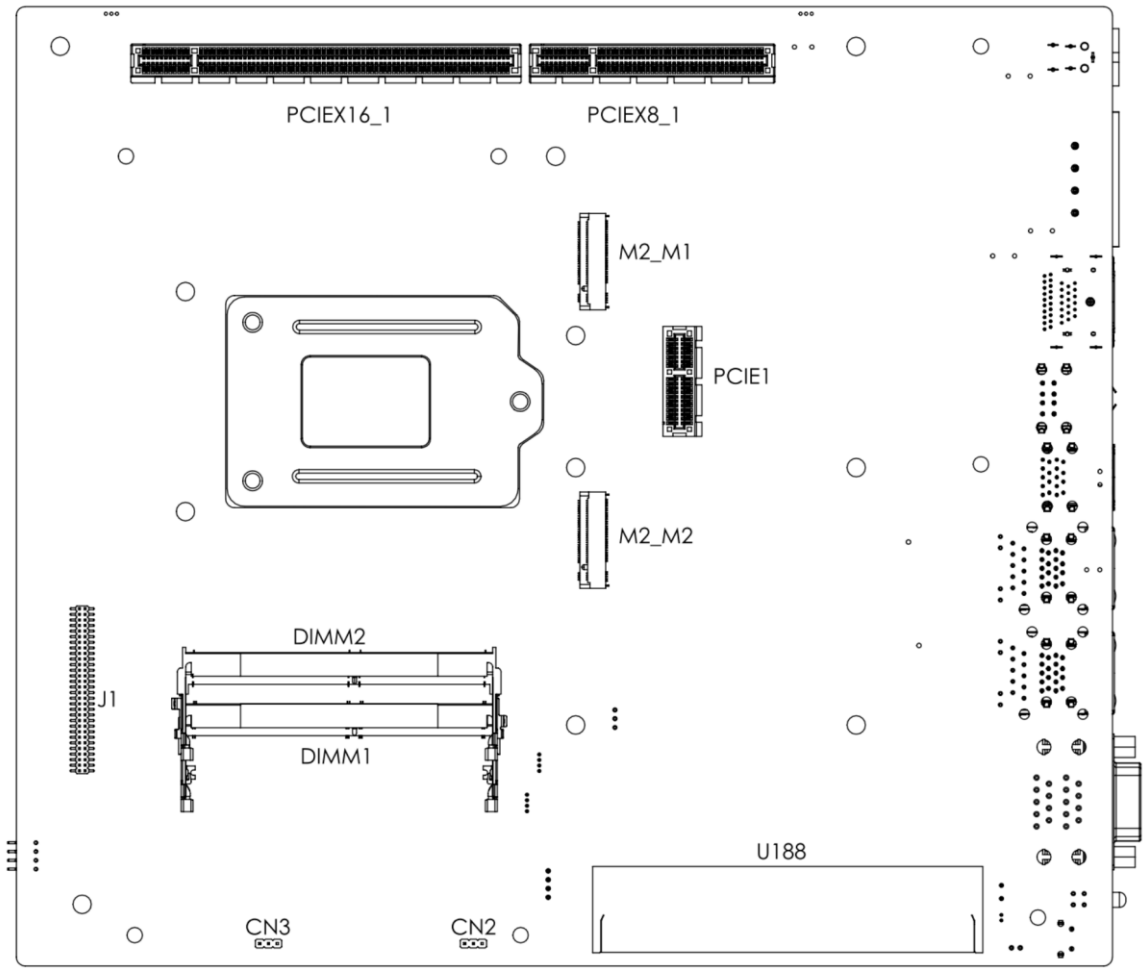


Figure 4-1: System Motherboard (Front)

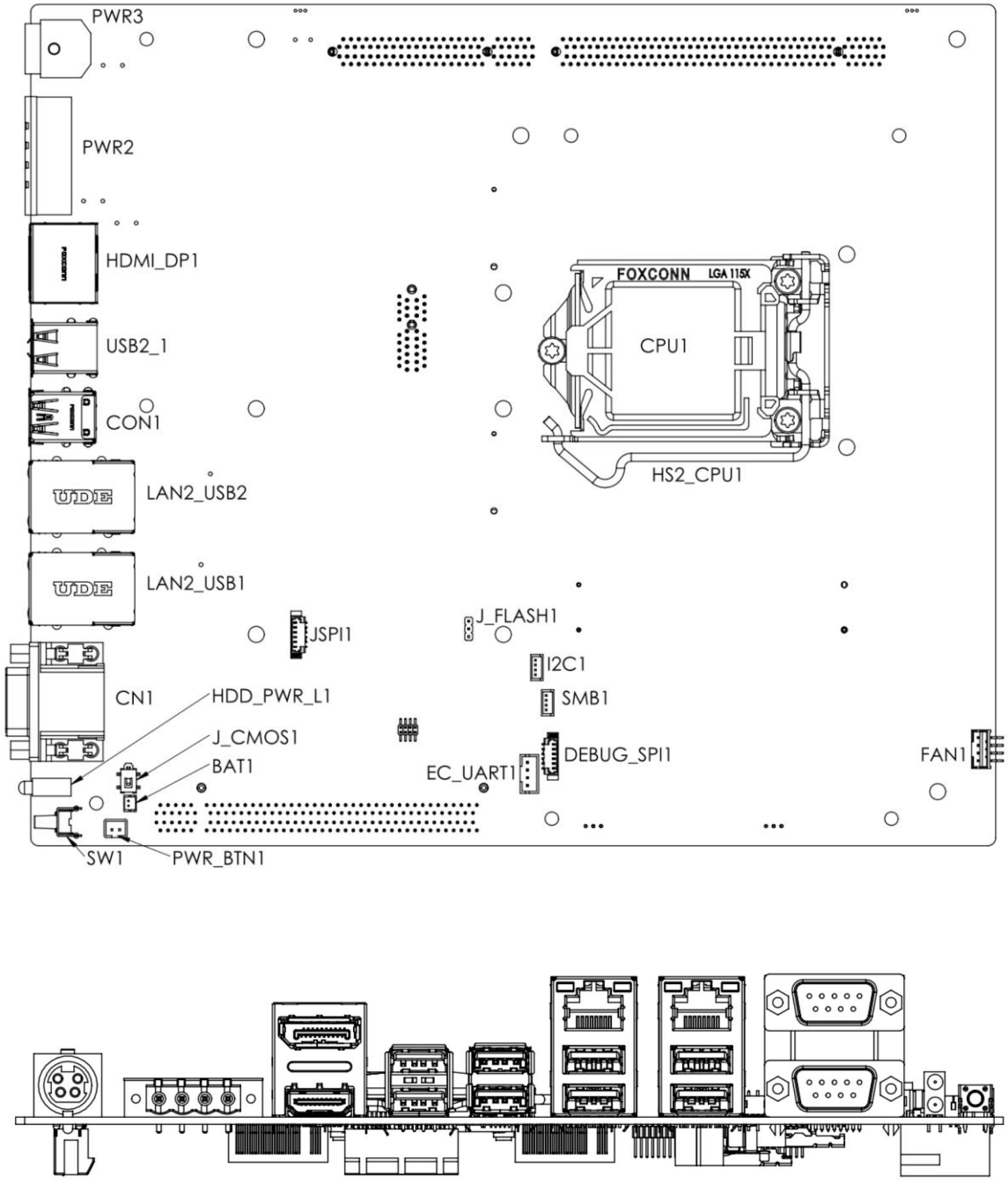


Figure 4-2: System Motherboard (Rear)

4.2 Internal Peripheral Connectors

The table below shows a list of the internal peripheral interface connectors on the system motherboard. Pinouts of these connectors can be found in the following sections.

Connector	Type	Label
Battery connector	2-pin header	BAT1
Power button connector	2-pin header	PWR_BTN1
BIOS programmer connector	6-pin box header	J_SPI1
EC programmer connector	8-pin header	EC_JSP1
EC debug card connector	6-pin box header	DEBUG _SPI1
EC UART connector	4-pin box header	EC_UART1
Flash Override jumper	3-pin header	J_FLASH1
I2C BUS connector	4-pin box header	I2C1
SMBUS connector	4-pin box header	SMB1
M.2 slot (PCIe x2 interface)	M.2 M-key slot	M2_M1
M.2 slot (PCIe x2 interface)	M.2 M-key slot	M2_M2
HDD backplane connector	PCIE x1 slot	PCIEX1_1
DDR4 memory slot	DDR4 memory slot	DIMM1, DIMM2
PCIe backplane connector	backplane connector	PCIEX16_1, PCIEX8_1
PCIe IO Board connector	PCIe x16 slot	U188
Thermal sensor connector	3-pin Connector	CN2,CN3

Table 4-1: Peripheral Interface Connectors

4.2.1 I2C BUS connector (I2C1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	I2C_DAT_CONN
3	I2C_CLK_CONN	4	+V5S

Table 4-2: I2C Bus Connector Pinouts

4.2.2 SMBUS Connector (SMB1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	SMB_DATA_MAIN
3	SMB_CLK_MAIN	4	+V5S

Table 4-3: SMBus Connector Pinouts

4.2.3 BIOS Programming Connector (JSPI1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+V3.3M_SPI_CON	2	SPI_CS#0_SW
3	SPI_SO_SW	4	SPI_CLK_SW
5	SPI_SI_SW	6	GND

Table 4-4: BIOS Programming Connector Pinouts

4.2.4 EC Programmer Connector (EC_SPI1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	EC_SPI_CS#_R	2	+V3.3A_EC
3	EC_SPI_MISO_R	4	NC
5	EC_DET_FLASH	6	EC_SPI_CLK_R
7	GND	8	EC_SPI_MOSI_R

Table 4-5: EC Programmer Connector Pinouts

4.2.5 Power Button Connector (PWR_BTN1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	PWRBTN_SW#	2	GND

Table 4-6: Power Button Connector Pinouts

4.2.6 EC UART Debug (EC_UART1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DEBUG_UART_TX	2	+V3.3A_EC
3	DEBUG_UART_RX	4	GND

Table 4-7: EC UART Debug Connector Pinouts

4.2.7 EC Debug Card Connector (DEBUG_SPI1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	EC_SPI_CS#_R	2	+V3.3A_EC
3	EC_SPI_MISO_R	4	NC
5	EC_DET_FLASH	6	EC_SPI_CLK_R

Table 4-8: EC Debug Card Connector Pinouts

4.2.8 LAN LED Connector (LED_LAN1/LED_LAN2/LED_LAN3)

PIN NO.	DESCRIPTION
1	VCC3V
2	ACT

Table 4-9: LAN LED Connector Pinouts

4.2.9 Battery Connector (BAT1)

PIN NO.	DESCRIPTION
1	VBATT
2	GND

Table 4-10: Battery Connector Pinouts

4.3 External Interface Panel Connectors

The table below shows a list of the external interface panel connectors on the system motherboard. Pinouts of these connectors can be found in the following sections.

Connector	Type	Label
Power input connector	4-pin DC jack	PWR3
Power input connector	4-pin terminal block	PWR2
DP and HDMI Connector	DisplayPorts, HDMI	HDMI_DP1
USB 2.0	USB 2.0	USB 2_1
USB 3.2 Gen 2	USB 3.2 Gen 2	CN1
Ethernet and USB 3.2 Gen 2 combo connectors	RJ-45, USB 3.2 Gen 2 Type A	LAN1_USB1, LAN2_USB2,
RS-232/422/485 connector	DB-9	COM5, COM6
RESET Switch	4-pin Switch	RST1
HDD+System LED	HDD+System LED	HDD_PWR_L1
Power button connector	4-pin Switch	PWR_BTN1
RS-232 connector	DB-9	COM1, COM2, COM3, COM4
SYS_FAN connector	4-pin box header	FAN1
Remote Power connector	2-pin terminal block	JP1

Table 4-11: Rear Panel Connectors

4.3.1 HDMI Connector (HDMI1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	HDMI_DATA2	13	N/C
2	GND	14	N/C
3	HDMI_DATA2#	15	HDMI_SCL
4	HDMI_DATA1	16	HDMI_SDA
5	GND	17	GND
6	HDMI_DATA1#	18	+5V
7	HDMI_DATA0	19	HDMI_HPD
8	GND	20	HDMI_GND
9	HDMI_DATA0#	21	HDMI_GND
10	HDMI_CLK	22	HDMI_GND
11	GND	23	HDMI_GND
12	HDMI_CLK#		

Table 4-12: HDMI Connector Pinouts

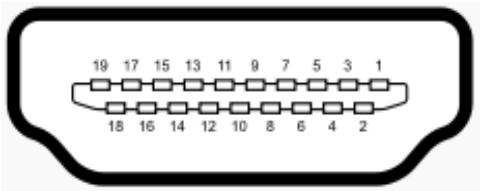


Figure 4-3: HDMI Connector

4.3.2 DP++ Connector (DP1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LANE0P	11	GND
2	LANE0N	12	LANE3N
3	GND	13	DP_EN_DT
4	LANE1P	14	EN
5	LANE1N	15	AUXP
6	GND	16	GND
7	LANE2P	17	AUXN
8	GND	18	HPD
9	LANE2N	19	GND
10	LANE3P	20	+3.3V

Table 4-13: DP++ Connector Pinouts

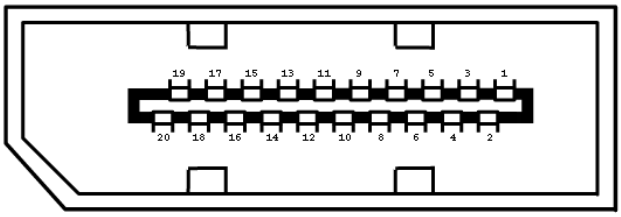


Figure 4-4: DP++ Connector

4.3.3 USB 3.2 Gen 2 Connectors (CON1)

The system has two USB 3.2 Gen 2 (10Gb/s) connectors.

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	10	VCC
2	USB_DATA-	11	USB_DATA-
3	USB_DATA+	12	USB_ DATA+
4	GND	13	GND
5	USB3_RX-	14	USB3_RX-
6	USB3_RX+	15	USB3_ RX+
7	GND	16	GND
8	USB3_TX-	17	USB3_TX-
9	USB3_TX+	18	USB3_TX+

Table 4-14: USB 3.2 Gen 2 Connector Pinouts

4.3.4 USB 2.0 Connectors (USB2_1)

The system provides two USB 2.0 connectors for USB device connection.

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	USB_VCC	5	USB_VCC
2	DATA-	6	DATA-
3	DATA+	7	DATA+
4	GND	8	GND

Table 4-15: USB 2.0 Connector Pinouts

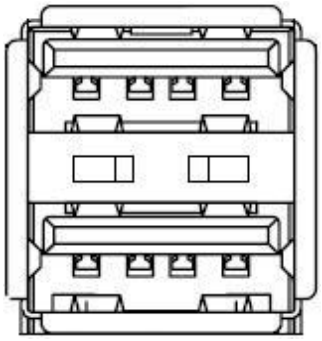


Figure 4-5: USB 2.0 Connector

4.3.5 RS-232/422/485 Serial Port Connectors (CN1: COM5/6)

Mode	RS-232	RS-422	RS-485
PIN NO.	DESCRIPTION	DESCRIPTION	DESCRIPTION
1	DCD#	TX-	TX-
2	RXD	TX+	TX+
3	TXD	RX+	
4	DTR#	RX-	
5	GND		
6	DSR#		
7	RTS#		
8	CTS#		
9	RI#		

Table 4-16: RS-232/422/485 Serial Port Connector Pinouts

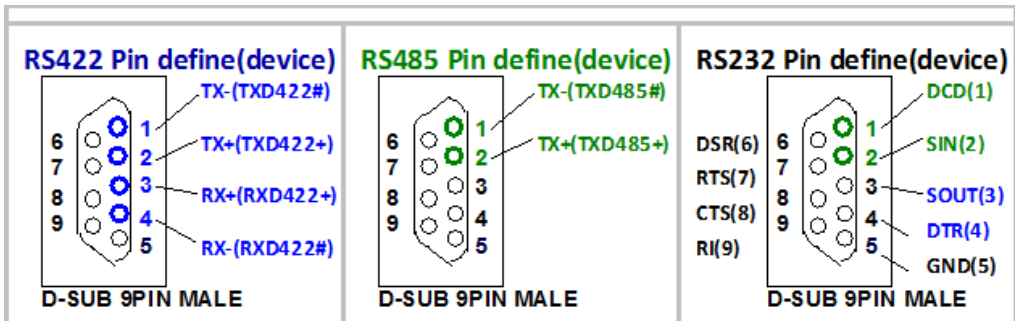


Figure 4-6: RS-232/422/485 Serial Port Connectors

4.3.6 RS-232 Connectors (COM1 ~ COM4)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NDCD	2	NDSR
3	NRX	4	NRTS
5	NTX	6	NCTS
7	NDTR	8	NRI
9	GND	10	GND

Table 4-17: RS-232 Connector Pinouts

4.3.7 LAN Connectors

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	MDIA3-	5	MDIA1+
2	MDIA3+	6	MDIA2+-
3	MDIA2-	7	MDIA0-
4	MDIA1-	8	MDIA0+

Table 4-18: LAN Connector Pinouts

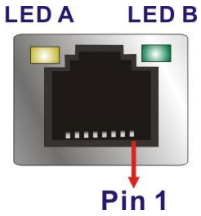


Figure 4-7: Ethernet Connector

LED	Description	LED	Description
A	on: linked blinking: data is being sent/received	B	off: 10 Mb/s green: 100 Mb/s orange: 1000 Mb/s

Table 4-19: Connector LEDs

4.3.8 Remote Power BTN Connector (JP1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	PWRBTN_SW#	2	GND

Table 4-20: Remote Power BTN Connector Pinouts

4.3.9 System Fan Connectors (FAN1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	VCC12V
2	FANIO	4	PWM

Table 4-21: System Fan Connectors Pinouts

4.3.10 Power Input Connector, DC Jack (PWR3)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DC_IN1	2	GND
3	DC_IN1	4	GND
5	GND		

Table 4-22: Power Input Connector Pinouts

4.3.11 Power Input Connector, Terminal Block (PWR2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DC_IN2	2	DC_IN2
3	GND	4	GND

Table 4-23: Power Input Connector Pinouts

4.4 System Jumper Settings

The table below shows a list of the Jumper Settings of the system.

Label	Function
J_ATX_AT1	AT/ATX Power Mode Setting
J_CMOS1	Clear CMOS Setup

Table 4-24: External Peripheral Connectors

4.4.1 AT/ATX Power Mode Setting (J_ATX_AT1)

Use the **J_ATX_AT1** switch to specify the systems power mode as AT or ATX

PIN NO.	DESCRIPTION
1-2 (Right)	ATX Power Mode (default)
2-3 (Left)	AT Power Mode

Table 4-25:AT/ATX Power Mode Switch Pinouts

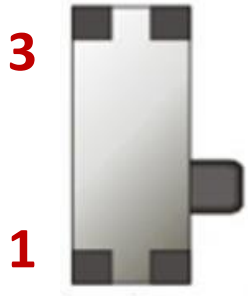


Figure 4-8: AT/ATX Power Mode Switch

4.4.2 Clear CMOS Setup (J_CMOS1)

To clear the CMOS Setup (for example if you have forgotten the password, you should clear the CMOS and then reset the password), you should take off the battery(BT1) and press the button for about 3 seconds. This will set back to normal operation mode.

PIN NO.	DESCRIPTION
NC	Keep CMOS Setup (Normal Operation)
Press button	Clear CMOS Setup

Table 4-26: Clear CMOS Button Pinouts

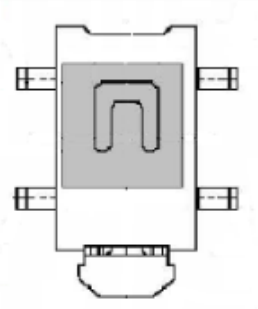


Figure 4-9: Clear CMOS Button

Chapter

5

BIOS

5.1 Introduction

The BIOS is programmed onto the BIOS chip. The BIOS setup program allows changes to certain system settings. This chapter outlines the options that can be changed.

NOTE:

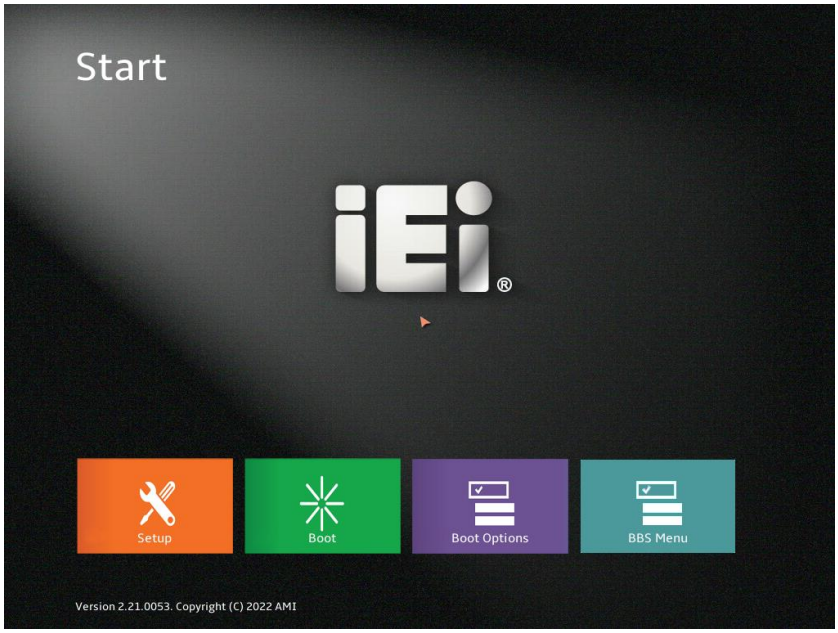
Some of the BIOS options may vary throughout the life cycle of the product and are subject to change without prior notice.

5.1.1 Starting Setup

The UEFI BIOS is activated when the computer is turned on. The setup program can be activated in one of two ways.

1. **Using keyboard**: Press the **DEL** or **F2** as soon as the system is turned on.
2. **Using touchscreen**: Press the **Setup** button on the upper right corner of the BIOS Starting Menu.

If the message disappears before the **DEL or F2** key is pressed, restart the computer and try again, then the BIOS Starting Menu will appear. Select "Setup" and press Enter to get into the BIOS Setup.



BIOS Menu 1: BIOS Starting Menu

5.1.2 Using Setup

The BIOS Setup menu can be navigated by using a keyboard or a touchscreen.

5.1.2.1 Keyboard Navigation

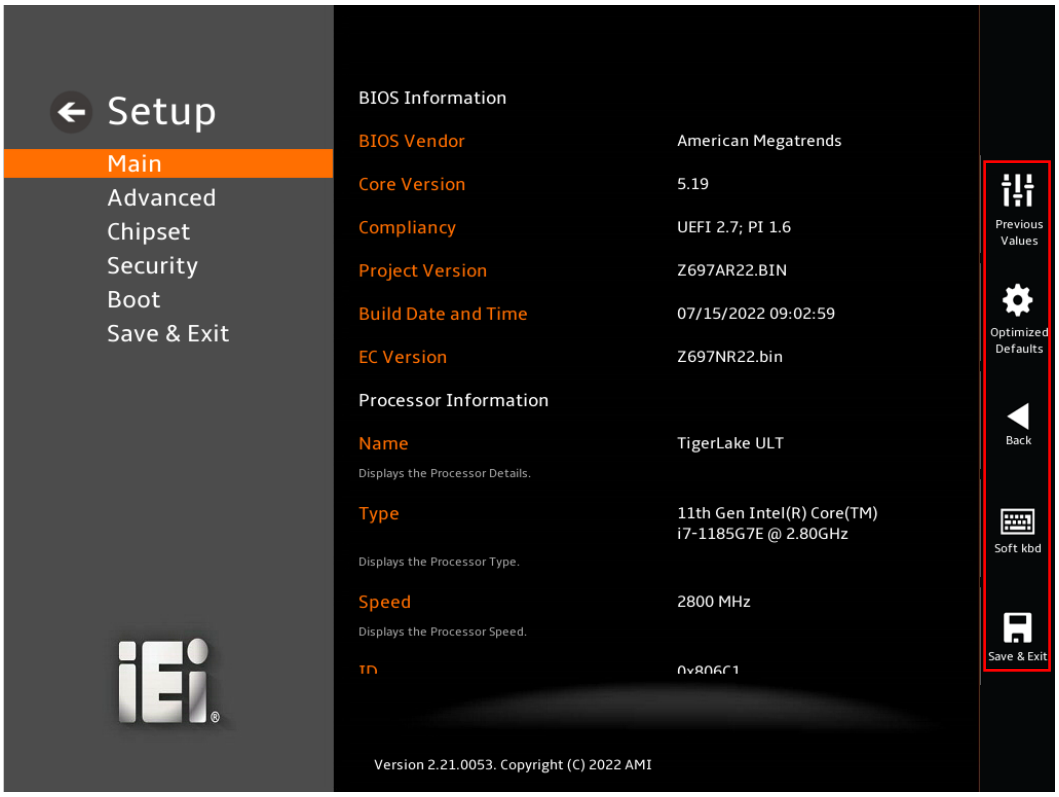
For keyboard navigation, use the navigation keys shown in **Table 5-1**.

Key	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left hand side
Right arrow	Move to the item on the right hand side
+	Increase the numeric value or make changes
-	Decrease the numeric value or make changes
Page Up	Move to the previous page
Page Dn	Move to the next page
Esc	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
F1	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2	Load previous values
F3	Load optimized defaults
F4	Save changes and Exit BIOS
<K>	Scroll help area upwards
<M>	Scroll help area downwards

Table 5-1: BIOS Navigation Keys

5.1.2.2 Touch Navigation

For touchscreen navigation, use the on-screen navigation keys shown below.



BIOS Menu 2: Touch Navigation

On-screen Button	Function
Previous Values	Load the last value you set.
Optimized Defaults	Load the factory default values in order to achieve the best performance.
Back	Return to the previous menu.
Soft kbd	Display the on-screen keyboard.
Save & Exit	Save the changes made to the BIOS options and reset the system.

Table 5-2: BIOS On-screen Navigation Keys

5.1.3 Getting Help

When **F1** is pressed a small help window describing the appropriate keys to use and the possible selections for the highlighted item appears. To exit the Help Window, press the **Esc** key.

5.1.4 Unable to Reboot after Configuration Changes

If the computer cannot boot after changes to the system configuration is made, CMOS defaults. Use the clear CMOS button described in **Chapter 4**.

5.1.5 BIOS Menu Bar

The **menu bar** on top of the BIOS screen has the following main items:

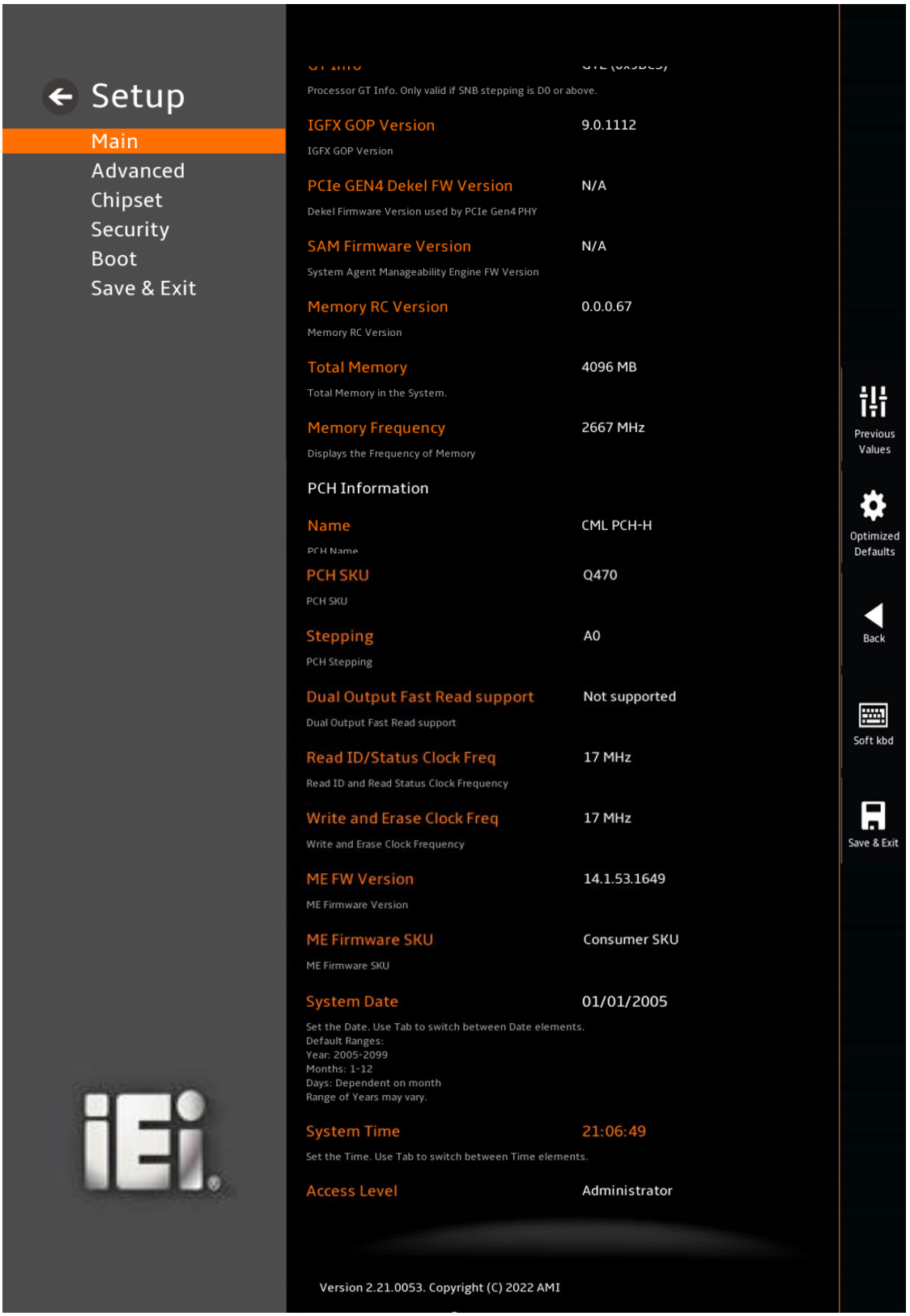
- Main – Changes the basic system configuration.
- Advanced – Changes the advanced system settings.
- Chipset – Changes the chipset settings.
- Security – Sets User and Supervisor Passwords.
- Boot – Changes the system boot configuration.
- Save & Exit – Selects exit options and loads default settings

The following sections completely describe the configuration options found in the menu items at the top of the BIOS screen and listed above.

5.2 Main

The **Main** BIOS menu appears when the **BIOS Setup** program is entered. The **Main** menu gives an overview of the basic system information.

BIOS Menu 3: Main (1/2)



BIOS Menu 4: Main (2/2)

➔ **BIOS Information**

The **BIOS Information** lists a brief summary of the BIOS. The fields in **BIOS Information** cannot be changed. The items shown in the system overview include:

- **BIOS Vendor:** Installed BIOS vendor
- **Core Version:** Current BIOS version
- **Compliancy:** Current UEFI & PI version
- **Project Version:** the board version
- **Build Date:** Date the current BIOS version was made
- **EC Version:** Current EC version

➔ **Processor Information**

The **Processor Information** lists a brief summary of the Processor. The fields in **Processor Information** cannot be changed. The items shown in the system overview include:

- **Name:** Displays the processor details
- **Type:** Displays the processor type
- **Speed:** Displays the processor speed
- **ID:** Displays the processor ID
- **Stepping:** Displays the processor stepping
- **Package:** Displays the processor package
- **Number of Processors:** Displays number of CPU cores
- **Microcode Revision:** CPU microcode revision
- **GT Info:** Processor GT Info. Only valid if SNB stepping is D0 or above
- **IGFX GOP Version:** Displays the IGFX GOP version
- **PCIe GEN4 Dekel FW Version:** Displays the dekel FW version
- **SAM Firmware Version:** Displays the SAM FW version
- **Memory RC Version:** Displays the vemory RC version
- **Total Memory:** Displays the installed memory in the system
- **Memory Frequency:** Displays the frequency of memory

➔ **PCH Information**

The **PCH Information** lists a brief summary of the PCH. The fields in **PCH Information** cannot be changed. The items shown in the system overview include:

- **Name:** Displays the PCH name
- **PCH SKU:** Displays the PCH SKU
- **Stepping:** Displays the PCH stepping
- **Dual Output Fast Read Support:** Displays the support of dual output fast read
- **Read ID/Status Clock Freq:** Displays the frequency of reading ID and status clock frequency
- **Write and Erase Clock Freq:** Displays the frequency of writing and eraseing clock frequency
- **ME FW Version:** Displays the ME firmware version
- **ME Firmware SKU:** Displays the ME firmware SKU
- **PMC FW Version:** Displays the PMC firmware version

The System Overview field also has two user configurable fields:

➔ **System Date [xx/xx/xx]**

Use the **System Date** option to set the system date. Manually enter the day, month and year.

➔ **System Time [xx:xx:xx]**

Use the **System Time** option to set the system time. Manually enter the hours, minutes and seconds.

5.3 Advanced

Use the **Advanced** menu (**BIOS Menu 5**) to configure the CPU and peripheral devices through the following sub-menus:

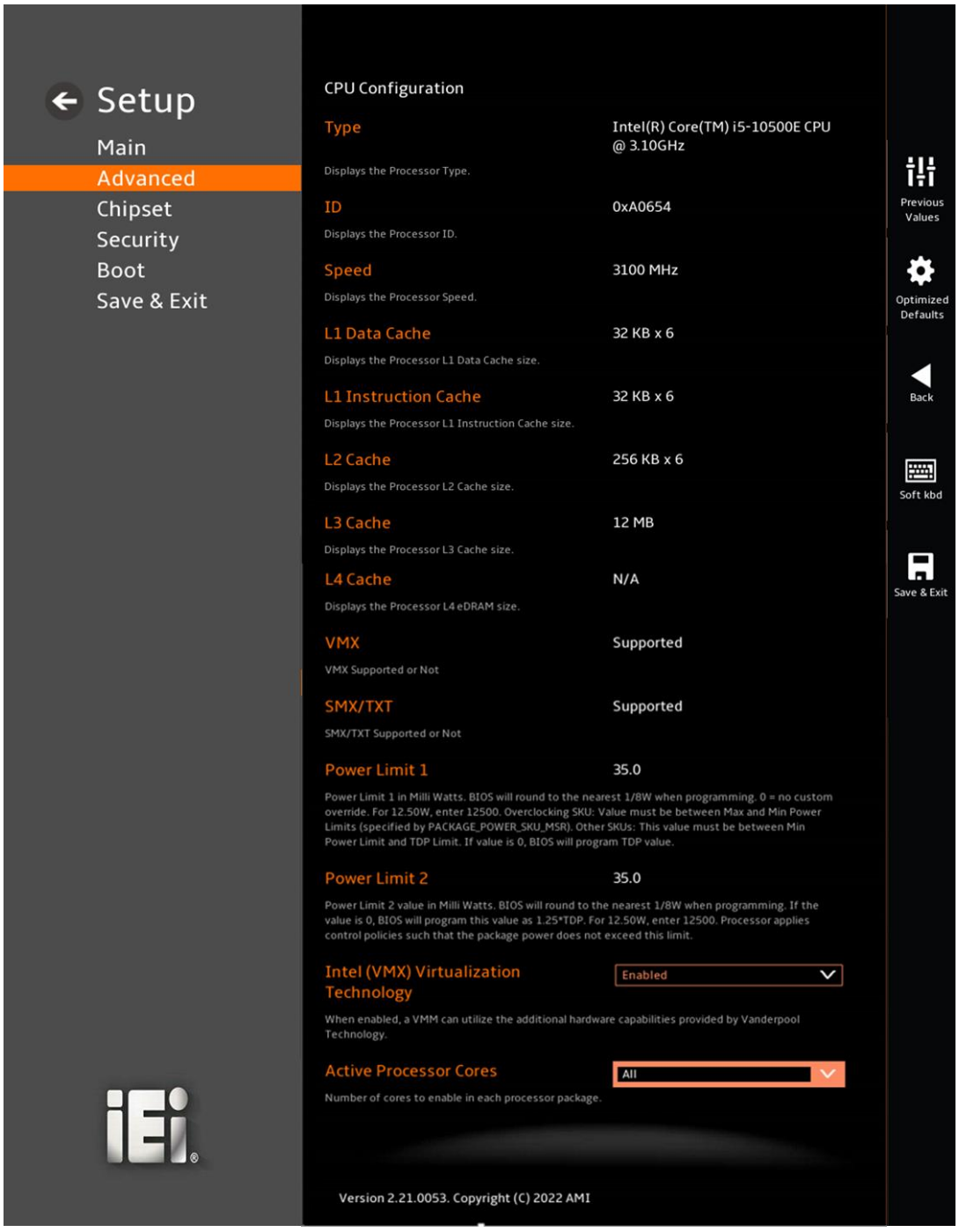
WARNING!

Setting the wrong values in the sections below may cause the system to malfunction. Make sure that the settings made are compatible with the hardware.

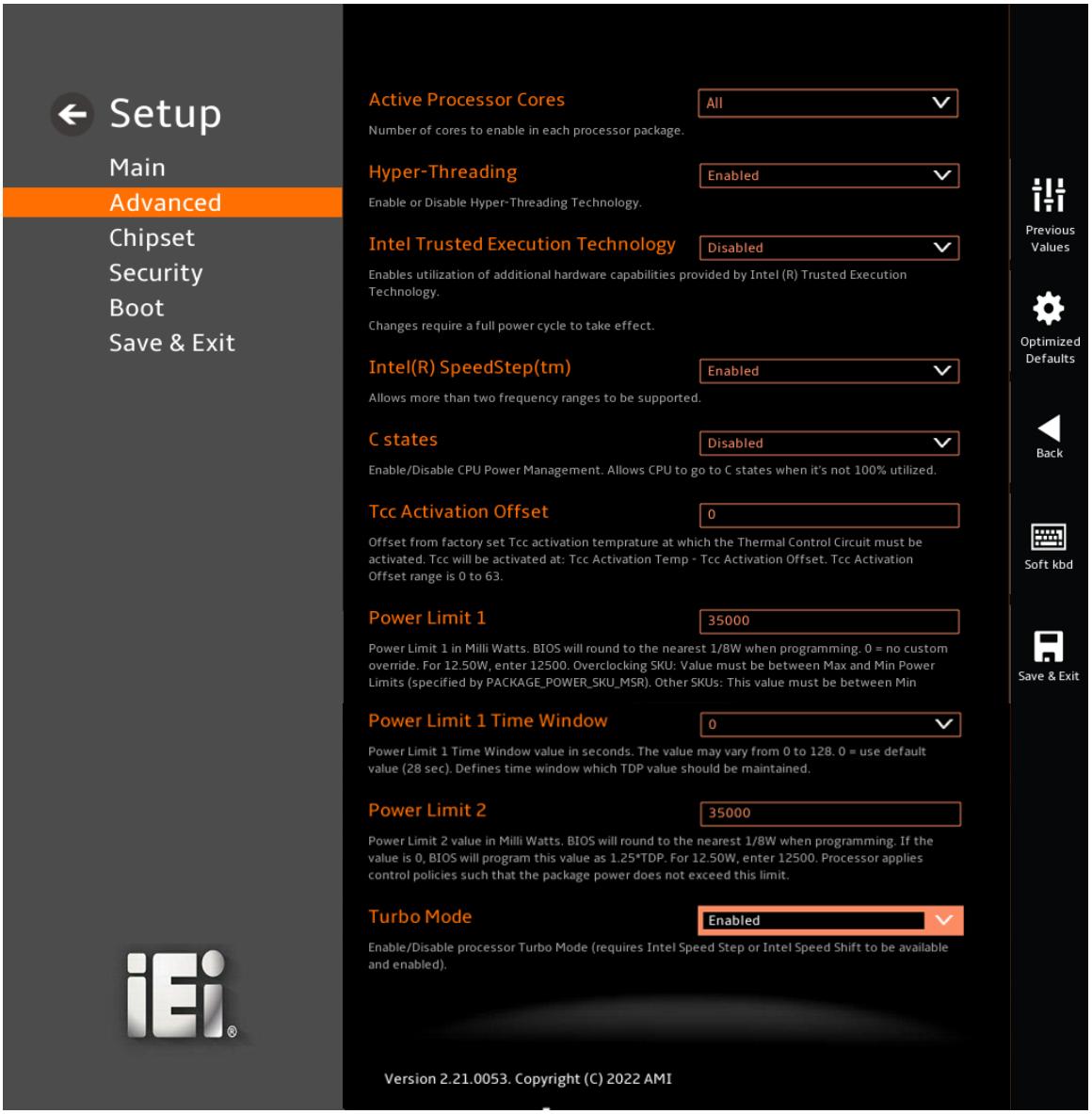
BIOS Menu 5: Advanced

5.3.1 CPU Configuration

Use the **CPU Configuration** menu (**BIOS Menu 6 & BIOS Menu 7**) to view detailed CPU specifications or enable the Intel Virtualization Technology.



BIOS Menu 6: CPU Configuration (1/2)



BIOS Menu 7: CPU Configuration (2/2)

➔ **Intel (VMX) Virtualization Technology [Enabled]**

Use the **Intel (VMX) Virtualization Technology** option to enable or disable virtualization on the system. When combined with third party software, Intel® Virtualization technology allows several OSs to run on the same system at the same time.

➔	**Disabled**		Disables Intel Virtualization Technology.
➔	**Enabled**	**DEFAULT**	Enables Intel Virtualization Technology.

➔ **Active Processor Cores [All]**

Use the **Active Processor Cores** BIOS option to enable numbers of cores in the processor package.

➔ **All**	**DEFAULT**	Enable all cores in the processor package.
➔ **1**		Enable one core in the processor package.
➔ **2**		Enable two cores in the processor package.
➔ **3**		Enable three cores in the processor package.

➔ **Hyper-Threading [Enabled]**

Use the **Hyper-Threading** option to enable or disable the **Hyper-Threading** Technology.

➔ **Disabled**		Disables Hyper-Threading Technology
➔ **Enabled**	**DEFAULT**	Enables Hyper-Threading Technology

➔ **Intel(R) Trusted Execution Technology [Disabled]**

Use the **Intel Trusted Execution Technology (Intel® TXT)** option to enable or disable utilization of additional hardware capabilities provided by Intel (R) Trusted Execution Technology.

➔ **Disabled**	**DEFAULT**	Disables Intel® TXT Technology
➔ **Enabled**		Enables Intel® TXT Technology

➔ **Intel(R) SpeedStep(tm) [Enabled]**

Use the **Intel(R) SpeedStep(tm)** option to enable or disable the Intel® SpeedStep Technology which allows more than two frequency ranges to be supported.

➔ **Disabled**		Disables Intel® SpeedStep Technology
➔ **Enabled**	**DEFAULT**	Enables Intel® SpeedStep Technology

➔ **C states [Disabled]**

Use the **C states** option to enable or disable CPU power management which allows CPU to go to C states when it is not 100% utilized.

➔ **Disabled**	**DEFAULT**	Disables CPU power management
➔ **Enabled**		Enables CPU power management

➔ **Tcc Activation Offset [Disabled]**

Use the **Tcc Activation Offset** option to offset from default value of Thermal Control Circuit (TCC) activation temperature at which the TCC must be activated. TCC Activation Offset range is 0 to 63.

➔ **Disabled**	**DEFAULT**	Disables Tcc Activation Offset Technology
➔ **Enabled**		Enables Tcc Activation Offset Technology

➔ **Power Limit 1**

Use the + or – key to change the **Power Limit 1** value. BIOS will program the default values for Limit 1 and Power Limit 1 Time Window. For 12.50W, enter 12500.

➔ **Power Limit 1 Time Window [0]**

Use the **Power Limit 1 Time Window** option to select the PL1 time duration. The value may vary from 0 to 128. For 0 is the default value

➔ **Power Limit 2**

Use the + or – key to change the **Power Limit 2** value. BIOS will round to the nearest 1/8W when programming. 0 = no custom override. For 12.50W, enter 12500.

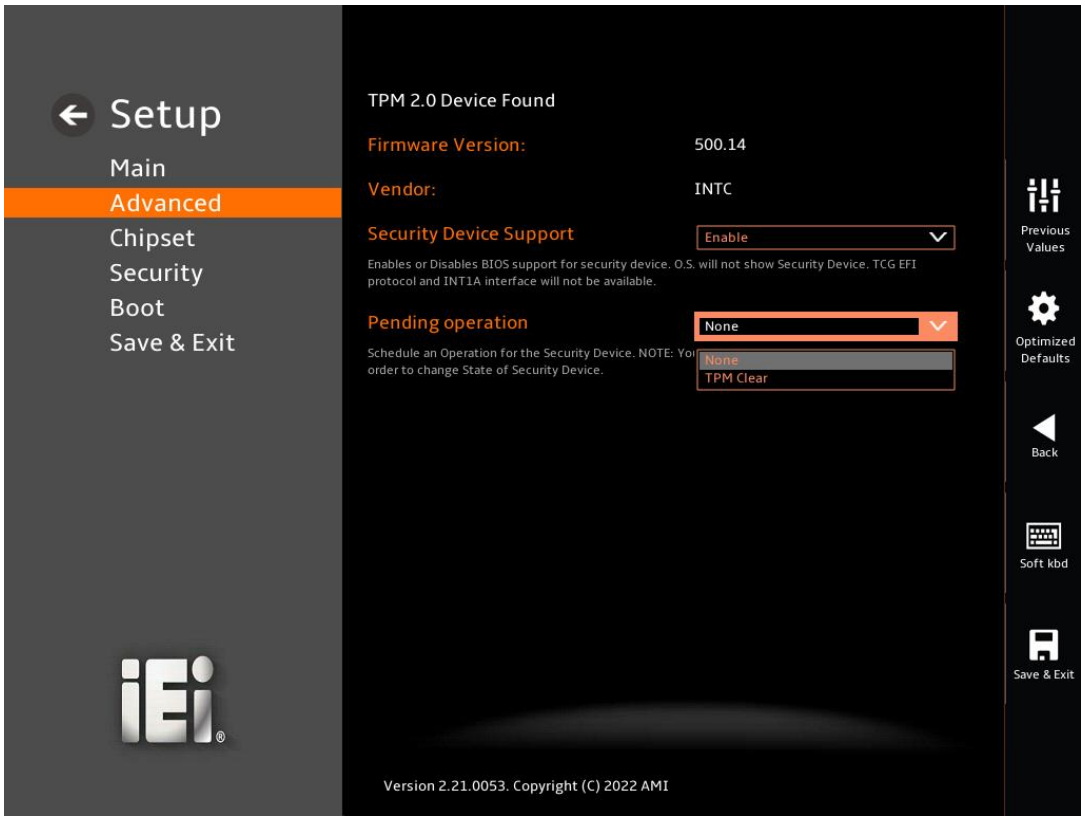
➔ **Turbo Mode [Enabled]**

Use the **Turbo Mode** option to enable or disable Turbo Mode which requires Intel Speed Step or Intel Speed Shift to be available and enabled.

➔ **Disabled**		Disables Turbo Mode Technology
➔ **Enabled**	**DEFAULT**	Enables Turbo Mode Technology

5.3.2 Trusted Computing

Use the **Trusted Computing** menu (**BIOS Menu 8**) to configure settings related to the Trusted Computing Group (TCG) Trusted Platform Module (TPM).



BIOS Menu 8: PCH-FW Configuration

➔ **Security Device Support [Enabled]**

Use the **Security Device Support** option to configure support for the TPM.

➔ **Disable** TPM support is disabled.

➔ **Enable** **DEFAULT** TPM support is enabled.

➔ **Pending Operation [None]**

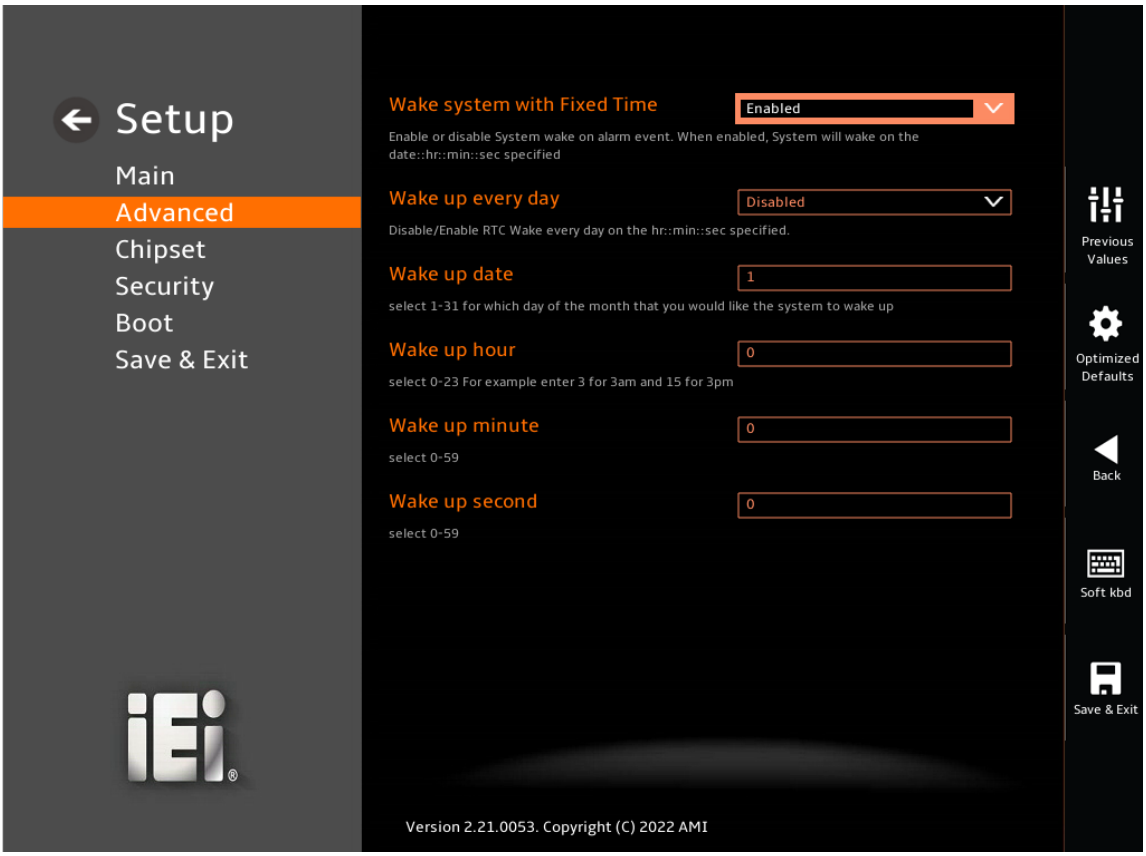
Use the **Pending Operation** option to schedule an operation for the security device.

➔ **None** **DEFAULT** TPM information is previous.

➔ **TPM Clear** TPM information is cleared

5.3.3 RTC Wake Settings

The **RTC Wake Settings** menu (**BIOS Menu 9**) configures RTC wake event.



BIOS Menu 9: RTC Wake Settings

➔ **Wake System with Fixed Time [Disabled]**

Use the **Wake System with Fixed Time** option to specify the time the system should be roused from a suspended state.

➔ **Disabled**	**DEFAULT**	The real time clock (RTC) cannot generate a wake event
➔ **Enabled**		If selected, the following appears with values that can be selected: *Wake up every day *Wake up date *Wake up hour

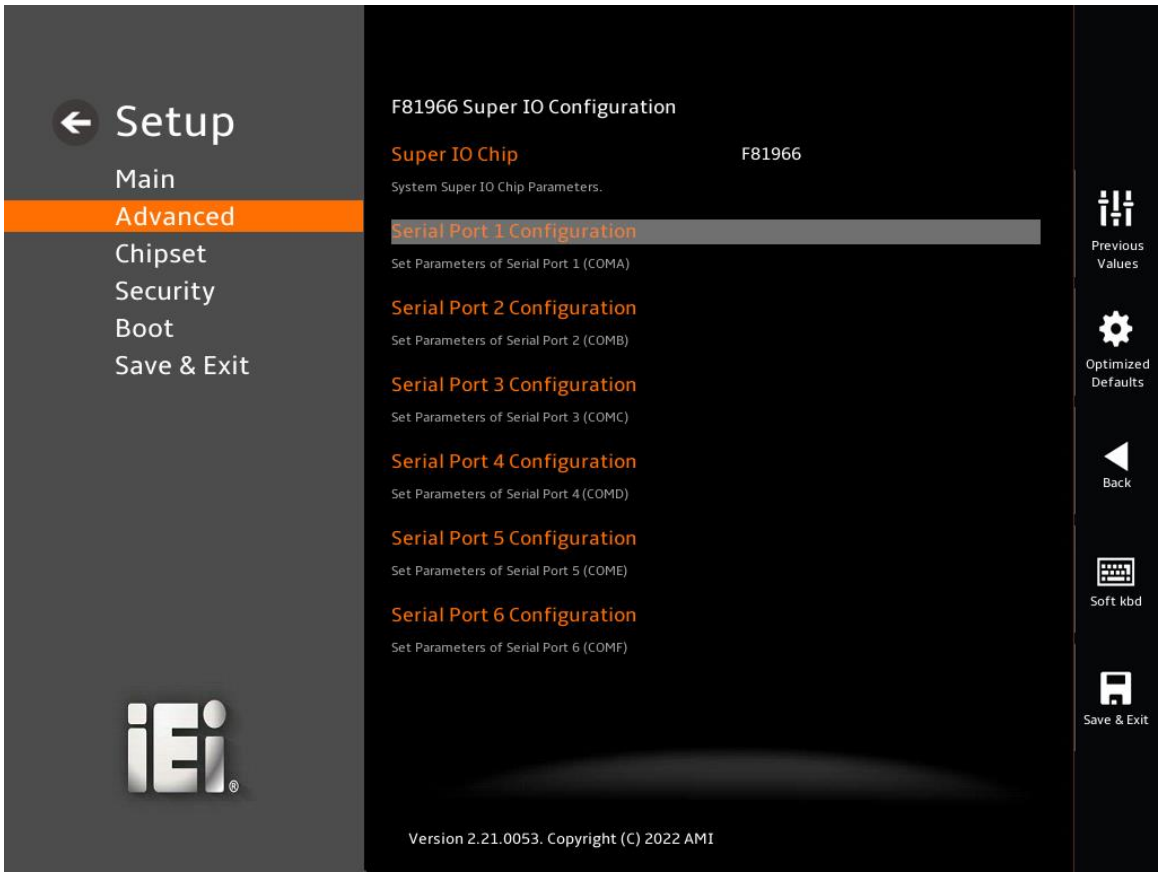
*Wake up minute

*Wake up second

*Wake After setting the alarm, the computer turns itself on from a suspend state when the alarm goes off.

5.3.4 F81866 Super IO Configuration

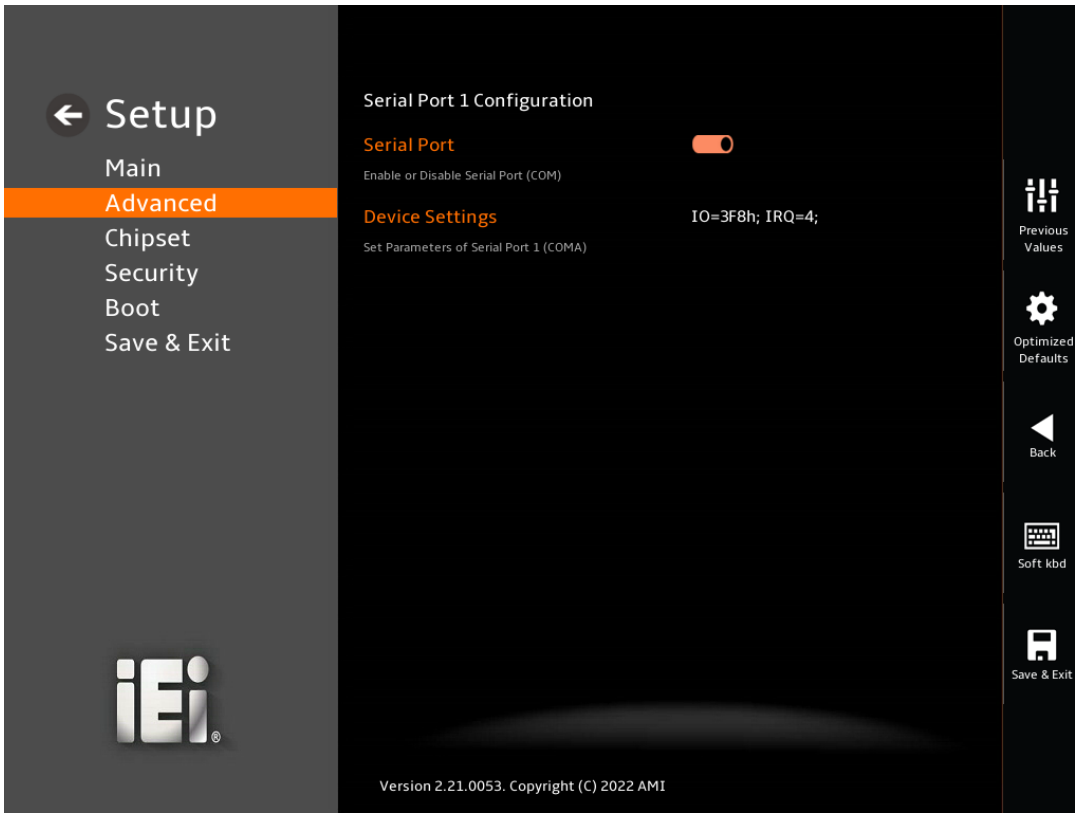
Use the **F81866 Super IO Configuration** menu (**BIOS Menu 10**) to set or change the configurations for the serial ports.



BIOS Menu 10: F81866 Super IO Configuration

5.3.4.1 Serial Port 1 Configuration

Use the **Serial Port 1 Configuration** menu (**BIOS Menu 11**) to configure the serial port 1.



BIOS Menu 11: Serial Port 1 Configuration Menu

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

➔ **Disabled**		Disable the serial port
➔ **Enabled**	**DEFAULT**	Enable the serial port

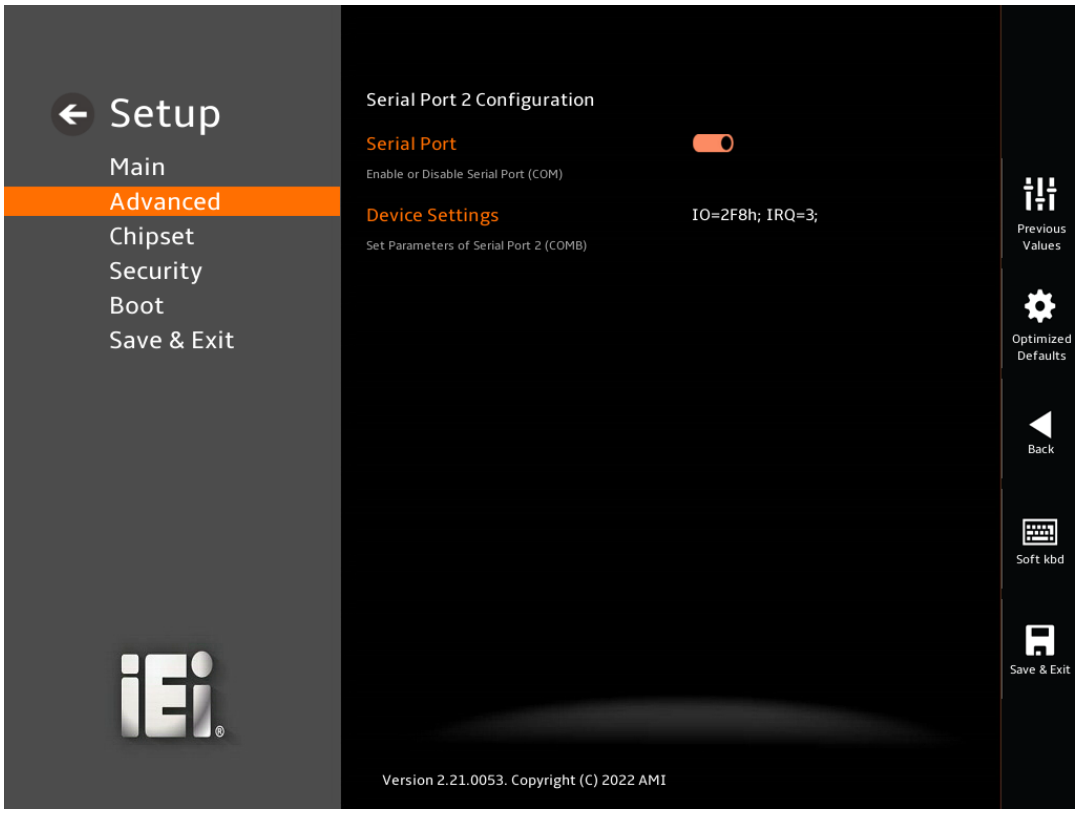
➔ **Device Settings**

The **Device Settings** option shows the serial port IO port address and interrupt address.

➔ **IO=3F8h; IRQ=4**	Serial Port I/O port address is 3F8h and the interrupt address is IRQ4

5.3.4.2 Serial Port 2 Configuration

Use the **Serial Port 2 Configuration** menu (**BIOS Menu 12**) to configure the serial port 2.



BIOS Menu 12: Serial Port 2 Configuration Menu

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

➔ **Disabled**		Disable the serial port
➔ **Enabled**	**DEFAULT**	Enable the serial port

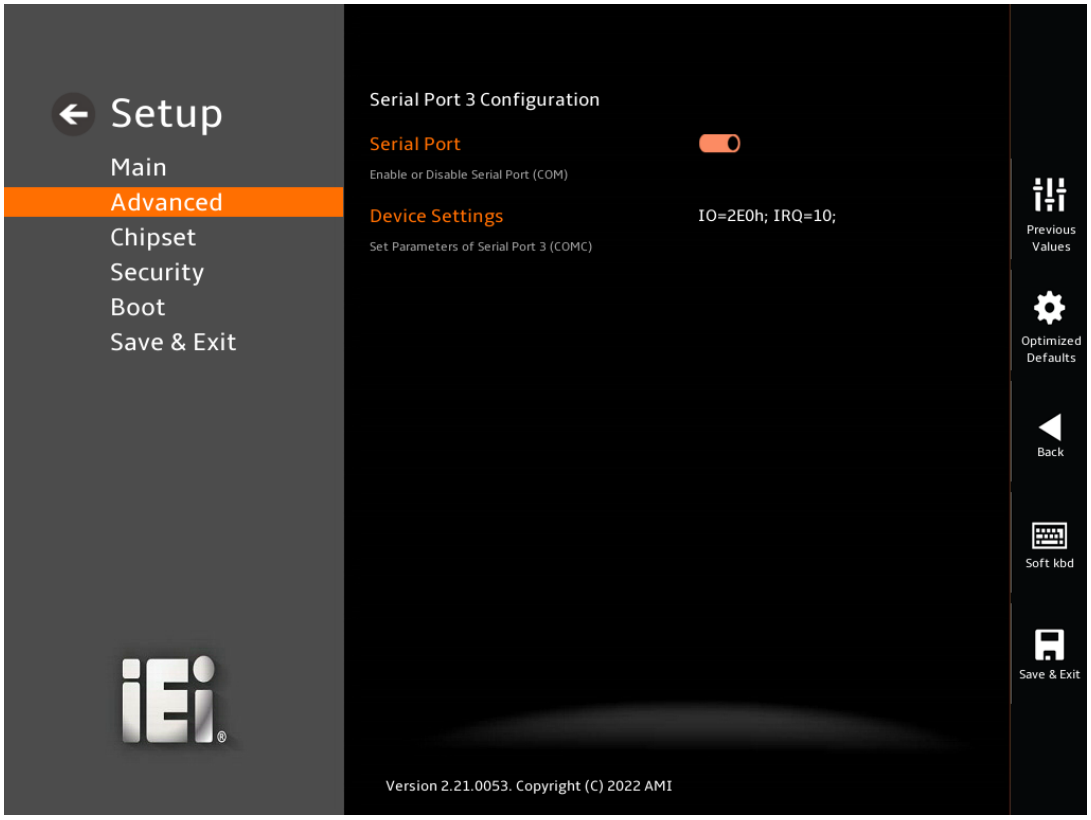
➔ **Device Settings**

The **Device Settings** option shows the serial port IO port address and interrupt address.

➔ **IO=2F8h; IRQ=3**	Serial Port I/O port address is 2F8h and the interrupt address is IRQ3

5.3.4.3 Serial Port 3 Configuration

Use the **Serial Port 3 Configuration** menu (**BIOS Menu 13**) to configure the serial port 3.



BIOS Menu 13: Serial Port 3 Configuration Menu

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

➔ **Disabled**		Disable the serial port
➔ **Enabled**	**DEFAULT**	Enable the serial port

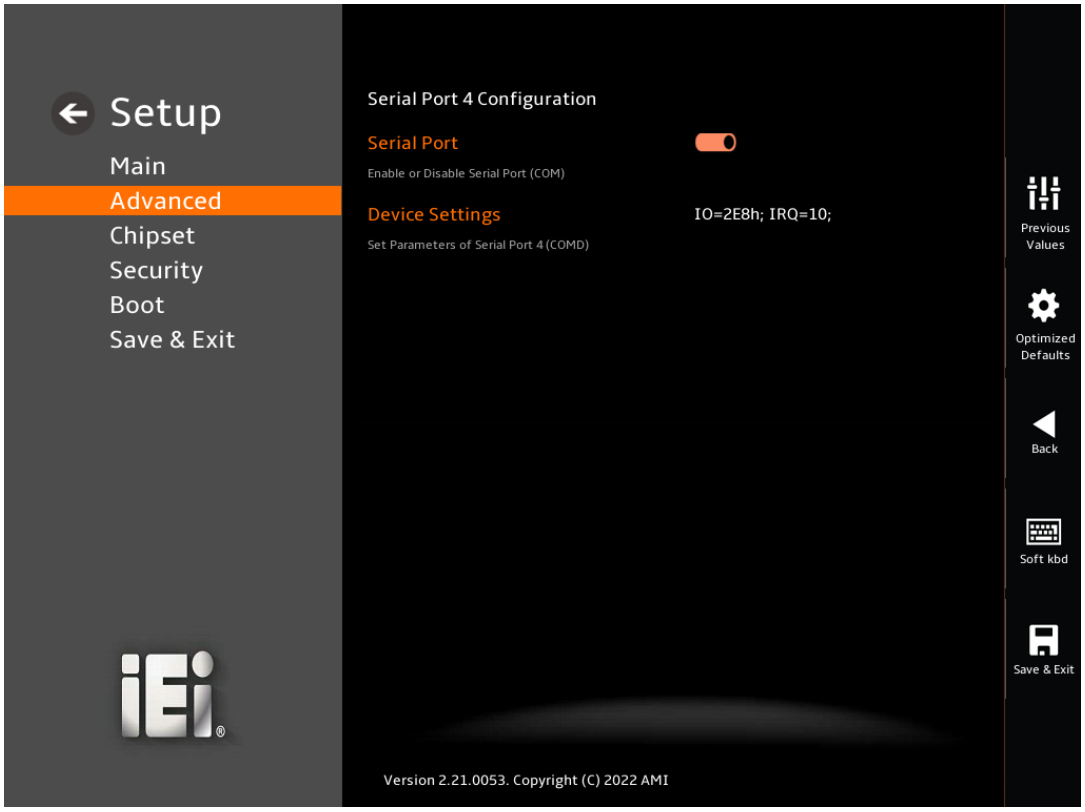
➔ **Device Settings**

The **Device Settings** option shows the serial port IO port address and interrupt address.

➔ **IO=2E0h; IRQ=10**	Serial Port I/O port address is 2E0h and the interrupt address is IRQ10

5.3.4.4 Serial Port 4 Configuration

Use the **Serial Port 4 Configuration** menu (**BIOS Menu 14**) to configure the serial port 4.



BIOS Menu 14: Serial Port 4 Configuration Menu

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

➔ **Disabled**		Disable the serial port
➔ **Enabled**	**DEFAULT**	Enable the serial port

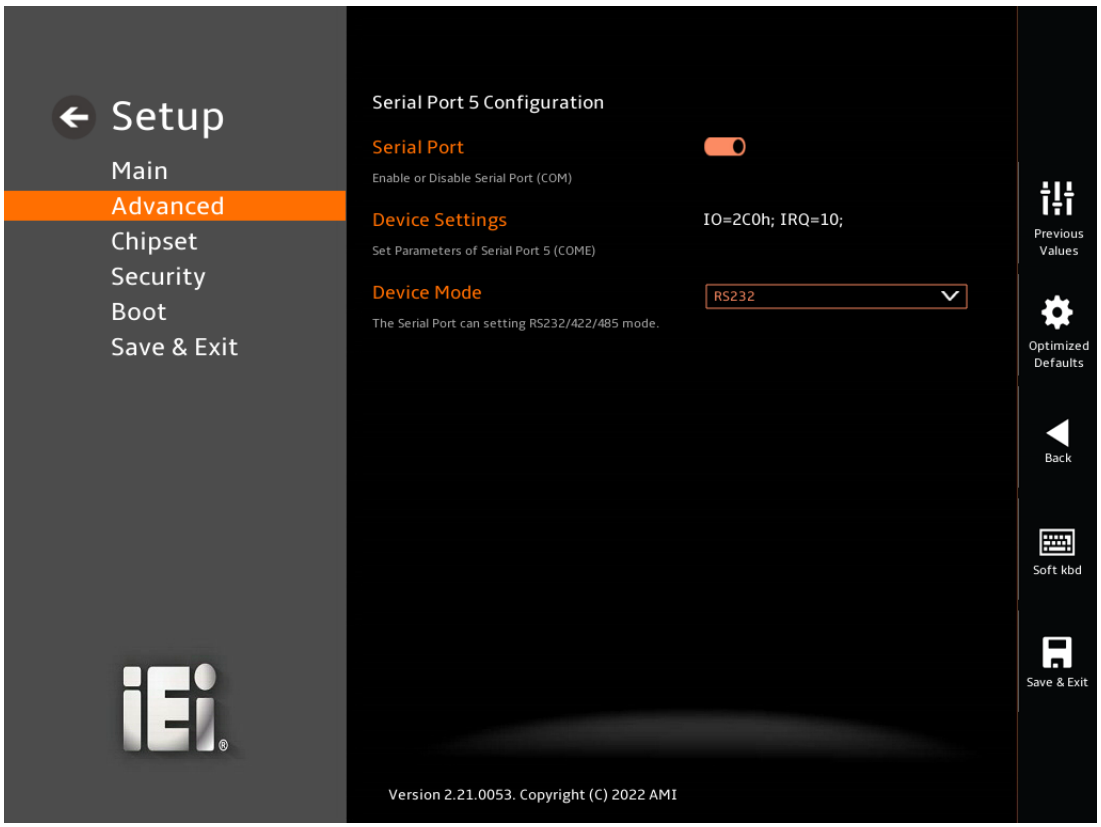
➔ **Device Settings**

The **Device Settings** option shows the serial port IO port address and interrupt address.

➔ **IO=2E8h; IRQ=10**	Serial Port I/O port address is 2E8h and the interrupt address is IRQ10

5.3.4.5 Serial Port 5 Configuration

Use the **Serial Port 5 Configuration** menu (**BIOS Menu 15**) to configure the serial port 5.



BIOS Menu 15: Serial Port 5 Configuration Menu

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

➔ **Disabled**		Disable the serial port
➔ **Enabled**	**DEFAULT**	Enable the serial port

➔ **Device Settings**

The **Device Settings** option shows the serial port IO port address and interrupt address.

➔ **IO=2C0h; IRQ=10**	Serial Port I/O port address is 2C0h and the interrupt address is IRQ10

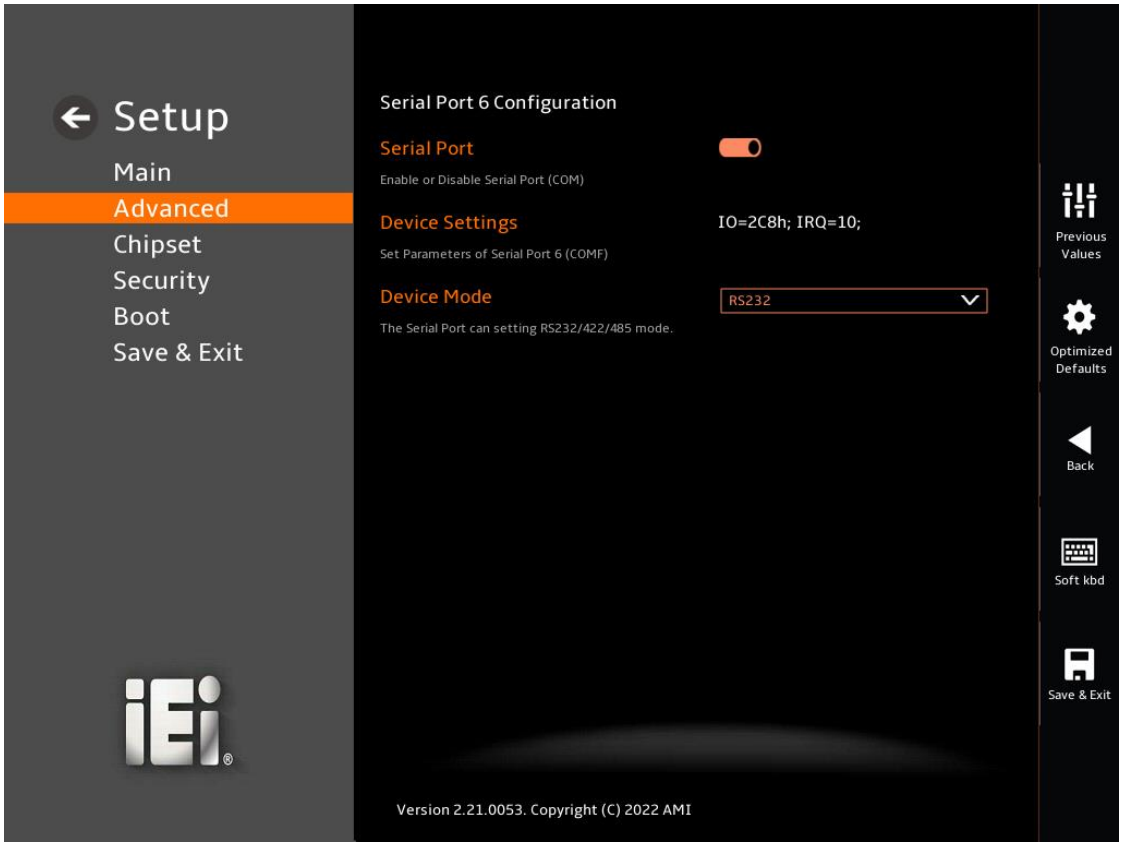
➔ **Device Mode [Printer Mode]**

Use the **Device Mode** option to select the Serial Port 5 signaling mode. Configuration options are listed below.

➔ **RS232**	**DEFAULT**	Serial Port 5 signaling mode is RS-232
➔ **RS422**		Serial Port 5 signaling mode is RS-422
➔ **RS422 with resistor**		Serial Port 5 signaling mode is RS-422 with resistor
➔ **RS485**		Serial Port 5 signaling mode is RS-485
➔ **RS485 with resistor**		Serial Port 5 signaling mode is RS-485 with resistor

5.3.4.6 Serial Port 6 Configuration

Use the **Serial Port 6 Configuration** menu (**BIOS Menu 16**) to configure the serial port 6.



BIOS Menu 16: Serial Port 6 Configuration Menu

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

➔ **Disabled**		Disable the serial port
➔ **Enabled**	**DEFAULT**	Enable the serial port

➔ **Device Settings**

The **Device Settings** option shows the serial port IO port address and interrupt address.

➔ **IO=2C8h; IRQ=10**	Serial Port I/O port address is 2C8h and the interrupt address is IRQ10

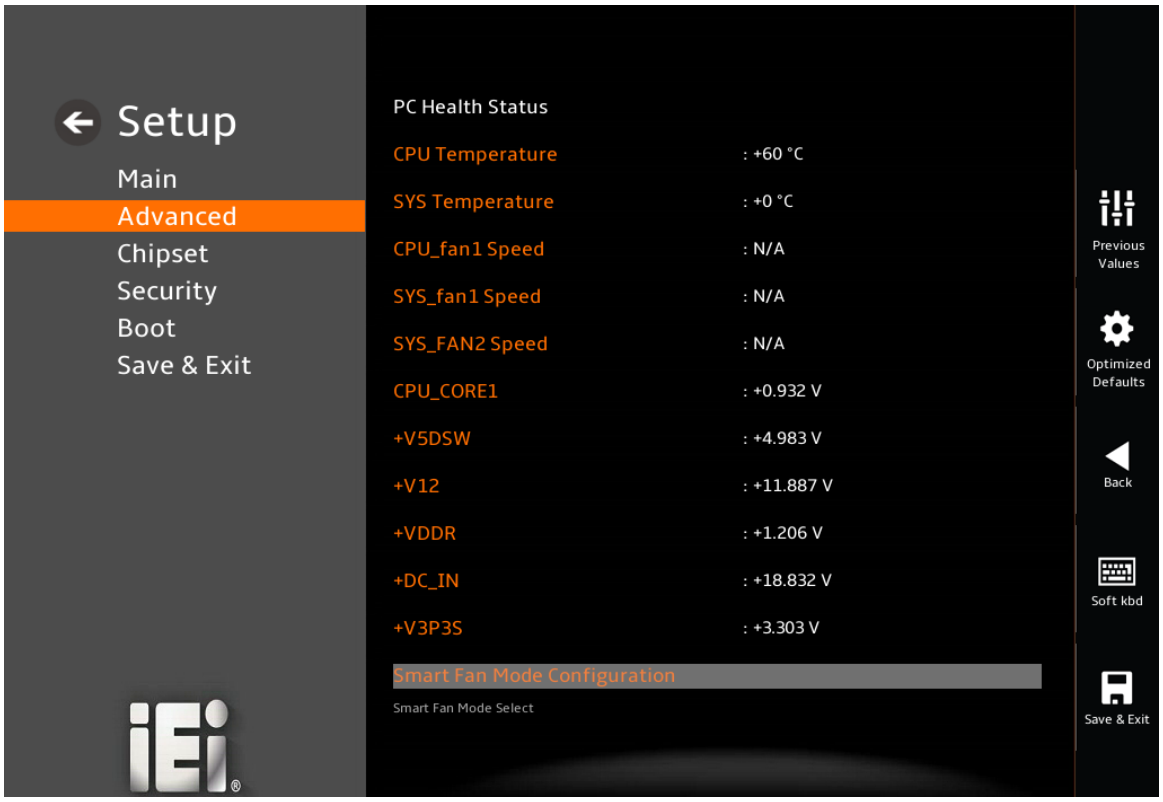
➔ **Device Mode [Printer Mode]**

Use the **Device Mode** option to select the Serial Port 5 signaling mode. Configuration options are listed below.

➔ **RS232**	**DEFAULT**	Serial Port 5 signaling mode is RS-232
➔ **RS422**		Serial Port 5 signaling mode is RS-422
➔ **RS422 with resistor**		Serial Port 5 signaling mode is RS-422 with resistor
➔ **RS485**		Serial Port 5 signaling mode is RS-485
➔ **RS485 with resistor**		Serial Port 5 signaling mode is RS-485 with resistor

5.3.5 ENE KB9068 Monitor

The ENE KB9068 Monitor menu (**BIOS Menu 17**) contains the smart fan mode configuration submenu and shows the state of H/W real-time operating temperature, fan speeds and system voltages.



BIOS Menu 17: ENE KB9068 Monitor

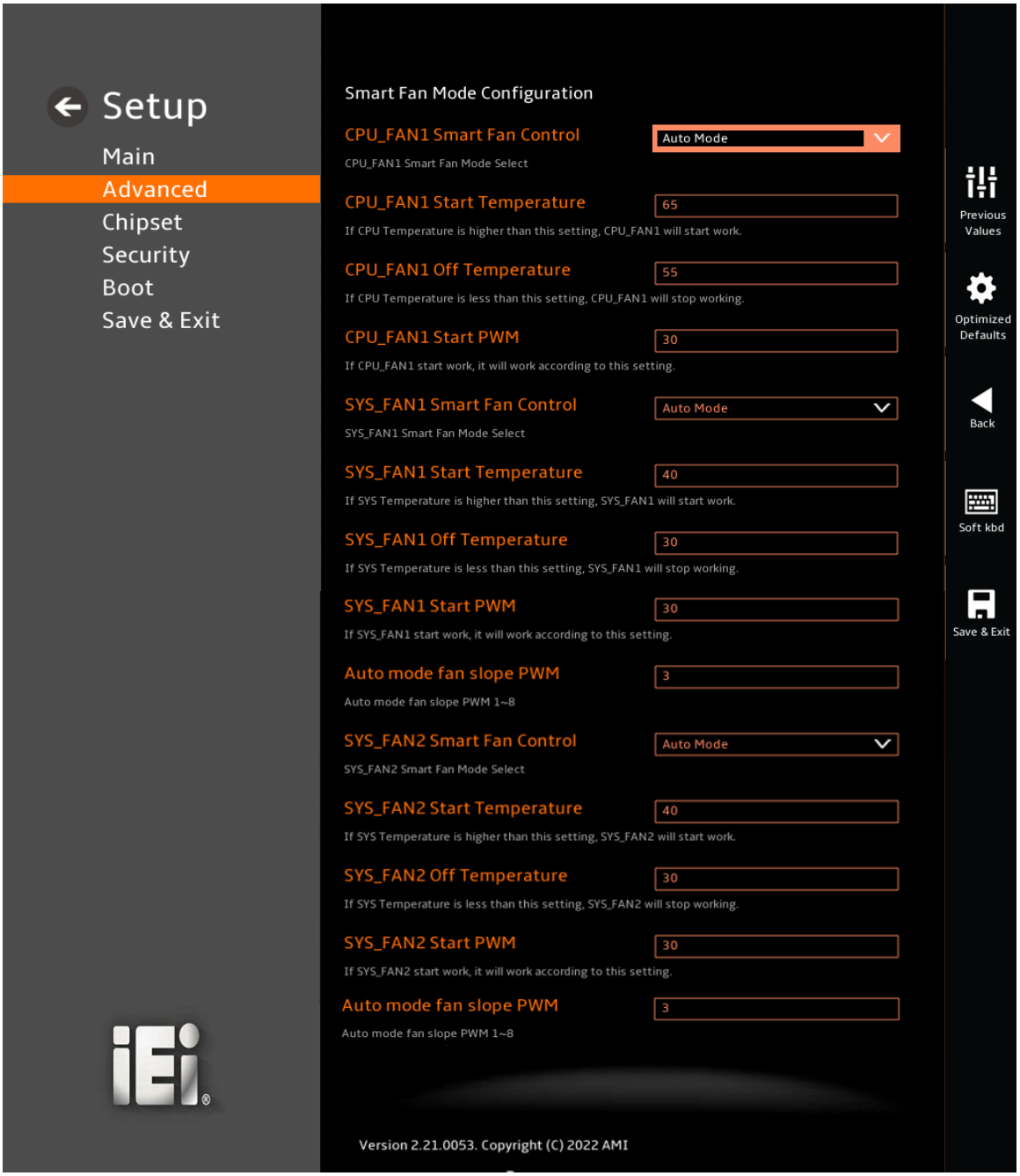
➔ **PC Health Status**

The following system parameters and values are shown. The system parameters that are monitored are:

- System Temperatures:
  - CPU Temperature
  - System Temperature
- Fan Speeds:
  - CPU_FAN1 Speed
  - SYS_FAN1 Speed
  - SYS_FAN2 Speed
- Voltages:
  - CPU_CORE1
  - +V5DSW
  - +V12
  - +DC_IN
  - +V3P3S

5.3.5.1 Smart Fan Mode Configuration

Use the **Smart Fan Mode Configuration** submenu (**BIOS Menu 18**) to configure the CPU/system fan start/off temperature and control mode.



BIOS Menu 18: Smart Fan Mode Configuration

➔ **CPU_FAN1/SYS_FAN1/SYS_FAN2 Smart Fan Control [Auto Mode]**

Use the **CPU_FAN1/SYS_FAN1 Smart Fan Control** option to configure the CPU Smart Fan.

➔ **Manual Mode**		The fan spins at the speed set in Manual Mode settings.
➔ **Auto Mode**	**DEFAULT**	The fan adjusts its speed using Auto Mode settings.

➔ **CPU_FAN1/SYS_FAN1/SYS_FAN2 start temperature**

If the CPU/System temperature is between **fan off** and **fan start**, the fan speed change to **fan start PWM**. To set a value, Use the + or – key to change the value or enter a decimal number between 1 and 100.

➔ **CPU_FAN1/SYS_FAN1/SYS_FAN2 off temperature**

If the CPU/System temperature is **lower than the value** set this option, the fan speed change to **be lowest**. To set a value, Use the + or – key to change the value or enter a decimal number between 1 and 100.

➔ **CPU_FAN1/SYS_FAN1/SYS_FAN2 start PWM**

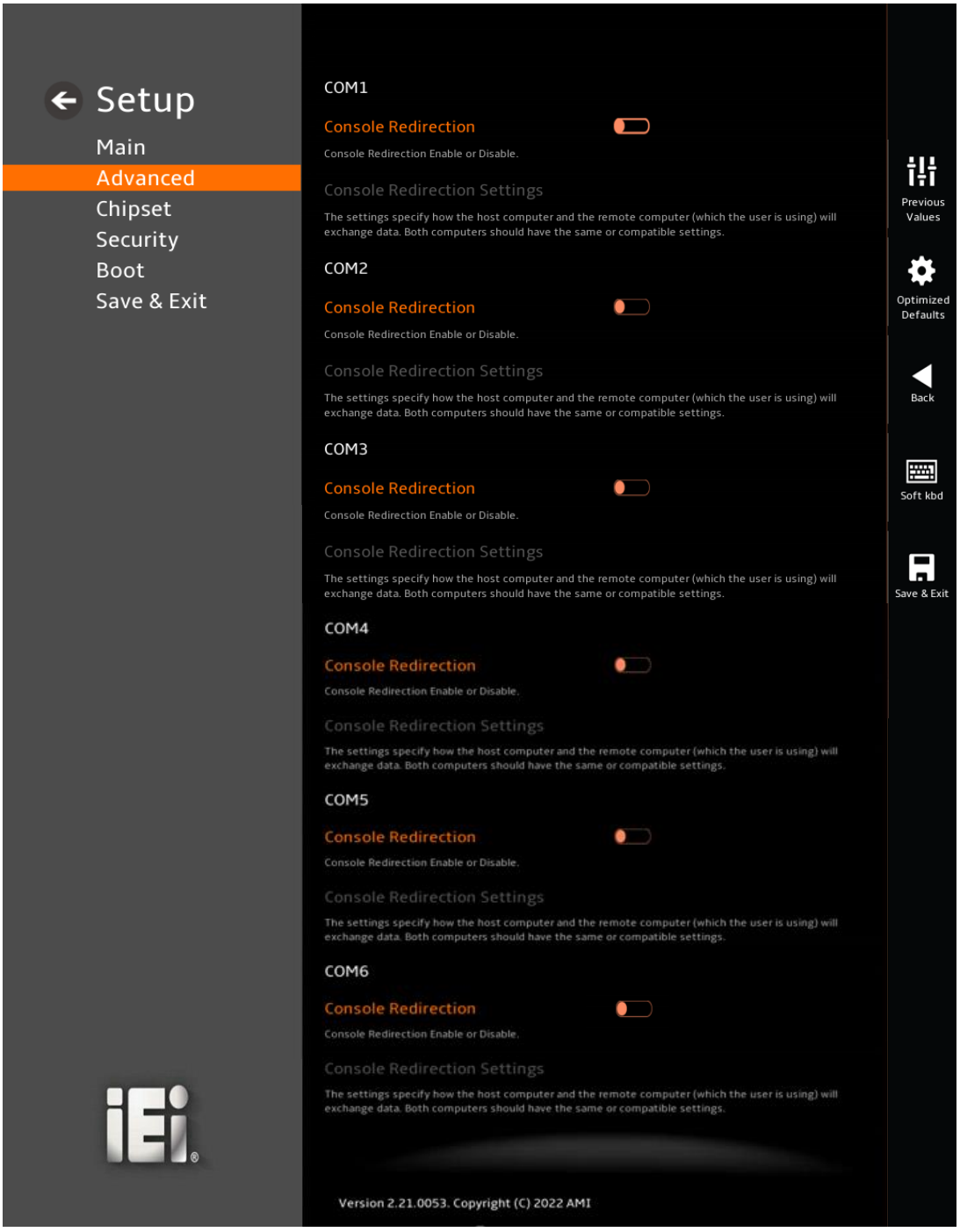
Use the CPU_FAN1/SYS_FAN1/SYS_FAN2 Start PWM option to set the **PWM start value**. Use the + or – key to change the value or enter a decimal number between 1 and 100.

➔ **Auto mode fan slope PWM**

Use the **Auto mode fan slope PWM** option to select the linear rate at which the PWM mode increases with respect to an increase in temperature. Use the + or – key to change the value or enter a decimal number between 1 and 8

5.3.6 Serial Port Console Redirection

The **Serial Port Console Redirection** menu **(BIOS Menu 19)** allows the console redirection options to be configured. Console Redirection allows users to maintain a system remotely by re-directing keyboard input and text output through the serial port.



BIOS Menu 19: Serial Port Console Redirection

➔ **Console Redirection [Disabled]**

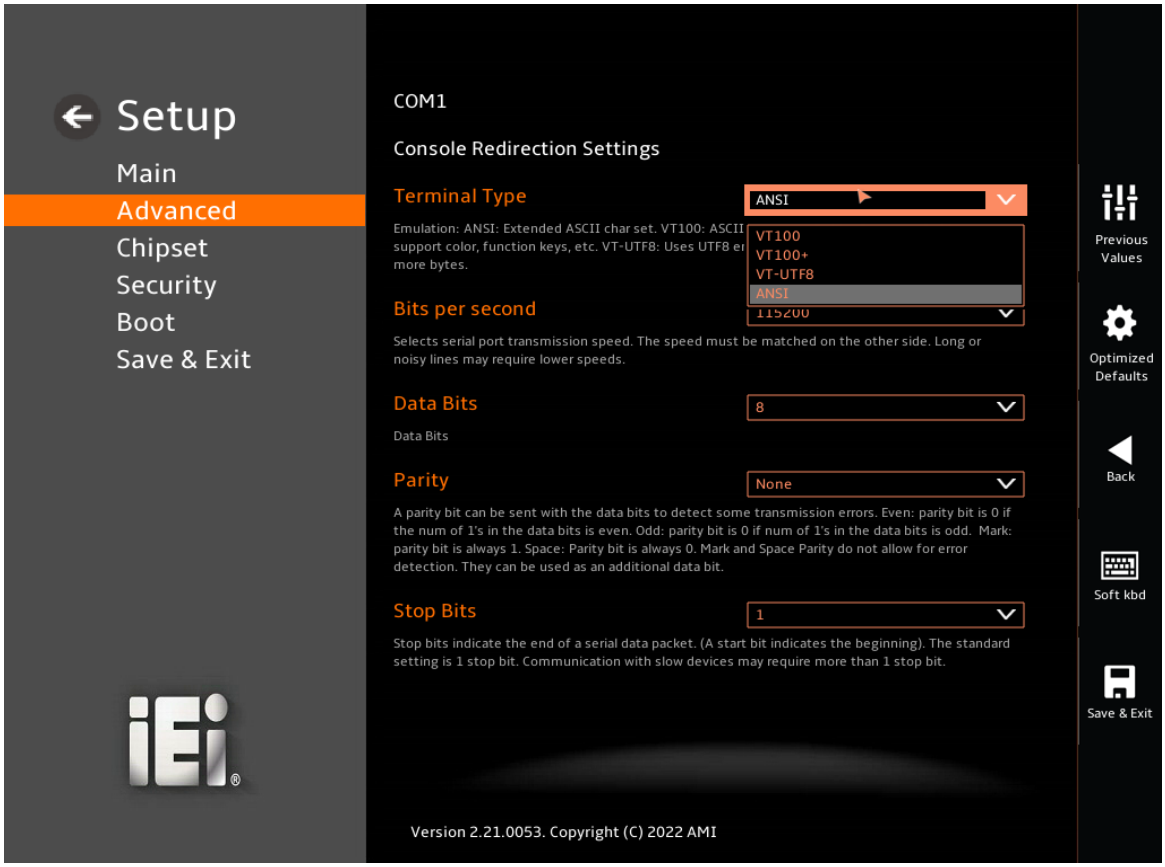
Use **Console Redirection** option to enable or disable the console redirection function.

➔	**Disabled**	**DEFAULT**	Disabled the console redirection function
➔	**Enabled**		Enabled the console redirection function

The **Console Redirection Settings** submenu will be available when the **Console Redirection** option is enabled.

5.3.6.1 Console Redirection Settings

The following options are available in the **Console Redirection Settings** submenu (**BIOS Menu 20**) when the **COM Console Redirection (for COM1 to COM6)** option is enabled.



BIOS Menu 20: COM Console Redirection Settings

➔ **Terminal Type [ANSI]**

Use the **Terminal Type** option to specify the remote terminal type.

➔	**VT100**		The target terminal type is VT100
➔	**VT100+**		The target terminal type is VT100+
➔	**VT-UTF8**		The target terminal type is VT-UTF8
➔	**ANSI**	**DEFAULT**	The target terminal type is ANSI

➔ **Bits per second [115200]**

Use the **Bits per second** option to specify the serial port transmission speed. The speed must match on the other side. Long or noisy lines may require lower speeds.

➔	**9600**		Sets the serial port transmission speed at 9600.
➔	**19200**		Sets the serial port transmission speed at 19200.
➔	**38400**		Sets the serial port transmission speed at 38400.
➔	**57600**		Sets the serial port transmission speed at 57600.
➔	**115200**	**DEFAULT**	Sets the serial port transmission speed at 115200.

➔ **Data Bits [8]**

Use the **Data Bits** option to specify the number of data bits.

➔	**7**		Sets the data bits at 7.
➔	**8**	**DEFAULT**	Sets the data bits at 8.

➔ **Parity [None]**

Use the **Parity** option to specify the parity bit that can be sent with the data bits for detecting the transmission errors.

- ➔ **None** **DEFAULT** No parity bit is sent with the data bits.
- ➔ **Even** The parity bit is 0 if the number of ones in the data bits is even.
- ➔ **Odd** The parity bit is 0 if the number of ones in the data bits is odd.
- ➔ **Mark** The parity bit is always 1. This option does not allow for error detection.
- ➔ **Space** The parity bit is always 0. T This option does not allow for error detection.

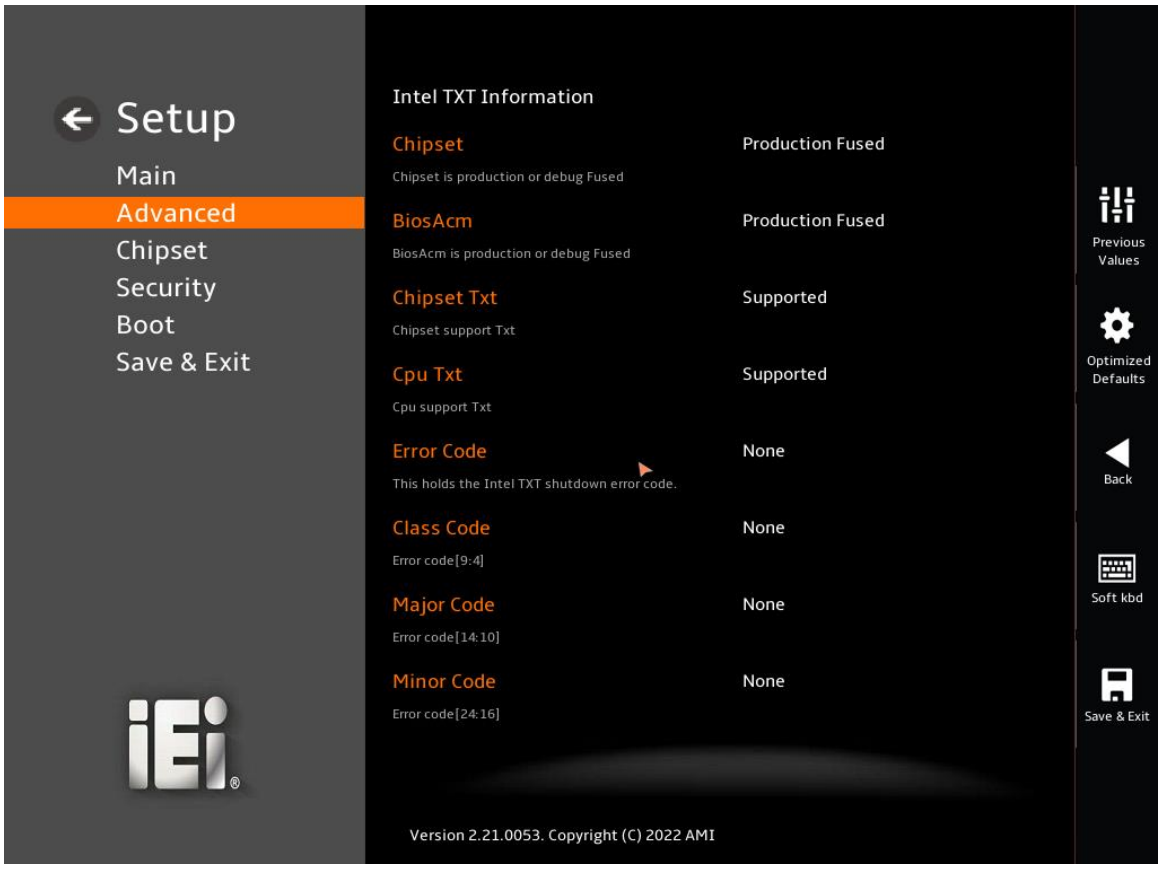
➔ **Stop Bits [1]**

Use the **Stop Bits** option to specify the number of stop bits used to indicate the end of a serial data packet. Communication with slow devices may require more than 1 stop bit.

- ➔ **1** **DEFAULT** Sets the number of stop bits at 1.
- ➔ **2** Sets the number of stop bits at 2.

5.3.7 Intel TXT Information

The **Intel TXT Information** menu (**BIOS Menu 21**) displays the Intel Trusted Execution Technology information.



BIOS Menu 21: Intel TXT Information

➔ **Intel TXT Information**

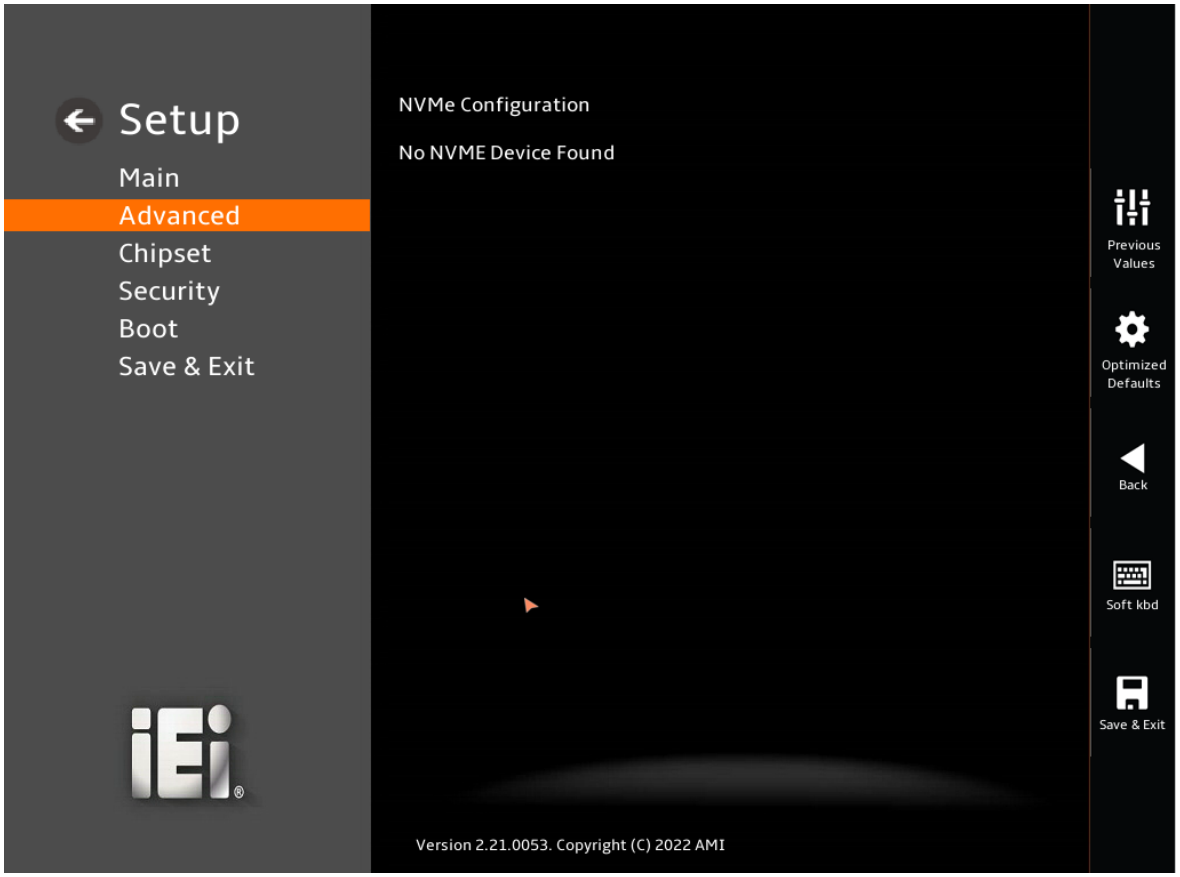
The **Intel TXT Information** lists a brief summary of the Intel Trusted Execution Technology. The items shown in the system overview include:

- **Chipset:** Displays whether the chipset is production fused or debug fused.
- **BiosAcm:** Displays whether the BiosAcm is production fused or debug fused
- **Chipset Txt:** Displays whether the chipset supports TXT or not
- **Cpu Txt:** Displays whether the CPU supports TXT or not

- **Error Code:** Displays the Intel TXT shutdown error code.
- **Class Code:** Displays the Intel TXT shutdown class code.
- **Major Code:** Displays the Intel TXT shutdown major code.
- **Minor Code:** Displays the Intel TXT shutdown minor code.

5.3.8 NVMe Configuration

Use the **NVMe Configuration** (**BIOS Menu 22**) menu to display the NVMe controller and device information.



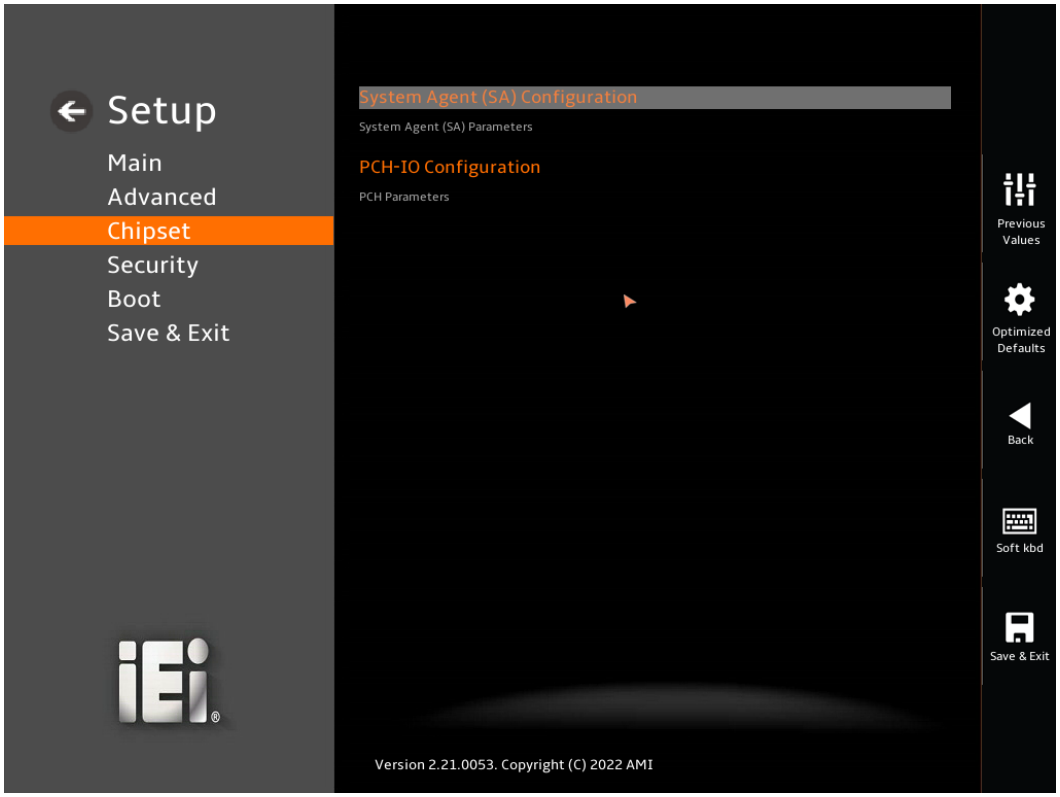
BIOS Menu 22: NVMe Configuration

5.4 Chipset

Use the **Chipset** menu (**BIOS Menu 23**) to access the PCH IO and System Agent (SA) configuration menus.

WARNING!

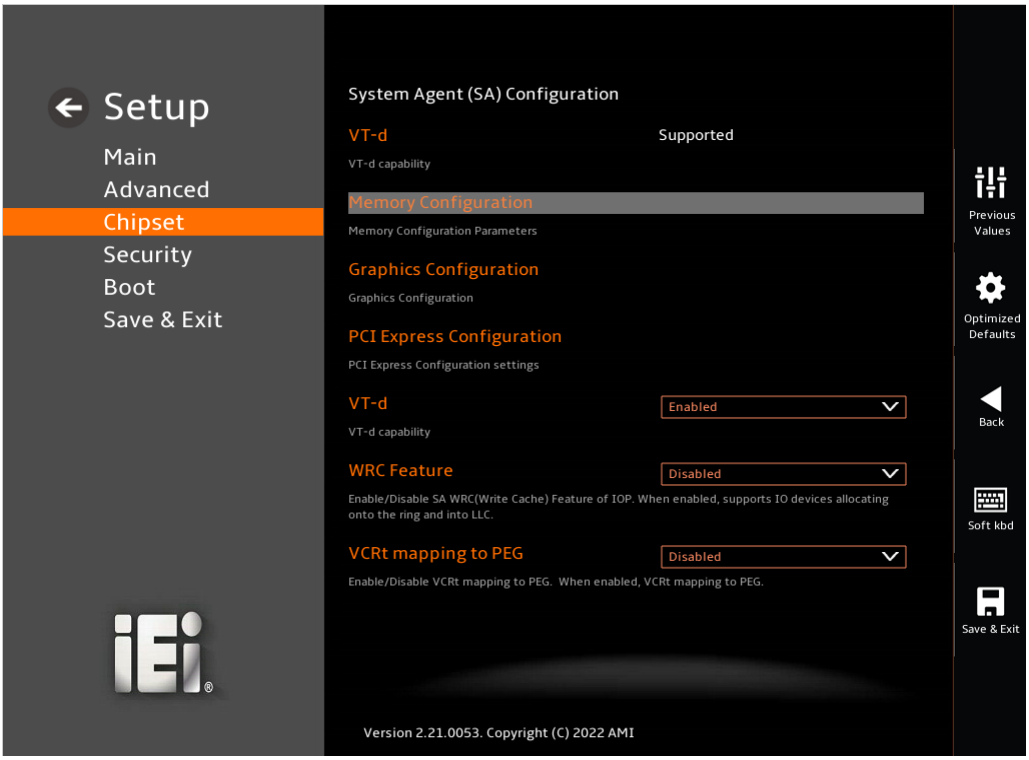
Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.



BIOS Menu 23: Chipset

5.4.1 System Agent (SA) Configuration

Use the **System Agent (SA) Configuration** menu (**BIOS Menu 24**) to configure the System Agent (SA) parameters.



BIOS Menu 24: System Agent (SA) Configuration

➔ **VT-d [Enabled]**

Use the **VT-d** option to enable or disable the VT-d capability.

➔ **Disabled** Disable the VT-d capability

➔ **Enabled** **DEFAULT** Enable the VT-d capability

➔ **WRC Feature [Enabled]**

Use the WRC Feature option to enable or disable the capability of writing cache.

➔ **Disabled** Disable the WRC Feature capability

➔ **Enabled** **DEFAULT** Enable the WRC Feature capability

➔ **VCRt mapping to PEG [Enabled]**

Use the **VCRt mapping to PEG** option to enable or disable the capability of mapping VCRt to PEG.

➔ **Disabled**		Disable the VCRt capability
➔ **Enabled**	**DEFAULT**	Enable the VCRt capability

5.4.1.1 Memory Configuration

Use the **Memory Configuration** submenu (**BIOS Menu 25**) to view memory information.

BIOS Menu 25: Memory Configuration

5.4.1.2 Graphics Configuration

Use the **Graphics Configuration** (**BIOS Menu 26**) menu to configure the video device connected to the system.

BIOS Menu 26: Graphics Configuration

➔ **Primary Display [Auto]**

Use the **Primary Display** option to select the primary graphics controller the system uses. The following options are available:

- Auto **Default**
- IGFX
- PEG
- PCI
- SG

➔ **Internal Graphics [Enabled]**

Use the **Internal Graphics** option to configure whether to keep IGFX enabled. If user wants to support dual display by internal graphics and external graphics, this Internal Graphics option should be set to Enabled and the above Primary Display option should be set to IGFX.

➔ **Auto**		Auto mode
➔ **Disabled**		Disables IGFX.
➔ **Enabled**	**Default**	Enables IGFX.

➔ **DVMT Pre-Allocated [64M]**

Use the **DVMT Pre-Allocated** option to set the amount of system memory allocated to the integrated graphics processor when the system boots. The system memory allocated can then only be used as graphics memory, and is no longer available to applications or the operating system. Configuration options are listed below:

- 32M
- 64M **Default**

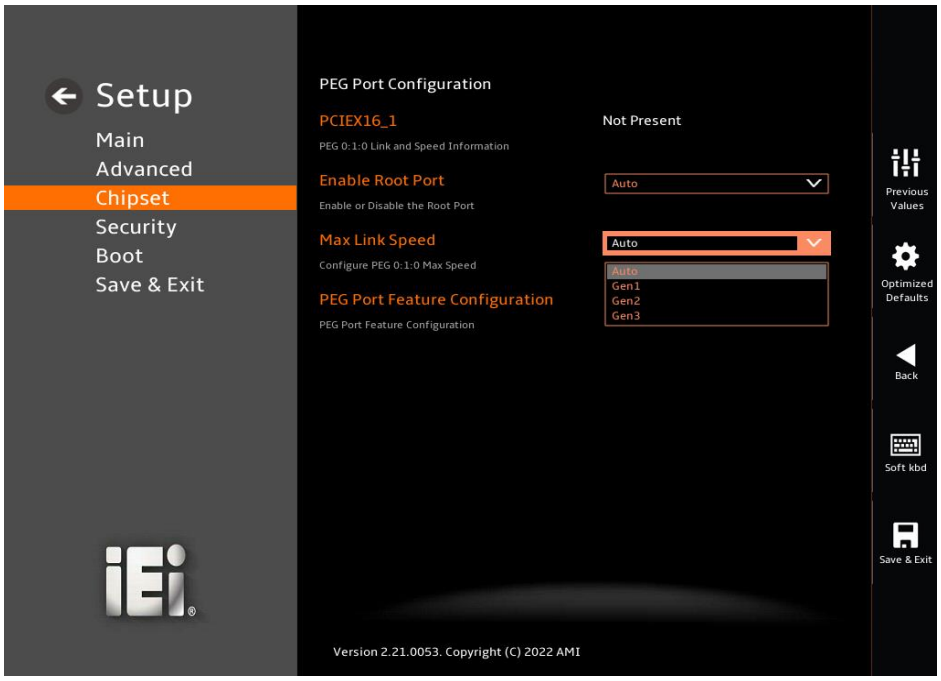
➔ **DVMT Total Gfx Mem [MAX]**

Use the **DVMT Total Gfx Mem** option to select DVMT5.0 total graphic memory size used by the internal graphic device. The following options are available:

- 128M
- 256M
- MAX **Default**

5.4.1.3 PEG Port Configuration

Use the **PEG Port Configuration** menu (**BIOS Menu 27**) to configure the PCI Express Configuration settings.



BIOS Menu 27: PEG Port Configuration

➔ **Enable Root Port [Auto]**

Use the **Enable Root Port** option to enable or disable the PCI Express (PEG) controller.

➔ **Disabled**		Disables the PCI Express (PEG) controller.
➔ **Enabled**		Enables the PCI Express (PEG) controller.
➔ **Auto**	**DEFAULT**	Set Auto Mode

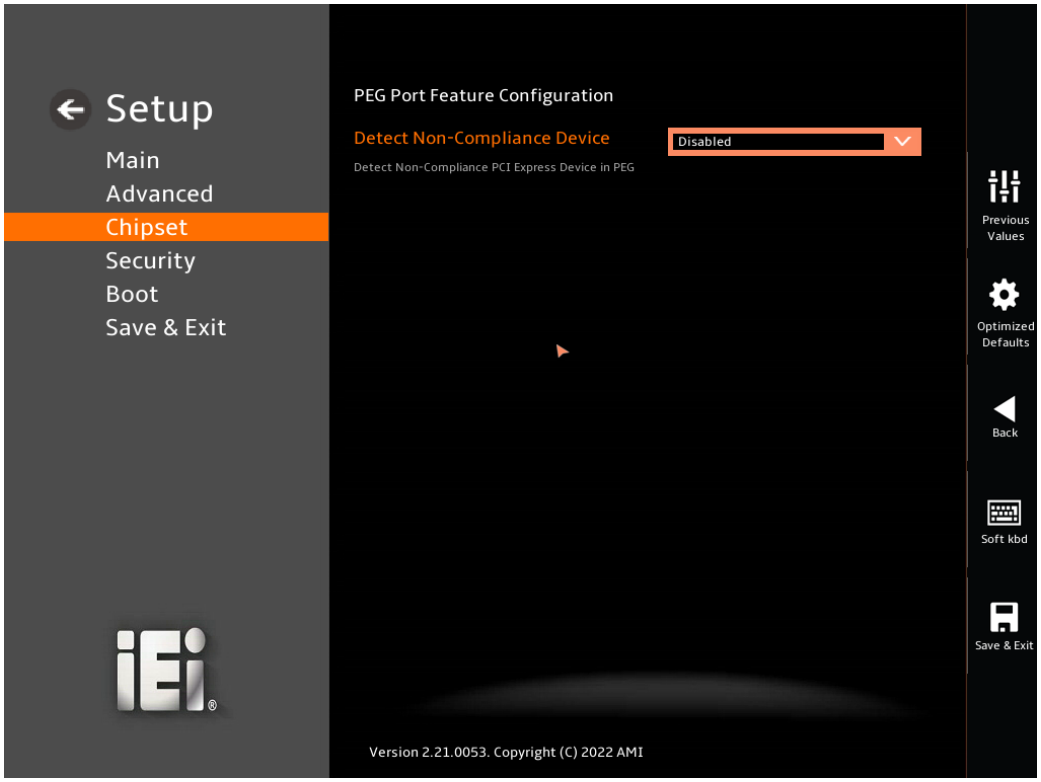
➔ **Max Link Speed [Auto]**

Use the **Max Link Speed** option to select the maximum link speed of the PCI Express slot. The following options are available:

- Auto **Default**
- Gen1
- Gen2
- Gen3

5.4.1.3.1 PEG Port Feature Configuration

Use the **PEG Port Feature Configuration** submenu (**BIOS Menu 28**) to configure the SA PCIe settings.



BIOS Menu 28: PEG Port Feature Configuration

➔ **Detect Non-Compliance Device [Disabled]**

Use the **Detect Non-Compliance Device** option to detect non-compliance PCIe device in PEG.

➔	**Disabled**	**DEFAULT**	Do not detect non-compliance PCIe device in PEG
➔	**Enabled**		Detect non-compliance PCIe device in PEG

5.4.2 PCH-IO Configuration

Use the **PCH-IO Configuration** menu (**BIOS Menu 29**) to configure the PCH parameters.

BIOS Menu 29: PCH-IO Configuration

➔ **Auto Power Button Function [Disabled(ATX)]**

Use the **Auto Power Button Function** BIOS option to show the power mode state. Use the **J_ATX_AT1** to switch the AT/ATX power mode.

➔ **Enabled (AT)** The system power mode is AT.

➔ **Disabled (ATX)** The system power mode is ATX.

➔ **Restore AC Power Loss [Last State]**

Use the **Restore AC Power Loss** BIOS option to specify what state the system returns to if there is a sudden loss of power to the system when the power mode is ATX.

➔ **Power Off** The system remains turned off

➔ **Power On** The system turns on

➔ **Last State** **DEFAULT** The system returns to its previous state. If it was on, it turns itself on. If it was off, it remains off.

➔ **Power Saving Function(EUP) [Disabled]**

Use the **Power Saving Function(EUP)** BIOS option to enable or disable the power saving function.

➔ **Disabled** **DEFAULT** Power saving function is disabled.

➔ **Enabled** Power saving function is enabled. It will reduce power consumption when the system is off.

➔ **USB Power SW1 [+5V DUAL]**

Use the **USB Power SW1** BIOS option to configure the USB power source for the corresponding USB connectors (Table 5-3).

➔ **+5V DUAL** **DEFAULT** Sets the USB power source to +5V dual

➔ **+5V** Sets the USB power source to +5V

➔ **USB Power SW2 [+5V DUAL]**

Use the **USB Power SW2** BIOS option to configure the USB power source for the corresponding USB connectors (Table 5-3).

➔ **+5V DUAL** **DEFAULT** Sets the USB power source to +5V dual

➔ **+5V** Sets the USB power source to +5V

BIOS Options	Configured USB Ports
USB Power SW1	LAN1_USB1 (external USB 3.2 Gen 2 ports) LAN2_USB2 (external USB 3.2 Gen 2 ports)
USB Power SW2	USB2_1 (external USB 2.0 ports) CON1 (external USB 3.2 Gen 2 ports)

Table 5-3: BIOS Options and Configured USB Ports

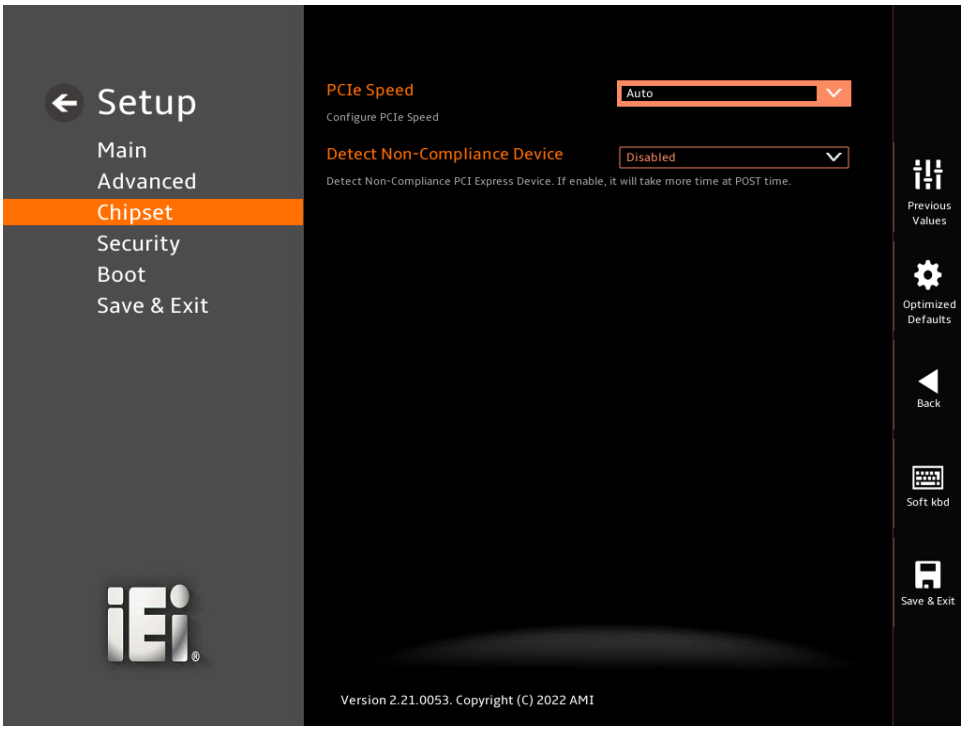
5.4.2.1 PCI Express Configuration

Use the **PCI Express Configuration** submenu (**BIOS Menu 30**) to configure the PCI Express Root Port Settings.

BIOS Menu 30: PCI Express Configuration

5.4.2.1.1 PCIe Root Port Setting

Use the **PCIEX4_1, PCIEX4_2, PCI Express Root Port n, M2_M1, M2_M2, Intel i225V LAN1, Intel i225V LAN2** submenu (**BIOS Menu 31**) to configure the PCI Root Port Setting.



BIOS Menu 31: PCIe Slot Configuration Submenu

➔ **PCIe Speed [Auto]**

Use the **PCIe Speed** option to specify the PCI Express port speed .

➔ **Auto**	**DEFAULT**	Auto mode.
➔ **Gen1**		Configure PCIe Speed to Gen1.
➔ **Gen2**		Configure PCIe Speed to Gen2.
➔ **Gen3**		Configure PCIe Speed to Gen3.

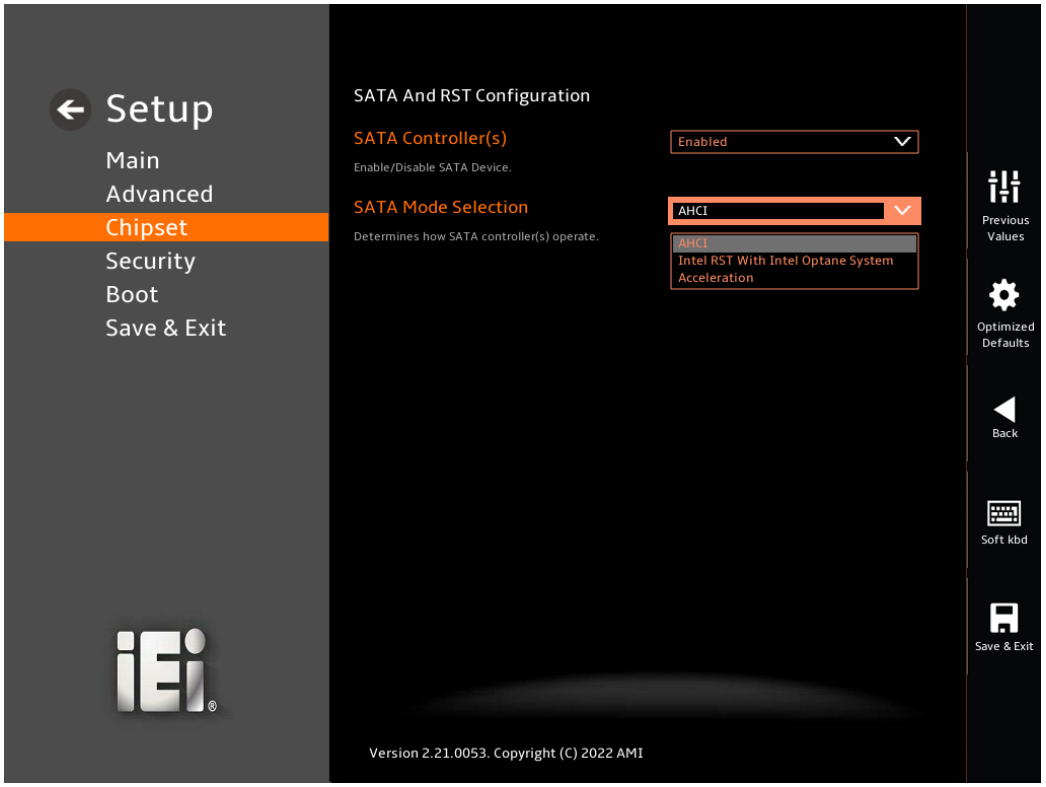
➔ **Detect Non-Compliance Device [Disabled]**

Use the **Detect Non-Compliance Device** option to configure whether to detect if a non-compliance PCI Express device is connected to the PCI Express port.

➔ **Disabled**	**DEFAULT**	Do not detect if a non-compliance PCI Express device is connected to the PCI Express port.
➔ **Enabled**		Detect if a non-compliance PCI Express device is connected to the PCI Express port.

5.4.2.2 SATA And RST Configuration

Use the **SATA And RST Configuration** menu (**BIOS Menu 32**) to change and/or set the configuration of the SATA devices installed in the system.



BIOS Menu 32: SATA Configuration

➔ **SATA Controller(s) [Enabled]**

Use the **SATA Controller(s)** option to configure the SATA controller(s).

➔	**Enabled**	**DEFAULT**	Enables the on-board SATA controller(s).
➔	**Disabled**		Disables the on-board SATA controller(s).

➔ **SATA Mode Selection [AHCI]**

Use the **SATA Mode Selection** option to determine how the SATA devices operate.

➔ **AHCI** **DEFAULT** Configures SATA devices as AHCI device.

➔ **Intel RST With Intel Optane System Acceleration**

When the option **"Intel RST With Intel Optane System Acceleration"** is selected in SATA Mode Selection**,** the **RAID Device ID** option is available.

➔ **RAID Device ID [Client]**

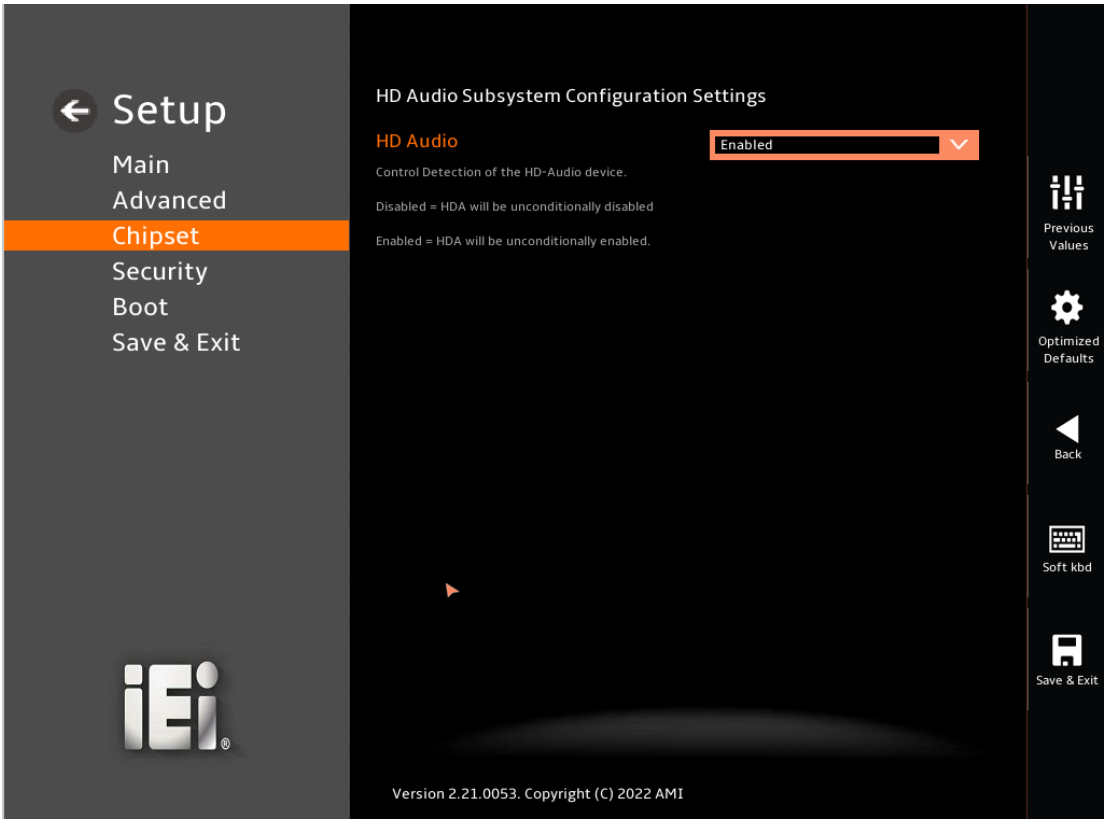
Use the **RAID Device ID** option to choose the RAID Device ID.

➔ **Client** **DEFAULT** Choose the Client Mode

➔ **Alternate** Choose the Alternate Mode

5.4.2.3 HD Audio Configuration

Use the **HD Audio Configuration** menu (**BIOS Menu 33**) to configure the HD Audio Subsystem settings.



BIOS Menu 33: HD Audio Configuration

➔ **HD Audio [Enabled]**

Use the **HD Audio** option to enable or disable the High Definition Audio controller.

➔ **Disabled** The onboard High Definition Audio controller is disabled.

➔ **Enabled** **DEFAULT** The onboard High Definition Audio controller is enabled.

5.5 Security

Use the **Security** menu (**BIOS Menu 34**) to set system and user passwords.

BIOS Menu 34: Security

➔ **Administrator Password**

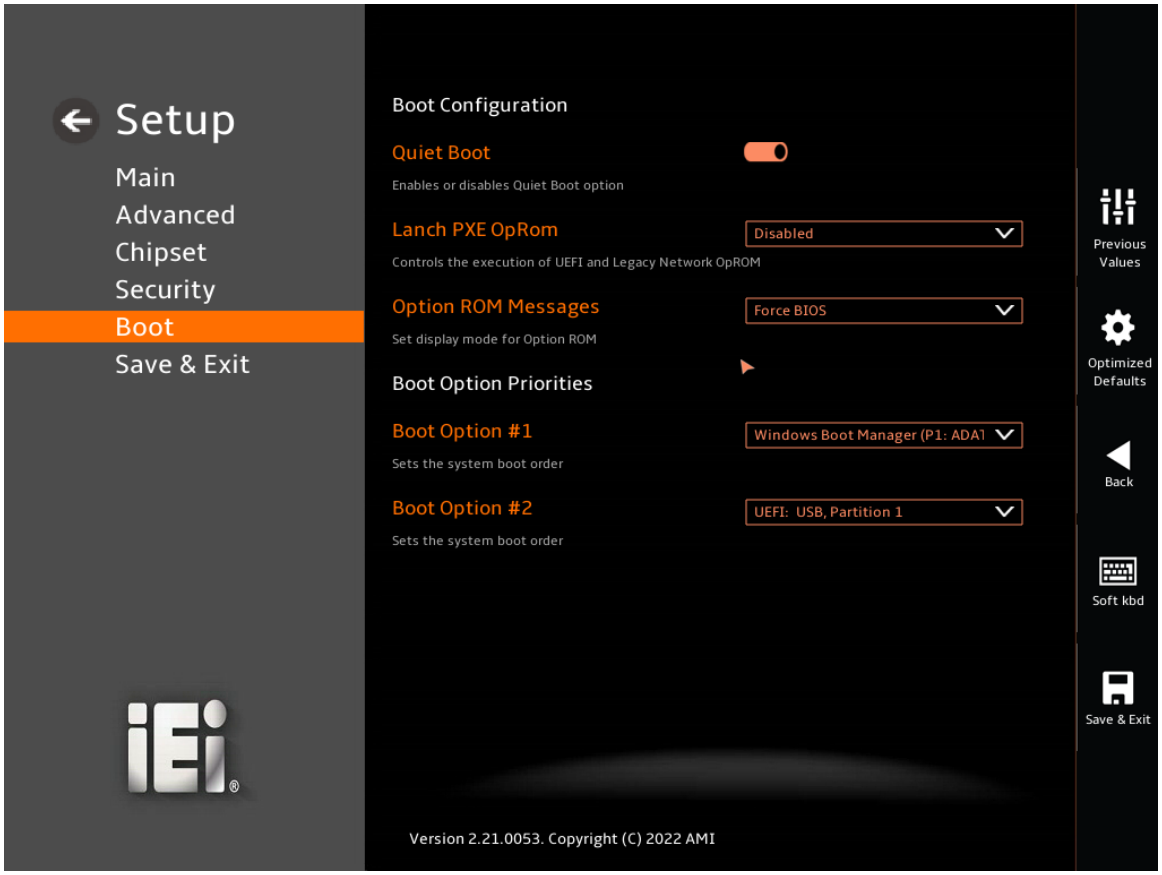
Use the **Administrator Password** to set or change a administrator password.

➔ **User Password**

Use the **User Password** to set or change a user password.

5.6 Boot

Use the **Boot** menu (**BIOS Menu 35**) to configure system boot options.



BIOS Menu 35: Boot Menu

5.6.1 Boot Configuration

➔ **Quiet Boot [Enabled]**

Use the **Quiet Boot** BIOS option to select the screen display when the system boots.

➔	**Disabled**		Normal POST messages displayed
➔	**Enabled**	**DEFAULT**	OEM Logo displayed instead of POST messages

➔ **Option ROM Messages [Force BIOS]**

Use the **Option ROM Messages** option to set the Option ROM display mode.

➔ **Force BIOS**	**DEFAULT**	Sets display mode to force BIOS.
➔ **Keep Current**		Sets display mode to current.

➔ **Launch PXE OpRom [Disabled]**

Use the **Launch PXE OpRom** option to enable or disable boot option for legacy network devices.

➔ **Disabled**	**DEFAULT**	Ignore all PXE Option ROMs
➔ **Enabled**		Load PXE Option ROMs.

5.6.2 Boot Option Priorities

Use the Boot Option # N to choose the system boots from the peripherals you selected The following Boot Options are listed as an example.

➔ **Boot Option #1**

Sets the system boot order **UEFI: KingstonDataTraveler2.0** as the second priority.

➔ **UEFI: KingstonDataTraveler2.0, Partition 1**

➔ **Disabled**

➔ **Boot Option #2**

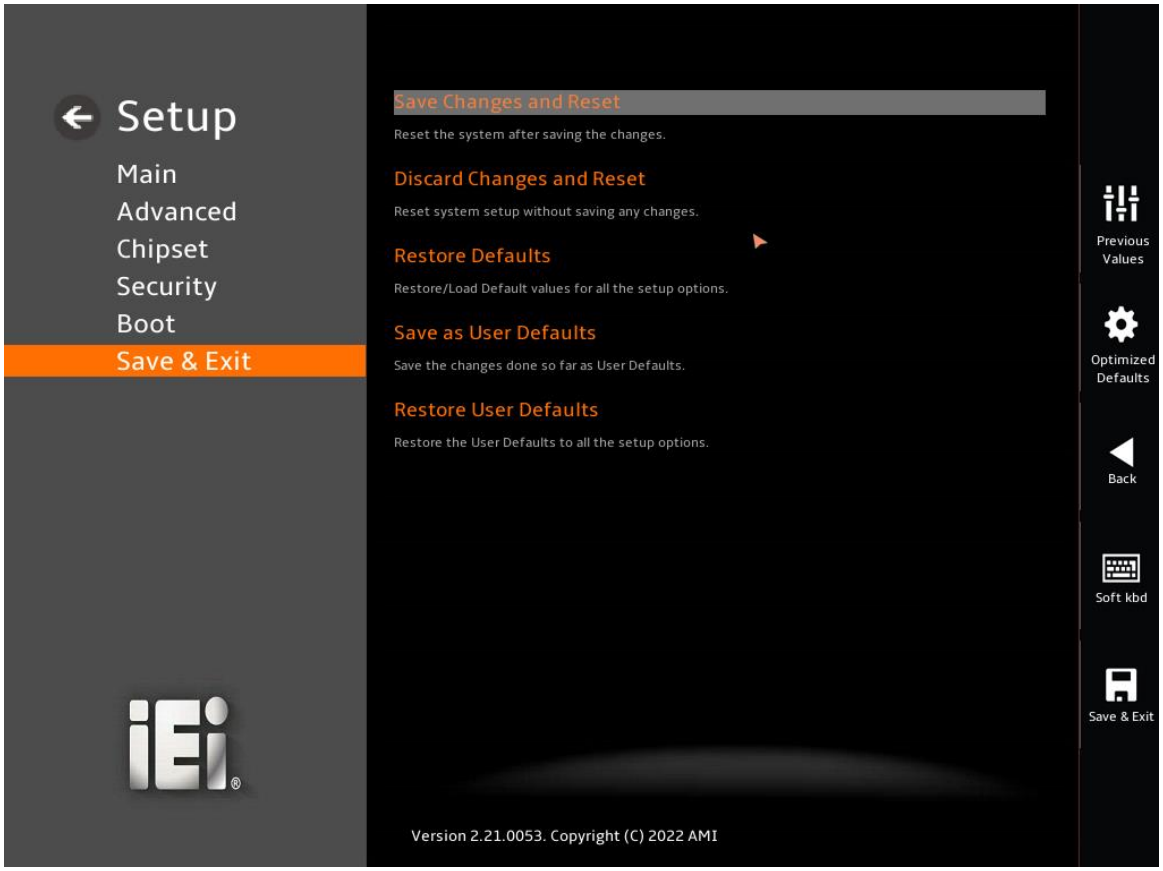
Sets the system boot order **ADATA SP580** as the first priority.

➔ **Windows Boot Manager (P1: ADATA SSD SP580 240GB)**

➔ **Disabled**

5.7 Save & Exit

Use the **Save & Exit** menu (**BIOS Menu 36**) to load default BIOS values, optimal failsafe values and to save configuration changes.



BIOS Menu 36: Save & Exit

➔ **Save Changes and Reset**

Use the **Save Changes and Reset** option to save the changes made to the BIOS options and reset the system.

➔ **Discard Changes and Reset**

Use the **Discard Changes and Reset** option to exit the system without saving the changes made to the BIOS configuration setup program.

➔ **Restore Defaults**

Use the **Restore Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F3 key can be used for this operation.**

➔ **Save as User Defaults**

Use the **Save as User Defaults** option to save the changes done so far as user defaults.

➔ **Restore User Defaults**

Use the **Restore User Defaults** option to restore the user defaults to all the setup options.

Appendix

A

Regulatory Compliance

DECLARATION OF CONFORMITY

CE

This equipment is in conformity with the following EU directives:

- EMC Directive (2004/108/EC, 2014/30/EU)
- Low-Voltage Directive (2006/95/EC, 2014/35/EU)
- RoHS II Directive (2011/65/EU, 2015/863/EU)

If the user modifies and/or install other devices in the equipment, the CE conformity declaration may no longer apply.

If this equipment has telecommunications functionality, it also complies with the requirements of the Radio Equipment Directive 2014/53/EU.

English

IEI Integration Corp declares that this equipment is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.

Български [Bulgarian]

IEI Integration Corp. декларира, че този оборудване е в съответствие със съществените изисквания и другите приложими правила на Директива 2014/53/EU.

Česky [Czech]

IEI Integration Corp tímto prohlašuje, že tento zařízení je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 2014/53/EU.

Dansk [Danish]

IEI Integration Corp erklærer herved, at følgende udstyr overholder de væsentlige krav c øvrige relevante krav i direktiv 2014/53/EU.

Deutsch [German]

IEI Integration Corp, erklärt dieses Gerät entspricht den grundlegenden Anforderungen und den weiteren entsprechenden Vorgaben der Richtlinie 2014/53/EU.

Eesti [Estonian]

IEI Integration Corp deklareerib seadme seadme vastavust direktiivi 2014/53/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.

Español [Spanish]

IEI Integration Corp declara que el equipo cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 2014/53/EU.

Ελληνική [Greek]

IEI Integration Corp ΔΗΛΩΝΕΙ ΟΤΙ ΕΞΟΠΛΙΣΜΟΣ ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 2014/53/EU.

Français [French]

IEI Integration Corp déclare que l'appareil est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 2014/53/EU.

Italiano [Italian]

IEI Integration Corp dichiara che questo apparecchio è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 2014/53/EU.

Latviski [Latvian]

IEI Integration Corp deklarē, ka iekārta atbilst būtiskajām prasībām un citiem ar to saistītajiem noteikumiem Direktīvas 2014/53/EU.

Lietuvių [Lithuanian]

IEI Integration Corp deklaruoja, kad šis įranga atitinka esminius reikalavimus ir kitas 2014/53/EU Direktyvos nuostatas.

Nederlands [Dutch]

IEI Integration Corp dat het toestel toestel in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 2014/53/EU.

Malti [Maltese]

IEI Integration Corp jiddikjara li dan prodott jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 2014/53/EU.

Magyar [Hungarian]

IEI Integration Corp nyilatkozom, hogy a berendezés megfelel a vonatkozó alapvetõ követelményeknek és az 2014/53/EU irányelv egyéb elõírásainak.

Polski [Polish]

IEI Integration Corp oświadcza, że wyrobu jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 2014/53/EU.

Português [Portuguese]

IEI Integration Corp declara que este equipamento está conforme com os requisitos essenciais e outras disposições da Directiva 2014/53/EU.

Româna [Romanian]

IEI Integration Corp declară că acest echipament este in conformitate cu cerinţele esenţiale şi cu celelalte prevederi relevante ale Directivei 2014/53/EU.

Slovensko [Slovenian]

IEI Integration Corp izjavlja, da je ta opreme v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 2014/53/EU.

Slovensky [Slovak]

IEI Integration Corp týmto vyhlasuje, že zariadenia spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 2014/53/EU.

Suomi [Finnish]

IEI Integration Corp vakuuttaa täten että laitteet on direktiivin 2014/53/EU oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.

Svenska [Swedish]

IEI Integration Corp förklarar att denna utrustningstyp står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 2014/53/EU.

FCC WARNING

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

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

Federal Communication Commission Interference Statement

This equipment has been assembled with components that comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Appendix

B

Safety Precautions

B.1 Safety Precautions

WARNING:

The precautions outlined in this appendix should be strictly followed. Failure to follow these precautions may result in permanent damage to the TANK-XM810 Series.

Please follow the safety precautions outlined in the sections that follow:

B.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- ***Make sure the power is turned off and the power cord is disconnected*** when moving, installing or modifying the system.
- ***Do not apply voltage levels that exceed the specified voltage range***. Doing so may cause fire and/or an electrical shock.
- ***Electric shocks can occur*** if opened while still powered on.
- ***Do not drop or insert any objects*** into the ventilation openings.
- ***If considerable amounts of dust, water, or fluids enter the system***, turn off the power supply immediately, unplug the power cord, and contact the system vendor.
- **DO NOT**:
  - Drop the system against a hard surface.
  - In a site where the ambient temperature exceeds the rated temperature

B.1.2 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the TANK-XM810 Series may result in permanent damage to the TANK-XM810 Series and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the TANK-XM810 Series. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the TANK-XM810 Series is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- ***Self-grounding***: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring or working with an electrical component, place it on an antic-static pad. This reduces the possibility of ESD damage.
- ***Only handle the edges of the electrical component***: When handling the electrical component, hold the electrical component by its edges.

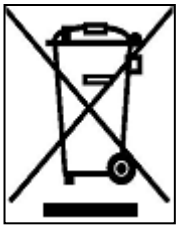
B.1.3 Product Disposal

CAUTION:

Risk of explosion if battery is replaced by and incorrect type. Only certified engineers should replace the on-board battery.

Dispose of used batteries according to instructions and local regulations.

- Outside the European Union – If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method.
- Within the European Union – The device that produces less waste and is easier to recycle is classified as electronic device in terms of the European Directive 2012/19/EU (WEEE), and must not be disposed of as domestic garbage.



EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask the shop where you purchased the product. The mark on electrical and electronic products only applies to the current European Union Member States.

Please follow the national guidelines for electrical and electronic product disposal.

B.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the TANK-XM810 Series, please follow the guidelines below.

B.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the TANK-XM810 Series, please read the details below.

- The interior of the TANK-XM810 Series does not require cleaning. Keep fluids away from the TANK-XM810 Series interior.
- Be cautious of all small removable components when vacuuming the TANK-XM810 Series.
- Turn the TANK-XM810 Series off before cleaning the TANK-XM810 Series.
- Never drop any objects or liquids through the openings of the TANK-XM810 Series.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the TANK-XM810 Series.
- Avoid eating, drinking and smoking within vicinity of the TANK-XM810 Series.

B.2.2 Cleaning Tools

Some components in the TANK-XM810 Series may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the TANK-XM810 Series.

- ***Cloth*** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the TANK-XM810 Series.
- ***Water or rubbing alcohol*** – A cloth moistened with water or rubbing alcohol can be used to clean the TANK-XM810 Series.
- ***Using solvents*** – The use of solvents is not recommended when cleaning the TANK-XM810 Series as they may damage the plastic parts.
- ***Vacuum cleaner*** – Using a vacuum specifically designed for computers is one of the best methods of cleaning the TANK-XM810 Series. Dust and dirt can restrict the airflow in the TANK-XM810 Series and cause its circuitry to corrode.
- ***Cotton swabs*** - Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.
- ***Foam swabs*** - Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Appendix

C

BIOS Options

Below is a list of BIOS configuration options in the BIOS chapter.

Appendix

D

Error Beep Code

PEI Beep Codes

Number of Beeps	Description
1	Memory not Installed
1	Memory was installed twice (InstallPeiMemory routine in PEI Core called twice)
2	Recovery started
3	DXEIPL was not found
3	DXE Core Firmware Volume was not found
4	Recovery failed
4	S3 Resume failed
7	Reset PPI is not available

D.1 DXE Beep Codes

Number of Beeps	Description
1	Invalid password
4	Some of the Architectural Protocols are not available
5	No Console Output Devices are found
5	No Console Input Devices are found
6	Flash update is failed
7	Reset protocol is not available
8	Platform PCI resource requirements cannot be met

NOTE:

If you have any question, please contact IEI for further assistance.

Appendix

E

Hazardous Materials Disclosure

E.1 RoHS II Directive (2015/863/EU)

The details provided in this appendix are to ensure that the product is compliant with the RoHS II Directive (2015/863/EU). The table below acknowledges the presences of small quantities of certain substances in the product, and is applicable to RoHS II Directive (2015/863/EU).

Please refer to the following table.

Part Name	Toxic or Hazardous Substances and Elements									
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)	Bis(2-ethylhexyl) phthalate (DEHP)	Butyl benzyl phthalate (BBP)	Dibutyl phthalate (DBP)	Diisobutyl phthalate (DIBP)
Housing	O	O	O	O	O	O	O	O	O	O
Printed Circuit Board	O	O	O	O	O	O	O	O	O	O
Metal Fasteners	O	O	O	O	O	O	O	O	O	O
Cable Assembly	O	O	O	O	O	O	O	O	O	O
Fan Assembly	O	O	O	O	O	O	O	O	O	O
Power Supply Assemblies	O	O	O	O	O	O	O	O	O	O
Battery	O	O	O	O	O	O	O	O	O	O

O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in Directive (EU) 2015/863.

X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in Directive (EU) 2015/863.

E.2 China RoHS

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有"环境友好使用期限"的标签,此期限是估算这些物质"不会有泄漏或突变"的年限。本产品可能包含有较短的环境友好使用期限的可替换元件,像是电池或灯管,这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	O	O	O	O	O	O
印刷电路板	O	O	O	O	O	O
金属螺帽	O	O	O	O	O	O
电缆组装	O	O	O	O	O	O
风扇组装	O	O	O	O	O	O
电力供应组装	O	O	O	O	O	O
电池	O	O	O	O	O	O

O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11364-2014 與 GB/T26572-2011 标准规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11364-2014 與 GB/T26572-2011 标准规定的限量要求。