



MODEL:

TANK-8700 Series

High-Performance Embedded System with AMD Ryzen™ 8000 Series Processor, Two DDR5 Slots, Two 2.5 GbE, USB 3.2 Gen2, USB 2.0 M.2 M Key, M.2 A Key, M.2 B Key, PCIe x8, PCIe x4, PCIe x1 or PCI, HDMI, DP, USB4, RS-232/422/485, RoHS

User Manual

Revisions

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December 9, 2025	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.

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Chapter

1

Introduction

1.1 Overview



Figure 1-1: TANK-8700 Series

The TANK-8700 Series is a high-performance, fanless embedded system that supports wall mounting. It is powered by AMD Ryzen™ 7000/8000 Series Mobile Processors and features two 5600 MHz DDR5 SO-DIMM memory modules up to 96 GB.

The TANK-8700 Series provides two 2.5G Ethernet ports via Realtek 8125B controllers and one RJ45 port by an M.2 IRIS2 module. It also includes three independent display outputs: DP++, HDMI and USB4.

When it comes to expansion slots, the TANK-8700 Series offers extensive options, including one M.2 2230 A-key slot for Wi-Fi and Bluetooth modules, one M.2 2280 M-key slot, one M.2 3042/52/80 B-key slot, one PCIe Gen4 x8, one PCIe Gen3 x4, one PCIe Gen3 x1 (only available for 3A SKUs), and one PCI (only available for 3B SKUs). In addition, the TANK-8700 Series provides multiple I/O interfaces including three USB 3.2 Gen 2 connectors, three USB 2.0 connectors, and two 2.5" SATA 6Gb/s HDD/SSD bays. Serial device connectivity is achieved by both two RS-422/485 DB9 connectors and three RS-232 DB9 connector.

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1.2 Model Variations

The model variations of the TANK-8700 Series are listed below.

Model No.	CPU	Memory	Expansion Slots
TANK-8700-MPHX-89AD-3A	AMD Ryzen™ 9 8945HS 4.0 GHz (up to 5.2 GHz, 8 Core, TDP 45W)	16GB DDR5	PCIe x8/PCIe x4/PCIe x1
TANK-8700-MPHX-89AD-3B	AMD Ryzen™ 9 8945HS 4.0 GHz (up to 5.2 GHz, 8 Core, TDP 45W)	16GB DDR5	PCIe x8/PCIe x4/PCI
TANK-8700-MPHX-87AD-3A	AMD Ryzen™ 7 8845HS 3.8 GHz (up to 5.1 GHz, 8 Core, TDP 45W)	16GB DDR5	PCIe x8/PCIe x4/PCIe x1
TANK-8700-MPHX-87AD-3B	AMD Ryzen™ 7 8845HS 3.8 GHz (up to 5.1 GHz, 8 Core, TDP 45W)	16GB DDR5	PCIe x8/PCIe x4/PCI
TANK-8700-MPHX-85AD-3A	AMD Ryzen™ 5 8645HS 4.3 GHz (up to 5.0 GHz, 6 Core, TDP 45W)	16GB DDR5	PCIe x8/PCIe x4/PCIe x1
TANK-8700-MPHX-85AD-3B	AMD Ryzen™ 5 8645HS 4.3 GHz (up to 5.0 GHz, 6 Core, TDP 45W)	16GB DDR5	PCIe x8/PCIe x4/PCI

Table 1-1: TANK-8700 Series Model Variations

1.3 Features

The TANK-8700 Series features are listed below:

- AMD Ryzen™ 7000/8000 Series Processor
- Two DDR5 SO-DIMM slots (16 GB pre-installed, up to 96 GB)
- Two 2.5 GbE LAN ports via Realtek 8125B controllers
- Three independent displays with DP++, HDMI and USB4 support
- Rich options for USB and serial connectors
- Multiple M.2 and PCIe expansions
- Two 2.5" 6Gb/s HDD/SSD SATA bays
- RoHS compliant

1.4 Technical Specifications

The TANK-8700 Series' technical specifications are listed in **Table 1-2**.

Model		TANK-8700
Chassis	Color	Black C + Iron Gray
	Dimensions (W x D x H)	254.4 mm x 205 mm x 127.2 mm
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloys
Motherboard	CPU	AMD Ryzen™ 8000 Series Processor AMD Ryzen™ 5 8645HS 4.3 GHz (up to 5.0 GHz, 6 Core, TDP 45W) AMD Ryzen™ 7 8845HS 3.8 GHz (up to 5.1 GHz, 8 Core, TDP 45W) AMD Ryzen™ 9 8945HS 4.0 GHz (up to 5.2 GHz, 8 Core, TDP 45W)
	Chipset	SoC
	Memory	2 x 5600 MHz SO-DIMM DDR5 (16 GB pre-installed, up to 96 GB)
Storage	Hard Drive	2 x 2.5" SATA 6Gb/s HDD/SSD bay
I/O Interfaces	Ethernet	2 x 2.5 GbE by Realtek 8125B controller 1 x RJ45 by M.2 IRIS2 module
	USB	3 x USB 3.2 Gen2 (10 Gb/s) 3 x USB 2.0
	COM	2 x RS-422/485 (with 2K isolation) (DB9) 3 x RS-232 (DB9)
	Digital I/O	8-bit (4-in/4-out) DB9 (Female)
	Display	1 x DP++ 1 x HDMI 1 x USB 4 (Display + USB 3.2 Gen2)
Internal Expansions	M.2	1 x M.2 M key (2280, PCIe Gen4 x2) 1 x M.2 A key (2230, PCIe Gen3 x1 & USB 2.0) 1 x M.2 B Key (3042/52/80, PCIe Gen3 x1 or support IRIS2 module)

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Model		TANK-8700
	Backplane	1 x PCIe Gen4 x8 1 x PCIe Gen3 x4 1 x PCIe Gen3 x1 (only available for 3A SKUs) 1 x PCI (only available for 3B SKUs)
Power	Power Input	DC jack: 12 ~ 28V DC Terminal block: 12 ~ 28V DC (with ACC mode)
	Remote Power	TBD
	Power Consumption	19V@3.79 A (AMD Ryzen™ 9 7940HS with 8 GB memory)
Reliability	Mounting	Wall mount
	Operating Temperature	-20°C ~ 60°C
	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)	3.96 kg / 5.5 kg
	Safety/EMC	CE, FCC
	Watchdog Timer	Programmable 1 ~ 255 sec
OS	Supported OS	Windows® 10/11 IoT Enterprise, Linux

Table 1-2: Technical Specifications

1.5 Front Panel

The front panel of the TANK-8700 Series is shown in **Figure 1-2**.

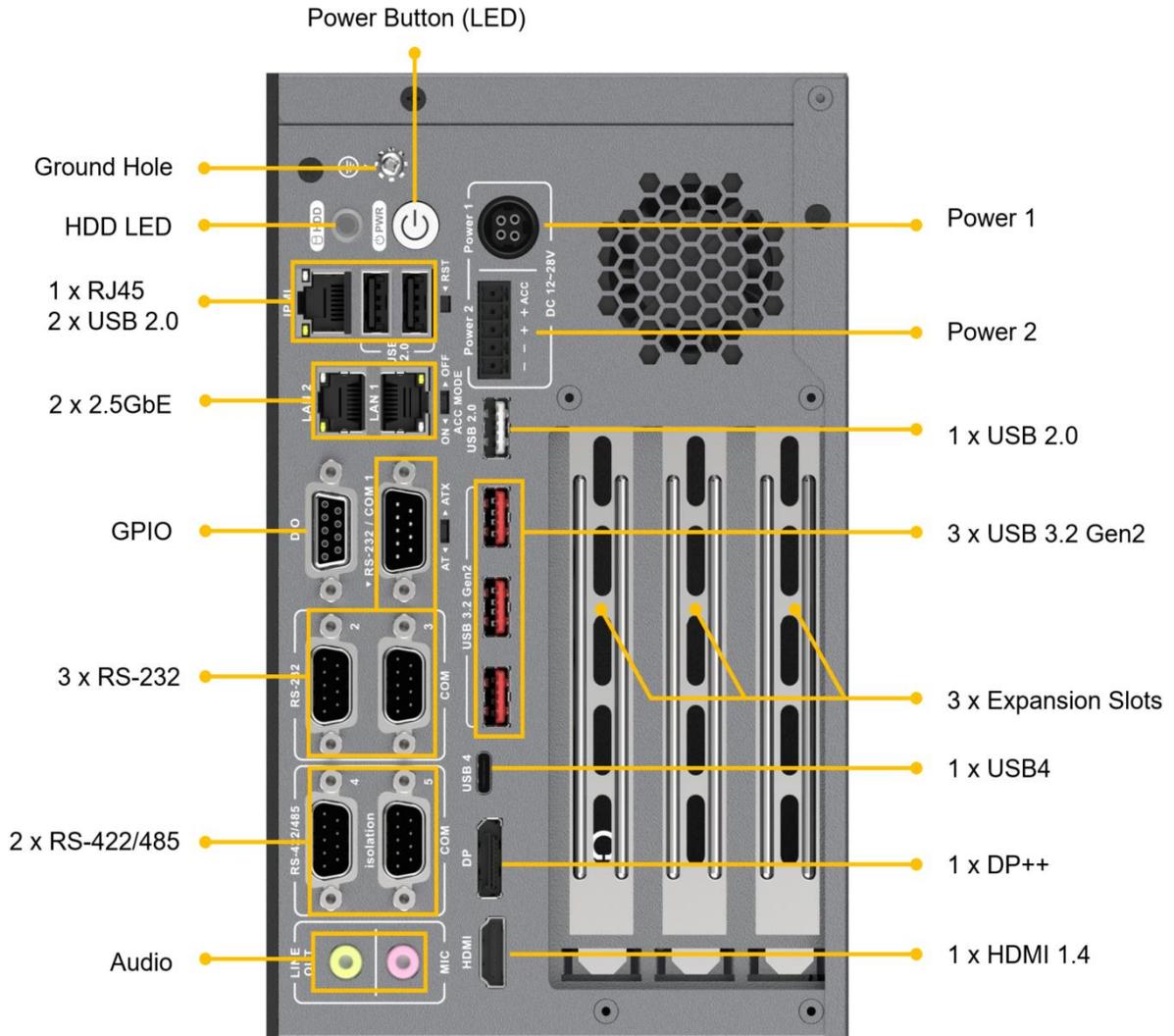


Figure 1-2: Front Panel

TANK-8700

1.6 Rear Panel

The rear panel of the TANK-8700 Series is shown in **Figure 1-3**.

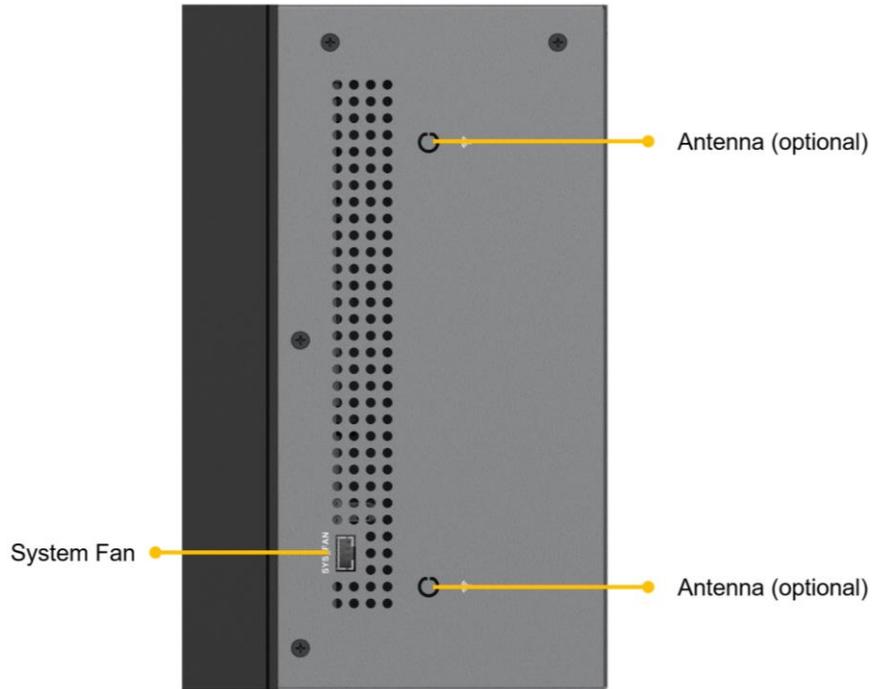


Figure 1-3: Rear Panel

1.7 Physical Dimensions

The physical dimensions of the TANK-8700 Series are shown in **Figure 1-4**.

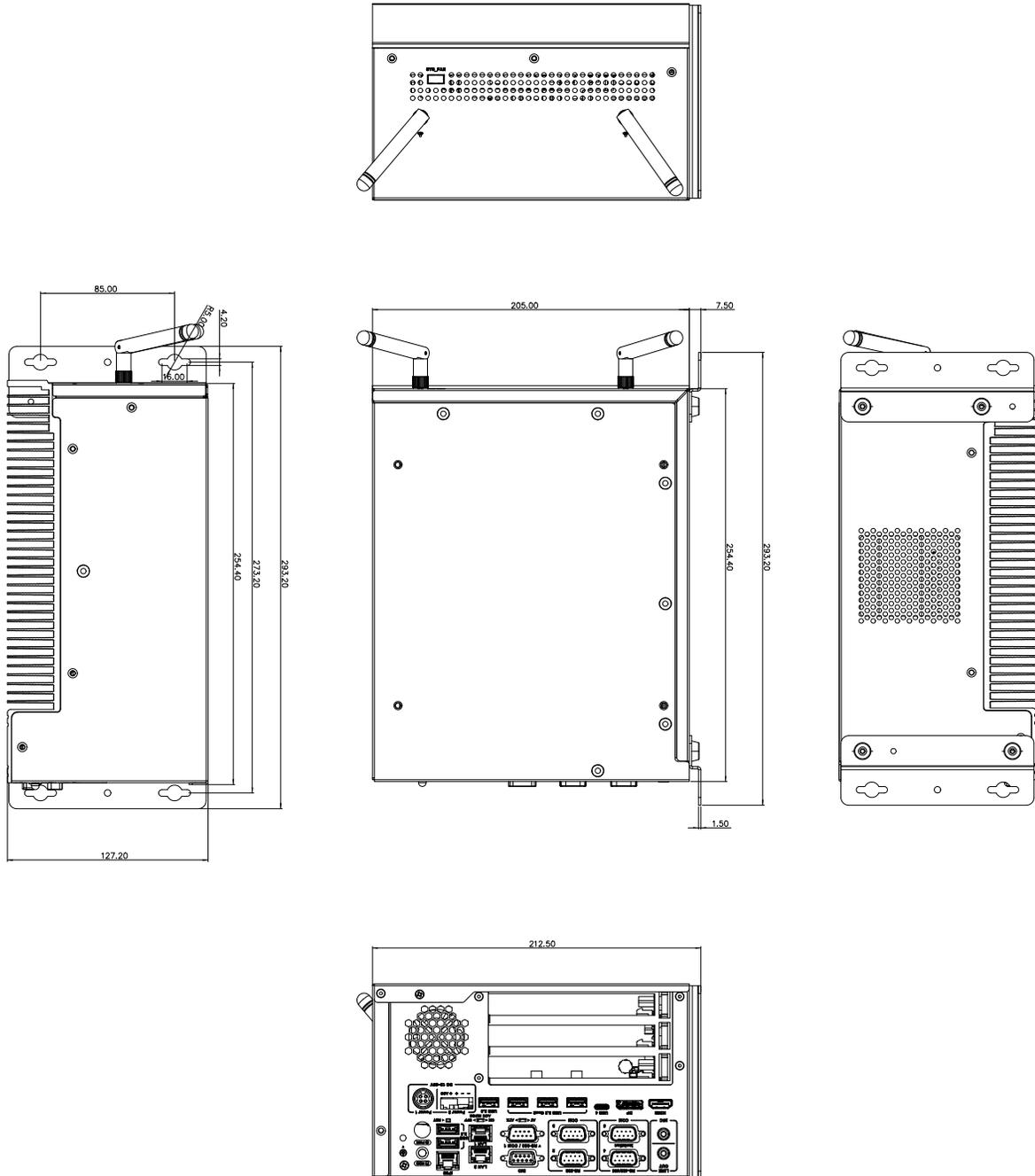


Figure 1-4: Physical Dimensions

Chapter

2

Unpacking

2.1 Anti-static Precautions



WARNING:

Failure to take ESD precautions during installation may result in permanent damage to the TANK-8700 Series and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the TANK-8700 Series. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the TANK-8700 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 device, touch any grounded conducting material. During the time the device is handled, frequently touch any conducting materials that are connected to the ground.
- **Use an anti-static pad:** When configuring the TANK-8700 Series, place it on an anti-static pad. This reduces the possibility of ESD damaging the TANK-8700 Series.

2.2 Unpacking Precautions

When the TANK-8700 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-8700 Series does not fall out of the box.
- Make sure all the components shown in **Section 2.3** are present.

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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-8700 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-8700 Series is shipped with the following components:

Quantity	Item and Part Number	Image
1	TANK-8700 Series	
2	Mounting bracket	
2	Mounting bracket	
1	5-pin terminal block	

Quantity	Item and Part Number	Image
1	Screw pack	

Table 2-1: Unpacking Checklist

2.4 Optional Items

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

Optional	
Wi-Fi module (P/N: EMB-WIFI-KIT02I3-R10)	
Expansion fan module (P/N: SF-TANK-87-00-R10)	
IPMI 2.0 adapter card (P/N: iRIS2-2600-R10)	

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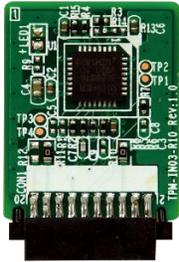
Optional	
SPI TPM 2.0 module (P/N: TPM-IN03-R10)	
Internal fan module (P/N: SF-TANK-87-01-R10)	
Power adapter (P/N: 63040-010180-200-RS)	
Power cord (P/N: 32702-000202-100-RS)	

Table 2-2: Optional Items

Chapter

3

Installation

3.1 Installation Precautions

**CAUTION:**

The TANK-8700 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-8700 Series.

During installation, be aware of the precautions below:

- **Read the user manual:** The user manual provides a complete description of the TANK-8700 Series, installation instructions and configuration options.
- **DANGER! Disconnect power:** Power to the TANK-8700 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-8700 Series is opened while the power cord is still connected to an electrical outlet.
- **Qualified personnel:** The TANK-8700 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-8700 Series. The TANK-8700 Series' cooling vents must not be obstructed by any objects. Leave at least 5 cm of clearance around the TANK-8700 Series to prevent overheating.
- **Grounding:** The TANK-8700 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-8700 Series.

3.2 Cover Removal

Before installing or maintaining the internal components, the cover must be removed from the TANK-8700. Follow the steps below to complete the task.

Step 1: Turn the TANK-8700 over and remove the six screws on the cover.

Step 2: Detach the cover from the TANK-8700 (**Figure 3-1**).



Figure 3-1: Remove the Cover

3.3 Memory Installation

The TANK-8700 Series is pre-installed with an 8GB or 16GB memory module. Users can add or replace memory with different capacity by themselves. The installation procedures are described below.

Step 1: Remove the installed memory. Push outwards the retaining clips located at each end of the SO-DIMM slot, which causes the memory module to pop up. Then gently pull the module out of the slot along the angle it has adopted. See **Figure 3-2**.

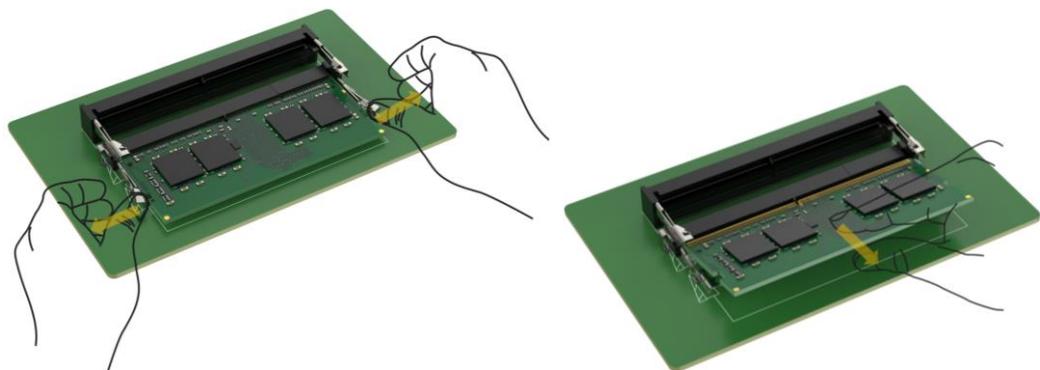


Figure 3-2: Remove the Memory

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Step 2: Insert a new memory module. Carefully align the memory module, ensuring the notches on the memory lines up with the notches on the memory socket (**Figure 3-3**).



Figure 3-3: Insert a Memory

Step 3: Once aligned, firmly press the module into position until the module is completely seated in the socket and the retaining clips lock the module into the socket (**Figure 3-4**).



Figure 3-4: Lock the Memory

3.4 Storage Installation

The TANK-8700 Series supports two types of storage, one M.2 M Key & one 2.5" SSD.

3.4.1 M.2 SSD Installation

To install an M.2 SSD module, please follow the steps below.

Step 1: Locate the M.2 M-key slot. See **Section 4.2.13**.

Step 2: Remove the retention screw secured on the motherboard (**Figure 3-5**).

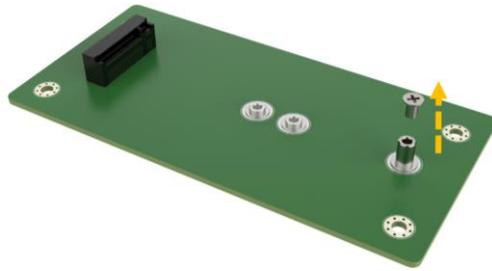


Figure 3-5: Remove the Retention Screw

Step 3: Line up the notch on the module with the notch on the slot. Slide the M.2 module into the slot at an angle of about 20° (**Figure 3-6**).

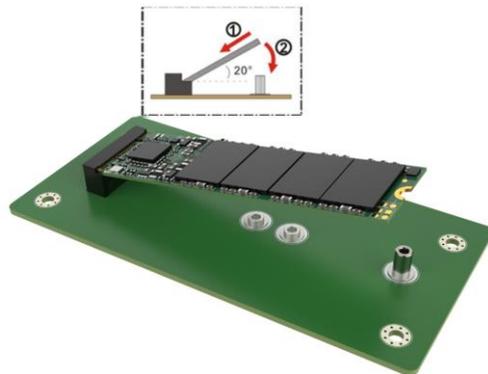


Figure 3-6: Insert the M.2 SSD Module

Step 4: Secure the M.2 module with the previously removed retention screw (**Figure 3-7**).

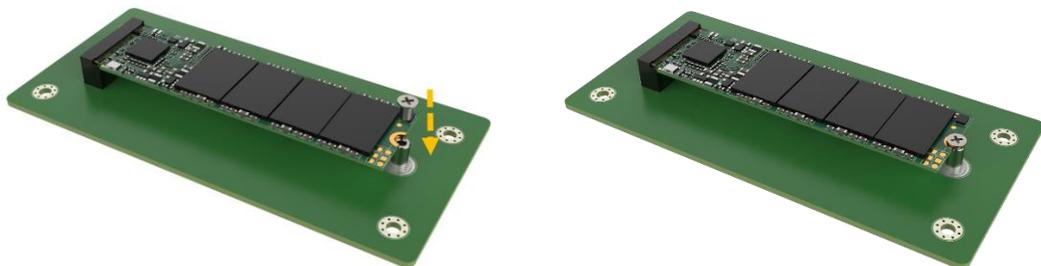


Figure 3-7: Secure the Screw

3.4.2 2.5-Inch SSD Installation

Step 1: Detach the hard drive brackets from the cover by removing the two retention screws (**Figure 3-8**).

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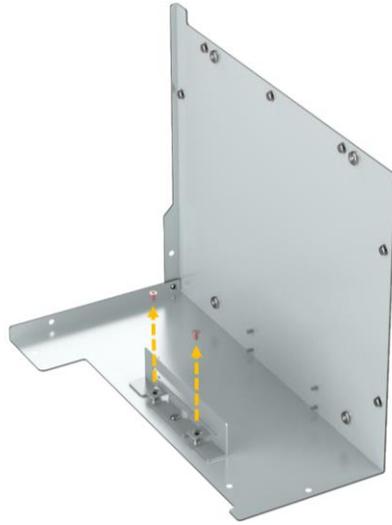


Figure 3-8: Detach the Hard Drive Bracket

Step 2: Align the four studs on both of the bracket and the cover with the holes on each side of the hard drive. Then secure the drive with the attached bracket onto the cover with the two screws removed previously (**Figure 3-9**).

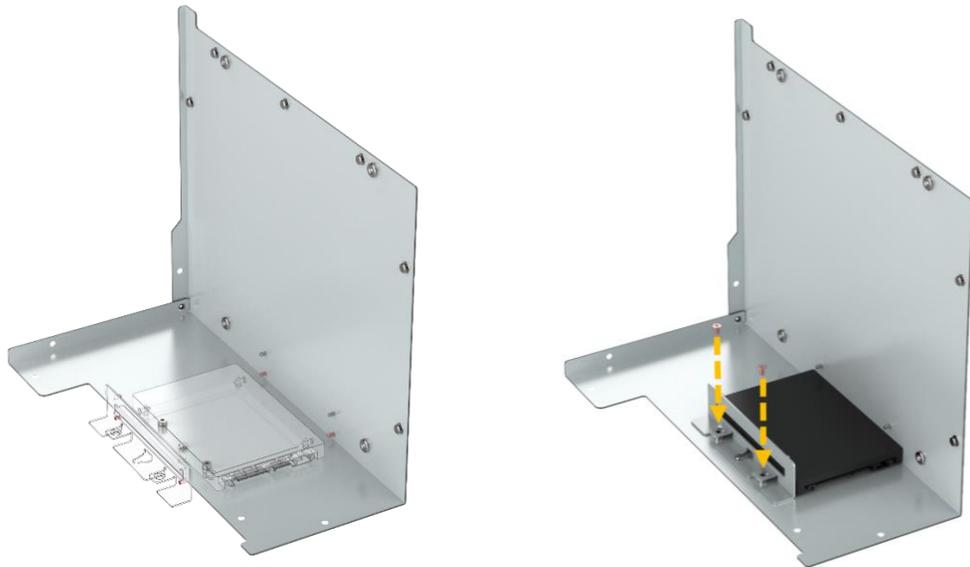


Figure 3-9: Secure the Hard Drive

Step 3: Connect the system's SATA cable to the drive (**Figure 3-10**).

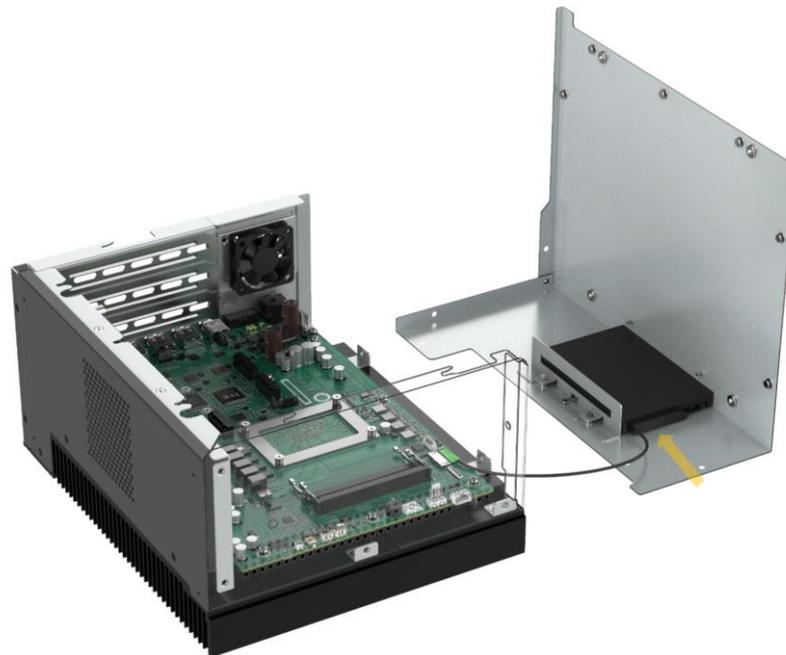


Figure 3-10: Connect the SATA Cable

3.5 Wi-Fi Module Installation

The Wi-Fi module is an optional accessory. You can purchase it from IEI or other vendors. Note that you have to purchase Wi-Fi module, internal antenna and external antenna. It is suggested to purchase an internal antenna longer than 200 mm.

To install the Wi-Fi module, follow the steps below.

Step 1: Locate the M.2 A-key slot. See **Section 4.2.12**.

Step 2: Remove the retention screw. Remove the retention screw for M.2 card installation as shown in **Figure 3-11**.

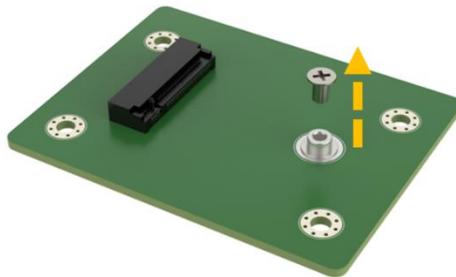


Figure 3-11: Remove the Retention Screw

TANK-8700

- Step 3:** Insert the module into the socket at an angle. Line up the notch on the WLAN module with the notch on the slot. Slide the WLAN module into the slot at an angle of about 20° (Figure 3-12).

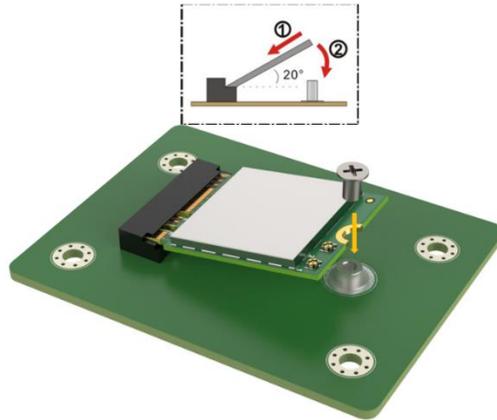


Figure 3-12: Insert the WLAN Module

- Step 4:** Secure the WLAN module. Secure the WLAN module with the retention screw previously removed (Figure 3-13).
- Step 5:** Connect the two RF cables to the antenna connectors on the WLAN module (Figure 3-13).

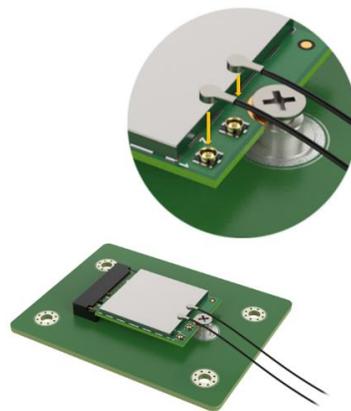


Figure 3-13: Secure WLAN Module and Connect RF Cables

- Step 6:** Remove the nut and washer from the SMA connector at the other end of the RF cable.
- Step 7:** Knock out the reserved antenna holes on the chassis. Insert the SMA connector to the antenna connector holes on the rear panel.
- Step 8:** Secure the SMA connector by inserting the washer and tightening it with nut.

Step 9: Install the external antenna.

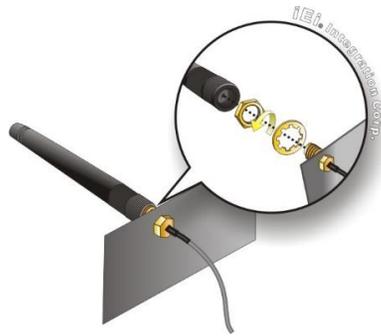


Figure 3-14: Secure SMA Connector and External Antenna Installation

3.6 TPM Module Installation

The TPM module ((P/N: TPM-IN03-R10)) is an optional accessory. To install the TPM module, follow the steps below.

Step 1: Locate the TPM connector on the solder side of the system motherboard. See **Section 4.2.20**.

Step 2: Insert the TPM module into the connector. Line up the pins of the TPM module with the pins of the connector (**Figure 3-15**).

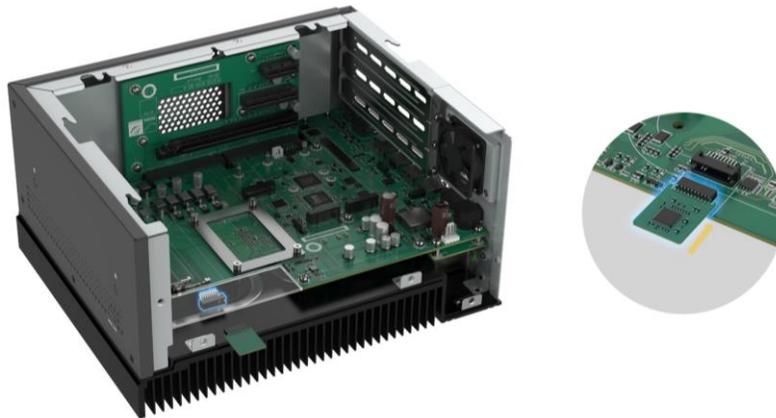


Figure 3-15: Insert the TPM Module

TANK-8700

3.7 PCIe/PCI Expansion Card Installation

The TANK-8700 Series allows installation of three PCIe cards (or two PCIe and one PCI cards). To install a PCIe/PCI expansion card, please follow the steps below.

- Step 1:** Before installing the expansion card, remove the fan that comes pre-installed with the system by unscrewing the fan from the system.



Figure 3-16: Remove the Fan

- Step 2:** Remove the screw that secures the expansion card bracket.



Figure 3-17: Remove the Bracket's Screw

Step 3: Insert the expansion card into the expansion slot and secure it using the screw removed in Step 2.



Figure 3-18: Insert the Expansion Card

Step 4: Reinstall the fan removed in Step 1 back to its original position.



Figure 3-19: Reinstall the Fan

3.8 Cover Installation

Install the cover by fastening the six screws (**Figure 3-20**).

TANK-8700



Figure 3-20: Cover Installation

3.9 System Fan Installation (Optional)

When encountering high performance and high heat, additional cooling is needed. The optional internal and external fans can help the TANK-8700 Series solve the thermal problem.

3.9.1 Internal fan installation

To install the optional Internal fan, follow the steps below.

Step 1: Re Locate the internal fan (Figure 3-21).

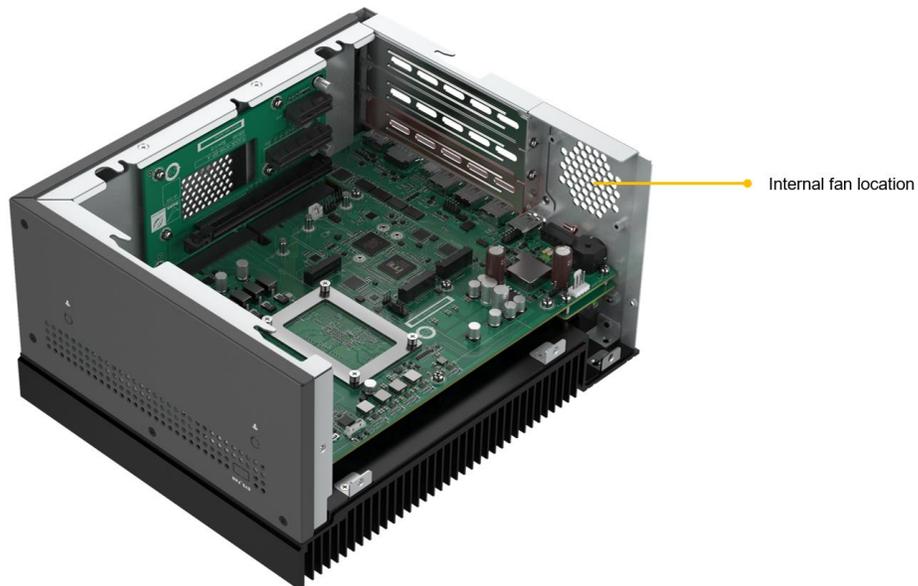


Figure 3-21: Internal fan location

TANK-8700

Step 2: Install the expansion fan module (SF-TANK-87-01-R10) to the TANK-8700 Series, and secure it using the two screws (**Figure 3-22**).

Step 3: Connect the fan cable to the fan connector on the side panel (**Figure 3-22**).



Figure 3-22: Install the Internal Fan Module

3.9.2 External expansion fan

To install the optional external fan, follow the steps below.

Step 4: Remove the four screws on each side of the TANK-8700 Series (**Figure 3-21**).

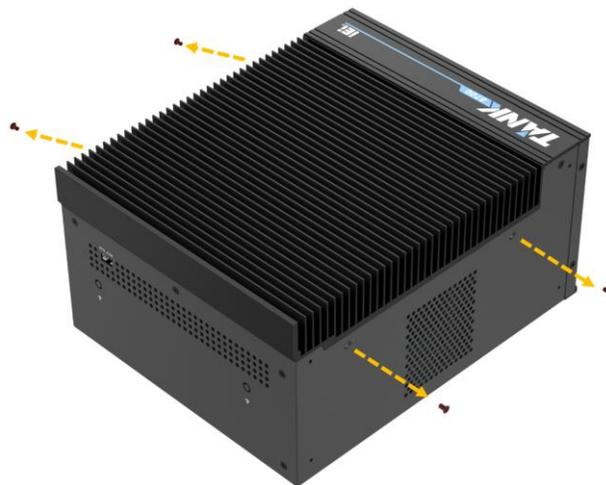


Figure 3-23: Remove Screws

Step 5: Install the expansion fan module (SF-TANK-87-00-R10) to the TANK-8700 Series, and secure it using the four screws removed previously (**Figure 3-22**).

TANK-8700

Step 6: Connect the fan cable to the fan connector on the side panel (**Figure 3-22**).

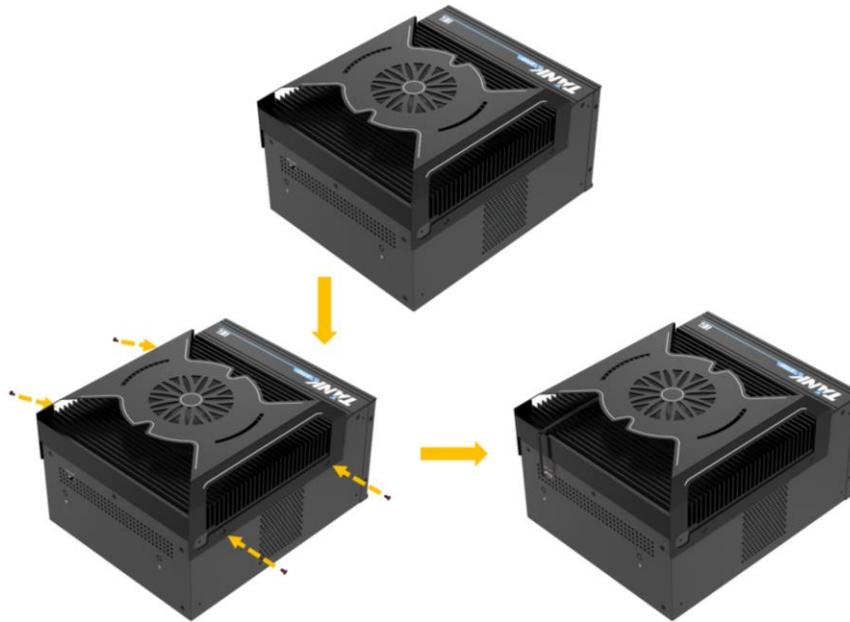


Figure 3-24: Install the External Fan Module

3.10 Mounting the System with Mounting Brackets

The TANK-8700 Series supports wall mounting on either the side or bottom. To mount the embedded system onto a wall or other surfaces using the mounting brackets, please follow the steps below.

Step 1: Align the screw holes in each bracket with the corresponding retention screw holes on the side or bottom (**Figure 3-25** and **Figure 3-26**).

Step 2: Secure the brackets to the system by inserting the four retention screws into each bracket and the system (**Figure 3-25** and **Figure 3-26**).



Figure 3-25: Wall Mounting on the Side



Figure 3-26: Wall Mounting on the Bottom

- Step 3:** Drill holes on the intended installation surface.
- Step 4:** Align the mounting holes of the mounting brackets with the pre-drilled holes in the mounting surface.
- Step 5:** Secure the system to the wall using the screws.

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3.11 Power On/Off the System

**WARNING:**

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

The power of the system needs more than 12V5A.

Step 1: Connect the power source to the power input connector.

Step 2: Push the power button, and then the button lights up in green.

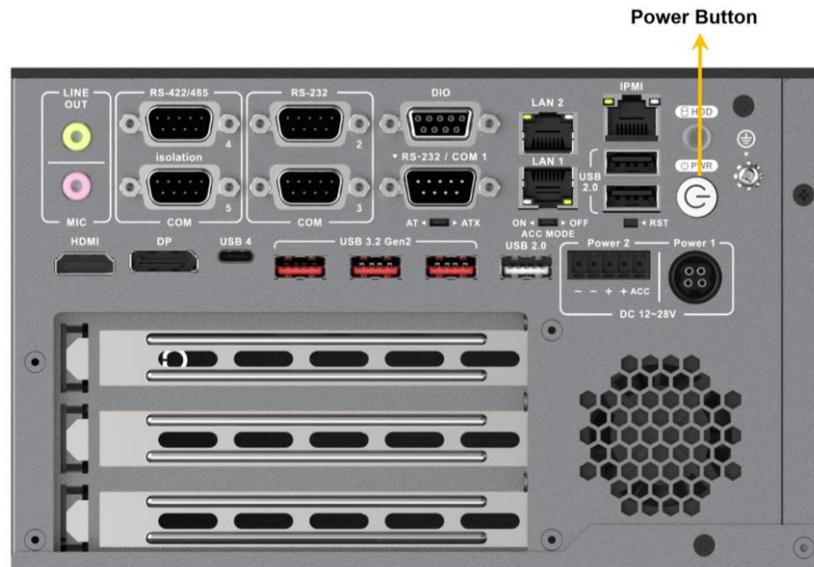


Figure 3-27: Power Button

- **Power on** the system: press the power button for 1 seconds
- **Power off** the system: press the power button or 6 seconds

3.12 AT/ATX Power Mode Selection

The TANK-8700 Series supports AT and ATX power modes. The setting can be made through the AT/ATX power mode switch on the system's front panel as shown below (**Figure 3-28**).

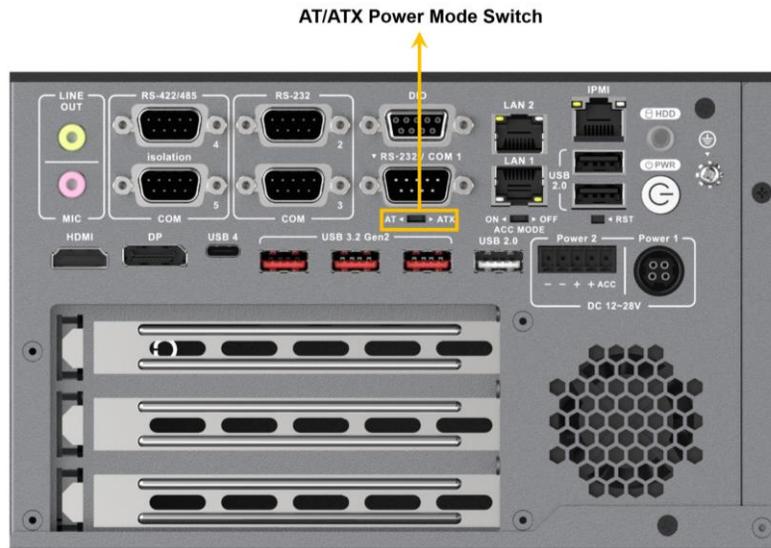


Figure 3-28: AT/ATX Power Mode Switch

3.13 Available Drivers

All the drivers for the TANK-8700 Series are available on IEI Resource Download Center (<https://download.ieiworld.com>). Type TANK-8700 Series and press Enter to find all the relevant software, utilities, and documentation.

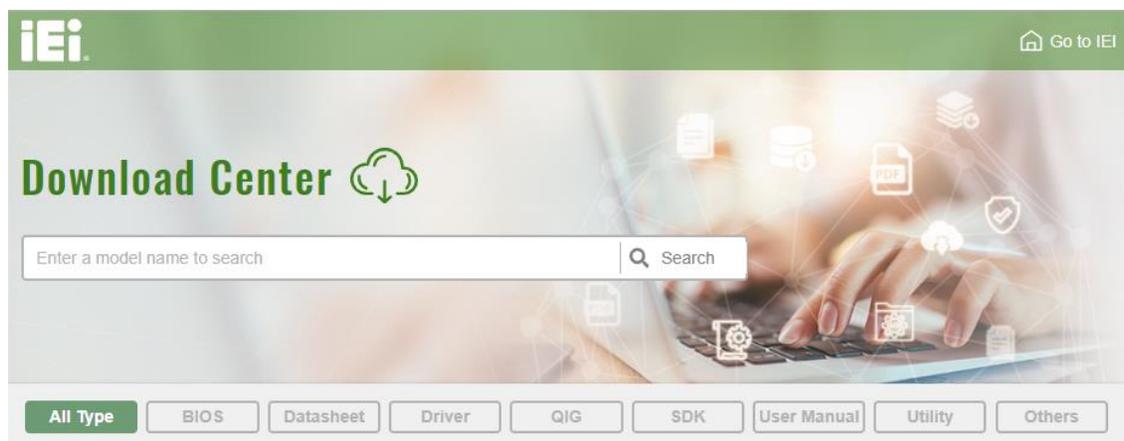


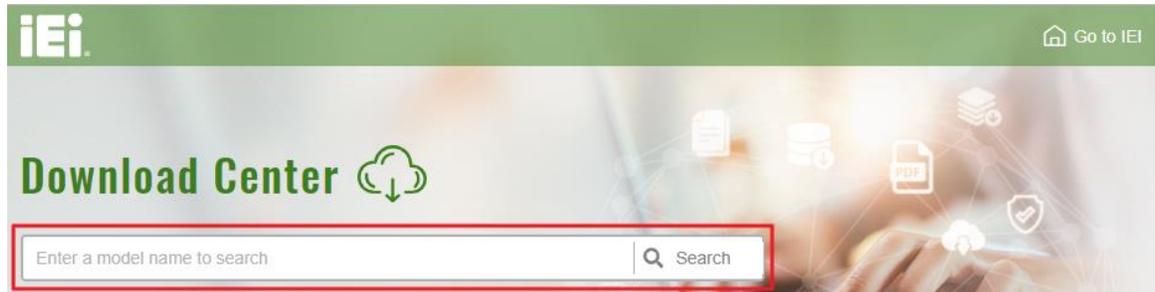
Figure 3-29: IEI Resource Download Center

TANK-8700

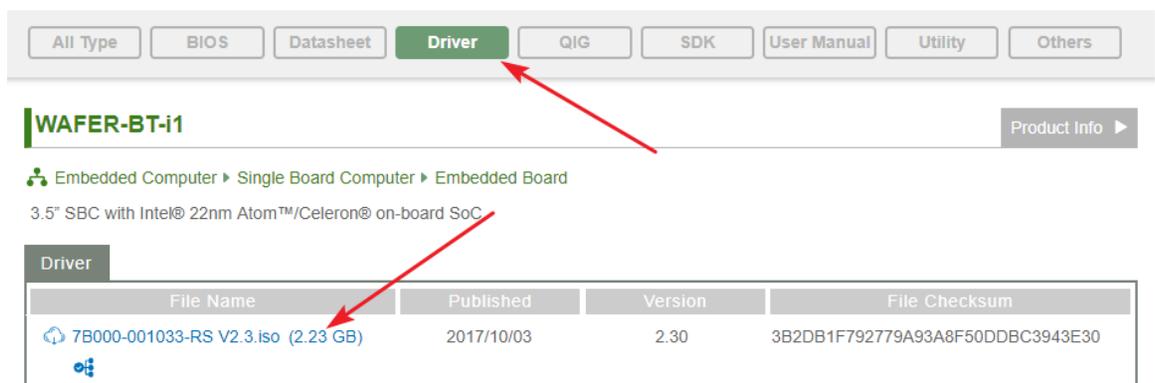
3.13.1 Driver Download

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

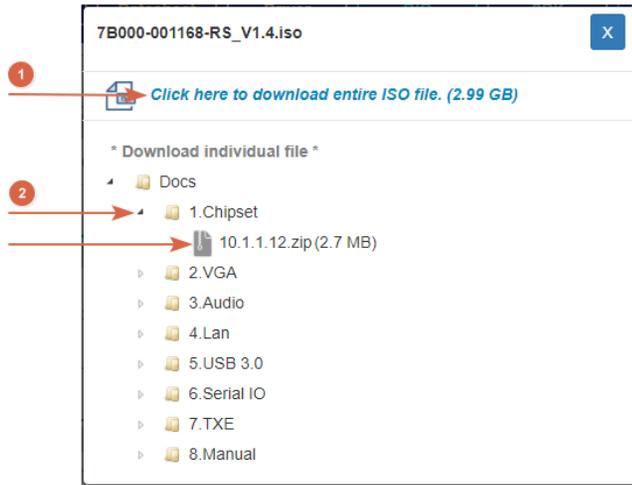
Step 1: Go to <https://download.ieiworld.com>. Type TANK-8700 Series and press Enter.



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 8 or later, double-click the ISO file to mount it as a virtual drive to view its content. On Windows 7 system, an additional tool (such as Virtual CD-ROM Control Panel from Microsoft) is needed to mount the file.

Chapter

4

System Motherboard

4.1 Overview

This chapter details all the jumpers and connectors of the system motherboard as well as the backplanes. The figures below show all the connectors' locations. The connector pinouts are listed in the following sections.

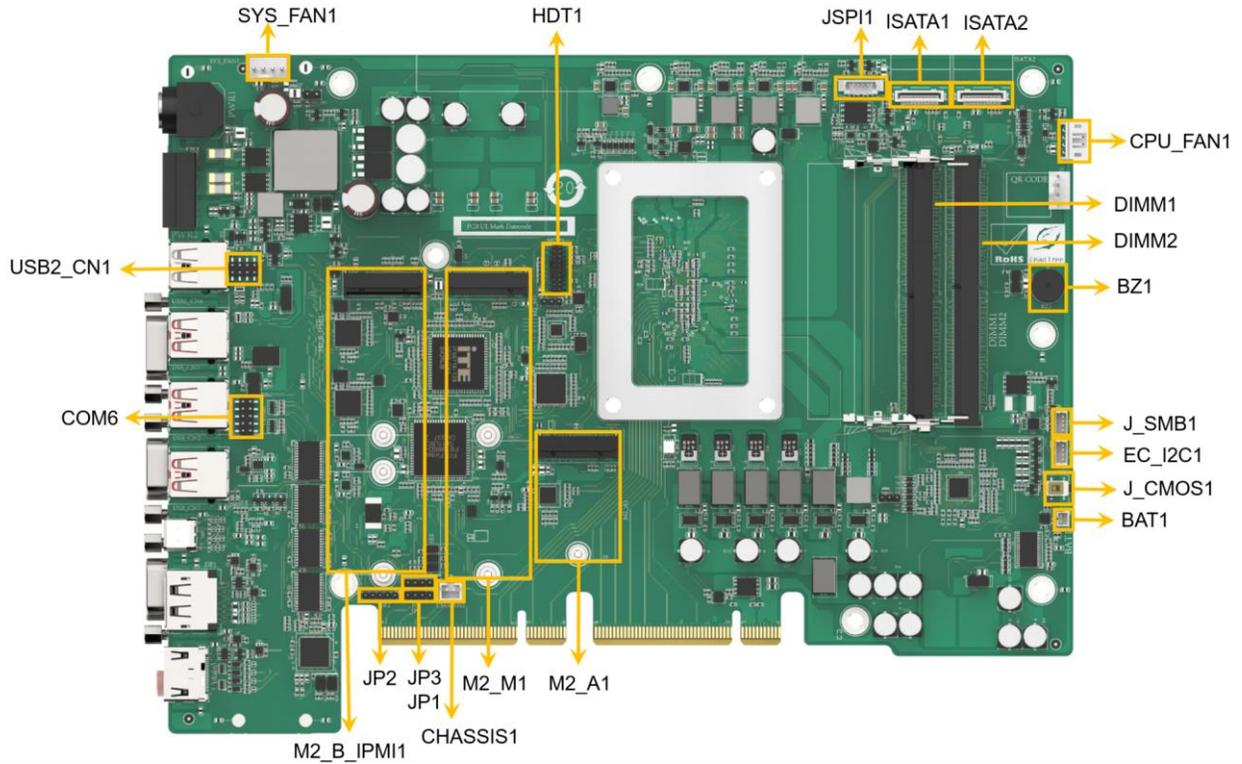


Figure 4-1: System Motherboard (Front side)

TANK-8700

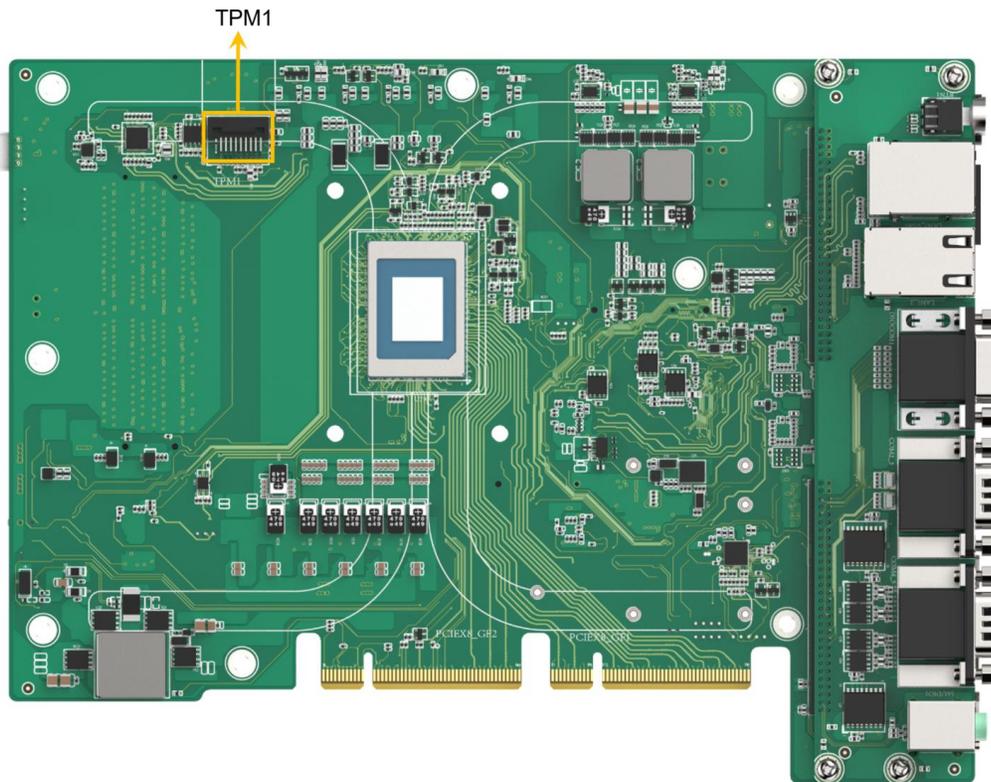


Figure 4-2: System Motherboard (Solder Side)

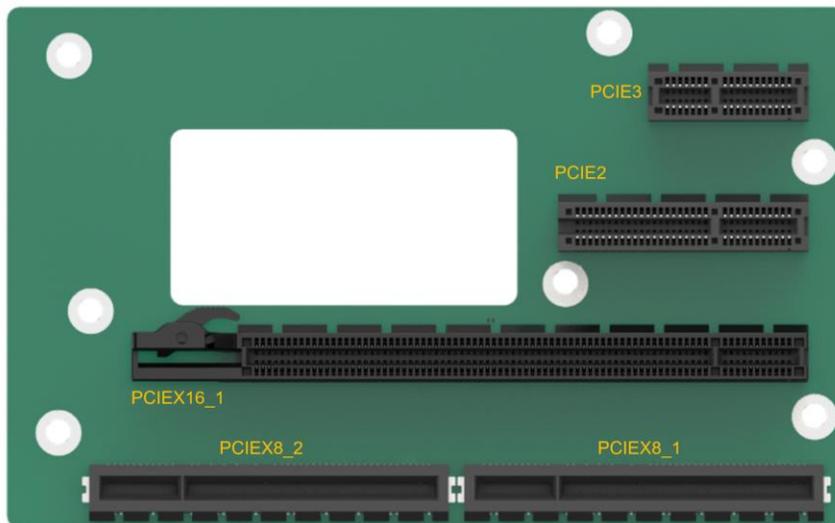


Figure 4-3: TANK-8700-BP-A (for 3A SKUs)

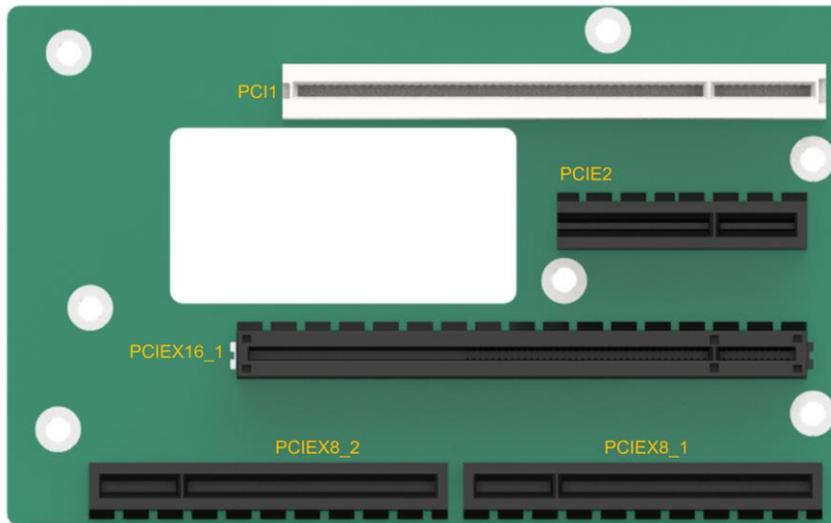


Figure 4-4: TANK-8700-BP-B (for 3B SKUs)

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
System fan connector	4-pin wafer	SYS_FAN1
ARM JTAG connector	20-pin header	HDT1
Flash SPI ROM connector	6-pin wafer	JSPI1
SATA 6Gb/s connector	20-pin SATA connector	ISATA1, ISATA2
CPU fan connector	4-pin wafer	CPU_FAN1
DDR5 memory socket	262-pin SO-DIMM socket	DIMM1, DIMM2
Buzzer	Buzzer	BZ1
SMBus connector	4-pin wafer	J_SMB1
I ² C connector	4-pin wafer	EC_I2C1
Clear CMOS switch	Tact switch	J_CMOS1
RTC battery connector	2-pin wafer	BAT1

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Connector	Type	Label
M.2 A-key slot	M.2 A-key slot	M2_A1
M.2 M-key slot	M.2 M-key slot	M2_M1
M.2 B-key slot	M.2 B-key slot	M2_B_IPMI1
Chassis intrusion connector	2-pin wafer	CHASSIS1
Power delivery debugging connector	4-pin header	JP1, JP3
Power delivery firmware updating connector	5-pin header	JP2
RS-232 serial port connector	10-pin header	COM6
USB 2.0 connector	8-pin header	USB2_CN1
TPM Connector	20-pin header	TPM1
PCIe backplane connector	Backplane connector	PCIEX8_2, PCIEX8_1
PCIe Gen4 x8 connector	PCIe connector	PCIEX16_1
PCIe Gen3 x4 connector	PCIe connector	PCIE2
PCIe Gen3 x1 connector	PCIe connector	PCIE3
PCI connector	PCI connector	PCI1

Table 4-1: Internal Peripheral Interface Connectors

4.2.1 System Fan Connector

- CN Label:** **SYS_FAN1**
- CN Type:** 4-pin wafer, p=2.54 mm
- CN Location:** See **Figure 4-5**
- CN Pinouts:** See **Table 4-2**

The system fan connector attaches to a cooling fan for the system.

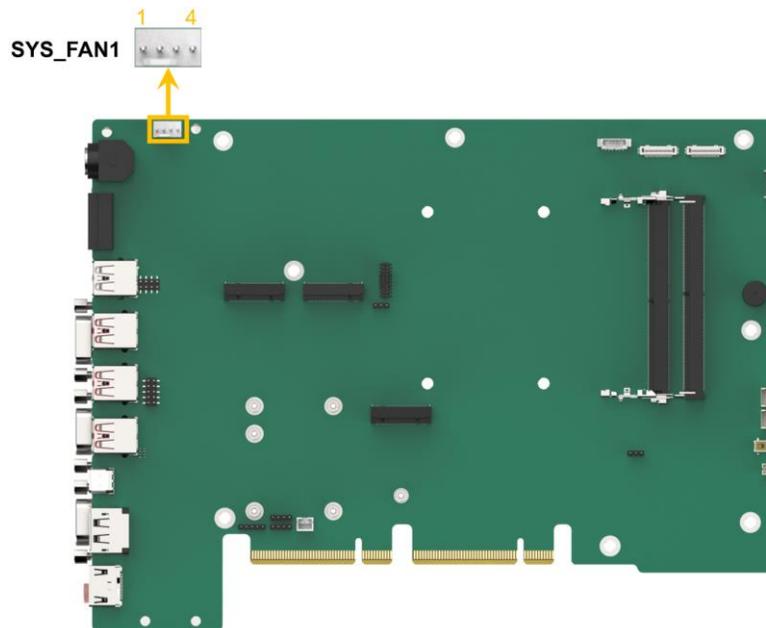


Figure 4-5: System Fan Connector Location

Pin	Description
1	GND
2	+12V
3	FANIN
4	FANOUT

Table 4-2: System Fan Connector Pinouts

4.2.2 ARM JTAG Connector

- CN Label:** HDT1
- CN Type:** 20-pin header, p=1.27 mm
- CN Location:** See Figure 4-6
- CN Pinouts:** See Table 4-3

The ARM JTAG (Joint Test Action Group) connector is used for debugging or programming the APU (Application Processor Unit).

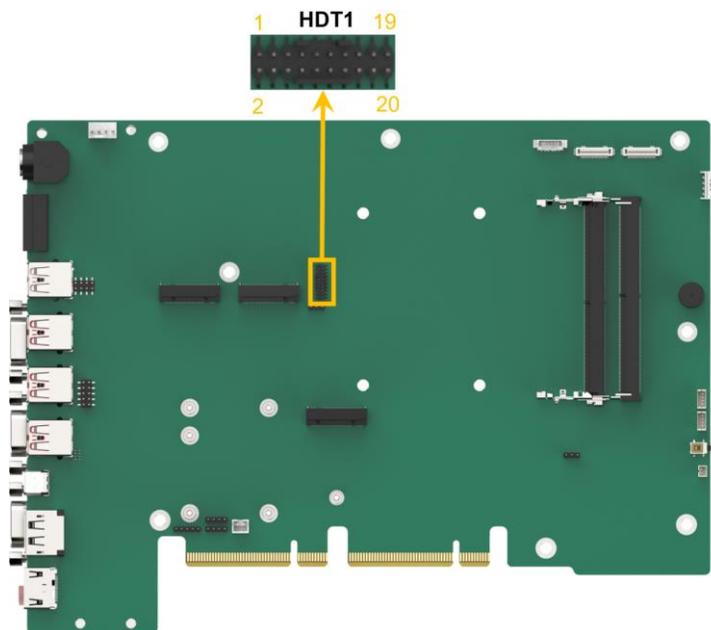


Figure 4-6: ARM JTAG Connector Location

Pin	Description	Pin	Description
1	CPU_VDDIO1	2	CPU_TCK
3	GND1	4	CPU_TMS
5	GND2	6	CPU_TDI
7	GND3	8	CPU_TDO
9	CPU_TRST_L	10	CPU_PWROK_BUF
11	CPU_DBRDY3	12	CPU_RST_L_BUF
13	CPU_DBRDY2	14	CPU_DBRDY0
15	CPU_DBRDY1	16	CPU_DBREQ_L

Pin	Description	Pin	Description
17	GND4	18	CPU_PLLTEST0
19	CPU_VDDIO2	20	CPU_PLLTEST1

Table 4-3: ARM JTAG Connector Pinouts

4.2.3 Flash SPI ROM Connector

- CN Label:** JSPI1
- CN Type:** 6-pin wafer, p=1.25 mm
- CN Location:** See **Figure 4-7**
- CN Pinouts:** See **Table 4-4**

The flash SPI ROM connector is used to flash the BIOS.

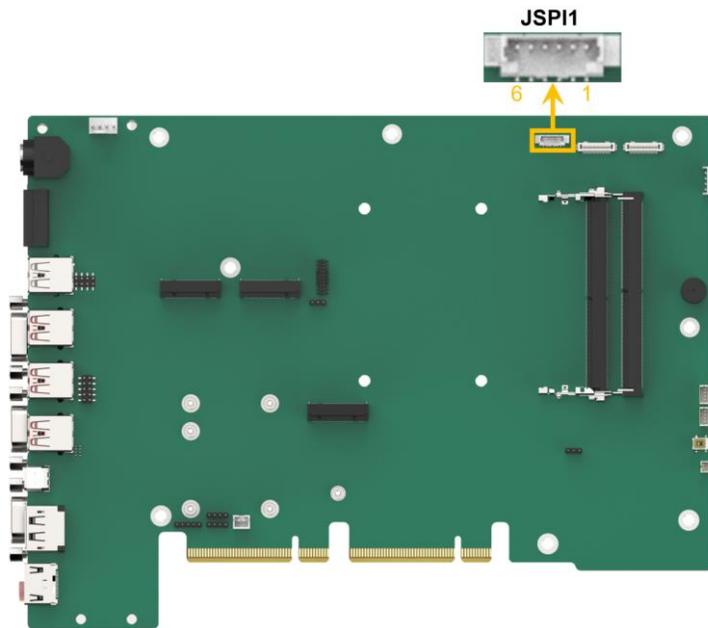


Figure 4-7: Flash SPI ROM Connector Location

Pin	Description	Pin	Description
1	+1.8V	2	SPI_FLASH_CS1#
3	SPI_FLASH_SO	4	SPI_FLASH_CLK
5	SPI_FLASH_SI	6	GND

Table 4-4: Flash SPI ROM Connector Pinouts

4.2.4 SATA 6Gb/s Connectors

- CN Label:** ISATA1, ISATA2
- CN Type:** 20-pin SATA connector, p=1.27 mm
- CN Location:** See **Figure 4-8**
- CN Pinouts:** See **Table 4-5**

The SATA 6Gb/s drive connector is connected to a SATA 6Gb/s drive. The SATA drive transfers data at speeds as high as 6Gb/s.

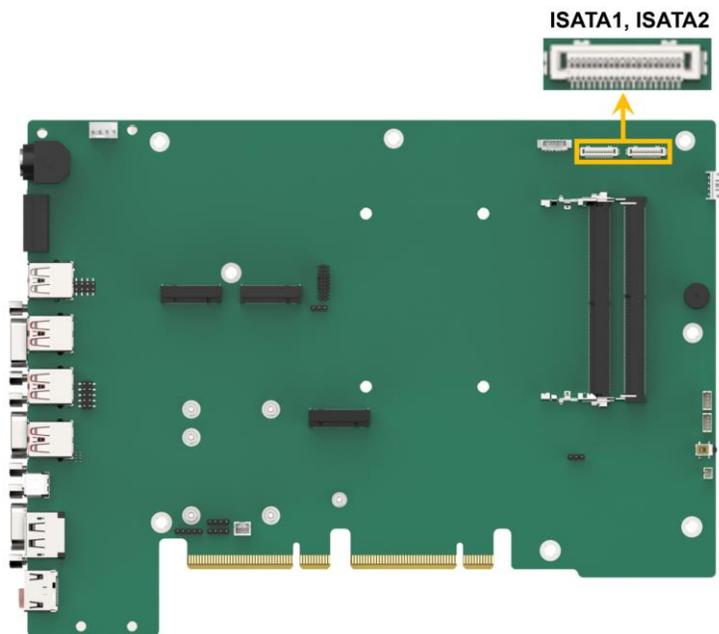


Figure 4-8: SATA 6Gb/s Connectors Location

Pin	Description	Pin	Description
1	GND	11	+5VS
2	GND	12	N/C
3	GND	13	N/C
4	GND	14	GND
5	GND	15	SATA RX+
6	GND	16	SATA_RX-
7	+5VS	17	GND

Pin	Description	Pin	Description
8	+5VS	18	SATA_TX-
9	+5VS	19	SATA_TX+
10	+5VS	20	GND

Table 4-5: SATA 6Gb/s Connector Pinouts

4.2.5 CPU Fan Connector

- CN Label:** CPU_FAN1
- CN Type:** 4-pin wafer, p=2.54 mm
- CN Location:** See Figure 4-9
- CN Pinouts:** See Table 4-6

The CPU fan connector attaches to a cooling fan for the CPU.

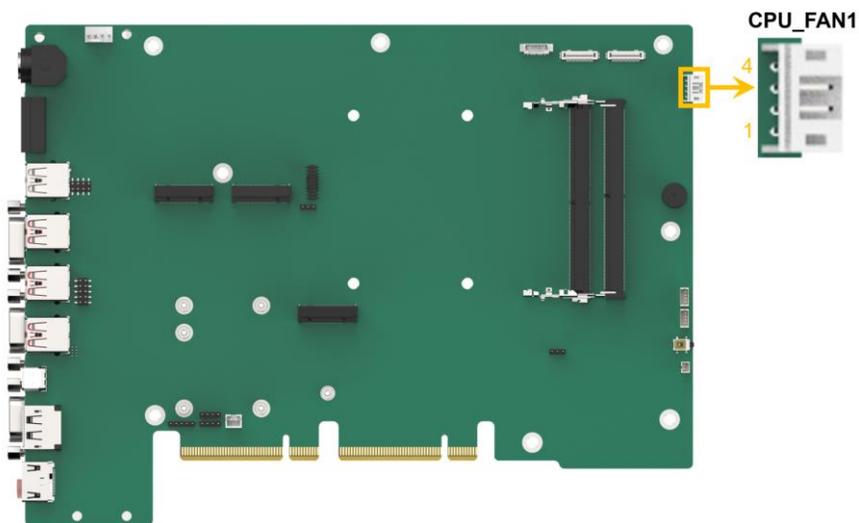


Figure 4-9: CPU Fan Connector Location

Pin	Description
1	GND
2	+12V
3	FANIN
4	FANOUT

Table 4-6: CPU Fan Connector Pinouts

TANK-8700**4.2.6 DDR5 SO-DIMM Sockets**

- CN Label:** DIMM1, DIMM2
CN Type: 262-pin SO-DIMM socket
CN Location: See **Figure 4-10**

The SO-DIMM socket is for a DDR5 SO-DIMM memory module.

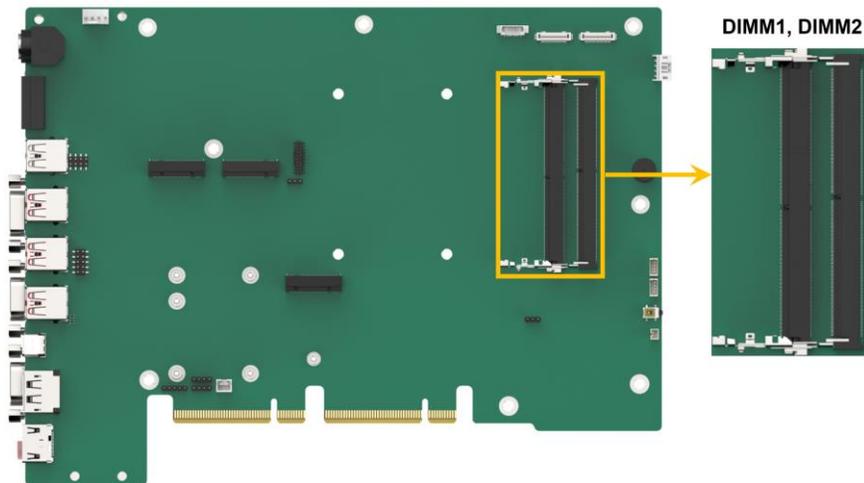


Figure 4-10: DDR5 SO-DIMM Sockets Location

4.2.7 Buzzer

- CN Label:** BZ1
CN Type: Buzzer
CN Location: See **Figure 4-11**

The buzzer can produce beeping sounds to provide audible feedback for POST, confirmation of successful boot, hardware warnings, etc.

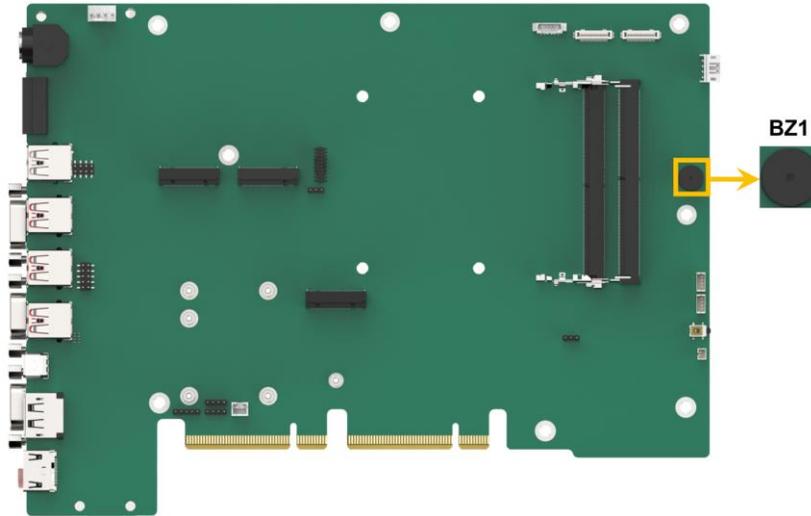


Figure 4-11: Buzzer Location

4.2.8 SMBus Connector

- CN Label:** J_SMB1
- CN Type:** 4-pin wafer, p=1.25 mm
- CN Location:** See **Figure 4-12**
- CN Pinouts:** See **Table 4-7**

The SMBus is a two-wire bus used for the communication with low bandwidth devices on a motherboard such as power chips and temperature sensors.

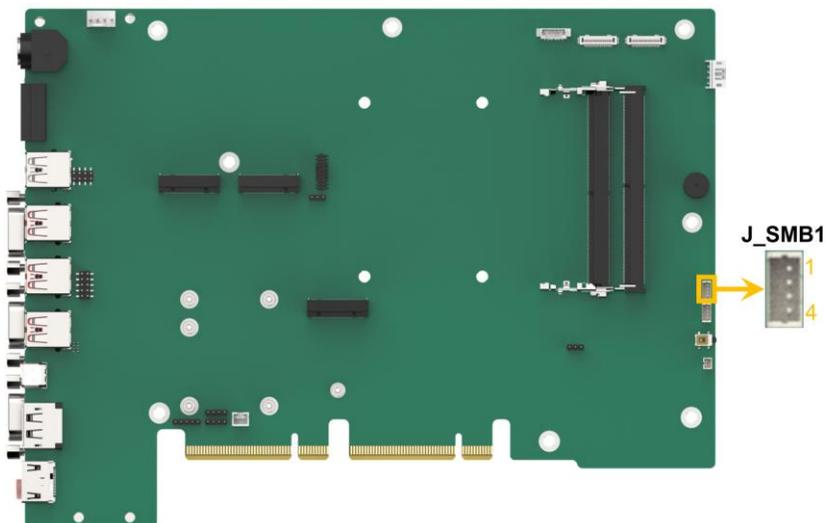


Figure 4-12: SMBus Connector Location

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Pin	Description
1	GND
2	SMBUS0_3.3VS0_BUFF_SDA
3	SMBUS0_3.3VS0_BUFF_SCL
4	+5V_RUN

Table 4-7: SMBus Connector Pinouts

4.2.9 I²C Connector

- CN Label:** EC_I2C1
- CN Type:** 4-pin wafer, p=1.25 mm
- CN Location:** See Figure 4-13
- CN Pinouts:** See Table 4-8

The I²C connector is used to connect I²C-bus devices to the mainboard.

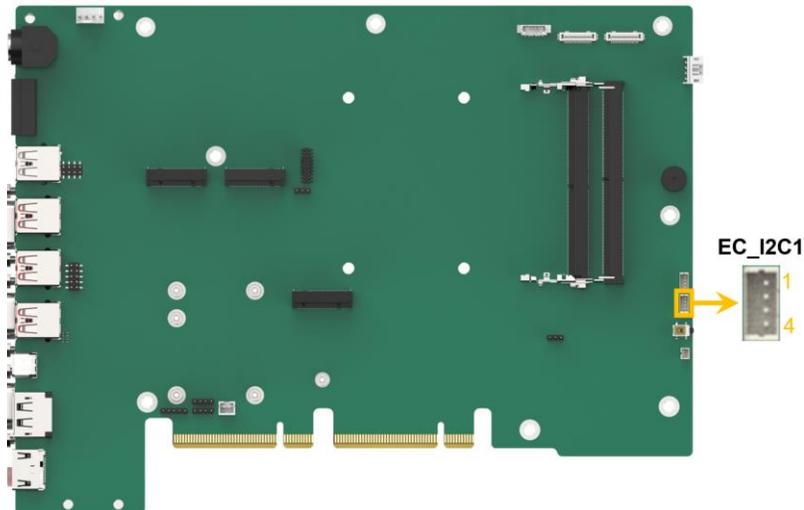


Figure 4-13: I²C Connector Location

Pin	Description
1	+5V
2	EC_C_FLASH_CLK
3	EC_C_FLASH_DAT
4	GND

Table 4-8: I²C Connector Pinouts

4.2.10 Clear CMOS Switch

- CN Label:** J_CMOS1
- CN Type:** Tact switch
- CN Location:** See **Figure 4-14**
- CN Pinouts:** See **Table 4-9**

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 disconnect the RTC battery and press the button for about 3 seconds. This will set back to normal operation mode.

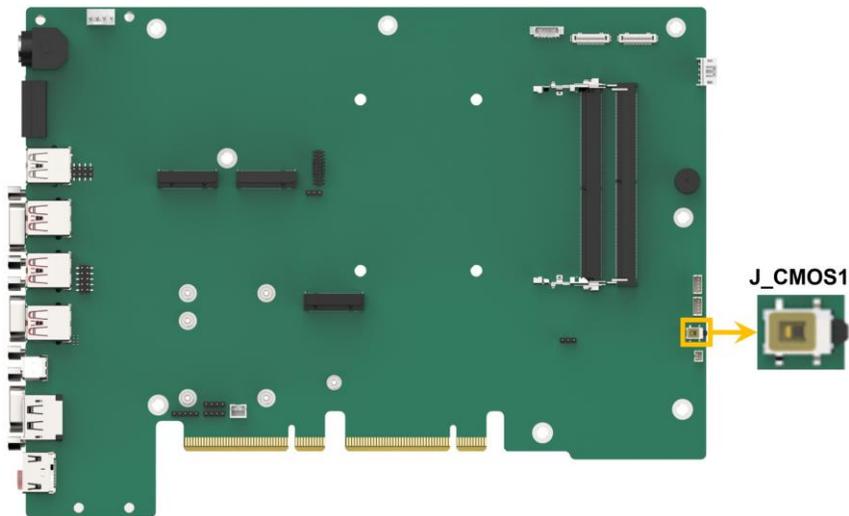


Figure 4-14: Clear CMOS Location

Status	Description
NC	Keep CMOS Setup (Normal Operation)
Press	Clear CMOS Setup

Table 4-9: Clear CMOS Pinouts

4.2.11 Battery Connector



CAUTION:

Explosion risks may occur if the battery is replaced with an incorrect type. Only certified engineers should replace the on-board battery.

Dispose of used batteries according to instructions and local regulations.

- CN Label:** **BAT1**
- CN Type:** 2-pin wafer, p=1.25 mm
- CN Location:** See **Figure 4-15**
- CN Pinouts:** See **Table 4-10**

The battery connector is connected to the system battery. The battery provides power to the system clock to retain the time when power is turned off.

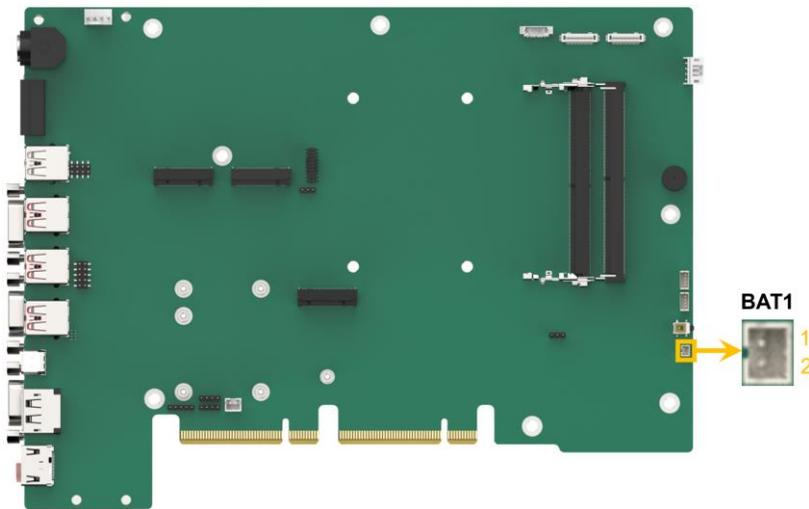


Figure 4-15: RTC Battery Connector Location

Pin	Description
1	VBATT
2	GND

Table 4-10: RTC Battery Connector Pinouts

4.2.12 M.2 A-Key Slot

- CN Label:** M2_A1
- CN Type:** M.2 A-key slot
- CN Location:** See **Figure 4-16**
- CN Pinouts:** See **Table 4-11**

The M.2 2230 A-key slot supporting PCIe Gen3 x1 and USB 2.0 signals can accept a Wi-Fi and Bluetooth module.

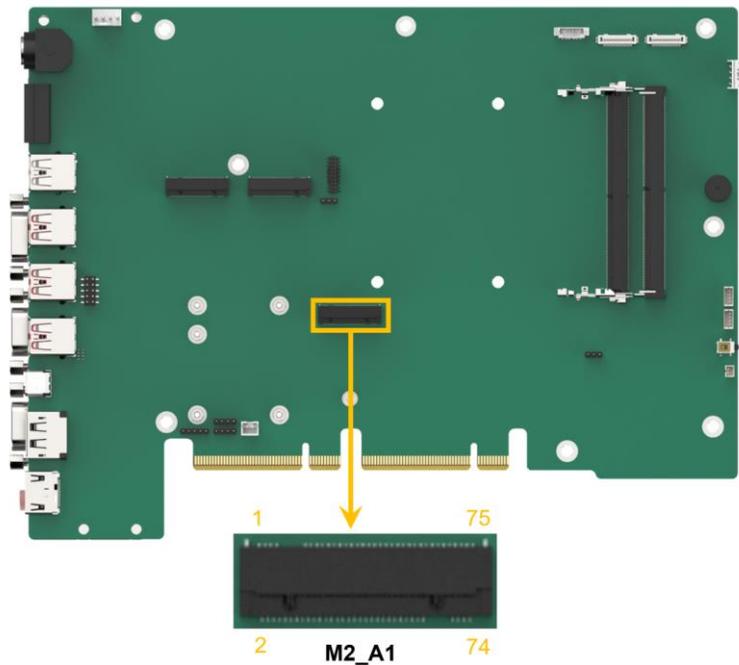


Figure 4-16: M.2 A-key Slot Location

Pin	Description	Pin	Description
1	GND	2	+V3.3A
3	USB+	4	+V3.3A
5	USB-	6	NC
7	GND	8	Module Key
9	Module Key	10	Module Key
11	Module Key	12	Module Key
13	Module Key	14	Module Key

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Pin	Description	Pin	Description
15	Module Key	16	NC
17	NC	18	GND
19	NC	20	NC
21	NC	22	NC
23	GND	24	GND
25	NC	26	NC
27	NC	28	NC
29	GND	30	GND
31	NC	32	NC
33	GND	34	NC
35	PCIE_TX2+	36	GND
37	PCIE_TX2-	38	NC
39	GND	40	NC
41	PCIE_RX2+	42	NC
43	PCIE_RX2-	44	NC
45	GND	46	NC
47	CLK_PCIE2+	48	NC
49	CLK_PCIE2-	50	PMC_SUS_CLK
51	GND	52	WLAN_PERST#
53	NC	54	+V3.3A_WLAN
55	+V3.3A_WLAN	56	+V3.3A_WLAN
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	GND	64	NC
65	NC	66	NC
67	NC	68	NC
69	GND	70	NC
71	NC	72	+V3.3A
73	NC	74	+V3.3A
75	GND		

Table 4-11: M.2 A-Key Slot Pinouts

4.2.13 M.2 M-Key Slot

- CN Label:** M2_M1
- CN Type:** M.2 M-key slot
- CN Location:** See **Figure 4-17**
- CN Pinouts:** See **Table 4-12**

The M.2 2280 M-key slot with PCIe Gen4 x2 signals can accept a NVMe storage device.

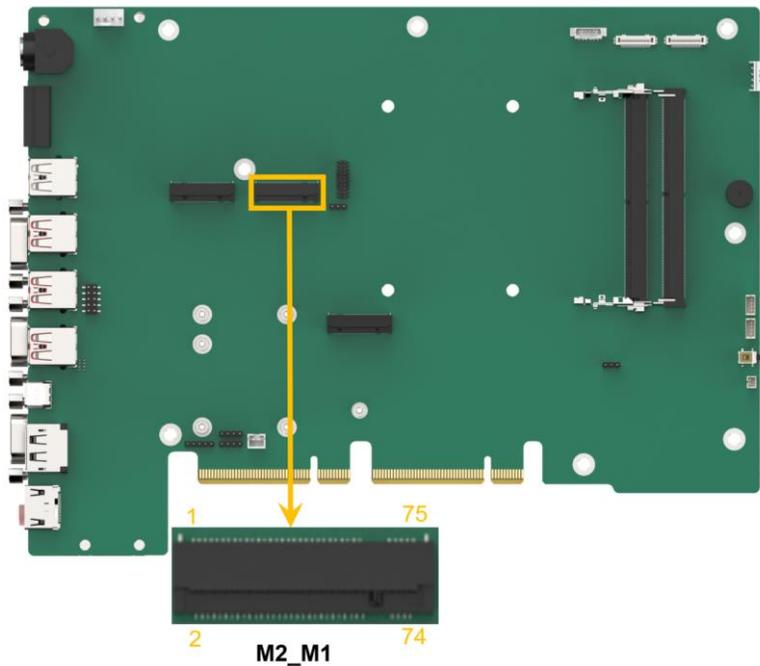


Figure 4-17: M.2 M-Key Slot Location

Pin	Description	Pin	Description
1	GND	2	+3.3V
3	GND	4	+3.3V
5	NC	6	N/C
7	NC	8	N/C
9	GND	10	NGFF1_ACT_N
11	NC	12	+3.3V
13	NC	14	+3.3V
15	GND	16	+3.3V

Pin	Description	Pin	Description
17	NC	18	+3.3V
19	NC	20	N/C
21	GND	22	N/C
23	NC	24	N/C
25	NC	26	N/C
27	GND	28	N/C
29	PCIE_P4_RX_DN	30	N/C
31	PCIE_P4_RX_DP	32	N/C
33	GND	34	N/C
35	PCIE_P4_TX_DN	36	N/C
37	PCIE_P4_TX_DP	38	M2_SATA_SSD_SLP
39	GND	40	N/C
41	PCIE_P3_RX_DN	42	N/C
43	PCIE_P3_RX_DP	44	N/C
45	GND	46	N/C
47	PCIE_P3_TX_DN	48	N/C
49	PCIE_P3_TX_DP	50	BUF_PLT_RST_N
51	GND	52	NC
53	PCIE_CLKN2	54	NC
55	PCIE_CLKP2	56	N/C
57	GND	58	N/C
59	N/C	60	N/C
61	N/C	62	N/C
63	N/C	64	N/C
65	N/C	66	N/C
67	N/C	68	NC
69	N/C	70	+3.3V
71	GND	72	+3.3V
73	GND	74	+3.3V
75	GND		

Table 4-12: M.2 M-Key Slot Pinouts

4.2.14 M.2 B-Key Slot

- CN Label:** M2_B_IPMI1
- CN Type:** M.2 B-key slot
- CN Location:** See **Figure 4-18**
- CN Pinouts:** See **Table 4-13**

The M.2 3042/52/80 B-key slot supports IRIS2.

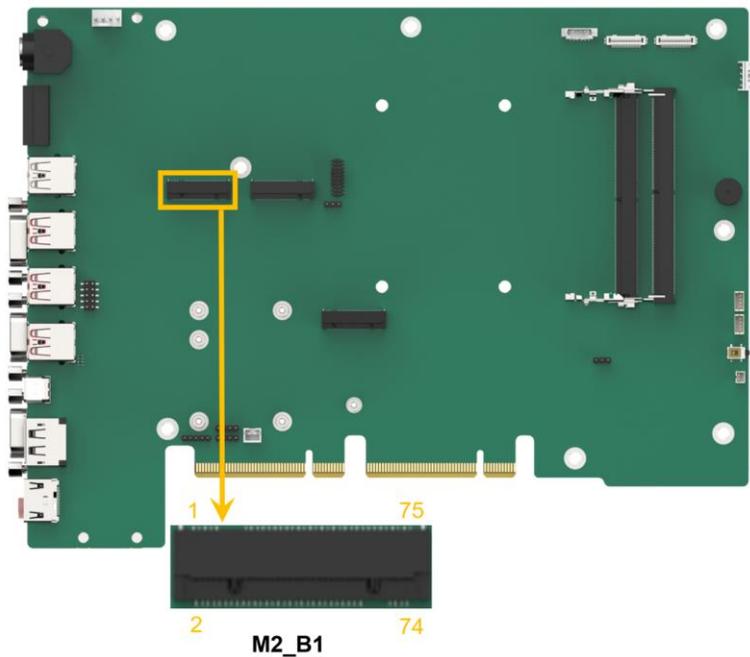


Figure 4-18: M.2 B-Key Slot Location

Pin	Description	Pin	Description
1	GND	2	+V3.3_B2
3	GND	4	+V3.3_B2
5	GND	6	NC
7	NC	8	NC
9	NC	10	+V3.3_B2
11	GND	12	NC
13	Module Key	14	Module Key
15	Module Key	16	Module Key
17	Module Key	18	Module Key

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Pin	Description	Pin	Description
19	Module Key	20	Module Key
21	GND	22	NC
23	NC	24	NC
25	NC	26	NC
27	GND	28	NC
29	NC	30	NC
31	NC	32	NC
33	GND	34	NC
35	NC	36	NC
37	NC	38	NC
39	GND	40	M.2_SMCLK
41	SATA_RX0+	42	M.2_SMDAT
43	SATA_RX0-	44	NC
45	GND	46	NC
47	SATA_RX0+	48	NC
49	SATA_RX0-	50	PLT_RST_N
51	GND	52	NC
53	NC	54	NC
55	NC	56	NC
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	NC
67	NC	68	NC
69	GND	70	+V3.3
71	GND	72	+V3.3
73	GND	74	+V3.3
75	GND		

Table 4-13: M.2 B-Key Slot Pinouts

4.2.15 Chassis Intrusion Connector

- CN Label:** CHASSIS1
- CN Type:** 2-pin wafer , p=2.54 mm
- CN Location:** See **Figure 4-19**
- CN Pinouts:** See **Table 4-14**

The chassis intrusion connector is for a chassis intrusion detection sensor or switch that detects if the chassis has been opened.

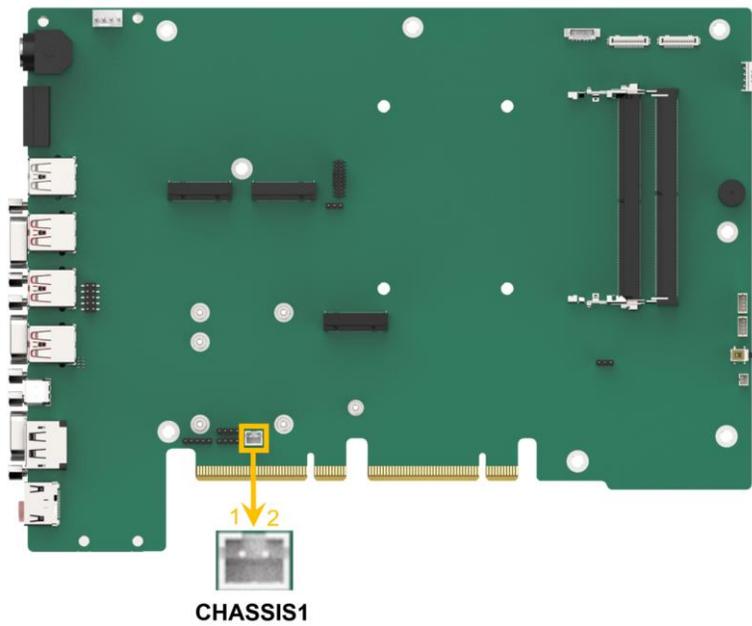


Figure 4-19: Chassis Intrusion Connector Location

Pin	Description
1	CASEOPEN_N
2	GND

Table 4-14: Chassis Intrusion Connector Pinouts

4.2.16 Power Delivery Debugging Connector

- CN Label:** JP1, JP3
- CN Type:** 4-pin header, p=2.00 mm
- CN Location:** See **Figure 4-20**
- CN Pinouts:** See **Table 4-15**

The connector is used for power delivery debugging via I²C interface.

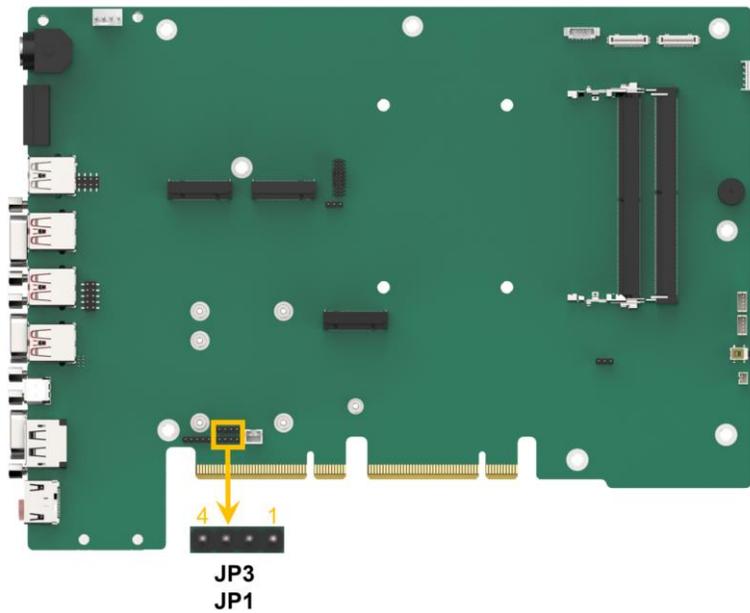


Figure 4-20: Power Delivery Debugging Connector Location

Pin	Description
1	+V3.3A_EC
2	USBC_SCL_EC_PD/USBC_SCL_PD_APU
3	USBC_SDA_EC_PD/USBC_SDA_PD_APU
4	GND

Table 4-15: Power Delivery Debugging Connector Pinouts

4.2.17 Power Delivery Firmware Updating Connector

- CN Label:** JP2
- CN Type:** 5-pin header, p=2.00 mm
- CN Location:** See **Figure 4-21**
- CN Pinouts:** See **Table 4-16**

The connector is used for power delivery firmware flashing and programming.

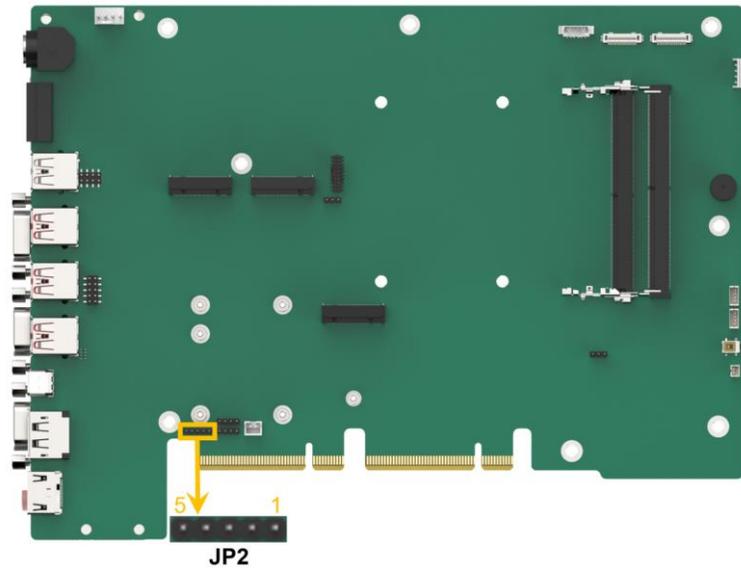


Figure 4-21: Power Delivery Firmware Updating Connector Location

Pin	Description	Pin	Description
1	VDD_SUPPLY	2	GND
3	PD0_XRES	4	PD0_SWD_CLK
5	PD0_SWD_IO		

Table 4-16: Power Delivery Firmware Updating Connector Pinouts

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4.2.18 RS-232 Serial Port Connector

- CN Label:** COM6
- CN Type:** 10-pin header, p=2.00 mm
- CN Location:** See Figure 4-22
- CN Pinouts:** See Table 4-17

The serial port connector provides RS-232 connections.

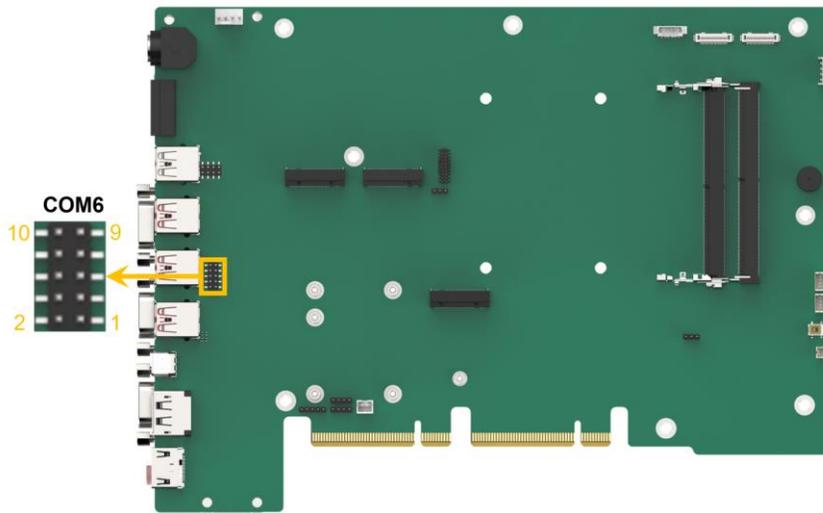


Figure 4-22: RS-232 Serial Port Connector Location

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

Table 4-17: RS-232 Serial Port Connector Pinouts

4.2.19 USB 2.0 Connector

- CN Label:** USB2_CN1
- CN Type:** 8-pin header, p=2.00 mm
- CN Location:** See **Figure 4-23**
- CN Pinouts:** See **Table 4-18**

The internal USB 2.0 connectors connect to USB 2.0 devices. Each pin header provides two USB 2.0 ports.

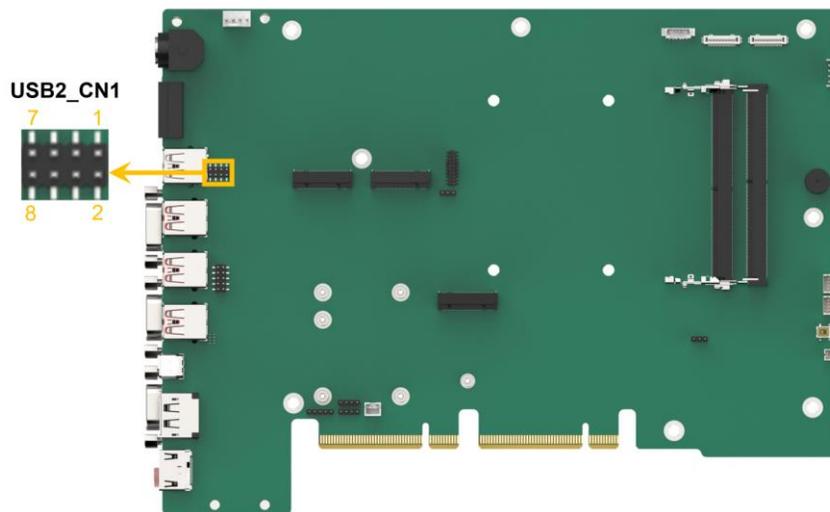


Figure 4-23: Internal USB 2.0 Connector Locations

Pin	Description	Pin	Description
1	+5V_USB	2	GND
3	USB_DATA-	4	USB_DATA+
5	USB_DATA+	6	USB_DATA-
7	GND	8	+5V_USB

Table 4-18: Internal USB 2.0 Connector Pinouts

4.2.20 TPM Connector

- CN Label:** TPM1
- CN Type:** 20-pin header
- CN Location:** See **Figure 4-24**
- CN Pinouts:** See **Table 4-19**

The TPM connector connects an external SPI TPM module to the motherboard.

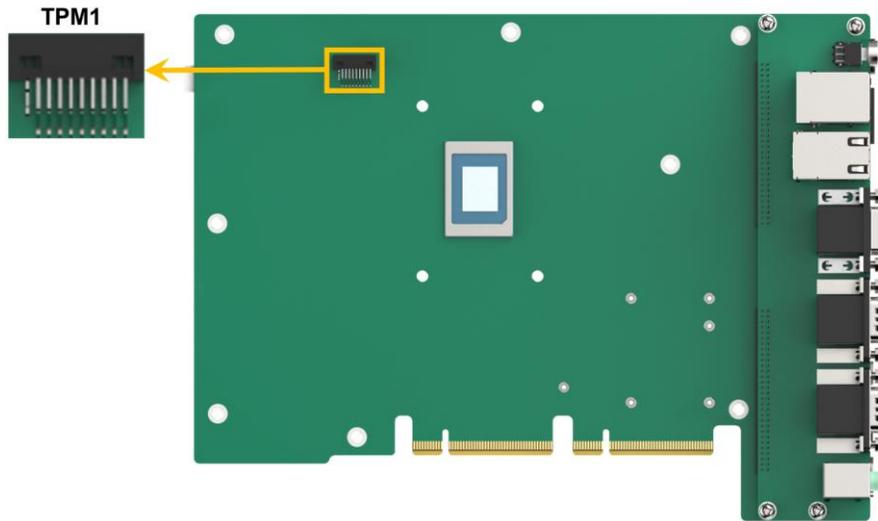


Figure 4-24: SPI TPM Connectors Location

Pin	Description	Pin	Description
1	NC	2	NC
3	1.8V PULL UP	4	NC
5	GND	6	+1.8V
7	SPI_TPM_CLK_SW	8	NC
9	NC	10	SPI_TPM_SO_SW
11	NC	12	SPI_TPM_SI_SW
13	SPI_TPM_CS#_SW	14	GND
15	NC	16	NC
17	TPM_PIRQ_L	18	+1.8V
19	TPM_RST_L_R	20	+1.8V

Table 4-19: TPM Connector Pinouts

4.3 External Interface Panel Connectors

Figure 4-25 shows the system motherboard’s external peripheral interface connector (EPIC) panel. The table below shows a list of the external connectors on the motherboard. Pinouts of these connectors can be found in the following sections.

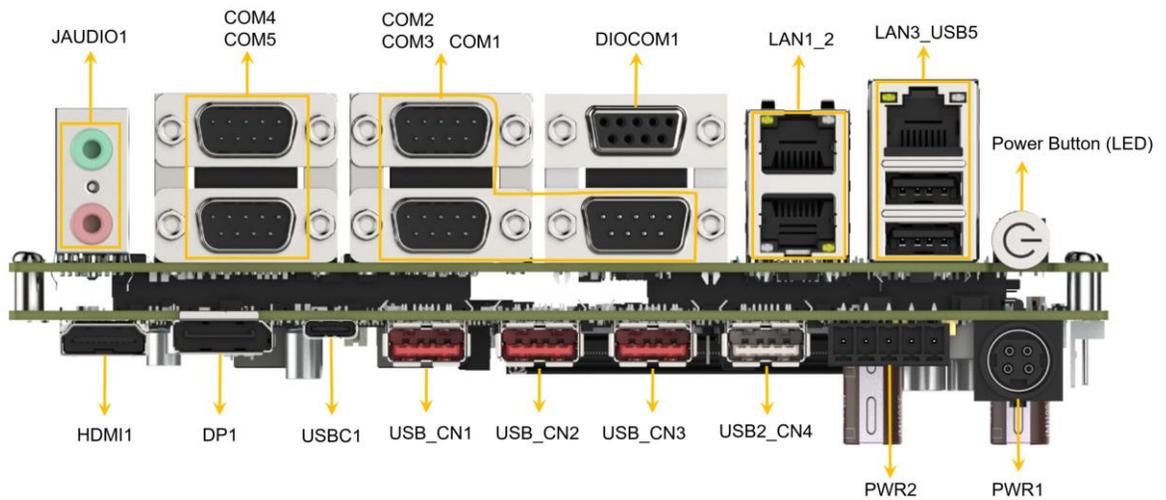


Figure 4-25: External Peripheral Interface Connectors

Connector	Type	Label
Audio jacks	9-pin jack	JAUDIO1
RS-422/485 connectors	D-SUB (9M / 9M)	COM4, COM5
RS-232 connectors	D-SUB (9M / 9M)	COM1, COM2, COM3
Digital I/O connector	D-SUB (9F + 9M)	DIOCOM1
2.5 GbE LAN ports	RJ-45	LAN1_2
RJ-45 and USB 2.0 combo connectors	RJ-45, USB 2.0	LAN3_USB5
Power Button (LED)	Button	BTN1
Power input jack	DC jack	PWR1
Power input terminal block	5-pin terminal block	PWR2
USB 2.0 connector	USB 2.0	USB2_CN4
USB 3.2 Gen 2 connector	USB 3.2 Gen 2 Type A	USB_CN1, USB_CN2, USB_CN3

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Connector	Type	Label
USB 4 connector	USB 4 Type-C	USBC1
DisplayPort connector	DisplayPort	DP1
HDMI connector	HDMI	HDMI1

Table 4-20: EPIC Connectors

4.3.1 Audio Jacks

- CN Label:** JAUDIO1
- CN Type:** 9-pin jack
- CN Location:** See Figure 4-26

The audio jacks connect to external audio devices.

- **Line out (lime):** Connects to a headphone or a speaker.
- **Microphone (pink):** Connects to a microphone.

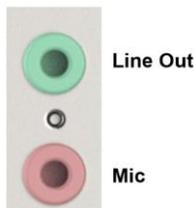


Figure 4-26: Audio Jacks

4.3.2 RS-422/485 Connectors

- CN Label:** COM4, COM5
- CN Type:** D-SUB (9M / 9M)
- CN Location:** See Figure 4-27
- CN Pinouts:** See Table 4-21

The COM connectors connect to serial devices that support RS-422/485 communication.

Pin	Description	Pin	Description
1	DINO	6	DOUT2

Pin	Description	Pin	Description
2	DOUT0	7	DIN3
3	DIN1	8	DOUT3
4	DOUT1	9	+V5
5	DIN2		

Table 4-21: RS-422/485 Connector Pinouts

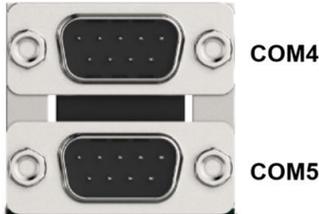


Figure 4-27: RS-422/485 Connectors

4.3.3 External RS-232 Connectors

- CN Label:** COM1, COM2, COM3
- CN Type:** D-SUB (9M / 9M)
- CN Location:** See Figure 4-28
- CN Pinouts:** See Table 4-22

The COM connector connects to a serial device that supports RS-232 communication.

Pin	Description	Pin	Description
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND		

Table 4-22: External RS-232 Connector Pinouts



Figure 4-28: RS-232 Connectors

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4.3.4 Digital I/O Connector

- CN Label:** DIOCOM1
- CN Type:** D-SUB (9F + 9M)
- CN Location:** See **Figure 4-29**
- CN Pinouts:** See **Table 4-23**

The digital I/O connector provides programmable input and output for external devices. The digital I/O provides 4-bit output and 4-bit input.

Pin	Description	Pin	Description
1	DIN0	6	DOUT2
2	DOUT0	7	DIN3
3	DIN1	8	DOUT3
4	DOUT1	9	DIN2
5	+5V		

Table 4-23: Digital I/O Connector Pinouts



Figure 4-29: Digital I/O Connector

4.3.5 2.5 GbE LAN Ports

- CN Label:** LAN1_2
- CN Type:** RJ-45
- CN Pinouts:** See **Table 4-24**

The TANK-8700 is equipped with 1000/2500Mbps Ethernet controllers. Users can connect them to LAN through the RJ45 LAN connectors.

Pin	Description	Pin	Description
1	MDIA0+	5	MDIA2-
2	MDIA0-	6	MDIA1-
3	MDIA1+	7	MDIA3+
4	MDIA2+	8	MDIA3-
LED	Description	LED	Description
A	Off: No link Yellow: Linked Blinking: TX/RX activity	B	Off: 10 Mbps connection Green: 1000 Mbps connection Orange: 2.5 Gbps connection

Table 4-24: 2.5 GbE LAN Ports

4.3.6 RJ-45 and USB 2.0 Combo Connectors

- CN Label:** LAN3_USB5
- CN Type:** RJ-45, USB 2.0
- CN Location:** See Figure 4-30
- CN Pinouts:** See Table 4-25

The RJ-45 connector is used for IPMI (Intelligent Platform Management Interface) networking.

Pin	Description	Pin	Description
1	CT1	2	IIPMI_MDIO_P
3	IIPMI_MDIO_N	4	IIPMI_MDI1_P
5	IIPMI_MDI1_N	6	IIPMI_MDI2_P
7	IIPMI_MDI2_N	8	IIPMI_MDI3_P
9	IIPMI_MDI3_N	10	IO_GND
11	IIPMI_LINK_LED_100M_N	12	IIPMI_LINK_LED_1G_N
13	IIPMI_LED_ATC_N	14	ILAN1_LINK_PWR

Table 4-25: RJ-45 Connector Pinouts

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Figure 4-30: RJ-45 and USB 2.0 Combo Connectors

4.3.7 Power Input Jack

- CN Label:** PWR1
- CN Type:** DC jack
- CN Location:** See **Figure 4-31**
- CN Pinouts:** See **Table 4-26**

The power input jack supports 12 V ~ 28 V DC input.

Pin	Description	Pin	Description
1	DC_IN 9~28V	2	GND
3	DC_IN 9~28V	4	GND
5	GND		

Table 4-26: Power Input Jack Pinouts



Figure 4-31: Power Input Jack

4.3.8 Power Input Terminal Block

- CN Label:** PWR2
- CN Type:** 5-pin terminal block
- CN Location:** See **Figure 4-32**
- CN Pinouts:** See **Table 4-27**

PWR2 connector is a 5-pin terminal block with 12 V ~ 28 V DC input allowed. Make sure that the power and ground wires are attached to the correct sockets of the connector. In addition, it can support ACC signals if ACC mode is enabled. In ACC enabled mode, the system will delay boot up / shutdown process automatically.

Pin	Description	Pin	Description
1	ACCON	2	PWR_VIN2
3	PWR_VIN2	4	GND
5	GND		

Table 4-27: Power Input Terminal Block Pinouts



Figure 4-32: Power Input Terminal Block

4.3.9 External USB 2.0 Connector

- CN Label:** USB2_CN4
- CN Type:** USB 2.0 Type-A
- CN Pinouts:** See **Table 4-28**

The TANK-8700 Series has three external USB 2.0 connectors (including two in LAN3_USB5). The USB connector can be connected to a USB 2.0 device.

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Pin	Description
1	+5V_USB
2	D-
3	D+
4	GND

Table 4-28: USB 2.0 Connector Pinouts

4.3.10 USB 3.2 Gen 2 Connector

- CN Label:** J_USB1
- CN Type:** USB 3.2 Gen 2 Type-A
- CN Location:** See **Figure 4-33**
- CN Pinouts:** See **Table 4-29**

There are three external USB 3.2 Gen 2 ports (10 Gb/s). The USB connector can be connected to a USB 2.0 or USB 3.2 device.



Figure 4-33: External USB 3.2 Gen 2 Connectors

Pin	Description	Pin	Description
1	+5V_USB	6	RX+
2	D-	7	GND
3	D+	8	TX-
4	GND	9	TX+
5	RX-		

Table 4-29: External USB 3.2 Gen 2 Connectors Pinouts

4.3.11 USB 4 Connector

- CN Label:** USBC1
- CN Type:** USB 4 Type-C
- CN Location:** See **Figure 4-34**

USBC1 supports high speed data rate of 40 Gb/s and DP of 4096X2160@60HZ. Power supply support is up to 15W.



Figure 4-34: USB 4 Connector

4.3.12 DisplayPort Connector

- CN Label:** DP1
- CN Type:** DisplayPort
- CN Location:** See **Figure 4-35**
- CN Pinouts:** See **Table 4-30**

The DP connector supporting up to DP1.4 of 4096X2160@60HZ can connect to a display device with DisplayPort interface.

Pin	Description	Pin	Description
1	LANE0P	11	GND
2	GND	12	LANE3N
3	LANE0N	13	AUX_CTRL_DET_C
4	LANE1P	14	GND
5	GND	15	AUXP
6	LANE1N	16	GND
7	LANE2P	17	AUXN
8	GND	18	HPD
9	LANE2N	19	GND
10	LANE3P	20	+3.3V

Table 4-30: DP Connector Pinouts

TANK-8700

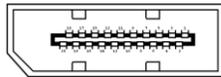


Figure 4-35: DP Connector

4.3.13 HDMI connector

- CN Label:** HDMI1
- CN Type:** HDMI connector
- CN Location:** See Figure 4-36
- CN Pinouts:** See Table 4-31

The HDMI connector supporting up to HDMI1.4b of 4096X2160@30HZ can connect to an HDMI device.

Pin	Description	Pin	Description
1	HDMI_DATA2	2	GND
3	HDMI_DATA2#	4	HDMI_DATA1
5	GND	6	HDMI_DATA1#
7	HDMI_DATA0	8	GND
9	HDMI_DATA0#	10	HDMI_CLK
11	GND	12	HDMI_CLK#
13	N/C	14	N/C
15	HDMI_SCL	16	HDMI_SDA
17	GND	18	+5V
19	HDMI_HPD		

Table 4-31: HDMI Connector Pinouts

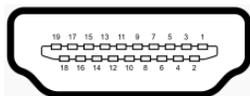


Figure 4-36: HDMI Connector

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.



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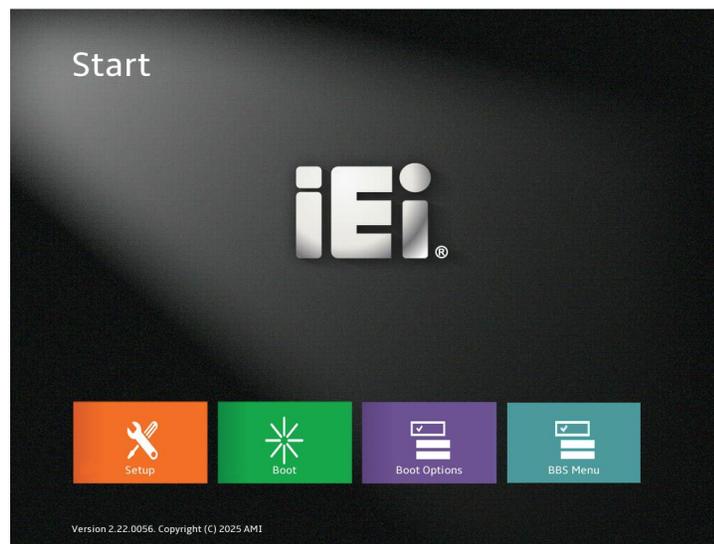
Some of the BIOS options may vary throughout the life cycle of the product and are subject to change without prior notice.

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

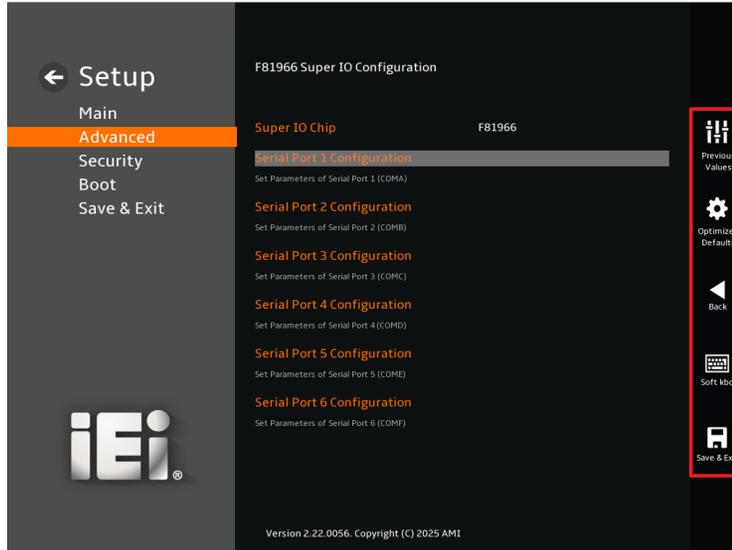
For keyboard navigation, use the navigation keys shown in **Table 5-1**.

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:

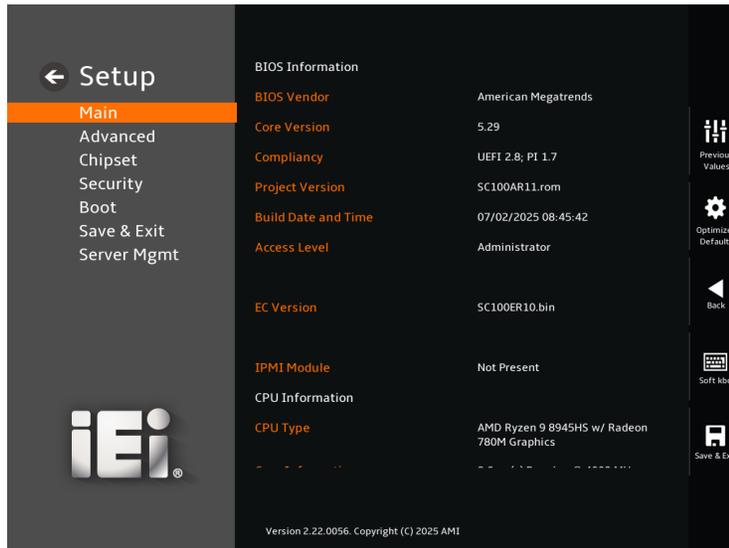
- Main – Changes the basic system configuration.
- Advanced – Changes the advanced system settings.
- Chipset – Changes the chipset settings.
- Security – Sets User and Supervisor Passwords.
- Boot – Changes the system boot configuration.
- Save & Exit – Selects exit options and loads default settings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

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

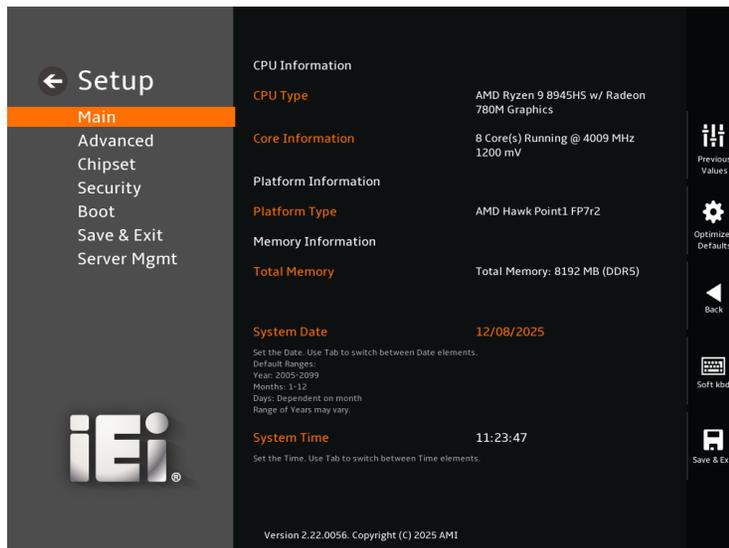
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5.2 Main

The **Main** BIOS menu appears when the **BIOS Setup** program is entered. The **Main** menu(**BIOS Menu 3&BIOS Menu 4**) 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
- **Compliance:** Current UEFI & PI version
- **Project Version:** the board version
- **Build Date and Time:** the date and time of current BIOS version was made
- **Access Level:** Administrator
- **EC Version:** Current EC version
- **IPMI Module:** Not Present

→ **CPU Information**

- **CPU Type:** Current CPU type
- **Core Information:** Current Core information

→ **Platform Information**

- **Platform Information:** Displays the platform information

→ **Memory Information**

- **Total Memory:** Displays the total memory information

→ **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.

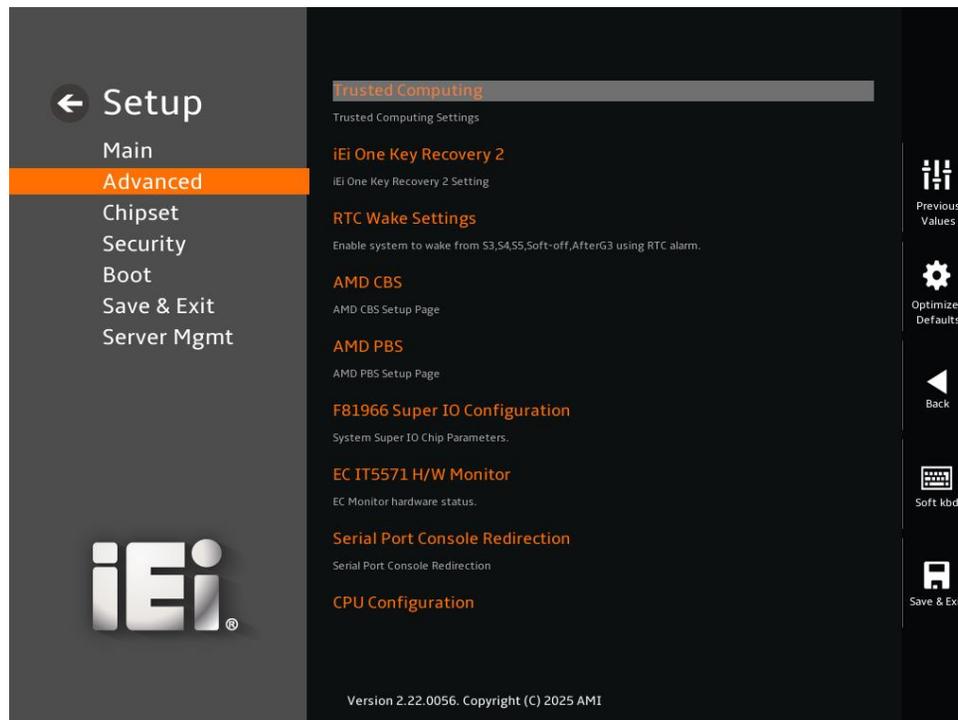
5.3 Advanced

Use the **Advanced** menu (**BIOS Menu 5 & BIOS Menu 6**) to configure the CPU and Peripheral devices through the following sub-menus:

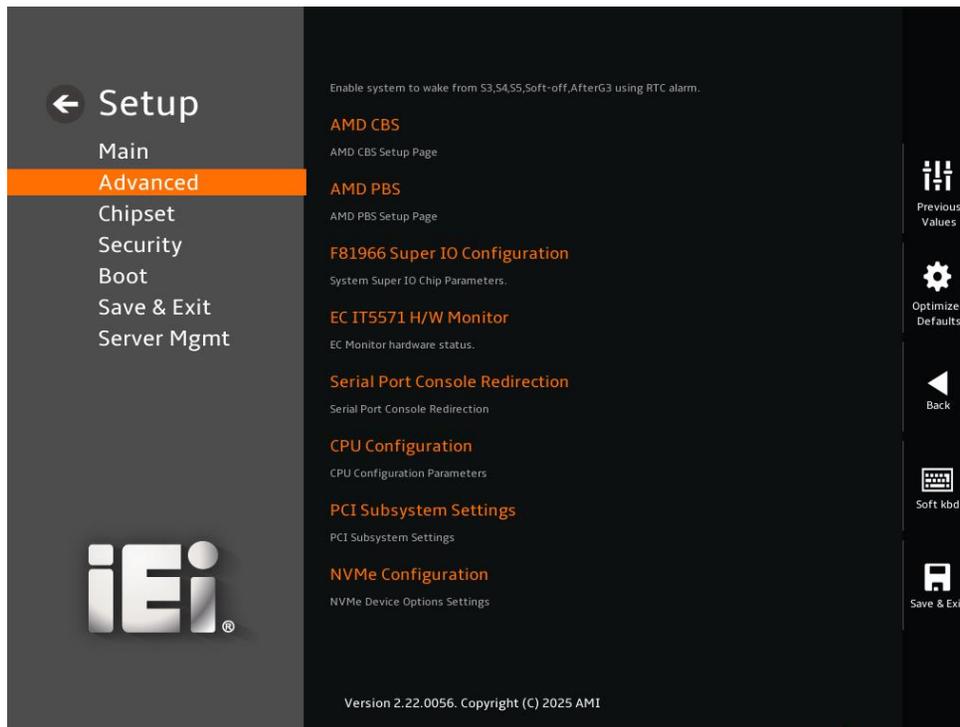


WARNING!

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 (1/2)



BIOS Menu 6: Advanced (2/2)

5.3.1 Trusted Computing

Use the **Trusted Computing** menu (**BIOS Menu 7**) to configure settings related to the Trusted Computing Group (TCG) Trusted Platform Module (TPM).



BIOS Menu 7: Trusted Computing

→ 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.

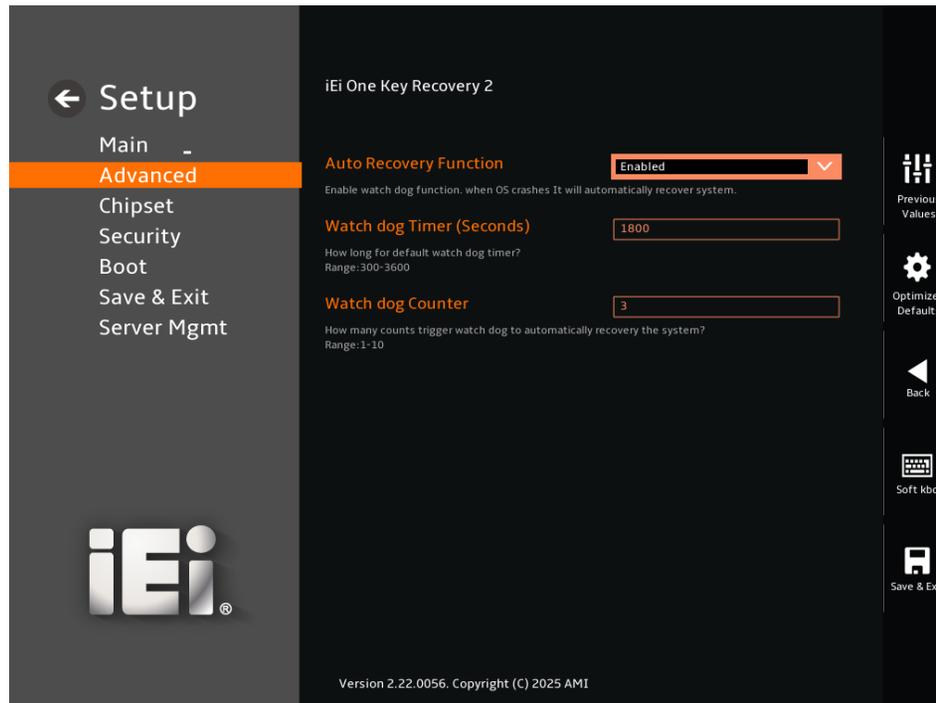
→ Pending Operation [None]

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

5.3.2 iEi One Key Recovery 2

The **iEi One Key Recovery 2** menu (**BIOS Menu 8**) is a tool for setting up System Backup and Recovery.



BIOS Menu 8: iEi One Key Recovery 2

➔ Auto Recovery Function [Disabled]

Use the **Security Device Support** option to configure watch dog function.

- ➔ **Disabled** **DEFAULT** Watch dog function disabled.
- ➔ **Enabled** When OS crashes it will automatically recover system.

➔ Watch dog Timer [Seconds]

Use the **Watch dog Timer** option to set default watch dog timer, range 300-3600.

- ➔ **1800** **DEFAULT** 1800 seconds to default watch dog timer

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→ Watch dog Counter [3]

Use the **Watch dog Counter** option to configure watch dog counts trigger. Range 1-10

→ **3** **DEFAULT** automatically restore the system after 3 counts.

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.

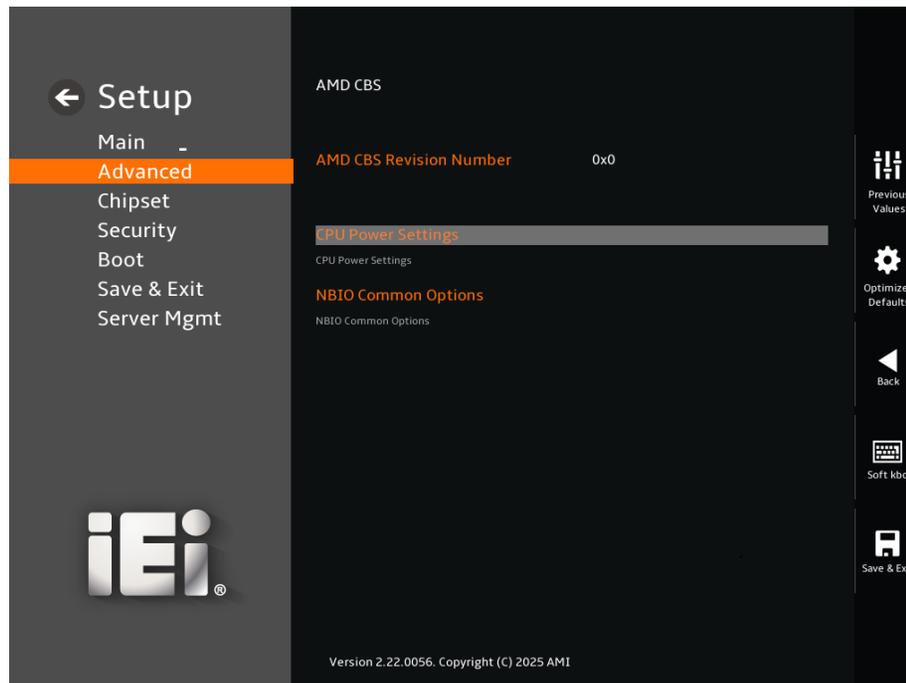
→ **Disabled** **DEFAULT** The real time clock (RTC) cannot generate a wake event

➔ **Enabled**

If selected, the following appears with values that can be selected:

5.3.4 AMD CBS

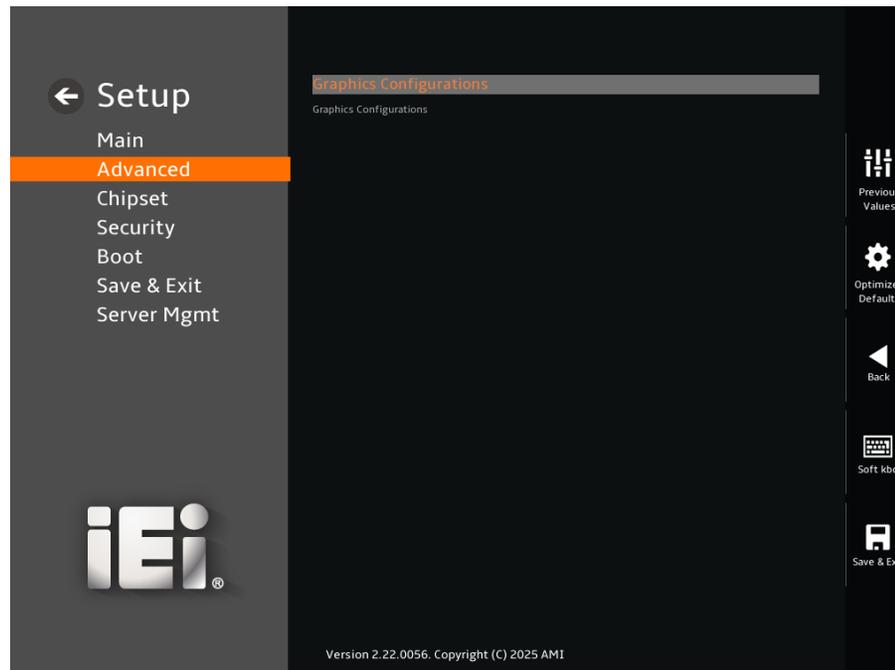
The **AMD CBS** menu (**BIOS Menu 10**) which is a set of common BIOS settings provided by AMD to motherboard manufacturers. It is mainly used to adjust the low-level hardware parameters related to the CPU, memory, and south bridge chip (PCH/SoC).



BIOS Menu 10: AMD CBS

5.3.5 AMD PBS

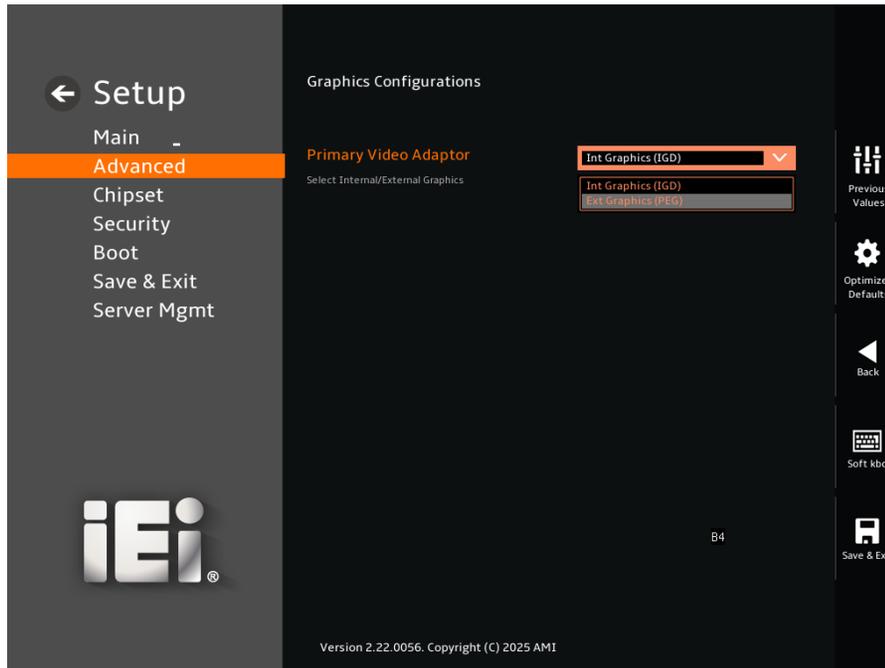
The **AMD PBS** menu (**BIOS Menu 11**) is a low-level platform initialization option from AMD, used to control the boot initialization behavior of the CPU, SoC, I/O, interfaces, etc.



BIOS Menu 11: AMD CBS

5.3.5.1 Graphics Configuration

Use the **Graphics Configuration** menu (**BIOS Menu 12**) to control the display output mode, iGPU/dGPU activation mode, video memory allocation, etc.



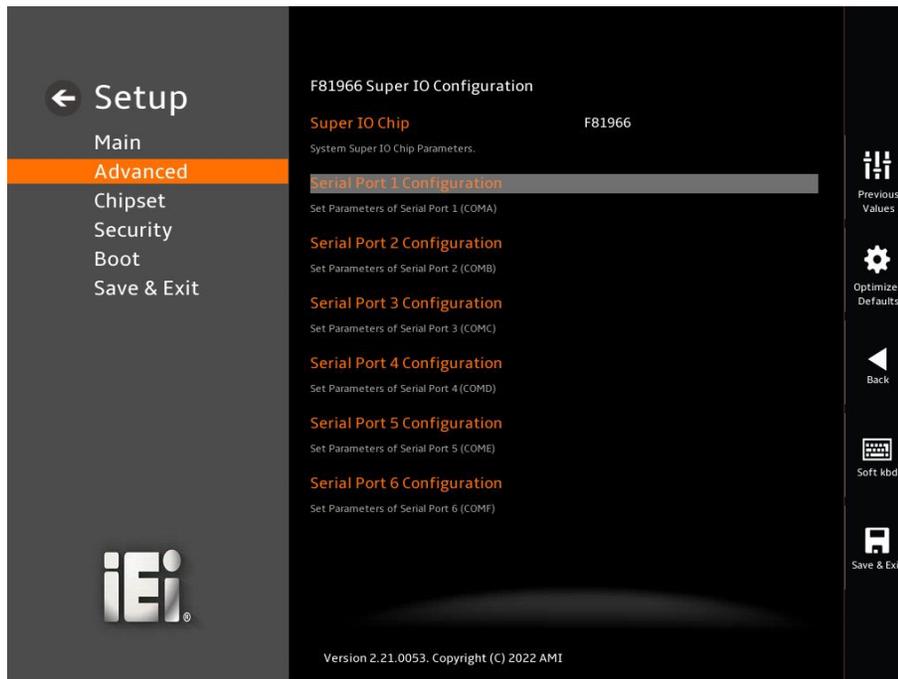
BIOS Menu 12: Graphics Configuration

➔ Graphics Configuration [Int Graphics (ITG)]

Use the **Graphics Configuration** option to select Internal/External Graphics. Default option: Int Graphics (ITG)

5.3.6 F81966 Super IO Configuration

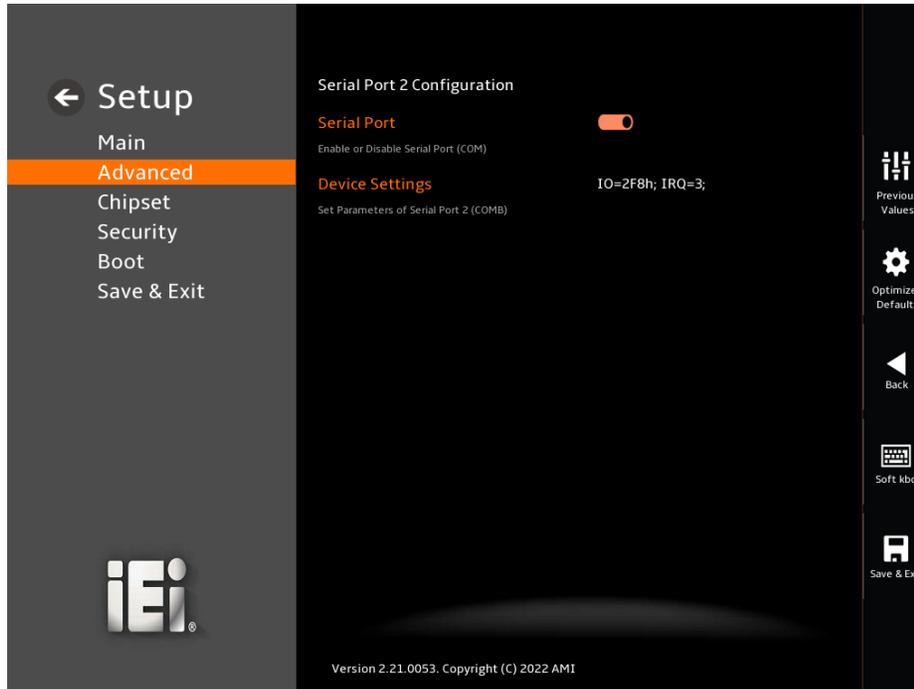
Use the **F81966 Super IO Configuration** menu (**BIOS Menu 13**) to set or change the configurations for the serial ports.



BIOS Menu 13: F81966 Super IO Configuration

5.3.6.2 Serial Port 2 Configuration

Use the **Serial Port 2 Configuration** menu (**BIOS Menu 15**) to configure the serial port 2.



BIOS Menu 15: 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

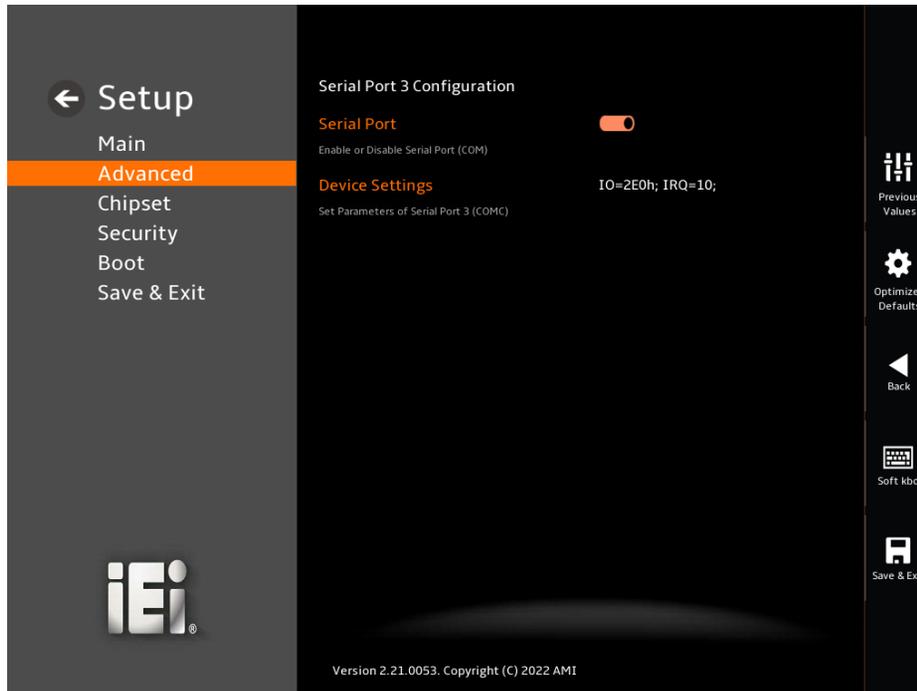
→ Device Settings

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

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

5.3.6.3 Serial Port 3 Configuration

Use the **Serial Port 3 Configuration** menu (**BIOS Menu 16**) to configure the serial port 3.



BIOS Menu 16: 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

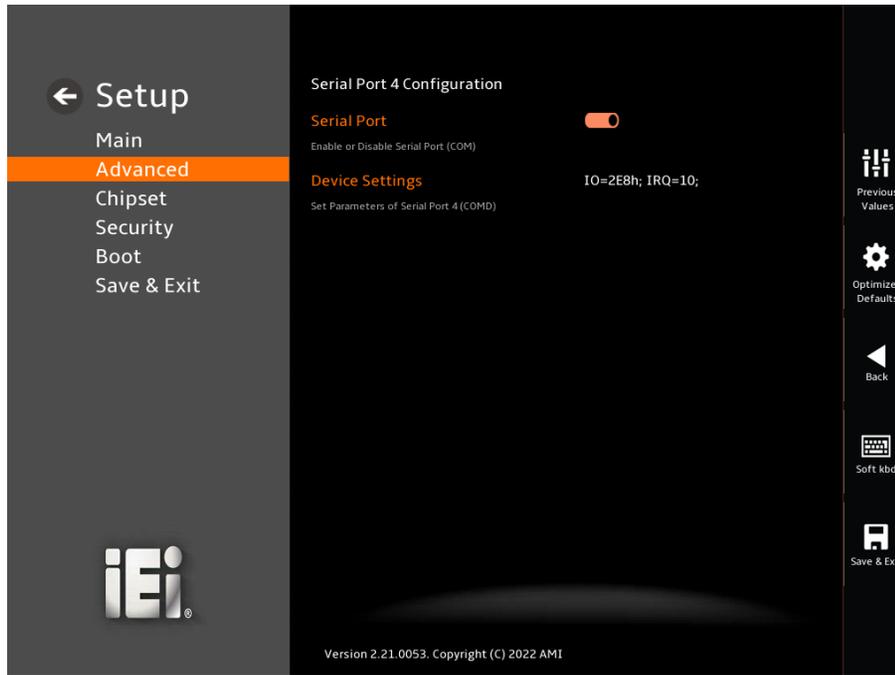
➔ Device Settings

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

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

5.3.6.4 Serial Port 4 Configuration

Use the **Serial Port 4 Configuration** menu (**BIOS Menu 17**) to configure the serial port 4.



BIOS Menu 17: 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;** Serial Port I/O port address is 2E8h and the interrupt
IRQ=10 address is IRQ10

5.3.7 EC IT5571 H/W Monitor

The EC ITE5571 H/W Monitor menu (BIOS Menu 20) 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 20: EC IT5571 H/W Monitor

→ PC Health Status

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

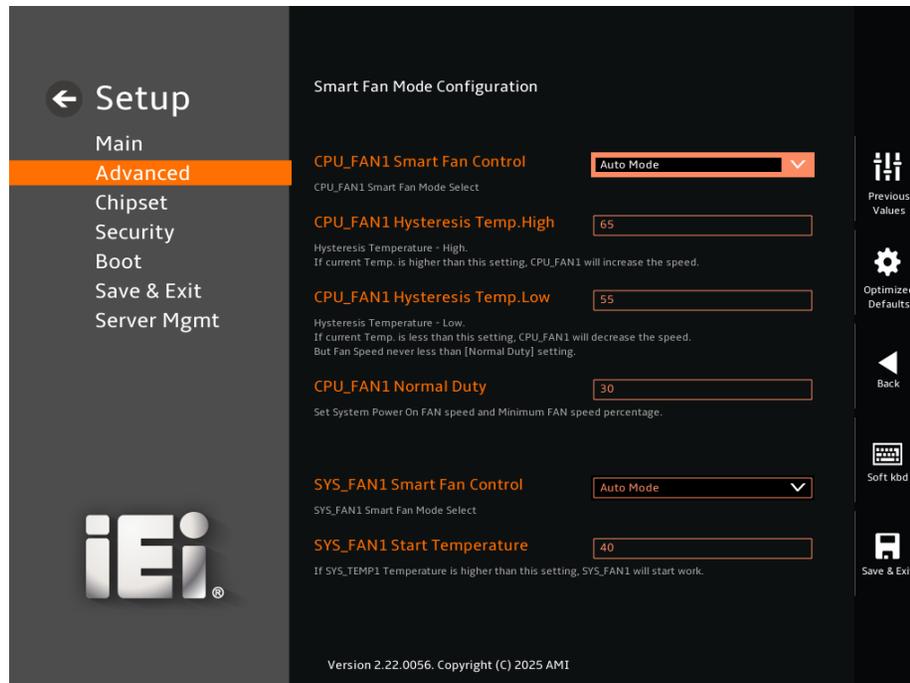
- CPU Temperature
- System Temperatures
- VR Temperature
- SYS_FAN Speed
- SYS_FAN1 Speed
- SYS_FAN2 Speed

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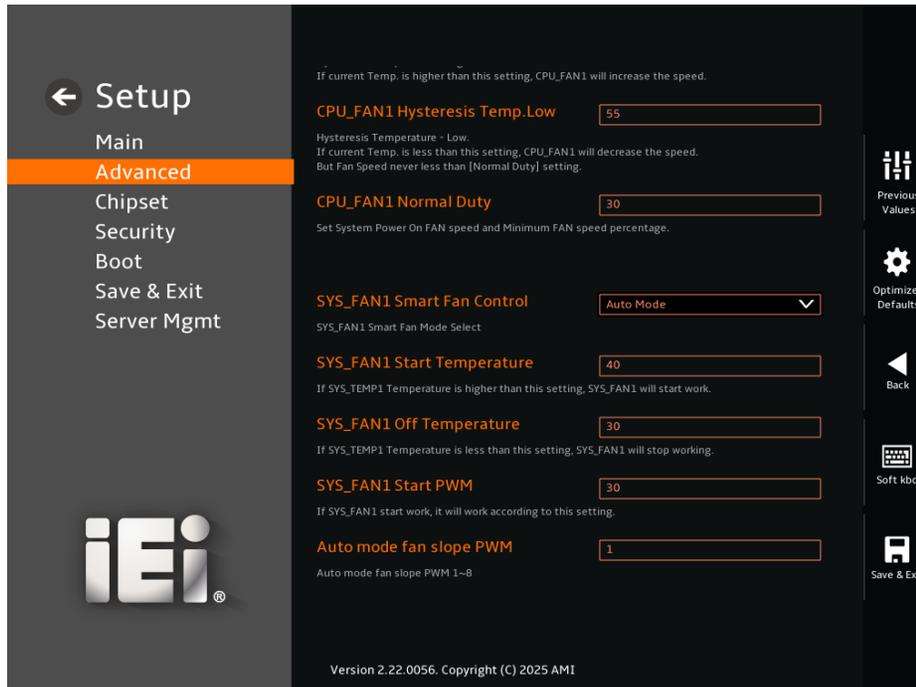
- VDDCR_CPU_RUN
- VDDCR_SOC_RUN
- VDD_MISC_RUN
- VDDIO_MEM_R3
- EC_VIN_1P8V

5.3.7.1 Smart Fan Mode Configuration

The **Smart Fan Mode Configuration** menu (**BIOS Menu 21 & BIOS Menu 22**) is a function setting used to control the relationship between the speed and temperature of the fans on the motherboard (CPU fan, system fan, etc.).



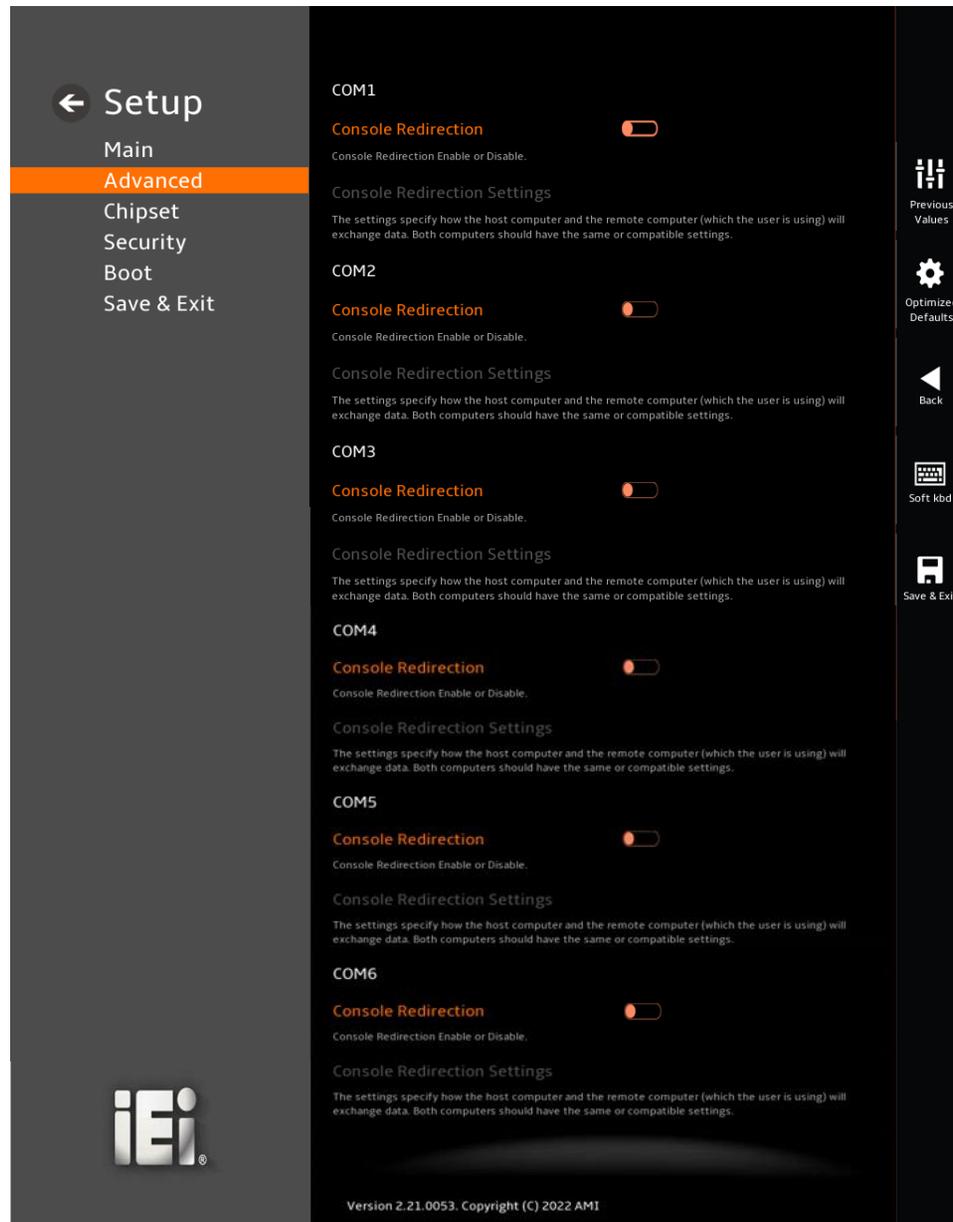
BIOS Menu 21: Smart Fan Mode Configuration (1/2)



BIOS Menu 22: Smart Fan Mode Configuration (2/2)

5.3.8 Serial Port Console Redirection

The **Serial Port Console Redirection** menu (**BIOS Menu 23**) 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 23: Serial Port Console Redirection

➔ **Console Redirection [Disabled]**

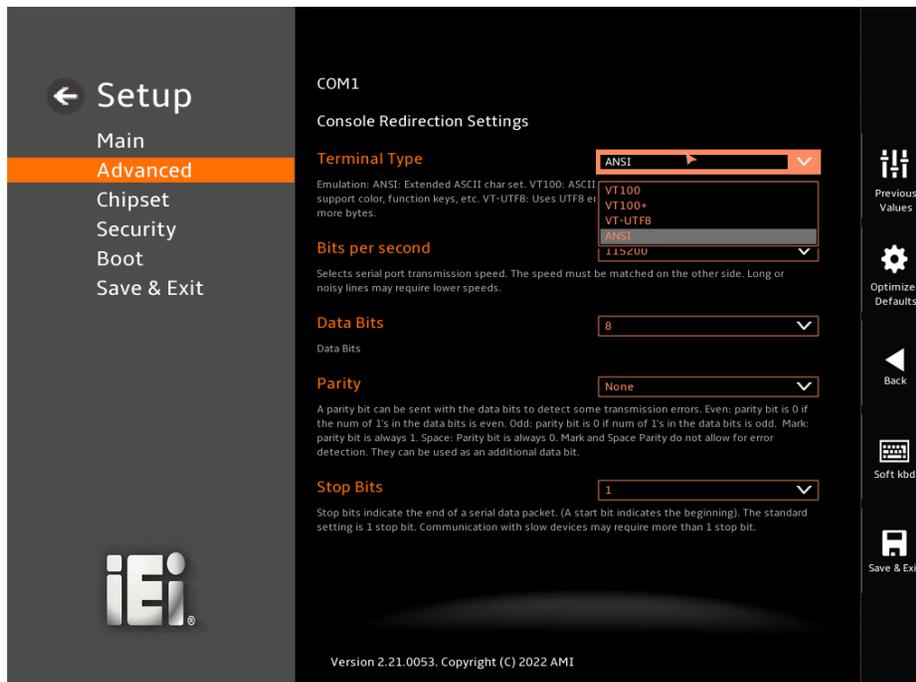
Use **Console Redirection** option to enable or disable the console redirection function.

- ➔ **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.

5.3.8.1 Console Redirection Settings

The following options are available in the **Console Redirection Settings** submenu (**BIOS Menu 24**) when the **COM Console Redirection** (for COM1 to COM6) option is enabled.



BIOS Menu 24: COM Console Redirection Settings

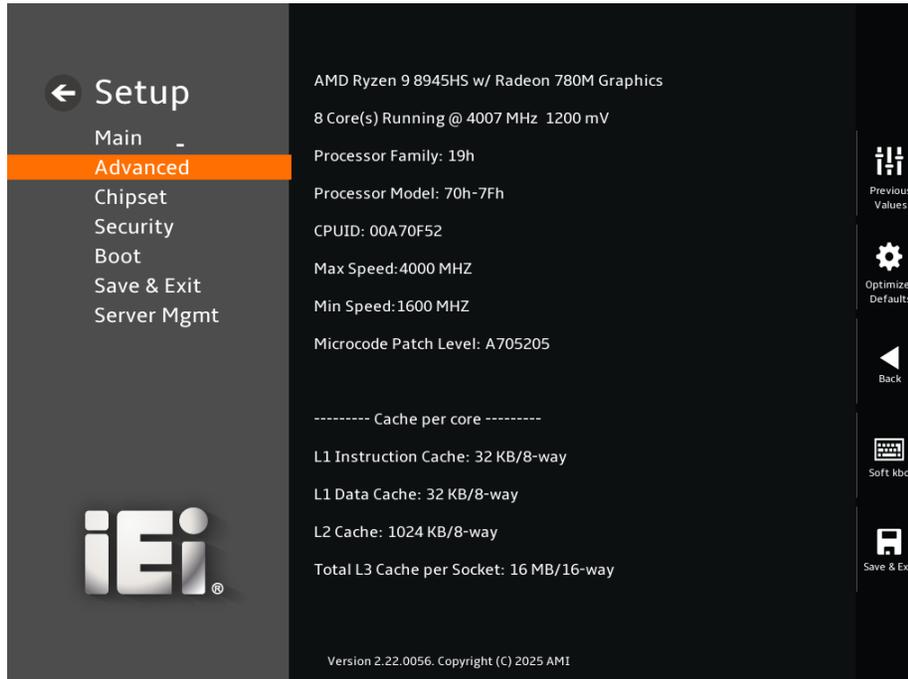
➔ **Terminal Type [ANSI]**

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

- ➔ **VT100** The target terminal type is VT100

5.3.9 CPU Configuration

Use the **CPU Configuration** menu (**BIOS Menu 25**) to view detailed CPU specifications or enable the Intel Virtualization Technology.



BIOS Menu 25: CPU Configuration

5.3.10 PCI Subsystem Settings

The **PCI Subsystem Settings** menu (**BIOS Menu 26**) configures is the configuration page that controls the low-level behavior of the PCI/PCIe bus on the motherboard.



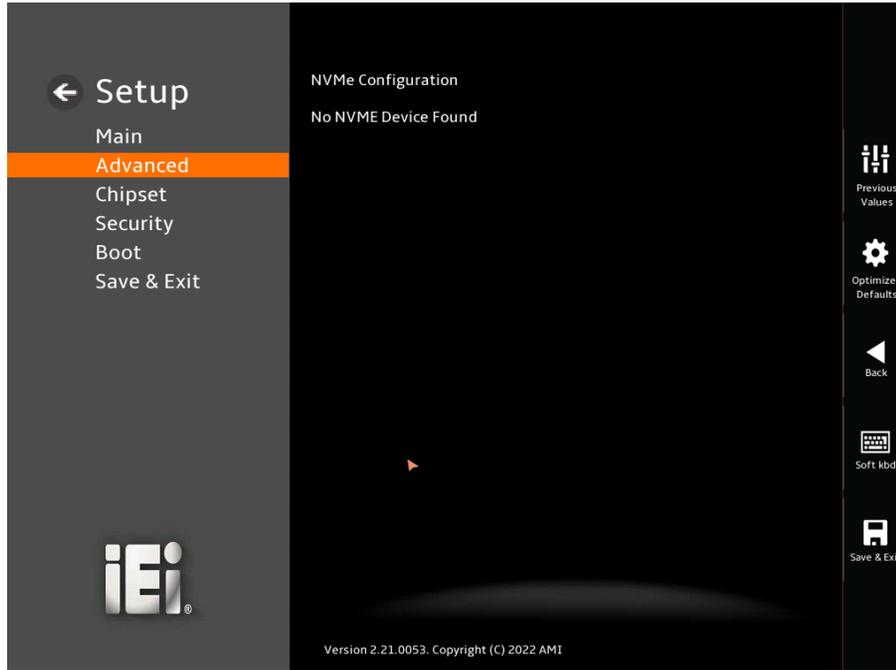
BIOS Menu 26: PCI Subsystem Settings

➔ **Re-Size BAR Support [Disable]**

Disable variable BAR (Base Address Register) support

5.3.11 NVMe Configuration

Use the **NVMe Configuration (BIOS Menu 27)** menu to display the NVMe controller and device information.



BIOS Menu 27: NVMe Configuration

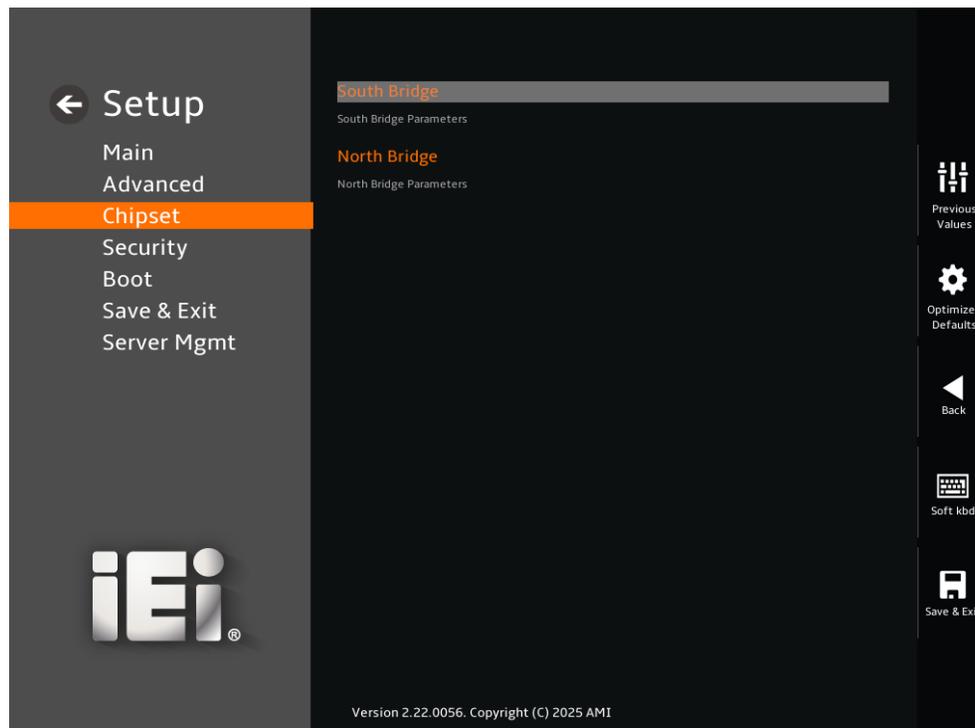
5.4 Chipset

Use the **Chipset** menu (**BIOS Menu 28**) to access the South Bridge and North Bridge configuration menus.



WARNING!

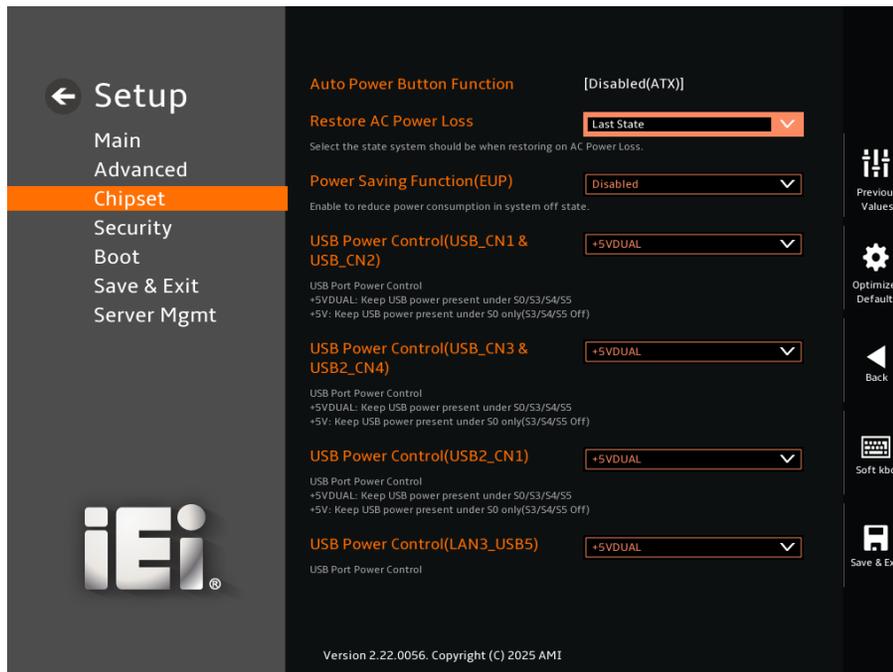
Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.



BIOS Menu 28: Chipset

5.4.1 South Bridge

Use the **South Bridge** menu (**BIOS Menu 29&BIOS Menu 30**) to configure the Chip responsible for low-speed peripherals and I/O.



BIOS Menu 29: South Bridge (1/2)



BIOS Menu 30: South Bridge (2/2)

- ➔ **Auto Power Button Function [Disabled (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.

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

➔ **USB Power Control (USB_CN1&USB_CN2) [+5VDUAL]**

Use the **USB Power Control (USB_CN1&USB_CN2)** BIOS option to configure the USB power source for the corresponding USB_CN1/USB_CN2 connectors.

- ➔ **+5V DUAL DEFAULT** Sets the USB_CN1/USB_CN2 power source to +5V dual
- ➔ **+5V** Sets the USB_CN1/USB_CN2 power source to +5V

➔ **USB Power Control (USB_CN3&USB2_CN4) [+5V DUAL]**

Use the **USB Power Control (USB_CN3&USB2_CN4)** BIOS option to configure the USB power source for the corresponding USB_CN3 and USB2_CN4 connectors.

- ➔ **+5V DUAL DEFAULT** Sets the USB_CN3 and USB2_CN4 power source to +5V dual
- ➔ **+5V** Sets the USB_CN3 and USB2_CN4 power source to +5V

➔ **USB Power Control (USB2_CN1) [+5V DUAL]**

Use the **USB Power Control (USB2_CN1)** BIOS option to configure the USB power source for the corresponding USB2_CN1 connectors.

- ➔ **+5V DUAL DEFAULT** Sets the USB2_CN1 power source to +5V dual
- ➔ **+5V** Sets the USB2_CN1 power source to +5V

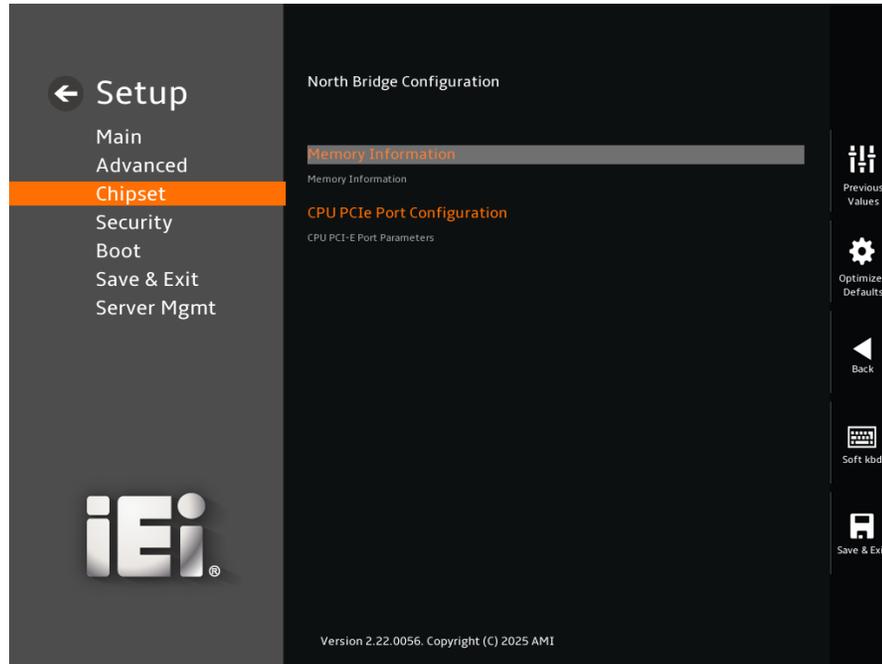
➔ **USB Power Control (LAN3_USB5) [+5V DUAL]**

Use the **USB Power Control (LAN3_USB5)** BIOS option to configure the USB power source for the corresponding LAN3_USB5 connector.

- ➔ **+5V DUAL DEFAULT** Sets the LAN3_USB5 power source to +5V dual
- ➔ **+5V** Sets the LAN3_USB5 power source to +5V

5.4.2 North Bridge

Use the **North Bridge** menu (**BIOS Menu 31**) to set up high-speed I/O, CPU/RAM/iGPU.



BIOS Menu 31: North Bridge

5.4.2.1 Memory Information

Use the **Memory Information** menu (**BIOS Menu 32**) to view or configure system memory (RAM) related information



BIOS Menu 32: Memory Information

5.4.2.2 CPU PCIe Port Configuration

Use the **CPU PCIe Port Configuration** menu (**BIOS Menu 33 & BIOS Menu 34 & BIOS Menu 35 & BIOS Menu 36**) to control the bandwidth, speed, enablement, and partitioning of CPU-direct PCIe lanes, determining the performance and compatibility of GPUs, NVMe, and other high-speed PCIe devices.



BIOS Menu 33: CPU PCIe Port Configuration (1/4)

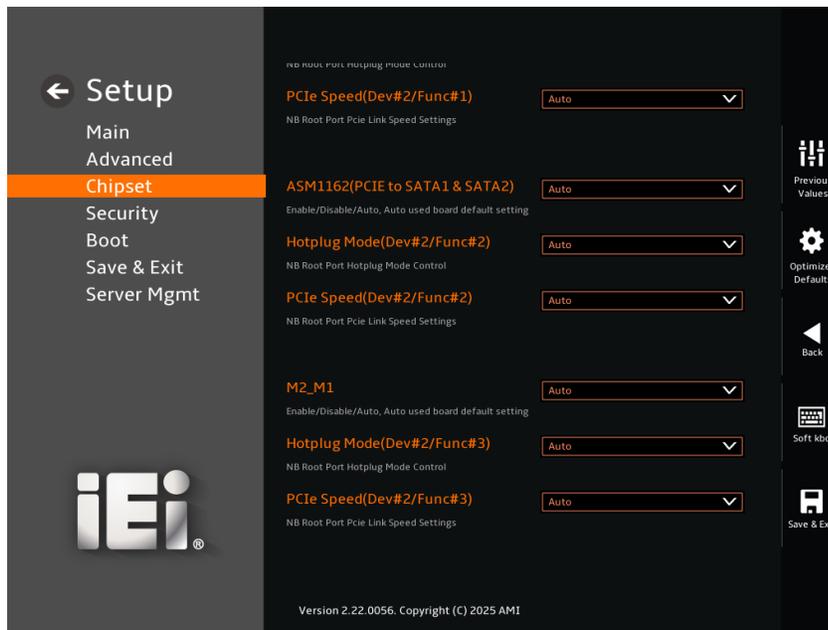


BIOS Menu 34: CPU PCIe Port Configuration (2/4)

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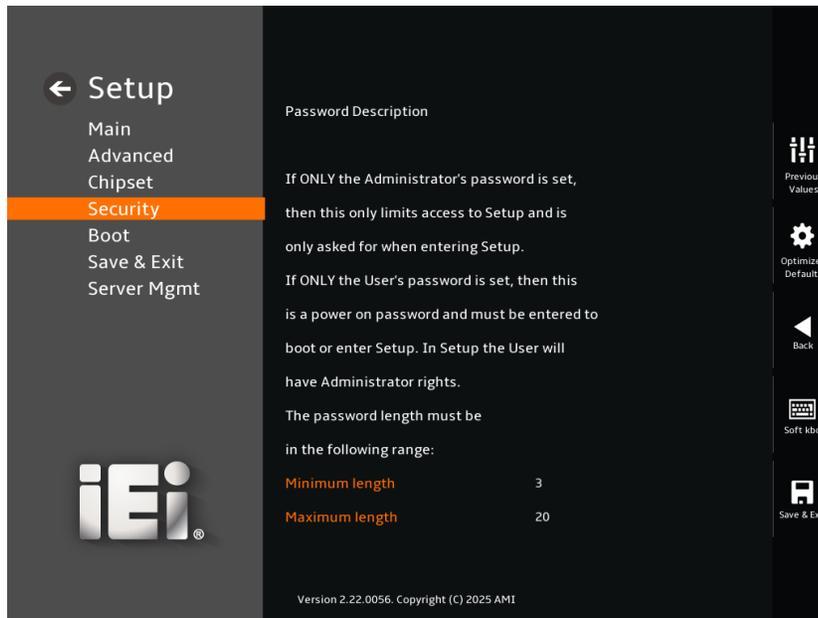
BIOS Menu 35: CPU PCIe Port Configuration (3/4)



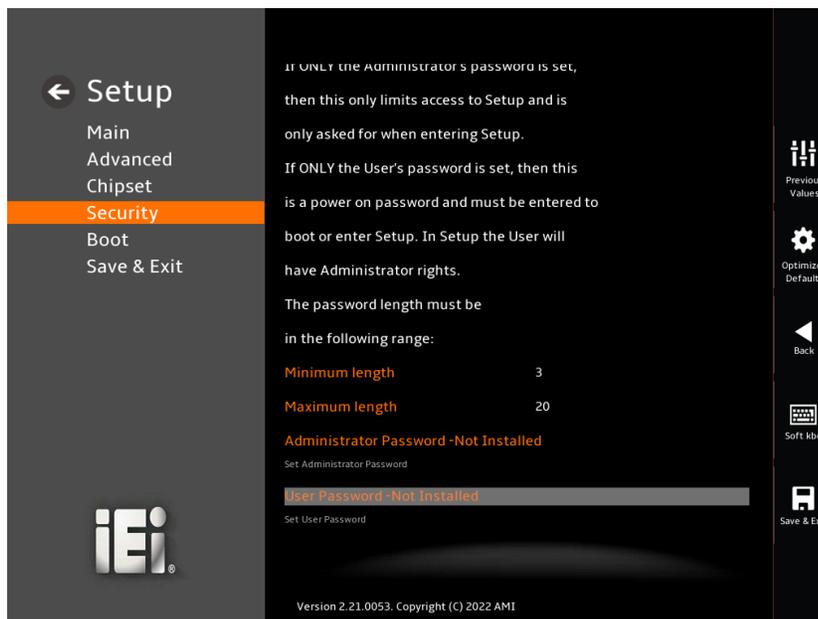
BIOS Menu 36: CPU PCIe Port Configuration (4/4)

5.5 Security

Use the Security menu (**BIOS Menu 37&BIOS Menu 38**) to set system and user passwords.



BIOS Menu 37: Security (1/2)



BIOS Menu 38: Security (2/2)

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→ Administrator Password

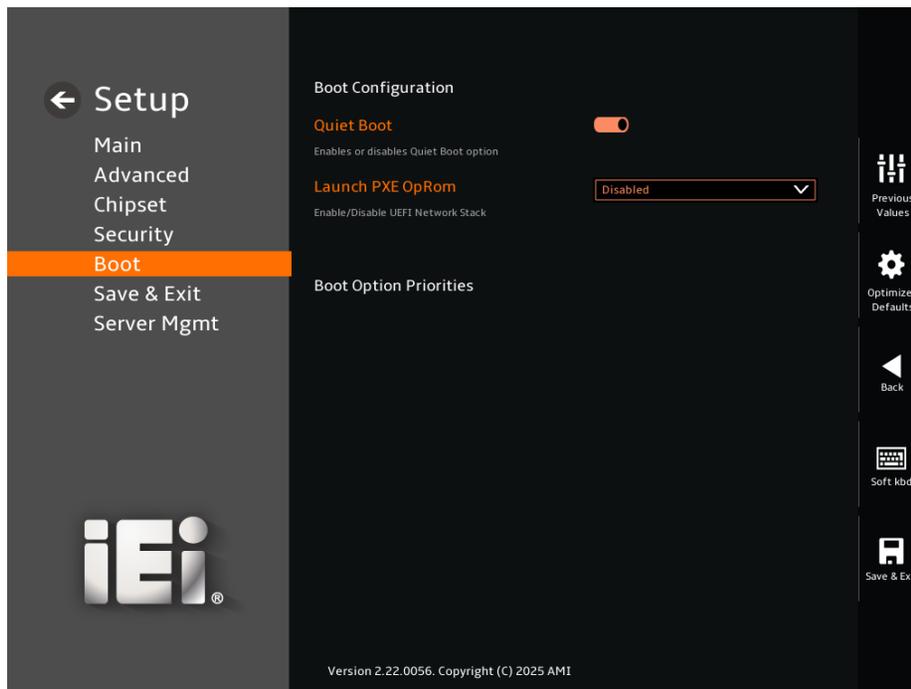
Use the **Administrator Password** to set or change a administrator password.

→ User Password

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

5.6 Boot

Use the Boot menu (**BIOS Menu 39**) to configure system boot options.



BIOS Menu 39: 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

→ 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.

5.7 Save & Exit

Use the **Save & Exit** menu (**BIOS Menu 40**) to load default BIOS values, optimal failsafe values and to save configuration changes.



BIOS Menu 40: Save & Exit

5.7.1 Save Options

→ 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.

5.7.2 Default Options

→ **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**

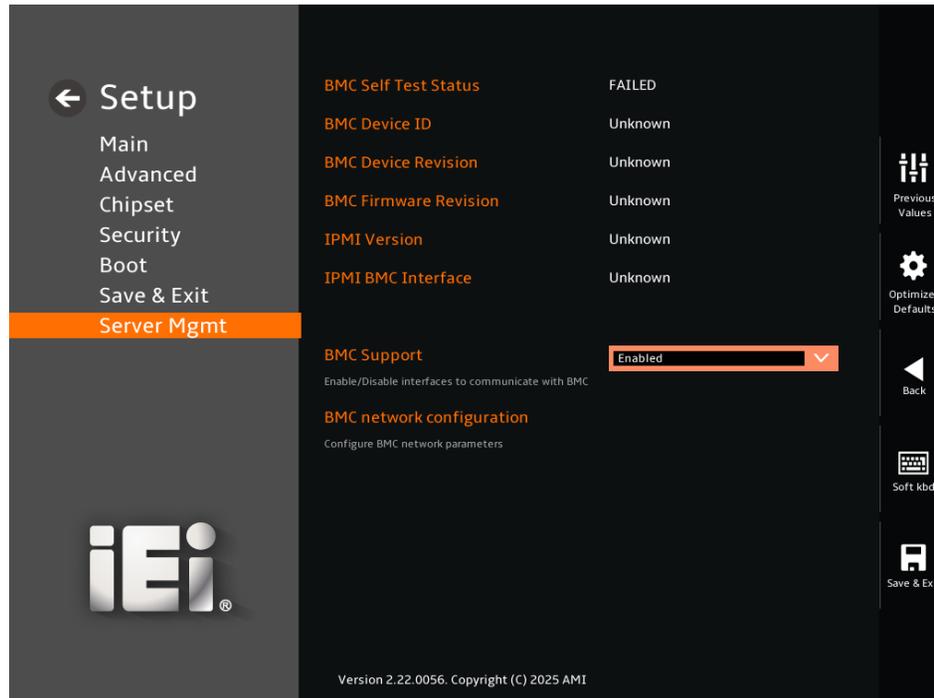
Use the **Save as User Defaults** option to save the changes done so far as user defaults.

→ **Restore User Defaults**

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

5.8 Server Mgmt

Use the **Server Mgmt** menu (**BIOS Menu 41**) to server maintenance, such as remote management, monitoring, alarms, and logging.



BIOS Menu 41: Server Mgmt

Appendix

A

Regulatory Compliance

DECLARATION OF CONFORMITY

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 og 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 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-htigijiet essenzjali u ma provvedimenti oħrajn rilevanti li hemm fid-Dirrettiva 2014/53/EU.

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Magyar [Hungarian]

IEI Integration Corp nyilatkozik, hogy a berendezés megfelel a vonatkozó alapvető követelményeknek és az 2014/53/EU irányelv egyéb előírásainak.

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 în conformitate cu cerințele esențiale și 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-8700 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

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B.1.2 Anti-static Precautions



WARNING:

Failure to take ESD precautions during the installation of the TANK-8700 Series may result in permanent damage to the TANK-8700 Series and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the TANK-8700 Series. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the TANK-8700 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 anti-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

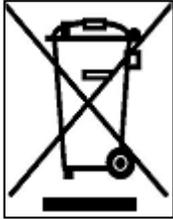


CAUTION:

Risk of explosion if battery is replaced by an 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-8700 Series, please follow the guidelines below.

B.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the TANK-8700 Series, please read the details below.

- The interior of the TANK-8700 Series does not require cleaning. Keep fluids away from the TANK-8700 Series interior.
- Be cautious of all small removable components when vacuuming the TANK-8700 Series.
- Turn the TANK-8700 Series off before cleaning the TANK-8700 Series.
- Never drop any objects or liquids through the openings of the TANK-8700 Series.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the TANK-8700 Series.
- Avoid eating, drinking and smoking within vicinity of the TANK-8700 Series.

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B.2.2 Cleaning Tools

Some components in the TANK-8700 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-8700 Series.

- **Cloth** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the TANK-8700 Series.
- **Water or rubbing alcohol** – A cloth moistened with water or rubbing alcohol can be used to clean the TANK-8700 Series.
- **Using solvents** – The use of solvents is not recommended when cleaning the TANK-8700 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-8700 Series. Dust and dirt can restrict the airflow in the TANK-8700 Series and cause its circuitry to corrode.
- **Cotton swabs** - Cotton swabs 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

Error Beep Code

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C.1 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	DXE IPL was not found
3	DXE Core Firmware Volume was not found
4	Recovery failed
4	S3 Resume failed
7	Reset PPI is not available

C.2 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

D

Hazardous Materials Disclosure

TANK-8700

D.1 RoHS Directive (2015/863/EU)

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

D.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	○	○	○	○	○	○
印刷电路板	○	○	○	○	○	○
金属螺帽	○	○	○	○	○	○
电缆组装	○	○	○	○	○	○
风扇组装	○	○	○	○	○	○
电力供应组装	○	○	○	○	○	○
电池	○	○	○	○	○	○

○: 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。