

ES1001

Edge AI Server with AMD Ryzen™ Embedded 7000 Processors

User Manual

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This product has passed CE compliance testing and conforms to applicable EU directives. In a domestic environment, it may cause radio interference, requiring users to take appropriate measures.



This product complies with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. It generates, uses, and can radiate radio frequency energy. If not installed and used according to the manufacturer's instructions, it may cause harmful interference to radio communications.

WEEE



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This product complies with RoHS 2 restrictions, which prohibit the use of certain hazardous substances in electrical and electronic equipment. The following substances must not exceed the specified concentrations:

- Hexavalent chromium: 1,000 ppm
- Polybrominated biphenyls (PBBs): 1,000 ppm
- Polybrominated diphenyl ethers (PBDEs): 1,000 ppm
- Cadmium: 100 ppm
- Mercury: 1,000 ppm
- Lead: 1,000 ppm
- Bis(2-ethylhexyl) phthalate (DEHP): 1,000 ppm
- Butyl benzyl phthalate (BBP): 1,000 ppm
- Dibutyl phthalate (DBP): 1,000 ppm
- Diisobutyl phthalate (DIBP): 1,000 ppm

Important Safety Information

Carefully read the precautions before using the board.

Care and Handling Guidelines:

- Before cleaning the PCB, ensure the device is unplugged and powered off.
- If cleaning is required, use approved electronic circuit board cleaner and ensure the board is completely dry before reconnecting power.
- Use a computer-grade vacuum cleaner designed for electronic equipment to remove dust.



Warning

Attention during use:

- Do not use this product near water.
- Do not spill water or any other liquids on this product.
- Do not place heavy objects on the product, as this may damage internal components or affect performance.

Anti-static precautions

- Wear an anti-static wrist strap to avoid electrostatic discharge.
- Place the board on an anti-static mat.
- Handle the board by its edges and avoid touching components or circuitry.
- Ground yourself by touching a grounded metal object, such as a metal pipe or grounded equipment, to discharge static.



CAUTION

Danger of explosion if internal lithium-ion battery is replaced by an incorrect type. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Warranty Policy

- **Industrial standard products:**

24-month (2-year) warranty from the date of shipment. If the date of shipment cannot be ascertained, the product serial numbers can be used to determine the approximate shipping date.

- **3rd-party parts:**

12-month (1-year) warranty from delivery for the 3rd-party parts that are not manufactured by IBASE, such as CPU, memory, storage device, power adapter, panel and touchscreen.

* PRODUCTS, HOWEVER, THAT FAIL DUE TO MISUSE, ACCIDENT, IMPROPER INSTALLATION OR UNAUTHORIZED REPAIR SHALL BE TREATED AS OUT OF WARRANTY AND CUSTOMERS SHALL BE BILLED FOR REPAIR AND SHIPPING CHARGES.

Technical Support & Services

1. Visit IBT website at www.ibt.ca to find the latest information about the product, or your local dealer.

2. If you encounter any technical problems and require assistance from your distributor or sales representative, please prepare and send the following information:

- Product model name
- Product serial number
- Detailed description of the problem
- The error messages in text or in screenshots if there is any
- The arrangement of the peripherals
- Software in use (such as OS and application software, including the version numbers)

and send this to support@ibt.ca with your question

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Chapter 1

General Information

The information provided in this chapter includes:

- Features
- Packing List
- Specifications
- Product View
- Dimensions

1.1 Introduction

ES1001 is a 4U rackmount Edge AI server powered by AMD Ryzen™ Embedded 7000 Series processors with a B650 chipset, designed for high-performance edge computing and AI inference applications. The system supports dual-channel DDR5-5200 memory with four UDIMM slots and up to 128GB ECC capacity, providing reliable performance for industrial and embedded workloads. It offers flexible expansion with multiple PCIe slots including one PCIe Gen5 x16, one Gen5 x4, one Gen4 x4, one Gen3 x1, and one legacy PCI slot. Storage options include four SATA 6Gb/s ports and two M.2 2280 M-Key connectors supporting PCIe Gen4 NVMe SSDs. The platform also provides triple display output (DP, HDMI, and DVI-D), dual Gigabit Ethernet connectivity, RAID 0/1 support, and TPM 2.0 security, making ES1001 suitable for AI edge computing, industrial automation, and high-performance embedded systems.



1.2 Features

- AMD Ryzen™ Embedded 7000 Processors with B650 chipset
- Dual-Channel DDR5 5200, UDIMM 4 slots, Max. 128GB, ECC support
- Triple display: DP/HDMI/DVI-D and Dual GbE LAN
- 1x PCIe x16 (Gen5) / 1x PCIe x4 (Gen5) 1x PCIe x4 (Gen4) / 1x PCIe x1 (Gen3) / 1x PCI
- 2x M.2 2280 M-Key (PCIe x2 Gen4, supports NVMe)
- Supports RAID 0, 1; TPM 2.0

1.3 Packing List

Your ES1001 package should include the items listed below.

Part Number	Description	Qty
ES1001	4U Edge AI Server Barebone System	1
D2MANUAL--0000100P	Manual & Driver Download Instruction Card	1
AC-CORD-REGION	AC Power Cord (Region-Specific)	1

1.4 Specifications

Model	
ES1001	Chassis with ATX motherboard w/o CPU, memory, storage, supports AMD Ryzen™ Embedded 7000 Series processors
System	
Mainboard	AMD Ryzen™ Embedded 7000 series ATX Motherboard
CPU Type	AMD Ryzen™ Embedded 7000 Processors
System Speed	Max. 4.7GHz
Memory	Dual-Channel DDR5 5200, UDIMM 4 slots, Max. 128GB, ECC support
AI Inference Computing Power	Integrated AMD Ryzen™ 7000 Series APU with Zen 4 CPU and RDNA™ 3 GPU architecture / 12 RDNA3 compute units / up to 8.6 TFLOPS FP32 peak performance / support 1x Gen5 PCIe (x16)
Front Panel External I/O	• 2x USB 2.0 via pin header • 2x USB 2.0 Type-A vertical connector • 4x USB 3.2 Gen 2 • 2x USB 3.2 Gen 1 with PDPC support • 1x Dual DB9 stack connector for COM 1 (RS-232/422/485, jumperless selection) • COM 2 (RS-232) • 4x COM via pin header (RS-232)
Expansion Slot	• 1x PCIe x16 (Gen5) • 1x PCIe x4 (Gen5) • 1x PCIe x4 (Gen4) • 1x PCIe x1 (Gen3) • 1x PCI
Storage	4x SATA 6Gb/s 2x M.2 2280 M-Key (PCIe x2 Gen4, supports NVMe)
Power Requirement	1x ATX standard 24-pins type & 8-pin type (+12V only)

Power Supply	1x ATX standard 850W PSU
Construction	Aluminum & steel
Chassis Color	Black
Mounting Type	NA
Dimensions	• 427mm (W) x 407.6mm (D) x 177mm (H) • 16.8" (W) x 16" (D) x 6.96" (H)
Weight	TBD
Certification	CE / LVD / FCC Class B
Operating System	• Windows 11 • Windows Server 2022 • Ubuntu 22.04

Environmental	
Operating Temperature	0°C ~ 60°C (32°F ~ 140°F)
Storage Temperature	20°C ~ 80°C (-4°F ~ 176°F)
Relative Humidity	95% (non-condensing @60°C)
Vibration (Non-operating)	1.0 grms / 5~500Hz / random operation
Vibration (Operating)	0.25 grms / 5~500Hz / random operation
Shock (Operating)	20g / 11ms
Shock (Non-operating)	40g / 11ms

All specifications are subject to change without prior notice.

1.5 System View

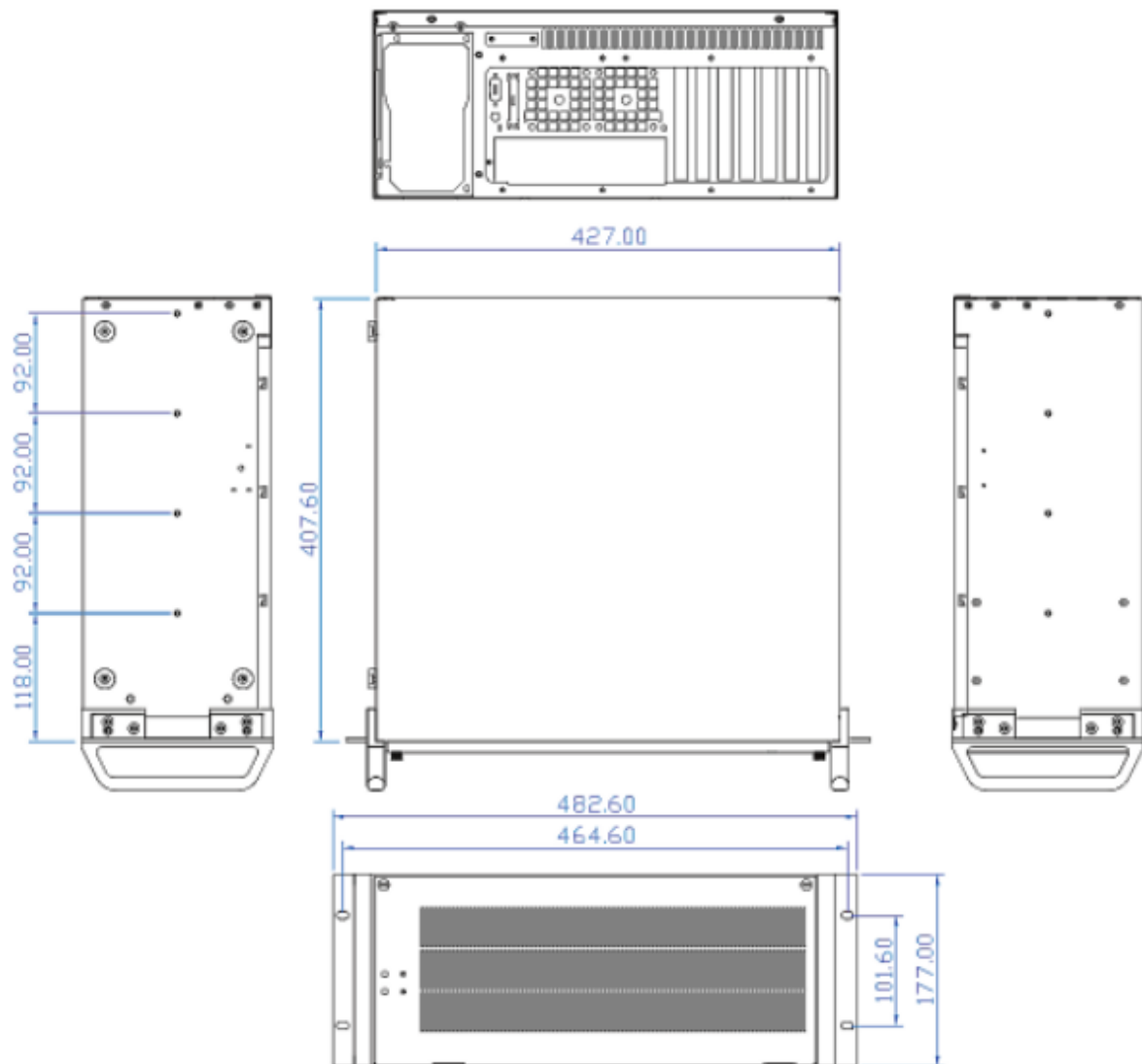
Front View and Rear View



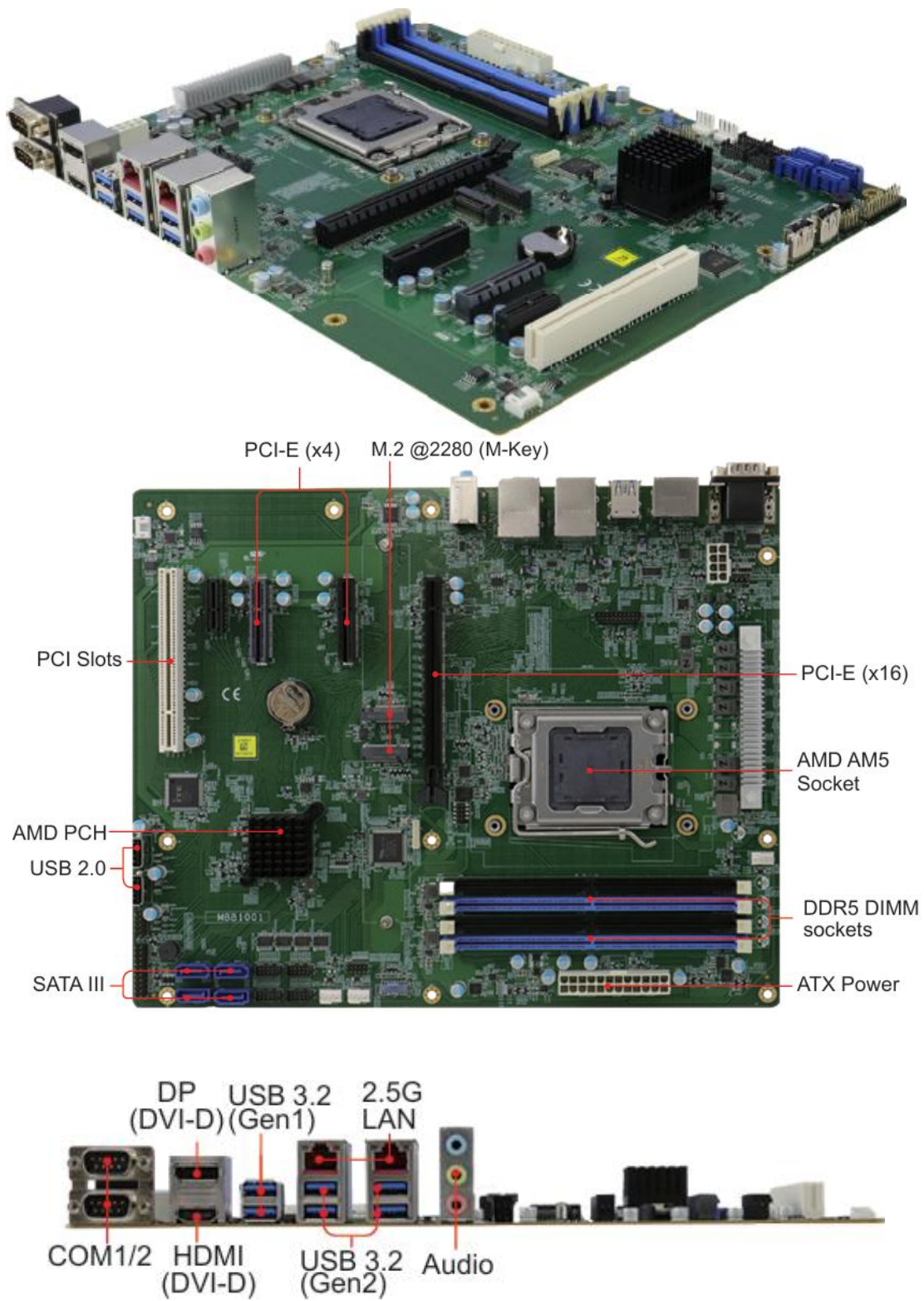
Rear I/O View

1.6 System Dimensions

Unit: mm

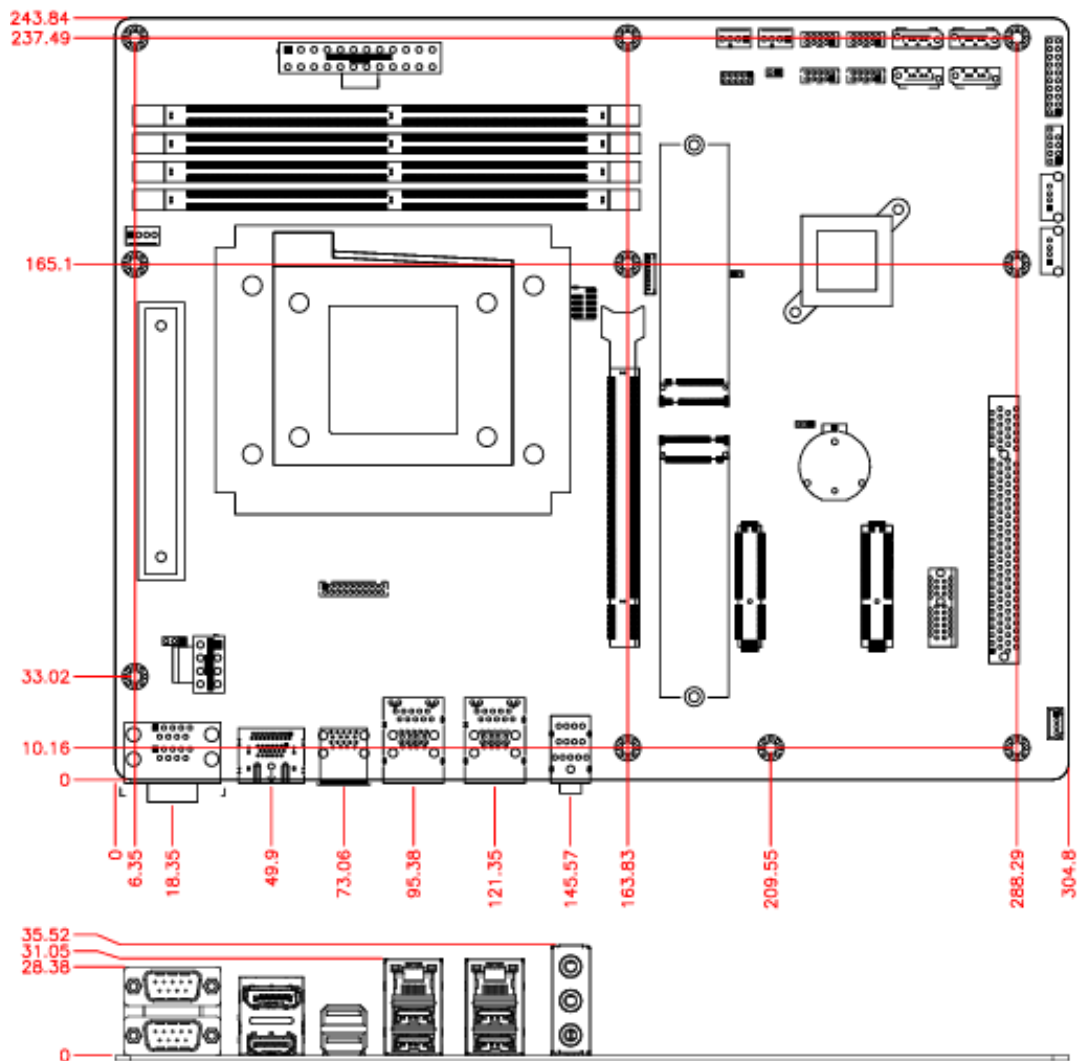


1.7 MBB1001 Board View



1.8 MBB1001 Board Dimensions

Unit: mm



Chapter 2

Hardware Configuration

The information provided in this chapter includes:

- Hardware Installation
- Connector Information and Locations

2.1 Removing the Top Cover

To access internal components including memory modules, PCIe cards, and storage devices, remove the top cover.

1. Power off the system and disconnect the AC power cord from the power outlet.
2. Remove the screws securing the top cover at the rear of the chassis.
3. Slide the top cover toward the rear.
4. Lift the cover upward to remove it.

Reinstall the top cover and secure it with the original screws.



When the cover is removed the memory and expansion cards can be installed or uninstalled. Below is the system with its cover removed.

2.2 Memory Installation

The ES1001 system supports six (6) DDR5 ECC RDIMM sockets.

Memory Installation Guidelines

- Install DDR5 ECC RDIMM modules only.
- Do NOT install LRDIMM modules.
- Do NOT mix RDIMM and LRDIMM memory types.
- Use identical capacity and speed modules.
- When installing multiple modules, distribute them evenly across the available sockets to maintain balanced memory performance.

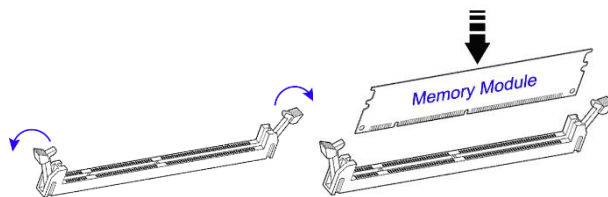


Installing Memory

1. Locate an available DIMM socket.
2. Open the retaining clips at both ends of the socket.
3. Align the notch on the memory module with the key in the socket.
4. Insert the module vertically and press firmly until both retaining clips lock into place.

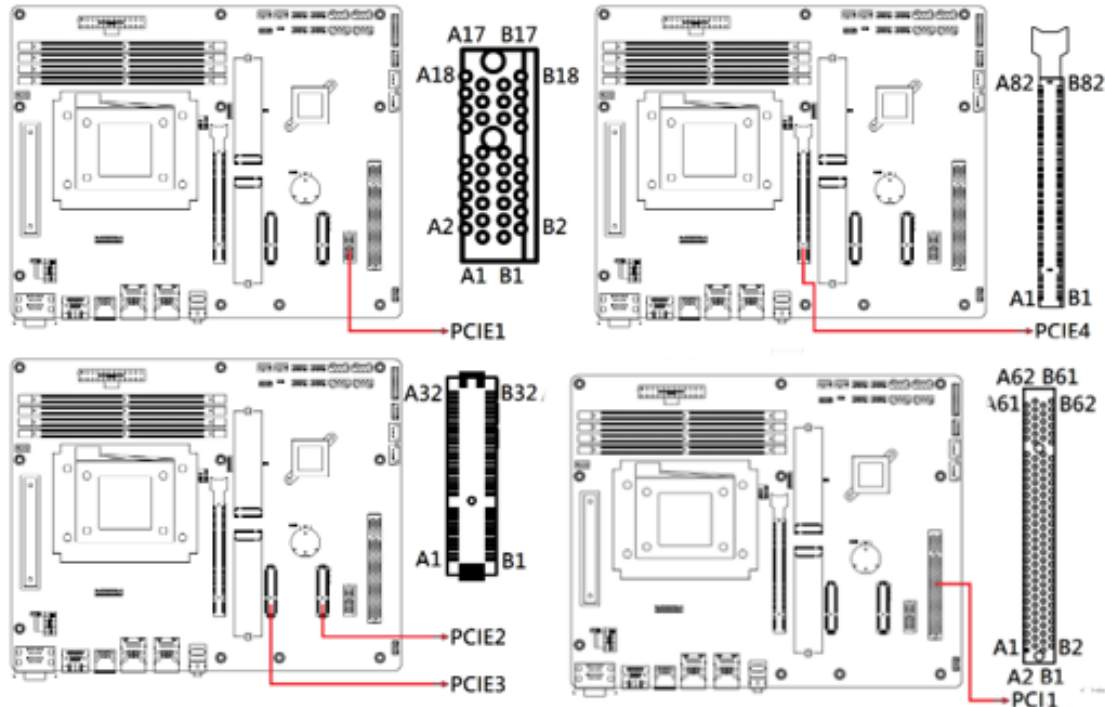
Removing Memory

1. Press the retaining clips outward.
2. Lift the module from the socket.



2.3 PCIe Expansion Card Installation

The system provides five PCIe Gen5 x16 expansion slots.



1. Power off the system and disconnect the AC power cord.
2. Remove the chassis top cover.
3. Remove the corresponding rear slot bracket screw and metal slot cover.
4. Insert the PCIe card firmly into the selected slot.
5. Secure the card bracket with the screw.
6. Connect auxiliary PCIe power cables if required.
7. Reinstall the top cover.

Ensure the card is fully seated and cables do not obstruct airflow.

2.4 Storage Installation

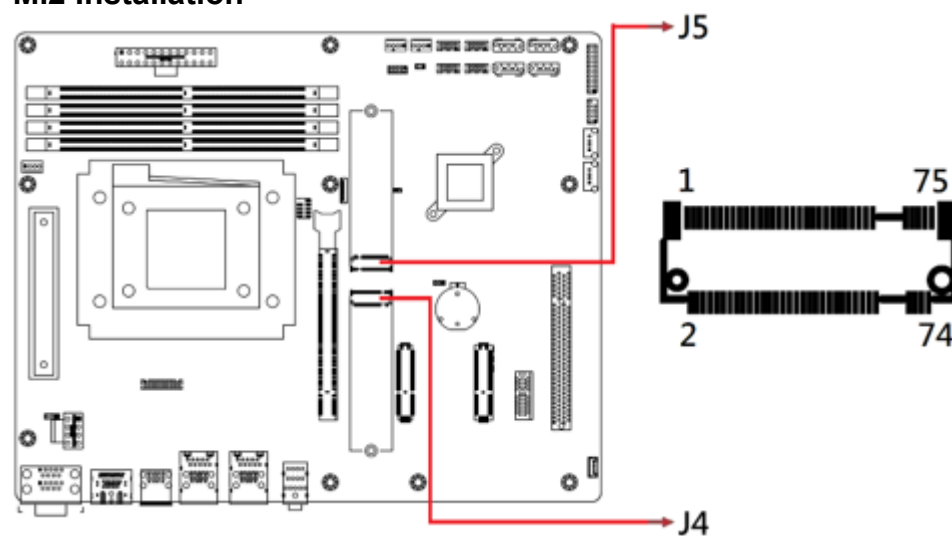
The ES1001 supports:

- 2x M.2 2280 M-Key (PCIe x2 Gen4)

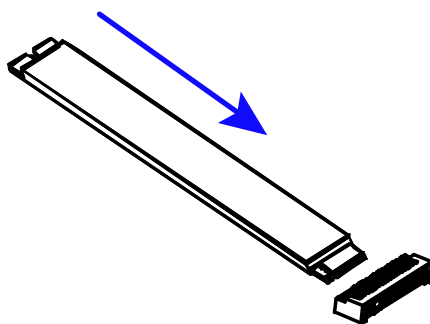
SATA Drive Installation

1. Power off the system and remove the top cover.
2. Mount the SATA drive into the drive tray or bracket (if applicable).
3. Secure the drive with screws.
4. Connect the SATA data and power cables.

M.2 Installation



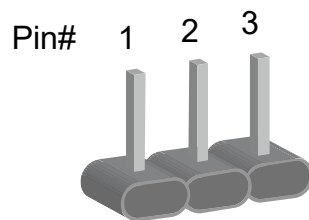
1. Locate the M.2 M-Key slot.
2. Insert the NVMe module at an angle.
3. Press the module down and secure it with the mounting screw.



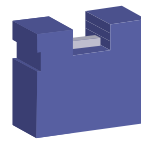
2.5 Setting the Jumpers

Set up and configure your device by using jumpers for various settings and features according to your needs and applications. Contact your supplier if you have doubts about the best configuration for your use.

Jumpers are short-length conductors consisting of several metal pins with a non-conductive base mounted on the circuit board. Jumper caps are used to have the functions and features enabled or disabled. If a jumper has 3 pins, you can connect either PIN1 to PIN2 or PIN2 to PIN3 by shorting.

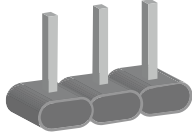
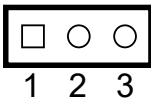
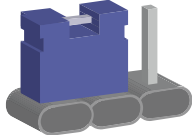
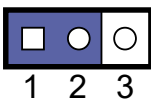
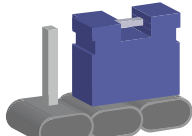
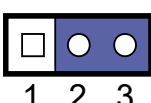


A 3-pin jumper



A jumper cap

Refer to the illustration below to set jumpers.

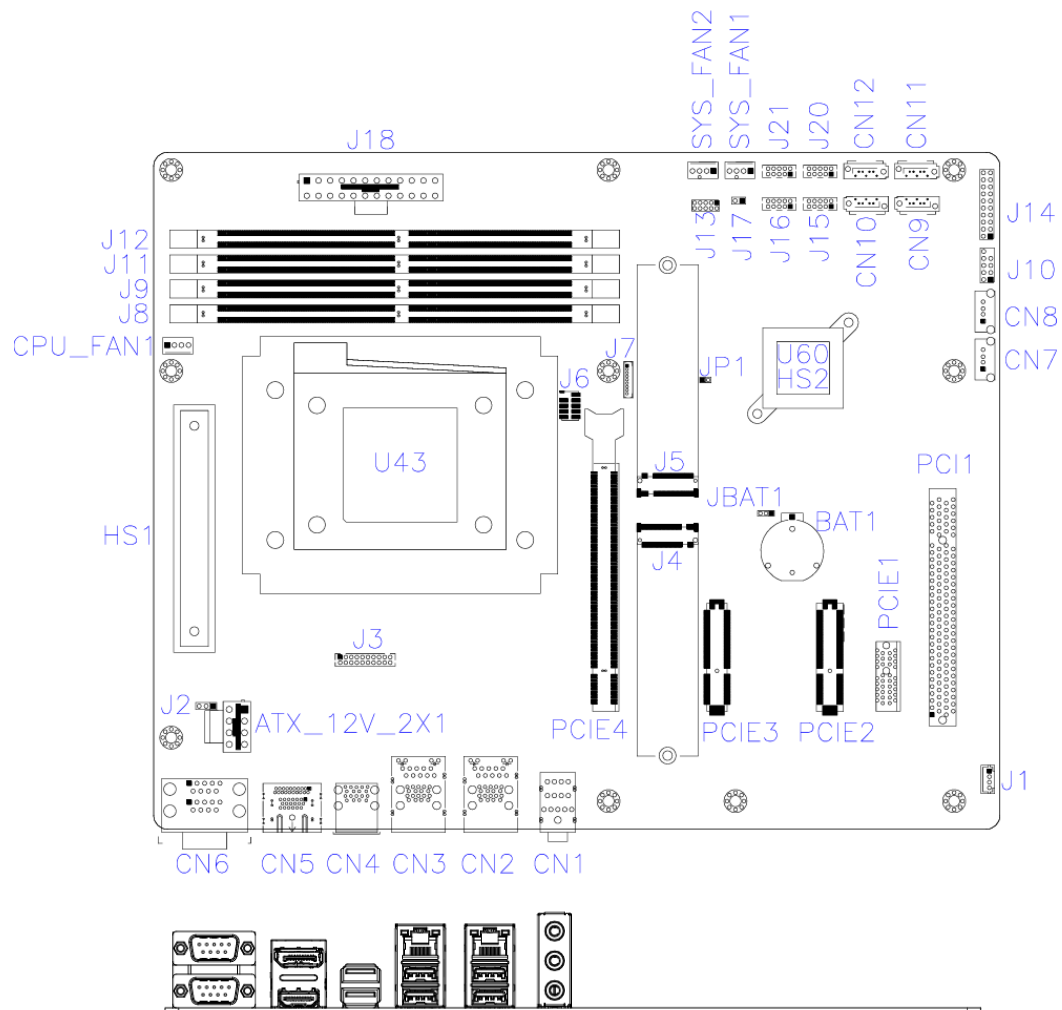
Pin closed	Oblique view	illustration
Open		
1-2		
2-3		

When two pins of a jumper are encased in a jumper cap, this jumper is **closed**, i.e. turned **On**.

When a jumper cap is removed from two jumper pins, this jumper is **open**, i.e. turned **Off**.

2.6 Jumper & Connector Locations on Motherboard

Motherboard: MBB1001

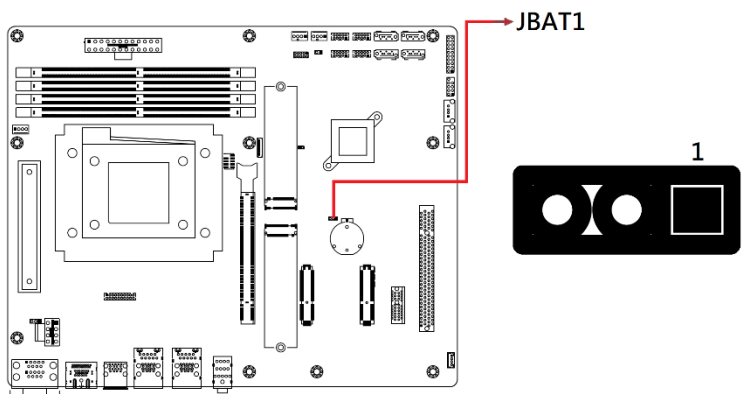


MBB1001

2.7 Jumpers Quick Reference

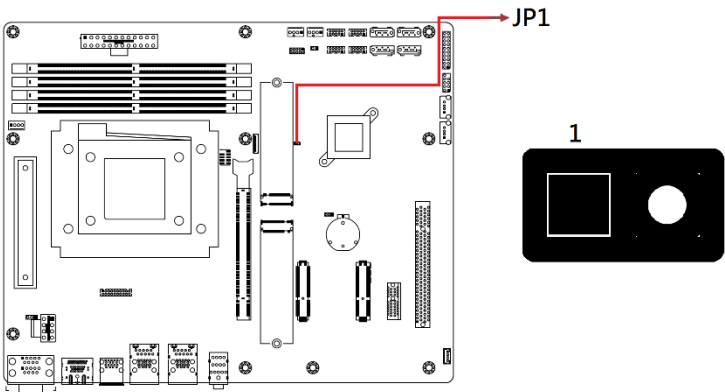
Jumper	Function
JBAT1	Clear CMOS Contents
JP1	ATX/AT Mode Setting

2.7.1 JBAT1: Clear CMOS Contents



Function	Pin closed	Illustration
Normal (default)	1-2	 1
Clear CMOS	2-3	 1

2.7.2 JP1: ATX/AT Mode Setting

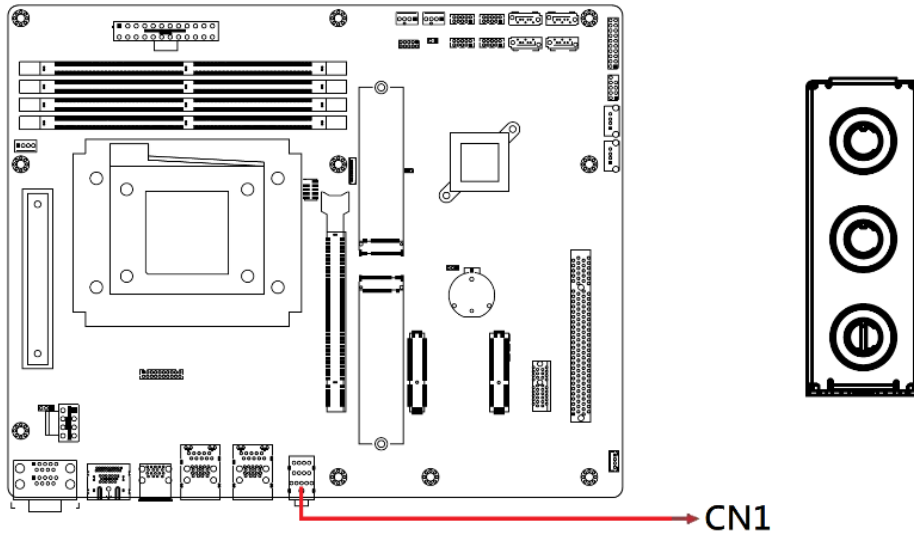


Function	Pin closed	Illustration
ATX (Default)	Open	 1
AT	Close	 1

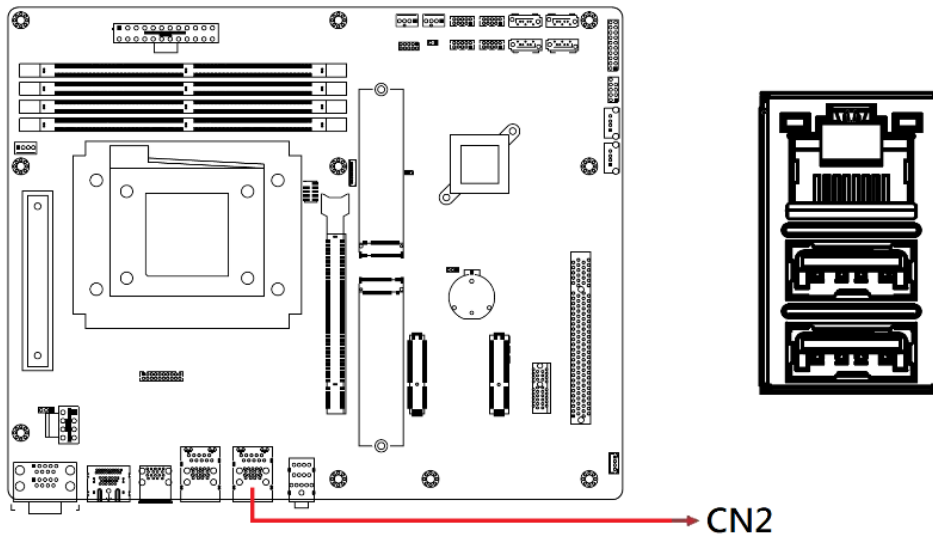
2.8 Connectors on MBB1001

Connector	Function
CN1	HD Audio Connector
CN2	Gigabit LAN (Intel I226V) + USB3.2 2/3
CN3	Gigabit LAN (Intel I226V) + USB3.2 0/1
CN4	USB 3.2 4/5 Connector
CN5	DP and HDMI Connector
CN6	COM1(upper) and COM2(bottom) Serial Ports
CN7, CN8	USB 2.0 Connector
CN9, CN10, CN11, CN12	SATA Connectors
J1	iSmart Flash Connector (Factory use only)
J3	DVI-D Connector
J4, J5	M.2 M-Key Connector
J6	SPI Flash Connector (Factory use only)
J7	eSPI Debug Connector (Factory use only)
J8	DDR5 UDIMM CHA0
J9	DDR5 UDIMM CHA1
J10	USB 2.0 Connectors
J11	DDR5 UDIMM CHB 0
J12	DDR5 UDIMM CHB 1
J13	Digital I/O
J14	Front Panel Function Connector
J15, J20, J16, J21	COM3~COM6 RS232 Serial Ports
J18	ATX Power Supply Connector
ATX_12V_2X1	ATX 12V Power Connector
CPU_FAN1	CPU Fan Power Connector
SYS_FAN1	System Fan1 Power Connector
SYS_FAN2	System Fan2 Power Connector
PCIE1	PCI-E X1 Slot
PCIE2, PCIE3	PCI-E X4 Slot
PCIE4	PCI-E X16 Slot
PCI1	PCI 32-bit Slot

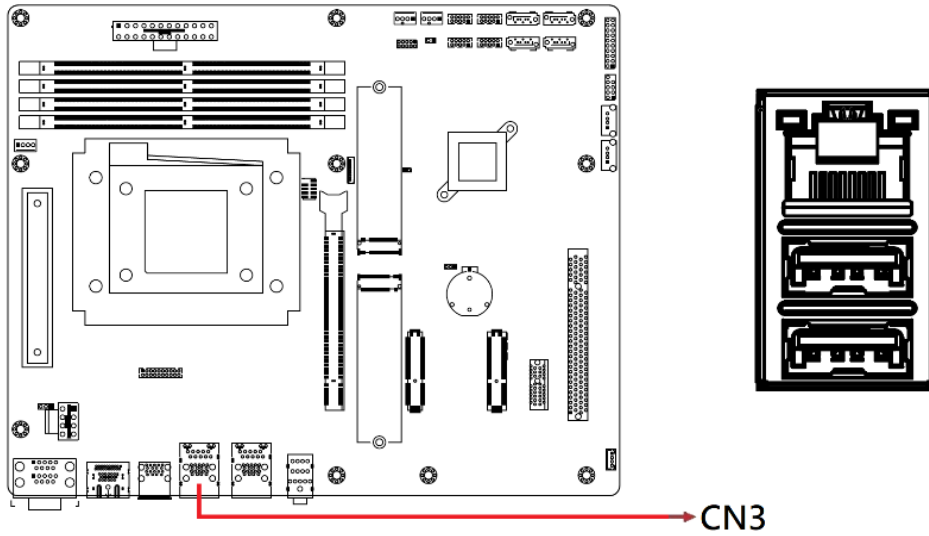
2.8.1 CN1: HD Audio Connector



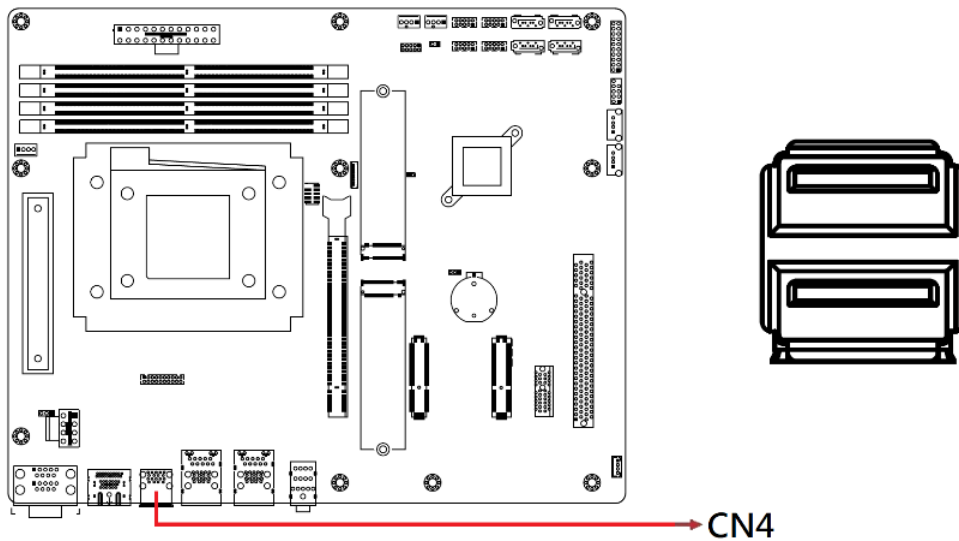
2.8.2 CN2: Gigabit LAN (Intel I226V) + USB 3.2 2/3



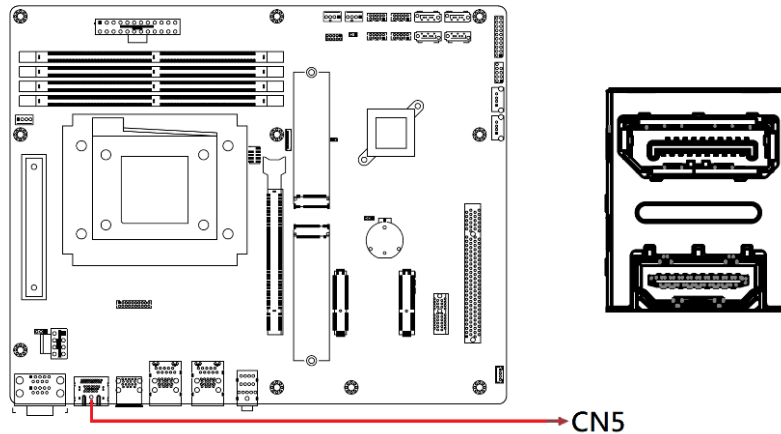
2.8.3 CN3: Gigabit LAN (Intel I226V) + USB 3.2 0/1



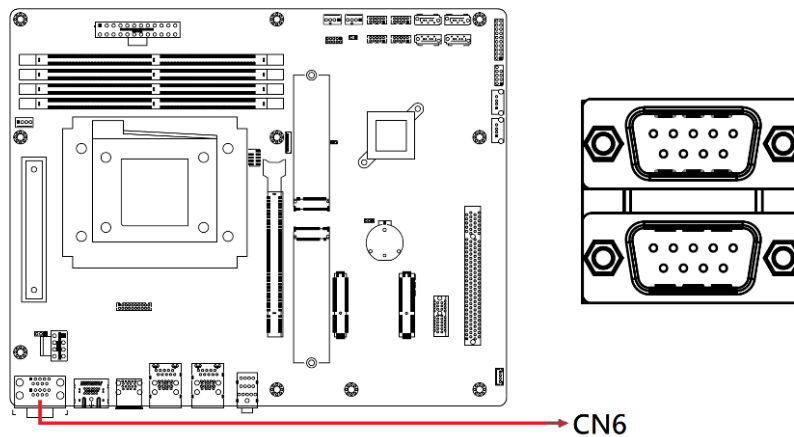
2.8.4 CN4: USB 3.2 4/5 Connector



2.8.5 CN5: DP and HDMI Connector



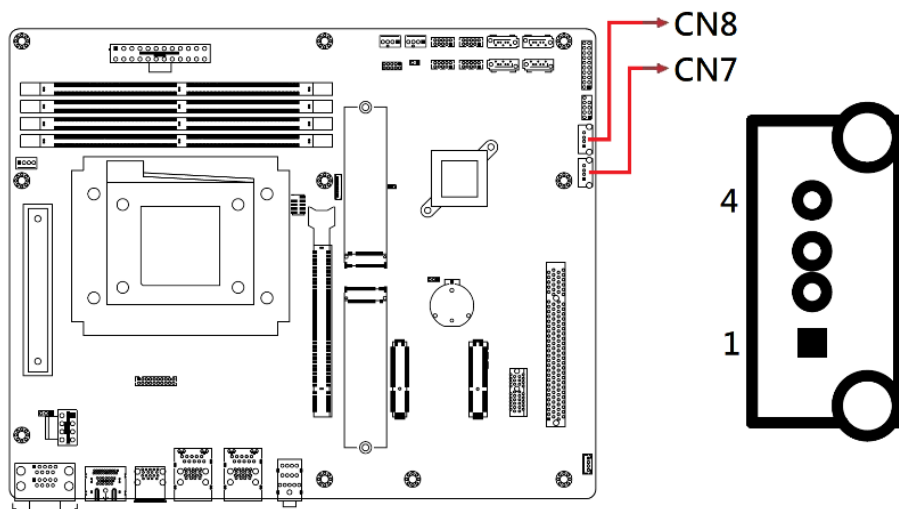
2.8.6 CN6: COM1 (upper) / COM2 (bottom) Ports



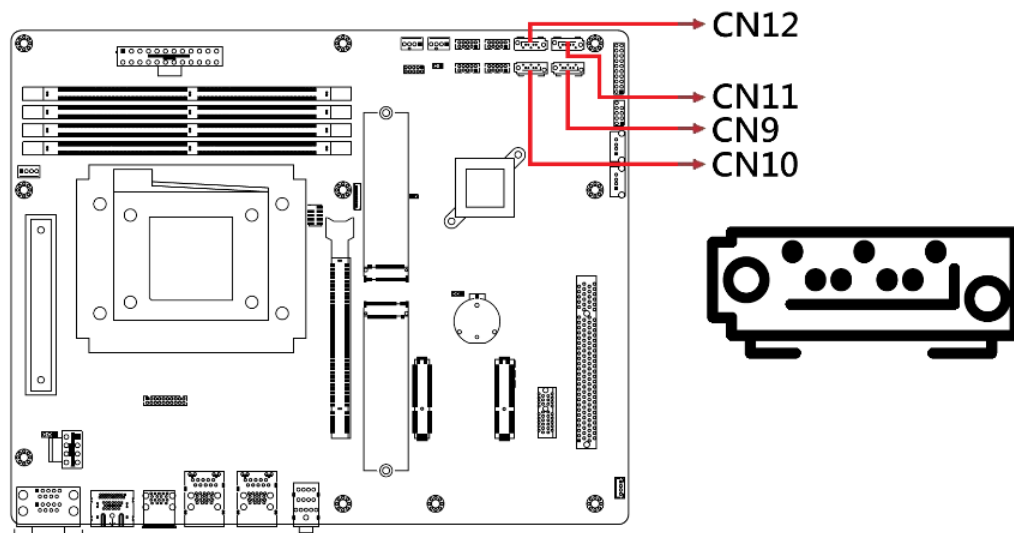
Pin	Signal Name		
	RS-232	RS-422	RS-485
1	DCD	TX-	DATA-
2	RX	TX+	DATA+
3	TX	RX+	NC
4	DTR	RX-	NC
5	Ground	Ground	Ground
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC
10	NC	NC	NC

Note: COM1 supports RS-232/RS-422/RS-485
COM2 supports RS-232 only

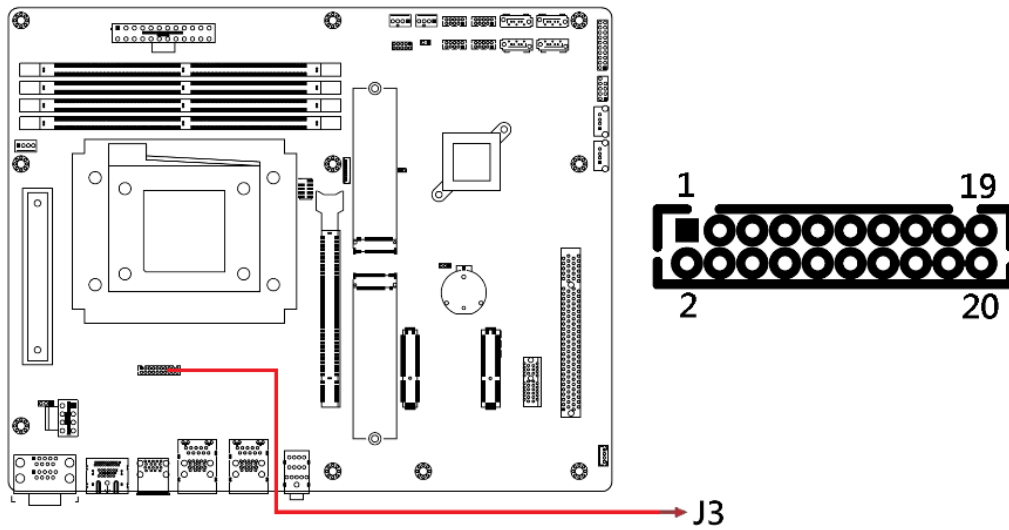
2.8.7 CN7, CN8: USB 2.0 Connectors



2.5.1 CN9, CN10, CN11, CN12: SATA Connectors

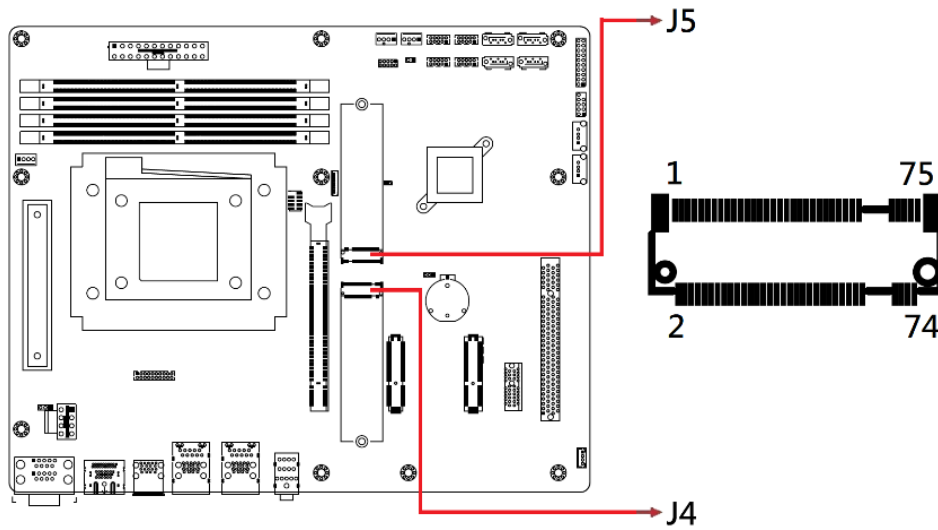


2.8.8 J3: DVI-D Connector

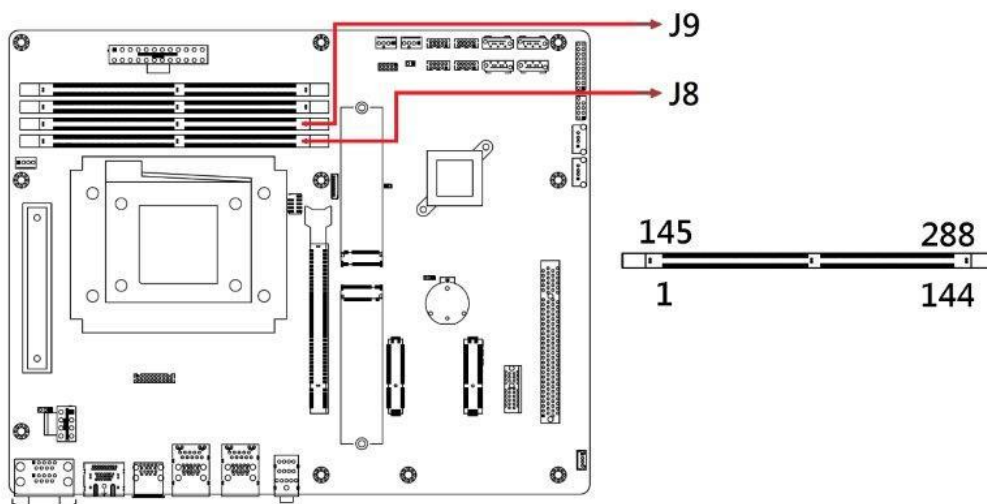


Signal Name	Pin	Pin	Signal Name
DATA1_P	1	2	DATA1_N
Ground	3	4	Ground
CLK_P	5	6	CLK_N
Ground	7	8	VCC
HPD	9	10	NC
DATA2_P	11	12	DATA2_N
Ground	13	14	Ground
DATA0_P	15	16	DATA0_N
NC	17	18	NC
SDA	19	20	SCL

2.8.9 J4, J5: M.2 M-Key Connector

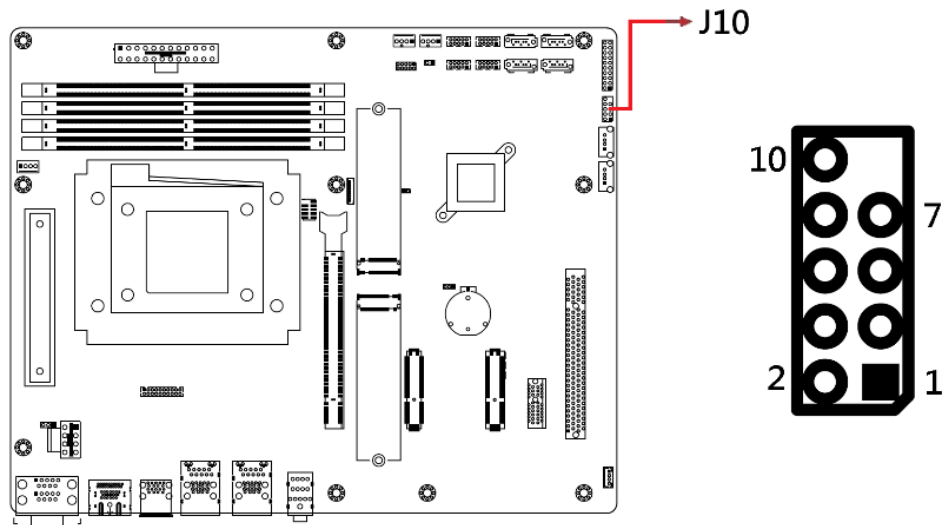


2.8.10 J8, J9: DDR5 UDIMM CHA0 / CHA1



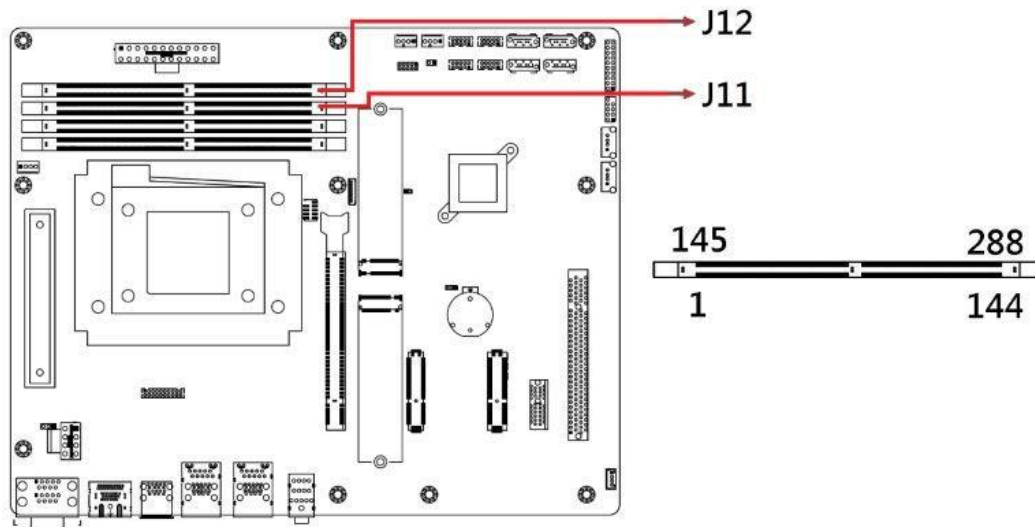
Note: DIMMs must be populated from farthest slot to closest to the processor on a per channel basis when a data bus daisy chain topology used.

2.8.11 J10: USB 2.0 Connectors



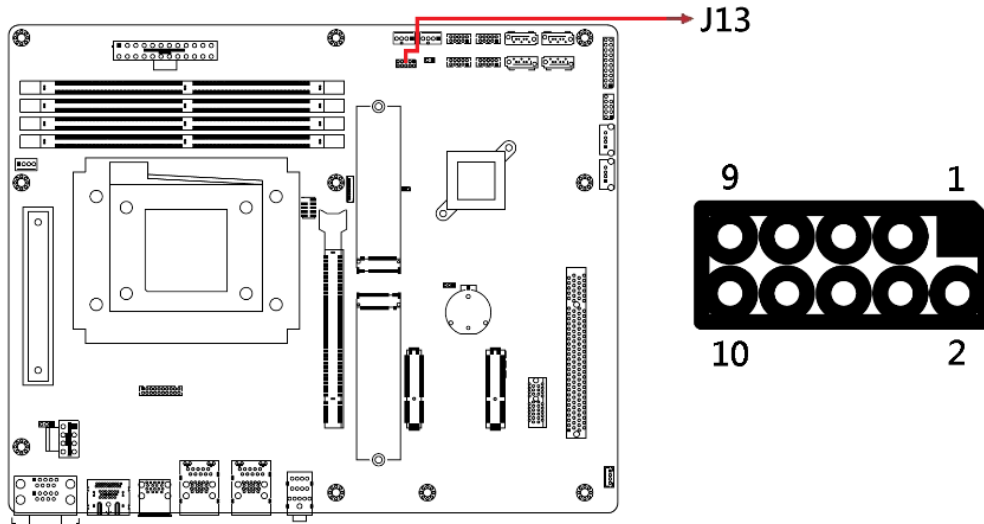
Signal Name	Pin	Pin	Signal Name
VCC	1	2	VCC
D0-	3	4	D1-
D0+	5	6	D1+
GND	7	8	GND
KEY	9	10	NC

2.8.12 J11,12 : DDR5 UDIMM CHB0 / CHB1



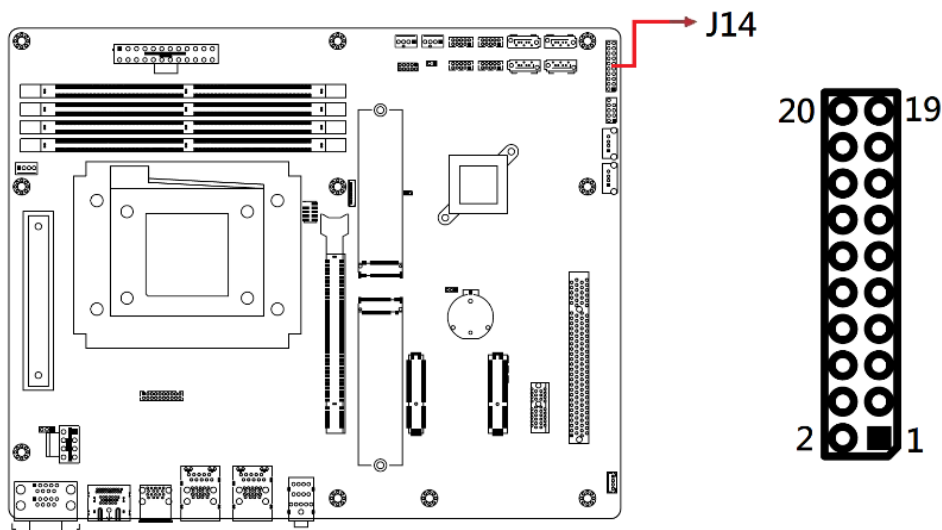
Note: DIMMs must be populated from farthest slot to closest to the processor on a per channel basis when a data bus daisy chain topology used.

2.8.13 J13: Digital I/O



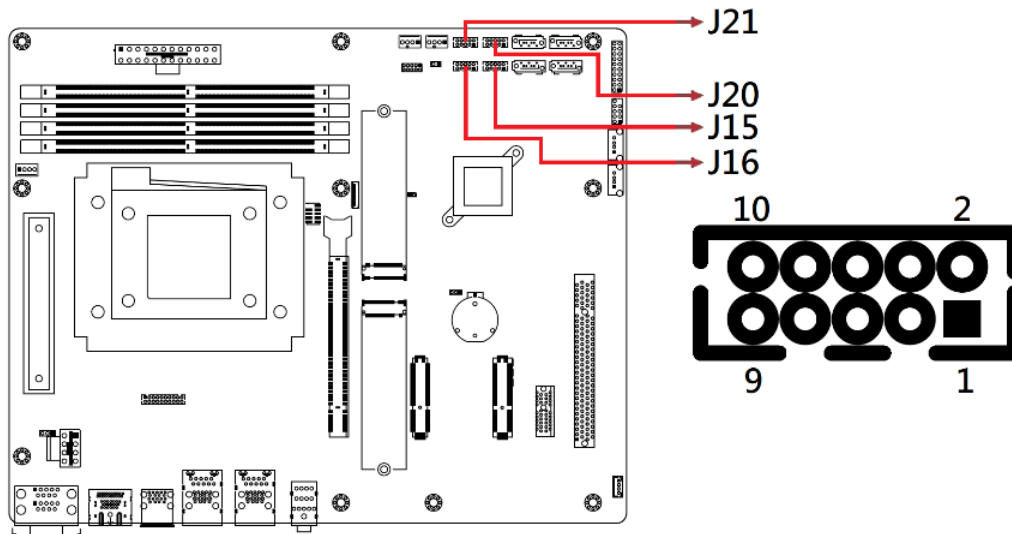
Signal Name	Pin	Pin	Signal Name
GND	1	2	VCC
OUT3	3	4	OUT1
OUT2	5	6	OUT0
IN3	7	8	IN1
IN2	9	10	IN0

2.8.14 J14: Front Panel Function Connector



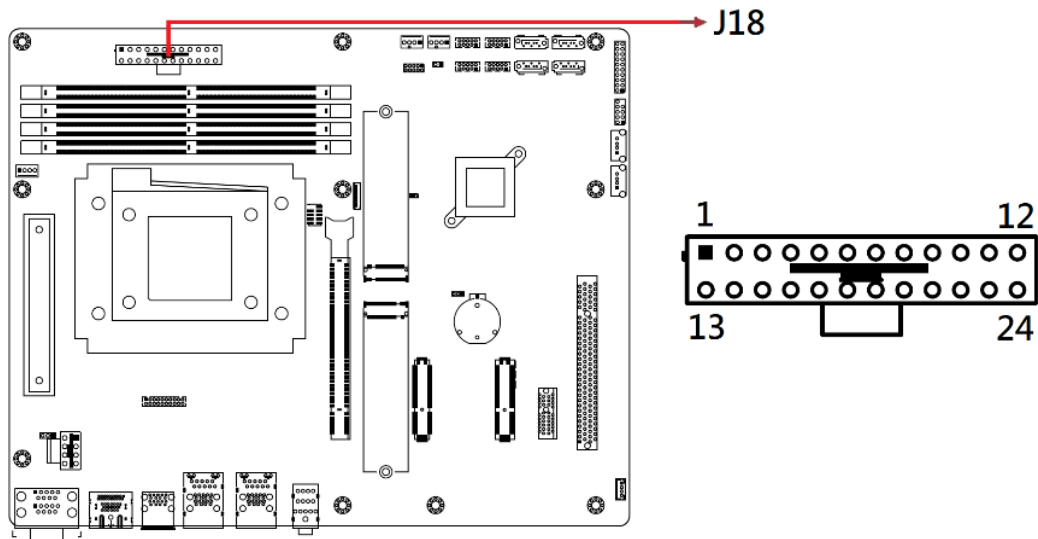
Signal Name	Pin	Pin	Signal Name
PWR LED +	1	2	SPK
GND	3	4	NC
PWR LED- (GND)	5	6	GND
NC	7	8	SPK (VCC)
GND	9	10	NC
GND	11	12	NC
PWR_BTN	13	14	PWR_BTN
NC	15	16	NC
RST_BTN	17	18	RST_BTN
HDD LED +	19	20	HDD LED -

2.8.15 J15, J20, J16, J21: COM3~COM6 RS232 Ports



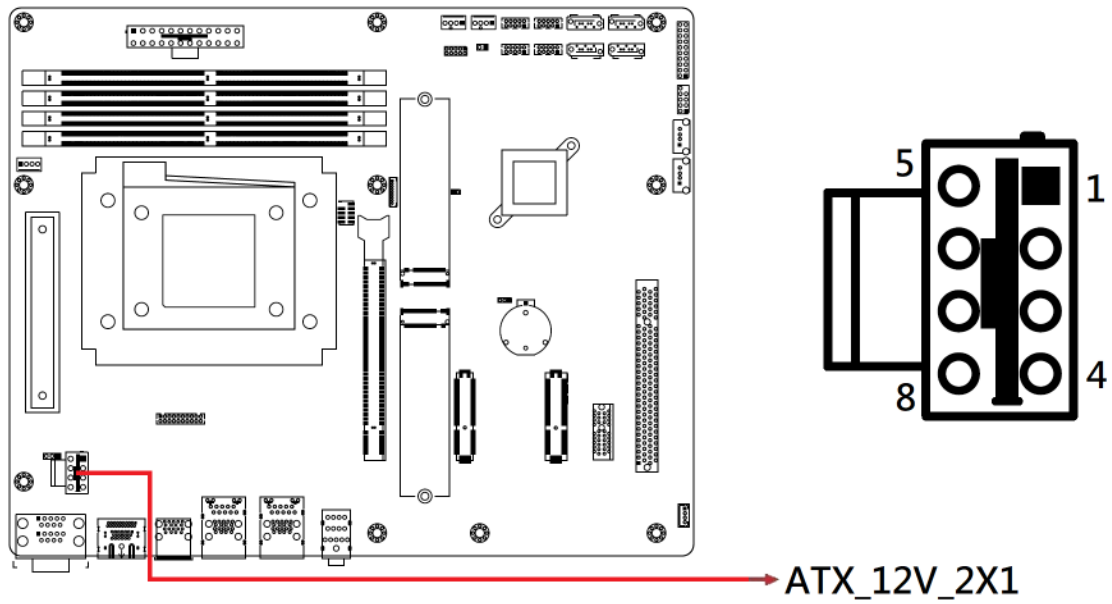
Signal Name	Pin	Pin	Signal Name
DCD#	1	2	SIN#
SOUT	3	4	DTR#
GND	5	6	DSR#
RTS#	7	8	CTS#
RI#	9	10	KEY

2.8.16 J18: ATX Power Supply Connector



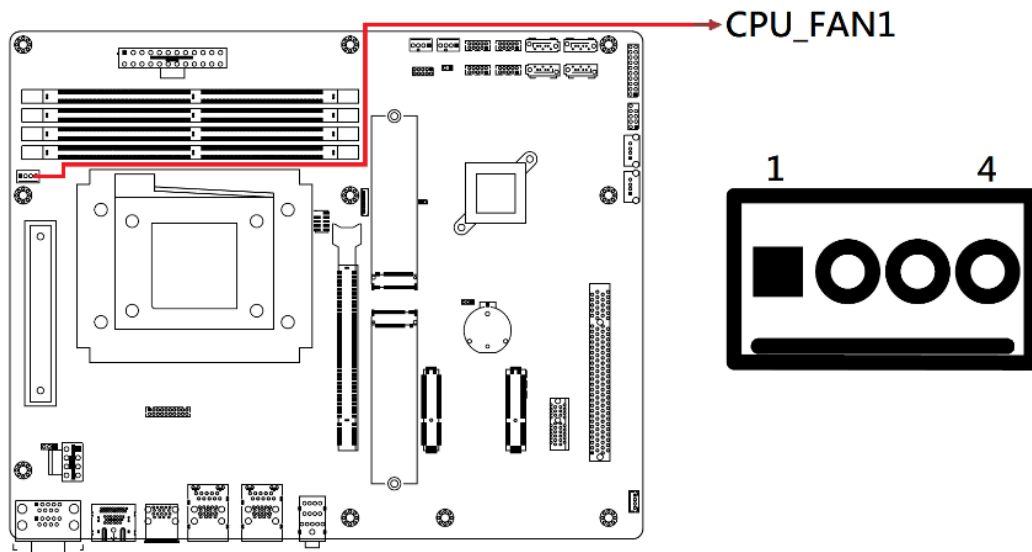
Signal Name	Pin	Pin	Signal Name
3.3V	13	1	3.3V
-12V	14	2	3.3V
Ground	15	3	Ground
PS-ON	16	4	+5V
Ground	17	5	Ground
Ground	18	6	+5V
Ground	19	7	Ground
-5V	20	8	Power good
+5V	21	9	5VSB
+5V	22	10	+12V
+5V	23	11	+12V
Ground	24	12	+3.3V

2.8.17 ATX_12V_2X1: ATX 12V Power Connector



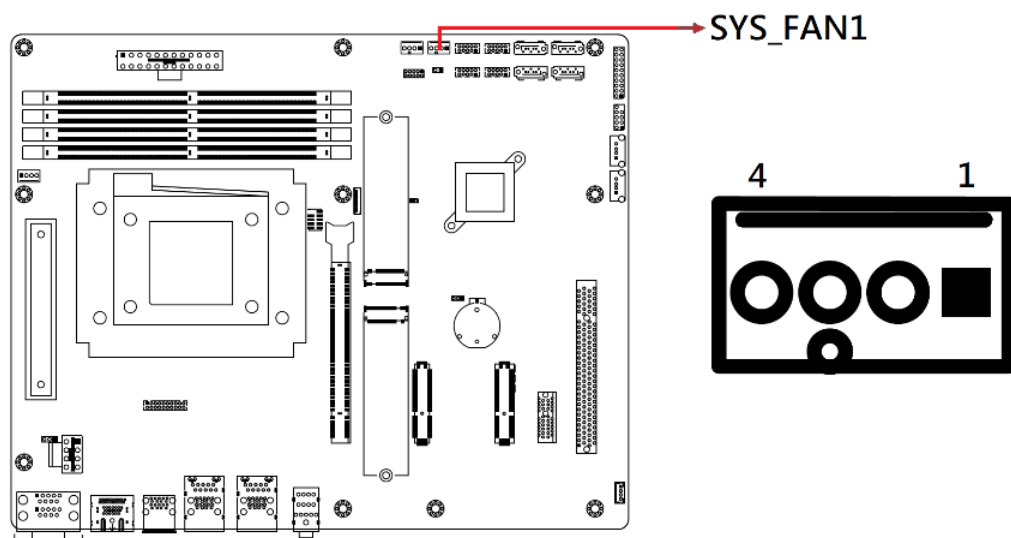
Signal Name	Pin	Pin	Signal Name
Ground	1	5	+12V
Ground	2	6	+12V
Ground	3	7	+12V
Ground	4	8	+12V

2.8.18 CPU_FAN1: CPU Fan Power Connector



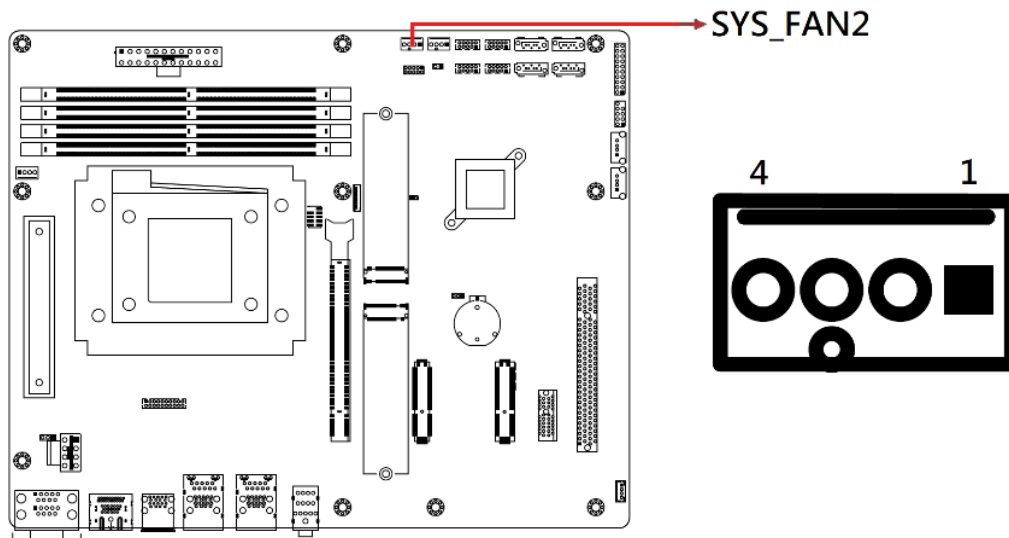
Pin	Signal Name
1	Ground
2	+12V
3	Rotation detection
4	Control

2.8.19 SYS_FAN1: System Fan1 Power Connector



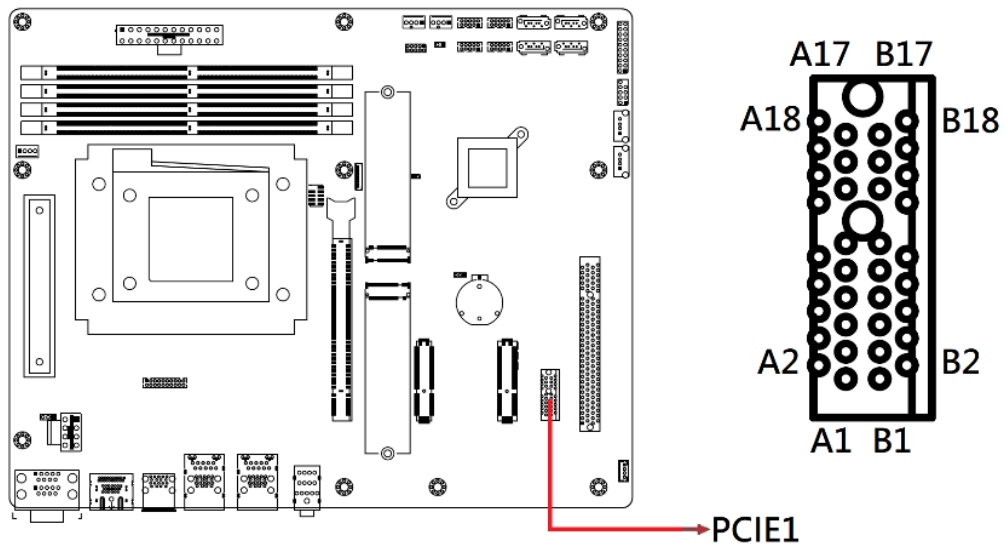
Pin	Signal Name
1	Ground
2	+12V
3	Rotation detection
4	Control

2.8.20 SYS_FAN2: System Fan2 Power Connector

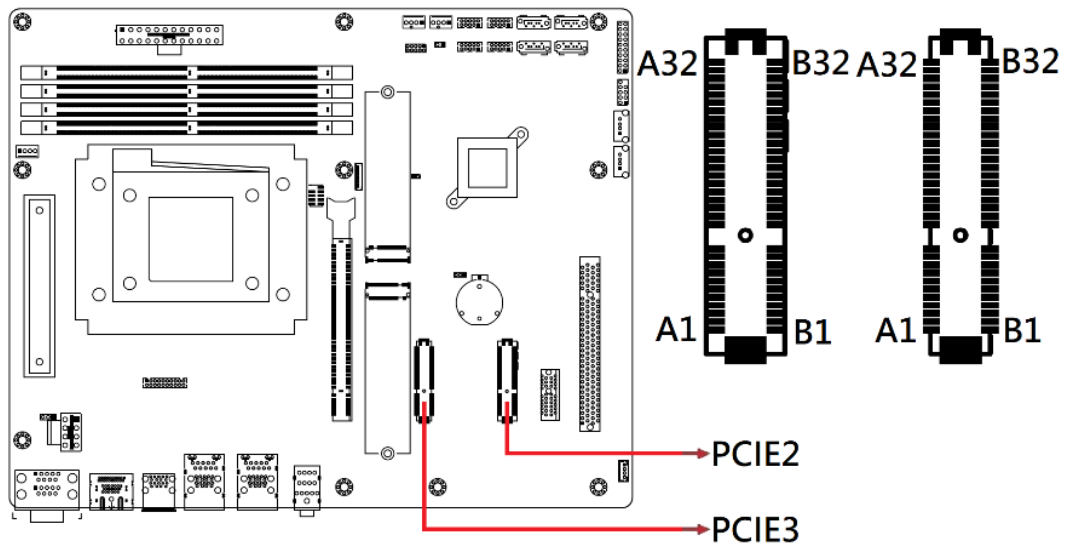


Pin	Signal Name
1	Ground
2	+12V
3	Rotation detection
4	Control

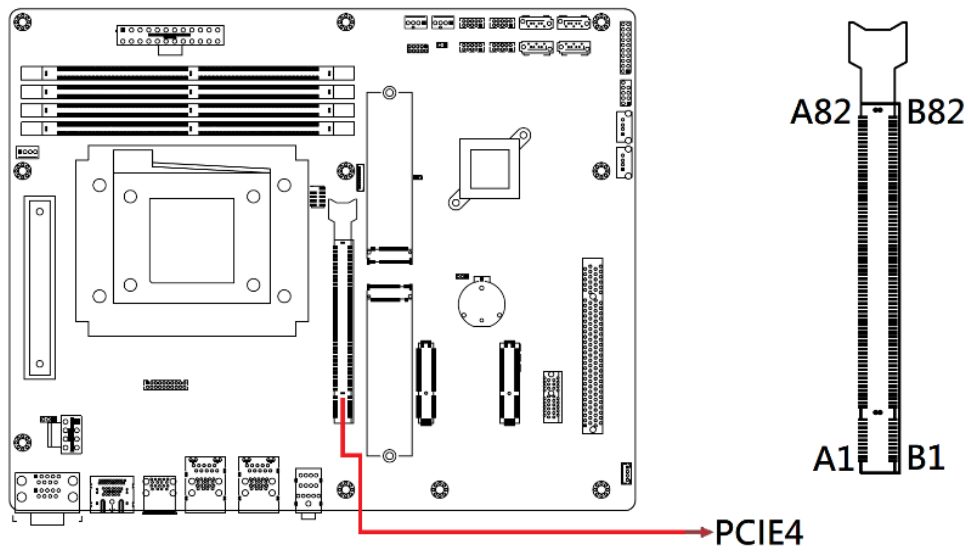
2.8.21 PCIE1: PCI-E X1 Slot



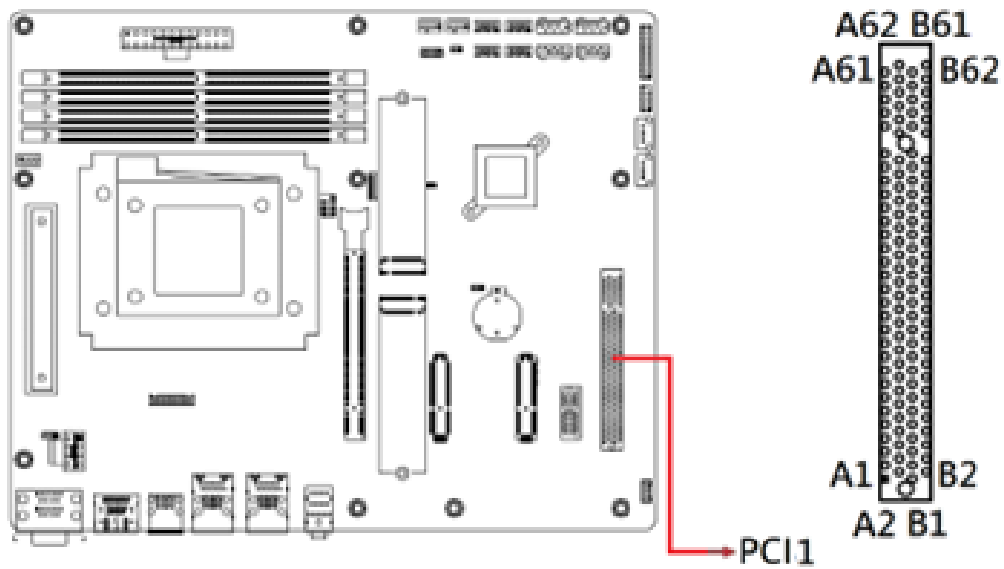
2.8.22 PCIE2, PCIE3: PCI-E X4 Slot



2.8.23 PCIE4: PCI-E X16 Slot



2.8.24 PCI1: PCI 32-bit Slot



Chapter 3

Driver Installation

This chapter introduces installation of the following drivers:

- AMD Ryzen 7000 Series Chipset Drivers
- AMD Ryzen 7000 Series Graphics Drivers
- Realtek High Definition Audio Driver
- Intel(R) 2.5G Network Drivers

3.1 Introduction

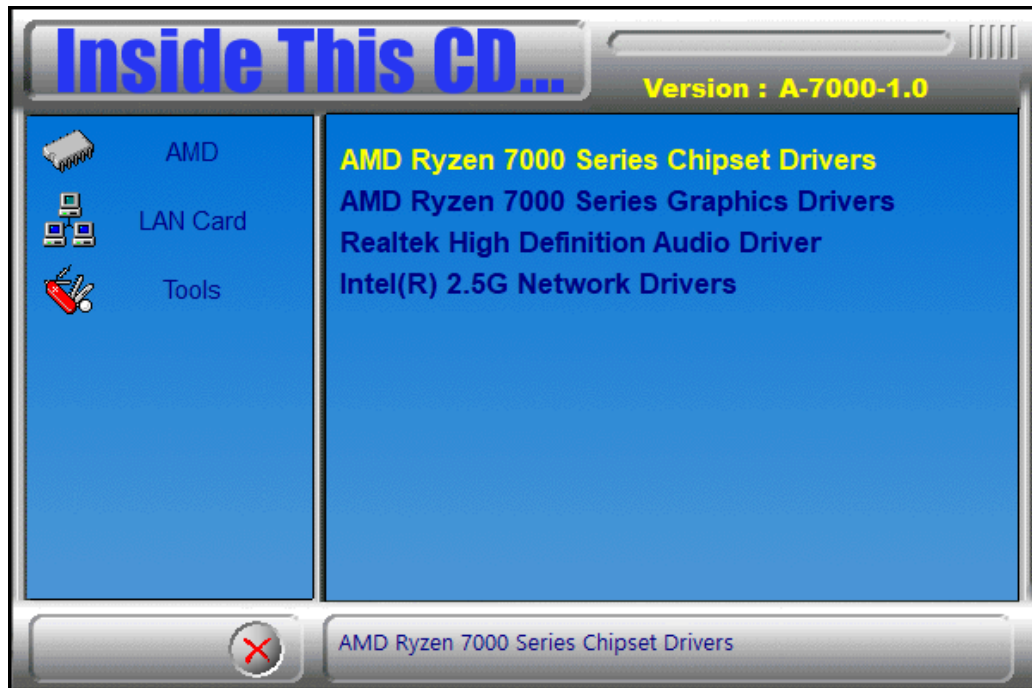
This section describes the installation of system drivers.

Download the latest drivers from the product support page.

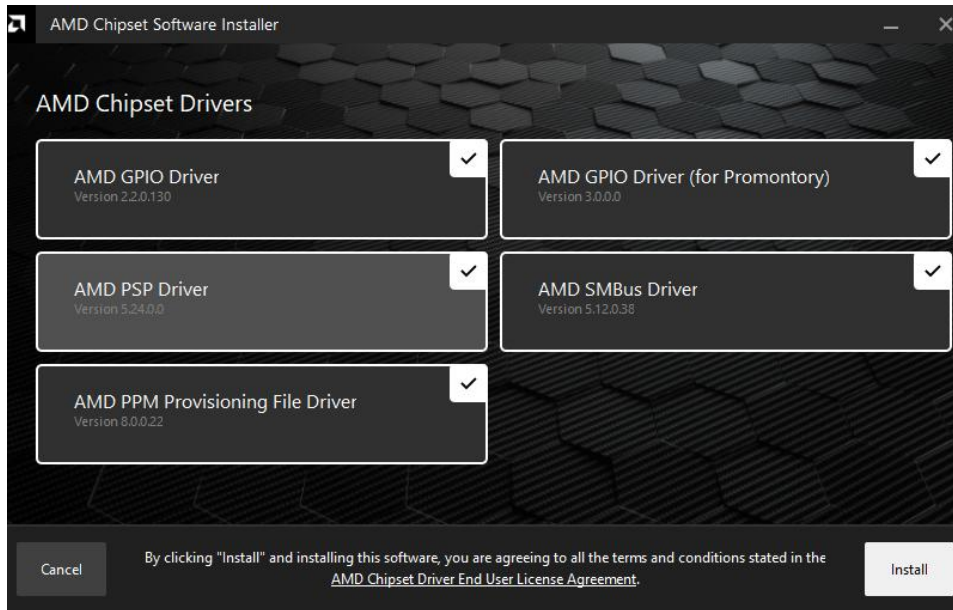
Extract the driver package and run CDGuide to open the driver menu.

3.2 AMD Ryzen 7000 Series Chipset Drivers

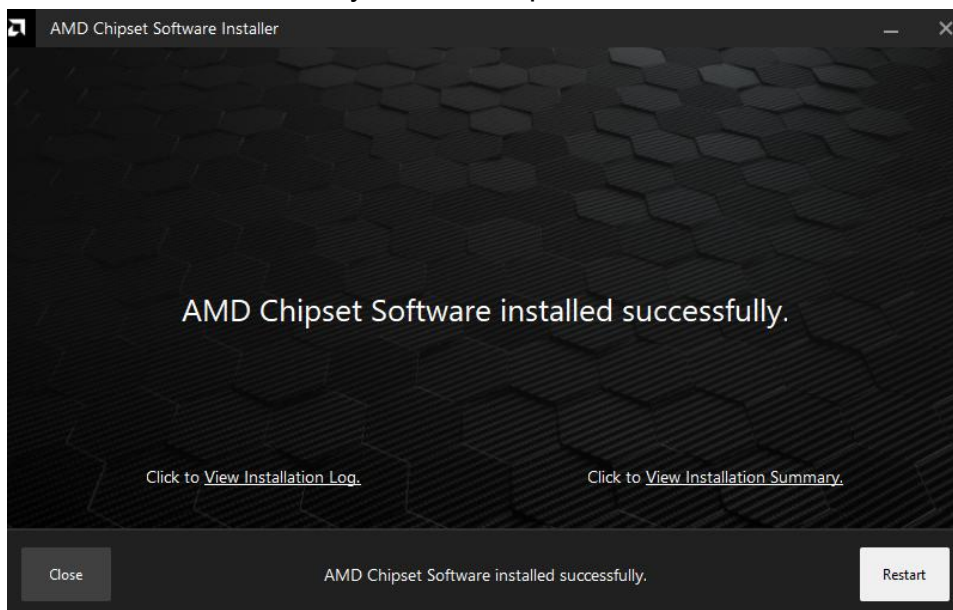
1. Click **AMD** on the left pane, then select **AMD Ryzen 7000 Series Chipset Drivers** on the right pane.



- On the **AMD Chipset Software Installer** screen, click **Install** as shown in the image.

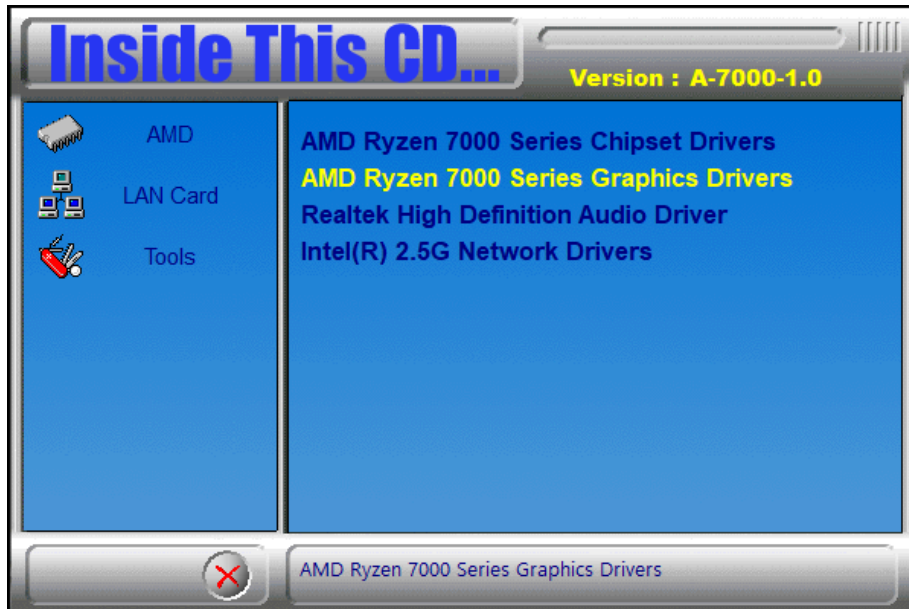


- Click **Restart** when it says "AMD Chipset Software installed successfully."

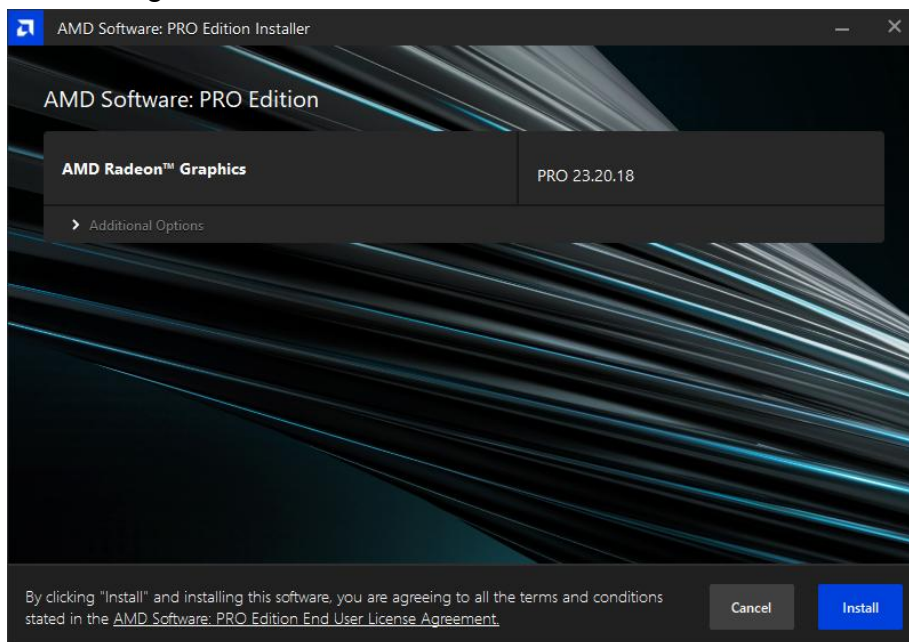


3.3 AMD Ryzen 7000 Series Graphics Drivers

1. Click **AMD** on the left pane, then select **AMD Ryzen 7000 Series Graphics Drivers** on the right pane.



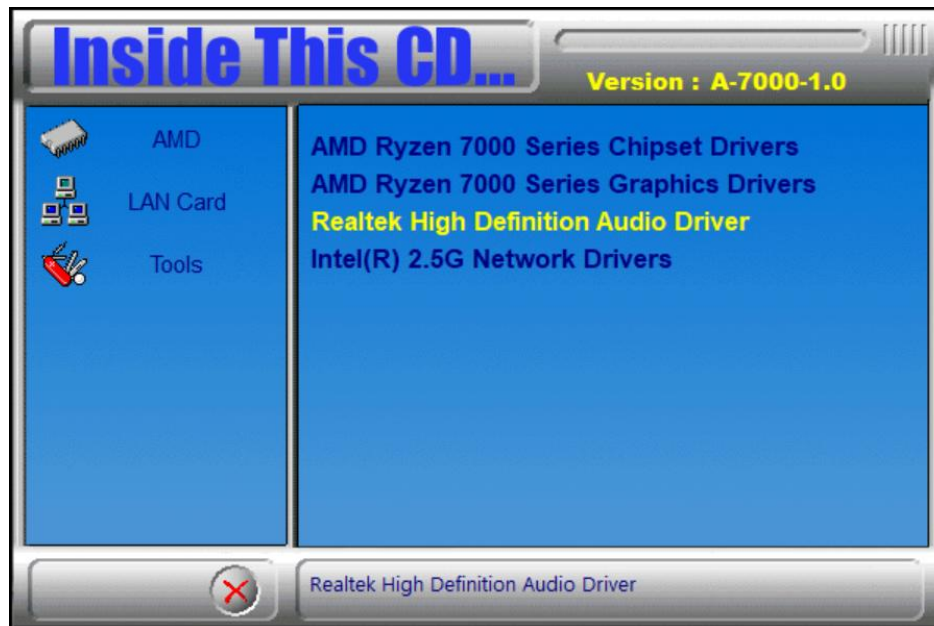
2. In the AMD Software PRO Edition Installer screen, click Install as shown in the image.



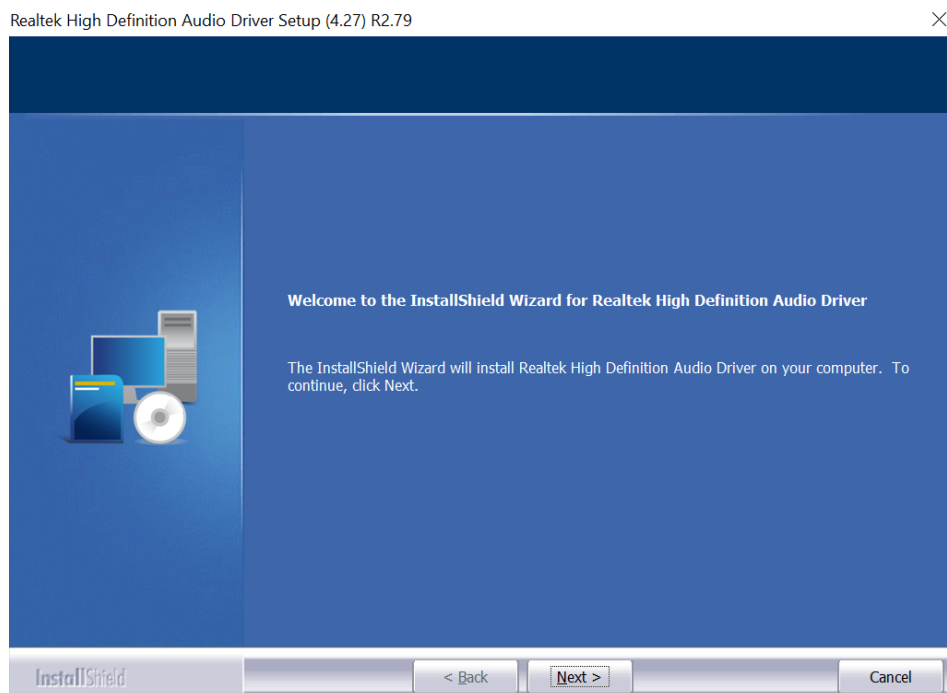
3. Click Finish when the AMD Software PRO Edition has been installed successfully.

3.4 Realtek High Definition Audio Driver

1. Click **AMD** on the left pane, then select **Realtek High Definition Audio Driver** on the right pane.



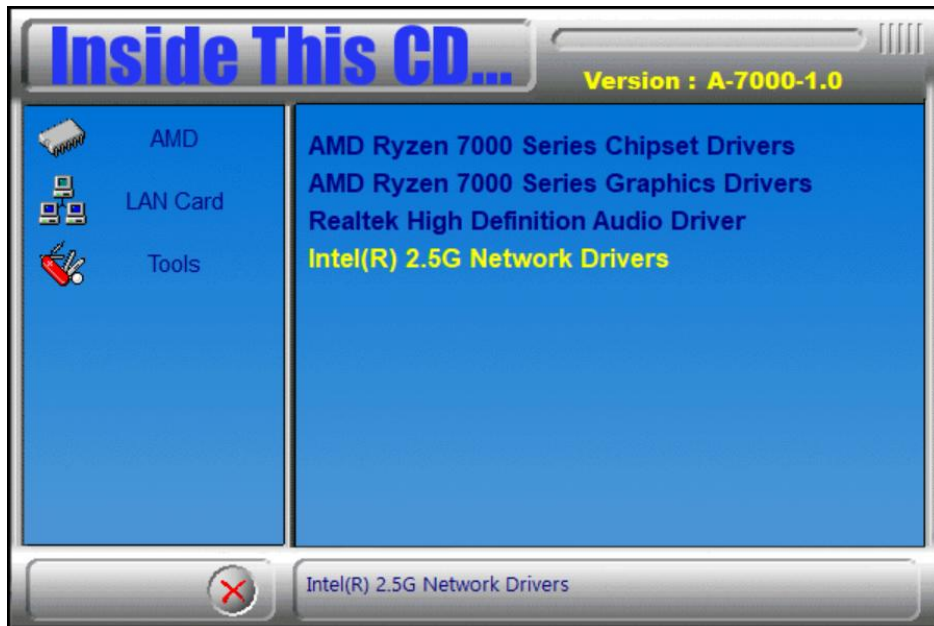
2. When the Welcome screen appears, click Next.



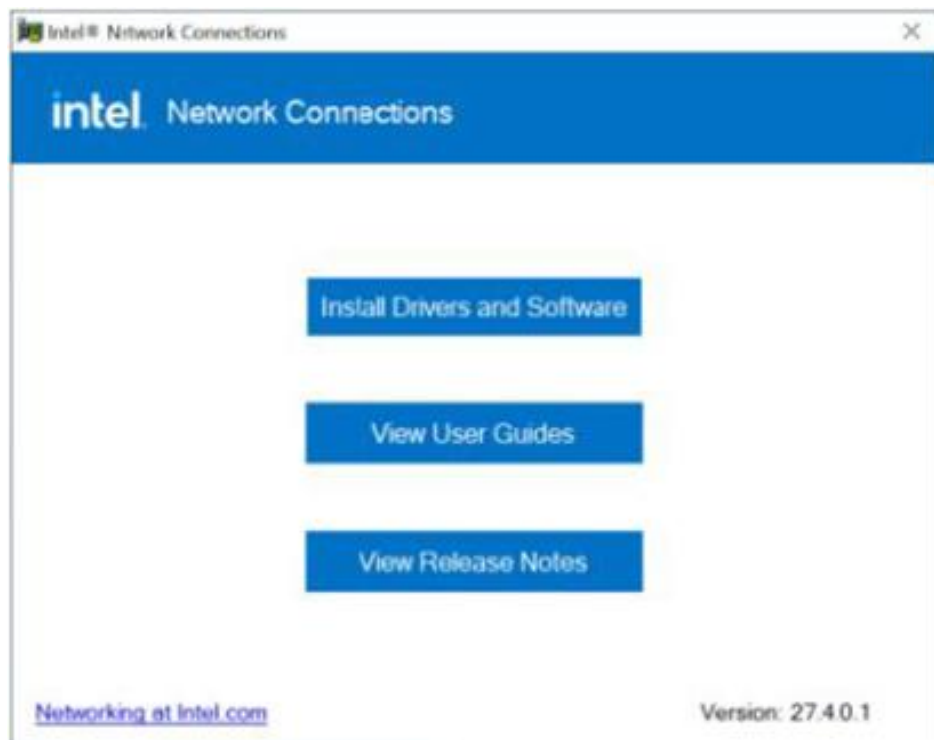
3. Restart the system when the InstallShield Wizard has completed the installation.

3.5 Intel(R) 2.5G Network Drivers

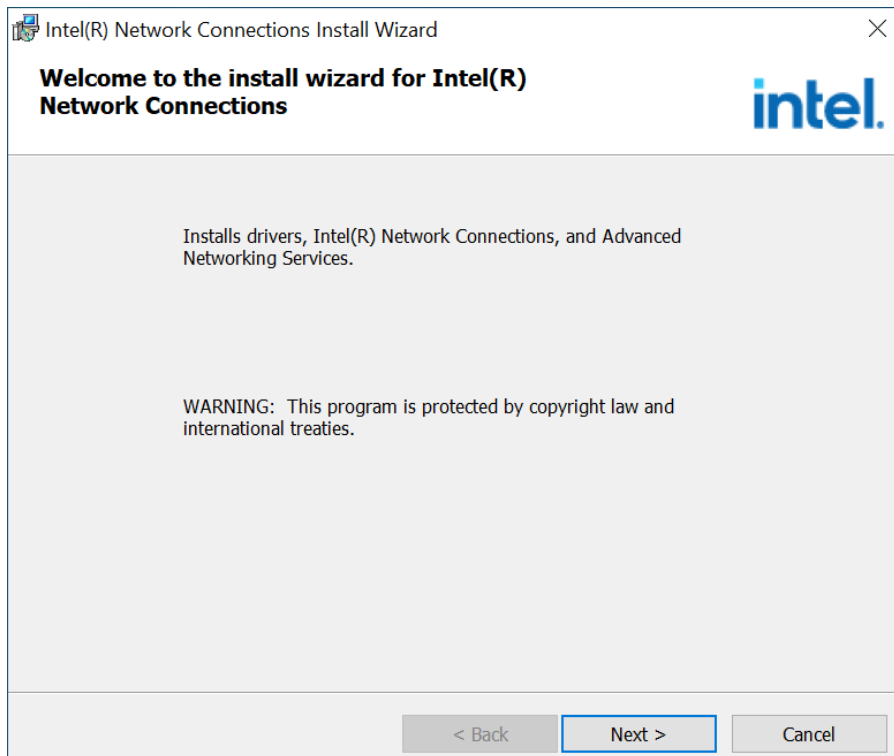
1. Click **AMD** on the left panel, then select **Intel(R) 2.5G Network Drivers** on the right pane.



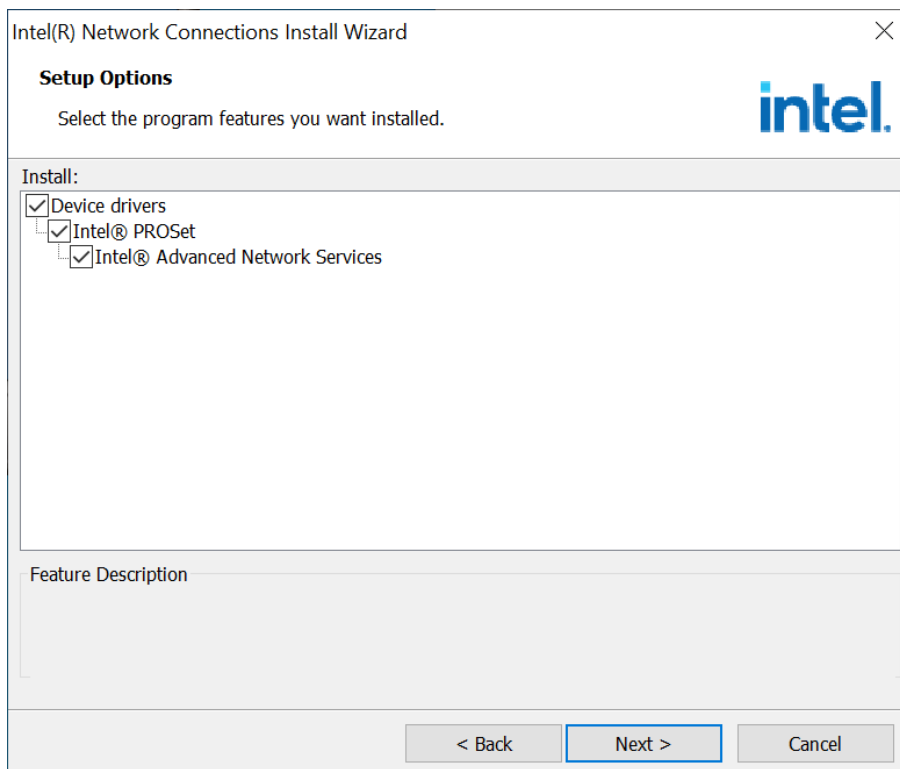
2. Click Intel Drivers and Software.



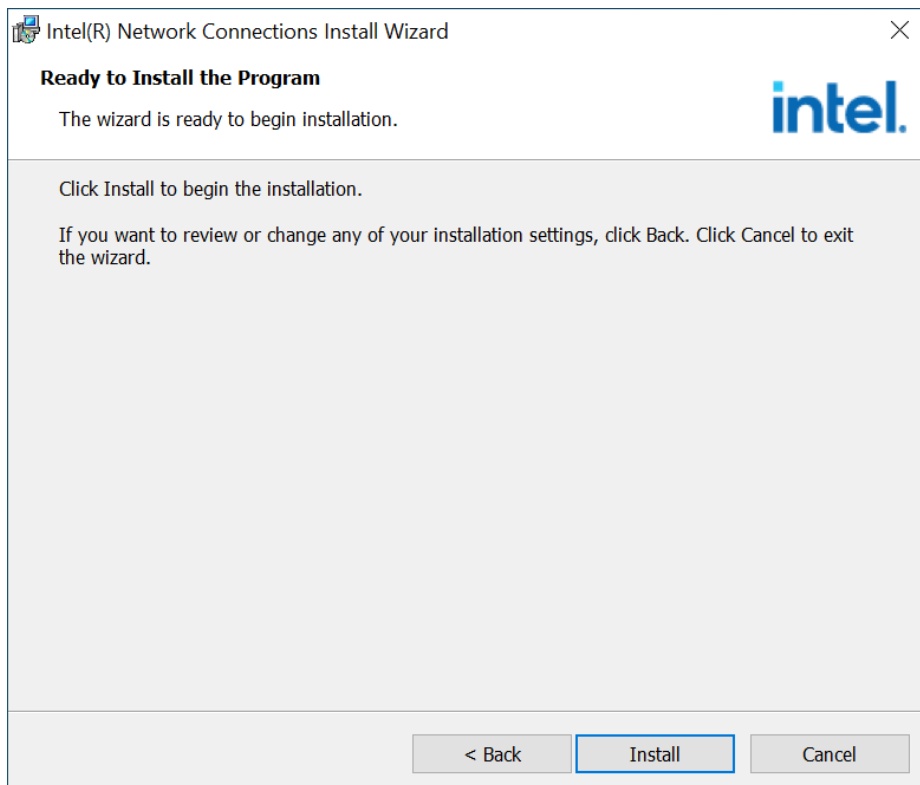
- When the Welcome to the install wizard for Intel(R) Network Connections screen appears, click Next. On the next screen, accept the terms in the License Agreement and click Next.



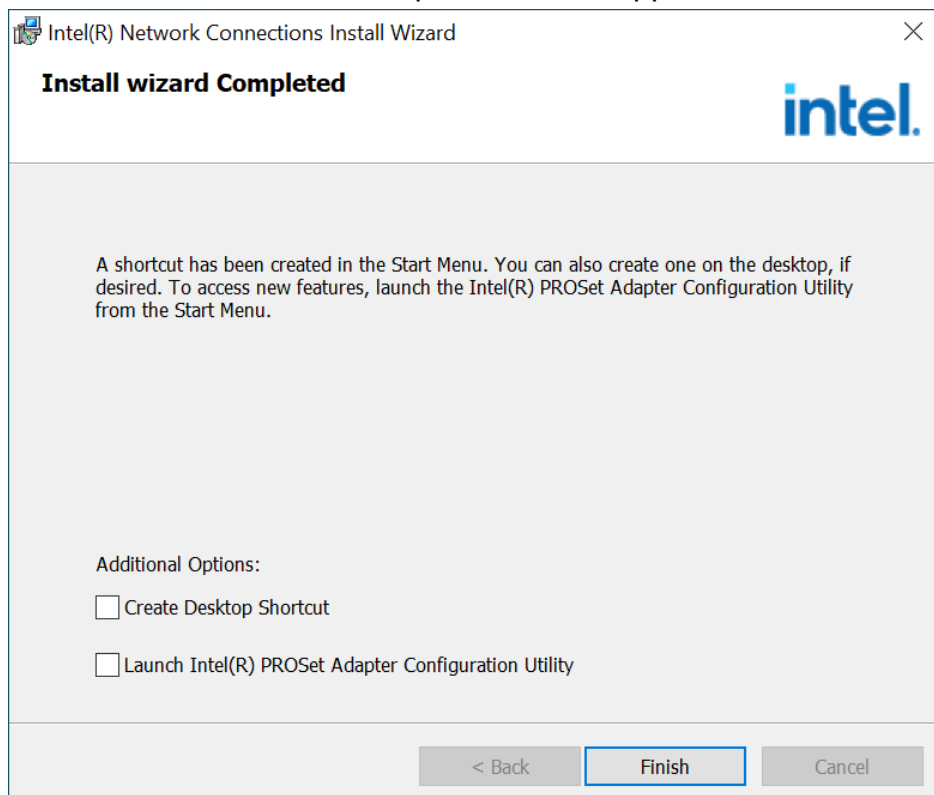
- On the Setup Options screen, select the program features you want to install, then click Next to continue.



5. On the Ready to Install the Program screen, click Install to begin the installation.



6. When the Install wizard Completed screen appears, click Finish.



Chapter 4

BIOS Setup

This chapter describes the different settings available in the AMI BIOS that comes with the board. The topics covered in this chapter are as follows:

- Main Settings
- Advanced Settings
- Security Settings
- Boot Settings
- Save & Exit

4.1 Introduction

The BIOS (Basic Input/Output System) installed in the ROM of your computer system provides critical low-level support for standard devices such as disk drives, serial ports and parallel ports. It also provides password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

4.2 BIOS Setup

The BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn on the computer, the BIOS is immediately activated. Press the key immediately allows you to enter the Setup utility. If you are a little bit late pressing the key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup.

If you still need to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system Off and back On again.

The following message will appear on the screen:

```
Press <DEL> to Enter Setup
```

In general, press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help, and <Esc> to quit.

When you enter the BIOS Setup utility, the *Main Menu* screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.

Warning: It is strongly recommended that you avoid making any changes to the chipset defaults.

These defaults have been carefully chosen by both AMI and your system manufacturer to provide the absolute maximum performance and reliability. Changing the defaults could make the system unstable and crash in some cases.

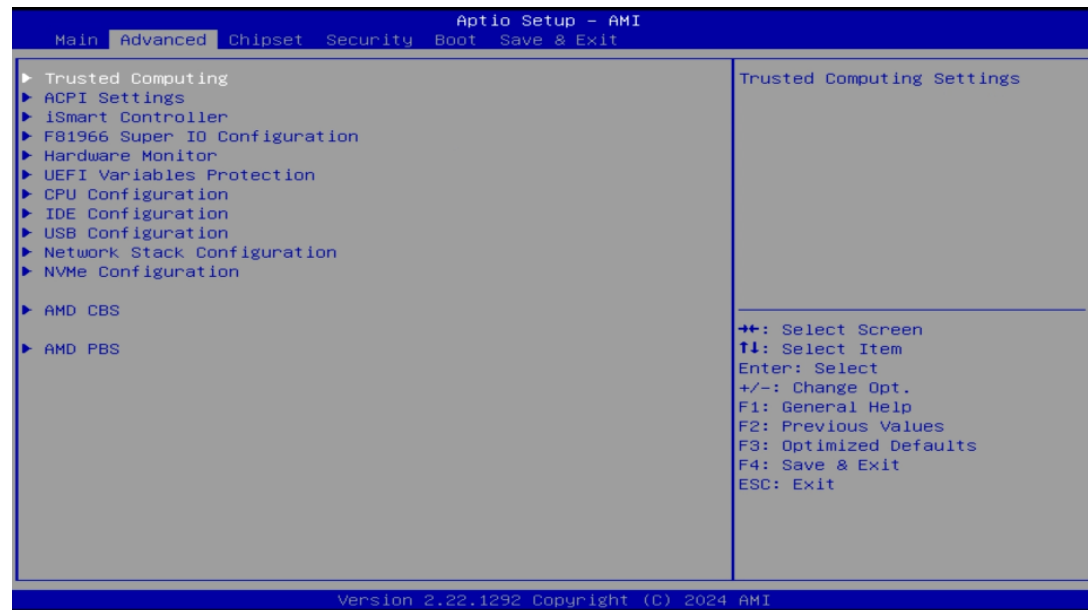
4.1 Main Settings



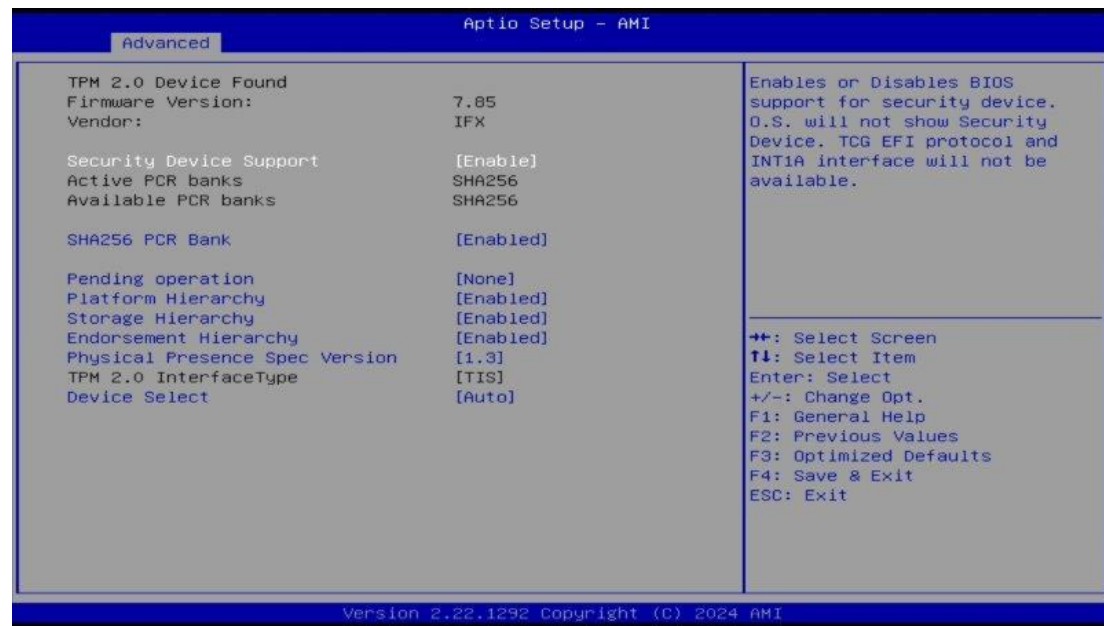
BIOS Setting	Description
System Date	Sets the date. Use the <Tab> key to switch between the data elements.
System Time	Set the time. Use the <Tab> key to switch between the data elements.

4.3 Advanced Settings

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



4.4.1 Trusted Computing



BIOS Setting	Description
Security Device Support	Enables / Disables BIOS support for security device. OS will not show security device. TCG EFI protocol and INT1A interface will not be available.
SHA256 PCR Bank	Enables / Disables SHA256 PCR Bank.
Pending operation	Schedule an operation for the security device. Note: Your computer will reboot during restart in order to change state of security device.
Platform / Storage/ Endorsement Hierarchy	Enables / Disables the hierarchy.
Physical Presence Spec Version	Selects to show the PPI Spec Version (1.2 or 1.3) that the OS supports. Note: Some HCK tests might not support 1.3.
Device Select	• TPM 1.2 will restrict support to TPM 1.2 devices only. • TPM 2.0 will restrict support to TPM 2.0 devices only. • Auto will support both with the default being set to TPM 2.0 devices if not found, and TPM 1.2 device will be enumerated.

4.4.2 ACPI Settings



BIOS Setting	Description
Enable ACPI Auto Configuration	Enables or Disables BIOS ACPI Auto Configuration
Enable Hibernation	Enables / Disables the system ability to hibernate (OS/S4 Sleep State). This option may be not effective with some OS.

4.4.3 iSmart Controller



BIOS Setting	Description
Power-On after Power failure	Options: Enable or Disable
Temperature Guardian	Options: Enable or Disable
Schedule Slot 1	Setup the hour/minute for system power on

4.4.4 F81966 Super IO Configuration

Advanced Aptio Setup - AMI		
F81966 Super IO Configuration		Set Parameters of Serial Port 1 (COMA)
Super IO Chip	F81966	
Serial Port 1 Configuration		
Serial Port 2 Configuration		
Serial Port 3 Configuration		
Serial Port 4 Configuration		
Serial Port 5 Configuration		
Serial Port 6 Configuration		

a

Advanced Aptio Setup - AMI		
Serial Port 1 Configuration		SERIAL PORT Loop Back/RS232/RS422/RS485 mode select
Serial Port	[Enabled]	
Device Settings	IO=3F8h; IRQ=4;	
Change Settings	[Auto]	
SERIAL PORT MODE SELECT	[RS232 Mode]	

Advanced Aptio Setup - AMI		
Serial Port 2 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=2F8h; IRQ=3;	
Change Settings	[Auto]	

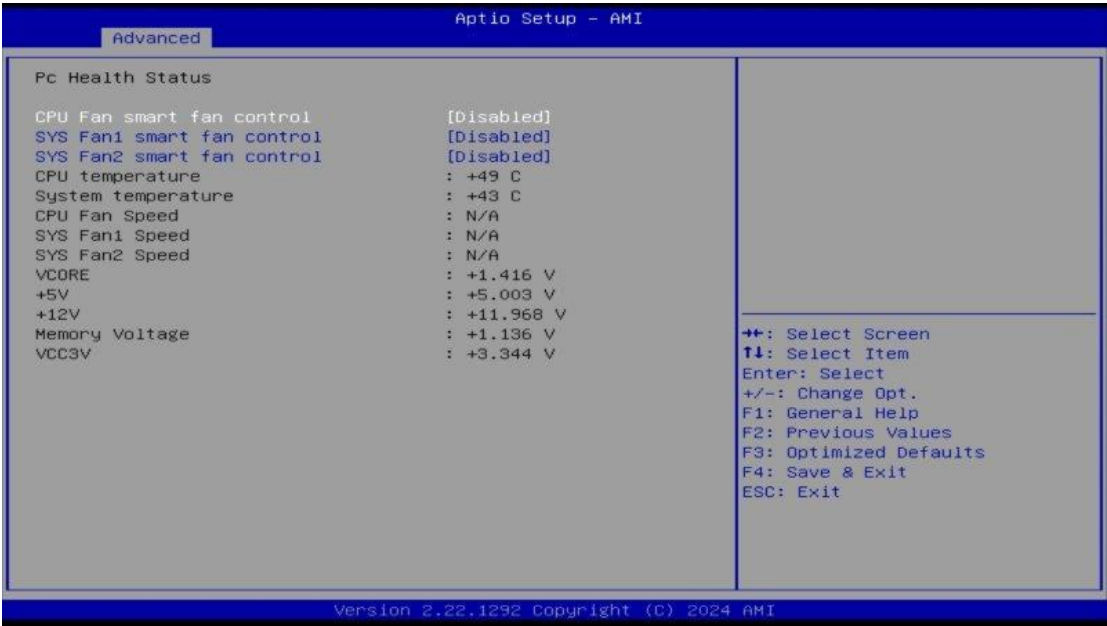
Advanced Aptio Setup - AMI		
Serial Port 3 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=3E8h; IRQ=5;	
Change Settings	[Auto]	

Advanced Aptio Setup - AMI		
Serial Port 4 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=2E8h; IRQ=6;	
Change Settings	[Auto]	

Advanced Aptio Setup - AMI		
Serial Port 5 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=2F0h; IRQ=10;	
Change Settings	[Auto]	

Advanced Aptio Setup - AMI		
Serial Port 6 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=2E0h; IRQ=11;	
Change Settings	[Auto]	

4.4.5 Hardware Monitor



BIOS Setting	Description
CPU Smart Fan Control	Enables / Disables the CPU smart fan feature. Options: Disabled / 50 °C / 60 °C / 70 °C / 80 °C
System Smart Fan Control	Enables / Disables the system smart fan feature. Options: Disabled / 50 °C / 60 °C / 70 °C / 80 °C
Temperatures / Voltages	These fields are the parameters of the hardware monitoring function feature of the motherboard. The values are read-only values as monitored by the system and show the PC health status.

4.4.6 UEFI Variable Protection



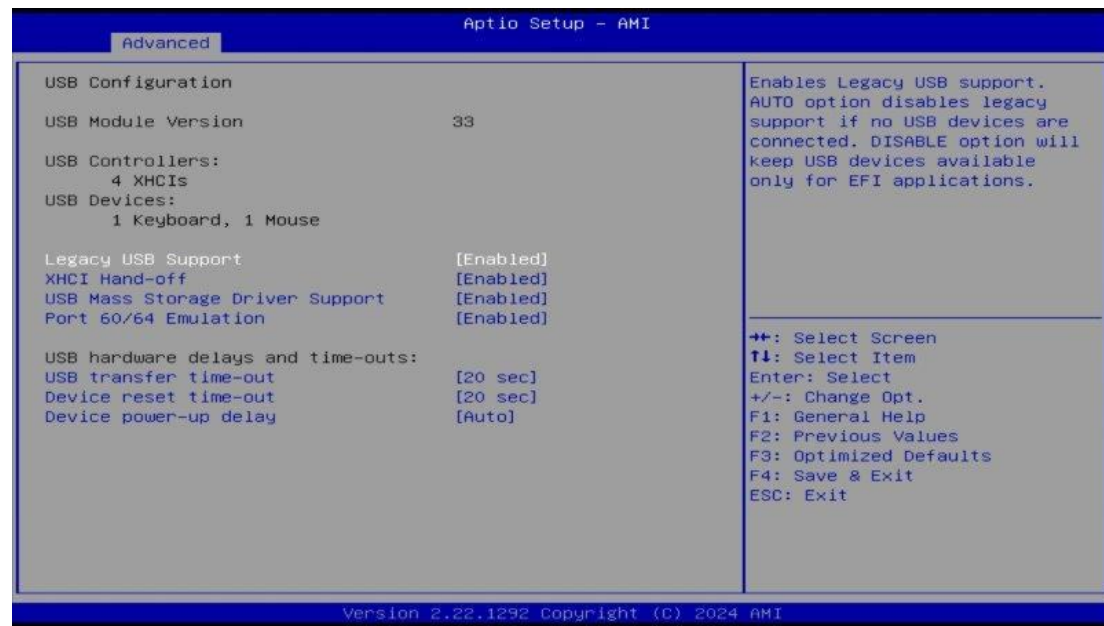
4.4.7 CPU Configuration



4.4.8 IDE Configuration

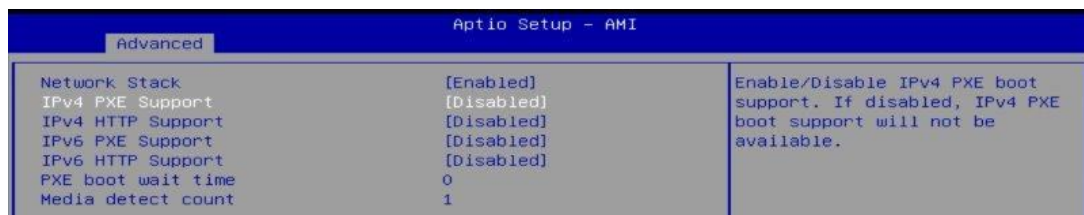
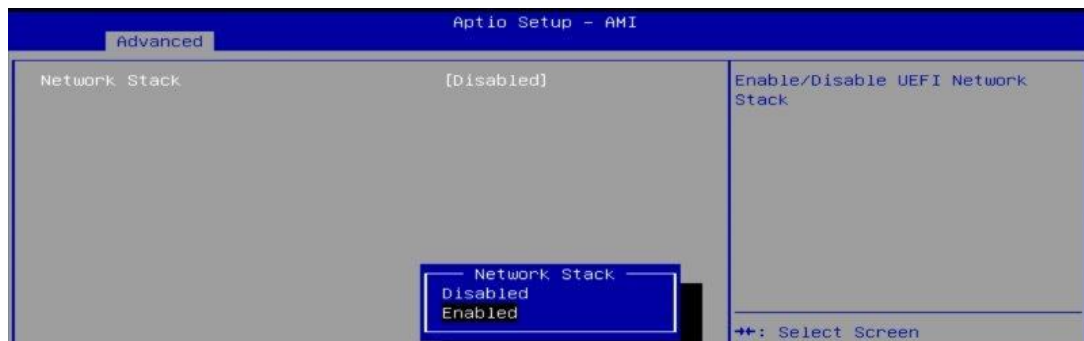


4.4.9 USB Configuration



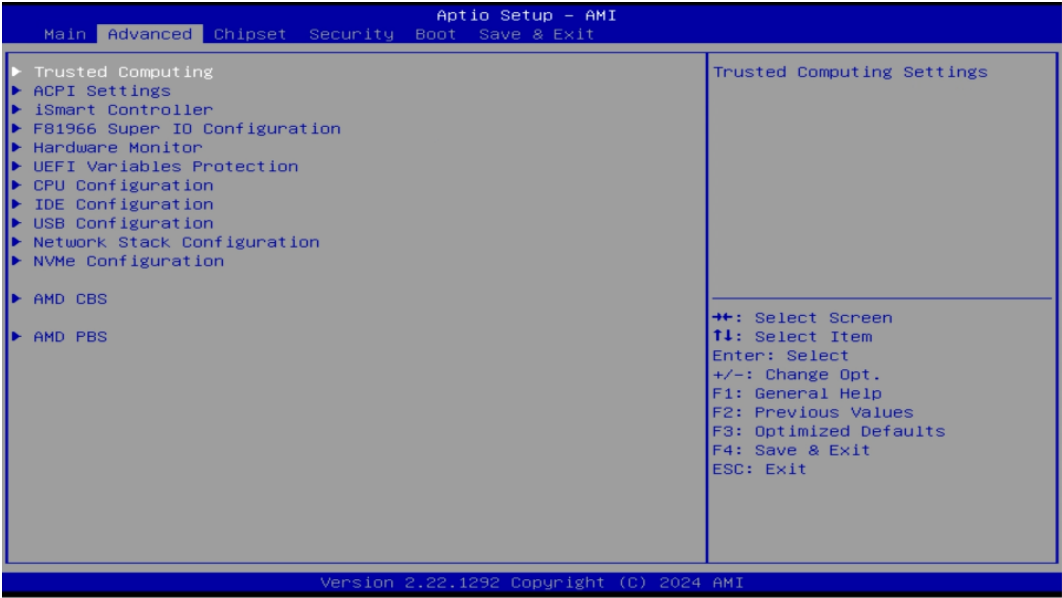
BIOS Setting	Description
Legacy USB Support	• Enabled enables Legacy USB support. • Auto disables legacy support if there is no USB device connected. • Disabled keeps USB devices available only for EFI applications.
XHCI Hand-off	This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
USB Mass Storage Driver Support	Enables / Disables the support for USB mass storage driver.
Port 60/64 EmulationDriver Support	Enables I/O port 60h/64h emulation for the complete USB keyboard legacy support for non-USB aware OSes.
USB Transfer time-out	The time-out value (1 / 5 10 / 20 secs) for Control, Bulk, and Interrupt transfers.
Device reset time-out	Gives seconds (10 / 20 / 30 / 40 secs) to delay execution of Start Unit command to USB mass storage device.
Device power-up delay	The maximum time the device will take before it properly reports itself to the Host Controller. Auto uses default value for a Root port it is 100ms. But for a Hub port, the delay is taken from Hub descriptor.

4.4.10 Network Stack Configuration



BIOS Setting		Description
Network Stack		Enables / Disables UEFI Network Stack.
IPv4 PXE Support	PXE	Enables / Disables IPv4 PXE Boot Support. If disabled, Ipv4 PXE boot option will not be created.
IPv4 HTTP Support	HTTP	Enables / Disables IPv4 HTTP Boot Support. If disabled, Ipv4 HTTP boot option will not be created.
IPv6 PXE Support	PXE	Enables / Disables IPv6 PXE Boot Support. If disabled, Ipv4 PXE boot option will not be created.
IPv6 HTTP Support	HTTP	Enables / Disables IPv6 HTTP Boot Support. If disabled, Ipv4 HTTP boot option will not be created.
PXE boot wait time		Assigns a period of time to press ESC key to abort the PXE boot.
Media detect count	detect	Assigns a number of times to check the presence of media.

4.4.11 NVME Configuration



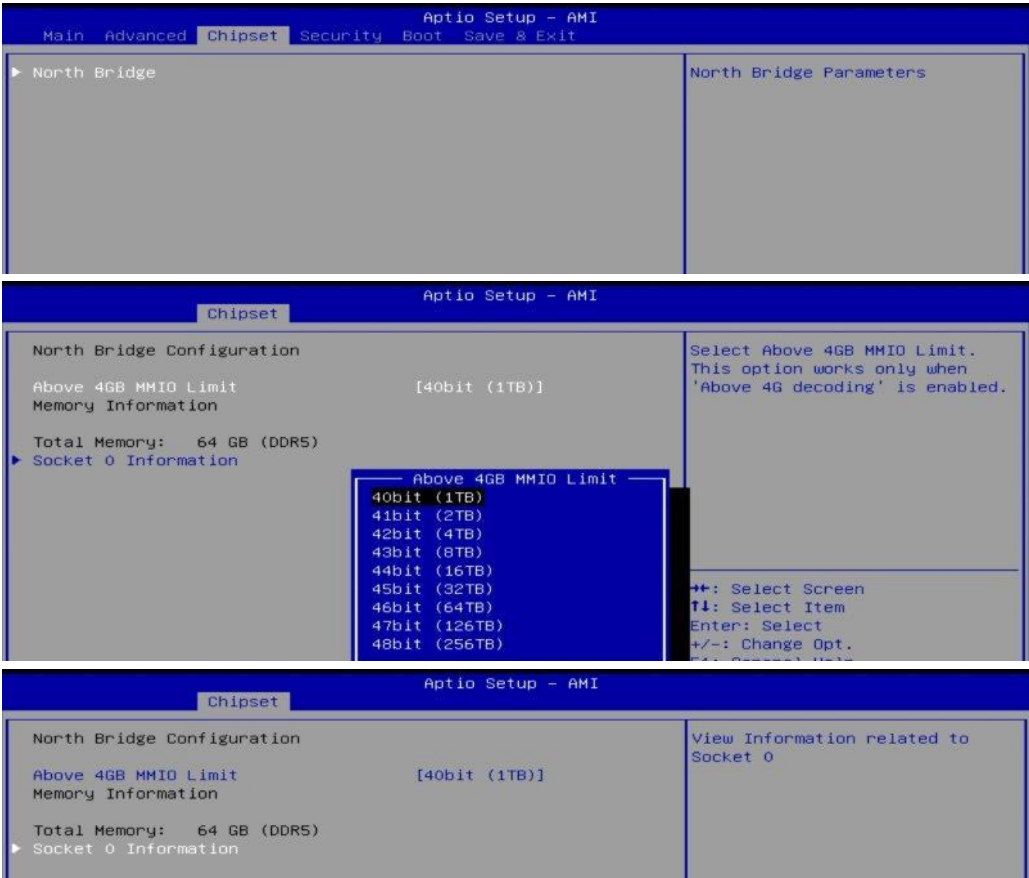
4.4.12 AMD CBS



4.4.13 AMD PBS

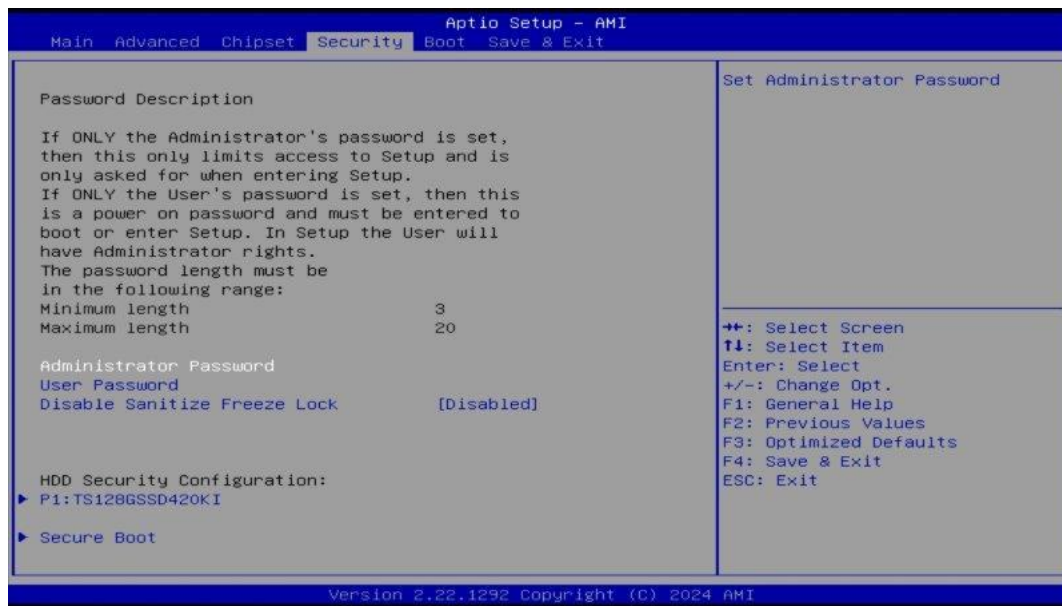


4.4 Chipset Settings



BIOS Setting	Description
Above 4GB MMIO Limit	Select Above 4GB MMIO Limit. This option works only when 'Above 4G decoding' is enable.
Socket 0 Information	View Information related to Socket 0

4.5 Security Settings

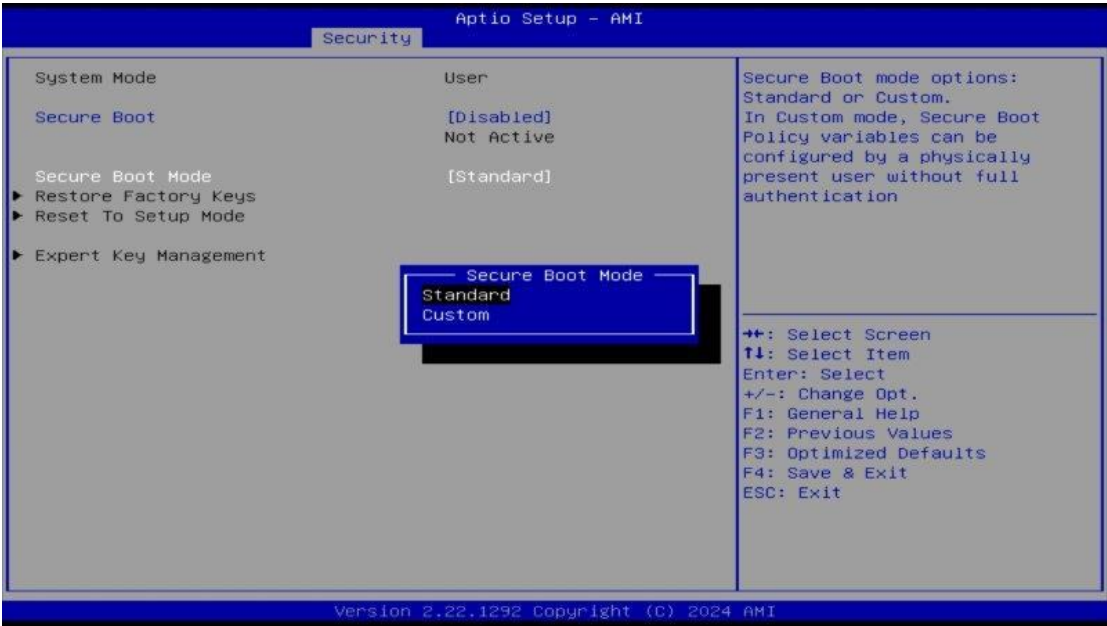


BIOS Setting	Description
Administrator Password	Sets an administrator password for the setup utility.
User Password	Sets a user password.
Disable Sanitize Freeze Lock	When enabled, then sending Sanitize Freeze Lock command to MDDs will be skipped in next boot.
Secure Boot	Configures Secure Boot.

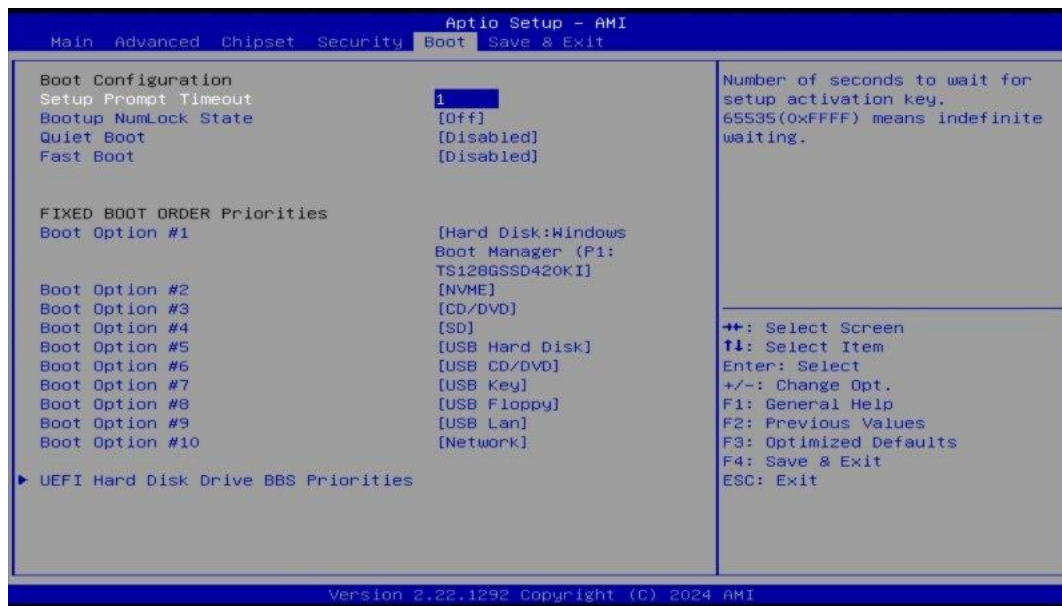
4.6.1 Secure Boot



BIOS Setting	Description
Secure Boot	Secure Boot feature is Active if Secure Boot is enabled. Platform Key (PK) Is enrolled and the system is in User mode. The mode change requires platform reset.

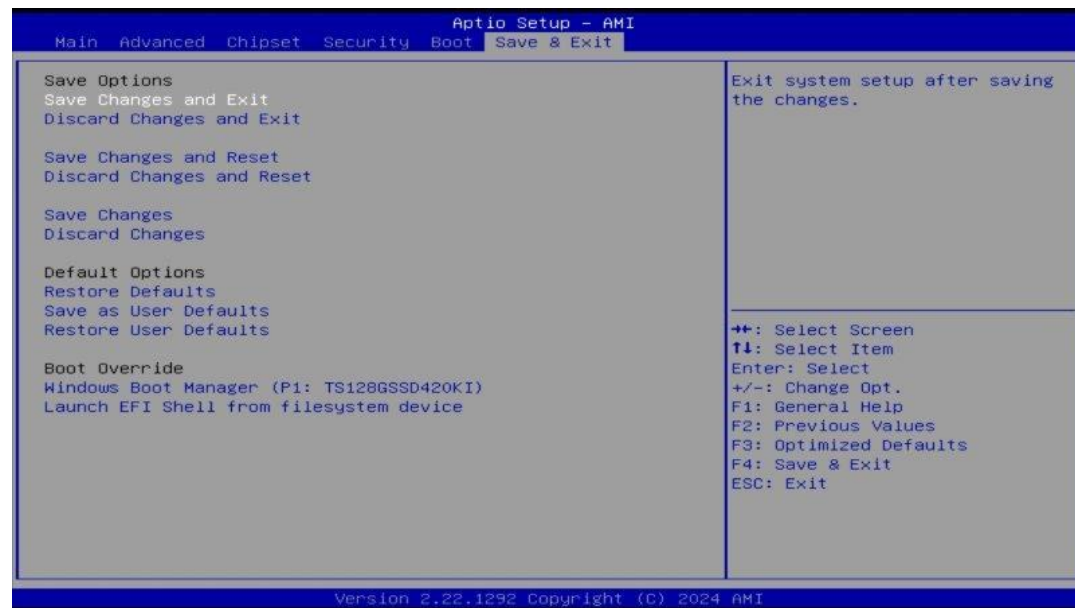


4.6 Boot Settings



BIOS Setting	Description
Setup Prompt Timeout	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Bootup NumLock State	Selects the keyboard NumLock state.
Quiet Boot	Enables / Disables Quiet Boot option.
Fast Boot	Enables / Disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.
Boot mode select	Selects a Boot mode, Legacy / UEFI.
Boot Option Priorities	Sets the system boot order.
UEFI Hard Disk Drive BBS priorities	Specifies the boot device priority sequence from available UEFI Hard Disk Drives.

4.7 Save & Exit Settings



BIOS Setting	Description
Save Changes and Exit	Exits system setup after saving the changes.
Discard Changes and Exit	Exits system setup without saving any changes.
Save Changes and Reset	Resets the system after saving the changes.
Discard Changes and Reset	Resets system setup without saving any changes.
Save Changes	Saves changes done so far to any of the setup options.
Discard Changes	Discards changes done so far to any of the setup options.
Restore Defaults	Restores / Loads defaults values for all the setup options.
Save as User Defaults	Saves the changes done so far as User Defaults.
Restore User Defaults	Restores the user defaults to all the setup options.

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