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Less Heat, Less Power Consumption

STABLE
Robust Design, Quality Parts

Stable and
Reliable Solution

Server/Workstation
Motherboard

TURIND8QM3-2T/500W

User Manual

English

Version 1.00
Published Oct. 2025

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(1) this device may not cause harmful interference, and
(2) 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 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 or more 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.

ASRock Rack INC. hereby declares that this device is in compliance with the essential requirements and other relevant provisions of related UKCA Directives. Full text of UKCA declaration of conformity is available at: http://www.asrockrack.com

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Please refer to https://www.asrockrack.com/general/about.asp?cat=Responsibility for information disclosure based on regulation requirements ASRock Rack is complied with.

DO NOT throw the motherboard in municipal waste. This product has been designed to enable proper reuse of parts and recycling. This symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

Contents

Chapter 1 Introduction **1**

1.1 Package Contents 1

1.2 Specifications 2

1.3 Unique Features 5

1.4 Motherboard Layout 6

1.5 Onboard LED Indicators 9

1.6 I/O Panel 10

1.7 Block Diagram 12

Chapter 2 Installation **13**

2.1 Screw Holes 13

2.2 Pre-installation Precautions 14

2.3 Installing the CPU 15

2.4 Installing the Memory Modules (DIMM) 20

2.5 Expansion Slots (PCI Express Slots) 22

2.6 Jumper Setup 23

2.7 Onboard Headers and Connectors 24

2.8 ATX PSU Power Connections 36

2.9 Dr. Debug 37

2.10 Identification purpose LED/Switch 43

2.11 M.2 SSD Module Installation Guide 44

2.12 Dual LAN and Teaming Operation Guide 46

Chapter 3 UEFI Setup Utility **47**

3.1 Introduction 47

3.1.1 UEFI Menu Bar 47
3.1.2 Navigation Keys 48
3.2 Main Screen 49
3.2.1 Mother Board Information 50
3.2.2 Processor Information 50
3.2.3 Memory Information 51
3.3 Advanced Screen 52
3.3.1 CPU Configuration 53
3.3.2 Chipset Configuration 54
3.3.3 Storage Configuration 56
3.3.4 NVMe Configuration 57
3.3.5 ACPI Configuration 58
3.3.6 USB Configuration 59
3.3.7 Super IO Configuration 60
3.3.8 Serial Port Console Redirection 61
3.3.9 H/W Monitor 64
3.3.10 PCI Subsystem Settings 65
3.3.11 AMD CBS 66
3.3.12 AMD PBS 73
3.3.13 PSP Firmware Versions 75
3.3.14 Network Stack Configuration 76
3.3.15 Driver Health 78
3.3.16 Tls Auth Configuration 79
3.3.17 Instant Flash 80

3.4 Server Mgmt 81
3.4.1 BMC Network Configuration 83
3.4.2 DNS Configuration 85
3.4.3 System Event Log 87
3.4.4 BMC Tools 88
3.5 Event Logs 89
3.6 Security 90
3.6.1 Key Management 91
3.7 Boot Screen 95
3.7.1 CSM (Compatibility Support Module) 97
3.8 Exit Screen 98
Chapter 4 Software Support 99
4.1 Download and Install Operating System 99
4.2 Download and Install Software Drivers 99
Chapter 5 Troubleshooting 100
5.1 Troubleshooting Procedures 100
5.2 Technical Support Procedures 102
5.3 Returning Merchandise for Service 102
Contact Information 103

Chapter 1 Introduction

Thank you for purchasing ASRock Rack ***TURIND8QM3-2T/500W*** motherboard, a reliable motherboard produced under ASRock Rack's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock Rack's commitment to quality and endurance.

In this manual, chapter 1 and 2 contains introduction of the motherboard and step-by-step guide to the hardware installation. Chapter 3 and 4 contains the configuration guide to BIOS setup and information of the Sofware Support.

Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRock Rack website without further notice. Find the latest memory and CPU support lists on ASRock Rack website as well. ASRock Rack's Website: www.ASRockRack.com

Please visit the website for specific information and technical support: http://www.asrockrack.com/support/

1.1 Package Contents

- ASRock Rack TURIND8QM3-2T/500W motherboard (CEB form factor: 12" x 11")
- Quick installation guide
- 1 ATX 4P to 24P power cable
- 1 MCIO x8 to 8 SATA +8P cable (63cm)
- 1 I/O shield
- 2 Screws for M.2 sockets

If any items are missing or appear damaged, contact the authorized dealer.

English

1.2 Specifications

TURIND8QM3-2T/500W	
Physical Status	
Form Factor	CEB
Dimension	12" x 11" (304.8 x 279.4mm)
Processor System	
CPU	Supports AMD EPYC™ 9005/9004 (with AMD 3D V-Cache™ Technology) and 97x4 series processors
Socket	1 Socket SP5 (LGA6096)
Thermal Design Power (TDP)	UP to 500W
Chipset	System on Chip
System Memory	
Supported DIMM Quantity	8 DIMM slots (1DPC)
Supported Type	Supports DDR5 288-pin RDIMM, RDIMM-3DS
Max. Capacity per DIMM	RDIMM: 128GB (2Rx4) RDIMM-3DS: 256GB (2Rx4)
Max. Frequency	6400MHz
Voltage	1.1V
Note: Memory capacity, frequency, and voltage support is to be validated.	
PCIe Expansion Slot	
PCIe x16	SLOT6: PCIe5.0/CXL2.0* x16
	SLOT1: PCIe4.0 x16
**Supports CXL1.1 while installing AMD EPYC 9004 (with AMD 3D V-Cache™ Technology) and 97x4 series processors*	
Other PCIe Expansion Connectors	
M.2	1 M-key (PCIe5.0/CXL2.0* x4 or SATA 6Gb/s), supports 2280/22110form factor 1 M-key (PCIe5.0/CXL2.0* x4 or SATA 6Gb/s), supports 2280 form factor
MCIO	1 MCIO (PCIe5.0/CXL2.0* x8 or 8 SATA 6Gb/s) 1 MCIO (PCIe5.0 x8 or 8 SATA 6Gb/s) 4 MCIO (PCIe5.0 x8)
**Supports CXL1.1 while installing AMD EPYC 9004 (with AMD 3D V-Cache™ Technology) and 97x4 series processors.*	
SATA/SAS Storage	
PCH Built-in Storage	AMD EPYC 9005/9004 (18 SATA 6Gb/s): 2 MCIO, 2 M.2
Ethernet	
Additional GbE Controller	Broadcom BCM57416: 2 RJ45 (10GbE)
OCP Slot	1 OCP NIC3.0 (PCIe5.0 x16)

Server Management	
BMC Controller	ASPEED AST2600
IPMI Dedicated GLAN	1 Realtek RTL8211F for dedicated management GLAN
Graphics	
Controller	ASPEED AST2600
VRAM	DDR4 512MB
Rear I/O	
UID Button/LED	1 UID button w/ LED
Video Port	1 DB15 (VGA)
Serial Port	1 DB9 (COM)
USB Port	2 Type-A (USB3.2 Gen1)
LAN Port	2 RJ45 (10GbE), 1 dedicated IPMI
Internal Connectors/Headers	
Power Connector	1 (4-pin, ATX PSU signal) w/ ATX 24-pin adapter cable, 3 (8-pin, ATX 12V)
Auxiliary Panel Header	1 (18-pin): chassis intrusion, system fault LED, LAN activity LEDs, locate, SMBus
System Panel Header	1 (9-pin): power switch, reset switch, system power LED, HDD activity LED
NMI Header	1
VGA Header	1
Speaker Header	1 (4-pin)
Fan Header	8 (6-pin)
Thermal Sensor Header	1
TPM Header	1 (13-pin, SPI)
SGPIO Header	4
HSBP	1
SMbus Header	1
PMbus Header	1
IPMB Header	1
USB Header	1 (19-pin, 2 USB3.2 Gen1)
Clear CMOS	1 (contact pads)
Others	1 Buzzer, 1 NCSI_SEL for IPMI shared NIC
LED Indicators	
Standby Power LED	1 (5VSB)
80 Debug Port LED	1
Fan Fail LED	8
BMC Heartbeat LED	1
System BIOS	
Type	AMI UEFI BIOS: 256Mb (32MB) SPI Flash ROM
Features	ASRock Rack Instant Flash, ACPI 6.4 and abouve compliance wake up events, SMBIOS 3.5.0 and above, Plug and Play(PnP)

Hardware Monitor	
Temperature	CPU, MB, Card side, TR Temperature sensing
Fan	Fan Tachometer Quiet Fan (Allow Chassis Fan Speed Auto-Adjust by CPU Temperature) Fan Multi-Speed Control
Voltage	VDDCR_CPU, VDDCR_SOC, VDDIO, VDD_18_S5, VDD_33_S5, VDD_11_S3, +3V, +5V, +12V, +BAT, 3VSB, 5VSB
Support OS	
OS	Microsoft® Windows: (for EPYC 9004) - Server 2019 (64bit) - Server 2022 (64bit) Microsoft® Windows: (for EPYC 9005) - Server 2019 (64bit) - Server 2022 (64bit) - Server 2025 (64bit) Linux: (for EPYC 9004) - RedHat Enterprise Linux Server 8.6 (64bit) / Server 8.7 (64bit) / Server 9.0 (64bit) / Server 9.1 (64bit) - SUSE SLES 15.4 (64bit) - UBuntu 20.04.5 (64bit) / 22.04 (64bit) / 22.10 (64bit) Linux: (for EPYC 9005) - RedHat Enterprise Linux Server 8.10 (64bit) / Server 9.4 (64bit) - SUSE SLES 15.6 (64bit) - UBuntu 22.04.5 (64bit) / 24.04.2 (64bit) Hypervisor: (for EPYC 9004) - VMWare® ESXi 7.0 U3i / 8.0 - CITRIX Hypervisor 8.2.1 **Please refer to the website for the latest OS support list.*
Environment	
Temperature	Operation temperature: 10°C ~ 35°C Non operation temperature: -40°C ~ 70°C
Humidity	Non operation humidity: 20% ~ 90% (Non condensing)

NOTE: Please refer to the website for the latest specifications.

English

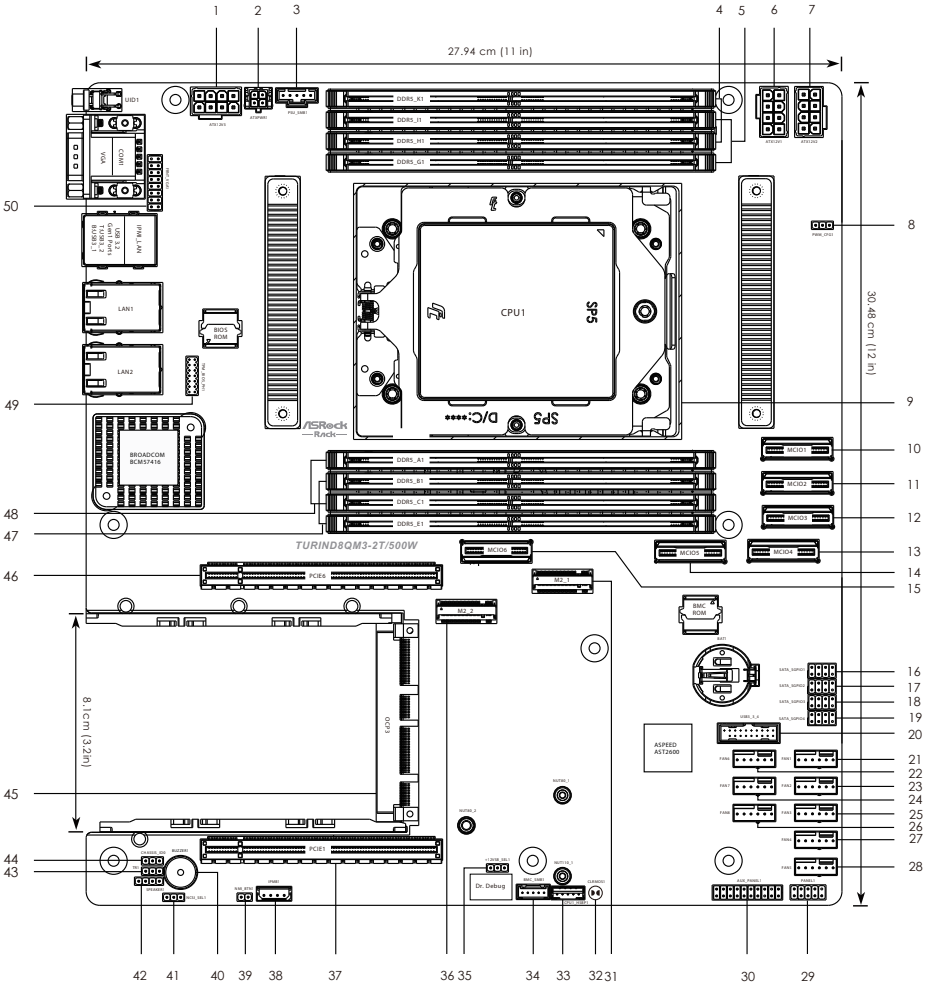
This motherboard supports Wake from on Board LAN. To use this function, please make sure that the "Wake on Magic Packet from power off state" is enabled in Device Manager > Intel® Ethernet Connection > Power Management. And the "PCI Devices Power On" is enabled in UEFI SETUP UTILITY > Advanced > ACPI Configuration. After that, onboard LAN1&2 can wake up S5 under OS.

Install Intel® LAN utility or Marvell SATA utility, this motherboard may fail Windows® Hardware Quality Lab (WHQL) certification tests. If installing the drivers only, it will pass the WHQL tests.

1.3 Unique Features

ASRock Rack Instant Flash is a BIOS flash utility embedded in Flash ROM. This convenient BIOS update tool allows user to update system BIOS without entering operating systems first like MS-DOS or Windows®. With this utility, press the <F6> key during the POST or the <F2> key to enter into the BIOS setup menu to access ASRock Rack Instant Flash. Just launch this tool and save the new BIOS file to the USB flash drive, floppy disk or hard drive, then update the BIOS only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system.

1.4 Motherboard Layout

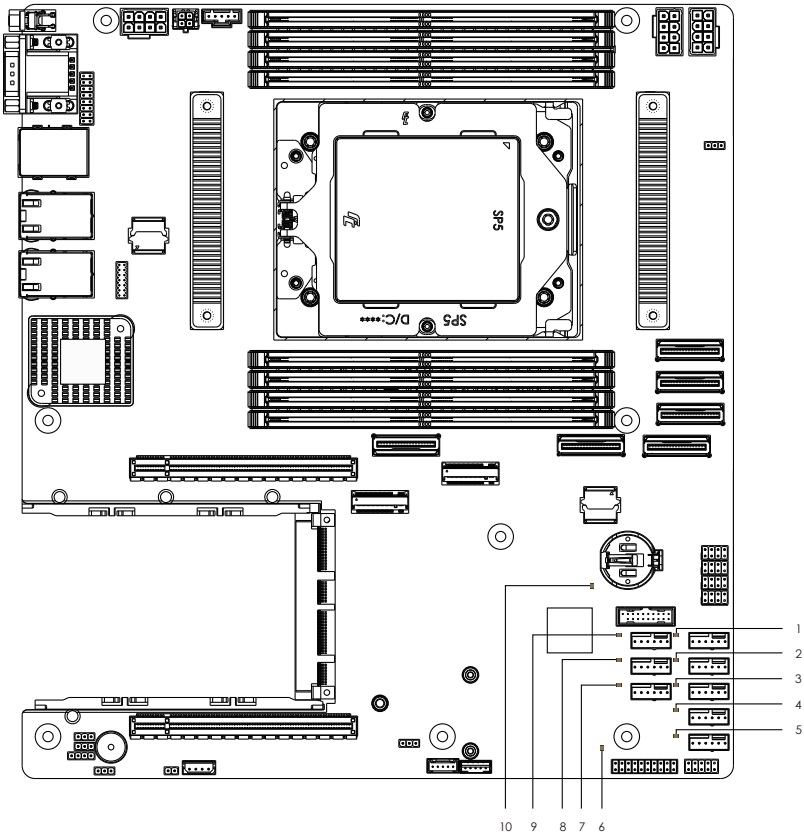


No.	Description
1	ATX 12V Power Connector (ATX12V3)
2	ATX Power Connector (ATXPWR1)
3	PSU SMBus Header (PSU_SMB1)
4	2 x 288-pin DDR5 DIMM Slots (DDR5_H1, DDR5_K1)*
5	2 x 288-pin DDR5 DIMM Slots (DDR5_G1, DDR5_I1)*
6	ATX 12V Power Connector (ATX12V1)
7	ATX 12V Power Connector (ATX12V2)
8	PWM Configuration Header (PWM_CFG1)
9	AMD Socket SP5 (SM-LGA-6096) (CPU1)
10	Mini Cool Edge IO x8 Connector (MCIO1)
11	Mini Cool Edge IO x8 Connector (MCIO2)
12	Mini Cool Edge IO x8 Connector (MCIO3)
13	Mini Cool Edge IO x8 Connector (MCIO4)
14	Mini Cool Edge IO x8 Connector (MCIO5)
15	Mini Cool Edge IO x8 Connector (MCIO6)
16	SATA SGPIO Connector (SATA_SGPIO1)
17	SATA SGPIO Connector (SATA_SGPIO2)
18	SATA SGPIO Connector (SATA_SGPIO3)
19	SATA SGPIO Connector (SATA_SGPIO4)
20	USB 3.2 Gen1 Header (USB3_3_4)
21	System Fan Header (FAN1)
22	System Fan Header (FAN6)
23	System Fan Header (FAN2)
24	System Fan Header (FAN7)
25	System Fan Header (FAN3)
26	System Fan Header (FAN8)
27	System Fan Header (FAN4)
28	System Fan Header (FAN5)
29	System Panel Header (PANEL1)
30	Auxiliary Panel Header (AUX_PANEL1)
31	M.2 Socket (M2_1) (Type 2280/22110)
32	Clear CMOS Pad (CLRMOS1)
33	Backplane PCI Express Hot-Plug Header (CPU1_HSBP1)

No.	Description
34	BMC SMBus Header (BMC_SMB1)
35	OCP3 +12VSB Power Jumper (+12VSB_SEL1)
36	M.2 Socket (M2_2) (Type 2280)
37	PCI Express 4.0 x16 Slot (PCIE1)
38	Intelligent Platform Management Bus Header (IPMB1)
39	Non Maskable Interrupt Button (NMI_BTN1)
40	Buzzer (BUZZER1)
41	NCSI Mode Jumper (NCSI_SEL1)
42	Speaker Header (SPEAKER1)
43	Thermal Sensor Header (TR1)
44	Chassis ID Jumper (CHASSIS_ID0)
45	OCP NIC 3.0 Slot (PCIe5.0 x16) (OCP3)
46	PCI Express 5.0 x16 Slot (PCIE6)
47	2 x 288-pin DDR5 DIMM Slots (DDR5_B1, DDR5_E1)*
48	2 x 288-pin DDR5 DIMM Slots (DDR5_A1, DDR5_C1)*
49	SPI TPM Header (TPM_BIOS_PH1)
50	Front VGA Header (FRNT_VGA1)

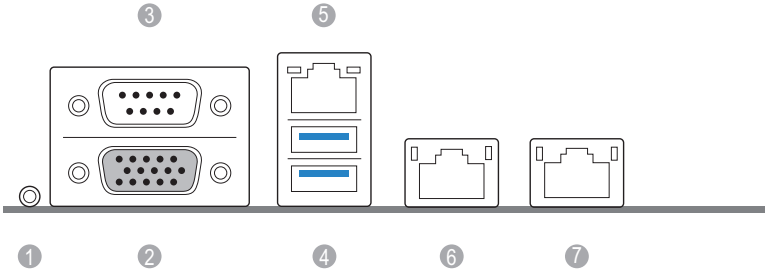
**For DIMM installation and configuration instructions, please see p.20 (Installing the Memory Modules (DIMM)) for more details.*

1.5 Onboard LED Indicators



No.	Item	Status	Description
1	LED_FAN1	Red	FAN1 failed
2	LED_FAN2	Red	FAN2 failed
3	LED_FAN3	Red	FAN3 failed
4	LED_FAN4	Red	FAN4 failed
5	LED_FAN5	Red	FAN5 failed
6	SB_PWR1	Green	+5VSB ready
7	LED_FAN8	Red	FAN8 failed
8	LED_FAN7	Red	FAN7 failed
9	LED_FAN6	Red	FAN6 failed
10	BMC_LED1	Green	BMC heartbeat LED

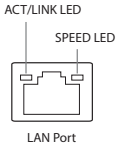
1.6 I/O Panel



No.	Description	No.	Description
1	UID Switch (UID1)	5	IPMI LAN Header (IPMI_LAN)*
2	VGA Port (VGA)	6	10G LAN RJ-45 Port (LAN1, shared NIC)**
3	Serial Port (COM1)	7	10G LAN RJ-45 Port (LAN2)**
4	USB 3.2 Gen1 Ports (USB3_1_2)		

LAN Port LED Indications

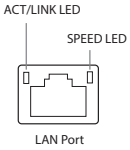
*There is an LED on each side of IPMI LAN port. Please refer to the table below for the LAN port LED indications.



IPMI LAN Port LED Indications

Activity / Link LED		Speed LED	
Status	Description	Status	Description
Off	No Link	Off	10Mbps connection or no link
Blinking Yellow	Data Activity	Orange	100Mbps connection
On	Link	Green	1Gbps connection

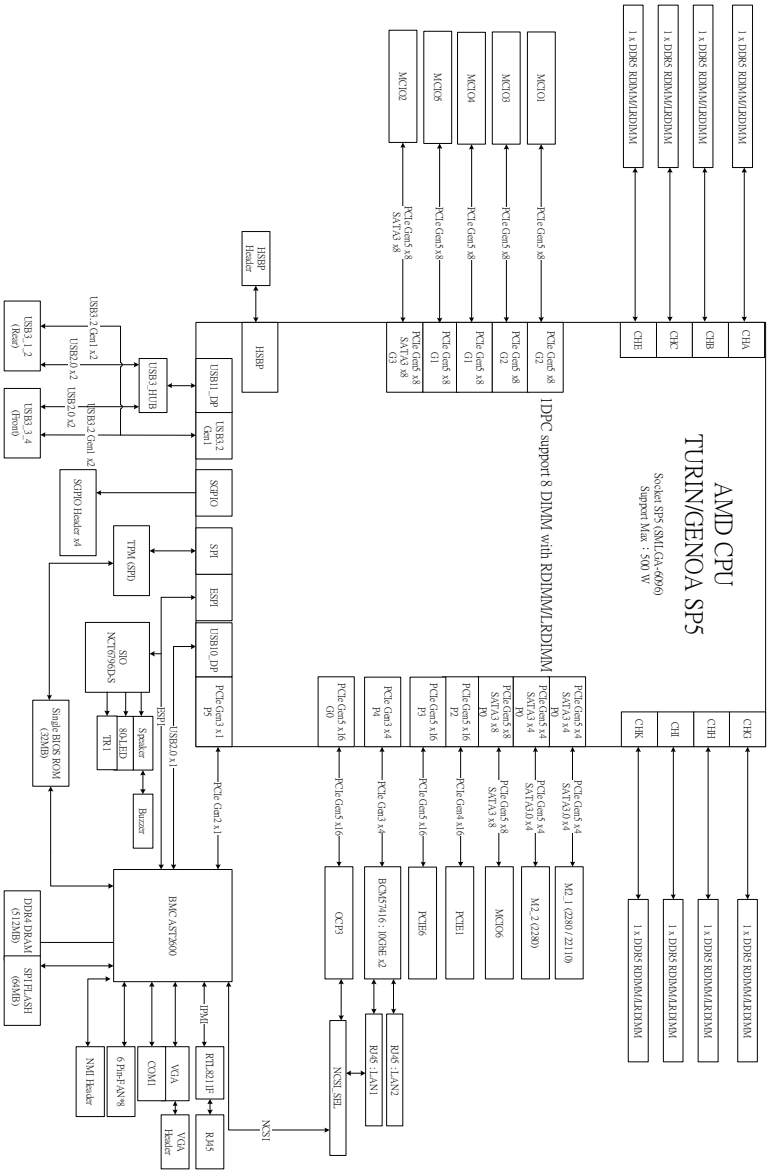
**There is an LED on each side of 10G LAN port. Please refer to the table below for the LAN port LED indications.



10G LAN Port LED Indications

Activity / Link LED		Speed LED	
Status	**Description**	**Status**	**Description**
Off	No Link	Off	100Mbps connection or no link
Blinking Yellow	Data Activity	Orange	1Gbps connection
On	Link	Green	10Gbps connection

1.7 Block Diagram



Chapter 2 Installation

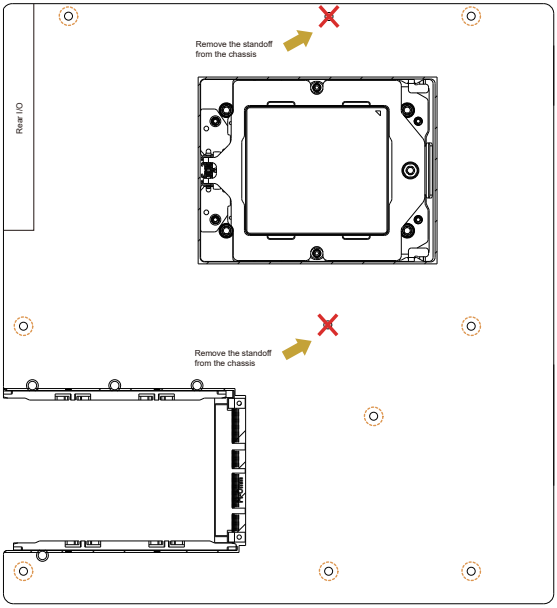
This is a CEB form factor (12" x 11", 30.5cm x 27.9cm) motherboard. Before installing the motherboard, study the configuration of the chassis to ensure that the motherboard fits into it.

1. *Ensure the motherboard battery is installed before unplugging the power cord or install ing/removing the motherboard.*
2. *Before installing or removing any component, ensure that the power is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.*

2.1 Screw Holes

Place screws into the holes indicated by circles to secure the motherboard to the chassis.

Attention! Before installing this motherboard, be sure to unscrew and remove the standoff at the marked location, under the motherboard, from the chassis, in order to avoid electrical short circuit and motherboard damages.



Do not over-tighten the screws! Doing so may damage the motherboard.

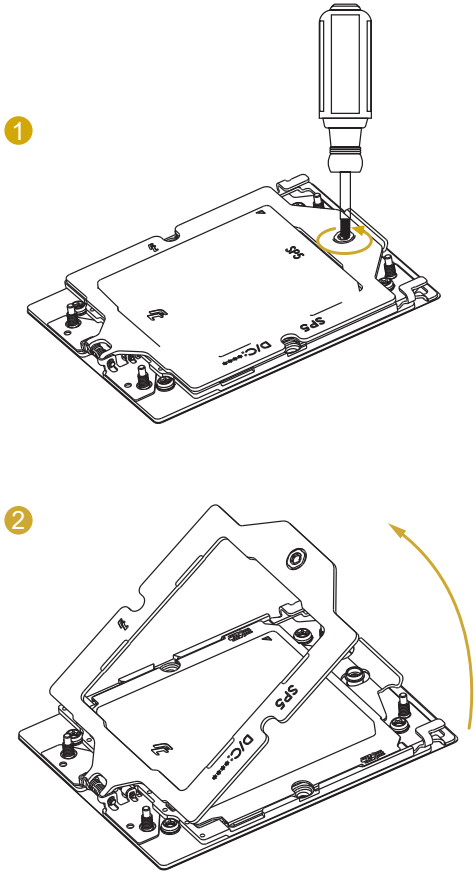
2.2 Pre-installation Precautions

Take note of the following precautions before installing motherboard components or change any motherboard settings.

1. Unplug the power cord from the wall socket before touching any components.
2. To avoid damaging the motherboard's components due to static electricity, NEVER place the motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before handling the components.
3. Hold components by the edges and do not touch the ICs.
4. Whenever uninstall any component, place it on a grounded anti-static pad or in the bag that comes with the component.
5. When placing screws into the screw holes to secure the motherboard to the chassis, please do not over-tighten the screws! Doing so may damage the motherboard.

2.3 Installing the CPU

1. *Before inserting the CPU into the socket, please check if the PnP cap is on the socket, if the CPU surface is unclean, or if there are any bent pins in the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged.*
2. *Unplug all power cables before installing the CPU.*



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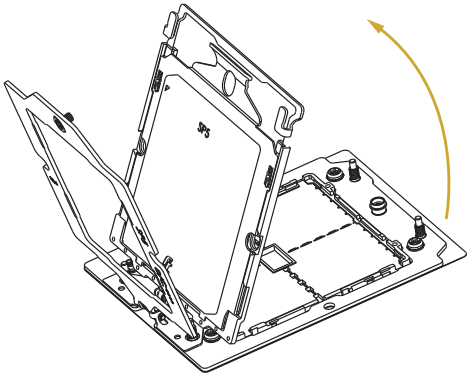

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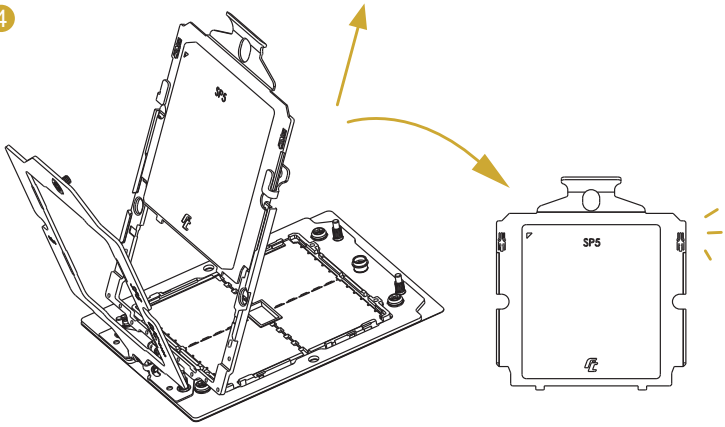

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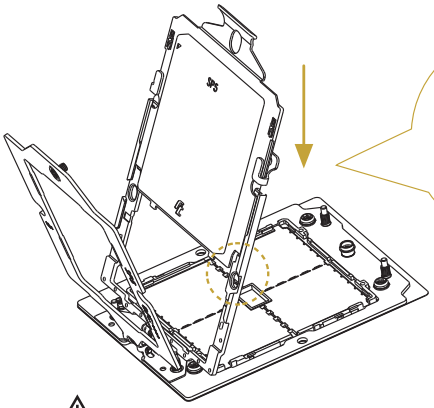
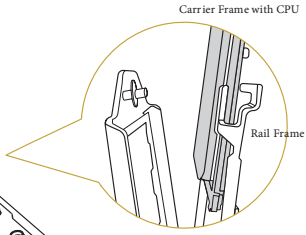
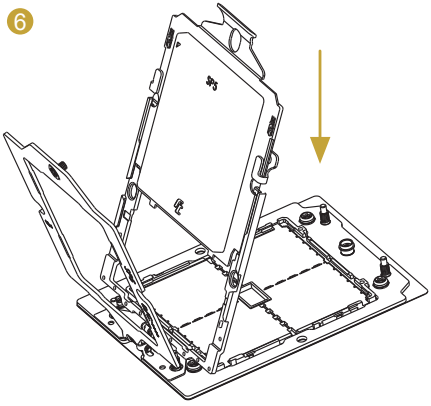




Please make sure that the carrier frame with CPU is closely attached to the rail frame while inserting it.

⚠ Install the carrier frame with CPU. Don't separate them.

6



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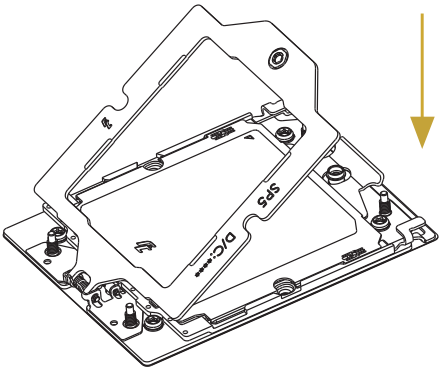
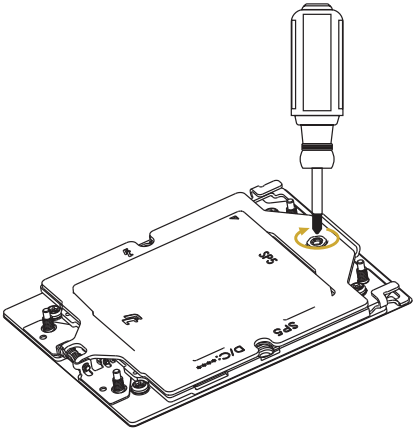
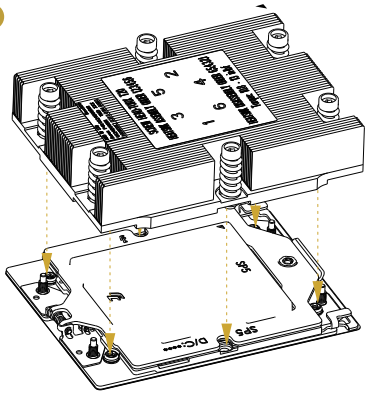


8

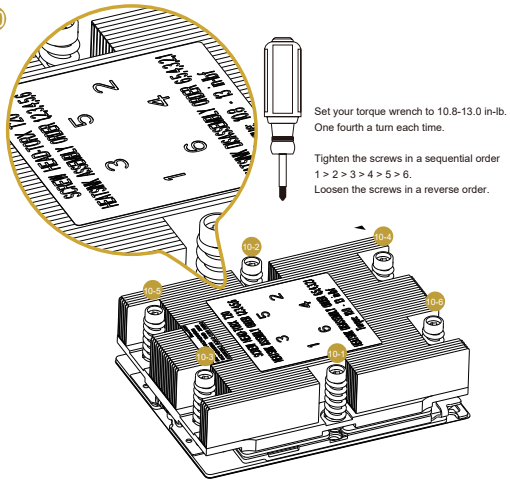


English

9



10



Set your torque wrench to 10.8-13.0 in-lb.
One fourth a turn each time.

Tighten the screws in a sequential order
1 > 2 > 3 > 4 > 5 > 6.
Loosen the screws in a reverse order.

English

2.4 Installing the Memory Modules (DIMM)

This motherboard provides eight 288-pin DDR5 (Double Data Rate 5) DIMM slots in two groups, and supports Eight Channel Memory Technology.

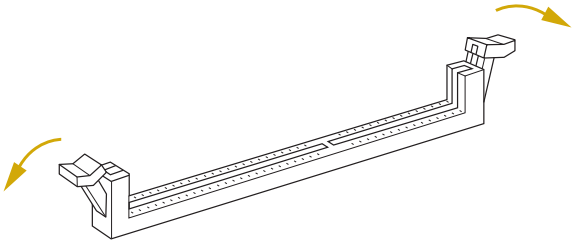
1. *For Eight channel configuration, it always needs to install identical (the same brand, speed, size and chip-type) DDR5 DIMM groups.*
2. *Eight Channel Memory Technology is enabled only when 8 or 16 memory modules are installed.*
3. *It is not allowed to install a DDR, DDR2, DDR3 or DDR4 memory module into a DDR5 slot; otherwise, this motherboard and DIMM may be damaged.*

Recommended Memory Configurations

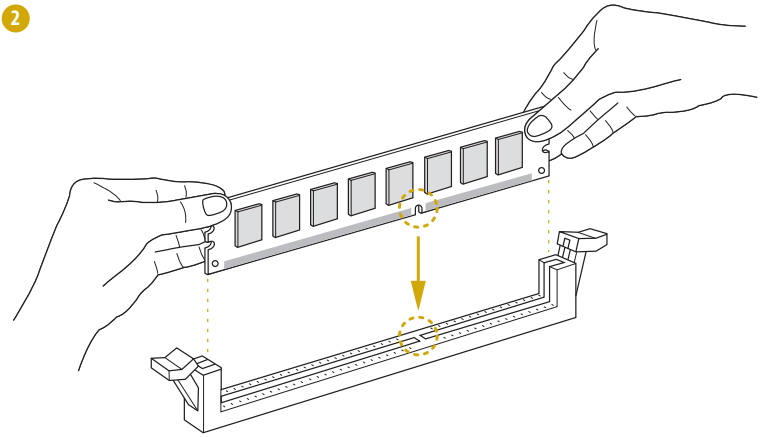
	CPU1							
	A1	B1	C1	E1	G1	H1	I1	K1
1 DIMM	V							
2 DIMMS	V				V			
4 DIMMS	V		V		V		V	
8 DIMMS	V	V	V	V	V	V	V	V

The symbol V indicates the slot is populated.

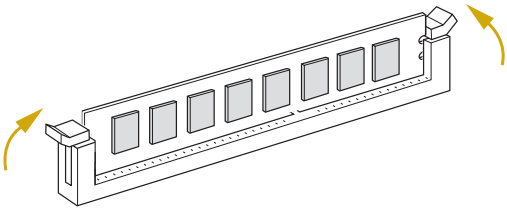
1



2



3



2.5 Expansion Slots (PCI Express Slots)

There are two PCI Express slots on this motherboard.

PCIE slots:

PCIE1 (PCIE 4.0 x16 slot, from CPU1) is used for PCI Express x16 lane width cards.
PCIE6 (PCIE 5.0 / CXL2.0x16 slot, from CPU1) is used for PCI Express x16 lane width cards.

Slot	Generation	Mechanical	Electrical	Source
PCIE1	4.0	x16	x16	CPU1
PCIE6	5.0	x16	x16	CPU1

**Supports CXL1.1 while installing AMD EPYC 9004 (with AMD 3D V-Cache™ Technology) and 97x4 series processors*

Installing an expansion card

Step 1. Before installing an expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before starting the installation.

Step 2. Remove the system unit cover (if the motherboard is already installed in a chassis).

Step 3. Remove the bracket facing the slot that intending to use. Keep the screws for later use.

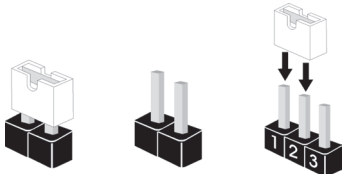
Step 4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.

Step 5. Fasten the card to the chassis with screws.

Step 6. Replace the system cover.

2.6 Jumper Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on the pins, the jumper is “Short”. If no jumper cap is placed on the pins, the jumper is “Open”. The illustration shows a 3-pin jumper whose pin1 and pin2 are “Short” when a jumper cap is placed on these 2 pins.

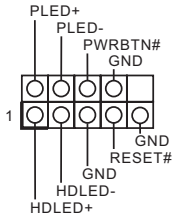


OCP3 +12VSB Power Jumper (3-pin +12VSB_SEL1) (see p.6, No. 35)	1_2 12VSB for OCP3 PWR (Default)	2_3 0V for OCP3 PWR
NCSI Mode Jumper (3-pin NCSI_SEL1) (see p.6, No. 41)	1_2 BCM 57416 (Default)	2_3 OCP
CHASSIS ID Jumper (3-pin CHASSIS_ID0) (see p.6, No. 44)	1_2 Board Level SKU (Default)	2_3 Reserved for system level use

2.7 Onboard Headers and Connectors

Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage to the motherboard.

System Panel Header
(9-pin PANEL1)
(see p.6, No. 29)



Connect the power switch, reset switch and system status indicator on the chassis to this header according to the pin assignments. Particularly note the positive and negative pins before connecting the cables.

PWRBTN (Power Switch):
Connect to the power switch on the chassis front panel. Configure the way to turn off the system using the power switch.

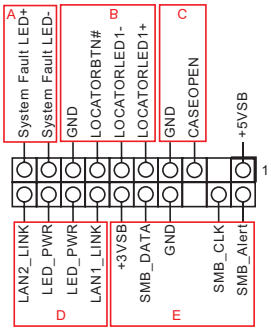
RESET (Reset Switch):
Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.

PLED (System Power LED):
Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED is off when the system is in S4 sleep state or powered off (S5).

HDLED (Hard Drive Activity LED):
Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.

The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting the chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

Auxiliary Panel Header
(18-pin AUX_PANEL1)
(see p.6, No. 30)



This header supports multiple functions on the front panel, including front panel SMB, internet status indicator.

A. System Fault LED (2-pin SYSTEM STATUS)
This header is for the Fault LED on the system.

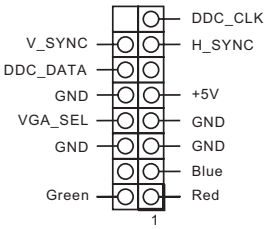
B. Locator LED (4-pin LOCATOR)
This header is for the locator switch and LED on the front panel.

C. Chassis intrusion pin (2-pin CHASSIS)
This header is provided for host computer chassis with chassis intrusion detection designs. In addition, it must also work with external detection equipment, such as a chassis intrusion detection sensor or a microswitch. When this function is activated, if any chassis component movement occurs, the sensor will immediately detect it and send a signal to this header, and the system will then record this chassis intrusion event. The default setting is set to the CASEOPEN and GND pin; this function is off.

D. Internet status indicator (2-pin LAN1_LED, LAN2_LED)
These two 2-pin headers allow user to use the Gigabit internet indicator cable to connect to the LAN status indicator. When this indicator flickers, it means that the internet is properly connected.

E. Front panel SMBus connecting pin (6-1 pin FPSMB)
This header allows user to connect SMBus (System Management Bus) equipment. It can be used for communication between peripheral equipment in the system, which has slower transmission rates, and power management equipment.

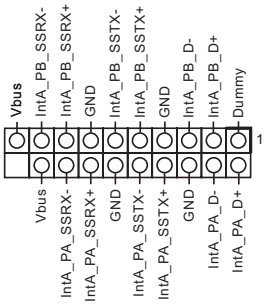
Front VGA Header
(15-pin FRNT_VGA1)
(see p.6, No.50)



Please connect either end of VGA_2X8 cable to VGA header.

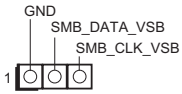
English

USB 3.2 Gen1 Header:
(19-pin USB3_3_4)
(see p.6, No. 20)



Besides two default USB 3.2 Gen1 ports on the I/O panel, there is one USB 3.2 Gen1 header on this motherboard. This USB 3.2 Gen1 header can support two USB 3.2 Gen1 ports.

PWM Configuration Header
(3-pin PWM_CFG1)
(see p.6, No. 8)

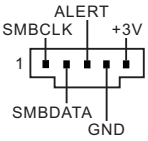


The header is used for PWM configurations.

Non Maskable Interrupt Button Header
(2-pin NMI_BTN1)
(see p.6, No. 39)

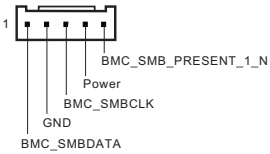
Please connect a NMI device to this header.

PSU SMBus Header
(PSU_SMB1)
(see p.6, No. 3)



PSU SMBus monitors the status of the power supply, fan and system temperature.

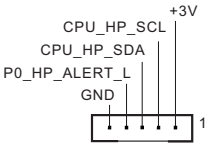
BMC SMB Header
(5-pin BMC_SMB1)
(see p.6, No. 34)



The header is used for the SM BUS devices.

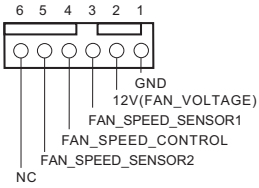
English

Backplane PCI Express Hot-Plug Header
(5-pin CPU1_HSBP1)
(see p.6, No. 33)



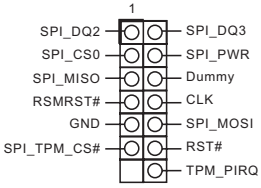
The header is used for the hot plug feature of HDDs on the backplane.

System Fan Headers
(6-pin FAN1)
(see p.6, No. 21)
(6-pin FAN2)
(see p.6, No. 23)
(6-pin FAN3)
(see p.6, No. 25)
(6-pin FAN4)
(see p.6, No. 27)
(6-pin FAN5)
(see p.6, No. 28)
(6-pin FAN6)
(see p.6, No. 22)
(6-pin FAN7)
(see p.6, No. 24)
(6-pin FAN8)
(see p.6, No. 26)



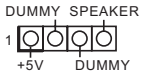
Please connect fan cables to the fan headers and match the black wire to the ground pin. All fans support Fan Control. The fan max. current is 5A and max. power is 60Watts.

SPI TPM Header
(13-pin TPM_BIOS_PH1)
(see p.6, No. 49)



This connector supports SPI Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.

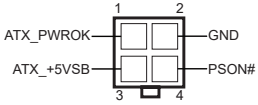
Chassis Speaker Header
(4-pin SPEAKER1)
(see p.6, No. 43)



Please connect the chassis speaker to this header.

English

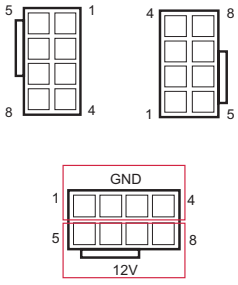
ATX Power Connector
(4-pin ATXPWR1)
(see p.6, No. 2)



The motherboard provides one 4-pin power/signal connector which is a required input for ATX power source.

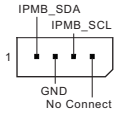
When using ATX power, it is necessary to use a 24pin-to-4pin power cable to connect between the 24pin power connector of PSU and the ATXPWR1 connector on the motherboard for power supply and signal communication.

ATX Power Connectors
(8-pin ATX12V1)
(see p.6, No. 6)
(8-pin ATX12V2)
(see p.6, No. 7)
(8-pin ATX12V3)
(see p.6, No. 1)



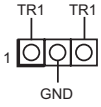
This motherboard provides three ATX power connectors.

Intelligent Platform Management Bus Header
(4-pin IPMB1)
(see p.6, No. 38)

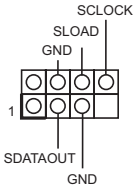
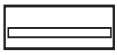


This 4-pin connector is used to provide a cabled baseboard or front panel connection for value added features and 3rd-party add-in cards, such as Emergency Management cards, that provide management features using the IPMB.

Thermal Sensor Header
(3-pin TR1)
(see p.6, No. 43)



Please connect the thermal sensor cable to either pin 1-2 or pin 2-3 and the other end to the device to monitor the temperature.

Serial General Purpose Input/Output Headers (7-pin SATA_SGPIO1) (see p.6, No. 16) (7-pin SATA_SGPIO2) (see p.6, No. 17) (7-pin SATA_SGPIO3) (see p.6, No. 18) (7-pin SATA_SGPIO4) (see p.6, No. 19)		These headers support Serial Link interface for onboard SATA connections.
Clear CMOS Pad (CLRCMOS1) (see p.6, No. 32)		This allows user to clear the data in CMOS. To clear CMOS, take out the CMOS battery and short the Clear CMOS Pad.
MCIO x8 Connectors (MCIO1) (see p.6, No. 10) (MCIO2) (see p.6, No. 11) (MCIO3) (see p.6, No. 12) (MCIO4) (see p.6, No. 13) (MCIO5) (see p.6, No. 14) (MCIO6) (see p.6, No. 16)		These connectors are used for the PCIE or SATA devices. ** MCIO2 & MCIO6 (PCIe5.0 x8 or 8 SATA 6Gb/s)* ** MCIO1, MCIO3, MCIO4 & MCIO5 (PCIe5.0 x8)*

MCIO1 Pin Definition

Pin	Defeinition	Pin	Defeinition
A1	GND	B1	GND
A2	G2_RXN7	B2	G2_TXN7
A3	G2_RXP7	B3	G2_TXP7
A4	GND	B4	GND
A5	G2_RXN6	B5	G2_TXN6
A6	G2_RXP6	B6	G2_TXP6
A7	GND	B7	GND
A8	BP_TYPE	B8	SMB_SCL
A9	WAKE#	B9	SMB_SDA
A10	GND	B10	GND
A11	DP	B11	RST0_L
A12	DN	B12	PRSNT_N
A13	GND	B13	GND
A14	G2_RXN5	B14	G2_TXN5
A15	G2_RXP5	B15	G2_TXP5
A16	GND	B16	GND
A17	G2_RXP4	B17	G2_TXP4
A18	G2_RXN4	B18	G2_TXN4
A19	GND	B19	GND
A20	G2_RXN3	B20	G2_TXN3
A21	G2_RXP3	B21	G2_TXP3
A22	GND	B22	GND
A23	G2_RXN2	B23	G2_TXN2
A24	G2_RXP2	B24	G2_TXP2
A25	GND	B25	GND
A26	BP_TYPE	B26	SMB_SCL
A27	WAKE#	B27	SMB_SDA
A28	GND	B28	GND
A29	DP	B29	RST0_L
A30	DN	B30	PRSNT_N
A31	GND	B31	GND
A32	G2_RXN1	B32	G2_TXN1
A33	G2_RXP1	B33	G2_TXP1
A34	GND	B34	GND
A35	G2_RXN0	B35	G2_TXN0
A36	G2_RXP0	B36	G2_TXP0
A37	GND	B37	GND
75	NP_NC_1	76	NP_NC_2
77	PGND_1	78	PGND_3
79	PGND_2	80	PGND_4

MCIO2 Pin Definition

Pin	Defeinition	Pin	Defeinition
A1	GND	B1	GND
A2	G3_RXP15	B2	G3_TXP15
A3	G3_RXN15	B3	G3_TXN15
A4	GND	B4	GND
A5	G3_RXP14	B5	G3_TXP14
A6	G3_RXN14	B6	G3_TXN14
A7	GND	B7	GND
A8	BP_TYPE	B8	SMB_SCL
A9	WAKE#	B9	SMB_SDA
A10	GND	B10	GND
A11	DP	B11	RST0_L
A12	DN	B12	PRSNT_N
A13	GND	B13	GND
A14	G3_RXP13	B14	G3_TXP13
A15	G3_RXN13	B15	G3_TXN13
A16	GND	B16	GND
A17	G3_RXP12	B17	G3_TXP12
A18	G3_RXN12	B18	G3_TXN12
A19	GND	B19	GND
A20	G3_RXP11	B20	G3_TXP11
A21	G3_RXN11	B21	G3_TXN11
A22	GND	B22	GND
A23	G3_RXP10	B23	G3_TXP10
A24	G3_RXN10	B24	G3_TXN10
A25	GND	B25	GND
A26	BP_TYPE	B26	SMB_SCL
A27	WAKE#	B27	SMB_SDA
A28	GND	B28	GND
A29	DP	B29	RST0_L
A30	DN	B30	PRSNT_N
A31	GND	B31	GND
A32	G3_RXP9	B32	G3_TXP9
A33	G3_RXN9	B33	G3_TXN9
A34	GND	B34	GND
A35	G3_RXP8	B35	G3_TXP8
A36	G3_RXN8	B36	G3_TXN8
A37	GND	B37	GND
75	NP_NC_1	76	NP_NC_2
77	PGND_1	78	PGND_3
79	PGND_2	80	PGND_4

MCIO3 Pin Definition

Pin	Defeinition	Pin	Defeinition
A1	GND	B1	GND
A2	G2_RXN15	B2	G2_TXN15
A3	G2_RXP15	B3	G2_TXP15
A4	GND	B4	GND
A5	G2_RXN14	B5	G2_TXN14
A6	G2_RXP14	B6	G2_TXP14
A7	GND	B7	GND
A8	BP_TYPE	B8	SMB_SCL
A9	WAKE#	B9	SMB_SDA
A10	GND	B10	GND
A11	DP	B11	RST0_L
A12	DN	B12	PRSNT_N
A13	GND	B13	GND
A14	G2_RXN13	B14	G2_TXN13
A15	G2_RXP13	B15	G2_TXP13
A16	GND	B16	GND
A17	G2_RXN12	B17	G2_TXN12
A18	G2_RXP12	B18	G2_TXP12
A19	GND	B19	GND
A20	G2_RXN11	B20	G2_TXN11
A21	G2_RXP11	B21	G2_TXP11
A22	GND	B22	GND
A23	G2_RXN10	B23	G2_TXN10
A24	G2_RXP10	B24	G2_TXP10
A25	GND	B25	GND
A26	BP_TYPE	B26	SMB_SCL
A27	WAKE#	B27	SMB_SDA
A28	GND	B28	GND
A29	DP	B29	RST0_L
A30	DN	B30	PRSNT_N
A31	GND	B31	GND
A32	G2_RXN9	B32	G2_TXN9
A33	G2_RXP9	B33	G2_TXP9
A34	GND	B34	GND
A35	G2_RXN8	B35	G2_TXN8
A36	G2_RXP8	B36	G2_TXP8
A37	GND	B37	GND
75	NP_NC_1	76	NP_NC_2
77	PGND_1	78	PGND_3
79	PGND_2	80	PGND_4

MCIO4 Pin Definition

Pin	Defeinition	Pin	Defeinition
A1	GND	B1	GND
A2	G1_RXP7	B2	G1_TXP7
A3	G1_RXN7	B3	G1_TXN7
A4	GND	B4	GND
A5	G1_RXP6	B5	G1_TXP6
A6	G1_RXN6	B6	G1_TXN6
A7	GND	B7	GND
A8	BP_TYPE	B8	SMB_SCL
A9	WAKE#	B9	SMB_SDA
A10	GND	B10	GND
A11	DP	B11	RST0_L
A12	DN	B12	PRSNT_N
A13	GND	B13	GND
A14	G1_RXP5	B14	G1_TXP5
A15	G1_RXN5	B15	G1_TXN5
A16	GND	B16	GND
A17	G1_RXP4	B17	G1_TXP4
A18	G1_RXN4	B18	G1_TXN4
A19	GND	B19	GND
A20	G1_RXP3	B20	G1_TXP3
A21	G1_RXN3	B21	G1_TXN3
A22	GND	B22	GND
A23	G1_RXP2	B23	G1_TXP2
A24	G1_RXN2	B24	G1_TXN2
A25	GND	B25	GND
A26	BP_TYPE	B26	SMB_SCL
A27	WAKE#	B27	SMB_SDA
A28	GND	B28	GND
A29	DP	B29	RST0_L
A30	DN	B30	PRSNT_N
A31	GND	B31	GND
A32	G1_RXP1	B32	G1_TXP1
A33	G1_RXN1	B33	G1_TXN1
A34	GND	B34	GND
A35	G1_RXP0	B35	G1_TXP0
A36	G1_RXN0	B36	G1_TXN0
A37	GND	B37	GND
75	NP_NC_1	76	NP_NC_2
77	PGND_1	78	PGND_3
79	PGND_2	80	PGND_4

MCIO5 Pin Definition

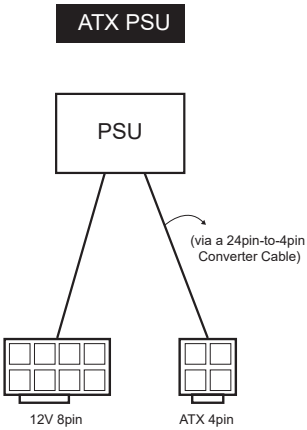
Pin	Defeinition	Pin	Defeinition
A1	GND	B1	GND
A2	G1_RXP15	B2	G1_TXP15
A3	G1_RXN15	B3	G1_TXN15
A4	GND	B4	GND
A5	G1_RXP14	B5	G1_TXP14
A6	G1_RXN14	B6	G1_TXN14
A7	GND	B7	GND
A8	BP_TYPE	B8	SMB_SCL
A9	WAKE#	B9	SMB_SDA
A10	GND	B10	GND
A11	DP	B11	RST0_L
A12	DN	B12	PRSNT_N
A13	GND	B13	GND
A14	G1_RXP13	B14	G1_TXP13
A15	G1_RXN13	B15	G1_TXN13
A16	GND	B16	GND
A17	G1_RXP12	B17	G1_TXP12
A18	G1_RXN12	B18	G1_TXN12
A19	GND	B19	GND
A20	G1_RXP11	B20	G1_TXP11
A21	G1_RXN11	B21	G1_TXN11
A22	GND	B22	GND
A23	G1_RXP10	B23	G1_TXP10
A24	G1_RXN10	B24	G1_TXN10
A25	GND	B25	GND
A26	BP_TYPE	B26	SMB_SCL
A27	WAKE#	B27	SMB_SDA
A28	GND	B28	GND
A29	DP	B29	RST0_L
A30	DN	B30	PRSNT_N
A31	GND	B31	GND
A32	G1_RXP9	B32	G1_TXP9
A33	G1_RXN9	B33	G1_TXN9
A34	GND	B34	GND
A35	G1_RXP8	B35	G1_TXP8
A36	G1_RXN8	B36	G1_TXN8
A37	GND	B37	GND
75	NP_NC_1	76	NP_NC_2
77	PGND_1	78	PGND_3
79	PGND_2	80	PGND_4

MCIO6 Pin Definition

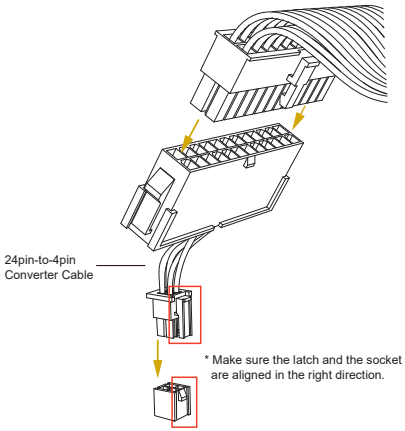
Pin	Defeinition	Pin	Defeinition
A1	GND	B1	GND
A2	P0_RXP0	B2	P0_TXP0
A3	P0_RXN0	B3	P0_TXN0
A4	GND	B4	GND
A5	P0_RXP1	B5	P0_TXP1
A6	P0_RXN1	B6	P0_TXN1
A7	GND	B7	GND
A8	BP_TYPE	B8	SMB_SCL
A9	WAKE#	B9	SMB_SDA
A10	GND	B10	GND
A11	DP	B11	RST1_L
A12	DN	B12	PRSNT_N
A13	GND	B13	GND
A14	P0_RXP2	B14	P0_TXP2
A15	P0_RXN2	B15	P0_TXN2
A16	GND	B16	GND
A17	P0_RXP3	B17	P0_TXP3
A18	P0_RXN3	B18	P0_TXN3
A19	GND	B19	GND
A20	P0_RXP4	B20	P0_TXP4
A21	P0_RXN4	B21	P0_TXN4
A22	GND	B22	GND
A23	P0_RXP5	B23	P0_TXP5
A24	P0_RXN5	B24	P0_TXN5
A25	GND	B25	GND
A26	BP_TYPE	B26	SMB_SCL
A27	WAKE#	B27	SMB_SDA
A28	GND	B28	GND
A29	DP	B29	RST1_L
A30	DN	B30	PRSNT_N
A31	GND	B31	GND
A32	P0_RXP6	B32	P0_TXP6
A33	P0_RXN6	B33	P0_TXN6
A34	GND	B34	GND
A35	P0_RXP7	B35	P0_TXP7
A36	P0_RXN7	B36	P0_TXN7
A37	GND	B37	GND
75	NP_NC_1	76	NP_NC_2
77	PGND_1	78	PGND_3
79	PGND_2	80	PGND_4

2.8 ATX PSU Power Connections

This motherboard support ATX power input. Please refer to the table below for the required connections between the motherboard and the power supply.



The following diagram illustrates how to connect the bundled ATX 24pin-to-4pin converter cable.



2.9 Dr. Debug

Dr. Debug is used to provide code information, which makes troubleshooting even easier. Please see the diagrams below for reading the Dr. Debug codes.

Code	Description
0x10	PEI_CORE_STARTED
0x11	PEI_CAR_CPU_INIT
0x15	PEI_CAR_NB_INIT
0x19	PEI_CAR_SB_INIT
0x31	PEI_MEMORY_INSTALLED
0x32	PEI_CPU_INIT
0x33	PEI_CPU_CACHE_INIT
0x34	PEI_CPU_AP_INIT
0x35	PEI_CPU_BSP_SELECT
0x36	PEI_CPU_SMM_INIT
0x37	PEI_MEM_NB_INIT
0x3B	PEI_MEM_SB_INIT
0x4F	PEI_DXE_IPL_STARTED
0x60	DXE_CORE_STARTED
0x61	DXE_NVRAM_INIT
0x62	DXE_SBRUN_INIT

0x63	DXE_CPU_INIT
0x68	DXE_NB_HB_INIT
0x69	DXE_NB_INIT
0x6A	DXE_NB_SMM_INIT
0x70	DXE_SB_INIT
0x71	DXE_SB_SMM_INIT
0x72	DXE_SB_DEVICES_INIT
0x78	DXE_ACPI_INIT
0x79	DXE_CSM_INIT
0x90	DXE_BDS_STARTED
0x91	DXE_BDS_CONNECT_DRIVERS
0x92	DXE_PCI_BUS_BEGIN
0x93	DXE_PCI_BUS_HPC_INIT
0x94	DXE_PCI_BUS_ENUM
0x95	DXE_PCI_BUS_REQUEST_RESOURCES
0x96	DXE_PCI_BUS_ASSIGN_RESOURCES
0x97	DXE_CON_OUT_CONNECT
0x98	DXE_CON_IN_CONNECT

0x99	DXE_SIO_INIT
0x9A	DXE_USB_BEGIN
0x9B	DXE_USB_RESET
0x9C	DXE_USB_DETECT
0x9D	DXE_USB_ENABLE
0xA0	DXE_IDE_BEGIN
0xA1	DXE_IDE_RESET
0xA2	DXE_IDE_DETECT
0xA3	DXE_IDE_ENABLE
0xA4	DXE_SCSI_BEGIN
0xA5	DXE_SCSI_RESET
0xA6	DXE_SCSI_DETECT
0xA7	DXE_SCSI_ENABLE
0xA8	DXE_SETUP_VERIFYING_PASSWORD
0xA9	DXE_SETUP_START
0xAB	DXE_SETUP_INPUT_WAIT
0xAD	DXE_READY_TO_BOOT
0xAE	DXE_LEGACY_BOOT

0xAF	DXE_EXIT_BOOT_SERVICES
0xB0	RT_SET_VIRTUAL_ADDRESS_MAP_BEGIN
0xB1	RT_SET_VIRTUAL_ADDRESS_MAP_END
0xB2	DXE_LEGACY_OPROM_INIT
0xB3	DXE_RESET_SYSTEM
0xB4	DXE_USB_HOTPLUG
0xB5	DXE_PCI_BUS_HOTPLUG
0xB6	DXE_NVRAM_CLEANUP
0xB7	DXE_CONFIGURATION_RESET
0xF0	PEI_RECOVERY_AUTO
0xF1	PEI_RECOVERY_USER
0xF2	PEI_RECOVERY_STARTED
0xF3	PEI_RECOVERY_CAPSULE_FOUND
0xF4	PEI_RECOVERY_CAPSULE_LOADED
0xE0	PEI_S3_STARTED
0xE1	PEI_S3_BOOT_SCRIPT
0xE2	PEI_S3_VIDEO_REPOST

0xE3	PEI_S3_OS_WAKE
0x50	PEI_MEMORY_INVALID_TYPE
0x53	PEI_MEMORY_NOT_DETECTED
0x55	PEI_MEMORY_NOT_INSTALLED
0x57	PEI_CPU_MISMATCH
0x58	PEI_CPU_SELF_TEST_FAILED
0x59	PEI_CPU_NO_MICROCODE
0x5A	PEI_CPU_ERROR
0x5B	PEI_RESET_NOT_AVAILABLE
0xD0	DXE_CPU_ERROR
0xD1	DXE_NB_ERROR
0xD2	DXE_SB_ERROR
0xD3	DXE_ARCH_PROTOCOL_NOT_AVAILABLE
0xD4	DXE_PCI_BUS_OUT_OF_RESOURCES
0xD5	DXE_LEGACY_OPROM_NO_SPACE
0xD6	DXE_NO_CON_OUT
0xD7	DXE_NO_CON_IN

0xD8	DXE_INVALID_PASSWORD
0xD9	DXE_BOOT_OPTION_LOAD_ERROR
0xDA	DXE_BOOT_OPTION_FAILED
0xDB	DXE_FLASH_UPDATE_FAILED
0xDC	DXE_RESET_NOT_AVAILABLE
0xE8	PEI_MEMORY_S3_RESUME_FAILED
0xE9	PEI_S3_RESUME_PPI_NOT_FOUND
0xEA	PEI_S3_BOOT_SCRIPT_ERROR
0xEB	PEI_S3_OS_WAKE_ERROR

2.10 Identification purpose LED/Switch

Use the UID button to locate the server working on behind a rack of servers.

Unit Identification purpose LED/Switch (UID1)		When the UID button on the front or rear panel is pressed, the front/rear UID blue LED indicator will be truned on. Press the UID button again to turn off the indicator.

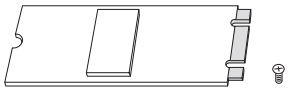
1. Press and hold the UID button for 4 seconds, the BMC will trigger an external reset.
2. Press and hold the UID button for 10 seconds, the BMC will reset and load default values.

2.11 M.2 SSD Module Installation Guide

The M.2 Socket (M2_1/M2_2, Key M) supports type 2280/22110 M.2 PCI Express module up to Gen5 x4 (32GT/s x4).

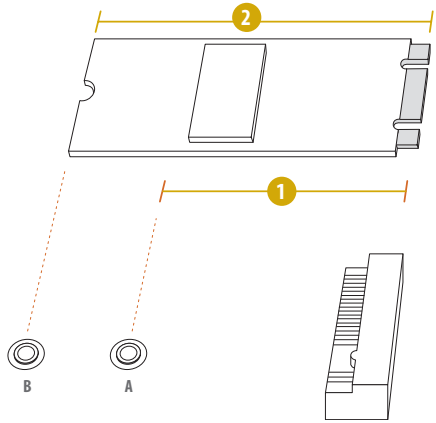
**Supports CXL1.1 while installing AMD EPYC 9004 (with AMD 3D V-Cache™ Technology) and 97x4 series processors.*

Installing the M.2 SSD Module



Step 1

Prepare a M.2_SSD module and the screw.



Step 2

Depending on the PCB type and length of the M.2 SSD module, find the corresponding nut location to be used.

M2_1:

No.	1	2
Nut Location	A (NUT80_1/2)	B (NUT110_1)
PCB Length	8cm	11cm
Module Type	Type2280	Type 22110

M2_2:

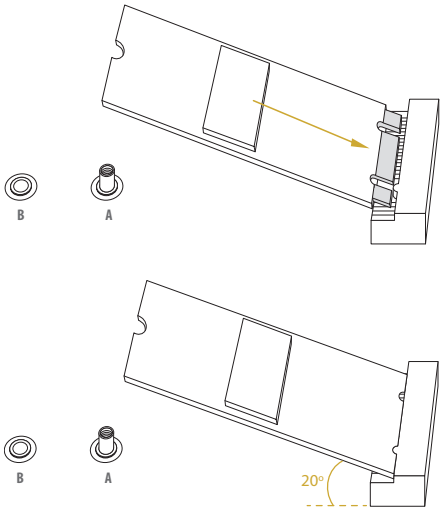
No.	1
Nut Location	A (NUT80_2)
PCB Length	8cm
Module Type	Type2280

Step 3

Move the standoff based on the module type and length.
Skip Step 3 and 4 and go straight to Step 5 if using the default nut.
Otherwise, release the standoff by hand.

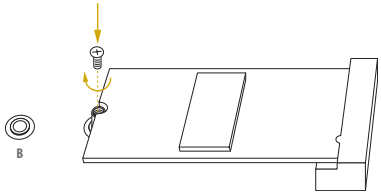
Step 4

Peel off the yellow protective film on the nut to be used. Hand tighten the standoff into the desired nut location on the motherboard.



Step 5

Align and gently insert the M.2 SSD module into the M.2 slot. Please be aware that the M.2 SSD module only fits in one orientation.



Step 6

Tighten the screw with a screwdriver to secure the module into place. Please do not overtighten the screw as this might damage the module.

2.12 Dual LAN and Teaming Operation Guide

Dual LAN with Teaming enabled on this motherboard allows two single connections to act as one single connection for twice the transmission bandwidth, making data transmission more effective and improving the quality of transmission of distant images. Fault tolerance on the dual LAN network prevents network downtime by transferring the workload from a failed port to a working port.

The speed of transmission is subject to the actual network environment or status even with Teaming enabled.

Before setting up Teaming, please make sure whether the Switch (or Router) supports Teaming (IEEE 802.3ad Link Aggregation). Specify a preferred adapter in Intel PROSet. Under normal conditions, the Primary adapter handles all non-TCP/IP traffic. The Secondary adapter will receive fallback traffic if the primary fails. If the Preferred Primary adapter fails, but is later restored to an active status, control is automatically switched back to the Preferred Primary adapter.

Step 1

From **Device Manager**, open the properties of a team.

Step 2

Click the **Settings** tab.

Step 3

Click the **Modify Team** button.

Step 4

Select the adapter that want to be the primary adapter and click the **Set Primary** button.

The software will choose an adapter of the highest capability (model and speed) to act as the default primary upon not specify a preferred primary adapter. If a failover occurs, another adapter becomes the primary. The adapter will, however, rejoin the team as a non-primary.

Chapter 3 UEFI Setup Utility

3.1 Introduction

This section explains how to use the UEFI SETUP UTILITY to configure the system. The UEFI chip on the motherboard stores the UEFI SETUP UTILITY. Run the UEFI SETUP UTILITY when starting up the computer. Please press <F2> or <Del> during the Power-On-Self-Test (POST) to enter the UEFI SETUP UTILITY; otherwise, POST will continue with its test routines.

Restart the system by pressing <Ctrl> + <Alt> + <Delete> to enter the UEFI SETUP UTI ITY after POST, or by pressing the reset button on the system chassis. This allows user to restart by turning the system off and then back on.

Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what seeing on the screen.

3.1.1 UEFI Menu Bar

The top of the screen has a menu bar with the following selections:

Item	Description
Main	To set up the system time/date information
Advanced	To set up the advanced UEFI features
Server Mgmt	To manage the server
Event Logs	For event log configuration
Security	To set up the security features
Boot	To set up the default system device to locate and load the Operating System
Exit	To exit the current screen or the UEFI SETUP UTILITY

Use < ← > key or < → > key to choose among the selections on the menu bar, and then press <Enter> to get into the sub screen.

English

3.1.2 Navigation Keys

Please check the following table for the function description of each navigation key.

Navigation Key(s)	Function Description
← / →	Moves cursor left or right to select Screens
↑ / ↓	Moves cursor up or down to select items
+ / -	To change option for the selected items
<Tab>	Switch to next function
<Enter>	To bring up the selected screen
<PGUP>	Go to the previous page
<PGDN>	Go to the next page
<HOME>	Go to the top of the screen
<END>	Go to the bottom of the screen
<F1>	To display the General Help Screen
<F7>	Discard changes and exit the UEFI SETUP UTILITY
<F9>	Load optimal default values for all the settings
<F10>	Save changes and exit the UEFI SETUP UTILITY
<F12>	Print screen
<ESC>	Jump to the Exit Screen or exit the current screen

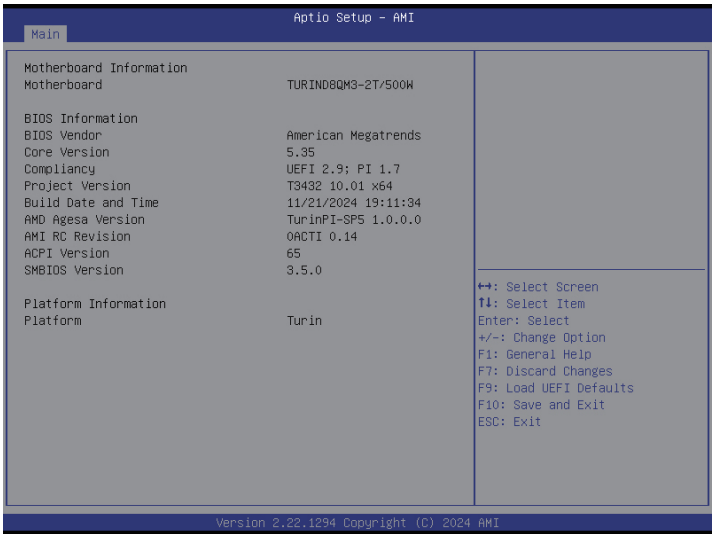
3.2 Main Screen

Once entering the UEFI SETUP UTILITY, the Main screen appears the system overview. The Main screen provides system overview information and allows user to set the system time and date.

English

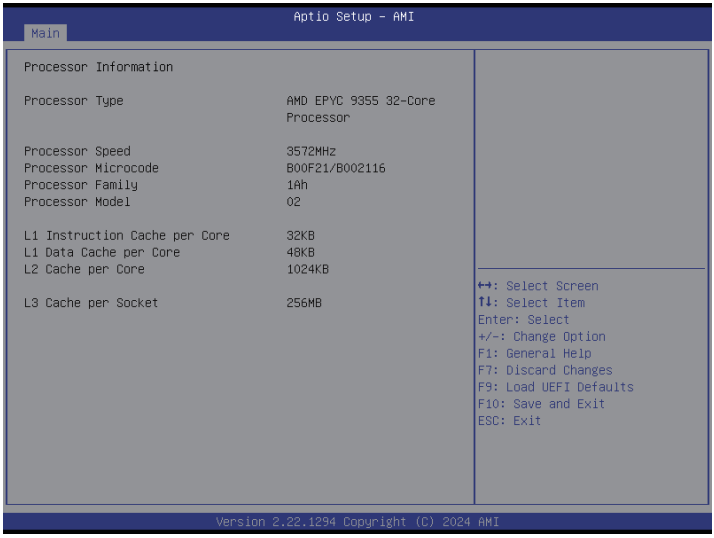
3.2.1 Mother Board Information

Press <Enter> to view the information of the motheboard.



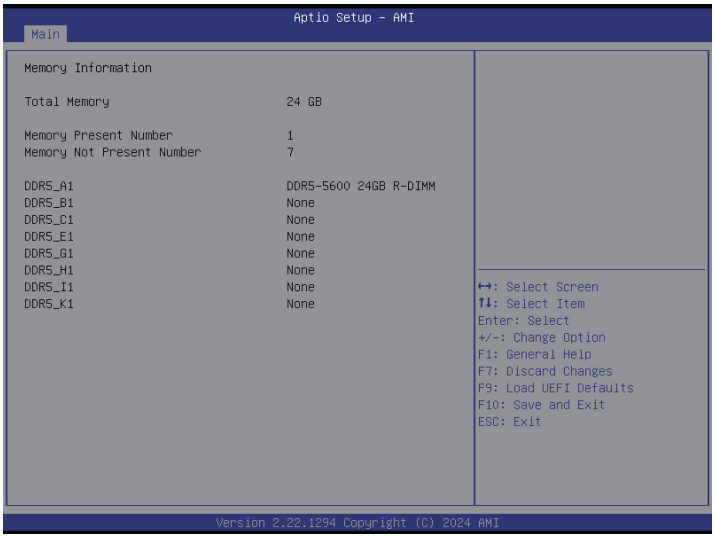
3.2.2 Processor Information

Press <Enter> to view the information of the processor.



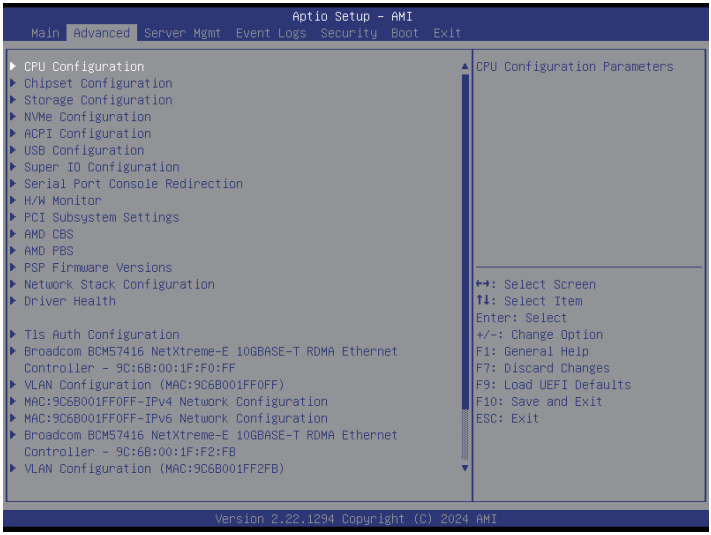
3.2.3 Memory Information

Press <Enter> to view the information of the memory.



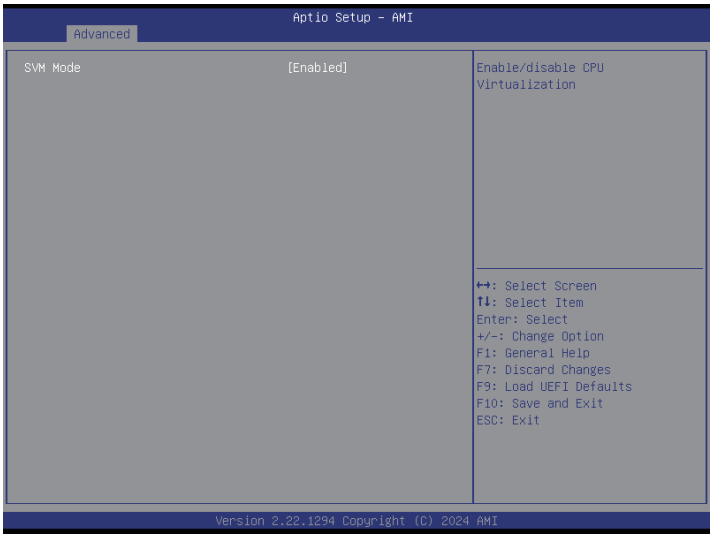
3.3 Advanced Screen

In this section, set the configurations for the following items: CPU Configuration, Chipset Configuration, Storage Configuration, NVMe Configuration, ACPI Configuration, USB Configuration, Super IO Configuration, Serial Port Console Redirection, H/W Monitor, PCI Subsystem Settings, AMD CBS, AMD PBS, PSP Firmware Versions, Network Stack Configuration, Driver Health, Tls Auth Configuration and Instant Flash.



Setting wrong values in this section may cause the system to malfunction.

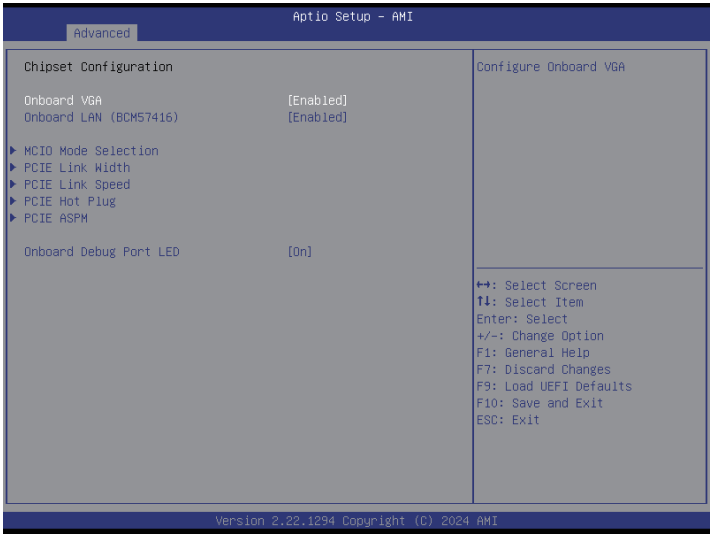
3.3.1 CPU Configuration



SVM Mode

Enable or disable CPU Virtualization.

3.3.2 Chipset Configuration



Onboard VGA

Use this to enable or disable the Onboard VGA function.

Onboard LAN (BCM57416)

Use this to enable or disable the Onboard LAN function.

MCIO Mode Selection

This item is for MCIO Mode Configuration.

MICO2/MCIO6 Mode Selection
Select SATA or PCIE work in MCIO port.

PCIE Link Width

This displays the PCIE Link Width.

PCIE1/PCIE6, MCIO1/MCIO2/MCIO3/MCIO4/MCIO5/MCIO6 Link Width
The PCIE default value is [x16], options are [x16], [x8x8], [x8x4x4], [x4x4x8] and [x4x4x4x4].
The MCIO default value is [x4x4]. options are [x8] and [x4x4].

PCIE Link Speed

This displays the PCIE Link Speed.

MCIO1/MCIO2/MCIO3/MCIO4/MCIO5, OCP3 Link Speed
All of the default values are [Auto]-up to Gen5 (32GT/s).

PCIE Hot Plug

Selec this item to configure the PCIE Hot Plug.

PCIE1/PCIE6, MCIO1/MCIO2/MCIO3/MCIO4/MCIO5, OCP3 Hot Plug
Select this item to configure Hot Plug for PCIE1/PCIE6, MCIO1/MCIO2/MCIO3/MCIO4/MCIO5/MCIO6 and OCP3 globally.

PCIE ASPM

Selec this item to configure the PCIE ASPM.

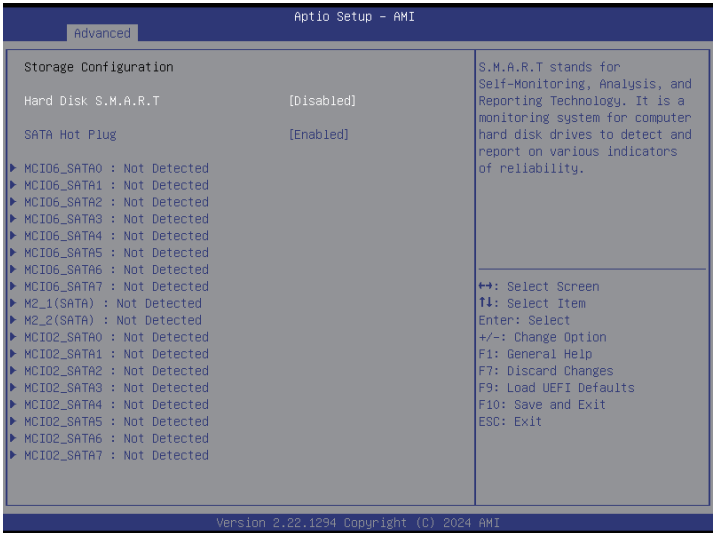
PCI-E ASPM Support (Global)
Select this item to enable or disable the ASPM support to all PCIe root ports.

M2_1/M2_2, PCIE1/PCIE6, MCIO1/MCIO2/MCIO3/MCIO4/MCIO5/MCIO6, OCP3 ASPM Support
Selec this item to configure the M.2, PCIE, MCIO and OCP Hot Plug.

Onboard Debug Port LED

Use this item to configure the onboard Dr. Debug LED.

3.3.3 Storage Configuration



Hard Disk S.M.A.R.T.

S.M.A.R.T stands for Self-Monitoring, Analysis, and Reporting Technology. It is a monitoring system for computer hard disk drives to detect and report on various indicators of reliability.

SATA Hot Plug

Use this to enable or disable the SATA Hot Plug Function.

3.3.4 NVMe Configuration

The NVMe Configuration displays the NVMe controller and Drive information.

Launch NVMe driver

Select this item to enable or disable launch NVMe driver.

3.3.5 ACPI Configuration

PCIE Devices Power On

Allow the system to be waked up by a PCIE device and enable wake on LAN.

Ring-In Power On

Use this item to enable or disable Ring-In signals to turn on the system from the power-soft-off mode.

RTC Alarm Power On

Use this item to enable or disable RTC (Real Time Clock) to power on the system.

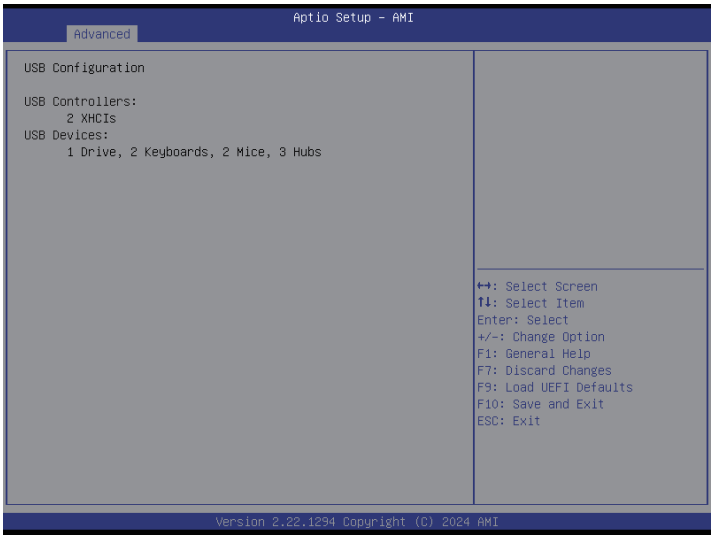
RTC Alarm Date
Use this item to set Date of RTC power on feature.

RTC Alarm Hour
Use this item to set Hour of RTC power on feature.

RTC Alarm Minute
Use this item to set Minute of RTC power on feature.

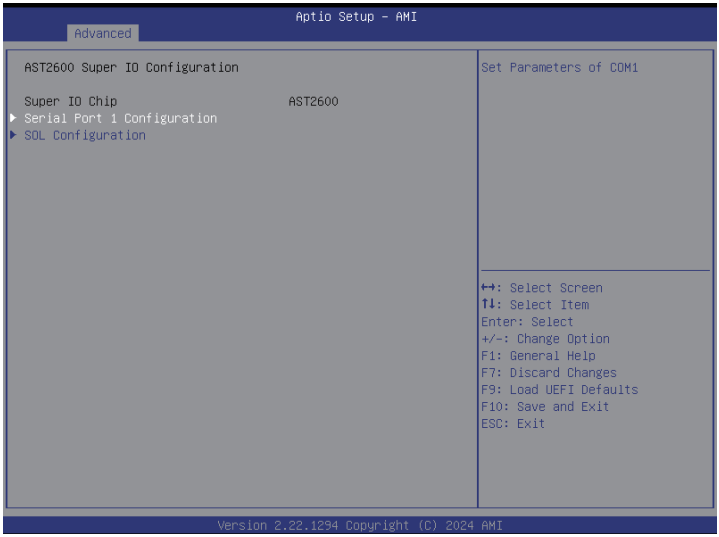
RTC Alarm Second
Use this item to set Second of RTC power on feature.

3.3.6 USB Configuration



This displays the USB Controllers and USB Devices information.

3.3.7 Super IO Configuration



Serial Port 1 Configuration

Use this item to set parameters of Serial Port 1 (COM1).

Serial Port
Use this item to enable or disable the serial port.

Change Settings
Use this item to select an optimal setting for Super IO device.

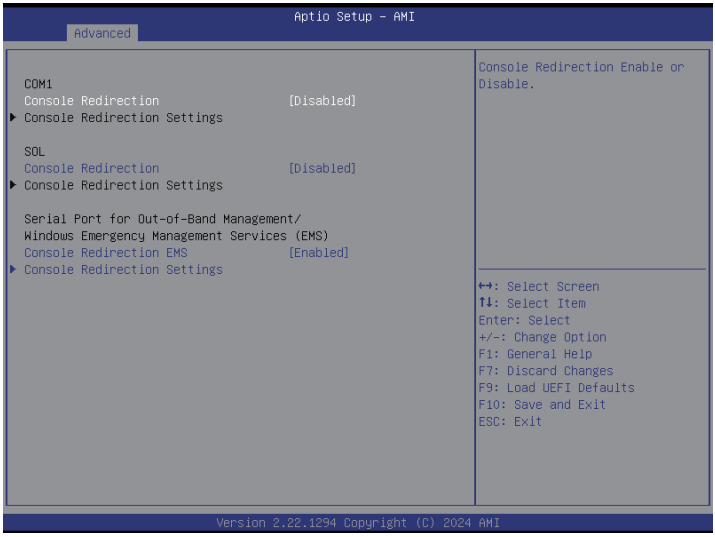
SOL Configuration

Use this item to set parameters of SOL.

SOL Port
Use this item to set parameters of SOL.

Change Settings
Use this item to select an optimal setting for Super IO device.

3.3.8 Serial Port Console Redirection



COM1 / SOL

Console Redirection

Use this to enable or disable Console Redirection. If this item is set to Enabled allowing to select a COM Port to be used for Console Redirection.

Console Redirection Settings

Use this to configure Console Redirection Settings, and specify how the computer and the host computer to which are connected exchange information. Both computers should have the same or compatible settings.

Terminal Type

Use this to select the preferred terminal emulation type for out-of-band management. It is recommended to select [VT-UTF8].

Option	Description
VT100	ASCII character set
VT100Plus	Extended VT100 that supports color and function keys
VT-UTF8	UTF8 encoding is used to map Unicode chars onto 1 or more bytes
ANSI	Extended ASCII character set

Bits Per Second
Use this to select the serial port transmission speed. The speed used in the host computer and the client computer must be the same. Long or noisy lines may require lower transmission speed. The options include [9600], [19200], [38400], [57600] and [115200].

Data Bits
Use this to set the data transmission size. The options include [7] and [8] (Bits).

Parity
Use this to select the parity bit. The options include [None], [Even], [Odd], [Mark] and [Space].

Stop Bits
The item indicates the end of a serial data packet. The standard setting is [1] Stop Bit. Select [2] Stop Bits for slower devices.

Flow Control
Use this to set the flow control to prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a "stop" signal can be sent to stop the data flow. Once the buffers are empty, a "start" signal can be sent to restart the flow. Hardware flow uses two wires to send start/stop signals. The options include [None] and [Hardware RTS/CTS].

VT-UTF8 Combo Key Support
Use this to enable or disable the VT-UTF8 Combo Key Support for ANSI/VT100 terminals.

Recorder Mode
Use this to enable or disable Recorder Mode to capture terminal data and send it as text messages.

Resolution 100x31
Use this to enable or disable extended terminal resolution support.

Putty Keypad
Use this to select Function Key and Keypad on Putty.

Serial Port for Out-of-Band Management/Windows Emergency Management Services (EMS)

Console Redirection EMS

Use this to enable or disable Console Redirection EMS. If this item is set to Enabled allowing to select a COM Port to be used for Console Redirection.

Console Redirection Settings

Use this to configure Console Redirection Settings, and specify how the computer and the host computer to which are connected exchange information.

Out-of-Band Mgmt Port

Microsof t Windows Emergency Management Services (EMS) allows for remote management of a Windows Server OS through a serial port.

Terminal Type EMS

Use this to select the preferred terminal emulation type for out-of-band management. It is recommended to select [VT-UTF8].

Option	Description
VT100	ASCII character set
VT100+	Extended VT100 that supports color and function keys
VT-UTF8	UTF8 encoding is used to map Unicode chars onto 1 or more bytes
ANSI	Extended ASCII character set

Bits Per Second EMS

Use this to select the serial port transmission speed. The speed used in the host computer and the client computer must be the same. Long or noisy lines may require lower transmission speed. The options include [9600], [19200], [57600] and [115200].

Flow Control EMS

Use this to set the flow control to prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a "stop" signal can be sent to stop the data flow. Once the buffers are empty, a "start" signal can be sent to restart the flow. Hardware flow uses two wires to send start/stop signals. The options include [None], [Hardware RTS/CTS], and [Software Xon/Xoff].

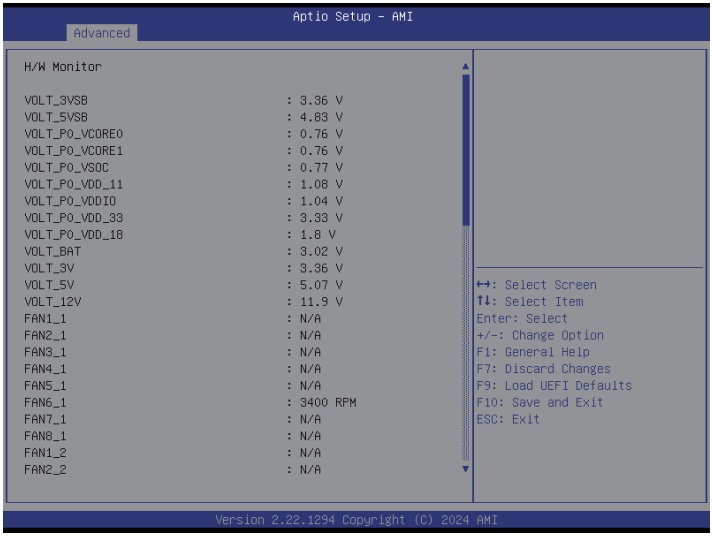
Data Bits

Parity

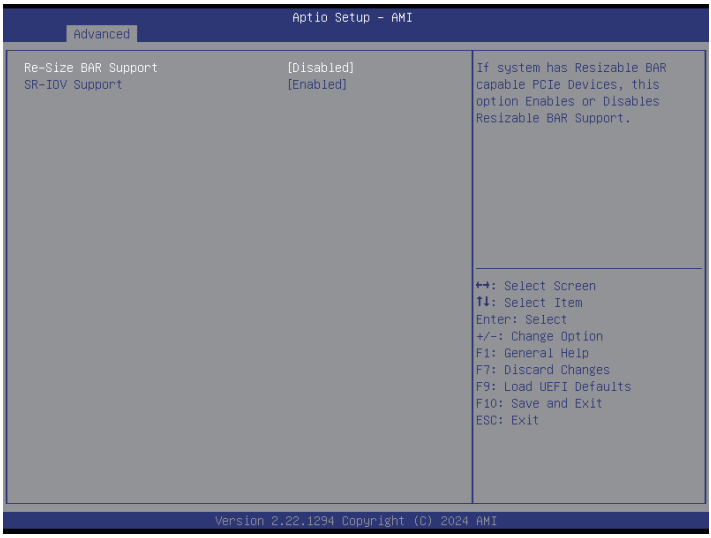
Stop Bits

3.3.9 H/W Monitor

In this section, it allows user to monitor the status of the hardware on the system, including the parameters of the CPU temperature, motherboard temperature, CPU fan speed, chassis fan speed, and the critical voltage.



3.3.10 PCI Subsystem Settings



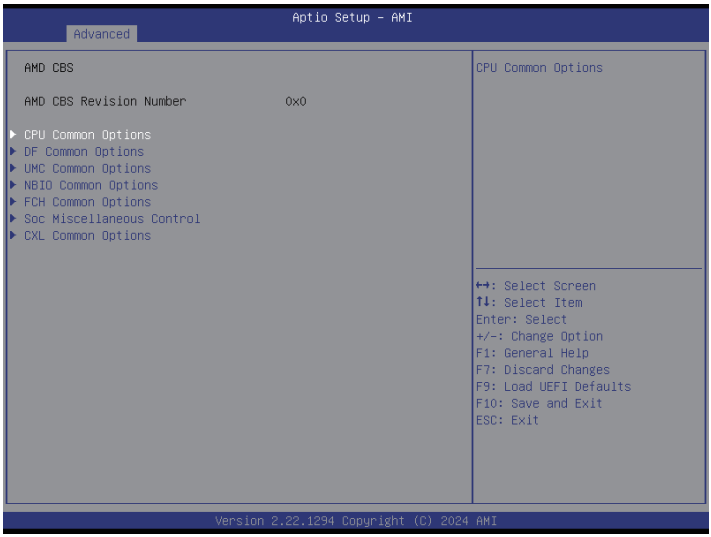
Re-Size BAR Support

Enable or disable this item to Re-Size BAR supported upon the sysem has resizable BAR capable PCIe Devices.

SR-IOV Support

If system has SR-IOV capable PCIe Devices, this option Enables or Disables Single Root IO Virtualization Support.

3.3.11 AMD CBS



CPU Common Options

Use this item to configure CPU Common options.

Performance
Use this item to configure CPU performance.

REP-MOV/STOS Streaming
This item allows REP-MOVS/STOS to use non-caching streaming stores for large sizes.

Prefetcher Settings
Use this item to configure L1 Stream HW, L1 Stride, L1 Region, L2 Stream HW, L2 Up/Down and L1 Burst Prefetcher Settings.

Core Watchdog
Use this item to configure CPU Watchdog Timer.

RedirectForReturnDis
From a workaround for GCC/C000005 issue for XV Core on C2 A0, setting MSRC001_1029 Decode Configuration (DE_CFG) bit 14 [DecfgNoRdrctForReturns] to 1.

Platform First Error Handling
Use this item to enable or disable PFEH, cloak individual banks, and mask deferred error interrupts from each bank.

Core Performance Boost
Use this item to configure Core Performance Boost.

Global C-state Control
Use this item to controls IO based C-state generation and DF C-states.

Power Supply Idle Control
Use this item to configure Power Supply Idle Control.

Streaming Stores Control
Use this item to enable or disable the streaming stores functionality.

Local APIC Mode
Use this item to configure local APIC operation modes.

ACPI_CST C1 Declaration
Determines whether or not to declare the C1 state to the OS.

ACPI CST C2 Latency
Enter in microseconds (decimal value). Larger C2 latency values will reduce the number of C2 transitions and reduce C2 residency.

MCA Error Thresh Enable
Use this item to enable MCA error thresholding.

MCA Frutext
Use this item to enable or disable MCA FruText.

SMU and PSP Debug Mode
When this option is enabled, uncorrected errors detected by the PSP FW or SMU FW that should cause a cold reset, will hang and not reset the system.

PPIN Opt-in
Use this item to turn on PPIN feature.

SMEE
Use this item to control secure memory encryption enable. Enabling both SMEE and SME-MK are not supported. Results in #GP.

Action on BIST Failure
When a CCD BIST failure is detected, the action will be taken.

Enhanced REP MOVSB/STOSB (ERSM)
The Default value is 1, also can be set to zero for analysis purposes as long as OS support it.

Log Transparent Errors
Log transparent errors in MCA in addition to debug registers.

AVX512
Use this item to enable or disable AVX512.

ERMSB Caching Behavior
Enable: Optimized cashing for REPS.
Disable: Legacy caching behavior for REPs.

CPU Specuiative Store Modes

Balanced: Store instructions may delay sending out their invalidations to remote cacheline copies when the cacheline is present but not in a writable state in the local cache.

More Speculative: Store instructions will send out invalidations to remote cacheline copies as soon as possible.

Less Speculative: Store instructions may delay sending out their invalidations to remote cacheline copies when the cacheline is not present in the local cache or not in a writable state in the local cache.

Fast Short REP MOVSB (FSRM)

The Default value is 1, also can be set to zero for analysis purposes as long as OS support it.

PauseCntSe1_1_0

Number of cycles dispatch is stalled for a thread after dispatching PAUSE instruction. POR is 64 cycles.

Prefetch/Request Throttle

Enables XI logic which calculates average latency, updates throttle level, and sends throttle level messages to L2.

Scan Dump Debug Enable

This item operates like below settings (when enabled) to avoid the reset caused by Syncflood, etc.

APCB_TOKEN_UID_PSP_ENABLE_DEBUG_MODE = 1 (Enabled)

APCB_TOKEN_UID_DF_EXT_IP_SYNC_F_LOOD_PROP = 1 (Sync flood disabled)

PcdResetCpuOnSyncFlood = 0 (Disable)

MCAX 64 Bank Support

Use this item to enable 64 MCA banks per thread mapping.

Adaptive Allocation (AA)

Disable to use fixed L2 replacement/allocation policy.

Latency Under Load (LUL)

Enabling may improve latency in heavy BW scenarios. May slightly reduce peak CCD BW.

Core Trace Dump Enable

Use this item to enable or disable Core Trace Dump feauture.

FP512

Indicates support for downgrading FP512 datapathto FP256. Enable = 512bit datapath, Disable = 256bit datapath.

AMD_ERMSB Reporting

Reprot presence of AMD_ERMSB via CPUID. By default, this is reported as true (Enable), the field can be set to false for analysis purposes as long as OS supports it.

DF Common Options

Use this item to configure DF Common options.

Memory Addressing
Use this item to configure memory addressing.

ACPI
Use this item to configure ACPI.

Link
Use this item to configure Link.

SDCI
Use this item to configure Smart Data Cache Injection (SDCI) feature.

Probe Filter
Use this item to configure Probe Filter.

DF Watchdog Timer Interval
Use this item to configure the Data Fabric watchdog timer interval.

Disable DF to external IP SyncFloodPropagation
Use this item to disable SyncFlood to UMC & downstream slaves.

Sync Flood Propagation to DF Components
Use this item to configure Sync Flood Propagation to DF Components.

Freeze DF Module Queues on Error
Use this item to configure Freeze DF Module Queues on Error.

CC6 Memory Region Encryption
Use this item to control whether or not the CC6 save/restore memory is encrypted.

CCD B/W Balance Throttle Level
Use this item to enable throttling of memory traffic per CCD. Increased throttling can reduce imbalance across CCDs (expected to be rare).

Number of PCI Segments
Use this item to configure Number of PCI Segments.

CCM Throttler
Use this item to limit peak CCM throughput.

Clean Victim FTI Cmd Balancing
Use this item to control Clean Victim FTI Cmd Balancing feature.

CXL Strongly Ordered Writes
Determines how the host treats Strongly ordered Writes (ItoMWr and MemWr) from CXL. cache devices.

UMC Common Options

Use this item to configure UMC Common options including DDR Addressing Options, DDR Controller Configuration, DDR MBIST Options, DDR RAS, DDR Bus Configuration, DDR Timing Configuration, DDR Training Options, DDR Security, DDR PMIC Configuration, DDR Thermal Throttling and DDr Miscellaneous.

NBIO Common Options

Use this item to configure NBIO Common options.

SMU Common Options
Use this item to configure SMU Common Options.

NBIO RAS Common Options
Use this item to configure NBIO RAS Common Options.

PCIE
Use this item to configure PCIE.

nBif Common Options
Use this item to configure nBif Common Options.

IOMMU/Security
Use this item to configure IOMMU/Security.

Enable Port Bifurcation
Use this item to configure Enable Port Bifurcation.

Link EQ Preset Options
Use this item to configure Link EQ Preset Options.

PCIe Loopback Mode
Use this item to enable or disable PcieLoopBackMode.

Enable 2 SPC (Gen 4)
Enable this setting to use 2 symbols per clock for devices at Gen 4 speed.

Enable 2 SPC (Gen 5)
Enable this setting to use 2 symbols per clock for devices at Gen 5 speed.

Safe Recovery upon a BERExceeded Error
Use this item to configure Safe Recovery upon a BERExceeded Error.

Periodic Callbration
Use this item to configure Periodic Callbration.

FCH Common Options

Use this item to configure FCH Common options including I3C/I2C Configuration Options, SATA Configuration Options, USB Configuration Options, Ac Power Loss Options, Uart Configuration Options, FCH RAS Options and Miscellaneous Options.

Soc Miscellaneous Control

Use this item to configure Soc Miscellaneous Control options.

ABL Console Out Control
Enable: Enable ConsoleOut Funciton for ABL.
Disable: Disable ConsoleOut Funciton for ABL.
Auto: Keep default behavior.

ABL Console Out Serial Port
eSPI UART: Enable serial port through eSPU UART.
SOC UARTO: Enable serial port through SOC UART0.
SOC UART1: Enable serial port through SOC UART1.
Auto: Keep default behavior.

ABL Console Out Serial Port IO
Select Legacy Uart (SIO or eSPI) IO base.
0x3F8: Set IO base to 0x3F8
0x2F8: Set IO base to 0x2F8
0x3E8: Set IO base to 0x3E8
0x2E8: Set IO base to 0x2E8
Auto: Keep default behavior.

ABL Serial Port IO Customized Enabled
Use this item to configure ABL Serial Port IO Customized Enabled.

ABL Basic Console Out Control
Enable: Enable Basic ConsoleOut Funciton for ABL.
Disable: Disable Basic ConsoleOut Function for ABL.
Auto: Keep default behavior.

ABL PMU Message Control
Use this item to control the total number of PMU debug message.

ABL Memory Population Message Control
Non-Recommended configurations may be functional but may not be validated by AMD. Select 'warning message': To show warning messages if Memory channel configuration does NOT follow Memory Population Guidelines. 'Fatal error': To show the messages and halt the system.

PSP Error Injection Support
Use this item to enable EINJ support.
Set this item [True] to enable EINJ support.

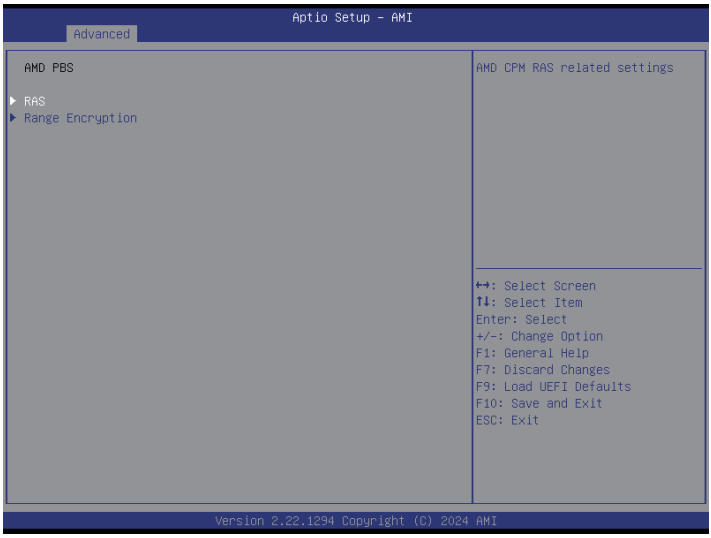
Firmware Anti-rollback (FAR)
Use this item to configure Firmware Anti-rollback (FAR).

SEC_I2C Voltage Mode
Use this item to configure SEC_12C Voltage Mode.

CXL Common Options

Use this item to configure CXL Common options including CXL Control, CXL Physical Addressing, CXL Memory Attribute, CXL Encryption, CXL DVSEC Lock, CXL HDM Decoder Lock On Commit, Temp Gen5 Advertisement, Sync Header Bypass, Sync Header Bypass Compatibility Mode, CXL RAS, CXL Memory Online/Offline and Override CXL Memory Size.

3.3.12 AMD PBS



RAS

Use this item to configure AMD CPM RAS related settings.

RAS Periodic SMI Control
Use this to enable or disable Periodic SMI for polling [MCA Threshold] error.

SMI Threshold
This limits the number of [MCA Threshold and Deferred Error SMI source] per a unit time.

SMI Scale
Use this to defines the time scale.

SMI Scale Unit
Use this to defines the unit of time scale.

SMI Period
Use this to defines the polling interval with ms unit. Input 0 value to disable this function.

GHES Notify Type
This specifies the notification type for deferred/corrected errors.

GHES UnCorr Notify Type
This specifies the notification type for uncorrected errors.

PCIe GHES Notify Type
This specifies the notification type for PCIe corrected errors.

PCIe UnCorr GHES Notify Type
This specifies the notification type for PCIe uncorrected errors.

PCIe Root Port Corr Err Mask Reg
Use this to initialize the PCIe AER corrected error mask register of root port.

PCIe Root Port UnCorr Err Mask Reg
Use this to initialize the PCIe AER uncorrected error mask register of root port.

PCIe Root Port UnCorr Err Sev Reg
Use this to initialize the PCIe AER uncorrected error severity registers of root port.

PCIe Device Corr Err Mask Reg
Use this to initialize the PCIe AER corrected error mask register of PCIe device.

PCIe Device UnCorr Err Mask Reg
Use this to initialize the PCIe AER uncorrected error mask register of PCIe device.

PCIe Device UnCorr Error Sev Reg
Use this to initialize the PCIe AER uncorrected error severity registers of PCIe device

CXL DP CIE Mask Enable
Use this to enable or disable masking of CXL DP correctable error-internal error.

DRAM Hard Post Package Repair
Use this to enable or disable the spare DRAM rows to replace malfunctioning rows via an in-field repair mechanism.

HEST DMC Structure Support
Use this to enable or disable HEST DMC (Deffered Maching Check) structure support.

CXL Error Report Support
Use this to enable or disable CXL error reporting.

Range Encryption

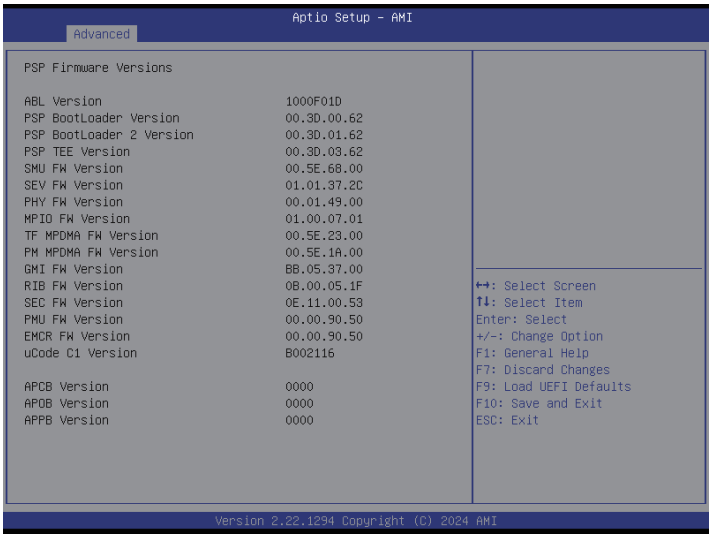
Configure AMD CXL range encryption setting.

Range 1/2/3/4/5/6/7 Memory Base
Use this item to enter memory range base address.

Range 1/2/3/4/5/6/7 Memory Limit
User this item to enter memory range limit address.

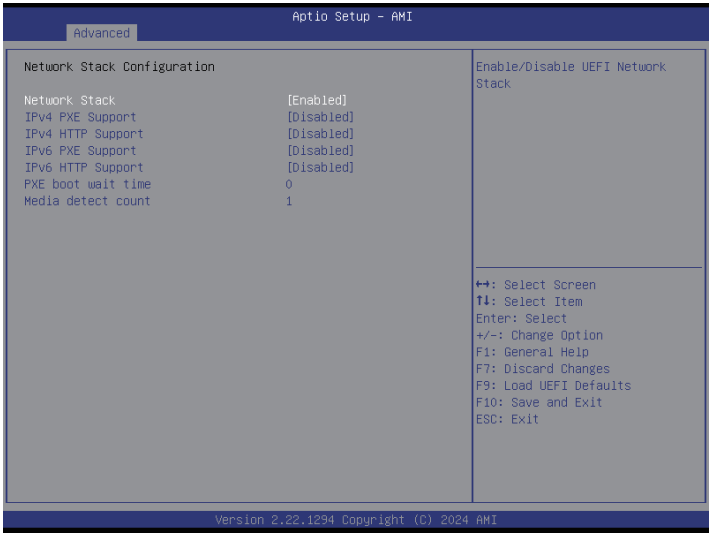
Start CXL Range Encryption
Use this to encrypt all memory ranges..

3.3.13 PSP Firmware Versions



The PSP Firmware Verions displays the version information of ABL, PSP BootLoader, PSP TEE, SMU FW, SEV FW, PHY FW, MPIO FW, TF MPDMA FW, PM MPDMA FW, GMI FW, RIB FW, SEC FW, PMU FW, EMCR FW, uCode B1, APCB, APDB and APPB.

3.3.14 Network Stack Configuration



Network Stack

Use this to enable or disable UEFI Network Stack.

Ipv4 PXE Support

Use this to enable or disable IPv4 PXE boot support. If disabled, IPv4 PXE boot support will not be available.

Ipv4 HTTP Support

Use this to enable or disable IPv4 HTTP boot support. If disabled, IPv4 HTTP boot support will not be available.

Ipv6 PXE Support

Use this to enable or disable IPv6 PXE boot support. If disabled, IPv6 PXE boot support will not be available.

Ipv6 HTTP Support

Use this to enable or disable IPv6 HTTP boot support. If disabled, IPv6 HTTP boot support will not be available.

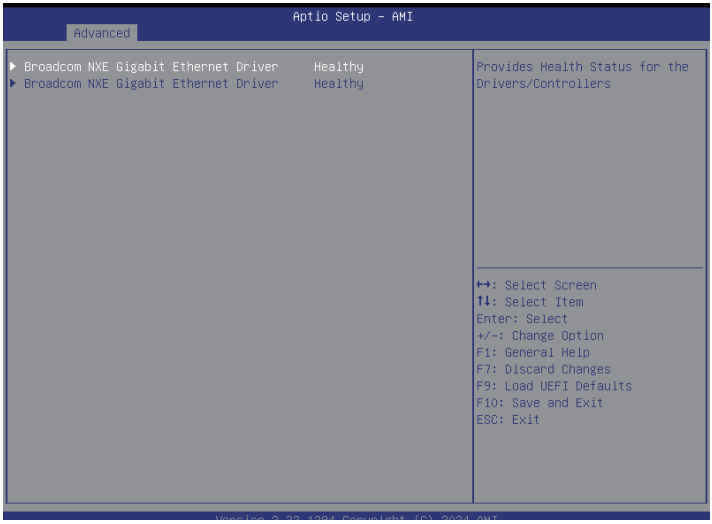
PXE boot wait time

Wait time in seconds to press ESC key to abort the PXE boot. Use either +/- or numeric keys to set the value.

Media detect count

Number of times the presence of media will be checked. Use either +/- or numeric keys to set the value.

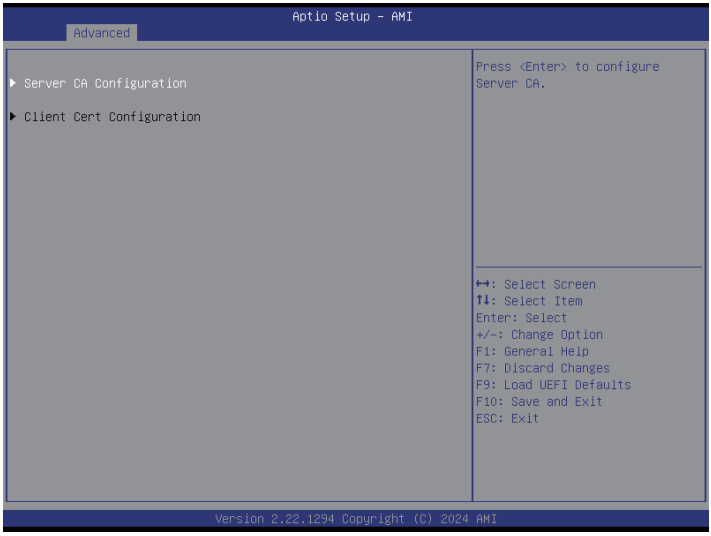
3.3.15 Driver Health



Broadcom NXE Gigabit Ethernet Driver Healthy

Provides Health Status for the Drivers/Controllers.

3.3.16 Tls Auth Configuration



Server CA Configuration

Press <Enter> to configure Server CA.

Enroll Cert

Press <Enter> to enroll cert.

Delete Cert

Press <Enter> to delete cert.

Client Cert Configuration

Press <Enter> to configure Client Cert.

3.3.17 Instant Flash

Instant Flash is a UEFI flash utility embedded in Flash ROM. This convenient UEFI updatetool allows user to update system UEFI without entering operating systems first like MSDOS or Windows®. Just save the new UEFI file to the USB flash drive, floppy disk or hard drive and launch this tool, then update the UEFI only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system. Execute the Instant Flash utility, the utility will show the UEFI files and the respective information. Select the proper UEFI file to update UEFI, and reboot the system after the UEFI update process is completed.

3.4 Server Mgmt

Wait For BMC

Wait For BMC response for specified time out. BMC starts at the same time when BIOS starts during AC power ON. It takes around 90 seconds to initialize Host to BMC interfaces.

FRB-2 Timer

Use this to enable or disable FRB-2 timer (POST timer)

FRB-2 Timer Timeout

Use this to define the FRB-2 Time Expiration between 1 to 30 value.

FRB-2 Timer Policy

Configure how the system should respond. If the FRB-2 Timer expires is disabled, this item is not available.

OS Watchdog Timer

Use this to enable or disable OS Watchdog Timer. If enabled, starts a BIOS timer which can only be shut off by Management Software after the OS loads.

OS Wtd Timer Timeout

Configure the OS Boot Watchdog Timer Expiration between 1 to 30 min value. If the OS Boot Watchdog Timer is disabled, this item is not available.

OS Wtd Timer Policy

Configure how the system should respond if the OS Boot Watchdog Timer expires. If the OS Boot Watchdog Timer is disabled, this item is not available.

BMC Network Configuration

Use this to configure BMC network parameters.

DNS Configuration

Use this to configure DNS parameters.

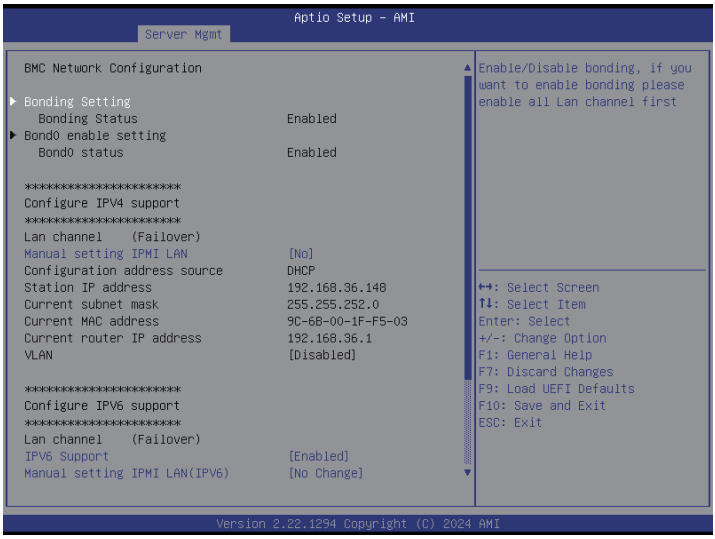
System Event Log

Press <Enter> to change the SEL event log configuration.

BMC Tools

Use this to configure about KCS control, restore AC power loss and load BMC default setings.

3.4.1 BMC Network Configuration



Bonding Setting

Select this item to enabled or disabled bonding. Please enable all lan channel first when want to enable bonding.

Lan channel (Failover)

Manual Setting IPMI LAN

If [No] is selected, the IP address is assigned by DHCP. If using a static IP address, toggle to [Yes], and the changes take effect after the system reboots. The default value is [No].

Configuration Address Source

Select to configure BMC network parameters statically or dynamically(by BIOS or BMC). Configuration options: [Static] and [DHCP].

Static: Manually enter the IP Address, Subnet Mask and Gateway Address in the BIOS for BMC LAN channel configuration.
DHCP: IP address, Subnet Mask and Gateway Address are automatically assigned by the network's DHCP server.

When [DHCP] or [Static] is selected, do NOT modify the BMC network settings on the IPMI web page.

The default login information for the IPMI web interface is:
Username: admin
Password: admin

For more instructions on how to set up remote control environment and use the IPMI management platform, please refer to the IPMI Configuration User Guide or go to the Support website at: http://www.asrockrack.com/support/faq.asp

VLAN

Enabled/Disabled Virtual Local Area Network.

If [Enabled] is selected, configure the items below.
VLAN ID: Select this item to configure the VLAN ID setting, the Maximum value is 4094 and the Minimum value is 1.
VLAN Priority: Select this item to configure the VLAN Priotity setting. the Maximum value is 7 and the Minimum value is 0.

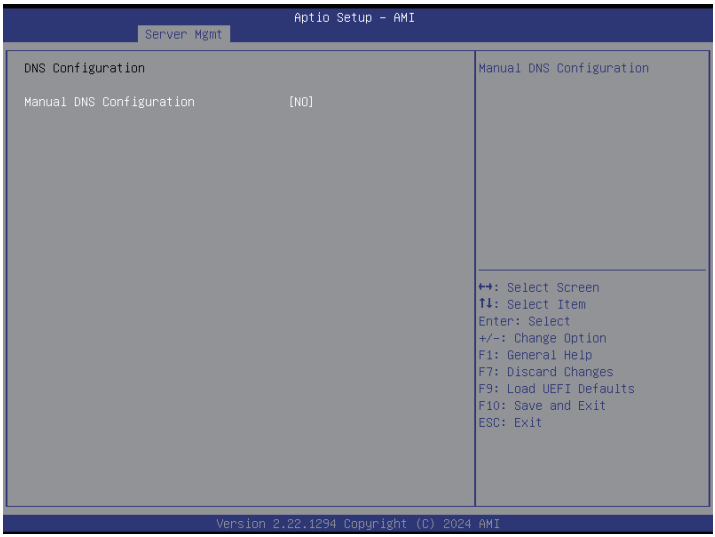
IPV6 Support

Enabled/Disable LAN1 IPV6 Support.

Manual Setting IPMI LAN(IPV6)

Select to configure LAN channel parameters statically or dynamically(by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase.

3.4.2 DNS Configuration



Manual DNS Configuration

Select this item to manual configure DNS.

If [YES] is selected, configure the items below.

DNS Service

Select this item to enable or disable DNS Service Configuration.

Host Name Settings

Select this item to automatic or manual Host Name Settings.

Bond Register BMC

Select this item to enable or disable Bond Register BMC.

Bond Register Method

Select this item to configure Bond Register Method with Nsupdate or DHCP client FQDN/ Hostname..

Domain Setting

This item supports Manual, Bond0_v4 and Bond0_v6 Domain Settings.

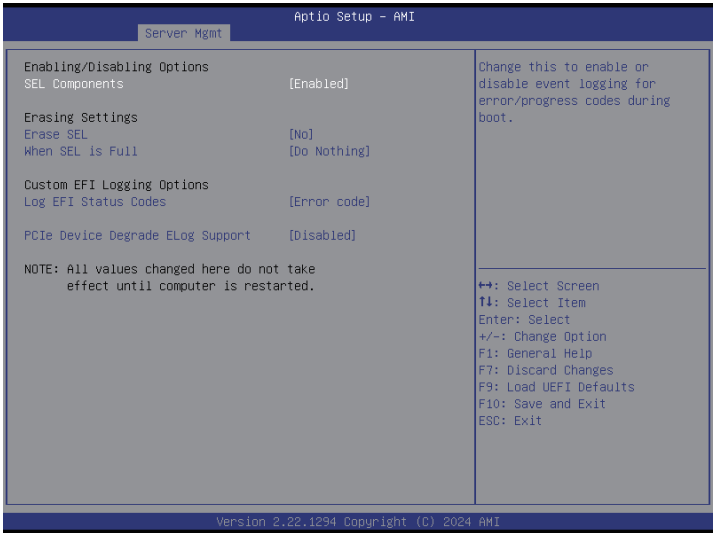
Domain Name Server Setting

This item supports Manual and Bond0 DNS Server Settings.

IP Priority

This item supports IPV4 and IPV6 IP Priority.

3.4.3 System Event Log



SEL Components

Change this to enable ro disable event logging for error/progress codes during boot.

Erase SEL

Use this to choose options for earsing SEL.

When SEL is Full

Use this to choose options for reactions to a full SEL.

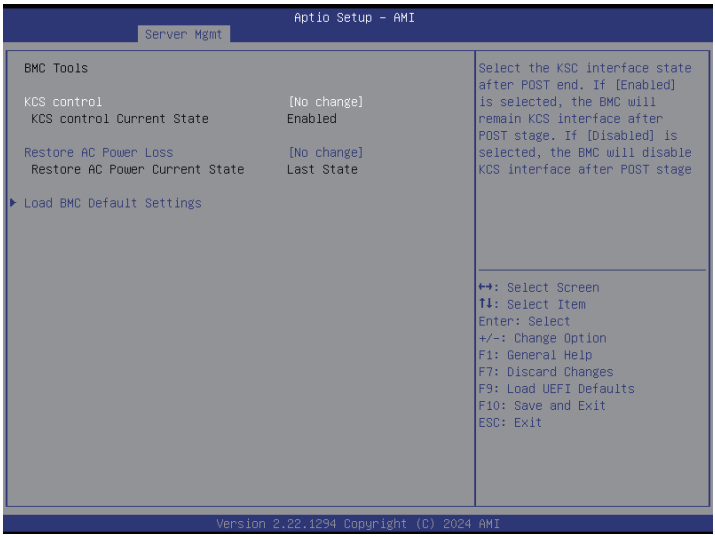
Log EFI Status Codes

Use this item to disable the logging of EFI Status Codes or log only error code or only progress code or both.

PCIe Device Degrade ELog Support

Use this item to enable or disable PCIe Device Degrade Error Logging Support.

3.4.4 BMC Tools



KCS Control

Select this KCS interface state after POST end. If [Enabled] us selected, the BMC will remain KCS interface after POST stage. If [Disabled] is selected, the BMC will disable KCS interface after POST stage

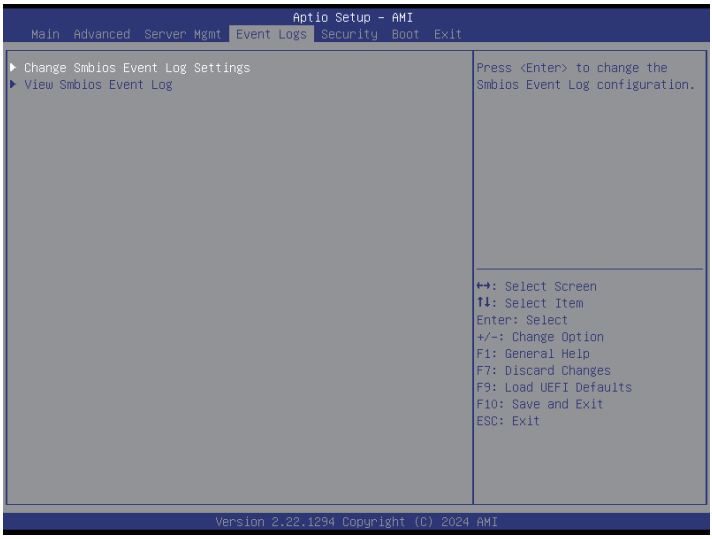
Restore AC Power Loss

This allows user to set the power state after an unexpected AC/power loss. If [Power Off] is selected, the AC/power remains off when the power recovers. If [Power On] is selected, the AC/power resumes and the system starts to boot up when the power recovers. If [Last State] is selected, it will recover to the state before AC/power loss.

Load BMC Default Settings

Use this item to Load BMC Default Settings

3.5 Event Logs



Change Smbios Event Log Settings

This allows user to configure the Smbios Event Log Settings.
When entering the item, the screen displays following sub-items:

Smbios Event Log
Use this item to enable or disable all features of the SMBIOS Event Logging during system boot.

Erase Event Log
The options include [No], [Yes, Next reset] and [Yes, Every reset]. If Yes is selected, all logged events will be erased.

When Log is Full
Use this item to choose options for reactions to a full Smbios Event Log. The options include [Do Nothing] and [Erase Immediately].

Log System Boot Event
Choose option to enable/disable logging of System boot event.

View Smbios Event Log

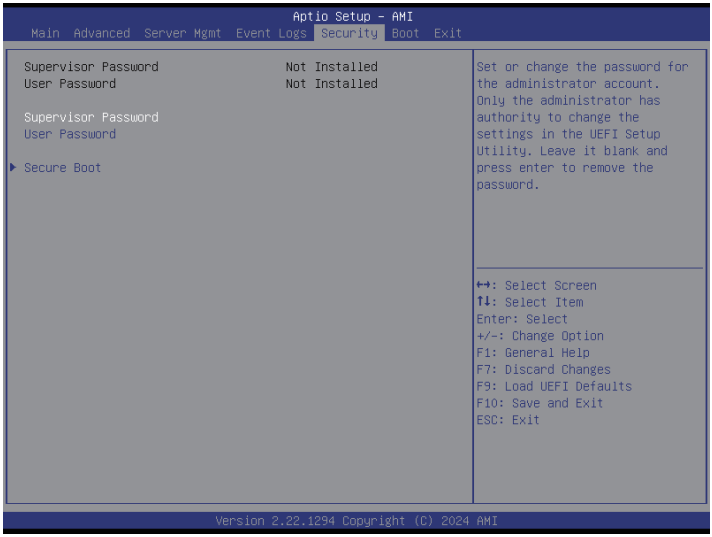
Press <Enter> to view the Smbios Event Log records.

All values changed here do not take effect until computer is restarted.

English

3.6 Security

This section allows user to set or change the supervisor/user password for the system. For the user password item is allowed user to clear it.



Supervisor Password

Set or change the password for the administrator account. Only the administrator has authority to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

User Password

Set or change the password for the user account. Users are unable to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

Secure Boot

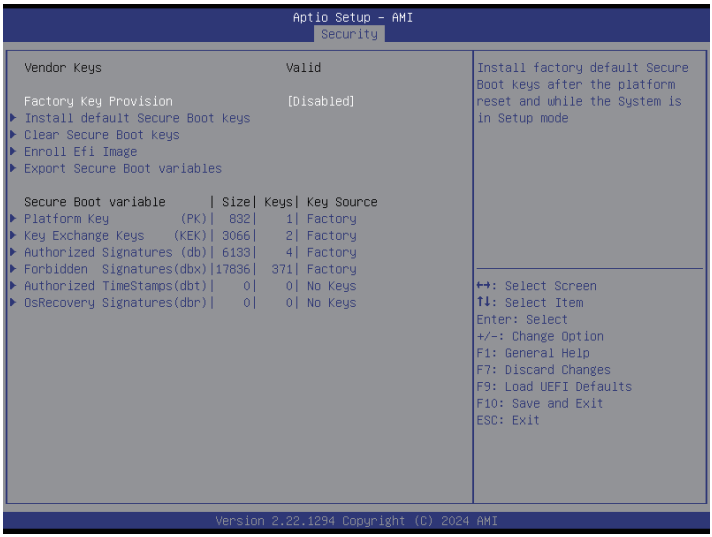
Use this to enable or disable Secure Boot Control. The default value is [Disabled]. Enable to support Windows Server 2012 R2 or later versions Secure Boot.

Secure Boot Mode

Secure Boot mode selector: Standard/Custom. In Custom mode Secure Boot Variables can be configured without authentication.

3.6.1 Key Management

In this section, expert users can modify Secure Boot Policy variables without full authentication.



Factory Key Provision

Install factory default Secure Boot keys after the platform reset and while the System is in Setup mode.

Install Default Secure Boot Keys

Please install default secure boot keys if it's the first time to use secure boot.

Clear Secure Boot Keys

This force system to setup Mode-Clear all Secure Boot Variables. Change takes effect after reboot.

Enroll Efi Image

Allow the image to run in Secure Boot mode. Enroll SHA256 hash of the binary into Authorized Signature Database (db).

Export Secure Boot Variables

Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device.

Platform Key (PK)

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate in:

a) EFI_SIGNATURE_LIST

b) EFI_CERT_X509 (DER)

c) EFI_CERT_RSA2048 (bin)

d) EFI_CERT_SHAXXX

2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Key Source: Factory, Modified, Mixed

Key Exchange Keys (KEK)

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate in:

a) EFI_SIGNATURE_LIST

b) EFI_CERT_X509 (DER)

c) EFI_CERT_RSA2048 (bin)

d) EFI_CERT_SHAXXX

2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Key Source: Factory, Modified, Mixed

Authorized Signatures (db)

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate in:

a) EFI_SIGNATURE_LIST

b) EFI_CERT_X509 (DER)

c) EFI_CERT_RSA2048 (bin)

d) EFI_CERT_SHAXXX

2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Key Source: Factory, Modified, Mixed

Forbidden Signatures (dbx)

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate in:

a) EFI_SIGNATURE_LIST

b) EFI_CERT_X509 (DER)

c) EFI_CERT_RSA2048 (bin)

d) EFI_CERT_SHAXXX

2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Key Source: Factory, Modified, Mixed

Authorized TimeStamps (dbt)

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate in:

a) EFI_SIGNATURE_LIST

b) EFI_CERT_X509 (DER)

c) EFI_CERT_RSA2048 (bin)

d) EFI_CERT_SHAXXX

2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Key Source: Factory, Modified, Mixed

OsRecovery Signatures (dbr)

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate in:

a) EFI_SIGNATURE_LIST

b) EFI_CERT_X509 (DER)

c) EFI_CERT_RSA2048 (bin)

d) EFI_CERT_SHAXXX

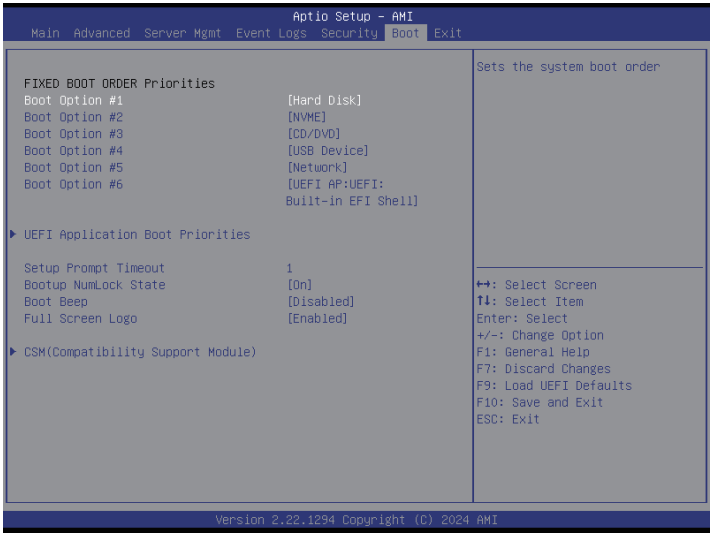
2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Key Source: Factory, Modified, Mixed

3.7 Boot Screen

In this section, it will display the available devices on the system for user to configure the boot settings and the boot priority.



Boot Option #1/#2/#3/#4/#5/#6

Use this to set the system boot order.

UEFI Application Boot Priorities

Specifies the Boot Device Priority sequence from available UEFI Application.

Setup Prompt Timeout

Configure the number of seconds to wait for the UEFI setup utility.

Bootup Num-Lock

If this item is set to [On], it will automatically activate the Numeric Lock function after boot-up.

Boot Beep

Select whether the Boot Beep should be turned on or off when the system boots up. Please note that a buzzer is needed.

Full Screen Logo

Use this to enable or disable OEM Logo. The default value is [Enabled]

CSM (Compatibility Support Module)

Use this to configure OpROM execution, boot options filter, etc..

3.7.1 CSM (Compatibility Support Module)

CSM

Select this item to enable or disable the Compatibility Support Module support.

When enabling this item, the sub-items as below are displayed:

Launch PXE OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.

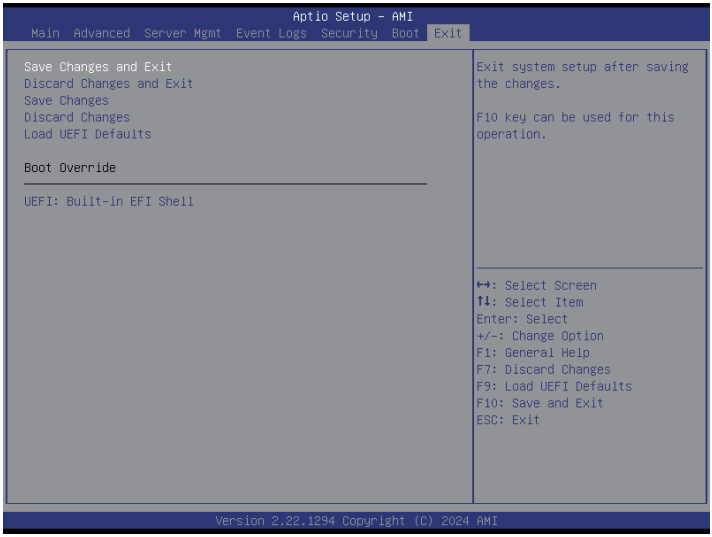
Launch Storage OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.

Launch Video OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.

3.8 Exit Screen



Save Changes and Exit

When selecting this option, the following message "Save configuration changes and exit setup?" will pop-out. Press <F10> key or select [Yes] to save the changes and exit the UEFI SETUP UTILITY.

Discard Changes and Exit

When selecting this option, the following message "Discard changes and exit setup?" will pop-out. Press <ESC> key or select [Yes] to exit the UEFI SETUP UTILITY without saving any changes.

Save Changes

When selecting this option, the following message "Save changes?" will pop-out. Press <F7> key or select [Yes] to save all changes.

Discard Changes

When selecting this option, the following message "Discard changes?" will pop-out. Press <F7> key or select [Yes] to discard all changes.

Load UEFI Defaults

Load UEFI default values for all the setup questions. F9 key can be used for this operation.

Chapter 4 Software Support

After all the hardware has been installed, it suggests to go to the offical website at http://www.ASRockRack.com and make sure if there are any new updates of the BIOS / BMC firmware for the motherboard.

4.1 Download and Install Operating System

This motherboard supports various Microsoft® Windows® Server / Linux compliant operating systems. Please download the operating system from the OS manufacturer. Please refer to the OS documentation for more instructions.

4.2 Download and Install Software Drivers

This motherboard supports various Microsoft® Windows® compliant drivers. Please download the required drivers from the website at http://www.ASRockRack.com.

To download necessary drivers, go to the product page, click on the "Download" tab, choose the operating system that is used, and then download the using driver.

Chapter 5 Troubleshooting

5.1 Troubleshooting Procedures

Follow the procedures below to troubleshoot the system.

Always unplug the power cord before adding, removing or changing any hardware components. Failure to do so may cause physical injuries and damages to motherboard components.

1. Disconnect the power cable and check whether the PWR LED is off.
2. Unplug all cables, connectors and remove all add-on cards from the motherboard. Make sure that the jumpers are set to default settings.
3. Confirm that there are no short circuits between the motherboard and the chassis.
4. Install a CPU and fan on the motherboard, then connect the chassis speaker and power LED.

If there is no power...

1. Confirm that there are no short circuits between the motherboard and the chassis.
2. Make sure that the jumpers are set to default settings.
3. Check the settings of the 115V/230V switch on the power supply.
4. Verify if the battery on the motherboard provides ~3VDC. Install a new battery if it does not.

If there is no video...

1. Try replugging the monitor cables and power cord.
2. Check for memory errors.

If there are memory errors...

1. Verify that the DIMM modules are properly seated in the slots.
2. Use recommended DDR5 RDIMM/RDIMM-3DS
3. Install more than one DIMM modules that should be identical with the same brand, speed, size and chip-type.
4. Try inserting different DIMM modules into different slots to identify faulty ones.
5. Check the settings of the 115V/230V switch on the power supply.

Unable to save system setup configurations...

1. Verify if the battery on the motherboard provides ~3VDC. Install a new battery if it does not.
2. Confirm whether the power supply provides adaquate and stable power.

Other problems...

1. Try searching keywords related to the related problem on ASRock Rack's FAQ page: http://www.asrockrack.com/support

5.2 Technical Support Procedures

If the problems are still unsolved, please contact ASRock Rack's technical support with the following information:

1. Contact information
2. Model name, BIOS version and problem type.
3. System configuration.
4. Problem description.

Contact ASRock Rack's technical support at:
http://www.asrockrack.com/support/tsd.asp

5.3 Returning Merchandise for Service

For warranty service, the receipt or a copy of the invoice marked with the date of purchase is required. By calling the vendor or going to RMA website (http://event. asrockrack.com/tsd.asp) to obtain a Returned Merchandise Authorization (RMA) number.

The RMA number should be displayed on the outside of the shipping carton which is mailed prepaid or hand-carried when returning the motherboard to the manufacturer. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

This warranty does not cover damages incurred in shipping or from failure due to alteration, misuse, abuse or improper maintenance of products.

Contact the distributor first for any product related problems during the warranty period.

Contact Information

If it needs to contact ASRock Rack or want to know more about ASRock Rack, you're welcome to visit ASRock Rack's website at http://www.asrockrack.com; or contact the dealer for further information. For technical questions, please submit a support request form at https://event.asrockrack.com/tsd.asp

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