OPEN
Industry Standard, Flexible Architecture

GREEN
Less Heat, Less Power Consumption

STABLE
Robust Design, Quality Parts

Stable and
Reliable Solution

Server/Workstation
Motherboard

AM5D4ID-2T/BCM
AM5D4ID-2L+/BCM

User Manual

English

Version 1.60
Published Jun. 2026

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The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.

"Perchlorate Material-special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate"

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

(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

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

ASRock Rack follows the green design concept to design and manufacture our products, and makes sure that each stage of the product life cycle of ASRock Rack product is in line with global environmental regulations. In addition, ASRock Rack disclose the relevant information based on regulation requirements.

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

Thank you for purchasing ASRock Rack ***AM5D4ID-2T/BCM*** or ***AM5D4ID-2L+/BCM*** 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 software 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 AM5D4ID-2T/BCM or AM5D4ID-2L+/BCM motherboard (deep mini-ITX form factor: 6.7" x 8.2", 170 mm x 208 mm)
- Quick installation guide
- 1 I/O shield
- 1 Oculink to PCIe cable (80 cm) (Optional)
- 1 ATX 4P to 24P power cable (8 cm)
- 1 SATA power cable (80 cm)
- 1 Screw for M.2 socket

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

English

1.2 Specifications

AM5D4ID-2T/BCM, AM5D4ID-2L+/BCM	
Physical Status	
Form Factor	Deep mini-ITX
Dimension	6.7" x 8.2" (170 mm x 208 mm)
Processor System	
CPU	Supports AMD EPYC™ 4005/4004 and AMD Ryzen™ 9000/8000/7000 Series Processors
Socket	1 Socket AM5 (LGA 1718)
Thermal Design Power (TDP)	Up to 170W by proper cooling solution
Chipset	KNOLL3 X300
System Memory	
Supported DIMM Quantity	4 DIMM slots (2DPC)
Supported Type	DDR5 288-pin ECC/non-ECC UDIMM
Max. Capacity per DIMM	48GB
Max. DIMM Frequency	AMD EPYC™ 4004 and AMD Ryzen™ 7000/8000/9000 Series Processors: 5200 MT/s (1DPC), 3600 MT/s (2DPC) AMD EPYC™ 4005 Processor: UDIMM: 5600 MT/s (1DPC), 3600 MT/s (2DPC) ECC-UDIMM: 5600 MT/s (1DPC 1R), 5200 MT/s (1DPC 2R), 3600 MT/s (2DPC)
Voltage	1.1V

Note: Memory support is to be validated.

PCIe Expansion Slots (Slot7 close to CPU)	
PCIe x16	SLOT7: PCIe 5.0 x16 [CPU]
Other PCIe Expansion Connectors	
M.2	1M-key (PCIe 4.0 x4), supports 2280 form factor [CPU]
OCuLink	1 OCuLink1 (PCIe 4.0 x2) [CPU]
Ethernet	
Additional GbE Controller	**AM5D4ID-2T/BCM:** 1 BCM57416: 2 RJ45 (10 GbE) **AM5D4ID-2L+/BCM:** 1 BCM5720L: 2 RJ45 (1 GbE)
Server Management	
BMC Controller	ASPEED AST2600
Dedicated IPMI LAN	1 Realtek RTL8211F for dedicated management LAN

Graphics	
Controller	ASPEED AST2600: 1 DB15 AMD Processors with Graphics: 1 HDMI
Rear I/O	
UID Button/LED	1 UID button w/LED
Video Port	1 DB15 (VGA), 1 HDMI
USB Port	2 Type-A (USB 3.2 Gen1)
LAN Port	**AM5D4ID-2T/BCM:** 2 RJ45 (10GbE), 1 dedicated IPMI **AM5D4ID-2L+/BCM:** 2 RJ45 (1 GbE), 1 dedicated IPMI
Internal Connectors/Headers	
Power Connector	1 (4-pin, ATX PSU signal) w/ ATX 24-pin adapter cable, 2 (8-pin, ATX 12V) support 12V DC-in
Other Power Connectors	1 (4-pin) for HDD power when using 12V DC-in power source
Auxiliary Panel Header	1 (9-pin) chassis intrusion, system fault LED, LAN activity LED
System Panel Header	1 (9-pin) power switch, reset switch, system power LED, HDD activity LED
COM Header	1
Speaker Header	1
Fan Header	3 (4-pin)
Thermal Sensor Header	1
TPM Header	1 (13-pin, SPI)
SMbus Header	1
PMbus Header	1
IPMB Header	1
USB Header	1 (19-pin, 2 USB 3.2 Gen1)
Clear CMOS	1
Others	1 UID header (4-pin), 1 NCSI header (4-pin), 1 IPMI LAN LED header (4-pin), 1 80 debug port header (13-pin)
LED Indicators	
Standby Power LED	1
Fan Fail LEDs	3
BMC Hearbeat LED	1
System BIOS	
Type	AMI UEFI BIOS: 256 Mb (32 MB) SPI Flash ROM
Features	Plug and Play, ACPI 5.1 compliance wake-up events, SMBIOS 2.3

Hardware Monitor	
Temperature	CPU, DDR, MB, card side
Fan	Fan tachometer, multi-speed control, CPU quiet fan (Allow chassis fan speed auto-adjust by CPU temperature.)
Voltage	3VSB, 5VSB, VCPU, VCCM, APU VDDP, 1.05V_PROM_S5, 2.5V_PROM, 1.05V_PROM_RUN, BAT, 3V, 5V, 12V
Support OS	
OS	AMD Ryzen CPUs: Microsoft® Windows: - Windows® 10 (64 bit) - Windows® 11 (64 bit) Linux: - Red Hat Enterprise Linux Server 8.7 (64 bit) - SUSE SLES 15.2 (64 bit) / 15.4 (64 bit) - Ubuntu 21.04 (64 bit) / 21.10 (64 bit) / 22.04.1 (64 bit) Hypervisor: - VMWare® ESXi 7.0 U3g / 8.0 AMD EPYC 4004 CPUs: Microsoft® Windows: - Windows® Server2022 (64 bit) ** Note: Please change the BIOS setting: Advanced > Chipset Configuration > Server WHQL Support [Enabled]. Set this option to [Enabled] to ensure the best compatibility with Windows Server environments.* Linux: - Red Hat Enterprise Linux Server 9.3 (64 bit) / 9.4 (64 bit) - SUSE SLES 15.5 (64 bit) - Ubuntu 20.04.6 (64 bit) / 22.04.4 (64 bit) Hypervisor: - VMWare® ESXi 7.0 U3g / 8.0U2b AMD EPYC 4005 CPUs: Microsoft® Windows: - Windows® Server2022 (64 bit) - Windows® Server2025 (64 bit) ** Note: Please change the BIOS setting: Advanced > Chipset Configuration > Server WHQL Support [Enabled]. Set this option to [Enabled] to ensure the best compatibility with Windows Server environments.* Linux: - Red Hat Enterprise Linux Server 9.4 (64 bit) / 10.0 (64 bit) - SUSE SLES 15.6 (64 bit) - Ubuntu 22.04.5 (64 bit) / 24.04.2 (64 bit) ** Supports UEFI BOOT only* ** The Linux system doesn't support RAID Mode*

Enviroment	
Temperature	Operating temperature: 10°C ~ 35°C Non operating temperature: -40°C ~ 70°C
Humidity	Non operating humidity: 20% ~ 90% (non-condensing)

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

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.

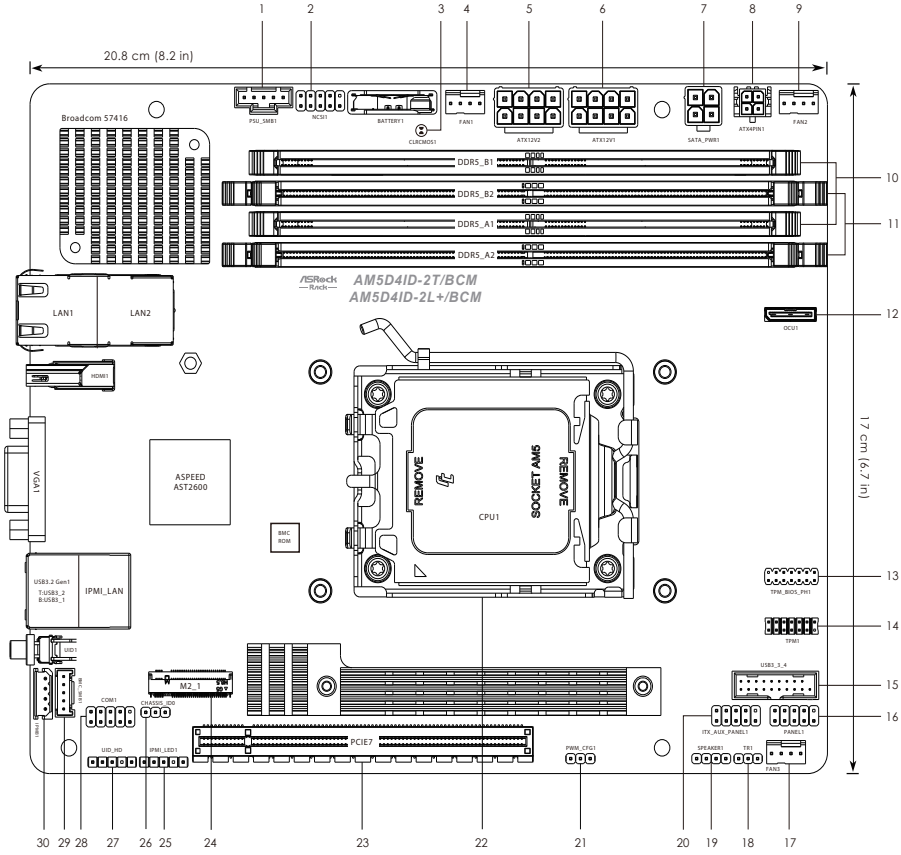
If installing Intel® LAN utility or Marvell SATA utility, this motherboard may fail Windows® Hardware Quality Lab (WHQL) certification tests. If installing the drivers only, it will pass the WHQL tests.

1.3 Unique Features

ASRock Rack Instant Flash is a BIOS flash utility embedded in Flash ROM. This convenient BIOS update tool allows updating 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.

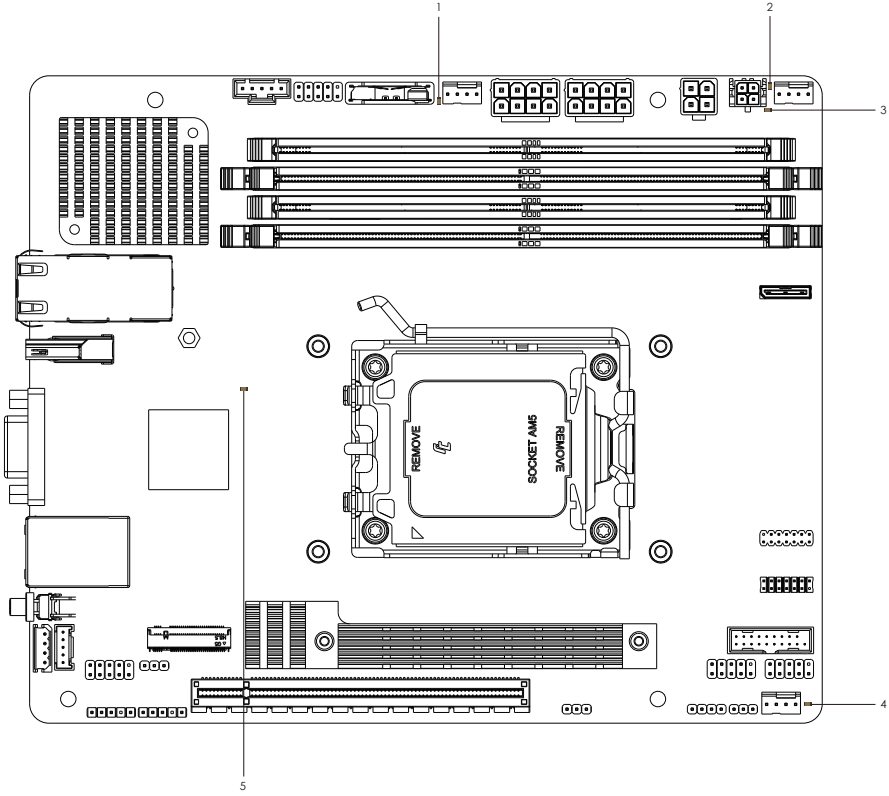
1.4 Motherboard Layout



No.	Description
1	PSU SMBus Header (PSU_SMB1)
2	NSCI Header (NSCI1)
3	Clear CMOS Pad (CLRCMOS1)
4	System Fan Header (FAN1)
5	ATX 12V Power Connector (ATX12V1)
6	ATX 12V Power Connector (ATX12V2)
7	HDD Power Connector (SATA_PWR1)
8	ATX 4-PIN Power Connector (ATX4PIN1)
9	System Fan Header (FAN2)
10	2 x 288-pin DDR5 DIMM Slots (DDR5_A1, DDR5_B1)*
11	2 x 288-pin DDR5 DIMM Slots (DDR5_A2, DDR5_B2)*
12	OCuLink x4 Connector (OCU1)
13	SPI TPM Header (TPM_BIOS_PH1)
14	80 Debug Port Header (TPM1)
15	USB 3.2 Gen1 Header (USB3_3_4)
16	System Panel Header (PANEL1)
17	System Fan Header (FAN3)
18	Thermal Sensor Header (TR1)
19	Speaker Header (SPEAKER1)
20	Auxiliary Panel Header (ITX_AUX_PANEL1)
21	PWM Configuration Header (PWM_CFG1)
22	AMD Socket AM5 (LGA 1718) (CPU1)
23	PCI Express 5.0 x16 Card Slot (PCIE7)
24	M.2 Socket (M2_1) (Type 2280)
25	IPMI LAN LED Header (IPMI_LED1)
26	Chassis ID Jumper (CHASSIS_ID0)
27	UID Button Header (UID_HD)
28	Serial Port Header (COM1)
29	Baseboard Management Controller SMBus Header (BMC_SMB1)
30	Intelligent Platform Management Bus Header (IPMB1)

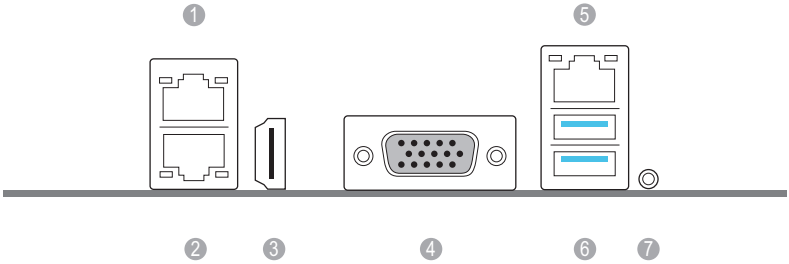
**For DIMM installation and configuration instructions, please see p.20 (Installing the Memory Modules (DIMM)) for more details.*

1.5 Onboard LED Indicators



No.	Item	Status	Description
1	FAN_LED1	Red	FAN1 failed
2	FAN_LED2	Red	FAN2 failed
3	SB_PWR1	Green	STB PWR ready
4	FAN_LED3	Red	FAN3 failed
5	BMC_LED1	Blinking four times and then off	Start initialization after AC power-on or BMC reset
		Blinking at 1Hz	BMC ready
		Steady on Steady off Other frequency	Error (The actual behavior depends on the state at the time of failure.)

1.6 I/O Panel



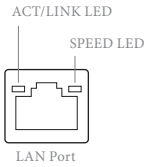
AM5D4ID-2T/BCM

No.	Description	No.	Description
1	10G LAN RJ-45 Port (LAN2)**	5	LAN RJ-45 Port (IPMI_LAN1)*
2	10G LAN RJ-45 Port (LAN1)**	6	USB 3.2 Gen1 Ports (USB3_1_2)
3	HDMI Port (HDMI1)	7	UID Switch (UID1)
4	VGA Port (VGA1)		

AM5D4ID-2L+/BCM

No.	Description	No.	Description
1	1G LAN RJ-45 Port (LAN2)***	5	LAN RJ-45 Port (IPMI_LAN1)*
2	1G LAN RJ-45 Port (LAN1)***	6	USB 3.2 Gen1 Ports (USB3_1_2)
3	HDMI Port (HDMI1)	7	UID Switch (UID1)
4	VGA Port (VGA1)		

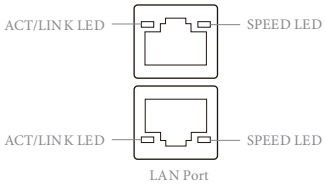
*There are two LEDs on the IPMI LAN port specified for link activity and speed. Please refer to the table below for the LAN port LED indications..



IPMI LAN Port LED Indications

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

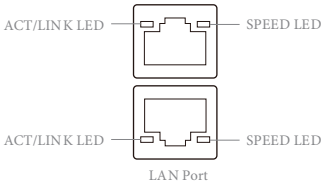
**There are two LEDs on the 10G LAN port specified for link activity and speed. Please refer to the table below for the LAN port LED indications.



10G LAN Port (LAN1, LAN2) LED Indications

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

***There are two LEDs on the 1G LAN port specified for link activity and speed. Please refer to the table below for the LAN port LED indications.

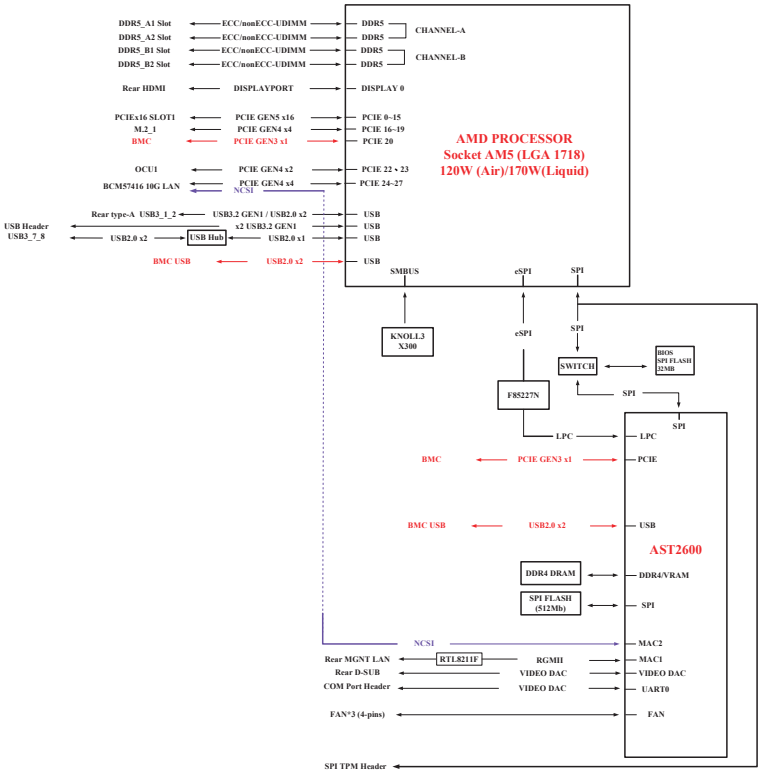


1G LAN Port (LAN1, LAN2) LED Indications

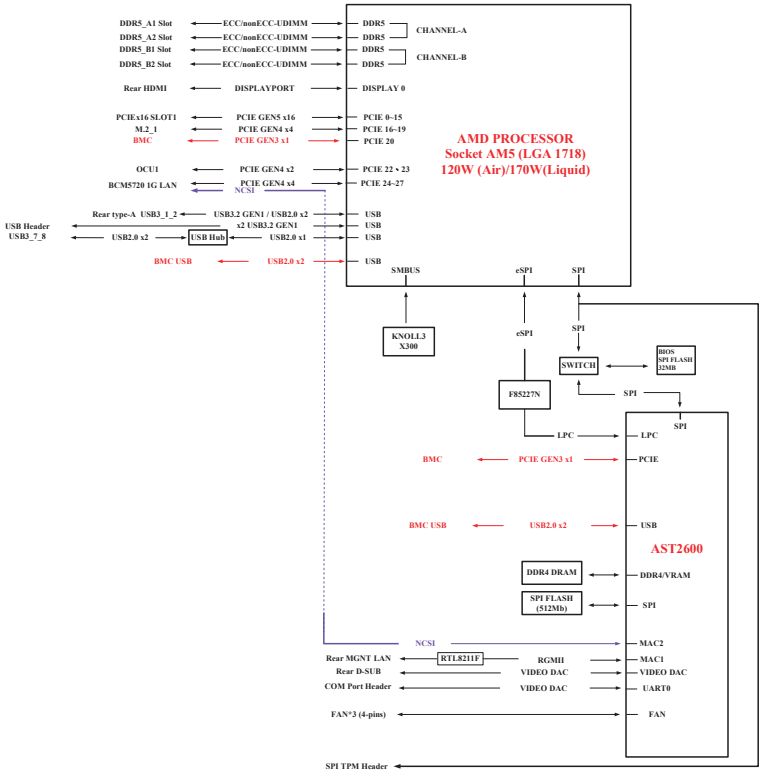
Activity / Link LED		Speed LED	
Status	**Description**	**Status**	**Description**
Off	No link	Off	10 Mbps connection or no link
Blinking Yellow	Data activity	Orange	100 Mbps connection
On	Link	Green	1 Gbps connection

1.7 Block Diagram

AM5D4ID-2T/BCM



AM5D4ID-2L+/BCM



Chapter 2 Installation

This is a deep mini-ITX form factor (6.7" x 8.2", 170 mm x 208 mm) 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 supply 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.

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

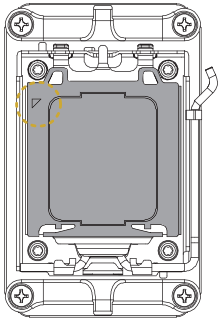
2.2 Pre-installation Precautions

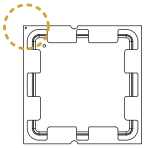
Take note of the following precautions before installing motherboard components or change any motherboard settings.

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

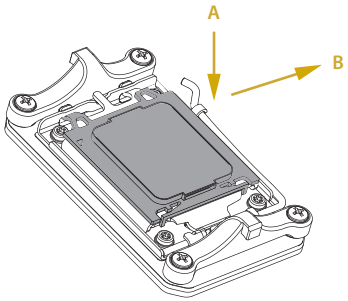
1. *Before inserting the 1718-Pin CPU into the socket, please check if the **PnP cap** is on the socket, if the CPU surface is unclean, or if there are any **bent pins** in the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged.*
2. *Unplug all power cables before installing the CPU.*





⚠ Turn the CPU to the correct orientation before opening the CPU socket cover.

1



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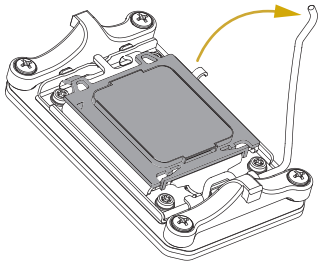

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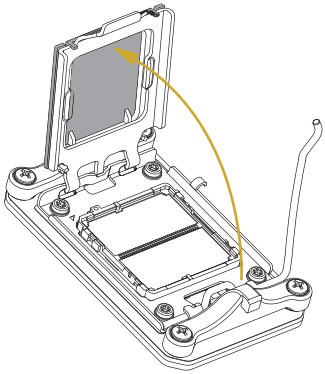
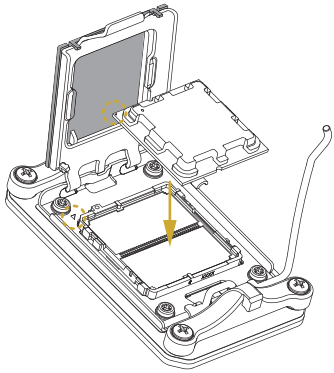
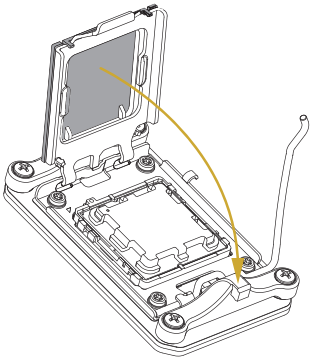


4



⚠ Carefully place the CPU in as flat as possible. Do not drop it.

5



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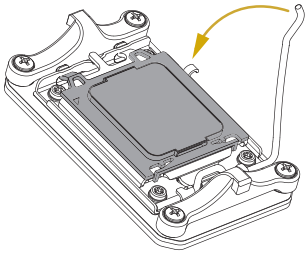
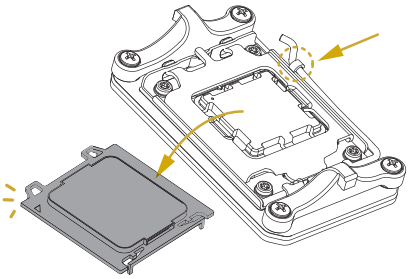


⚠ Make sure the CPU is aligned with the socket before locking it into place.

7



⚠ Make sure the black cover plate is always in place until it pops off when closing the socket lever.

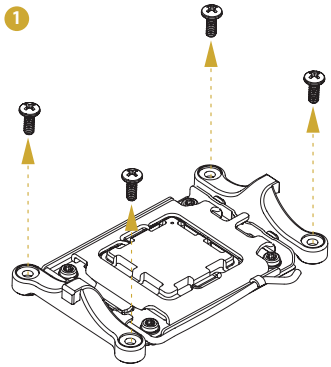
Please save the cover if the processor is removed. The cover must be placed if wishing to return the motherboard for after service.

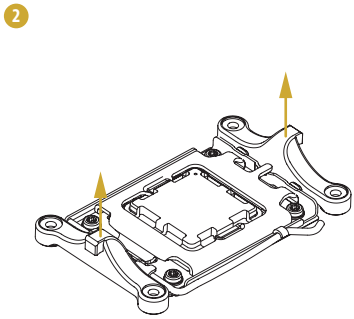
2.4 Installing the CPU Fan and Heatsink

After installing the CPU into this motherboard, it is necessary to install a larger heatsink and cooling fan to dissipate heat. It also needs to spray thermal grease between the CPU and the heatsink to improve heat dissipation. Make sure that the CPU and the heatsink are securely fastened and in good contact with each other.

Please turn off the power or remove the power cord before changing a CPU or heatsink.

Installing the CPU Cooler





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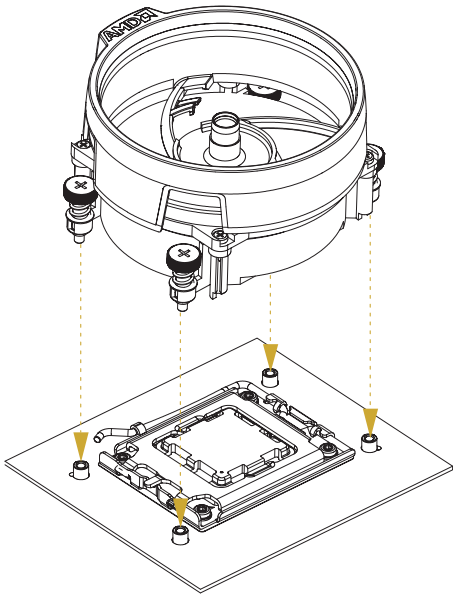
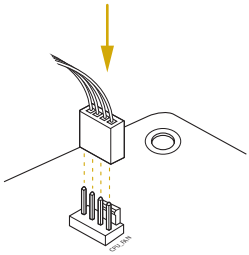


4



2.5 Installing the Memory Modules (DIMM)

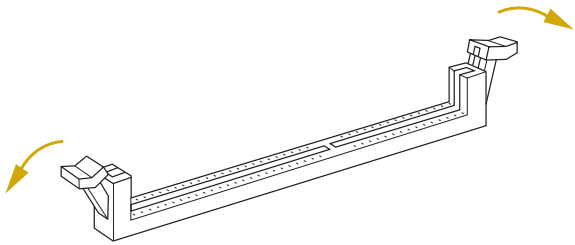
This motherboard provides four 288-pin DDR5 (Double Data Rate 5) DIMM slots, and supports Dual Channel Memory Technology.

1. *For dual channel configuration, install identical (the same brand, speed, size and chip-type) DDR5 DIMM pairs.*
2. *It is unable to activate Dual Channel Memory Technology with only one or three memory module 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.*

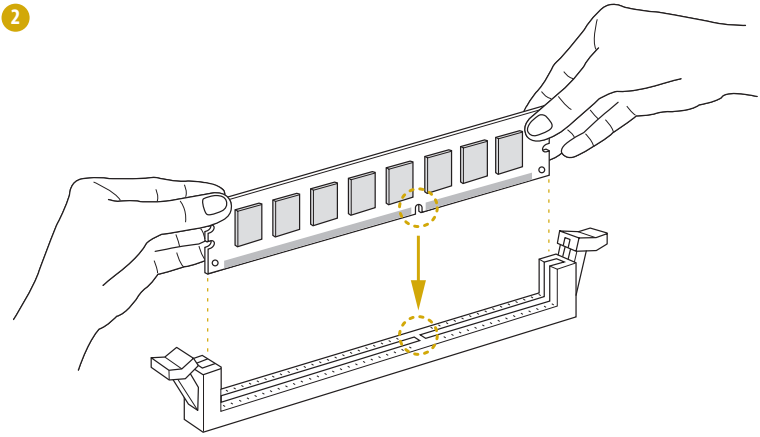
Recommended Memory Configuration

	Priority	A1	A2	B1	B2
1 DIMM	1	Populated			
	2			Populated	
2 DIMMS	1	Populated		Populated	
	2	Populated	Populated		
	3			Populated	Populated
4 DIMMS	1	Populated	Populated	Populated	Populated

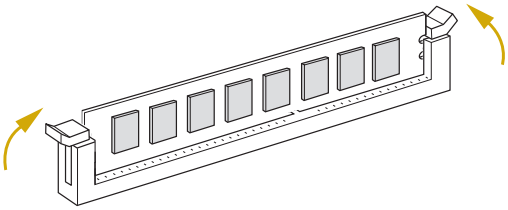
1



2



3



The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if forcing the DIMM into the slot at incorrect orientation.

2.6 Expansion Slot (PCI Express Slot)

There is 1 PCI Express slot on this motherboard.

PCIE slot:

PCIE7 (PCIE 5.0 x16 slot, from CPU) is used for PCI Express x16 lane width cards.

Slot	Generation	Mechanical	Electrical	Source
PCIE7	5.0	x16	x16	CPU

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.

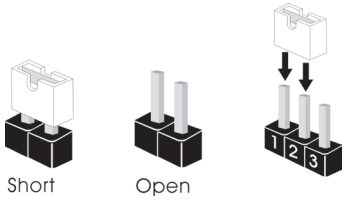
Step 4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.

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

Step 6. Replace the system cover.

2.7 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.

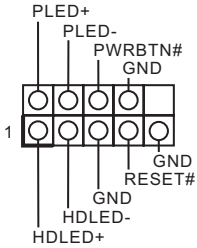


Chassis ID Jumper (3-pin CHASSIS_ID0) (see p.6, No. 26)	1_2 Descriptor Security Override	2_3 Not Override (Default)

2.8 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. 16)



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.

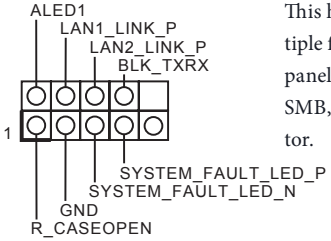
RESET (Reset Switch):
Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.

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.

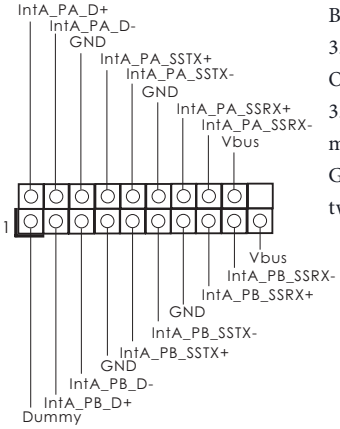
The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting the chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

Auxiliary Panel Header
(9-pin ITX_AUX PANEL1)
(see p.6, No. 20)



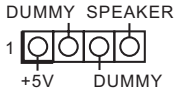
This header supports multiple functions on the front panel, including front panel SMB, internet status indicator.

USB 3.2 Gen1 Header
(19-pin USB3_3_4)
(see p.6, No. 15)



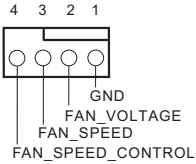
Besides two default USB 3.2 Gen1 ports on the I/O panel, there is one USB 3.2 Gen1 header on this motherboard. This USB 3.2 Gen1 header can support two USB 3.2 Gen1 ports.

Speaker Header
(4-pin SPEAKER1)
(see p.6, No. 19)



Please connect the chassis speaker to this header.

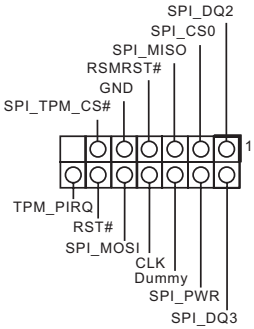
System Fan Headers
(4-pin FAN1)
(see p.6, No. 4)
(4-pin FAN2)
(see p.6, No. 9)
(4-pin FAN3)
(see p.6, No. 17)



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 4A and the max. power is 48Watts.

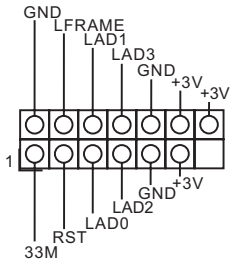
English

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



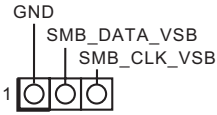
This connector supports SPI Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.

80 Debug Port Header
(13-pin TPM1)
(see p.6, No. 14)



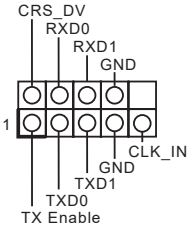
This header is used to connect to a debug display for showing the motherboard debug information.

PWM Configuration Header
(3-pin PWM_CFG1)
(see p.6, No. 21)

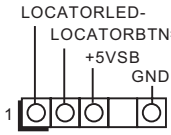
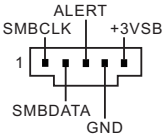
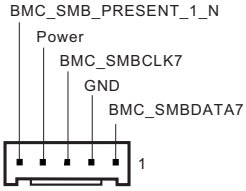
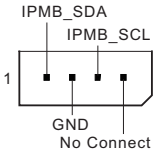


This header is used for PWM configurations.

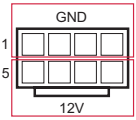
NCSI Header
(9-pin NCSI1)
(see p.6, No.2)



The onboard NCSI header is used for external connections.

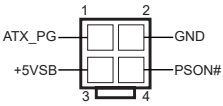
UID Button Header (5-pin UID_HD) (see p.6, No.27)		This header is used for UID button features.
PSU SMBus Header (5-pin PSU_SMB1) (see p.6, No.1)		PSU SMBus header monitors the status of the power supply, fan and system temperature.
Baseboard Management Controller SMBus Header (5-pin BMC_SMB1) (see p.6, No.29)		The header is used for the SMBUS devices.
Intelligent Platform Management Bus Header (4-pin IPMB1) (see p.6, No.30)		This 4-pin connector is used to provide a cabled base-board 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. 18)		Please connect the thermal sensor cable to either pin 1-2 or pin 2-3 and the other end to the device which can to monitor its temperature.

ATX 12V Power Connectors
(8-pin ATX12V1)
(see p.6, No. 5)
(8-pin ATX12V2
(see p.6, No. 6)



This motherboard provides one 8-pin and one 4-pin ATX 12V power connectors.

ATX 4-PIN Power Connector
(4-pin ATX4PIN1)
(see p.6, No. 8)



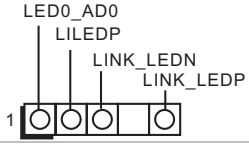
The motherboard provides one 4-pin power/signal connector which is a required input for ATX power source.

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 ATX4PIN1 connector on the motherboard for power supply and signal communication.

For DC-IN 12V application, it is not necessary to use this power connector.

**Caution: Misconnection between the ATX4PIN1 and the SATA_ PWR1 connectors may permanently damage the motherboard.*

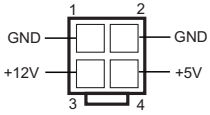
IPMI LAN LED Header
(4-pin IPMI_LED1)
(see p.6, No. 25)



This header is used to connect to the LED indicators on the chassis.

English

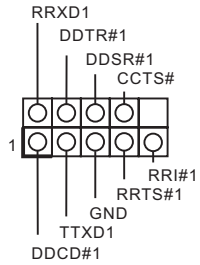
HDD Power Connector
(4-pin SATA_PWR1)
(see p.6, No. 7)



Please use a HDD power cable to connect this SATA_PWR1 Connector a for supplying HDD power from the motherboard, when using DC-IN mode without HDD power supply.

**Caution: Misconnection between the ATX4PIN1 and the SATA_PWR1 connectors may permanently damage the motherboard.*

Serial Port Header
(9-pin COM1)
(see p.6, No. 28)

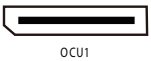


This COM1 header supports a serial port module.

Clear CMOS Pad
(CLRMOS1)
(see p.6, No. 3)

This allows user to clear the data in CMOS. To clear CMOS, take out the CMOS battery and short the Clear CMOS Pad.

OCuLink x4 Connector
(OCU1)
(see p.6, No. 12)



Please connect a PCIE SSD cable to the connector.

2.9 Identification purpose LED/Switch

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

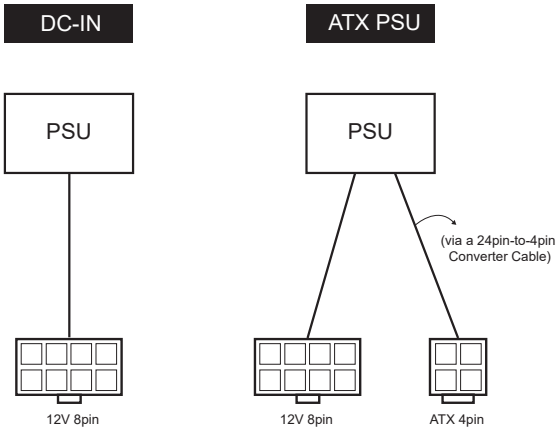
Unit Identification purpose LED/Switch (UID1)		When the UID button on the front or rear panel is pressed, the front/rear UID blue LED indicator will be truned on. Press the UID button again to turn off the indicator.

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.

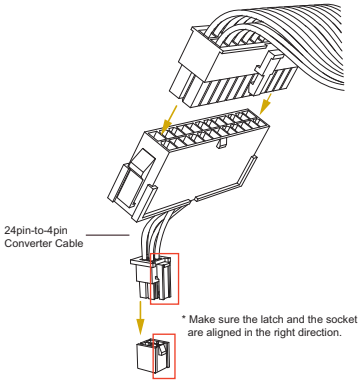
2.10 ATX PSU / DC-IN Power Connections

This motherboard supports both +12V DC and ATX power input. Please refer to the table below for the required connections between the motherboard and the power supply.

Connector	DC-IN	ATX PSU
12V 8pin	O	O
ATX 4pin	X	O *(with the bundled ATX 24pin-to-4pin converter cable)*



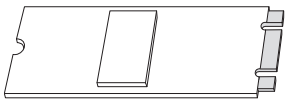
The following diagram illustrates how to connect the bundled ATX 24pin-to-4pin converter cable.



2.11 M.2 SSD Module Installation Guide

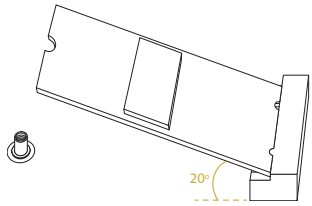
The M.2 Socket (M2_1, Key M) supports type 2280 M.2 PCI Express module up to Gen4 x4.

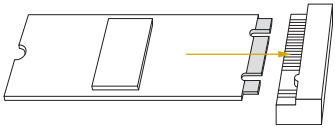
Installing the M.2 SSD Module



Step 1

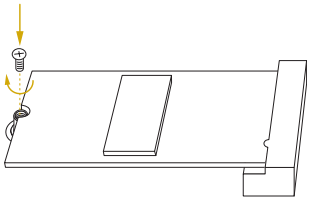
Prepare a M.2 SSD module and the screw.





Step 2

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 3

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

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 UTILITYafter POST, or by pressing the reset button on the

*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
Security	To set up the security features
Server Mgmt	To manage the server
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

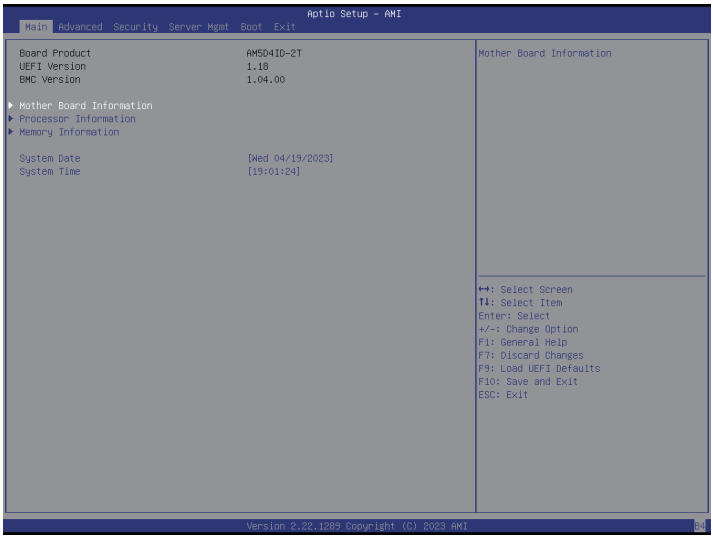
3.1.2 Navigation Keys

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

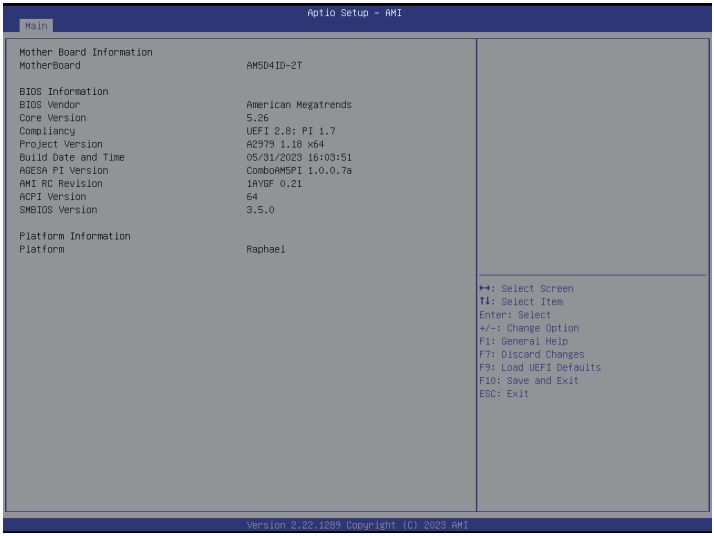
Once entering the UEFI SETUP UTILITY, the Main screen will appear and display the system overview. The Main screen provides system overview information and allows user to set the system time and date.



Because the ***UEFI software is constantly being updated, the following UEFI*** *setup screens and descriptions for reference purpose only, and may vary from the latest BIOS and do not exactly match what seeing on the screen.*

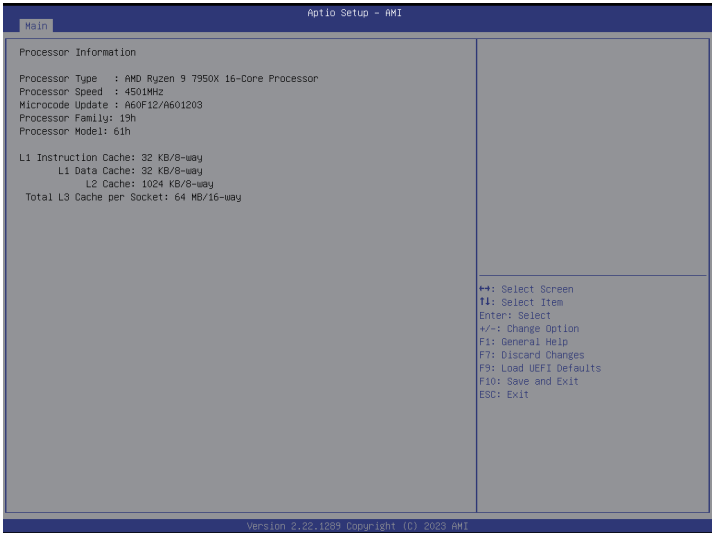
3.2.1 Motherboard Information

Press [Enter] to view the information of the motherboard.



3.2.2 Processor Information

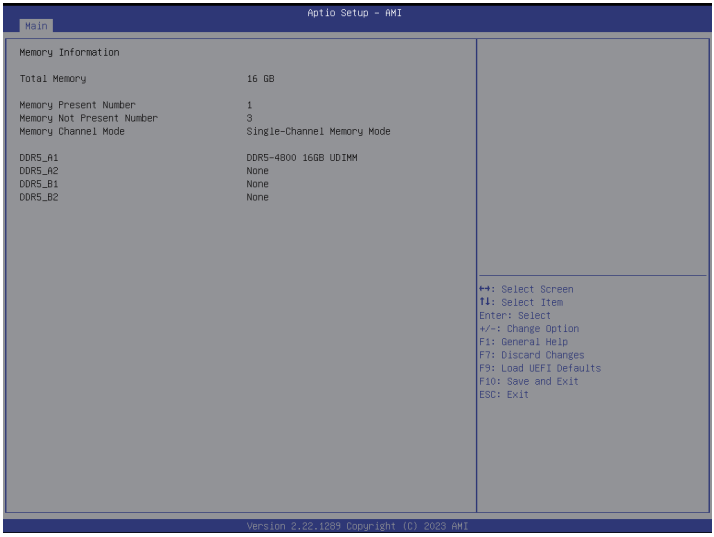
Press [Enter] to view the information of the processor.



English

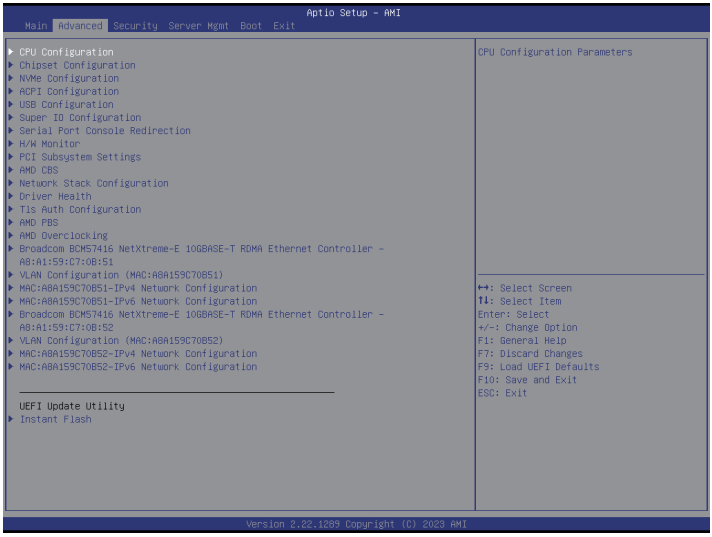
3.2.3 Memory Information

Press [Enter] to view the information of the memory.



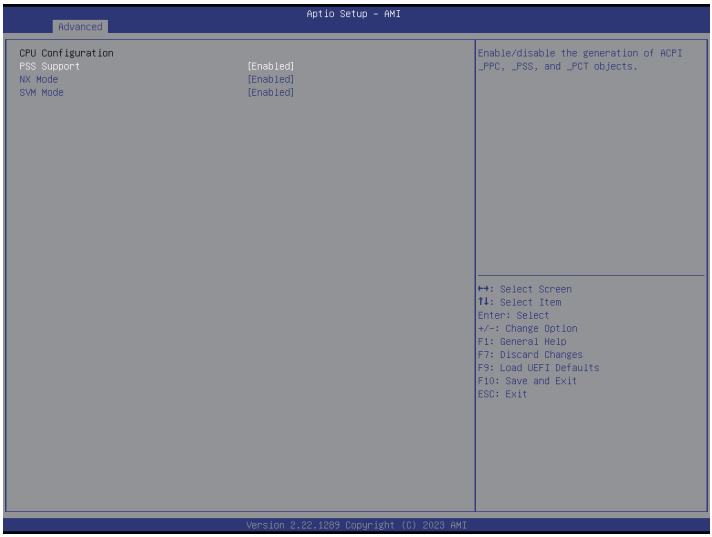
3.3 Advanced Screen

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



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

3.3.1 CPU Configuration



PSS Support

Use this item to enable or disable the generation of ACPI _PPC, _PSS, and _PCT objects.

NX Mode

Use this item to enable or disable No-execute page protection Function.

SVM Mode

Use this item to enable or disable CPU Virtualization.

3.3.2 Chipset Configuration

Primary Display

Select which Graphics device as the Primary Display.

Server WHQL Support

Use this to enable or disable the Server WHQL Support.

If using Windows Server 2022 or Windows Server 2025, please enable this option.

OnBoard Lan

Use this to enable or disable the Onboard LAN function.

Onboard VGA

Use this to enable or disable the Onboard VGA function.

AMD PCIE Link Width

Displays PCIE Link Width information.

PCIE7 Link Width

Select PCIE7 Link Width, the default value is [x16].

Options: [x16], [x8x8], [x8x4x4], [x4x4x8] and [x4x4x4x4].

AMD PCIE Link Speed

Use this item to configure the PCIE Link Speed.

PCIE7 Link Speed
Select PCIE7 Link Speed.

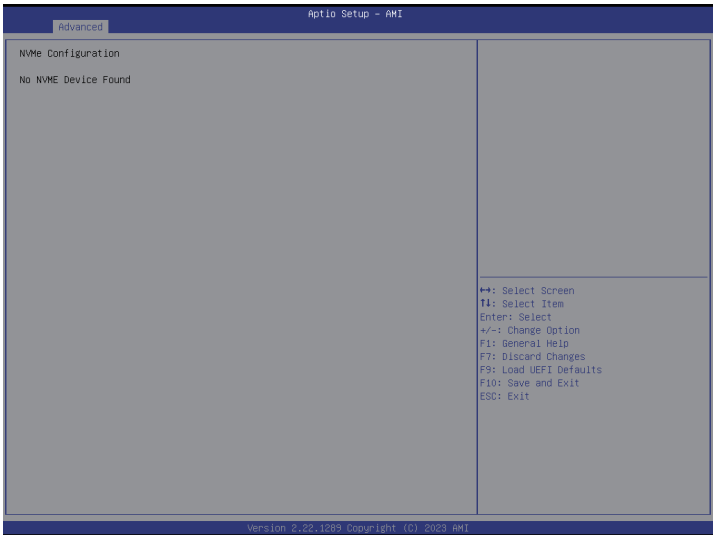
M2_1 Link Speed
Select M.2 Link Speed.

OCU1 Link Speed
Select OCU Link Speed.

PCI-E ASPM Support (Global)

Select this item to enable or disable the ASPM support for CPU downstream devices.

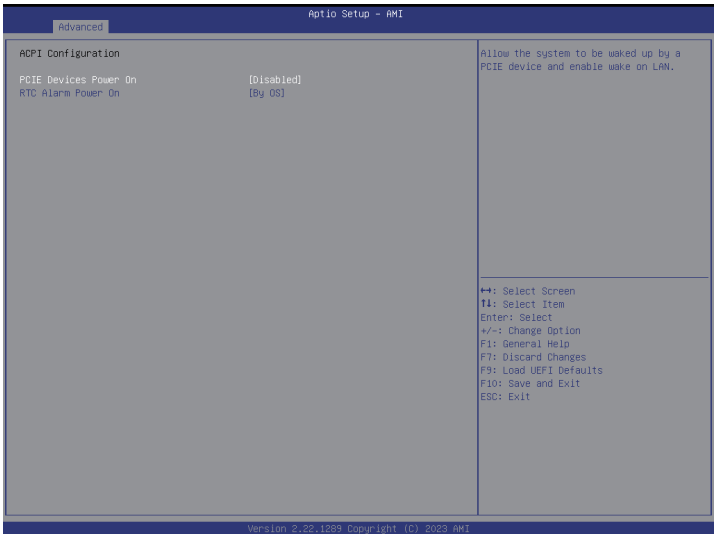
3.3.3 NVMe Configuration



NVMe Configuration

The NVMe Configuration displays the NVMe controller and Drive information.

3.3.4 ACPI Configuration



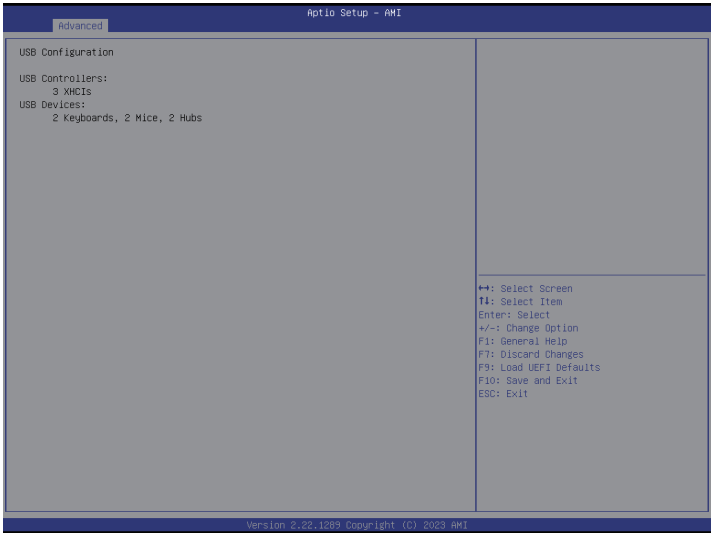
PCIE Devices Power On

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

RTC Alarm Power On

This Allows the system to be waked up by the real time clock alarm. Set it to By OS to let it be handled by the operating system.

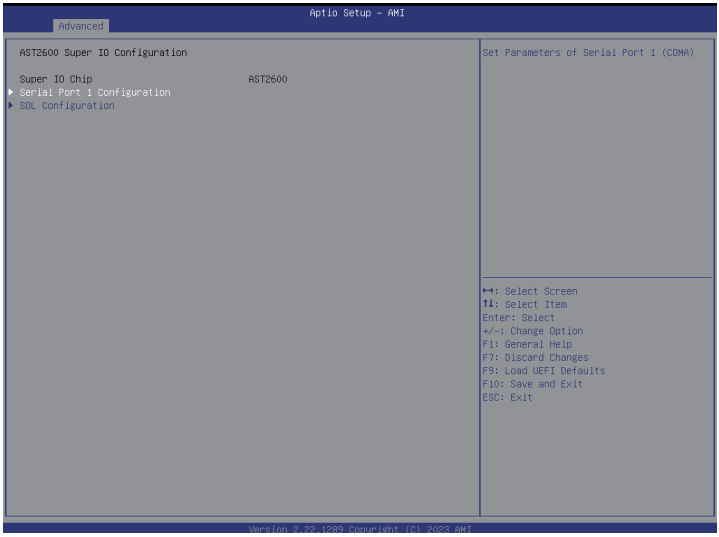
3.3.5 USB Configuration



USB Configuration

The USB Configuration displays the USB Controllers and USB Device informations.

3.3.6 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.

Serial Port Address
Use this item to select an optimal setting for Super IO device.

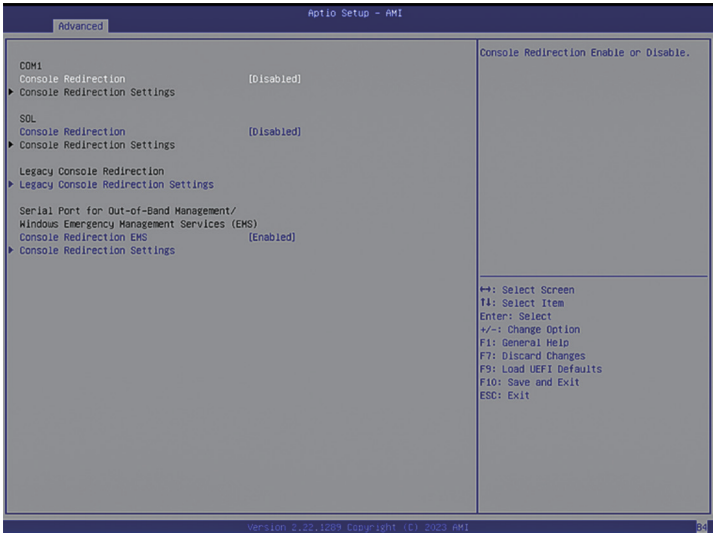
SOL Configuration

Use this item to set parameters of SOL.

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

Serial Port Address
Use this item to select an optimal setting for Super IO device.

3.3.7 Serial Port Console Redirection



COM1 / SOL

Console Redirection

Use this option to enable or disable Console Redirection. If this item is set to Enabled, it allows user to select a COM Port to be used for Console Redirection.

Console Redirection Settings

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

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

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

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

Putty KeyPad
Use this item 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 option to enable or disable Console Redirection. If this item is set to Enabled, it allows user to select a COM Port to be used for Console Redirection.

Console Redirection Settings

Use this option 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 item 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 item 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 item 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].

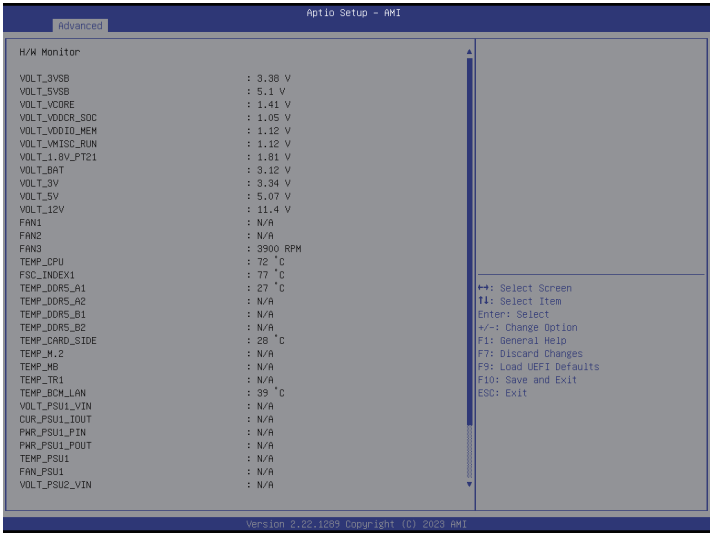
Data Bits EMS

Parity EMS

Stop Bits EMS

3.3.8 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.



3.3.9 PCI Subsystem Settings

Above 4G Decoding

Use this item to enable or disable 64bit capable Devices to be decoded in Above 4G Address Space (only if the system supports 64 bit PCI decoding).

Re-Size BAR Support

If system has Resizable BAR capable PCIe Devices, this option Enables/Disables Resizable BAR support.

SR-IOV Support

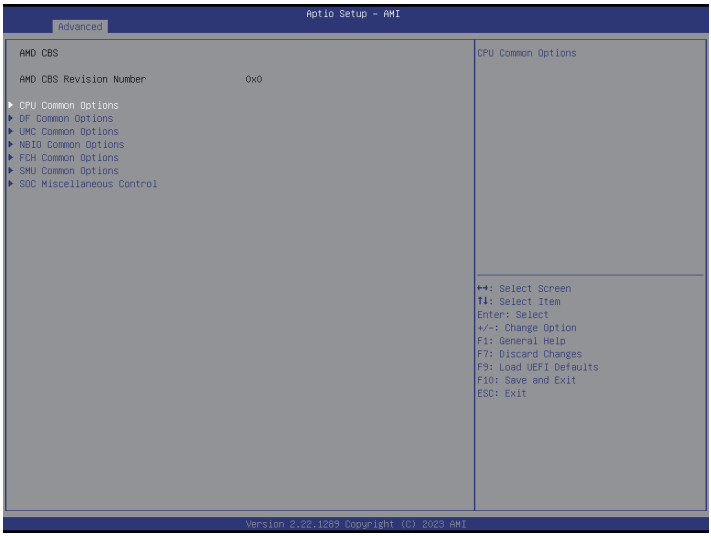
If system has SR-IOV capable PCIe Devices, this option Enables/Disables Single Root IO Virtualization Support.

BME DMA Mitigation

Re-enable Bus Master Attribute disabled during Pci enumeration for PCI Bridges after SMM Locked.

Changing PCI Device(s) settings may have unwanted side effects! System may HANG! PROCEED WITH CAUTION.

3.3.10 AMD CBS



CPU Common Options

Use this item to configure CPU common options.

Thread Enablement
Use this item to configure Thread Enablement.

Performance
Use this item to configure CPU performance.

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.

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.

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

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.

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

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

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.

SNP Memory (RMP Table) Coverage
Configure this item to enable, the entire system memory is covered.

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.

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

AVX512
Use this item to enable or disable AVX512.

MONITOR and MWAIT disable
The MONITOR, MWAIT, MONITORX, and MWAITX opcodes become invaild, when Enabled.

Corrector Branch Predictor
Enabling for branch heavy codes may reduce coditional branch mispredicts.

PAUSE Delay
Number a cycles thread will be idle after a PAUSE instruction.

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.

SVM Lock
Use this item to enable or disable VM_CR [Lock].

SVM Enable
Use this item to enable or disable VM_CR [SvmeDisable].

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.

Disable DF to external downstream IP Sync Flood Propagation
Disables Error propagation to UMC or any downstream slaves eg. FCH. Use this to avoid reset in failure scenario.

Disable DF Sync Flood Propagation
Disables propagation from PIE to other DF components and eventually to SDP ports.

Freeze DF Module Queues on Error
Enables freezing of all DF queues on error and also forces a sync flood on HWA even if MCAs are disabled.

DF Cstates
When DF Cstate feature is enabled, FW programs the registers required to enable this feature is the DF HW. (For auto option, it means this option will synchronized with Global C State.)

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

UMC Common Options

Use this item to configure UMC Common options including DDR Timing Configuration, DDR Bus Configuration, DDR Controller Configuration, DDR RAS, DDR Security, DDR Addressing Options, DDR Training Options, DDR Memory MBIST, DDR Memory Featues and DDR Turnaround Times.

NBIO Common Options

Use this item to configure NBIO common options.

IOMMU
Use this item to enable or disable IOMMU.

PCIe ARI Support
Use this item to eanble or disable ARI.

PCIe All Port ECRC
Use this item to enable or disable PCIE all port ECRC.

Advanced Error Reporting (AER)
Use this item to enable or disable the support for Advanced Error Reporting (AER).

PCIe ARI Enumeration

ARI Forwarding Enable for each downstream port.

GFX Configuration
Select this item to GFX.

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

Persistence Mode for Legacy Endpoints
Use this item to enable or disable persistence mode for legacy endpoints. Enable this item if some legacy PCIe devices are not detected.

EQ Bypass to Highest Rate
Controls the ability to advertise Equaliztion Bypass to Highest Rate Support in TSxs sent prior to LinkUp=1.

Retimer Margining Support
Auto is Disabled. Root port receiver margining support is enabled by default. Enabled - enables the support for margining a retimer. Disabled - Retimer margining is not supported.

FCH Common Options

Use this item to configure FCH Common options including I3C/I2C Configuration Options, USB Configuration Options, Ac Power Loss Options, ESPI Configuration Options and SPI Configuration Options.

FCH Spread Spectrum
Select whether or not Enable the spread Spectrum Feature.

SMU Common Options

Use this item to configure SMU common options.

TDP Control
Auto: Use the default sustained power limit.
Manual: User can set customized sustained pwoer limit.

ECO Mode
Adjust CPU control limits to manage operation within a 65W thermal design power.
Enabled: Enables 65W processor power definition.
Disabled: System uses default processor power definition.
Enabled - 105W: Enables 105W processor power definition (170W OPNs only).

PPT Control
Specifies the PPT Control.

Thermal Control
Auto: Use the default TctlMax.
Manual: User can set customized TctlMax.

TDC Control
Auto: Use the default TDC limits.
Manual: User can set customized TDC limits.

EDC Control
Auto: Use the default EDC limits.
Manual: User can set customized EDC limits.

Fan Control
Auto: Use the default fan controller settings.
Manual: User can set customized fan controller settings.

VDDP Voltage Control
Auto: Use the default VDDP voltage.
Manual: User can set customized VDDP voltage.

Infinity Fabric Frequency and Dividers
Use this item to configure the Infinity Fabric Frequency and Dividers.

SyncFifo Mode Override
Use this item to configure the Sustained PowerLimit.

Fast PPT Limit
Use this item to configure the Fast PPT Limit.

Slow PPT Limit
Use this item to configure the Slow PPT Limit.

Slow PPT Time Constant
Use this item to configure the Slow PPT Time Constant (seconds).

GFXOFF
Use this item to enable or disable the GFXOFF feature.

SOC Miscellaneous Control

Use this item to configure SOC Miscellaneous control options.

Trusted Platform Module
Use this item to enable or disable the TPM physical presence.
The default value is Auto for fTPM.

Pluton Security Processor
Use this item to enable or disable the Pluton Security Processor.

Microsoft Security Levels
This item provides one stop configuration for SCPC (Note: Firmware Anti-rollback is excluded). For Level 1, it will configure TPM, SVM, IOMMU, SecureBoot; For Level2, it will configure TPM, SVM, IOMMU, DMAr, SecureBIO, SecureBoot; For Level 3, it will configure TPM, SMM Isolation, SVM, IOMMU, DMAr, TSME, SecureBIO, SecureBoot, Modern Standby. Regard TPM configuraiton, dTPM refers to discrete TPM. Pluton fTOM refers to Pluton firmware TPM. ASP fPM refers t ASP firmware TPM.

Secured-core Auto enablement
Set this item to disable, AGESA will delete EFI variable 'BuiltAsSecuredCorePC' if detected. Set this item to enable, AGESA will set EFI variable 'Built AsSecuredCorePC' to non-zero value. If set 'BuiltAsSecuredCorePC' to non-zero, it will identify a device as Secure-core PC. If set this item to Auto, ignore, AGESA will do nothing.

DRTM Support
Use this item to enable the DRTM.

SMM Isolation Support
Use this item to enable SMM Isolation (as known as SMM Supervisor).

Pluton Options
Select this item to configure the Pluton Options.

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

AIM-T Options
Select this item to configure the AIM-T Options.

SecureBio
Select this item to configure the SecureBio Options.

ABL Console Out Control
Enable: Enable ConsoleOut Funciton for ABL.
Disable: Disable ConsoleOut Funciton for ABL.
Auto: Keep default behavior.
Note: Also need to enable ESPI ABL Init.

PSP RPMC Switch
Control RPMC usage.
Enable: Enable RMPC Funciton.
Disable: Disable RMPC Funciton.
Auto: Keep default behavior.
This option is for test purpose only, NOT FOR PRODUCTION!!!

Mixed DIMM config extended NUMA domain
Mixed DIMM config extended NUMA domain in SRAT that contain only non-interleaving memory region but no processor.

PROM21 Chipset Common Options

Use this item to configure PROM21 Chipset common options.

PROM21 Chipset PCIe Port Configuration Options
Select this item to configure the PROM21 Chipset PCIe Port Options.

PROM21 Chipset SATA Configuration Options
Select this item to configure the PROM21 Chipset SATA Options.

PROM21 Chipset USB Configuration Options
Select this item to configure the PROM21 Chipset USB Options.

USB Port Disablement Phase
Use this item to configure the USB Port Disablement Phase.

PROM21L.1/2/3/6/7 USB Port Configuration Options
Select this item to configure the PROM21L.1/2/3/6/7 USB Port Options.

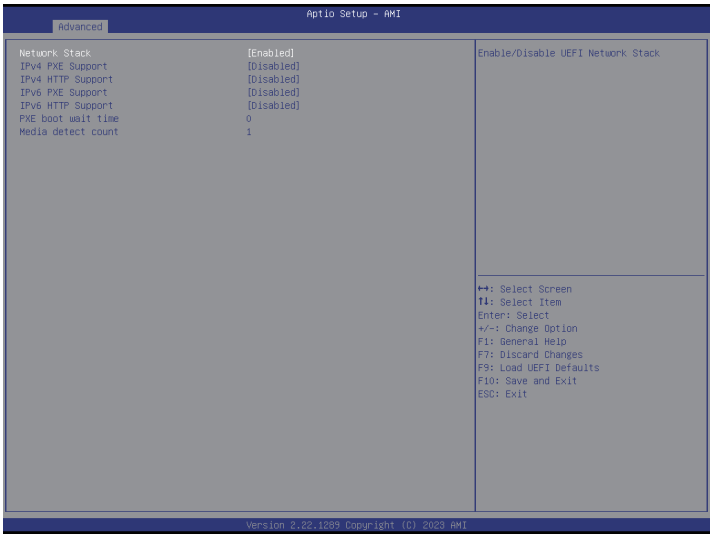
PROM21 Chipset SI Configuration Options
Select this item to configure the PROM21 Chipset SI Options.

PROM21 Chipset Revision
Use this item to configure the PROM21 Chipset Revision.

Dual PROM21 Port Number/Disable
Set downstream port number for second PROM21. Disable this item if don't have the second PROM21.

PCIe Power Management Features
Use this item to configure the PCIe Power Management Features.

3.3.11 Network Stack Configuration



Network Stack

Enable UEFI network stack can prevents user from performing single-user network boots and network installation. If disabled, the host does not use the network interface.

IPv4 PXE Support

Enable IPv4 PXE Boot support. If disabled, IPv4 PXE Boot Option is not supported.

IPv4 HTTP Support

Enable IPv4 HTTP Boot support. If disabled, IPv4 HTTP Boot Option is not supported.

IPv6 PXE Support

Enable IPv6 PXE Boot support. If disabled, IPv6 PXE Boot Option is not supported.

IPv6 HTTP Support

Enable IPv6 HTTP Boot support. If disabled, IPv6 HTTP Boot Option is not supported.

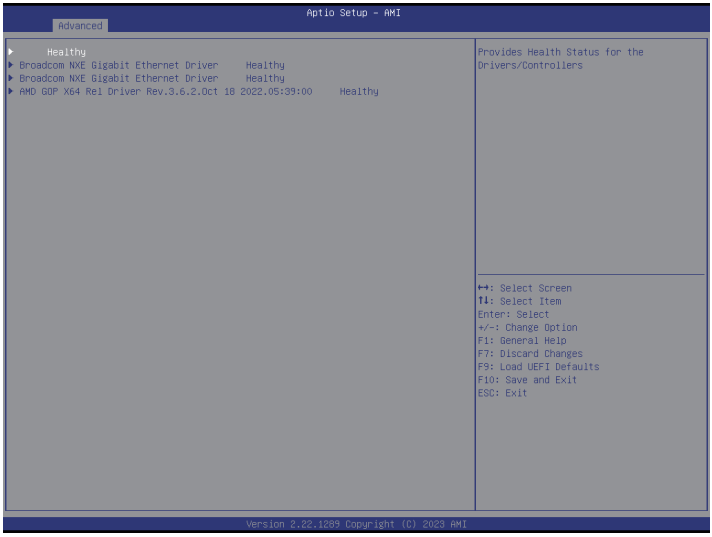
PXE Boot Wait Time

Specifies the wait time and press the ESC key to abort the PXE boot.

Media Detect Count

Specifies the number of times the presence of physical storage device are verified on a system reset or power cycle.

3.3.12 Driver Health



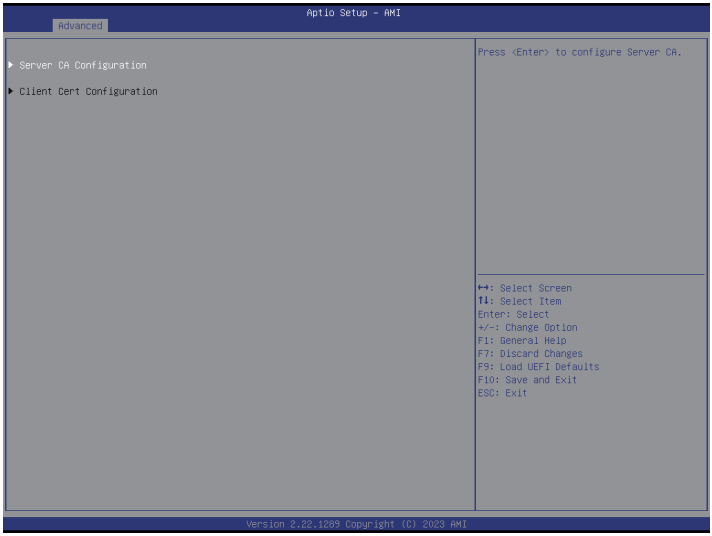
Broadcom NXE Gigabit Ethernet Driver Healthy

Provides Health Status for the Drivers/Controllers.

AMD GOP X64 Rel Driver Rev.3.6.2.Oct 18 2022.05:39:00 Healthy

Provides Health Status for the Drivers/Controllers.

3.3.13 Tls Auth Configuration



Server CA Configuration

Press <Enter> to configure Server CA.

Enroll Cert

Press <Enter> to enroll cert.

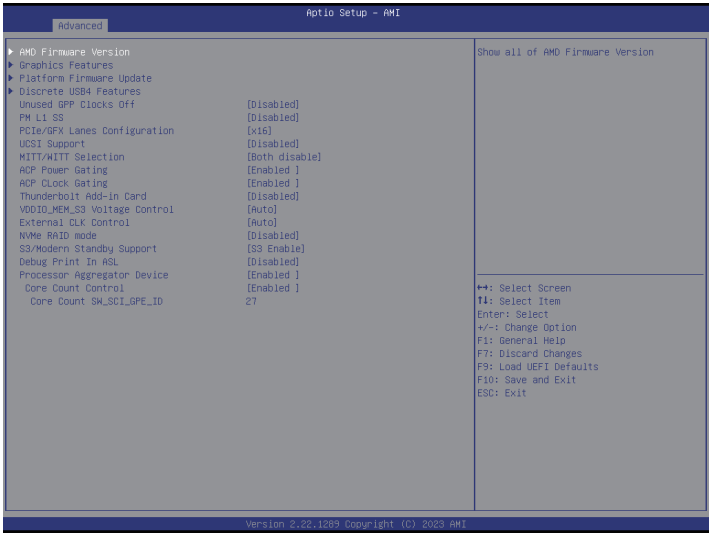
Delete Cert

Press <Enter> to delete cert.

Client Cert Configuration

Press <Enter> to configure Client Cert.

3.3.14 AMD PBS



AMD Firmware Version

Show all of AMD Firmware Version.

Graphics Features

Graphics Features - HG, DGPU Features, BOMAC0.

Platform Firmware Update

Use this item to process Platform Firmware Update

Discrete USB4 Features

Discrete USB4 Features - PCIe resource, D3 support, Native USB4 suport and so on.

Unused GPP Clocks Off

Turn Unused GPP Clocks Off.

PM L1 SS

Enable for PM L1 SS and ASPM L1 SS.

UCSI Support

Enable for UCSI (USB Type-C Connector System Software Interface).

MITT/WITT Selection

Use this item to configure MITT/WITT Selection

ACP Power Gating

Use this item to enable or disable ACP Power Gating.

ACP CLock Gating

Use this item to enable or disable ACP CLOCK Gating.

Thunderbolt Add-in Card

Enable Thunderbolt AR/TR Add-in Card Support.

VDDIO_MEM_S3 Voltage Control

Use this item to configure voltage control for VDDIO_MEM_S3 with Auto or Manual selections.

External CLK Control

Use the item to configure External CLK Control with Auto (100Mhz CGPLL generated by default) / eCLK0 (EXT_GPP0_SRC) or GPP1 (External input thru GPP1).

Switch APU clocks source mapping will get stuck immediately (post code: B0005A5A), manual press cold reset button to bypass the stuck.

NVMe RAID mode

Use this item to enable or disable NVMe RAID mode. Please setting the 'PCIe/GFX Lanes Configuration' item according to the RAID configuration.

S3/Modern Standby Support

Switch S3/Modern Standby.

Debug Print In ASL

Enable Debug Print In ASL.

Processor Aggregator Device

Enable or disable the Processor Aggregator Device.

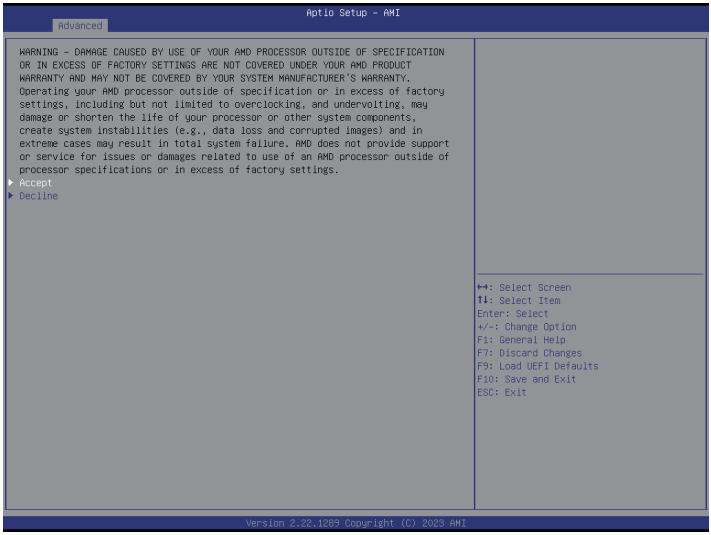
Core Count Control

Enable or disable the Core Count Control.

Core Count SW_SCI_GPE_ID

Select Core Count SW_SCI_GPE_ID range: 0~31, default value is 25.

3.3.15 AMD Overclocking



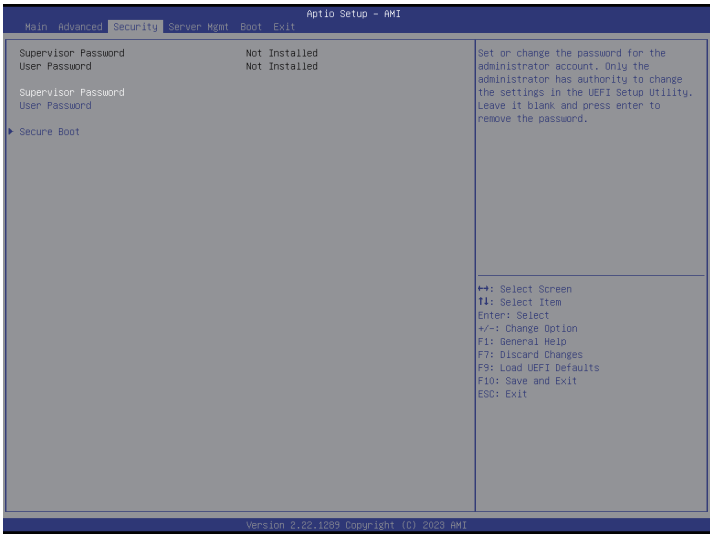
The AMD Overclocking menu accesses options for configuring CPU frequency and voltage.

3.3.16 Instant Flash

Instant Flash is a UEFI flash utility embedded in Flash ROM. This convenient UEFI update tool allows user to update system UEFI without entering operating systems first like MS-DOS 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 Security

In this section, set or change the supervisor/user password for the system. For the user password, it also allows 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

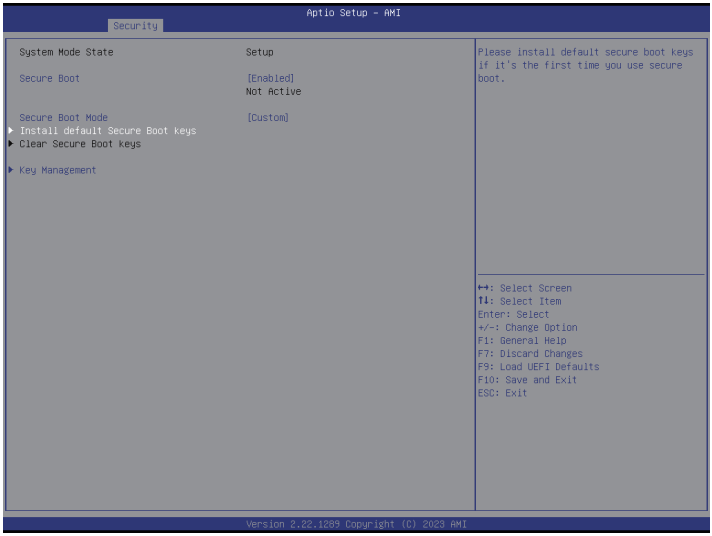
Use this to Enable/Disable Secure Boot Control. The default value is [Enabled]. Enable to support Windows Server 2012 R2 or later versions Secure Boot.

Secure Boot Mode

Secure Boot mode options: Standard/Custom. In Custom mode, Secure Boot Policy variables can be configured without authentication.

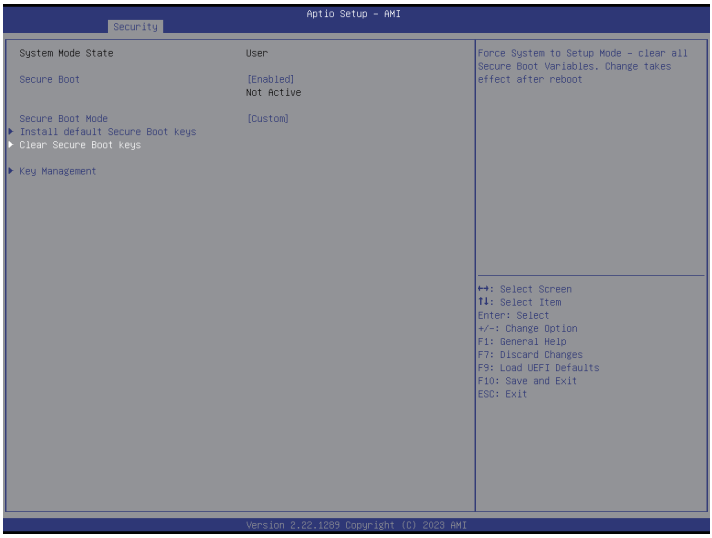
3.4.1 Install Default Secure Boot Keys

Please install default secure boot keys if it is the first time to use secure boot. Select Clear Secure Boot keys item to clear the asigned secure boot keys.



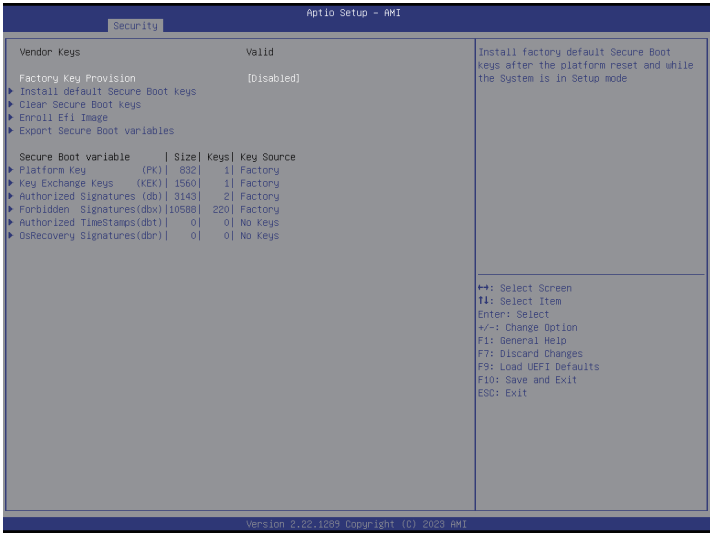
3.4.2 Clear Secure Boot Keys

Force System to Setup Mode - clear all Secure Boot Variables. Change takes effect after reboot.



3.4.3 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

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)

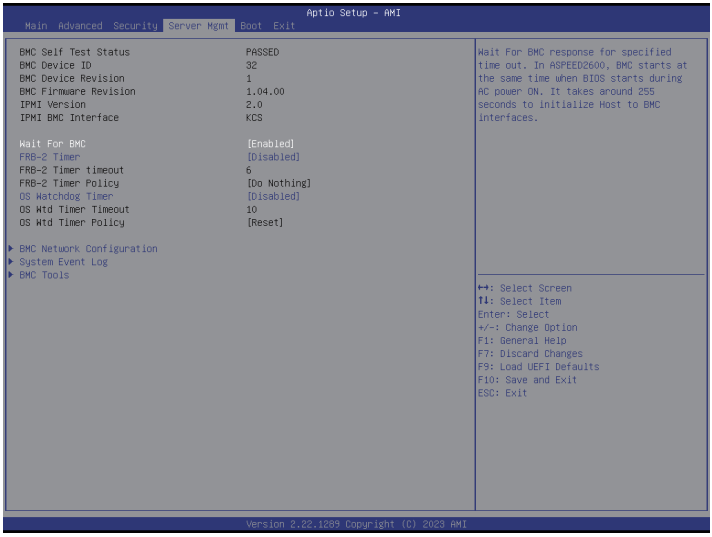
d) EFI_CERT_SHAXXX

2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Key Source: Factory, Modified, Mixed

3.5 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

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

FRB-2 Timer Timeout

Select this item 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

Select this item 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

Select this item to configure BMC network parameters.

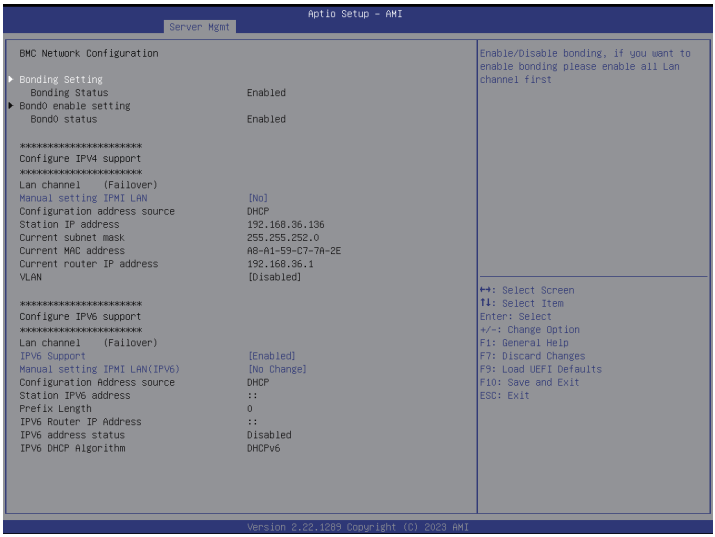
System Event Log

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

BMC Tools

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

3.5.1 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. 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/ipmi.asp

VLAN

Enabled or disabled Virtual Local Area Network. Select [Enabled] to configure VLAN ID and VLAN priority.

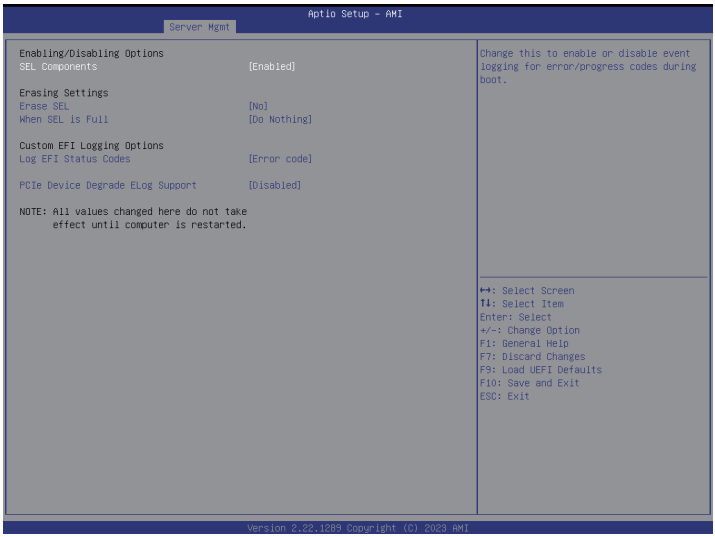
IPV6 Support

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.

3.5.2 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.

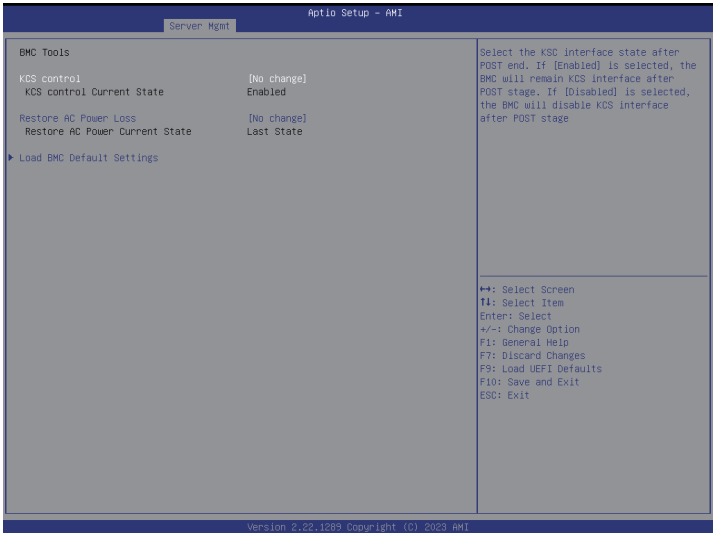
Log EFI Status Codes

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.

3.5.3 BMC Tools



KCS control

Select the KSC interface state after POST end. If [Enabled] is 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.

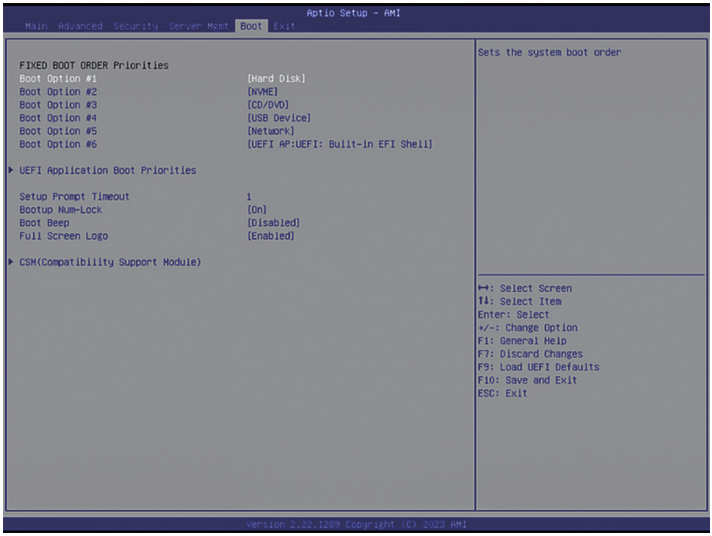
Load BMC Default Settings

Use this item to load BMC default settings.

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

3.6 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 item 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

Select whether Num Lock should be turned on or off when the system boots up.

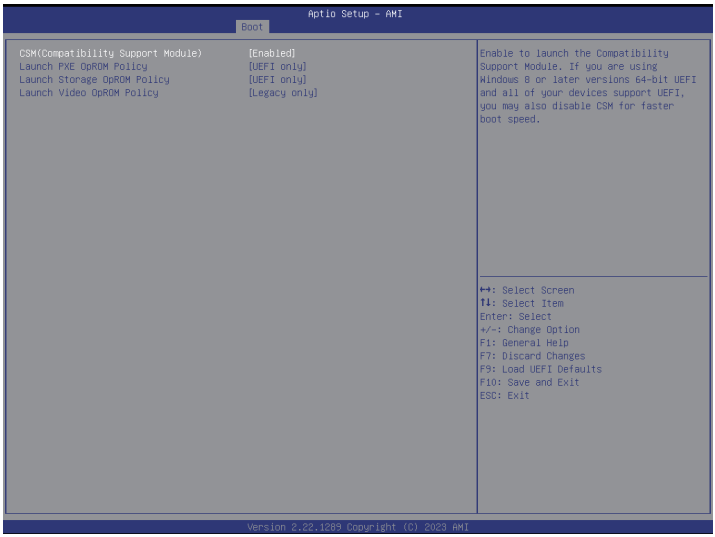
Boot Beep

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

Enable to display the boot logo or disable to show normal POST messages.

3.6.1 CSM Parameters



CSM (Compatibility Support Module)

Enable to launch the Compatibility Support Module. If using Windows 8 64-bit UEFI and all of the devices support UEFI, it may also disable CSM for faster boot speed.

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.

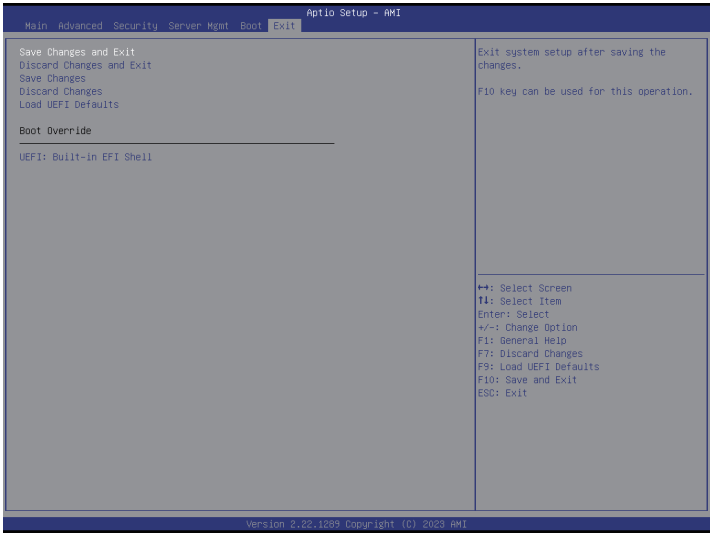
Launch Storage OpROM Policy

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.

3.7 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.

Boot Override

This item displays the available devices. Select an item to start booting from the selected device.

Chapter 4 Software Support

After all the hardware has been installed, it suggests 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 our website at http://www.ASRockRack.com.

To download necessary drivers, go the 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 motherboard damages.

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 UDIMM modules.
3. If having installed more than one DIMM modules, they 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 problem on ASRock Rack's FAQ page: http://www.asrockrack.com/support

5.2 Technical Support Procedures

If having tried the troubleshooting procedures mentioned above and 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 our 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

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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