

GIGABYTE™

W773-H5D-AA01

GPU Workstation - AMD Ryzen™ Threadripper™ PRO 7000 WX

User Manual

Rev. 1.0

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Documentation Classifications

In order to assist in the use of this product, GIGABYTE provides the following types of documentation:

- User Manual: detailed information & steps about the installation, configuration and use of this product (e.g. motherboard, server barebones), covering hardware and BIOS.
- User Guide: detailed information about the installation & use of an add-on hardware or software component (e.g. BMC firmware, rail-kit) compatible with this product.
- Quick Installation Guide: a short guide with visual diagrams that you can reference easily for installation purposes of this product (e.g. motherboard, server barebones).

Please see the support section of the online product page to check the current availability of these documents.

For More Information

For related product specifications, the latest firmware and software, and other information please visit our website at <http://www.gigabyte.com>

For GIGABYTE distributors and resellers, additional sales & marketing materials are available from our reseller portal: <http://reseller.b2b.gigabyte.com>

For further technical assistance, please contact your GIGABYTE representative or visit <https://esupport.gigabyte.com/> to create a new support ticket

For any general sales or marketing enquiries, you may also message GIGABYTE server directly by email: server.grp@gigabyte.com

Conventions

The following conventions are used in this user's guide:

	NOTE! Gives bits and pieces of additional information related to the current topic.
	CAUTION! Gives precautionary measures to avoid possible hardware or software problems.
	WARNING! Alerts you to any damage that might result from doing or not doing specific actions.

Warnings and Cautions

Before installing, be sure that you understand the following warnings and cautions.



WARNING!

To reduce the risk of electric shock or damage to the equipment:

- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
- Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
- Unplug all the power cords from the power supplies to disconnect power to the equipment.
- Shock Hazard! Disconnect all power supply cords before servicing.
- Do not route the power cord where it can be walked on or pinched by items placed against it. Pay particular attention to the plug, electrical outlet, and the point where the cord extends from the server.



WARNING!

To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.



CAUTION!

- Do not operate the system for long periods with the access panel open or removed. Operating the system in this manner results in improper airflow and improper cooling that can lead to thermal damage.
- Danger of explosion if battery is incorrectly replaced.
- Replace only with the same or equivalent type recommended by the manufacturer.
- Dispose of used batteries according to the manufacturer's instructions.

Electrostatic Discharge (ESD)



CAUTION!

ESD CAN DAMAGE DRIVES, BOARDS, AND OTHER PARTS. WE RECOMMEND THAT YOU PERFORM ALL PROCEDURES AT AN ESD WORKSTATION. IF ONE IS NOT AVAILABLE, PROVIDE SOME ESD PROTECTION BY WEARING AN ANTI-STATIC WRIST STRAP ATTACHED TO CHASSIS GROUND -- ANY UNPAINTED METAL SURFACE -- ON YOUR SERVER WHEN HANDLING PARTS.

Always handle boards carefully. They can be extremely sensitive to ESD. Hold boards only by their edges without any component and pin touching. After removing a board from its protective wrapper or from the system, place the board component side up on a grounded, static free surface. Use a conductive foam pad if available but not the board wrapper. Do not slide board over any surface.

System power on/off: To remove power from system, you must remove the system from rack. Make sure the system is removed from the rack before opening the chassis, adding, or removing any non hot-plug components.

Hazardous conditions, devices and cables: Hazardous electrical conditions may be present on power, telephone, and communication cables. Turn off the system and disconnect the cables attached to the system before servicing it. Otherwise, personal injury or equipment damage can result.

Electrostatic discharge (ESD) and ESD protection: ESD can damage drives, boards, and other parts. We recommend that you perform all procedures in this chapter only at an ESD workstation. If one is not available, provide some ESD protection by wearing an antistatic wrist strap attached to chassis ground (any unpainted metal surface on the server) when handling parts.

ESD and handling boards: Always handle boards carefully. They can be extremely sensitive to electrostatic discharge (ESD). Hold boards only by their edges. After removing a board from its protective wrapper or from the system, place the board component side up on a grounded, static free surface. Use a conductive foam pad if available but not the board wrapper. Do not slide board over any surface.

Installing or removing jumpers: A jumper is a small plastic encased conductor that slips over two jumper pins. Some jumpers have a small tab on top that can be gripped with fingertips or with a pair of fine needle nosed pliers. If the jumpers do not have such a tab, take care when using needle nosed pliers to remove or install a jumper; grip the narrow sides of the jumper with the pliers, never the wide sides. Gripping the wide sides can damage the contacts inside the jumper, causing intermittent problems with the function controlled by that jumper. Take care to grip with, but not squeeze, the pliers or other tool used to remove a jumper, or the pins on the board may bend or break.

**CAUTION!**

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

Regulatory Notices

WEEE Symbol Statement



The symbol shown below is on the product or on its packaging, which indicates that this product must be disposed of with other waste. Instead, the device should be taken to the waste collection centers for activation of the treatment, collection, recycling and disposal procedure. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.

For more information about where you can drop off your waste equipment for recycling, please contact your local government office, your household waste disposal service or where you purchased the product for details of environmentally safe recycling.

- When your electrical or electronic equipment is no longer useful to you, "take it back" to your local or regional waste collection administration for recycling.

Restriction of Hazardous Substances (RoHS) Directive Statement

GIGABYTE products have not intended to add and safe from hazardous substances (Cd, Pb, Hg, Cr+6, PBDE and PBB). The parts and components have been carefully selected to meet RoHS requirement. Moreover, we at GIGABYTE are continuing our efforts to develop products that do not use internationally banned toxic chemicals.

California Proposition 65 Warning



WARNING!

This product can expose you to chemicals including Lead, which is known to the State of California to cause cancer, and Bisphenol A (BPA), which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



Battery WARNING!

This product can expose you to chemicals including Lead, which is known to the State of California to cause cancer, and Bisphenol A (BPA), which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

電器規格及使用溫度：參考以下標示

Rating(交流輸入)	100-240V~, 15-12A, 50-60Hz
Operating Temperature	10°C to 35°C
Non-operating temperature	-40°C to 60°C
Operating humidity	8%-80% (non-condensing)
Non-operating humidity	20%-95% (non-condensing)

伺服器相關警告與注意事項



警告

為了避免電擊危險或損壞設備請注意：

- 不要切斷電源線的接地端子，接地端子是一個很重要的安全防護。
- 將電源線接到有接地功能的插座，此插座需位於使用者容易使用的範圍。
- 電源線的配線要避免被踩到，被絆到或被過度彎折，重壓。



警告

- 本設備關機後內部仍存在電源，須拔掉電源線才能完全切掉設備內部的電源。
- 更換零件前請確定電源已經完全切斷。
- 電源線、電話線，網路線可能帶電，維修前除了移除電源線外也請移除所有連接線，避免電擊傷害或是設備損壞。
- 維修非支援熱插拔的零件時須將伺服器從機櫃取下才能維修。



警告

- 避免人員燙傷，觸摸磁碟機或是內部零件前請確保該零件已經冷卻。



警告

- 伺服器中有高速風扇，維修時請遠離風扇避免受傷。



警告

- 本設備不能用在有兒童出現的區域。



警告

- 如果更換錯誤電池會產生爆炸，請以相同或同型號電池更換使用。
- 廢電池請回收。



廢電池請回收

警告：如果更換錯誤電池會產生爆炸 請以相同或同型電池更換使用





注意

- 伺服器開機時不要長時間移除蓋子，長時間移除蓋子會造成散熱功能失效造成損壞。



注意

- 靜電會損害電子產品，建議您在符合靜電防護的工作環境操作伺服器，如果無法確定環境的靜電防護。請穿上靜電手環並且將手環接到有接地的金屬表面如機櫃或機殼。
- 拿取電路板時僅觸碰板子的邊緣，不要觸碰連接器。板子從防靜電包裝取出後只能放置在無靜電的桌面，零件面朝上。如果可以，請使用防靜電泡棉。避免使用靜電袋。避免電路板與任何表面摩擦產生靜電。

 WARNING	
<ul style="list-style-type: none"> • INGESTION HAZARD: This product contains a button cell or coin battery. • DEATH or serious injury can occur if ingested. • A swallowed button cell or coin battery can cause Internal Chemical Burns in as little as 2 hours. • KEEP new and used batteries OUT OF REACH OF CHILDREN • Seek immediate medical attention if a battery is suspected to be swallowed or inserted inside any part of the body. 	

- Battery type: CR2032, voltage rating: +3VDC.
- Non-rechargeable batteries are not to be recharged.
- Remove and immediately recycle or dispose of used batteries, batteries from equipment not used for an extended period of time according to local regulations and keep away from children. Do NOT dispose of batteries in household trash or incinerate.
- Even used batteries may cause severe injury or death.
- Do not force discharge, recharge, disassemble, heat above (manufacturer's specified temperature rating) or incinerate. Doing so may result in injury due to venting, leakage or explosion resulting in chemical burns.
- For treatment information, call a local poison control center.
- The product contains non-replaceable batteries.

設備名稱：工作站

型號（型式）：W773-H5D

單元	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛Lead (Pb)	汞 Mercury (Hg)	鎘 Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr+6)	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
電路板 總成	—	○	○	○	○	○
冷卻器 (風扇)	—	○	○	○	○	○
鐵殼	○	○	○	○	○	○
電源 供應器	—	○	○	○	○	○
線材	○	○	○	○	○	○

備考1. “超出0.1 wt %”及“超出0.01 wt %”係指限用物質之百分比含量超出百分比含量基準值。

Note 1: “Exceeding 0.1 wt %” and “exceeding 0.01 wt %” indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.

備考2. “○”係指該項限用物質之百分比含量未超出百分比含量基準值。

Note 2: “○” indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.

備考3. “—”係指該項限用物質為排除項目。

Note 3: The “—” indicates that the restricted substance corresponds to the exemption.

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新北市新店區寶強路6號7樓

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Chapter 1 Hardware Installation

1-1 Installation Precautions

The motherboard/system contain numerous delicate electronic circuits and components which can become damaged as a result of electrostatic discharge (ESD). Prior to installation, carefully read the user manual and follow these procedures:













- Prior to installation, do not remove or break motherboard S/N (Serial Number) sticker or warranty sticker provided by your dealer. These stickers are required for warranty validation.
- Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.
- When connecting hardware components to the internal connectors on the motherboard, make sure they are connected tightly and securely.
- When handling the motherboard, avoid touching any metal leads or connectors.
- It is best to wear an electrostatic discharge (ESD) wrist strap when handling electronic components such as a motherboard, CPU or memory. If you do not have an ESD wrist strap, keep your hands dry and first touch a metal object to eliminate static electricity.
- Prior to installing the motherboard, please have it on top of an antistatic pad or within an electrostatic shielding container.
- Before unplugging the power supply cable from the motherboard, make sure the power supply has been turned off.
- Before turning on the power, make sure the power supply voltage has been set according to the local voltage standard.
- Before using the product, please verify that all cables and power connectors of your hardware components are connected.
- To prevent damage to the motherboard, do not allow screws to come in contact with the motherboard circuit or its components.
- Make sure there are no leftover screws or metal components placed on the motherboard or within the computer casing.
- Do not place the computer system on an uneven surface.
- Do not place the computer system in a high-temperature environment.
- Turning on the computer power during the installation process can lead to damage to system components as well as physical harm to the user.
- If you are uncertain about any installation steps or have a problem related to the use of the product, please consult a certified computer technician.

1-2 Product Specifications



NOTE:

We reserve the right to make any changes to the product specifications and product-related information without prior notice.

 System Dimension	<ul style="list-style-type: none">◆ Pedestal◆ 218 x 455 x 726.3
 Motherboard	<ul style="list-style-type: none">◆ MH53-G40
 CPU	<ul style="list-style-type: none">◆ AMD Ryzen™ Threadripper™ PRO 7000 WX-Series Processors◆ Up to 96 cores, 192 threads◆ Single processor, TDP up to 350W
 Socket	<ul style="list-style-type: none">◆ 1 x sTR5
 Chipset	<ul style="list-style-type: none">◆ AMD WRX90
 Memory	<ul style="list-style-type: none">◆ 8 x DIMM slots◆ DDR5 memory supported only◆ 8-channel memory architecture◆ RDIMM/3DS RDIMM supported◆ Memory speed: Up to 5200 MT/s
 LAN	<ul style="list-style-type: none">◆ 2 x 10Gb/s LAN ports (1 x Broadcom® BCM57416)◆ Support NCSI function◆ 1 x 10/100/1000 Mbps Management LAN
 Video	<ul style="list-style-type: none">◆ Integrated in ASPEED® AST2600◆ 2D Video Graphic Adapter with PCIe bus interface◆ 1920x1200@60Hz 32bpp
 Audio	<ul style="list-style-type: none">◆ Realtek® ALC897 HD Audio Codec◆ Supports 2/4/5.1/7.1 channel configurations◆ Rear 3 x Audio jacks (Audio in/Audio out/Mic)◆ Front 2 x Audio jacks (Audio out/Mic)
 Storage	<ul style="list-style-type: none">◆ 4 x 3.5"/2.5" SATA hot-swappable bays◆ Additional 4 x 3.5"/2.5" SATA hot-swappable bays (optional) <p>NOTE: Storage card is required to support NVMe and SAS drives.</p>
 RAID	<ul style="list-style-type: none">◆ RAID 0/1/10/5
 Peripheral Drives	<ul style="list-style-type: none">◆ 5.25" space reserved for ODD device



Expansion Slot

- ◆ Slot_7: PCIe x16 (Gen5 x16) slot
- ◆ Slot_6: PCIe x16 (Gen5 x16) slot
- ◆ Slot_5: PCIe x16 (Gen5 x16) slot
- ◆ Slot_3: PCIe x16 (Gen5 x16) slot
- ◆ Slot_2: PCIe x16 (Gen5 x16) slot
- ◆ Slot_1: PCIe x16 (Gen5 x16) slot

- ◆ 4 x M.2 slots for storage:
 - M-key
 - PCIe Gen5 x4, from CPU
 - Support 2280/22110 cards

- ◆ 1 x M.2 slot for Wi-Fi:
 - E-key
 - PCIe Gen3 x1, from FCH
 - Supports 2230 cards



Internal I/O

- ◆ 1 x TPM header



Front I/O

- ◆ 1 x USB 3.2 Gen1 (Type-C)
- ◆ 2 x USB 3.2 Gen1 (Type-A)
- ◆ 2 x Audio jacks (Audio out/Mic)
- ◆ 1 x Power button with LED
- ◆ 1 x Reset button
- ◆ 1 x Power LED
- ◆ 1 x Storage activity LED
- ◆ 1 x System status LED



Rear I/O

- ◆ 1 x USB 3.2 Gen2x2 (Type-C) (from FCH)
- ◆ 3 x USB 3.2 Gen2 (Type-A) (from CPU)
- ◆ 1 x VGA
- ◆ 1 x COM
- ◆ 2 x RJ45
- ◆ 1 x MLAN
- ◆ 3 x Audio jacks (Audio in/Audio out/Mic)
- ◆ 1 x ID button with LED



TPM

- ◆ 1 x TPM header with SPI interface
 - Optional TPM2.0 kit: CTM010



Power Supply

- ◆ Single 2000W ATX 80 PLUS Gold power supply

- ◆ AC Input:
 - 100-115V/ 13A, 50-60Hz, 1200W
 - 115-200V/ 15A, 50-60Hz, 1500W
 - 200-240V/ 12A, 50-60Hz, 2000W

- ◆ DC Output:
 - Max 1200W/ 100-115V~
 - +12V/ 100A
 - +5Vsb/ 4A
 - Max 1500W/ 115-200V~
 - +12V/ 125A
 - +5Vsb/ 4A
 - Max 2000W/ 200-240V~
 - +12V/ 166.7A
 - +5Vsb/ 4A

NOTE: The system power supply requires C19 power cord.




NOTE: 220-240V AC input is recommended for optimized user experience.



System Management

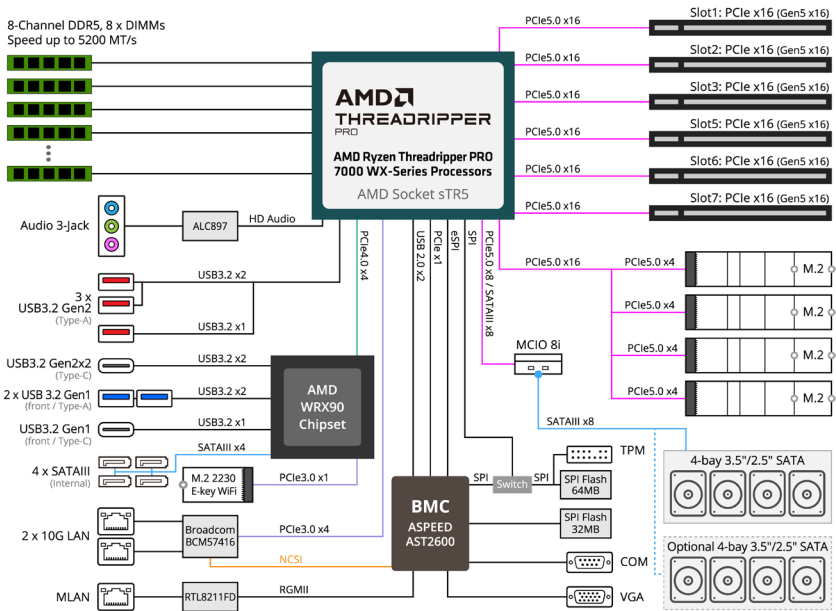
- ◆ ASPEED® AST2600 Management Controller
- ◆ GIGABYTE Management Console (AMI MegaRAC SP-X) web interface

- ◆ Dashboard
- ◆ HTML5 KVM
- ◆ Sensor Monitor (Voltage, RPM, Temperature, CPU Status ...etc.)
- ◆ Sensor Reading History Data
- ◆ FRU Information
- ◆ SEL Log in Linear Storage / Circular Storage Policy
- ◆ Hardware Inventory
- ◆ Fan Profile
- ◆ System Firewall
- ◆ Power Consumption
- ◆ Power Control
- ◆ Advanced power capping
- ◆ LDAP / AD / RADIUS Support
- ◆ Backup & Restore Configuration
- ◆ Remote BIOS/BMC/CPLD Update
- ◆ Event Log Filter
- ◆ User Management
- ◆ Media Redirection Settings
- ◆ PAM Order Settings
- ◆ SSL Settings
- ◆ SMTP Settings

 OS Compatibility	<ul style="list-style-type: none">◆ Red Hat Enterprise Linux (x86_64)◆ Ubuntu (x86_64)◆ Windows 11 (x64)
 System Fans	<ul style="list-style-type: none">◆ Middle fan: 3 x 120x120x38mm (6,400rpm)◆ Rear fan: 1 x 120x120x25mm (2,800rpm)
 Operating Properties	<ul style="list-style-type: none">◆ Operating temperature: 10°C to 30°C◆ Operating humidity: 8%-80% (non-condensing)◆ Non-operating temperature: -40°C to 60°C◆ Non-operating humidity: 20%-95% (non-condensing)

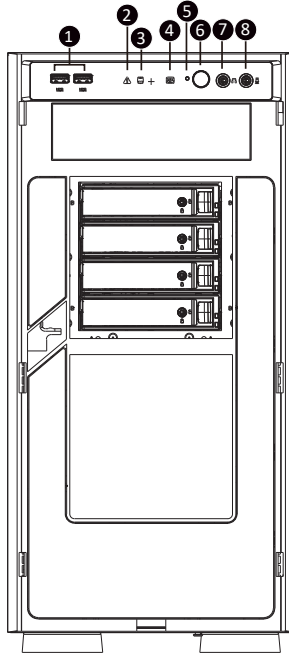
1-3 System Block Diagram

W773-H5D Block Diagram



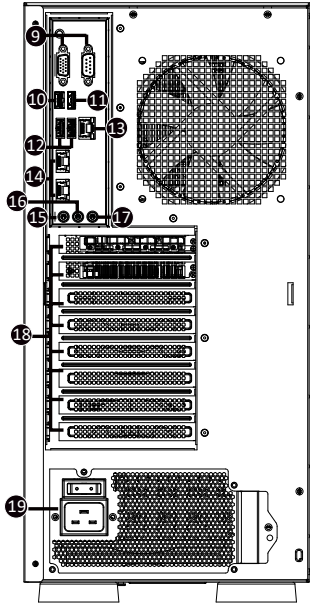
Chapter 2 System Appearance

2-1 Front View



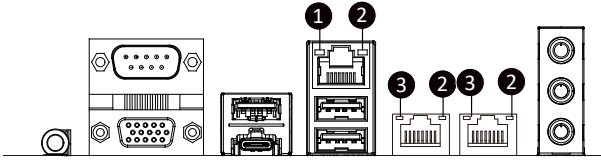
No.	Description	No.	Description
1.	USB 3.2 Gen1	5.	Reset
2.	System LED	6.	Power Button
3.	HDD LED	7.	Earphone
4.	Power LED	8.	MIC

2-2 Rear View



No.	Description	No.	Description
9.	VGA/COM Port	15.	MIC-IN (Pink)
10.	USB 3.2 Ports (Type C)	16.	LINE-OUT (Green)
11.	USB 3.2 Ports (Type A)	17.	LINE-IN (Blue)
12.	USB 3.2 Ports (Type A)	18.	PCIe Card Bay
13.	MLAN	19.	PSU (AC 200-240V)
14.	10Gbe LAN Port #1		

2-3 Rear Panel System LAN LEDs



No.	Name	Color	Status	Description
1.	1GbE Speed LED	Yellow	On	1 Gbps data rate
		Green	On	100 Mbps data rate
		N/A	Off	10 Mbps data rate
2.	1GbE Link / Activity LED	Green	On	Link between system and network or no access
			Blink	Data transmission or reception is occurring.
		N/A	Off	No data transmission or reception is occurring.
3.	10GbE Speed LED	Yellow	On	5, 2.5, 1Gbps data rate
		Green	On	10 Gbps data rate
		N/A	Off	100 Mbps data rate

Chapter 3 System Hardware Installation



Pre-installation Instructions

Computer components and electronic circuit boards can be damaged by electrostatic discharge. Working on computers that are still connected to a power supply can be extremely dangerous. Follow the simple guidelines below to avoid damage to your computer or injury to yourself.

- Always disconnect the computer from the power outlet whenever you are working inside the computer case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal system of the computer case, or the bare metal body of any other grounded appliance.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress the circuit board.
- Leave all components inside the static-proof packaging until you are ready to use the component for the installation.

3-1 Removing and Installing the Chassis Cover

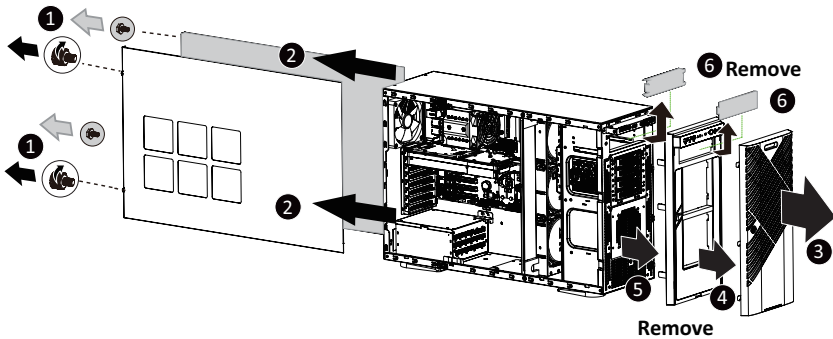


Before you remove or install the chassis cover

- Make sure the system is not turned on or connected to AC power.

Follow these instructions to remove/install the chassis side cover and front bezel:

1. Remove the screw securing the chassis side cover.
2. Slide the cover towards the rear of the system and then remove the cover in the direction indicated by the arrow.
3. Remove the front bezel.
4. Remove the dummy cover.
5. Remove the EMI shielding.
6. Reinstall the front bezel.
7. Follow steps 1-2 in reverse order to re-install the chassis side cover.



3-2 Installing the CPU



Read the following guidelines before you begin to install the CPU:

- Make sure that the motherboard supports the CPU.
- Always turn off the computer and unplug the power cord from the power outlet before installing the CPU to prevent hardware damage.
- Unplug all cables from the power outlets.
- Disconnect all telecommunication cables from their ports.
- Place the system unit on a flat and stable surface.
- Open the system according to the instructions.

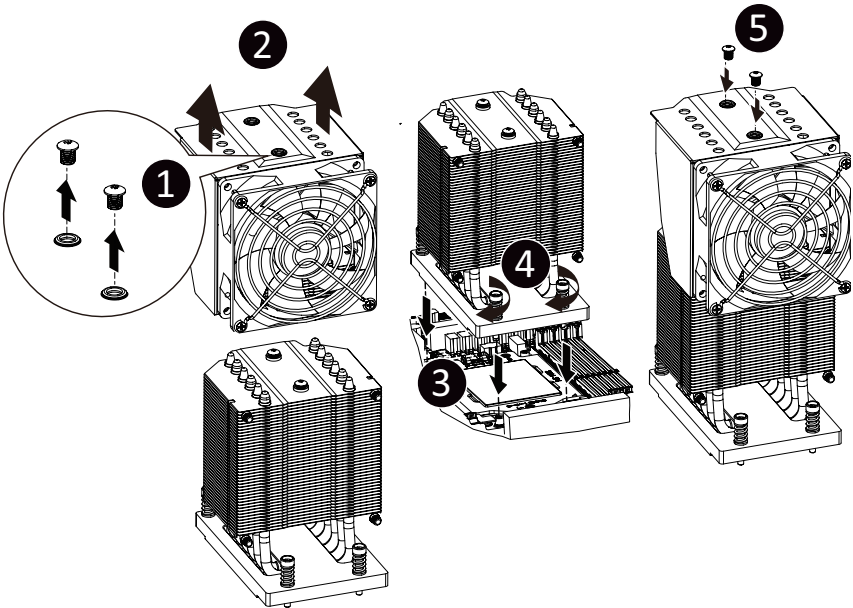


WARNING!

Failure to properly turn off the server before you start installing components may cause serious damage. Do not attempt the procedures described in the following sections unless you are a qualified service technician.

Follow these instructions to Install the CPU:

1. Lift up the CPU socket locking lever.
2. Align the CPU pin one (triangle marking) with the pin one corner of the CPU socket. Install the CPU onto the socket.
3. Ensure the CPU is positioned into its socket and secure the CPU socket lever.



3-3 Installing the Memory

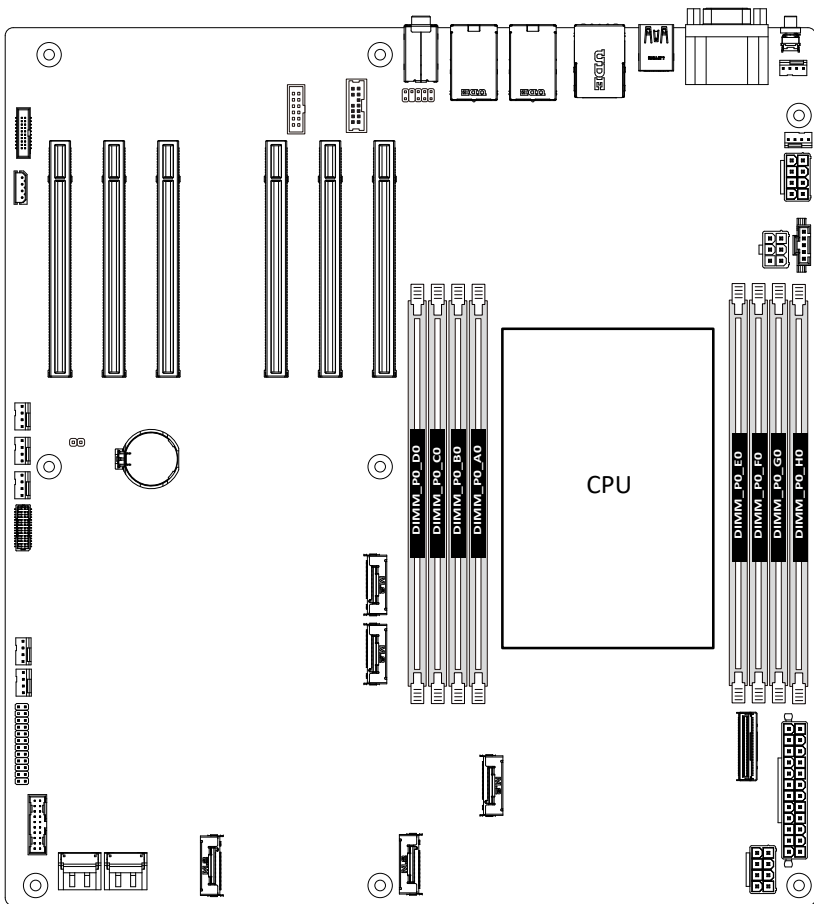


Read the following guidelines before you begin to install the memory:

- Make sure that the motherboard supports the memory. It is recommended that memory of the same capacity, brand, speed, and chips be used.
- Always turn off the computer and unplug the power cord from the power outlet before installing the memory to prevent hardware damage.
- Memory modules have a foolproof design. A memory module can be installed in only one direction. If you are unable to insert the memory, switch the direction.

3-3-1 Eight Channel Memory Configuration

This motherboard provides 8 DDR5 memory slots and supports Eight Channel Technology. After the memory is installed, the BIOS will automatically detect the specifications and capacity of the memory.



3-3-2 Installing the Memory

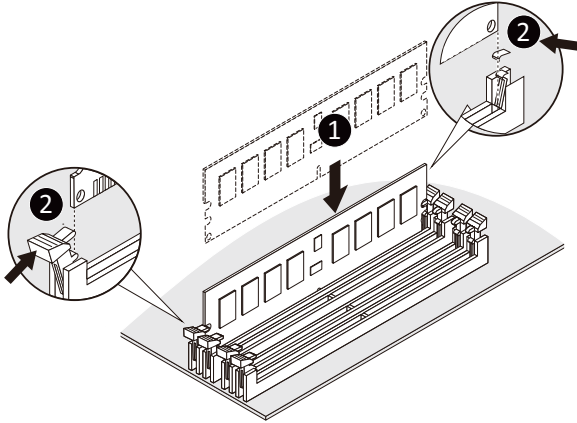


Before installing a memory module, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the memory module.

Be sure to install DDR5 DIMMs on this motherboard.

Follow these instructions to install the Memory:

1. Insert the DIMM memory module vertically into the DIMM slot, and push it down.
2. Close the plastic clip at both edges of the DIMM slots to lock the DIMM module.
3. Reverse the installation steps when you want to remove the DIMM module.



Type	Ranks Per DIMM and Data Width	DIMM Capacity (GB)	Speed (MT/s); Voltage (V); DIMM per Channel (DPC)	
			1DPC*	1.1V
RDIMM	SRx8 (RC D)	16GB	4800	
	SRx4 (RC C)	32GB		
	SRx4 (RC F) 9x4	32GB		
	DRx8 (RC E)	32GB		
	DRx4 (RC A)	64GB		
RDIMM 3DS	DRx4 (RC B) 9x4	64GB		
	(4R/8R)x4 (RC A)	2H-128GB 4H-256GB		

*1DPC applies to 1SPC or 2SPC implementations (SPC - Sockets Per Channel)



Warning:

To avoid any potential short circuit of the DIMM slots, please remove any stand-offs from the chassis that will be located underneath the DIMM slots, before installing the motherboard into the chassis.

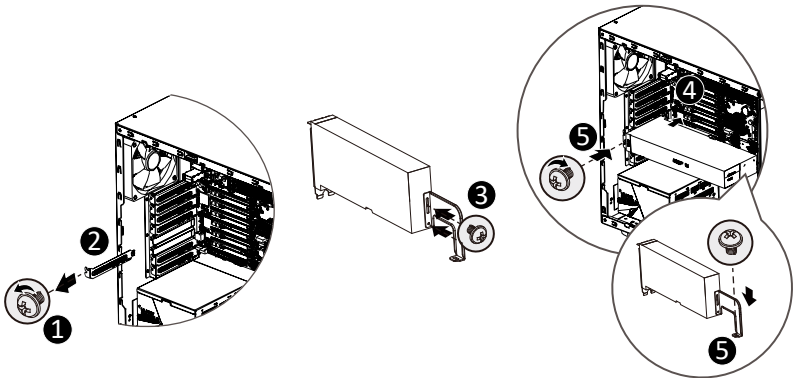
3-4 Installing the PCI Expansion Card



- Voltages can be present within the server whenever an AC power source is connected. This voltage is present even when the main power switch is in the off position. Ensure that the system is powered-down and all power sources have been disconnected from the server prior to installing a PCIe card.
- Failure to observe these warnings could result in personal injury or damage to equipment.

Follow these instructions to install the PCI Expansion card:

1. Use a screw driver to push the slot cover.
2. Remove the slot cover from the PCIe bracket.
3. Align the PCIe card onto the slot and push in the direction of the arrow until the PCIe card sits in the PCIe card connector.
4. Secure the PCIe card with the screw.
5. Reverse the previous steps to remove the PCIe card.



3-5 Installing the Hard Disk Drive

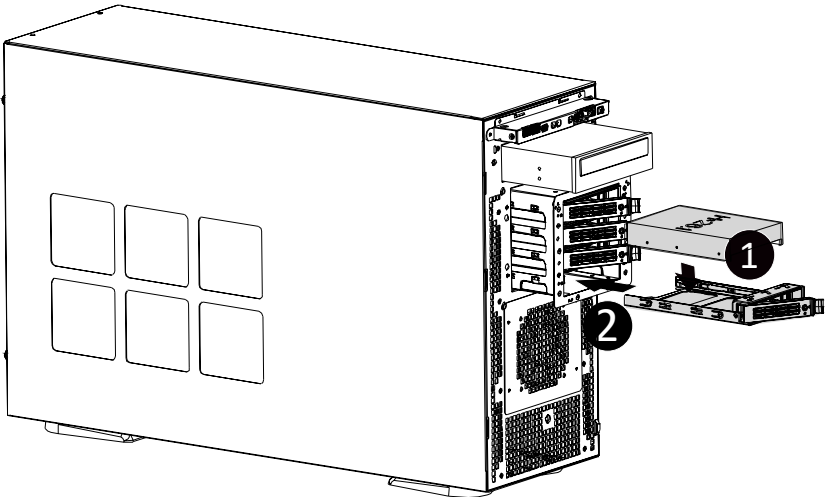


Read the following guidelines before you begin to install the hard disk drive:

- Take note of the drive tray orientation before sliding it out.
- The tray will not fit back into the bay if inserted incorrectly.
- Make sure that the hard disk drive is connected to the hard disk drive connector on the backplane.

Follow these instructions to install 3.5" hard disk drives:

1. Remove both side covers.
2. Slide the first hard disk drive into the slot.
3. Mount it with two screws on each side.
4. Slide the second hard disk drive into the dedicated HDD tray. (Note: Connect your GIGABYTE sales representative with any order requests.)
5. Screw the hard disk drive with four screws.
6. Insert the HDD tray into the slot.
7. Mount it with two screws on each side.
8. Reinstall both side covers.

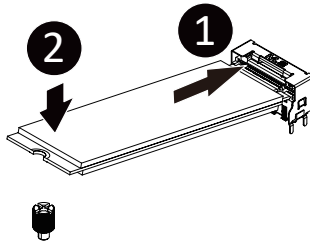


3-6 Installing and Removing the M.2 SSD Module

Follow the steps below to install an optional M.2 SSD module on your motherboard.

Step1. Insert the M.2 SSD module into the slot.

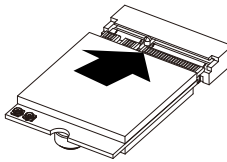
Step2. Secure it with the screw, tightening as necessary to fasten the M.2 SSD module in place.



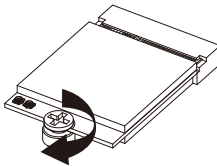
3-7 Installing and Removing the M.2 WiFi Module

Follow the steps below to install a M.2 WiFi module on your motherboard.

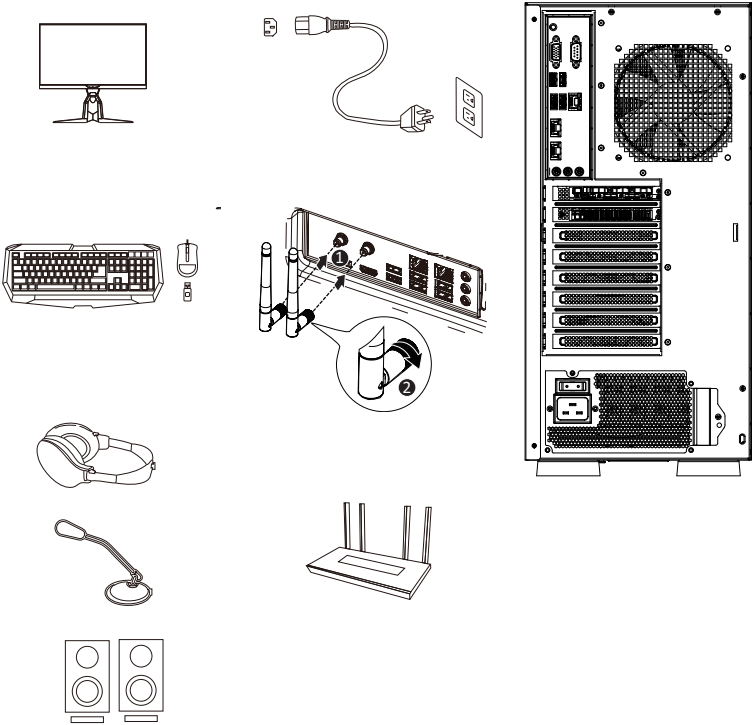
Step1. Carefully Insert the M.2 WiFi module into the slot.



Step2. Secure it with the screw, tightening as necessary to fasten the M.2 WiFi module in place.

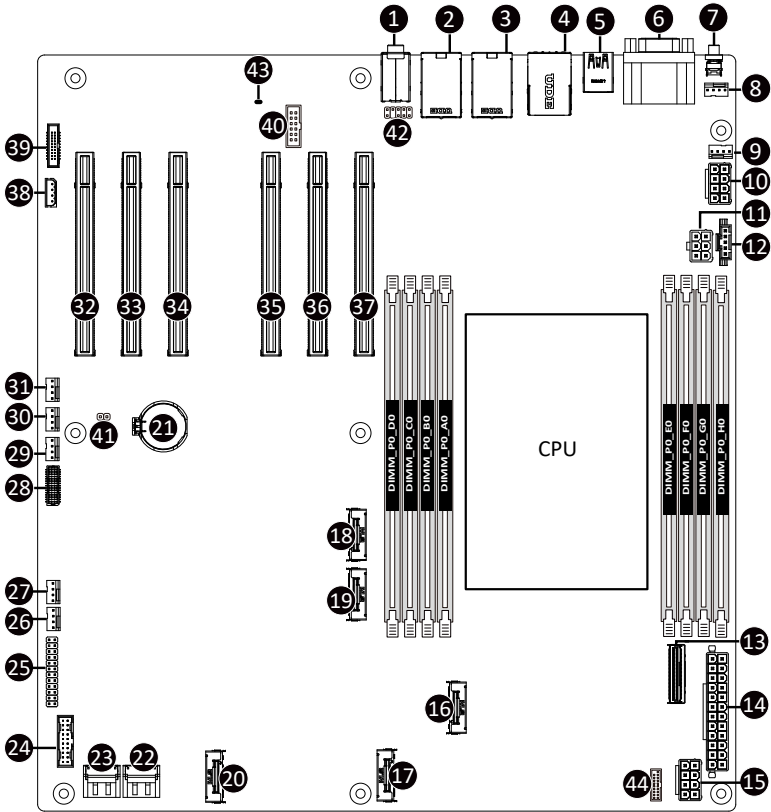


3-8 Peripheral Devices Connection




Chapter 4 Motherboard Components

4-1 Motherboard Components

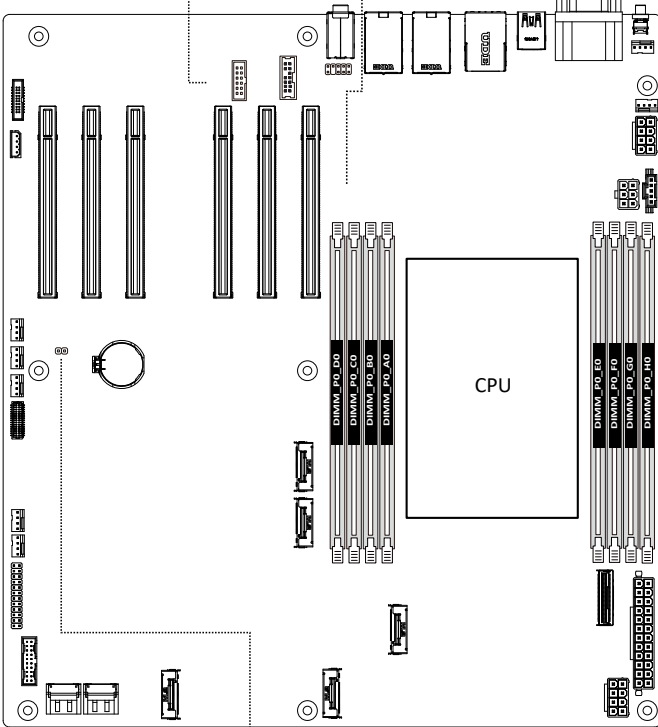




Item	Description
1	Audio Connectors
2	10GbE LAN Port #1
3	10GbE LAN Port #2
4	Sever Management LAN Port (Top)/USB 3.2 Gen2 Ports (Bottom)
5	USB 3.2 Gen2 Type A Port (Top)/USB 3.2 Gen2 Type C Port (Bottom)
6	Serial Port(Top)/VGA Port(Bottom)
7	ID Button with LED
8	System Fan Connector #4
9	CPU Fan Connector
10	2x4 Pin 12V Power Connector
11	2x3 Pin 12V Power Connector
12	PMBus Connector
13	MCIO Connector (PCIe Gen5)
14	2x12 Pin Main Power Connector
15	2x4 Pin 12V Power Connector
16	M.2 Slot(PCIe Gen5 x4, Support NGFF-2280/22110)
17	M.2 Slot(PCIe Gen5 x4, Support NGFF-2280/22110)
18	M.2 Slot(PCIe Gen5 x4, Support NGFF-2280/22110)
19	M.2 Slot(PCIe Gen5 x4, Support NGFF-2280/22110)
20	M.2 E-Key Slot(Support 2230 for PCIe WiFi Card)
21	Battery Socket
22	Slimline Connector #2 (SATA 6Gb/s Signal)
23	Slimline Connector #1 (SATA 6Gb/s Signal)
24	Front Panel USB 3.2 Gen1 Connector
25	Front Panel Header
26	System Fan Connector #5
27	System Fan Connector #6
28	HDD Backplane Board Connector
29	System Fan Connector #1
30	System Fan Connector #2
31	System Fan Connector #3
32	PCIe x16 Slot #1(Gen5 x16)
33	PCIe x16 Slot #2(Gen5 x16)
34	PCIe x16 Slot #3(Gen5 x16)
35	PCIe x16 Slot #5(Gen5 x16)
36	PCIe x16 Slot #6(Gen5 x16)
37	PCIe x16 Slot #7(Gen5 x16)
38	IPMB Connector
39	NCSI Connector
40	ESPI Connector
41	Case Open Intrusion Alert Header
42	Front Audio Header
43	BMC Firmware Readiness LED
44	Front USB3.2 Gen2 Connector

4-2 Jumper Setting

	SW	Device
	OFF	BCM 57416
	ON	CN_NCSI

J1		ON	OFF
1	HSMB_SEL	BIOS Defined	BIOS Defined
2	PMBUS_SEL	BIOS Defined	BIOS Defined
3	BIOS_PWD	Clear supervisor password	Normal [Default]
4	BIOS_RCVR	BIOS recovery mode	Normal [Default]



Clear CMOS		1	} Default
CLR_CMOS		2	
		3	} Enable

Chapter 2 BIOS Setup

BIOS (Basic Input and Output System) records hardware parameters of the system in the EFI on the motherboard. Its major functions include conducting the Power-On Self-Test (POST) during system startup, saving system parameters, loading the operating system etc. The BIOS includes a BIOS Setup program that allows the user to modify basic system configuration settings or to activate certain system features. When the power is turned off, the battery on the motherboard supplies the necessary power to the CMOS to keep the configuration values in the CMOS.

To access the BIOS Setup program, press the key during the POST when the power is turned on.



- BIOS flashing is potentially risky, if you do not encounter any problems when using the current BIOS version, it is recommended that you don't flash the BIOS. To flash the BIOS, do it with caution. Inadequate BIOS flashing may result in system malfunction.
- It is recommended that you not alter the default settings (unless you need to) to prevent system instability or other unexpected results. Inadequately altering the settings may result in system's failure to boot. If this occurs, try to clear the CMOS values and reset the board to default values. (Refer to the **Exit** section in this chapter or introductions of the battery/clearing CMOS jumper in Chapter 1 for how to clear the CMOS values.)

BIOS Setup Program Function Keys

<<-><->>	Move the selection bar to select the screen
<↑><↓>	Move the selection bar to select an item
<+>	Increase the numeric value or make changes
<->	Decrease the numeric value or make changes
<Enter>	Execute command or enter the submenu
<Esc>	Main Menu: Exit the BIOS Setup program Submenus: Exit current submenu
<F1>	Show descriptions of general help
<F3>	Restore the previous BIOS settings for the current submenus
<F9>	Load the Optimized BIOS default settings for the current submenus
<F10>	Save all the changes and exit the BIOS Setup program

■ **Main**

This setup page includes all the items of the standard compatible BIOS.

■ **Advanced**

This setup page includes all the items of AMI BIOS special enhanced features.

(ex: Auto detect fan and temperature status, automatically configure hard disk parameters.)

■ **AMD CBS**

This setup page includes the common items for configuration of AMD motherboard-related information.

■ **AMD PBS Option**

This setup page includes the common items for configuration of AMD CPM RAS related settings.

■ **Chipset**

This setup page includes all the submenu options for configuring the functions of the North Bridge.

■ **Server Management**

Server additional features enabled/disabled setup menus.

■ **Security**

Change, set, or disable supervisor and user password. Configuration supervisor password allows you to restrict access to the system and BIOS Setup.

A supervisor password allows you to make changes in BIOS Setup.

A user password only allows you to view the BIOS settings but not to make changes.

■ **Boot**

This setup page provides items for configuration of the boot sequence.

■ **Save & Exit**

Save all the changes made in the BIOS Setup program to the CMOS and exit BIOS Setup. (Pressing <F10> can also carry out this task.)

Abandon all changes and the previous settings remain in effect. Pressing <Y> to the confirmation message will exit BIOS Setup. (Pressing <Esc> can also carry out this task.)

2-1 The Main Menu

Once you enter the BIOS Setup program, the Main Menu (as shown below) appears on the screen. Use arrow keys to move among the items and press <Enter> to accept or enter other sub-menu.

Main Menu Help

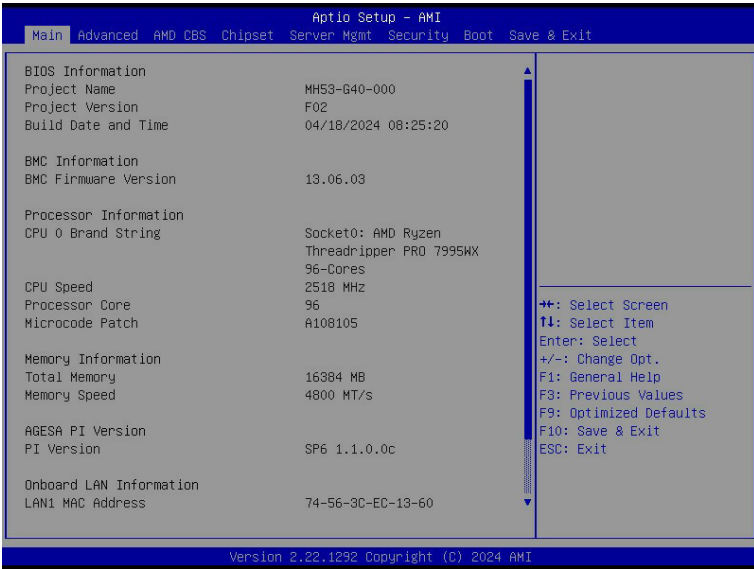
The on-screen description of a highlighted setup option is displayed on the bottom line of the Main Menu.

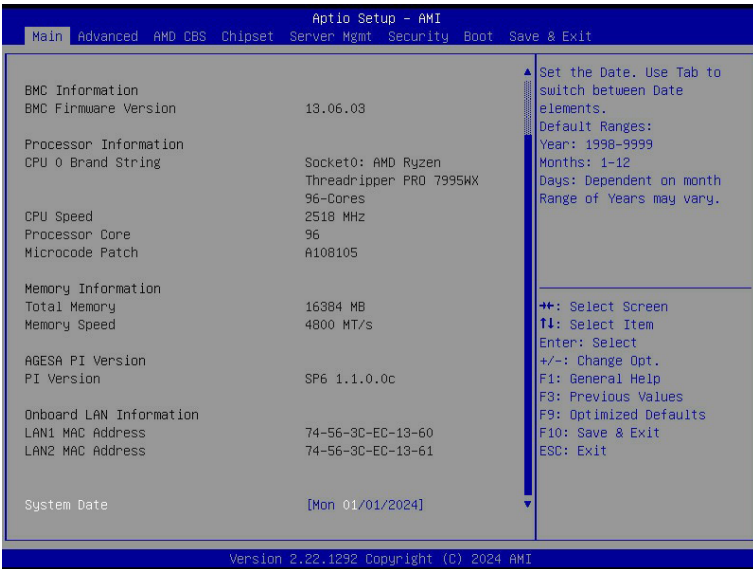
Submenu Help

While in a submenu, press <F1> to display a help screen (General Help) of function keys available for the menu. Press <Esc> to exit the help screen. Help for each item is in the Item Help block on the right side of the submenu.



- When the system is not stable as usual, select the **Restore Defaults** item to set your system to its defaults.
- The BIOS Setup menus described in this chapter are for reference only and may differ by BIOS version.





Parameter	Description
BIOS Information	
Project Name	Displays the project name information.
Project Version	Displays version number of the BIOS setup utility.
Build Date and Time	Displays the date and time when the BIOS setup utility was created.
BMC Information ^(Note1)	
BMC Firmware Version ^(Note1)	Displays BMC firmware version information.
Processor Information	
CPU Brand String/ CPU Speed / Processor Core / Microcode Patch	Displays the technical specifications for the installed processor(s).
Total Memory ^(Note2)	Displays the total memory size of the installed memory.
Memory Speed ^(Note2)	Displays the frequency information of the installed memory.
VR Information Version	Displays VR version information.
AGESA PI Version	
PI Version	Displays AGESA PI version information.

(Note1) Functions available on selected models.

(Note2) This section will display capacity and frequency information of the memory that the customer has installed.

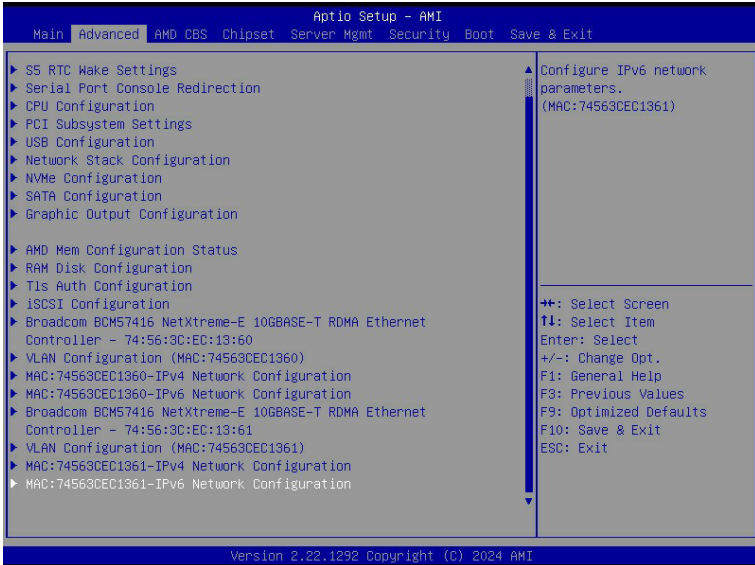
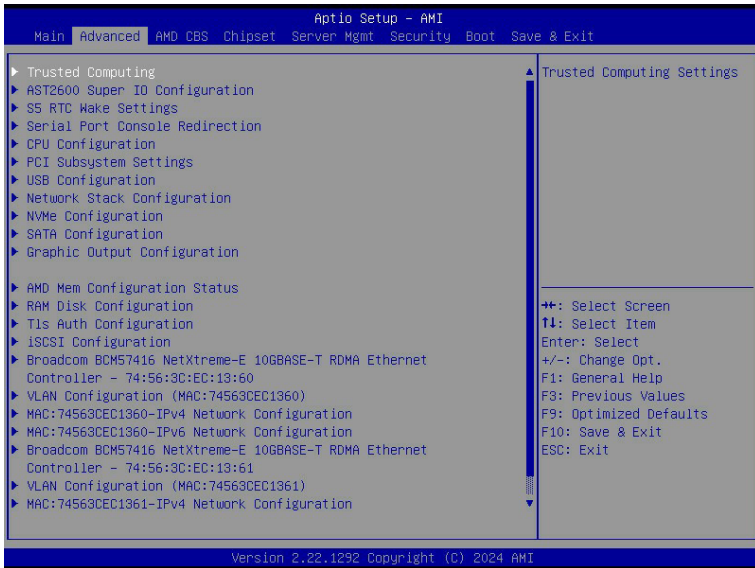
Parameter	Description
Onboard LAN Information	
LAN1 MAC Address ^(Note)	Displays LAN MAC address information.
LAN2 MAC Address ^(Note)	Displays LAN MAC address information.
System Date	Sets the date following the weekday-month-day-year format.
System Time	Sets the system time following the hour-minute-second format.

(Note) The number of LAN ports listed will depend on the motherboard / system model.

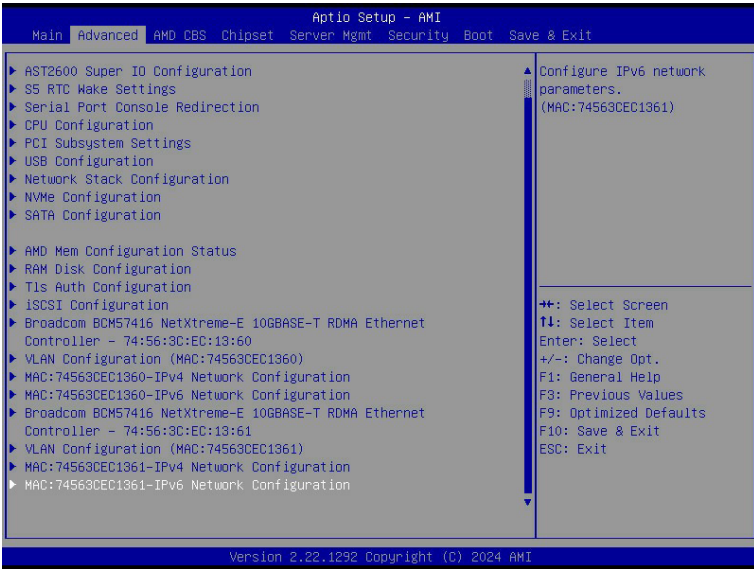
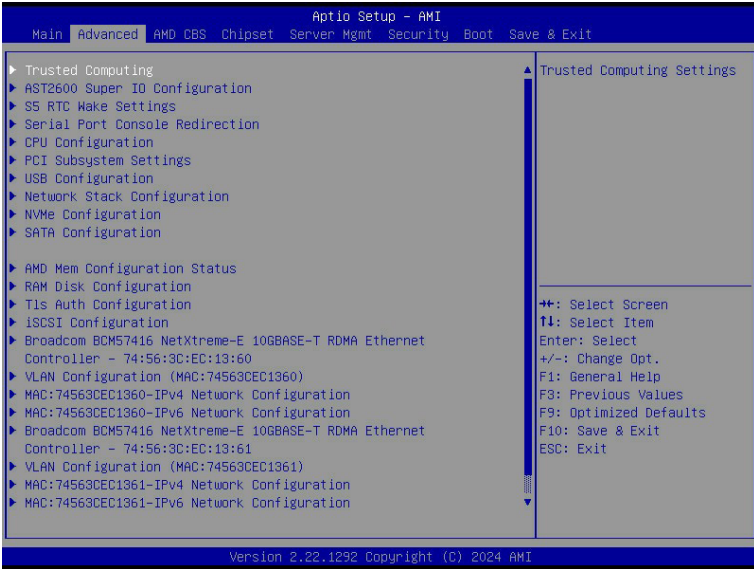
2-2 Advanced Menu

The Advanced Menu displays submenu options for configuring the function of various hardware components. Select a submenu item, then press <Enter> to access the related submenu screen.

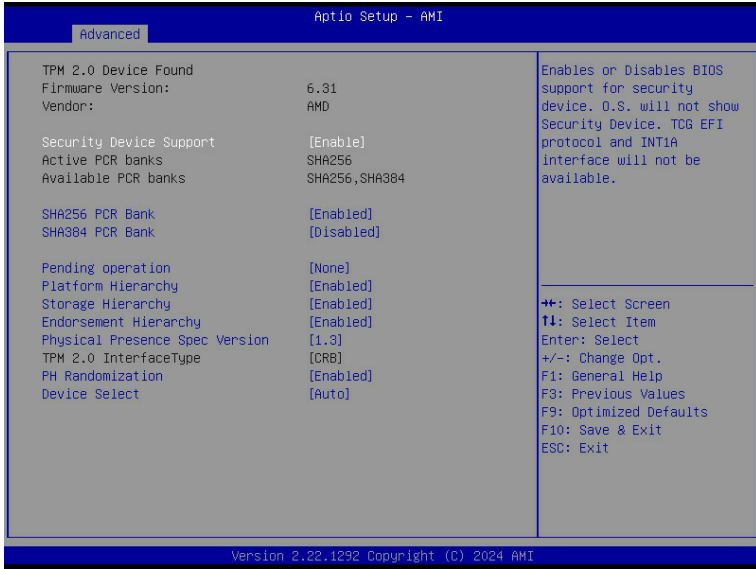
When Boot Mode Select is set to UEFI (Default)



When "Boot Mode Select" is set to Legacy in the Boot > Boot Mode Select section

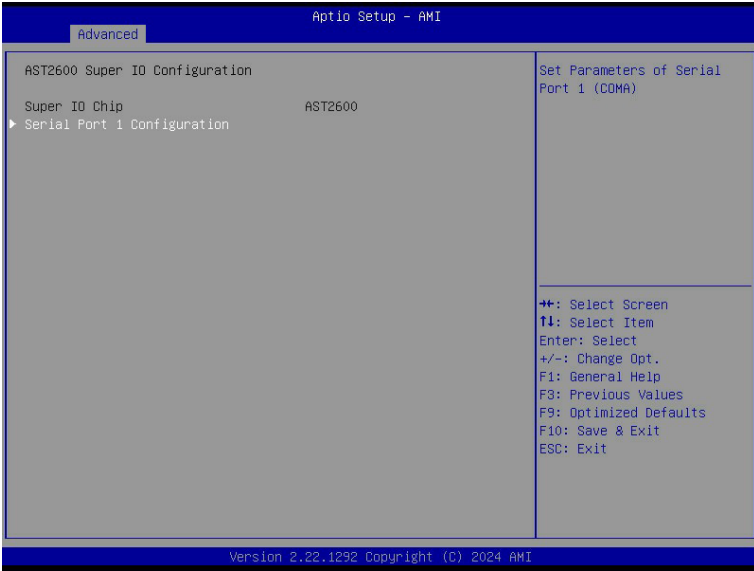


2-2-1 Trusted Computing



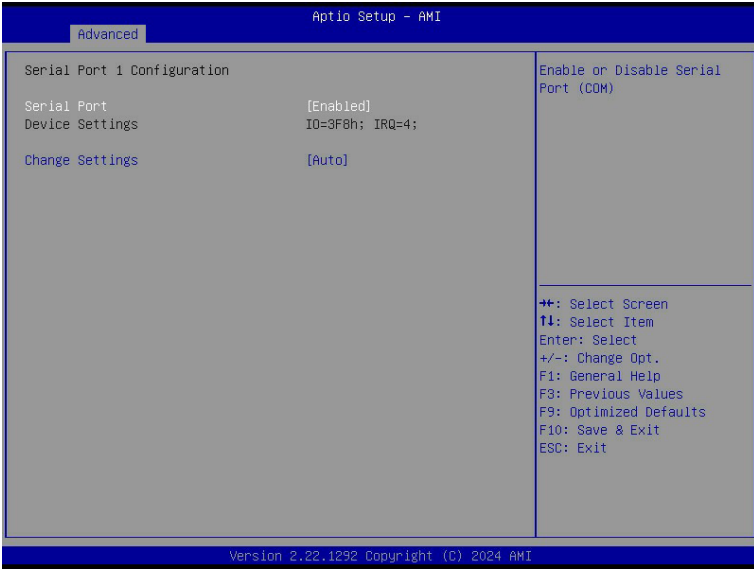
Parameter	Description
Configuration	
Security Device Support	Enable/Disable BIOS support for security device. OS will not show security device. TCG EFI protocol and INT1A interface will not be available. Options available: Disable, Enable. Default setting is Enable .
SPI TPM Support	Select Enable to activate TPM support feature. Options available: Disabled, Enabled. Default setting is Disabled .

2-2-2 AST2600 Super IO Configuration



Parameter	Description
AST2600 Super IO Configuration	
Super IO Chip	Displays the super IO chip information
Serial Port 1 Configuration	Press [Enter] for configuration of advanced items.

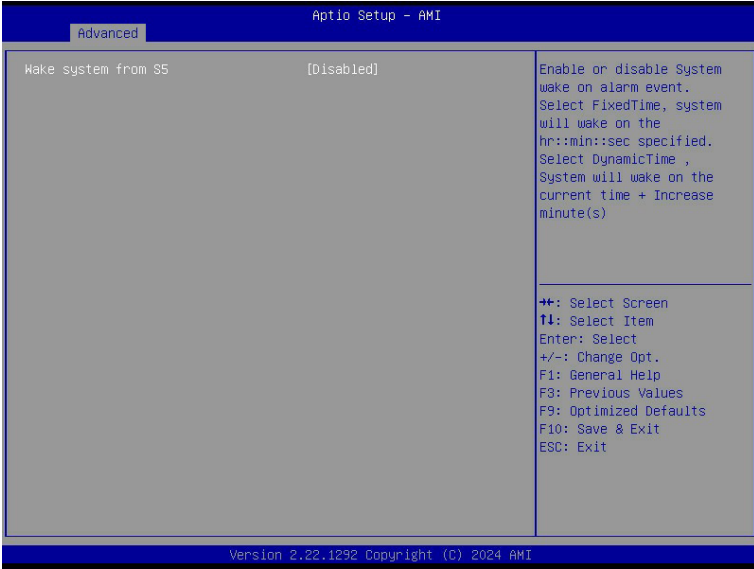
2-2-2-1 Serial Port 1 Configuration



Parameter	Description
Serial Port 1 Configuration	
Serial Port ^(Note)	Enable/Disable the Serial Port (COM). When set to Enabled allows you to configure the Serial port 1 settings. When set to Disabled, displays no configuration for the serial port. Options available: Disabled, Enabled. Default setting is Enabled .
Devices Settings	Displays the Serial Port 1 device settings.
Change Settings	Select an optimal settings for Super IO Device. Options available for Serial Port 1: Auto IO=3F8h; IRQ=4; IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; Default setting is Auto .

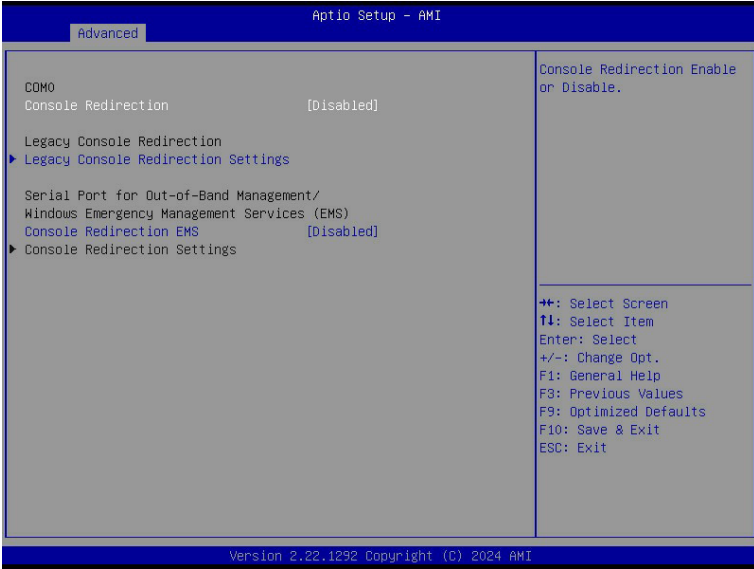
(Note) Advanced items prompt when this item is defined.

2-2-3 S5 RTC Wake Settings



Parameter	Description
Wake System from S5	Enable/Disable system wake on alarm event. Options available: Disabled, Fixed Time, Dynamic Time. When Fixed Time is selected, system will wake on the hr::min::sec specified. Default setting is Disabled .

2-2-4 Serial Port Console Redirection



Parameter	Description
COM1/Serial Over LAN Console Redirection ^(Note)	<p>Select whether to enable console redirection for specified device. Console redirection enables the users to manage the system from a remote location.</p> <p>Options available: Enabled, Disabled. Default setting is Disabled.</p>
COM1/Serial Over LAN Console Redirection Settings	<p>Press [Enter] to configure advanced items.</p> <p>Please note that this item is configurable when COM1/Serial Over LAN Console Redirection is set to Enabled.</p> <ul style="list-style-type: none"> ◆ Terminal Type <ul style="list-style-type: none"> – Selects a terminal type to be used for console redirection. – Options available: VT100, VT100+, ANSI, VT-UTF8. Default setting is ANSI. ◆ Bits per second <ul style="list-style-type: none"> – Selects the transfer rate for console redirection. – Options available: 9600, 19200, 38400, 57600, 115200. Default setting is 115200. ◆ Data Bits <ul style="list-style-type: none"> – Selects the number of data bits used for console redirection. – Options available: 7, 8. Default setting is 8.

(Note) Advanced items prompt when this item is defined.

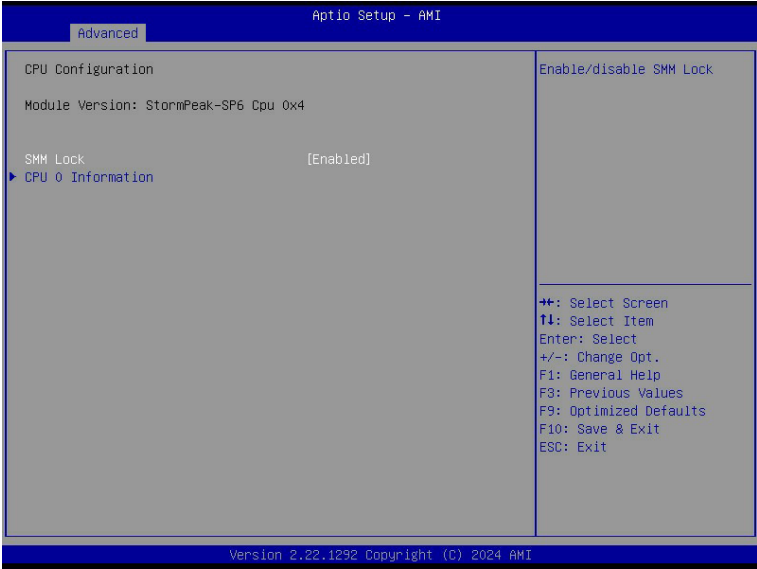
Parameter	Description
COM1/Serial Over LAN Console Redirection Settings (continued)	<ul style="list-style-type: none"> ◆ Parity <ul style="list-style-type: none"> – A parity bit can be sent with the data bits to detect some transmission errors. – Even: parity bit is 0 if the num of 1's in the data bits is even. – Odd: parity bit is 0 if num of 1's in the data bits is odd. – Mark: parity bit is always 1. Space: Parity bit is always 0. – Mark and Space Parity do not allow for error detection. – Options available: None, Even, Odd, Mark, Space. Default setting is None. ◆ Stop Bits <ul style="list-style-type: none"> – Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit. – Options available: 1, 2. Default setting is 1. ◆ Flow Control <ul style="list-style-type: none"> – Flow control can 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 re-start the flow. Hardware flow control uses two wires to send start/stop signals. – Options available: None, Hardware RTS/CTS. Default setting is None. ◆ VT-UTF8 Combo Key Support <ul style="list-style-type: none"> – Enable/Disable the VT-UTF8 Combo Key Support. – Options available: Enabled, Disabled. Default setting is Enabled. ◆ Recorder Mode <ul style="list-style-type: none"> – When this mode enabled, only texts will be send. This is to capture Terminal data. – Options available: Enabled, Disabled. Default setting is Disabled. ◆ Resolution 100x31 <ul style="list-style-type: none"> – Enable/Disable extended terminal resolution. – Options available: Enabled, Disabled. Default setting is Enabled. ◆ Putty KeyPad <ul style="list-style-type: none"> – Selects Function Key and KeyPad on Putty. – Options available: VT100, LINUX, XTERMR6, SC0, ESCN, VT400. Default setting is VT100.

Parameter	Description
Legacy Console Redirection	
Legacy Console Redirection Settings	<p>Press [Enter] to configure advanced items.</p> <ul style="list-style-type: none"> ◆ Redirection COM Port <ul style="list-style-type: none"> – Selects a COM port for Legacy serial redirection. – Default setting is COM1/SOL. ◆ Resolution <ul style="list-style-type: none"> – Selects the number of rows and columns used in Console Redirection for legacy OS support. – Options available: 80x24, 80x25. Default setting is 80x24. ◆ Redirect After POST <ul style="list-style-type: none"> – When Bootloader is selected, then Legacy Console Redirection is disabled before booting to legacy OS. When Always Enable is selected, then Legacy Console Redirection is enabled for legacy OS. – Options available: Always Enable, BootLoader. Default setting is Always Enable.
Serial Port for Out-of-Band Management / Windows Emergency Management Services (EMS) Console Redirection ^(Note)	<p>EMS console redirection allows the user to configure Console Redirection Settings to support Out-of-Band Serial Port management.</p> <p>Options available: Disabled, Enabled. Default setting is Disabled.</p>
Serial Port for Out-of-Band EMS Console Redirection Settings	<p>Press [Enter] to configure advanced items.</p> <p>Please note that this item is configurable when Serial Port for Out-of-Band Management EMS Console Redirection is set to Enabled.</p> <ul style="list-style-type: none"> ◆ Out-of-Band Mgmt Port <ul style="list-style-type: none"> – Microsoft Windows Emergency Management Service (EMS) allows for remote management of a Windows Server OS through a serial port. – Default setting is COM1/SOL. ◆ Terminal Type <ul style="list-style-type: none"> – Selects a terminal type to be used for console redirection. – Options available: VT100, VT100+, ANSI, VT-UTF8. Default setting is ANSI. ◆ Bits per second <ul style="list-style-type: none"> – Selects the transfer rate for console redirection. – Options available: 9600, 19200, 57600, 115200. Default setting is 115200.

(Note) Advanced items prompt when this item is defined.

Parameter	Description
Serial Port for Out-of-Band EMS Console Redirection Settings(continued)	<ul style="list-style-type: none">◆ Flow Control<ul style="list-style-type: none">– Flow control can 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 re-start the flow. Hardware flow control uses two wires to send start/stop signals.– Options available: None, Hardware RTS/CTS, Software Xon/Xoff. Default setting is None.

2-2-5 CPU Configuration



Parameter	Description
SVM Mode	Enable/Disable the CPU Virtualization. Options available: Disabled, Enabled. Default setting is Enabled .
CPU 0 Information	Press [Enter] to view the memory information related to CPU 0.

2-2-6 PCI Subsystem Settings

Aptio Setup - AMI

Advanced

PCI Bus Driver Version	A5.01.30	▲ Enable or disable SATA HotPlug
SATA Hot Plug	[Enabled]	
PCI_E_7	[Auto]	
PCI_E_7 I/O ROM	[Enabled]	
PCI_E_7 Link Speed	[Auto]	
PCI_E_5	[Auto]	
PCI_E_5 ROM	[Enabled]	
PCI_E_5 Link Speed	[Auto]	
PCI_E_6	[Auto]	
PCI_E_6 I/O ROM	[Enabled]	
PCI_E_6 Link Speed	[Auto]	
PCI_E_1	[Auto]	
PCI_E_1 I/O ROM	[Enabled]	
PCI_E_1 Link Speed	[Auto]	
PCI_E_3	[Auto]	
PCI_E_3 I/O ROM	[Enabled]	
PCI_E_3 Link Speed	[Auto]	
PCI_E_2	[Auto]	
PCI_E_2 I/O ROM	[Enabled]	
		▼

▲ Select Screen
 ▼ Select Item
 Enter: Select
 +/-: Change Opt.
 F1: General Help
 F3: Previous Values
 F9: Optimized Defaults
 F10: Save & Exit
 ESC: Exit

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Aptio Setup - AMI

Advanced

PCI_E_6 I/O ROM	[Enabled]	▲ Enables or Disables PCI Express Device Relaxed Ordering.
PCI_E_6 Link Speed	[Auto]	
PCI_E_1	[Auto]	
PCI_E_1 I/O ROM	[Enabled]	
PCI_E_1 Link Speed	[Auto]	
PCI_E_3	[Auto]	
PCI_E_3 I/O ROM	[Enabled]	
PCI_E_3 Link Speed	[Auto]	
PCI_E_2	[Auto]	
PCI_E_2 I/O ROM	[Enabled]	
PCI_E_2 Link Speed	[Auto]	
P0_G3	[Auto]	
Onboard LAN Controller	[Enabled]	
Onboard LAN1 I/O ROM	[Enabled]	
Onboard LAN2 I/O ROM	[Enabled]	
PCI Devices Common Settings:		
Above 4G Decoding	[Enabled]	
SR-IOV Support	[Enabled]	
Relaxed Ordering	[Enabled]	
		▼

▲ Select Screen
 ▼ Select Item
 Enter: Select
 +/-: Change Opt.
 F1: General Help
 F3: Previous Values
 F9: Optimized Defaults
 F10: Save & Exit
 ESC: Exit

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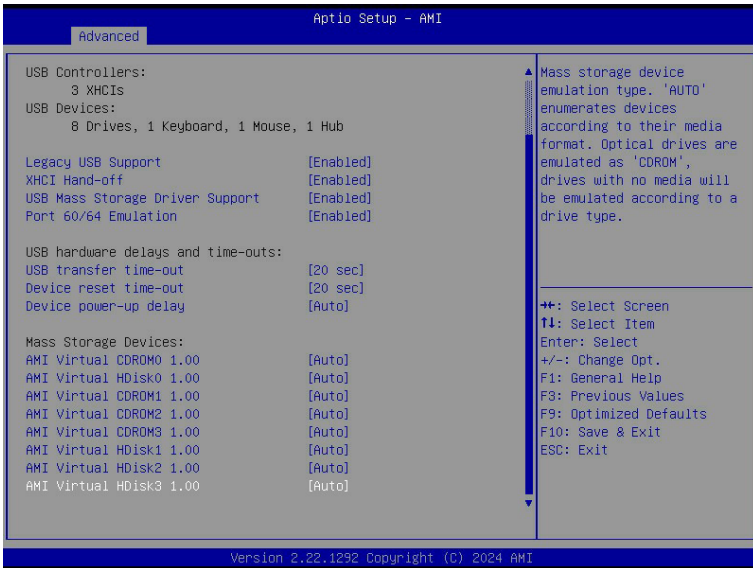
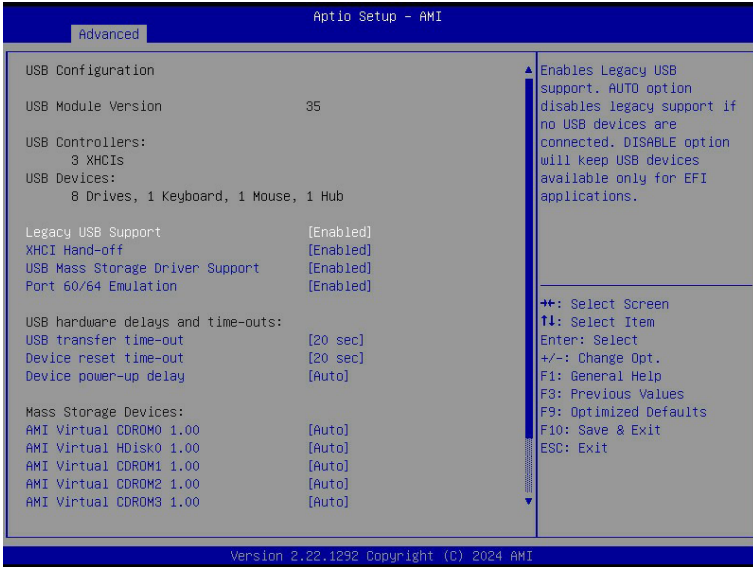
Parameter	Description
PCI Bus Driver Version	Displays the PCI Bus Driver version information.
PCI_E_# ^(Note1)	Change the PCIe lanes. Options available: Disabled, Auto, x16, x8x8, x8x4x4, x4x4x8, x4x4x4x4. Default setting is Auto .
SLOT #_I/O ROM ^(Note1)	When enabled, this setting will initialize the device expansion ROM for the related PCI-E slot. Options available: Disabled, Enabled. Default setting is Enabled .
SLOT #_Link Speed ^(Note1)	Configure PCIe max link speed. Options available: Auto, Gen4, Gen3, Gen2, Gen1. Default setting is Auto .
U2_P0_G0/1/2 Lanes ^(Note2)	Change MCIO PCIe lanes. Options available: Disabled, Auto, x8, x16, x4x4, x8x8, x8x4x4, x4x4x8, x4x4x4x4. Default setting is Auto .
U2_P0_G3 Lanes	Change MCIO U2_P0_G3 PCIe lanes. Options available: Disabled, SATA, x16, x8x8, x8x4x4, x4x4x8, x4x4x4x4. Default setting is SATA .
U2_P0_G0/1/2/3 I/O ROM ^(Note2)	When enabled, this setting will initialize the device expansion ROM for the related devices. Options available: Disabled, Enabled. Default setting is Enabled .
U2_P0_G0/1/2/3 Link Speed ^(Note2)	Configure MCIO PCIe max link speed. Options available: Auto, Gen4, Gen3, Gen2, Gen1. Default setting is Auto .
Onboard LAN Controller ^(Note3)	Enable/Disable the onboard LAN devices. Options available: Disabled, Enabled. Default setting is Enabled .
Onboard LAN# I/O ROM ^(Note3)	Enable/Disable the onboard LAN devices, and initializes device expansion ROM. Options available: Disabled, Enabled. Default setting is Enabled .
PCI Devices Common Settings	
Above 4G Decoding	Enable/Disable memory mapped I/O to 4GB or greater address space (Above 4G Decoding). Options available: Disabled, Enabled. Default setting is Enabled .
SR-IOV Support	If the system has SR-IOV capable PCIe devices, this item Enable/Disable Single Root IO Virtualization Support. Options available: Disabled, Enabled. Default setting is Enabled .
Relaxed Ordering	Enable/Disable PCI express device relaxed ordering. Options available: Disabled, Enabled. Default setting is Enabled .

(Note1) This section is dependent on the available PCIe Slot.

(Note2) This section is dependent on the available MCIO connector.

(Note3) This section is dependent on the available LAN controller.

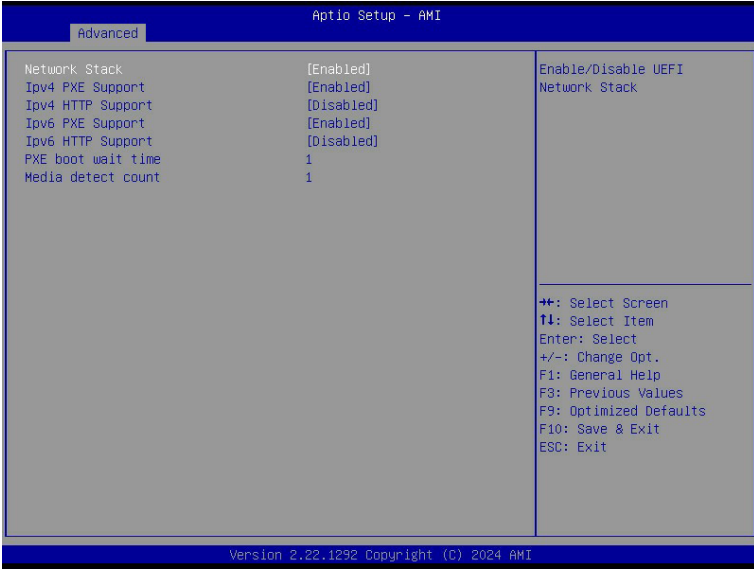
2-2-7 USB Configuration



(Note) This item is present only if you attach USB devices.

Parameter	Description
USB Configuration	
USB Module Version	Displays the USB module version information.
USB Controllers	Displays the supported USB controllers.
USB Devices:	Displays the USB devices connected to the system.
Legacy USB Support	Enable/Disable the Legacy USB support function. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications. Options available: Enabled, Disabled, Auto. Default setting is Enabled .
XHCI Hand-off	Enable/Disable the XHCI Hand-off support. Options available: Enabled, Disabled. Default setting is Enabled .
USB Mass Storage Driver Support ^(Note)	Enable/Disable the USB Mass Storage Driver Support. Options available: Disabled, Enabled. Default setting is Enabled .
USB hardware delays and time-outs	
USB transfer time-out	Selects the time-out value for USB Control/Bulk/Interrupt transfers. Options available: 1 sec, 5 sec, 10 sec, 20 sec. Default setting is 20 sec .
Parameter	Description
Device reset time-out	Selects the time-out value during a USB mass storage device reset. Options available: 10 sec, 20 sec, 30 sec, 40 sec. Default setting is 20 sec .
Device power-up delay	Maximum time the device will take before it properly reports itself to the Host Controller. "Auto" uses default value: for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor. Options available: Auto, Manual. Default setting is Auto .

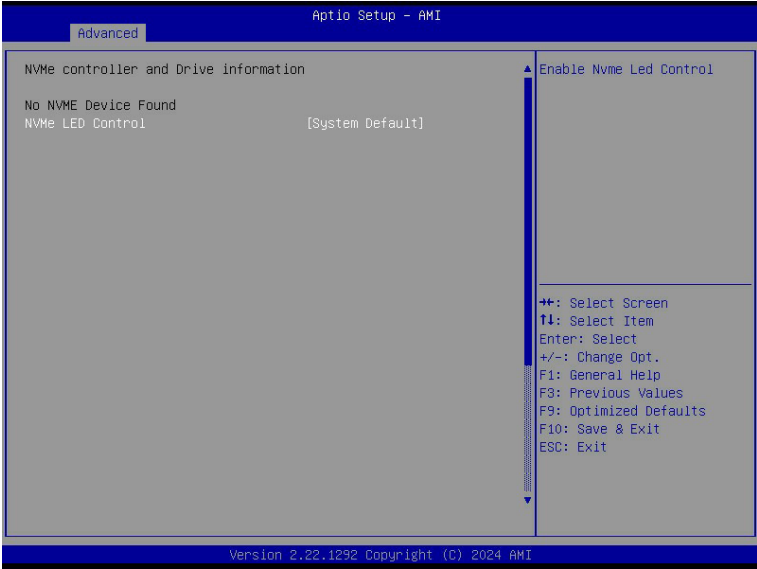
2-2-8 Network Stack Configuration



Parameter	Description
Network Stack	Enable/Disable the UEFI network stack. Options available: Enabled, Disabled. Default setting is Enabled .
Ipv4 PXE Support ^(Note)	Enable/Disable the Ipv4 PXE feature. Options available: Enabled, Disabled. Default setting is Enabled .
Ipv4 HTTP Support ^(Note)	Enable/Disable the Ipv4 HTTP feature. Options available: Enabled, Disabled. Default setting is Disabled .
Ipv6 PXE Support ^(Note)	Enable/Disable the Ipv6 PXE feature. Options available: Enabled, Disabled. Default setting is Enabled .
Ipv6 HTTP Support ^(Note)	Enable/Disable the Ipv6 HTTP feature. Options available: Enabled, Disabled. Default setting is Disabled .
PXE boot wait time ^(Note)	Wait time in seconds to press ESC key to abort the PXE boot. Press the <+> / <-> keys to increase or decrease the desired values.
Media detect count ^(Note)	Number of times the presence of media will be checked. Press the <+> / <-> keys to increase or decrease the desired values.

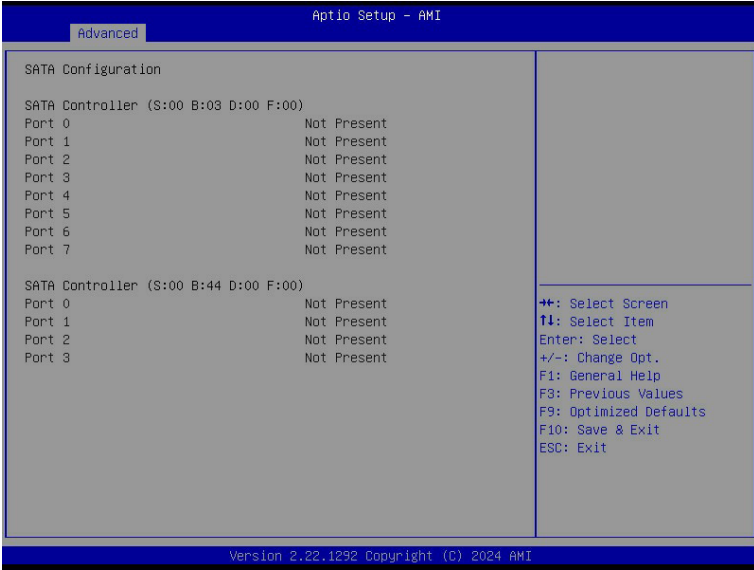
(Note) This item appears when **Network Stack** is set to **Enabled**.

2-2-9 NVMe Configuration



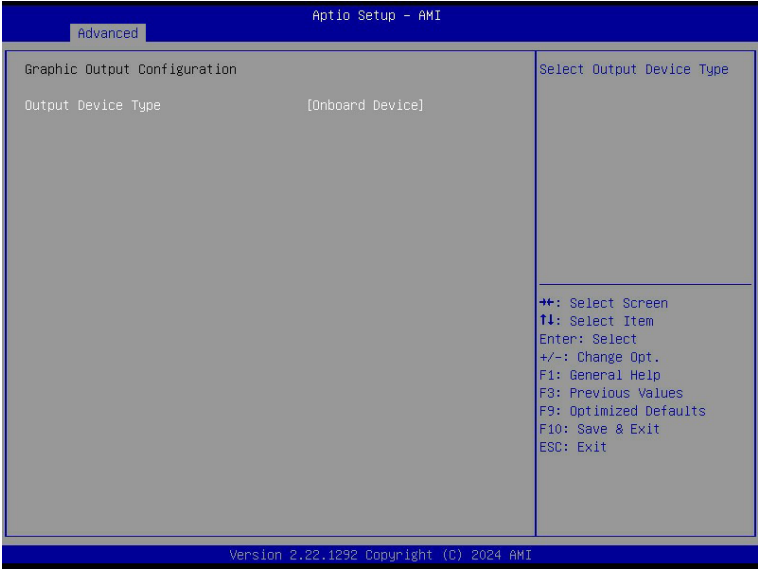
Parameter	Description
NVMe Configuration	Displays the NVMe devices connected to the system.
NVMe LED Control	Enable/Disable NVMe LED Control. Options available: System Default, Disabled, Enabled. Default setting is Enabled .

2-2-10 SATA Configuration



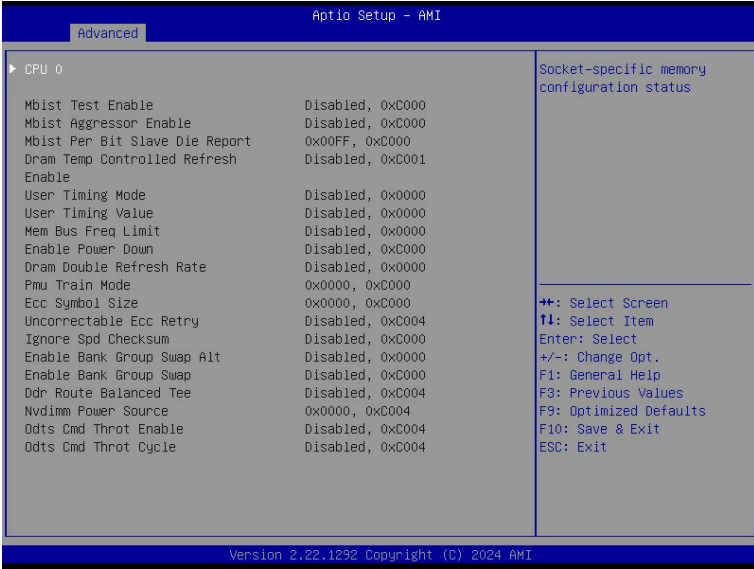
Parameter	Description
SATA Configuration	Displays the installed HDD devices information. System will automatically detect HDD type.

2-2-11 Graphic Output Configuration



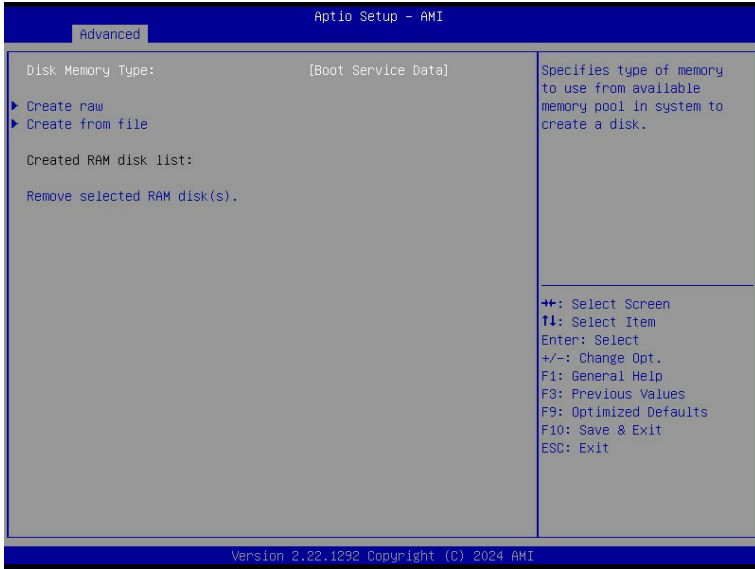
Parameter	Description
Output Device Type	Selects output device type. Options available: First loaded Device, Onboard Device, External Device, Specific Device. Default setting is Onboard Device .

2-2-12 AMD Mem Configuration Status



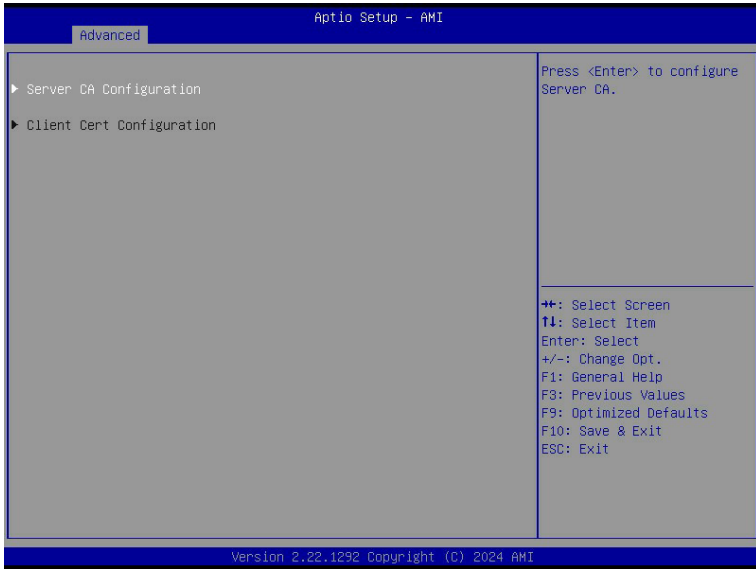
Parameter	Description
CPU 0	Press [Enter] to view the memory configuration status related to CPU 0.

2-2-13 RAM Disk Configuration



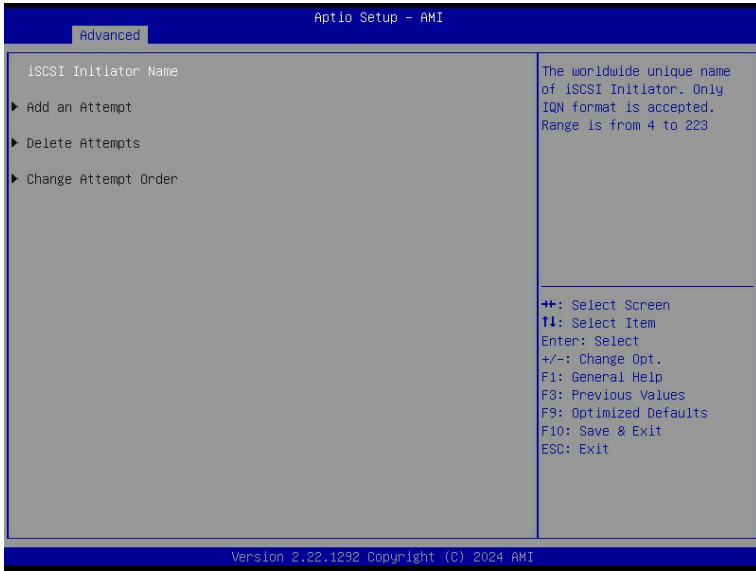
Parameter	Description
Disk Memory Type	Specifies the type of memory to use from available memory pool in system to create a disk. Options available: Boot Service Data, Reserved. Default setting is Boot Service Data .
Create Raw	Creates a raw RAM disk. <ul style="list-style-type: none"> ◆ Size (Hex) <ul style="list-style-type: none"> – Input a valid RAM disk size that should be multiple of the RAM disk block size. ◆ Create & Exit ◆ Discard & Exit
Create from file	Creates a RAM disk from a given file.
Created RAM disk list	
Remove selected RAM disk(s)	Selects the RAM disk(s) to remove.

2-2-14 Tls Auth Configuration



Parameter	Description
Server CA Configuration	<p>Press [Enter] for configuration of advanced items.</p> <ul style="list-style-type: none"> ◆ Enroll Cert <ul style="list-style-type: none"> – Press [Enter] to enroll a certificate <ul style="list-style-type: none"> • Enroll Cert Using File • Cert GUID <p>Input digit character in 1111111-2222-3333-4444-1234567890ab format.</p> <ul style="list-style-type: none"> – Commit Changes and Exit – Discard Changes and Exit <ul style="list-style-type: none"> ◆ Delete Cert
Client Cert Configuration	Press [Enter] for configuration of advanced items.

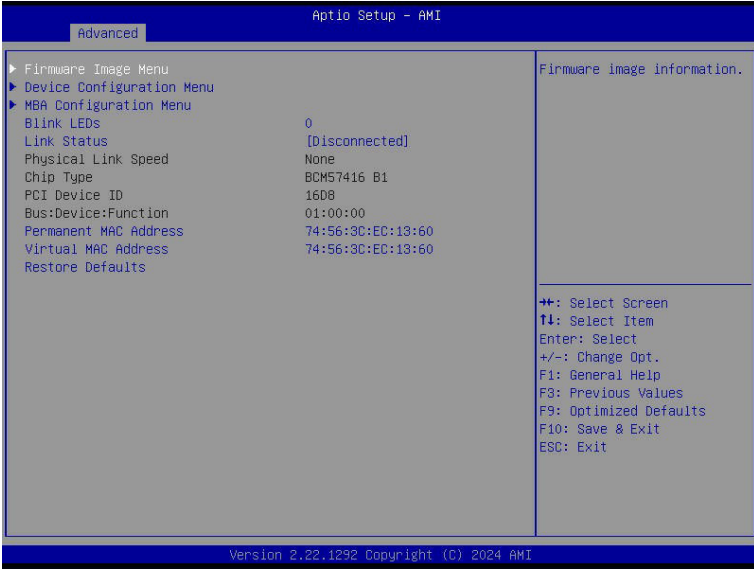
2-2-15 iSCSI Configuration



Parameter	Description
iSCSI Initiator Name	Press [Enter] and name iSCSI Initiator. Only IQN format is accepted. Range: from 4 to 223
Add an Attempt	Press [Enter] to configure advanced items.
Delete Attempts	Press [Enter] to configure advanced items.
Change Attempt Order	Press [Enter] to configure advanced items.

Parameter	Description
Device Configuration Menu (continued)	<ul style="list-style-type: none"> ◆ Support RDMA <ul style="list-style-type: none"> – Enable/Disable RDMA support for this port. – Options available: Disabled, Enabled. Default setting is Disabled. ◆ DCB Protocol <ul style="list-style-type: none"> – Enable/Disable DCB protocol. – Options available: Disabled, Enabled (IEEE only), CEE (only), Both (IEEE preferred with fallback to CEE). Default setting is Disabled. ◆ LLDP nearest bridge <ul style="list-style-type: none"> – Enable/Disable LLDP nearest bridge state. – Options available: Disabled, Enabled. Default setting is Enabled. ◆ Default EVB Mode <ul style="list-style-type: none"> – Configures the default Edge Virtual Bridging mode. – Options available: VEB, VEPA, None. Default setting is VEB. ◆ Enable PME Capability <ul style="list-style-type: none"> – Enable/Disable PME Capability support. – Options available: Disabled, Enabled. Default setting is Enabled. ◆ Flow Offload <ul style="list-style-type: none"> – Options available: Enabled, Disabled. Default setting is Disabled. ◆ Live Firmware Upgrade <ul style="list-style-type: none"> – Options available: Enabled, Disabled. Default setting is Disabled. ◆ Adapter Error Recovery <ul style="list-style-type: none"> – Options available: Enabled, Disabled. Default setting is Disabled.
MBA Configuration Menu	<p>Press [Enter] to configure advanced items.</p> <ul style="list-style-type: none"> ◆ Option ROM <ul style="list-style-type: none"> – Enable/Disable Boot Option ROM. – Options available: Disabled, Enabled. Default setting is Enabled. ◆ Legacy Boot Protocol <ul style="list-style-type: none"> – Selects non-UEFI Boot Protocol: Preboot Execution Environment (PXE)/iSCSI. – Options available: PXE, iSCSI, NONE. Default setting is PXE. ◆ Boot Strap Type <ul style="list-style-type: none"> – Selects the boot strap type. Options available: Auto Detect, BBS, Int 18h, Int 19h. Default setting is Auto Detect. ◆ Hide Setup Prompt <ul style="list-style-type: none"> – Configures whether the Setup Prompt is displayed during ROM initialization. – Options available: Disabled, Enabled. Default setting is Disabled. ◆ Setup Key Stroke <ul style="list-style-type: none"> – Configures key strokes to invoke the configuration menu. – Options available: Ctrl-S, Ctrl-B. Default setting is Ctrl-S. ◆ Banner Message Timeout <ul style="list-style-type: none"> – Selects the timeout value. (0 defaults to 4 seconds, 15 is no delay, 1-14 is timeout value in seconds) – Default setting is 5.

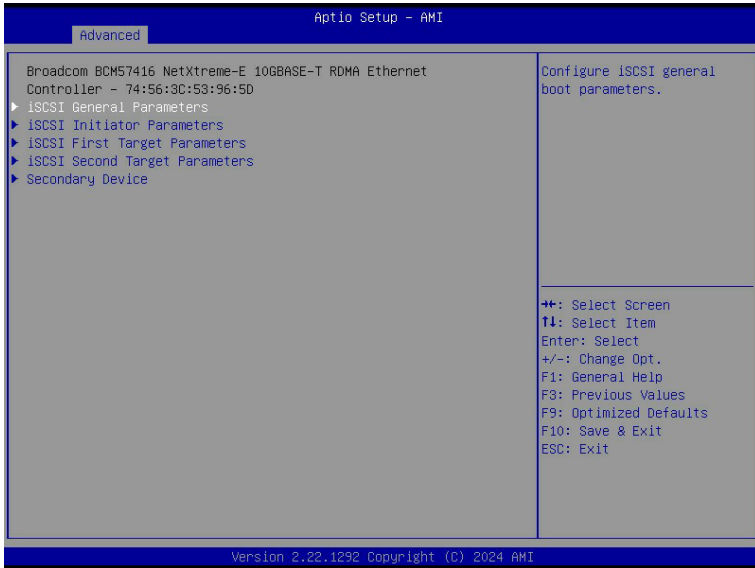
2-2-16 Broadcom BCM57416 10GBASE-T Network Connection



Parameter	Description
Firmware Image Menu	Press [Enter] to view firmware image information.
Device Configuration Menu	<p>Press [Enter] to configure advanced items.</p> <ul style="list-style-type: none"> ◆ Multi-Function Mode <ul style="list-style-type: none"> – Configures the NIC Hardware Mode. – Options available: SF, NPAR 1.0. Default setting is SF. ◆ SR-IOV <ul style="list-style-type: none"> – Enable/Disable Single Root I/O Virtualization. – Options available: Disabled, Enabled. Default setting is Disabled. ◆ Number of MSI-X Vectors per VF <ul style="list-style-type: none"> – Configures the number of MSI-X Vectors per VF (0-128). – Default setting is 16. ◆ Maximum Number of PF MSI-X Vectors <ul style="list-style-type: none"> – Configures the maximum number of PF MSI-X Vectors (0-512 per controller). – Default setting is 74. ◆ Energy Efficient Ethernet <ul style="list-style-type: none"> – Enable/Disable Energy Efficient Ethernet operation. – Options available: Disabled, Enabled. Default setting is Disabled. ◆ Operational Link Speed <ul style="list-style-type: none"> – Configures the link speed setting to be used as the default link speed for the selected port. – Options available: AutoNeg. Default setting is AutoNeg.

Parameter	Description
MBA Configuration Menu (continued)	<ul style="list-style-type: none"> ◆ Pre-boot Wake On LAN <ul style="list-style-type: none"> – Configures Pre-boot Wake on LAN (WOL). – Options available: Disabled, Enabled. Default setting is Enabled. ◆ VLAN Mode <ul style="list-style-type: none"> – Configures the virtual LAN (VLAN) mode. – Options available: Disabled, Enabled. Default setting is Disabled. ◆ VLAN ID <ul style="list-style-type: none"> – Configures the VLAN ID (1...4094). – This item is available only when VLAN Mode is Enabled. ◆ Boot Retry Count <ul style="list-style-type: none"> – Selects the number of boot retries. – Options available: No Retry, 1 Retry, 2 Retries, 3 Retries, 4 Retries, 5 Retries, 6 Retries, Indefinite Retries. Default setting is No Retry.
iSCSI Boot Configuration Menu	Press [Enter] to configure advanced items.
Blink LEDs	Identifies the physical network port by blinking the associated LED. Press the numeric keys to adjust desired values.
Link Status	Specifies the link status of the port.
Physical Link Speed	Displays the technical specifications for the Network Interface Controller.
Chip Type	Displays the technical specifications for the Network Interface Controller.
PCI Device ID	Displays the technical specifications for the Network Interface Controller.
Bus:Device:Function	Displays the technical specifications for the Network Interface Controller.
Permanent MAC Address	Displays the MAC address of the Ethernet controller.
Virtual MAC Address	Displays the virtual MAC address of the Ethernet controller.
Restore Defaults	Resets the adapter to factory defaults.

2-2-16-1 iSCSI Boot Configuration Menu

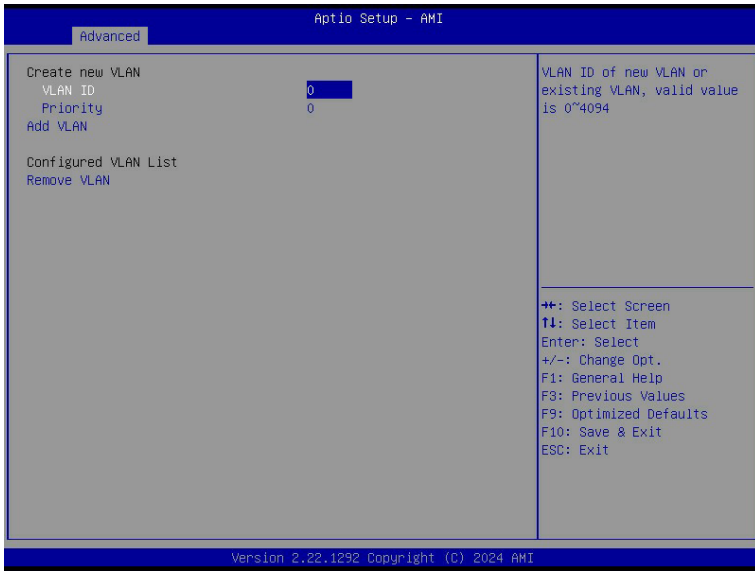


Parameter	Description
iSCSI General Parameters	Press [Enter] to configure advanced items.
	<ul style="list-style-type: none"> ◆ TCP/IP Parameters via DHCP <ul style="list-style-type: none"> – Acquires TCP/IP Parameters via DHCP. – Options available: Disabled, Enabled. Default setting is Enabled.
	<ul style="list-style-type: none"> ◆ IP Autoconfiguration <ul style="list-style-type: none"> – Auto-configures the IP configuration.
	<ul style="list-style-type: none"> ◆ iSCSI Parameters via DHCP <ul style="list-style-type: none"> – Acquires iSCSI Parameters via DHCP. – Options available: Disabled, Enabled. Default setting is Disabled.
	<ul style="list-style-type: none"> ◆ CHAP Authentication <ul style="list-style-type: none"> – Enable/Disable the CHAP authentication. – Options available: Disabled, Enabled. Default setting is Disabled.
	<ul style="list-style-type: none"> ◆ Boot to iSCSI Target <ul style="list-style-type: none"> – Enable/Disable booting to iSCSI target after log-on. – Options available: Disabled, Enabled, One Time Disabled. Default setting is Enabled.
	<ul style="list-style-type: none"> ◆ DHCP Vendor ID <ul style="list-style-type: none"> – Configures the DHCP vendor ID (up to 32 characters long).
	<ul style="list-style-type: none"> ◆ Link Up Delay Time <ul style="list-style-type: none"> – Configures the link up delay time in seconds (0-225).

Parameter	Description
iSCSI General Parameters (continued)	<ul style="list-style-type: none"> ◆ Use TCP Timestamp <ul style="list-style-type: none"> – Enable/Disable the TCP timestamp. – Options available: Disabled, Enabled. Default setting is Disabled. ◆ Target as First HDD <ul style="list-style-type: none"> – Enable/Disable target appears as first hard disk drive (HDD) in the system. – Options available: Disabled, Enabled. Default setting is Disabled. ◆ LUN Busy Retry Count <ul style="list-style-type: none"> – Configures the number of retries in 2 second intervals when LUN is busy (0-60). – Default setting is 0. ◆ IP Version <ul style="list-style-type: none"> – Displays the IP version supported. Modifying this parameter will reset all IP-related fields. – Options available: IPv4, IPv6. Disabled. Default setting is IPv4.
iSCSI Initiator Parameters	<p data-bbox="352 592 689 616">Press [Enter] to configure advanced items.</p> <ul style="list-style-type: none"> ◆ IP Address <ul style="list-style-type: none"> – Configures the initiator IP address. ◆ Subnet Mask <ul style="list-style-type: none"> – Configures the IP subnet mask. ◆ Default Gateway <ul style="list-style-type: none"> – Configures the default gateway IP address. ◆ Primary DNS <ul style="list-style-type: none"> – Configures the primary DNS IP address. ◆ Secondary DNS <ul style="list-style-type: none"> – Configures the secondary DNS IP address. ◆ iSCSI Name <ul style="list-style-type: none"> – Configures the iSCSI name. ◆ CHAP ID <ul style="list-style-type: none"> – Configures the Challenge-Handshake Authentication Protocol (CHAP) ID (up to 128 characters in length). ◆ CHAP Secret <ul style="list-style-type: none"> – Configure the Challenge-Handshake Authentication Protocol (CHAP) Secret (12 to 16 characters in length).
iSCSI First/Second Target Parameters	<p data-bbox="352 1150 689 1174">Press [Enter] to configure advanced items.</p> <ul style="list-style-type: none"> ◆ Connect <ul style="list-style-type: none"> – Enable/Disable the target establishment. – Options available: Disabled, Enabled. Default setting is Disabled. ◆ IP Address <ul style="list-style-type: none"> – Configures the Target IP address. ◆ TCP Port <ul style="list-style-type: none"> – Configures the Target TCP port number (1-65535).

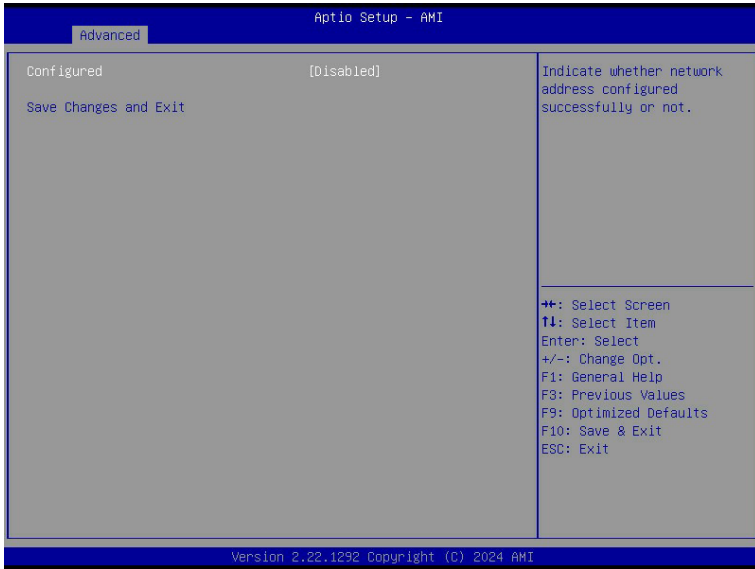
Parameter	Description
iSCSI First/Second Target Parameters (continued)	<ul style="list-style-type: none"> ◆ Boot LUN <ul style="list-style-type: none"> – Configures the Target boot LUN number (0-255). ◆ iSCSI Name <ul style="list-style-type: none"> – Configures the iSCSI name. ◆ CHAP ID <ul style="list-style-type: none"> – Configures the Challenge-Handshake Authentication Protocol (CHAP) ID (up to 128 characters in length). ◆ CHAP Secret <ul style="list-style-type: none"> – Configure the Challenge-Handshake Authentication Protocol (CHAP) Secret (12 to 16 characters in length).
Secondary Device	<p>Press [Enter] to configure advanced items.</p> <ul style="list-style-type: none"> ◆ Secondary Device <ul style="list-style-type: none"> – Inputs the secondary device MAC address. ◆ Use Independent Target Portal <ul style="list-style-type: none"> – Use Independent target portal when multipath I/O is enabled. – Options available: Disabled, Enabled. Default setting is Disabled. ◆ Use Independent Target Name <ul style="list-style-type: none"> – Use Independent target name when multipath I/O is enabled. – Options available: Disabled, Enabled. Default setting is Disabled.

2-2-17 VLAN Configuration



Parameter	Description
Enter Configuration Menu	<p>Press [Enter] to configure advanced items.</p> <ul style="list-style-type: none"> ◆ Create new VLAN ◆ VLAN ID <ul style="list-style-type: none"> – Sets VLAN ID for a new VLAN or an existing VLAN. – Press the <+> / <-> keys to increase or decrease the desired values. – The valid range is from 0 to 4094. ◆ Priority <ul style="list-style-type: none"> – Sets 802.1Q Priority for a new VLAN or an existing VLAN. – Press the <+> / <-> keys to increase or decrease the desired values. – The valid range is from 0 to 7. ◆ Add VLAN <ul style="list-style-type: none"> – Press [Enter] to create a new VLAN or update an existing VLAN. ◆ Configured VLAN List ◆ Remove VLAN <ul style="list-style-type: none"> – Press [Enter] to remove an existing VLAN.

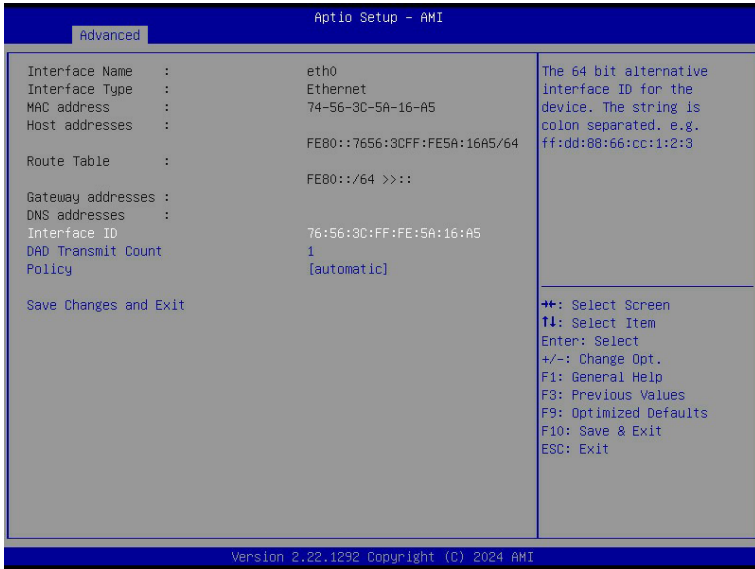
2-2-18 MAC IPv4 Network Configuration



Parameter	Description
Configured	Indicates whether network address is configured successfully or not. Options available: Enabled, Disabled. Default setting is Disabled .
Enable DHCP ^(Note)	Options available: Enabled, Disabled. Default setting is Disabled .
Local IP Address ^(Note)	Press [Enter] to configure local IP address.
Local NetMask ^(Note)	Press [Enter] to configure local NetMask.
Local Gateway ^(Note)	Press [Enter] to configure local Gateway
Local DNS Servers ^(Note)	Press [Enter] to configure local DNS servers
Save Changes and Exit	Press [Enter] to save all configurations.

(Note) This item appears when **Configured** is set to **Enabled**.

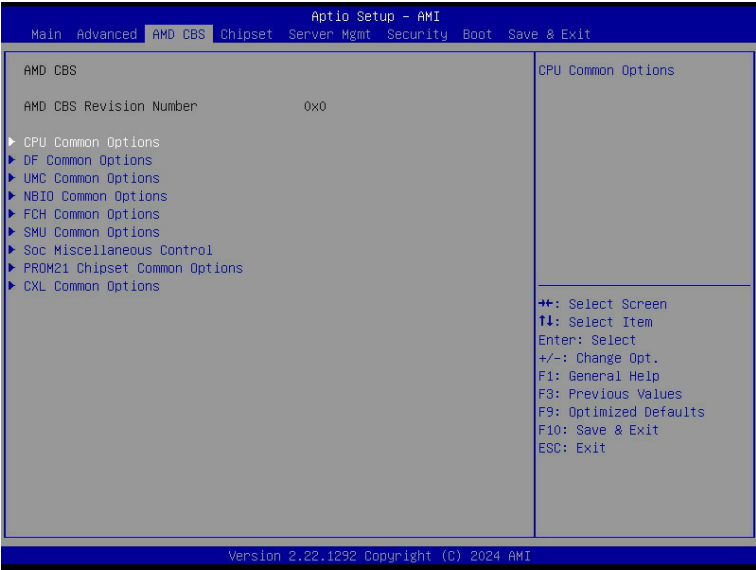
2-2-19 MAC IPv6 Network Configuration



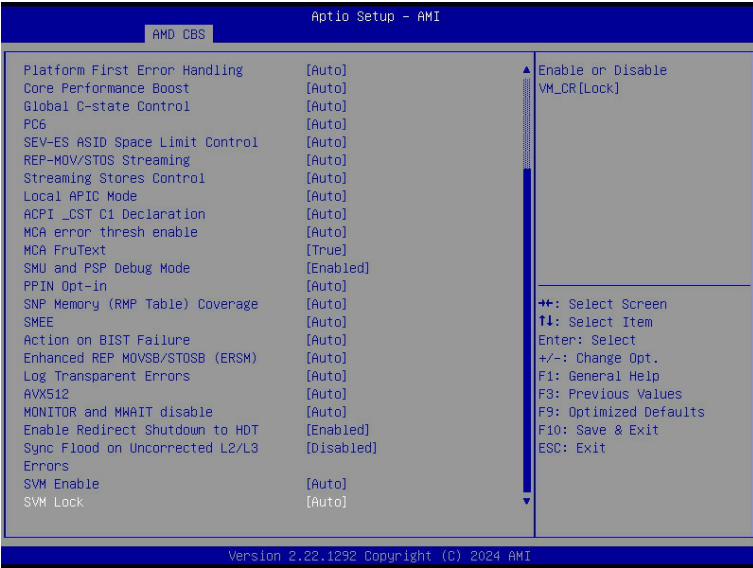
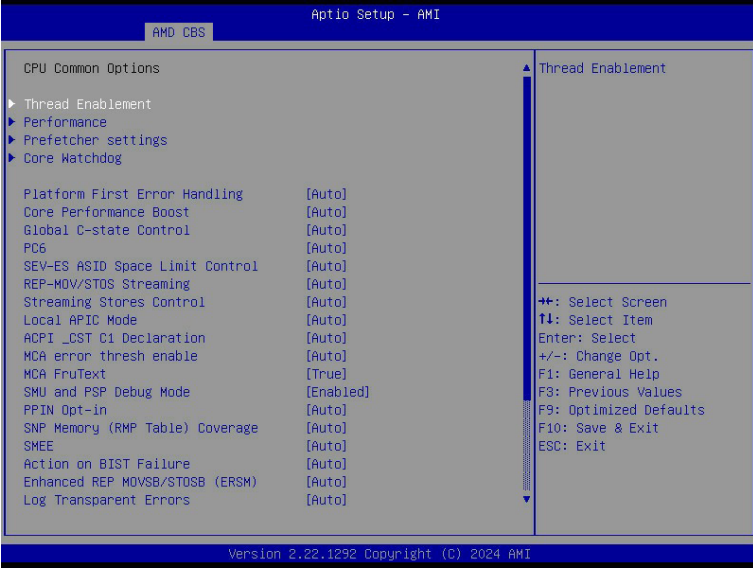
Parameter	Description
Enter Configuration Menu	<p>Press [Enter] to configure advanced items.</p> <ul style="list-style-type: none"> ◆ Displays the MAC Address information. ◆ Interface ID <ul style="list-style-type: none"> – The 64 bit alternative interface ID for the device. The string is colon separated. e.g. ff:dd:88:66:cc:1:2:3. ◆ DAD Transmit Count <ul style="list-style-type: none"> – The number of consecutive Neighbor solicitation messages sent while performing Duplicate Address Detection on a tentative address. A value of zero indicates that Duplicate Address Detection is not performed. ◆ Policy <ul style="list-style-type: none"> – Options available: automatic, manual. Default setting is automatic. ◆ Save Changes and Exit <ul style="list-style-type: none"> – Press [Enter] to save all configurations.

2-3 AMD CBS Menu

AMD CBS menu displays submenu options for configuring the CPU-related information that the BIOS automatically sets. Select a submenu item, then press [Enter] to access the related submenu screen.



2-3-1 CPU Common Options



Parameter	Description
CPU Common Options	
Performance	Press [Enter] for configuration of advanced items.
REP-MOV/STOS Streaming	Allow REP-MOV/STOS to use non-caching streaming stores for large sizes. Options available: Disabled, Enabled. Default setting is Enabled .
Prefetcher settings	Press [Enter] for configuration of advanced items.
Core Watchdog	Press [Enter] for configuration of advanced items.
RedirectForReturnDis	From a workaround for GCC/C000005 issue for XV Core on CZ A0, setting MSRC001_1029 Decode Configuration (DE_CFG) bit 14 [DecfgNoRdrctForReturns] to 1. Options available: Auto, 1, 0. Default setting is Auto .
Platform First Error Handling	Enable/Disable PFEH, cloak individual banks, and mask deferred error interrupts from each bank. Options available: Enabled, Disabled, Auto. Default setting is Auto .
Core Performance Boost	Enable/Disable the Core Performance Boost function. Options available: Disabled, Auto. Default setting is Auto .
Global C-state Control	Controls the IO based C-state generation and DF C-states. Options available: Disabled, Enabled, Auto. Default setting is Auto .
Power Supply Idle Control	Configures the Power Supply Idle Control. Options available: Low Current Idle, Typical Current Idle, Auto. Default setting is Auto .
SEV-ES ASID Space Limit	Configures the Space limit for SEV-ES ASIDs. Default setting is 1 .
SEV Control	Enable/Disable SEV control. Options available: Enable, Disable. Default setting is Enable .
Streaming Stores Control	Enable/Disable the Streaming Stores functionality. Options available: Disabled, Enabled, Auto. Default setting is Auto .
Local APIC Mode	Sets the Local APIC Mode. Options available: Compatibility, xAPIC, x2APIC, Auto. Default setting is Auto .
ACPI_CST C1 Declaration	Determines whether or not to declare the C1 state to the OS.. Options available: Disabled, Enabled, Auto. Default setting is Auto .
MCA error thresh enable	Enable MCA error thresholding. Options available: False, True, Auto. Default setting is True .
MCA FruText	Enable MCA FruText. Options available: False, True. Default setting is Auto .
SMU and PSP Debug Mode	When this option is enabled, specific uncorrected errors detected by the PSP FW or SMU FW will hand and not reset the system. Options available: Disabled, Enabled, Auto. Default setting is Auto .
PPIN Opt-in	Enable/Disable the PPIN feature. Options available: Disabled, Enabled, Auto. Default setting is Auto .
SNP Memory (RMP Table) Coverage	Enabled: Enter system memory is covered. Options available: Disabled, Enabled, Custom, Auto. Default setting is Auto .

Parameter	Description
SMEE	Controls the Secure Memory Encryption Enable (SMEE) function. Options available: Disable, Enable, Auto. Default setting is Auto .
Action on BIST Failure	Action to take when a CCD BIST failure is detected. Options available: Do nothing, Down-CCD, Auto. Default setting is Auto .
Enhanced REP MOVSB/ STOSB (ERMSB)	Options available: Disabled, Enabled, Auto. Default setting is Auto .
Log Transparent Errors	Enable/Disable the log Transparent errors function. Options available: Auto, Disabled, Enabled. Default setting is Auto .
AVX512	Enable/Disable AVX512. Options available: Disabled, Enabled, Auto. Default setting is Auto .
MONITOR and MWAIT disable	The MONITOR, MWAIT, MONITORX and MWAITX opcodes become invalid when enabled. Options available: Enabled, Disabled, Auto. Default setting is Auto
Small Hammer Configuration	Options available: Disabled, Enabled, Auto. Default setting is Auto .
Corrector Branch Predictor	Options available: Disable, Enable. Default setting is Disable .
PAUSE Delay	Number a cycles thread will be idle after a PAUSE instruction. Options available: Auto, Disable, 16 cycles, 32 cycles, 64 cycles, 128 cycles. Default setting is Auto .
CPU Speculative Store Modes	Select the CPU speculative store modes. Options available: Balanced, More Speculative, Less Speculative, Auto. Default setting is Auto .

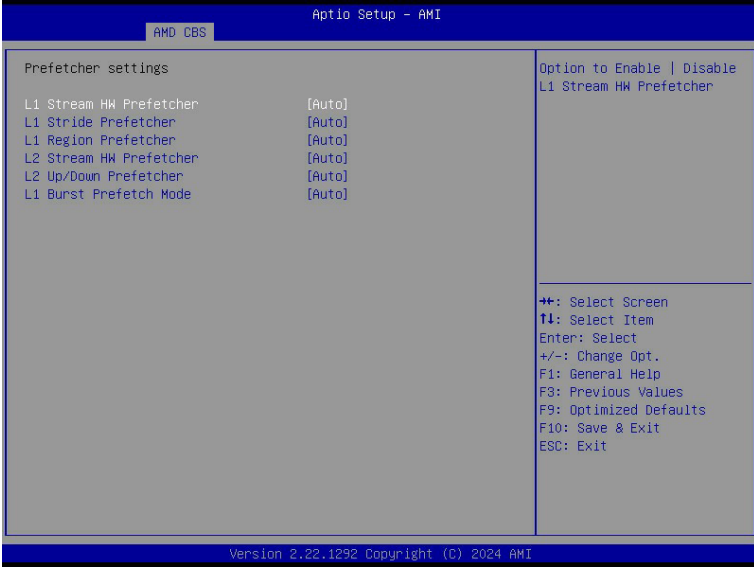
2-3-1-1 Performance



Parameter	Description
Performance	
OC Mode ^(Notes)	Options available: Normal Operation, Customized. Default setting is Normal Operation .
Custom Core Pstates	Allows you to accept or decline enabling Custom Core Pstates. When accepted, you can disable or customize core pstates.
CCD/Core/Thread Enablement	Allows you to accept or decline enabling CCDs, processor cores and threads. When accepted, you can control the number of CCDs to be used, and the number of cores to be used. <ul style="list-style-type: none"> ◆ CCD Control <ul style="list-style-type: none"> – Options available: Auto, 2 CCDs, 4 CCDs, 6 CCDs, 8 CCDs, 10 CCDs. Default setting is Auto. ◆ Core Control <ul style="list-style-type: none"> – Options available: Auto, ONE(1+0), TWO(2+0), THREE(3+0), FOUR(4+0), FIVE(5+0), SIX(6+0), SEVEN(7+0). – Default setting is Auto.
SMT Control	Can be used to disable symmetric multithreading. To re-enable SMT, a POWER CYCLE is needed after select the 'Enable' option. Select 'Auto' base on BIOS PCD. (PcdAmdSmtMode) default setting. Options available: Disable, Enable, Auto. Default setting is Enable .

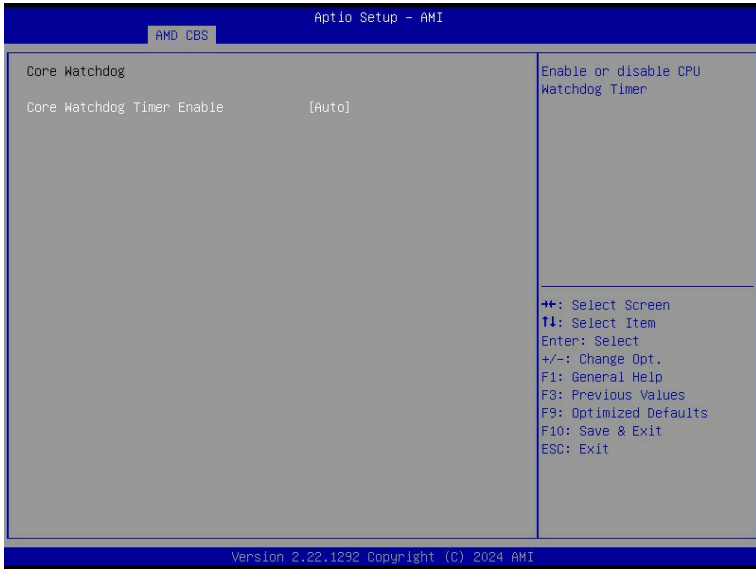
(Note) Advanced items are configurable when this item is defined.

2-3-1-2 Prefetcher Settings



Parameter	Description
Prefetcher settings	
L1 Stream HW Prefetcher	Enable/Disable L1 Stream HW Prefetcher. Options available: Disable, Enable, Auto. Default setting is Auto .
L1 Stride Prefetcher	Use memory access history of individual instructions to fetch additional lines when each access is a constant distance from the previous. Enable/Disable L1 Stride Prefetcher. Options available: Disable, Enable, Auto. Default setting is Auto .
L1 Region Prefetcher	Use memory access history to fetch additional lines when the data access for a given instruction tends to be followed by other data accesses. Enable/Disable L1 Region Prefetcher. Options available: Disable, Enable, Auto. Default setting is Auto .
L2 Stream HW Prefetcher	Enable/Disable L2 Stream HW Prefetcher. Options available: Disable, Enable, Auto. Default setting is Auto .
L2 Up/Down Prefetcher	Use memory access history to determine whether to fetch the next or previous line for all memory accesses. Enable/Disable L2 Up/Down Prefetcher. Options available: Disable, Enable, Auto. Default setting is Auto .
L1 Burst Prefetch Mode	Enable/Disable L1 Burst Prefetch Mode. Options available: Disable, Enable, Auto. Default setting is Auto .

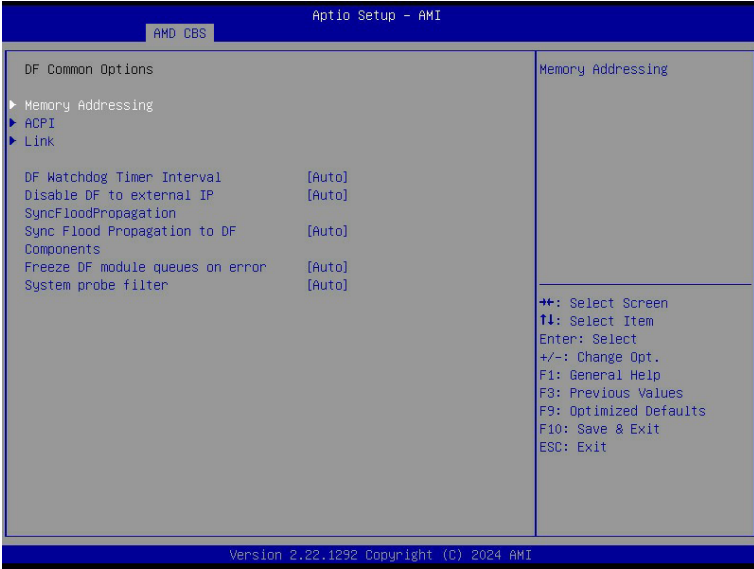
2-3-1-3 Core Watchdog



Parameter	Description
Core Watchdog	
Core Watchdog Timer Enable ^(Note)	Enable/Disable CPU Watchdog Timer. Options available: Disabled, Enabled, Auto. Default setting is Auto .
Core Watchdog Timer Interval	Select the CPU Watchdog Timer interval. Options available: 2.681s, 1.340s, 669.41ms, 334.05ms, 166.37ms, 82.53ms, 40.61ms, 20.970ms, 10.484ms, 5.241ms, 2.620ms, 1.309ms, 654.08us, 326.4us, 162.56us, 80.64us, 39.68us, Auto. Default setting is Auto .

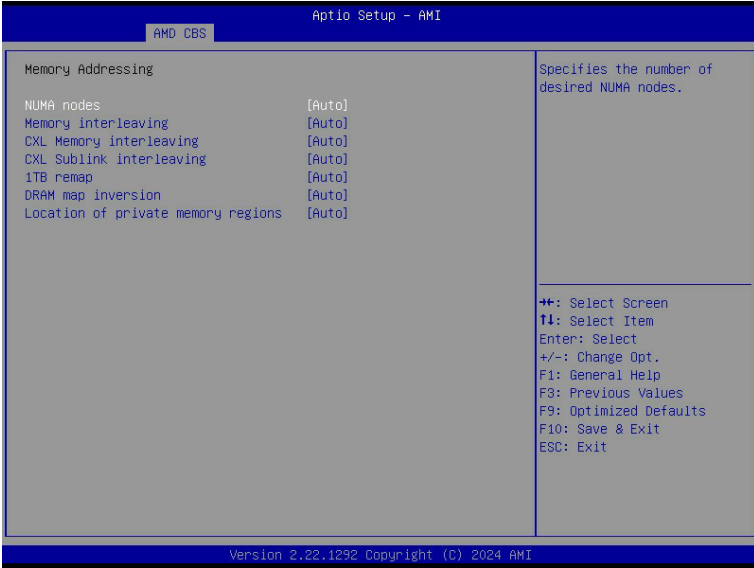
(Note) Advanced items prompt when this item is defined.

2-3-2 DF Common Options



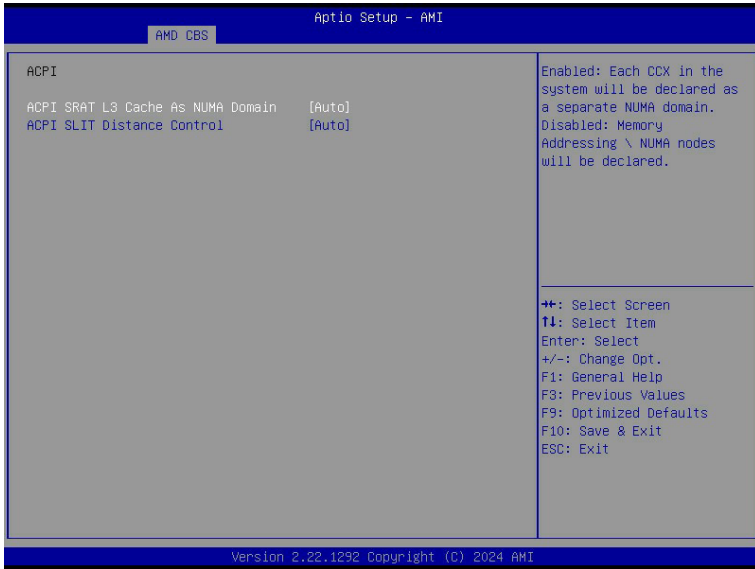
Parameter	Description
DF Common Options	
Memory Addressing	Press [Enter] for configuration of advanced items.
ACPI	Press [Enter] for configuration of advanced items.
Link	Press [Enter] for configuration of advanced items.
SDCI	Press [Enter] for configuration of advanced items.
DF Watchdog Timer Interval	Configures the Data Fabric watchdog timer interval. Options available: Auto, 41ms, 166ms, 334ms, 669ms, 1.34 seconds, 2.68 seconds, 5.36 seconds. Default setting is Auto .
Disable DF to external IP sync flood propagation	Enable/Disable SyncFlood to UMC & downstream slaves. Options available: Sync flood disabled, Sync flood enabled, Auto. Default setting is Auto .
Sync flood propagation to DF Components	Enable/Disable DF Sync Flood propagation. Options available: Sync flood disabled, Sync flood enabled, Auto. Default setting is Auto .
Freeze DF module queues on error	Options available: Disabled, Enabled, Auto. Default setting is Auto .
CC6 memory region encryption	Controls whether or not the CC6 save/restor memory is encrypted. Options available: Disabled, Enabled, Auto. Default setting is Auto .
CCD B/W Balance Throttle Level	Options available: Auto, Level 0, Level 1, Level 2, Level 3, Level 4. Default setting is Auto .

2-3-2-1 Memory Addressing



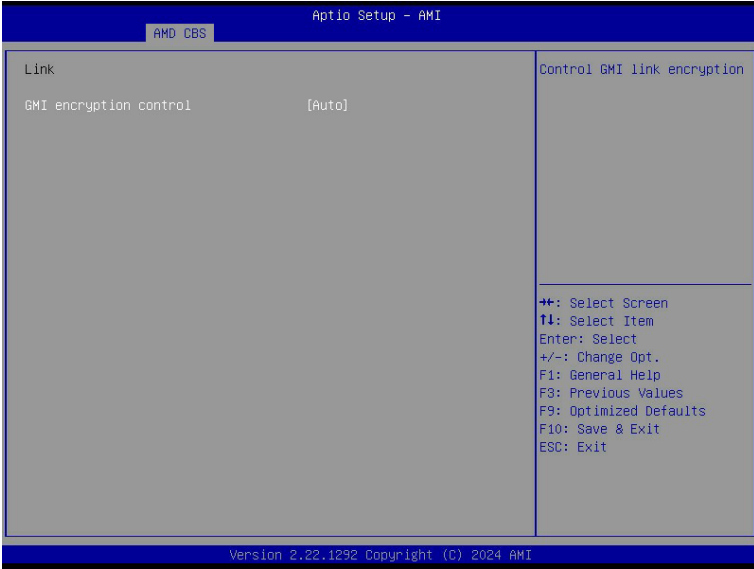
Parameter	Description
Memory Addressing	
NUMA nodes per socket	Specifies the number of desired NUMA nodes per socket. Options available: NPS0, NPS1, Auto. Default setting is Auto .
Memory interleaving	Enable/Disable the Memory interleaving feature. Options available: Disabled, Auto, Enabled. Default setting is Auto .
1TB remap	Enable/Disable to remap DRAM out of the space just below the 1TB boundary. The ability to remap depends on DRAM configuration, NPS, and interleaving selection, and may not always be possible. Options available: Do not remap, Attempt to remap, Auto. Default setting is Auto .
DRAM map inversion	Enable/Disable the DRAM map inversion function. Options available: Disabled, Enabled, Auto. Default setting is Auto .
Location of private memory regions	Controls whether or not the private memory regions (PSP, SMU and CC6) are at the top of DRAM or distributed. Options available: Distributed, Consolidated, Auto. Default setting is Auto .
CXL Memory interleaving	Options available: Disabled, Enabled, Auto. Default setting is Auto .
CXL Sublink interleaving	Options available: Enable, Disable, Auto. Default setting is Auto .

2-3-2-2 ACPI



Parameter	Description
ACPI	
ACPI SRAT L3 Cache As NUMA Domain	Enable/Disable report each L3 cache as a NUMA Domain to the OS. Options available: Disabled, Enabled, Auto. Default setting is Auto .
ACPI SLIT Distance Control	Determines how the SLIT distances are declared. Options available: Manual, Auto. Default setting is Auto .
ACPI SLIT remote relative distance	Sets the remote socket distance for 2P systems as near (2.8) or far (3.2). Options available: Near, Far, Auto. Default setting is Auto .

2-3-2-3 Link

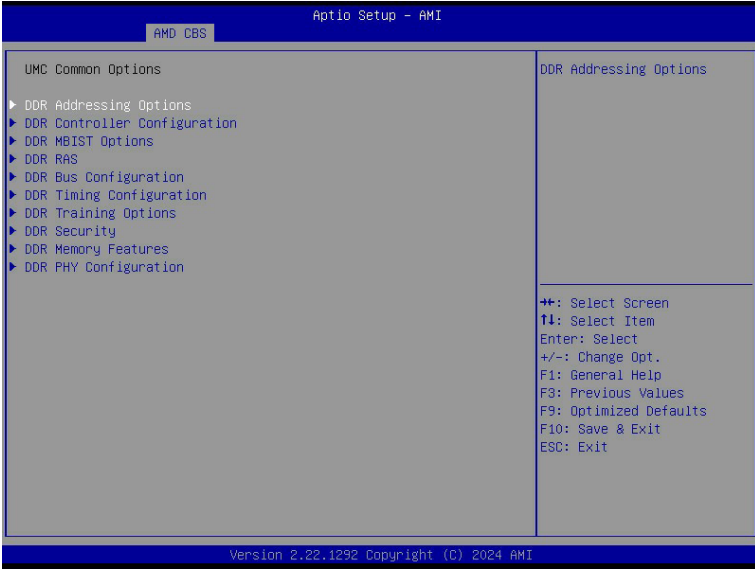


Parameter	Description
GMI encryption control	Enable/Disable GMI link encryption. Options available: Disabled, Enabled, Auto. Default setting is Auto .
xGMI encryption control	Enable/Disable xGMI link encryption. Options available: Disabled, Enabled, Auto. Default setting is Auto .
xGMI Link Configuration	Configures the number of xGMI2 links used on a multi-socket system. Options available: Auto, 3 xGMI Links, 4 xGMI Links. Default setting is Auto .
4-link xGMI max speed	Specifies the max speed of 4-link xGMI. Options available: 12Gbps, 16Gbps, 17Gbps, 18Gbps, 20Gbps, 22Gbps, 23Gbps, 24Gbps, 25Gbps, 26Gbps, 27Gbps, 30Gbps, 32Gbps, Auto. Default setting is Auto .
3-link xGMI max speed	Specifies the max speed of 3-link xGMI. Options available: 12Gbps, 16Gbps, 17Gbps, 18Gbps, 20Gbps, 22Gbps, 23Gbps, 24Gbps, 25Gbps, 26Gbps, 27Gbps, 30Gbps, 32Gbps, Auto. Default setting is Auto .
xGMI 18GACOFC	Configures xGMI 18GACOFC. Options available: Auto, Enable, Disable. Default setting is Auto .
xGMI CRC Scale	Configures leaky bucket scale for xGMI and WAFL CRC errors. Every scale milliseconds an error will leak from the CRC counter. Default setting is 7 .
xGMI CRC Threshold	Configures leaky bucket threshold for xGMI and WAFL CRC errors. If link CRC counter exceeds this threshold, an error will be logged. Default setting is 25 .
xGMI Preset Control	Enable/Disable xGMI Preset control. Options available: Disabled, Enabled, Auto. Default setting is Auto .

Parameter	Description
xGMI Global Preset List	Press [Enter] to configure the xGMI Preset list.
xGMI Initial Preset	Press [Enter] to configure the xGMI Initial Preset CPU0/1 link.
xGMI TXEQ Search Mask	Press [Enter] to configure the xGMI TXEQ Search Mask CPU0/1 link.
xGMI AC/DC Coupled Link	Press [Enter] to configure the xGMI AC/DC Coupled link. ♦ xGMI AC/DC Coupled Link Control ^(Note) – Options available: Manual, Auto. Default setting is Auto .
xGMI Channel Type	Press [Enter] to configure the xGMI Channel Type. ♦ xGMI Channel Type Control ^(Note) – Options available: Manual, Auto. Default setting is Auto .

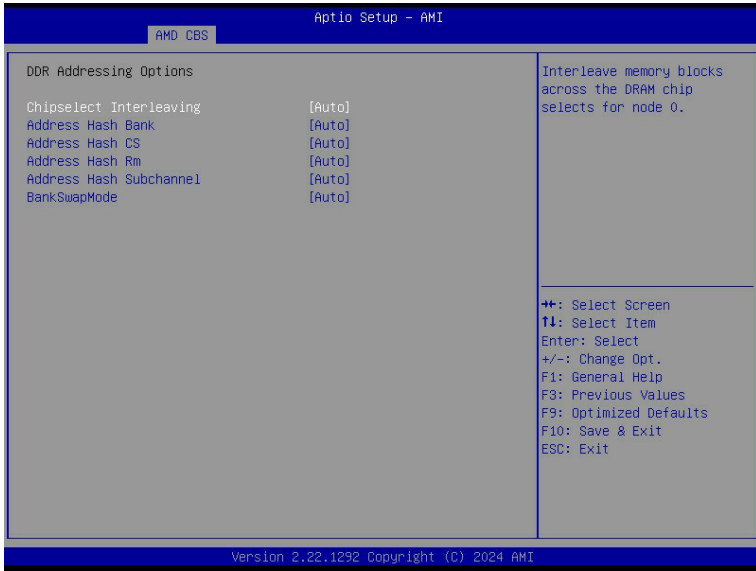
(Note) Advanced items prompt when this item is defined.

2-3-3 UMC Common Options



Parameter	Description
UMC Common Options	
DDR Addressing Options	Press [Enter] for configuration of advanced items.
DDR Controller Configuration	Press [Enter] for configuration of advanced items.
DDR MBIST Options	Press [Enter] for configuration of advanced items.
DDR RAS	Press [Enter] for configuration of advanced items.
DDR Bus Configuration	Press [Enter] for configuration of advanced items.
DDR Timing Configuration	Press [Enter] for configuration of advanced items.
DDR Training Options	Press [Enter] for configuration of advanced items.
DDR Security	Press [Enter] for configuration of advanced items.
DDR PMIC Configuration	Press [Enter] for configuration of advanced items.
DDR Miscellaneous	Press [Enter] for configuration of advanced items.

2-3-3-1 DDR Addressing Options



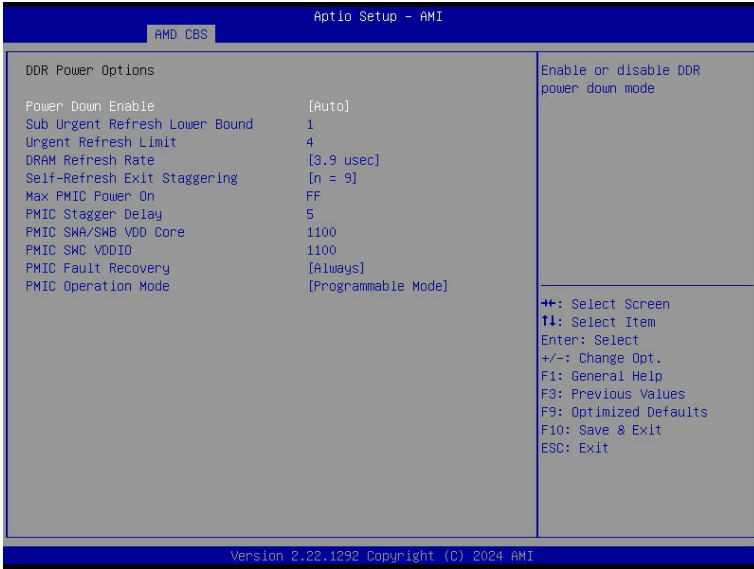
Parameter	Description
DDR Addressing Options	
Chipselect Interleaving	Interleaves memory blocks across the DRAM chip selects for node 0. Options available: Disabled, Auto. Default setting is Auto .
Address Hash Bank	Enable or disable bank addressing hashing. Options available: Disabled, Enabled, Auto. Default setting is Auto .
Address Hash CS	Enable or disable CS addressing hashing. Options available: Auto, Enabled, Disabled. Default setting is Auto .
Address Hash Rm	Enable or disable RM addressing hashing. Options available: Auto, Enabled, Disabled. Default setting is Auto .
Address Hash Subchannel	Enable or disable sub-channel addressing hashing. Options available: Auto, Enabled, Disabled. Default setting is Auto .
Bank SwapMode	Options available: Auto, Disabled, Swap CPU. Default setting is Auto .

2-3-3-2 DDR Controller Configuration



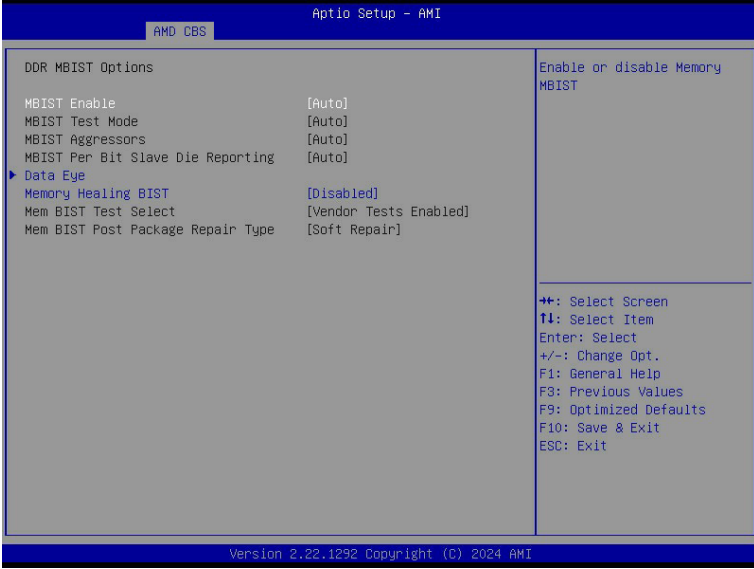
Parameter	Description
DDR Cotroller Configuration	
DDR Power Options	Press [Enter] for configuration of advanced items.
Memory Channel Disable	Press [Enter] for configuration of advanced items.
Refresh Management (RFM)	Press [Enter] for configuration of advanced items.

2-3-3-2-1 DDR Power Options



Parameter	Description
DDR Power Options	
Power Down Enable	Enable or disable DDR power down mode. Options available: Disabled, Enabled, Auto. Default setting is Auto .
Sub Urgent Refresh Lower Bound	Specifies the stored refresh limit required to enter sub-urgent refresh mode.
Urgent Refresh Limit	Specifies the stored refresh limit required to enter urgent refresh mode.
DRAM Refresh Rate	DRAM refresh rate: 1.95us or 3.9us. Options available: 3.9 usec, 1.95usec. Default setting is 3.9 usec .
Self-Refresh Exit Staggering	Options available: Disabled, n=1~9. Default setting is n=9 .

2-3-3-3 DDR MBIST Options



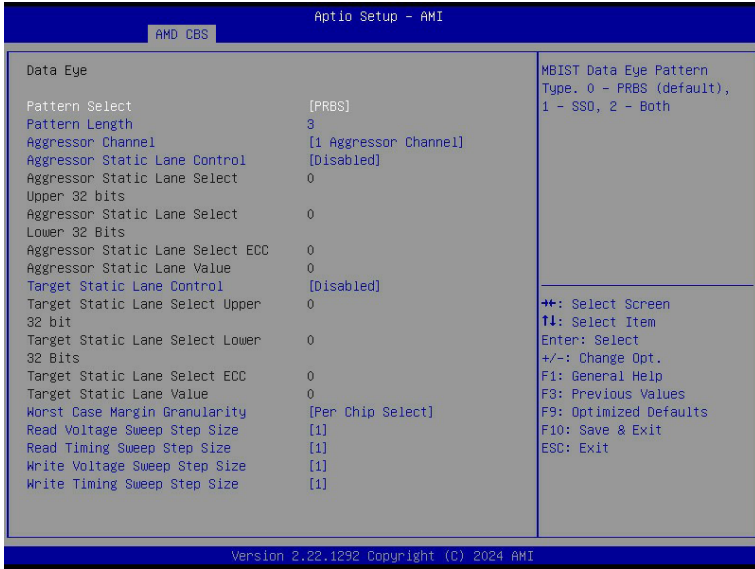
Parameter	Description
DDR MBIST Options	
MBIST Enable	Enable/Disable the Memory MBIST function. Options available: Disabled, Enabled, Auto. Default setting is Auto .
MBIST Test Mode ^(Note1)	Selects MBIST Test Mode. Interface Mode: Tests Single and Multiple CS transactions and Basic Connectivity. Data Eye Mode: Measures Voltage vs. Timing. Options available: Auto, Both, Interface Mode, Data Eye Mode. Default setting is Auto .
MBIST Aggressors ^(Note1)	Enable/Disable MBIST Aggressor test. Options available: Auto, Enabled, Disabled. Default setting is Auto .
MBIST Per Bit Slave Die Reporting ^(Note1)	Enable/Disable to report 2D data eye results in ABL log for each DQ, Chipselect, and Channel. Options available: Auto, Enabled, Disabled. Default setting is Auto .
Data Eye	Press [Enter] to configure advanced items.
Memory Healing BIST	Enable/Disable memory healing BIST. Options available: Disabled, PMU Mem BIST, Self-Healing Mem BIST, PMU and Self-Healing Mem BIST. Default setting is Disabled .

(Note1) This item appears when **MBIST Enable** is set to **Enabled**.

Parameter	Description
DDR Healing BIST Execution Mode ^(Note2)	Options available: One Time, Every boot. Default setting is One Time .
PMU Mem BIST Algorithm ^(Note2)	Press [Enter] to enable/disable PMU Mem BIST Algorithm.
DDR Healing BIST Repair Type ^(Note2)	For DRAM errors found in the BIOS memory BIST select the repair type. Options available: Soft Repair, Hard Repair, No Rrepairs -Test only. Default setting is Soft Repair .

(Note2) This item appears when **DDR Healing BIST** is defined.

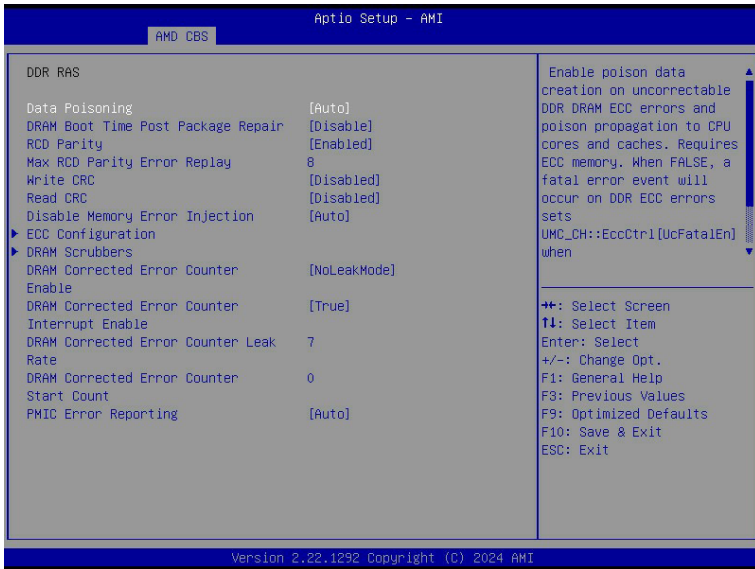
2-3-3-3-1 Data Eye



Parameter	Description
Data Eye	
Pattern Select	Options available: PRBS, SSO, Both. Default setting is PRBS .
Pattern Length	Determines the pattern length. The possible options are N=3....12.
Aggressor Channel	This item helps read the aggressors channels. Options available: One Sub-Channel, Half Channels, All Channels. Default setting is All Channels .
Aggressor Static Lane Control	Enable/Disable the Aggressor Static Lane Control function. Options available: Enabled, Disabled. Default setting is Disabled .
Aggressor Static Lane Select Upper 32 bits	This item is configurable when Aggressor Static Lane Control is set to Enabled .
Aggressor Static Lane Select Lower 32 bits	This item is configurable when Aggressor Static Lane Control is set to Enabled .
Aggressor Static Lane Select ECC	This item is configurable when Aggressor Static Lane Control is set to Enabled .
Aggressor Static Lane Value	This item is configurable when Aggressor Static Lane Control is set to Enabled .
Target Static Lane Control	Enable/Disable the Target Static Lane Control function. Options available: Enabled, Disabled. Default setting is Disabled .

Parameter	Description
Target Static Lane Select Upper 32 bits	This item is configurable when Target Static Lane Control is set to Enabled .
Target Static Lane Select Lower 32 bits	This item is configurable when Target Static Lane Control is set to Enabled .
Target Static Lane Select ECC	This item is configurable when Target Static Lane Control is set to Enabled .
Target Static Lane Value	This item is configurable when Target Static Lane Control is set to Enabled .
Worst Case Margin Granularity	Configures Worst Case Margin Granularity. Options available: Per Chip Select, Per Nibble. Default setting is Per Chip Select .
Read Voltage Sweep Step Size	Configures the step size for read Data Eye voltage sweep. Options available: 1, 2, 4. Default setting is 1.
Read Timing Sweep Step Size	Configures the step size for read Data Eye timing sweep. Options available: 1, 2, 4. Default setting is 1.
Write Voltage Sweep Step Size	Configures the step size for write Data Eye voltage sweep. Options available: 1, 2, 4. Default setting is 1.
Write Timing Sweep Step Size	Configures the step size for write Data Eye timing sweep. Options available: 1, 2, 4. Default setting is 1.
Silent Execution	Execute MBIST Data Eye silently without ABL log output. Options available: Enabled, Disabled. Default setting is Disabled .

2-3-3-4 DDR RAS



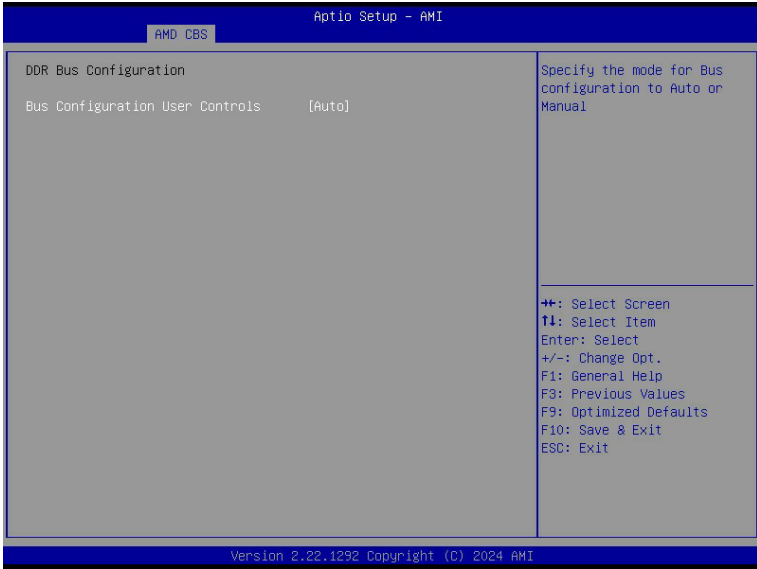
Parameter	Description
DDR RAS	
Data Poisoning	Enable/Disable the Data Poisoning function. Options available: Auto, Enabled, Disabled. Default setting is Auto .
DRAM Boot Time Post Package Repair	Enable/Disable the DRAM Boot Time Post Package Repair function. Options available: Enable, Disable. Default setting is Disable .
DRAM Runtime Post Package Repair	Enable/Disable the DRAM Runtime Post Package Repair function. Options available: Enable, Disable. Default setting is Disable .
RCD Parity	Enable/Disable the RCD Parity function. Options available: Auto, Enabled, Disabled. Default setting is Enabled .
Max RCD Parity Error Replay	Default setting is 8 .
Write CRC	Enable/Disable the Write CRC function. Options available: Auto, Enabled, Disabled. Default setting is Enabled .
Max Write CRC Error Replay	Default setting is 8 .
Read CRC	Enable/Disable the Read CRC function. Options available: Auto, Enabled, Disabled. Default setting is Enabled .
Max Read CRC Error Replay	Default setting is 8 .
Disable Memory Error Injection	Options available: False, True, Auto. Default setting is Auto .
ECC Configuration	Press [Enter] to configure advanced items. <ul style="list-style-type: none"> ◆ DRAM ECC Symbol Size <ul style="list-style-type: none"> – Configures the DRAM ECC Symbol Size. – Options available: Auto, x4, x16. Default setting is Auto.

Parameter	Description
ECC Configuration (continued)	<ul style="list-style-type: none"> ◆ DRAM ECC Enable <ul style="list-style-type: none"> – Enable/Disable DRAM ECC. When set to Auto, it will set ECC to enable. – Options available: Auto, Enabled, Disabled. Default setting is Auto. ◆ DRAM UECC Retry <ul style="list-style-type: none"> – Enable/Disable DRAM UECC Retry. – Options available: Auto, Enabled, Disabled. Default setting is Disabled. ◆ Max DRAM UECC Error Replay^(Note) <ul style="list-style-type: none"> – Default setting is 8. ◆ Memory Clear <ul style="list-style-type: none"> – Options available: Auto, Enabled, Disabled. Default setting is Auto. ◆ Address XDR after ECC <ul style="list-style-type: none"> – Options available: Auto, Enabled, Disabled. Default setting is Disabled.
DRAM Scrubbers	<p>Press [Enter] to configure advanced items.</p> <ul style="list-style-type: none"> ◆ DRAM ECS Mode <ul style="list-style-type: none"> – Options available: Auto, AutoECS, ManualECS, DisableECS. Default setting is Auto. ◆ DRAM Redirect Scrubber Enable <ul style="list-style-type: none"> – Options available: Auto, Enabled, Disabled. Default setting is Auto. ◆ DRAM Scrub Redirection Limit <ul style="list-style-type: none"> – Options available: Auto, 8 Scrubs, 4 Scrubs, 2 Scrubs, 1 Scrub. Default setting is Auto. ◆ DRAM Scrub Time <ul style="list-style-type: none"> – Options available: Disabled, 1 hour, 4 hours, 6 hours, 8 hours, 12 hours, 16 hours, 24 hours, 48 hours. Default setting is 24 Hours. ◆ DRAM Error Threshold Count <ul style="list-style-type: none"> – Options available: Auto, ETC_4, ETC_16, ETC_64, ETC_256, ETC_1024, ETC_4096. Default setting is Auto. ◆ DRAM ECS Count Mode <ul style="list-style-type: none"> – Options available: Auto, Row Count Mode, Code Word Count Mode. Default setting is Auto. ◆ DRAM AutoEcs during Self Refresh <ul style="list-style-type: none"> – Options available: Auto, AutoEcs Disabled, AutoEcs Enabled. Default setting is Auto. ◆ DRAM ECS WriteBack Suppression <ul style="list-style-type: none"> – Options available: Auto, Enable, Disable. Default setting is Auto.

(Note) This item available when **DRAM UECC Retry** is set to **Enabled**.

Parameter	Description
DRAM Scrubbers (continued)	<ul style="list-style-type: none"> ◆ DRAM X4 WriteBack Suppression <ul style="list-style-type: none"> – Options available: Auto, Enable, Disable. Default setting is Auto.
DRAM Corrected Error Counter Enable	Configure DRAM Corrected Error Counter function. Options available: Disable, NoLeakMode, Leak Mode. Default setting is Leak Mode .
DRAM Corrected Error Counter Interrupt Enable	Enable SMI when DRAM corrected Error Counter count exceeds the threshold value. Options available: False, True. Default setting is True .
DRAM Corrected Counter Leak Rate	Program Rate value for DRAM Corrected Error Counter function. Default setting is 7 .
DRAM Corrected Error Counter Start Count	Program starting value for DRAM Corrected Error Counter function. Default setting is FFF5 .

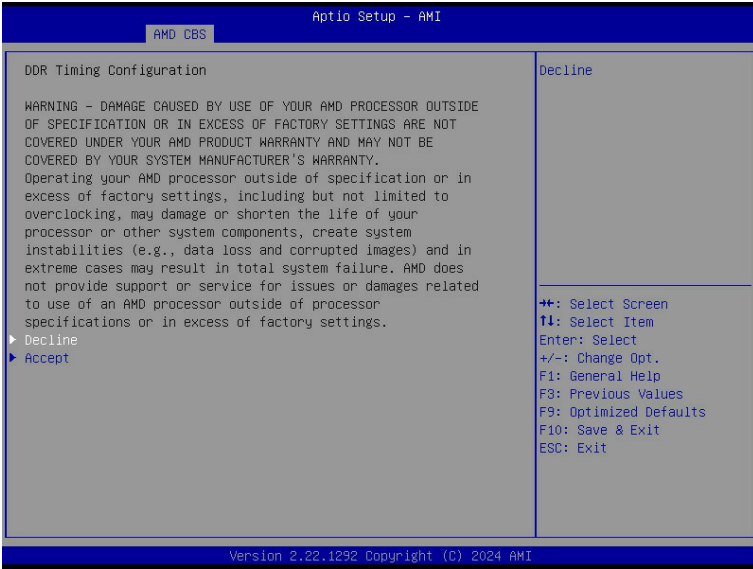
2-3-3-5 DDR Bus Configuration



Parameter	Description
DDR Bus Configuration	
Dram ODT impedance RTT_NOM_WR	Select the DRAMs On-die Termination impedance for RTT_NOM_WR. Options available: Auto, RTT_OFF, RZQ (240), RZQ/2 (120), RZQ/3 (80) RZQ/4 (60), RZQ/5(48), RZQ/6(40), RZQ/7(34). Default setting is Auto .
Dram ODT impedance RTT_NOM_RD	Select the DRAMs On-die Termination impedance for RTT_NOM_RD. Options available: Auto, RTT_OFF, RZQ (240), RZQ/2 (120), RZQ/3 (80) RZQ/4 (60), RZQ/5(48), RZQ/6(40), RZQ/7(34). Default setting is Auto .
Dram ODT impedance RTT_WR	Select the DRAMs On-die Termination impedance for RTT_WR. Options available: Auto, RTT_OFF, RZQ (240), RZQ/2 (120), RZQ/3 (80) RZQ/4 (60), RZQ/5(48), RZQ/6(40), RZQ/7(34). Default setting is Auto .
Dram ODT Timpedance RTT_PARK	Select the DRAMs On-die Termination impedance for RTT_PARK. Options available: Auto, RTT_OFF, RZQ (240), RZQ/2 (120), RZQ/3 (80) RZQ/4 (60), RZQ/5(48), RZQ/6(40), RZQ/7(34). Default setting is Auto .
Dram ODT Timpedance DQS_RTT_PARK	Select the DRAMs On-die Termination impedance for DQS_RTT_PARK. Options available: Auto, RTT_OFF, RZQ (240), RZQ/2 (120), RZQ/3 (80) RZQ/4 (60), RZQ/5(48), RZQ/6(40), RZQ/7(34). Default setting is Auto .

Parameter	Description
Processor ODT impedance	Select the ODT impedance for all DBYTE IOs. Options available: Auto, High Impedance, 480 ohm, 240 ohm, 160 ohm, 120 ohm, 96 ohm, 80 ohm, 68.6 ohm, 60 ohm, 53.3 ohm, 48 ohm, 43.6 ohm, 40 ohm, 36.9 ohm, 34.3 ohm, 32 ohm, 30 ohm, 28.2 ohm, 26.7 ohm, 25.3 ohm. Default setting is Auto .
Dram DQ drive strengths	Select the Dram Pull-up and Pull-Down Output Driver Impedance for all DQ and DMI IOs.. Options available: Auto, 48 ohm, 40 ohm, 34 ohm, Default setting is Auto .

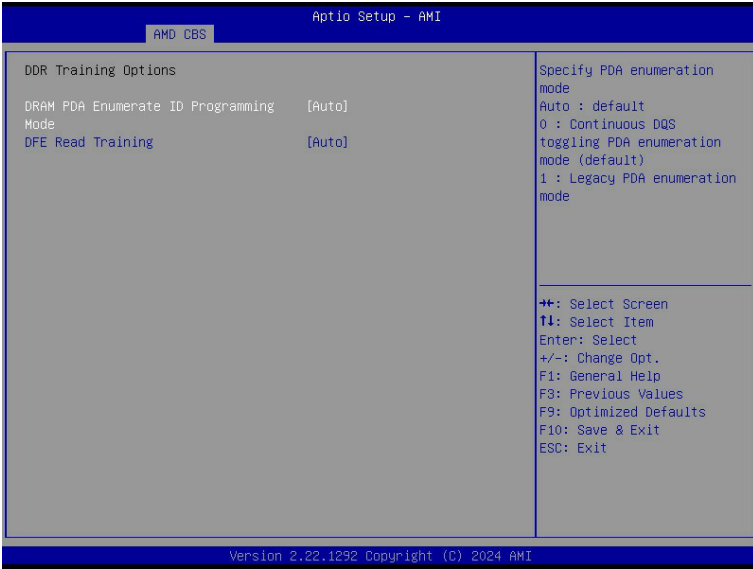
2-3-3-6 DDR Timing Configuration



Parameter	Description
DDR Timing Configuration	Decline/Accept to configure the advanced items.
Accept	
Active Memory Timing Settings ^(Note)	Active memory Timing Settings. Options available: Auto, Enabled. Default setting is Auto .
Memory Target Speed	Specifies the memory target speed in MT/s. Options available: Auto, DDR3200, DDR3600, DDR4000, DDR4400, DDR4800, DDR5200, DDR5600. Default setting is Auto .
SPD Timing	Press [Enter] to configure advanced items.
Non-SPD Timing	Press [Enter] to configure advanced items.

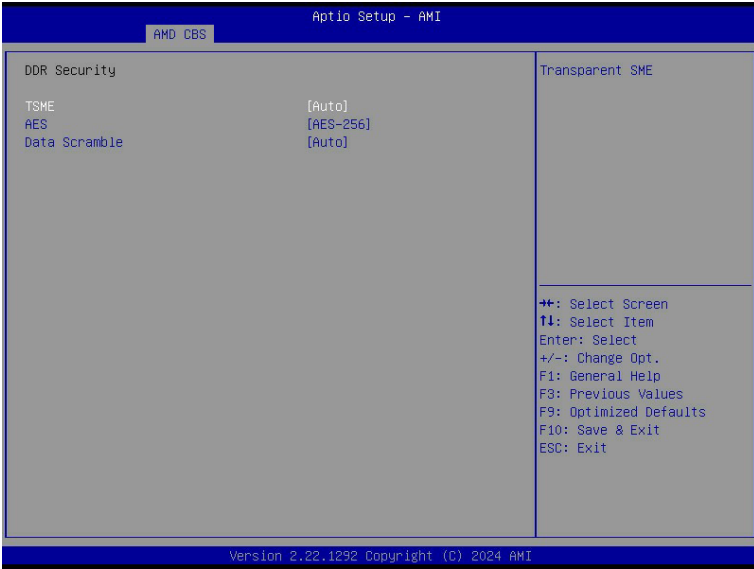
(Note) Advanced items prompt when this item is defined.

2-3-3-7 DDR Training Options



Parameter	Description
DDR Training Options	
DRAM PDA Enumerate ID Programming Mode	Specify PDA enumeration mode. Options available: Auto, Toggling PDA enumeration mode, Legacy PDA enumeration mode. Default setting is Auto .

2-3-3-8 DDR Security



Parameter	Description
Security	
TSME	Enable/Disable Transparent SME. Options available: Auto, Enabled, Disabled. Default setting is Auto .
AES	Options available: AES-128, AES-256. Default setting is AES-256 .
Data Scramble	Enable/Disable Data Scrambling. Options available: Enabled, Disabled. Default setting is Enabled .
SME-MK	Options available: Enabled, Disabled. Default setting is Disabled .

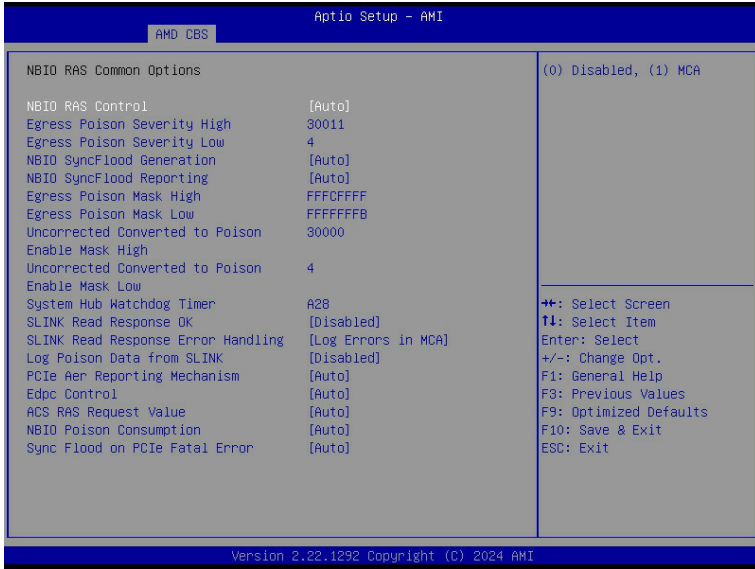
2-3-4 NBIO Common Options

AMD CBS		Aptio Setup - AMI	
NBIO Common Options		Enable/Disable IOMMU	
IOMMU	[Auto]		
DRTH Virtual Device Support	[Auto]		
DRTH Memory Reservation	[Auto]		
ACS Enable	[Auto]		
PCIe ARI Support	[Auto]		
PCIe ARI Enumeration	[Auto]		
PCIe Ten Bit Tag Support	[Auto]		
▶ NBIO RAS Common Options			
Enable AER Cap	[Auto]		
Early Link Speed	[Auto]		
Hot Plug Handling mode	[Auto]		
Presence Detect Select mode	[Auto]		
Data Link Feature Cap	[Auto]		
CV test	[Auto]		
SEV-SNP Support	[Disable]		
Allow Compliance	[Auto]		
SRIS	[Auto]		
Multi Upstream Auto Speed Change	[Auto]		
Multi Auto Speed Change On Last	[Auto]		
Rate			
RTM Margining Support	[Auto]		
NBIO NBIF AZ	[Enabled]		
PCIe loopback Mode	[Auto]		
		→: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit	
Version 2.22.1292 Copyright (C) 2024 AMI			

Parameter	Description
NBIO Common Options	
IOMMU	Enable/Disable the IOMMU function. Options available: Disabled, Enabled. Default setting is Enabled .
DMAr Support	Enable/Disable DMAr system protection during POST. Options available: Disabled, Enabled, Auto. Default setting is Auto .
DMA Protection	Enable/Disable DMA remap support in IVRS IVinfo Field. Options available: Auto, Enabled, Disabled. Default setting is Auto .
DRTM Virtual Device Support	Enable/Disable DRTM ACPI virtual device. Options available: Disabled, Enabled, Auto. Default setting is Auto .
DRTM Memory Reservation	Enable/Disable DRTM Memory reservation. Options available: Disabled, Enabled, Auto. Default setting is Auto .
ACS Enable	Enable/Disable ACS. Options available: Enable, Disabled, Auto. Default setting is Auto .
PCIe ARI Support	Enable/Disable Alternative Routing-ID Interpretation. Options available: Disable, Enable, Auto. Default setting is Auto .
PCIe ARI Enumeration	ARI Forwarding Enable for each downstream port. Options available: Disable, Enable, Auto. Default setting is Auto .
PCIe Ten Bit Tag Support	Enable/Disable PCIe ten bit tags for supported devices. (Auto=Disabled) Options available: Disable, Enable, Auto. Default setting is Auto .
SMU Common Options	Press [Enter] for configuration of advanced items.
NBIO RAS Common Options	Press [Enter] for configuration of advanced items.
Enable AER Cap	Enable/Disable Advanced Error Reporting Capability. Options available: Enable, Disabled, Auto. Default setting is Auto .
Early Link Speed	Configures Early Link Speed. Options available: Auto, Gen1, Gen2. Default setting is Auto .
Hot Plug Handling mode	Controls the Hot Plug Handling mode. Options available: OS First, Firmware First/EDR if OS supports, Firmware First but allow OS First, System Firmware Intermediary, Auto. Default setting is Auto .
Hot Plug Allow FF in Synchronous	Allows firmware first hot plug handling mode to operate in mode A and mode B synchronous mappings. Options available: Disabled, Enabled. Default setting is Disabled .
Presence Detect Select mode	Controls the Presence Detect Select mode. Options available: OR, AND, Auto. Default setting is Auto .

Parameter	Description
Data Link Feature Cap	Enable/Disable the data link feature capability. Options available: Enabled, Disabled, Auto. Default setting is Auto .
CV test	Enable/Disable the running PCIE CV tool support. Options available: Auto, Enabled, Disabled. Default setting is Auto .
SEV-SNP Support	Enable/Disable the SEV-SNP support. Options available: Disable, Enable. Default setting is Disable .
Allow Compliance	When enabled, allows the PCIe RP to enter Polling.Compliance state. Options available: Auto, Disable, Enable. Default setting is Auto .
SRIS	Options available: Auto, Disable, Enable. Default setting is Auto .
Multi Upstream Auto Speed Change	Defines the setting of this feature for all PCIe devices. Options available: Disabled, Enabled, Auto. Default setting is Auto .
Multi Auto Speed Change On Last Rate	Options available: Disable, Enable, Auto. Default setting is Auto .
PCIE Link Speed Capability	Options available: Maximum speed, Gen1, Gen2, Gen3, Gen4, Gen5, Auto. Default setting is Auto .
RTM Margining Support	Options available: Disable, Enable, Auto. Default setting is Auto .
EQ Bypass To Highest Rate	Options available: Disable, Enable, Auto. Default setting is Auto .
nBif Common Options	Press [Enter] for configuration of advanced items.

2-3-4-1 NBIO RAS Common Options

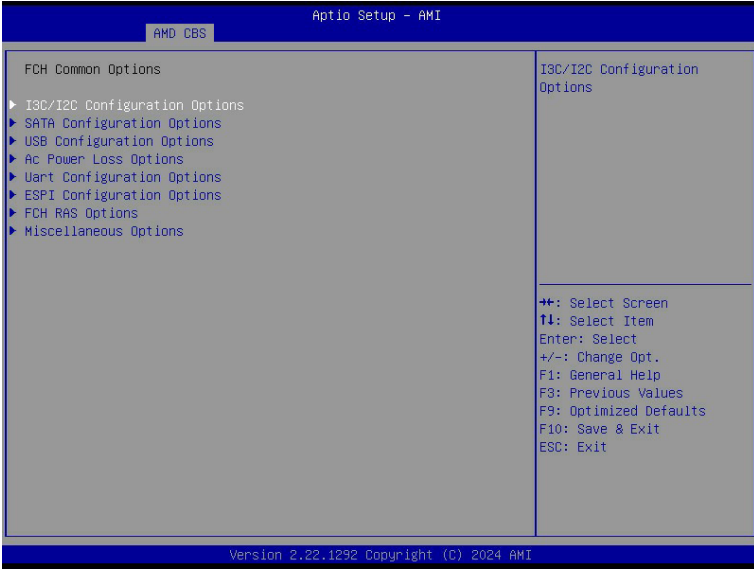


Parameter	Description
NBIO RAS Common Options	
NBIO RAS Control	Options available: Disabled, MCA, Auto. Default setting is Auto .
Egress Poison Severity High	Configures the Egress Poison High Severity. Each bit set to 1 enables High severity on the associated IOHC egress port. A bit of 0 indicates LOW severity.
Egress Poison Severity Low	Configures the Egress Poison Low Severity. Each bit set to 1 enables High severity on the associated IOHC egress port. A bit of 0 indicates LOW severity.
NBIO SyncFlood Generation	The value may be used to mask SyncFlood caused by NBIO RAS options. Options available: Enabled, Disabled, Auto. Default setting is Auto .
NBIO SyncFlood Reporting	The value may be used to enable SyncFlood reporting to APML. Options available: Enabled, Disabled, Auto. Default setting is Auto .
Egress Poison Mask High	Enables mask for masking of errors logged in EGRESS_POISON_STATUS. For each bit set to 1, errors are masked. For each bit set to 0, errors trigger response actions.
Egress Poison Mask Low	Enables mask for masking of errors logged in EGRESS_POISON_STATUS. For each bit set to 1, errors are masked. For each bit set to 0, errors trigger response actions.

Parameter	Description
Uncorrected Converted to Poison Enable Mask High	Enables mask for masking of uncorrectable parity errors on internal arrays.
Uncorrected Converted to Poison Enable Mask Low	Enables mask for masking of uncorrectable parity errors on internal arrays.
System Hub Watchdog Timer	Specifies the timer interval of the SYSHUB Watchdog timer in milliseconds.
PCIe Aer Reporting Mechanism	Selects the method of reporting AER errors from PCI Express. Options available: Firmware First, Firmware First but allow OS First, OS First, Auto. Default setting is Auto .
Edpc Control	Options available: Disabled, Enabled, Auto. Default setting is Auto .
ACS RAS Request Value	Options available: Direct Request Access Enabled, Request Blocking Enabled, Request Redirect Enabled, Auto. Default setting is Auto .
NBIO Poison Consumption	Options available: Auto, Enabled, Disabled. Default setting is Auto .
Sync Flood on PCIe Fatal Error	Options available: Auto, True, False. Default setting is Auto .

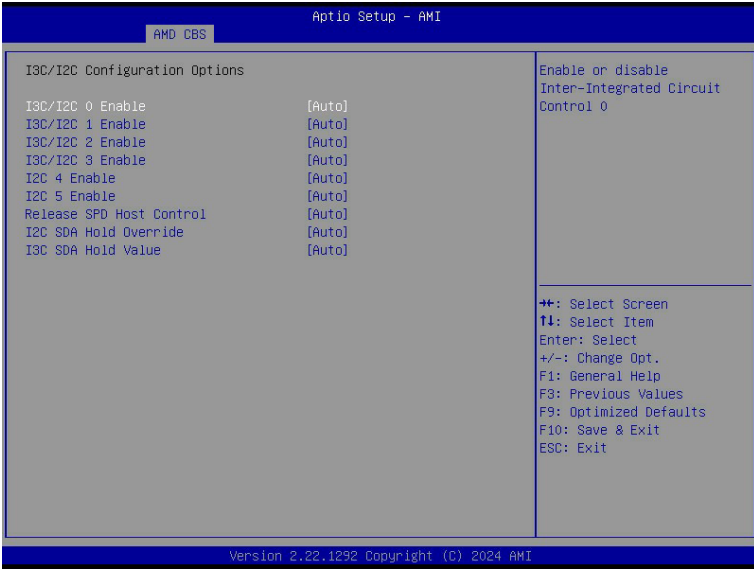
Parameter	Description
RCC_DEV0 (continued)	♦ EXTENDED_FMT – Options available: Auto, Disable, Enable. Default setting is Auto .

2-3-5 FCH Common Options



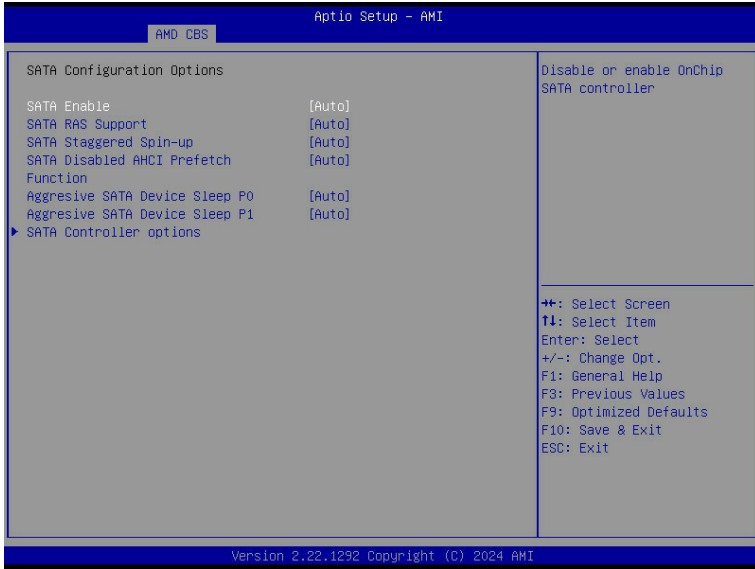
Parameter	Description
FCH Common Options	
I3C/I2C Configuration Options	Press [Enter] for configuration of advanced items.
SATA Configuration Options	Press [Enter] for configuration of advanced items.
USB Configuration Options	Press [Enter] for configuration of advanced items.
AC Power Loss Options	Press [Enter] for configuration of advanced items.
Uart Configuration Options	Press [Enter] for configuration of advanced items.
ESPI Configuration Options	Press [Enter] for configuration of advanced items.
FCH RAS Options	Press [Enter] for configuration of advanced items.
Miscellaneous Options	Press [Enter] for configuration of advanced items.

2-3-5-1 I3C/I2C Configuration Options



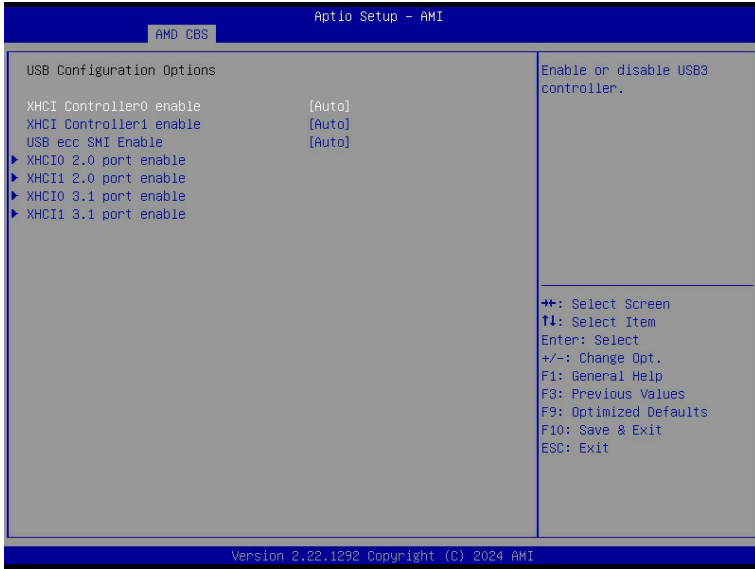
Parameter	Description
I3C/I2C Configuration Options	
I3C/I2C 0/1/2/3 Enable	Options available: Both Disabled, I3C Enabled, I2C Enabled, Auto. Default setting is Auto .
I2C 4/5 Enable	Options available: Disabled, Enabled, Auto. Default setting is Auto .
Release SPD Host Control	Options available: Disabled, Enabled, Auto. Default setting is Auto .
I2C SDA Hold Override	Options available: Disabled, Enabled, Auto. Default setting is Auto .
APML SB-TSI Mode	Options available: I3C, I2C. Default setting is I3C .
I3C Mode Speed	Options available: SDR2(6MHz), SDR0(12.5MHz), Auto. Default setting is Auto .
I3C SDA Hold Value	Configures I3C SDA Hold value.

2-3-5-2 SATA Configuration Options



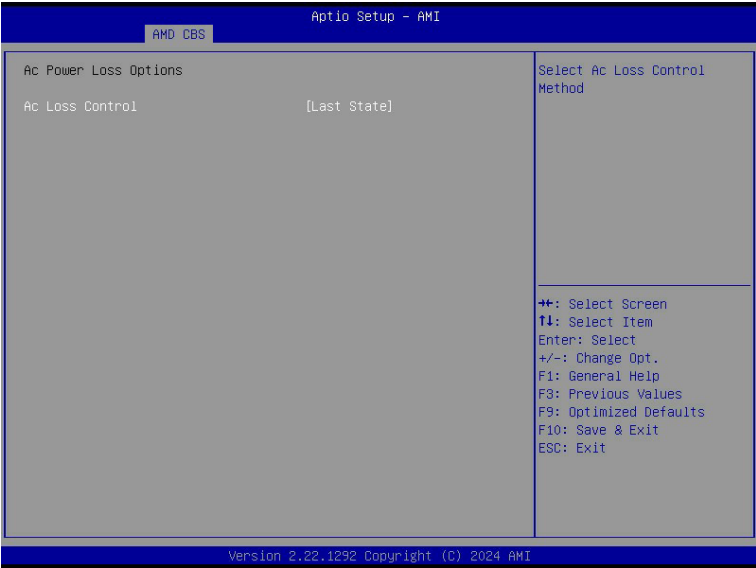
Parameter	Description
SATA Configuration Options	
SATA Enable	Enable/Disable OnChip SATA controller. Options available: Disabled, Enabled, Auto. Default setting is Auto .
SATA RAS Support	Options available: Disabled, Enabled, Auto. Default setting is Auto .
SATA Staggered Spin-up	Options available: Disabled, Enabled, Auto. Default setting is Auto .
SATA Disabled AHCI Prefetch Function	Options available: Disabled, Enabled, Auto. Default setting is Auto .
Aggressive SATA Device Sleep P0/P1	Options available: Disabled, Enabled, Auto. Default setting is Auto .
SATA Controller options	Press [Enter] for configuration of advanced items. <ul style="list-style-type: none"> ◆ SATA Controller Enable ◆ SATA Controller eSATA ◆ SATA Controller DevSlp ◆ SATA Controller SGPIO

2-3-5-3 USB Configuration Options



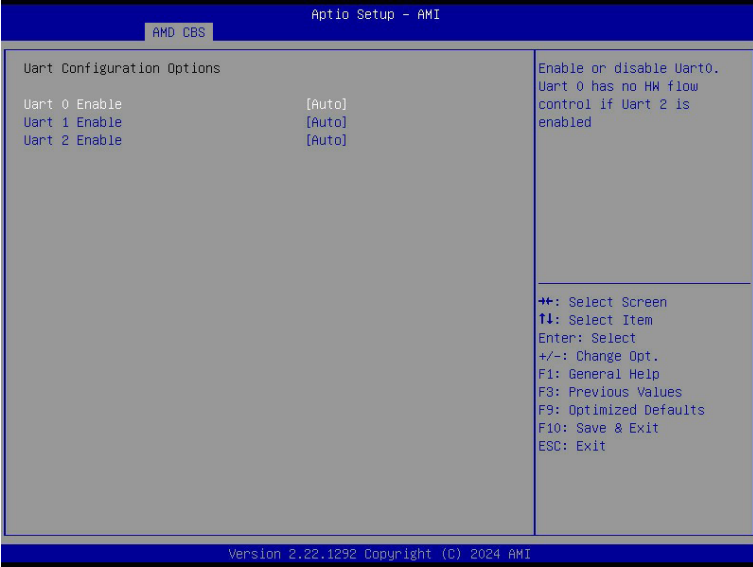
Parameter	Description
USB Configuration Options	
XHCI Controller0/1 enable	Enable/Disable USB controller. Options available: Enabled, Disabled, Auto. Default setting is Auto .
USB ecc SMI Enable	Options available: Enable, Off, Auto. Default setting is Auto .
MCM USB enable	Press [Enter] for configuration of advanced items. <ul style="list-style-type: none"> ◆ XHCI2/ XHCI3 enable (Socket1) <ul style="list-style-type: none"> – Options available: Enabled, Disabled, Auto. Default setting is Auto.

2-3-5-4 AC Power Loss Options



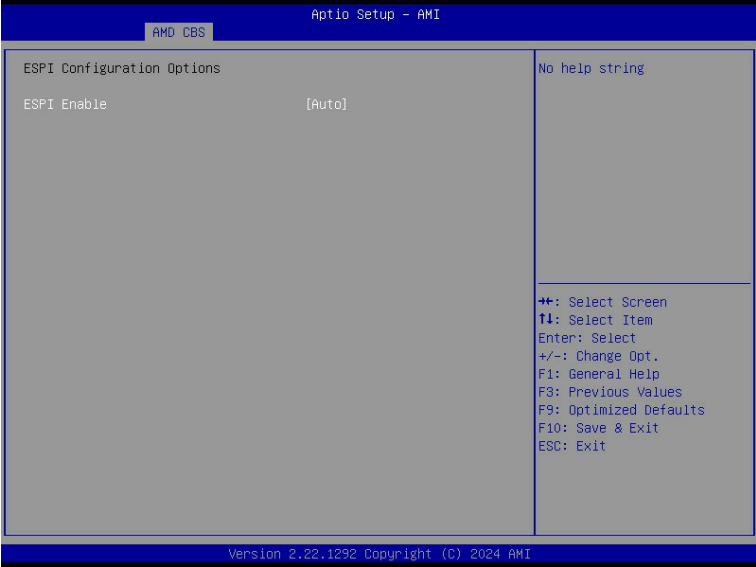
Parameter	Description
AC Power Loss Options	
AC Loss Control	Selects the AC Loss Control Method. Options available: Power Off, Power On, Last State. Default setting is Last State .

2-3-5-5 Uart Configuration Options



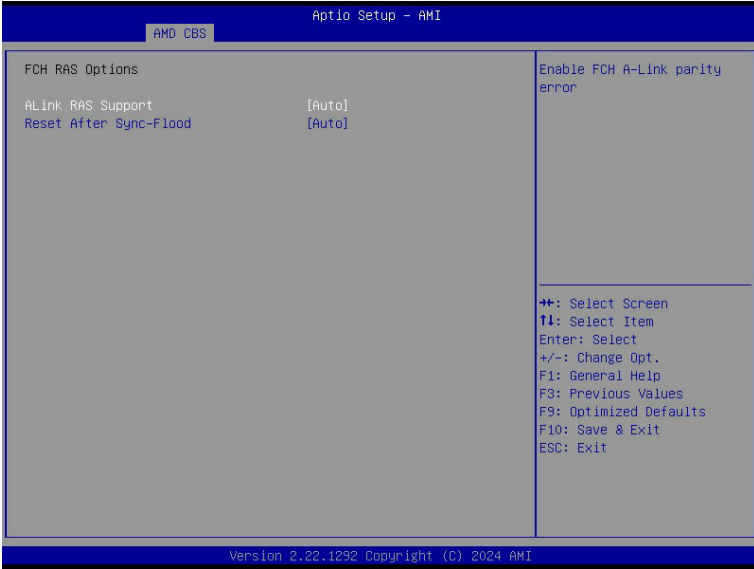
Parameter	Description
Uart Configuration Options	
Uart 0/1/2/3 Enable	Options available: Disabled, Enabled, Auto. Default setting is Auto .

2-3-5-6 ESPI Configuration Options



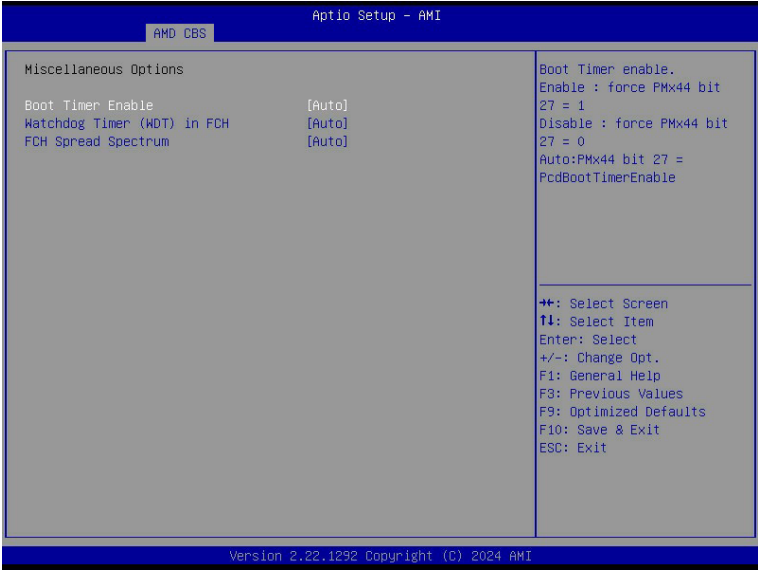
Parameter	Description
ESPI Configuration Options	
ESPI Enable	Options available: Disabled, Enabled, Auto. Default setting is Auto .

2-3-5-7 FCH RAS Options



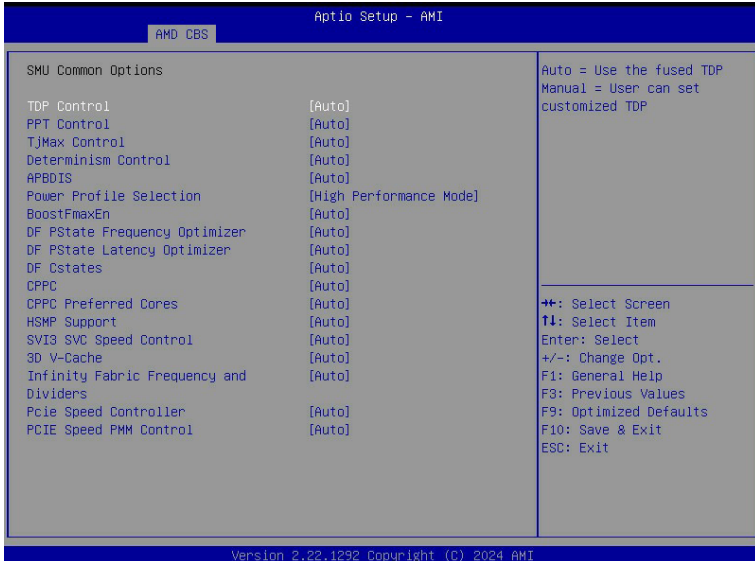
Parameter	Description
FCH RAS Options	
A-Link RAS Support	Enable/Disable the A-Link RAS Support. Options available: Disabled, Enabled, Auto. Default setting is Auto .
Reset after sync flood	Enables AB to forward downstream sync-flood message to system controller. Options available: Enable, Disable, Auto. Default setting is Auto .

2-3-5-8 Miscellaneous Options



Parameter	Description
Miscellaneous Options	
Boot Timer Enable	Enable/Disable Boot Timer. Options available: Disabled, Enabled, Auto. Default setting is Auto .

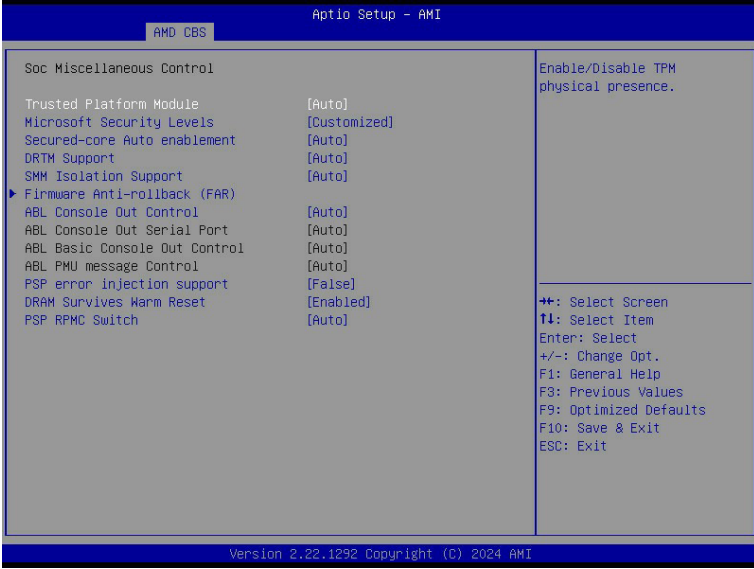
2-3-6 SMU Common Options



Parameter	Description
SMU Common Options	
Power Policy Quick Setting	Options available: Standard, Best Performance, Energy Efficient. Default setting is Standard
Determinism Control	Selects use the fused Determinism or set customized Determinism. Options available: Auto/Manual. Default setting is Auto .
Determine Slider	Options available: Auto/Power, Performance. Default setting is Power .
cTDP Control	Selects use the fused TDP or set customized TDP. **TDP is used to define the RC thermal model only** Options available: Auto/Manual. Default setting is Auto .
cTDP	Display cTDP information.
EfficiencyModeEn	Options available: Auto/Enabled. Default setting is Auto .
Package Power Limit Control	Selects use the fused PPT or set customized PPT. **PPT will be used as the ASIC power limit** Options available: Auto/Manual. Default setting is Auto
Package Power Limit	Display Package Power Limit information
xGMI Link Width Control	Options available: Auto/Enabled. Default setting is Auto .
APBDIS	Options available: Auto, 0, 1. Default setting is Auto .
DF Cstates	Enable/Disable DF C-states. Options available: Auto, Enabled, Disabled. Default setting is Auto .

Parameter	Description
CPPC	Enable/Disable the CPPC feature. Options available: Auto, Enabled, Disabled. Default setting is Auto .
HSMP Support	Select HSMP support enable or disable. Options available: Auto, Enabled, Disabled. Default setting is Auto
DLMM Support	Select DLMM support enable or disable. Options available: Auto, Enabled, Disabled. Default setting is Auto .
BoostFmaxEn	Options available: Auto/Enabled. Default setting is Auto .
EDC Current	Options available: Enable, Disable. Default setting is Disable .
LCLK Frequency Control	Press [Enter] for advanced configuration.
DF PSTATE Mode Select	Option available: Normal, limit Highest, Limit All, Auto. Default setting is Auto .

2-3-7 SOC Miscellaneous Control



Parameter	Description
SOC Miscellaneous Control	
ABL Console Out Control ^(Note)	Enable/Disable the ConsoleOut function for ABL. Options available: Disable, Enable, Auto. Default setting is Auto .
ABL Console Out Serial Port ^(Note)	Options available: eSPI, SOC UART0, SOC UART1, Auto. Default setting is Auto .
ABL Console Out Serial Port IO	Options available: 0x3F8, 0x2F8, 0x3E8, 0x2E8, Auto. Default setting is Auto .
ABL Basic Console Out Control	Enable/Disable the Basic ConsoleOut function for ABL. Options available: Disable, Enable, Auto. Default setting is Auto .
ABL PMU message Control	To Control the total number of PMU debug messages. Options available: Auto, Detailed debug message, Coarse debug message, Stage completion, Assertion messages, Firmware completion message only. Default setting is Auto .
ABL Memory Population message Control	Options available: Warning message, Fatal error. Default setting is Warning message .
PSP error injection support	Options available: False, True. Default setting is False .

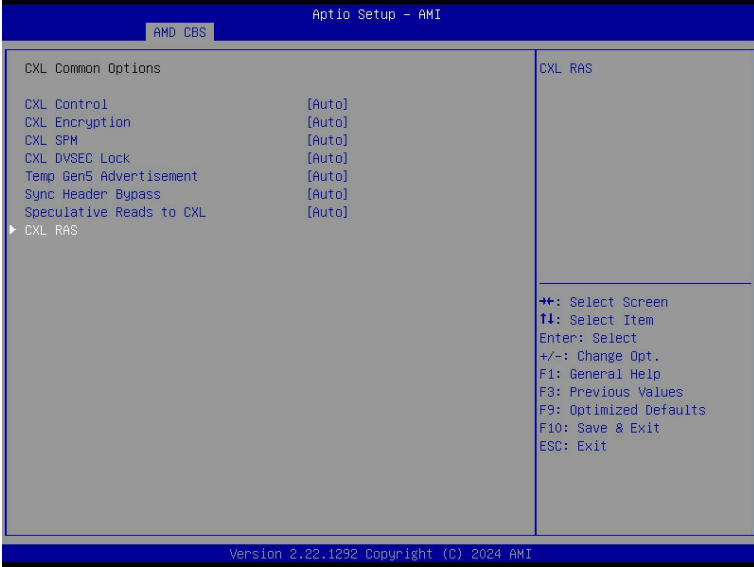
(Note) Advanced items are configurable when this item is defined.

Firmware Anti-rollback (FAR)

Press [Enter] for configuration of advanced items.

- ◆ FAR enforcement state
 - Default setting is **Enabled**.
- ◆ SPL value in the CPU Fuse
- ◆ SPL value in the SPL table
- ◆ FAR Switch
 - Options available: Disabled, Enabled, Auto. Default setting is **Auto**.

2-3-8 CXL Common Options



Parameter	Description
CXL Control	Options available: Auto, Enabled, Disabled. Default setting is Auto .
CXL SPM	Options available: Auto, Enabled, Disabled. Default setting is Auto .
CXL ASPM	Options available: Auto, Enabled, Disabled. Default setting is Auto .
CXL vLSM Power Management	<p>Press [Enter] for configuration of advanced items.</p> <ul style="list-style-type: none"> ◆ CXL.io <ul style="list-style-type: none"> - L1/L2 <ul style="list-style-type: none"> • Options available: Auto, Enabled, Disabled. Default setting is Auto. ◆ CXL.camem <ul style="list-style-type: none"> - L1/L2 <ul style="list-style-type: none"> • Options available: Auto, Enabled, Disabled. Default setting is Auto.
CXL Encryption	Options available: Enabled, Disabled. Default setting is Disabled .
Temp Gen5 Advertisement	Options available: Disable, Enable, Auto. Default setting is Auto .
Sync Header Bypass	Options available: Auto, Enabled, Disabled. Default setting is Auto .
CXL RAS	<p>Press [Enter] for configuration of advanced items.</p> <ul style="list-style-type: none"> ◆ CXL Protocol Error Reporting <ul style="list-style-type: none"> - Options available: Disabled, SameAsPcieAer, ForceAerFwFirstIfCxlPresent. Default setting is SameAsPcieAer. ◆ CXL Component Error Reporting <ul style="list-style-type: none"> - Options available: OS First, FW-First. Default setting is FW-First.

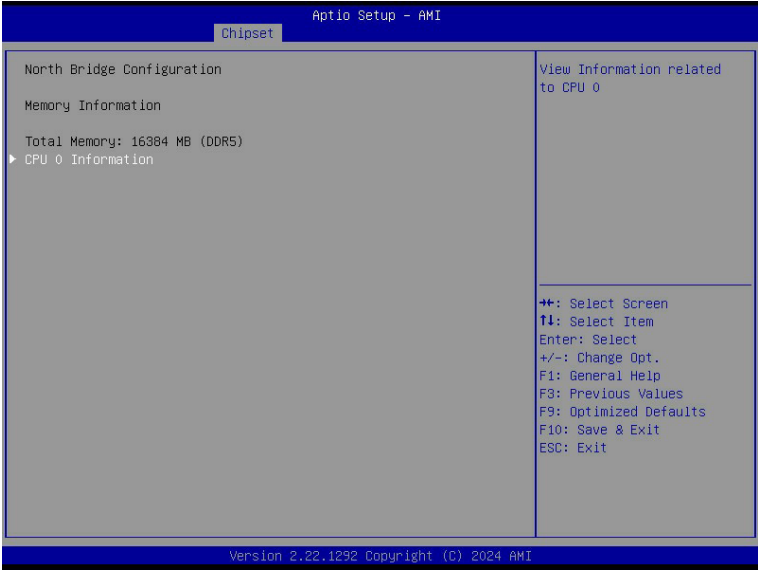
2-4 Chipset Setup Menu

Chipset Setup menu displays submenu options for configuring the function of the North Bridge. Select a submenu item, then press <Enter> to access the related submenu screen.



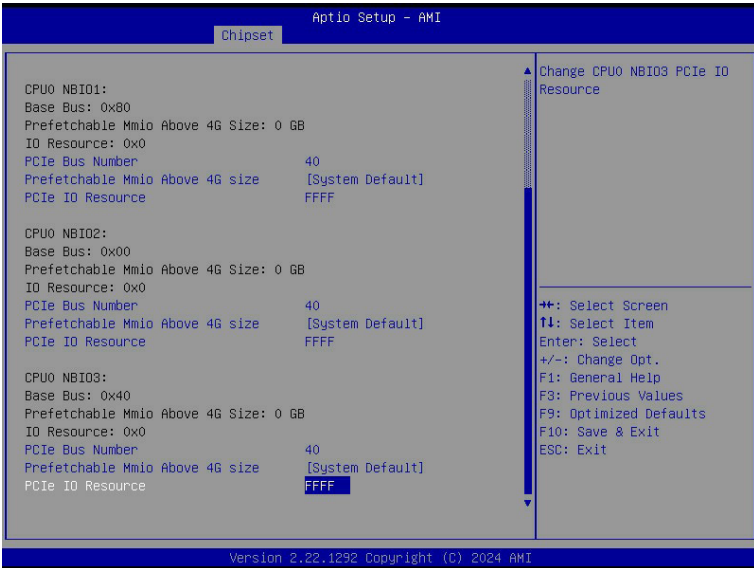
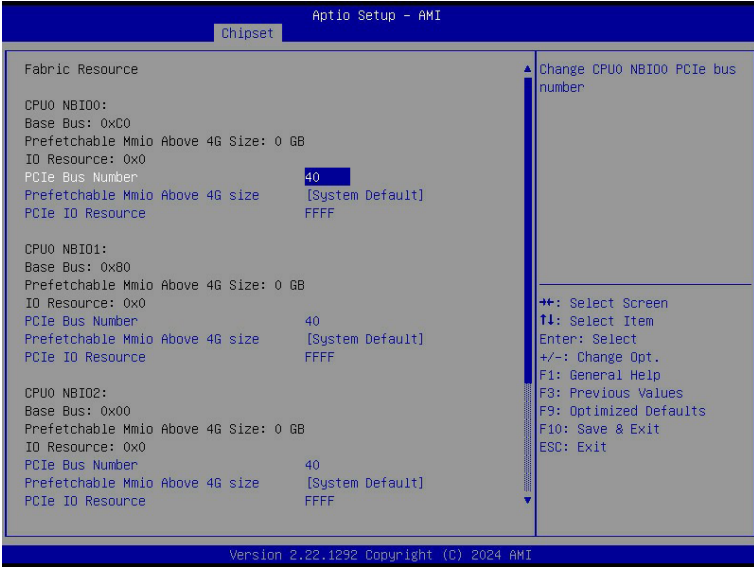
Parameter	Description
PCIe Link Training Type	Options available: 1 Step, 2 Step. Default setting is 1 Step .
PCIe Compliance Mode	Options available: Off, On. Default setting is Off .
Program All VR	Enable/Disable program all VR on MB. Options available: Disabled, Enabled. Default setting is Enabled .
North Bridge	Press [Enter] for configuration of advanced items.
Fabric Resource	Press [Enter] for configuration of advanced items.

2-4-1 North Bridge



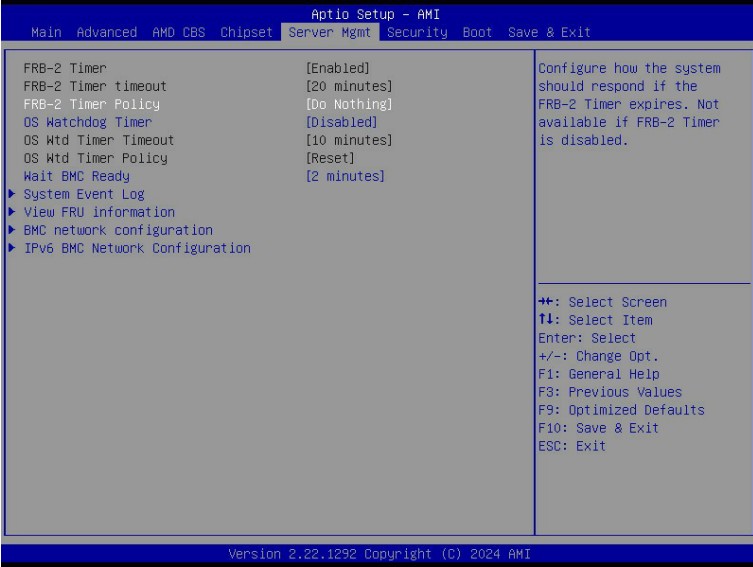
Parameter	Description
North Bridge Configuration	
Memory Information	
Total Memory	Displays the total memory information.
CPU 0 Information	Press [Enter] to view information related to CPU 0.

2-4-2 Fabric Resource



Parameter	Description
Fabric Resource	
CPU 0 NBIO_# PCIe Bus Number	Change CPU 0/1 NBIO_# PCIe Bus Number.
Prefetchable Mmio Above 4G size	Change CPU 0/1 NBIO_# Prefetchable MMIO Above 4G Size. Options available: System Default, 0, 1G, 2G, 4G, 8G, 16G, 32G, 64G, 128G, 256G, 512G, 1T, 2T, 4T, 8T. Default setting is System Default .
PCIe IO Resource	Change CPU 0/1 NBIO_# PCIe IO Resource.

2-5 Server Management Menu

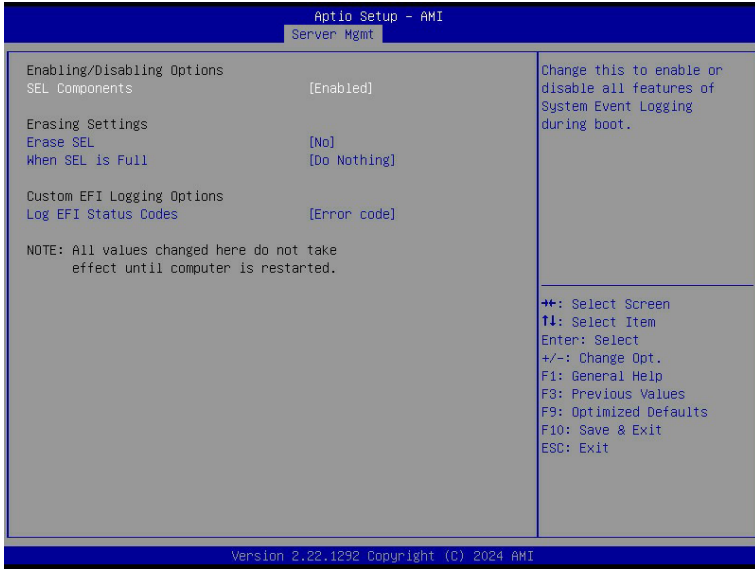


Parameter	Description
FRB-2 Timer	Enable/Disable FRB-2 timer (POST timer). Default setting is Enabled .
FRB-2 Timer timeout	Configures the FRB2 Timer timeout. Options available: 3 minutes, 4 minutes, 5 minutes, 6 minutes. Default setting is 6 minutes .
FRB-2 Timer Policy	Configures the FRB2 Timer policy. Options available: Do Nothing, Reset, Power Down, Power Cycle. Default setting is Do Nothing .
OS Watchdog Timer	Enable/Disable OS Watchdog Timer function. Options available: Enabled, Disabled. Default setting is Disabled .
OS Wtd Timer Timeout ^(Note)	Configures OS Watchdog Timer. Options available: 5 minutes, 10 minutes, 15 minutes, 20 minutes. Default setting is 10 minutes .
OS Wtd Timer Policy ^(Note)	Configure OS Watchdog Timer Policy. Options available: Do Nothing, Reset, Power Down, Power Cycle. Default setting is Reset .
Wait BMC Ready	Post wait BMC ready and reboot system. Options available: Disabled, 2 minutes, 4 minutes, 6 minutes. Default setting is 2 minutes .

(Note) This item is configurable when **OS Watchdog Timer** is set to **Enabled**.

Parameter	Description
System Event Log	Press [Enter] to configure advanced items.
View FRU Information	Press [Enter] to view the FRU information.
BMC network configuration	Press [Enter] to configure advanced items.
IPv6 BMC Network Configuration	Press [Enter] to configure advanced items.

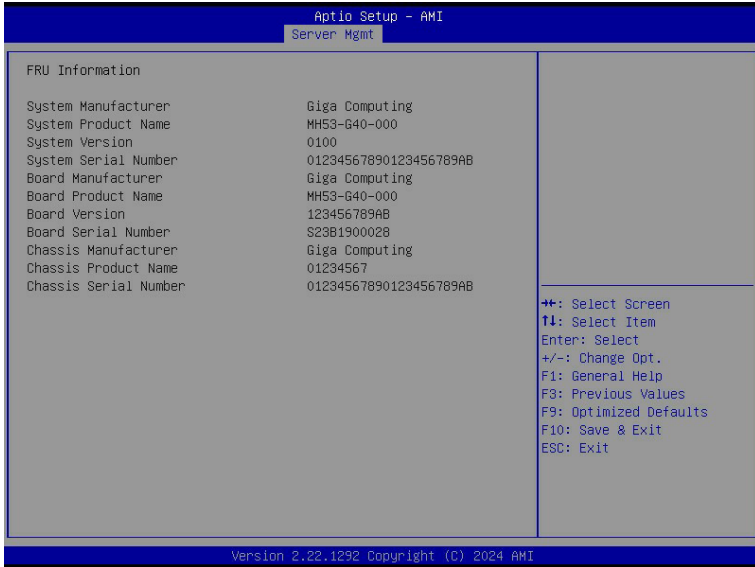
2-5-1 System Event Log



Parameter	Description
Enabling / Disabling Options	
SEL Components	Change this item to enable or disable all features of System Event Logging during boot. Options available: Disabled, Enabled. Default setting is Enabled .
Erasing Settings	
Erase SEL	Choose options for erasing SEL. Options available: No/Yes, On next reset/Yes, On every reset. Default setting is No .
When SEL is Full	Choose options for reactions to a full SEL. Options available: Do Nothing, Erase Immediately. Default setting is Do Nothing .
Custom EFI Logging Options	
Log EFI Status Codes	Enable/Disable the logging of EFI Status Codes (if not already converted to legacy). Options available: Disabled, Both, Error code, Progress code. Default setting is Error code .

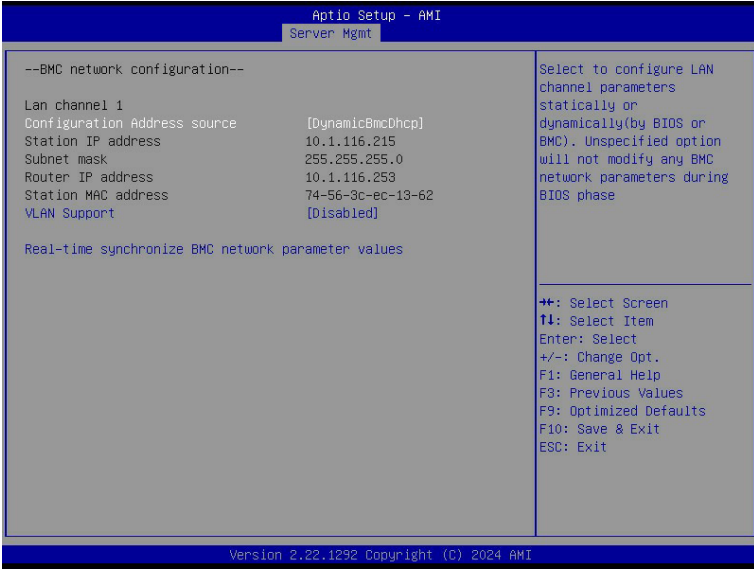
2-5-2 View FRU Information

The FRU page is a simple display page for basic system ID information, as well as System product information. Items on this window are non-configurable.



(Note) The model name will vary depends on the product you purchased

2-5-3 BMC Network Configuration



Parameter	Description
BMC network configuration	
Lan Channel 1	
Configuration Address source	Selects to configure LAN channel parameters statically or dynamically (DHCP). Do nothing option will not modify any BMC network parameters during BIOS phase. Options available: Unspecified, Static, DynamicBmcDhcp. Default setting is DynamicBmcDhcp .
Station IP address	Displays IP Address information.
Subnet mask	Displays Subnet Mask information. Please note that the IP address must be in three digitals, for example, 192.168.000.001.
Router IP address	Displays the Router IP Address information.
Station MAC address	Displays the MAC Address information.
VLAN Support	Set BMC to enable/disable VLAN support. Options available: Enabled, Disabled. Default setting is Disabled .
Real-time synchronize BMC network parameter values	Press [Enter] will set Address source(Static/DHCP) to BMC and then get Station IP address, Subnet mask and Router IP address from BMC.

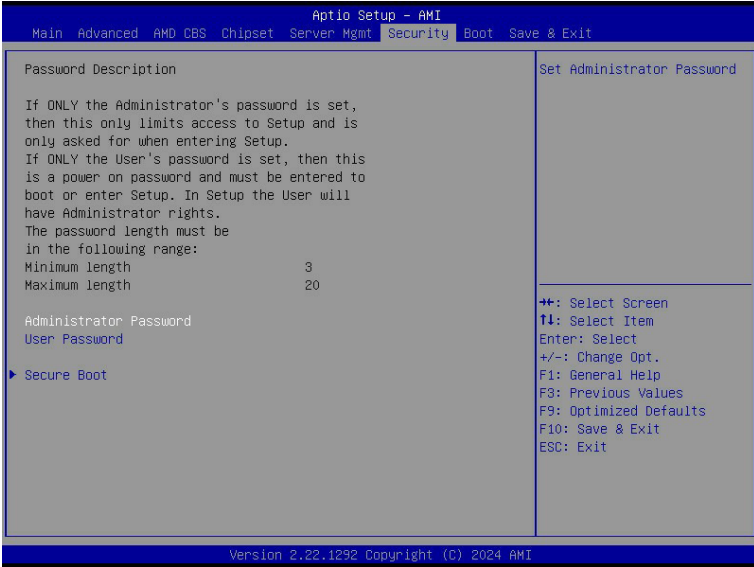
2-5-4 IPv6 BMC Network Configuration



Parameter	Description
IPv6 BMC network configuration	
IPv6 BMC Lan Channel 1	
IPv6 BMC Lan Option	Enable/Disable IPv6 BMC LAN channel function. When this item is disabled, the system will not modify any BMC network during BIOS phase. Options available: Unspecified, Disable, Enable. Default setting is Enable .
IPv6 BMC Lan IP Address Source	Selects to configure LAN channel parameters statically or dynamically (by BIOS or BMC). Options available: Unspecified, Static, Dynamic-Obtained by BMC running DHCP. Default setting is Dynamic-Obtained by BMC running DHCP .
IPv6 BMC Lan IP Address/Prefix Length	Check if the IPv6 BMC LAN IP address matches those displayed on the screen.

2-6 Security Menu

The Security menu allows you to safeguard and protect the system from unauthorized use by setting up access passwords.



There are two types of passwords that you can set:

- Administrator Password
Entering this password will allow the user to access and change all settings in the Setup Utility.
- User Password
Entering this password will restrict a user's access to the Setup menus. To enable or disable this field, a Administrator Password must first be set. A user can only access and modify the System Time, System Date, and Set User Password fields.

Parameter	Description
Administrator Password	Press [Enter] to configure the administrator password.
User Password	Press [Enter] to configure the user password.
Secure Boot	Press [Enter] to configure advanced items.

2-6-1 Secure Boot

The Secure Boot feature is applicable if supported by your Operating System. If your Operating System is not supporting Secure Boot, the system will hang when starting the Operating System.



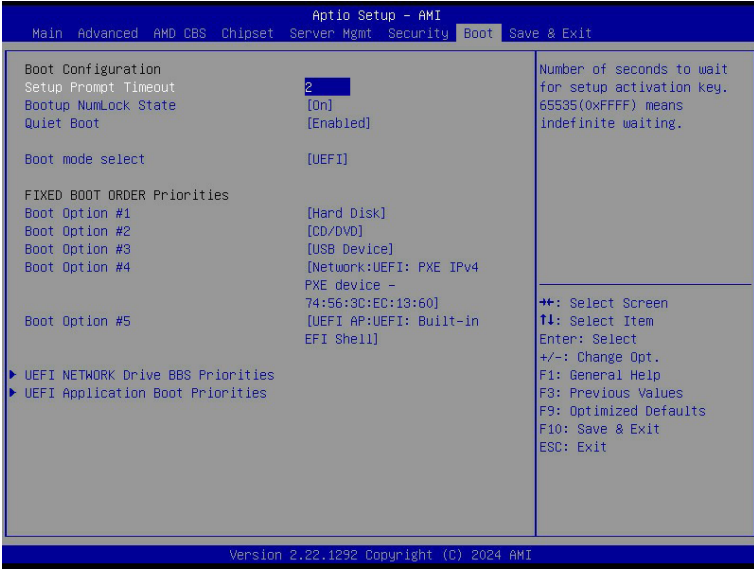
Parameter	Description
System Mode	Displays if the system is in User mode or Setup mode.
Secure Boot	Enable/ Disable the Secure Boot function. Options available: Enabled, Disabled. Default setting is Disabled .
Secure Boot Mode ^(Note)	Secure Boot requires all the applications that are running during the booting process to be pre-signed with valid digital certificates. This way, the system knows all files being loaded before Windows loads to the login screen have not been tampered with. When set to Standard, it will automatically load the Secure Boot keys from the BIOS databases. When set to Custom, you can customize the Secure Boot settings and manually load its keys from the BIOS database. Options available: Standard, Custom. Default setting is Standard .
Restore Factory Keys	Forces the system to user mode and installs factory default Secure Boot key database.
Reset To Setup Mode	Press [Enter] to reset the system mode to Setup mode.
Enter Audit Mode	Press [Enter] to set the system mode to audit mode.

(Note) Advanced items prompt when this item is set to **Custom**.

Parameter	Description
Key Management	<p data-bbox="335 156 665 180">Press [Enter] to configure advanced items.</p> <p data-bbox="335 185 936 235">Please note that this item is configurable when Secure Boot Mode is set to Custom.</p> <ul style="list-style-type: none"> <li data-bbox="335 243 941 352">◆ Factory Key Provision <ul style="list-style-type: none"> <li data-bbox="367 266 941 321">– Allows to provision factory default Secure Boot keys when system is in Setup Mode. <li data-bbox="367 326 904 352">– Options available: Enabled, Disabled. Default setting is Disabled. <li data-bbox="335 357 925 431">◆ Restore Factory Keys <ul style="list-style-type: none"> <li data-bbox="367 381 925 404">– Installs all factory default keys. It will force the system in User Mode. <li data-bbox="367 409 606 431">– Options available: Yes, No. <li data-bbox="335 435 899 517">◆ Enroll Efi Image <ul style="list-style-type: none"> <li data-bbox="367 459 899 517">– Press [Enter] to enroll SHA256 hash of the binary into Authorized Signature Database (db). <li data-bbox="335 522 893 572">◆ Secure Boot variable <ul style="list-style-type: none"> <li data-bbox="367 545 893 572">– Displays the current status of the variables used for secure boot. <li data-bbox="335 577 798 682">◆ Platform Key (PK) <ul style="list-style-type: none"> <li data-bbox="367 600 798 627">– Displays the current status of the Platform Key (PK). <li data-bbox="367 631 675 655">– Press [Enter] to configure a new PK. <li data-bbox="367 660 601 682">– Options available: Update. <li data-bbox="335 686 941 823">◆ Key Exchange Keys (KEK) <ul style="list-style-type: none"> <li data-bbox="367 710 941 736">– Displays the current status of the Key Exchange Key Database (KEK). <li data-bbox="367 741 904 796">– Press [Enter] to configure a new KEK or load additional KEK from storage devices. <li data-bbox="367 801 670 823">– Options available: Update, Append. <li data-bbox="335 827 941 964">◆ Authorized Signatures (DB) <ul style="list-style-type: none"> <li data-bbox="367 851 904 878">– Displays the current status of the Authorized Signature Database. <li data-bbox="367 882 941 937">– Press [Enter] to configure a new DB or load additional DB from storage devices. <li data-bbox="367 942 670 964">– Options available: Update, Append. <li data-bbox="335 969 899 1105">◆ Forbidden Signatures (DBX) <ul style="list-style-type: none"> <li data-bbox="367 992 899 1019">– Displays the current status of the Forbidden Signature Database. <li data-bbox="367 1023 888 1078">– Press [Enter] to configure a new dbx or load additional dbx from storage devices. <li data-bbox="367 1083 670 1105">– Options available: Update, Append. <li data-bbox="335 1110 925 1246">◆ Authorized TimeStamps (DBT) <ul style="list-style-type: none"> <li data-bbox="367 1133 925 1160">– Displays the current status of the Authorized TimeStamps Database. <li data-bbox="367 1165 904 1219">– Press [Enter] to configure a new DBT or load additional DBT from storage devices. <li data-bbox="367 1224 670 1246">– Options available: Update, Append. <li data-bbox="335 1251 915 1387">◆ OsRecovery Signatures <ul style="list-style-type: none"> <li data-bbox="367 1274 915 1301">– Displays the current status of the OsRecovery Signature Database. <li data-bbox="367 1306 883 1361">– Press [Enter] to configure a new OsRecovery Signature or load additional OsRecovery Signature from storage devices. <li data-bbox="367 1365 670 1387">– Options available: Update, Append.

2-7 Boot Menu

The Boot menu allows you to set the drive priority during system boot-up. BIOS setup will display an error message if the legacy drive(s) specified is not bootable.

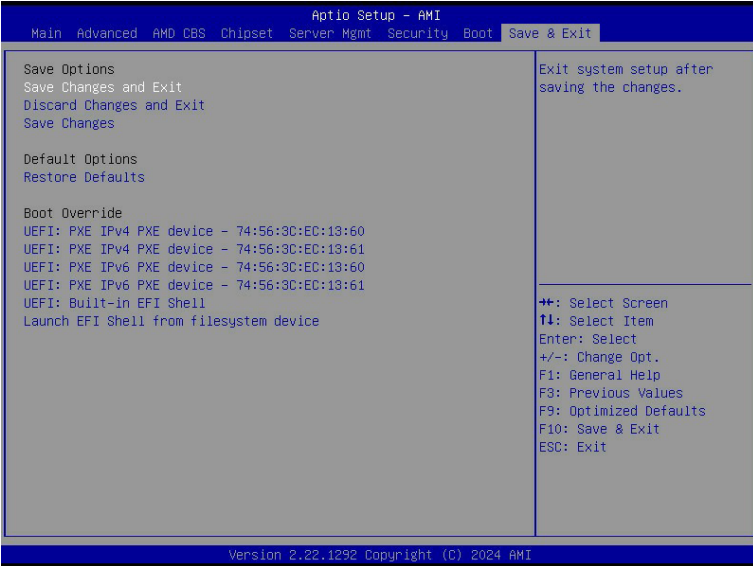


Parameter	Description
Boot Configuration	
Setup Prompt Timeout	Number of seconds to wait for setup activation key. 65535 (0xFFFF) means indefinite waiting. Press the numeric keys to input the desired values.
Bootup NumLock State	Enable/Disable the Bootup NumLock function. Options available: On, Off. Default setting is On .
Quiet Boot	Enable/Disable showing the logo during POST. Options available: Enabled, Disabled. Default setting is Enabled .
Setup Flash	Press [Enter] to run setup flash.
Dump full Setup Data	Press [Enter] to dump full setup data to file.
Dump non-default Setup Data	Press [Enter] to dump non-default setup data to file.
Restore Setup Data	Press [Enter] to restore setup data from file (cJson format).
Boot mode select	Selects the boot mode. Options available: LEGACY, UEFI. Default setting is UEFI .

Parameter	Description
FIXED BOOT ORDER Priorities	
Boot Option #1 / #2 / #3 / #4 / #5	<p>Press [Enter] to configure the boot priority. By default, the server searches for boot devices in the following sequence:</p> <ol style="list-style-type: none"> 1. Hard drive. 2. CD-COM/DVD drive. 3. USB device. 4. Network. 5. UEFI.
UEFI Network Drive BBS Priorities	Press [Enter] to configure the boot priority.
UEFI Application Boot Priorities	Press [Enter] to configure the boot priority.

2-8 Save & Exit Menu

The Save & Exit menu displays the various options to quit from the BIOS setup. Highlight any of the exit options then press <Enter>.



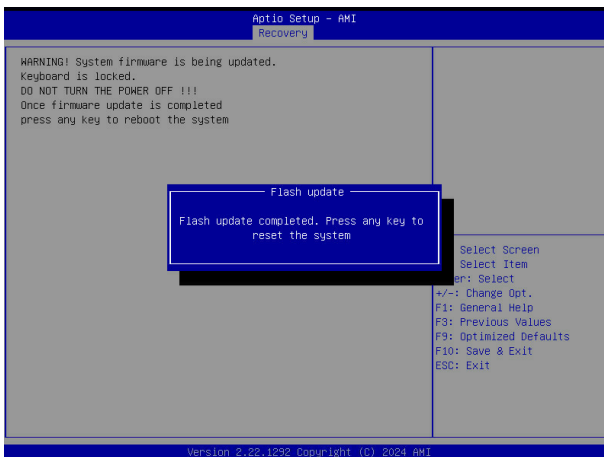
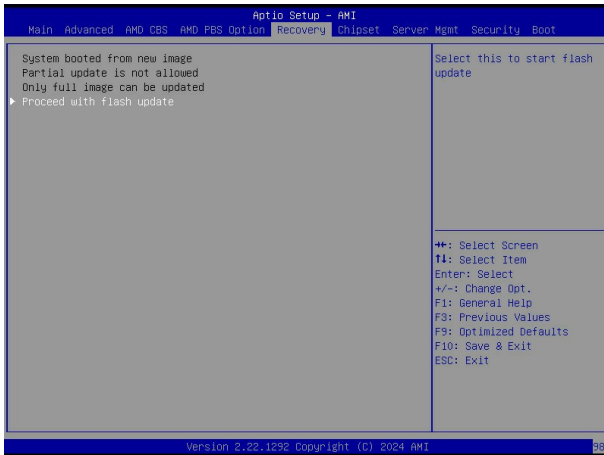
Parameter	Description
Save Options	
Save Changes and Exit	Saves changes made and closes the BIOS setup. Options available: Yes, No.
Discard Changes and Exit	Discards changes made and exits the BIOS setup. Options available: Yes, No.
Save Changes	Saves changes done so far to any of the setup options. Options available: Yes, No.
Default Options	
Restore Defaults	Loads the default settings for all BIOS setup parameters. Setup Defaults are quite demanding in terms of resources consumption. If you are using low-speed memory chips or other kinds of low-performance components and you choose to load these settings, the system might not function properly. Options available: Yes, No.
Boot Override	Press [Enter] to configure the device as the boot-up drive.
Launch EFI Shell from filesystem device	Attempts to Launch EFI Shell application (Shell.efi) from one of the available file system devices.

2-9 BIOS Recovery

The system has an embedded recovery technique. In the event that the BIOS becomes corrupt the boot block can be used to restore the BIOS to a working state. To restore your BIOS, please follow the instructions listed below:

Recovery Instruction:

1. Copy the XXX.rom to USB diskette.
2. Setting BIOS Recovery jump to enabled status.
3. Boot into BIOS recovery.
4. Run Proceed with flash update.
5. BIOS updated.



2-10 BIOS POST Beep code (AMI standard)

2-10-1 PEI Beep Codes

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

2-10-2 DXE Beep Codes

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