GIGABYTE™

G383-R80-AAP1

HPC/AI Server - AMD Instinct™ MI300A APU

3U 8-Bay Gen5 NVMe

User Manual

Rev. 1.0

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Disclaimer

Documentation Classifications

In order to assist in the use of this product, Giga Computing 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/Enterprise

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!** Pieces of additional information related to the current topic.
	**CAUTION!** Precautionary measures to avoid possible hardware or software problems.
	**WARNING!** Alerts to any damage that might result from doing or not doing specific actions.

Server Warnings and Cautions

Before installing a server, 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 the power cord from the power supply 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.
- 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.

This server is equipped with high speed fans. Keep away from hazardous moving fan blades during servicing.

This equipment is intended to be used in Restrict Access Location. The access can only be gained by Skilled person. Only authorized by well trained professional person can access the restrict access location.

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This equipment is not intended for use by children.

CAUTION!

- Do not operate the server for long periods with the access panel open or removed. Operating the server 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.

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.

Warning Stability hazard

The slide-rail may tip over causing serious personal injury

- Before extending the rack to its installation position, read the installation instructions.
- Do not put any load on the slide-rail mounted equipment in the installation position.
- Do not leave the slide-rail mounted equipment in the installation position.

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 touching any components or connectors. After removing a board from its protective ESD bag 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 ESD bag. Do not slide the board over any surface.

System power on/off: To service components within the server, please ensure the power has been disconnected.
e.g. Remove the node from the server chassis (to disconnect power) or disconnect the power from the server chassis.
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 chassis and disconnect the cables attached to the system before servicing the chassis. 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 sensi-tive 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 fin-gertips 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 dam-age the contacts inside the jumper, causing intermittent problems with the function con-trolled 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.

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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 service guide 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:

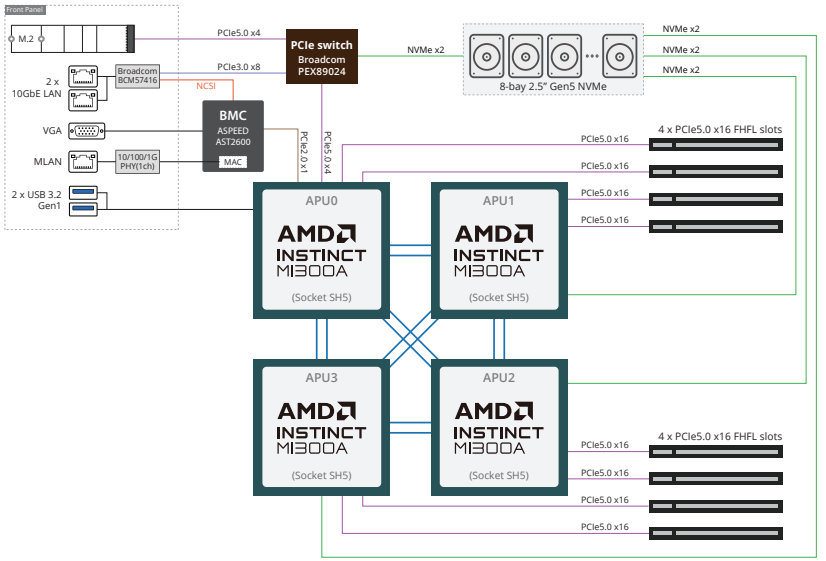
We reserve the right to make any changes to the product specifications and product-related information without prior notice.

System Dimension	◆ 3U ◆ 447 (W) x 131 (H) x 950 (D) mm
APU	4 x AMD Instinct™ MI300A APUs ◆ 24 x Zen4 CPU cores per APU ◆ 228 x CDNA3 compute units per APU ◆ TDP up to 550W (CPU + GPU + memory) ◆ Peak up to 760W
Socket	◆ 4 x Socket SH5
Chipset	◆ System on Chip
Memory	◆ 128GB HBM3 unified memory ◆ Memory bandwidth 5.3TB/s
LAN	**Front side:** ◆ 2 x 10Gb/s LAN ports (1 x Broadcom® BCM57416) ◆ Support NCSI function ◆ 1 x 10/100/1000 Mbps Management LAN
Video	◆ Integrated in Aspeed® AST2600 ◆ 2D Video Graphic Adapter with PCIe bus interface ◆ 1920x1200@60Hz 32bpp
Storage	**Front side:** ◆ 8 x 2.5" Gen5 NVMe bays
Expansion Slot	◆ 4 x PCIe x16 (Gen5 x16) FHFL slots (Dual slot) ◆ 4 x PCIe x16 (Gen5 x16) FHFL slots (Single slot) 1 x M.2 slot: ◆ PCIe Gen5 x4, from APU_0 ◆ Supports 2280/22110 cards
Internal I/O	◆ 1 x TPM header

Front I/O	◆ 2 x USB 3.2 Gen1 ◆ 1 x VGA ◆ 2 x RJ45 ◆ 1 x MLAN ◆ 1 x Power button with LED ◆ 1 x ID button with LED ◆ 1 x NMI button ◆ 1 x Reset button ◆ 1 x Storage activity LED ◆ 1 x System status LED
Backplane I/O	◆ Speed and bandwidth: ◆ PCIe Gen5 x4
TPM	◆ 1 x TPM header with SPI interface ◆ Optional TPM2.0 kit: CTM010
Power Supply	◆ 3+1 3000W 80 PLUS Titanium redundant power supplies[1] AC Input: ◆ 100-240V~ [1] The system power supply requires C19 power cord. [Note] Please refer to GIGABYTE Website for detail power supply specification.
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 ◆ 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

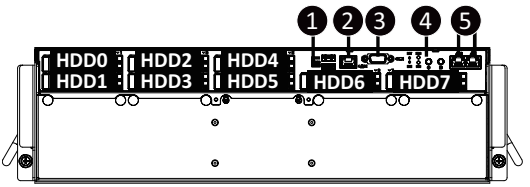
	Operating Properties	◆ Operating temperature: 10°C to 35°C ◆ Operating humidity: 8%-80% (non-condensing) ◆ Non-operating temperature: -40°C to 60°C ◆ Non-operating humidity: 20%-95% (non-condensing)

1-3 System Block Diagram



Chapter 2 System Appearance

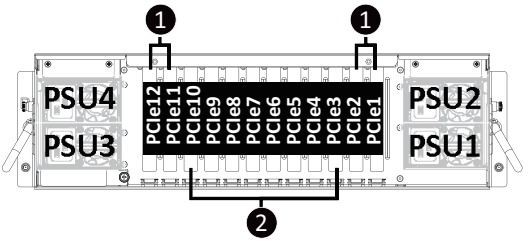
2-1 Front View



No.	Description
1.	2 x USB 3.2 Gen1
2.	Management LAN Port
3.	VGA Port
4.	Front Panel LEDs and Buttons
5.	2 x Data LAN Port

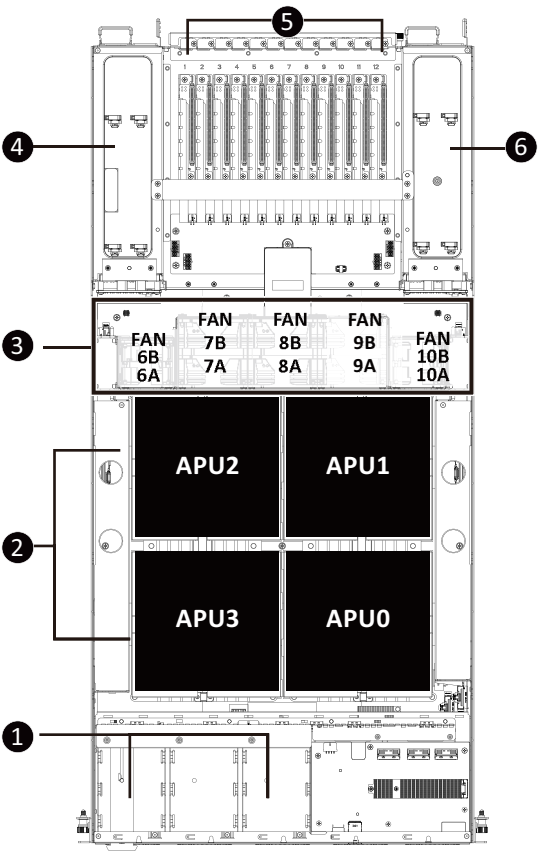
- Refer to section **2-3 Front Panel LEDs and Buttons** for a detailed description of the function of the LEDs.
- Refer to section **2-6 Front System LAN LEDs** for a detailed description of the function of the LEDs.

2-2 Rear View



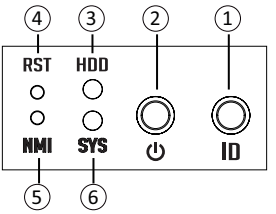
No.	Description
1.	4 x FHFL single PCIe Gen5 x16 Slots
2.	4 x FHFL dual PCIe Gen5 x16 Slots

2-3 Top View



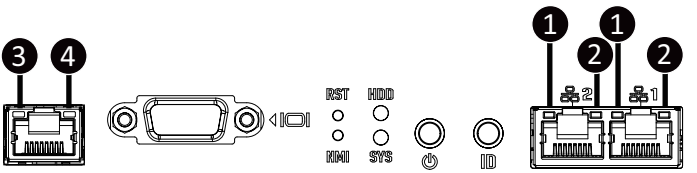
No.	Description	No.	Description
1.	2.5” Hard Drive Bay	**4.**	Power Supply Units (Top: PSU2/ Bottom: PSU1)
2.	MI300A APUs	**5.**	PCIe Card Slot
3.	System Fan	**6.**	Power Supply Units (Top: PSU4/ Bottom: PSU3)

2-4 Front Panel LEDs and Buttons



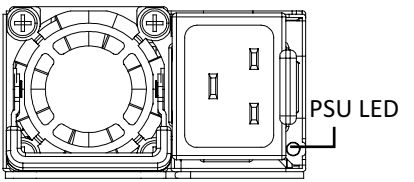
No.	Name	Color	Status	Description
1.	ID Button with LED	Blue	On	System identification is active.
		N/A	Off	System identification is disabled.
2.	Power button with LED	Green	On	Indicates the system is powered on.
		N/A	Off	System is not powered on or in ACPI S5 state (power off)
3.	HDD Status LED	Green	On	Indicates locating the HDD.
			Blink	Indicates accessing the HDD.
		Amber	On	Indicates HDD error.
		Green/ Amber	Blink	Indicates HDD rebuilding.
		N/A	Off	Indicates no HDD access or no HDD error.
4.	Reset Button	--	--	Press this button to reset the system.
5.	NMI button	--	--	Press this button for the server to generate a NMI to the processor. If multiple-bit ECC errors occur, the server will effectively be halted.
6.	System Status LED	Green	Solid On	System is operating normally.
		Amber	Solid On	Critical condition, may indicate: System fan failure System temperature
			Blink	Non-critical condition, may indicate: Redundant power module failure Temperature and voltage issue Chassis intrusion
		N/A	Off	System is not ready, may indicate: POST error NMI error Processor or terminator missing

2-5 Front System LAN LEDs



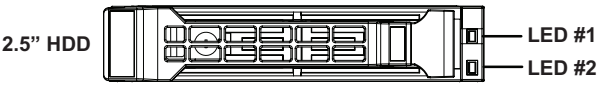
No.	Name	Color	Status	Description
1.	10GbE Speed LED	Yellow	On	1 Gbps data rate
		Green	On	10 Gbps data rate
2.	10GbE Link / Activity LED	Green	On	Link between system and network or no access
			Blink	Data transmission or reception is occurring.
		N/A	Off	No data transmission or reception is occurring.
3.	1GbE Speed LED	Yellow	On	1 Gbps data rate
		Green	On	100 Mbps data rate
		N/A	Off	10 Mbps data rate
4.	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.

2-6 Power Supply Unit LED



State	Description
OFF	No AC power to all power supplies
1Hz Green Blinking	AC present / only standby on / Cold redundant mode
2Hz Green Blinking	Power supply firmware updating mode
Amber	AC cord unplugged or AC power lost; with a second power supply in parallel still with AC input power
	Power supply critical event causing shut down: failure, OCP, OVP, fan failure and UVP
1Hz Amber Blinking	Power supply warning events where the power supply continues to operate: high temp, high power, high current and slow fan

2-7 Hard Disk Drive LEDs



RAID SKU		LED #1	Locate	HDD Fault	Rebuilding	HDD Access	HDD Present (No Access)
No RAID configuration (via HBA)	Disk LED (LED on Back Panel)	Green	ON(*1)	OFF		BLINK (*2)	OFF
		Amber	OFF	OFF		OFF	OFF
	Removed HDD Slot (LED on Back Panel)	Green	ON(*1)	OFF		--	--
		Amber	OFF	OFF		--	--
RAID configuration (via HW RAID Card or SW RAID Card)	Disk LED	Green	ON	OFF		BLINK (*2)	OFF
		Amber	OFF	ON	(Low Speed: 2 Hz)	OFF	OFF
	Removed HDD Slot	Green	ON(*1)	OFF	(*3)	--	--
		Amber	OFF	ON	(*3)	--	--

LED #2	HDD Present	No HDD
Green	ON	OFF

NOTE:

*1: Depends on HBA/Utility Spec.

*2: Blink cycle depends on HDD's activity signal.

*3: If HDD is pulled out during rebuilding, the disk status of this HDD is regarded as faulty.

Chapter 3 System Hardware Installation

Pre-installation Instructions

Computer components and electronic circuit boards can be damaged by discharges of static electricity. 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.

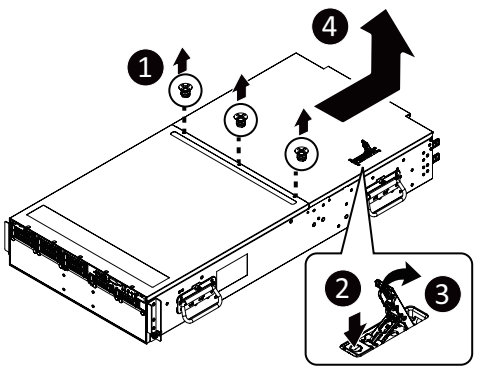
3-1 Removing and Installing the Chassis Cover

Before you remove or install the system cover

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

Follow these instructions to remove the chassis cover:

1. Remove the screw securing the chassis cover.
2. Unlock the plastic handle and pull the grip handle to open the panel cover.
3. Slide the cover to the rear of the system and then remove the cover in the direction indicated by the arrow.
4. To reinstall the chassis cover follow steps 1-4 in reverse order.



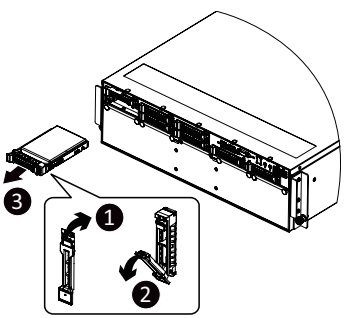
3-2 Removing and Installing the Hard Disk Drive

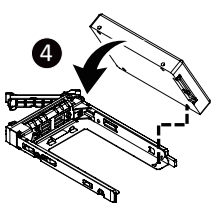
Read the following guidelines before you begin to install the hard disk drive:

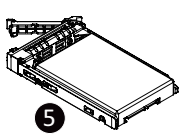
- Take note of the HDD tray orientation before sliding it out.
- The tray will not fit back into the bay if it is inserted incorrectly.
- Make sure that the hard disk drive is connected to the connector on the backplane.

Follow these instructions to install a 2.5" hard disk drive:

1. Press the release button.
2. Extend the locking lever.
3. Pull the locking lever in the direction indicated to remove the HDD tray.
4. Align the hard disk drive with the positioning stud on the HDD tray.
5. Slide the hard disk drive into the HDD tray.
6. Reinsert the HDD tray into the slot and close the locking lever.







3-3 Removing and Installing the PCIe 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 off 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.

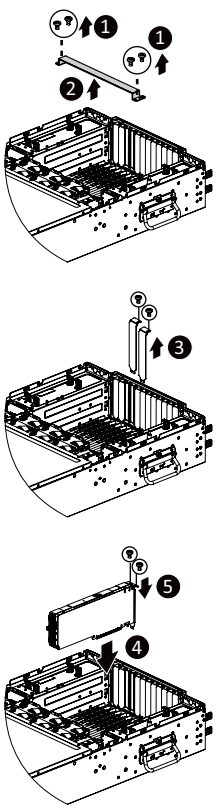
- The PCIe riser assembly does not include a riser card or any cabling as standard. To install a PCIe card, a riser card must be installed.

Follow these instructions to install a PCIe card:

1. Remove the screw securing the riser bracket. Lift up the riser bracket out of system.
2. Loosen and remove the screw securing the slot cover from riser bracket.
3. Orient the PCIe card with the riser guide slot and push in the direction of the arrow until the PCIe card sits in the PCIe card connector.

NOTE: Some riser brackets allow for single or multiple PCIe cards. Repeat steps 4-5 as necessary.

4. Secure the PCIe card with the screw.
5. Reverse steps 1-3 to install the riser bracket.



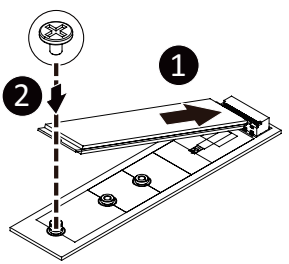
3-4 Installing the M.2 Device and Heat Sink

CAUTION

The position of the stand-off screw will depend on the size of the M.2 device. The stand-off screw is pre-installed for 22110 cards as standard. Refer to the size of the M.2 device and change the position of the stand-off screw accordingly.

Follow these instructions to install the M.2 device:

1. Insert the M.2 SSD module into the slot.
2. Secure it with the screw, tightening as necessary to fasten the M.2 SSD module in place.



3-4-1 M.2 device with Heatsink

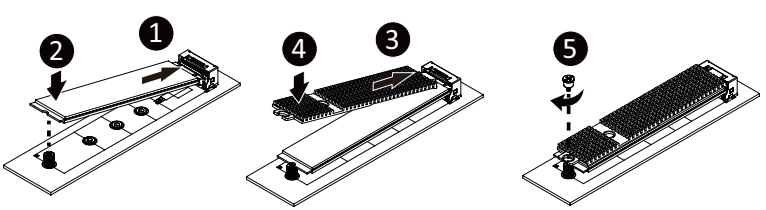
WARNING:

Please ensure a heatsink is attached to any M.2 device installed into the system. Installing an M.2 device without any heatsink may result in the system overheating or system performance being throttled.

- Please Go to for specific M.2 Slot location.
- To install/remove the M.2 module and Heatsink use a No. 1 Phillips-head screwdriver with a screw torque of 1.5 ± 0.2 kgf*cm

Follow these instructions to install the M.2 device and heat sink:

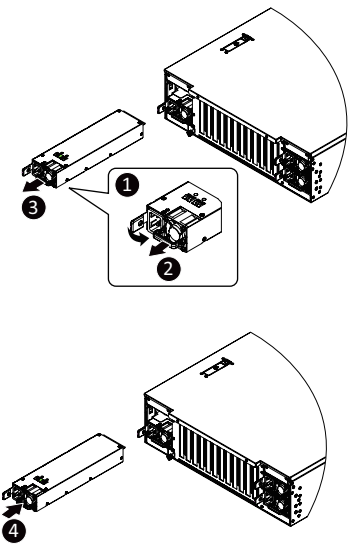
1. Insert the M.2 device into the M.2 connector.
2. Press down on the M.2 device.
3. Install the thermal pad of the M.2 device to the M.2 device.
4. Press down on the thermal pad.
5. Secure the M.2 device and its thermal pad to the motherboard with a single screw.
6. Reverse steps 1-2 to remove the M.2 device.



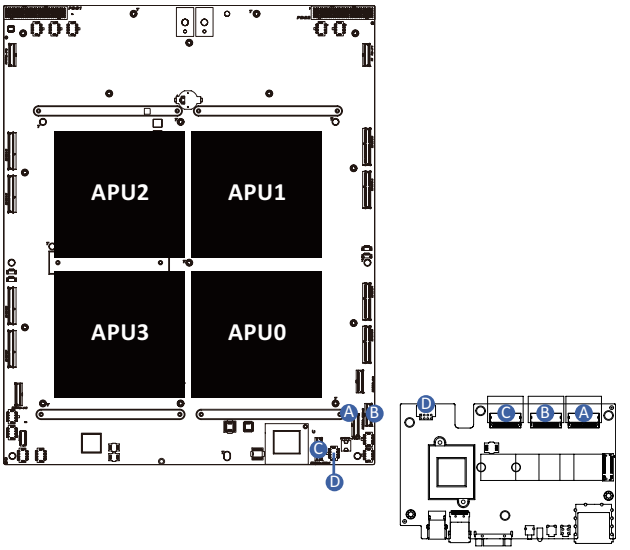
3-5 Removing and Installing the Power Supply

Follow these instructions to replace the power supply:

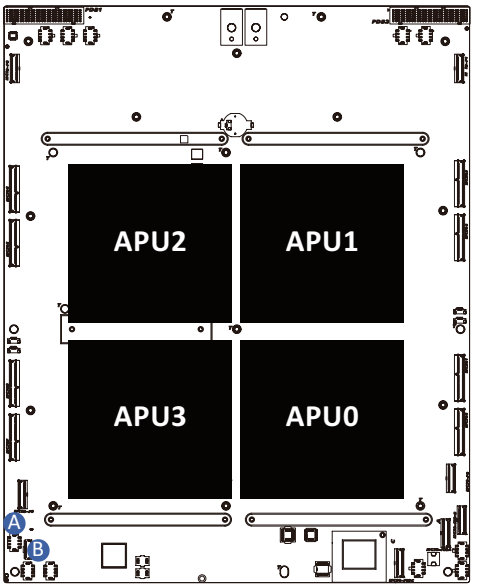
1. Flip up and then grasp the power supply handle.
2. Press the retaining clip on the right side of the power supply unit in the direction indicated.
3. Pull out the power supply unit using the handle.
4. Insert the replacement power supply unit firmly into the chassis. Connect the AC power cord to the replacement power supply.
5. Repeat steps 1-4 for replacement of the second power supply.

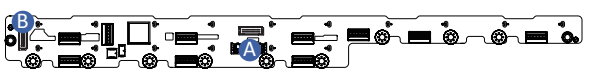


3-6 Cable Routing

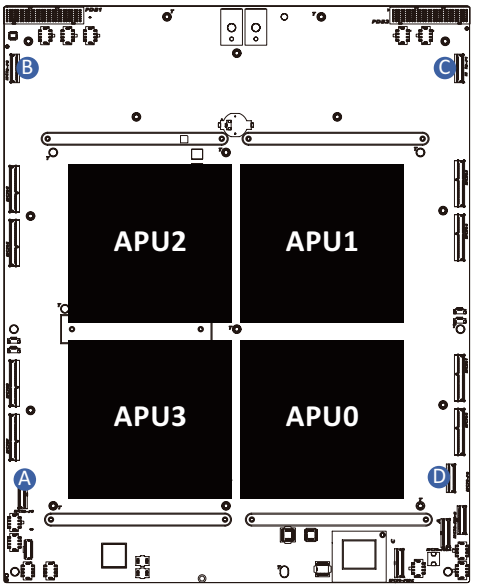


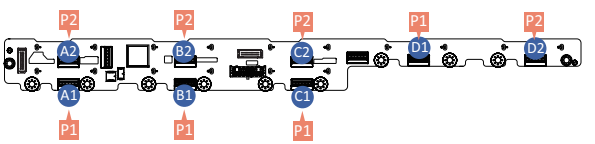
A	Front IO Board M.2 and LEDs/Buttons Signal Cable	Motherboard: MCIO_FIO_A
		Front IO Board: A
B	Front Panel USB 3 Ports Cable	Motherboard: MCIO_FIO_B
		Front IO Board: B
C	PCIe Gen3 Signal Cable for BCM57416	Motherboard: MCIO_FIO_C
		Front IO Board: C
D	Front IO Board Power Cable	Motherboard: PWR_FIO
		Front IO Board: PWR_2x4



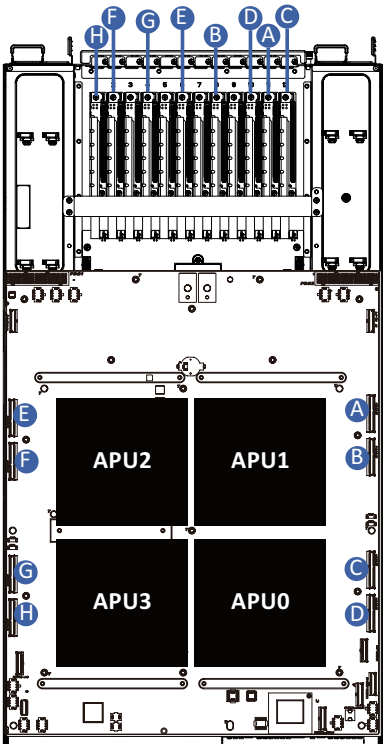


A	HDD Backplane Board Power Cable	Motherboard: PWR_BPB1 & PWR_BPB2
		Front HDD Board: ATX1
B	HDD Backplane Board Signal Cable	Motherboard: BP_1
		Front HDD Board: BP_1





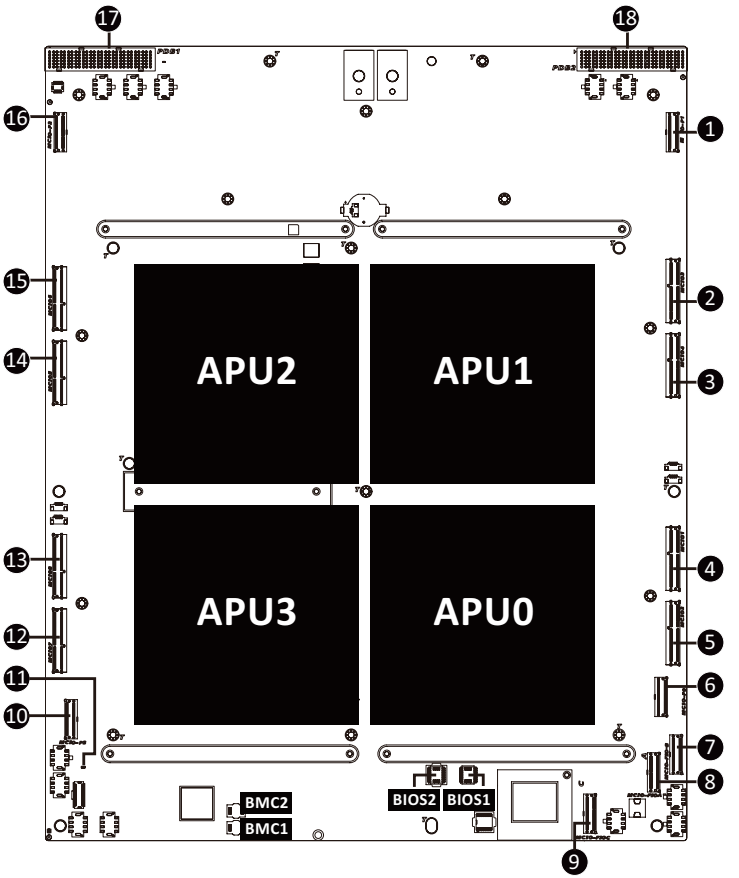
A	NVMe 0-1 Cable	Motherboard: MCIO_P3	C	NVMe 4-5 Cable	Motherboard: MCIO_P1
		Front HDD Board: A1: U.2_0 A2: U.2_1			Front HDD Board: C1: U.2_4 C2: U.2_5
B	NVMe 2-3 Cable	Motherboard: MCIO_P2	D	NVMe 6-7 Cable	Motherboard: MCIO_P0
		Front HDD Board: B1: U.2_2 B2: U.2_3			Front HDD Board: D1: U.2_6 D2. U.2_7



A	System Rear Side PCIe Cable	Motherboard: MCIO3	E	System Rear Side PCIe Cable	Motherboard: MCIO6
		PCIe Riser Bracket: Slot 11			PCIe Riser Bracket: Slot 6
B		Motherboard: MCIO4	F		Motherboard: MCIO5
		PCIe Riser Bracket: Slot 8			PCIe Riser Bracket: Slot 2
C		Motherboard: MCIO1	G		Motherboard: MCIO8
		PCIe Riser Bracket: Slot 12			PCIe Riser Bracket: Slot 4
D		Motherboard: MCIO2	H		Motherboard: MCIO7
		PCIe Riser Bracket: Slot 10			PCIe Riser Bracket: Slot 1

Chapter 4 System Components

4-1 Motherboard Components



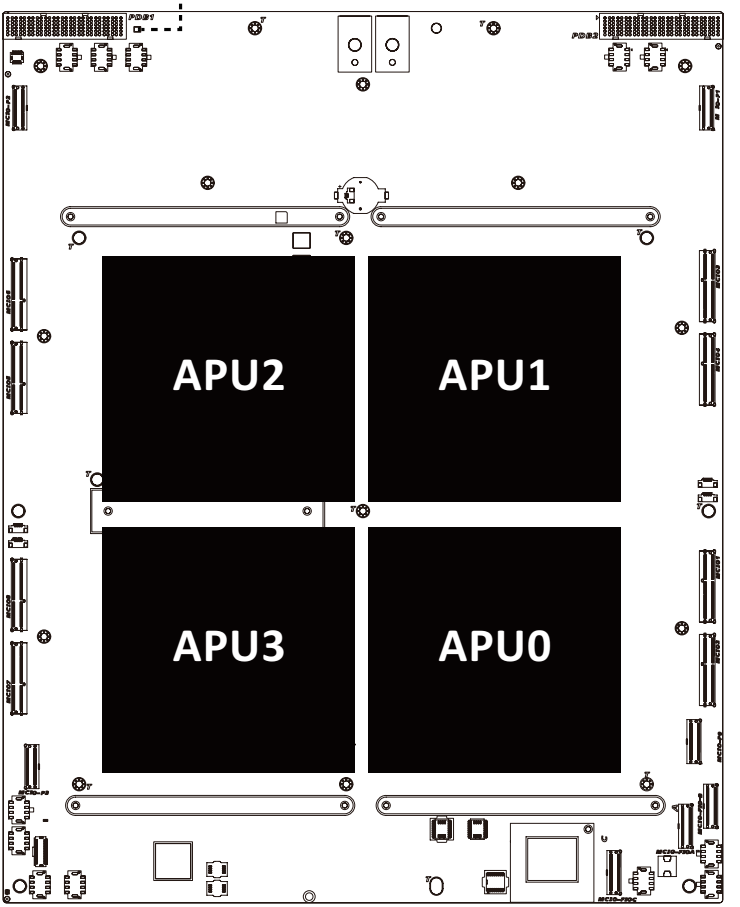
Item	Description	Item	Description
1	MCIO Connector (MCIO-P1/PCIe Gen5)	10	MCIO Connector (MCIO-P3/PCIe Gen5)
2	MCIO Connector (MCIO3/PCIe Gen5)	11	BMC Firmware Readiness LED
3	MCIO Connector (MCIO4/PCIe Gen5)	12	MCIO Connector (MCIO-7/PCIe Gen5)
4	MCIO Connector (MCIO1/PCIe Gen5)	13	MCIO Connector (MCIO-8/PCIe Gen5)
5	MCIO Connector (MCIO2/PCIe Gen5)	14	MCIO Connector (MCIO-5/PCIe Gen5)
6	MCIO Connector (MCIO-P0/PCIe Gen5)	15	MCIO Connector (MCIO-6/PCIe Gen5)
7	MCIO Connector (MCIO-FIO-B/PCIe Gen5)	16	MCIO Connector (MCIO-P2/PCIe Gen5)
8	MCIO Connector (MCIO-FIO-A/PCIe Gen5)	17	PDB Connector (PDB1)
9	MCIO Connector (MCIO-FIO-C/PCIe Gen5)	18	PDB Connector (PDB2)

4-2 Jumper Settings

Clear CMOS
CLR_CMOS

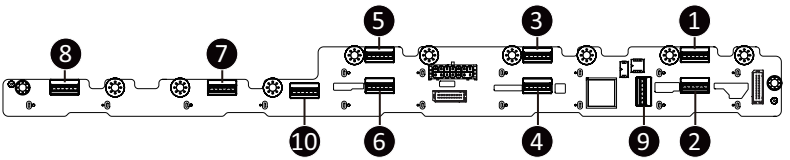
ON

SW.1	SW.2	
ON	OFF	Default
OFF	ON	Clear CMOS



4-3 Backplane Board Storage Connector

4-3-1 CBPG680 (Front System Storage Board)



Item	Description
1	MCIO Connector (MCIO 4i/U_2_0)
2	MCIO Connector (MCIO 4i/U_2_1)
3	MCIO Connector (MCIO 4i/U_2_2)
4	MCIO Connector (MCIO 4i/U_2_3)
5	MCIO Connector (MCIO 4i/U_2_4)
6	MCIO Connector (MCIO 4i/U_2_5)
7	MCIO Connector (MCIO 4i/U_2_6)
8	MCIO Connector (MCIO 4i/U_2_7)
9	MCIO Connector (MCIO 4i/SL_SAS0)
10	MCIO Connector (MCIO 4i/SL_SAS1)

Chapter 5 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 <DEL> 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 4 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.)

5-1 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.

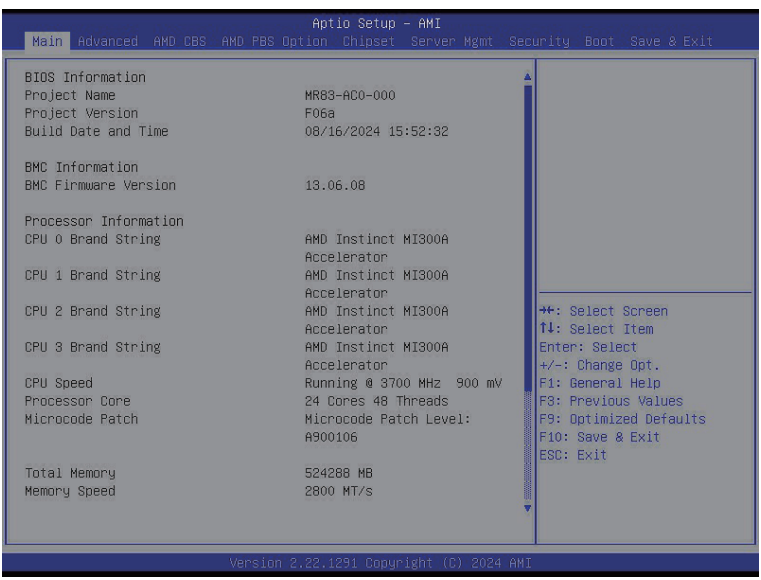
Main Menu Help

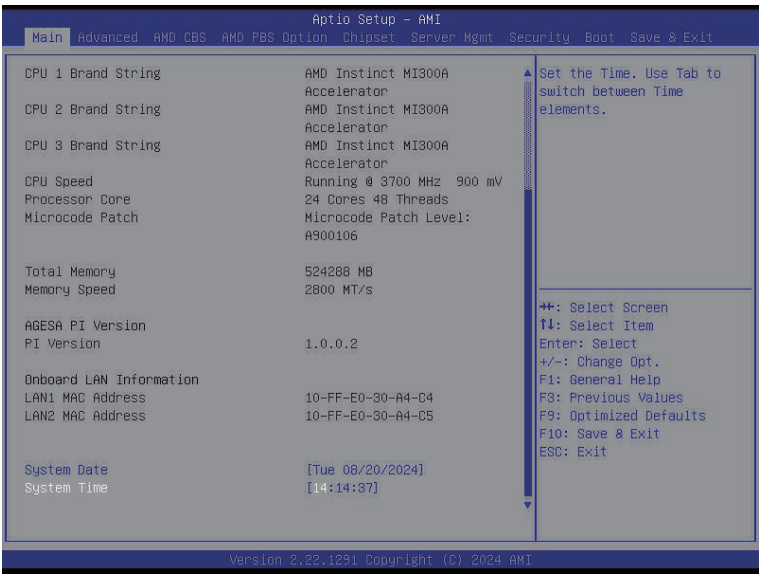
The on-screen description of a highlighted setup option is displayed on the bottom line of the Main Menu.

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.

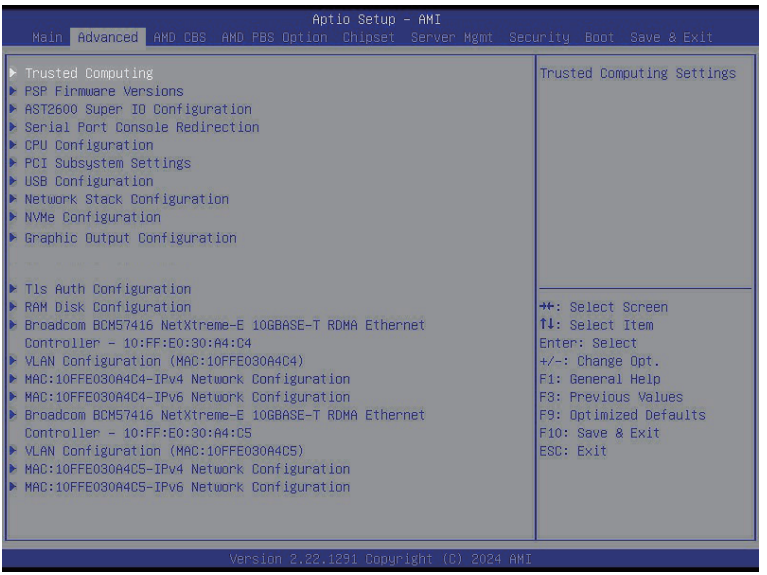
Parameter	Description
Onboard LAN Information	
LAN1/LAN2 MAC Address(Note)	Displays LAN MAC address information.
System Date	Sets the date following the weekday-month-day-year format.
System Time	Sets the system time following the hour-minute-second format.

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

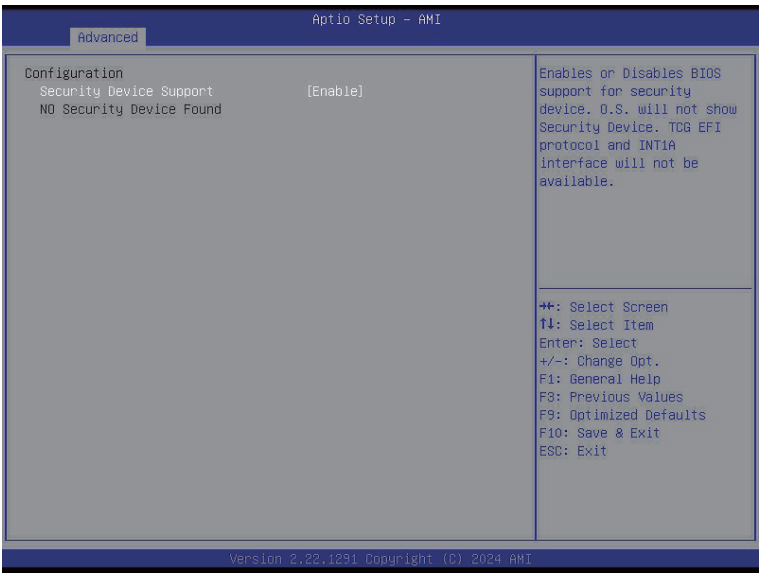
5-2 Advanced Menu

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)



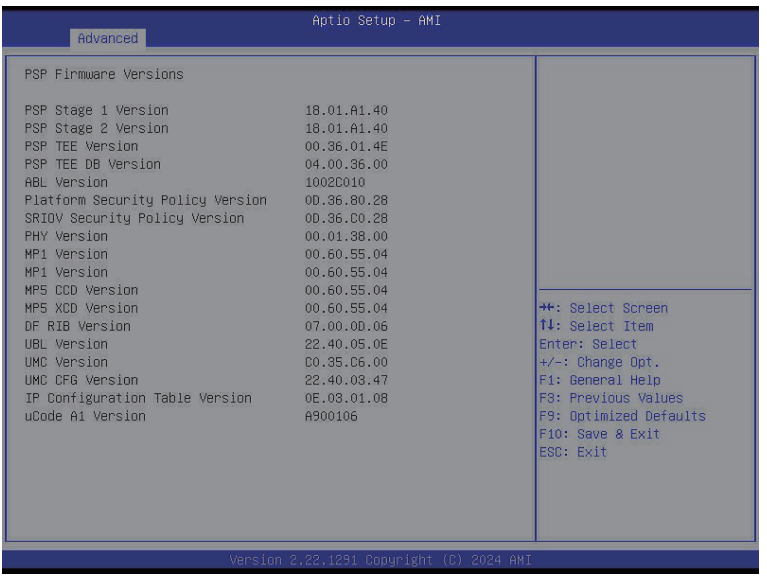
5-2-1 Trusted Computing



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: Disabled, Enabled. Default setting is **Enabled**.
SPI TPM Support	Select Enable to activate TPM support feature. Options available: Disabled, Enabled. Default setting is **Enabled**.

5-2-2 PSP Firmware Versions

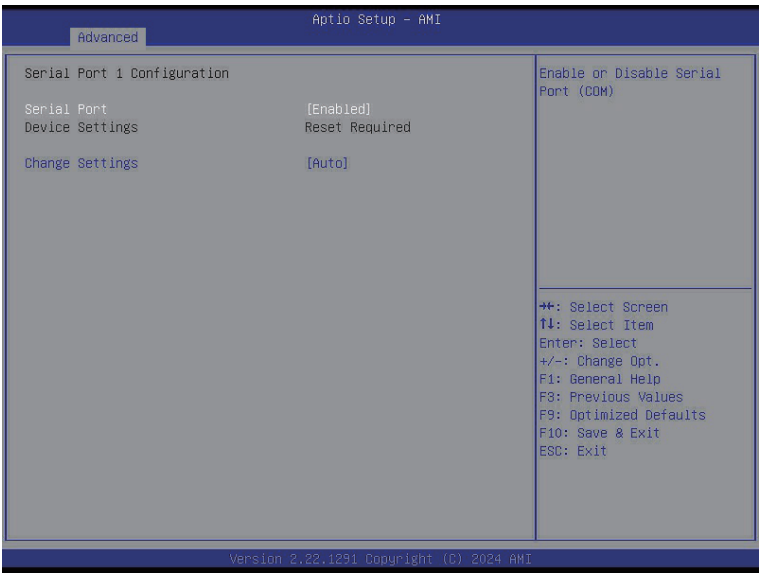
The PSP Firmware Versions page displays the basic PSP firmware version information. Items on this window are non-configurable.



5-2-3 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.

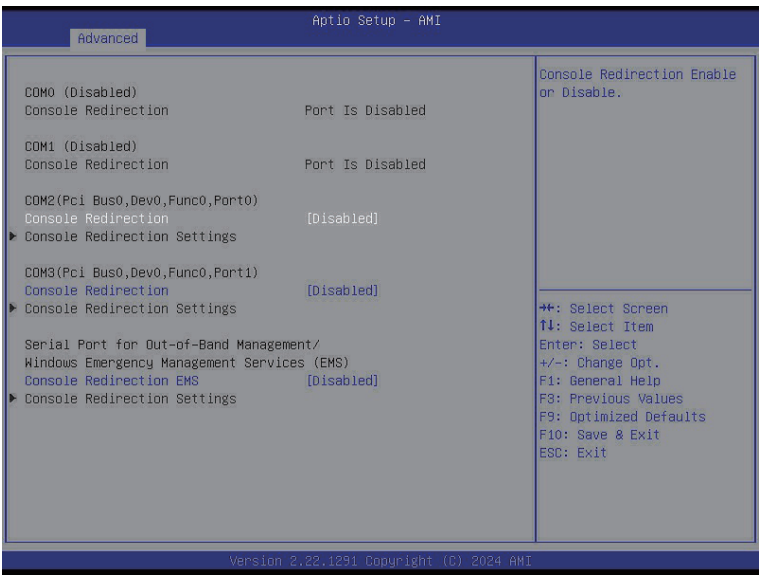
5-2-3-1 Serial Port 1 Configuration



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.

5-2-4 Serial Port Console Redirection



Parameter	Description
COM1/Serial Over LAN Console Redirection(Note)	Select whether to enable console redirection for specified device. Console redirection enables the users to manage the system from a remote location. Options available: Enabled, Disabled. Default setting is **Disabled**.
COM1/Serial Over LAN Console Redirection Settings	Press [Enter] to configure advanced items. **Please note that this item is configurable when COM1/Serial Over LAN Console Redirection is set to Enabled.** ◆ Terminal Type – Selects a terminal type to be used for console redirection. – Options available: VT100, VT100Plus, ANSI, VT-UTF8. Default setting is **VT100Plus**. ◆ Bits per second – Selects the transfer rate for console redirection. – Options available: 9600, 19200, 38400, 57600, 115200. Default setting is **115200**. ◆ Data Bits – 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.

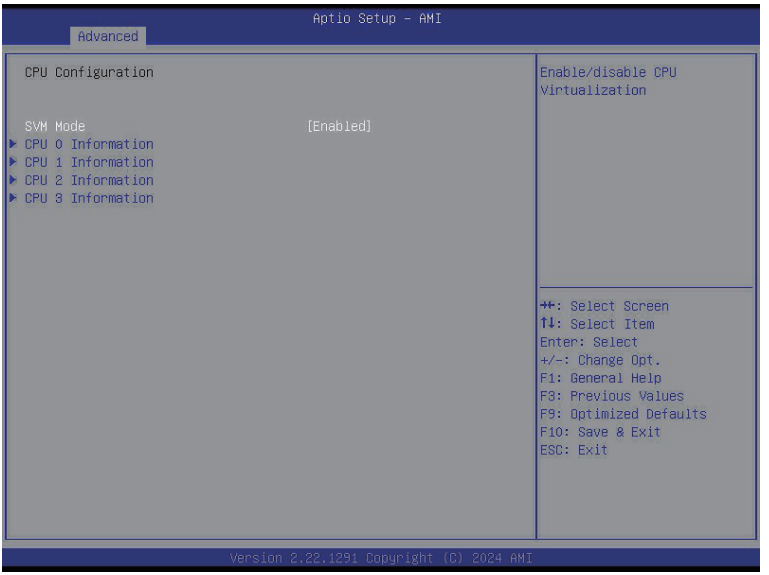
Parameter	Description
COM1/Serial Over LAN Console Redirection Settings (continued)	◆ Parity – A parity bit can be sent with the data bits to detect some transmission errors. – Even: parity bit is 0 if the num of 1's in the data bits is even. – Odd: parity bit is 0 if num of 1's in the data bits is odd. – 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 – 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 – 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 – Enable/Disable the VT-UTF8 Combo Key Support. – Options available: Enabled, Disabled. Default setting is **Enabled**. ◆ Recorder Mode – 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 – Enable/Disable extended terminal resolution. – Options available: Enabled, Disabled. Default setting is **Enabled**. ◆ Putty KeyPad – 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	Press [Enter] to configure advanced items. ◆ Redirection COM Port – Selects a COM port for Legacy serial redirection. – Default setting is **COM1/SOL**. ◆ Resolution – 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 – 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)	EMS console redirection allows the user to configure Console Redirection Settings to support Out-of-Band Serial Port management. Options available: Disabled, Enabled. Default setting is **Disabled**.
Serial Port for Out-of-Band EMS Console Redirection Settings	Press [Enter] to configure advanced items. **Please note that this item is configurable when Serial Port for Out-of-Band Management EMS Console Redirection is set to Enabled.** ◆ Out-of-Band Mgmt Port – 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 – Selects a terminal type to be used for console redirection. – Options available: VT100, VT100Plus, ANSI, VT-UTF8. Default setting is **ANSI**. ◆ Bits per second – 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)	◆ Flow Control – 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**.

5-2-5 CPU Configuration



Parameter	Description
SVM Mode	Enable/Disable the CPU Virtualization. Options available: Disabled, Enabled. Default setting is **Enabled**.
CPU 0/1/2/3 Information	Press [Enter] to view the memory information related to CPU 0/1.

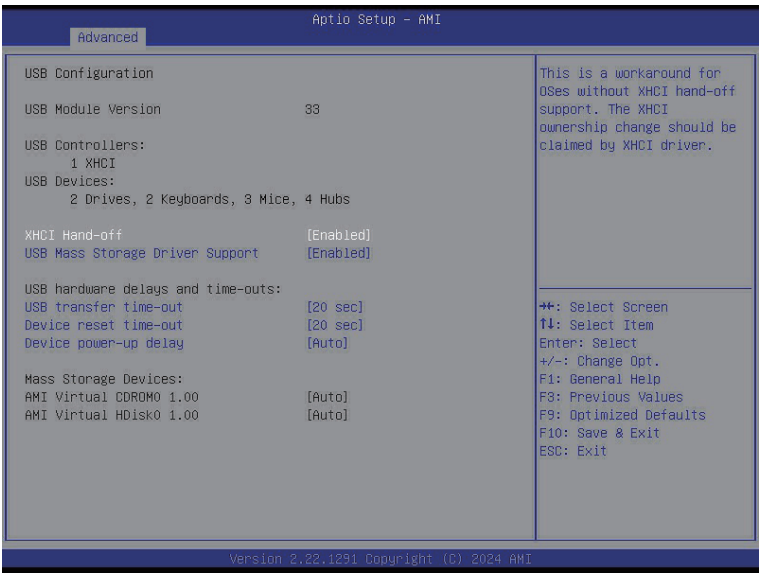
5-2-6 PCI Subsystem Settings

Parameter	Description
PCI Bus Driver Version	Displays the PCI Bus Driver version information.
SLOT# Lanes(Note1)	Change 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 devices. Options available: Disabled, Enabled. Default setting is **Enabled**.
SLOT# Link Speed(Note1)	Configure MCIO slot max link speed. Options available: Auto, Gen5, Gen4, Gen3, Gen2, Gen1. Default setting is **Auto**.
Onboard LAN# I/O ROM(Note2)	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**.
Re-Size BAR Support	Enable/Disable Resizable BAR Support. 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 MCIO/OCP connector.

(Note2) This section is dependent on the available LAN controller.

5-2-7 USB Configuration

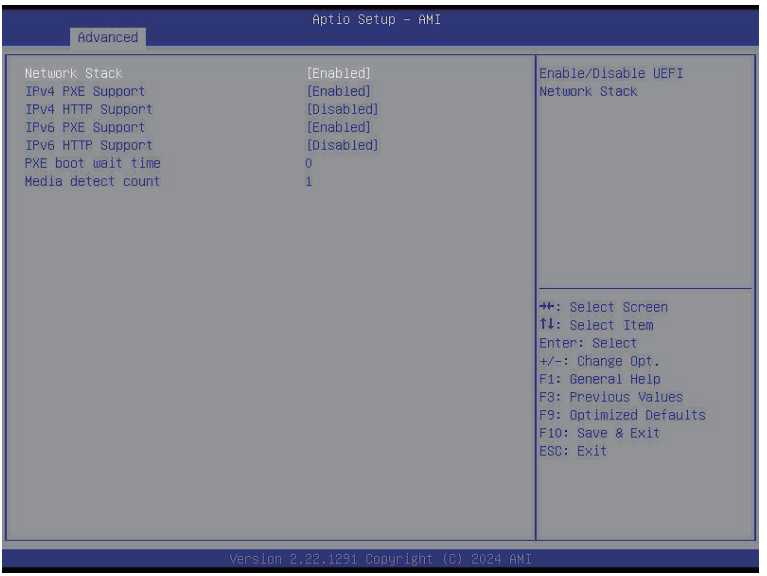


Parameter	Description
USB Configuration	
USB Module Version	Displays the USB module version information.
USB Controllers	Displays the supported USB controllers.
USB Devices:	Displays the USB devices connected to the system.
Legacy USB Support	Enable/Disable the Legacy USB support function. AUTO option 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**.

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

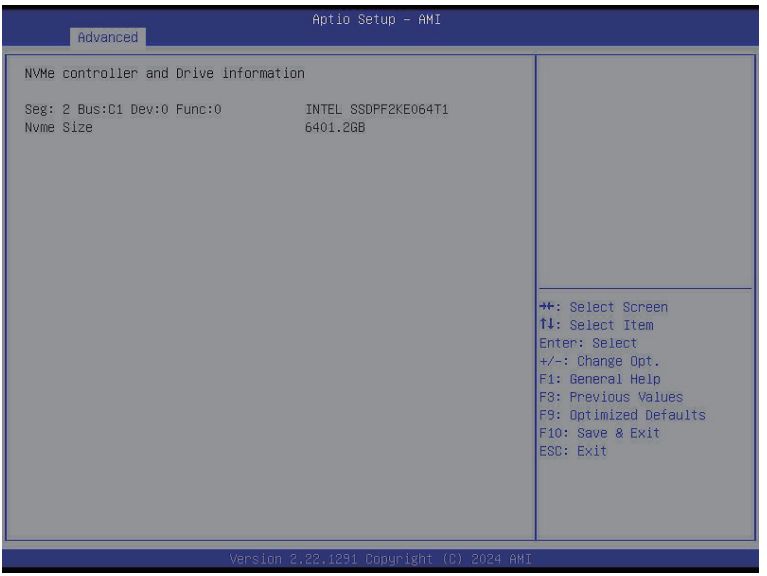
Parameter	Description
Device reset time-out	Selects the time-out value during a USB mass storage device reset. Options available: 10 sec, 20 sec, 30 sec, 40 sec. Default setting is **20 sec**.
Device power-up delay	Maximum time the device will take before it properly reports itself to the Host Controller. "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**.
Mass Storage Devices	Displays the mass storage devices available on the system.

5-2-8 Network Stack Configuration



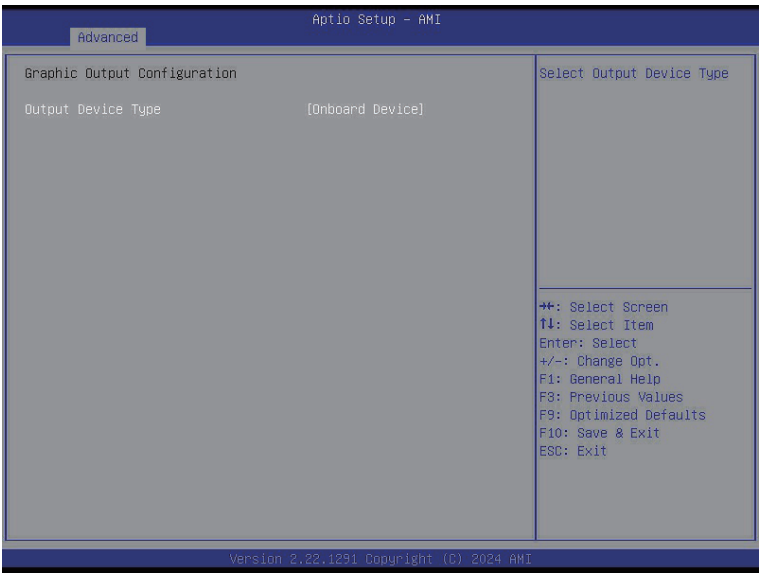
Parameter	Description
Network Stack	Enable/Disable the UEFI network stack. Options available: Enabled, Disabled. Default setting is **Enabled**.
Ipv4 PXE Support(Note)	Enable/Disable the Ipv4 PXE feature. Options available: Enabled, Disabled. Default setting is **Enabled**.
Ipv4 HTTP Support(Note)	Enable/Disable 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.

5-2-9 NVMe Configuration



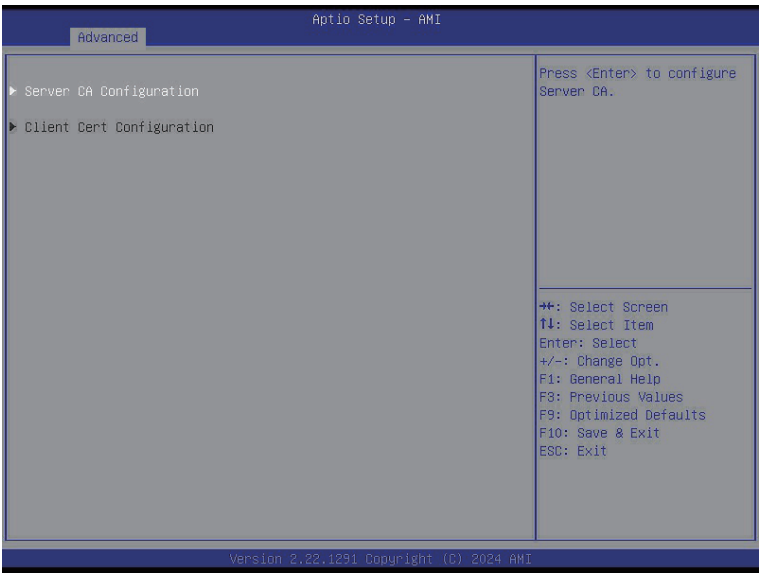
Parameter	Description
NVMe Configuration	Displays the NVMe devices connected to the system.

5-2-10 Graphic Output Configuration



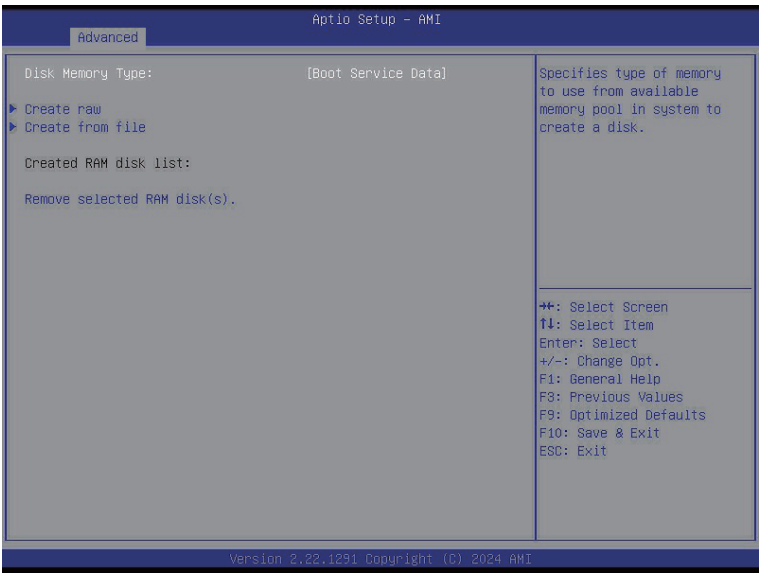
Parameter	Description
Output Device Type	Selects output device type. Options available: First loaded Device, Onboard Device, External Device, Specific Device. Default setting is **Onboard Device**.

5-2-11 Tls Auth Configuration



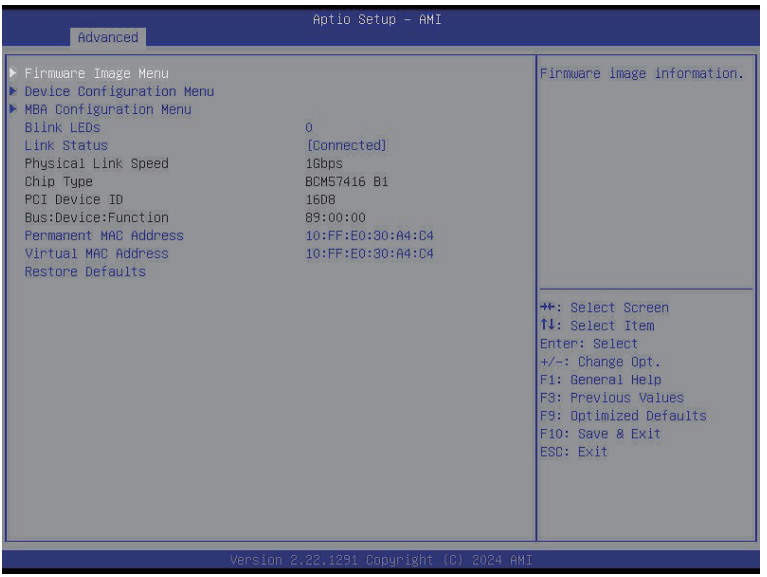
Parameter	Description
Server CA Configuration	Press [Enter] for configuration of advanced items. ◆ Enroll Cert – Press [Enter] to enroll a certificate • Enroll Cert Using File • Cert GUID Input digit character in 1111111-2222-3333-4444-1234567890ab format. – Commit Changes and Exit – Discard Changes and Exit ◆ Delete Cert
Client Cert Configuration	Press [Enter] for configuration of advanced items.

5-2-12 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. ◆ Size (Hex) – 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.

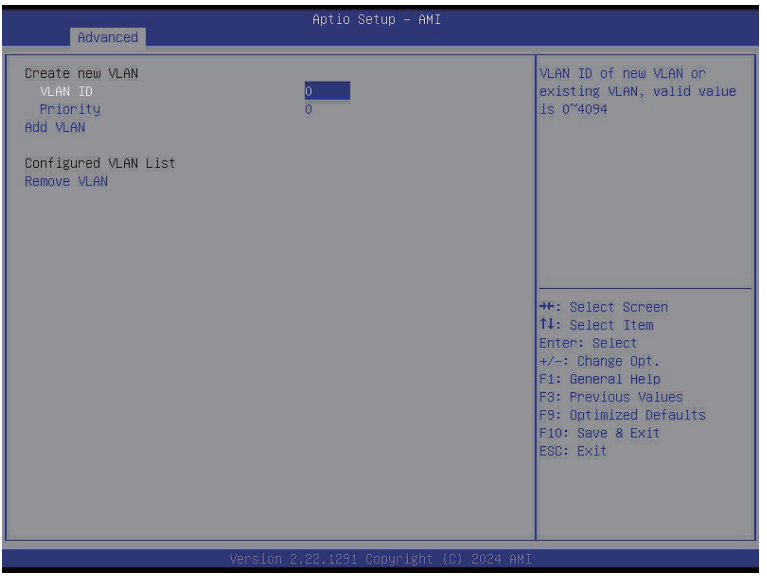
5-2-13 Broadcom(R) BCM57416 NetXtreme-E 10GBASE-T Network Connection



Parameter	Description
Firmware Image Menu	Press [Enter] to view firmware image information.
Device Configuration Menu	Press [Enter] to configure advanced items. ◆ Multi-Function Mode – Configures the NIC Hardware Mode. – Options available: SF, NPAR 1.0. Default setting is **SF**. ◆ SR-IOV – Enable/Disable Single Root I/O Virtualization. – Options available: Disabled, Enabled. Default setting is **Disabled**. ◆ Number of MSI-X Vectors per VF – Configures the number of MSI-X Vectors per VF (0-128). – Default setting is **16**. ◆ Maximum Number of PF MSI-X Vectors – Configures the maximum number of PF MSI-X Vectors (0-512 per controller). – Default setting is **148**. ◆ Energy Efficient Ethernet – Enable/Disable Energy Efficient Ethernet operation. – Options available: Disabled, Enabled. Default setting is **Disabled**. ◆ Operational Link Speed – Configures the link speed setting to be used as the default link speed for the selected port. – Options available: AutoNeg. Default setting is **AutoNeg**.

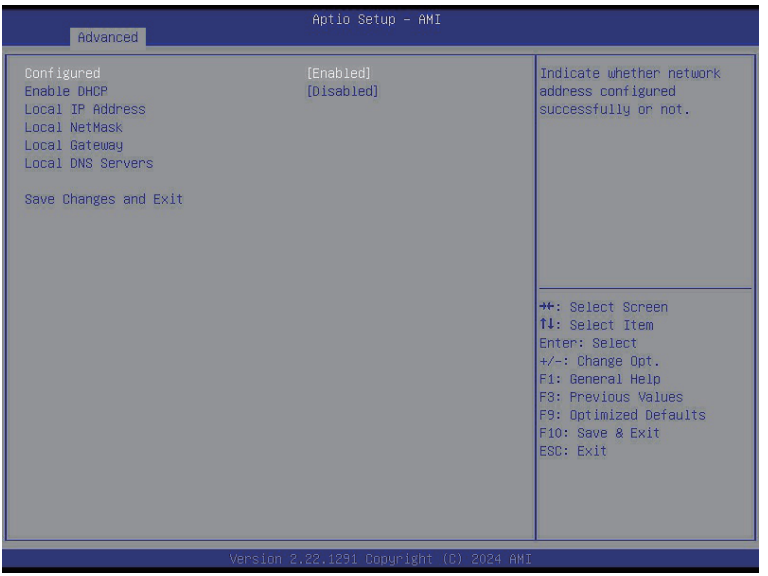
Parameter	Description
Device Configuration Menu (continued)	◆ Support RDMA – Enable/Disable RDMA support for this port. – Options available: Disabled, Enabled. Default setting is **Disabled**. ◆ DCB Protocol – Enable/Disable DCB protocol. – Options available: Disabled, Enabled (IEEE only), CEE (only), Both (IEEE preferred with fallback to CEE). Default setting is **Disabled**. ◆ LLDP nearest bridge – Enable/Disable LLDP nearest bridge state. – Options available: Disabled, Enabled. Default setting is **Enabled**. ◆ Default EVB Mode – Configures the default Edge Virtual Bridging mode. – Options available: VEB, VEPA, None. Default setting is **VEB**. ◆ Enable PME Capability – Enable/Disable PME Capability support. – Options available: Disabled, Enabled. Default setting is **Enabled**. ◆ Flow Offload – Options available: Enabled, Disabled. Default setting is **Disabled**. ◆ Adapter Error Recovery – Options available: Enabled, Disabled. Default setting is **Disabled**.
MBA Configuration Menu	Press [Enter] to configure advanced items. ◆ Option ROM – Enable/Disable Boot Option ROM. – Options available: Disabled, Enabled. Default setting is **Enabled**. ◆ Legacy Boot Protocol – Selects non-UEFI Boot Protocol: Preboot Execution Environment (PXE)/iSCSI. – Options available: PXE, iSCSI, NONE. Default setting is **PXE**. ◆ Boot Strap Type – Selects the boot strap type. Options available: Auto Detect, BBS, Int 18h, Int 19h. Default setting is **Auto Detect**. ◆ Pre-boot Wake On LAN – Configures Pre-boot Wake on LAN (WOL). – Options available: Disabled, Enabled. Default setting is **Enabled**. ◆ VLAN Mode – Configures the virtual LAN (VLAN) mode. – Options available: Disabled, Enabled. Default setting is **Disabled**. ◆ VLAN ID – Configures the VLAN ID (1…4094). – This item is available only when VLAN Mode is Enabled. ◆ Boot Retry Count – 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**.

5-2-14 VLAN Configuration



Parameter	Description
Enter Configuration Menu	Press [Enter] to configure advanced items. ◆ Create new VLAN ◆ VLAN ID – 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 – 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 – Press [Enter] to create a new VLAN or update an existing VLAN. ◆ Configured VLAN List ◆ Remove VLAN – Press [Enter] to remove an existing VLAN.

5-2-15 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.

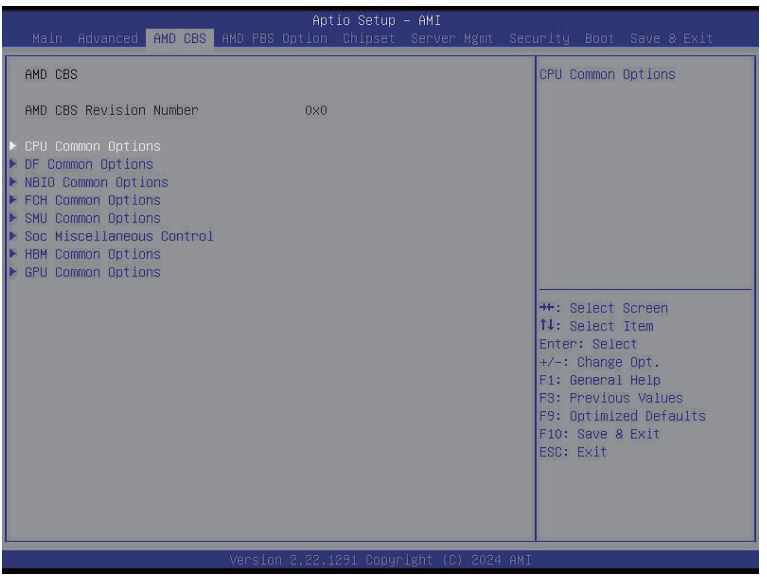
(Note) This item appears when **Configured** is set to **Enabled**.

5-2-16 MAC IPv6 Network Configuration

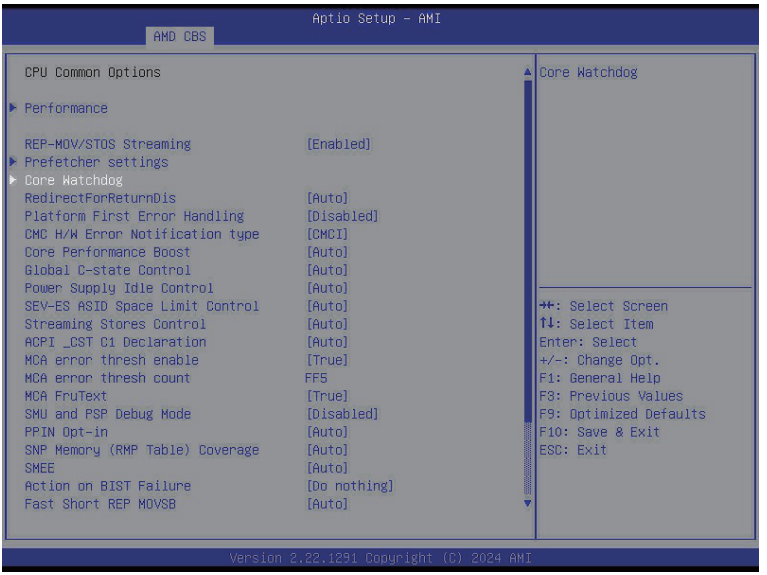
Parameter	Description
Enter Configuration Menu	Press [Enter] to configure advanced items. ◆ Displays the MAC Address information. ◆ Interface ID – The 64 bit alternative interface ID for the device. The string is colon separated. e.g. ff:dd:88:66:cc:1:2:3. ◆ DAD Transmit Count – The number of consecutive 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 – Options available: automatic, manual. Default setting is **automatic**. ◆ Save Changes and Exit – Press [Enter] to save all configurations.

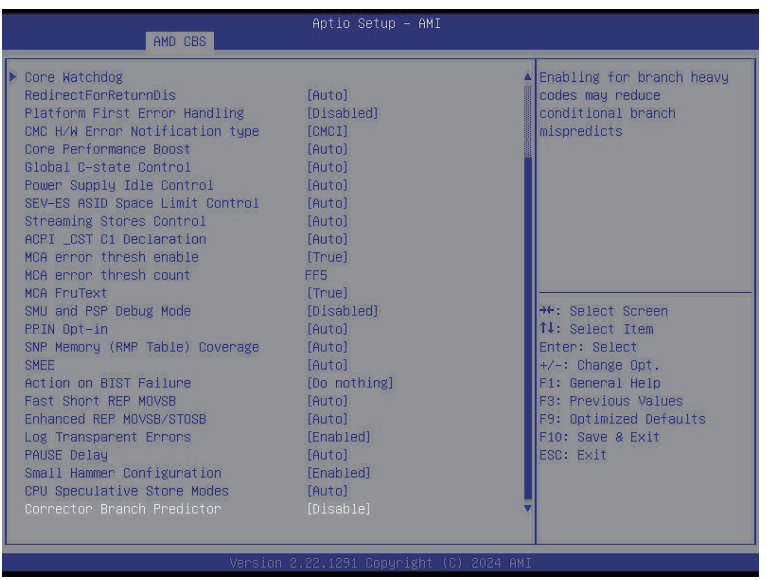
5-3 AMD CBS Menu

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.



5-3-1 CPU Common Options

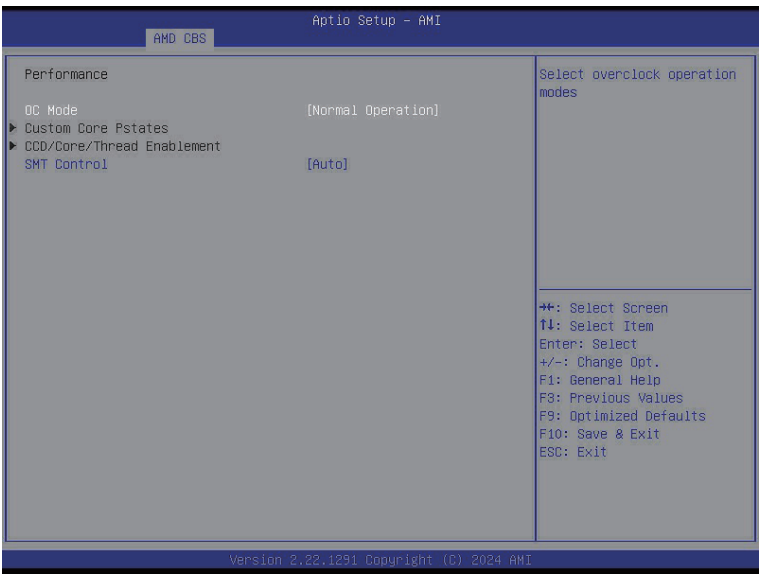




Parameter	Description
CPU Common Options	
Performance	Press [Enter] for configuration of advanced items.
REP-MOV/STOS Streaming	Allow REP-MOV/STOS to use non-caching streaming stores for large sizes. Options available: Disabled, Enabled. Default setting is **Enabled**.
Prefetcher settings	Press [Enter] 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**.
Streaming Stores Control	Enable/Disable the Streaming Stores functionality. Options available: Disabled, Enabled, 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 error thresh count	Effective error threshold count = 0xFFF(4095) - <this value> (e.g. the default value of 0xFF5(4085) results in a threshold of 0xA (10)).
MCA FruText	Enable MCA FruText. Options available: False, True. Default setting is **True**.
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**.

Parameter	Description
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**.
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**.
Fast Short REP MOVSB	Options available: Disabled, Enabled, Auto. Default setting is **Auto**.
Enhanced REP MOVSB/ STOSB	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**.
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**.
Small Hammer Configuration	Options available: Disabled, Enabled, Auto. 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**.
Corrector Branch Predictor	Options available: Disable, Enable. Default setting is **Disable**.
CPU Speculative Store Modes	Select the CPU speculative store modes. Options available: Balanced, More Speculative, Less Speculative, Auto. Default setting is **Auto**.

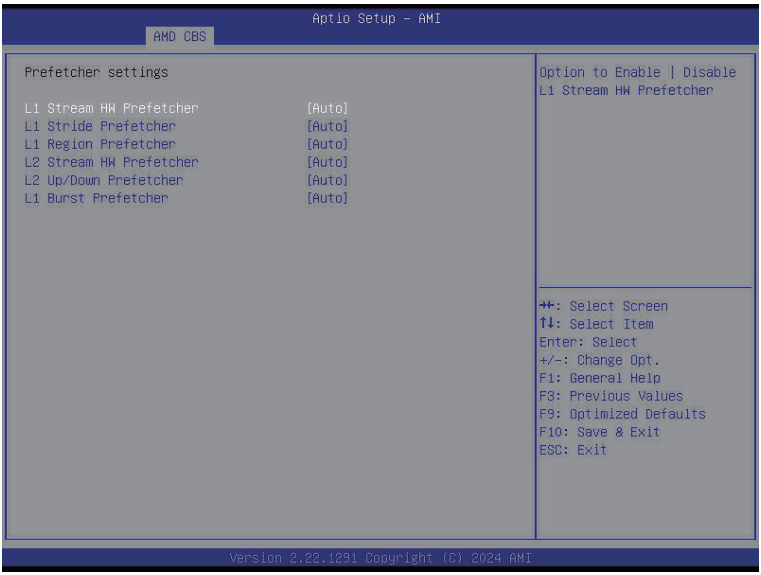
5-3-1-1 Performance



Parameter	Description
Performance	
OC Mode(Note)	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. ◆ CCD Control – Options available: Auto, 2 CCDs, 4 CCDs, 6 CCDs, 8 CCDs, 10 CCDs. Default setting is **Auto**. ◆ Core Control – 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**.

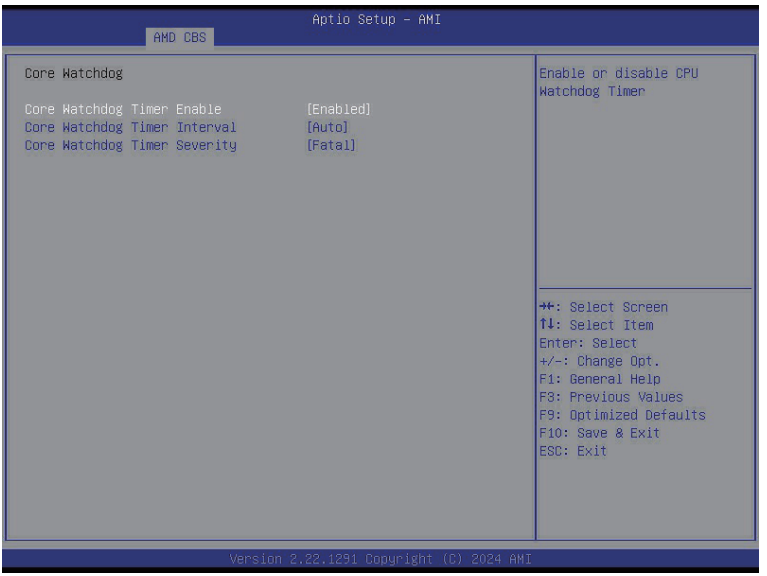
(Note) Advanced items are configurable when this item is defined.

5-3-1-2 Prefetcher Settings



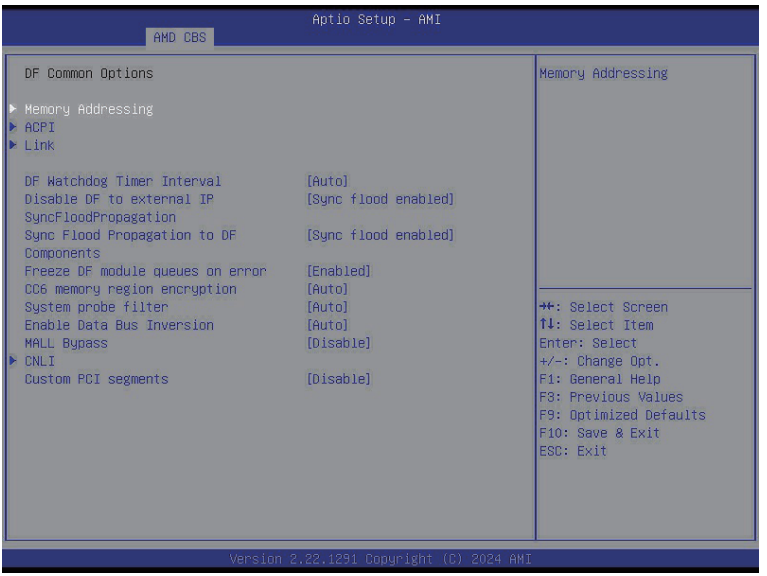
Parameter	Description
Prefetcher settings	
L1 Stream HW Prefetcher	Enable/Disable L1 Stream HW Prefetcher. Options available: Disable, Enable, Auto. Default setting is **Auto**.
L1 Stride Prefetcher	Use memory access history of individual instructions to fetch additional lines when each access is a constant 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**.

5-3-1-3 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**.
Core Watchdog Timer Severity	Options available: No Error, Transparent, Corrected, Deferred, Uncorrected, Fatal, Auto. Default setting is **Auto**.

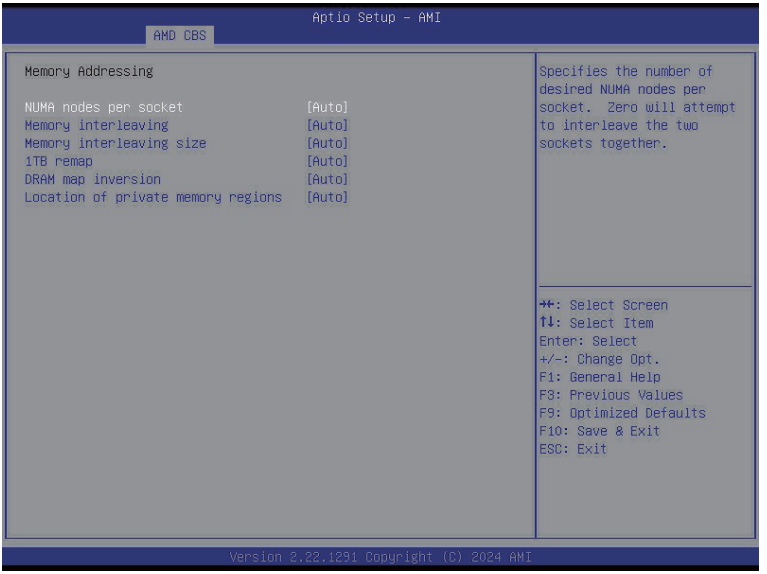
5-3-2 DF Common Options



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.
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**.
System Probe Filter	Options available: Disabled, Enabled, Auto. Default setting is **Auto**.
Enable Data Bus Inversion	Options available: Disabled, Enabled, Auto. Default setting is **Auto**.
MALL Bypass	Options available: Disable, Enable. Default setting is **Disable**.

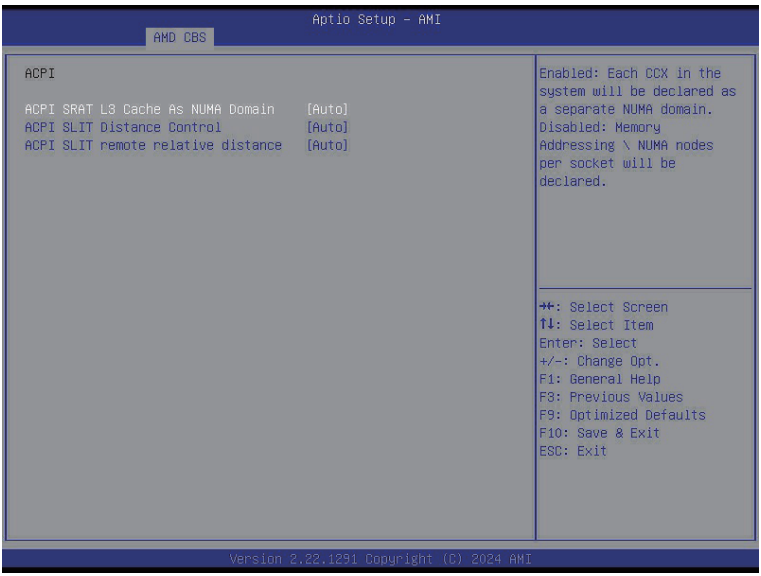
Custom PCI segments	Modify the default number of segments for PCI. Option available: Enable, Disable. Default setting is **Enable**.

5-3-2-1 Memory Addressing



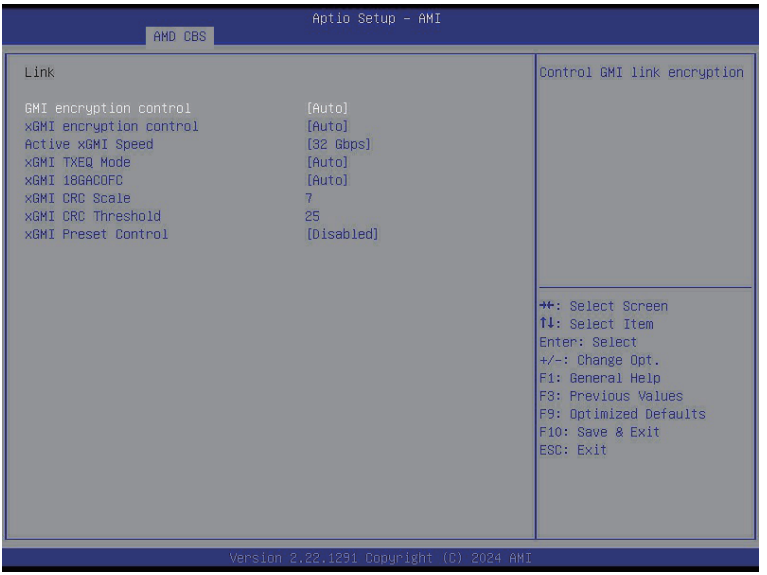
Parameter	Description
Memory Addressing	
NUMA nodes per socket	Specifies the number of desired NUMA nodes per socket. Options available: NPS0, NPS1, NPS2, NPS4, Auto. Default setting is **Auto**. NOTE! • **Available options may vary by system configuration.** • **Only dual processor configuration supports NPS0.**
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**.

5-3-2-2 ACPI



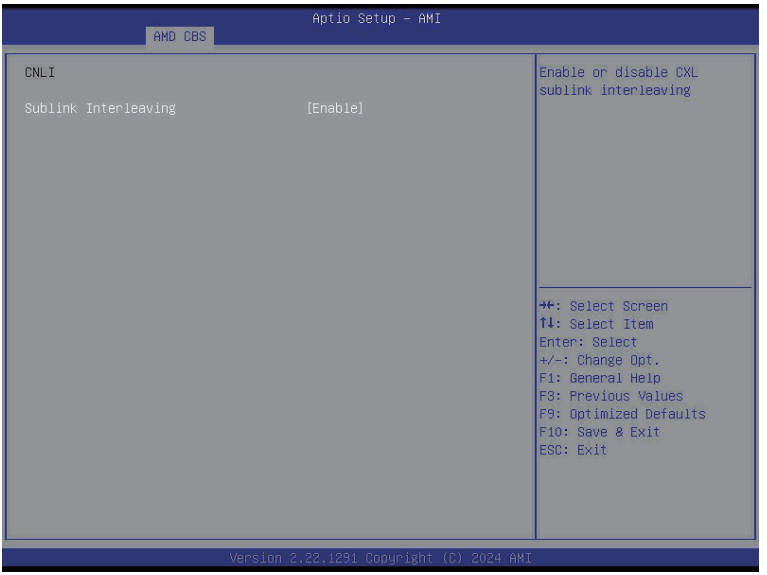
Parameter	Description
ACPI	
ACPI SRAT L3 Cache As NUMA Domain	Enable/Disable report each L3 cache as a NUMA Domain to the OS. Options available: Disabled, Enabled, Auto. Default setting is **Auto**.
ACPI SLIT Distance Control	Determines how the SLIT distances are declared. Options available: Manual, 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**.

5-3-2-3 Link



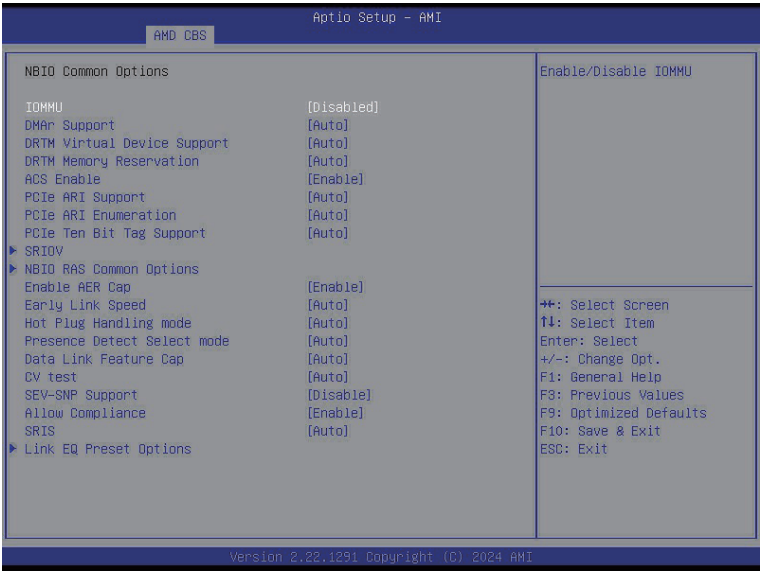
Parameter	Description
GMI encryption control	Enable/Disable GMI link encryption. Options available: Disabled, Enabled, Auto. Default setting is **Auto**.
xGMI encryption control	Enable/Disable xGMI link encryption. Options available: Disabled, Enabled, Auto. Default setting is **Auto**.
xGMI Link Configuration	Configures the number of xGMI2 links used on a multi-socket system. Options available: Auto, 3 xGMI Links, 4 xGMI Links, 2 xGMI Links + 2 PCI Links. Default setting is **Auto**.
Active xGMI Speed	Configures Active xGMI Speed.
xGMI TXEQ Search Mask	Press [Enter] to configure the xGMI TXEQ mode.
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 **5**.
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 **Enabled**.

5-3-2-4 SDCI



Parameter	Description
CNLI	Press [Enter] for configuration of advanced items. ◆ Sublink Interleaving – Options available: Enable, Disable. Default setting is **Enable**.

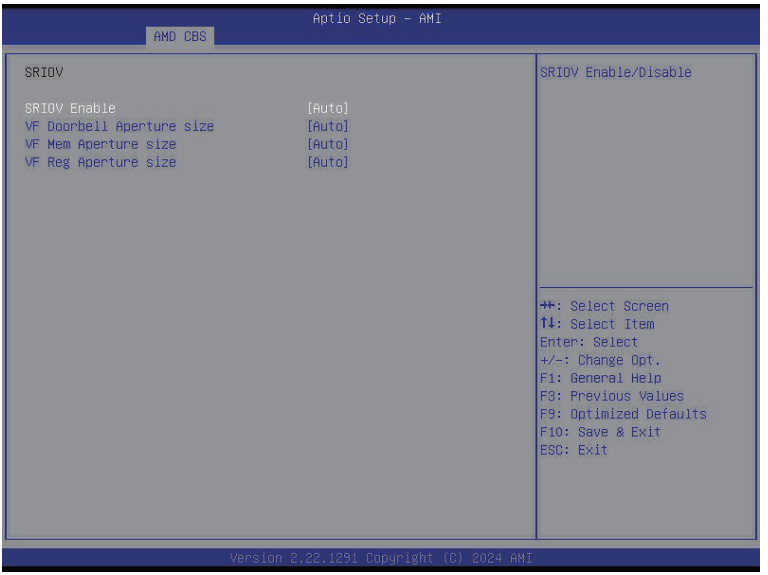
5-3-3 NBIO Common Options



Parameter	Description
NBIO Common Options	
IOMMU	Enable/Disable the IOMMU function. Options available: Enabled/Disabled. Default setting is **Disabled**.
DMAr Support	Enable DMAr system protection during POST. Options available: Auto,Enabled/Disabled. Default setting is **Auto**.
DRTM Virtual Device Support	Enable DRTM ACPI virtual device.. Options available: Auto,Enabled/Disabled. Default setting is **Auto**.
DRTM Memory reservation	Reserve 128MB memory below Bottoms IO for DRTM. It is required to be enabled for Secured-Core Server function. Options available: Auto,Enabled/Disabled. Default setting is **Auto**.
ACS Enable	Options available: Auto,Enable/Disabled. Default setting is **Auto**.
PCIe ARI Support	Enable/Disable Alternative Routng-ID Interpretation. Options available: Auto, Enabled, Disabled. Default setting is **Auto**.
PCIe ARI Enumeration	ARI Forwarding Enable for each downstream port. Options available: Auto, Enabled, Disabled. Default setting is **Auto**.
PCIe Ten Bit Tag Support	Enable/Disable PCIe ten bit tags for supported devices. (Auto=Disabled) Options available: Auto, Enabled, Disabled. Default setting is **Auto**.
SRIOV Common Options	Press [Enter] for configuration of advanced items.

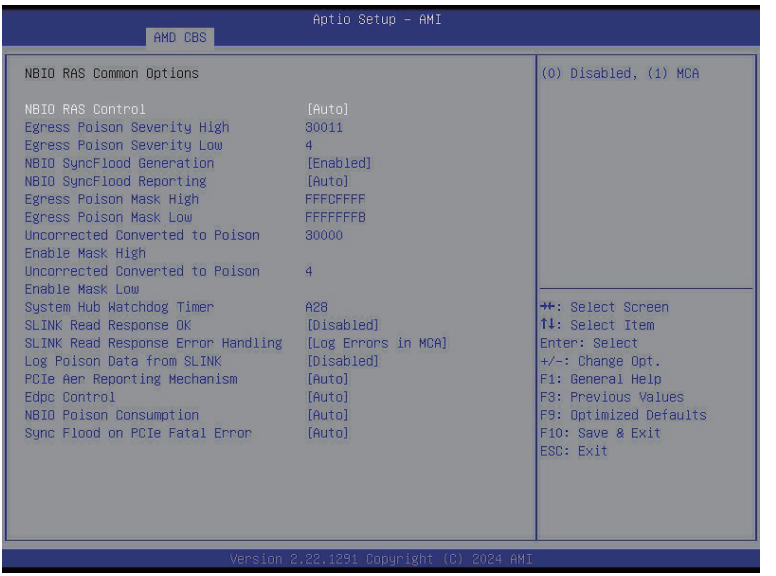
NBIO RAS Common Options	Press [Enter] for configuration of advanced items.
Enable AER Cap	Enable/Disable Advanced Error Reporting Capability. Options available: Auto, Enabled, Disabled. Default setting is **Auto**.
Early Link Speed	Configures Early Link Speed. Options available: Auto, Gen1, Gen2. Default setting is **Auto**.
Hot Plug Handdling mode	Options available: OS First, Firmware First, System Firmware Intermediary, Firmware First but allow OS First, Auto. Default setting is **Auto**.
Presence Detect Select mode	Controls the Presence Detect Select mode. Options available: Auto, OR, AND. Default setting is **Auto**.
Data Link Feature Cap	Options available: Auto, Enabled, Disabled. Default setting is **Auto**.
CV test	Set this to Enabled to support running PCIECV tool. Auto: preserve hardware defaults. Options available: Auto, Enabled, Disabled. Default setting is **Auto**.
SEV-SNP Support	Options available: Enable, Disable. Default setting is **Enable**.
Allow Compliance	Options available: Enable, Disable. Default setting is **Enable**.
SRIS	Options available: Enable, Disable,Auto. Default setting is **Auto**.
Link EQ Present Options	Press [Enter] for configuration of advanced items.

5-3-3-1 SRIOV



Parameter	Description
SRIOV	
SRIOV Enable	Options available: Enabled/Disabled, Auto. Default setting is **Auto**.
VF Doorbell Aperture size	Press [Enter] to configure VF Doorbell Aperture size. Default setting is **Auto**.
VF Mem Aperture size	Press [Enter] to configure VF Mem Aperture size. Default setting is **Auto**.
VF Reg Aperture size	Press [Enter] to configure VF Reg Aperture size. Default setting is **Auto**.

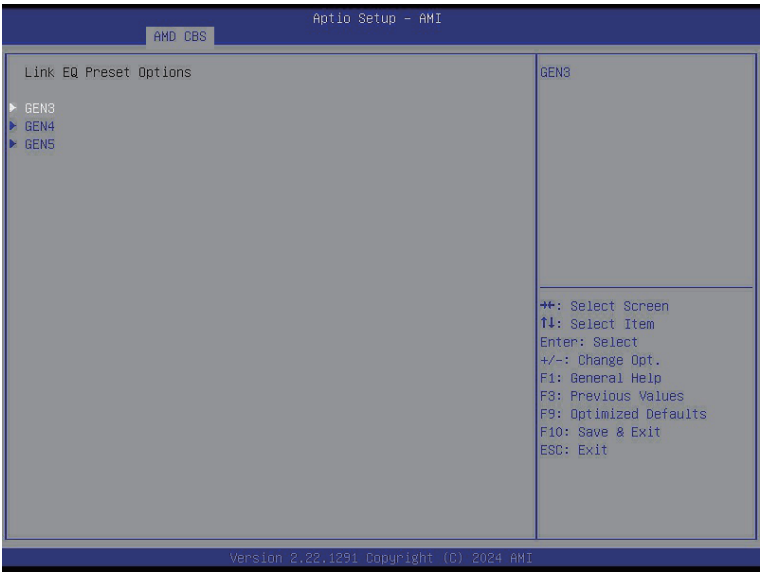
5-3-3-2 NBIO RAS Common Options



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.

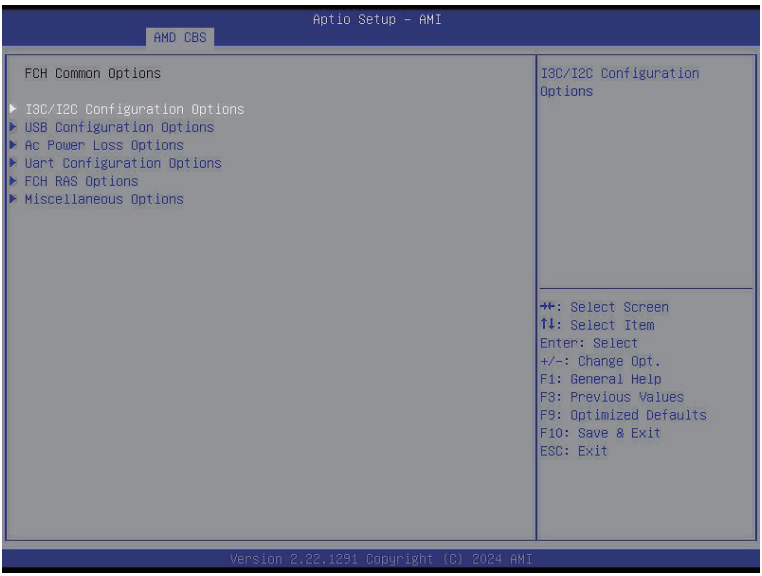
Parameter	Description
Uncorrected Converted to Poison Enable Mask High	Enables mask for masking of uncorrectable parity errors on internal arrays.
Uncorrected Converted to Poison Enable Mask Low	Enables mask for masking of uncorrectable parity errors on internal arrays.
System Hub Watchdog Timer	Specifies the timer interval of the SYSHUB Watchdog timer in milliseconds.
SLINK Response OK	Options available: Enabled, Disabled. Default setting is **Disabled**.
SLINK Response Error Handling	Options available: Enabled, Trigger MCOMMIT Error, Log Errors in MCA. Default setting is **Log Errors in MCA**.
Log Poison Data from SLINK	Options available: Enabled, Disabled. Default setting is **Disabled**.
PCIe Aer Reporting Mechanism	Selects the method of reporting AER errors from PCI Express. Options available: Firmware First, Firmware Frist but allow OS First, OS First, Auto. Default setting is **Auto**.
Edpc Control	Options available: Disabled, 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**.

5-3-3-3 Link EQ Present Options



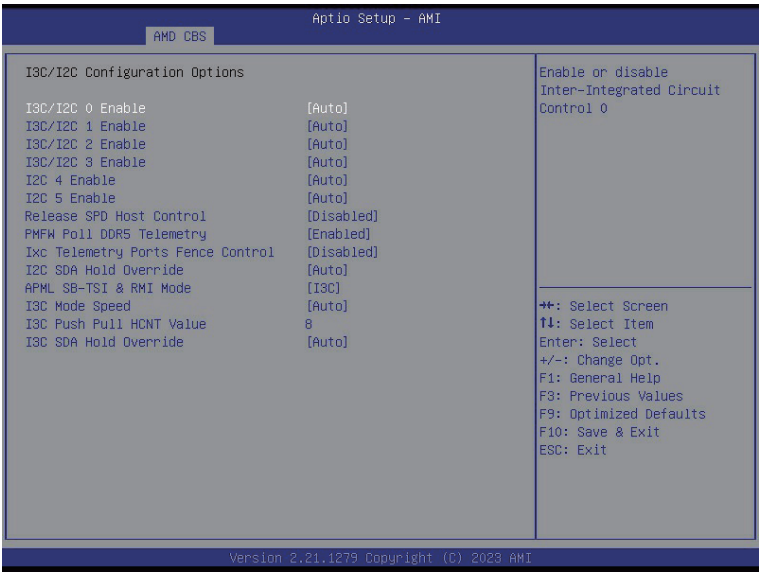
Parameter	Description
Link EQ Present Options	
GEN3	Press [Enter] for configuration of advanced items. ◆ Present Search Mask Configuration – Options available: Auto, Custom, Enable. Default setting is **Auto**.
GEN4	Press [Enter] for configuration of advanced items. ◆ Present Search Mask Configuration – Options available: Auto, Custom, Enable. Default setting is **Auto**.
GEN5	Press [Enter] for configuration of advanced items. ◆ Present Search Mask Configuration – Options available: Auto, Custom, Enable. Default setting is **Auto**.

5-3-4 FCH Common Options



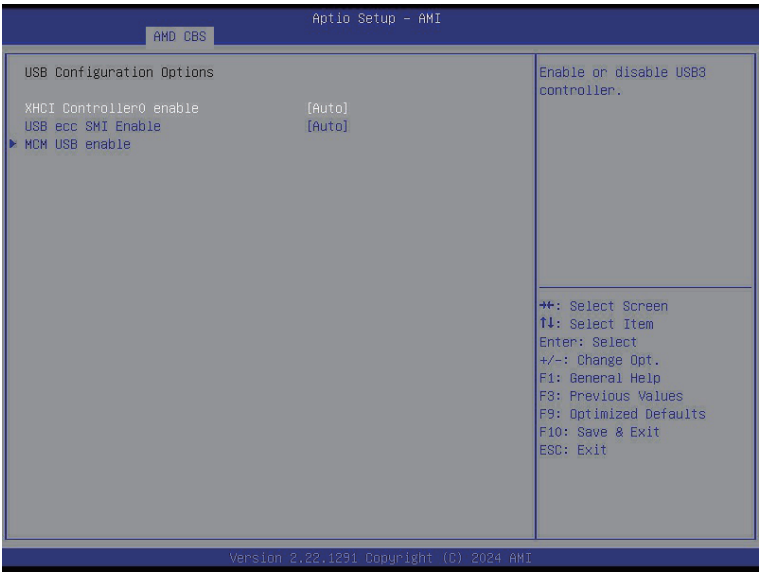
Parameter	Description
FCH Common Options	
I3C/I2C Configuration Options	Press [Enter] for configuration of advanced items.
USB Configuration Options	Press [Enter] for configuration of advanced items.
AC Power Loss Options	Press [Enter] for configuration of advanced items.
Uart Configuration Options	Press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

5-3-4-1 I3C/I2C Configuration Options



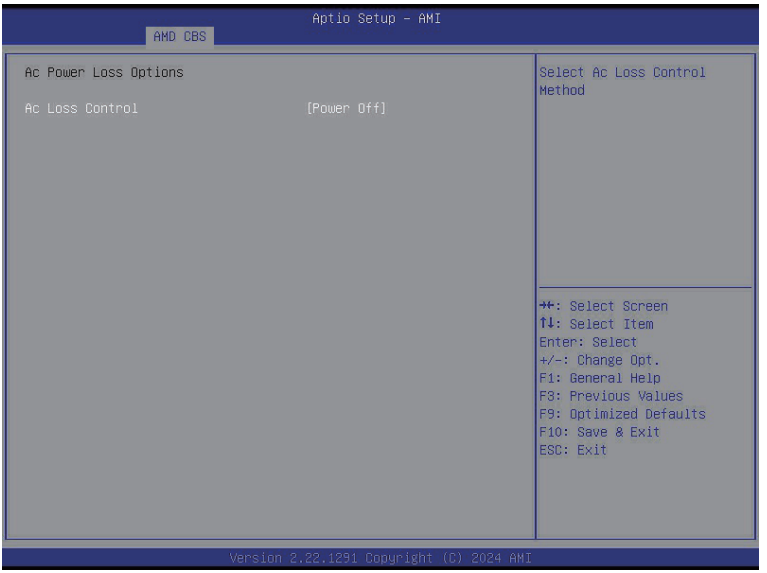
Parameter	Description
I3C/I2C Configuration Options	
I3C/I2C 0/1/2/3 Enable	Options available: Both Disabled, I3C Enabled, I2C Enabled, Auto. Default setting is **Auto**.
I2C 4/5 Enable	Options available: Disabled, Enabled, Auto. Default setting is **Auto**.
Release SPD Host Control	Options available: 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.

5-3-4-2 USB Configuration Options



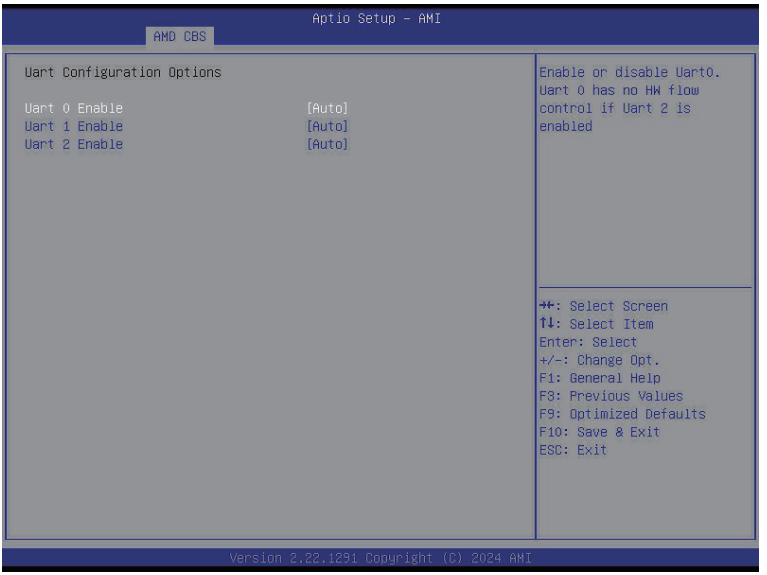
Parameter	Description
USB Configuration Options	
XHCI Controller0/1 enable	Enable/Disable USB controller. Options available: Enabled, Disabled, Auto. Default setting is **Auto**.
USB ecc SMI Enable	Options available: Enable, Off, Auto. Default setting is **Auto**.
MCM USB enable	Press [Enter] for configuration of advanced items. ◆ XHCI2/ XHCI3 enable (Socket1) – Options available: Enabled, Disabled, Auto. Default setting is **Auto**.

5-3-4-3 AC Power Loss Options



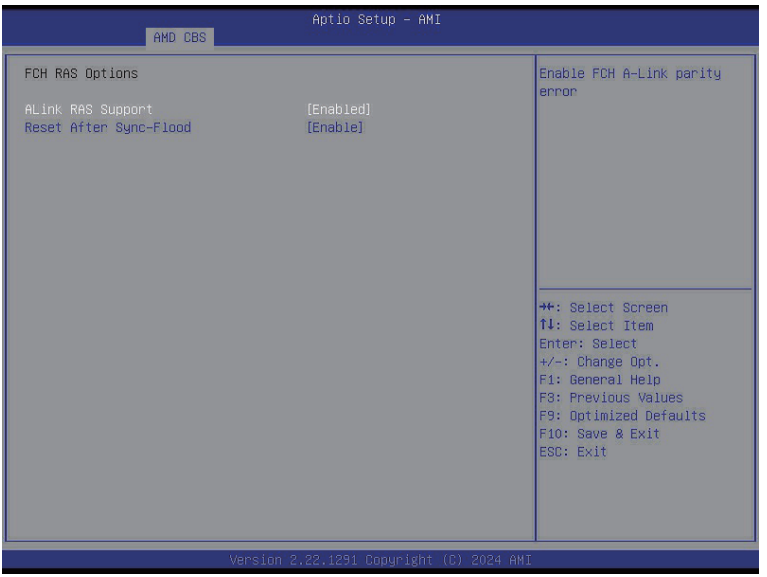
Parameter	Description
AC Power Loss Options	
AC Loss Control	Selects the AC Loss Control Method. Options available: Power Off, Power On, Last State. Default setting is **Last State**.

5-3-4-4 Uart Configuration Options



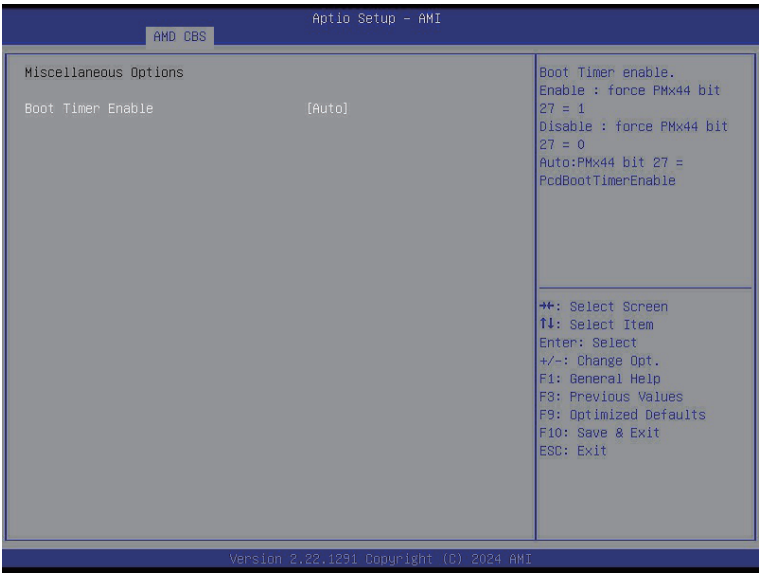
Parameter	Description
Uart Configuration Options	
Uart 0/1/2 Enable	Options available: Disabled, Enabled, Auto. Default setting is **Auto**.

5-3-4-5 FCH RAS Options



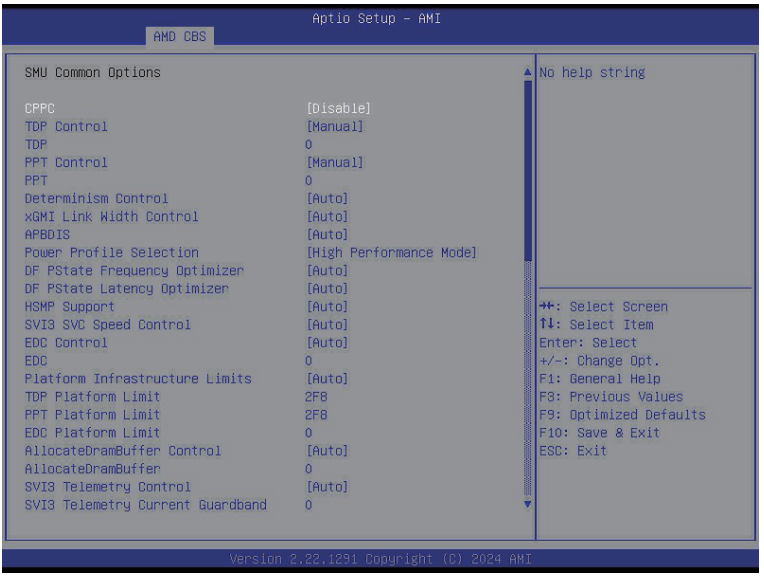
Parameter	Description
FCH RAS Options	
ALink RAS Support	Enable/Disable the ALink RAS Support. Options available: Disabled, Enabled, Auto. Default setting is **Auto**.
Reset After Sync Flood	Enables AB to forward downstream sync-flood message to system controller. Options available: Enable, Disable,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

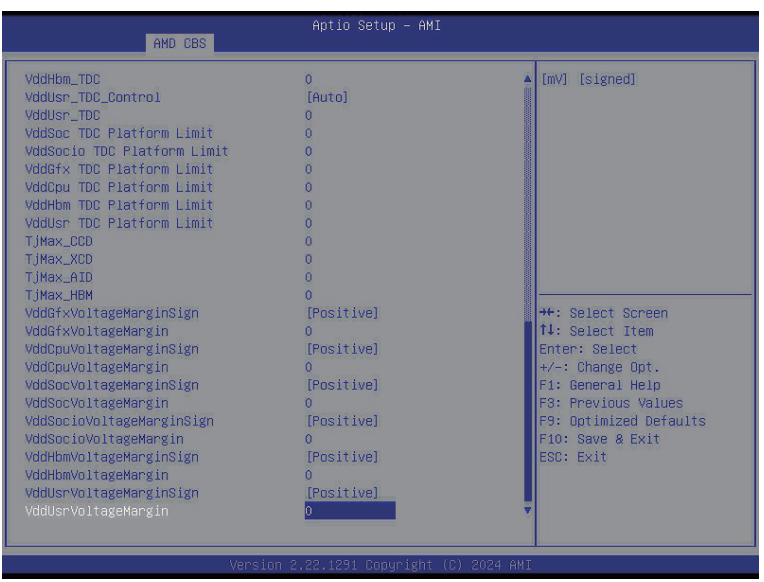
5-3-4-6 Miscellaneous Options



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

5-3-5 SMU Common Options



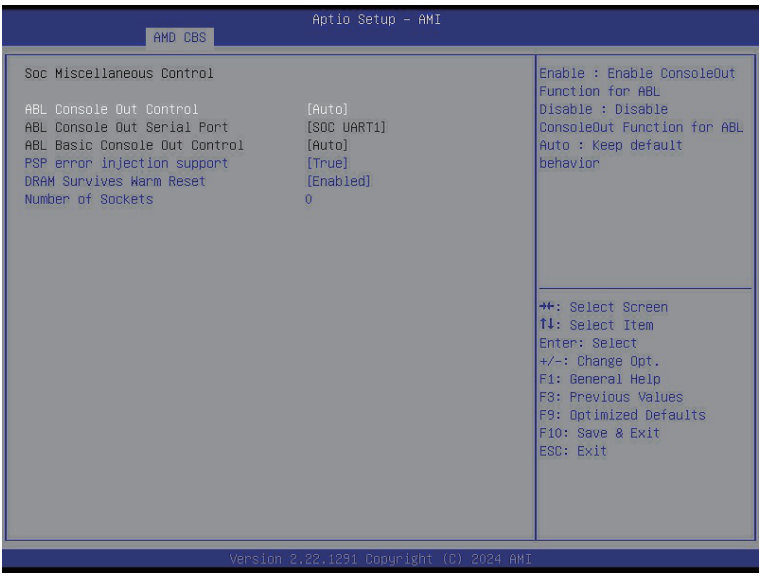


Parameter	Description
SMU Common Options	
CPPC	Enable/Disable the CPPC feature. Options available: Disabled, Enabled, Auto. Default setting is **Auto**.
TDP Control	Options available: Manual, Auto. Default setting is **Auto**.
TDP	Configure TDP (W)
PPT Control	Options available: Manual, Auto. Default setting is **Auto**.
PPT	Configure PPT (W)
Determinism Control	Selects use the fused Determinism or set customized Determinism. Options available: Manual, Auto. Default setting is **Auto**.
xGMI Link Width Control	Options available: Manual, Auto. Default setting is **Auto**.
APBDIS	Options available: 0, 1, Auto. Default setting is **Auto**.
Power Profile Selection	Options available: High Performance Mode, Efficiency Mode, Maximum IO Performance Mode. Default setting is **High Performance Mode**.
BoostFmaxEn	Options available: Manual, Auto. Default setting is **Auto**.
DF PState Frequency Optimizer	Options available: Auto, Enabled, Disabled. Default setting is **Auto**.
DF PState latency Optimizer	Options available: Auto, Enabled, Disabled. Default setting is **Auto**.
HSMP Support	Enable/Disable the HSMP support. Options available: Disabled, Enabled, Auto. Default setting is **Auto**.
SVI3 SVC Speed Control	Options available: Auto, Manual. Default setting is **Auto**.
SVI3 SVC Speed Control	Options available: Auto, Manual. Default setting is **Auto**.
EDC Control	Options available: Auto, Manual. Default setting is **Auto**.
EDC	Configure EDC
Platform Infrastructure	Options available: Auto, Manual. Default setting is **Auto**.
TDP Platform Limit	Configure TDP Platform Limit.
PPT Platform Limit	Configure PPT Platform Limit.
EDC Platform Limit	Configure EDC Platform Limit.
AllocationDreamBuffer Control	Options available: Auto, Manual. Default setting is **Auto**.
AllocationDreamBuffer	Configure AllocationDreamBuffer

Parameter	Description
SVI3 Telemetry Control	Options available: Auto, Manual. Default setting is **Auto**.
SVI3 Telemetry Current Guardband	Specfiiy the amount of SVI3 telemetry current margin.
Vddsoc TDC Control	Options available: Auto, Manual. Default setting is **Auto**.
Vddsoc TDC	Configure Vddsoc TDC
VddSocio TDC Control	Options available: Auto, Manual. Default setting is **Auto**.
VddSocio TDC	Configure VddSocio TDC
VddGfx_TDC_Control	Options available: Auto, Manual. Default setting is **Auto**.
VddGfx_TDC	Configure VddGfx TDC
VddCpu_TDC_Control	Options available: Auto, Manual. Default setting is **Auto**.
VVddCpu_TDC	Configure VddCpu_TDC
VddHbm_TDC_Control	Options available: Auto, Manual. Default setting is **Auto**.
VddHbm_TDC	Configure VddHbm_TDC
VddUsr_TDC_Control	Options available: Auto, Manual. Default setting is **Auto**.
VddUsr_TDC	Configure VddUsr_TDC
VddSoc TDC Platform Limit	Configure VddSoc TDC Platform Limit
VddSocio TDC Platform Limit	Configure VddSocio TDC Platform Limit
VddGfx TDC Platform Limit	Configure VddGfx TDC Platform Limit
VddCpu TDC Platform Limit	Configure VddCpu TDC Platform Limit
VddHbm TDC Platform Limit	Configure VddHbm TDC Platform Limit
VddUsr TDC Platform Limit	Configure VddUsr TDC Platform Limit
TjMax_CCD	Tj max override for CCD
TjMax_XCD	Tj max override for VCD
TjMax_AID	Tj max override for AID
TjMax_HBM	Tj max override for HBM
VddGfxVlotageMarginSign	Options available: Positive, Negative. Default setting is **Positive**.
Parameter	**Description**

VddGfxVlotageMargin	Configure VddGfx Vlotage Margin
VddCpuVlotageMarginSign	Options available: Positive, Negative. Default setting is **Positive**.
VddCpuVlotageMargin	Configure VddCpu Vlotage Margin Sign
VddSocVlotageMarginSign	Options available: Positive, Negative. Default setting is **Positive**.
VddSocVlotageMargin	Configure VddSoc Vlotage Margin Sign
VddSocioVlotageMarginSign	Options available: Positive, Negative. Default setting is **Positive**.
VddSocioVlotageMargin	Configure VddSocio Vlotage Margin Sign
VddHbmVlotageMarginSign	Options available: Positive, Negative. Default setting is **Positive**.
VddHbmVlotageMargin	Configure VddHbm Vlotage Margin Sign
VddUsrVlotageMarginSign	Options available: Positive, Negative. Default setting is **Positive**.
VddHUsrVlotageMargin	Configure VddUsr Vlotage Margin Sign

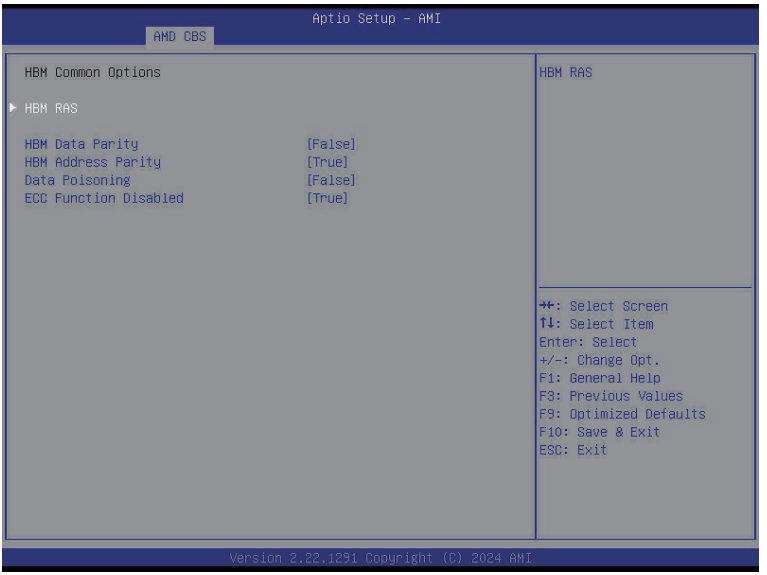
5-3-6 SOC Miscellaneous



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 Portl(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**.
PSP error injection support	Options available: False, True. Default setting is **True**.
DRAM Survives Warm reset	Options available: Disabled, Enabled. Default setting is **Enabled**.
Number of Sockets	Define the number of sockets.

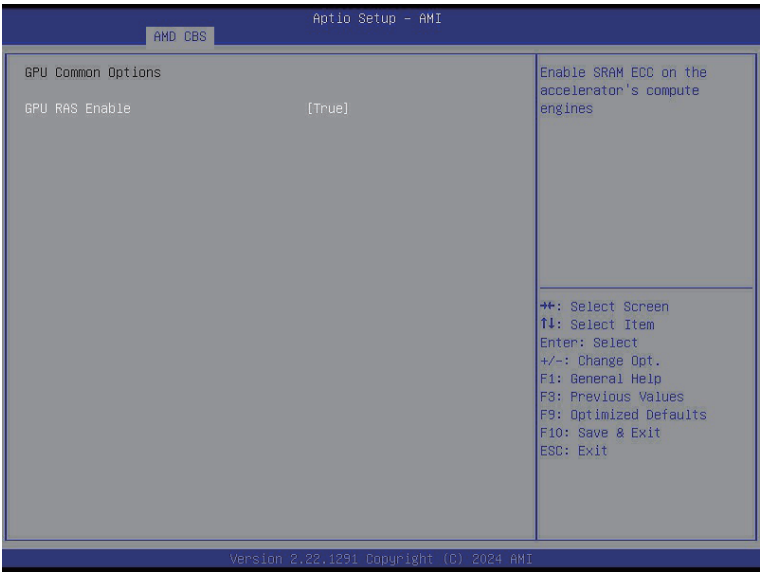
(Note) Advanced items are configurable when this item is defined.

5-3-7 HBM Common Options



Parameter	Description
HBM Common Options	
HBM RAS	Press [Enter] for advanced configuration. ◆ HBM DRAM Corrected Error Counter Leak Rate – Program Rate value for HBM DRAM Corrected Error Counter function. ◆ HBM DRAM Corrected Error Counter Leak Threshold. – The programming value for HBM DRAM Corrected Error Counter function
HBM Data Parity	Options available: True, False. Default setting is **False**.
HBM Address Parity	Options available: True, False. Default setting is **True**.
Data Poisoning	Options available: True, False. Default setting is **False**.
ECC Function Disabled	Options available: True, False. Default setting is **True**.

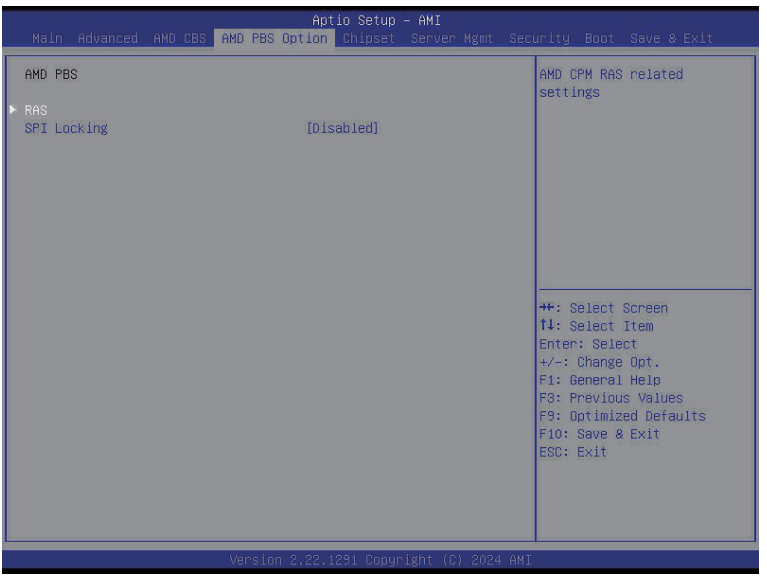
5-3-8 GPU Common Options



Parameter	Description
GPU Common Options	
GPU RAS Enable	Enable SRAM ECC on the accelerator's compute engines. Options available: True, False. Default setting is **True**.

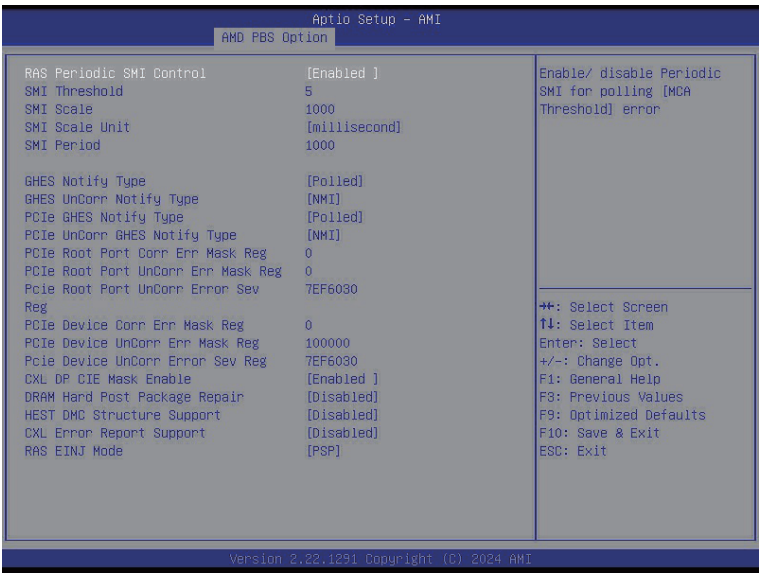
5-4 AMD PBS Menu

AMD PBS Option menu displays submenu options for configuring the function of AMD PBS. Select a submenu item, then press [Enter] to access the related submenu screen.



Parameter	Description
RAS	Press [Enter] for configuration of advanced items.
SPI Locking	Enable/Disable SPI Locking for protect ROM part. Options available: Disabled, Enabled. Default setting is **Disabled**.

5-4-1 RAS

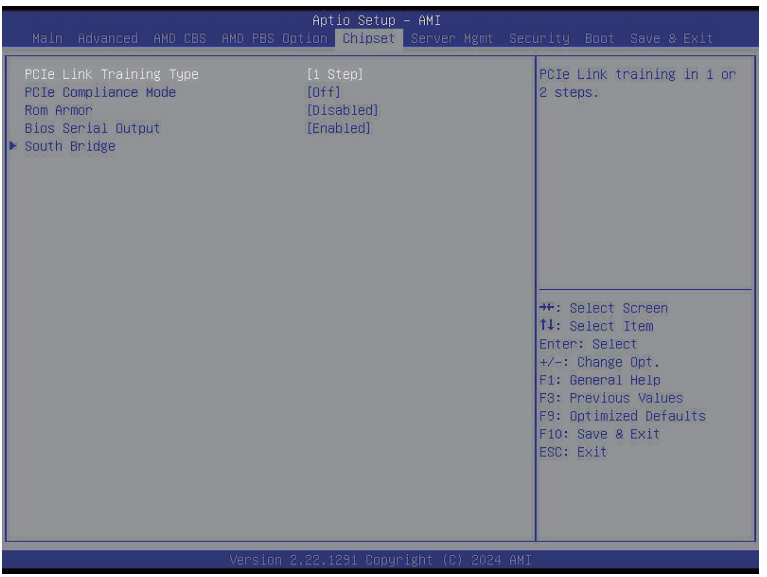


Parameter	Description
RAS Periodic SMI Control	Enable/Disable the Periodic SMI for polling [MCA Threshold] error. Options available: Disabled, Enabled. Default setting is **Enabled**.
SMI Threshold	Configures the SMI Threshold value.
SMI Scale	Configures the SMI Scale value.
SMI Scale Unit	Defines the unit of time scale. Options available: millisecond, second, minute. Default setting is **millisecond**.
SMI Period	Configures the SMI Period.
GHES Notify Type	Selects the Notification type for deferred/ corrected errors. Options available: Polled, SCI. Default setting is **Polled**.
GHES UnCorr Notify Type	Selects the Notification type for uncorrected errors. Options available: Polled, NMI. Default setting is **NMI**.
PCIe GHES Notify Type	Selects the Notification type for PCIe corrected errors. Options available: Polled, SCI. Default setting is **Polled**.
PCIe UnCorr GHES Notify Type	Selects the Notification type for PCIe uncorrected errors. Options available: Polled, NMI. Default setting is **NMI**.
PCIe Root Port Corr Err Mask Reg	Initialize the PCIe AER Corrected Error Mask register of Root Port.

Parameter	Description
PCIe Root Port UnCorr Err Mask Reg	Initialize the PCIe AER Uncorrected Error Mask register of Root Port.
PCIe Root Port UnCorr Err Sev Reg	Initialize the PCIe AER Uncorrected Error Severity register of Root Port.
PCIe Device Corr Err Mask Reg	Initialize the PCIe AER Corrected Error Mask register of PCIe device.
PCIe Device UnCorr Err Mask Reg	Initialize the PCIe AER Uncorrected Error Mask register of PCIe device.
PCIe Device UnCorr Err Sev Reg	Initialize the PCIe AER Uncorrected Error Severity register of PCIe device.
CXL DP CIE Enable	Options available: Disabled, Enabled. Default setting is **Enabled**.
DRAM Hard Post Package Repair	This feature allows spare DRAM rows to replace malfunctioning rows via an in-field repair mechanism. Options available: Disabled, Enabled. Default setting is **Disabled**.
HEST DMC Structure Support	HEST DMC (Deferred Machine Check) Structure Support. Options available: Disabled, Enabled. Default setting is **Disabled**.
CXL Error Report Support	Enable/Disable CXL Error Reporting. Options available: Disabled, Enabled. Default setting is **Disabled**.
RAS EINJ Mode	BIOS: Send APEI EINJ actions to PSP via CPM EINJ SMI callback. PSP: Send APEI EINJ actions to PSP via PSP Mailbox. Options available: BIOS, PSP. Default setting is **PSP**.

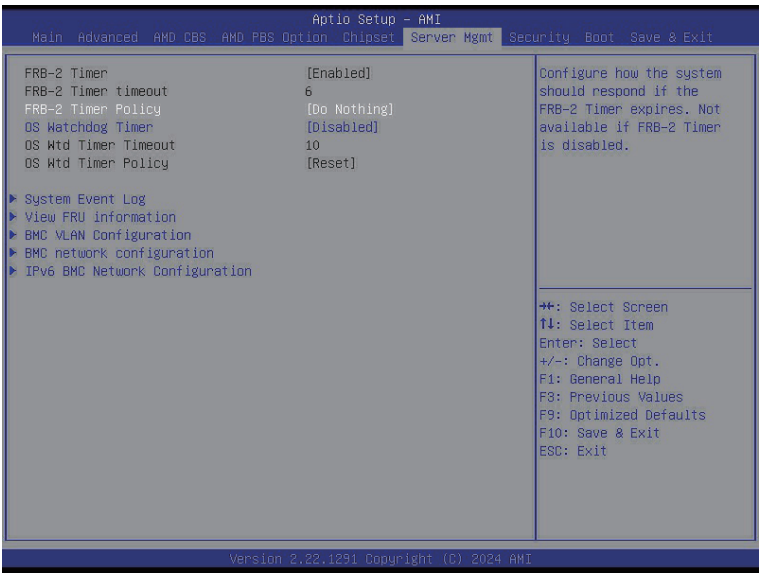
5-5 Chipset Setup Menu

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	PCIe Link training in 1 or 2 steps. Options available: 1 Step, 2 Step. Default setting is **1 Step.**
PCIe Compliance Mode	Options available: Off, On. Default setting is **Off.**
Rom Armor	Enable/Disable Rom Armor. Options available: Disabled, Enabled. Default setting is **Disabled**.
BIOS Serial Output	Enable/Disable BIOS Serial Output. Options available: Disabled, Enabled. Default setting is **Enabled**.

5-6 Server Management Menu

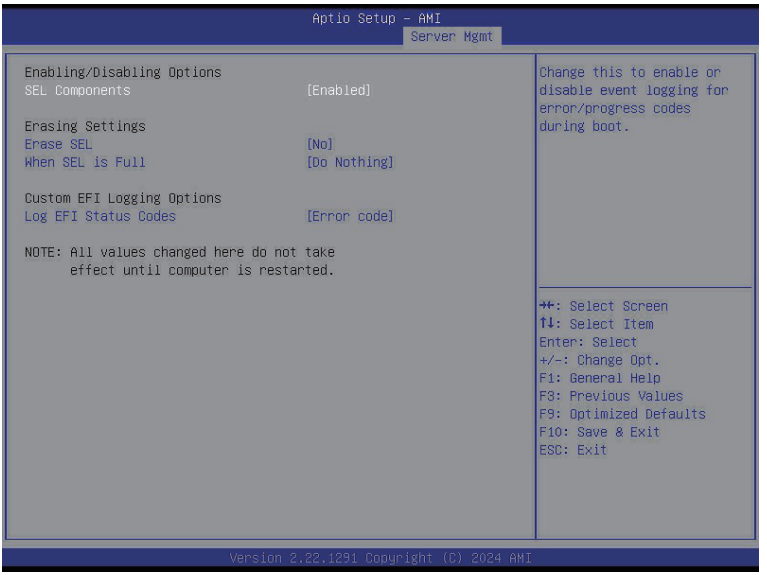


Parameter	Description
FRB-2 Timer	Enable/Disable FRB-2 timer (POST timer). Default setting is **Enabled**.
FRB-2 Timer timeout	Configures the FRB-2 Timer timeout. Default setting is **20 minutes**.
FRB-2 Timer Policy	Configures the FRB-2 Timer policy. Options available: Do Nothing, Reset, Power Down, 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**.

(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 VLAN Configuration	Press [Enter] to configure advanced items.
BMC network configuration	Press [Enter] to configure advanced items.
IPv6 BMC Network Configuration	Press [Enter] to configure advanced items.

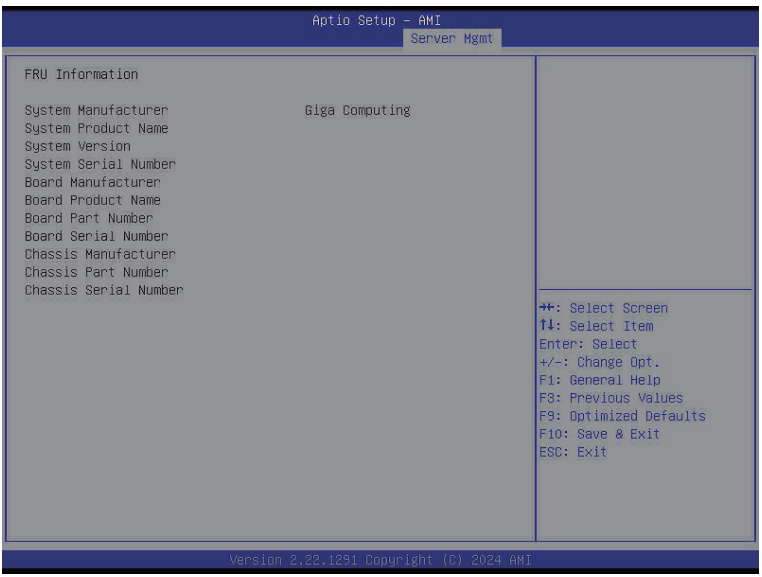
5-6-1 System Event Log



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**.

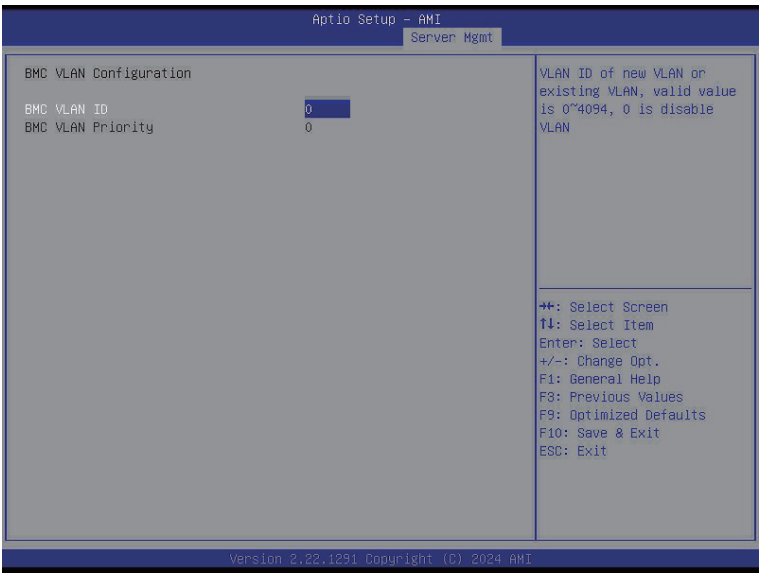
5-6-2 View FRU Information

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

5-6-3 BMC VLAN Configuration

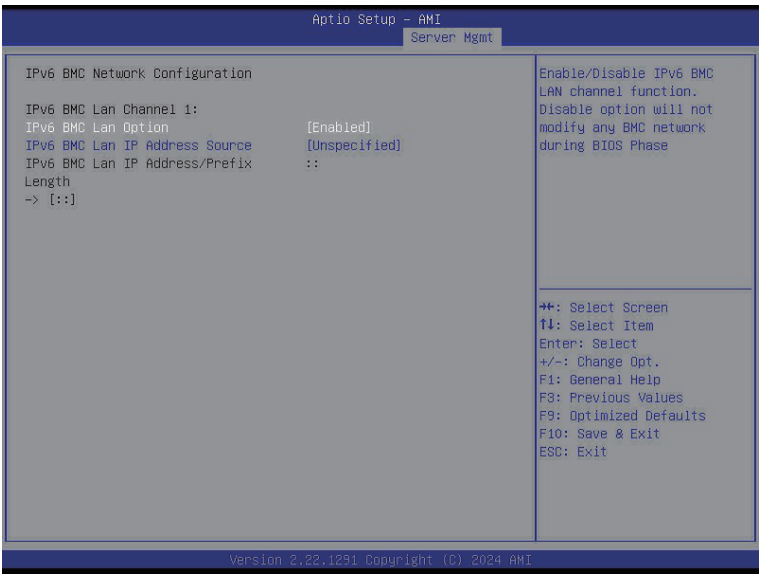


Parameter	Description
BMC VLAN Configuration	
BMC VLAN ID	Select to configure BMC VLAN ID. The valid range is from 0 to 4094. When set to 0, BMC VLAN ID will be disabled.
BMC VLAN Priority	Select to configure BMC VLAN Priority. The valid range is from 0 to 7. When BMC VLAN ID is set to 0, BMC VLAN Priority will not be selected.

5-6-4 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.
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.

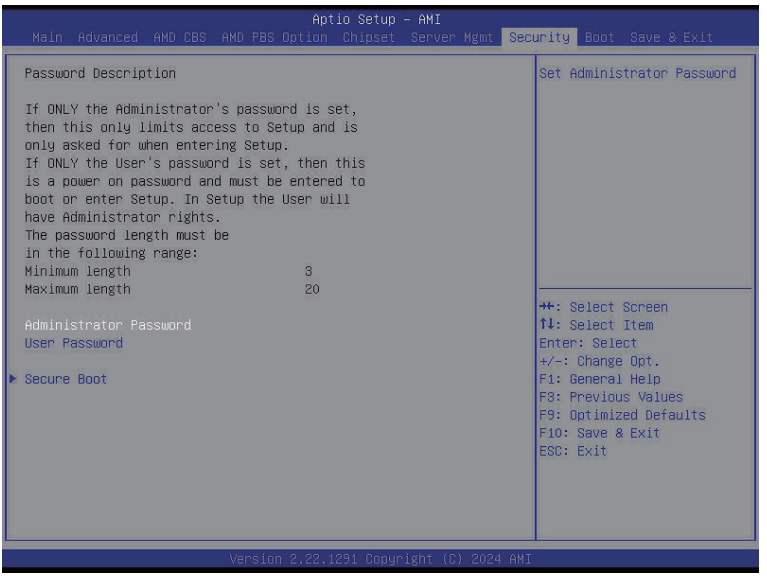
5-6-5 IPv6 BMC Network Configuration



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, Disabled, Enabled. Default setting is **Enabled**.
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.

5-7 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.

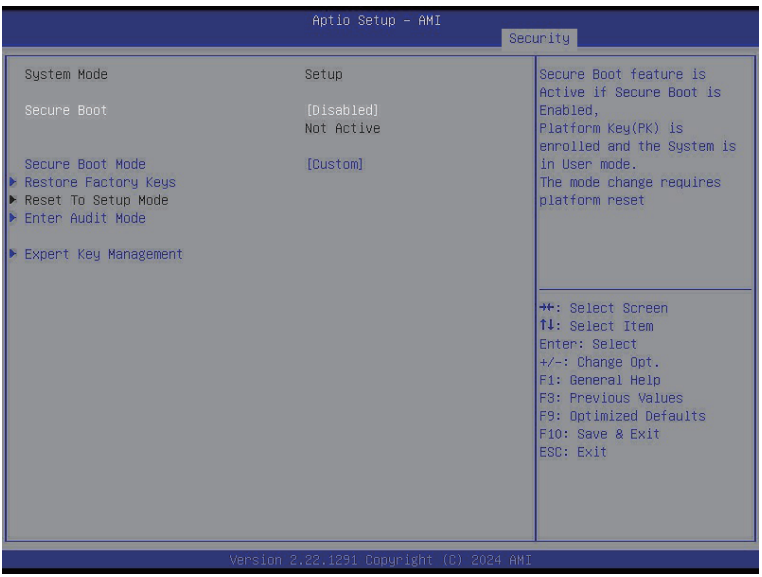
- User Password

  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.

5-7-1 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.



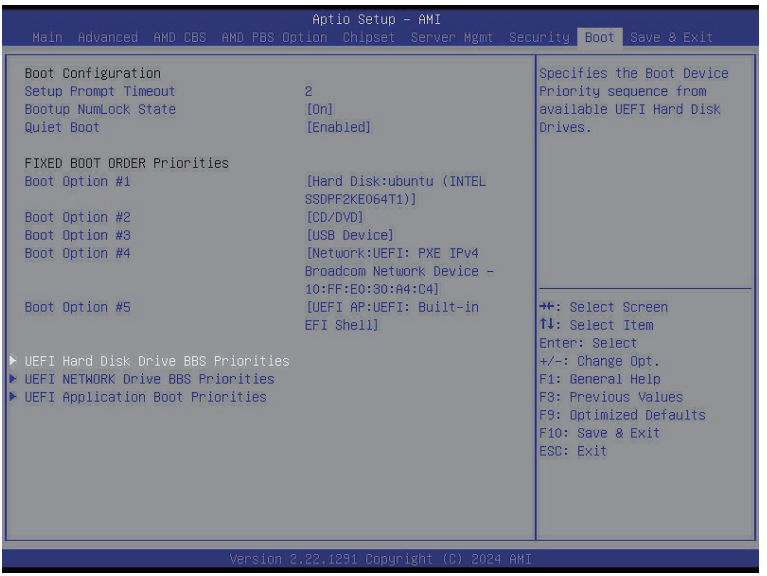
Parameter	Description
System Mode	Displays if the system is in User mode or Setup mode.
Secure Boot	Enable/ Disable the Secure Boot function. Options available: Enabled, Disabled. Default setting is **Disabled**.
Secure Boot Mode(Note)	Secure Boot requires all the applications that are running during the booting process to be pre-signed with valid digital certificates. This way, the system knows all files being loaded before the Operating System loads to the login screen have not been tampered with. When set to Standard, it will automatically load the Secure Boot keys form 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
Expert Key Management	Press [Enter] to configure advanced items. **Please note that this item is configurable when Secure Boot Mode is set to Custom.** ◆ Factory Key Provision – Allows to provision factory default Secure Boot keys when system is in Setup Mode. – Options available: Enabled, Disabled. Default setting is **Disabled**. ◆ Restore Factory Keys – Installs all factory default keys. It will force the system in User Mode. – Options available: Yes, No. ◆ Enroll Efi Image – Press [Enter] to enroll SHA256 hash of the binary into Authorized Signature Database (db). ◆ Secure Boot variable – Displays the current status of the variables used for secure boot. ◆ Platform Key (PK) – Displays the current status of the Platform Key (PK). – Press [Enter] to configure a new PK. – Options available: Update. ◆ Key Exchange Keys (KEK) – Displays the current status of the Key Exchange Key Database (KEK). – Press [Enter] to configure a new KEK or load additional KEK from storage devices. – Options available: Update, Append. ◆ Authorized Signatures (DB) – Displays the current status of the Authorized Signature Database. – Press [Enter] to configure a new DB or load additional DB from storage devices. – Options available: Update, Append. ◆ Forbidden Signatures (DBX) – Displays the current status of the Forbidden Signature Database. – Press [Enter] to configure a new dbx or load additional dbx from storage devices. – Options available: Update, Append. ◆ Authorized TimeStamps (DBT) – Displays the current status of the Authorized TimeStamps Database. – Press [Enter] to configure a new DBT or load additional DBT from storage devices. – Options available: Update, Append. ◆ OsRecovery Signatures – Displays the current status of the OsRecovery Signature Database. – Press [Enter] to configure a new OsRecovery Signature or load additional OsRecovery Signature from storage devices. – Options available: Update, Append.

5-8 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.

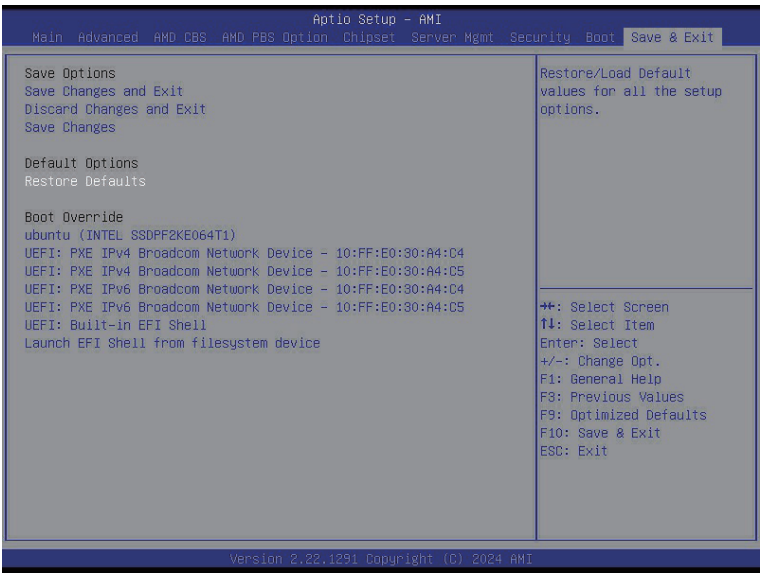


Parameter	Description
Boot Configuration	
Setup Prompt Timeout	Number of seconds to wait for setup activation key. 65535 (0xFFFF) means indefinite waiting. Press the numeric keys to input the desired values.
Bootup NumLock State	Enable/Disable the Bootup NumLock function. Options available: On, Off. Default setting is **On**.
Quiet Boot	Enable/Disable showing the logo during POST. Options available: Enabled, Disabled. Default setting is **Enabled**.

Parameter	Description
FIXED BOOT ORDER Priorities	
Boot Option #1 / #2 / #3 / #4 / #5	Press [Enter] to configure the boot priority. By default, the server searches for boot devices in the following sequence: 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.

5-9 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.

5-10 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.