

GIGABYTE™

H261-Z60

H261-Z61

HCI Server – AMD DP 2U 4 Nodes Server

User Manual

Rev.B00

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Documentation Classifications

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

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

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

For More Information

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




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

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

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

Conventions

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

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

Server Warnings and Cautions

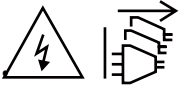
Before installing a server, be sure that you understand the following warnings and cautions.



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.



WARNING!

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



WARNING!

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



WARNING!

This equipment is not suitable for use in locations where children are likely to be present.



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 battery with the same or equivalent type recommended by the manufacturer.
- Dispose of used batteries according to the manufacturer's instructions.

Electrostatic Discharge (ESD)



CAUTION!

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

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

Installing or removing jumpers: A jumper is a small plastic encased conductor that slips over two jumper pins. Some jumpers have a small tab on top that can be gripped with 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

	System Dimension	<ul style="list-style-type: none"> ◆ 2U 4 Nodes - Rear access ◆ 440 (W) x 87(H) x 820(D) mm
	CPU	<ul style="list-style-type: none"> ◆ AMD EPYC™ 7003 series processor family ◆ Dual processors, 7nm, Socket SP3 ◆ Up to 64-core, 128 threads per processor ◆ TDP up to 200W <p>Compatible with AMD EPYC™ 7002 series processor family</p> <p>NOTE: If only 1 CPU is installed, some PCIe or memory functions might be unavailable</p>
	Socket	<p>Per Node:</p> <ul style="list-style-type: none"> ◆ 2 x LGA 4094 (1 x Intel® I350-AM2) ◆ 1 x Dedicated management port <p>Total:</p> <ul style="list-style-type: none"> ◆ 8 x 1GbE LAN ports (1 x Intel® I350-AM2) ◆ 4 x Dedicated management ports ◆ 1 x 10/100/1000 *CMC global management port ◆ *CMC: Chassis Management Controller, to monitor all status of computing nodes
	Chipset	<ul style="list-style-type: none"> ◆ System on Chip (SoC)
	Memory	<p>Per Node:</p> <ul style="list-style-type: none"> ◆ 16 x DIMM slots <p>Total:</p> <ul style="list-style-type: none"> ◆ 64 x DIMM slots ◆ DDR4 memory supported only ◆ 8-Channel memory architecture ◆ RDIMM modules up to 128GB supported ◆ LRDIMM modules up to 128GB supported ◆ 3DS RDIMM/LRDIMM modules up to 256GB supported ◆ Memory speed: Up to 3200*/ 2933 MHz <p>Note: Follow BIOS setting and memory QVL list if running 3200 Mhz</p>
	LAN	<p>Per Node:</p> <ul style="list-style-type: none"> ◆ 2 x 1GbE LAN ports (1 x Intel® I350-AM2) ◆ 1 x Dedicated management port <p>Total:</p> <ul style="list-style-type: none"> ◆ 8 x 1GbE LAN ports (1 x Intel® I350-AM2) ◆ 4 x Dedicated management ports ◆ 1 x 10/100/1000 *CMC global management port <p>*CMC: Chassis Management Controller, to monitor all status of computing nodes</p>



Expansion Slots

Per node:

- ◆ 2 x Half-length low-profile slots with PCIe x16 (Gen3 x16 bus) from CPU_0
- ◆ 1 x OCP mezzanine slot with PCIe Gen3 x16 bus from CPU_0
- ◆ 2 x M.2 slots from CPU_0 and CPU_1:
 - M-key
 - PCIe Gen3 x4
 - Supports NGFF-2242/2260/2280/22110 cards
 - CPU TDP is limited to 120W if using M.2 device

Total:

- ◆ 8 x Half-length low-profile slots with PCIe x16 (Gen3 x16 bus) from CPU_0
- ◆ 4 x OCP mezzanine slots with PCIe Gen3 x16 bus from CPU_0
- ◆ 8 x M.2 slots from CPU_0 and CPU_1:
 - M-key
 - PCIe Gen3 x4
 - Supports NGFF-2242/2260/2280/22110 cards
 - CPU TDP is limited to 120W if using M.2 device



Video

- ◆ Integrated in Aspeed® AST2500
- ◆ 2D Video Graphic Adapter with PCIe bus interface
- ◆ 1920x1200@60Hz 32bpp, DDR4 SDRAM
- ◆ Management chip in CMC board:
- ◆ Integrated in Aspeed® AST2520A2-GP



Storage

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Per node:

- ◆ 6 x 2.5" SATA hot-swappable HDD/SSD onboard SATA ports
- or
- ◆ 4 x 2.5" SATA /SAS hot-swappable HDD/SSD with SAS RAID Card

Total:

- ◆ 24 x 2.5" hot-swappable HDD/SSD bays
- ◆ SAS card is required for SAS devices support

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Per node:

- ◆ 2 x 2.5" U.2, 4 x SATA/SAS hot-swappable HDD/SSD bays

Total:

- ◆ 8 x 2.5" U.2, 16 x SATA/SAS hot-swappable HDD/SSD bays
- ◆ SAS card is required for SAS devices support



Internal IO

Per Node:

- ◆ 2 x M.2 slots
- ◆ 1 x COM header
- ◆ 1 x TPM header
- ◆ 1 x BMC SGPIO header
- ◆ 1 x JTAG BMC header
- ◆ 1 x PLD header
- ◆ 1 x Clear CMOS jumper
- ◆ 1 x IPMB connector



Front I/O

Per node:

- ◆ 1 x Power button with LED
- ◆ 1 x ID button with LED
- ◆ 1 x Status LED

Total:

- ◆ 4 x Power button with LED
- ◆ 4 x ID button with LED
- ◆ 4 x Status LED
- ◆ *1 x CMC status LED

*Only one CMC status LED per system



Rear I/O

Per node:

- ◆ 2 x USB 3.0
- ◆ 1 x VGA
- ◆ 2 x RJ45
- ◆ 1 x RJ45 MLAN
- ◆ 1 x ID LED

Total:

- ◆ 8 x USB 3.0
- ◆ 4 x VGA
- ◆ 8 x RJ45
- ◆ 4 x RJ45 MLAN
- ◆ 4 x ID LEDs
- ◆ *1 x CMC global management port

*Only one CMC global management port per system



TPM

Per Node:

- ◆ 1 x TPM header with LPC interface
- ◆ Optional TPM2.0 kit: CTM000



System Management

- ◆ Aspeed® AST2500 management controller
- ◆ GIGABYTE Management Console (AMI MegaRAC SP-X) web interface

- ◆ Dashboard
- ◆ JAVA Based Serial Over LAN
- ◆ 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



Power Supply

- ◆ 2 x 2200W redundant PSUs
- ◆ 80 PLUS Platinum

- ◆ AC Input:
 - 100-127V~/ 14A, 47-63Hz
 - 200-240V~/ 12.6A, 47-63Hz

- ◆ DC Output:
 - Max 1200W/ 100-127V~
 - +12.12V/ 95.6A
 - +12Vsb/ 3.5A
 - Max 2200W/ 200-240V
 - +12.12V/ 178.1A
 - +12Vsb/ 3.5A

NOTE:

- * The system power supply requires C19 type power cord
- * 2000W 80 PLUS Titanium PSU as an option

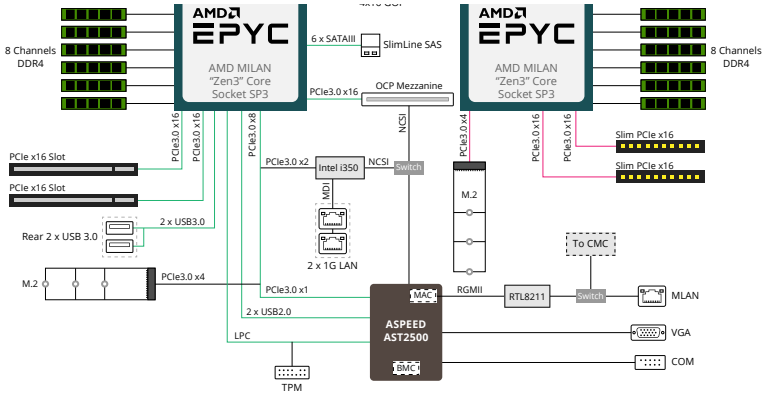


Ambient Temperature	◆	Operating temperature: 10°C to 35°C
	◆	Operating humidity: 8-80% (non-condensing)
Relative Humidity	◆	Non-operating temperature: -40°C to 60°C
	◆	Non-operating humidity: 20%-95% (non-condensing)

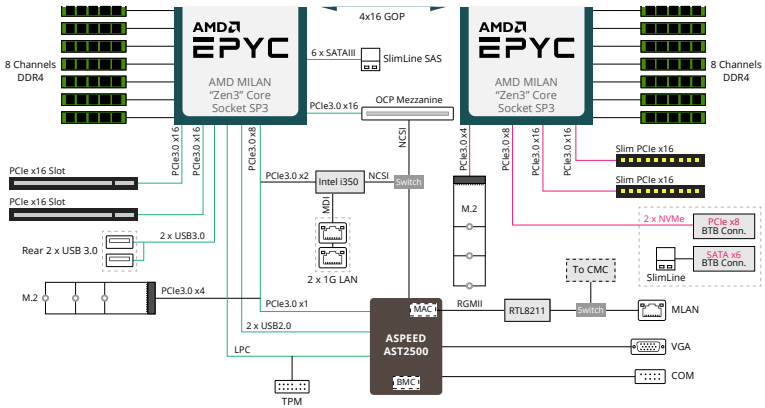
* We reserves the right to make any changes to the product specifications and product-related information without prior notice.

1-3 System Block Diagram

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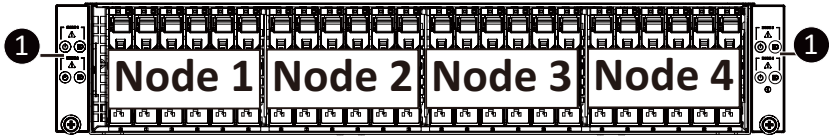


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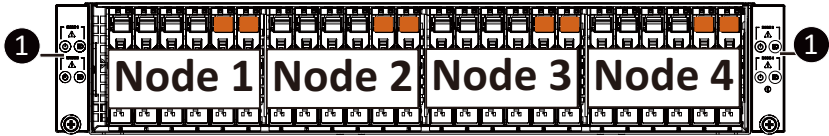
Chapter 2 System Appearance

2-1 Front View

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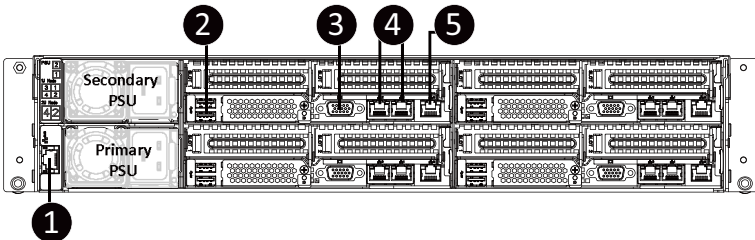


No.	Description
1.	Front Panel LEDs and buttons
NOTE! The Orange Latche Supports NVMe	



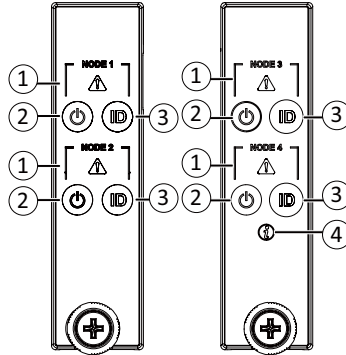
- Orange HDD latch supports NVMe.
- Please Go to Chapter 2-3 Front Panel LED and Buttons for detail description of function LEDs.

2-2 Rear View



No.	Description
1.	Chassis management Console port
2.	USB 3.0 ports
3.	VGA port
4.	1 Gb LAN port
5.	10/100/1000 Server management LAN port

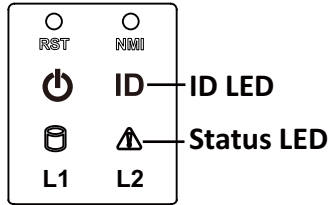
2-3 Front Panel LED and Buttons



No.	Name	Color	Status	Description
1.	System Status LED ^(Note)	Green	On	System is operating normally.
		Amber	On	Critical condition, may indicates: System fan failure System temperature
			Blink	Non-critical condition, may indicates: Redundant power module failure Temperature and voltage issue Chassis intrusion
		N/A	Off	Non-critical condition, may indicates: Redundant power module failure Temperature and voltage issue Chassis intrusion
2.	Power button with LED	Green	On	System is powered on
		Green	Blink	System is in ACPI S1 state (sleep mode)
		N/A	Off	<ul style="list-style-type: none"> System is not powered on or in ACPI S5 state (power off) System is in ACPI S4 state (hibernate mode)
3.	ID Button with LED ^(Note)	Blue	On	System identification is active.
		N/A	Off	System identification is disabled.
4.	Enclosure	Green	On	System is operating normally.
		Amber	On	Critical condition, may indicates:Power module failureSystem fan failurePower supply voltage issueSystem temperature
			Blink	Non-critical condition, may indicates:Redundant power module failureTemperature and voltage issueChassis intrusion

(Note) If your server features RoT function, please see the following section for detail LED behavior.

2-3-1 RoT LEDs



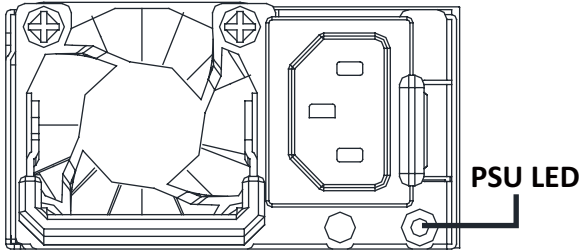
	LED on Front panel ^(Note5)	
	ID LED	Status LED
EC Firmware (FW) Authentication fail or not exit		
EC FW is broken or not exit ^(Note1)	OFF	OFF
Authenticating/Recovering BMC/BIOS Images		
Authenticating Images	OFF	OFF
Recovering BMC Active Flash	Blinks Blue 4 times per second	Blinks Green 4 times per second
Recovering BIOS Active Flash	Blinks Blue 4 times per second	Blinks Green 4 times per second
Authentication (AUTH) Pass		
Recovering BIOS Active Flash	OFF	OFF
BMC : AUTH pass after doing recovery BIOS : AUTH pass after doing recovery	OFF	OFF
BMC : AUTH pass after doing recovery BIOS : AUTH pass	OFF	OFF
BMC : AUTH pass BIOS : AUTH pass after doing recovery	OFF	OFF

Active Flash Authentication (AUTH) Fail		
BMC : AUTH Fail ^(Note2)	Blinks Blue	Blinks Green
	1 time per second	1 time per second
BIOS : AUTH fail ^(Note2)	Blinks Blue	Blinks Amber
	1 time per second	1 time per second
BMC : AUTH fail after doing recovery ^(Note3)	Blinks Blue	Blinks Green
	2 times per second [ON OFF OFF]	2 times per second [ON OFF OFF]
BIOS : AUTH fail after doing recovery ^(Note3)	Blinks Blue	Blinks Amber
	2 times per second [ON OFF OFF]	2 times per second [ON OFF OFF]
Backup Flash Authentication Fail ^(Note4)		
BMC : AUTH fail	Blinks Blue	Blinks Green
	2 times per second [ON OFF ON OFF]	2 times per second [ON OFF ON OFF]
BIOS : AUTH fail	Blinks Blue	Blinks Amber
	2 times per second [ON OFF ON OFF]	2 times per second [ON OFF ON OFF]

NOTE!

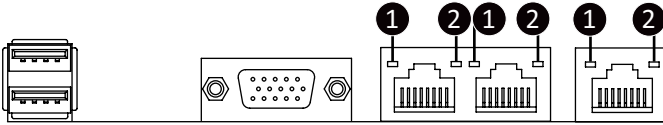
1. EC FW is broken or not exited result in Microchip CEC1702 cannot load EC FW for authentication.
2. (1) Authentication fail include below scenarios
Configuration table is missing or modified
Public key is missing or modified
Protected area or signature is modified
Flash empty
3. If active flash is still authentication failed after recovery sequence, Microchip CEC1702 stop the process and showing LED behavior.
4. If backup flash authentication is failed cause by configuration table, public key or protected area is broken. Microchip CEC1702 stop the process and showing LED behavior.
5. Front panel LED is controlled by BMC or Microchip CEC1702. Once Microchip CEC1702 is working(Auth or recovery), the front panel LED is controlled by Microchip CEC1702 and vice versa.

2-4 Power Supply Unit (PSU) LED



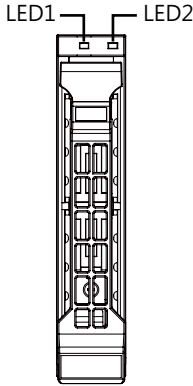
State	Description
OFF	Indicates no AC power to all power supplies
0.5Hz Blink GREEN	Indicates AC present/ only standby on/ Cold redundant mode
2Hz Blink GREEN	Indicates power supply firmware in updating mode
Amber	Indicates AC cord unplugged or AC power lost; with a second power supply in parallel still with AC input power
	Indicates power supply critical event causing shut down: failure, OCP, OVP, Fan Fail, UVP
0.5Hz Blink Amber	Indicates power supply warning events where the power supply continues to operate: high temp, high power, high current, slow fan

2-5 Rear System LAN LEDs



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

2-6 Hard Disk Drive LEDs



RAID SKU		LED1	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)	--	--

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.

LED 2	HDD Present	No HDD
Green	ON	OFF

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Chapter 3 System Hardware Installation



Pre-installation Instructions

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

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

3-1 Installing the Hard Disk Drive

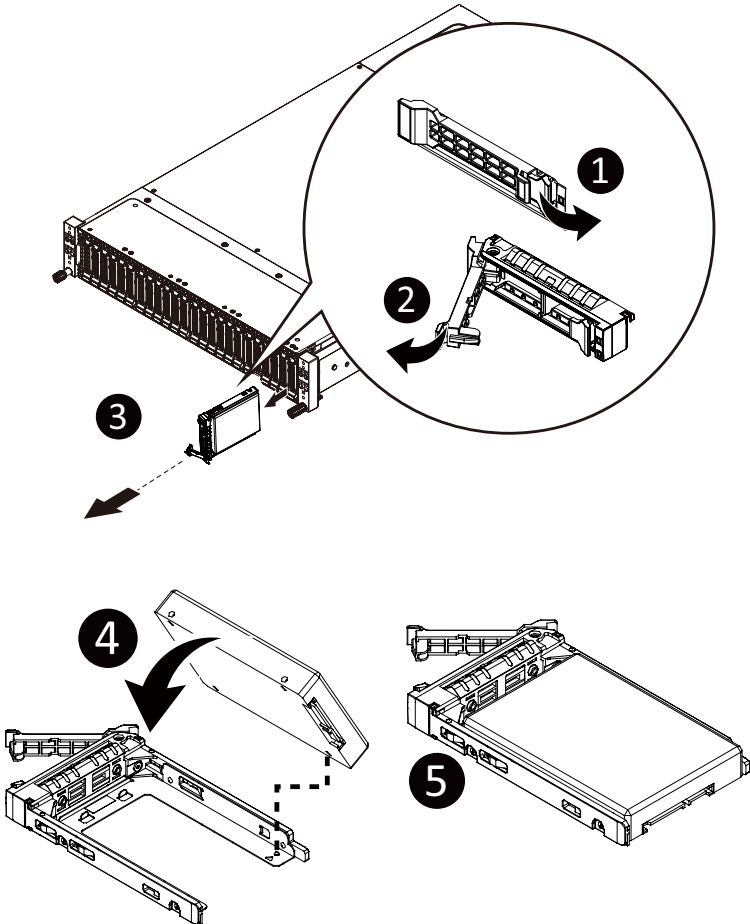


Read the following guidelines before you begin to install the Hard disk drive:

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

Follow these instructions to install the 2.5" Hard disk drive:

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



3-2 Removing the Node

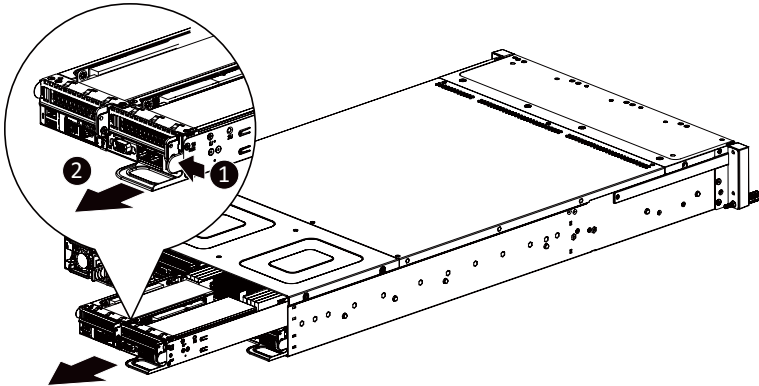


Before you remove or install the node

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

Follow these instructions to remove a node:

1. Press the retaining clip on the right side of the node along the direction of the arrow, while pulling out the node using its handle.



3-3 Removing Chassis Cover

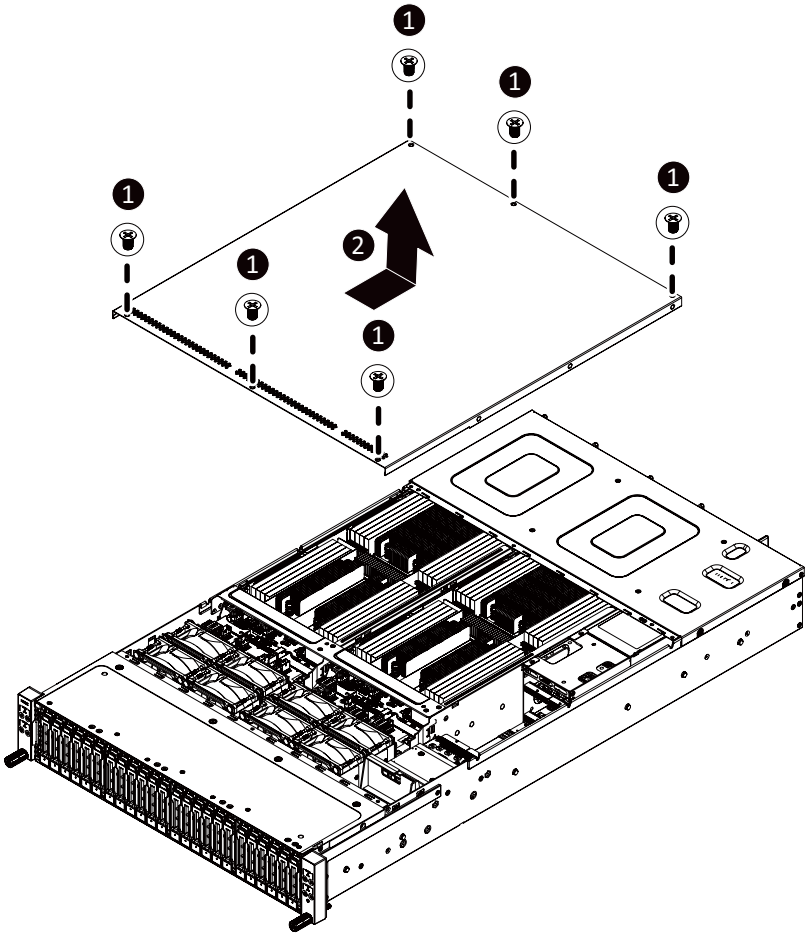


Before you remove or install the system cover

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

Follow these instructions to remove the system cover:

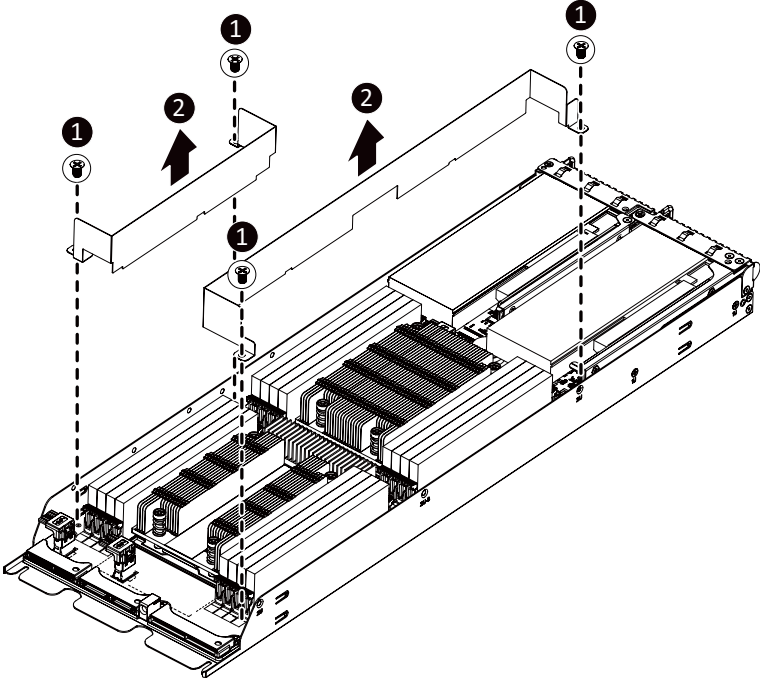
1. Loosen and remove the six screws securing the back cover.
2. Slide the cover to the rear of the system and remove the cover in the direction of the arrow.



3-4 Removing and Installing the Fan Duct

Follow these instructions to remove/install the fan duct:

1. Remove the four screws securing the fan ducts.
2. Lift up to remove the fan ducts
3. To install the fan duct, align the fan duct with the guiding groove. Push down the fan duct into chassis until its firmly seats, then install the four screws to secure the fan ducts in place.



3-5 Removing and Installing the Heatsink



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

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

WARNING!

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

Follow these instructions to remove the heatsink:

1. Loosen the four captive screws securing the heatsink to the system.
2. Lift and remove the heatsink.

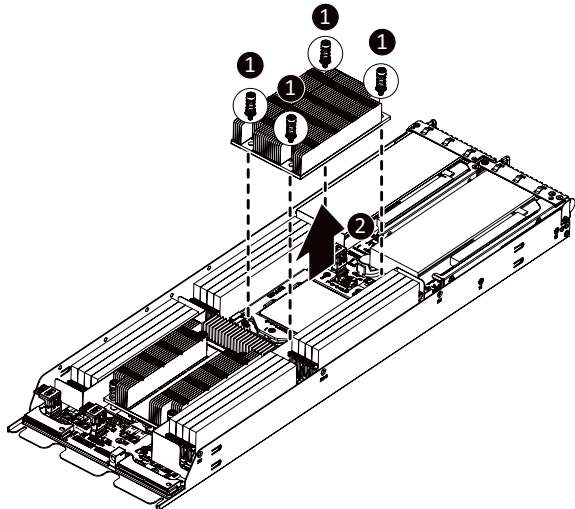


WARNING!

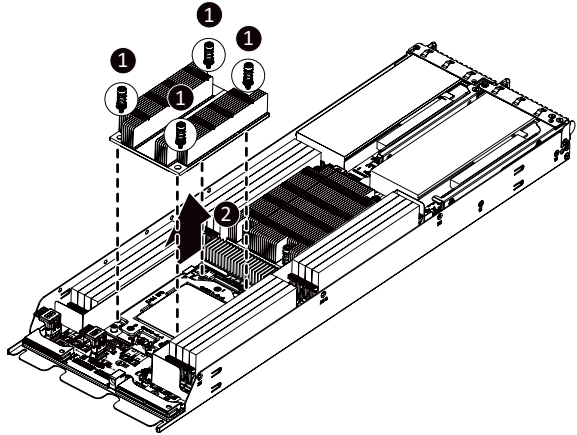
CPU0 and CPU1 use different CPU heatsinks. See the following images for using the correct heatsink.

Failure to observe the warning could result in damage to the equipment.

Primary CPU Heatsink



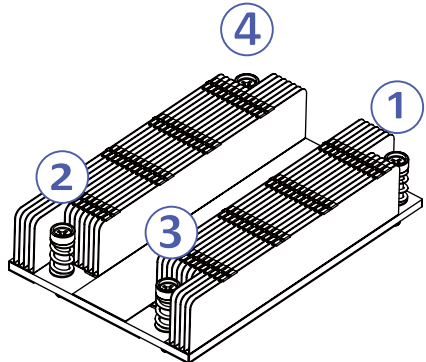
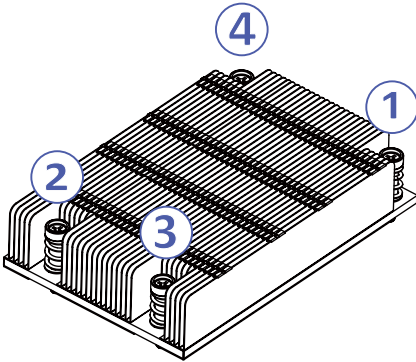
Secondary CPU Heatsink:



To install the heatsink, reverse the steps above while ensuring that you tighten the captive screws in sequential order (1→2→3→4) as seen in the image below.

Primary CPU Heatsink

Secondary CPU Heatsink:



3-6 Installing the CPU



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

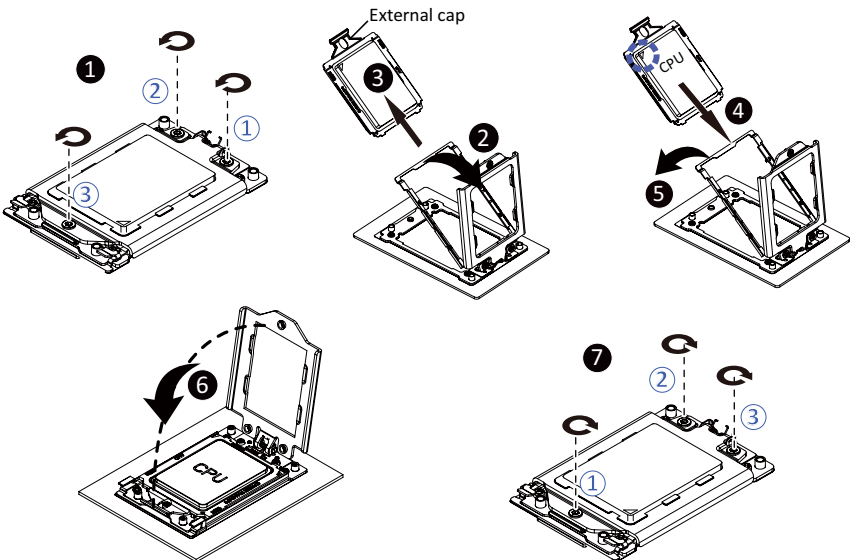
- **Make sure that the motherboard supports the CPU.**
- **Always turn off the computer and unplug the power cord from the power outlet before installing the CPU to prevent hardware damage.**
- **Unplug all cables from the power outlets.**
- **Disconnect all telecommunication cables from their ports.**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

WARNING!

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

Follow these instructions to install the CPU:

1. Loosen the three captive screws in sequential order (1→2→3) securing the CPU cover.
2. Flip open the CPU cover.
3. Remove the CPU cap with CPU from the CPU frame using the handle on the CPU cap.
4. Using the handle on the CPU cap insert the new CPU cap with CPU installed into the CPU frame.
NOTE: Ensure the CPU is installed in the CPU cap in the correct orientation, with the gold triangle on the CPU aligned to the top left corner of the CPU cap.
5. Flip the CPU frame with CPU installed into place in the CPU socket.
6. Flip the CPU cover into place over the CPU socket.
7. Tighten the CPU cover screws in sequential order (1→2→3) to secure the CPU cover in place.
NOTE: The screw tightening torque: 16.1 ± 1.2 kgf-cm (14.0 ± 1.0 lbf-in)



3-7 Installing Memory

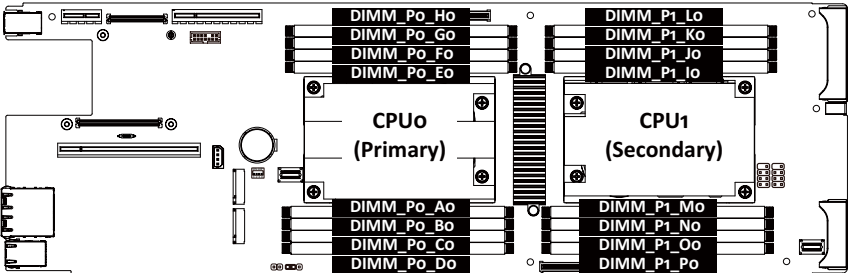


Read the following guidelines before you begin to install the memory:

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

3-7-1 Eight Channel Memory Configuration

This motherboard provides 16 DDR4 memory sockets and supports Eight Channel Technology. After the memory is installed, the BIOS will automatically detect the specifications and capacity of the memory. Enabling eight Channel memory mode will be eight times of the original memory bandwidth.



3-7-2 Installing the Memory

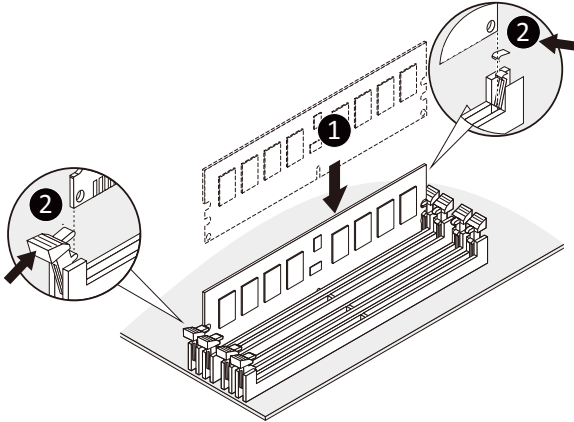


Before installing a memory module, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the memory module.

Be sure to install DDR4 DIMMs on this motherboard.

Follow these instructions to install the Memory:

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



3-7-3 Processor and Memory Module Matrix Table

Processor and Memory Module Matrix Table																
CPU#	Channel A/I	Channel B/J	Channel C/K	Channel D/L	Channel E/M	Channel F/N	Channel G/O	Channel H/P								
8 DIMMs																
CPU0		A1		B1		C1		D1		E1		F1		G1		H1
16 DIMMs																
CPU0	A0	A1	B0	B1	C0	C1	D0	D1	E0	E1	F0	F1	G0	G1	H0	H1
16 DIMMs																
CPU0		A1		B1		C1		D1		E1		F1		G1		H1
CPU1		I1		J1		K1		L1		M1		N1		O1		P1
32 DIMMs																
CPU0	A0	A1	B0	B1	C0	C1	D0	D1	E0	E1	F0	F1	G0	G1	H0	H1
CPU1	I0	I1	J0	J1	K0	K1	L0	L1	M0	M1	N0	N1	O0	O1	P0	P1

3-7-4 DIMM Population Table

EPYC Memory Speed based on DIMM Population (One DIMM per Channel)

DIMM Type	DIMM Population		Max EPYC 7003 DDR Frequency (MHz)
	DIMM 0		
RDIMM	1R (1 Rank)		3200
	2R or 2DR (2 Ranks)		3200
LRDIMM	4DR (4 Ranks)		3200
	2S2R (4 Ranks)		3200
	2S4R (8 Ranks)		3200
3DS	2S2R (4 Ranks)		3200
	2S4R (8 Ranks)		3200

EPYC Memory Speed based on DIMM Population (Two DIMM per Channel)

DIMM Type	DIMM Population		Max EPYC 7003 DDR Frequency (MHz)
	DIMM 0	DIMM 1	
RDIMM	--	1R	3200
	1R	1R	2933
	--	2R or 2DR	3200
	1R	2R or 2DR	2933
	2R or 2DR	2R or 2DR	2933
LRDIMM	--	4DR	3200
	4DR	4DR	2933
	--	2S2R (4 Ranks)	3200
	--	2S4R (8 Ranks)	3200
	2S2R (4 Ranks)	2S2R (4 Ranks)	2933
	2S4R (8 Ranks)	2S4R (8 Ranks)	2933
3DS	--	2S2R (4 Ranks)	2933
	2S2R (4 Ranks)	2S2R (4 Ranks)	2666
	--	2S4R (8 Ranks)	2933
	2S4R (8 Ranks)	2S4R (8 Ranks)	2666

NOTE!

- 1R: 1 package rank of SDP DRAMs
- 2R: 2 package rank of SDP DRAMs
- 2DR: 2 package rank of DDP DRAMs
- 4DR: 4 package rank of DDP DRAMs
- 2S2R/2S4R/2S8R: 2 package rank of 2/4/8 high 3DS DRAMs
- DIMM must be populated in sequential alphabetic order, starting with bank A.
- When only one DIMM is used, it must be populated in memory slot A1.

3-8 Installing the PCI Expansion Card



- Voltages can be present within the server whenever an AC power source is connected. This voltage is present even when the main power switch is in the off position. Ensure that the system is powered-down and all power sources have been disconnected from the server prior to installing a PCI card.

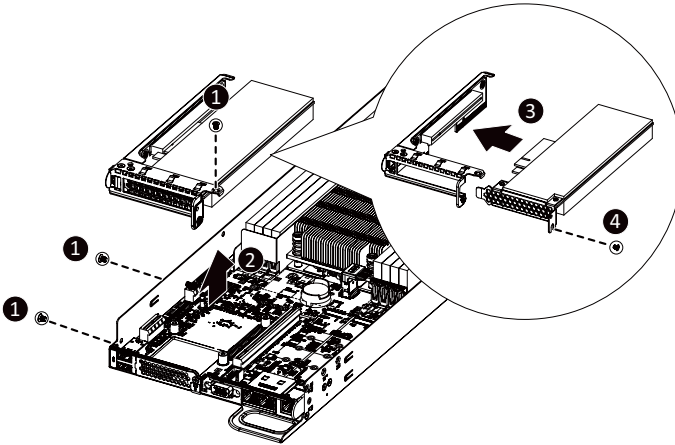
Failure to observe these warnings could result in personal injury or damage to equipment.



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

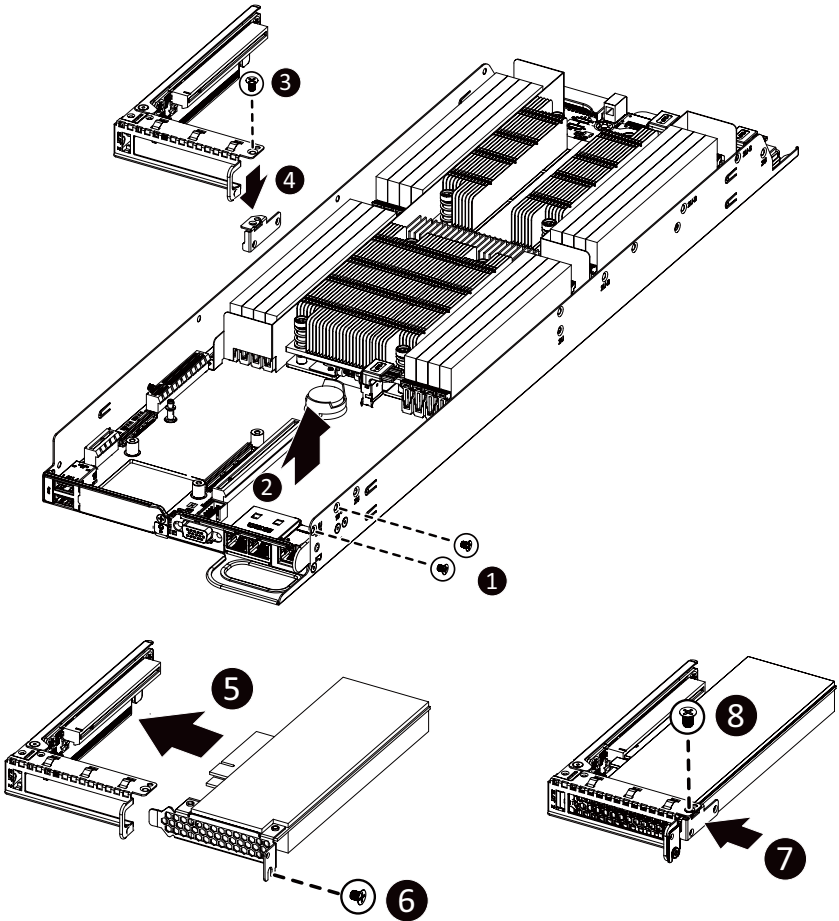
Follow these instructions to install the left PCI Expansion card:

1. Remove the three screws securing the riser bracket to the system.
2. Lift up the riser bracket out of system.
3. Align the PCIe card to the riser guide slot and push in the direction of the arrow until the PCIe card sits in the PCI card connector.
4. Secure the PCIe card with a screw.
5. Reverse steps 1 - 3 to install the riser bracket back into the system.



Follow these instructions to install the right PCI Expansion card:

1. Remove the two screws on the riser bracket to the system.
2. Lift up the riser bracket out of system.
3. Remove the screw securing the side bracket to the riser bracket.
4. Remove the side bracket
5. Align the PCIe card to the riser guide slot and push in the direction of the arrow until the PCIe card sits in the PCI card connector.
6. Secure the PCIe card with a screw.
7. Install the side bracket to the riser bracket.
8. Secure the side bracket to the riser bracket with a screw.
9. Reverse steps 1 - 2 to install the riser bracket back into the system.



3-9 Installing the OCP Card



- Voltages can be present within the server whenever an AC power source is connected. This voltage is present even when the main power switch is in the off position. Ensure that the system is powered-down and all power sources have been disconnected from the server prior to installing a OCP card.

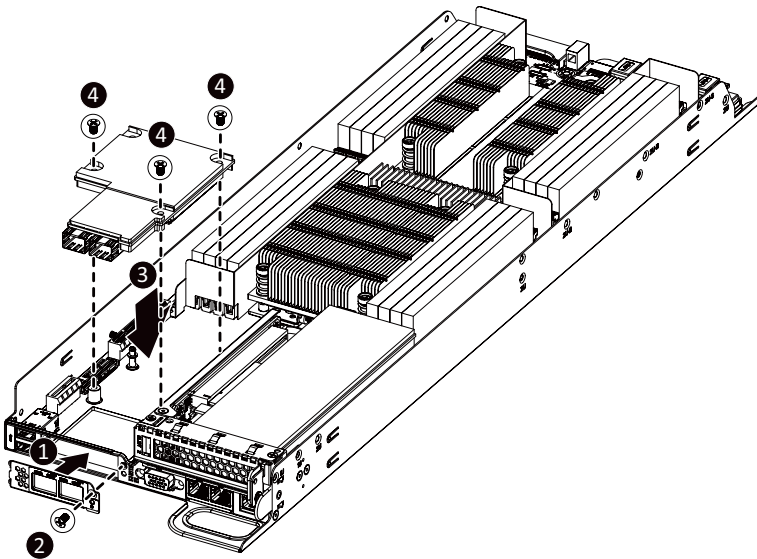
Failure to observe these warnings could result in personal injury or damage to equipment.



- Before installing the OCP card the left PCI-E riser assembly must be first removed, see the [Installing the PCI Expansion Card](#) section for instructions on removing the PCI-E riser assembly.

Follow these instructions to install the OCP card:

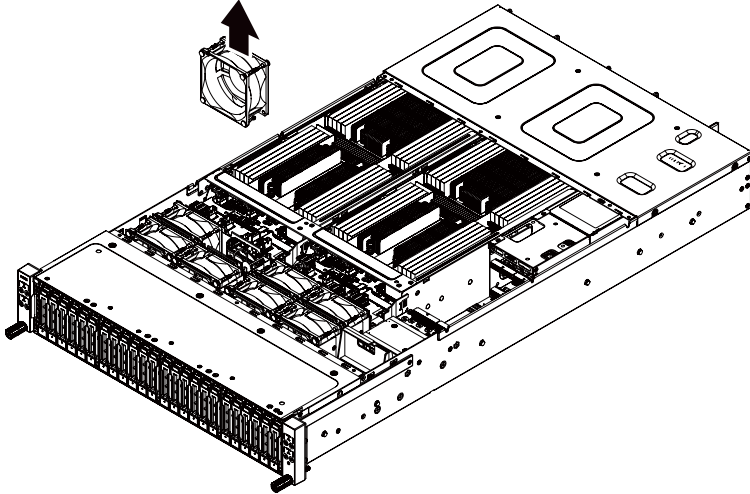
1. Install the OCP card bracket.
2. Secure the OCP card bracket with a screw.
3. Align the OCP card to the connector on the system board and push in the direction of the arrow until the OCP card sits firmly in the system.
4. Secure the OCP card with three screws.



3-10 Replacing the Fan Assembly

Follow these instructions to replace the fan assembly:

1. Pull the fan ear outward.
2. Lift up the fan assembly from the chassis.
3. Reverse the previous steps to install the replacement fan assembly.



3-11 Replacing the Power Supply

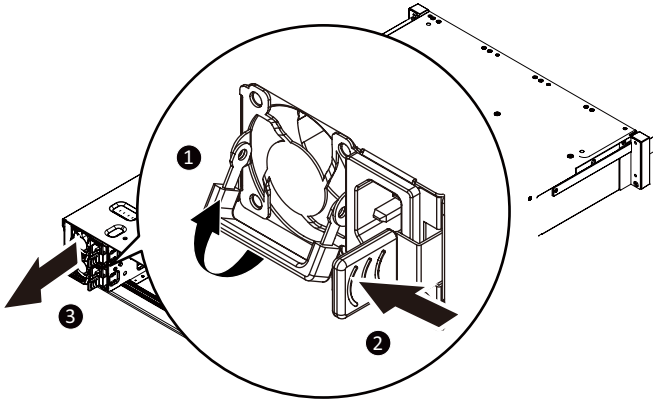
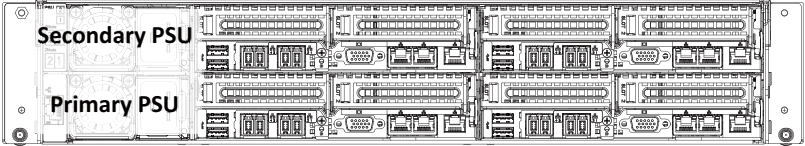


Before you remove or install the system cover

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

Follow these instructions to replace the power supply:

1. Pull up the power supply handle and press the retaining clip on the right side of the power supply along the direction of the arrow. At the same time, pull out the power supply by using its handle.
2. Insert the replacement power supply firmly into the chassis. Connect the AC power cord to the replacement power supply.



3-12 Replacing Power Distribution Board Cage

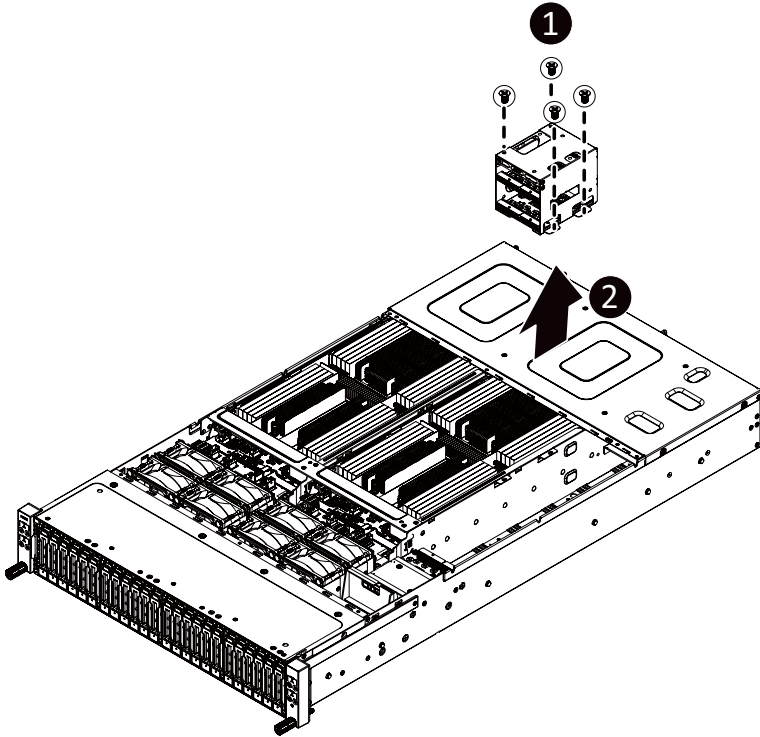


Before you remove or install the power distribution board cage:

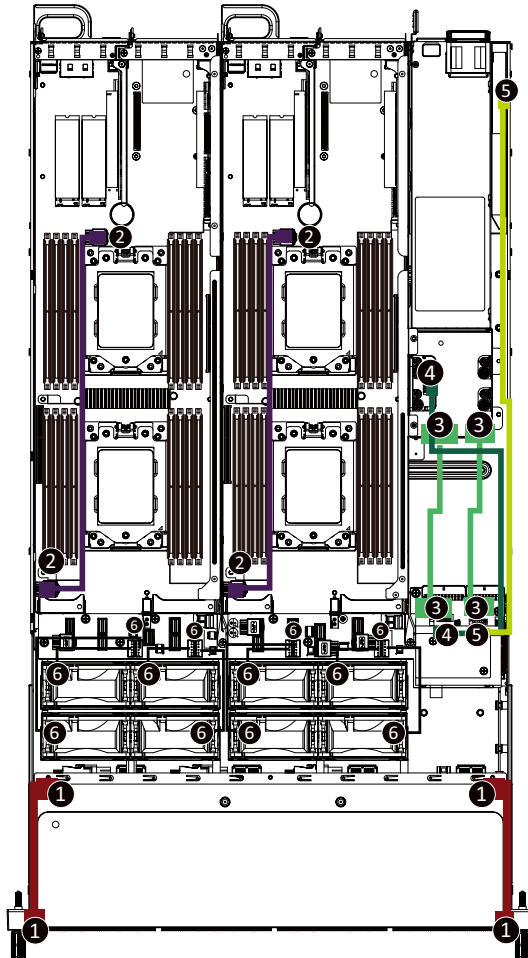
- Make sure the system is not turned on or connected to AC power.

Follow these instructions to remove the power distribution board cage:

1. Loosen and remove the four screws securing the cage.
2. While holding the cage, vertically lift it from the system.

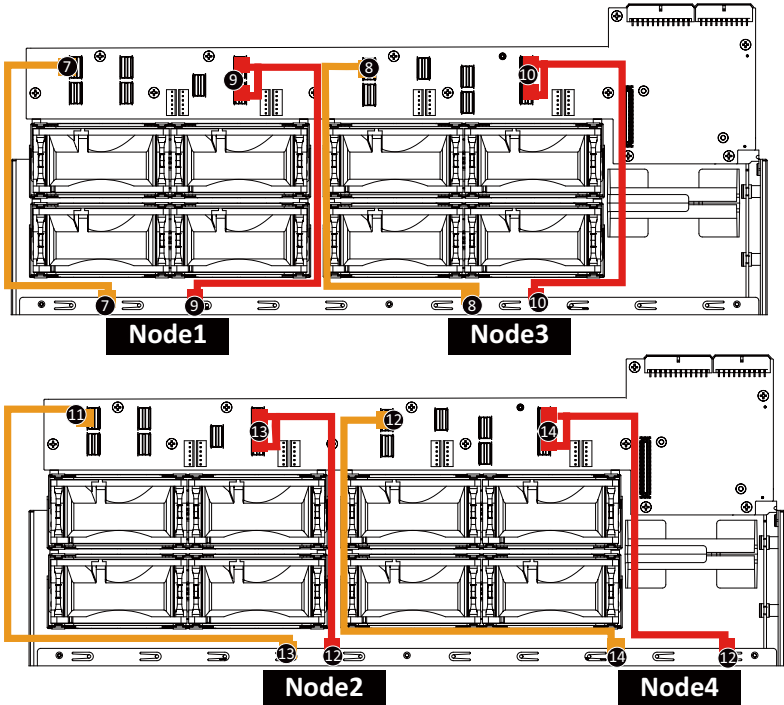


3-13 Cable Routing



No.	Suggest Cable	No.	Suggest Cable
1.	Front switch cable/Front LED cable (Brown)	2.	On board SATA signal cable (Purple)
3.	PDB to Node bridge board power cable (Light Green)	4.	PDB signal cable (Dark Green)
5.	LAN bridge board cable (Yellow-Green)	6.	System fan power cable (Black)

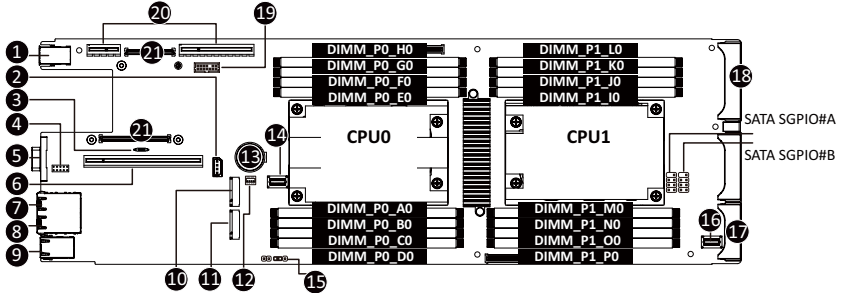
3-13-1 Hard Drive Back Plane Board Cable Routing



No.	Suggest Cable	No.	Suggest Cable
7.	SATA cable #0~#3	8.	SATA cable #12~#15
9.	NVME SSD cable #4~#5 (Defined by SKU)	10.	NVME SSD cable #16~#17 (Defined by SKU)
11.	SATA cable #6~#9	12.	SATA cable #18~#21
13.	NVME SSD cable #10~#11 (Defined by SKU)	14.	NVME SSD cable #22~#23 (Defined by SKU)

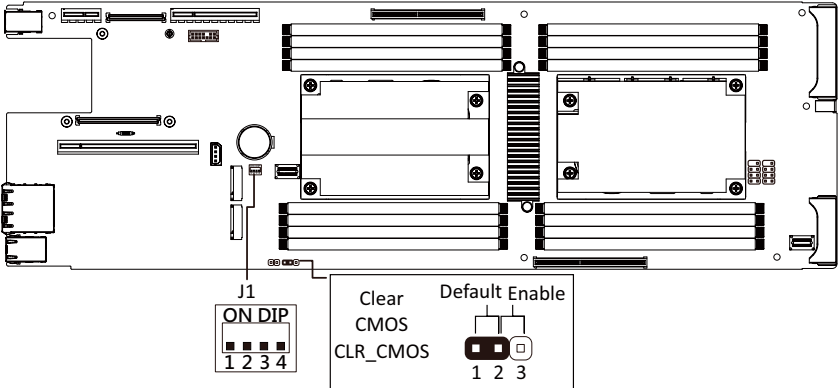
Chapter 4 Motherboard Components

4-1 Motherboard Components



Item	Description
1	USB 3.0 ports
2	IPMB connector
3	NCSI switch
4	Serial port connector
5	VGA port
6	Riser slot #2 (Gen 3/x16 slot)
7	Gigabit LAN port #2
8	Gigabit LAN port #1
9	Server management LAN port
10	M.2 connector (CPU0)
11	M.2 connector (CPU1)
12	Function jumper switch
13	System battery
14	Slimline SAS connector
15	Clear CMOS jumper
16	Slimline SAS connector
17	GF_1_1
18	GF_1_3
19	TPM connector
20	Riser slot #1 (Gen 3/x1 and x8 slot)
21	OCP mezzanine connector

4-2 Jumper Setting



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 and loading operating system, etc. BIOS includes a BIOS Setup program that allows the user to modify basic system configuration settings or to activate certain system features. When the power is turned off, the battery on the motherboard supplies the necessary power to the CMOS to keep the configuration values in the CMOS.

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



- BIOS flashing is potentially risky, if you do not encounter problems of 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 in 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 function of processor, network, SoC, and System event logs.

■ **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 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

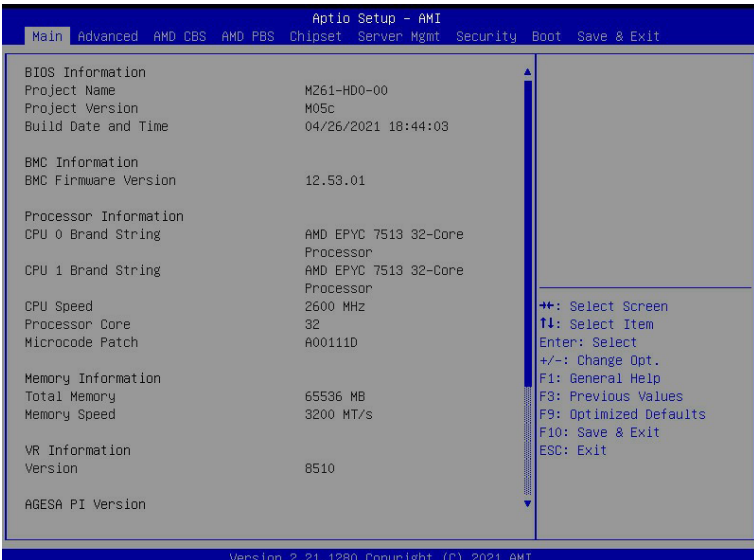
The on-screen description of a highlighted setup option is displayed on the bottom line of the Main Menu.

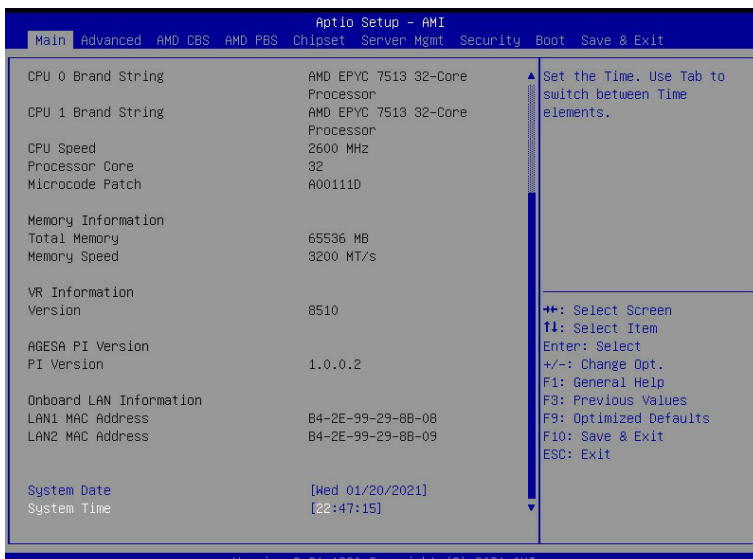
Submenu Help

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.





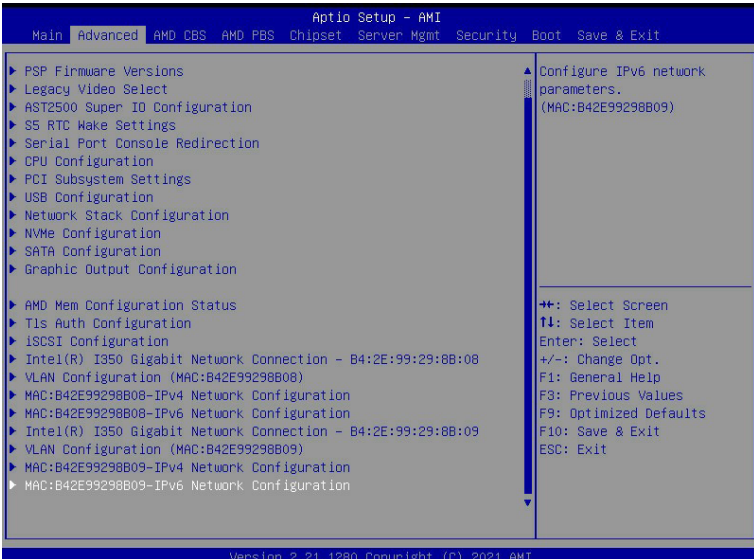
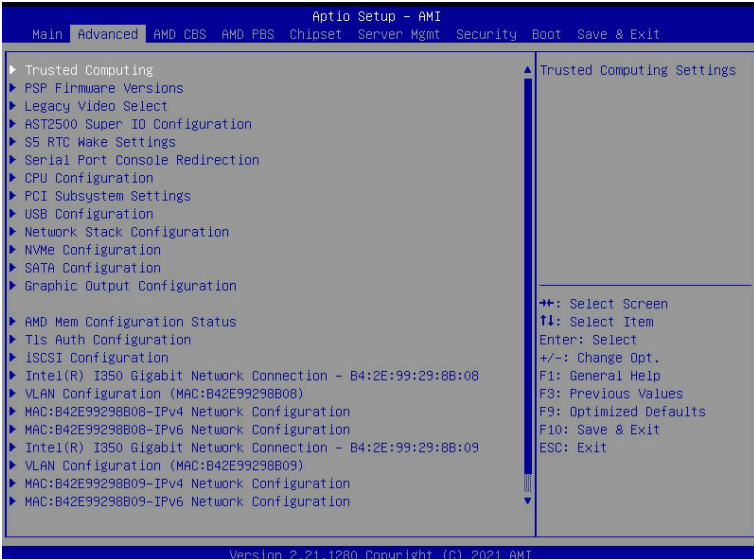
Parameter	Description
BIOS Information	
Project Name	Displays the project name information.
Project Version	Displays version number of the BIOS setup utility.
Build Date and Time	Displays the date and time when the BIOS setup utility was created.
BMC Information	
BMC Firmware Version	Displays version number of the BIOS setup utility.
Onboard LAN Information	
LAN1 MAC Address ^(Note1)	Displays LAN MAC address information.
LAN2 MAC Address ^(Note1)	Displays LAN MAC address information.
VR Information	
Version	Displays VR version information.
AGESA PI Version	
PI Version	Displays AGESA PI version information.
Memory Information	
Total Memory ^(Note2)	Displays the total memory size of the installed memory.
Memory Frequency ^(Note2)	Displays the frequency information of the installed memory.
System Date	Sets the date following the weekday-month-day-year format.
System Time	Sets the system time following the hour-minute-second format.

(Note1) The number of LAN ports listed will depend on the motherboard / system model.

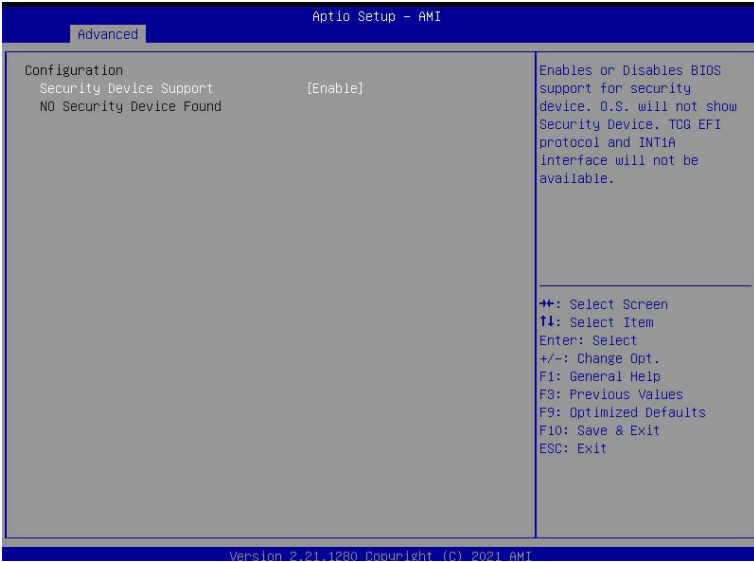
(Note2) This section will display capacity and frequency information of the memory that the customer has installed.

5-2 Advanced Menu

The Advanced menu display submenu options for configuring the function of various hardware components. Select a submenu item, then press [Enter] to access the related submenu screen.



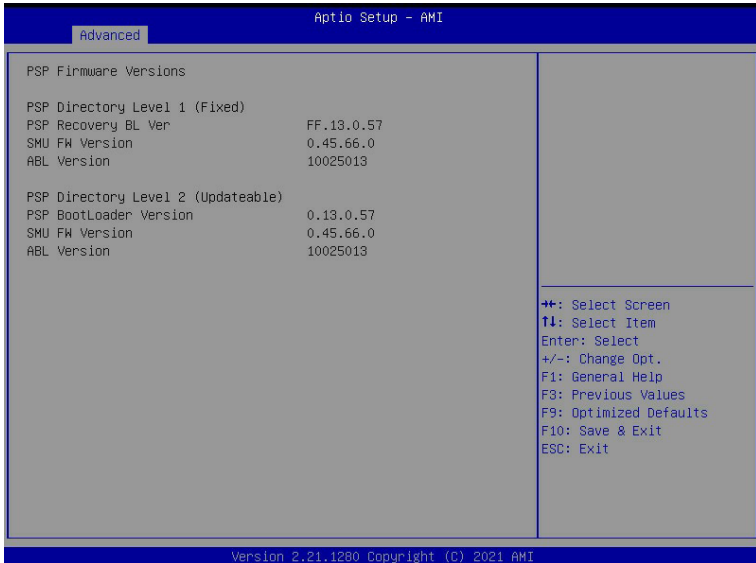
5-2-1 Trusted Computing



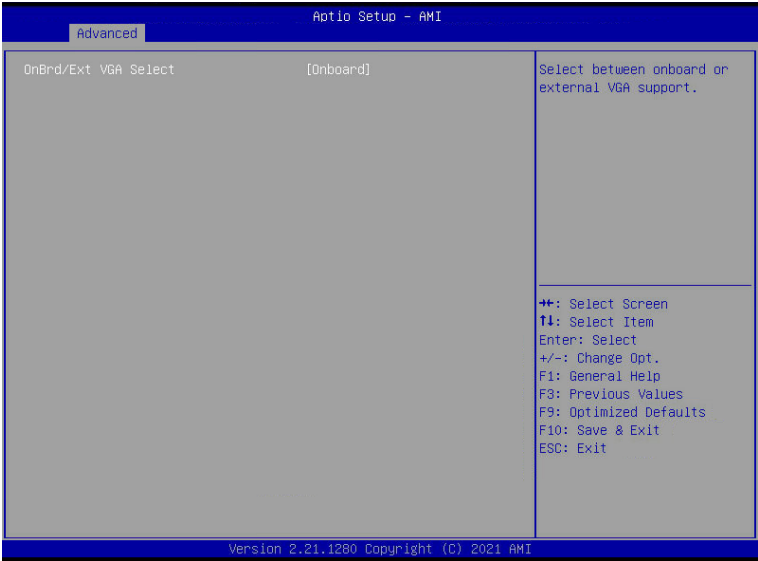
Parameter	Description
Configuration	
Security Device Support	Select Enabled to activate TPM support feature. Options available: Enabled/Disabled. Default setting is Disabled .
SPI TPM Support	Options available: Enabled/Disabled. Default setting is Enabled
Disable Block Sid	Options available: Enabled/Disabled. Default setting is Disabled .

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.

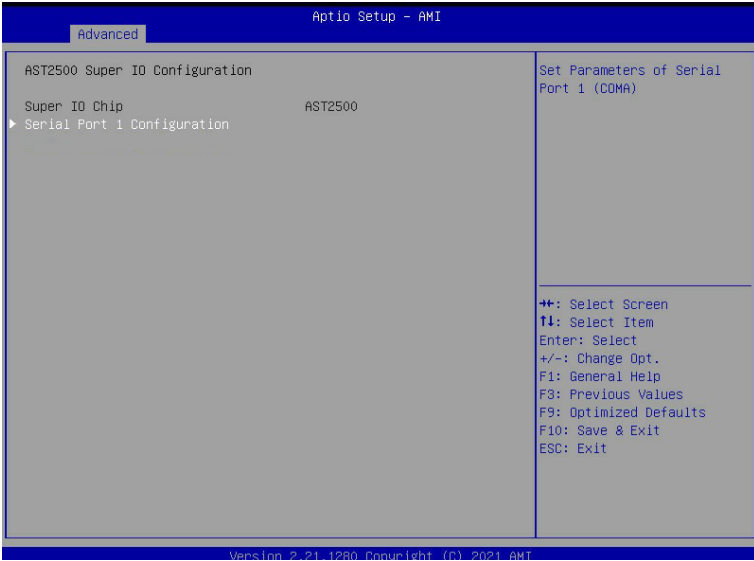


5-2-3 Legacy Video Select



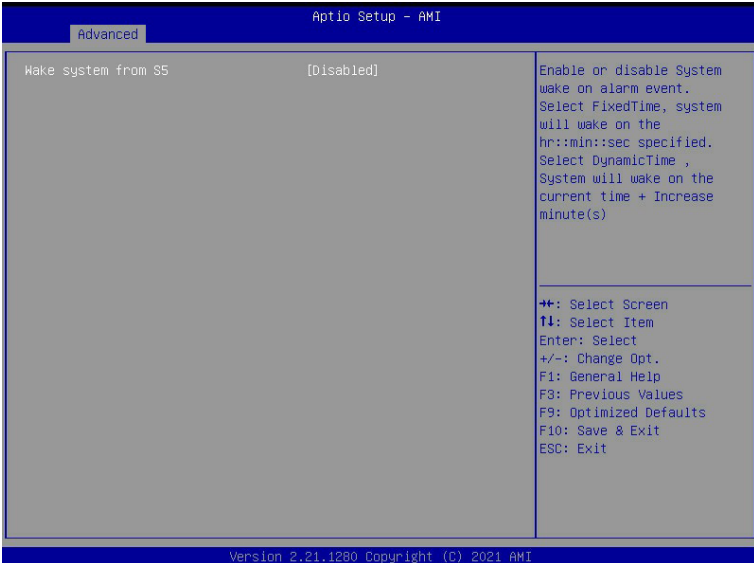
Parameter	Description
OnBrd/Ext VGA Select	Select between onboard or external VGA support. Options available: Auto/Onboard/External. Default setting is Onboard .

5-2-4 AST2500 Super IO Configuration



Parameter	Description
AST2500 Super IO Configuration	
Super IO Chip	
Serial Port 1/2 Configuration	Press [Enter] for configuration of advanced items.

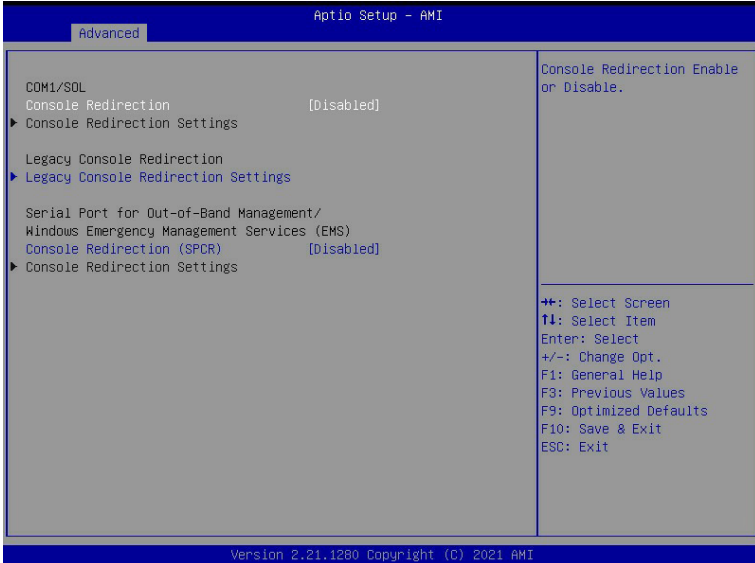
5-2-5 S5 RTC Wake Settings



Parameter	Description
Wake system from S5 ^(Note)	Enable or disable System wake on alarm event. When enabled, System will wake on the hr:min:sec specified. Default setting is Disabled .
Wake up year	Press <+> and <-> to define the wake up year.
Wake up month	Press <+> and <-> to define the wake up month.
Wake up Date	Press <+> and <-> to define the wake up date.
Wake up hour	Press <+> and <-> to define the wake up hour.
Wake up minute	Press <+> and <-> to define the wake up minute.
Wake up second	Press <+> and <-> to define the wake up second.

(Note) This item appears when **Wake system from S5** is set to **Enabled**.

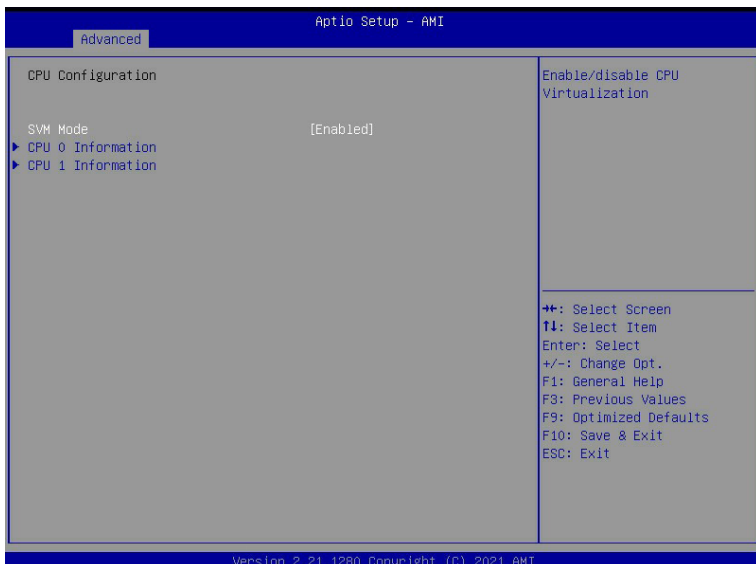
5-2-6 Serial Port Console Redirection



Parameter	Description
COM1/COM2 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 .
Legacy Console Redirection	Selects a COM port for Legacy serial redirection. The options are dependent on the available COM ports.
Serial Port for Out-of-Band Management / Windows Emergency Management Services (EMS) Console Redirection ^(Note)	Selects a COM port for EMS console redirection. EMS console redirection allows the user to configure Console Redirection Settings to support Out-of-Band Serial Port management. Options available: Enabled/Disabled. Default setting is Disabled .
COM1/COM2 Serial LAN/Legacy/Serial Port for Out-of-Band EMS Console Redirection Settings	Press [Enter] to configure advanced items. Please note that this item is configurable when COM1 Serial Over LAN/Serial Port for Out-of-Band Management EMS Console Redirection is set to Enabled. <ul style="list-style-type: none"> ◆ Terminal Type <ul style="list-style-type: none"> – Selects a terminal type to be used for console redirection. – Options available: VT100/VT100+/ANSI /VT-UTF8. Default setting is ANSI.

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

5-2-7 CPU Configuration



Parameter	Description
SVM Mode	Enable/disable the CPU Virtualization. Options available: Enabled/Disabled. Default setting is Enabled .
SMEE	Controls the Secure Memory Encryption Enable (SMEE) function. Options available: Enabled/Disabled. Default setting is Enabled .
CPU 0 Information	Press [Enter] to view the memory information related to CPU 0.

5-2-8 PCI Subsystem

Aptio Setup - AMI

Advanced		
PCI Bus Driver Version	A5.01.24	▲ Change PCIe_1 PCIe Lanes Configuration. ▼
PCI_E_1 Lanes Configuration	[Auto]	
PCI_E_1 I/O ROM	[Enabled]	
PCI_E_1 Max Link Speed	[Auto]	
PCI_E_2 Lanes Configuration	[Auto]	
PCI_E_2 I/O ROM	[Enabled]	
PCI_E_2 Max Link Speed	[Auto]	
OCF_1 Lanes Configuration	[Auto]	
OCF_1 I/O ROM	[Enabled]	
OCF_1 Max Link Speed	[Auto]	
ME22_R Lanes Configuration	[Auto]	⇐+: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
ME22_R I/O ROM	[Enabled]	
ME22_R Max Link Speed	[Auto]	
ME22_L Lanes Configuration	[Auto]	
ME22_L I/O ROM	[Enabled]	
ME22_L Max Link Speed	[Auto]	
Onboard LAN Controller	[Enabled]	
Onboard LAN1 I/O ROM	[Enabled]	
Onboard LAN2 I/O ROM	[Enabled]	

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Aptio Setup - AMI

Advanced		
PCI_E_1 Max Link Speed	[Auto]	▲ If system has SR-IOV capable PCIe Devices, this option Enables or Disables Single Root IO Virtualization Support. ▼
PCI_E_2 Lanes Configuration	[Auto]	
PCI_E_2 I/O ROM	[Enabled]	
PCI_E_2 Max Link Speed	[Auto]	
OCF_1 Lanes Configuration	[Auto]	
OCF_1 I/O ROM	[Enabled]	
OCF_1 Max Link Speed	[Auto]	
ME22_R Lanes Configuration	[Auto]	
ME22_R I/O ROM	[Enabled]	
ME22_R Max Link Speed	[Auto]	
ME22_L Lanes Configuration	[Auto]	⇐+: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F8: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
ME22_L I/O ROM	[Enabled]	
ME22_L Max Link Speed	[Auto]	
Onboard LAN Controller	[Enabled]	
Onboard LAN1 I/O ROM	[Enabled]	
Onboard LAN2 I/O ROM	[Enabled]	
PCI Devices Common Settings:		
Above 4G Decoding	[Enabled]	
SR-IOV Support	[Enabled]	

Version 2.21.1280 Copyright (C) 2021 AMI

Parameter	Description
PCI Bus Driver Version	Displays the PCI Bus Driver version information.
PCIE_# ^(Note1)	Change the PCIe lanes. Options available: Auto/x16/x8x8/x8x4x4/x4x4x8/x4x4x4x4/ Disabled. Default setting is Auto .
PCI Express Slot # I/O ROM ^(Note1)	When enabled, this setting will initialize the device expansion ROM for the related PCI-E slot. Options available: Enabled/Disabled. Default setting is Enabled .
MEZZ	Change mezzanine PCIe lanes. Options available: Auto/x16/x8x8/x8x4x4/x4x4x8/x4x4x4x4/ Disabled. Default setting is Auto .
MEZZ I/O ROM	When enabled, this setting will initialize the device expansion ROM for the related U.2 device. Options available: Enabled/Disabled. Default setting is Enabled .
Onboard LAN1 / LAN2 Controller ^(Note2)	Enable/Disable the onboard LAN1 / LAN2 devices. Options available: Enabled/Disabled. Default setting is Enabled .
Onboard LAN1 / LAN2 I/O ROM ^(Note2)	Enable/Disable the onboard LAN1 / LAN2 devices, and initializes device expansion ROM. Options available: Enabled/Disabled. 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: Enabled/Disabled. 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: Enabled/Disabled. Default setting is Enabled .
PCI-E AER Enabled	Options available: Enabled/Disabled. Default setting is Disabled

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

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

5-2-9 USB Configuration

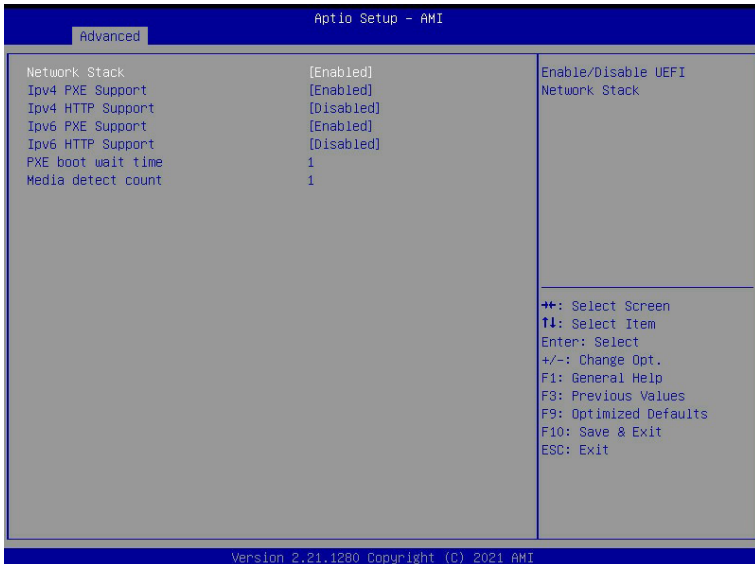


Parameter	Description
USB Configuration	
USB Controller	Displays the supported USB controllers.
USB Devices:	Displays the USB devices connected to the system.
Legacy USB Support	Enable/disable the Legacy USB support function. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications. Options available: Auto/Enabled/Disabled. Default setting is Enabled .
XHCI Hand-off	Enable/Disable the XHCI (USB 3.0) 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: Enabled/Disabled. Default setting is Enabled .
Port 60/64 Emulation	Enables the I/O port 60h/64h emulation support. This should be enabled for the complete USB Keyboard Legacy support for non-USB aware OS. Options available: Enabled/Disabled. Default setting is Enabled .
USB hardware delays and time-outs	
USB transfer time out	The time-out value for Control, Bulk, and Interrupt transfers. Options available: 1 sec/5 sec/10 sec/20 sec. Default setting is 20 sec .
Device reset time out	USB mass storage device Start Unit command time-out. Options available: 10 sec/20 sec/30 sec/40 sec. Default setting is 20 sec .

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

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.

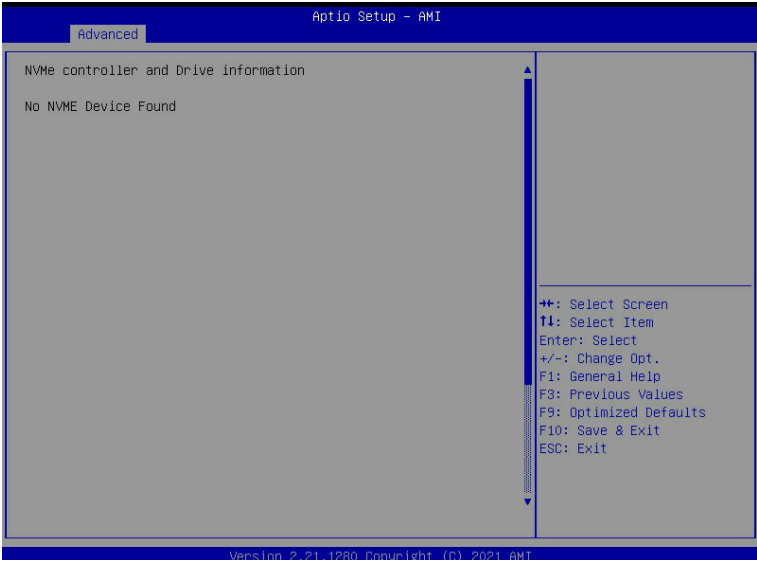
5-2-10 Network Stack



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 Disabled .
Ipv6 HTTP Support ^(Note)	Enable/Disable the Ipv6 HTTP feature. Options available: Enabled/Disabled. Default setting is Disabled .
IPSEC Certificate ^(Note)	Enable/Disable the IPSEC Certificate feature.
Media detect count ^(Note)	Press the <+> / <-> keys to increase or decrease the desired values.

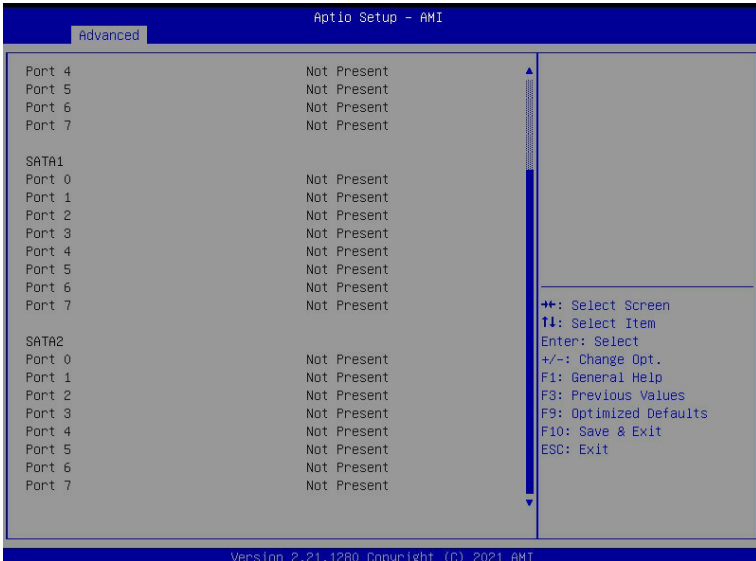
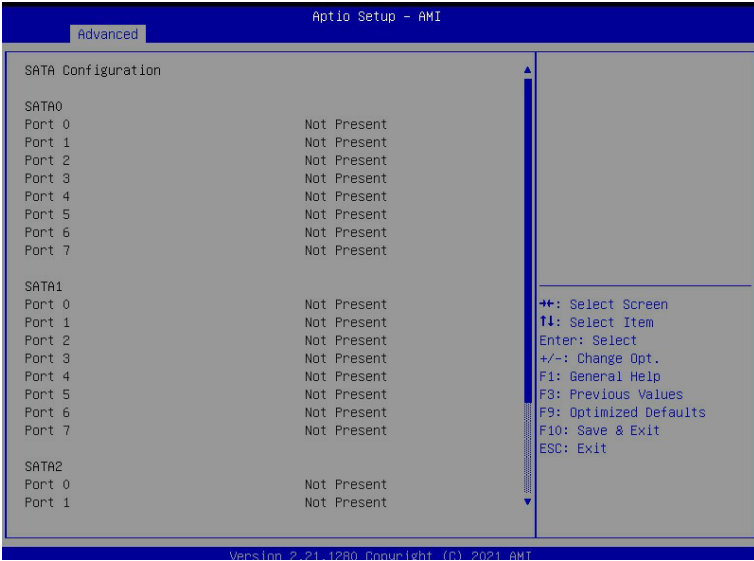
(Note) This item appears when **Network Stack** is set to **Enabled**.

5-2-11 NVMe Configuration



Parameter	Description
NVMe controller and Drive Information	Displays the NVMe devices connected to the system.

5-2-12 SATA Configuration

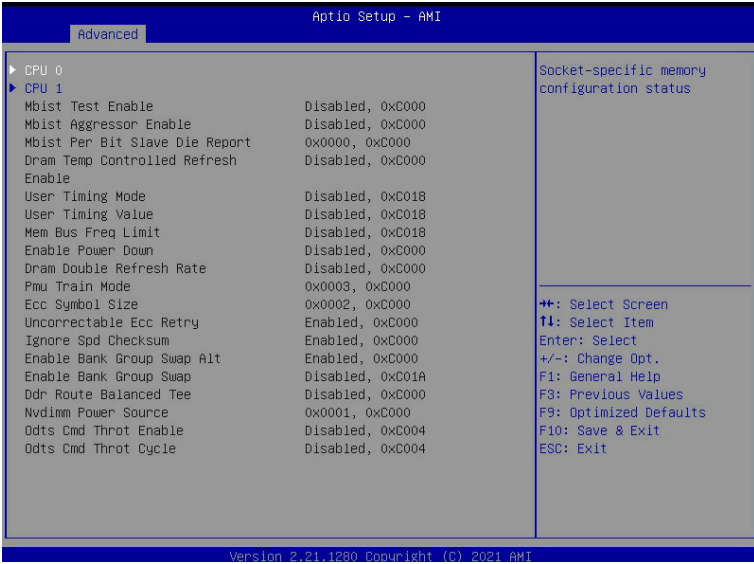


5-2-13 Graphic Output Configuration



Parameter	Description
Output Device Type	Option: First loaded Device/Onboard Device/External Device/Specific Device
OS graphics output	Option: Control by OS/ Onboard VGA

5-2-14 AMD Mem Configuration Status



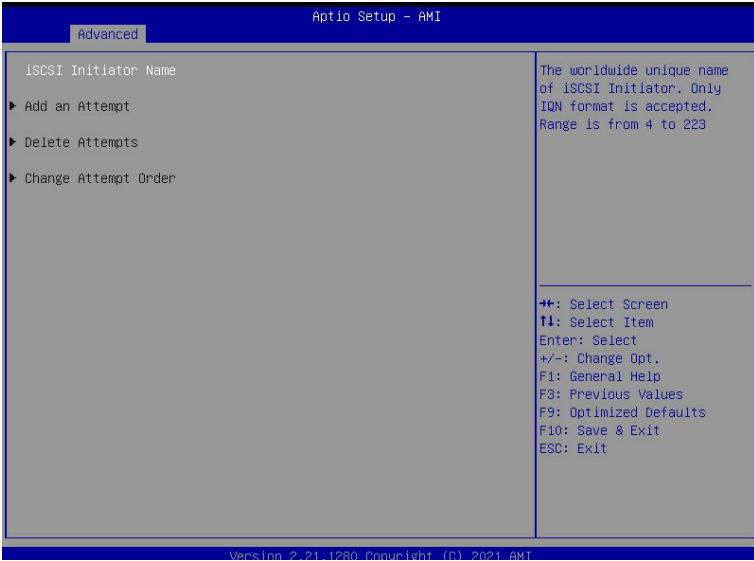
Parameter	Description
CPU0	Press [Enter] for configuration of advanced items.

5-2-15 Tls Auth Configuration



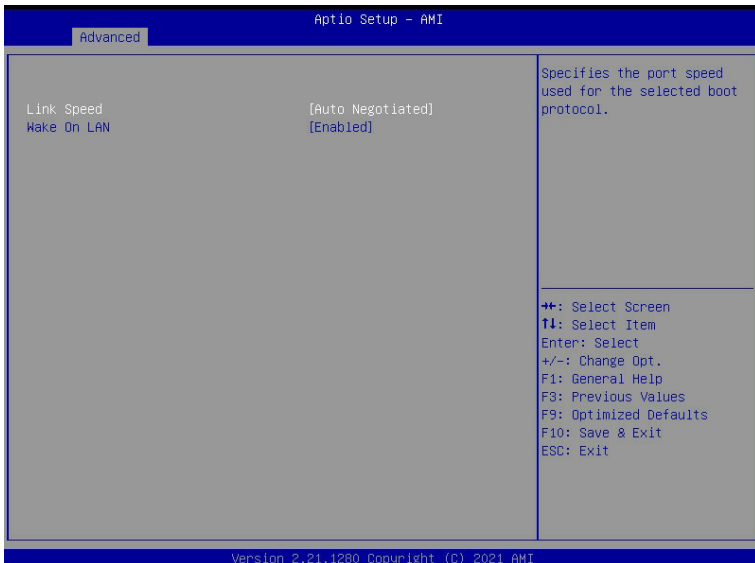
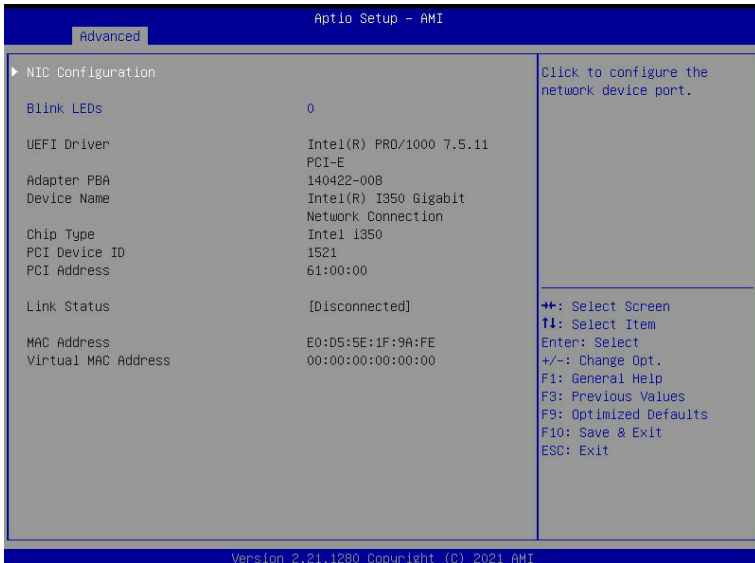
Parameter	Description
Save CA Configuration	Press [Enter] for configuration of advanced items.
Client Cert Configuration	Press [Enter] for configuration of advanced items.

5-2-16 iSCSI Configuration



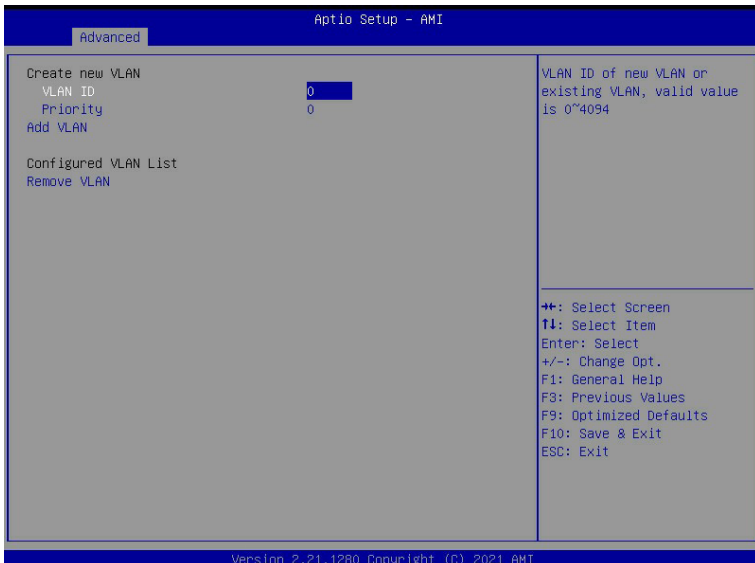
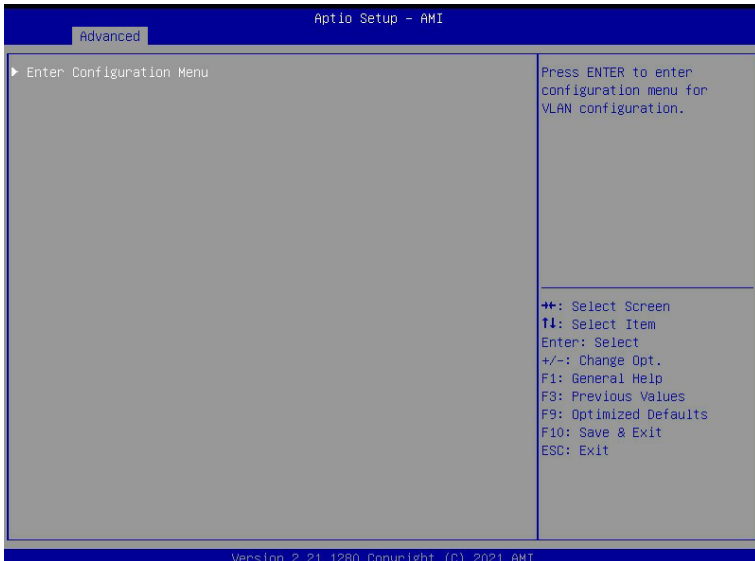
Parameter	Description
iSCSI Initiator Name	
Add Attempt	Press [Enter] for configuration of advanced items.
Delete Attempt	Press [Enter] for configuration of advanced items.
Change Attempt Order	Press [Enter] for configuration of advanced items.

5-2-17 Intel(R) I350 Gigabit Network Connection



Parameter	Description
NIC Configuration	<p>Press [Enter] to configure advanced items.</p> <ul style="list-style-type: none"> ◆ Link Speed <ul style="list-style-type: none"> – Allows for automatic link speed adjustment. – Options available: Auto Negotiated/10 Mbps Half/10 Mbps Full/100 Mbps Half/100 Mbps Full. Default setting is Auto Negotiated. ◆ Wake On LAN <ul style="list-style-type: none"> – Enables power on of the system via LAN. Note that configuring Wake on LAN in the operating system does not change the value of this setting, but does override the behavior of Wake on LAN in OS controlled power states. – Options available: Enabled/Disabled. Default setting is Enabled.
Blink LEDs	<p>Identifies the physical network port by blinking the associated LED. Press the numeric keys to adjust desired values.</p>
UEFI Driver	Displays the technical specifications for the Network Interface Controller.
Adapter PBA	Displays the technical specifications for the Network Interface Controller.
Device Name	Displays the technical specifications for the Network Interface Controller.
Chip Type	Displays the technical specifications for the Network Interface Controller.
PCI Device ID	Displays the technical specifications for the Network Interface Controller.
PCI Address	Displays the technical specifications for the Network Interface Controller.
Link Status	Displays the technical specifications for the Network Interface Controller.
MAC Address	Displays the technical specifications for the Network Interface Controller.
Virtual MAC Address	Displays the technical specifications for the Network Interface Controller.

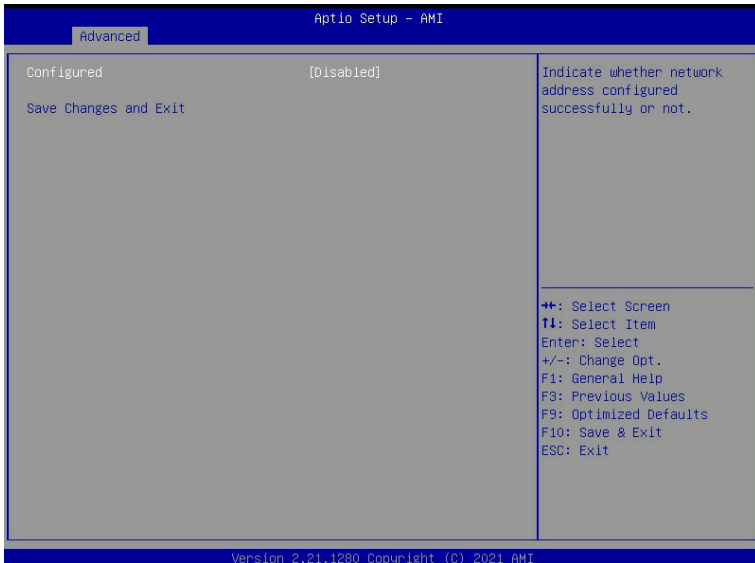
5-2-18 VLAN Configuration



Parameter	Description
Enter Configuration Menu	<p data-bbox="338 137 673 164">Press [Enter] to configure advanced items.</p> <ul style="list-style-type: none"> <li data-bbox="338 169 519 196">◆ Create new VLAN <li data-bbox="338 200 937 310">◆ VLAN ID <ul style="list-style-type: none"> <li data-bbox="375 227 804 254">– Sets VLAN ID for a new VLAN or an existing VLAN. <li data-bbox="375 258 937 285">– Press the <+> / <-> keys to increase or decrease the desired values. <li data-bbox="375 290 663 316">– The valid range is from 0 to 4094. <li data-bbox="338 321 854 373">◆ Priority <ul style="list-style-type: none"> <li data-bbox="375 348 854 373">– Sets 802.1Q Priority for a new VLAN or an existing VLAN. <li data-bbox="338 377 937 429">◆ Add VLAN <ul style="list-style-type: none"> <li data-bbox="375 377 937 404">– Press the <+> / <-> keys to increase or decrease the desired values. <li data-bbox="375 409 636 429">– The valid range is from 0 to 7. <li data-bbox="338 434 905 486">◆ Configured VLAN List <ul style="list-style-type: none"> <li data-bbox="375 460 905 486">– Press [Enter] to create a new VLAN or update an existing VLAN. <li data-bbox="338 490 878 573">◆ Remove VLAN <ul style="list-style-type: none"> <li data-bbox="375 517 607 544">– Enable/Disable the VLAN. <li data-bbox="375 548 878 573">– Options available: Enable/Disable. Default setting is Disable. <li data-bbox="338 578 732 630">◆ Remove VLAN <ul style="list-style-type: none"> <li data-bbox="375 605 732 630">– Press [Enter] to remove an existing VLAN.

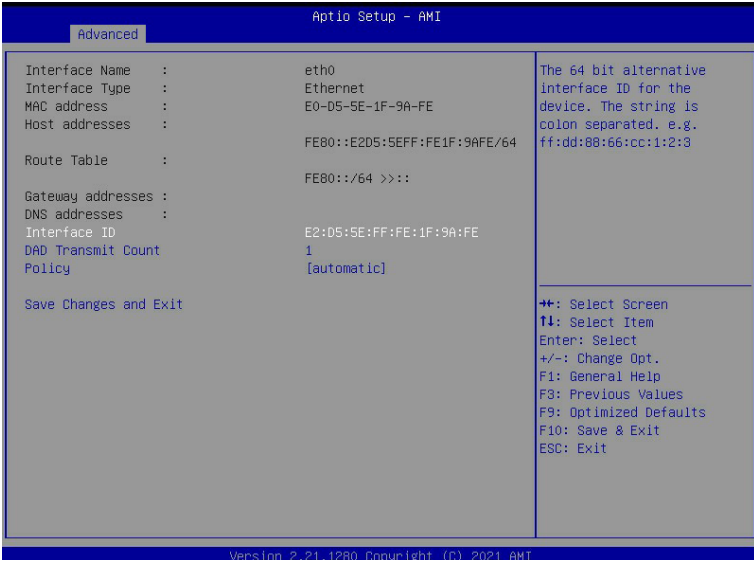
(Note) Only Supported when **Configured VLAN List** is set to **Enabled**.

5-2-19 MAC IPv4 Network Configuration



Parameter	Description
Configured	Options available: Enabled/Disabled. Default setting is Enabled .
Enable DHCP	Options available: Enabled/Disabled. Default setting is Enabled .
Local IP Address	Press [Enter] to configure local IP address.
Local NetMask	Press [Enter] to configure local NetMask.
Local Gateway	Press [Enter] to configure local Gateway
Local DNS Servers	Press [Enter] to configure local DNS servers
Save Changes and Exit	Press [Enter] save all configurations.

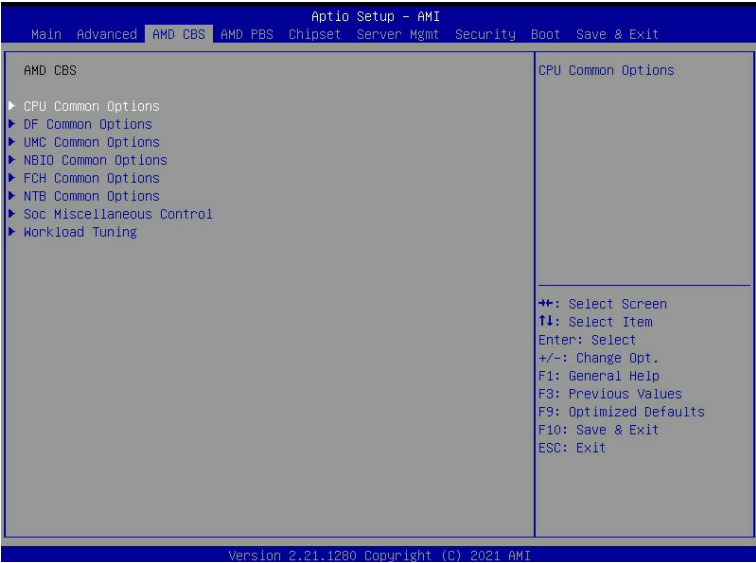
5-2-20 MAC IPv6 Network Configuration



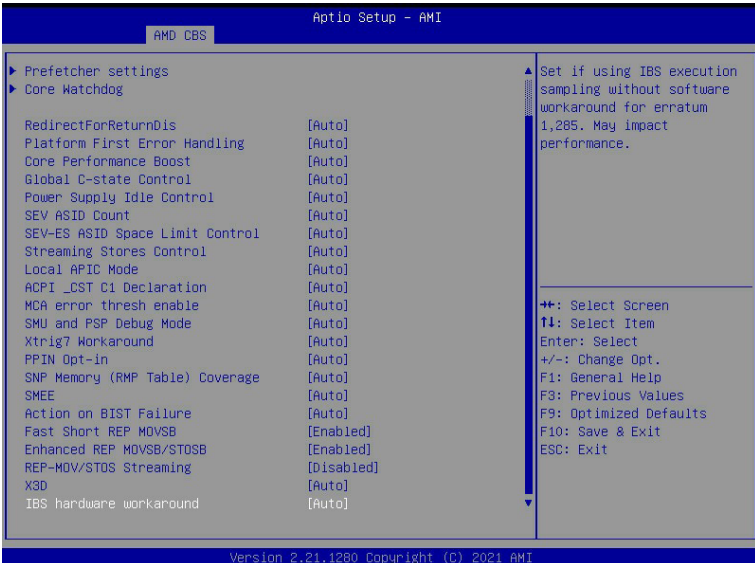
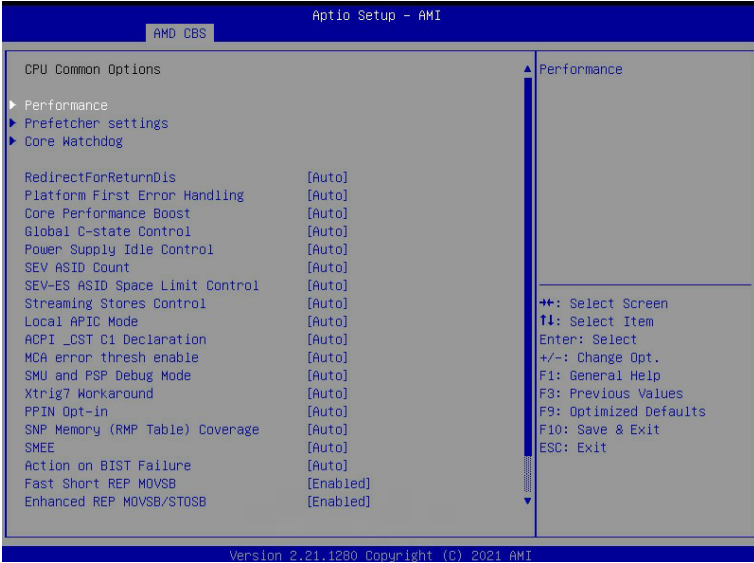
Parameter	Description
Enter Configuration Menu	Press [Enter] for configuration of advanced items.

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.

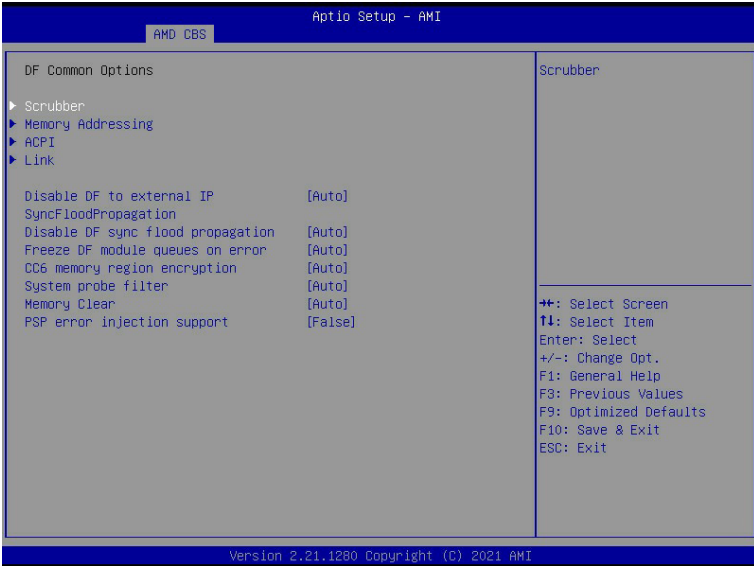


5-3-1 CPU Common Options



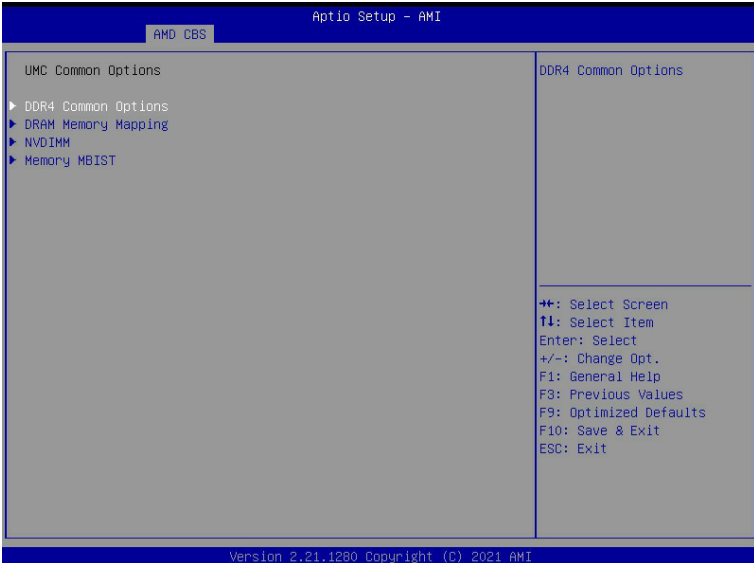
Parameter	Description
Performance	Press [Enter] for configuration of advanced items.
Prefetcher settings	Press [Enter] for configuration of advanced items.
Core Watchdog	Press [Enter] for configuration of advanced items.
RedirectForReturnDis	Options available: Auto/1/0. Default setting is Auto .
Platform First Error Warning	Options available: Auto/Enabled/Disabled. Default setting is Auto .
Core Performance Boost	Options available: Auto/Disabled. Default setting is Auto .
Global C-State Control	Options available: Auto/Enabled/Disabled. Default setting is Auto .
Power Supply Idle Control	Options available: Auto/Low Current Idle/Typical Current Idle. Default setting is Auto .
Opcache Control	Options available: Auto/Enabled/Disabled. Default setting is Auto .
SEV ASID Count	Options available: Auto/253 ASIDs/509 ASIDs. Default setting is Auto .
SEV-ES ASID Space Limit Control	Options available: Auto/Manual. Default setting is Auto .
Streaming Stores Control	Options available: Auto/Enabled/Disabled. Default setting is Auto .
ACPI_CST C1 Decaration	Options available: Auto/Enabled/Disabled. Default setting is Auto .
Local APIC Mode	Options available: Auto/xAPIC/x2APIC. Default setting is Auto .
MCA error thresh enable	Options available: Auto/False/True. Default setting is Auto .
Parameter	Description
SMU and PSP Debug Mode	Options available: Auto/Enabled/Disabled. Default setting is Auto .
Xtrig7 Workaround	Options available: Auto/No Workaround/ Bronze Workaround/ Sliver Workaround. Default setting is Auto .
PPIN Opt-in	Options available: Auto/Enabled/Disabled. Default setting is Auto .

5-3-2 DF Common Options



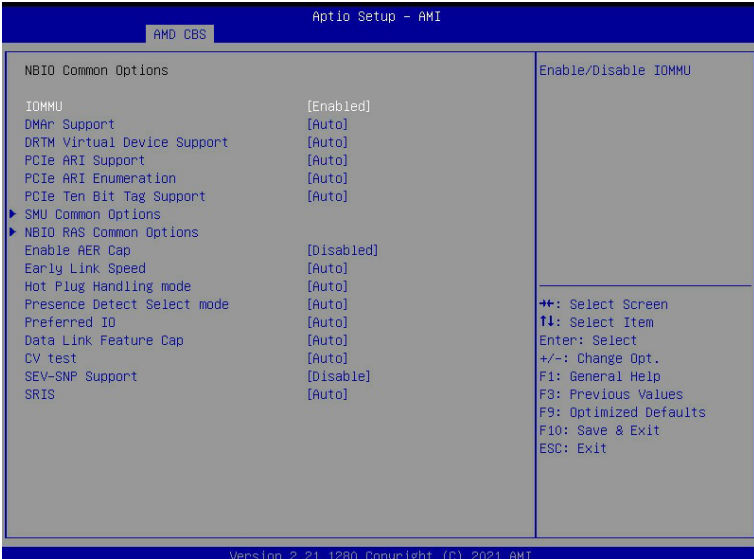
Parameter	Description
Scrubber	Press [Enter] for configuration of advanced items.
Memory Addressing	Press [Enter] for configuration of advanced items.
ACPI	Press [Enter] for configuration of advanced items.
Link	Press [Enter] for configuration of advanced items.
Disable DF to external IP sync flood propagation	Options available: Auto/Sync flood disabled/Sync flood enabled. Default setting is Auto .
Disable DF sync flood propagation	Options available: Auto/Sync flood disabled/Sync flood enabled. Default setting is Auto .
Freeze DF module queues on error	Options available: Auto/Enabled/Disabled. Default setting is Auto .
CC6 memory region encryption	Options available: Auto/Enabled/Disabled. Default setting is Auto .
System probe filter	Options available: Auto/Enabled/Disabled. Default setting is Auto .
Memory Clear	Options available: Auto/Enabled/Disabled. Default setting is Auto .
PSP error injection support	Options available: False/True. Default setting is False .

5-3-3 UMC Common Options



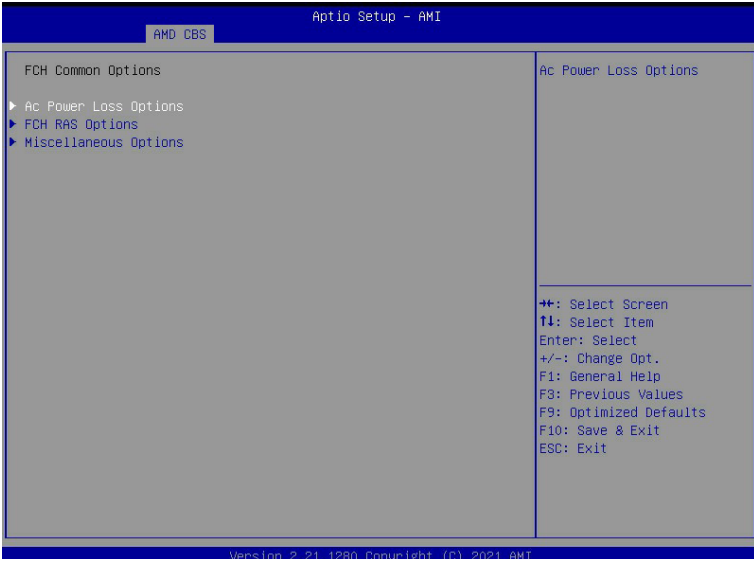
Parameter	Description
DDR4 Common Options	Press [Enter] for configuration of advanced items.
DRAM Memory Mapping	Press [Enter] for configuration of advanced items.
NVDIMM	Press [Enter] for configuration of advanced items.
Memory MBIST	Press [Enter] for configuration of advanced items.

5-3-4 NBIO Common Options



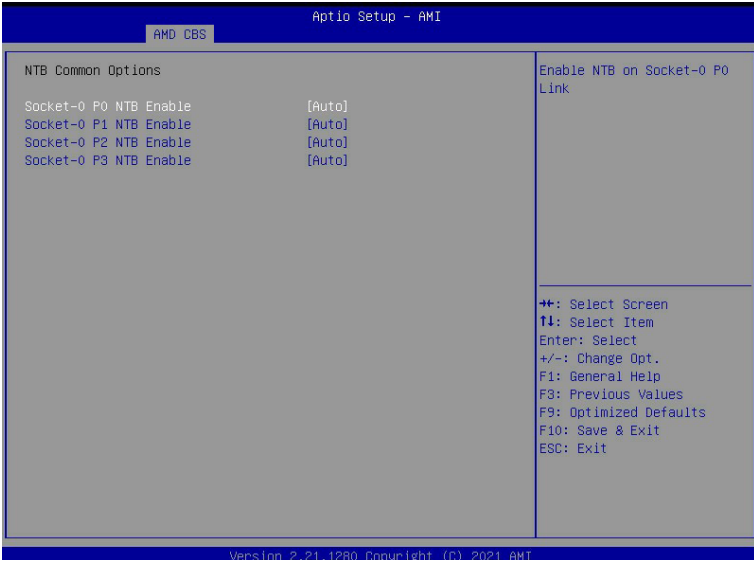
Parameter	Description
IOMMU	Options available: Enabled/Disabled. Default setting is Disabled .
ACS Enable	Options available: Auto/Enabled/Disabled. Default setting is Auto .
PCIe ARI Support	Options available: Auto/Enabled/Disabled. Default setting is Auto .
PCIe Ten Bit Tag Support	Options available: Auto/Enabled/Disabled. Default setting is Auto .
HD Audio Enable	Press [Enter] for configuration of advanced items.
SMU Common Options	Press [Enter] for configuration of advanced items.
NBIO RAS Common Options	Press [Enter] for configuration of advanced items.
Enable AER Cap	Options available: Auto/Enabled/Disabled. Default setting is Auto .
Early Link Speed	Options available: Auto/Gen1/Gen2. Default setting is Auto .
Hot Plug Handling mode	Options available: Auto/A0 Mode/OS First (No Error Handling)/OS First (Error Handling-Not Implemented). Default setting is Auto .
Presence Detect Select mode	Options available: Auto/OR/AND. Default setting is Auto .
Preferred IO Device	

5-3-5 FCH Common Options



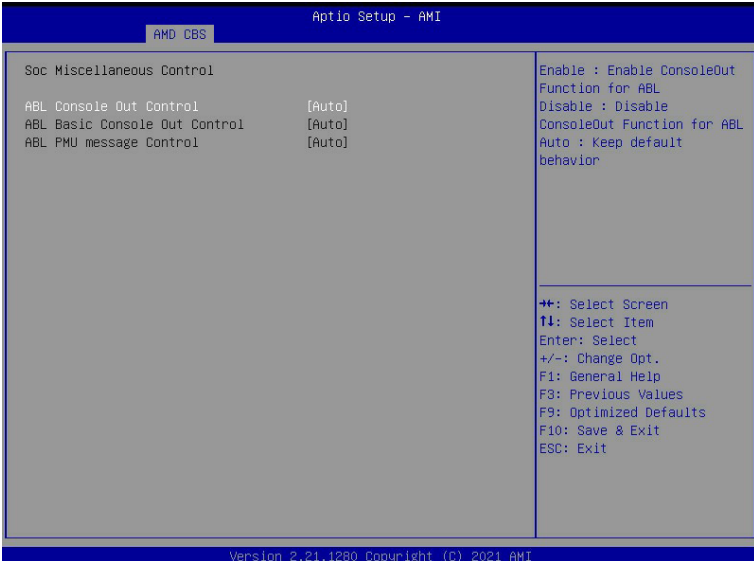
Parameter	Description
SATA Configuration Options	Press [Enter] for configuration of advanced items.
USB Configuration Options	Press [Enter] for configuration of advanced items.
SD Dump Options	Press [Enter] for configuration of advanced items.
AC Power Loss Options	Press [Enter] to configure the AC loss control.
I2C Configuration 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.
eMMC Options	Press [Enter] for configuration of advanced items.
FCH RAS Options	Press [Enter] for configuration of advanced items.

5-3-6 NTB Common Options



Parameter	Description
NTB	Options available: Auto/Enabled. Default setting is Auto .

5-3-7 SOC Miscellaneous Control

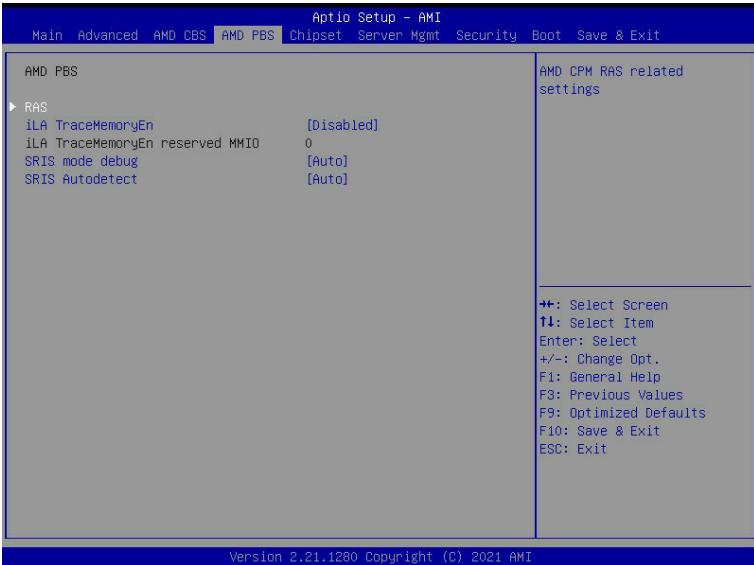


Parameter	Description
ABL Console Out Control	Options available: Auto/Enabled/Disabled. Default setting is Auto .
ABL PMU message Control ^(Note)	Options available: Auto/Enabled/Disabled. Default setting is Auto .

(Note) This item appears when **ABL Console Out Control** is set to **Enabled**.

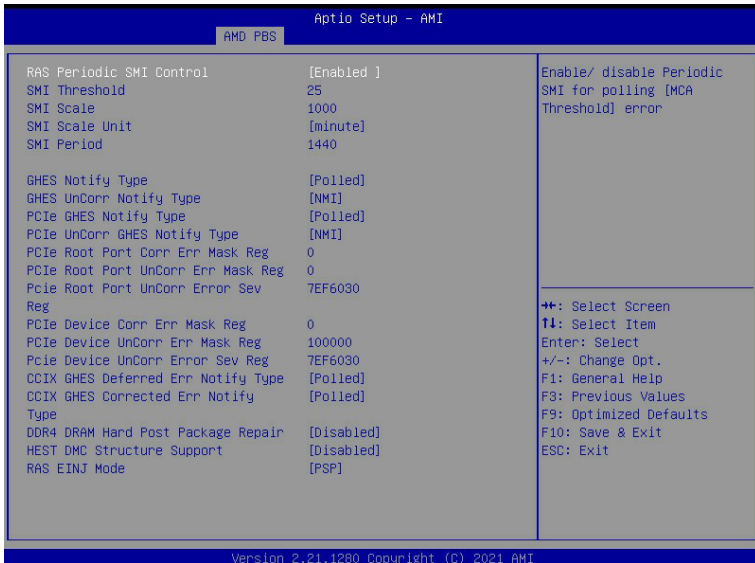
5-4 AMD PBS Option Menu

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	Options available: Enabled/Disabled. Default setting is Disabled .

5-4-1 RAS

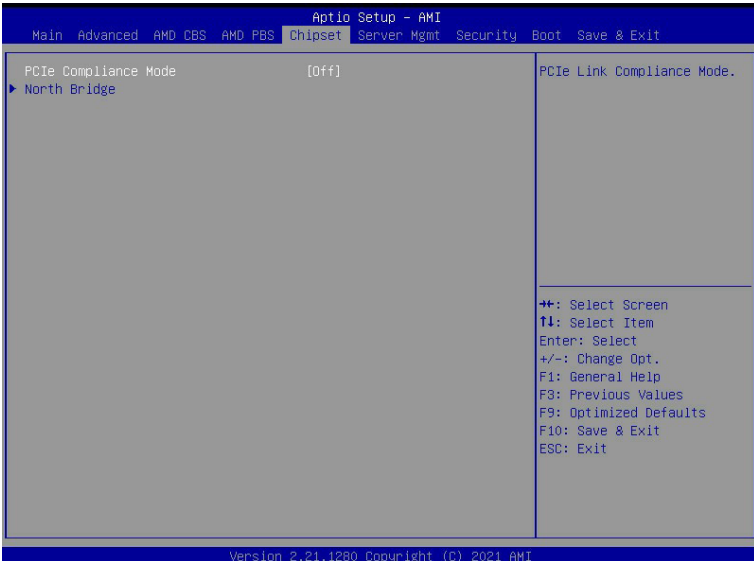


Parameter	Description
RAS Periodic SMI Control	Options available: Enabled/Disabled. Default setting is Disabled .
SMI Threshold	Set the SMI Threshold value.
SMI Scale	Set the SMI Scale value.
SMI Scale Unit	Options available: millisecond/second/minute. Default setting is millisecond .
SMI Period	Set the SMI Period.
GHEs Notify Type	Options available: Polled/SCI. Default setting is Polled .
GHEs UnCorr Notify Type	Options available: Polled/NMI. Default setting is NMI .
PCIe GHEs Notify Type	Options available: Polled/SCI. Default setting is Polled .
PCIe UnCorr GHEs Notify Type	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.
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 Serverity register of Root Port.

Parameter	Description
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.
CCIX GHES Deferred ERR Notify Type	Notification type for CCIX deferred error. Options available: Polled/SCI. Default setting is Polled .
CCIX GHES Corrected Err Notify Type	Notification type for CCIX corrected error. Options available: Polled/SCI. Default setting is Polled .
DDR4 DRAM Hard Post Package Repair	This feature allows spare DRAM rows to replace malfunctioning rows via an in-field repair mechanism. Options available: Enabled/Disabled. Default setting is Disabled .
HEST DMC Structure Support	HEST DMC (Deferred Machine Check) Structure Support. Options available: Enabled/Disabled. Default setting is Disabled .

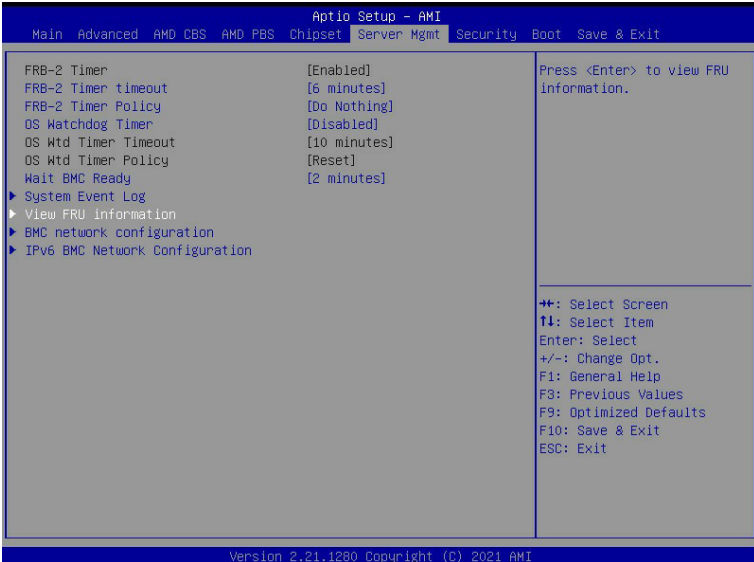
5-5 Chipset Setup Menu

Chipset Setup menu displays submenu options for configuring the function of the Soc. 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/2Step. Default setting is 1 Step .
PCIe Compliance Mode	Options available: On/Off. Default setting is Off .
Program All VR	Enable/Disable program all VR on MB. Options available: Enabled/Disabled. Default setting is Enabled .
North Bridge	Press [Enter] for configuration of advanced items.

5-6 Server Management Menu

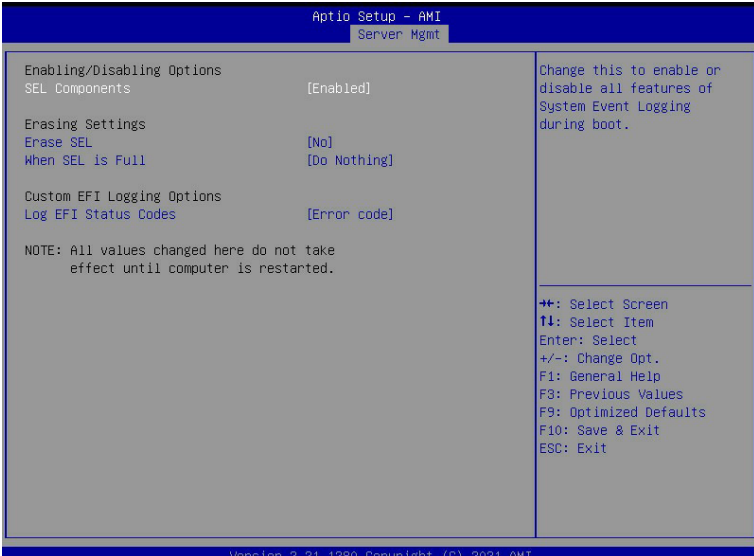


Parameter	Description
FRB-2 Timer	Enable/Disable FRB-2 timer (POST timer). Options available: Enabled/Disabled. Default setting is Disabled .
FRB-2 Timer timeout	Configure the FRB2 Timer timeout. Options available: 3 minutes/4 minutes/5 minutes/6 minutes. Default setting is 6 minutes . Please note that this item is configurable when FRB-2 Timer is set to Enabled.
FRB-2 Timer Policy	Configure the FRB2 Timer policy. Options available: Do Nothing/Reset/Power Down. Default setting is Do Nothing . Please note that this item is configurable when FRB-2 Timer is set to Enabled.
OS Watchdog Timer	Enable/Disable OS Watchdog Timer function. Options available: Enabled/Disabled. Default setting is Disabled .
OS Wtd Timer Timeout ^(Note)	Configure OS Watchdog Timer. Options available: 5 minutes/10 minutes/15 minutes/20 minutes. Default setting is 10 minutes . Please note that this item is configurable when OS Watchdog Timer is set to Enabled.
OS Wtd Timer Policy ^(Note)	Configure OS Watchdog Timer Policy. Options available: Reset/Do Nothing/Power Down. Default setting is Reset . Please note that this item is configurable when OS Watchdog Timer is set to Enabled.

(Note) Advanced items prompt 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 advanced items.
BMC network configuration	Press [Enter] to configure advanced items.
IPv6 BMC Network Configuration	Press [Enter] to configure advanced items.

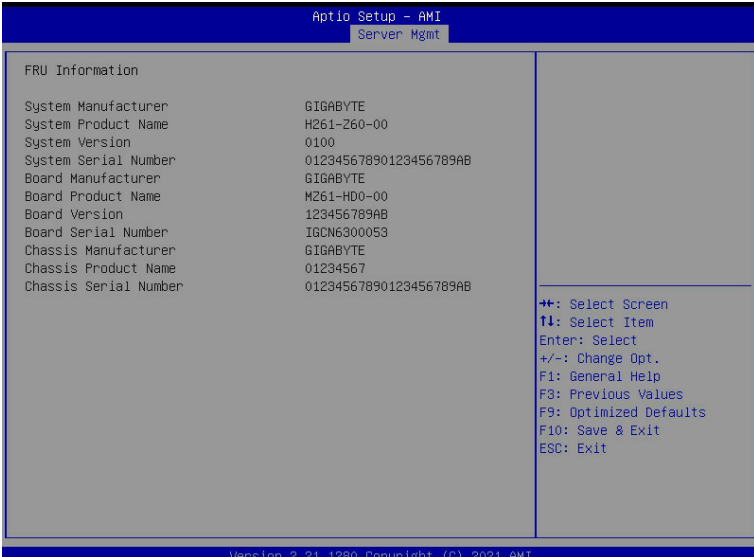
5-6-1 System Event Log



Parameter	Description
Enabling / Disabling Options	
SEL Components	Change this item to enable or disable all features of System Event Logging during boot. Options available: Enabled/Disabled. Default setting is Enabled .
Erasing Settings	
Erasing 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/Erased 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.



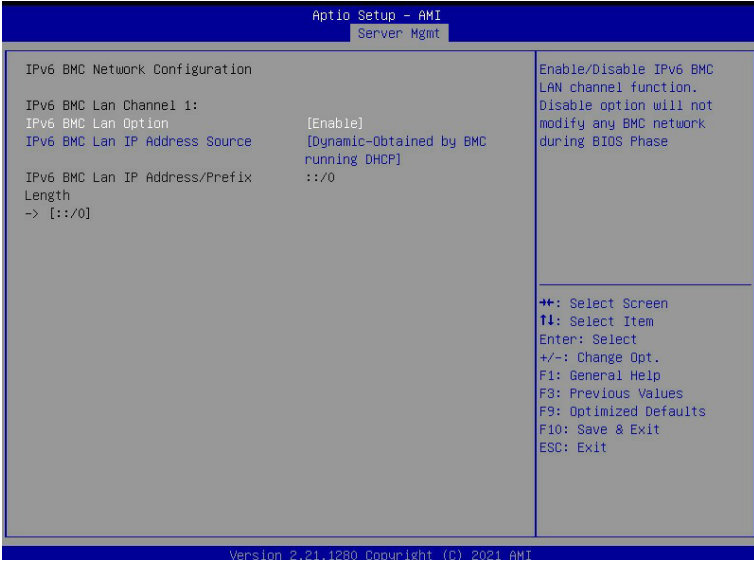
(Note) The model name will vary depends on the product you purchased.

5-6-3 BMC Network Configuration



Parameter	Description
BMC network configuration	
Lan Channel 1	
Configuration Address source	Select 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] to synchronize the BMC network parameter values.

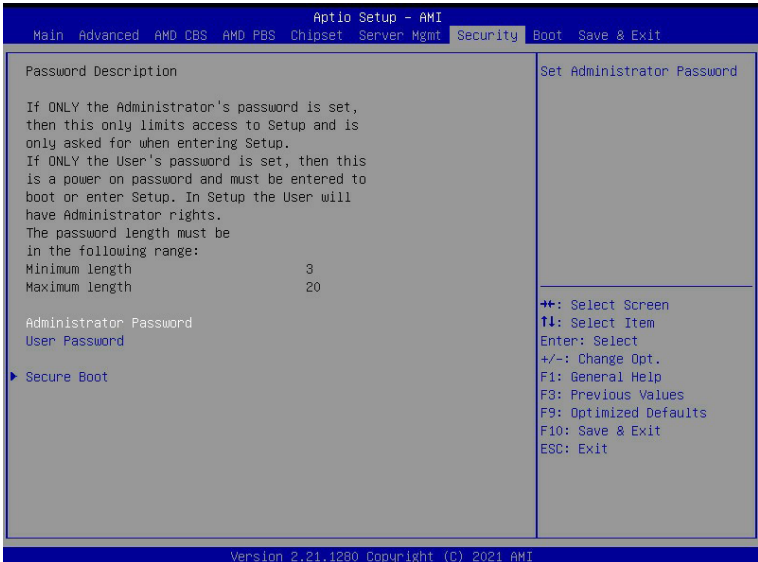
5-6-4 IPv6 BMC Network Configuration



Parameter	Description
IPv6 BMC Network Configuration	
IPv6 BMC Lan Channel 1	
IPv6 BMC Lan Option	Enable/Disable IPv6 BMC LAN channel function. When this item is disabled, the system will not modify any BMC network during BIOS phase. Options available: Enable/Disable. Default setting is Enable .
IPv6 BMC Lan IP Address Source	Select 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



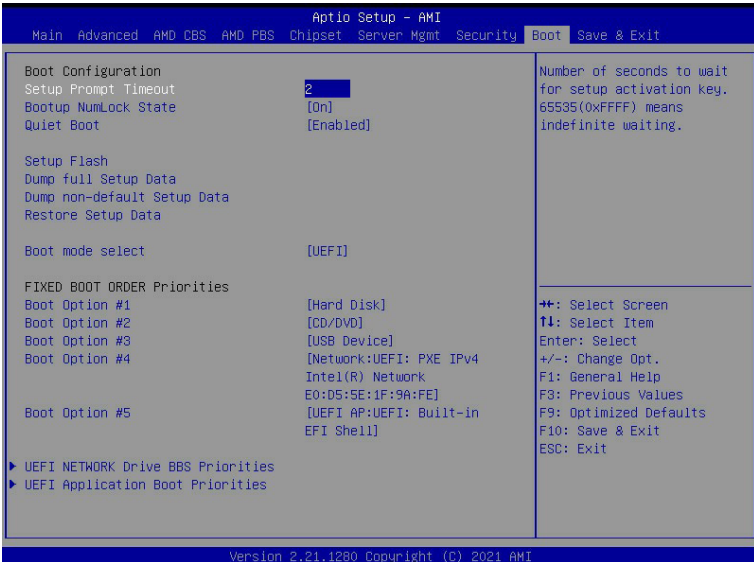
Parameter	Description
System Mode	Displays the system is in User mode or Setup mode.
Secure Boot Mode ^(Note)	<p>Secure Boot requires all the applications that are running during the booting process to be pre-signed with valid digital certificates. This way, the system knows all the files being loaded before Windows loads and gets to the login screen have not been tampered with.</p> <p>When set to Standard, it will automatically load the Secure Boot keys from the BIOS databases.</p> <p>When set to Custom, you can customize the Secure Boot settings and manually load its keys from the BIOS database.</p> <p>Options available: Standard/Custom. Default setting is Custom.</p>

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

Parameter	Description
Key Management	<p data-bbox="334 137 665 158">Press [Enter] to configure advanced items.</p> <p data-bbox="334 164 937 216">Please note that this item is configurable when Secure Boot Mode is set to Custom.</p> <ul style="list-style-type: none"> <li data-bbox="334 222 944 326">◆ Provision Factory Defaults <ul style="list-style-type: none"> <li data-bbox="370 247 944 299">– Allows to provision factory default Secure Boot keys when system is in Setup Mode. <li data-bbox="370 305 900 326">– Options available: Enabled/Disabled. Default setting is Disabled. <li data-bbox="334 332 926 412">◆ Install Factory Default Keys <ul style="list-style-type: none"> <li data-bbox="370 357 926 377">– Installs all factory default keys. It will force the system in User Mode. <li data-bbox="370 384 600 404">– Options available: Yes/No. <li data-bbox="334 418 902 498">◆ Enroll Efi Image <ul style="list-style-type: none"> <li data-bbox="370 443 902 495">– Press [Enter] to enroll SHA256 hash of the binary into Authorized Signature Database (db). <li data-bbox="334 504 876 556">◆ Save all Secure Boot variables <ul style="list-style-type: none"> <li data-bbox="370 529 876 550">– Press [Enter] to save all Secure Boot Keys and Key variables. <li data-bbox="334 562 896 614">◆ Secure Boot variable <ul style="list-style-type: none"> <li data-bbox="370 588 896 608">– Displays the current status of the variables used for secure boot. <li data-bbox="334 620 802 716">◆ Platform Key (PK) <ul style="list-style-type: none"> <li data-bbox="370 646 802 666">– Displays the current status of the Platform Key (PK). <li data-bbox="370 672 678 693">– Press [Enter] to configure a new PK. <li data-bbox="370 699 610 719">– Options available: Set New. <li data-bbox="334 722 942 857">◆ Key Exchange Keys (KEK) <ul style="list-style-type: none"> <li data-bbox="370 747 942 768">– Displays the current status of the Key Exchange Key Database (KEK). <li data-bbox="370 774 905 826">– Press [Enter] to configure a new KEK or load additional KEK from storage devices. <li data-bbox="370 832 676 852">– Options available: Set New/Append. <li data-bbox="334 863 948 998">◆ Authorized Signatures (DB) <ul style="list-style-type: none"> <li data-bbox="370 889 905 909">– Displays the current status of the Authorized Signature Database. <li data-bbox="370 915 948 967">– Press [Enter] to configure a new DB or load additional DB from storage devices. <li data-bbox="370 973 676 994">– Options available: Set New/Append. <li data-bbox="334 1005 902 1139">◆ Forbidden Signatures (DBX) <ul style="list-style-type: none"> <li data-bbox="370 1030 902 1050">– Displays the current status of the Forbidden Signature Database. <li data-bbox="370 1056 892 1108">– Press [Enter] to configure a new dbx or load additional dbx from storage devices. <li data-bbox="370 1114 676 1135">– Options available: Set New/Append. <li data-bbox="334 1146 929 1281">◆ Authorized TimeStamps (DBT) <ul style="list-style-type: none"> <li data-bbox="370 1171 929 1191">– Displays the current status of the Authorized TimeStamps Database. <li data-bbox="370 1197 905 1249">– Press [Enter] to configure a new DBT or load additional DBT from storage devices. <li data-bbox="370 1255 676 1276">– Options available: Set New/Append. <li data-bbox="334 1287 919 1422">◆ OsRecovery Signatures <ul style="list-style-type: none"> <li data-bbox="370 1312 919 1332">– Displays the current status of the OsRecovery Signature Database. <li data-bbox="370 1339 887 1390">– Press [Enter] to configure a new OsRecovery Signature or load additional OsRecovery Signature from storage devices. <li data-bbox="370 1397 676 1417">– Options available: Set New/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.

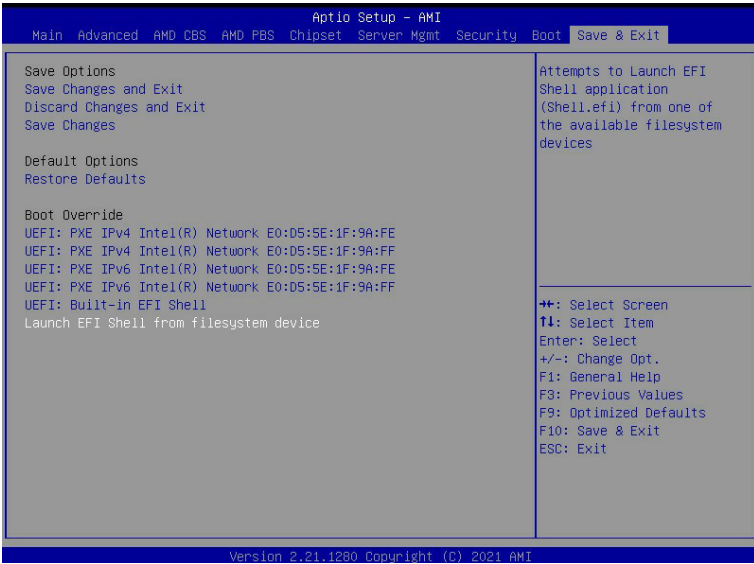


Parameter	Description
Boot Configuration	
Setup Prompt Timeout	Number of seconds to wait for setup activation key. 65535 (0xFFFF) means indefinite waiting. Press the numeric keys to input the desired values.
Bootup NumLock State	Enable/Disable the Bootup NumLock function. Options available: On/Off. Default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

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

5-9 Save & Exit Menu

The 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	Save 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.