

G250-S88

G250-G50

G250-G51

G250-G52

Dual LGA2011 sockets R3 motherboard for Intel® E5-2600 V3/V4 series processors

Service Guide

Rev. 1.1

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Documentation Classifications

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

- For detailed product information, carefully read the User's Manual.

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Preface

Before using this information and the product it supports, please read the following general information.

1. This Service Guide provides you with all technical information relating to the BASIC CONFIGURATION decided for GIGABYTE's "global" product offering. To better fit local market requirements and enhance product competitiveness, your regional office MAY have decided to extend the functionality of a machine (e.g. add-on card, modem, or extra memory capability). These LOCALIZED FEATURES will NOT be covered in this generic service guide. In such cases, please contact your regional offices or the responsible personnel/channel to provide you with further technical details.
2. Please note WHEN ORDERING SPARE PARTS, you should check the most up-to-date information available on your regional web or channel. For whatever reason, if a part number change is made, it will not be noted in the printed Service Guide. For GIGABYTE-AUTHORIZED SERVICE PROVIDERS, your GIGABYTE office may have a DIFFERENT part number code to those given in the FRU list of this printed Service Guide. You MUST use the list provided by your regional GIGABYTE office to order FRU parts for repair and service of customer machines.

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Box Contents

- ☒ G250-S88 System
- ☒ Driver CD
- ☒ Heat Sink x 2
- ☒ RAID Key (Optional)

- The box contents above are for reference only and the actual items shall depend on the product package you obtain.
The box contents are subject to change without notice.
- The motherboard image is for reference only.

Safety, Care and Regulatory Information

Important safety information

Read and follow all instructions marked on the product and in the documentation before you operate your system. Retain all safety and operating instructions for future use.

- The product should be operated only from the type of power source indicated on the rating label.* If your computer has a voltage selector switch, make sure that the switch is in the proper position for your area. The voltage selector switch is set at the factory to the correct voltage.
- The plug-socket combination must be accessible at all times because it serves as the main disconnecting device.
- All product shipped with a three-wire electrical grounding-type plug only fits into a grounding-type power outlet. This is a safety feature. The equipment grounding should be in accordance with local and national electrical codes. The equipment operates safely when it is used in accordance with its marked electrical ratings and product usage instructions.
- Do not use this product near water or a heat source.* Set up the product on a stable work surface or so as to ensure stability of the system.
- Openings in the case are provided for ventilation. Do not block or cover these openings. Make sure you provide adequate space around the system for ventilation when you set up your work area. Never insert objects of any kind into the ventilation openings.
- To avoid electrical shock, always unplug all power cables and modem cables from the wall outlets before removing covers.
- Allow the product to cool before removing covers or touching internal components.

Precaution for Product with Laser Devices

Observe the following precautions for laser devices:

- Do not open the CD-ROM drive, make adjustments, or perform procedures on a laser device other than those specified in the product's documentation.
- Only authorized service technicians should repair laser devices.

Precaution for Product with Modems, Telecommunications, or Local Area Network Options

Observe the following precautions for laser devices:

- Do not connect or use a modem or telephone during a lightning storm. There may be a risk of electrical shock from lightning.
- To reduce the risk of fire, use only No. 26 AWG or larger telecommunications line cord.
- Do not plug a modem or telephone cable into the network interface controller (NIC) receptacle.
- Disconnect the modem cable before opening a product enclosure, touching or installing internal components, or touching an uninsulated modem cable or jack.
- Do not use a telephone line to report a gas leak while you are in the vicinity of the leak.

Federal Communications Commission (FCC) Statement

Warning

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Neither the provider nor the manufacturer are responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian Department of Communications Compliance Statement

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of Industry Canada. Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe A prescrites dans le règlement sur le brouillage radioélectrique édicté par Industrie Canada.

Class A equipment

This device has been tested and found to comply with the limits for a class A digital device pursuant Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by tuning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the device and receiver
- Connect the device into an outlet on a circuit different from that to which the receiver is connected' Consult the dealer or an experienced radio/television technician for help.

California Proposition 65

Warning:

This product contains a chemical, including lead, known to the State of California to cause cancer

<http://www.p65warnings.ca.gov/>

Warning:

This product contains a chemical, including lead, known to the State of California to cause birth defects or other reproductive harm.

<http://www.p65warnings.ca.gov/>

WEEE Symbol Statement



The symbol shown below is on the product or on its packaging, which indicates that this product must not be disposed of with other waste. Instead, the device should be taken to the waste collection centers for activation of the treatment, collection, recycling and disposal procedure.

The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local government office, your household waste disposal service or where you purchased the product for details of environmentally safe recycling.

- ◆ When your electrical or electronic equipment is no longer useful to you, "take it back" to your local or regional waste collection administration for recycling.
- ◆ If you need further assistance in recycling, reusing in your "end of life" product, you may contact us at the Customer Care number listed in your product's user's manual and we will be glad to help you with your effort.



Battery Warning: Incorrectly installing a battery or using incompatible battery may increase the risk of fire explosion. Replace the battery only with the same or equivalent type.

- Do not disassemble, crush, puncture batteries.
- Do not store or place your battery pack next to or in a heat source such as a fire, heat-generating appliance, can or exhaust vent. Heating battery cells to temperatures above 65°C (149°F) can cause explosion or fire.
- Do not attempt to open or service batteries. Do not dispose of batteries in a fire or with household waste.

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

 Motherboard	♦ G250-S88/G250-G51: MG50-G20 ♦ G250-G50/G250-G52: MG50-G21
 CPU	♦ Support for Intel® Xeon® E5-2600 V3/V4 series processors in the LGA2011 package ♦ L3 cache varies with CPU ♦ Supports Dual QuickPath Interconnect up to 9.6GT/s ♦ Enhanced Intel SpeedStep Technology (EIST) ♦ Support Intel Virtualization Technology (VT)
 Chipset	♦ Intel® C612 (Wellsburg) Chipset
 Memory	♦ 24 x DIMM slots ♦ DDR4 memory supported only ♦ Quad channel memory architecture ♦ ECC RDIMM / LRDIMM modules supported ♦ Single and dual rank RDIMM modules up to 32GB supported ♦ 3DS LRDIMM modules up to 128GB supported ♦ 1.2V modules: 1600/1866/2133/2400 MHz
 LAN (G250-S88/ G250-G51)	♦ Intel® 82599ES supports dual 10G SFP+ ethernet LAN ports ♦ 1 x KVM management LAN port
LAN (G250-G50/ G250-G52)	♦ Intel® I350-AM2 GbE LAN controller supports dual GbE LAN ports ♦ 1 x KVM management LAN port
 Expansion Slot	♦ 8 x PCI Express x16 slots, running at x16 (Gen3/PCIE_1/PCIE_2/PCIE_3/PCIE_4) ♦ 1 x PCI Express x16 slot, running at x8 (Gen3/MEZZ_1/Proprietary slot) ♦ 1 x PCI Express x8 slot, running at x8 (Gen3/MEZZ_2/Proprietary slot)
 Onboard Graphics	♦ ASPEED® AST2400 supports 16MB DDR3 VRAM
 Mass Storage	♦ 8 x 2.5" Hot-Swap SATA HDDs ♦ Support for Intel IRSTe SATA RAID 0, RAID 1, RAID 5, RAID 10
 System Fans	♦ 8 x 80x80x38mm 15000rpm
 USB	♦ Up to 4 USB 3.0 ports (2 on the back panel, 2 additional ports via the USB brackets connected to the internal USB headers)

	Internal Connectors	♦ 1 x 18-pin main power connector ♦ 1 x 14-pin ATX 12V power connector ♦ 2 x 8-pin power connectors ♦ 2 x 4-pin 12V power connectors ♦ 10 x SATA 6Gb/s connectors ♦ 1 x Front panel header ♦ 1 x HDD back plane board header ♦ 1 x SATA SGPIO header ♦ 1 x sSATA SGPIO header ♦ 1 x Front VGA port header ♦ 1 x Serial port header ♦ 1 x USB 3.0 header ♦ 1 x TPM module connector ♦ 1 x RAID KEY header ♦ 1 x IPMB connector
	Rear Panel I/O	♦ 2 x USB 2.0/3.0 ports ♦ 2 x 10G SFP+ LAN ports ♦ 1 x 10/100/1000 dedicated management LAN port ♦ 1 x Serial port ♦ 1 x VGA port ♦ 1 x Power switch button ♦ 1 x ID switch button ♦ 1 x Reset button ♦ 1 x NMI button ♦ 1 x System status LED ♦ 2 x LAN Link/Active LED/1G/10G Speed LED (LAN1/LAN2)
	Front Panel LED/Buttons	♦ 1 x Power button/LED ♦ 1 x ID button/LED ♦ 1 x Reset button ♦ 2 x LAN LED ♦ 1 x HDD Status LED ♦ 1 x System LED
	I/O Controller	♦ ASPEED® AST2400 BMC chip
	Hardware Monitor	♦ System voltage detection ♦ CPU/System temperature detection
	BIOS	♦ 1 x 128 Mbit flash ♦ AMI BIOS
	Environment	♦ Operating Temperature: 10°C to 35°C ♦ Non-operating Temperature: -40°C to 60°C
	Relative Humidity	♦ 8-80% operating Humidity (Non-condensing) ♦ 20-95%Non-operating Humidity (Non-condensing)

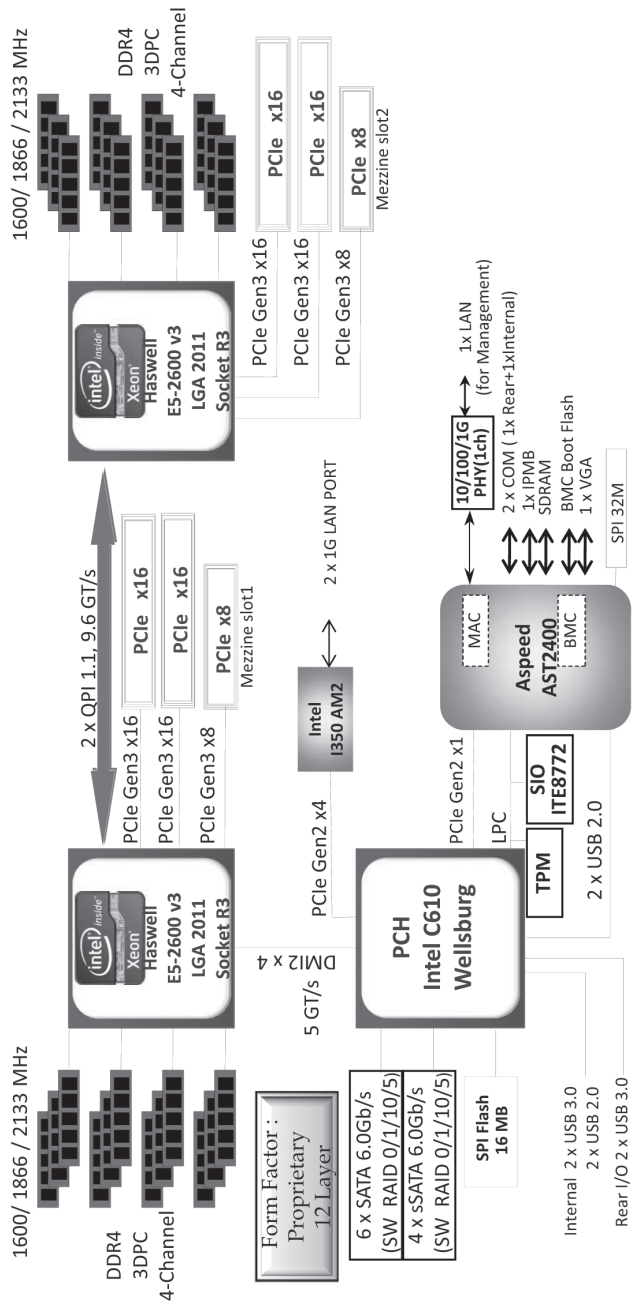
 System Dimension	♦ 871Wx86Hx482D (mm)
 Electrical Power Supply (G250-S88/G250-G50)	♦ 2 x Hot-plug 1U PSU 1600W at 80 plus Platinum level ♦ AC input 100-127V: DC Output 1000W Max ♦ AC input 200-240V: DC Output 1600W Max
Electrical Power Supply (G250-G51/G250-G52)	♦ 2 x Hot-plug 1U PSU 2000W at 80 plus Platinum level ♦ AC input 100-127V: DC Output 1000W Max ♦ AC input 200-240V: DC Output 2000W Max

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

1-3-1 G250-S88/G250-G51



1-3-2 G250-G50/G250-G52



Chapter 2 System Hardware Installation



Pre-installation Instructions

Perform the steps below before you open the server or before you remove or replace any component.

- Back up all important system and data files before performing any hardware configuration.
- Turn off the system and all the peripherals connected to it.
- Locate the pin one of the CPU. The CPU cannot be inserted if oriented incorrectly. (Or you may locate the notches on both sides of the CPU and alignment keys on the CPU socket.)
- Apply an even and thin layer of thermal grease on the surface of the CPU.
- Do not turn on the computer if the CPU cooler is not installed, otherwise overheating and damage of the CPU may occur.
- Set the CPU host frequency in accordance with the CPU specifications. It is not recommended that the system bus frequency be set beyond hardware specifications since it does not meet the standard requirements for the peripherals. If you wish to set the frequency beyond the standard specifications, please do so according to your hardware specifications including the CPU, graphics card, memory, hard drive, etc.

2-1 Removing Chassis Cover

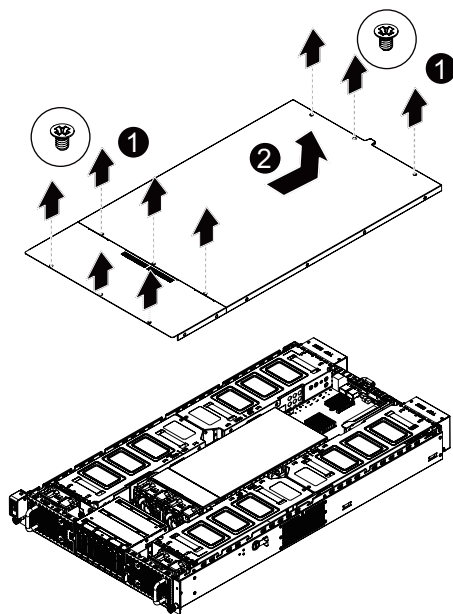


Before you remove or install the system cover

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

Follow these instructions to remove the system cover:

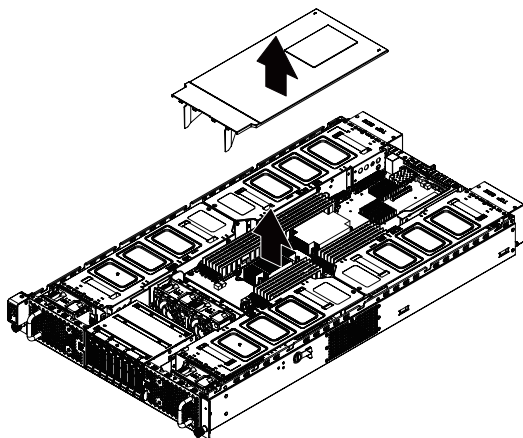
1. Loosen and remove the screws securing the top cover.
2. Slide the back cover toward the rear of the chassis to disengage it.



2-2 Removing and Installing the Fan Duct

Follow these instructions to remove/install the fan duct:

1. Lift up to remove the fan duct
2. To install the fan duct, align the fan duct with the guiding groove. Push down the fan duct into chassis until its firmly seats



2-3 Installing the CPU



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

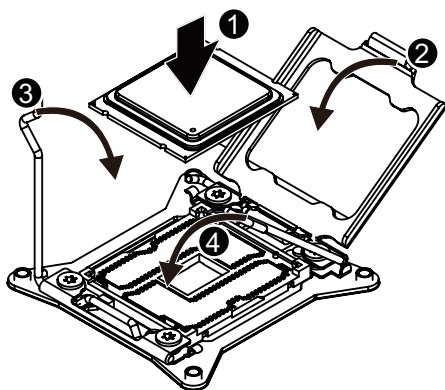
- Make sure that the motherboard supports the CPU.
- Always turn off the computer and unplug the power cord from the power outlet before installing the CPU to prevent hardware damage.
- Unplug all cables from the power outlets.
- Disconnect all telecommunication cables from their ports.
- Place the system 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:

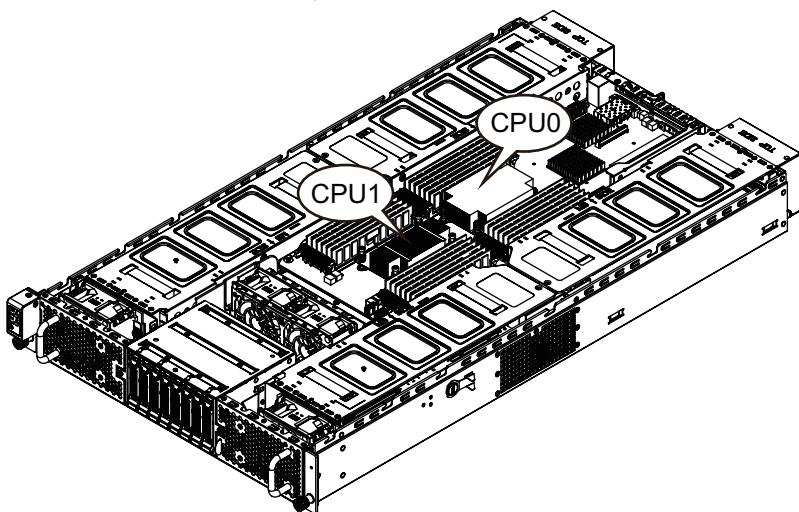
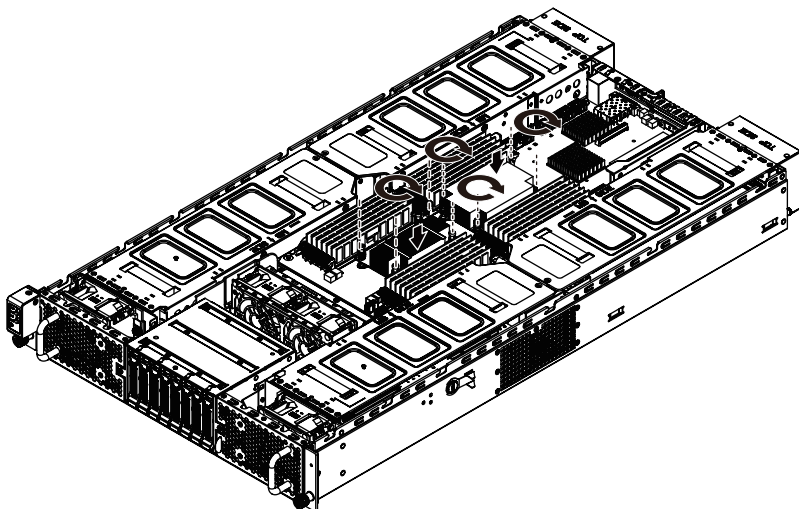
1. Release then lift up the load lever.
2. Open the retention plate to expose the socket body.
3. Insert the CPU with the correct orientation.
4. Close the retention plate and close the lever to the locked position.



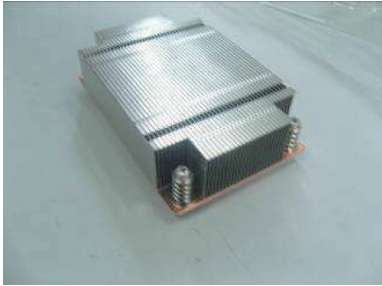
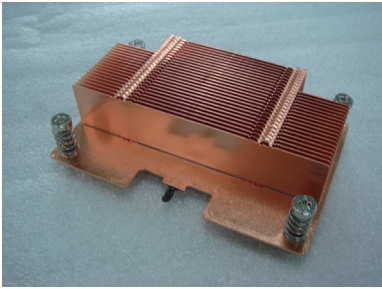
2-4 Installing the Heat Sink

Follow these instructions to install the heat sinks:

1. Apply thermal compound evenly on the top of the CPU.
2. Remove the protective cover from the underside of the heat sink.
3. Place the heat sink(s) on top of the CPU and tighten the four positioning screws.



CPU0 and CPU1 use the different CPU heat sinks. Please see the following table for installing the correct CPU heat sink.

CPU0	CPU1
P/N: 25ST1-523200-C1R	P/N: 25ST1-443101-T4R
	

2-5 Installing the Memory



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

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

2-5-1 Triple Channel Memory Configuration

The system provides 24 DDR4 memory sockets for per CPU and supports Triple Channel Technology. When the memory is installed, the BIOS will automatically detect the specifications and capacity of the memory. Enabling Triple Channel memory mode will be triple of the original memory bandwidth.

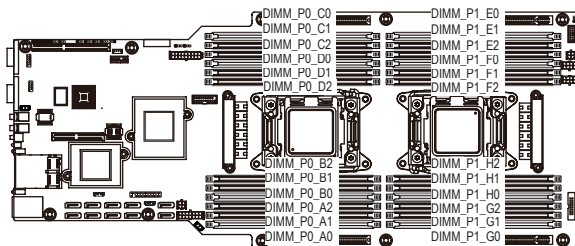
The twenty-four DDR4 memory sockets are divided into three channels each channel has two memory sockets as following:

Channel 1: DIMM_P0_A0/DIMM_P0_A1/DIMM_P0_A2 (For primary CPU);
DIMM_P1_E0/DIMM_P1_E1/DIMM_P1_E2 (For secondary CPU)

Channel 2: DIMM_P0_B0/DIMM_P0_B1/DIMM_P0_B2 (For primary CPU);
DIMM_P1_F0/DIMM_P1_F1/DIMM_P1_F2 (For secondary CPU)

Channel 3: DIMM_P0_C0/DIMM_P0_C1/DIMM_P0_C2 (For primary CPU);
DIMM_P1_G0/DIMM_P1_G1/DIMM_P1_G2 (For secondary CPU)

Channel 4: DIMM_P0_D0/DIMM_P0_D1/DIMM_P0_D2 (For primary CPU);
DIMM_P1_H0/DIMM_P1_H1/DIMM_P1_H2 (For secondary CPU)



2-5-2 Installing a Memory

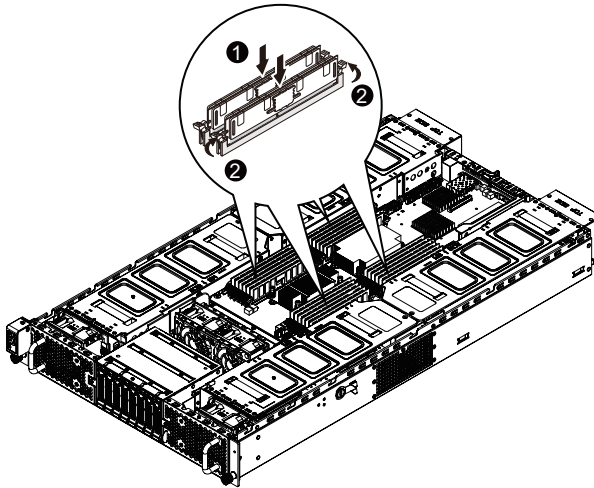


Before installing a memory module, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the memory module.

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.



Type	Ranks Per DIMM and Data Width	Speed (MT/s); Slot Per Channel (SPC) and DIMM Per Channel (DPC)		
		1 Slot Per Channel	2 Slot Per Channel	
		1DPC	1DPC	2DPC
RDIMM	SRx4	2133	2133	1866
RDIMM	SRx8	2133	2133	1866
RDIMM	DRx8	2133	2133	1866
RDIMM	DRx4	2133	2133	1866
LRDIMM	QRx4	2133	2133	2133
LRDIMM 3DS	8Rx4	2400	2400	2400



NOTE!

DDR4 2400MHz is only available on Intel Xeon® E5-2600 V4 processor.



When only one DIMM is used, it must be populated in memory slot0 first.

Memory populated sequence must be followed with slot0/slot1/slot2.

System will not boot normally with incorrect populated sequence.

2-6 Installing the PCI Expansion Card



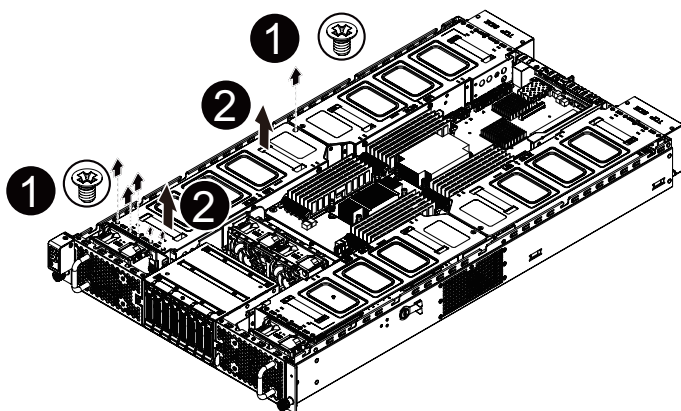
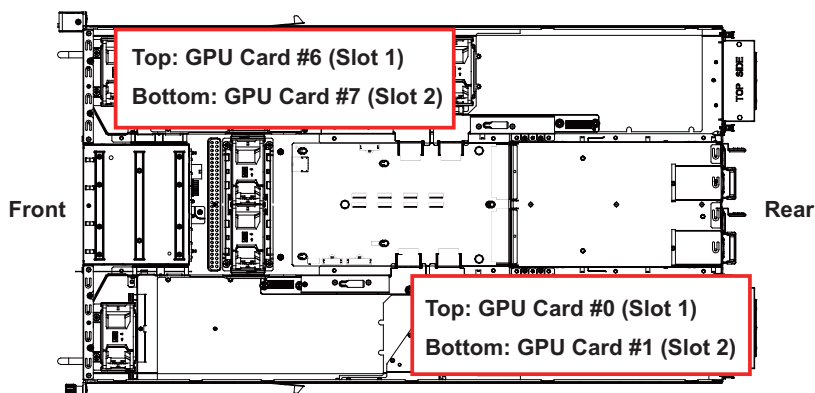
- Voltages can be present within the server whenever an AC power source is connected. This voltage is present even when the main power switch is in the off position. Ensure that the system is powered-down and all power sources have been disconnected from the server prior to installing a PCI card.

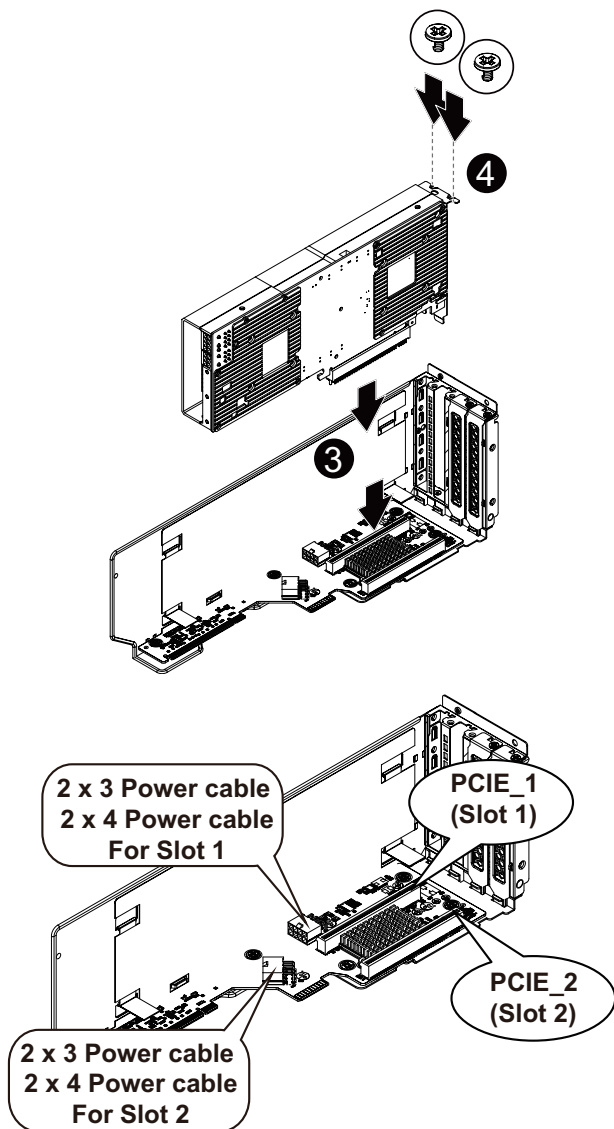
Failure to observe these warnings could result in personal injury or damage to equipment.

For GPU0/GPU1/GPU6/GPU7

Follow these instructions to install PCI Expansion card:

1. Loosen and remove the screws securing the PCI cage.
2. Pull the two plastic handles to lift up the PCI cage from the system.
3. Insert the card into the selected slot and secure the expansion card with screw.
Make sure that the card is properly seated.
4. Secure the PCI expansion cards in place with screws.



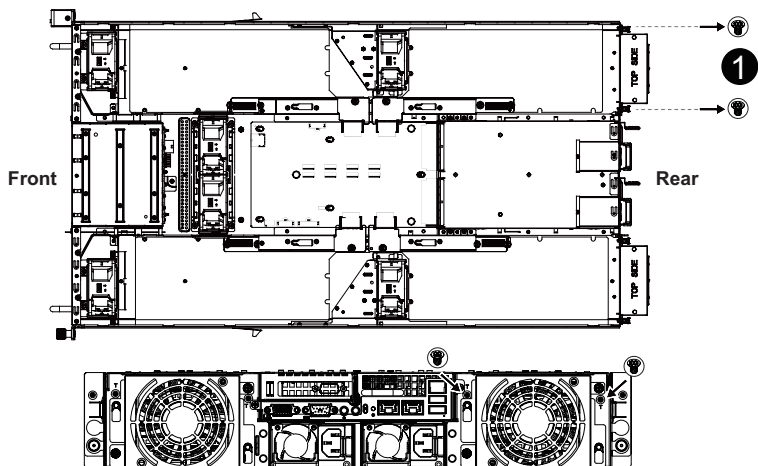
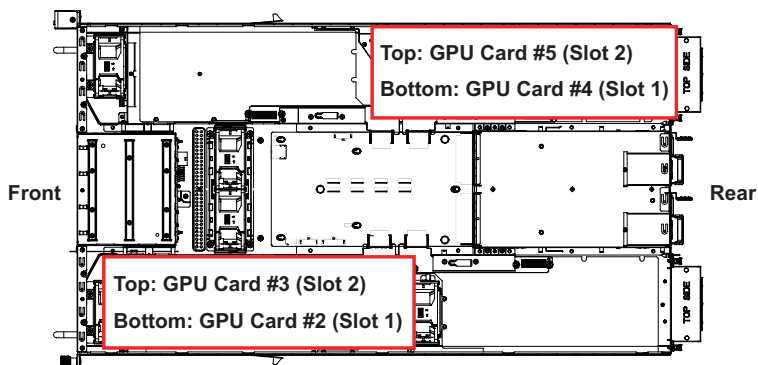


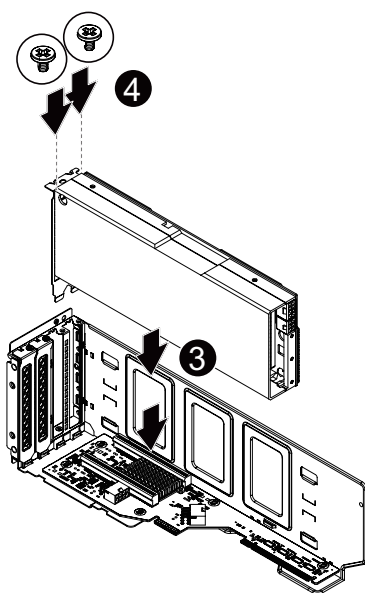
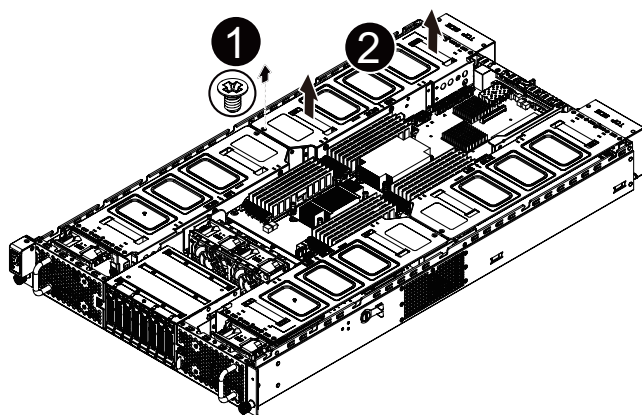
- If the GPGPU card supports 225W, connect 2 x 4 power cable.
- If the GPGPU card supports 300W, connect 2 x 4 and 2 x 3 power cables.

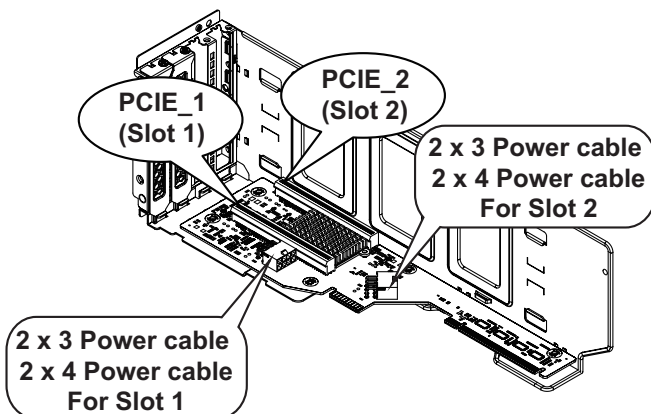
For GPU2/GPU3/GPU4/GPU5

Follow these instructions to install PCI Expansion card:

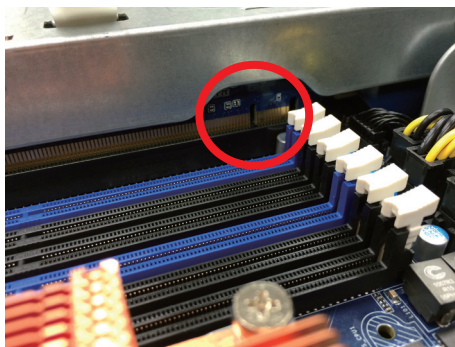
1. Loosen and remove the screws securing the PCI cage.
2. Pull the two plastic handles to lift up the PCI cage from the system.
3. Insert the card into the selected slot and secure the expansion card with screw.
Make sure that the card is properly seated.
4. Secure the PCI expansion cards in place with screws.







- Please insert the PCI cage into the selected slot with the correct orientation. See illustrated below for instruction.



- If the GPGPU card supports 225W, connect 2 x 4 power cable.
- If the GPGPU card supports 300W, connect 2 x 4 and 2 x 3 power cables.

2-6-1 Installing Add-on Card (MNXE2/MEZZ_2/Optional)

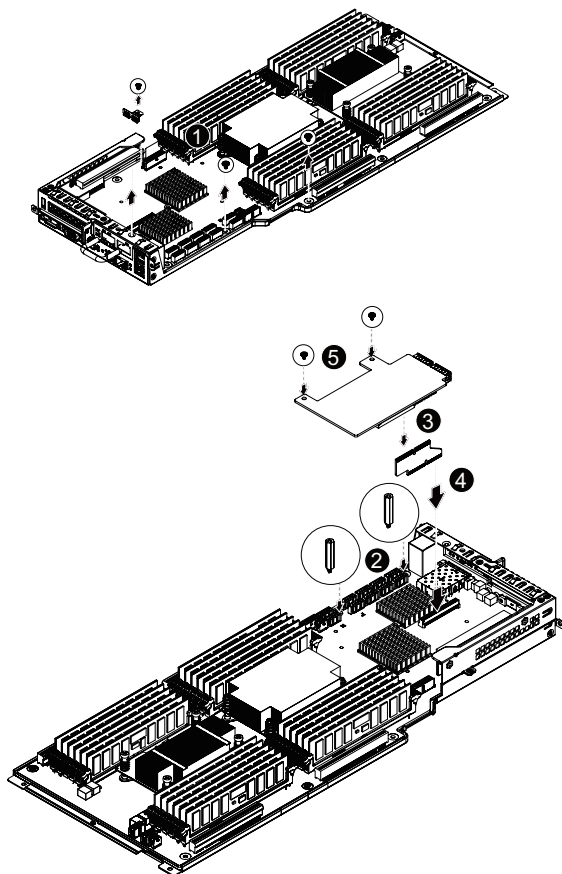


- Voltages can be present within the server whenever an AC power source is connected. This voltage is present even when the main power switch is in the off position. Ensure that the system is powered-down and all power sources have been disconnected from the server prior to installing a PCI card.

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

Follow these instructions to install Add-on card:

1. Remove the rear bracket.
2. Secure the stand-off on the motherboard with screws.
3. Attach the interposer card to the add-on card.
4. Insert the add-on card into the selected slot (MEZZ_2) and secure the card with screws. Make sure that the card is properly seated.
5. Secure the add-on card in place with screws.



2-6-2 Installing Add-on Card (MLIZS/MEZZ_2/Optional)

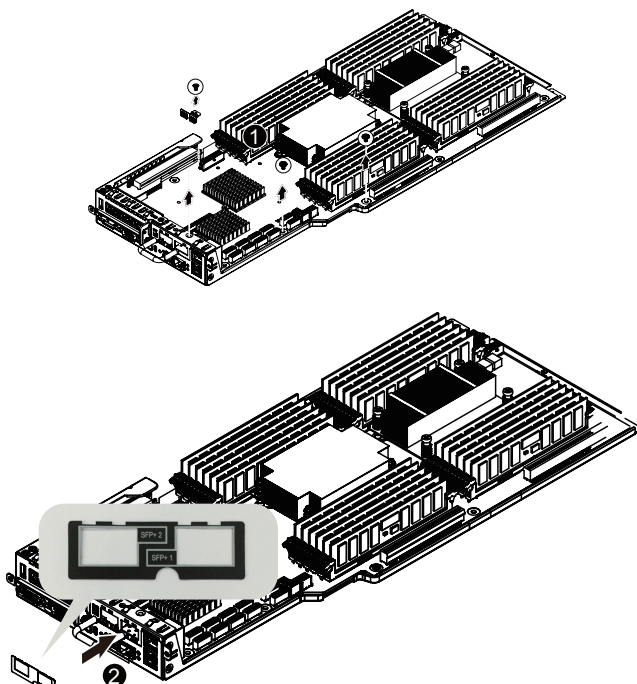


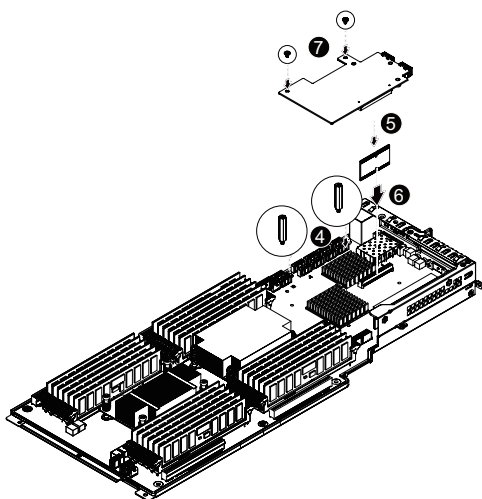
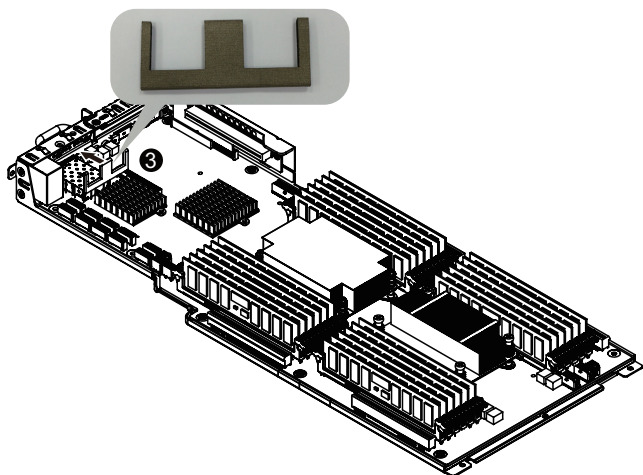
- Voltages can be present within the server whenever an AC power source is connected. This voltage is present even when the main power switch is in the off position. Ensure that the system is powered-down and all power sources have been disconnected from the server prior to installing a PCI card.

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

Follow these instructions to install Add-on card:

1. Remove the rear bracket.
2. Attach the mylar in the direction of the arrow.
3. Insert the gasket in the direction of the arrow.
4. Secure the stand-off on the motherboard with screws.
5. Attach the interposer card to the add-on card.
6. Insert the add-on card into the selected slot (MEZZ_2) and secure the card with screws. Make sure that the card is properly seated.
7. Secure the add-on card in place with screws.





2-7 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.

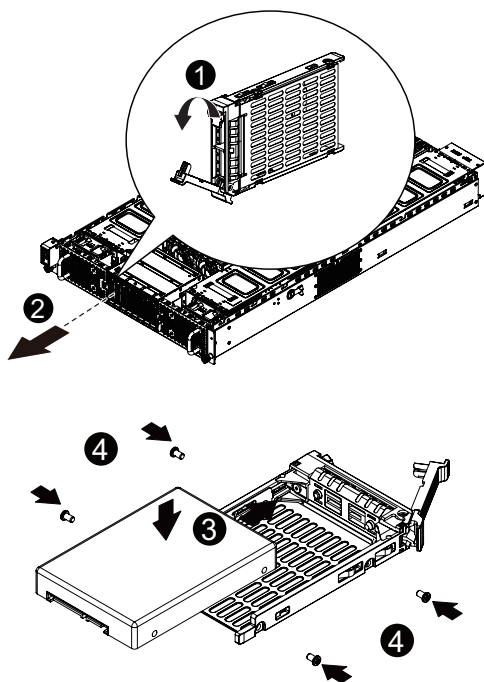
Follow these instructions to install the Hard disk drive:

1. Press the release button.
2. Pull the locking lever to remove the HDD tray.
3. Slide hard disk into blank.
4. Secure the hard drive to the tray with four (4) screws as shown. Do not over tighten the screws. Slide the blank into the bay until it locks into place.



CAUTION!

We strongly recommend using enterprise level hard disk drive in Gigabyte server system. For more information of recommended HDDs, please visit Gigabyte website: <https://www.gigabyte.com> and search for the specific product QVL from **Support & Downloads**.



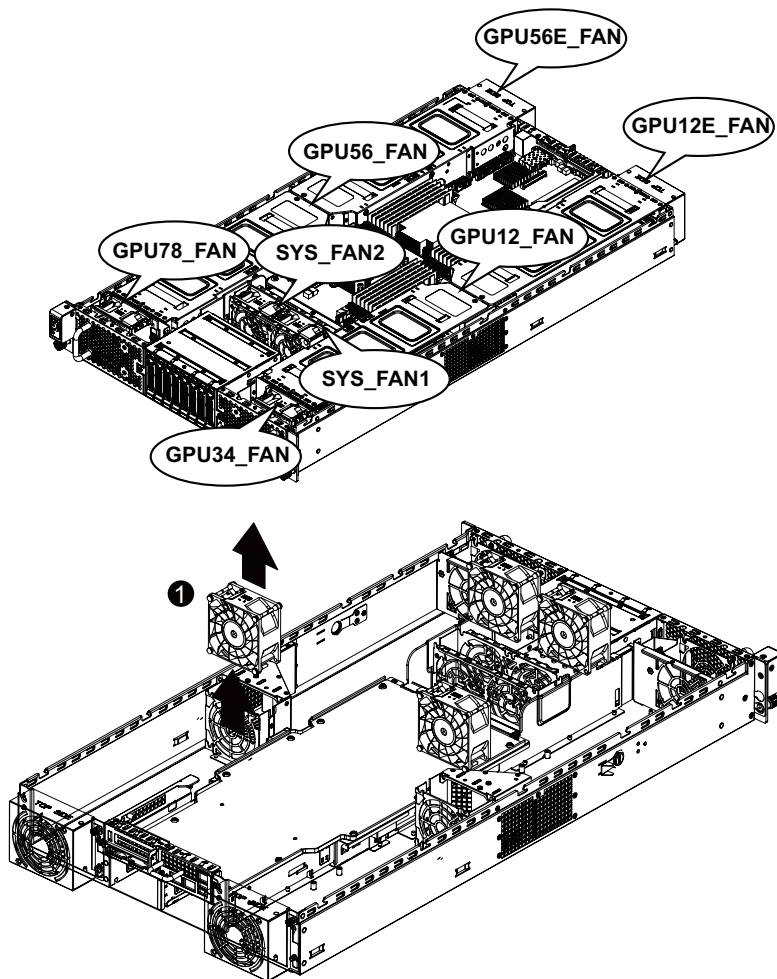
2-8 Replacing the FAN Assembly

CAUTION!



Before you remove or install the system fan cage, take the steps:

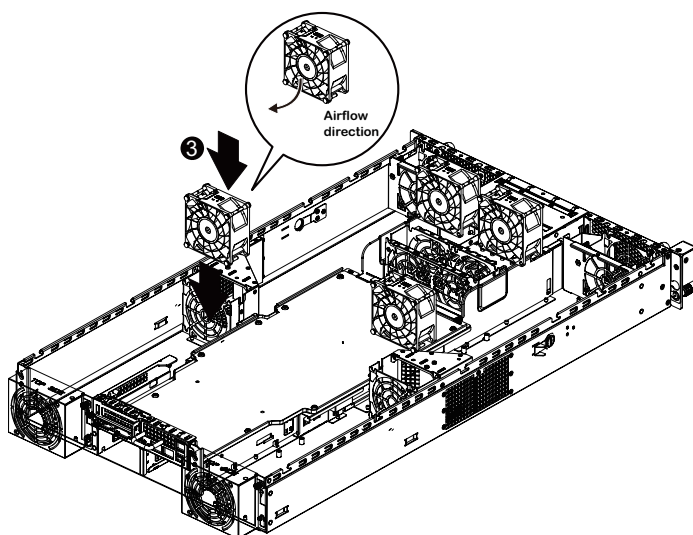
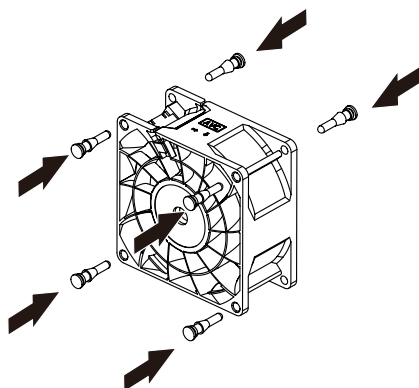
- Make sure the system is not turned on or connected to the AC power.
- Disconnect all necessary cable connections. Failure to observe these warnings could result in personal injury or damage to the equipment.



CAUTION!



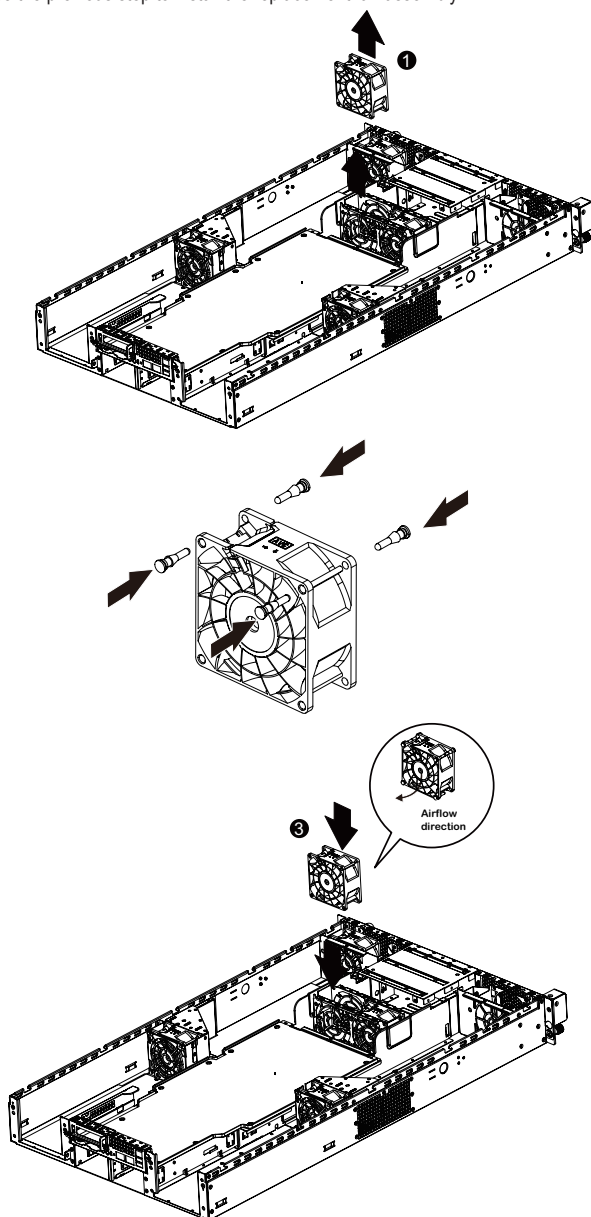
- 225W GPGPU Cards x 8 and SATA HDDs x 8 are operating under 35°C.
- 300W GPGPU Cards x 8 and SATA HDDs x 8 are operating under 30°C.



For SYS_FAN1/SYS_FAN2

Follow these instructions to replace the fan assembly:

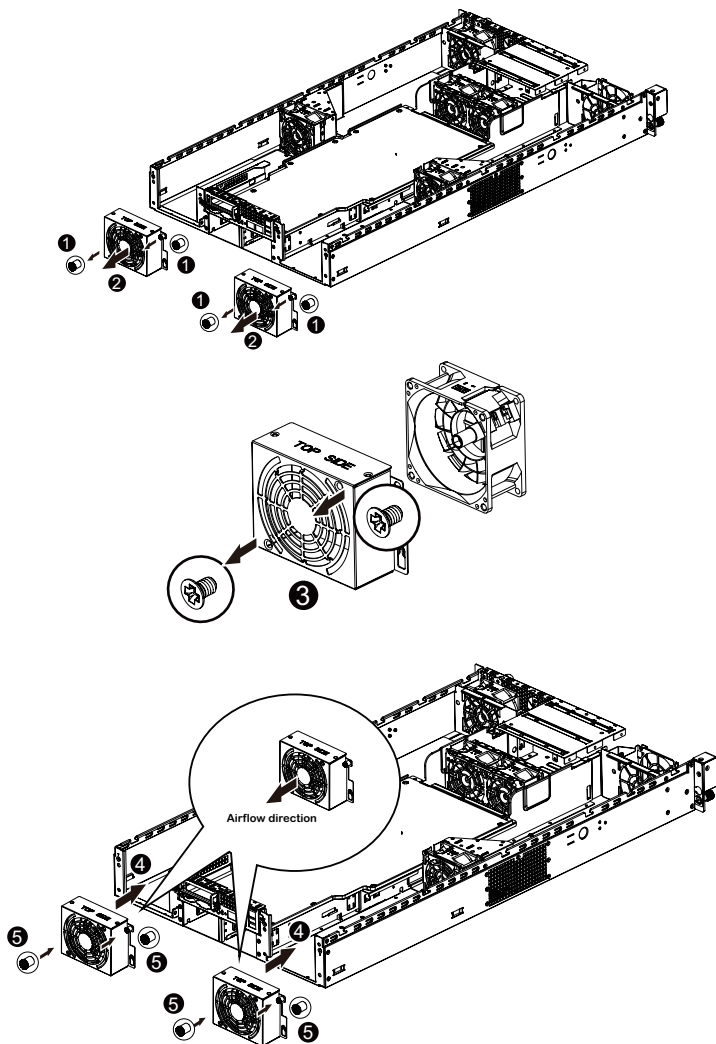
1. Disconnect fan cable. Lift up the fan assembly from the chassis.
2. Attach the four rubbers on the system fan.
3. Reverse the previous step to install the replacement fan assembly.



For GPU12E_FAN/GPU56E_FAN (Smart Fan)

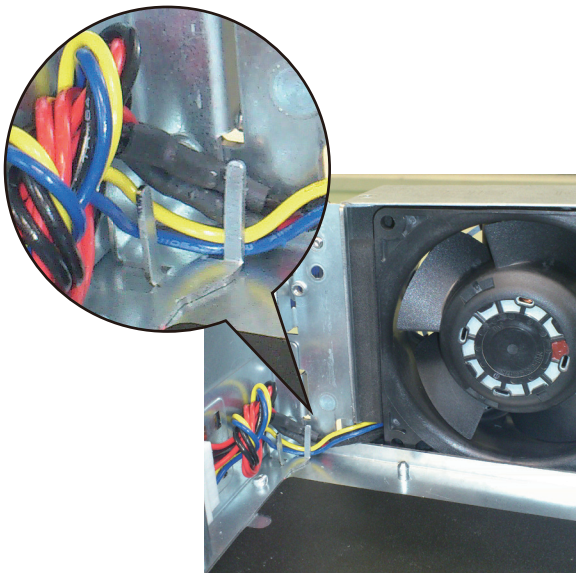
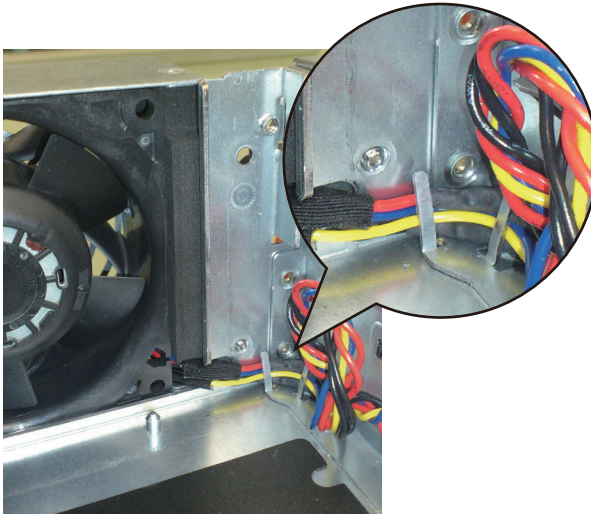
Follow these instructions to replace the fan assembly:

1. Loosen and remove the screws securing the fan cage.
2. Remove the fan cage out of the system.
3. Loosen and remove the screws securing the fan.
4. Reverse the previous step to install the replacement fan assembly.



**CAUTION!**

- To avoid fan cable damages, please make sure the fan cables are firmly seated in the groove.



2-9 Replacing the Power Supply

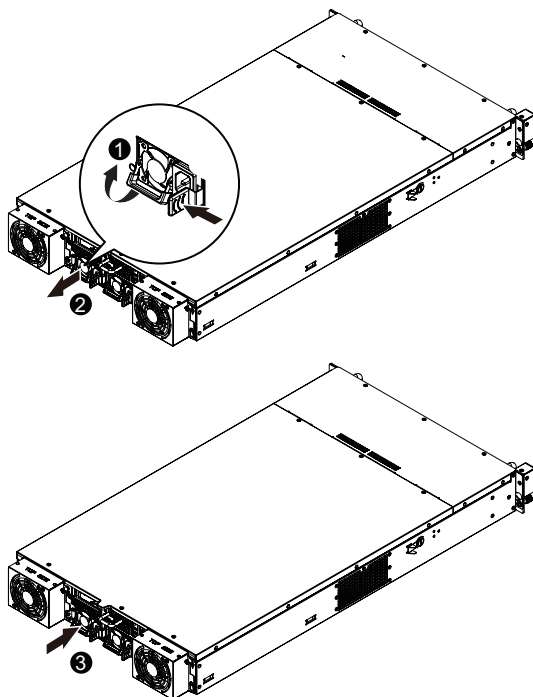
CAUTION!



- In order to reduce the risk of injury from electric shock, disconnect AC power from the power supply before removing it from the system.

Follow these instructions to replace the power supply:

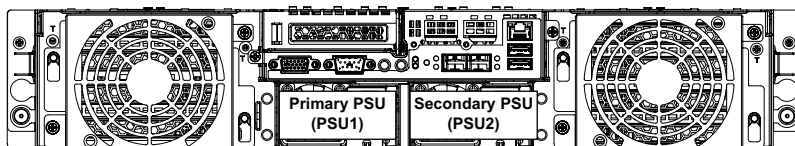
1. Disconnect all power cables.
2. Pull up the power supply handle and press the retaining clip on the right side of the power supply along the direction of the arrow. At the same time, pull out the power supply by using its handle.
3. Insert the replacement power supply firmly into the chassis. Connect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



CAUTION!



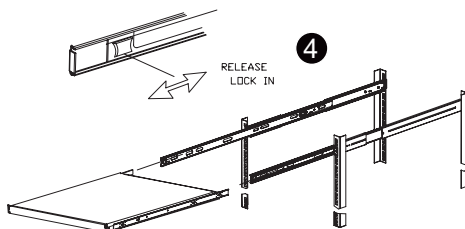
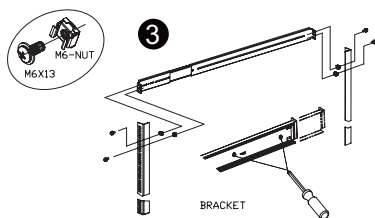
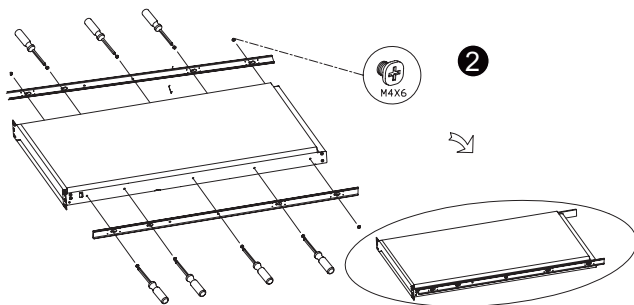
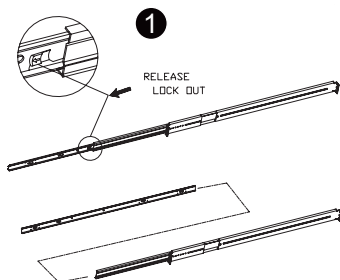
- Please see the illustrated below for installation sequence.



2-10 Installing Rail Into A Rack

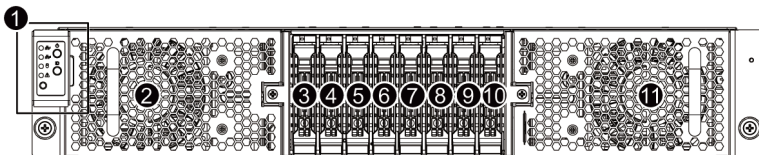
Follow these instructions to install the rail into a rack:

1. Release and detach the inner rail from the slide.
2. Attach the unit to the inner rail.
3. Fix the outer rail/bracket assembly to the frame.
4. Insert the unit to complete the installation.



Chapter 3 System Appearance

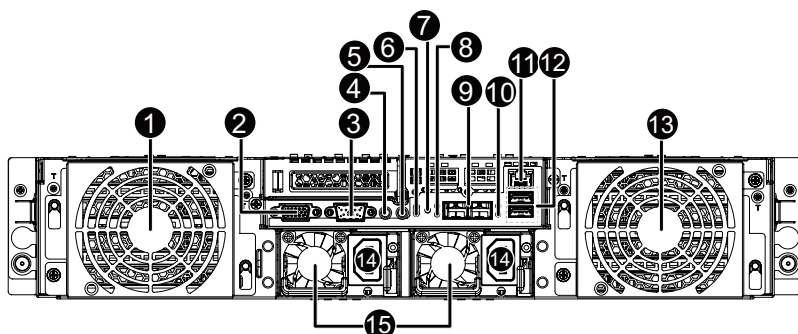
3-1 Front View



No.	Decription
1.	Front panel LED and buttons
2.	System fan (GPU78_FAN)
3.	2.5-inch hard disk drive #1
4.	2.5-inch hard disk drive #2
5.	2.5-inch hard disk drive #3
6.	2.5-inch hard disk drive #4
7.	2.5-inch hard disk drive #5
8.	2.5-inch hard disk drive #6
9.	2.5-inch hard disk drive #7
10.	2.5-inch hard disk drive #8
11.	System fan (GPU34_FAN)

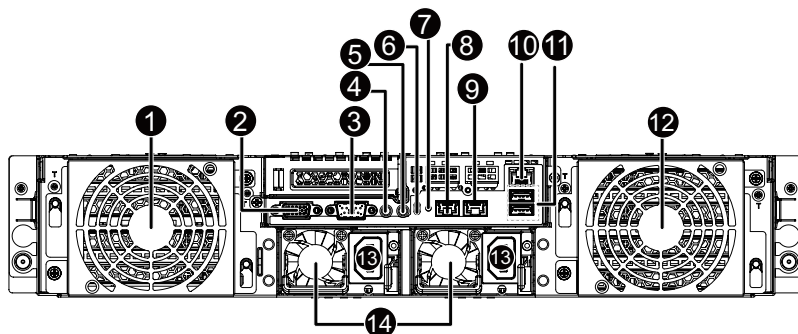
3-2 Rear View

G250-S88/G250-G51



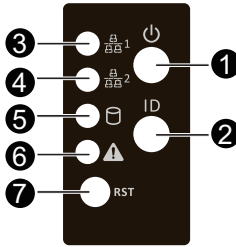
No.	Description
1.	System fan (GPU12E_FAN)
2.	VGA port
3.	Serial port
4.	Power button/LED
5.	ID switch button
6.	Reset button (top)/NMI button (bottom)
7.	System status LED
8.	LAN1 Active/Link (top)/Speed (bottom)LEDs
9.	Dual 10G SFP+ LAN port
10.	LAN2 Active/Link (top)/Speed (bottom)LEDs
11.	10/100/1000 Server management LAN port
12.	USB 3.0 ports
13.	System fan (GPU56E_FAN)
14.	Power supply module cord socket
15.	Power supply fan

G250-G50/G250-G52



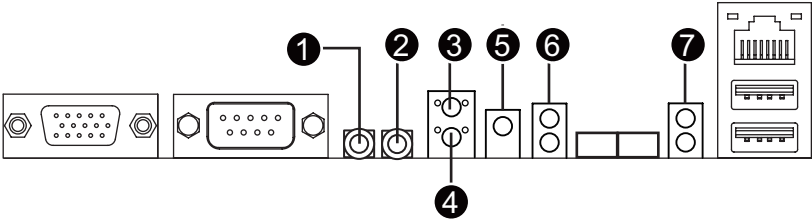
No.	Decription
1.	System fan (GPU12E_FAN)
2.	VGA port
3.	Serial port
4.	Power button/LED
5.	ID switch button
6.	Reset button (top)/NMI button (bottom)
7.	System status LED
8.	RJ-45 LAN port #2
9.	RJ-45 LAN port #1
10.	10/100/1000 Server management LAN port
11.	USB 3.0 ports
12.	System fan (GPU56E_FAN)
13.	Power supply module cord socket
14.	Power supply fan

3-3 Front Panel LED and Buttons



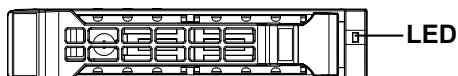
No.	Name	Color	Status	Description
1.	Power button and LED	Green	Solid On	System is powered on.
		Green	Blink	System is in ACPI S1 state (sleep mode)
		N/A	Off	- System is not powered on or in ACPI S5 state (power off) - System is in ACPI S4 state (hibernate mode)
2.	ID Button and LED	Blue	Solid On	System identification is active.
		N/A	Off	System identification is disabled.
3.	LAN1 Activity LED	Green	Solid On	Link between system and network
		Green	Blink	Network access
		N/A	Off	Disconnect/Idle
4.	LAN2 Activity LED	Green	Solid On	Link between system and network
		Green	Blink	Network access
		N/A	Off	Disconnect/Idle
5.	HDD Activity LED	Green	Solid On	HDD access
		Green/Amber	Blink Alternately	HDD rebuilding
		Green	Solid On	HDD access
6.	System Status LED	Green	Solid On	Running or normal operation
		Amber	Solid On	There is at least one sensor that has critical alter.
		N/A	Off	System is not ready.
7.	Reset Button			Press the button to reset the system.

3-4 Rear System Button and LEDs



No.	Name	Color	Status	Critical Event	Description
1.	Power button and LED	Green	Solid On	N/A	System is powered on
		Green	Blink	N/A	System is in ACPI S1 state (sleep mode)
		N/A	Off	N/A	- System is not powered on or in ACPI S5 state (power off) - System is in ACPI S4 state (hibernate mode)
2.	ID Button and LED	Blue	Solid On	N/A	System identification is active.
		N/A	Off	N/A	System identification is disabled.
3.	Reset Button				Press the button to reset the system.
4.	NMI button				Press the button server generates a NMI to the processor if the multiple-bit ECC errors occur, which effectively halt the server.
5.	System Status LED	Green	Solid On	N/A	Running or normal operation
		Amber	Solid On	Yes	There is at least one sensor that has critical alter. When the LED is solid on, check the following: - Power module failure - System fan failure - Power supply voltage issue - System temperature/voltage issue
		N/A	Off	N/A	System is not ready.
6.	LAN1 Active/Link LED	Green	Solid On	N/A	Link between system and network or no access
			Blink	N/A	Data transmission or receiving is occurring
		N/A	Off	N/A	No data transmission or receiving is occurring
7.	LAN2 Active/Link LED	Green	Solid On	N/A	Link between system and network or no access
			Blink	N/A	Data transmission or receiving is occurring
		N/A	Off	N/A	No data transmission or receiving is occurring

3-5 Hard Disk Drive LEDs



RAID		Color	Locate	HDD Fault	Rebuilding	HDD Access	HDD Present (No Access)
No RAID configuration (via HBA, PCH)	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	Alternately	Blink (*2)	Off
		Amber	Off	On	(Low speed @ 2Hz)	Off	Off
	Removed HDD Slot (Back Panel)	Green	On	Off	(*3)	---	---
		Amber	Off	On	(*3)	---	---



NOTE!

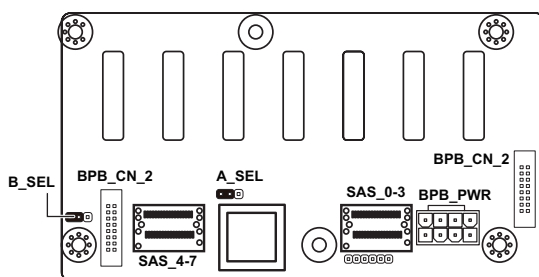
(*1) Depend on HBA/Utility Spec.

(*2) Blink cycle depend on HDD's activity signal.

(*3) If HDD is pulled out during rebuilding, Disk status of this HDD is regarded as fault.

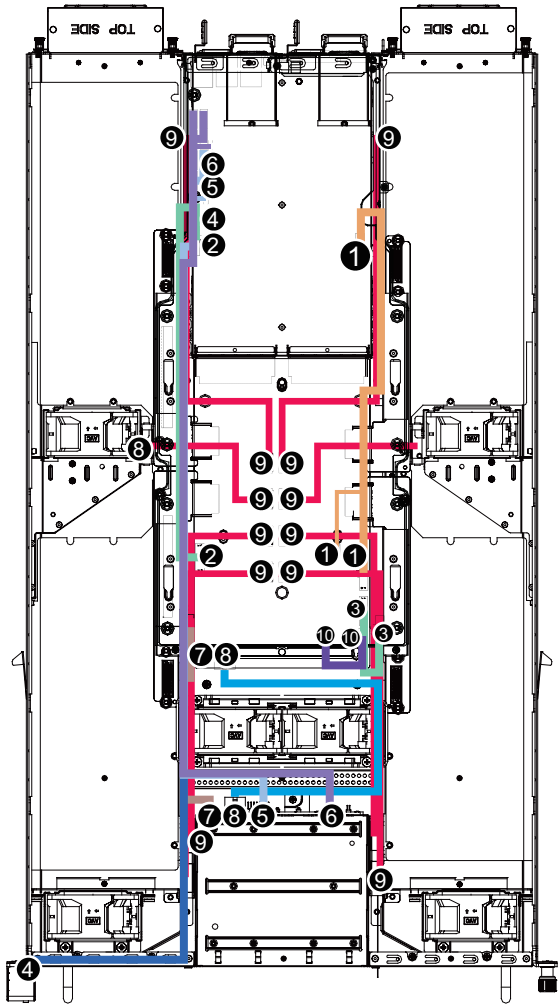
(*4) Blink frequency about : 2 Hz

3-6 Hard Disk Back Plane Board Jumper Setting



	A_SEL	B_SEL
 1-2 Close	SATA_HDD	SATA_HDD
 2-3 Close	SAS_HDD	SAS_HDD

3-7 Cable Routing

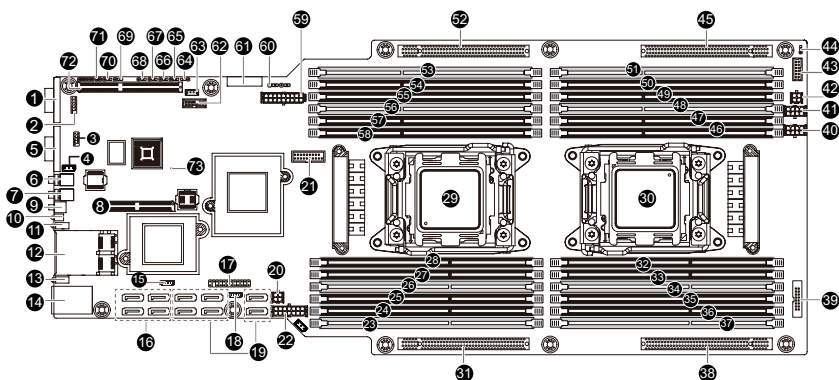


No.	Suggest Cable	No.	Suggest Cable
1.	System main power cable	2.	CPU 0 12V power cable
3.	CPU 1 12V power cable	4.	Front panel cable
5.	Mini SAS cable #1	6.	Mini SAS cable #2
7.	HDD back plane board cable	8.	HDD back plane board power cable
9.	System fan power cable	10.	M/B to PDB signal cable

Chapter 4 Motherboard Components

4-1 Motherboard Components

4-1-1 MG50-G20 (G250-S88/G250-G51)

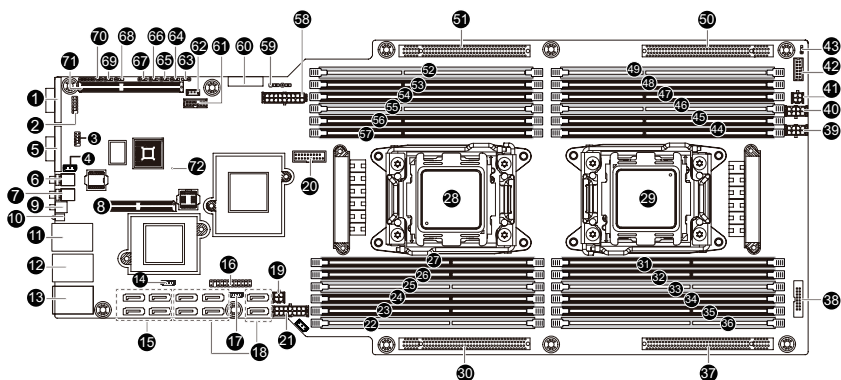


Item	Code	Description
1	VGA_1	Rear VGA port
2	F_VGA	Front VGA header
3	COM2	Front serial port header
4	IPMB	IPMB connector
5	COM1	Rear serial port
6	SW_PWR	Power button/LED
7	SW_ID	ID switch button
8	MEZZ_2	Mezzine slot 2 (x8 slot/Proprietary/Running at x8)
9	SW_RST_NMI	Reset button (top)/NMI button (bottom)
10	LED_STA	System status LED
11	LED_LAN1	LAN1 Active/Link (top)/Speed (bottom)LEDs
12	SFP+_1_2	Dual SFP+ LAN ports
13	LED_LAN2	LAN2 Active/Link (top)/Speed (bottom)LEDs
14	USB3_MLAN	BMC management LAN port (top)/USB 3.0 ports (bottom)
15	SSATA_SGP	sSATA SGPIO header
16	SSATA0/1/2/3	sSATA 6Gb/s connectors
17	FP_1	Front panel header (primary)
18	SATA_SGP	SATA SGPIO header
19	SATA0/1/2/3/4/5	SATA 6Gb/s connectors
20	ATX1_2	4 pin power connector
21	F_USB3	USB 3.0 header
22	ATX1_1	14 pin power connector
23	DIMM_P0_A0	Channel 1 slot 0 (for primary CPU)
24	DIMM_P0_A1	Channel 1 slot 1 (for primary CPU)
25	DIMM_P0_A2	Channel 1 slot 2 (for primary CPU)

26	DIMM_P0_B0	Channel 2 slot 0 (for primary CPU)
27	DIMM_P0_B1	Channel 2 slot 1 (for primary CPU)
28	DIMM_P0_B2	Channel 2 slot 2 (for primary CPU)
29	CPU0	Intel LGA2011 Socket R (Primary CPU)
30	CPU1	Intel LGA2011 Socket R (Secondary CPU)
31	PCIE_3	PCI-E slot 3 (x16 slot)
32	DIMM_P1_H2	Channel 4 slot 2 (for secondary CPU)
33	DIMM_P1_H1	Channel 4 slot 1 (for secondary CPU)
34	DIMM_P1_H0	Channel 4 slot 0 (for secondary CPU)
35	DIMM_P1_G2	Channel 3 slot 2 (for secondary CPU)
36	DIMM_P1_G1	Channel 3 slot 1 (for secondary CPU)
37	DIMM_P1_G0	Channel 3 slot 0 (for secondary CPU)
38	PCIE_4	PCI-E slot 4 (x16 slot)
39	BP_1	HDD back plane board header
40	ATX2_2	8 pin power connector
41	ATX2_1	8 pin power connector
42	ATX2_3	4 pin power connector
43	FP_2	Front panel header (secondary)
44	PMBUS_SEL	PMBus Power Select jumper
45	PCIE_2	PCI-E slot 2 (x16 slot)
46	DIMM_P1_F2	Channel 2 slot 2 (for secondary CPU)
47	DIMM_P1_F1	Channel 2 slot 1 (for secondary CPU)
48	DIMM_P1_F0	Channel 2 slot 0 (for secondary CPU)
49	DIMM_P1_E2	Channel 1 slot 2 (for secondary CPU)
50	DIMM_P1_E1	Channel 1 slot 1 (for secondary CPU)
51	DIMM_P1_E0	Channel 1 slot 0 (for secondary CPU)
52	PCIE_1	PCI-E slot 1 (x16 slot)
53	DIMM_P0_C0	Channel 3 slot 0 (for primary CPU)
54	DIMM_P0_C1	Channel 3 slot 1 (for primary CPU)
55	DIMM_P0_C2	Channel 3 slot 2 (for primary CPU)
56	DIMM_P0_D0	Channel 4 slot 0 (for primary CPU)
57	DIMM_P0_D1	Channel 4 slot 1 (for primary CPU)
58	DIMM_P0_D2	Channel 4 slot 2 (for primary CPU)
59	SSI_2X9P	18 pin main power connector
60	CLR_CMOS	Clear CMOS jumper
61	BAT	Battery socket
62	TPM	TPM module connector
63	SW_RAID	Software RAID Key jumper
64	S3_MASK	S3 Power On Select jumper
65	BIOS_WP	BIOS write protect jumper
66	BIOS_PWD	Clearing Supervisor Password jumper
67	ME_RCVR	ME recovery jumper
68	BMC_FRB	Force to Stop FRB Timer jumper
69	BIOS_RCVR	BIOS recovery jumper

70	ME_UPDATE	ME update jumper
71	CASE_OPEN	Chassis intrusion header
72	MEZZ_1	Mezzine slot 1 (x16 slot/Proprietary/Running at x8)
73	LED_BMC	BMC firmware readiness LED
		On: BMC frmware is initial
		Blinking: BMC frmware is ready
		Off: System is powered off

4-1-2 MG50-G21 (G250-G50/G250-G52)

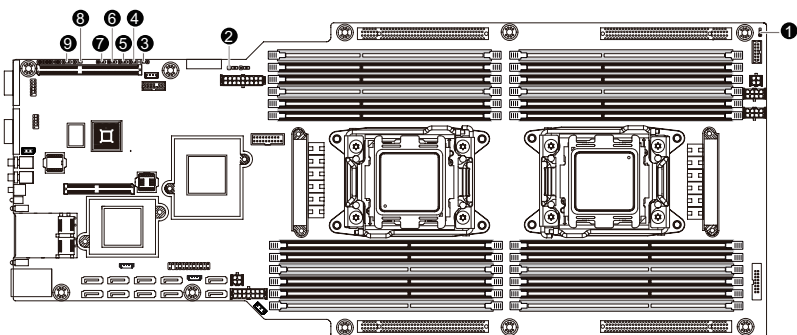


Item	Code	Description
1	VGA_1	Rear VGA port
2	F_VGA	Front VGA header
3	COM2	Front serial port header
4	IPMB	IPMB connector
5	COM1	Rear serial port
6	SW_PWR	Power button/LED
7	SW_ID	ID switch button
8	MEZZ_2	Mezzine slot 2 (x8 slot/Proprietary/Running at x8)
9	SW_RST_NMI	Reset button (top)/NMI button (bottom)
10	LED_STA	System status LED
11	LAN2	LAN port #2
12	LAN1	LAN port #1
13	USB3_MLAN	BMC management LAN port (top)/USB 3.0 ports (bottom)
14	SSATA_SGP	sSATA SGPIO header
15	SSATA0/1/2/3	sSATA 6Gb/s connectors
16	FP_1	Front panel header (primary)
17	SATA_SGP	SATA SGPIO header
18	SATA0/1/2/3/4/5	SATA 6Gb/s connectors
19	ATX1_2	4 pin power connector
20	F_USB3	USB 3.0 header
21	ATX1_1	14 pin power connector
22	DIMM_P0_A0	Channel 1 slot 0 (for primary CPU)
23	DIMM_P0_A1	Channel 1 slot 1 (for primary CPU)
24	DIMM_P0_A2	Channel 1 slot 2 (for primary CPU)
25	DIMM_P0_B0	Channel 2 slot 0 (for primary CPU)
26	DIMM_P0_B1	Channel 2 slot 1 (for primary CPU)
27	DIMM_P0_B2	Channel 2 slot 2 (for primary CPU)
28	CPU0	Intel LGA2011 Socket R (Primary CPU)

29	CPU1	Intel LGA2011 Socket R (Secondary CPU)
30	PCIE_3	PCI-E slot 3 (x16 slot)
31	DIMM_P1_H2	Channel 4 slot 2 (for secondary CPU)
32	DIMM_P1_H1	Channel 4 slot 1 (for secondary CPU)
33	DIMM_P1_H0	Channel 4 slot 0 (for secondary CPU)
34	DIMM_P1_G2	Channel 3 slot 2 (for secondary CPU)
35	DIMM_P1_G1	Channel 3 slot 1 (for secondary CPU)
36	DIMM_P1_G0	Channel 3 slot 0 (for secondary CPU)
37	PCIE_4	PCI-E slot 4 (x16 slot)
38	BP_1	HDD back plane board header
39	ATX2_2	8 pin power connector
40	ATX2_1	8 pin power connector
41	ATX2_3	4 pin power connector
42	FP_2	Front panel header (secondary)
43	PMBUS_SEL	PMBus Power Select jumper
44	PCIE_2	PCI-E slot 2 (x16 slot)
45	DIMM_P1_F2	Channel 2 slot 2 (for secondary CPU)
46	DIMM_P1_F1	Channel 2 slot 1 (for secondary CPU)
47	DIMM_P1_F0	Channel 2 slot 0 (for secondary CPU)
48	DIMM_P1_E2	Channel 1 slot 2 (for secondary CPU)
49	DIMM_P1_E1	Channel 1 slot 1 (for secondary CPU)
50	DIMM_P1_E0	Channel 1 slot 0 (for secondary CPU)
51	PCIE_1	PCI-E slot 1 (x16 slot)
52	DIMM_P0_C0	Channel 3 slot 0 (for primary CPU)
53	DIMM_P0_C1	Channel 3 slot 1 (for primary CPU)
54	DIMM_P0_C2	Channel 3 slot 2 (for primary CPU)
55	DIMM_P0_D0	Channel 4 slot 0 (for primary CPU)
56	DIMM_P0_D1	Channel 4 slot 1 (for primary CPU)
57	DIMM_P0_D2	Channel 4 slot 2 (for primary CPU)
58	SSI_2X9P	18 pin main power connector
59	CLR_CMOS	Clear CMOS jumper
60	BAT	Battery socket
61	TPM	TPM module connector
62	SW_RAID	Software RAID Key jumper
63	S3_MASK	S3 Power On Select jumper
64	BIOS_WP	BIOS write protect jumper
65	BIOS_PWD	Clearing Supervisor Password jumper
66	ME_RCVR	ME recovery jumper
67	BMC_FRB	Force to Stop FRB Timer jumper
68	BIOS_RCVR	BIOS recovery jumper
69	ME_UPDATE	ME update jumper
70	CASE_OPEN	Chassis intrusion header
71	MEZZ_1	Mezzine slot 1 (x16 slot/Proprietary/Running at x8)

72	LED_BMC	BMC firmware readiness LED On: BMC frmware is initial Blinking: BMC frmware is ready Off: System is powered off
----	---------	---

4-2 Jumper Setting



No.	Jumper Code	Jumper Setting
1.	PMBUS_SEL (PMBus Power Select Jumper)	1-2 Close: PMBus connects to PCH.
		2-3 Close: PMBus connects to BMC. (Default setting)
2.	CLR_CMOS (Clearing CMOS Jumper)	1-2 Close: Normal operation (Default setting)
		2-3 Close: Clear CMOS data
3.	S3_MASK (S3 Power On Select Jumper)	1-2 Close: Stop an initial power on when BMC is not ready.
		2-3 Close: Keep initial power on. (Default setting)
4.	BIOS_WP (BIOS Write Protect Jumper)	1-2 Close: Normal operation. (Default setting)
		2-3 Close: Enable BIOS write protect function.
5.	BIOS_PWD (Clearing Supervisor Password Jumper)	1-2 Close: Normal operation (Default setting)
		2-3 Close: Clear supervisor password.
6.	ME_RCVR (ME Recovery Jumper)	1-2 Close: Normal operation (Default setting)
		2-3 Close: ME recovery mode.
7.	BMC_FRB (Force to Stop FRB Timer Jumper)	1-2 Close: Normal operation (Default setting)
		2-3 Close: Force to Stop FRB Timer.
8.	BIOS_RCVR (BIOS Recovery Jumper)	1-2 Close: Normal operation (Default setting)
		2-3 Close: BIOS recovery mode.
9.	ME_UPDATE (ME recovery Jumper)	1-2 Close: ME recovery mode.
		2-3 Close: Normal operation. (Default 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 <F2> 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 1 for how to clear the CMOS values.)

BIOS Setup Program Function Keys

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

■ **Main**

This setup page includes all the items 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.)

■ **Intel RC Setup**

This setup page includes all the submenu options for configuring the function of processor, network, North Bridge, South Bridge, 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.

■ **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

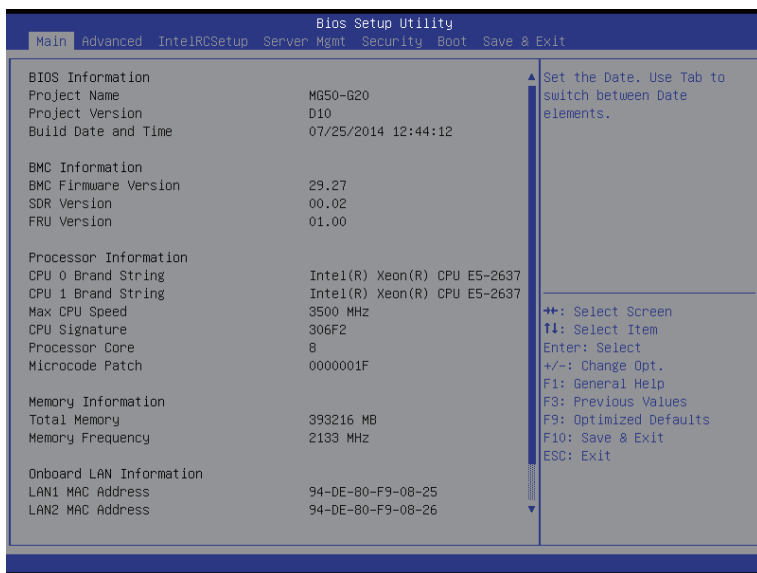
The on-screen description of a highlighted setup option is displayed on the bottom line of the Main Menu.

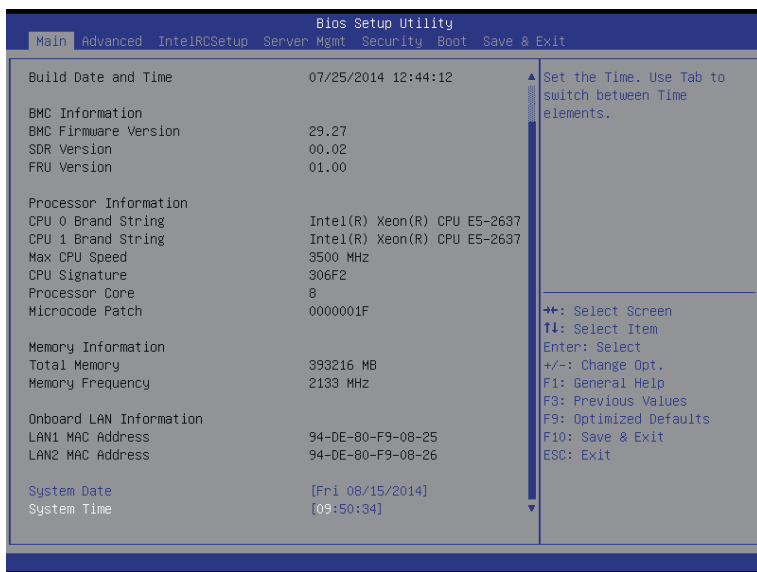
Submenu Help

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.





🔑 BIOS Information

🔑 Project Name

Display the project name information.

🔑 Project Version

Display version number of the BIOS setup utility.

🔑 BIOS Build Date and Time

Displays the date and time when the BIOS setup utility was created.

🔑 BMC Information

🔑 BMC Firmware Version

Display version number of the Firmware setup utility.

🔑 SDR Version

Display the SDR version information.

🔑 FRU Version

Display the FRU version information.

🔑 Processor Information

🔑 CPU Brand String/Max CPU Speed/CPU Signature/Processors Core/Microcode Patch

Displays the technical specifications for the installed processor.

🔑 Memory Information

🔑 Total Memory

Display the total memory size of the installed memory.

🔑 Memory Frequency

Display the frequency information of the installed memory.

☞ **Onboard LAN Information**

☞ **LAN1/LAN2 MAC Address**

Display LAN1/LAN2 MAC address information.

☞ **System Date**

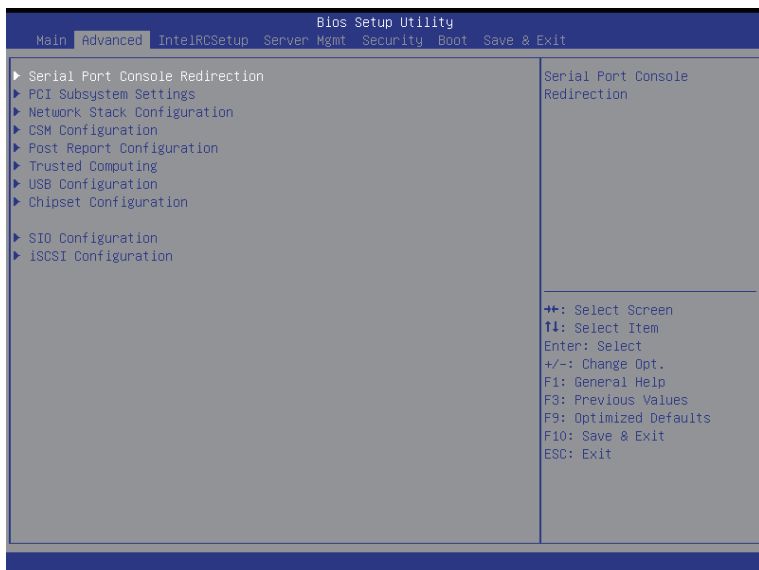
Set the date following the weekday-month-day- year format.

☞ **System Time**

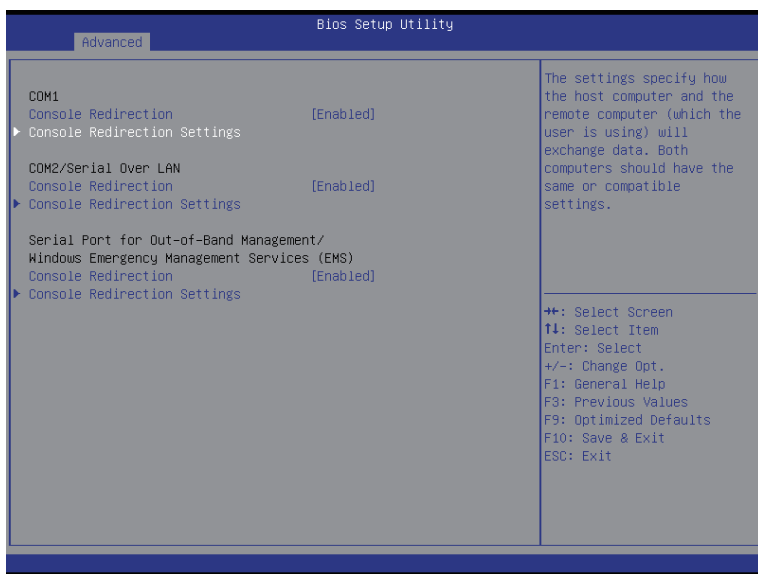
Set the system time following the hour-minute- second format.

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 Serial Port Console Redirection



Bios Setup Utility		
Advanced		
COM2/Serial Over LAN Console Redirection Settings		Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.
Terminal Type	[ANSI]	** : Select Screen T1 : Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Bits per second	[115200]	
Data Bits	[8]	
Parity	[None]	
Stop Bits	[1]	
Flow Control	[None]	
VT-UTF8 Combo Key Support	[Enabled]	
Recorder Mode	[Disabled]	
Resolution 100x31	[Enabled]	
Legacy OS Redirection Resolution	[80x24]	
Puity KeyPad	[VT100]	
Redirection After BIOS POST	[Always Enable]	

Bios Setup Utility		
Advanced		
Out-of-Band Mgmt Port	[COM1]	Microsoft Windows Emergency Management Services (EMS) allows for remote management of a Windows Server OS through a serial port.
Terminal Type	[VT-UTF8]	** : Select Screen T1 : Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Bits per second	[115200]	
Flow Control	[None]	
Data Bits	8	
Parity	None	
Stop Bits	1	

☞ **COM1/COM2/Serial Over LAN Console Redirection Settings**

☞ **Console Redirection** (Note)

Select whether to enable console redirection for specified device. Console redirection enables users to manage the system from a remote location.

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

☞ **Console Redirection Settings**

☞ **Terminal Type**

Select a terminal type to be used for console redirection.

Options available: VT100/VT100+/ANSI /VT-UTF8. Default setting is **ANSI**.

☞ **Bits per second**

Select the baud rate for console redirection.

Options available: 9600/19200/38400/57600/115200. Default setting is **115200**.

☞ **Data Bits**

Select the data bits for console redirection.

Options available: 7/8. Default setting is **8**.

☞ **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**.

☞ **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**.

☞ **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**.

☞ **VT-UTF8 Combo Key Support** (Note)

Enable/Disable VT-UTF8 Combo Key Support.

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

☞ **Recorder Mode** (Note)

When this mode enabled, only text will be send. This is to capture Terminal data.

Options available: Enabled/Disabled.

☞ **Resolution 100x31** (Note)

Enables or disables extended terminal resolution. Default setting is **Enabled**.

Options available: Enabled/Disabled.

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

☞ **Legacy OS Redirection Resolution** (Note)

On Legacy OS, the number of Rows and Columns supported redirection.

Options available: 80x24/80X25. Default setting is **80x24**.

☞ **Putty KeyPad** (Note)

Select function FunctionKey and KeyPad on Putty.

Options available: VT100/LINUX/XTERMR6/SCO/ESCN/VT400. Default setting is **VT100**.

☞ **Redirection After BIOS POST** (Note)

This option allows user to enable console redirection after O.S has loaded.

Options available: Always Enable/Boot Loader. Default setting is **Always Enable**.

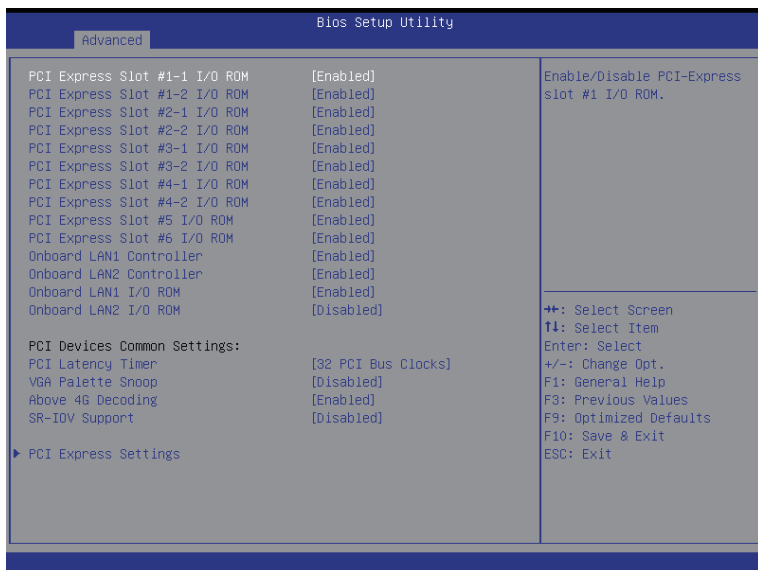
☞ **Out-of-Bnad Mgmt Port**

Microsoft Windows Emerency Management Service (EMS) allows for remote management of a Windows Server OS through a serial port.

Options available: COM1/COM2. Default setting is **COM1**.

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

5-2-2 PCI Subsystem Settings



☞ PCI Express Slot #1-1/#1-2/#2-1/#2-2/#3-1/#3-2/#4-1/#4-2/#5/#6 I/O ROM

When enabled, This setting will initialize the device expansion ROM for the related PCI-E slot.

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

☞ Onboard LAN#1/#2 Controller

Enable/Disable onboard LAN devices.

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

☞ Onboard LAN #1/#2 I/O ROM

Enable/Disable onboard LAN devices and initialize device expansion ROM.

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

☞ PCI Devices Common Settings

☞ PCI Latency Timer

Value to be programmed into PCI Latency Timer Register.

Options available: 32 PCI Bus Clocks/64 PCI Bus Clocks/96 PCI Bus Clocks/128 PCI Bus Clocks/160 PCI Bus Clocks/192 PCI Bus Clocks/224 PCI Bus Clocks/248 PCI Bus Clocks/.

Default setting is **32 PCI Bus Clocks**.

☞ VGA Palette Snoop

Enable/Disable VGA Palette Registers Snooping.

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

☞ Above 4G Decoding

Enable/Disable Above 4G Decoding.

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

SR-IOV Support

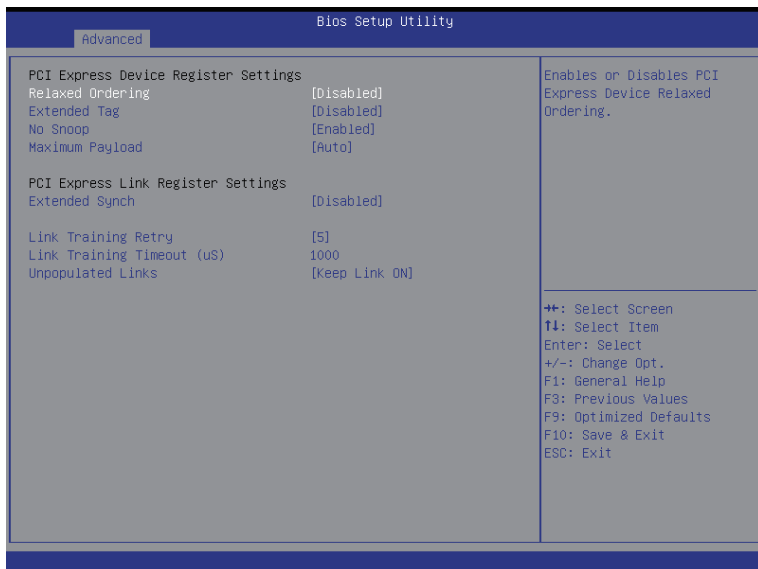
If system has SR-IOV capable PCIe Devices, this option enables or disables Single Root IO Virtualization Support.

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

PCI Express Settings

Press [Enter] for configuration of advanced items.

5-2-2-1 PCI Express Settings



⌄ PCI Express Device Register Settings

⌄ Relaxed Ordering

Enable/Disable PCI Express Device Relaxed Ordering feature.

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

⌄ Extended Tag

When this feature is enabled, the system will allow device to use 8-bit Tag field as a requester.

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

⌄ No Snoop

Enable/Disable PCI Express Device No Snoop option.

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

⌄ Maximum Payload

Set maximum payload for PCI Express Device or allow system BIOS to select the value.

Options available: Auto/128 Bytes/256 Bytes/512 Bytes/1024 Bytes/2048 Bytes/4096 Bytes.

Default setting is **Auto**.

⌄ PCI Express Link Register Settings

⌄ Extended Synch

When this feature is enabled, the system will allow generation of Extended Synchronization patterns.

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

⌄ Link Training Retry

Define the number of Retry Attempts software will take to retrain the link if previous training attempt was unsuccessful. Press <+> / <-> keys to increase or decrease the desired values.

Link Training Timeout (us)

Define the number of Microseconds software will wait before polling 'Link Training' bit in Link Status register. Press <+> / <-> keys to increase or decrease the desired values. Value range is from 10 to 10000 us.

Unpopulated Links

When this item is set to 'Disable Link', the system will operate power save feature for those unpopulated PCI Express links.

Options available: Keep Link ON/ Disable Link. Default setting is **Keep Link ON**.

5-2-3 Network Stack



☞ Network stack

Enable/Disable UEFI network stack.

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

☞ Ipv4 PXE Support^(Note)

Enable/Disable Ipv4 PXE feature.

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

☞ Ipv6 PXE Support^(Note)

Enable/Disable Ipv6 PXE feature.

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

☞ PXE boot wait time^(Note)

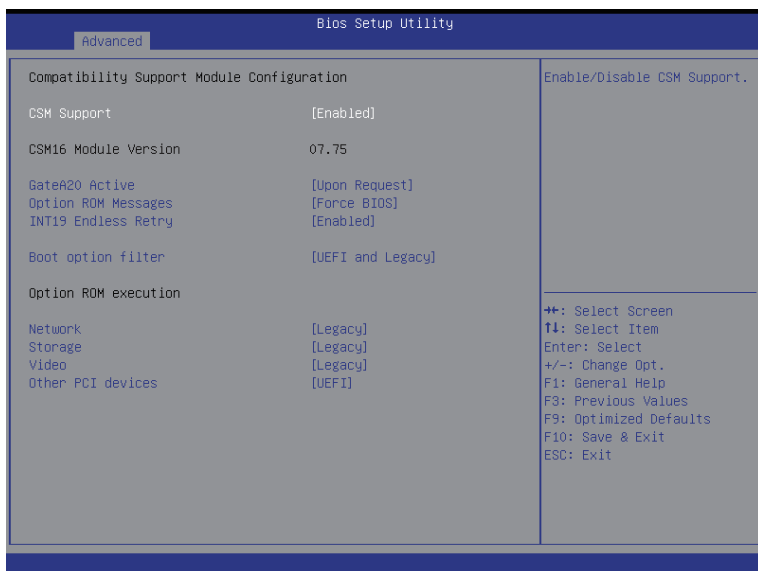
Press <+> / <-> keys to increase or decrease the desired values.

☞ Media detect time^(Note)

Press <+> / <-> keys to increase or decrease the desired values.

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

5-2-4 CSM Configuration



☞ Compatibility Support Module Configuration

☞ CSM Support

Enable/Disable Compatibility Support Module (CSM) support.

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

☞ CSM16 Module Version

Display CSM Module version information.

☞ Gate20 Active

Upon Request: GA20 can be disabled using BIOS services.

Always: Do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.

Options available: Upon Request/Always. Default setting is **Upon Request**.

☞ Option ROM Messages

Option ROM Messages.

Options available: Force BIOS/Keep Current. Default setting is **Force BIOS**.

☞ INT19 Endless Retry

Enabled: Allowed headless retry boot

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

☞ Boot option filter

Determines which devices system will boot to.

Options available: UEFI and Legacy/Legacy only/UEFI only. Default setting is **UEFI and Legacy**.

☞ **Option ROM execution**

☞ **Network**

Controls the execution UEFI and Legacy PXE OpROM.

Options available: Do not launch/UEFI/Legacy. Default setting is **Legacy**.

☞ **Storage**

Controls the execution UEFI and Legacy Storage OpROM.

Options available: Do not launch/UEFI/Legacy. Default setting is **Legacy**.

☞ **Video**

Controls the execution UEFI and Legacy Video OpROM.

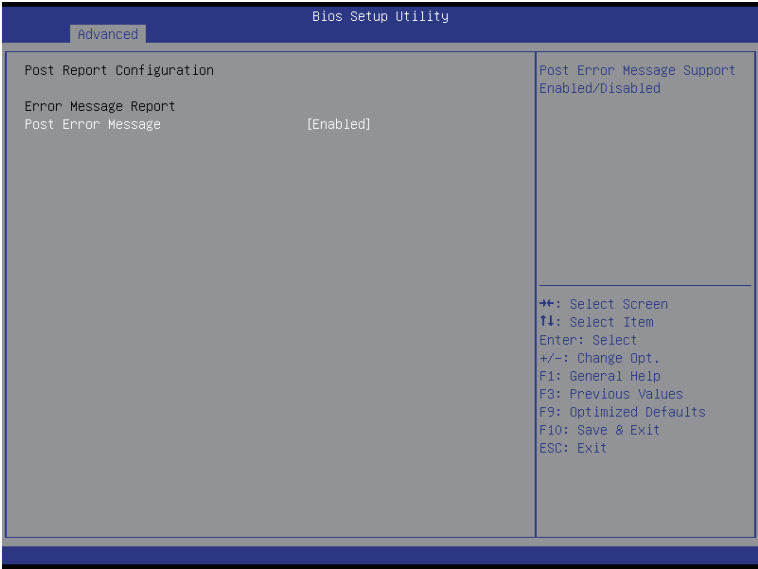
Options available: Do not launch/UEFI/Legacy. Default setting is **Legacy**.

☞ **Other PCI devices**

Determines OpROM execution policy for devices other than network, Storage, or Video.

Options available: UEFI/Legacy. Default setting is **UEFI**.

5-2-5 Post Report Configuration



🔑 Post Report Configuration

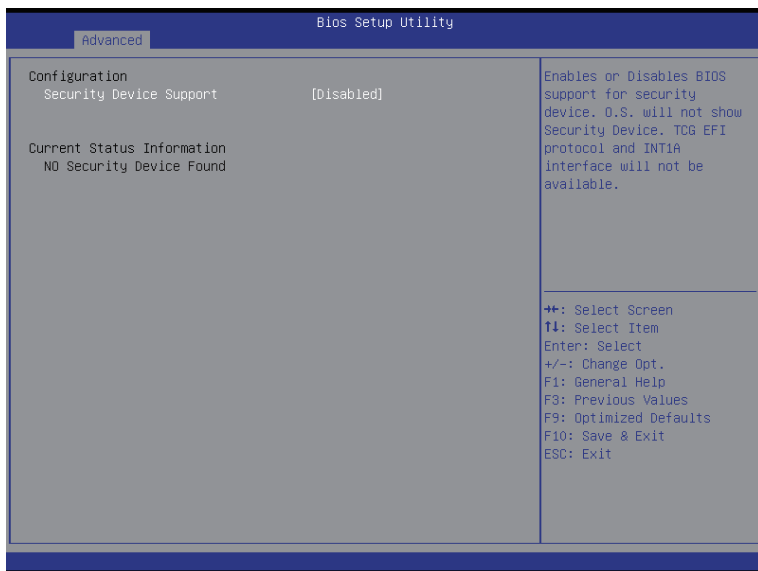
🔑 Error Message Report

🔑 Post Error Message

Enable/Disable Info Error Message support.

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

5-2-6 Trusted Computing



Configuration

Security Device Support

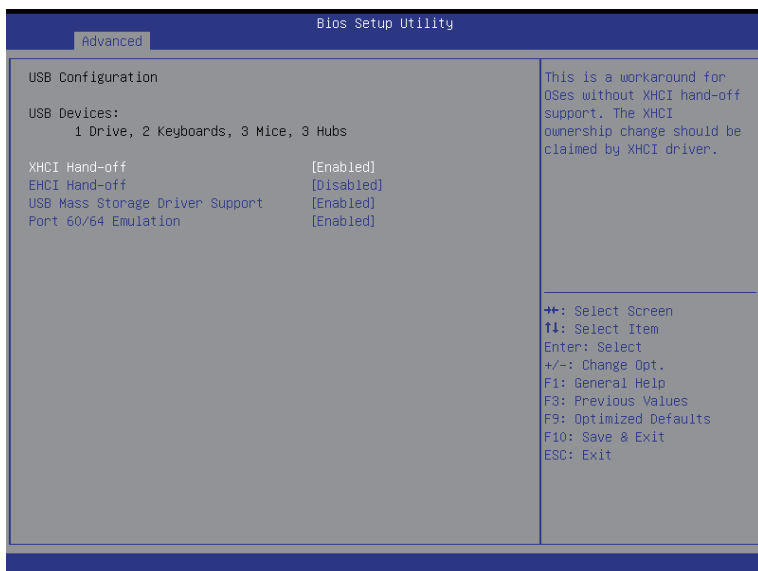
Select Enabled to activate TPM support feature.

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

Current Status Information

Display current TPM status information.

5-2-7 USB Configuration



🔑 USB Configuration

🔑 USB Devices:

Display the USB devices connected to the system.

🔑 XHCI Hand-off

Enable/Disable XHCI (USB 3.0) Hand-off support.

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

🔑 EHCI Hand-off

Enable/Disable EHCI (USB 2.0) Hand-off function.

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

🔑 USB Mass Storage Driver Support^(Note)

Enable/Disable USB Mass Storage Driver Support.

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

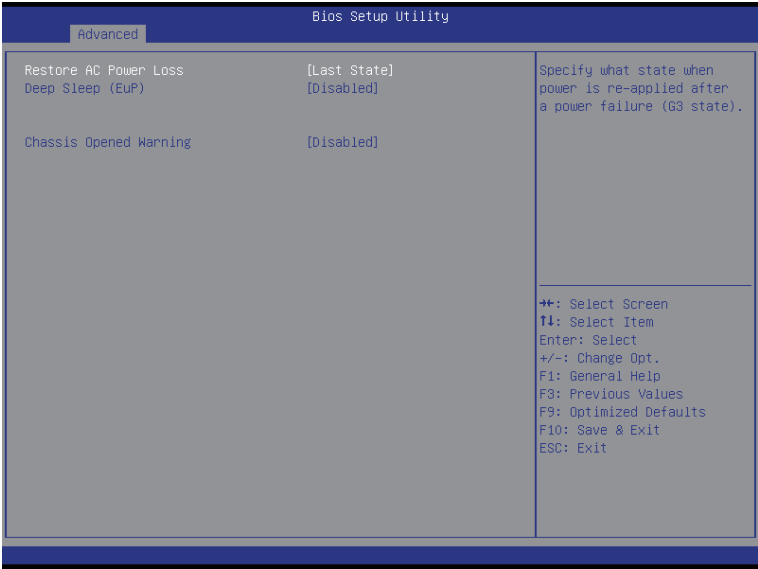
🔑 Port 60/64 Emulation

Enable 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**.

(Note) This item is present only if you attach USB types of device.

5-2-8 Chipset Configuration



Restore on AC Power Loss ^(Note)

Defines the power state to resume to after a system shutdown that is due to an interruption in AC power. When set to Last State, the system will return to the active power state prior to shutdown. When set to Stay Off, the system remains off after power shutdown.

Options available: Last State/Stay Off/Power On. The default setting depends on the BMC setting.

Deep Sleep (EuP)

Enable/Disable Deep Sleep mode.

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

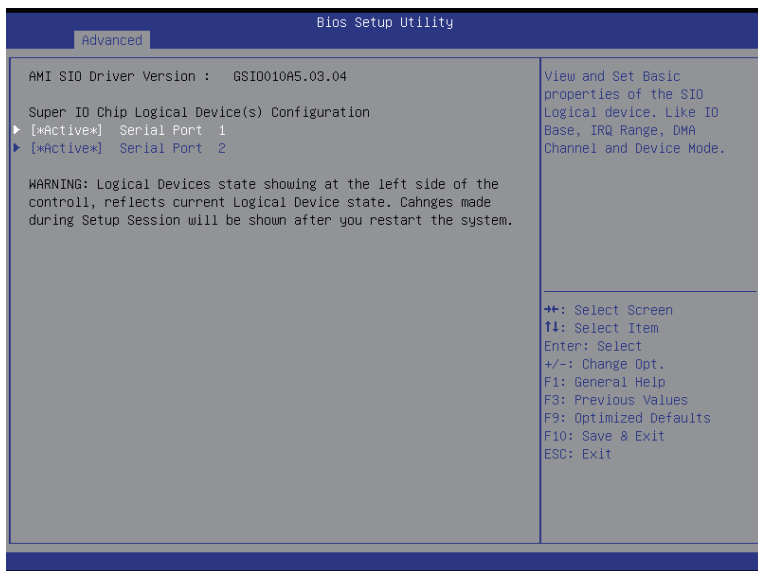
Chassis Opened Warning

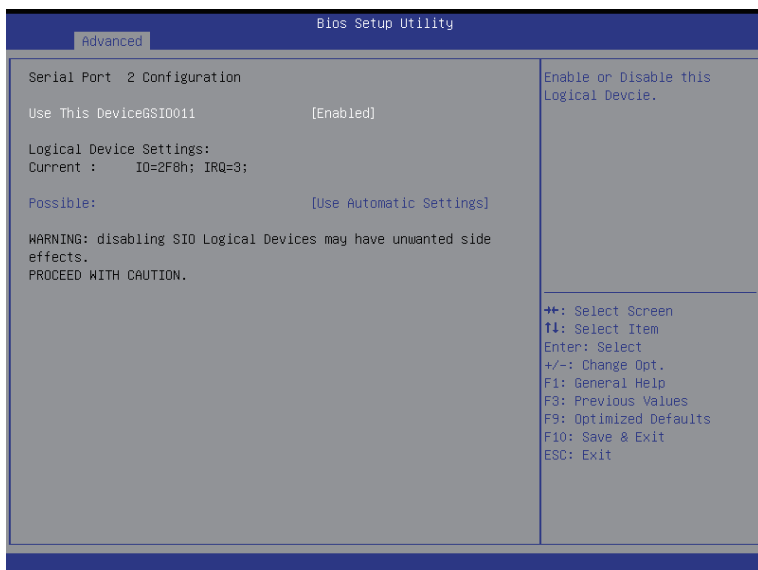
Enable/Disable Chassis intrusion alert function.

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

(Note) When the power policy is controlled by BMC, please wait for 15-20 seconds for BMC to save the last power state.

5-9 SIO Configuration





🔑 AMI SIO Driver Version

Display the AMI SIO driver version information.

🔑 Super IO Chip Logical Device(s) Configuration

🔑 [*Active*] Serial Port 1/2

Press [Enter] for configuration of advanced items.

🔑 Serial Port 1 Configuration

🔑 Use This Device

When enabled allows you to configure the serial port 1 settings. When set to Disabled, displays no configuration for the serial port.

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

🔑 Logical Device Settings:

🔑 Current:

Display the Serial Port 1 base I/O address and IRQ.

🔑 Possible:

Configure Serial Port 1 base I/O address and IRQ.

Option available:

Use Automatic Settings

IO=3F8h; IRQ=4; DMA;/
IO=3F8h; IRQ=3,4,5,7,9,10,11,12; DMA;/
IO=2F8h; IRQ=3,4,5,7,9,10,11,12; DMA;/
IO=3E8h; IRQ=3,4,5,7,9,10,11,12; DMA;/
IO=2E8h; IRQ=3,4,5,7,9,10,11,12; DMA;.
Default setting is **Use Automatic Settings**.

☞ **Serial Port 2 Configuration**

☞ **Use This Device**

When enabled allows you to configure the serial port 2 settings. When set to Disabled, displays no configuration for the serial port.

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

☞ **Logical Device Settings:**

☞ **Current:**

Display the Serial Port 2 base I/O address and IRQ.

☞ **Possible:**

Configure Serial Port 2 base I/O address and IRQ.

Option available:

Use Automatic Settings/

IO=2F8h; IRQ=3; DMA;/
IO=3F8h; IRQ=3,4,5,7,9,10,11,12; DMA;/
IO=2F8h; IRQ=3,4,5,7,9,10,11,12; DMA;/
IO=3E8h; IRQ=3,4,5,7,9,10,11,12; DMA;/
IO=2E8h; IRQ=3,4,5,7,9,10,11,12; DMA;/

Default setting is **Use Automatic Settings**.

5-2-10 iSCSI Configuration



☞ iSCSI Initiator Name

☞ Add an Attempts

Press [Enter] for configuration of advanced items.

☞ Delete Attempts

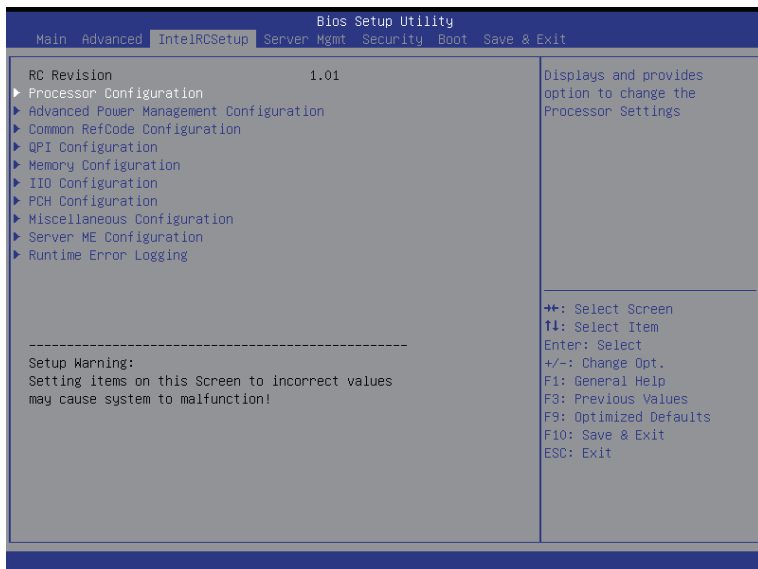
Press [Enter] for configuration of advanced items.

☞ Change Attempt Order

Press [Enter] for configuration of advanced items.

5-3 Intel RC Setup Menu

Intel RC Setup menu displays submenu options for configuring the function of North Bridge and South Bridge. Select a submenu item, then press Enter to access the related submenu screen.



RC Revision

Display Intel RC version information.

5-3-1 Processor Configuration

Bios Setup Utility		
IntelRCSetup		
Processor Configuration		

▶ Per-Socket Configuration		
Processor Socket	Socket 0	Socket 1
Processor ID	000306F2*	000306F2
Processor Frequency	3.500GHz	3.500GHz
Processor Max Ratio	23H	23H
Processor Min Ratio	0CH	0CH
Microcode Revision	0000001F	0000001F
L1 Cache RAM	256KB	256KB
L2 Cache RAM	1024KB	1024KB
L3 Cache RAM	15360KB	15360KB
Processor 0 Version	Intel(R) Xeon(R) CPU E5-2637 v3 @ 3.50GHz	
Processor 1 Version	Intel(R) Xeon(R) CPU E5-2637 v3 @ 3.50GHz	
Hyper-Threading [ALL]	[Enable]	
Execute Disable Bit	[Enable]	
Enable Intel TXT Support	[Disable]	
VMX	[Enable]	
Enable SMX	[Disable]	
Hardware Prefetcher	[Enable]	
Adjacent Cache Prefetch	[Enable]	
DCU Streamer Prefetcher	[Enable]	
▲ Change Per-Socket Settings		
++: Select Screen T1: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit		

Bios Setup Utility		
IntelRCSetup		
Processor Max Ratio	23H	23H
Processor Min Ratio	0CH	0CH
Microcode Revision	0000001F	0000001F
L1 Cache RAM	256KB	256KB
L2 Cache RAM	1024KB	1024KB
L3 Cache RAM	15360KB	15360KB
Processor 0 Version	Intel(R) Xeon(R) CPU E5-2637 v3 @ 3.50GHz	
Processor 1 Version	Intel(R) Xeon(R) CPU E5-2637 v3 @ 3.50GHz	
Hyper-Threading [ALL]	[Enable]	
Execute Disable Bit	[Enable]	
Enable Intel TXT Support	[Disable]	
VMX	[Enable]	
Enable SMX	[Disable]	
Hardware Prefetcher	[Enable]	
Adjacent Cache Prefetch	[Enable]	
DCU Streamer Prefetcher	[Enable]	
DCU IP Prefetcher	[Enable]	
DCU Mode	[32KB 8Way Without ECC]	
Direct Cache Access (DCA)	[Auto]	
DCA Prefetch Delay	[32]	
X2APIC	[Disable]	
AES-NI	[Enable]	
▲ Enable/disable AES-NI support		
++: Select Screen T1: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit		

⌄ Processor Configuration

⌄ Pre-Socket Configuration

Press [Enter] for configuration of advanced items.

⌄ Processor Socket/Processor ID/Processor Frequency/Processor Max Ratio/ Processor Min Ratio/Microcode Revision/L1 Cache RAM/L2 Cache RAM/L3 Cache RAM/ Processor 0/1Version

Displays the technical specifications for the installed processor.

⌄ Hyper-Threading [All]

The Hyper Threading Technology allows a single processor to execute two or more separate threads concurrently. When hyper-threading is enabled, multi-threaded software applications can execute their threads, thereby improving performance.

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

⌄ Execute Disable Bit

When enabled, the processor prevents the execution of code in data-only memory pages. This provides some protection against buffer overflow attacks.

When disabled, the processor will not restrict code execution in any memory area. This makes the processor more vulnerable to buffer overflow attacks.

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

⌄ Enable Intel TXT Support

Enable/Disable Intel Trusted Execution Technology support function.

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

⌄ VMX (Vanderpool Technology)

Enable/Disable Vanderpool Technology. This will take effect after rebooting the system.

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

⌄ Enable SMX (Intel Safer Mode Extensions Technology)

Enable/Disable Intel Safer Mode Extensions (SMX) support function.

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

⌄ Hardware Prefetcher

Select whether to enable the speculative prefetch unit of the processor.

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

⌄ Adjacent Cache Line Prefetch

When enabled, cache lines are fetched in pairs. When disabled, only the required cache line is fetched.

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

⌄ DCU Streamer Prefetch

Enable prefetch of next L1 Data line based upon multiple loads in same cache line.

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

⌄ DCU IP Prefetch

Enable prefetch of next L1 Data line based upon sequential load history.

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

⌄ DCU Mode

Configure DCU mode.

Options available: 32KB 8Way Without ECC/16KB 4Way With ECC. Default setting is **32KB 8Way Without ECC**.

☞ **Direct Cache Access (DCA)**

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

☞ **DCA Prefetch Delay**

Options available: Disabled/8/16/24/32/40/48/56/64/72/80/88/96/104/112. Default setting is **32**.

☞ **X2APIC**

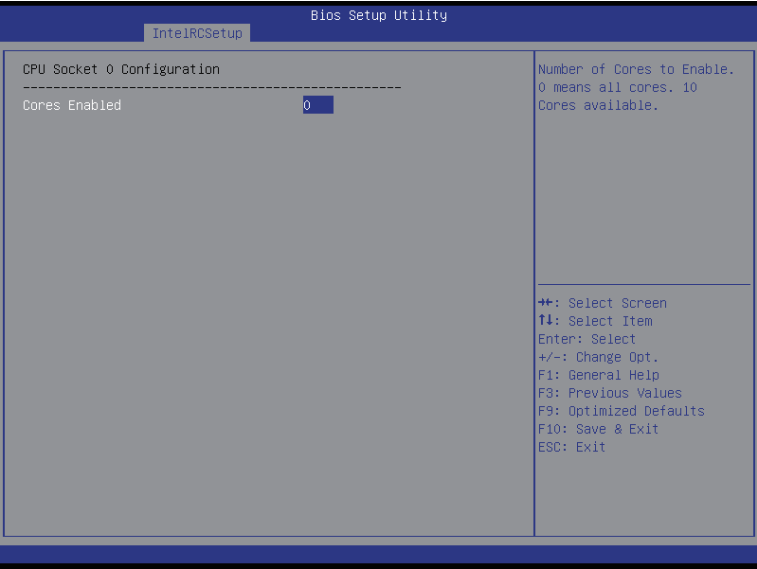
Options available: Enabled/Disabled. Default setting is **Disabled**.

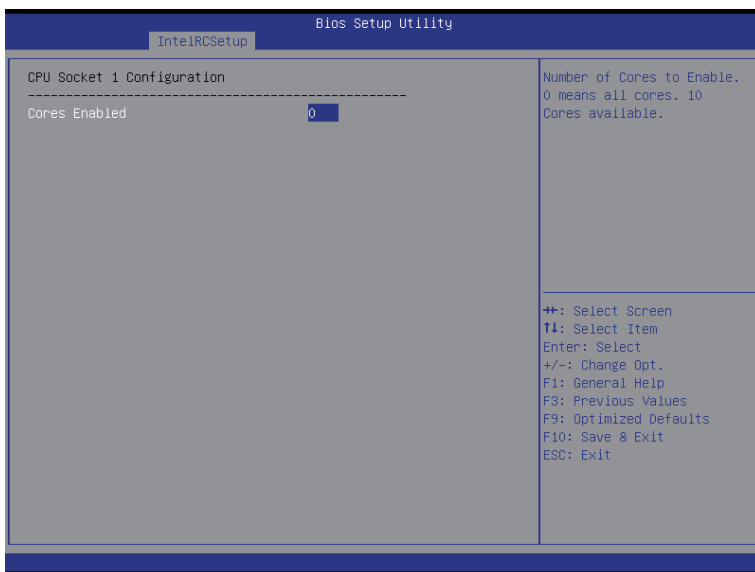
☞ **AES-NI**

Enable/Disable AES-NI (Intel Advanced Encryption Standard New Instructions) support function.

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

5-3-1-1 Pre-Socket Configuration





🔑 CPU Socket 0/1 Configuration

Press [Enter] for configuration of advanced items.

🔑 Cores Enabled (for CPU socket 0/1)

Number of Cores to enable. 0 means all cores. 14 Cores is available. Press the numeric keys to adjust desired values.

5-3-2 Advanced Power Management Configuration



☞ Advanced Power Management Configuration

☞ Power Technology

Option available: Disable/Energy Efficient/Custom. Default setting is **Custom**.

☞ Config TDP

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

☞ Config TDP Level

Options available: Nominal. Default setting is **Nominal**.

☞ CPU P State Control

Press [Enter] for configuration of advanced items.

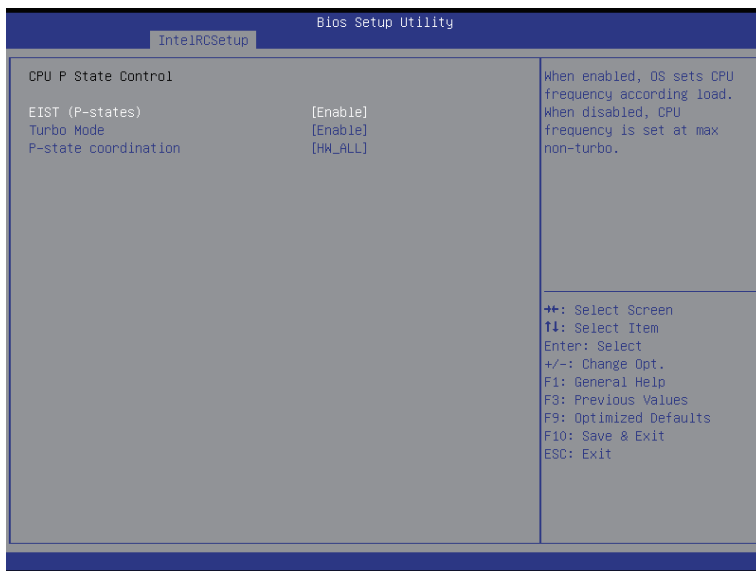
☞ CPU C State Control

Press [Enter] for configuration of advanced items.

☞ CPU T State Control

Press [Enter] for configuration of advanced items.

5-3-2-1 CPU P State Control



🔑 EIST (P-State)

Conventional Intel SpeedStep Technology switches both voltage and frequency in tandem between high and low levels in response to processor load.

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

🔑 Turbo Mode

When this item is enabled, the processor will automatically ramp up the clock speed of 1-2 of its processing cores to improve its performance.

When this item is disabled, the processor will not overclock any of its core.

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

🔑 P-state coordination

In HW_ALL mode, the processor hardware is responsible for coordinating the P-state among logical processors dependencies. The OS is responsible for keeping the P-state request up to date on all logical processors.

In SW_ALL mode, the OS Power Manager is responsible for coordinating the P-state among logical processors with dependencies and must initiate the transition on all of those Logical Processors.

In SW_ANY mode, the OS Power Manager is responsible for coordinating the P-state among logical processors with dependencies and may initiate the transition on any of those Logical Processors.

Options available: HW_ALL/SW_ALL/SW_ANY. Default setting is **HW_ALL**.

5-3-2-2 CPU C State Control



🔑 Package C State Limit

Configure state for the C-State package limit.

Options available: C0/C1 state/C2 state/C6(non Retention) state/C6(Retention) state.

Default setting is **C6(non Retention) state**.

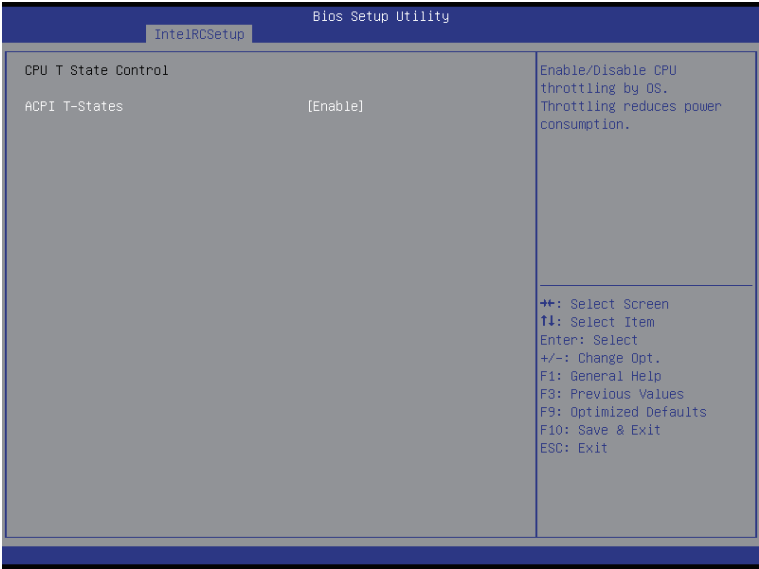
🔑 CPU C3/C6 Report

Allows you to determine whether to let the CPU enter C3/C6 mode in system halt state. When enabled, the CPU core frequency and voltage will be reduced during system halt state to decrease power consumption. The C3/C6 state is a more enhanced power-saving state than C1.

Options available: Enabled/Disabled.

Default setting for C3 is **Disabled**; default setting for C6 is **Enabled**.

5-3-2-3 CPU T State Control



ACPI T-States

Enable/Disable CPU throttling by OS. Throttling reduces power consumption.

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

5-3-3 Common RefCode Configuration



☞ Common RefCode Configuration

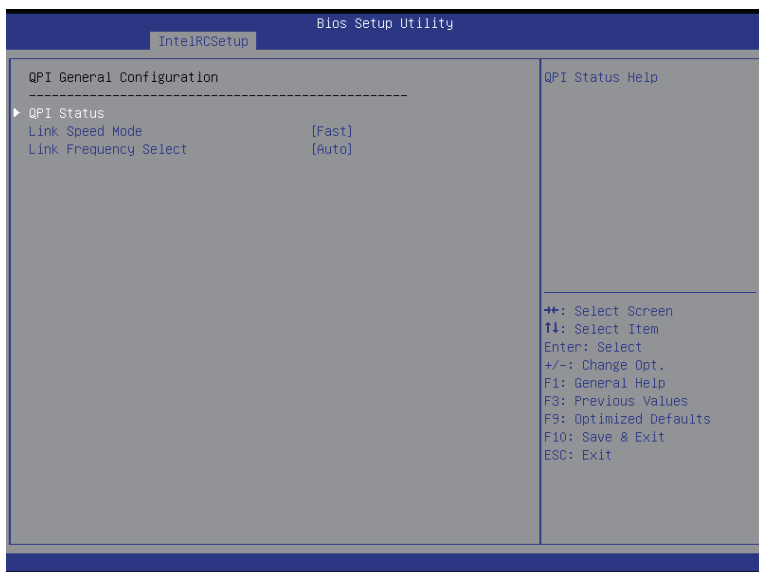
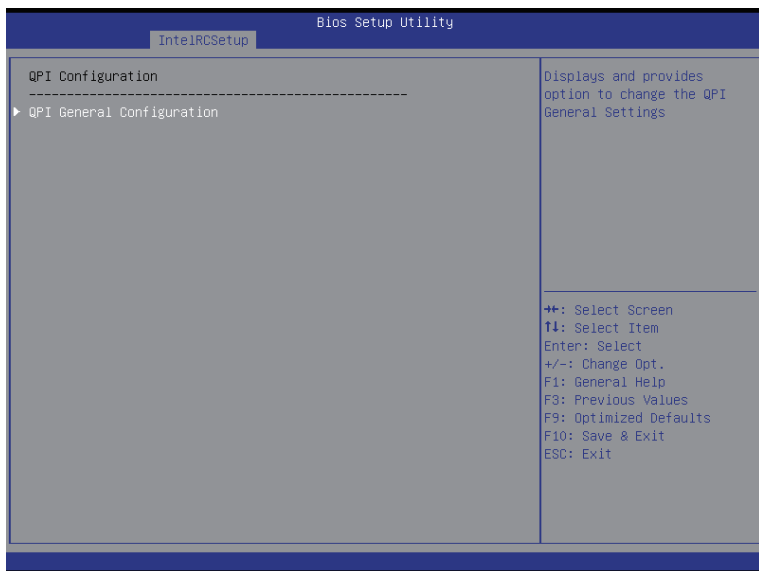
☞ Isoc Mode

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

☞ Numa (Non-Uniform Memory Access)

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

5-3-4 QPI Configuration





🔑 QPI General Configuration

Press [Enter] for configuration of advanced items.

🔑 QPI Status

Press [Enter] to view QPI status.

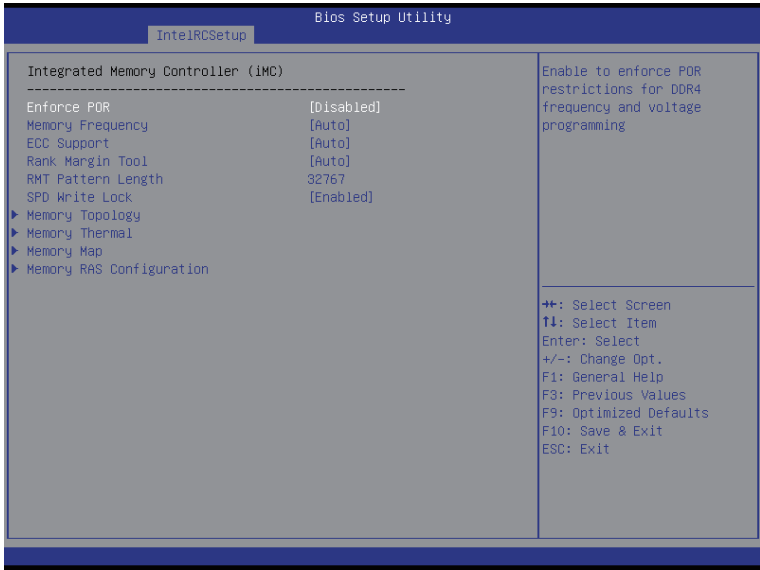
🔑 Link Speed Mode

Options available: Slow/Fast. Default setting is **Fast**.

🔑 Link Frequency Select

Options available: 6.4GB/s/8.0GB/s/9.6GB/s/Auto/Auto Limited. Default setting is **Auto**.

5-3-5 Memory Configuration



☞ Integrated Memory Controller (iMC)

☞ Enforce POR

Enable to enforce POR restrictions for DDR4 frequency and voltage programming.

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

☞ Memory Frequency

Configure memory frequency.

Options available: Auto/1333/1400/1600/1800/1867/2000/2133.

Default setting is **Auto**.

☞ ECC Support

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

☞ Rank Margin Tool

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

☞ RMT Pattern Length

Display RMT Pattern Length.

☞ SPD Write Lock

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

☞ Memory Topology

Press [Enter] for configuration of advanced items.

☞ Memory Thermal

Press [Enter] for configuration of advanced items.

☞ Memory Map

Press [Enter] for configuration of advanced items.

Memory RAS Configuration

Press [Enter] for configuration of advanced items.

5-3-5-1 Memory Topology

Bios Setup Utility	
IntelRCSetup	
DIMM_P0_A0: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_A1: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_A2: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_B0: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_B1: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_B2: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_C0: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_C1: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_C2: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_D0: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_D1: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P0_D2: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_E0: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_E1: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_E2: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_F0: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_F1: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_F2: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_G0: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_G1: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_G2: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_H0: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_H1: 2133MT/s Samsung DRx4 16GB RDIMM	
DIMM_P1_H2: 2133MT/s Samsung DRx4 16GB RDIMM	
	++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

5-3-5-2 Memory Thermal



☞ **Set Throttling**

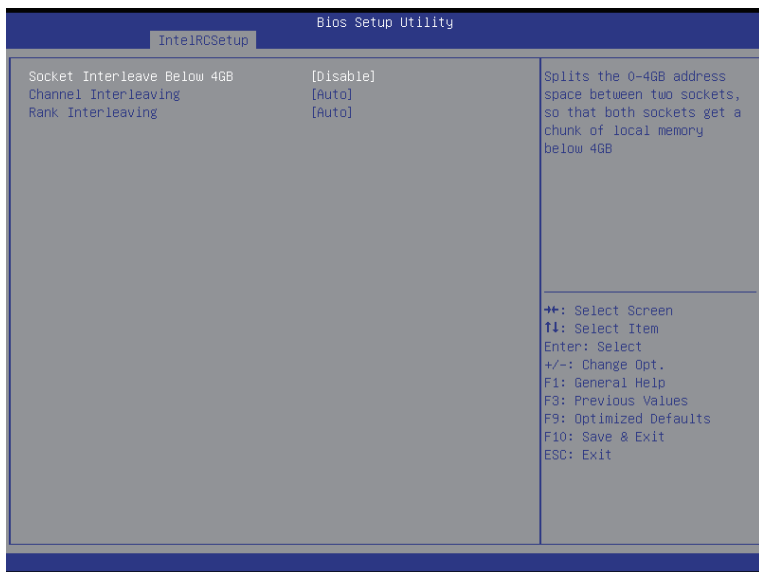
Configure Thermal Throttling Mode. Select OLTT or CLTT mode.

Options available: Disabled/OLTT/CLTT. Default setting is **CLTT**.

☞ **MEMHOT Throttling Mode**

Options available: Disabled/Output-only/Input-only. Default setting is **Input-only**.

5-3-5-3 Memory Map



☞ Socket Interleave Below 4GB

Splits the 0-4GB address space between two sockets, so that both sockets get a chunk of local memory below 4GB.

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

☞ Channel Interleaving

Options available: Auto/1-way Interleave/2-way Interleave/3-way Interleave/4-way Interleave.

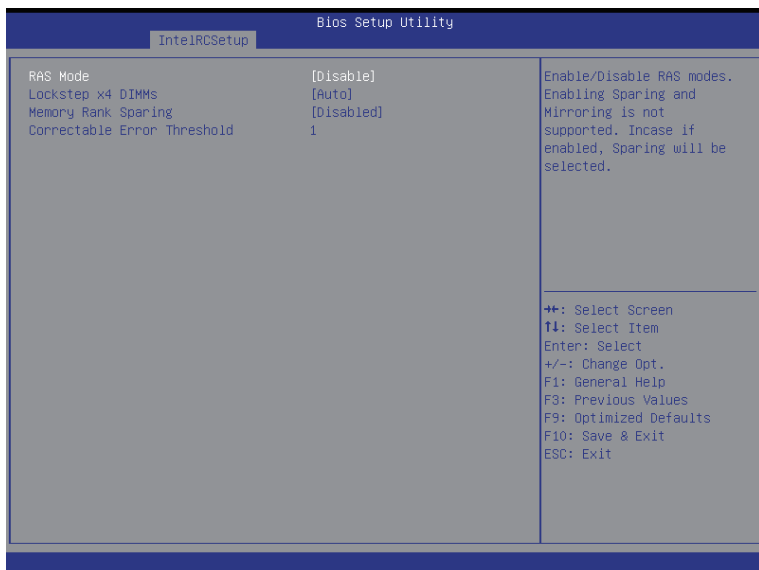
Default setting is **Auto**.

☞ Rank Interleaving

Options available: Auto/1-way Interleave/2-way Interleave/4-way Interleave/8-way Interleave.

Default setting is **Auto**.

5-3-5-4 Memory RAS Configuration



☞ RAS Mode

Enable/Disable RAS modes. Enabling Sparing and Mirroring is not supported. When this item is set to enabled, Sparing will be selected.

Options available: Disable/Mirror/Lockstep Mode. Default setting is **Disabled**.

☞ Lockstep x4 DIMMs

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

☞ Lockstep Rank Sparing

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

☞ Correctable Error Threshold

Press <+> / <-> keys to increase or decrease the desired values.

5-3-6 IIO Configuration



🔑 IIO Configuration

🔑 EV DFX Features

Set this option to allow DFX Lock Bits to remain clear.

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

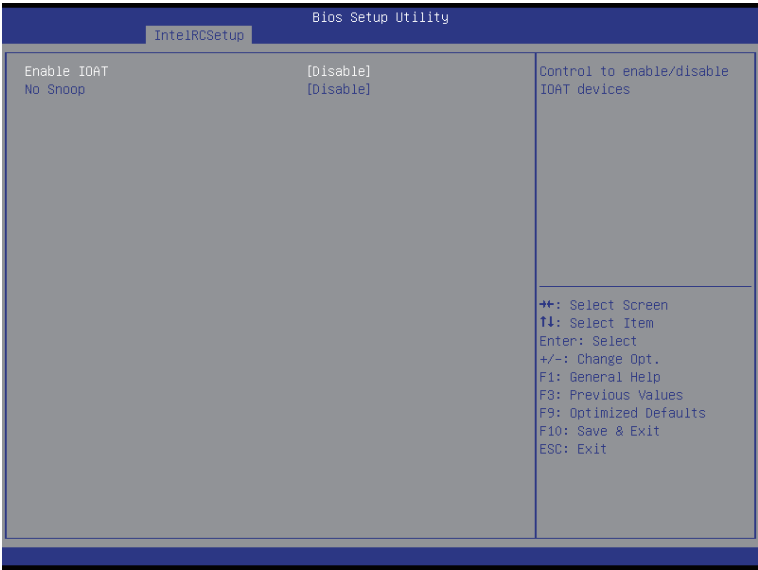
🔑 IOAT Configuration

Press [Enter] for configuration of advanced items.

🔑 Intel VT for Directed I/O (VT-d)

Press [Enter] for configuration of advanced items.

5-3-6-1 IOAT Configuration



IOAT Configuration

Enable IOAT

Control to enable/disable IOAT (Intel I/O Acceleration Technology) device.
Options available: Enabled/Disabled. Default setting is **Disabled**.

No Snoop

Enable/Disable PCI Express Device No Snoop option.
Options available: Enabled/Disabled. Default setting is **Disabled**.

5-3-6-2 Intel VT for Directed I/O (VT-d)



☞ **Intel VT for Directed I/O (VT-d)**

☞ **VT-d Azalea VCP Optimizations**

Enable/Disable Azalea VCP optimizations.

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

☞ **Intel VT for Directed I/O (VT-d)**

Enable/Disable Intel VT for Directed I/O (VT-d) support function.

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

☞ **Interrupt Remapping**

Enable/Disable interrupt remapping support function.

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

☞ **Coherency Suuport (Non-Isch)**

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

☞ **Coherency Suuport (Isch)**

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

5-3-7 PCH Configuration



☞ PCH Configuration

☞ PCH Devices

Press [Enter] for configuration of advanced items.

☞ PCH SATA Configuration

Press [Enter] for configuration of advanced items.

☞ USB Configuration

Press [Enter] for configuration of advanced items.

5-3-7-1 PCH Devices

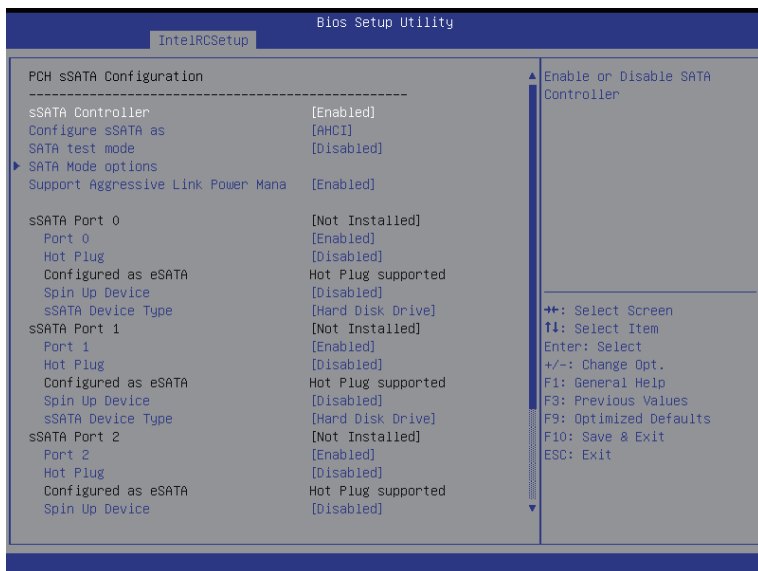


PCH CRID

Enable/Disable Intel Compatible Revision ID.

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

5-3-7-2 PCH sSATA Configuration



When SATA Type is set to IDE



☞ PCH sSATA Configuration

☞ sSATA Controller(s)

Enable/Disable sSATA controller.

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

☞ Configure sSATA as

Configure on chip SATA type.

IDE Mode: When set to IDE, the SATA controller disables its RAID and AHCI functions and runs in the IDE emulation mode. This is not allowed to access RAID setup utility.

RAID Mode: When set to RAID, the SATA controller enables both its RAID and AHCI functions. You will be allowed to access the RAID setup utility at boot time.

ACHI Mode: When set to AHCI, the SATA controller enables its AHCI functionality. Then the RAID function is disabled and cannot access the RAID setup utility at boot time.

Options available: IDE/RAID/AHCI/Disabled. Default setting is **ACHI**.

☞ SATA Test Mode

Enable/Disable SATA Test Mode.

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

☞ sSATA RSTe Boot Info^(Note 1)

Enable/Disable SATA RSTe Boot Information.

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

☞ SATA Mode options^(Note 2)

Press [Enter] for configuration of advanced items.

(Note 1) Only Supported When HDD is in **RAID Mode**.

(Note 2) Only Supported When HDD is in **AHCI** or **RAID Mode**.

☞ **Support Aggressive Link Power Mana^(Note)**

Enable PCH to aggressively enter link power state.

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

☞ **Alternate Device ID on RAID**

Enable /Disable Alternate Device ID on RAID mode.

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

Please note that this option appears when HDD is in RAID Mode.

☞ **SATA Port 0/1/2/3**

The category identifies sSATA type of hard disk that are installed in the computer.

System will automatically detect HDD type.

☞ **Port 0/1/2/3**

Enable/Disable Port 0/1/2/3 device.

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

☞ **Hot Plug (for Port 0/1/2/3)^(Note)**

Enable/Disable HDD Hot-Plug function.

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

☞ **Configured as eSATA^(Note)**

Display Hot-Plug supported information.

☞ **Spin Up Device (for Port 0/1/2/3)^(Note)**

On an edge detect from 0 to 1, the PCH starts a COM reset initialization to the device.

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

☞ **SATA Device Type**

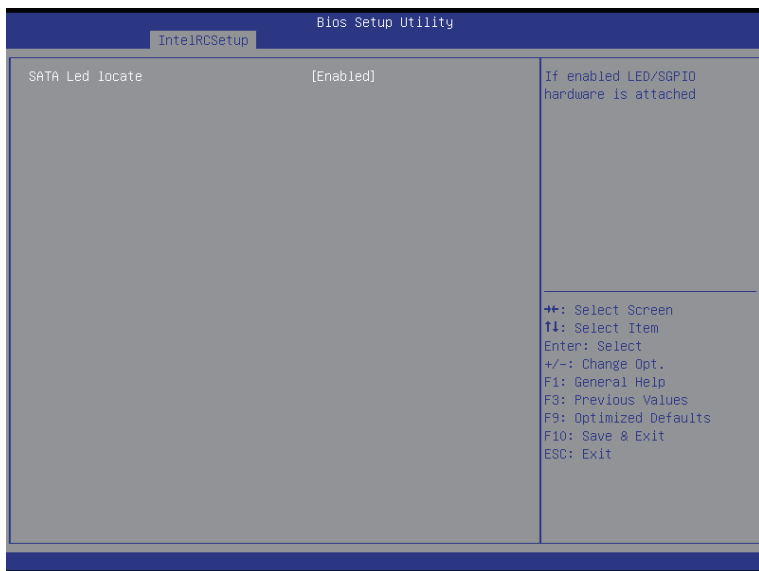
Select sSATA device type.

Options available: Hard Disk Drive/Solid State Drive. Default setting is **Hard Disk Drive**.

(Note) Only Supported When HDD is in **AHCI** or **RAID** Mode.

5-3-7-2-1 SATA Mode Options

When SATA Type is set to IDE/AHCI Mode

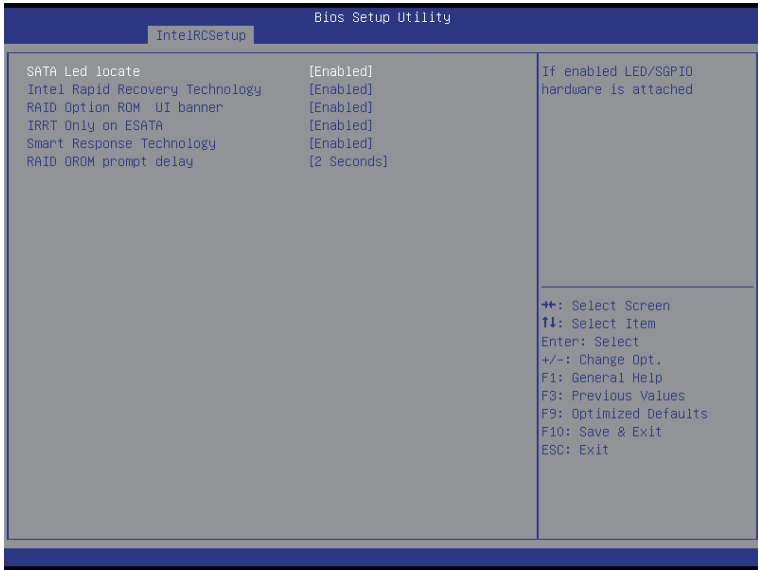


SATA LED locate

When this option is enabled, LED/SGPIO hardware is attached.

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

When SATA Type is set to RAID Mode



☞ SATA LED locate

When this option is enabled, LED/SGPIO hardware is attached.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Intel Rapid Recovery Technology

Enable/Disable Intel Rapid Recovery Technology support function.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ RAID Option ROM UI banner

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

☞ Smart Response Technology

Enable/Disable Intel Smart Response Technology support function.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ RAID OROM prompt delay

Options available: 2 Seconds/4 Seconds/6 Seconds/8 Seconds. Default setting is **2 Seconds**.

5-3-7-3 PCH SATA Configuration

Bios Setup Utility	
IntelRCSetup	
PCH SATA Configuration	
SATA Controller	[Enabled]
Configure SATA as	[AHCI]
SATA test mode	[Disabled]
▶ SATA Mode options	
Support Aggressive Link Power Mana	[Enabled]
SATA Port 0	[Not Installed]
Port 0	[Enabled]
Hot Plug	[Disabled]
Configured as eSATA	Hot Plug supported
Spin Up Device	[Disabled]
SATA Device Type	[Hard Disk Drive]
SATA Port 1	[Not Installed]
Port 1	[Enabled]
Hot Plug	[Disabled]
Configured as eSATA	Hot Plug supported
Spin Up Device	[Disabled]
SATA Device Type	[Hard Disk Drive]
SATA Port 2	[Not Installed]
Port 2	[Enabled]
Hot Plug	[Disabled]
Configured as eSATA	Hot Plug supported
Spin Up Device	[Disabled]
▲ Enable or Disable SATA Controller Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit	

Bios Setup Utility	
IntelRCSetup	
SATA Device Type	[Hard Disk Drive]
SATA Port 2	[Not Installed]
Port 2	[Enabled]
Hot Plug	[Disabled]
Configured as eSATA	Hot Plug supported
Spin Up Device	[Disabled]
SATA Device Type	[Hard Disk Drive]
SATA Port 3	[Not Installed]
Port 3	[Enabled]
Hot Plug	[Disabled]
Configured as eSATA	Hot Plug supported
Spin Up Device	[Disabled]
SATA Device Type	[Hard Disk Drive]
SATA Port 4	[Not Installed]
Port 4	[Enabled]
Hot Plug	[Disabled]
Configured as eSATA	Hot Plug supported
Spin Up Device	[Disabled]
SATA Device Type	[Hard Disk Drive]
SATA Port 5	[Not Installed]
Port 5	[Enabled]
Hot Plug	[Disabled]
Configured as eSATA	Hot Plug supported
Spin Up Device	[Disabled]
SATA Device Type	[Hard Disk Drive]
▲ Identify the SATA port is connected to Solid State Drive or Hard Disk Drive Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit	

When SATA Type is set to IDE



☞ PCH SATA Configuration

☞ SATA Controller(s)

Enable/Disable sSATA controller.

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

☞ Configure sSATA as

Configure on chip SATA type.

IDE Mode: When set to IDE, the SATA controller disables its RAID and AHCI functions and runs in the IDE emulation mode. This is not allowed to access RAID setup utility.

RAID Mode: When set to RAID, the SATA controller enables both its RAID and AHCI functions. You will be allowed to access the RAID setup utility at boot time.

AHCI Mode: When set to AHCI, the SATA controller enables its AHCI functionality. Then the RAID function is disabled and cannot be access the RAID setup utility at boot time.

Options available: IDE/RAID/AHCI/Disabled. Default setting is **AHCI**.

☞ SATA Test Mode

Enable/Disable SATA Test Mode.

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

☞ SATA RSTe Boot Info^(Note 1)

Enable/Disable SATA RSTe Boot Information.

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

(Note 1) Only Supported When HDD is in **RAID** Mode.

(Note 2) Only Supported When HDD is in **AHCI** or **RAID** Mode.

☞ **SATA Mode options**^(Note 2)

Press [Enter] for configuration of advanced items.

☞ **Support Aggressive Link Power Mana**^(Note)

Enable PCH to aggressively enter link power state.

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

☞ **Alternate Device ID on RAID**

Enable /Disable Alternate Device ID on RAID mode.

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

Please note that this option appears when HDD is in RAID Mode.

☞ **SATA Port 0/1/2/3/4/5**

The category identifies sSATA type of hard disk that are installed in the computer.

System will automatically detect HDD type.

☞ **Port 0/1/2/3/4/5**

Enable/Disable Port 0/1/2/3 device.

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

☞ **Hot Plug (for Port 0/1/2/3/4/5)**^(Note)

Enable/Disable HDD Hot-Plug function.

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

☞ **Configured as eSATA**^(Note)

Display Hot-Plug supported information.

☞ **Spin Up Device (for Port 0/1/2/3/4/5)**^(Note)

On an edge detect from 0 to 1, the PCH starts a COM reset initialization to the device.

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

☞ **SATA Device Type**

Select sSATA device type.

Options available: Hard Disk Drive/Solid State Drive. Default setting is **Hard Disk Drive**.

(Note) Only Supported When HDD is in **AHCI** or **RAID** Mode.

5-3-7-3-1 SATA Mode Options

When SATA Type is set to IDE/AHCI Mode



SATA LED locate

When this option is enabled, LED/SGPIO hardware is attached.

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

When SATA Type is set to RAID Mode



☞ SATA LED locate

When this option is enabled, LED/SGPIO hardware is attached.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ Intel Rapid Recovery Technology

Enable/Disable Intel Rapid Recovery Technology support function.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ RAID Option ROM UI banner

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

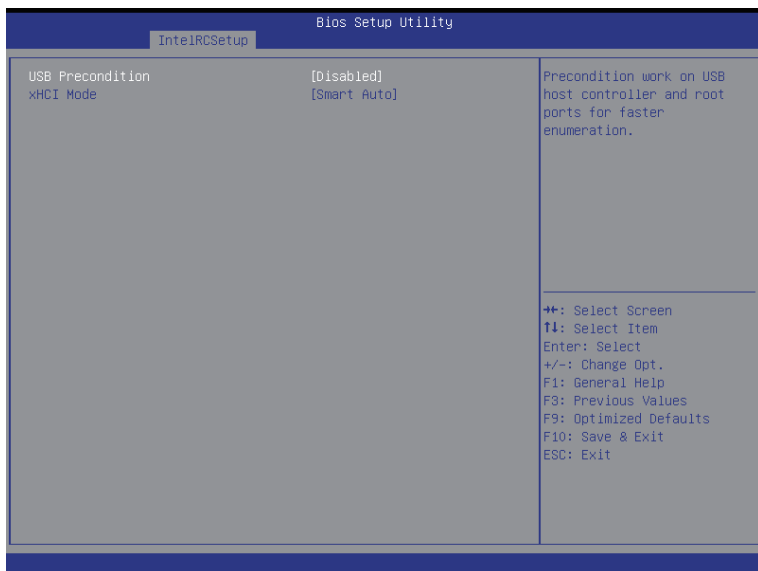
☞ Smart Response Technology

Enable/Disable Intel Smart Response Technology support function.
Options available: Enabled/Disabled. Default setting is **Enabled**.

☞ RAID OROM prompt delay

Options available: 2 Seconds/4 Seconds/6 Seconds/8 Seconds. Default setting is **2 Seconds**.

5-3-7-4 USB Configuration



USB Precondition

Precondition work on USB host controller and root ports for faster enumeration.

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

xHCI Mode

Enable/Disable xHCI (USB 3.0) support function.

Options available: Smart Auto/Enabled/Disabled. Default setting is **Smart Auto**.

5-3-8 Miscellaneous Configuration



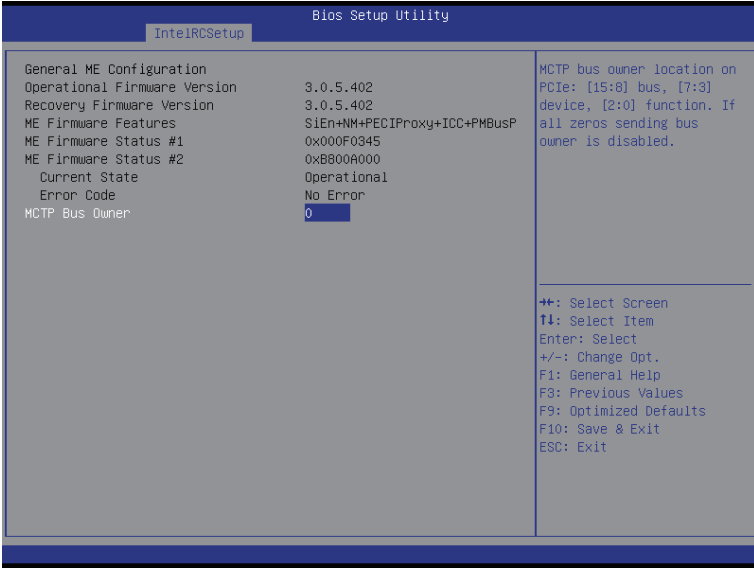
☞ Miscellaneous Configuration

☞ Active Video

Select active Video type.

Options available: Onboard Device/Offboard Device. Default setting is **Offboard Device**.

5-3-9 Server ME Configuration



☞ General ME Configuration

☞ Operational Firmware Version

Display Operational Firmware Version information.

☞ Recovery Firmware Version

Display Recovery Firmware Version information.

☞ ME Firmware Features

Display ME Firmware features information.

☞ ME Firmware Status #1/#2

Display ME Firmware status information.

☞ Current State (for ME Firmware)

Display ME Firmware current status information.

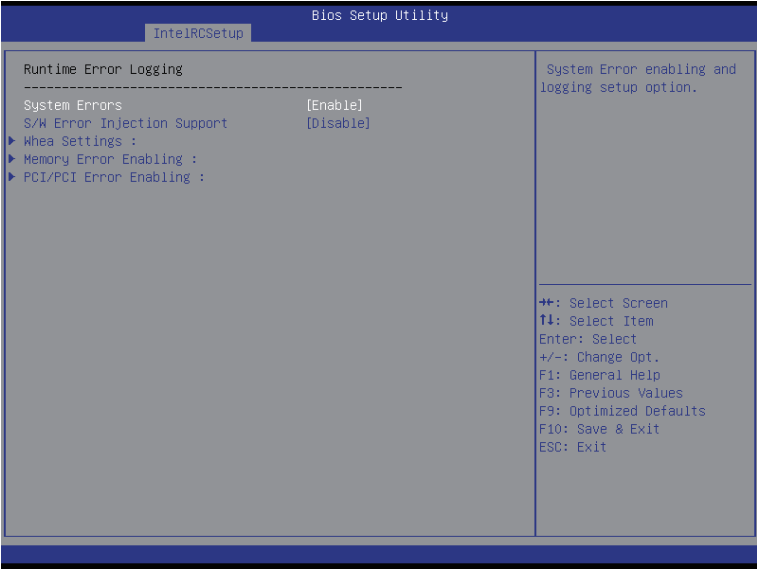
☞ Error Code (for ME Firmware)

Display ME Firmware status error code.

☞ MCTP Bus Owner

Configure MCTP Bus Owner.

5-3-10 Runtime Error Logging



☞ Runtime Error Logging

☞ System Errors

Enable/Disable system error logging function.

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

☞ S/W Error Injection Support

Enable/Disable software injection error logging function.

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

☞ Whea Settings

Press [Enter] for configuration of advanced items.

☞ Memory Error Enabling

Press [Enter] for configuration of advanced items.

☞ PCI/PCI Error Enabling

Press [Enter] for configuration of advanced items.

5-3-10-1 Whea Setting



WHEA Support (Windows Hardware Error Architecture)

Enable/Disable WHEA Support.

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

5-3-10-2 Memory Error Enabling



☞ Memory Error Enabling

☞ Un-Correctable Errors disable Memory

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

☞ Memory corrected Errors enabling

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

5-3-10-3 PCI/PCI Error Enabling



PCI-Ex Error Enable

Options available: Yes/No. Default setting is **No**.

5-4 Server Management Menu



🔑 FRB-2 Timer

Enable/Disable FRB-2 timer (POST timer).

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

🔑 FRB2 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.

🔑 FRB2 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

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

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.

☞ **System Event Log**

Press [Enter] for configuration of advanced items.

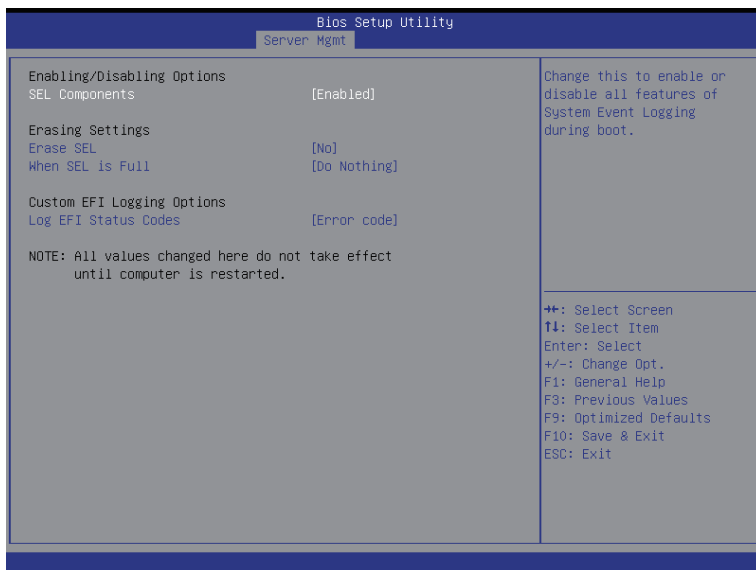
☞ **View FRU Information**

Press [Enter] to view the advanced items.

☞ **BMC network configuration**

Press [Enter] for configuration of advanced items.

5-4-1 System Event Log



⚙ Enabling/Disabling Options

⚙ SEL Components

Change this 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/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).

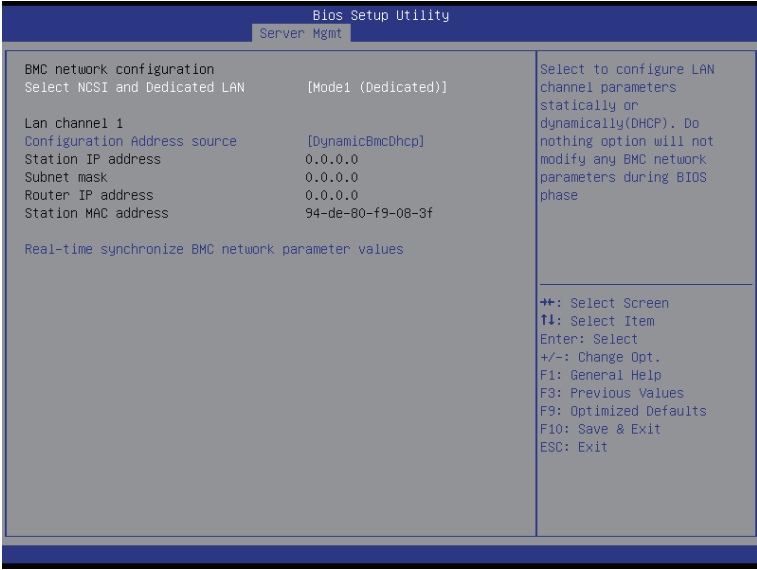
Options available: Disabled/Both/Error code/Progress code. Default setting is **Error code**.

5-4-2 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.

Bios Setup Utility	
Server Mgmt	
FRU Information	
System Manufacturer	GIGABYTE
System Product Name	G250-S88
System Version	0100
System Serial Number	01234567890123456789AB
Board Manufacturer	GIGABYTE
Board Product Name	M650-G20
Board Version	01234567
Board Serial Number	01234567890123456789AB
Chassis Manufacturer	GIGABYTE
Chassis Product Name	01234567
Chassis Serial Number	01234567890123456789AB
 ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit	

5-4-3 BMC network configuration



➤ BMC network configuration

➤ Select NCSI and Dedicated LAN

Switch NCSI and dedicated LAN and send KCS command.

Options available: Mode2(NSCI)/ Mode1 (Dedicated)/Do Nothing. Default setting is **Do Nothing**.

➤ 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 **Unspecified/Static**.

➤ Station IP Address

Display IP Address information.

➤ Subnet mask

Display Subnet Mask information.

Please note that the IP address must be in three digitals, for example, 192.168.000.001.

➤ Router IP address

Display the Router IP Address information.

➤ Station MAC Address

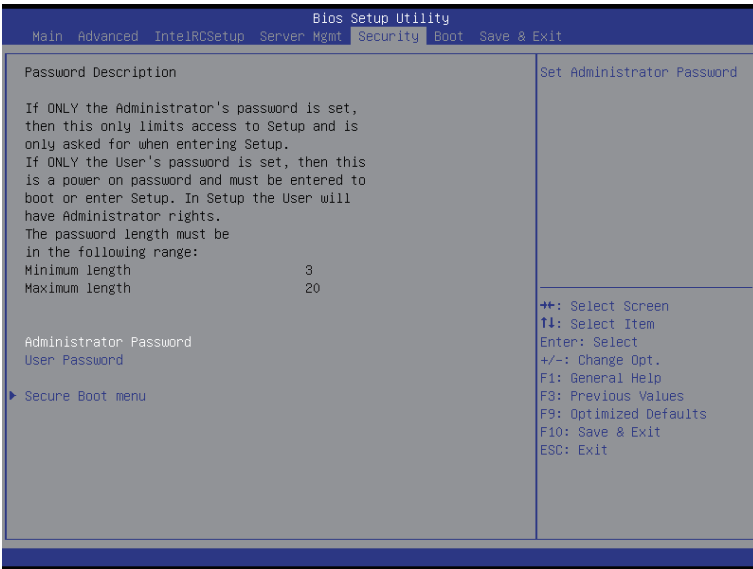
Display the MAC Address information.

➤ Real-time synchronize BMC network parameter values

Press [Enter] to synchronize BMC network parameter values.

5-5 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.

Administrator Password

Press Enter to configure the Administrator password.

User Password

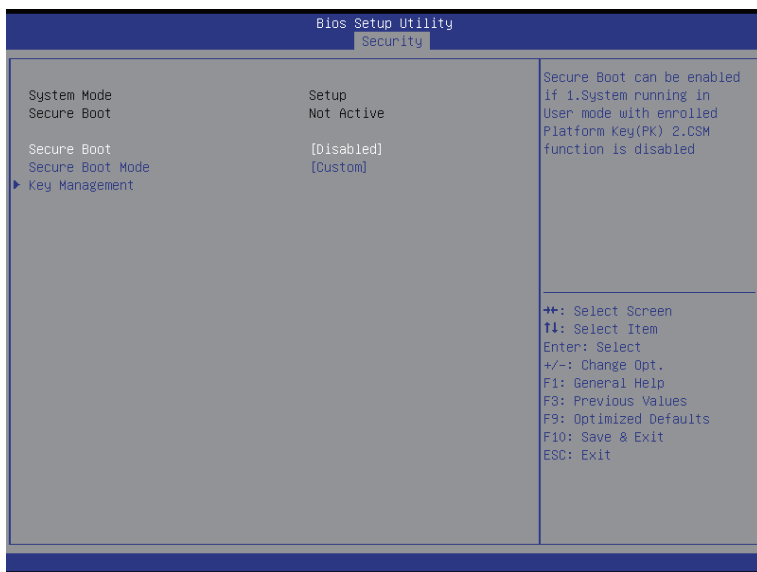
Press Enter to configure the user password.

Secure Boot menu

Press [Enter] for configuration of advanced items.

5-5-1 Secure Boot menu

The Secure Boot Menu is applicable when your device is installed the Windows® 8 operatin system.



☞ Secure Mode

Display the System secure mode state.

☞ Secure Boot

Display the status of Secure Boot.

☞ Secure Boot

Enable/Disable Secure Boot function.

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

☞ Secure Boot Mode

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 8 loads and gets to the login screen have not been tampered with.

When set to Standard, it will automatically load the Secure Boot keys from the BIOS databases.

When set to Custom, you can customize the Secure Boot settings and manually load its keys from the BIOS database.

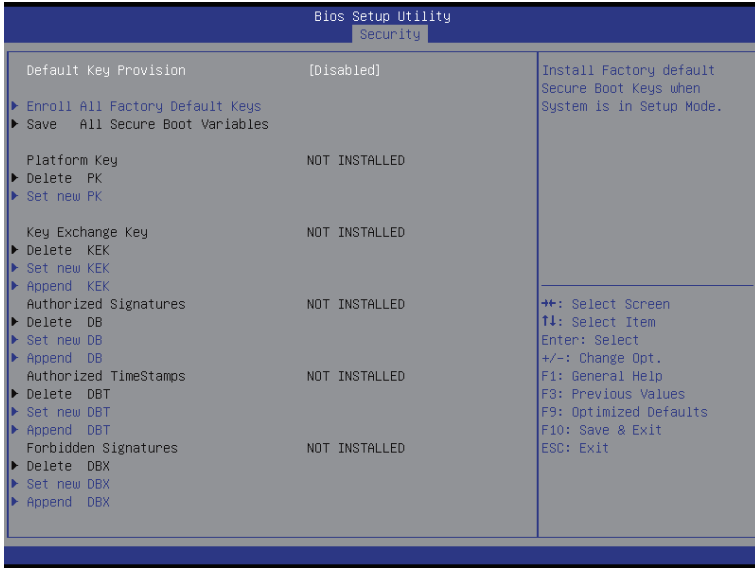
Options available: Standard/Custom. Default setting is **Standard**.

☞ Key Management^(Note)

Press [Enter] for configuration of advanced items.

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

5-5-1-1 Key Management



Default Key Provisioning

Force the system to Setup Mode. This will clear all Secure Boot Variables such as Platform Key (PK), Key-exchange Key (KEK), Authorized Signature Database (db), and Forbidden Signatures Database (dbx).

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

Enroll All Factory Default Keys

Press [Enter] to install all factory default keys.

Save All Secure Boot Variables

Press [Enter] to save all Secure Boot Variables.

Platform Key (PK)

Display the status of Platform Key.

Delete the PK

Press [Enter] to delete the existed PK. Once the PK is deleted, all the system's Secure Boot keys will not be activated.

Set new PK File

Press [Enter] to configure a new PK.

Key Exchange Key Database (KEK)

Display the status of Platform Key.

Delete KEK

Press [Enter] to delete the KEK from your system.

Set new KEK

Press [Enter] to configure a new KEK.

☞ **Append Var to KEK**

Press [Enter] to load additional KEK from a storage devices for an additional db and dbx management.

☞ **Authorized Signature Database (DB)**

Display the status of Authorized Signature Database.

☞ **Delete DB**

Press [Enter] to delete the db from your system.

☞ **Set new DB**

Press [Enter] to configure a new db.

☞ **Append aVar to DB**

Press [Enter] to load additional db from a storage devices.

☞ **Forbidden Signature Database (DBX)**

Display the status of Forbidden Signature Database.

☞ **Delete the DBX**

Press [Enter] to delete the dbx from your system.

☞ **Set DBX from File**

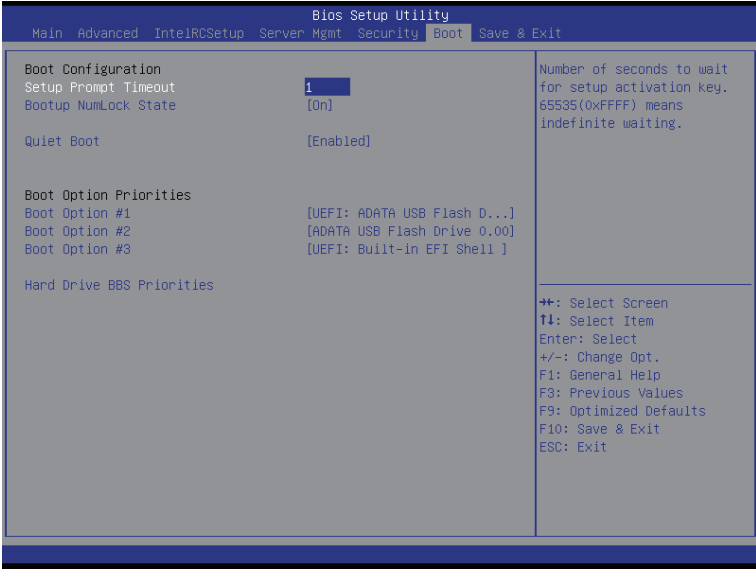
Press [Enter] to configure a new dbx.

☞ **Append Var to DBX**

Press [Enter] to load additional db from a storage devices.

5-6 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.



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 value.

Bootup NumLock State

Enable or Disable Bootup NumLock function.
Options available: On/Off. Default setting is **On**.

Quiet Boot

Enables or disables showing the logo during POST.
Options available: Enabled/Disabled. Default setting is **Enabled**.

Boot Option Priorities

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

Press Enter to configure the boot priority.
By default, the server searches for boot devices in the following sequence:

1. UEFI device.
2. Hard drive.
3. Network device.
4. USB device

Hard Drive BBS Priorities

Press Enter to configure the boot priority.

5-7 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**.



☞ Save Changes and Exit

Saves changes made and close the BIOS setup.

Options available: Yes/No.

☞ Discard Changes and Exit

Discards changes made and exit the BIOS setup.

Options available: Yes/No.

☞ Save Options

☞ Save Changes

Saves changes made in the BIOS setup.

Options available: Yes/No.

☞ Discard Changes

Discards changes made and close the BIOS setup.

Options available: Yes/No.

☞ 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.

☞ **UEFI: Built-in in EFI Shell**

Press <Enter> on this item to Launch EFI Shell from filesystem device.

5-8 BIOS POST Codes

PEI_CORE_STARTED	0x10
PEI_CAR_CPU_INIT	0x11
// reserved for CPU 0x12 - 0x14	
PEI_CAR_NB_INIT	0x15
// reserved for NB 0x16 - 0x18	
PEI_CAR_SB_INIT	0x19
// reserved for SB 0x1A - 0x1C	
PEI_MEMORY_SPD_READ	0x1D
PEI_MEMORY_PRESENCE_DETECT	0x1E
PEI_MEMORY_TIMING	0x1F
PEI_MEMORY_CONFIGURING	0x20
PEI_MEMORY_INIT	0x21
// reserved for OEM use: 0x22 - 0x2F	
// reserved for AML use: 0x30	
PEI_MEMORY_INSTALLED	0x31
PEI_CPU_INIT	0x32
PEI_CPU_CACHE_INIT	0x33
PEI_CPU_BSP_SELECT	0x34
PEI_CPU_AP_INIT	0x35
PEI_CPU_SMM_INIT	0x36
PEI_MEM_NB_INIT	0x37
// reserved for NB 0x38 - 0x3A	
PEI_MEM_SB_INIT	0x3B
// reserved for SB 0x3C - 0x3E	
// reserved for OEM use: 0x3F - 0x4E	
PEI_DXE_IPL_STARTED	0x4F
//Recovery	
PEI_RECOVERY_AUTO	0xF0
PEI_RECOVERY_USER	0xF1
PEI_RECOVERY_STARTED	0xF2
PEI_RECOVERY_CAPSULE_FOUND	0xF3
PEI_RECOVERY_CAPSULE_LOADED	0xF4
//S3	
PEI_S3_STARTED	0xE0
PEI_S3_BOOT_SCRIPT	0xE1
PEI_S3_VIDEO_REPOST	0xE2
PEI_S3_OS_WAKE	0xE3
//DXE_STATUS_CODE	
DXE_CORE_STARTED	0x60
DXE_NVRAM_INIT	0x61
DXE_SBRUN_INIT	0x62

DXE_CPU_INIT	0x63
//reserved for CPU 0x64 - 0x67	
DXE_NB_HB_INIT	0x68
DXE_NB_INIT	0x69
DXE_NB_SMM_INIT	0x6A
//reserved for NB 0x6B - 0x6F	
DXE_SB_INIT	0x70
DXE_SB_SMM_INIT	0x71
DXE_SB_DEVICES_INIT	0x72
//reserved for SB 0x73 - 0x77	
DXE_ACPI_INIT	0x78
DXE_CSM_INIT	0x79
//reserved for AMI use: 0x7A - 0x7F	
//reserved for OEM use: 0x80 - 0x8F	
DXE_BDS_STARTED	0x90
DXE_BDS_CONNECT_DRIVERS	0x91
DXE_PCI_BUS_BEGIN	0x92
DXE_PCI_BUS_HPC_INIT	0x93
DXE_PCI_BUS_ENUM	0x94
DXE_PCI_BUS_REQUEST_RESOURCES	0x95
DXE_PCI_BUS_ASSIGN_RESOURCES	0x96
DXE_CON_OUT_CONNECT	0x97
DXE_CON_IN_CONNECT	0x98
DXE_SIO_INIT	0x99
DXE_USB_BEGIN	0x9A
DXE_USB_RESET	0x9B
DXE_USB_DETECT	0x9C
DXE_USB_ENABLE	0x9D
//reserved for AMI use: 0x9E - 0x9F	
//reserved for AML use: 0xA0	
DXE_IDE_BEGIN	0xA1
DXE_IDE_RESET	0xA2
DXE_IDE_DETECT	0xA3
DXE_IDE_ENABLE	0xA4
DXE_SCSI_BEGIN	0xA5
DXE_SCSI_RESET	0xA6
DXE_SCSI_DETECT	0xA7
DXE_SCSI_ENABLE	0xA8
DXE_SETUP_VERIFYING_PASSWORD	0xA9
//reserved for AML use: 0xAA	
DXE_SETUP_START	0xAB
DXE_SETUP_INPUT_WAIT	0xAC

DXE_READY_TO_BOOT	0xAD
DXE_LEGACY_BOOT	0xAE
DXE_EXIT_BOOT_SERVICES	0xAF
RT_SET_VIRTUAL_ADDRESS_MAP_BEGIN	0xB0
RT_SET_VIRTUAL_ADDRESS_MAP_END	0xB1
DXE_LEGACY_OPROM_INIT	0xB2
DXE_RESET_SYSTEM	0xB3
DXE_USB_HOTPLUG	0xB4
DXE_PCI_BUS_HOTPLUG	0xB5
DXE_NVRAM_CLEANUP	0xB6
DXE_CONFIGURATION_RESET	0xB7
//reserved for AMI use: 0xB8 - 0xBF	
//reserved for OEM use: 0xC0 - 0xCF	
//PEI_STATUS_CODE	
//Errors	
//Regular boot	
PEI_MEMORY_INVALID_TYPE	0x50
PEI_MEMORY_INVALID_SPEED	0x50
PEI_MEMORY_SPD_FAIL	0x51
PEI_MEMORY_INVALID_SIZE	0x52
PEI_MEMORY_MISMATCH	0x52
PEI_MEMORY_NOT_DETECTED	0x53
PEI_MEMORY_NONE_USEFUL	0x53
PEI_MEMORY_ERROR	0x54
PEI_MEMORY_NOT_INSTALLED	0x55
PEI_CPU_INVALID_TYPE	0x56
PEI_CPU_INVALID_SPEED	0x56
PEI_CPU_MISMATCH	0x57
PEI_CPU_SELF_TEST_FAILED	0x58
PEI_CPU_CACHE_ERROR	0x58
PEI_CPU_MICROCODE_UPDATE_FAILED	0x59
PEI_CPU_NO_MICROCODE	0x59
PEI_CPU_INTERNAL_ERROR	0x5A
PEI_CPU_ERROR	0x5A
PEI_RESET_NOT_AVAILABLE	0x5B
//reserved for AMI use: 0x5C - 0x5F	
//Recovery	
PEI_RECOVERY_PPI_NOT_FOUND	0xF8
PEI_RECOVERY_NO_CAPSULE	0xF9
PEI_RECOVERY_INVALID_CAPSULE	0xFA
//reserved for AMI use: 0xFB - 0xFF	
//S3 Resume	

PEI_MEMORY_S3_RESUME_FAILED	0xE8
PEI_S3_RESUME_PPI_NOT_FOUND	0xE9
PEI_S3_BOOT_SCRIPT_ERROR	0xEA
PEI_S3_OS_WAKE_ERROR	0xEB
//reserved for AMI use: 0xEC - 0xEF	
// DXE_STATUS_CODE	
DXE_CPU_ERROR	0xD0
DXE_NB_ERROR	0xD1
DXE_SB_ERROR	0xD2
DXE_ARCH_PROTOCOL_NOT_AVAILABLE	0xD3
DXE_PCI_BUS_OUT_OF_RESOURCES	0xD4
DXE_LEGACY_OPROM_NO_SPACE	0xD5
DXE_NO_CON_OUT	0xD6
DXE_NO_CON_IN	0xD7
DXE_INVALID_PASSWORD	0xD8
DXE_BOOT_OPTION_LOAD_ERROR	0xD9
DXE_BOOT_OPTION_FAILED	0xDA
DXE_FLASH_UPDATE_FAILED	0xDB
DXE_RESET_NOT_AVAILABLE	0xDC
//reserved for AMI use: 0xDE - 0xDF	

5-9 BIOS POST Beep code

5-9-1 PEI Beep Codes

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

5-9-2 DEX Beep Codes

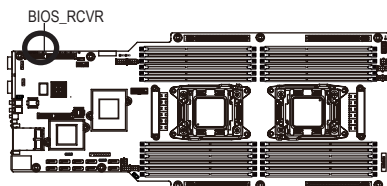
# of Beeps	Description
1	Invalid password
4	Some of the Architectural Protocols are not available
5	No Console Output Devices are found
5	No Console Input Devices are found
6	Flash update is failed
7	Reset protocol is not available

5-10 BIOS Recovery Instruction

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. Change xxx.ROM to amiboot.rom.
2. Copy amiboot.rom and AFUDOS.exe to USB diskette.
3. Setting BIOS Recovery jump to enabled status.



4. Boot into BIOS recovery.
5. Run Proceed with flash update.
6. BIOS update.

