# **GIGABYTE**<sup>™</sup> W753-W50-AA01

GPU Workstation - Intel® Xeon® W-2500/2400 - UP 2 x PCIe Gen5 GPUs

User Manual

Rev. 1.0

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## **Documentation Classifications**

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

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

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

## For More Information

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

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

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

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

## Conventions

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

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

## Warnings and Cautions

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

## 

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

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

## 

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



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

## Electrostatic Discharge (ESD)

# 

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

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

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

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

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

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

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



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

## **Regulatory Notices**

#### WEEE Symbol Statement



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

For more information about where you can drop off your waste equipment for recycling,

please contact your local government office, your household waste disposal service or where you purchased the product for details of environmentally safe recycling.

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

## Restriction of Hazardous Substances (RoHS) Directive Statement

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

## California Proposition 65 Warning



## WARNING!

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



## Battery WARNING!

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

電器規格及使用溫度:參考以下標示

Rating(交流輸入)	110-240V~, 14-9A, 50-60Hz, 1200W
Operating Temperature	10°C to 35°C
Non-operating temperature	-40°C to 60°C
Operating humidity	8%-80% (non-condensing)
Non-operating humidity	20%-95% (non-condensing)

#### 伺服器相關警告與注意事項



為了避免電擊危險或損壞設備請注意:

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



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



• 避免人員燙傷,觸摸磁碟機或是內部零件前請確保該零件已經冷卻。



• 伺服器中有高速風扇,維修時請遠離風扇避免受傷。



本設備不能用在有兒童出現的區域。



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



警告:如果更換錯誤電池會產生爆炸 請以相同或同型電池更換使用



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



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

#### **WARNING**

- INGESTION HAZARD: This product contains a button cell or coin battery.
- DEATH or serious injury can occur if ingested.
- A swallowed button cell or coin battery can cause Internal
- Chemical Burns in as little as 2 hours. • KEEP new and used batteries OUT OF REACH of CHILDREN
- Seek immediate medical attention if a battery is suspected to be swallowed or inserted inside any part of the body.
- Battery type: CR2032, voltage rating: +3VDC
- Non-rechargeable batteries are not to be recharged.
- Remove and immediately recycle or dispose of used batteries, batteries from equipment not used for an extended period of time according to local regulations and keep away from children. Do NOT dispose of batteries in household trash or incinerate.
- Even used batteries may cause severe injury or death.
- Do not force discharge, recharge, disassemble, heat above (manufacturer's specified temperature rating) or incinerate. Doing so may result in injury due to venting, leakage or explosion resulting in chemical burns.
- For treatment information, call a local poison control center.
- The product contains non-replaceable batteries.



設備名稱:工作站

型號(型式):W753-W50

	限用物質及其化學符號 Restricted substances and its chemical symbols							
單元	鉛 Lead (Pb)	汞 Mercury (Hg)	鎘 Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr+6)	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)		
電路板 總成	_	0	0	0	0	0		
冷卻器 (風扇)	_	0	0	0	0	0		
鐵殼	0	0	0	0	0	0		
電源 供應器	_	0	0	0	0	0		
線材	0	0	0	0	0	0		
備考1. *超出0.1 wt %*及 *超出0.01 wt %*係指限用物質之百分比含量超出百分比含量基準值。 Note 1: "Exceeding 0.1 wt %" and "exceeding 0.01 wt %" indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition. 備考2. ℃*係指該項限用物質之百分比含量未超出百分比含量基準值。 Note 2: "○" indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.								
供求2 × 反性过值阻用物质为出於值日。								

備考3. <sup>\*</sup>一<sup>´</sup> 係指該項限用物質為排除項目。 Note 3:The "-" indicates that the restricted substance corresponds to the exemption.

報驗義務人: 技鋼科技股份有限公司 新北市新店區寶強路6號7樓

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# Chapter 1 Hardware Installation

## 1-1 Installation Precautions

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

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

## 1-2 Product Specifications



## NOTE:

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

System	Pedestal
Dimension	• 726.3 x 218 x 455 mm
Motherboard	<ul> <li>♦ MW53-HP0</li> </ul>
CPU	Intel® Xeon® W-2500 Processors
	<ul> <li>Intel® Xeon® W-2400 Processors</li> </ul>
	Single processor, TDP up to 250W
Socket	• 1 x LGA 4677
	Socket E
Chipset	<ul> <li>Intel<sup>®</sup> W790</li> </ul>
Memory	8 x DIMM slots
	DDR5 memory supported only
	4-channel memory architecture
	RDIMM up to 64GB supported
	<ul> <li>3DS RDIMM up to 256GB supported</li> </ul>
	<ul> <li>Memory speed: Up to 4800 MT/s (1DPC), 4400 MT/s (2DPC)</li> </ul>
	Note: When installing memory modules, make sure to begin with the first socket of each channel, such as DIMM_P0_A0, DIMM_P0_B0, DIMM_P0_C0, DIMM_P0_D0.
	<ul> <li>2 x 2.5Gb/s LAN ports (2 x Intel® I226-LM)</li> </ul>
	<ul> <li>1 x 10/100/1000 Mbps Management LAN</li> </ul>
Video	Integrated in Aspeed® AST2600
	- 1 x VGA port
Audio	Realtek® ALC897 HD Audio Codec
	<ul> <li>Supports 2/4/5.1/7.1 channel configurations</li> </ul>
	<ul> <li>Rear 3 x Audio jacks (Audio in/Audio out/Mic)</li> </ul>
	Front 2 x Audio jacks (Audio out/Mic)
Storage	<ul> <li>4 x 3.5"/2.5" SATA bays</li> </ul>
	Optional 4 x 3.5"/2.5" SATA bays
	NOTE: SAS card is required to support NVMe and SAS drives.
RAID	intel® SATA RAID 0/1/10/5
Peripheral Drives	5.25" space reserved for ODD device

Expansion Slot	<ul> <li>Slot_7: 1 x PCle x16 (Gen5 x16 bus) slot, from CPU</li> </ul>
	<ul> <li>Slot 6: 1 x PCle x16 (Gen5 x16 bus) slot, from CPU</li> </ul>
	<ul> <li>Slot 5: 1 x PCle x16 (Gen5 x16 bus) slot from CPU</li> </ul>
	<ul> <li>Slot 4: 1 x PCle x16 (Gen5 x16 bus) slot from CPU</li> </ul>
	<ul> <li>Slot 2: 1 x PCIe x16 (Gen3 x4 bus) slot from PCH</li> </ul>
	3 x M.2 slot for storage:
	- M-key
	- PCIe Gen4 x4 from PCH
	- Supports NGFF-2280 cards
Internal I/O	• 1 x TPM header
	1 x VROC connector
Front I/O	• 2 x USB 3.2 Gen1 (Type-A)
	<ul> <li>2 x Audio jacks (Audio out/Mic)</li> </ul>
	<ul> <li>1 x Power button with LED</li> </ul>
	1 x Reset button
	1 x Power LED
	1 x Storage activity LED
	1 x System status LED
Rear I/O	<ul> <li>1 x USB 3.2 Gen2x2 (Type-C)</li> </ul>
	• 5 x USB 3.2 Gen2x1 (Type-A)
	• 1 x VGA
	• 1 x COM
	• 2 x RJ45
	◆ 1 x MLAN
	3 x Audio jacks
	1 x ID button with LED
TPM	1 x TPM header with SPI interface
	- Optional TPM2.0 kit: CTM010
Power Supply	Single 1200W ATX 80 PLUS Platinum power supply
	AC Input:
	- 110-240V~/ 14-9A, 50-60Hz
	- 200-240V~/ 9A, 50-60Hz (Only for China and Korea)
	DC Output:
	- Max 1200W
	+12V/ 100A
	+5V/ 20A
	+3.3V/ 20A
	+5Vsb/ 2.5A

System	ASPEED® AST2600 Baseboard Management Controller
Management	GIGABYTE Management Console web interface
	Dashboard
	HTML5 KVM
	<ul> <li>Sensor Monitor (Voltage, RPM, Temperature, CPU Statusetc.)</li> </ul>
	Sensor Reading History Data
	FRU Information
	SEL Log in Linear Storage / Circular Storage Policy
	Hardware Inventory
	Fan Profile
	System Firewall
	Power Consumption
	Power Control
	Advanced power capping
	LDAP / AD / RADIUS Support
	Backup & Restore Configuration
	Remote BIOS/BMC/CPLD Update
	Event Log Filter
	User Management
	Media Redirection Settings
	PAM Order Settings
	SSL Settings
	SMTP Settings
OS OS	<ul> <li>CentOS Stream 9 (x64)</li> </ul>
Compatibility	Debian 11.5.0
	<ul> <li>Red Hat Enterprise Linux 9.0 (x64)</li> </ul>
	<ul> <li>Ubuntu 22.04 LTS (x64)</li> </ul>
	Windows 11 Enterprise (x64)
System Fans	<ul> <li>Middle fan: 3 x 120x120x38mm (4,000rpm)</li> </ul>
	<ul> <li>Rear fan: 1 x 120x120x25mm (2,800rpm)</li> </ul>
Operating	
Properties	Operating temperature: 10°C to 35°C
rioperties	Operating humidity: 8-80% (non-condensing)
	<ul> <li>Non-operating temperature: -40°C to 60°C</li> </ul>
	<ul> <li>Non-operating humidity: 20%-95% (non-condensing)</li> </ul>

## 1-3 System Block Diagram



# Chapter 2 System Appearance

## 2-1 Front View



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

## 2-2 Rear View



No.	Description	No.	Description
1.	VGA/COM Port	6.	MIC-IN (Pink)
2.	USB 3.2 Ports (Type C)	7.	LINE-OUT (Green)
3.	2.5Gbe LAN	8.	LINE-IN (Blue)
4.	USB 3.2 Ports (Type A)	9.	PCIe Card Bay
5	MLAN	10.	PSU (AC 110V - 240V)

## 2-3 Rear Panel System LAN LEDs



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

## Chapter 3 System Hardware Installation



#### **Pre-installation Instructions**

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

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

## 3-1 Removing and Installing the Chassis Cover



Before you remove or install the chassis cover

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

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

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



## 3-2 Installing the CPU



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

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



#### WARNING!

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

#### Follow these instructions to Install the CPU:

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





## 3-3 Installing the Memory

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

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

## 3-3-1 Four Channel Memory Configuration

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



## 3-3-2 Installing the Memory



Before installing a memory module, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the memory module. Be sure to install DDR5 DIMMs on this motherboard.

#### Follow these instructions to install the Memory:

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



		DIMM	Speed (MT/s); Voltage (V);		
Type	Ranks Per DIMM	Capacity	DIMM per Channel (DPC)		
51	and Data Width	(GB)	1DPC*	2DPC*	
		16Gb	1.	1V	
	SRx8 (RC D)	16GB			
DDIMM	SRx4 (RC C)	32GB		4400	
RDIIVIIVI	DRx8 (RC E)	32GB	4000		
	DRx4 (RC A)	64GB	4800	4400	
	(4R/8R)x4	2H-128GB			
RDIMM 3DS	(RCA)	4H-256GB			

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



## Warning:

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

## 3-4 Installing the PCI Expansion Card



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

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

#### Follow these instructions to install the PCI Expansion card:

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



## 3-5 Installing the Hard Disk Drive



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

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

#### Follow these instructions to install 3.5" hard disk drives:

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



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

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

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

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



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

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

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



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



## 

## 3-8 Peripheral Devices Connection



Item	Description
1	Audio Connectors
2	Sever Management LAN Port (Top)/USB 3.2 Gen2 Type A Ports (Bottom)
3	10GbE LAN Port #1 / USB 3.2 Gen2 Type-A Ports
4	10GbE LAN Port #2 / USB 3.2 Gen2 Type-A Ports + Type-C Port
5	Serial Port (Top)/VGA Port (Bottom)
6	ID Button with LED
7	2x4 Pin 12V Power Connector
8	2x12 Pin Main Power Connector
9	PMBus Connector
10	CPU Fan Connector
11	Battery Socket
12	System Fan Connector #4
13	System Fan Connector #2
14	Slimline Connector #2 (SATA 6Gb/s Signal)
15	Slimline Connector #2 (SATA 6Gb/s Signal)
16	Slimline Connector #2 (SATA 6Gb/s Signal)
17	Slimline Connector #1 (SATA 6Gb/s Signal)
18	M.2 Slot (PCIe Gen4 x4, Support NGFF-2280)
19	M.2 E-Key Slot (Support PCIe WIFI, Bluetooth)
20	Front Panel USB 3.2 Gen1 Connector
21	IPMB Connector
22	Front Panel Header
23	HDD Backplane Board Connector
24	M.2 Slot (PCIe Gen4 x4, Support NGFF-2280)
25	M.2 Slot (PCIe Gen4 x4, Support NGFF-2280)
26	TPM Connector
27	SATA RAID Upgrade Key
28	System Fan Connector #1
29	System Fan Connector #3
30	PCIe x16 Slot (Gen3 x4)
31	PCIe x16 Slot (Gen5 x16)
32	PCIe x16 Slot (Gen5 x16)
33	PCIe x16 Slot (Gen5 x16)
34	PCIe x16 Slot (Gen5 x16)
35	2x4 Pin 12V Power Connector
36	NCSI Connector
37	BMC USB Connector
38	I2C Connector
39	Front Audio Header
40	Connect to BPB for SATA LED
41	Connect to BPB for SATA LED
42	ESPI Connector

## 4-2 Jumper Setting



# Chapter 2 BIOS Setup

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

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



- BIOS flashing is potentially risky, if you do not encounter any problems when using the current BIOS version, it is recommended that you don't flash the BIOS. To flash the BIOS, do it with caution. Inadequate BIOS flashing may result in system malfunction.
- It is recommended that you not alter the default settings (unless you need to) to prevent system instability or other unexpected results. Inadequately altering the settings may result in system's failure to boot. If this occurs, try to clear the CMOS values and reset the board to default values. (Refer to the Exit section in this chapter or introductions of the battery/clearing CMOS jumper in Chapter 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
Execute command or enter the submenu
Main Menu: Exit the BIOS Setup program
Submenus: Exit current submenu
Show descriptions of general help
Restore the previous BIOS settings for the current submenus
Load the Optimized BIOS default settings for the current submenus
Save all the changes and exit the BIOS Setup program

## Main

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

## Advanced

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

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

## Chipset

This setup page includes all the submenu options for configuring the functions of the Platform Controller Hub.

### Server Management

Server additional features enabled/disabled setup menus.

## Security

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

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

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

## Boot

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

## Save & Exit

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

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

## 2-1 The Main Menu

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

#### Main Menu Help

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

#### Submenu Help

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



When the system is not stable as usual, select the **Restore Defaults** item to set your system to its defaults.

The BIOS Setup menus described in this chapter are for reference only and may differ by BIOS version.

Aptio Setup – AMI Main Advanced Chipset Server Mgmt Security Boot Save & Exit					
BIOS Project Name Project Version Build Date and Time	MW53-HP0-000 F04 02/02/2023 09:24:19				
BMC Information BMC Firmware Version	13.04.12				
Processor Information CPU Brand String Max CPU Speed CPU Signature	Intel(R) Xeon(R) w5-3435X 3100 MHz 806F6				
Microcode Patch	16 2B0000C0	↔: Select Screen ↑↓: Select Item			
Platform Information Processor	SPR E3	K/M: Scroll Help Area Up/Down.			
PCH	Workstation SuperSKU (SSKU) – B1	Enter: Select +/−: Change Opt.			
RC Revision	45.D31	F1: General Help F3: Previous Values			
Memory Information		F9: Optimized Defaults			
Total Memory Usable Memory Memory Frequency	65536 MB 65536 MB 4800 MHz	FIU: SAVE & EXIT ESC: Exit			
	Version 2.22.1287 Copyright (C) 2023 AMI				

Aptio Setup – AMI Main Advanced Chipset Server Mgmt Security Boot Save & Exit				
Processor Information CPU Brand String Max CPU Speed CPU Signature Processor Core Wicrocode Patch	Intel(R) Xeon(R) w5-3435X 3100 MHz 806F6 16 2B0000C0	Set the Time. Use Tab to switch between Time elements.		
Platform Information Processor PCH RC Revision	SPR E3 Morkstation SuperSKU (SSKU) – Bi 45.D31			
Memory Information		↔: Select Screen ↑↓: Select Item		
Total Memory	65536 MB	K/M: Scroll Help Area		
Usable Memory Memory Frequency	65536 MB 4800 MHz	Up/Down. Enter: Select +/−: Change Opt.		
Onboard LAN Information		F1: General Help		
LAN1 MAC Address	74-56-30-51-90-01	F3: Previous Values		
LAN2 MAC Address	74-56-30-51-90-02	F9: Optimized Defaults F10: Save & Exit		
System Date	[Tue 02/14/2023]	ESC: Exit		
System Time	[11:39:23]			

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Deremeter	Description			
Falalletei	Description			
BIOS Information				
Project Name	Displays the project name information.			
Project Version	Displays version number of the BIOS setup utility.			
Build Date and Time	Displays the date and time when the BIOS setup utility was created.			
BMC Information <sup>(Note1)</sup>				
BMC Firmware Version <sup>(Note1)</sup>	Displays BMC firmware version information.			
Processor Information				
CPU Brand String/ Max CPU Speed / CPU Signature / Processor Core / Microcode Patch	Displays the technical information for the installed processor(s).			
Platform Information				
Processor/ PCH/ RC Revision	Displays the information of the installed processor(s) and PCH.			
Memory Information <sup>(Note2)</sup>				
Total Memory	Displays the total memory size of the installed memory.			
Usable Memory	Displays the usable memory size of the installed memory.			

(Note1) Functions available on selected models.

(Note2) This section will display capacity and frequency information of the memory that the customer has installed.
Parameter	Description
Memory Frequency	Displays the frequency information of the installed memory.
Onboard LAN Information(Note3)	
LAN# MAC Address	Displays LAN MAC address information.
System Date	Sets the date following the weekday-month-day-year format.
System Time	Sets the system time following the hour-minute-second format.

(Note3) The number of LAN ports listed will depend on the motherboard / system model.

# 2-2 Advanced Menu

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

Aptio Setup – AMI Main <mark>Advanced</mark> Chipset Server Mgmt Security Boot Save & Exit		
Trusted Computing Serial Port Console Redirection SID Configuration PCI Subsystem Settings USB Configuration Network Stack Configuration Note Configuration Chipset Configuration Tis Auth Configuration Intel(R) Ethernet Controller 1226-LM - 74:56:30:51:90:01 VLAN Configuration (MAC:74563C519001) Intel(R) Ethernet Controller 1226-LM - 74:56:30:51:90:02 VLAN Configuration (MAC:74563C519002) VLAN Configuration (MAC:74563C519002) Driver Health	Trusted Computing Settings ++: Select Screen 14: Select Item K/M: Scroll Help Area Up/Doun. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit	
Version 2.22.1287 Copyright (C) 2023 AMI		

# 2-2-1 Trusted Computing

Advanced	Aptio Setup – AMI	
TPM 2.0 Device Found Firmware Version: Vendor:	600.18 INTC	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI
TPM VI.2 Support TPM Device Selection Active PCR banks Available PCR banks	LENADIE) [PTT] SHA256 SHA256,SHA384,SM3	protocol and INTIA interface will not be available.
SHA256 PCR Bank SHA384 PCR Bank SM3_256 PCR Bank	[Enabled] [Disabled] [Disabled]	
Pending operation Platform Hierarchy Storage Hierarchy Endergement Hierarchy	[None] [Enabled] [Enabled]	↔: Select Screen t↓: Select Item K/M: Scroll Help Area Un (Down)
Physical Presence Spec Version TPM 2.0 InterfaceType Device Select	[[1:3] [1:3] [ORB] [Auto]	Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version	2.22.1287 Copyright (C) 2023 AM	41

Parameter	Description
TPM 2.0 Device Found	
Firmware Version/ Vendor	Displays the firmware version and Vendor information.
TPM v1.2 Support	Enable/Disable BIOS support for security device. OS will not show security device. TCG EFI protocol and INT1A interface will not be available. Options available: Disable, Enable. Default setting is <b>Enable</b> .
TPM Device Selection	Selets TPM device. Options available: dTPM, PTT. Default setting is <b>PTT</b> .
Active PCR banks/ Available PCR banks	Displays active/available Platform Configuration Register (PCR) banks.
SHA256 PCR Bank	Enable/Disable SHA256 PCR bank. Options available: Disabled, Enabled. Default setting is <b>Enabled</b> .
SHA384 PCR Bank	Enable/Disable SHA384 PCR bank. Options available: Disabled, Enabled. Default setting is <b>Disabled</b> .
SM3_256 PCR Bank	Enable/Disable SM3_256 PCR bank. Options available: Disabled, Enabled. Default setting is <b>Disabled</b> .

Parameter	Description
Pending operation	Schedule an operation for the security device. NOTE: Your computer will reboot during restart in order to change the state of a security device. Options available: None, TPM Clear. Default setting is <b>None</b> .
Platform Hierarchy	Enable/Disable platform hierarchy. Options available: Disabled, Enabled. Default setting is <b>Enabled</b> .
Storage Hierarchy	Enable/Disable storage hierarchy. Options available: Disabled, Enabled. Default setting is <b>Enabled</b> .
Endorsement Hierarchy	Enable/Disable endorsement hierarchy. Options available: Disabled, Enabled. Default setting is <b>Enabled</b> .
Physical Presence Spec Version	Selects the physical presence spec version. Options available: 1.2, 1.3. Default setting is <b>1.3</b> .
TPM 20 InterfaceType	Displays the TPM 2.0 interface type.
Device Select	Selects the TPM device. Options available: TPM 1.2, TPM 2.0, Auto. Default setting is <b>Auto</b> .

#### 2-2-2 Serial Port Console Redirection

Aptio Setup - AMI Advanced		
COM1 Console Redirection Console Redirection Settings Serial Port for Out-of-Band Management Mindows Emergency Management Services Console Redirection EMS Console Redirection Settings	(Enabled) ht/ s (EMS) [Disabled]	Console Redirection Enable or Disable.
		++: Select Screen ↑↓: Select Item K/M: Scroll Help Area Up/Down. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
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Parameter	Description
COM1 Console Redirection <sup>(Note)</sup>	Console redirection enables the users to manage the system from a remote location. Options available: Enabled, Disabled. Default setting is <b>Disabled</b> .
COM1 Console Redirection Settings	<ul> <li>Press [Enter] to configure advanced items.</li> <li>Please note that this item is configurable when COM1 Console</li> <li>Redirection is set to Enabled.</li> <li>Terminal Type <ul> <li>Selects a terminal type to be used for console redirection.</li> <li>Options available: VT100, VT100PLUS, VT-UTF8, ANSI. Default setting is VT100PLUS.</li> </ul> </li> <li>Bits per second <ul> <li>Selects the transfer rate for console redirection.</li> <li>Options available: 9600, 19200, 38400, 57600, 115200. Default setting is 115200.</li> </ul> </li> </ul>
	<ul> <li>Data Bits</li> <li>Selects the number of data bits used for console redirection.</li> <li>Options available: 7, 8. Default setting is 8.</li> </ul>

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

Parameter	Description		
COM1 Console Redirection Settings (continued)	<ul> <li>Parity         <ul> <li>A parity bit can be sent with the data bits to detect some transmission errors.</li> <li>Even: parity bit is 0 if num of 1's in the data bits is even.</li> <li>Odd: parity bit is 0 if num of 1's in the data bits is odd.</li> <li>Mark: parity bit is always 1. Space: Parity bit is always 0.</li> <li>Mark and Space Parity do not allow for error detection.</li> <li>Options available: None, Even, Odd, Mark, Space. Default setting is None.</li> </ul> </li> <li>Stop Bits         <ul> <li>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.</li> <li>Options available: 1, 2. Default setting is 1.</li> </ul> </li> <li>Flow Control         <ul> <li>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.</li> <li>Options available: None, Hardware RTS/CTS. Default setting is None.</li> </ul> </li> <li>VT-UTF8 Combo Key Support         <ul> <li>Enable/Disable the VT-UTF8 Combo Key Support.</li> <li>Options available: Enabled, Disabled. Default setting is Disabled.</li> </ul> </li> <li>Recorder Mode         <ul> <li>When this mode enabled, only texts will be send. This is to capture Terminal data.</li> <li>Options available: Enabled, Disabled. Default setting is Enabled.</li> </ul> </li> <li>Resolution 100x31     <ul> <li>Enable/Disable extended terminal resolution.</li> <li>Options available: Enabled, Disabled. Default setting is Enabled.</li></ul></li></ul>		

Parameter	Description	
Serial Port for Out-of-Band Management / Windows Emergency Management Services (EMS) Console Redirection <sup>(Note)</sup>	EMS console redirection allows the user to configure Console Redirection Settings to support Out-of-Band Serial Port management. Options available: Enabled, Disabled. Default setting is <b>Disabled</b> .	
Serial Port for Out-of-Band EMS Console Redirection Settings	<ul> <li>Press [Enter] to configure advanced items.</li> <li>Please note that this item is configurable when Serial Port for Out-of-Band Management EMS Console Redirection is set to Enabled.</li> <li>Out-of-Band Mgmt Port <ul> <li>Microsoft Windows Emergency Management Service (EMS) allows for remote management of a Windows Server OS through a serial port.</li> <li>Default setting is COM1.</li> </ul> </li> <li>Terminal Type EMS <ul> <li>Selects a terminal type to be used for console redirection.</li> <li>Options available: VT100, VT100PLUS, VT-UTF8, ANSI. Default setting is VT100PLUS.</li> </ul> </li> <li>Bits per second EMS <ul> <li>Selects the transfer rate for console redirection.</li> <li>Options available: 9600, 19200, 57600, 115200. Default setting is 115200.</li> </ul> </li> <li>Flow Control EMS <ul> <li>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.</li> <li>Options available: None, Hardware RTS/CTS, Software Xon/Xoff.</li> </ul> </li> </ul>	
	<ul> <li>Options available. None, margware KTS/CTS, Software X0n/X0ff.</li> <li>Default setting is None.</li> </ul>	

# 2-2-3 SIO Configuration

Aptio Setup – AMI Advanced		
AMI SIO Driver Version : A5.19.00 Super IO Chip Logical Device(s) Configuration • [*Active*] Serial Port WARNING: Logical Devices state on the left side of the control, refiects the current Logical Device state. Changes made during Setup Session will be shown after you restart the system.	View and Set Basic properties of the SIO Logical device. Like IO Base, IRQ Range, DMA Channel and Device Mode.	
	<pre>++: Select Screen 14: Select Item K/M: Scroll Help Area Up/Down. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save &amp; Exit ESC: Exit</pre>	
Version 2.22.1287 Copyright (C) 2023 AMI		

Parameter	Description	
AMI SIO Driver Version	Displays the AMI SIO driver version information.	
Super IO Chip Logical Device(s) Configuration		
[*Active*] Serial Port	<ul> <li>Press [Enter] to configure advanced items.</li> <li>Use This Device <ul> <li>When set to Enabled allows you to configure the serial port settings. When set to Disabled, displays no configuration for the serial port.</li> <li>Options available: Enabled, Disabled. Default setting is Enabled.</li> </ul> </li> <li>Logical Device Settings/Current: <ul> <li>Displays the serial port base I/O address and IRQ.</li> </ul> </li> <li>Possible: <ul> <li>Configures the serial port base I/O address and IRQ.</li> <li>Use Automatic Settings</li> <li>IO=3F8h; IRQ=4; DMA;</li> <li>IO=2F8h; IRQ=4; DMA;</li> <li>IO=2E8h; IRQ=4; DMA;</li> </ul> </li> </ul>	

## 2-2-4 PCI Subsystem Settings

Advanced	Aptio Setup – AMI	
PCI Bus Driver Version PCIE_2 I/O ROM PCIE_2 Lanes PCIE_2 Max Link Speed	A5.01.29 [Enabled] [Auto] [Auto]	▲ Enable/Disable PCIE_2 I/O ROM
PCIE_4 I/O ROM PCIE_4 Lanes PCIE_4 Max Link Speed	[Enabled] [Auto] [Auto]	
PCIE_5 I/O ROM PCIE_5 Lanes PCIE_5 Max Link Speed	(Enabled) (Auto) (Auto)	
PCIE_6 I/O ROM PCIE_6 Lanes PCIE_6 Max Link Speed	[Enabled] [Auto] [Auto]	++: Select Screen 14: Select Item K/M: Scroll Help Area
PCIE_7 I/O ROM PCIE_7 Lanes PCIE_7 Max Link Speed	(Enabled) (Auto) (Auto)	Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values
M2_0 I/O ROM M2_0 Lanes M2_0 Max Link Speed	(Enabled) (Auto) (Auto)	F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version 2.22,1287 Copyright (C) 2023 AMI		

Advanced	Aptio Setup – AMI	
PCIE_7 Lanes	(Auto)	▲ If system has SR-IOV
PCIE_7 Max Link Speed	[Auto]	capable PCIe Devices, this option Enables or Disables
M2_0 I/O ROM	[Enabled]	Single Root IO
M2_0 Lanes	[Auto]	Virtualization Support.
M2_0 Max Link Speed	[Auto]	
M2_1 I/O ROM	[Enabled]	
M2_1 Lanes	[Auto]	
M2_1 Max Link Speed	[Auto]	
M2_2 I/O ROM	[Enabled]	
M2_2 Lanes	(Auto)	
M2_2 Max Link Speed	[Auto]	↔+: Select Screen
		t↓: Select Item
M2_E I/O ROM	[Enabled]	K/M: Scroll Help Area Up/Down.
Onboard LAN1 Controller	[Enabled]	Enter: Select
Onboard LAN2 Controller	[Enabled]	+/-: Change Opt.
Onboard LAN1 I/O ROM	[Enabled]	F1: General Help
Onboard LAN2 I/O ROM	[Enabled]	F3: Previous Values
		F9: Optimized Defaults
PCI Devices Common Settings:		F10: Save & Exit
Above 4G Decoding	[Enabled]	ESC: Exit
		• • • • • • • • • • • • • • • • • • •
		0000 MT
Versi	on 2.22.1287 Copyright (C)	2023 AMI

Parameter	Description
PCI Bus Driver Version	Displays the PCI Bus Driver version information.
PCIE_# I/O ROM <sup>(Note1)</sup>	When enabled, this setting will initialize the device expansion ROM for the related PCI-E slot. Options available: Enabled, Disabled. Default setting is <b>Enabled</b> .
PCIE_# Lanes <sup>(Note1)</sup>	Change the PCIe lanes. Default setting is Auto.
PCIE_#_Max Link Speed <sup>(Note1)</sup>	Configure PCle max link speed. Options available: Auto, Gen1, Gen2, Gen3, Gen4, Gen5. Default setting is <b>Auto</b> .
Onboard LAN1 & LAN2 Controller <sup>(Note3)</sup>	Enable/Disable the onboard LAN devices. Options available: Enabled, Disabled. Default setting is <b>Enabled</b> .
Onboard LAN1/ LAN2 I/O ROM(Note2)	Enable/Disable the onboard LAN devices, and initializes device expansion ROM. Options available: Enabled, Disabled. Default setting is <b>Enabled</b> .
PCI Devices Common Settings	
Above 4G Decoding	Enable/Disable memory mapped I/O to 4GB or greater address space (Above 4G Decoding). Options available: Enabled, Disabled. Default setting is <b>Enabled</b> .
SR-IOV Support	If the system has SR-IOV capable PCIe devices, this item Enable/Disable Single Root IO Virtualization Support. Options available: Enabled, Disabled. Default setting is <b>Enabled</b> .

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

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

# 2-2-5 USB Configuration

Advanced	AMI
USB Configuration USB Devices: 9 Drives, 2 Keyboards, 1 Mouse, 1 Hub XHOI Hand-off [Enabled] USB Mass Storage Driver Support [Enabled] Port 60/64 Emulation [Enabled]	This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
	++: Select Screen 11: Select Item K/M: Scroll Help Area Up/Doum. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
USB Configuration	
USB Devices:	Displays the USB devices connected to the system.
XHCI Hand-off	Enable/Disable the XHCI (USB 3.0) Hand-off support. Options available: Enabled, Disabled. Default setting is <b>Enabled</b> .
USB Mass Storage Driver Support <sup>(Note)</sup>	Enable/Disable the USB Mass Storage Driver Support. Options available: Enabled, Disabled. Default setting is <b>Enabled</b> .
Port 60/64 Emulation	Enables the I/O port 60h/64h emulation support. This should be enabled for the complete USB Keyboard Legacy support for non- USB aware OSes. Options available: Enabled, Disabled. Default setting is <b>Enabled</b> .

### 2-2-6 Network Stack Configuration

Advanced	Aptio Setup – AMI	
Network Stack IPv4 PXE Support IPv4 HTTP Support IPv6 PXE Support IPv6 HTTP Support PXE boot wait time Media detect count	[Enabled] [Enabled] [Disabled] [Disabled] [Disabled] 0 1	Enable∕Disable UEFI Network Stack
		<pre>++: Select Screen T4: Select Item K/M: Scroll Help Area Up/Down. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save &amp; Exit ESC: Exit</pre>

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

# 2-2-7 Post Report Configuration

Advanced	Aptio Setup — AMI	
Post Report Configuration		Post Error Message Support Enabled/Disabled
Error Message Report Post Error Message Halt On	(Enabled) [No Error]	
		<pre>++: Select Screen T4: Select Item K/M: Scroll Help Area Up/Doun. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save &amp; Exit ESC: Exit</pre>
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Parameter	Description
Post Report Configuration	
Error Message Report	
Post Error Message	Enable/Disable the POST Error Message support. Options available: Enabled, Disabled. Default setting is <b>Enabled</b> .
Halt On	Options available: No Error, All Error. Default setting is No Error.

# 2-2-8 NVMe Configuration

Advanced	Aptio Setup — AMI	
NVMe Configuration		BIOS Build-In is default
NVME OPROM Select No NVME Device Found		Itelf, then this NVMe page will not display any NVMe device. Unless the device doesn't have OPROM, it will show.
		<pre>++: Select Screen T4: Select Item K/M: Scroll Help Area Up/Down. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save &amp; Exit ESC: Exit</pre>
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Parameter	Description
NVMe Configuration	Displays the NVMe devices connected to the system.
NVMe OPROM Select	Options available: BIOS Build-In, NVMe Device. Default setting is <b>BIOS</b> Build-In.

#### 2-2-9 Chipset Configuration

Restore AC Power Loss       [Last State]       Specify what state when power is re-applied after a power is re-applied after a power failure (G3 state).         SATA HOD Security Frozen       [Enabled]       power failure (G3 state).         NVMe SSD Security Frozen       [Enabled]       test state when power failure (G3 state).         Chassis Opened Warning       [Disabled]       test state         **: Select Screen       11: Select Item         K/M: Scroll Help Area       Up/Doun.         Enter: Select       +/-: Change Opt.         F1: General Help       F3: Optimized Defaults         F3: Optimized Defaults       F10: Save & Exit         ESC: Exit       ESC: Exit	Advanced	Aptio Setup – AMI	
++: Select Screen 14: Select Item K/M: Scroll Help Area Up/Down. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit	Restore AC Power Loss P2P Bridge IO Size SATA HDD Security Frozen NVME SSD Security Frozen Chassis Opened Warning	[Last State] [0x1000] [Enabled] [Enabled] [Disabled]	Specify what state when power is re-applied after a power failure (63 state).
			++: Select Screen T1: Select Item K/M: Scroll Help Area Up/Down. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
Restore on AC Power Loss <sup>(Note)</sup>	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 Power Off, the system remains off after power shutdown. Options available: Last State, Power Off, Power On, Unspecified. The default setting depends on the BMC setting.
P2P Bridge IO Size	Specifies P2P Bridge IO aligned to the size. Options available: 0x100, 0x150, 0x1000. Default setting is <b>0x1000</b> .
SATA HDD Security Frozen	Enable/Disable this item to send freeze lock command to SATA HDD. Options available: Enabled, Disabled. Default setting is <b>Enabled</b> .
NVMe SSD Security Frozen	Attempt to send freeze lock command to NVMe SSDs during boot. Options available: Enabled, Disabled. Default setting is <b>Enabled</b> .
Chassis Opened Warning	Enable/Disable the chassis intrusion alert function. Options available: Enabled, Disabled, Clear. Default setting is <b>Disabled</b> .

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

### 2-2-10 TIs Auth Configuration

Aptio Setup - AMI Advanced	
▶ Server CA Configuration	Press <enter> to configure Server CA.</enter>
▶ Client Cert Configuration	
	++: Select Screen 14: Select Item K/M: Scroll Help Area Up/Down. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
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Parameter	Description
	Press [Enter] for configuration of advanced items.
	Enroll Cert
	<ul> <li>Press [Enter] to enroll a certificate</li> </ul>
Server CA Configuration	Enroll Cert Using File
	Cert GUID
	Input digit character in 111111-2222-3333-4444-1234567890ab
	format.
	<ul> <li>Commit Changes and Exit</li> </ul>
	<ul> <li>Discard Changes and Exit</li> </ul>
	Delete Cert
Client Cert Configuration	Press [Enter] for configuration of advanced items.

# 2-2-11 iSCSI Configuration

Aptio Setup - AM	I
▶ Attempt Priority	Change the priority using +/- keys. Use arrow keys
▶ Host ISCSI Configuration	to select the attempt then press +/- to move the attempt up/down in the attempt order list.
	t∔: Select Item K/M: Scroll Help Area
	Enter: Select +/-: Change Opt.
	F1: General Help F3: Previous Values
	F10: Save & Exit ESC: Exit
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Parameter	Description
Attempt Priority	<ul> <li>Press [Enter] configure advanced items.</li> <li>Attempt Priority <ul> <li>Use arrow keys to select the attempt, then press +/- keys to move the attempt up/down in the attempt order list.</li> </ul> </li> <li>Commit Changes and Exit</li> </ul>
Host iSCSI Configuration	<ul> <li>Press [Enter] to configure advanced items.</li> <li>iSCSI Initiator Name <ul> <li>Only IQN format is accepted. Range: from 4 to 223</li> </ul> </li> <li>Add an Attempt <ul> <li>Delete Attempts</li> <li>Change Attempt Order</li> </ul> </li> </ul>

#### 2-2-12 Intel® Ethernet Controller I226-LM for 2.5GBASE-T

Advanced	Aptio Setup – AMI	
▶ NIC Configuration		Click to configure the
Blink LEDs	0	
UEFI Driver Adapter PBA Device Name	Intel(R) 40GbE 3.5.23 H64862-000 Intel(R) Ethernet Controller X710 for 10GBASE-T	
Chip Type	Intel X710	
PCI Address	01:00:00	
Link Status	[Connected]	++: Select Screen
MAC Address	00:00:00:00:01:00	K/M: Scroll Help Area
Virtual MAC Address	00:00:00:00:00	Up/Down. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
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Advanced	Aptio Setup – AMI	
Link Speed Wake On LAN LLDP Agent	[Auto Negotiated] [Enabled] [Enabled]	Enables power on of the system via LAN. Note that configuring Wake on LAN in the operating system does not change the value of this setting, but does override the behavior of Wake on LAN in OS controlled power states. ++: Select Screen 11: Select Ttem K/M: Scroll Help Area Up/Down. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F3: Optimized Defaults F10: Save & Exit
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Parameter	Description
NIC Configuration	<ul> <li>Press [Enter] to configure advanced items.</li> <li>Link Speed <ul> <li>Default setting is Auto Negotiated.</li> </ul> </li> <li>LLDP Agent <ul> <li>Enable/Disable firmware's LLDP Agent.</li> <li>Options available: Enabled, Disabled. Default setting is Enabled</li> </ul> </li> </ul>
Blink LEDs	Identifies the physical network port by blinking the associated LED. Press the numeric keys to adjust desired values (up to 15 seconds).
UEFI Driver	Displays the technical specifications for the Network Interface Controller.
Adapter PBA	Displays the technical specifications for the Network Interface Controller.
Device Name	Displays the technical specifications for the Network Interface Controller.
Chip Type	Displays the technical specifications for the Network Interface Controller.
PCI Device ID	Displays the technical specifications for the Network Interface Controller.
PCI Address	Displays the technical specifications for the Network Interface Controller.
Link Status	Displays the technical specifications for the Network Interface Controller.
MAC Address	Displays the technical specifications for the Network Interface Controller.
Virtual MAC Address	Displays the technical specifications for the Network Interface Controller.

# 2-2-13 VLAN Configuration

Advanced	Aptio Setup – AMI	
Create new VLAN VLAN ID Priority Add VLAN Configured VLAN List Remove VLAN	0	VLAN ID of new VLAN or existing VLAN, valid value is 0~4094
		++: Select Screen 11: Select Item K/M: Scroll Help Area Up/Down. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
Enter Configuration Menu	<ul> <li>Press [Enter] to configure advanced items.</li> <li>Create new VLAN</li> <li>VLAN ID <ul> <li>Sets VLAN ID for a new VLAN or an existing VLAN.</li> <li>Press the &lt;+&gt; / &lt;-&gt; keys to increase or decrease the desired values.</li> <li>The valid range is from 0 to 4094.</li> </ul> </li> <li>Priority <ul> <li>Sets 802.1Q Priority for a new VLAN or an existing VLAN.</li> <li>Press the &lt;+&gt; / &lt;-&gt; keys to increase or decrease the desired values.</li> <li>The valid range is from 0 to 7.</li> </ul> </li> <li>Add VLAN <ul> <li>Press [Enter] to create a new VLAN or update an existing VLAN.</li> </ul> </li> <li>Configured VLAN List</li> <li>Remove VLAN <ul> <li>Press [Enter] to remove an existing VLAN.</li> </ul> </li> </ul>

#### 2-2-14 Driver Health

Advanced	Aptio Setup - AMI	
▶ Intel(R) Gigabit 0.10.01 ▶ Intel(R) Gigabit 0.10.01	Healthy Healthy	Provides Health Status for the Drivers/Controllers
		<pre>++: Select Screen T1: Select Item K/M: Scroll Help Area Up/Down. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save &amp; Exit ESC: Exit</pre>
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Parameter	Description
Driver Health	Displays driver health status of the devices/controllers if installed.

# 2-3 Chipset Menu

Chipset Setup menu displays submenu options for configuring the function of Platform Controller Hub(PCH). Select a submenu item, then press <Enter> to access the related submenu screen.

Aptio Setup — AMI		
Main Advanced Chipset Server Mgmt Security Boot Save & Exit		
<ul> <li>Processor Configuration</li> <li>Common RefCode Configuration</li> <li>UPI Configuration</li> <li>Memory Configuration</li> <li>IIO Configuration</li> <li>Advanced Power Management Configuration</li> <li>PCH-IO Configuration</li> <li>Miscellaneous Configuration</li> <li>Morkstation ME Configuration</li> <li>Runtime Error Logging</li> <li>Power Policy</li> </ul>	Displays and provides options to change the Processor Settings	
	++: Select Screen 14: Select Item K/M: Scroll Help Area Up/Down. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit	
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# 2-3-1 Processor Configuration

Processor Configuration       Change Per-Socket Setting         Per-Socket Configuration       000806F6*         Processor Die Type       XCC         Processor Frequency       3.100GHz         Processor Max Ratio       1FH         Processor Max Ratio       280000C0         L1 Cache RAM(Per Core)       2048KB         L2 Cache RAM(Per Core)       2048KB         Processor 0 Version       Intel(R) Xeon(R) w5-343         Processor 0 Version       Intel(R) Xeon(R) w5-343         Hardware Prefetcher       [Enable]         L2 RAP Prefetch Disable       [Disable]         Hardware Prefetcher       [Enable]         DU Streamer Prefetcher       [Enable]         DU IP Prefetcher       [Enable]         DU IP Prefetcher       [Enable]         DU IP Prefetcher       [Enable]         Extended APIC       [Enable]         Enable Intel(R) TXT       [Disable]         YMX       [Enable]	Change Per-Socket Settings 0 F6* CC H2 FH BH C0 GB GB GB GB
Per-Socket Configuration         Processor Socket       Socket 0         Processor D0       000806F6*         Processor D1e Type       XCC         Processor Frequency       3.100GHz         Processor Max Ratio       1FH         Processor Max Ratio       00H         Microcode Revision       28000000         L1 Cache RAM(Per Core)       80KB         L2 Cache RAM(Per Core)       2048KB         L3 Cache RAM(Per Package)       46080KB         Processor 0 Version       Intel(R) Xeon(R) w5-343         Fraduare Prefetcher       Enable         L2 RFO Prefetch Disable       [Disable]         Hardware Prefetcher       [Enable]         DCU Streamer Prefetcher       [Enable]         DCU Streamer Prefetcher       [Enable]         Extended AFIC       [Enable]         Enable Intel(R) TXT       [Disable]         YMX       [Enable]	0 F6* CC HZ FH BH C0 (B (B (B
	<pre>?) Xeon(R) w5-343 ++: Select Screen 11: Select Item K/M: Scroll Help Area Uu/Down. e] Enter: Select le] +/-: Change Opt. e] F1: General Help e] F3: Previous Values e] F3: Optimized Defaults e] F10: Save &amp; Exit le] F30: F11 F31: F11</pre>
Vancian 0 00 4007 Convirtet (0) 0000 AVT	7. Convertett (C) 2022 ANT
Version 2.22.1207 copyright (6) 2020 nni	r copyright (C) 2023 MMI
Aptio Setup - AMI Chipset	Setup – AMI
L3 Cache RAM(Per Package)       46080KB         Processor 0 Version       Intel(R) Xeon(R) u5-343         SX       SX         Enable LP [Global]       [ALL LPs]         Hardware Prefetcher       [Enable]         L2 RF0 Prefetch Disable       [Disable]         Adjacent Cache Prefetcher       [Enable]         DCU Streamer Prefetcher       [Enable]         DCU Streamer Prefetcher       [Enable]         DCU Streamer Prefetcher       [Enable]         Enable Intel(R) TXT       [Disable]         MX       [Enable]         Enable SMX       [Disable]         Memory Encryption (TME)       [Disabled]         SGX hardware configuration preconditions for enabling were NOT       F1: General Help         Met. Please check TME, MirrorMode or Extended APIC settings.       F3: Optinized Defaults         F10: Save & Exit       E0: Exit	CB (B) Xeon(R) w5-343 (Ps] (Ps] (Ps] (Ps] (Ps] (Ps] (Ps] (Ps]
	V IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII

Parameter	Description
Processor Configuration	
Pre-Socket Configuration	<ul> <li>Press [Enter] to configure advanced items.</li> <li>CPU Socket 0 Configuration <ul> <li>Core Disable Bitmap(Hex)</li> <li>Number of Cores to enable. 0 means all cores. FFFFFF means to disable all cores. The maximum value depends on the number of CPUs available. Press the numeric keys to adjust desired values.</li> </ul> </li> </ul>
Processor Socket / Processor ID / Processor Die Type / Processor Frequency / Processor Max Ratio / Processor Min Ratio / Microcode Revision / L1 Cache RAM(Per Core) / L2 Cache RAM(Per Core) / L3 Cache RAM(Per Package) / Processor # Version	Displays the technical specifications for the installed processor(s).
Enable LP [Global]	Enables Logical processor (Software Method to Enable/Disable Logical Processor threads). Options available: ALL LPs, Single LP. Default setting is <b>ALL LPs</b> .
Hardware Prefetcher	Select whether to enable the speculative prefetch unit of the processor. Options available: Enable, Disable. Default setting is <b>Enable</b> .
L2 RF0 Prefetch Disable	Options available: Enable, Disable. Default setting is <b>Disable</b> .
Adjacent Cache Prefetch	When enabled, cache lines are fetched in pairs. When disabled, only the required cache line is fetched. Options available: Enable, Disable. Default setting is <b>Enable</b> .
DCU Streamer Prefetcher	Enable/Disable DCU streamer prefetcher. Options available: Enable, Disable. Default setting is <b>Enable</b> .
DCU IP Prefetcher	Enable/Disable DCU IP Prefetcher. Options available: Enable, Disable. Default setting is <b>Enable</b> .
Extended APIC	Enable/Disable extended APIC support. Note: The VT-d will be enabled automatically when x2APIC is enabled. Options available: Enable, Disable. Default setting is <b>Enable</b> .
Enable Intel(R) TXT	Enable/Disable the Intel Trusted Execution Technology support function. Options available: Enable, Disable. Default setting is <b>Disable</b> .
VMX	Enable/Disable the Vanderpool Technology. This will take effect after rebooting the system. Options available: Enable, Disable. Default setting is <b>Enable</b> .
Enable SMX	Enable/Disable the Safer Mode Extensions (SMX) support function. Options available: Enable, Disable. Default setting is <b>Disable</b> .
AES-NI	Enable/Disable the AES-NI support. Options available: Enable, Disable. Default setting is <b>Enable</b> .

Parameter	Description
Memory Encryption (TME) <sup>(Note)</sup>	Enable/Disable memory encryption (TME). Options available: Enabled, Disabled. Default setting is <b>Disabled</b> .
Total Memory Encryption Multi-Tenant (TME-MT)	Options available: Enabled, Disabled. Default setting is <b>Disabled</b> .
Processor CFR Configuration	<ul> <li>Press [Enter] to configure advanced items.</li> <li>Provision S3M CFR <ul> <li>Options available: Disable, Enable. Default setting is Enable.</li> </ul> </li> <li>Manual Commit S3M FW CFR <ul> <li>Options available: Disable, Enable, Auto. Default setting is Auto.</li> </ul> </li> <li>Provision PUcode CFR <ul> <li>Options available: Disable, Enable. Default setting is Enable.</li> </ul> </li> <li>Manual Commit PUcode CFR <ul> <li>Options available: Enable, Disable, Auto. Default setting is Auto.</li> </ul> </li> <li>Socket0 CFR Revision Info <ul> <li>Displays CFR Revision information of the socket.</li> </ul> </li> </ul>

#### 2-3-2 Common RefCode Configuration



Parameter	Description
Common RefCode Configuration	
Numa	Default setting is <b>Enable</b> .
Virtual Numa	Divide physical NUMA nodes into evenly sized virtual NUMA nodes in ACPI table. This may improve Windows performance on CPUs with more than 64 logical processors. Options available: Enable, Disable. Default setting is <b>Disable</b> .

### 2-3-3 UPI Configuration

Chipset	Aptio Setup — AMI	
UPI General Configuration		UPI Status Help
<ul> <li>UPI Status SNC Stale AtoS LLC dead Line alloc MMIO High Base MMIO High Granularity Size Limit CPU PA to 46 bits</li> </ul>	[AUTO] [Auto] [Enable] [32T] [646] [Disable]	<pre>+*: Select Screen 14: Select Item K/M: Scroll Help Area Up/Down. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F3: Optimized Defaults F10: Save &amp; Exit ESC: Exit</pre>
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Parameter	Description
UPI General Configuration	<ul> <li>Press [Enter] to configure advanced items.</li> <li>UPI Status <ul> <li>Press [Enter] to view the Uncore status.</li> </ul> </li> <li>SNC</li> <li>Enable/Disable Sub NUMA Cluster function.</li> <li>Options available: Auto, Disable, Enable SNC2 (2-clusters), Enable SNC4 (4-clusters). Default setting is Auto.</li> </ul> <li>Stale AtoS <ul> <li>Enable/Disable Stale A to S directory optimization.</li> <li>Options available: Disable, Enable, Auto. Default setting is Auto.</li> </ul> </li> <li>LLC dead line alloc <ul> <li>Enable/Disable fill dead lines in LLC.</li> <li>Options available: Disable, Enable, Auto. Default setting is Enable.</li> </ul> </li> <li>MMIO High Base <ul> <li>Options available: 56T, 40T, 32T, 24T, 16T, 4T, 2T, 1T, 512G, 3584T. Default setting is 32T.</li> </ul> </li> <li>MMIO High Granularity Size <ul> <li>Selects the allocation size used to assign mmioh resources.</li> <li>Options available: 1G, 4G, 16G, 64G, 256G, 1024G. Default setting is 64G.</li> </ul> </li> <li>Limit CPU PA to 46 bits <ul> <li>Options available: Disable, Enable. Default setting is Disable.</li> </ul> </li>

# 2-3-4 Memory Configuration

Chipset	Aptio Setup — AMI	
Integrated Memory Controller (IMC)		Enforces Plan Of Record restrictions for DDR frequency programming.
Enforce DDR Memory Frequency PDR Memory Frequency Get Memory Timing Outlier Check Mapout Outlier Threshold Modifier • Memory Topology • Memory RAS Configuration	[PoR] [Auto] [BIOS Build-in] [Enable] O	++: Select Screen 14: Select Item K/M: Scroll Help Area Up/Down. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
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Parameter	Description
Integrated Memory Controller (iMC)	
	When set to Enable, the system enforces Plan Of Record restrictions
Enforce DDR Memory Frequency POR	for DDR frequency programming.
	Options available: POR, Disable. Default setting is <b>POR</b> .
	Configures the maximum memory frequency. If Enforce POR is
Momony Fraguenov	disabled, user will be able to run at higher frequencies than the
Memory Frequency	memory support (limited by processor support).
	Default setting is Auto.
	Auto is the detected SPD value and use it, otherwise use BIOS
Cot Momony Timing	Build-in.
Get memory finning	Options available: Auto, BIOS Build-in. Default setting is BIOS
	Build-in.
Outline Chark Manaut	Enable/Disable Vendor Specific DIMM Outlier check and mapout.
Оппек мароит	Options available: Enable, Disable. Default setting is <b>Enable</b> .
	Specifies how much to modify the base outlier threshold.
Outlier Threshold Modiller	Default setting is 0.
Mamon (Tanalagy)	Press [Enter] to view memory topology with DIMM population
wemory lopology	information.

Parameter	Description
Parameter Memory RAS Configuration	<ul> <li>Description</li> <li>Press [Enter] to configure advanced items.</li> <li>Mirror Mode<sup>(Note)</sup> <ul> <li>Mirror Mode will set entire 1LM memory in system to be mirrored, consequently reducing the memory capacity by half. Enables the Mirror Mode will disable the XPT Prefetch.</li> <li>Options available: Disabled, Full Mirror Mode, Partial Mirror Mode. Default setting is Disabled.</li> </ul> </li> <li>Partial Mirror 1 Size (GB) <ul> <li>Selects multiplier of 1GB for the size of the SAD to be created.</li> </ul> </li> <li>Memory Correctable Error Flood Policy <ul> <li>Options available: Disable, Once, Frequency. Default setting is Frequency.</li> </ul> </li> <li>Correctable Error Threshold <ul> <li>Correctable Error Threshold (0x01-0x7fff) used for sparing, and leaky bucket.</li> <li>Press the &lt;+&gt; / &lt;-&gt; keys to increase or decrease the desired values.</li> </ul> </li> <li>Trigger SW Error Threshold(<sup>Note)</sup> <ul> <li>Enable/Disable Sparing trigger SW Error Match Threshold.</li> <li>Options available: Disabled, Enabled. Default setting is Disabled.</li> </ul> </li> <li>SW Per Bank Threshold (1-0x7FFF) used for DDR bank level error.</li> <li>Press the &lt;+&gt; / &lt;-&gt; keys to increase or decrease the desired values.</li> </ul> <li>SW Correctable Error Time Window <ul> <li>SW Correctable Error Time Window</li> <li>SW Correctable Error Time Window based interface in hour (0-24).</li> <li>Press the &lt;+&gt; / &lt;-&gt; keys to increase or decrease the desired values.</li> </ul> </li>
	<ul> <li>Leaky bucket time window based interface <ul> <li>Enable/Disable leaky bucket time window based interface.</li> <li>Options available: Disabled, Enabled. Default setting is Disabled.</li> </ul> </li> <li>Leaky bucket time window based interface Hour <ul> <li>Leaky bucket time window based interface hour</li> </ul> </li> </ul>
	<ul> <li>(0-24).</li> <li>Press the &lt;+&gt; / &lt;-&gt; keys to increase or decrease the desired values.</li> </ul>

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

Parameter	Description
Parameter	<ul> <li>Description</li> <li>Leaky bucket time window based interface Minute         <ul> <li>Leaky bucket time window based interface minute used for DDR (0-60).</li> <li>Press the &lt;+&gt; / &lt;-&gt; keys to increase or decrease the desired values.</li> </ul> </li> <li>Leaky bucket low bit         <ul> <li>Configures leaky bucket low bit (0x1 - 0x29).</li> <li>Press the &lt;+&gt; / &lt;-&gt; keys to increase or decrease the desired values.</li> </ul> </li> </ul>
Memory RAS Configuration (continued)	<ul> <li>Leaky bucket high bit         <ul> <li>Configures leaky bucket high bit (0x1 - 0x29).</li> <li>Press the &lt;+&gt; / &lt;-&gt; keys to increase or decrease the desired values.</li> </ul> </li> <li>ADDDC Sparing<sup>(Note)</sup> <ul> <li>Enable/Disable ADDDC Sparing.</li> <li>Options available: Disabled, Enabled. Default setting is <b>Disabled</b>.</li> </ul> </li> <li>Enable ADDDC Error Injection         <ul> <li>Options available: Disabled Enabled Default setting is</li> </ul> </li> </ul>
	<ul> <li>Options available: Disabled, Enabled. Default Setting is Enabled.</li> <li>Patrol Scrub         <ul> <li>Options available: Disabled, Enable at End of POST. Default setting is Enable at End of POST.</li> </ul> </li> <li>Patrol Scrub Interval         <ul> <li>Selects the number of hours (1-24) required to complete full scrub. A value of zero means auto.</li> </ul> </li> <li>DDR5 ECS         <ul> <li>Options available: Disabled, Enabled, Enable ECS with Result Collection. Default setting is Enabled.</li> </ul> </li> </ul>

## 2-3-5 IIO Configuration

Aptio Setup - AMI Chipset	
IIO Configuration → Intel VT for Directed I/O (VT-d)	Press <enter> to bring up the Intel Virtualization for Directed I/O (VT-d) Configuration menu.</enter>
	++: Select Screen 14: Select Item K/M: Scroll Help Area Up/Doun. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
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Parameter	Description
IIO Configuration	
Intel® VT for Directed I/O (VT-d)	<ul> <li>Press [Enter] to configure advanced items.</li> <li>Intel® VT for Directed I/O <ul> <li>Enable/Disable the Intel VT for Directed I/O (VT-d) support function by reporting the I/O device assignment to VMM through DMAR ACPI Tables.</li> <li>Options available: Enable, Disable. Default setting is Enable.</li> </ul> </li> <li>ACS Control <ul> <li>Enable: Programs ACS only to Chipset PCIe Root Ports Bridges.</li> <li>Disable: Programs ACS to all PCIe bridges.</li> <li>Default setting is Enable.</li> </ul> </li> <li>Cache Allocation <ul> <li>Options available: Enable, Disable. Default setting is Enable.</li> </ul> </li> <li>DevTLB Invalidation Timeout Configuration <ul> <li>Options available: Auto, 68s to 103s, 8s to 12s, 268ms to 402ms, 8ms to 12ms, 131us to 196us. Default setting is Auto.</li> </ul> </li> <li>Opt-Out Illegal MSI Mitigation <ul> <li>Enable/Disable Opt-Out Illegal 0xFEE Platform Mitigation.</li> <li>Options available: Disable. Enable. Default setting is Disable.</li> </ul> </li> </ul>

Parameter I	Description
	DMA Control Opt-In Flag
	– Enable/Disable DMA_CTRL_PLATFORM_OPT_IN_FLAG
	in DMAR table in ACPI. Not compatible with Direct Device
	Assignment (DDA).
	- Options available: Enable, Disable. Default setting is <b>Disable</b> .
	Interrupt Remapping
	<ul> <li>Enable/Disable the interrupt remapping support function.</li> </ul>
	<ul> <li>Options available: Auto, Enable, Disable. Default setting is Auto</li> <li>x2APIC Opt Out</li> </ul>
	<ul> <li>Options available: Enable, Disable. Default setting is <b>Disable</b>.</li> </ul>
	Pre-boot DMA Protection
	- Options available: Enable, Disable. Default setting is <b>Disable</b> .
	SATC Support
	<ul> <li>Options available: Enable, Disable. Default setting is Enable.</li> </ul>
	RHSA Support
	<ul> <li>Options available: Enable, Disable. Default setting is Enable.</li> </ul>
·	PCIe ACSCTL
	- Options available: Enable, Disable. Default setting is <b>Disable</b> .
	Source Validation <sup>(Note)</sup>
	<ul> <li>Options available: Disabled, Enabled. Default setting is <b>Disabled</b>.</li> </ul>
	Iransiation Blocking <sup>(100)</sup> Orthurs subjection Dischlad Enchlad Default setting is <b>Di</b> schlad
	- Options available: Disabled, Enabled. Default setting is <b>Disabled</b> .
·	Options queilable: Dischlad Enchlad Default setting is <b>Enchlad</b>
	- Options available. Disabled, Enabled. Default setting is Enabled.     P2P Completion Pedirect <sup>(Note)</sup>
	Options available: Disabled Enabled Default setting is Enabled
	Unstream Fonwarding Enable <sup>(Note)</sup>
	<ul> <li>Options available: Disabled. Enabled. Default setting is Enabled.</li> </ul>

### 2-3-6 Advanced Power Management Configuration

Chipset	Aptio Setup — AMI	
Advanced Power Management > CPU P State Control > Hardware PK State Control > CPU C State Control > Package C State Control > CPU - Advanced PM Tuning	Configuration	P State Control Configuration Sub Menu, include Turbo, XE and etc.
		++: Select Screen 14: Select Item K/M: Scroll Help Area Uy/Doun. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
	Version 2.22.1287 Copyright (C) 2023 AMI	

Parameter	Description
CPU P State Control	<ul> <li>Press [Enter] to configure advanced items.</li> <li>SpeedStep (Pstates) <ul> <li>Conventional Intel SpeedStep Technology switches both voltage and frequency in tandem between high and low levels in response to processor load.</li> <li>Options available: Enable, Disable. Default setting is Enable.</li> </ul> </li> <li>Turbo Mode <ul> <li>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.</li> <li>Options available: Enable, Disable. Default setting is Enable.</li> </ul> </li> </ul>
Hardware PM State Control	<ul> <li>Press [Enter] to configure advanced items.</li> <li>Hardware P-States <ul> <li>When this item is disabled, the processor hardware chooses a P-state based on OS Request (Legacy P-States).</li> <li>In Native mode, the processor hardware chooses a P-state based on OS guidance.</li> <li>In Out of Band mode, the processor hardware autonomously chooses a P-state (with no OS guidance).</li> <li>Options available: Disable, Native Mode, Out of Band Mode, Native Mode with No Legacy Support. Default setting is Native Mode.</li> </ul> </li> </ul>

Parameter	Description
CPU C State Control	<ul> <li>Press [Enter] to configure advanced items.</li> <li>Enable Monitor MWAIT <ul> <li>Allows Monitor and MWAIT instructions.</li> <li>Options available: Disable, Enable, Auto. Default setting is Auto.</li> </ul> </li> <li>CPU C6 Report <ul> <li>Enable/Disable CPU C6(ACPI C3) report to OS.</li> <li>Options available: Disable, Enable, Auto. Default setting is Auto.</li> </ul> </li> <li>Enhanced Halt State (C1E) <ul> <li>Core C1E auto promotion control. Takes effect after reboot.</li> <li>Options available: Enable, Disable. Default setting is Enable.</li> </ul> </li> </ul>
Package C State Control	<ul> <li>Press [Enter] to configure advanced items.</li> <li>Package C State <ul> <li>Configures the state for the C-State package limit.</li> <li>Options available: C0/C1 state, C2 state, C6(non Retention) state, C6(Retention) state, No Limit, Auto. Default setting is Auto.</li> </ul> </li> </ul>
CPU - Advanced PM Tuning	<ul> <li>Press [Enter] to configure advanced items.</li> <li>Energy Perf BIAS <ul> <li>Press [Enter] to configure advanced items.</li> <li>Power Performance Tuning <ul> <li>Options available: OS Controls EPB, BIOS Controls EPB, PECI Controls EPB. Default setting is OS Controls EPB.</li> </ul> </li> <li>Energy_PERF_BIAS_CFG mode<sup>[Note]</sup> <ul> <li>Options available: Performance, Balanced Performance, Balanced Power, Power. Default setting is Balanced Performance.</li> </ul> </li> </ul></li></ul>

# 2-3-7 PCH Configuration

Aptio Setup – AMI Chipset	
PCH-IO Configuration	Device Options Settings
▶ SATA And RST Configuration	
	++: Select Screen f1: Select Item K/M: Scroll Help Area Up/Doun. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
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Parameter	Description
PCH-IO Configuration	
SATA And RST Configuration	<ul> <li>SATA Controller And RST Configuration         <ul> <li>Press [Enter] to configure advanced items.</li> <li>SATA Configuration</li></ul></li></ul>

#### (Note) Only appears when HDD sets to RAID Mode.

Parameter	Description
SATA And RST	• SATA Port 0/1/2/3/4/5/6/7
	» The category identifies SATA hard drives that are installed in the
	computer. System will automatically detect HDD type.
	<ul> <li>Port 0/1/2/3/4/5/6/7</li> </ul>
	» Enable/Disable Port 0/1/2/3/4/5/6/7 device.
	» Options available: Enabled, Disabled. Default setting is <b>Enabled</b> .
	<ul> <li>Hot Plug (for Port 0/1/2/3/4/5/6/7)</li> </ul>
	» Enable/Disable HDD Hot-Plug function.
	» Options available: Enabled, Disabled. Default setting is <b>Enabled</b> .
Configuration(continued)	<ul> <li>Spin Up Device (for Port 0/1/2/3/4/5/6/7)</li> </ul>
	» If enabled for any of ports staggered spin up will be performed and
	only the drives which have this option enabled will spin up at boot.
	Otherwise all drives spin up at boot.
	» Options available: Enabled, Disabled. Default setting is <b>Disabled</b> .
	Low Power S0 Idle Capability
	<ul> <li>Options available: Enabled, Disabled. Default setting is <b>Disabled</b>.</li> </ul>
	PUIS Enable <sup>(Note)</sup>
	<ul> <li>Options available: Enabled, Disabled. Default setting is <b>Disabled</b>.</li> </ul>
### 2-3-8 Miscellaneous Configuration

Chipset	Aptio Setup – AMI	
Miscellaneous Configuration		Select active Video type
Active Video Disable IO decode for Second GPU	(Auto) [Disabled]	
		++: Select Screen 1: Select Item K/M: Scroll Help Area Uu/Doun. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F3: Optimized Defaults F10: Save & Exit ESC: Exit
Version 2	22 1287 Conveight (C) 2023 AMI	

Parameter	Description
Miscellaneous Configuration	
Active Video	Selects the active video type. Options available: Auto, Onboard Device, PCIE Device, Specific PCIE Device. Default setting is <b>Auto</b> .
Disable IO decode for Second GPU	Enables this knob to disable IO decode on second GPU in a Dual GPU ML Config. Options available: Enabled, Disabled. Default setting is <b>Disabled</b> .

## 2-3-9 Server ME Configuration

Chipset	Aptio Setup — AMI	
ME Firmware Version ME Firmware Mode ME Firmware Status 1 ME Firmware Status 2 ME State	16.10.5.1520 Normal Mode Corporate SKU 0x30000255 0x8210800E [Enabled]	Configure Management Engine Technology Parameters
<ul> <li>Firmware Update Configuration</li> </ul>		++: Select Screen 11: Select Item K/M: Scroll Help Area UD/Doun. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Vancian 6	00 4007 0	

Parameter	Description	
ME Firmware Version	Displays the operational firmware version.	
ME Firmware Mode	Displays the operational firmware mode.	
ME Firmware SKU	Disaplays ME firmware sku information.	
ME Firmware Status #1/#2	Displays ME firmware status information.	
ME State	Default setting is <b>Enabled</b> .	
Firmware Update Configuration	<ul> <li>Press [Enter] to configure advanced items.</li> <li>Me FW Image Re-Flash <ul> <li>Enable/Disable ME firmware image re-flash function.</li> <li>Options available: Disabled, Enabled. Default setting is Disabled.</li> </ul> </li> </ul>	

#### 2-3-10 Runtime Error Logging Settings

Chipset	Aptio Setup – AMI	
Runtime Error Logging		System Error Enable/Disable setup
System Errors • Whea Settings • Memory Error Enabling • PCIE Error Enabling		options.
		++: Select Screen 14: Select Item K/M: Scroll Help Area Up/Down. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
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Parameter	Description
Runtime Error Logging	
System Errors	Enable/Disable system error logging function.
-,	Options available: Enable, Disable. Default setting is <b>Enable</b> .
	Press [Enter] to configure advanced items.
Whea Settings	<ul> <li>WHEA (Windows Hardware Error Architecture) Support</li> </ul>
Whea Settings	<ul> <li>Enable/Disable WHEA Support.</li> </ul>
	<ul> <li>Options available: Enable, Disable. Default setting is Enable.</li> </ul>
	Press [Enter] to configure advanced items.
	Memory Corrected Error
	<ul> <li>Enable/Disable Memory Corrected Error.</li> </ul>
Memory Error Enabling	<ul> <li>Options available: Enable, Disable. Default setting is Enable.</li> </ul>
	Uncorrected Error disable Memory
	<ul> <li>Enable/Disable the Memory that triggers Uncorrected Error.</li> </ul>
	<ul> <li>Options available: Enable, Disable. Default setting is <b>Disable</b>.</li> </ul>
	Press [Enter] to configure advanced items.
	PCIE Error
	<ul> <li>Enable/Disable PCIE error.</li> </ul>
PCle Error Enabling	<ul> <li>Options available: Enable, Disable. Default setting is <b>Disable</b>.</li> </ul>
	Corrected Error <sup>(Note)</sup>
	<ul> <li>Enables and escalates Correctable Errors to error pins.</li> </ul>
	- Options available: Enable, Disable. Default setting is Disable.

#### (Note) This item appears when PCIE Error is set to Enable.

Parameter	Description
Parameter	Description         • Uncorrected Error <sup>(Note)</sup> - Enables and escalates Uncorrectable/Recoverable Errors to error pins.         - Options available: Enable, Disable. Default setting is Enable.         • Fatal Error Enable <sup>(Note)</sup> - Enables and escalates Fatal Errors to error pins.         - Options available: Enable, Disable. Default setting is Enable.         • Assert NMI on SERR <sup>(Note)</sup>
	<ul> <li>Enable/Disable BIOS generates a non-maskable interrupt (NMI) and logs an error when a system error (SERR) occurs.</li> <li>Options available: Enabled, Disabled. Default setting is Enabled.</li> <li>Assert NMI on PERR<sup>(Note)</sup></li> <li>Enable/Disable BIOS generates a non-maskable interrupt (NMI) and logs an error when a processor bus parity error (PERR) occurs.</li> <li>Options available: Enabled, Disabled. Default setting is Enabled.</li> </ul>

### 2-3-11 Power Policy

Chipset	Aptio Setup – AMI	
Power Policy Quick Settings SpeedStep (Pstates) Turbo Mode CPU C6 report Enhanced Halt State (C1E) Package C State Enable LP [Global] Hardware Prefetcher Adjacent Cache Prefetch DCU Streamer Prefetcher Intel VT for Directed I/O	[Standard] [Enable] [Auto] [Auto] [Auto] [ALL LPs] [Enable] [Enable] [Enable] [Enable] [Enable]	Select a Power Policy Quick Setting(The following items will be set based on the selected power policy)
		+: Select Screen 11: Select Item K/M: Scroll Help Area Up/Doum. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
	Selects a Power Policy Quick Setting.
Power Policy Quick Settings	Options available: Standard, Best Performance, Energy Efficient. Default
	setting is Standard.
	Conventional Intel SpeedStep Technology switches both voltage and
SpeedStop (Detates)	frequency in tandem between high and low levels in response to processor
SpeedStep (Fstates)	load.
	Options available: Enable, Disable. Default setting is <b>Enable</b> .
	When this item is enabled, the processor will automatically ramp up the
Turba Mada	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: Enable, Disable. Default setting is <b>Enable</b> .
	Enable/Disable the BIOS to enable the report from the CPU C6 state (ACPI
CPU C6 report	C3) to the OS.
	Options available: Disable, Enable, Auto. Default setting is Auto.
	Enable/Disable the C1E support for lower power consumption. Takes effect
Enhanced Halt State (C1E)	after reboot.
	Options available: Enable, Disable. Default setting is <b>Enable</b> .
Package C State	Configures the C-State package limit.
	Options available: C0/C1 state, C2 state, C6(non Retention) state,
	C6(Retention) state, No Limit, Auto. Default setting is Auto.

Parameter	Description
	Enables Logical processor (Software Method to Enable/Disable Logical
Enable LP [Global]	Processor threads).
	Options available: ALL LPs, Single LP. Default setting is ALL LPs.
Hardware Prefetcher	Options available: Enable, Disable. Default setting is <b>Enable</b> .
Adjacent Cache Prefetch	Options available: Enable, Disable. Default setting is <b>Enable</b> .
DCU Streamer Prefetcher	Options available: Enable, Disable. Default setting is <b>Enable</b> .
	Enable/Disable the Intel VT for Directed I/O (VT-d) support function by
Intel® VT for Directed I/O	reporting the I/O device assignment to VMM through DMAR ACPI Tables.
	Options available: Enable, Disable. Default setting is Enable.

## 2-4 Server Management Menu

Main Advanced Chipset Server M	Aptio Setup – AMI gmt _ Security Boot Save & Exit	
FRB-2 Timer FRB-2 Timer timeout FRB-2 Timer Policy OS Watchdog Timer OS Wtd Timer Folicy Wait BMC Ready * System Event Log * View FRU information * BMC ULAN Configuration * BMC Network Configuration	[Enabled] 6 [Do Nothing] [Disabled] 10 [Reset] [2 minutes]	Enable or Disable FRB-2 timer(POST timer)
		<pre>++: Select Screen f1: Select Item K/M: Scroll Help Area Up/Doun. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save &amp; Exit ESC: Exit</pre>
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Parameter	Description
FRB-2 Timer	Enable/Disable FRB-2 timer (POST timer). Options available: Enabled, Disabled. Default setting is <b>Enabled</b> .
FRB-2 Timer <sup>(Note1)</sup> timeout	Configures the FRB2 Timer timeout. The value is between 1 to 30 minutes. Default setting is <b>6 minutes</b> .
FRB-2 Timer Policy <sup>(Note1)</sup>	Configures the FRB2 Timer policy. Options available: Do Nothing, Reset, Power Down, Power Cycle. Default setting is <b>Do Nothing</b> .
OS Watchdog Timer	Enable/Disable OS Watchdog Timer function. Options available: Enabled, Disabled. Default setting is <b>Disabled</b> .
OS Wtd Timer Timeout <sup>(Note2)</sup>	Configures OS Watchdog Timer. The value is between 1 to 30 minutes. Default setting is <b>10 minutes</b> .
OS Wtd Timer Policy <sup>(Note2)</sup>	Configure OS Watchdog Timer Policy. Options available: Reset, Do Nothing, Power Down, Power Cycle. Default setting is <b>Reset</b> .
Wait BMC Ready	POST wait BMC ready and reboot system. Options available: Disabled, 2 minutes, 4 minutes, 6 minutes. Default setting is <b>2 minutes</b> .

(Note1) This item is configurable when **FRB-2 Timer** is set to **Enabled**.

(Note2) This item is configurable when OS Watchdog Timer is set to Enabled.

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

## 2-4-1 System Event Log

Server Mgm	Aptio Setup – AMI t	
Enabling/Disabling Options		Change this to enable or
SEL Components		disable event logging for error/progress codes
Erasing Settings		during boot.
Enase SEL	[No]	
When SEL 15 Full	[Do Nothing]	
Custom EFI Logging Options		
Log EFI Status Codes	[Ennon code]	
NOTE: All values changed here do not effect until computer is resta	take rted.	
		↔: Select Screen
		†∔: Select Item
		K/M: Scroll Help Area
		Enter: Select
		+/-: Change Opt.
		F1: General Help
		F9: Optimized Defaults
		F10: Save & Exit
		ESC: Exit
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Parameter	Description	
Enabling / Disabling Options		
SEL Components	Change this item to enable or disable all features of System Event Logging during boot. Options available: Enabled, Disabled. Default setting is <b>Enabled</b> .	
Erasing Settings		
Erase SEL	Choose options for erasing SEL. Options available: No, Yes, On next reset, Yes, On every reset. Default setting is <b>No</b> .	
When SEL is Full	Choose options for reactions to a full SEL. Options available: Do Nothing, Erase Immediately, Delete Oldest Record. Default setting is <b>Do Nothing</b> .	
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 <b>Error code</b> .	

#### 2-4-2 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.

FRU Information         System Manufacturer       Giga Computing         System Product Name       MH53-HP0-000         System Serial Number       01234567890123456789AB         Board Manufacturer       Giga Computing         Board Part Number       1234567890123456789AB         Board Part Number       01234567890123456789AB         Chassis Manufacturer       Giga Computing         Chassis Serial Number       01234567890123456789AB         Chassis Serial Number       01234567890123456789AB         H: Select Item       K/M: Scroll Help Area         Up/Doun.       Enter: Select         H:: Select Item       Fi: Charge Opt.         Fi: Charge Opt.       Fi: Charge Opt.         Fi: Charge Opt.       Fi: Charge Opt.		Aptio Setup – AMI Server Mgmt	
ESC: Exit	FRU Information System Manufacturer System Veroion System Version Soard Manufacturer Board Product Name Board Product Name Board Serial Number Chassis Manufacturer Chassis Part Number Chassis Serial Number	Giga Computing MH53-HF0-000 0120 01234567890123456789AB Giga Computing MH53-HF0-000 123456789AB 0123456789123456789AB Giga Computing 01234567 01234567890123456789AB	<pre>++: Select Screen 14: Select Item K/M: Scroll Help Area Up/Dum. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save &amp; Exit ESC: Exit</pre>

### 2-4-3 BMC VLAN Configuration

	Aptio Setup – AMI Server Mgmt	
BMC VLAN Configuration BMC VLAN ID BMC VLAN Priority	0	VLAN ID of new VLAN or existing VLAN, valid value is 0~4094, 0 is disable VLAN
		++: Select Screen 14: Select Item K/M: Scroll Help Area Up/Down. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
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Parameter	Description
BMC VLAN Configuration	
BMC VLAN ID	Select to configure BMC VLAN ID. The valid range is from 0 to 4094. When set to 0, BMC VLAN ID will be disabled.
BMC VLAN Priority	Select to configure BMC VLAN Priority. The valid range is from 0 to 7. When BMC VLAN ID is set to 0, BMC VLAN Priority will not be selected.

### 2-4-4 BMC Network Configuration

BMC network configuration Select NCSI and Dedicated LAN       [Mode3 (Failover)]       Select to configure LAN Channel parameters statically or dynamically(OHCP), Do nothing option will not modify any BMC network parameters station MAC address       Select to configure LAN channel parameters statically or dynamically(OHCP), Do nothing option will not modify any BMC network parameters statically or dynamically(OHCP), Do nothing option will not modify any BMC network parameters dynamically option will not modify any BMC network parameters dynamically option modify any BMC network parameters dynamically option dynamically option dynamically option dynamically option dynamically option dynamically option dynamically option dynamically option dyn	Server Mgm	Aptio Setup – AMI t	
Real-time get BMC network address ++: Select Screen 11: Select Item K/M: Scroll Help Area Up/Down. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values	BMC network configuration select NCSI and Dedicated LAN Lan channel 1 Configuration Address source Station IP address Subnet mask Router IP address Station MAC address	[Mode3 (Failover)] [DynamicBmcDhcp] 10.1.6.53 255.255.255.0 10.1.6.253 92-35-19-86-89-28	Select to configure LAN channel parameters statically or dynamically(DHCP). Do nothing option will not modify any BMC network parameters during BIOS phase
F9: Optimized Defaults F10: Save & Exit ESC: Exit	Real-time get BMC network address		++: Select Screen 14: Select Item K/M: Scroll Help Area Ug/Doun. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F3: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
BMC network configuration	
Select NCSI and Dedicated LAN	Options available: Do Nothing, Model1(Dedicated), Model2(NCSI), Mode3(Failover). Default setting is <b>Do Nothing</b> .
Lan Channel 1	
Configuration Address source	Selects to configure LAN channel parameters statically or dynamically (DHCP). Options available: Unspecified, Static, DynamicBmcDhcp. Default setting is <b>DynamicBmcDhcp</b> .
Station IP address	Displays IP Address information.
Subnet mask	Displays Subnet Mask information. Please note that the IP address must be in three digitals, for example, 192.168.000.001.
Router IP address	Displays the Router IP Address information.
Station MAC address	Displays the MAC Address information.
Real-time get BMC network address	Press [Enter] will set LAN mode and Address source and then get IP, Subnet, Gateway and MAC address.

#### 2-4-5 IPv6 BMC Network Configuration



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

## 2-5 Security Menu

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

Main Advanced Chipset :	Aptio Setup – A Server Mgmt Security Boot	MI Save & Exit
Password Description If ONLY the Administrator's then this only limits acces	s password is set, ss to Setup and is as Setup	Set Administrator Password
If ONLY the User's password and boot or enter Setup. In Se have Administrator rights. The password length must be in the following range:	ng Secupi must be entered to tup the User will	
Minimum length	3	Htt: Coloct Senson
Haximum length	20	14: Select Item
Administrator Password		K/M: Scroll Help Area
▶ Secure Boot		Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
	Version 2 22 1287 Conurigh	t (C) 2023 AMT

There are two types of passwords that you can set:

Administrator Password

Entering this password will allow the user to access and change all settings in the Setup Utility.

User Password

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

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

#### 2-5-1 Secure Boot

The Secure Boot submenu is applicable when your device is installed the Windows® 8 (or above) operating system.

	Aptio Setup – AMI Security	
System Mode	Setup	
Secure Boot	[Disabled] Not Active	
Secure Boot Mode ▶ Restore Factory Keys ▶ Reset To Setup Mode	[Custom]	
▶ Key Management		
		K/M: Scroll Help Area Up/Down.
		+/-: Change Opt. F1: General Help
		F3: Previous Values F9: Optimized Defaults F10: Save & Exit
		ESC: Exit

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

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

Parameter	Description
Key Management	<ul> <li>Press [Enter] to configure advanced items.</li> <li>Please note that this item is configurable when Secure Boot Mode is set to Custom. <ul> <li>Factory Key Provision</li> <li>Allows to provision factory default Secure Boot keys when system is in Setup Mode.</li> <li>Options available: Enabled, Disabled. Default setting is Disabled.</li> </ul> </li> <li>Restore Factory Keys <ul> <li>Installs all factory default keys. It will force the system in User Mode.</li> <li>Options available: Yes, No.</li> </ul> </li> <li>Reset To Setup Mode <ul> <li>Reset To Setup Mode</li> <li>Reset To Setup Mode.</li> <li>Options available: Yes, No.</li> </ul> </li> <li>Enroll Efi Image <ul> <li>Press [Enter] to enroll SHA256 hash of the binary into Authorized Signature Database (db).</li> </ul> </li> <li>Export Secure Boot variables <ul> <li>Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device.</li> </ul> </li> <li>Secure Boot variable <ul> <li>Displays the current status of the variables used for secure boot.</li> </ul> </li> <li>Platform Key (PK) <ul> <li>Displays the current status of the Key Exchange Key Database (KEK).</li> <li>Press [Enter] to configure a new PK.</li> <li>Options available: Update.</li> </ul> </li> <li>Key Exchange Keys (KEK) <ul> <li>Displays the current status of the Key Exchange Key Database (KEK).</li> <li>Press [Enter] to configure a new KEK or load additional KEK from storage devices.</li> <li>Options available: Update, Append.</li> </ul> </li> <li>Authorized Signatures (DB) <ul> <li>Displays the current status of the Authorized Signature Database.</li> <li>Press [Enter] to configure a new DB or load additional DB from storage devices.</li> <li>Options available: Update, Append.</li> </ul> </li> <li>Forbidden Signatures (DBX) <ul> <li>Displays the current status of the Forbidden Signature Database.</li> <li>Press [Enter] to configure a new dbs or load additional dbs from storage devices.</li> <li>Options available: Update, Append.</li> </ul> </li> </ul>

Parameter	Description	
Key Management (continued)	<ul> <li>Authorized TimeStamps (DBT)         <ul> <li>Displays the current status of the Authorized TimeStamps Database.</li> <li>Press [Enter] to configure a new DBT or load additional DBT from storage devices.</li> <li>Options available: Update, Append.</li> </ul> </li> <li>OsRecovery Signatures         <ul> <li>Displays the current status of the OsRecovery Signature Database.</li> <li>Press [Enter] to configure a new OsRecovery Signature or load additional OsRecovery Signature from storage devices.</li> <li>Options available: Update, Append.</li> </ul> </li> </ul>	

## 2-6 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.

Aptio Setup - AMI Main Advanced Chipset Server Mgmt Security <mark>Boot</mark> Save & Exit		
Boot Configuration		Set the default timeout
setup Prompt Timeout	1	Defore system boot. H
Quiet Boot	[Enabled]	disable the timeout completely.
Endless Retry Boot	[Disable]	
Setup Flash Dump full Setup Data Dump non-default Setup Data Restore Setup Data Fast Boot	(Disable)	
STYED DOOT ODDED Drive it is		++: Select Screen
Pixed Boot ORDER Priorities	[Uond Dick]	K/W. Copoli Holp Appo
Boot Option #2	[RAPU DISK]	Up/Down
Boot Option #3	[USB Device:UEFI OS (SanDisk Cruzer Glide 1.27, Partition 1)]	Enter: Select +/-: Change Opt. F1: General Help
Boot Option #4	[Network:UEFI: PXE IPv4 Intel(R) Ethernet Controller I226-LM 74:56:3C:51:90:01]	F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

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

Parameter	Description
FIXED BOOT ORDER Priorities	
Boot Option #1 / #2 / #3 / #4 / #5	Press [Enter] to configure the boot order priority. By default, the server searches for boot devices in the following sequence: 1. Hard drive. 2. CD-COM/DVD drive. 3. USB device. 4. Network. 5. UEFI.
UEFI Network Drive BBS Priorities	Press [Enter] to configure the boot priority.
UEFI Application Boot Priorities	Press [Enter] to configure the boot priority.

## 2-7 Save & Exit Menu

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

Aptio Setup – AMI Main Advanced Chipset Server Mgmt Security Boot <mark>Save &amp; Exit</mark>	
Save Options Save & Exit Discard changes & exit Save Changes and Reset Discard Changes and Reset Save Changes Default Options Restore Default Values Save the User Default Values Restore the User Default Values Boot Device Priority UEFI DS (SanDisk Cruzer Glide 1.27, Partition 1) UEFI: PXE IPv4 Intel(R) Ethernet Controller 1226-LM 74:55:30:51:90:02 UEFI: PXE IPv4 Intel(R) Ethernet Controller 1226-LM 74:55:30:51:90:02 UEFI: Sitel Intel (R) Ethernet Controller 1226-LM 74:55:30:51:90:02 UEFI: Shell	<pre>++: Select Screen 14: Select Item K/M: Scroll Help Area Up/Doun. Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save &amp; Exit ESC: Exit</pre>

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Parameter	Description
Save Options	
Save and Exit	Saves changes made and closes the BIOS setup. Options available: Yes, No.
Discard changes and exit	Discards changes made and exits the BIOS setup. Options available: Yes, No.
Save Changes and Reset	Restarts the system after saving the changes made. Options available: Yes, No.
Discard Changes and Reset	Restarts the system without saving any changes. Options available: Yes, No.
Save Changes	Saves changes done so far to any of the setup options. Options available: Yes, No.
Discard Changes	Discards changes made and closes the BIOS setup. Options available: Yes, No.
Default Options	

Parameter	Description
Restore Default Values	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.
Save the User Default Values	Saves the changes made as the user default settings. Options available: Yes, No.
Restore the User Default Values	Loads the user default settings for all BIOS setup parameters. Options available: Yes, No.
Boot Device Priority	Press [Enter] to configure the device as the boot-up drive.
Launch EFI Shell	Attempts to Launch EFI Shell application (Shell.efi) from one of the available file system devices.

# 2-8 BIOS Recovery

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

Recovery Instruction:

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



## 2-9 BIOS POST Beep code (AMI standard)

#### 2-9-1 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	DXEIPL was not found
3	DXE Core Firmware Volume was not found
4	Recovery failed
4	S3 Resume failed
7	Reset PPI is not available

### 2-9-2 DXE Beep Codes

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