GIGABYTE[™] R152-P32

Ampere® Altra® Max ARM Server - 1U 10-Bay

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:

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

Server Warnings and Cautions

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

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.



- · Unplug the power cord from the power supply to disconnect power to the equipment.
- 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.



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

This equipment is intended to be used in Restrict Access Location. The access can only be gained by Skilled person.

Only authorized by well trained professional person can access the restrict access location.



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

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 disconnect the cables attached to the system before servicing it. Otherwise, personal injury or equipment damage can result.

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

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

Installing or removing jumpers: A jumper is a small plastic encased conductor that slips over two jumper pins. Some jumpers have a small tab on top that can be gripped with fingertips or with a pair of fine needle nosed pliers. If the jumpers do not have such a tab, take care when using needle nosed pliers to remove or install a jumper; grip the narrow sides of the jumper with the pliers, never the wide sides. Gripping the wide sides can 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.

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Chapter 1 Hardware Installation

1-1 Installation Precautions

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

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

Product Specifications 1-2

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

CPU	Ampere® Altra® Max or Altra® Processor					
	Single processor, 7nm technology					
	Up to 128-core per processor					
Socket	Single socket					
	• LGA4926					
Chipset	System on Chip					
Memory	16 x DIMM slots					
	DDR4 memory supported only					
	8-Channel memory architecture					
	 RDIMM modules up to 256GB supported 					
	 LRDIMM modules up to 256GB supported 					
	 Up to 4TB of memory capacity supported per processor 					
	Memory speed: Up to 3200 MHz					
	NTOE! Only supports configurations with 1,2, 4, 6, 8,12, or 16 DIMMs					
	 2 x 1GbE LAN ports (1 x Intel® I350-AM2) 					
	 1 x 10/100/1000 Mbps management LAN 					
Video	Integrated in Aspeed® AST2500					
	2D Video Graphic Adapter with PCIe bus interface					
	 1920x1200@60Hz 32bpp 					
Storage	• 2 x 2.5" SATA hot-swappable HDD/SSD bays from CSTO180 (ASM1164) SATA					
	HBA					
	SATA device supported only					
	8 x 2.5" NVMe hot-swappable HDD/SSD bays					
RAID	• RAID 0/ 1/ 1E/ 10					
Expansion Slot	Riser Card CRS101D:					
	 1 x PCIe x16 slot (Gen4 x16), Full height half-length, occupied by CNV3124, 4 x NVMe ports 					
	1 x OCP 2.0 mezzanine slot, occupied by CSTO180 (ASM1164) SATA HBA					
	2 x M.2 slots:					
	 M-key 					
	PCle Gen4 x4					
	 Supports NGFF-2242/2260/2280/22110 cards 					

Internal I/O	2 x M.2 slots
	 1 x USB 3.0 header
	 1 x USB 2.0 header
	 1 x TPM header
	 1 x Front panel header
	 1 x HDD back plane board header
	1 x PMBus connector
	1 x IPMB connector
	1 x Clear CMOS jumper
	1 x Buzzer
Erant 1/0	
	 I X USD 5.0 1 x Device butter with LED.
	I x Power buildin with LED
	I X ID Dutton with LED
	I X Reset bullon
	Z X LAIN activity LEDs
	1 X HDD activity LED
	1 X System status LED
Rear I/O	• 3 x USB 3.0
	 1 x VGA
	 1 x Debug port
	• 2 x RJ45
	 1 x MLAN
	1 x ID button with LED
Backplane I/O	Backplane P/N: 9CBP10A3NR-00
	Speed and bandwidth:
	 PCIe Gen3 x4, SATA 6Gb/s
TPM	1 x TPM header with SPI interface
	Optional TPM2.0 kit: CTM010
Power Supply	2 x 1100W 80 PLUS Platinum redundant power supplies
	AC Input:
	◆ 100-240V~/ 12-6A, 50-60Hz
	 200-240V~/ 8A 50-60Hz
	DC Input:
	 190-310Vdc/ 7A
	DC Output:
	 Max 850W/ 100-240Vac~
	 + 12V/ 70A
	 + 5Vsb/ 3A
	 Max 1100W/ 200-240Vac~
	 + 12V/ 90.5A
	 + 5Vsb/ 3A

System	 Aspeed® AST2500 management controller 					
Management	GIGABYTE Management Console (AMI MegaRAC SP-X) web interface					
-	Dashboard					
	HTML5 KVM					
	 Sensor Monitor (Voltage, RPM, Temperature, CPU Statusetc.) 					
	Sensor Reading History Data					
	FRU Information					
	 SEL Log in Linear Storage / Circular Storage Policy 					
	Hardware Inventory					
	Fan Profile					
	System Firewall					
	Power Consumption					
	Power Control					
	 LDAP / AD / RADIUS Support 					
	Backup & Restore Configuration					
	Remote BIOS/BMC/CPLD Update					
	Event Log Filter					
	User Management					
	Media Redirection Settings					
	PAM Order Settings					
	SSL Settings					
	SMTP Settings					
Environment	Operating temperature: 10°C to 35°C					
Ambient	 Non-operating temperature: -40°C to 60°C 					
Temperature						
remperature						
Deletive	 Operating humidity: 8-80% (non-condensing) 					
Relative	 Non-operating humidity: 20%-95% (non-condensing) 					
Humidity						
	 Ambient temperature limited to 30°C if using 280W CPU 					
System	 ◆ 1U 					
Dimension						
	 438mm (W) x 43.5mm (H) x 660mm (D) 					

1-3 System Block Diagram



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Chapter 2 System Appearance

2-1 Front View



No.	Description			
1.	Front USB 3.0 Port			
2.	Front Panel LEDs and Buttons			
NOTE! The Orange HDD Latch Supports NVMe				

Please Go to Chapter 2-3 Front Panel LED and Buttons for detail description of function LEDs.

2-2 Rear View

● PSU2	12 345578
No.	Description
1.	Serial Port
2.	VGA Port
3.	Mezzanine Card Slot (Option/OCP V2.0 Card)
4.	ID Button
5.	10/100/1000 Server management LAN port
6.	USB 3.0 Port x 2
7.	GbE LAN Port x 2
8.	USB 3.0 Port
9.	PCIe Card Slot (PCIe x16)

2-3 Front Panel LED and Buttons



No.	Name	Color	Status	Description		
1.	Reset Button		Press the button to reset the system.			
2.	ID Button	D Button Press the button to activate system identification				
		Green	On	System is powered on		
	Power button	Green	Blink System is in ACPI S1 state (sleep mode)			
3.	with LED			System is not powered on or in ACPI S5 state		
		N/A	Off	(power off)		
				System is in ACPI S4 state (hibernate mode)		
		Green	On	System is operating normally.		
				Critical condition, may indicate:		
			On	System fan failure		
				System temperature		
4.	System Status LED	Amber	Blink	Non-critical condition, may indicate:		
				Redundant power module failure		
				Temperature and voltage issue		
				Chassis intrusion		
		N/A		System is not ready, may indicate:		
				POST error		
				Processor or terminator missing		
		Green	On	HDD locate		
			Blink	HDD access		
5.	HDD Status	Amber	On	HDD fault		
	LED	Green/ Amber	Blink HDD rebuilding			
		N/A	Off	No HDD access or no HDD fault.		
	LAN 1/2	Green	Green On Link between system and network or no access.			
6./7.	Active/Link	Green	Blink	Data trasmission or receiving is occuring		
	LEDs	N/A	Off	No data transmission or receiving is occuring		

2-4 Rear System LAN LEDs



No.	Name	Color	Status	Description		
1.	4015	Yellow	On 1 Gbps data rate			
	1GDE Speed I ED	Green	On 100 Mbps data rate			
	Speed LED	N/A	Off	10 Mbps data rate		
2.	1GbE Link/		On	Link between system and		
		Green		network or no access		
			Blink	Data transmission or receiving is occurring		
		N/A	Off	No data transmission or		
				receiving is occurring		

2-5 Power Supply Unit (PSU) LED



State	Description			
OFF	Indicates no AC power to all power supplies			
1Hz Blink GREEN	Indicates AC present/ only standby on/ Cold redundant mode			
Red	Indicates power supply critical event causing shut down: failure, OCP, OVP, Fan Fail, UVP			
0.5Hz Blink Red	Indicates AC cord unplugged or AC power lost; with a second power supply in parallel still with AC input power.			
1Hz Blink Red/Green Alternative	Indicates power supply warning events where the power supply continues to operate: high temp, high power, high current, slow fan.			

2-6 Hard Disk Drive LEDs



RAID SKU		LED1	Locate	HDD Fault	Rebuilding	HDD Access	HDD Present (No Access)
	Disk LED (LED on Back Panel)	Green	ON(*1)	OFF		BLINK (*2)	OFF
No RAID configuration		Amber	OFF	OFF		OFF	OFF
No RAID configuration (via HBA)	Removed HDD Slot (LED on Back Panel)	Green	ON(*1)	OFF			
		Amber	OFF	OFF			
RAID configuration (via HW RAID Card or SW RAID Card)	Disk LED	Green	ON	OFF		BLINK (*2)	OFF
		Amber	OFF	ON	(Low Speed: 2 Hz)	OFF	OFF
	Removed HDD Slot	Green	ON(*1)	OFF	(*3)		
		Amber	OFF	ON	(*3)		

LED 2	HDD Present	No HDD	
Green	ON	OFF	

NOTE:

*1: Depends on HBA/Utility Spec.

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

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

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Chapter 3 System Hardware Installation



Pre-installation Instructions

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

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

3-1 Removing Chassis Cover

Before you remove or install the system cover • Make sure the system is not turned on or connected to AC power.

Follow these instructions to remove the rear system cover:

- 1. Loosen and remove the thumbscrew securing the back cover.
- 2. Push down the indentation located at the side of the back chassis
- 3. Slide the cover horizontally to the back and remove the cover in the direction of the arrow.



Follow these instructions to remove the front system cover:

- 1. Remove the four screws securing the front system cover to the system.
- 2. Flip open the front system cover.



3-2 Removing and Installing the Fan Duct

Follow these instructions to remove/install the fan duct:

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



3-3 Removing and Installing the CPU



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

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



WARNING!

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

Follow these instructions to install the CPU:

- 1. Loosen the three captive screws securing the CPU cover in sequential order $(1 \rightarrow 2 \rightarrow 3 \rightarrow 4 \rightarrow 5)$.
- 2. Flip open the CPU cover.
- 3. Remove the CPU carrier from the CPU frame using the handle on the CPU carrier.
- 4. Install the CPU into place in the CPU socket.
- 5. Flip the CPU cover into place over the CPU socket.
- Tighten the CPU cover screws in sequential order (1→2→3→4→5) to secure the CPU cover in place.
- 7. To remove the CPUs, follow steps 1-6 in reverse order.



3-4 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.

3-4-1 Eight Channel Memory Configuration

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



3-4-2 Installing a Memory

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

Be sure to install DDR4 DIMMs on this motherboard.

Follow these instructions to install the Memory:

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



3-4-3 DIMM Population Table

Ranks Per Type DIMM and Data Width		DIMM	Speed (MT/s); Voltage (V) Slot Per Channel (SPC) DIMM Per Channel (DPC)		
	Capacity (GB)	1 Slot per Channel	2 Slots per Channel		
		DIMM Density	1DPC	2DPC	
		8Gb	1.2V	1.2V	
RDIMM	SRx4	16GB	3200	3200	
RDIMM	DRx8	16GB	5200	5200	

3-4-4 Altra Platform DDR4 Suggest Configuration Table

Channels	Channels used ($$ = Memory Installed)								
Used	DIMM_P0_E0	DIMM_P0_F0	DIMM_P0_G0	DIMM_P0_H0	DIMM_P0_D0	DIMM_P0_C0	DIMM_P0_B0	DIMM_P0_A0	
1								~	
1	~								
2	~							~	
4	~	~					~	\checkmark	
6	\checkmark	\checkmark	~			~	\checkmark	~	
8	~	~	\checkmark	\checkmark	~	\checkmark	\checkmark	\checkmark	

Channels	Channels used ($$ = Memory Installed)								
Used	DIMM_P0_E0 DIMM_P0_E1	DIMM_P0_F0 DIMM_P0_F1	DIMM_P0_G0 DIMM_P0_G1	DIMM_P0_H0 DIMM_P0_H1	DIMM_P0_D0 DIMM_P0_D1	DIMM_P0_C0 DIMM_P0_C1	DIMM_P0_B0 DIMM_P0_B1	DIMM_P0_A0 DIMM_P0_A1	
1								< <	
1	~ ~								
2	\checkmark							< <	
4	✓ ✓	✓ ✓					 ✓ 	~ ~	
6	~ ~	~ ~	~ ~			~ ~	 ✓ 	\checkmark \checkmark	
8	✓ ✓	✓ ✓	✓ ✓	√ √	 ✓ ✓ 	 	✓ ✓	< <	

1 DIMM Per Channel

Channels	Channels used (✓ = Memory Installed)							
Used	DIMM_P0_E0 DIMM_P0_F0	DIMM_P0_G0	DIMM_P0_H0	DIMM_P0_D0	DIMM_P0_C0	DIMM_P0_B0	DIMM_P0_A0	
8	~	~	~	~	~	~	~	~



System Hardware Installation

3-5 Installing the PCI Expansion Card



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

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



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

Follow these instructions to PCI Expansion card:

- 1. Remove the thumbscrew on the riser bracket
- 2. Lift up the riser bracket out of system.
- 3. Remove the slot covers from the riser bracket.
- Orient the PCIe card with the riser guide slot and push in the direction of the arrow until the PCIe card sits in the PCI card connector.
- 5. Secure the PCIe card with the screw.
- 6. Reverse the steps 3 1 to install the riser bracket.



3-6 Installing the Hard Disk Drive



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

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

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

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



3-7 Installing the Mezzanine Card (Optional)

Follow these instructions to install a mezzanine card:

- 1. Remove the screw securing the mezzanine card slot cover.
- 2. Remove the slot cover from the system.
- 3. Insert the OCP 2.0 mezzanine card into the compartment ensuring that the card is firmly connected to the connector on the motherboad.
- 4. Secure the OCP 2.0 mezzanine card into the system with three screws.
- 5. Reverse steps 3-4 to replace the OCP 2.0 mezzanine card.



3-8 Installing and Removing an M.2 Solid State Drive

Follow these instructions to install an optional M.2 solid state drive (SSD):



NOTE:

To install/remove the M.2 heatsink use a No. 1 Phillips-head screwdriver with a screw torque of 1.5 \pm 0.2 kgf*cm

- 1. Place the solid state drive into the M.2 connector.
- Secure the solid state drive to the motherboard with a single screw. NOTE: The position of the screw will depend on the size of the SSD. Refer to the second image below for proper placement.
- 3. Reverse steps 1-2 to remove the solid state drive.



3-9 Replacing the FAN Assembly



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
removing/installing a system fan.

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

Follow these instructions to replace the fan assembly:

- 1. Lift up the fan assembly from the chassis.
- 2. Reverse the previous steps to install the replacement fan assembly.



3-10 Replacing the Power Supply

Follow these instructions to replace the power supply:

- 1. Press the retaining clip on the left side of the power supply unit along the direction of the arrow.
- 2. Pull the power supply handle at the same time and pull out the power supply unit.
- 3. Insert the replacement power supply unit firmly into the chassis. Connect the AC power cord to the replacement power supply.
- 4. Repeat steps 1-3 for replacement of the second power supply.



3-11 Cable Routing



U.2 NVMe to HDD Back Plane Board Cable (NVMe2)



U.2 NVMe to HDD Back Plane Board Cable (NVMe4)



U.2 NVMe to HDD Back Plane Board Cable (NVMe3)



U.2 NVMe to HDD Back Plane Board Cable (NVMe5)

U.2 NVMe to HDD Back Plane Board Cable (NVMe6)



U.2 NVMe to HDD Back Plane Board Cable (NVMe8)



U.2 NVMe to HDD Back Plane Board Cable (NVMe7)



U.2 NVMe to HDD Back Plane Board Cable (NVMe9)

NV9

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SATA to HDD Back Plane Board Cable (SATA0)

SATA to HDD Back Plane Board Cable (SATA1)



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Chapter 4 Motherboard Components

4-1 Motherboard Components



Item	Description	
1	SlimLine SAS Connector (U2_3)	
2	SlimLine SAS Connector (U2_2)	
3	SlimLine SAS Connector (U2_1)	
4	SlimLine SAS Connector (U2_0)	
5	Front panel USB 3.0 Connector	
6	Front Panel Connector	
7	HDD Back Plane Board Connector	

8	M.2 Connector (PCIe4 x4, NGFF-22110)		
9	M.2 Connector (PCIe4 x4, NGFF-22110)		
10	USB 2.0 Connector		
11	Serial Port Cable Connector		
12	BMC Firmware Readiness LED		
13	IPMB Connector		
14	PCIe x16 Slot #1 (x8 Signal)		
15	PCIe x8 Slot #2 (x8 Signal)		
16	PCIe x16 Slot #3 (x8 Signal)		
17	PCIe x16 Slot #4 (x16 Signal)		
18	PCIe x16 Slot #5 (x8 Signal)		
19	PCIe x16 Slot #6 (x16 Signal)		
20	PCIe x16 Slot #7 (x16 Signal)		
21	System Battery		
22	SlimLine SAS Connector (SLINK0)		
23	SlimLine SAS Connector (SLINK1)		
24	SlimLine SAS Connector (SLINK2)		
25	SlimLine SAS Connector (SLINK3)		
26	OCP Mezzanine Connector		
27	PMBus Connector		
28	2 x 13 Pin Power Connector		
29	2 x 4 Pin 12V Power Connector		
30	2 x 4 Pin 12V Power Connector		
31	TPM Module Connector		

4-2 Jumper Settings



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Chapter 5 BIOS Setup

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

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



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

BIOS Setup Program Function Keys

	<←><→>	Move the selection bar to select the screen
	<↑><↓>	Move the selection bar to select an item
	<+>	Increase the numeric value or make changes
	<->	Decrease the numeric value or make changes
	<enter></enter>	Execute command or enter the submenu
	<esc></esc>	Main Menu: Exit the BIOS Setup program
		Submenus: Exit current submenu
	<f1></f1>	Show descriptions of general help
	<f3></f3>	Restore the previous BIOS settings for the current submenus
	<f9></f9>	Load the Optimized BIOS default settings for the current submenus
	<f10></f10>	Save all the changes and exit the BIOS Setup program
_		

Main

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

Advanced

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

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

Chipset

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

Server Management

Server additional features enabled/disabled setup menus.

Security

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

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

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

Boot

This setup page provides items for configuration of boot sequence.

Save & Exit

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

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

5-1 The Main Menu

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

Main Menu Help

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

Submenu Help

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



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

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



Main Advanced Chipset Server Mg	Aptio Setup – AMI mt Security Boot Save & Exit	
System Product Name Project Name Project Version Build Date and Time	R152-P30-JG 4 MP32-AR0-JG F09b8 04/20/2021 15:09:05	Set the Time. Use Tab to switch between Time elements.
BMC Information BMC Firmware Version	12.48.02	
Processor Information		
CPU 0 Brand String	Ampere(R) Altra(R) Processor Q80–33	
Processor Core	80	
Max CPU Speed	3000 MH2	++: Select Screen 11: Select Item Enter: Select
Total Mamanu	3908	F1: Cononal Wale
Memory Energyency	2933MH7	F3: Previous Values
Hemory Slot Information	E JOOTTE	F9: Optimized Defaults
System Language	[English]	ESC: Exit
System Date	[Tue 04/20/2021]	
System Time	[15:32:22]	
version	2.21.1280 Copyright (C) 2021 AMI	

Parameter	Description	
BIOS Information		
Access Level	Display the privileges level information.	
System Project Name	Displays the system project name information.	
Project Name	Displays the motherboard project name information.	
Project Version	Displays version number of the BIOS setup utility.	
Build Date and Time	Displays the date and time when the BIOS setup utility was created.	
BMC Information		
BMC Firmware Version	Displays version number of the BIOS setup utility.	
Processor Information		
CPU0 Brand String		
Processor Core	Displays the technical specifications for the installed processor.	
Max CPU Speed		
Memory Information		
Total Memory	Displays the technical specifications for the installed memory	
Memory Frequency		
Memory Slot Information	Press [Enter] to view installed memory slot information.	
System Language	Option: English	
System Date	Sets the date following the weekday-month-day-year format.	
System Time	Sets the system time following the hour-minute-second format.	

5-2 Advanced Menu

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

Aptio Setup – AMI Main <mark>Advanced</mark> Chipset Server Mgmt Security Boot Save & Exit	
<pre>Main Advanced Chipset Server Mgmt Security Boot Save & Exit Trusted Computing ACPI Settings General Matchdog Timer APEI Configuration FCI Subsystem Settings Infor Report Configuration VUSB Configuration Network Stack Configuration Power Restore Configuration ACC000E1EF0024C-IPV4 Network Configuration MAC:000E1EF0024C-IPV4 Network Configuration MAC:000E1EF0024C-IPV4 Network Configuration MAC:000E1EF0024C-IPV4 Network Configuration MAC:000E1EF0024D-IPV4 Network Configuration MAC:18C0400FF6CC-IPV4 Network Configuration MAC:18C0400FF6CC-IPV6 Network Configuration MAC:18C040FF6CC-IPV6 Network Confi</pre>	Trusted Computing Settings ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit
▶ MAC:18C04D0FF6CD-IPv4 Network Configuration ▶ MAC:18C04D0FF6CD-IPv6 Network Configuration	ESC: Exit

5-2-1 Trusted Computing

Advanced	Aptio Setup – AMI	
Configuration Security Device Support NO Security Device Found	(Enable)	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TGG EFI protocol and INTIA interface will not be available.
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F3: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
Ve	rsion 2.21.1280 Copuright (C)	2021 AMI
rameter	Description	
nfiguration		
curity Device Support	Select Enabled to activat Options available: Enable	e TPM support feature. e/Disable. Default setting is Enable .

5-2-2 ACPI Settings

Advanced	Aptio Setup – AMI	
ACPI Settings		Enables or Disables BIOS
Enable ACPI Auto Configuration		
Enable CPPC Enable DVFS Mode Enable LPI Enable Max Performance	[Enabled] [Disabled] [Enabled] [Enabled]	
		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>

Parameter	Description
ACPI Settings	
Enable ACRI Auto Configuration	Enable or disable BIOS ACPI auto configuration.
	Options available: Enabled/Disabled. Default setting is Enabled .
Enable CPPC	Enable or disable CPPC.
	Options available: Enable/Disable. Default setting is Enabled.
Enable DVFS Mode	Options available: Enabled/Disabled. Default setting is Disabled .
Enable LPI	Options available: Enabled/Disabled. Default setting is Enabled .
Enable Max Performance	Options available: Enabled/Disabled. Default setting is Enabled.

5-2-3 General Watchdog

Advanced	Aptio Setup – AMI	
General Watchdog Timer		Timeout when SCP will
Secure Watchdog Timeout BIOS Watchdog Timeout OS Watchdog Timeout	[5 minutes] [5 minutes] [Disable]	reset system it it doesn't receive response from ARMV8.
		++: Select Screen f1: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
General Watchdog Timer	
	Timeout when SCP will reset system if it doesn't receive response from
Secure Wetchdog Timoout	ARMv8.
Secure watchuog nineout	Options available: 5 minutes/6 minutes/10 minutes/15 minutes/25 minutes.
	Default setting is 5 minutes.
PIOS Watebdeg Timeout	Options available: 5 minutes/6 minutes/10 minutes/15 minutes/25 minutes.
DIOS Watchuog Timeout	Default setting is 5 minutes.
	Timeout when boot OS.
OS Watabdag Timoout	Options available: Disable/3 minutes/4 minutes/5 minutes/6 minutes/
03 Watchuog Timeout	10 minutes/15 minutes/20 minutes.
	Default setting is Disable .

5-2-4 APEI Configuration

Advanced	Aptio Setup – AMI	
APEI Configuration		Enable/Disable ACPI
APEI Enable		Platform Error Interface support ++: Select Screen 11: Select Trem
		Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
APEI Configuration	
	Enable/Disable ACPI Platform Error Interface support.
APEI Enable	Options available: Enabled/Disabled.
	Default setting is Disabled .

5-2-5 PCI Subsystem Settings



Advanced	Aptio Setup – AMI	
PCI Express GEN 1 Settings PCI Express Device Register Settings Relaxed Ordering Extended Tag No Snoop Maximum Payload Maximum Payload	[Enabled] [Disabled] [Disabled] [Auto]	Enables or Disables PCI Express Device Relaxed Ordering.
PGAINDM Read Pequest PCI Express Link Register Settings Extended Synch Clock Power Management Link Training Retry Link Training Timeout (US) Disable Empty Links WARNING: Enabling ASPM may cause som PCI-E devices to fail!	[Disabled] [Disabled] [5] 1000 [Disabled] e	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
Vana ion 2	91 1990 Copunidat (C) 9091 AM	Ť

Parameter	Description		
AMI PCI Bus Driver Version	Displays the AMI PCI Bus Driver version information.		
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 Disabled .		
SR-IOV Support	If the system has SR-IOV capable PCIe devices, this item Enable/Disable Single Root IO Virtualization Support. Options available: Enabled/Disabled. Default setting is Enabled .		
Change Settings of the Following PCI Devices			
Slot #8 Occupied Onboard Device_#	 PCI Latency Timer Value to be programmed onto PCI Latency Timer Register. Options available: 32/64/96/128/160/192/224/248 PCI Bus Clocks. Default setting is 32 PCI Bus Clocks. PCI-X Latency Timer Value to be programmed onto PCI Latency Timer Register. Options available: 32/64/96/128/160/192/224/248 PCI Bus Clocks. Default setting is 64 PCI Bus Clocks. VGA Palette Snoop Enable or disable VGA Palette Registers Snooping. Options available: Enabled/Disabled. Default setting is Disabled. PERR# Enable or disable PCI device to generate PERR. Options available: Enabled/Disabled. Default setting is Disabled. SERR# Enable or disable PCI device to generate SERR. Options available: Enabled/Disabled. Default setting is Disabled. 		
Disable Above 4G Decoding	Options available: Enabled/Disabled. Default setting is Disabled .		
Disable PCIe Init	Options available: Enabled/Disabled. Default setting is Disabled .		
Disable PCIe GEN2	Options available: Enabled/Disabled. Default setting is Disabled .		

5-2-5-1 PCI Express GEN 1 Settings

Advanced	Aptio Setup – AMI	
PCI Express GEN 1 Settings PCI Express Device Register Settings Relaxed Ordering	[Enabled]	Enables or Disables PCI Express Device Relaxed Ordering.
Extended Tag No Snoop Maximum Payload Maximum Read Request	(Disabled) (Disabled) (Auto) (Auto)	
PCI Express Link Register Settings Extended Synch Clock Power Management Link Training Retry Link Training Timeout (uS) Disable Empty Links WARNING: Enabling ASPM may cause som PCI-E devices to fail!	(Disabled) (Disabled) (5) 1000 (Disabled) e	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
L	21 1280 Copueight (P) 2021 AWT	

Parameter	Description
	 PCI Express GEN1 Device Register Settings Relaxed Ordering Enable or disable PCI Express Device Relaxed Ordering. Options available: Enabled/Disabled. Default setting is Enabled.
	 Extend Tag If enabled, allows device to use 8-bit Tag field as a requester. Options available: Enabled/Disabled. Default setting is Disabled.
POLEXPress GENT Setting	 No Snoop Enable or disable PCI Express Device No Snoop option. Options available: Enabled/Disabled. Default setting is Disabled.
	 Maximum Payload Set Maximum Payload of PCI Express Device or allow System BIOS to select the value. Options available: Auto/128 Bytes/ 256 Bytes. Default setting is Auto.

Parameter	Description
	 PCI Express Device Link Register Settings Maximum Read Request Set Maximum Read Request of PCI Express Device or allow System BIOS to select the value. Options available: Auto/128 /256/512/1024/2048/4096 Bytes. Default setting is Auto.
	 Extended Synch If enabled, allows generation of Extended Synchronization patterns. Options available: Enabled/Disabled. Default setting is Disabled.
	 Clock Power Management If support by hardware and set to 'Enabled', the device is permitted to use CLKREQ# signal for power management of link clock in accordance to protocol defined in appropriate form factor specification. Options available: Enabled/Disabled. Default setting is Disabled.
PCI Express GEN1 Setting	 Link Training Retry Defines numbers of Retry Attempts software will take to retrain the link if previous training attempt was unsuccessful. Options available: Disabled/2/3/5. Default setting is Disabled.
	 Link Training Timeout (uS) Press '+' and '-' keys to set the values. Link Training Retry Defines numbers of Retry Attempts software will take to retrain the link if previous training attempt was unsuccessful. Called Ford Alide
	 Disable Empty Links In order to save software will disable unpopulated PCI Express Device links, if this option set to 'Disabled Link'. Options available: Enabled/Disabled. Default setting is Disabled.

5-2-5-2 PCI Express GEN 2 Settings

Advanced	Aptio Setup – AMI	
PCI Express GEN 2 Settings		In device Functions that
PCI Express GEN2 Device Register S	ettings	nrogrammahilitu allows
Completion Timeout	[Default]	system software to modify
ARI Forwarding	[Disabled]	the Completion Timeout
AtomicOp Requester Enable	[Disabled]	value, 'Default' 50us to
AtomicOp Egress Blocking	[Disabled]	50ms. If 'Shorter' is
IDO Request Enable	[Disabled]	selected, software will
IDO Completion Enable	[Disabled]	use shorter timeout ranges
LTR Mechanism Enable	[Disabled]	supported by hardware. If
End-End TLP Prefix Blocking	[Disabled]	'Longer' is selected, 🔹
PCI Express GEN2 Link Register Set Compliance SOS Hardware Autonomous Width Hardware Autonomous Speed	tings [Disabled] [Disabled] [Disabled]	★: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version	2.21.1280 Copyright (C)) 2021 AMI

Parameter	Description
	 PCI Express GEN2 Device Register Settings Completion Timeout In device Functions that support Completion Timeout programmability, allows system software to modify the Completion Timeout value. 'Default' 50us to 50ms. If 'Shorter' is selected, software will use shorter timeout ranges supported by hardware. If 'Longer' is selected, software will use longer timeout ranges. Options available: Default/Shorter/Longer/Disabled. Default setting is Default.
PCI Express GEN2 Setting	 ARI Forwarding If supported by hardware and set to 'Enabled', the Downstream Port disables its traditional Device Number field being 0 enforcement when turning a Type1 Configuration Request into a Type0 Configuration Request, permitting access to Extended Functions in an ARI Device immediately below the Port. Options available: Default/Shorter/Longer/Disabled. Default setting is Default.
	 AtomicOp Requester Enable If supported by hardware and set to 'Enabled', this function initiates AtomicOp Requests only if Bus Master Enable bit is in the Command Register Set. Options available: Enabled/Disabled. Default setting is Disabled. AtomicOp Egress Blocking
	 If supported by hardware and set to 'Enabled', outbound AtomicOp Requestsvia Egress Ports will be blocked. Options available: Enabled/Disabled. Default setting is Disabled.
	 IDO Request Enable If supported by hardware and set to 'Enabled', this permits setting the number of ID-Based Ordering (IDO) bit (Attribute[2]) requests to be initiated Options available: Enabled/Disabled. Default setting is Disabled.

Description	
PCI Express GEN2 Device Register Settings	
 IDO Request Enable If supported by hardware and set to 'Enabled', this permits setting the number of ID-Based Ordering (IDO) bit (Attribute[2]) requests to be initiated. Options available: Enabled/Disabled. Default setting is Disabled. IDO Completion Enable If supported by hardware and set to 'Enabled', this permits setting the number of ID-Based Ordering (IDO) bit (Attribute[2]) requests to be initiated. Options available: Enabled/Disabled. Default setting is Disabled. If supported by hardware and set to 'Enabled', this permits setting the number of ID-Based Ordering (IDO) bit (Attribute[2]) requests to be initiated. Options available: Enabled/Disabled. Default setting is Disabled. LTR Mechanism Enable If supported by hardware and set to 'Enabled', this enables the Latency Tolerance Reporting (LTR) Mechanism. Options available: Enabled/Disabled. Default setting is Disabled. End-End TLP Prefix Blocking If supported by hardware and set to 'Enabled', this function will block forwarding of TLPs containing End-End TLP Brefixec 	
Options available: Enabled/Disabled. Default setting is Disabled .	
PCI Express GEN2 Device Link Settings	
 Compliance SOS If supported by hardware and set to 'Enabled', this will force LTSSM to send SKP Ordered Sets between sequences when sending Compliance Pattern or Modified Compliance Pattern. Options available: Enabled/Disabled. Default setting is Disabled. Hardware Autonomous Width If supported by hardware and set to 'Disabled', this will disable the hardware's ability to change link width except width size reduction for the purpose of correcting unstable link operation. Options available: Enabled/Disabled. Default setting is Disabled. Hardware Autonomous Speed If supported by hardware and set to 'Disabled', this will disable the hardware's ability to change link speed If supported by hardware and set to 'Disabled', this will disable the hardware's ability to change link speed except speed rate reduction for the purpose of correcting unstable link operation. 	

5-2-6 Info Report Configuration

Advanced	Aptio Setup – AMI	
Info Report Configuration		Post Report Support
Post Papant		Endbieu/Disabieu
Post Report		
Delau Time	[1]	
being time	[1]	
Error Message Report		
Info Error Message	[Enabled]	
		→+: Select Screen
		î↓: Select Item
		Enter: Select
		+/-: Change Opt.
		F1: General Help
		F3: Previous Values
		F9: Optimized Defaults
		F10: Save & Exit
		ESC: Exit

Parameter	Description
Info Report Configuration	
Post Report	
Post Report	Enable/Disable Post Report support.
	Options available: Enabled/Disabled. Default setting is Enabled.
Dolou Timo	Options available: 0/1/2/3/4/5/6/78/9/10/Util Press ESC.
Delay Time	Default setting is 1.
Error Message Report	
Info Error Message	Enable/Disable Info Error Message support.
	Options available: Enabled/Disabled. Default setting is Enabled.

5-2-7 USB Configuration

Advanced	Aptio Setup – AMI	
USB Configuration		This is a workaround for OSes without XHCI band-off
USB Module Version	24	support. The XHCI ownership change should be
USB Controllers: 1 XHCI		claimed by XHCI driver.
USB Devices: 2 Drives, 1 Keyboard, 1 Mouse,	5 Hubs	
XHCI Hand–off	[Enabled]	
USB Mass Storage Driver Support	[Enabled]	
USB hardware delays and time-outs:		→+: Select Screen
Mass Storage Devices:		↑↓: Select Item
		+/-: Change Opt.
		F1: General Help F3: Previous Values
		F9: Optimized Defaults F10: Save & Exit
		ESC: Exit

Parameter	Description
USB Configuration	
USB Module Version	Displays USB module version information.
USB Controller	Displays the supported USB controllers.
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 Enabled .
USB Mass Storage Driver	Enable/Disable the USB Mass Storage Driver Support.
Support ^(Note)	Options available: Enabled/Disabled. Default setting is Enabled.

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

5-2-8 Network Stack

Advanced	Aptio Setup — AMI	
Network Stack PXE Retry IPv4 PXE Support IPv4 HTTP Support IPv6 PKE Support IPv6 HTTP Support PXE boot wait time Media detect count	[Enabled] [Disabled] [Enabled] [Disabled] [Disabled] [Disabled] 1	Enable/Disable UEFI Network Stack
		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>

Parameter	Description
Notwork Stock	Enable/Disable the UEFI network stack.
Network Stack	Options available: Enabled/Disabled. Default setting is Enabled.
Inv/ DVE Support	Enable/Disable the Ipv4 PXE feature.
Ipv4 FAE Support	Options available: Enabled/Disabled. Default setting is Enabled .
Inv/ UTTD Support	Enable/Disable the Ipv4 HTTP feature.
Ipv4 HTTP Support	Options available: Enabled/Disabled. Default setting is Disabled .
Inv6 DVE Support	Enable/Disable the Ipv6 PXE feature.
IPVO FAL Support	Options available: Enabled/Disabled. Default setting is Disabled .
Ipv6 HTTP Support	Enable/Disable the Ipv6 HTTP feature.
	Options available: Enabled/Disabled. Default setting is Disabled .
IPSEC Certificate	Enable/Disable the IPSEC Certificate feature.
Media detect count	Press the <+> / <-> keys to increase or decrease the desired values.

5-2-9 NVMe Configuration

Advanced	Aptio Setup — AMI	
NVMe controller and Drive informat	ion	
[NVME_00] Nvme Size / Serial Number	Empty Empty	
[NVME_01] Nvme Size / Serial Number	Empty Empty	
[NVME_02] Nvme Size ∕ Serial Number	Empty Empty	
[NVME_03] Nvme Size / Serial Number	Empty Empty	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
li terre d'are	0.01.1000.00001/bt (0).0001.01	17

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

5-2-10 Power Restore Configuration

Advanced	Aptio Setup — AMI	
Power Restore Power restore needs to (about 1.5 minutes)	[Last State] b wait for BMC to be ready	Specify what state when power is re-applied after a power failure (G3 state).
		++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
	Version 2.21.1280 Copyright (C) 20	021 AMI
Parameter	Description	
	Specify what state when power is	re-applied after a power failure
Power Restore	(G3 state).	
	Options available: Last State/Pow	er On/Power Off.

Default setting is Last State.

5-2-11 Intel(R) I350 Gigabit Network Connection

Advanced	Aptio Setup – AMI	
▶ NIC Configuration		Click to configure the
Blink LEDs	0	
UEFI Driver	Intel(R) PRO/1000 Open Source 9 2 06 PCI-F	
Adapter PBA	106300-000	
Device Name	Intel(R) I350 Gigabit Network Connection	
Chip Type	Intel i350	
PCI Device ID	1521	
PCI Address	02:00:00	
Link Status	[Disconnected]	<pre>++: Select Screen f↓: Select Item</pre>
MAC Address	18:C0:4D:0F:F6:CC	Enter: Select
Virtual MAC Address	00:00:00:00:00	+/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
1	/ersion 2.21.1280 Copyright (C) 2021	AMI
Advanced	Aptio Setup — AMI	
Link Speed		Specifies the port speed used for the selected boot protocol.

Link Speed [Auto Negotiated] Nake Dn LAN [Enabled] **: Select Screen 11: Select Screen 11: Select Trem Enter: Select +/-: Change Opt. F1: General Heip F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
	Press [Enter] to configure advanced items.
	Link Speed
	 Allows for automatic link speed adjustment.
	 Options available: Auto Negotiated/10 Mbps Half/10 Mbps Full/100 Mbps Half/100 Mbps Full. Default setting is Auto Negotiated.
NIC Configuration	Wake On LAN
	 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.
	Os controlled power states.
	- Options available. Enabled/Disabled. Default setting is Enabled.
Blink LEDs	Press the numeric keys to adjust desired values
	Displays the technical specifications for the Network Interface Controller
	Displays the technical specifications for the Network interface Controller.
Adapter PBA	Displays the technical specifications for the Network Interface Controller.
Device Name	Displays the technical specifications for the Network Interface Controller.
Chip Type	Displays the technical specifications for the Network Interface Controller.
PCI Device ID	Displays the technical specifications for the Network Interface Controller.
PCI Address	Displays the technical specifications for the Network Interface Controller.
Link Status	Displays the technical specifications for the Network Interface Controller.
MAC Address	Displays the technical specifications for the Network Interface Controller.
Virtual MAC Address	Displays the technical specifications for the Network Interface Controller.

5-2-12 MAC IPv4 Network Configuration

Advanced	Aptio Setup – AMI	
Configured Enable DHCP Local IP Address Local NetMask Local Gateway Local DNS Servers Save Changes and Exit	[Enabled] [Disabled]	Indicate whether network address configured successfully or not. **: Select Screen 11: Select Item Enter: Select */-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

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

⁽Note) Advance items prompt when this item set to Enabled.

5-2-13 MAC IPv6 Network Configuration

Advanced		Aptio Setup – AMI	
Interface Name Interface Type	:	eth2 Ethernet	The 64 bit alternative interface ID for the
MAC address Host addresses	:	18-C0-4D-0F-F6-CC FF80::1AC0:4DFF:FF0F:F6CC/64	device. The string is colon separated. e.g. ff:dd:88:66:cc:1:2:3
Route Table	:	FE80::/64 >>::	
Gateway addresses DNS addresses	:	10:00:40:FF:FF:F:F6:00	
DAD Transmit Cour Policy	nt	1 [automatic]	
Save Changes and	Exit		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

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

5-3 Chipset Setup Menu

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

 > GPU Configuration > Memory Slot Information > RAS Configuration > PCIE Root Complex Configuration +*: Select Screen 14: Select Item Enter: Select */-: Change Opt. F1: Beneral Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit 	Aptio Setup – AMI Main Advanced <mark>Chipset</mark> Server Mgmt Security Boot Save & Exit	
	 CPU Configuration Memory Slot Information RAS Configuration PCIE Root Complex Configuration 	CPU Configuration ++: Select Screen 1: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
CPU Configuration	Press [Enter] for configuration of advanced items.
Memory Slot Configuration	Press [Enter] for configuration of advanced items.
RAS Configuration	Press [Enter] for configuration of advanced items.
PCIE Root Complex Configuration	Press [Enter] for configuration of advanced items.

5-3-1 CPU Configuration

Aptio Setup - AMI Chipset		
CPU Configuration Number of processors enabled Enable number of cores ARM ERRATA 1542419 workaround ANC mode Near atomic SLC Replacement Policy	1 80 [Oefault] [Disable I-Cache coherency] [Monolithic] [Enabled] [Enhanced Least Recently Used]	Enable number of cores for the system.
L1C I/D L2C SLC Warranty	Socket 0 64 KB 1 MB 32 MB 1	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
CPU Configuration	
Numbers of processor enabled	Displays the number of installed processor information.
Enable number of cores	Option: Default/2/4/6/8/10/12/14/16/18/20/22/24/26/28/30/32/34/3680.
	Default Setting is Default .
ARM ERRATA 1542419	Option available: Disable I-Cache coherency/Software solution/Disable.
workaround	Default Setting is Disable I-Cache coherency.
ANC mode	Option available: Monolithic/Hemisphere/Quadrant.
ANC mode	Default Setting is Monolithic.
	Enable/disable cacheable atomic instruction executed near in CPU.
Near atomic	Option available: Enabled/Disabled.
	Default Setting is Enabled.
	Option available: Enhanced Least Recently Used/Linear-Feedback Shift
SLC Replacement Policy	Register.
	Default Setting is Enhanced Least Recently Used.
L1C I/D	
L2C	Displays the technical aposition for the installed processor
SLC	Displays the technical specifications for the installed processor.
Warranty	

5-3-2 Memory Slot Information

Chipset	Aptio Setup – AMI	
Memory Configuration Total Memory Effective Memory Memory Speed Memory Openating Speed Selection Fine Granularity Refresh (FGR) Memory RAS and Performance Configura NVDIRM-N Configuration DIMM_SO_A0: 32 GB ROIMM Installed DIMM_SO_A1: Not Installed	32 GB 31 GB 2933 MH2 [Auto] [1x] tion	Force specific Memory Operating Speed or use Auto setting.
DIMM_S0_B0: Not Installed DIMM_S0_B1: Not Installed DIMM_S0_C0: Not Installed DIMM_S0_C0: Not Installed DIMM_S0_D1: Not Installed DIMM_S0_D1: Not Installed DIMM_S0_E1: Not Installed DIMM_S0_F1: Not Installed DIMM_S0_F1: Not Installed DIMM_S0_G0: Not Installed DIMM_S0_G1: Not Installed DIMM_S0_H0: Not Installed DIMM_S0_H1: Not Installed		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
Memory Configuration	
Total Memory	
Effective Memory	Displays the technical specifications for the installed DIMM.
Memory Speed	
Memory Operating Speed	Option available: Auto/2133/2400/2666/2933/3200.
Selection	Default setting: Auto.
Fine Granularity Refresh	Select DDR Fine Granularity Refresh (FGR) mode.
(FGR)	Option available: 1x/2x/4x. Default setting is 1x.
Memory RAS and	Proce [Enter] for advanced configuration
Performance Configuration	
NVDIMM -N Configuration	Press [Enter] for advanced configuration.
DIMM Information	Display installed DIMM information.

5-3-2-1 Memory RAS and Performance Configuration

Chipset	Aptio Setup – AMI	
Memory RAS and Performance Configurat ECC mode Defer uncorrectable read errors Fault handling interrupt Scrub Patrol duration (hour) Demand scrub Write CRC CVE-2020-10255 mitigation	ion [Enabled] [Enabled] [24] [Disabled] [Disabled] [Disabled]	ECC mode: Disabled, SECDED or Symbol +: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
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Parameter	Description
Memory RAS and	
Performance Configuration	
ECC Mode	Option available: Disabled/SECDED/Symbol
	Default setting: SECDED.
Defer uncorrectable read	Option available: Enabled/Disabled.
errors	Default setting: Disabled.
Foult bondling interrupt	Option available: Enabled/Disabled.
Fault handling interrupt	Default setting: Enabled.
Seruh Patrol duration (hour)	Option available: 124.
Scrub Patrol duration (nour)	Default setting: 24.
Demand scrub	Option available: Enabled/Disabled.
	Default setting: Enabled.
Write CPC	Option available: Enabled/Disabled.
WINE ONG	Default setting: Disabled.
CVE=2020-10255 mitigation	Option available: Enabled/Disabled.
	Default setting: Disabled.

5-3-2-2 NVDIMM-N Configuration

Aptio Setup - AMI Chipset		
NVDIMM—N Configuration SocketO Configured Mode Mode Selection	Non-NVDIMM [Auto]	Select NVDIMM-N Mode (Non-NVDIMM/Non-Hashed/Hash ed/Auto)
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
Vers	ion 2.21.1280 Copyright (C	

Parameter	Description
NVDIMM-N Configuration	
Socket0 Configuration	
	Select NVDIMM-N Mode.
Mode Selection	Option available: Non-NVDIMM/Non-Hashed/Hashed/Auto. Default setting: Auto .
5-3-3 RAS Configuration

Chipset	Aptio Setup — AMI	
RAS Configuration Hardware EINJ DRAM EINJ No Trigger PCIE AER Firmware First Processor DS-first DDR CE Threshold Processor CE Threshold DDR Link Error Threshold	(Disabled) (Disabled) (Disabled) 1 1 2	Enable hardware EINJ support, if disabled EINJ is software simulated **: Select Screen 14: Select Item Enter: Select */-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
RAS Configuration	
Hardwara EIN I	Option available: Enabled/Disabled.
	Default setting: Disabled.
PCIe AER Firmware First	Option available: Enabled/Disabled.
	Default setting: Disabled.
DDR CE Threshold	Press '+" or "-" to configure the threshold.
Processor CE Threshold	Press '+" or "-" to configure the threshold.
DDR Kink Error Threshold	Press '+" or "-" to configure the threshold.

5-3-4 PCIE Root Complex Configuration

Chipset	Aptio Setup — AMI	
<pre>PCIE Root Complex Configuration PCIE Lanes Bifurcation Mode SMMU Pmu On-board VGA * Root Complex # 0 (×16: 0CP) * Root Complex # 1 (×16: PCIE_7 or U2) * Root Complex # 2 (×16: PCIE_6) * Root Complex # 3 (×16: PCIE_6) * Root Complex # 4 (1st ×8: PCIE_2, 2nd * Root Complex # 5 (1st ×8: PCIE_2, 2nd * Root Complex # 5 (1st ×8: VGA/USB) * Root Complex # 7 (1st ×8: PCIE_1, 2nd</pre>	<pre>[Default] [Disabled] [Enabled] x8: PCIE_5) x8: LAN) x8: M2_1 and M2_2)</pre>	Configure PCIE Lanes Blfurcation Mode Default: Adjust according to system settings. Manual: Adjust according to user settings. ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Optimized Defaults F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
PCIE Root Complex	
Configuration	
PCIa Lanas Difurgation	Option available: Manual/Default.
FOR Lanes Diluication	Default setting: Default.
	Enable/Disable PMU feature for SMMU.
SMMU Pmu	Option available: Enabled/Disabled.
	Default setting: Disabled.
	Enable/Disable on-board VGA.
On-board VGA	Option available: Enabled/Disabled.
	Default setting: Enabled.
Root Complex_#(Note)	Press [Enter] to view advanced items.

⁽Note) Advance items can be configurable when PCIe Lanes Bifurcation is set to Manual.

5-4 Server Management Menu

BMC Self Test Status PASSED BMC Device ID 32 BMC Device Revision 1 BMC Finumere Revision 12.48.02 IPMI Version 2.0 BMC Support [Enabled] System Event Log > BMC network configuration **: Select Screen 14: Select Item Entres Self File General Help File General Help File Save & Exit ESC: Exit	Main Advanced Chipset	Aptio Setup – AMI Server Mgmt Security Boot Sav	e & Exit
	BMC Self Test Status BMC Device ID BMC Device Revision IPMI Version BMC Interface(s) BMC Support > System Event Log > Bmc self test log > View FRU information > BMC network configuration	PASSED 32 1 12.48.02 2.0 SSIF [Enabled]	Enable/Disable interfaces to communicate with BMC **: Select Screen 14: Select Item Enter: Select */-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
RMC Support	Enable/Disable interfaces to communicate with BMC.
BINC Support	Options available: Enabled/Disabled. Default setting is Enabled .
System Event Log	Press [Enter] to configure advanced items.
BMC self test	Press [Enter] to configure advanced items.
View FRU	Press [Enter] to view the advanced items
Information	
BMC network	Press [Enter] to configure advanced items
configuration	

5-4-1 System Event Log

Server Mgm	Aptio Setup – AMI t	
Enabling/Disabling Options SEL Components Enasen Settings Enase SEL When SEL is Full Custom EFI Logging Options Log EFI Status Codes	[Enabled] [No] [Do Nothing] [Error code]	Change this to enable or disable event logging for error/progress codes during boot.
NOTE: All values changed here do not effect until computer is resta	take nted.	<pre>++: Select Screen tl: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>

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

5-4-2 BMC self test



Parameter	Description
log area usage =00 out of 20	
logs	
Erase Log	Options available: No/Yes, On next reset/Yes, On every reset.
	Default setting is No.
	Configuration for reactions to a full log.
When Log is full	Option available: Do not log any more/Clear Log.
	Default setting is Do not log any more .

5-4-3 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.

Aptio Setup – AMI Server Mgmt		
BMC network configuration Lan channel 1 Configuration Address source Station IP address Subnet mask Router IP address Station MAC address Real-time get BMC network address	[Static] 10.1.6.233 255.255.255.0 10.1.6.253 18-C0-4D-0F-F6-CE	Select to configure LAN channel parameters statically or dynamically(by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase
**************************************		++: Select Screen 11: Select Item Enter: Select
IPv6 Support	[Disəbled]	+/-: Unange upt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version 2	2.21.1280 Copyright (C) 2021 AM	I

5-4-4 BMC Network Configuration

Server Mgr	Aptio Setup – AMI N	
BMC network configuration		Select to configure LAN
Lan channel 1		statically on
Configuration Address source	[Static]	dynamically(by BIOS or
Station IP address	10.1.6.233	BMC). Unspecified option
Subnet mask	255.255.255.0	will not modify any BMC
Router IP address	10.1.6.253	network parameters during
Station MAC address	18-C0-4D-0F-F6-CE	BIOS phase
Real-time get BMC network address		++: Select Screen 14: Select Item Fotori Colect
		+/-: Change Opt.
IPv6 Support	[Disabled]	F1: General Help
IPv6 Support is Disabled		F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
BMC network configuration	
Lan Channel 1	
	Select to configure LAN channel parameters statically or dynamically
	(DHCP). Do nothing option will not modify any BMC network parameters
Configuration Address source	during BIOS phase.
	Options available: Unspecified/Static/DynamicBmcDhcp. Default setting
	is DynamicBmcDhcp.
Station IP address	Displays IP Address information.
	Displays Subnet Mask information.
Subnet mask	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] to synchronize the BMC network address
	Option available: Enabled/Disabled.
IPV6 Support	Default Setting is Disabled .

(Note) Advance items can be configurable when IPV6 Support is set to Enabled.

5-5 Security Menu

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

Main Advanced Chipset Se	Aptio Setup – AMI rver Mgmt <mark>Security B</mark> oot	: Save & Exit
Password Description		Set Administrator Password
If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup. If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights. The password length must be in the following range: Winimum length 3		
Administrator Password User Password	20	++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Oct.
▶ Secure Boot		F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

There are two types of passwords that you can set:

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

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

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

5-5-1 Secure Boot

	Aptio Setup – AMI <mark>Security</mark>	
System Mode	User	Secure Boot feature is Active if Secure Boot is
Secure Boot	[Disabled] Not Active	Enabled, Platform Key(PK) is
Secure Boot Mode ▶ Restore Factory Keys ▶ Reset To Setup Mode ▶ Key Management	[Custom]	enrolled and the System IS In User mode. The mode change requires platform reset
		++: Select Screen 14: Select Item Enter: Select
		+/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
System Mode	Displays the system is in User mode or Setup mode.
Secure Boot Mode ^(Note)	Secure Boot requires all the applications that are running during the booting process to be pre-signed with valid digital certificates. This way, the system knows all the files being loaded before Windows loads and gets 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 Custom.

Parameter	Description		
	Press [Enter] to configure advanced items.		
	Please note that this item is configurable when Secure Boot Mode is set		
	to Custom.		
	Provision Factory Defaults		
	 Allows to provision factory default Secure Boot keys when system is in Sature Mode. 		
	Options evolution Enchlad/Discolad, Default cetting is Discolad		
	- Options available. Enabled/Disabled. Default setting is Disabled .		
	 Install Factory Default Keys Installs all factory default keys. It will force the system in User Mode. 		
	Enroll Ell Image Drace [Enter] to enroll CLIA2EC back of the binery into Authorized		
	 Press [Enter] to enroll SHA256 hash of the binary into Authorized Signature Database (db). 		
	Save all Secure Boot variables		
	 Press [Enter] to save all Secure Boot Keys and Key variables. 		
	Secure Boot variable		
	 Displays the current status of the variables used for secure boot. 		
	 PidlioIIII Key (PK) Displaye the surrent status of the Distform Key (DK) 		
	- Displays the current status of the Flattonn Key (FK).		
	- Fless [Eliter] to conligure a new FK.		
	Kov Evolutions available. Set New.		
	 Displaye the current status of the Key Evchance Key Database (KEK) 		
Key Management	 Displays the current status of the Key Exchange Key Database (KEK). Press [Enter] to configure a new KEK or load additional KEK from 		
	storage devices		
	 Ontions available: Set New/Append 		
	Authorized Signatures (DB)		
	 Displays the current status of the Authorized Signature Database 		
	 Press [Enter] to configure a new DB or load additional DB from storage 		
	devices.		
	 Options available: Set New/Append. 		
	Forbidden Signatures (DBX)		
	 Displays the current status of the Forbidden Signature Database. 		
	 Press [Enter] to configure a new dbx or load additional dbx from 		
	storage devices.		
	 Options available: Set New/Append. 		
	 Authorized TimeStamps (DBT) 		
	 Displays the current status of the Authorized TimeStamps Database. 		
	 Press [Enter] to configure a new DBT or load additional DBT from 		
	storage devices.		
	 Options available: Set New/Append. 		
	OsRecovery Signatures		
	 Displays the current status of the OsRecovery Signature Database. 		
	 Press [Enter] to configure a new UsRecovery Signature or load 		
	additional USRecovery Signature from storage devices.		
	 Opports available: Set New/Append 		

5-6 Boot Menu

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

Main Advanced Chipset Server Mg	Aptio Setup – AMI mt Security <mark>Boot</mark> Save & Exit	
Boot Configuration Setup Prompt Timeout Bootup NumLock State Quiet Boot	5 (On) [Enabled]	Number of seconds to wait for setup activation key. 65535(OxFFFF) means indefinite waiting.
Dump full Setup Data Dump non-default Setup Data Restore Setup Data		
New UEFI OS Boot Option Policy	(Place First)	
FIXED BOOT ORDER Priorities Boot Option #1 Boot Option #2 Boot Option #3 Boot Option #4 Boot Option #5 • UEFI NETWORK Drive BBS Priorities • UEFI Application Boot Priorities	[Hard Disk] [Network:UEFI: PXE IPv4 QLogic Network 00:0E:1E:F0:02:4C] [CD/DVD] [USB Device] [UEFI AP:UEFI: Built-in EFI Shell]	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

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

Parameter	Description	
Dump full Setup Data		
Dump non-default Setup Data		
Restore Setup Date		
New UEFI OS Boot Option	Option available: Default/Place First/Place Last.	
Policy	Default setting is Place First/.	
FIXED BOOT ORDER		
Priorities		
	Press [Enter] to configure the boot priority.	
	By default, the server searches for boot devices in the following	
	sequence:	
Boot Option #1 / #2 / #3 / #4 /	1. Hard drive.	
#5	2. CD-COM/DVD drive.	
	3. USB device.	
	4. Network.	
	5. UEFI.	
UEFI Network Drive BBS	Drace [Enter] to configure the best priority	
Priorities	Press [Enter] to configure the boot phonty.	
UEFI Application Boot	Press [Enter] to configure the boot priority	
Priorities		

5-7 Save & Exit Menu

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

Aptio Setup – AMI Main Advanced Chipset Server Mgmt Security Boot <mark>Save & Exit</mark>	
Save Options Save Changes and Exit Discard Changes and Exit Save Changes and Reset Discard Changes Save Changes Discard Changes	Exit system setup after saving the changes.
Default Options Restore Defaults Save as User Defaults Restore User Defaults Boot Override UEFI: PXE IP44 QLogic Network 00:0E:1E:F0:02:40 UEFI: PXE IP44 QLogic Network 00:0E:1E:F0:02:40 UEFI: PXE IP44 Intel(R) Network 18:C0:40:0F:F6:CD UEFI: PXE IP44 Intel(R) Network 18:C0:40:0F:F6:CD UEFI: Built-in EFI Shell Launch EFI Shell from filesystem device	<pre>+*: Select Screen tl: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>

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

5-8 BIOS POST Beep code (AMI standard)

5-8-1 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

5-8-2 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