GIGABYTE[™]

G493-ZB0-AAP1

HPC/AI Server - AMD EPYC™ 9005/9004 - 4U DP 8 x PCIe Gen5 GPUs

User Manual

Rev. 3.0

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Documentation Classifications

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

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

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

For More Information

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

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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:

Ê,	NOTE! Gives bits and pieces of additional information related to the current topic.		
CAUTION! Gives precautionary measures to avoid possible hardware or software problem			
	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.



- 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.

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.

The equipment should only be repaired, maintained or replaced by skilled personnel.

- 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.

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.

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.

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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	 ◆ 4U
Dimension	 448 x 176 x 880 (W x H x D, mm)
CPU	 AMD EPYC[™] 9005 Series Processors AMD EPYC[™] 9004 Series Processors
	Dual processor. cTDP up to 400W [1]
	- At ambient 25°C, cTDP up to 500W
	^[1] Please refer to the QVL on the support page or contact our sales representatives
	for verified CPU SKUs.
	[Note] If only 1 CPU is installed, some PCIe or memory functions might be unavailable.
Socket	2 x LGA 6096 Context CDE
	Socket SP5
Chipset	System on Chip
Security	UEFI Secure Boot
	Silicon root of trust (Option)
	SNMP Support: V3
Memory	24 x DIMM slots
	DDR5 memory supported
	12-Channel memory architecture
	AMD EPYC™ 9005:
	RDIMM: Up to 6000 MT/s
	AMD FPYC™ 9004·
	 RDIMM: Up to 4800 MT/s
	Front:
t <u>e</u>	 2 x 10Gb/s LAN (1 x Intel® X710-AT2)
	- Support NCSI function
	 1 x 10/100/1000 Mbps Management LAN
Video	Integrated in Aspeed® AST2600
	- 1 x VGA port
Storage	Internal M.2:
	 1 x M.2 (2280/22110), PCIe Gen3 x4, from CPU_1
	 1 x M.2 (2280/22110), PCIe Gen3 x1, from CPU_0

SAS SAS	 N/A
RAID	 N/A
Expansion Slot	 4 x FHFL x16 (Gen5 x16), from CPU_0, for GPUs 4 x FHFL x16 (Gen5 x16), from CPU_1, for GPUs 1 x FHFL x16 (Gen5 x16), from CPU_0 1 x FHFL x16 (Gen5 x16), from CPU_1 [Note] The system is validated for use with a single GPU model.
Front I/O	 2 x USB 3.2 Gen1 ports (Type-A) 1 x VGA port 2 x RJ45 ports 1 x MLAN port 1 x Power button with LED 1 x ID button with LED 1 x NMI button 1 x Reset button 1 x Storage activity LED 1 x System status LED
Rear I/O	 N/A
Backplane Board	 N/A
Security Modules	1 x TPM header with SPI interface - Optional TPM2.0 kit: CTM010
Power Supply	 3+1 3000W 80 PLUS Titanium redundant power supplies ^[1] AC Input: 100-240V ^[1] The system power supply requires C19 power cord. ^[Note] GIGABYTE offers PSUs with various efficiency ratings and power outputs. Full redundancy may depend on your server configuration, and alternative PSU options may be needed. Please contact our sales representatives for the best power solution.

System	Aspeed® AST2600 Baseboard Management Controller
Management	GIGABYTE Management Console web interface
	Dashboard
	◆ HTML5KVM
	Sensor Monitor (Voltage RPM Temperature CPU Status etc.)
	Sensor Reading History Data
	FRU Information
	SEL Log in Linear Storage / Circular Storage Policy
	Hardware Inventory
	Fan Profile
	System Firewall
	Power Consumption
	Power Control
	Advanced power capping
	LDAP / AD / RADIUS Support
	Backup & Restore Configuration
	Backup & Restore Comiguration Bemote BIOS/BMC/CPLD Lindate
	Event Log Filter
	User Management
	Media Redirection Settings
	PAM Order Settings
	SSI Settings
	SMTP Sattings
System Fans	 12 x 60x60x38mm (23 000rpm) [1]
	· _ · · · · · · · · · · · · · · · · · ·
	^[1] Two fans share a single power connector.
Operating	Operating temperature: 10°C to 35°C
Properties	 Operating humidity: 8-80% (non-condensing)
	 Non-operating temperature: -40°C to 60°C
	 Non-operating humidity: 20%-95% (non-condensing)

1-3 System Block Diagram



Chapter 2 System Appearance

2-1 Front View



No.	Description
1.	10GbE LAN Port x 2
2.	Front Panel LEDs and Buttons
3.	VGA Port
4.	Server Management LAN Port
5.	USB 3.2 Gen1 Port x 2
	NOTE! Drives with green latches support NVMe.



Go to the section 2-3 Front Panel Buttons and LEDs for detail description of function LEDs.

2-2 Rear View



2-3 Front Panel LED and Buttons



No.	Name	Color	Status	Description
1.	Reset Button			Press the button to reset the system.
2.	NMI button			Press the button server generates a NMI to the processor if the multiple-bit ECC errors occur, which effectively halt the server.
		0	On	HDD locate
		Green	Blink	HDD access
3.	HDD Status	Amber	On	HDD fault
0.	LED	Green/ Amber	Blink	HDD rebuilding
		N/A	Off	No HDD access or no HDD fault.
4.		Green	Solid On	System is operating normally.
	System Status LED ^(Note)	Amber N/A	Solid On	Critical condition, may indicate: System fan failure
			Blink	Non-critical condition, may indicate: Redundant power module failure Temperature and voltage issue
				Chassis intrusion
			Off	System is not ready, may indicate: POST error NMI error
				Processor or terminator missing
		Green	On	System is powered on
5.	Power button with LED	Green	Blink	System is in ACPI S1 state (sleep mode)
		N/A	Off	 System is not powered on or in ACPI S5 state (power off) System is in ACPI S4 state (hibernate mode)
6.	ID Button(Note)			Press the button to activate system identification

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

2-3-1 RoT LEDs



	LED on Front panel(Note5)			
	ID LED	Status LED		
EC Firmware (FW) Authentication fail or not exit				
EC FW is broken or not exit (Note1)	OFF	OFF		
Authenticating/Recovering BMC/BIOS Images				
Authenticating Images	OFF	OFF		
Recovering BMC Active Flash	Blinks Blue 4 times per second	Blinks Green 4 times per second		
Recovering BIOS Active Flash	Blinks Blue 4 times per second	Blinks Green 4 times per second		
Authentication (AUTH) Pass				
Recovering BIOS Active Flash	OFF	OFF		
BMC : AUTH pass after doing recovery BIOS : AUTH pass after doing recovery	OFF	OFF		
BMC : AUTH pass after doing recovery BIOS : AUTH pass	OFF	OFF		
BMC : AUTH pass BIOS : AUTH pass after doing recovery	OFF	OFF		
Active Flash Authentication (AUTH) Fail				
BMC : AUTH Fail ^(Note2)	Blinks Blue 1 time per second	Blinks Green 1 time per second		

BIOS : AUTH fail ^(Note2)	Blinks Blue 1 time per second	Blinks Amber 1 time per second
	Blinks Blue	Blinks Green
RMC · AUTH fail after doing recovery ^(Note3)	2 times per	2 times per
Diso . Ao main after doing recovery	second	second
	[ON OFF OFF]	[ON OFF OFF]
	Blinks Blue	Blinks Amber
DIOS , AUTH fail ofter doing recovery(Note3)	2 times per	2 times per
BIOS . AUTH fail after doing recovery	second	second
	[ON OFF OFF]	[ON OFF OFF]
Backup Flash Authentication Fail ^(Note4)		
	Blinks Blue	Blinks Green
	2 times per	2 times per
BMC : AUTH fail	second	second
	[ON OFF	[ON OFF
	ON OFF]	ON OFF]
	Blinks Blue	Blinks Amber
	2 times per	2 times per
BIOS : AUTH fail	second	second
	[ON OFF	[ON OFF
	ON OFF]	ON OFF]

NOTE!

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

2-4 Front Panel System LAN LEDs



No.	Name	Color	Status	Description
1. 10GbE		Green	On	10 Gbps data rate
	10GbE Speed LED	Yellow	On	5Gbps, 2.5Gbps, 1Gbps data rate
	op000 110	N/A	Off	100 Mbps data rate
		Croop	On	Link between system and network or no access
2.	10GbE Link / Activity LED	Green	Blink	Data transmission or reception is occurring.
		N/A	Off	No data transmission or reception is occurring.
3. 1Gb LED		Yellow	On	1 Gbps data rate
	1GbE Speed	Green	On	100 Mbps data rate
		N/A	Off	10 Mbps data rate
4.		Croop	On	Link between system and network or no access
	1GbE Link / Activity LED	Green	Blink	Data transmission or reception is occurring.
		N/A	Off	No data transmission or reception is occurring.

2-5 Power Supply Unit (PSU) LED



NOTE!

The power supply may be vary based on the system configuration.

PSU LED



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

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 Top 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/install the chassis top cover:

- 1. Push button to unlock the handle.
- 2. Pull the grip handle to open the panel cover.
- 3. Slide the cover towards the rear and remove the cover in the direction indicated.
- 4. Follow steps 1-3 in reverse order to re-install the top cover



3-2 Installing the GPU Card



Before you install/remove the GPU 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 GPU card. Make sure the system is not turned on or connected to AC power.
- · Failure to observe these warnings could result in personal injury or damage to the equipment.



• The GPU cards need to be purchased.

Follow these instructions to install the GPU card:

- 1. Pull out the thumbnail screw securing the GPU card cage in place.
- 2. Flip over the GPU card cage in the direction indicated.
- Remove the two screws securing the GPU card slot covers in place and remove the GPU card slot covers.
- 4. Insert the GPU card into the selected slot. Make sure the PCIe card is properly seated.
- 5. Install the two screws to secure the GPU card in place.
- 6. Reverse the previous steps to remove the GPU card.



3-3 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 PCle card.

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



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

Follow these instructions to install the PCIe card:

- 1. Remove the three screws securing the PCIe card bracket in place.
- 2. Lift the PCIe card bracket in the direction indicated.
- 3. Remove the two screws securing the PCIe card slot covers and remove the PCIe slot covers.
- 4. Insert the PCIe card into the selected slot. Make sure the PCIe card is properly seated.
- 5. Install the two screws to secure the PCIe card in place.
- 6. Install the three screws to secure the PCIe card bracket in place.
- 7. Reverse the previous steps to remove the PCIe card.







3-4 Removing and Installing the Heat Sink



Read the following guidelines before you begin to remove/install the heat sink:

- Always turn off the computer and unplug the power cord from the power outlet before installing the heat sink 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 turn off the server before you start installing components may cause serious damage. Do not attempt the procedures described in the following sections unless you are a qualified service technician.

Follow these instructions to remove/install the heat sink:

- 1. Loosen the captive screws securing the heat sink in place in reverse order $(6 \rightarrow 5 \rightarrow 4 \rightarrow 3 \rightarrow 2 \rightarrow 1)$.
- 2. Lift and remove the heat sink from the system.
- 3. To reinstall the heat sink reverse steps 1-2 while ensuring that you tighten the captive screws in sequential order $(1\rightarrow 2\rightarrow 3\rightarrow 4\rightarrow 5\rightarrow 6)$ as seen in the image below.





When installing the heat sink to CPU, use a Torx T20 screwdriver to tighten 6 captive nuts in sequence as 1-6. Please refer to the Heatsink Label for the screw tightening torque value. To ensure the system operates properly, make sure the heatsink is seated on the processor firmly.

3-5 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 captive screw securing the CPU cover.
- 2. Flip open the CPU cover.
- 3. Remove the CPU carrier from the CPU frame using the handle on the CPU carrier.
- Using the handle on the CPU carrier insert the new CPU carrier with CPU installed into the CPU frame.

NOTE: Ensure the CPU is installed in the CPU carrier in the correct orientation, with the triangle on the CPU aligned to the top left corner of the CPU carrier.

- 5. Flip the CPU frame with CPU installed into place in the CPU socket.
- 6. Flip the CPU cover into place over the CPU socket.
- 7. Tighten the CPU cover screw to secure the CPU cover in place.





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.

3-6-1 Twelve Channel Memory Configuration

This motherboard provides 24 DDR5 memory slots and supports 12-Channel Technology. After the memory is installed, the BIOS will automatically detect the specifications and capacity of the memory.



3-6-2 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.

Make sure your DIMM slots have a single latch or a double latch.

Follow these instructions to install a DIMM module with Single Latch :

1. Open the plastic latch of the memory slot, then place the memory module as pre-inserted vertically position.



Hold it with both hands, insert the memory module into the movable end first, and then insert the memory module into the fixed end.



 Then use both hands to insert the memory module vertically into the DIMM slot and push it down. Close the plastic latch at the edge of the DIMM slots to lock the memory module.



4. Reverse the installation steps when you want to remove the memory module.

Follow these instructions to install a DIMM module with Double Latch:

- 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.



3-6-3 Processor and Memory Module Matrix Table

Memory Q'ty						CP	00											СР	U1					
for each CPU	F0	E0	D0	C0	B0	A0	G0	HO	10	JO	к0	L0	R0	Q0	P0	00	N0	M0	SO	т0	U0	V0	W0	X0
1 DIMM						v												v						
2 DIMM						v	v											v	v					
4 DIMM				v		v	v		v							v		v	v		v			
6 DIMM				v	v	v	v	v	v							v	v	v	v	v	v			
8 DIMM		v		v	v	v	v	v	v		v			v		v	v	v	v	v	v		v	
10 DIMM		v	v	v	v	v	v	v	v	v	v			v	v	v	v	v	v	v	v	v	v	
12 DIMM	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v

3-6-4 DIMM Population Table

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

DIMM	DIMM	DDR5 Frequency MT/s ^{1,2}									
Туре	Population	6400 MT/s Grade DIMM³	5600 MT/s Grade DIMM³	4800 MT/s Grade DIMM ³							
RDIMM	1R (1 rank)	6000	5600	4800							
	2R (2 ranks)	6000	5600	4800							
3DS RDIMM*	2R xH	6000 ⁴	5600	4800							
MRDIMM (1:1) ⁵	4R (4 ranks)	6000 ⁴									

	When x = 2	DIMM Ranks = 4
*For 3DS RDIMM	When x =4	DIMM Ranks = 8
	When x = 8⁵	DIMM Ranks = 16

NOTE!

- When only one DIMM is used, it must be populated in memory slot DIMM1.
- 1. Frequency subject to change based on validation.
- 2. Maximum frequency references 14L 74mil low-Dk PCB stackup.
- 3. 6000 MT/s pending ecosystem enablement.
- 4. MRDIMM will be evaluated as a post-PR feature, pending ecosystem readiness.
- 5. 3DS RDIMM at 2 Rank (8H DRAM Pkgs) will be a post-PR feature, pending ecosystem readiness.

3-7 Installing the M.2 Device and Heat Sink



CAUTION

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



WARNING:

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



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

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

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



3-8 Replacing the System Fan Module



CAUTION!

Before you remove or install the system fans follow these steps:

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

Follow these instructions to replace the system fan module:

- 1. Grasp the finger slots of the fan module and pull up to remove the fan module.
- 2. Reverse the previous steps to install the replacement fan module.



3-9 Removing and Installing the Power Supply



CAUTION!

- In order to reduce the risk of injury from electric shock, disconnect AC power from the power supply before removing the power supply from the system.
- Please see Section 2-2 "Rear View" for installation sequence.

Follow these instructions to replace the power supply:

- 1. Flip and then grasp the power supply handle.
- 2. Press the retaining clip on the top side of the power supply in the direction indicated.
- 3. Pull out the power supply using the handle.
- 4. Insert the replacement power supply firmly into the chassis. Connect the AC power cord to the replacement power supply.



3-10 Cable Connection



System Hardware Installation

	DCIa Slat Signal Cable	Moth	Motherboard: U2_P0_P0									
		A1	PCIe Board: U2_1_A1	A2	PCle Board: U2_1_B1							
P DCIa Slat Signal Cabla	Motherboard: U2_P0_P1											
	B PCIE Slot Signal Cable		PCle Board: U2_2_A1	B2	PCle Board: U2_2_B1							
C	PCIo Slot Signal Cablo	Motherboard: U2_P0_P2										
	C POIe Slot Signal Cable		PCle Board: U2_3_A1	C2	PCle Board: U2_3_B1							
	DCla Clat Cianal Cabla	Motherboard: U2_P0_P3										
	PCIE SIOT SIgnal Cable	D1	PCle Board: U2_4_A1	D2	PCIe Board: U2_4_B1							
-			nerboard: U2_P1_P0		1							
	PCIE SIOT SIgnal Cable	E1	PCle Board: U2_5_A1	E2	PCIe Board: U2_5_B1							
E	F PCIe Slot Signal Cable	Moth	nerboard: U2_P1_P1									
		F1	PCle Board: U2_6_A1	F2	PCle Board: U2_6_B1							
G	G PCle Slot Signal Cable	Motherboard: U2_P1_P2										
G		G1	PCle Board: U2_7_A1	G2	PCle Board: U2_7_B1							
Ц	H DCIa Slat Signal Cabla		Motherboard: U2_P1_P3									
		H1	PCle Board: U2_8_A1	H2	PCle Board: U2_8_B1							
	PCIe Slot Signal Cable	11	I1 Motherboard: U2_P0_G3A1 / PCIe Board: U2_A_A1									
		12	Motherboard: U2_P0_G3B1 / PCIe Board: U2_A_B1									
.	J PCIe Slot Signal Cable		Motherboard: U2_P1_G1A1 / PCIe Board: U2_B_A									
J			J2 Motherboard: U2_P1_G1B1 / PCIe Board: U2_B_B1									
ĸ	PCIe Slot Signal Cable	PCIe Board: U2_SLOTA_1/U2_SLOTA_2										
		Riser Card (SLOT9)										
I DCIo Clot Signal Cable	PCIe Board: U2_SLOTB_1/U2_SLOTB_2											
		Rise	r Card (SLOT10)									
м	Power Board Side	Moth	nerboard: PDB_IO									
Band	Band Signal Cable	PCle Board: PDB_IO1										



Item	Description
1	Battery Cable Connector
2	VGA Connector
3	Serial Port Header
4	BMC Firmware Readiness LED
5	TPM Module Connector
6	SlimLine Connector (for Delta Module Link)
7	MCIO Connector (U2_P0_P0/PCIe Gen5)
8	MCIO Connector (U2_P0_P1/PCIe Gen5)
9	MCIO Connector (U2_P0_P2/PCIe Gen5)
10	MCIO Connector (U2_P0_P3/PCIe Gen5)
11	MCIO Connector (for System I/O)
12	SlimLine Connector (for MLAN)
13	SlimLine Connector (for Power Board Side Band Signal)
14	MCIO Connector (U2_P1_P0/PCIe Gen5)
15	MCIO Connector (U2_P1_P1/PCIe Gen5)
16	MCIO Connector (U2_P1_P2/PCIe Gen5)
17	MCIO Connector (U2_P1_P3/PCIe Gen5)
18	CPU0 Power Connector
19	CPU1 Power Connector
20	System Power Connector
21	IPMB Connector
22	2 x 7 Pin HDD Backplane Board Power Connector
23	CPU1 Fan Connector (for CPU1 Heatsink)
24	2 x 4 Front IO Board Power Connector
25	2 x 2 Pin PCIE2 Power Connector
26	FAN_11_12 Connector
27	M.2 Slot (PCIe Gen3 x4, Support NGFF-22110)
28	FAN_9_10 Connector
29	MCIO Connector (U2_P1_G1B1/U2_P1_G1A1/PCIe Gen5)
30	FAN_7/FAN_8 Connector
31	SlimLine Connector (for Delta Module Link)
32	MCIO Connector (U2_P0_G3A1/U2_P0_G3B1/PCIe Gen5)
33	FAN_5/FAN_6 Connector
34	FAN_3_4 Connector
35	M.2 Slot (PCIe Gen3 x1, Support NGFF-22110)
36	FAN_1_2 Connector
37	Front USB 3.2 Gen1 Connector
38	HDD Backplane Board Connector
39	2 x 2 Pin PCIE3 Power Connector
40	CPU0 Fan Connector (for CPU0 Heatsink)
4-2 Jumper Setting



Chapter 5 BIOS Setup

BIOS (Basic Input and Output System) records hardware parameters of the system in the EFI on the motherboard. Its major functions include conducting the Power-On Self-Test (POST) during system startup, saving system parameters, 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 key during the POST when the power is turned on.



- BIOS flashing is potentially risky, if you do not encounter any problems when using the current BIOS version, it is recommended that you don't flash the BIOS. To flash the BIOS, do it with caution. Inadequate BIOS flashing may result in system malfunction.
- It is recommended that you not alter the default settings (unless you need to) to prevent system instability or other unexpected results. Inadequately altering the settings may result in system's failure to boot. If this occurs, try to clear the CMOS values and reset the board to default values. (Refer to the Exit section in this chapter or introductions of the battery/clearing CMOS jumper in Chapter 4 for how to clear the CMOS values.)

BIOS Setup Program Function Keys

Move the selection bar to select the screen
Move the selection bar to select an item
Increase the numeric value or make changes
Decrease the numeric value or make changes
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.)

AMD CBS

This setup page includes the common items for configuration of AMD motherboard-related information.

AMD PBS Option

This setup page includes the common items for configuration of AMD CPM RAS related settings.

Chipset

This setup page includes all the submenu options for configuring the functions of the North Bridge.

Server Management

Server additional features enabled/disabled setup menus.

Security

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

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

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

Boot

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

Save & Exit

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

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

5-1 The Main Menu

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

Main Menu Help

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

Submenu Help

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



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

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

Main Advanced AMD CBS	Aptio Setup – AMI AMD PBS Option Chipset Server Mgmt	Security Boot Save & Exit
BIOS Information		A
Project Name	MZB3-G43-000	
Project Version	R01_F14	
Build Date and Time	10/08/2024 16:30:18	
RMC Information		
BMC Firmware Version	13.06.09	
Processor Information		
CPU 0 Brand String	AMD EPYC 9755 128-Core	
saring in a memory saring any	Processor	
CPU 1 Brand String	AMD EPYC 9755 128-Core	
CPU Sneed	2700 MHz	H+ Colort Green
Processor Core	224 Cores 224 Threads	11: Select Item
Microcode Patch	B002116	Enter: Select
		+/-: Change Opt.
Total Memory	32768 MB (DDR5)	F1: General Help
Memory Speed	4800 MT/s	F3: Previous Values
		F9: Optimized Defaults
VR Information	2007	F10: Save & Exit
Version	G007	ESU: EXIL
AGESA PI Version		
PI Version	1.0.0.0	
	Uneder 0.00.4004.0(-b4./0\.000	
	Version 2.22.1294 Copyright (C) 2024	HMT

Main Advanced AMD CBS AMD PB	Aptio Setup – AMI S Option Chipset Server Mgmt	Security Boot Save & Exit
Processor Information CPU 0 Brand String	AMD EPYC 9755 128-Core	▲ Set the Time. Use Tab to switch between Time
CPU 1 Brand String	Processor AMD EPYC 9755 128-Core Processor	elements.
CPU Speed	2700 MHz	
Processor Core	224 Cores 224 Threads	
Microcode Patch	B002116	
Total Memory	32768 MB (DDR5)	
Memory Speed	4800 MT/s	
VR Information		
Version	G007	++: Select Screen
		↑↓: Select Item
AGESA PI Version		Enter: Select
PI Version	1.0.0.0	+/-: Change Opt.
Robernd LAN Information		F1: General Help
LAN1 MAP Address	74-56-30-89-05-86	E9: Ontimized Defaults
LAN2 MAC Address	74-56-30-89-05-87	F10. Save & Evit
	14 30 30 85 83 81	ESC: Exit
System Date	[Tue 11/05/2024]	
System Time	[15:15:34]	
		C

Parameter	Description
BIOS Information	
Project Name	Displays the project name information.
Project Version	Displays version number of the BIOS setup utility.
Build Date and Time	Displays the date and time when the BIOS setup utility was created.
BMC Information ^(Note1)	
BMC Firmware Version ^(Note1)	Displays BMC firmware version information.
Processor Information	
CPU Brand String/ CPU Speed / Processor Core / Microcode Patch	Displays the technical specifications for the installed processor(s).
Total Memory ^(Note2)	Displays the total memory size of the installed memory.
Memory Speed ^{Note2)}	Displays the frequency information of the installed memory.
VR Information Version	Displays VR version information.
AGESA PI Version	
PI Version	Displays AGESA PI version information.

(Note1) Functions available on selected models.

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

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

5-2 Advanced Menu

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

Aptio Setup - AMI Main Advanced AMD CBS AMD PBS Option Chipset Server Mgmt	Security Boot Save & Exit
 PCI Subsystem Settings AST2600 Super IO Configuration Serial Port Console Redirection Network Stack Configuration Post Report Configuration Trusted Computing PSP Firmware Versions SS RTC Wake Settings Graphic Output Configuration 	▲ Configure IPv6 network parameters. (MAC:74563CB9D587)
 AMD Mem Configuration Status TIs Auth Configuration RAM Disk Configuration ISCSI Configuration Intel(R) Ethernet Controller X710 for 106BASE-T - 74:55:30:B9:D5:66 VLAN Configuration (MAC:74563CB9D586) MAC:74563CB9D586-IPv4 Network Configuration MAC:74563CB9D586-IPv6 Network Configuration Intel(R) Ethernet Controller X710 for 106BASE-T - 74:56:30:B9:D5:87 VLAN Configuration (MAC:74563CB9D587) MAC:74563CB9D587-IPv6 Network Configuration MAC:74563CB9D587-IPv6 Network Configuration 	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version 2.22.1294 Copyright (C) 2024	AMI

5-2-1 CPU Configuration

Advanced	Aptio Setup – AMI	
CPU Configuration		Enable/disable CPU Virtualization
SVM Mode > CPU 0 Information > CPU 1 Information		
		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version	2.22.1294 Copyright (C) 2024 AMJ	

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

5-2-2 NVMe Configuration



Parameter	Description
NVMe Configuration	Displays the NVMe devices connected to the system.
NVMe LED Control	Enable/Disable NVMe LED Control. Options available: System Default, Disabled, Enabled. Default setting is System Default .

5-2-3 SATA Configuration

Advanced	Aptio Setup – AMI	
SATA Configuration		<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>
ver	STUN 2.22.1294 Cupgright (C) 2024 AMI	

Parameter	Description
SATA Configuration	Displays the installed HDD devices information. System will automatically detect HDD type.

5-2-4 USB Configuration

Advanced	Aptio Setup – AMI	
USB Configuration		Enables Legacy USB
USB Module Version	37	disables legacy support if no USB devices are
USB Controllers: 2 XHCIs		connected. DISABLE option will keep USB devices
USB Devices: 1 Keyboard, 1 Mouse, 3 Hubs		available only for EFI
Levacu USB Sunnort		app.1200.1000
XHCI Hand-off	[Enabled] [Enabled]	
USD hass storage of iver support	[Liabieu]	
USB transfer time-out	[20 sec]	14: Select Item
Device reset time-out Device power-up delay	(20 sec) (Auto)	Enter: Select +/−: Change Opt.
		F1: General Help F3: Previous Values
		F9: Optimized Defaults F10: Save & Exit
		ESC: Exit
Version 2.22.1294 Copyright (C) 2024 AMI		

Parameter	Description
USB Configuration	
USB Module Version	Displays the USB module version information.
USB Controllers	Displays the supported USB controllers.
USB Devices:	Displays the USB devices connected to the system.
Legacy USB Support	Enable/Disable the Legacy USB support function. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications. Options available: Enabled, Disabled, Auto. Default setting is Enabled .
XHCI Hand-off	Enable/Disable the XHCI Hand-off support. Options available: Enabled, Disabled. Default setting is Enabled .
USB Mass Storage Driver Support ^(Note)	Enable/Disable the USB Mass Storage Driver Support. Options available: Disabled, Enabled. Default setting is Enabled .
USB hardware delays and time-outs	
USB transfer time-out	Selects the time-out value for USB Control/Bulk/Interrupt transfers. Options available: 1 sec, 5 sec, 10 sec, 20 sec. Default setting is 20 sec .

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

Parameter	Description
Device reset time-out	Selects the time-out value during a USB mass storage device reset. Options available: 10 sec, 20 sec, 30 sec, 40 sec. Default setting is 20 sec .
Device power-up delay	Maximum time the device will take before it properly reports itself to the Host Controller. "Auto" uses default value: for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor. Options available: Auto, Manual. Default setting is Auto .

5-2-5 PCI Subsystem Settings

Advanced	Aptio Setup – AMI	
AMI PCI Driver Version :	00.00	▲ Change U2_P0_P0 PCIe lanes.
U2_P0_P0 U2_P0_P0 I/D ROM U2_P0_P0 Link Speed	[Auto] [Enabled] [Auto]	
U2_P0_P1 U2_P0_P1 ROM U2_P0_P1 Link Speed	[Auto] [Enabled] [Auto]	
U2_P0_P2 U2_P0_P2 I/O ROM U2_P0_P2 Link Speed	[Auto] [Enabled] [Auto]	
U2_P0_P3 U2_P0_P3 I/O ROM U2_P0_P3 Link Speed	[Auto] [Enabled] [Auto]	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. 51: Octange Upt.</pre>
U2_P0_G3 U2_P0_G3 I/O ROM U2_P0_G3 Link Speed	[Auto] [Enabled] [Auto]	F3: Previous Values F9: Optimized Defaults F10: Save & Exit
U2_P1_P0 U2_P1_P0 I/0 ROM U2_P1_P0 Link Speed	[Auto] [Enabled] [Auto]	ESU: EXIT
V	ersion 2.22.1294 Copyright (C)) 2024 AMI
	Aptio Setup – AMI	
Advanced		
U2_P1_P0 U2_P1_P0 I/O ROM U2_P1_P0 Link Speed	(Auto) (Enabled) (Auto)	▲ Enable/Disable LAN2 I/O ROM.
U2_P1_P1 U2_P1_P1 I/O ROM U2_P1_P1 Link Speed	(Auto) [Enabled] [Auto]	
U2_P1_G1 U2_P1_G1 I/O ROM U2_P1_G1 Link Speed	(Auto) (Enabled) (Auto)	
U2_P1_G1 U2_P1_G1 I/O ROM U2_P1_G1 Link Speed U2_P1_P2 U2_P1_P2 I/O ROM U2_P1_P2 Link Speed	(Auto) (Enabled) (Auto) (Enabled) (Auto) (Auto)	++: Select Screen fl: Select Item
U2_P1_G1 U2_P1_G1 LINK Speed U2_P1_G1 LINK Speed U2_P1_P2 I/O ROM U2_P1_P2 LINK Speed U2_P1_P3 I/O ROM U2_P1_P3 LINK Speed	(Auto) (Enabled) (Auto) (Auto) (Enabled) (Auto) (Enabled) (Auto)	++: Select Screen 1: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults
U2_P1_G1 U2_P1_G1 I/O ROM U2_P1_G1 Link Speed U2_P1_P2 I/O ROM U2_P1_P2 Link Speed U2_P1_P2 Link Speed U2_P1_P3 I/O ROM U2_P1_P3 Link Speed Onboard LAN Controller Onboard LAN2 I/O ROM	(Auto) [Enabled] [Auto] [Enabled] [Auto] [Auto] [Enabled] [Enabled] [Enabled] [Enabled] [Enabled]	★: Select Screen 11: Select Item Enter: Select + √-1 Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
PCI Bus Driver Version	Displays the PCI Bus Driver version information.
U2_P0_P0/1/2/G3	Change PCIe lanes.
U2_P1_P0/2/3/G1	Options available: Disabled, Auto, x8, x16, x4x4, x8x8, x8x4x4,
Lanes ^(Note1)	x4x4x8, x4x4x4x4. Default setting is Auto.
U2_P0_P0/1/2/G3	When enabled, this setting will initialize the device expansion ROM
U2_P1_P0/2/3/G1	for the related devices.
I/O ROM ^(Note1)	Options available: Disabled, Enabled. Default setting is Enabled .
U2_P0_P0/1/2/G3	Configure PCIe slot max link speed.
U2_P1_P0/2/3/G1	Options available: Auto, Gen5, Gen4, Gen3, Gen2, Gen1.
Link Speed ^(Note1)	Default setting is Auto.
Ophoard LAN Controllor ^(Note2)	Enable/Disable the onboard LAN devices.
Unboard LAN Controller	Options available: Disabled, Enabled. Default setting is Enabled.
	Enable/Disable the onboard LAN devices, and initializes device
Onboard LAN# I/O ROM ^(Note2)	expansion ROM.
	Options available: Disabled, Enabled. Default setting is Enabled .

 $(Note1) \quad \mbox{This section is dependent on the available MCIO connector.}$

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

5-2-6 AST2600 Super IO Configuration



Parameter	Description	
AST2600 Super IO		
Configuration		
Super IO Chip	Displays the super IO chip information	
Serial Port 1	Drace [Enter] for configuration of educated items	
Configuration	Press [Enter] for configuration of advanced items.	

5-2-6-1 Serial Port 1 Configuration

Advanced	Aptio Setup — AMI	
Serial Port 1 Configuration		Enable or Disable Serial
Serial Port Device Settings	[Enabled] IO=3F8h; IRQ=4;	For C (CON)
Change Settings	[Auto]	
		<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>
Version 2		

Parameter	Description
Serial Port 1 Configuration	
Serial Port ^(Note)	Enable/Disable the Serial Port (COM). When set to Enabled allows you to configure the Serial port 1 settings. When set to Disabled, displays no configuration for the serial port. Options available: Disabled, Enabled. Default setting is Enabled .
Devices Settings	Displays the Serial Port 1 device settings.
Change Settings	Select an optimal settings for Super IO Device. Options available for Serial Port 1: Auto IO=3F8h; IRQ=4; IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12; Default setting is Auto .

5-2-7 Serial Port Console Redirection

Advanced	Aptio Setup — AMI	
COM1/SOL Console Redirection Console Redirection Settings Legacy Console Redirection Legacy Console Redirection Settings	(Disabled)	Console Redirection Enable or Disable.
Serial Port for Out-of-Band Managemen Windows Emergency Management Service: Console Redirection EMS Console Redirection Settings	nt∕ s (EMS) [Disabled]	
		<pre>H: Select Scheen H: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Evit</pre>
Version 2	.22.1294 Copyright (C) 2024 AMI	

Parameter	Description
COM1/Serial Over LAN Console Redirection ^(Note)	Select whether to enable console redirection for specified device. Console redirection enables the users to manage the system from a remote location. Options available: Enabled, Disabled. Default setting is Disabled .
COM1/Serial Over LAN Console Redirection Settings	 Press [Enter] to configure advanced items. Please note that this item is configurable when COM1/Serial Over LAN Console Redirection is set to Enabled. Terminal Type Selects a terminal type to be used for console redirection. Options available: VT100, VT100Plus, ANSI, VT-UTF8. Default setting is VT100Plus. Bits per second Selects the transfer rate for console redirection. Options available: 9600, 19200, 38400, 57600, 115200. Default setting is 115200. Data Bits Selects the number of data bits used for console redirection. Options available: 7, 8. Default setting is 8.

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

Parameter	Description
COM1/Serial Over LAN Console Redirection Settings (continued)	 Parity A parity bit can be sent with the data bits to detect some transmission errors. Even: parity bit is 0 if the num of 1's in the data bits is even. Odd: parity bit is 0 if num of 1's in the data bits is odd. Mark: parity bit is always 1. Space: Parity bit is always 0. Mark and Space Parity do not allow for error detection. Options available: None, Even, Odd, Mark, Space. Default setting is None. Stop Bits Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit. Options available: 1, 2. Default setting is 1. Flow Control Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals. Options available: None, Hardware RTS/CTS. Default setting is None. VT-UTF8 Combo Key Support Enable/Disable the VT-UTF8 Combo Key Support. Options available: Enabled, Disabled. Default setting is Disabled. Recorder Mode When this mode enabled, only texts will be send. This is to capture Terminal data. Options available: Enabled, Disabled. Default setting is Disabled. Resolution 100x31 Enable/Disable extended terminal resolution. Options available: Enabled, Disabled. Default setting is Enabled. Selects Function Key and Key

Parameter	Description
Legacy Console Redirection	
Legacy Console Redirection Settings	 Press [Enter] to configure advanced items. Redirection COM Port Selects a COM port for Legacy serial redirection. Default setting is COM1/SOL. Resolution Selects the number of rows and columns used in Console Redirection for legacy OS support. Options available: 80x24, 80x25. Default setting is 80x24. Redirect After POST When Bootloader is selected, then Legacy Console Redirection is disabled before booting to legacy OS. When Always Enable is selected, then Legacy Console Redirection is enabled for legacy OS. Options available: Always Enable, BootLoader. Default setting is Always Enable.
Serial Port for Out-of-Band Management / Windows Emergency Management Services (EMS) Console Redirection ^(Note)	EMS console redirection allows the user to configure Console Redirection Settings to support Out-of-Band Serial Port management. Options available: Disabled, Enabled. Default setting is Disabled .
Serial Port for Out-of-Band EMS Console Redirection Settings	 Press [Enter] to configure advanced items. Please note that this item is configurable when Serial Port for Out-of-Band Management EMS Console Redirection is set to Enabled. Out-of-Band Mgmt Port Microsoft Windows Emergency Management Service (EMS) allows for remote management of a Windows Server OS through a serial port. Default setting is COM1/SOL. Terminal Type Selects a terminal type to be used for console redirection. Options available: VT100, VT100Plus, ANSI, VT-UTF8. Default setting is ANSI. Bits per second Selects the transfer rate for console redirection. Options available: 9600, 19200, 57600, 115200. Default setting is 115200.

Parameter	De	scription
Serial Port for Out-of-Band EMS Console Redirection Settings(continued)	•	 Flow Control Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals. Options available: None, Hardware RTS/CTS, Software Xon/Xoff. Default setting is None.

5-2-8 Network Stack Configuration

Advanced	Aptio Setup – AMI	
Network Stack IPv4 PXE Support IPv4 HTTP Support IPv6 PKE Support IPv6 HTTP Support PXE boot wait time Media detect count	(Enabled) (Enabled) (Disabled) (Enabled) (Disabled) 0 1	Enable∕Disable UEFI Network Stack
		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
	Version 2.22.1294 Convright (C)	2024 AMI

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

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

5-2-9 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]	
		++: 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	.22.1294 Copyright (C) 2024 AMI	

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 Enabled .
Halt On	Options available: No Error, All Error. Default setting is No Error.

5-2-10 Trusted Computing

Advanced	Aptio Setup – AMI	
Configuration Security Device Support SPI TPM Support NO Security Device Found	[Enabled] [Enabled]	Enables or Disables BIOS support for security device. 0.S. will not show Security Device. TCG EFI protocol and INTIA interface will not be available.
		++: Select Screen 11: 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
Configuration	
Security Device Support	Enable/Disable BIOS support for security device. OS will not show security device. TCG EFI protocol and INT1A interface will not be available. Options available: Disabled, Enabled. Default setting is Enabled .
SPI TPM Support	Select Enable to activate TPM support feature. Options available: Disabled, Enabled. Default setting is Enabled .

5-2-11 PSP Firmware Versions

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

Advanced	Aptio Setup – AMI	
Advanced PSP Finmware Versions ABL Version PSP BootLoader Version PSP TEE Version SMU FW Version SMU FW Version PHY FW Version TF MPDNA FW Version PM MPDNA FW Version GMI FW Version SEC FW Version SEC FW Version EMCR FW Version EMCR FW Version APCB Version	Aptio Setup - AMI 1000F01D 00.3D.00.62 00.3D.01.62 00.3D.03.62 00.5E.68.00 01.01.37.2C 00.01.49.00 01.00.07.01 00.5E.23.00 00.5E.18.00 BB.05.37.00 08.00.05.1F 05.11.00.53 00.00.90.50 B002116 0000	+: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit
APPB Version	0000	ESC: Exit
Versio	on 2.22.1294 Copyright (C) 2024	AMI

5-2-12 S5 RTC Wake Settings

Advanced	Aptio Setup – AMI	
Wake system from S5	[Disabled]	Enable or disable System wake on alarm event. Select FixedTime, system will wake on the hr::min::sec specified. Select DynamicTime, System will wake on the current time + Increase minute(s) ++: Select Screen T4: Select Tiem Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Ve	ersion 2.22.1294 Copyright (C)	2024 AMI

Parameter	Description
Wake System from S5	Enable/Disable system wake on alarm event. Options available: Disabled, Fixed Time, Dynamic Time. When Fixed Time is selected, system will wake on the hr::min::sec specified. Default setting is Disabled .

5-2-13 Graphic Output Configuration



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

5-2-14 AMD Mem Configuration Status

▶ CPU 0 ▶ CPU 1		Socket–specific memory configuration status
Mbist Test Enable	Disabled, 0xC000	
Mbist Aggressor Enable	Disabled, 0xCOOO	
Mbist Per Bit Slave Die Report	0x0000, 0xC000	
Dram Temp Controlled Refresh Enable	Disabled, 0xC001	
User Timing Mode	Disabled, 0x0000	
User Timing Value	Disabled, 0x0000	
Mem Bus Freq Limit	Disabled, 0x0000	
Enable Power Down	Disabled, 0xC000	
Dram Double Refresh Rate	Disabled, 0x0000	
Pmu Train Mode	0x0000, 0xC000	
Ecc Symbol Size	0x0000, 0xC000	↔: Select Screen
Uncorrectable Ecc Retry	Disabled, 0xCOO4	t↓: Select Item
Ignore Spd Checksum	Disabled, 0xC000	Enter: Select
Enable Bank Group Swap Alt	Disabled, 0x0000	+/-: Change Opt.
Enable Bank Group Swap	Disabled, 0xC000	F1: General Help
Ddr Route Balanced Tee	Disabled, 0xC004	F3: Previous Values
Nvdimm Power Source	0x0000, 0xC004	F9: Optimized Defaults
Odts Cmd Throt Enable	Disabled, 0xC004	F10: Save & Exit
Odts Cmd Throt Cycle	Disabled, 0xC004	ESC: Exit
	- 0 00 4004 0ivite /0\ 0	

CPU 0/1

Press [Enter] to view the memory configuration status related to CPU 0/1.

5-2-15 TIs Auth Configuration

Aptio Setup - AMI Advanced	
▶ Server CA Configuration	Press ≪Enter≻ to configure Server CA.
▶ Client Cert Configuration	
	++: Select Screen 1: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version 2.22.1294 Copyright (C) 2024 AMI	

Parameter	Description
Server CA Configuration	Press [Enter] for configuration of advanced items.
	Enroll Cert
	 Press [Enter] to enroll a certificate
	Enroll Cert Using File
	Cert GUID
	Input digit character in 111111-2222-3333-4444-1234567890ab
	format.
	 Commit Changes and Exit
	 Discard Changes and Exit
	Delete Cert
Client Cert Configuration	Press [Enter] for configuration of advanced items.

5-2-16 RAM Disk Configuration

Advanced	Aptio Setup – AMI	
Disk Memory Type: ▶ Create naw ▶ Create from file Created RAM disk list:	[Boot Service Data]	Specifies type of memory to use from available memory pool in system to create a disk.
Remove selected RAM disk(s).		<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>
Versid	on 2.22.1294 Copyright (C) 202	24 AMI

Parameter	Description
Disk Memory Type	Specifies the type of memory to use from available memory pool in system to create a disk. Options available: Boot Service Data, Reserved. Default setting is Boot Service Data .
Create Raw	 Creates a raw RAM disk. Size (Hex) Input a valid RAM disk size that should be multiple of the RAM disk block size. Create & Exit Discard & Exit
Create from file	Creates a RAM disk from a given file.
Created RAM disk list	
Remove selected RAM disk(s)	Selects the RAM disk(s) to remove.

5-2-17 iSCSI Configuration

Aptio Setup - AMI Advanced	
iSCSI Initiator Name	The worldwide unique name
▶ Add an Attempt	IQN format is accepted. Range is from 4 to 223
► Delete Attempts	
▶ Change Attempt Order	
	++: Select Screen
	†↓: Select Item Enter: Select
	+/−: Change Opt. F1: General Help
	F3: Previous Values F9: Optimized Defaults
	F10: Save & Exit ESC: Exit
Version 2.22.1294 Copyright (C)	2024 AMI

Parameter	Description
iSCSI Initiator Name	Press [Enter] and name iSCSI Initiator. Only IQN format is accepted. Range: from 4 to 223
Add an Attempt	Press [Enter] to configure advanced items.
Delete Attempts	Press [Enter] to configure advanced items.
Change Attempt Order	Press [Enter] to configure advanced items.

5-2-18 Intel(R) Ethernet Controller X710 for 10GBASE-T

Advanced	Aptio Setup – AMI	
▶ Firmware Image Properties ▶ NIC Configuration		View device firmware version information.
Blink LEDs	0	
UEFI Driver Adapter PBA Device Name Chip Type PCI Device ID PCI Address Link Status MAC Address Virtual MAC Address	Intel(R) 40GbE 4.9.49 H64862-000 Intel(R) Ethernet Controller X710 for 10GBASE-T Intel X710 15FF 51:00:00 [Disconnected] 74:56:3C:B9:D5:86 00:00:00:00:00:00	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Versi	on 2.22.1294 Coovright (C) 2024	ANT



Parameter	Description
Firmware Image Properties	Press [Enter] to view device firmware version information.
NIC Configuration	 Press [Enter] to configure advanced items. Link Speed Default setting is Auto Negotiated. 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. Options available: Enabled, Disabled. Default setting is Enabled. LLDP Agent Enable/Disable firmware's LLDP Agent. Options available: Enabled, Disabled. Default setting is Enabled
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.

5-2-19 VLAN Configuration

Advanced	Aptio Setup – A	МІ
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 Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
	version 2.22.1294 Copyrigh	t (C) 2024 AMI

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

5-2-20 MAC IPv4 Network Configuration

Advanced	Aptio Setup – AMI	
Configured	[Disabled]	Indicate whether network
Save Changes and Exit		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
Ver	rsion 2.22.1294 Copyright (C)	2024 AMI

Parameter	Description
Configured	Indicates whether network address is configured successfully or not.
	Options available: Enabled, Disabled. Default setting is Disabled.
Enable DHCP ^(Note)	Options available: Enabled, Disabled. Default setting is Disabled.
Local IP Address ^(Note)	Press [Enter] to configure local IP address.
Local NetMask ^(Note)	Press [Enter] to configure local NetMask.
Local Gateway ^(Note)	Press [Enter] to configure local Gateway
Local DNS Servers ^(Note)	Press [Enter] to configure local DNS servers
Save Changes and Exit	Press [Enter] to save all configurations.

5-2-21 MAC IPv6 Network Configuration



Parameter	Description				
Enter Configuration Menu	 Press [Enter] to configure advanced items. Displays the MAC Address information. Interface ID The 64 bit alternative interface ID for the device. The string is colon separated. e.g. ff:dd:88:66:cc:1:2:3. DAD Transmit Count The number of consecutive Neighbor solicitation messages sent while performing Duplicate Address Detection on a tentative address. A value of zero indicates that Duplicate Address Detection is not performed. Policy Options available: automatic, manual. Default setting is automatic. Save Changes and Exit Press [Enter] to save all configurations. 				

5-3 AMD CBS Menu

AMD CBS menu displays submenu options for configuring the CPU-related information that the BIOS automatically sets. Select a submenu item, then press [Enter] to access the related submenu screen.

Aptio Setup - AMI						
Main Advanced AMD CBS	AMD PBS Option	Chipset	Server Mgmt	Security Boot Save & Exit		
AMD CBS AMD CBS Revision Number	0x0			CPU Common Options		
 CPU Common Options DF Common Options UMC Common Options NEID Common Options FCH Common Options Soc Miscellaneous Control CXL Common Options 						
				+: Select Screen ↑1: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit		
Version 2.22.1294 Copyright (C) 2024 AMI						
5-3-1 CPU Common Options

AMD CBS	Aptio Setup — AMI	
CPU Common Options		Performance
▶ Performance		
REP-MOV/STOS Streaming	[Enabled]	
Core Watchdog PedirectEonPetureDic	[Auto]	
Platform First Error Handling	(Auto)	
Global C-state Control	(Auto)	
Streaming Stores Control	(Auto) (Auto)	
ACPI _CST C1 Declaration	(Auto) 100	fl: Select Item
MCA error thresh enable	[True]	+/-: Change Opt.
MCA FruText SMU and PSP Debug Mode	(True)	F3: Previous Values
PPIN Opt-in	(Auto) (Auto)	F10: Save & Exit
Action on BIST Failure	(Auto) (Auto)	LOUP ENT
Log Transparent Errors	[Auto]	
Version :	2.22.1294 Copyright (C) 2024 AMI	

Aptio Setup - AMI AMD CBS Local APIC Mode [Auto] Indicates support for 4 ACPI _CST C1 Declaration [Auto] downgrading FP512 datapath to FP256. Enable = 512bit datapath. Disable=256bit ACPI CST C2 Latency 100 MCA error thresh enable [True] MCA error thresh count EOB datapath. MCA FruText [True] SMU and PSP Debug Mode [Auto] PPIN Opt-in [Auto] SMEE [Auto] Action on BIST Failure [Auto] Enhanced REP MOVSB/STOSB (ERSM) [Auto] Log Transparent Errors [Auto] AVX512 [Auto] Enhanced Rep Movs Stos B [Auto] ↔: Select Screen MONITOR and MWAIT disable [Auto] ↑↓: Select Item CPU Speculative Store Modes [Auto] Enter: Select +/–: Change Opt. F1: General Help Fast Short REP MOVSB (FSRM) [Auto] PauseCntSel_1_0 [Auto] Prefetch/Request Throttle [Auto] F3: Previous Values Scan Dump Debug Enable [Disable] F9: Optimized Defaults F10: Save & Exit MCAX 64 bank support [Auto] Adaptive Allocation (AA) [Auto] ESC: Exit Latency Under Load (LUL) [Auto] [Disable] [Auto] Core Trace Dump Enable

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Parameter	Description
CPU Common Options	
Performance	Press [Enter] for configuration of advanced items.
REP-MOV/STOS Streaming	Allow REP-MOV/STOS to use non-caching streaming stores for large sizes. Options available: Disabled, Enabled. Default setting is Enabled .
Prefetcher settings	Press [Enter] for configuration of advanced items.
Core Watchdog	Press [Enter] for configuration of advanced items.
RedirectForReturnDis	From a workaround for GCC/C000005 issue for XV Core on CZ A0, setting MSRC001_1029 Decode Configuration (DE_CFG) bit 14 [DecfgNoRdrctForReturns] to 1. Options available: Auto, 1, 0. Default setting is Auto .
Platform First Error Handling	Enable/Disable PFEH, cloak individual banks, and mask deferred error interrupts from each bank. Options available: Enabled, Disabled, Auto. Default setting is Auto .
Core Performance Boost	Enable/Disable the Core Performance Boost function. Options available: Disabled, Auto. Default setting is Auto .
Global C-state Control	Controls the IO based C-state generation and DF C-states. Options available: Disabled, Enabled, Auto. Default setting is Auto .
Power Supply Idle Control	Configures the Power Supply Idle Control. Options available: Low Current Idle, Typical Current Idle, Auto. Default setting is Auto .
Streaming Stores Control	Enable/Disable the Streaming Stores functionality. Options available: Disabled, Enabled, Auto. Default setting is Auto .
Local APIC Mode	Sets the Local APIC Mode. Options available: Compatibility, xAPIC, x2APIC, Auto. Default setting is Auto .
ACPI_CST C1 Declaration	Determines whether or not to declare the C1 state to the OS Options available: Disabled, Enabled, Auto. Default setting is Auto .
ACPI CST C2 Latency	Enter in microseconds (decimal value).
MCA error thresh enable	Enable MCA error thresholding. Options available: False, True, Auto. Default setting is True .
MCA error thresh count	Effective error threshold count = 0xFFF(4095) - <this value=""> (e.g. the default value of 0xFF5(4085) results in a threshold of 0xA (10)).</this>
MCA FruText	Enable MCA FruText. Options available: False, True. Default setting is True .
SMU and PSP Debug Mode	When this option is enabled, specific uncorrected errors detected by the PSP FW or SMU FW will hand and not reset the system. Options available: Disabled, Enabled, Auto. Default setting is Auto .
PPIN Opt-in	Enable/Disable the PPIN feature. Options available: Disabled, Enabled, Auto. Default setting is Auto .
SMEE	Controls the Secure Memory Encryption Enable (SMEE) function. Options available: Disable, Enable, Auto. Default setting is Auto .
Action on BIST Failure	Action to take when a CCD BIST failure is detected. Options available: Do nothing, Down-CCD, Auto. Default setting is Auto .

Parameter	Description
Enhanced REP MOVSB/ STOSB (ERSM)	Options available: Disabled, Enabled, Auto. Default setting is Auto.
Log Transparent Errors	Enable/Disable the log Transparent errors function. Options available: Auto, Disabled, Enabled. Default setting is Auto .
AVX512	Enable/Disable AVX512. Options available: Disabled, Enabled, Auto. Default setting is Auto .
Enhanced REP Movs Stos B	Options available: Disabled, Enabled, Auto. Default setting is Auto.
MONITOR and MWAIT disable	The MONITOR, MWAIT, MONITORX and MWAITX opcodes become invalid when enabled. Options available: Enabled, Disabled, Auto. Default setting is Auto
CPU Speculative Store Modes	Select the CPU speculative store modes. Options available: Balanced, More Speculative, Less Speculative, Auto. Default setting is Auto .
Fast Short REP MOVSB (FSRM)	Options available: Disabled, Enabled, Auto. Default setting is Auto.
PauseCntSel_1_0	Options available: Disabled, Enabled, Auto. Default setting is Auto.
Prefetch/Request Throttle	Enables XI logic which calculates average latency, updates throttle level, and sends throttle level messages to L2. Options available: Disable, Enable, Auto. Default setting is Auto .
Scan Dump Debug Enable	Options available: Disable, Enable. Default setting is Disable .
MCAX 64 bank support	Options available: Disabled, Enabled, Auto. Default setting is Auto.
Adaptive Allocation (AA)	Options available: Disabled, Enabled, Auto. Default setting is Auto.
Latency Under Load (LUL)	Options available: Disabled, Enabled, Auto. Default setting is Auto.
Core Trace Dump Enable	Options available: Disable, Enable. Default setting is Disable .
FP512	Options available: Disabled, Enabled, Auto. Default setting is Auto.

5-3-1-1 Performance

AMD CBS	Aptio Setup — AMI	
Performance		Select overclock operation
OC Mode Custom Core Pstates DDD Vorme Thread Fishlement		
SMT Control Enable Requested CPU min frequency	[Enable] [Disable]	
		+/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
Performance	
OC Made (Note)	Options available: Normal Operation, Customized. Default setting is Normal
	Operation.
Custom Core Petates	Allows you to accept or decline enabling Custom Core Pstates. When
	accepted, you can disable or customize core pstates.
	Allows you to accept or decline enabling CCDs, processor cores and
	threads. When accepted, you can control the number of CCDs to be used,
	and the number of cores to be used.
	CCD Control
CCD/Coro/Throad Enablement	 Options available: Auto, 2 CCDs, 4 CCDs, 6 CCDs, 8 CCDs, 10
	CCDs, 12 CCDs, 14 CCDs. Default setting is Auto.
	Core Control
	 Options available: Auto, ONE(1+0), TWO(2+0), THREE(3+0)
	FOUR(4+0), FIVE(5+0), SIX(6+0), SEVEN(7+0).
	 Default setting is Auto.
	Can be used to disable symmetric multithreading. To re-enable SMT, a
SMT Control	POWER CYCLE is needed after select the 'Enable' option. Select 'Auto'
	base on BIOS PCD. (PcdAmdSmtMode) default setting.
	Options available: Disable, Enable, Auto. Default setting is Enable .
Enable Requested CPU min frequency	Options available: Disable, Enable, Auto. Default setting is Disable .

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

BIOS	Setup
------	-------

5-3-1-2 Prefetcher Settings

AMD CBS	Aptio Setup — AMI	
Prefetcher settings L1 Stream HW Prefetcher L1 Stride Prefetcher L1 Region Prefetcher L2 Stream HW Prefetcher	[Auto] [Auto] [Auto] [Auto]	Option to Enable Disable Li Stream HW Prefetcher
L2 Up/Down Prefetcher L1 Burst Prefetch Mode	[Auto] [Auto]	
		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit Sove Evit
Versi	on 2.22.1294 Copyright (C) 2024 A	MI

Parameter	Description
Prefetcher settings	
L1 Stream HW Prefetcher	Enable/Disable L1 Stream HW Prefetcher.
	Options available: Disable, Enable, Auto. Default setting is Auto.
	Use memory access history of individual instructions to fetch additional lines
1.1 Stride Drofetabor	when each access is a constant distance from the previous.
LT Stride Preletcher	Enable/Disable L1 Stride Prefetcher.
	Options available: Disable, Enable, Auto. Default setting is Auto.
	Use memory access history to fetch additional lines when the data access
1.1 Degion Brofotobor	for a given instruction tends to be followed by other data accesses.
LT Region Prefetcher	Enable/Disable L1 Region Prefetcher.
	Options available: Disable, Enable, Auto. Default setting is Auto.
1.0 Ohn and 110/ Destate	Enable/Disable L2 Stream HW Prefetcher.
L2 Stream HW Prefetcher	Options available: Disable, Enable, Auto. Default setting is Auto.
	Use memory access history to determine whether to fetch the next or
1.2 Up/Down Profetabor	previous line for all memory accesses.
Lz op/Down Preletcher	Enable/Disable L2 Up/Down Prefetcher.
	Options available: Disable, Enable, Auto. Default setting is Auto.
1 1 Durat Drafatah Mada	Enable/Disable L1 Burst Prefetch Mode.
L'I Burst Prefetch Mode	Options available: Disable, Enable, Auto. Default setting is Auto.

5-3-1-3 Core Watchdog

AMD CBS	Aptio Setup — AMI	
Core Watchdog		Enable or disable CPU Watchdog Timer
Core Watchdog Timer Enable		
		<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>
Version	2.22.1294 Copyright (C) 2024 AMI	

Parameter	Description
Core Watchdog	
Core Watchdog Timer Enable ^(Note)	Enable/Disable CPU Watchdog Timer.
	Options available: Disabled, Enabled, Auto. Default setting is Auto.
Core Watchdog Timer Interval	Select the CPU Watchdog Timer interval.
	Options available: 2.681s, 1.340s, 669.41ms, 334.05ms, 166.37ms,
	82.53ms, 40.61ms, 20.970ms, 10.484ms, 5.241ms, 2.620ms, 1.309ms,
	654.08us, 326.4us, 162.56us, 80.64us, 39.68us, Auto.
	Default setting is Auto.
Core Watchdog Timer Severity	Options available: No Error, Transparent, Corrected, Deferred,
	Uncorrected, Fatal, Auto. Default setting is Auto.

5-3-2 DF Common Options

AMD CBS	Aptio Setup – AMI	
DF Common Options > Memory Addressing > ACPI > Link > SDCI > Probe Filter		Memory Addressing
DF Watchdog Timer Interval Disable DF to external IP SyncFloodPropagation Sync Flood Propagation to DF Components Freeze DF module queues on error CC6 memory region encryption CCD B/W Balance Throttle Level Number of PCI Segments CCM Throttler Clean Victim FTI Cmd Balancing CXL Strongly Ordered Writes	(Auto) (Auto) (Auto) (Auto) (Auto) (Auto) (Auto) (Auto) (Auto) (Disabled)	++: 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
DF Common Options	
Memory Addressing	Press [Enter] for configuration of advanced items.
ACPI	Press [Enter] for configuration of advanced items.
Link	Press [Enter] for configuration of advanced items.
SDCI	Press [Enter] for configuration of advanced items.
Probe Filter	Press [Enter] for configuration of advanced items.
DF Watchdog Timer Interval	Configures the Data Fabric watchdog timer interval. Options available: Auto, 41ms, 166ms, 334ms, 669ms, 1.34 seconds, 2.68 seconds, 5.36 seconds. Default setting is Auto .
Disable DF to external IP sync flood propagation	Enable/Disable SyncFlood to UMC & downstream slaves. Options available: Sync flood disabled, Sync flood enabled, Auto. Default setting is Auto .
Sync flood propagation to DF Components	Enable/Disable DF Sync Flood propagation. Options available: Sync flood disabled, Sync flood enabled, Auto. Default setting is Auto .
Freeze DF module queues on error	Options available: Disabled, Enabled, Auto. Default setting is Auto.
CC6 memory region encryption	Controls whether or not the CC6 save/restor memory is encrypted. Options available: Disabled, Enabled, Auto. Default setting is Auto .
CCD B/W Balance Throttle Level	Options available: Auto, Level 0, Level 1, Level 2, Level 3, Level 4. Default setting is Auto .

Parameter	Description	
Number of PCI Segments	Options available: Auto, 1 Segment, 2 Segments, 4 Segment.	
	Default setting is Auto.	
CCM Throttler	Options available: Disabled, Enabled, Auto. Default setting is Auto.	
Clean Victim FTI Cmd	Options available: Disabled, Enabled, Auto. Default setting is Auto.	
Balancing		
CXL Strongly Ordered writes	Options available: Disabled, Enabled, Auto. Default setting is Disabled.	

5-3-2-1 Memory Addressing

AMD CBS	Aptio Setup — AMI	
Memory Addressing		Specifies the number of desired NUMA nodes per
NUMA nodes per socket		socket. Zero will attempt
Memory interleaving	[Auto]	to interleave the two
Mixed interleaved mode	(Auto)	sockets together.
Region Size	[Auto]	
CXL Memory interleaving	[Auto]	
CXL Sublink interleaving	[Auto]	
DRAM map inversion	[Auto]	
		++: 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 Addressing		
	Specifies the number of desired NUMA nodes per socket.	
	Options available: NPS0, NPS1, NPS2, NPS4, Auto. Default setting is Auto.	
NUMA nodes per socket	NOTE!	
	 Available options may vary by system configuration. 	
	Only dual processor configuration supports NPS0.	
Mamanyintarlaging	Enable/Disable the Memory interleaving feature.	
Memory Interleaving	Options available: Disabled, Auto, Enabled. Default setting is Auto.	
Missed interless in a mode	Allows for interleaving UMC and CXL together.	
wixed interieaving mode	Options available: Disabled, Auto, Enabled. Default setting is Auto.	
Pagion Siza	Options available: 1 K Region Size, 2K Region Size, Auto.	
Region Size	Default setting is Auto.	
CXL Memory interleaving	Options available: Disabled, Enabled, Auto. Default setting is Auto.	
CXL Sublink interleaving	Options available: Enable, Disable, Auto. Default setting is Auto.	
	Enable/Disable the DRAM map inversion function.	
DRAW map inversion	Options available: Disabled, Enabled, Auto. Default setting is Auto.	
Levelle of the state of the second	Controls whether or not the private memory regions (PSP, SMU and CC6) are	
Location of private memory	at the top of DRAM or distributed.	
regions	Options available: Distributed, Consolidated, Auto. Default setting is Auto.	

AMD CBS	Aptio Setup – AMI	
ACPI ACPI SRAT L3 Cache As NUMA Domain ACPI SLIT Distance Control ACPI SLIT remote relative distance	[Auto] [Auto] [Auto]	Enabled: Each CCX in the system will be declared as a separate NUMA domain. Disabled: Memory Addressing \ NUMA nodes per socket will be declared.
		++: 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
ACPI	
ACPI SRAT L3 Cache As	Enable/Disable report each L3 cache as a NUMA Domain to the OS.
NUMA Domain	Options available: Disabled, Enabled, Auto. Default setting is Auto.
ACPI SLIT Distance Control	Determines how the SLIT distances are declared.
	Options available: Manual, Auto. Default setting is Auto.
ACPI SLIT remote relative	Sets the remote socket distance for 2P systems as near (2.8) or far (3.2).
distance	Options available: Near, Far, Auto. Default setting is Auto.

5-3-2-3 Link

AMD CBS	Aptio Setup – AMI	
Link GMI encryption control xGMI ink Configuration 4-link xGMI max speed 3-link xGMI max speed xGMI GRC Scale xGMI CRC Threshold xGMI GRC Threshold xGMI GLOBAL Preset xGMI GLOBAL Preset xGMI Initial Preset xGMI TXEQ Search Mask xGMI AC/OC Coupled Link xGMI Channel Type	[Auto] [Auto] [Auto] [Auto] 7 25 [Enabled]	Control GMI link encryption. Program GMI key to enabling encryption.
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Parameter	Description	
GMI encryption control	Enable/Disable GMI link encryption.	
	Options available: Disabled, Enabled, Auto. Default setting is Auto.	
xCMI operation control	Enable/Disable xGMI link encryption.	
	Options available: Disabled, Enabled, Auto. Default setting is Auto.	
	Configures the number of xGMI2 links used on a multi-socket system.	
xGMI Link Configuration	Options available: Auto, 3 xGMI Links, 4 xGMI Links, 2 xGMI Links + 2 PCI	
	Links. Default setting is Auto.	
A-link xGMI max speed	Specifies the max speed of 4-link xGMI.	
	Options available: 20Gbps, 25Gbps, 32Gbps, Auto. Default setting is Auto.	
2 link xCMI max anood	Specifies the max speed of 3-link xGMI.	
5-lillk XGIVII IIIax Speeu	Options available: 20Gbps, 25Gbps, 32Gbps, Auto. Default setting is Auto.	
	Configures leaky bucket scale for xGMI and WAFL CRC errors. Every scale	
XGIVII CRC Scale	milliseconds an error will leak from the CRC counter. Default setting is 5.	
VGMI CRC Threshold	Configures leaky bucket threshold for xGMI and WAFL CRC errors. If link CRC	
	counter exceeds this threshold, an error will be logged. Default setting is 25.	
xGMI Preset Control	Enable/Disable xGMI Preset control.	
XGIVII FTESEL CONLIGI	Options available: Disabled, Enabled, Auto. Default setting is Enabled .	
xGMI Global Preset List	Press [Enter] to configure the xGMI Preset list.	
xGMI Initial Preset	Press [Enter] to configure the xGMI Initial Preset CPU0/1 link.	
xGMI TXEQ Search Mask	Press [Enter] to configure the xGMI TXEQ Search Mask CPU0/1 link.	

Parameter	Description	
	Press [Enter] to configure the xGMI AC/DC Coupled link.	
xGMI AC/DC Coupled Link	xGMI AC/DC Coupled Link Control ^(Note)	
	 Options available: Manual, Auto. Default setting is Auto. 	
Press [Enter] to configure the xGMI Channel Type.		
xGMI Channel Type	xGMI Channel Type Control ^(Note)	
	 Options available: Manual, Auto. Default setting is Auto. 	

5-3-2-4 SDCI

AMD CBS	Aptio Setup — AMI	
SDCI SDCI DisRmtSteer	[Auto] [Auto]	Enable or Disable Smart Data Cache Injection feature
		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
\ \	/ersion 2.22.1294 Copyright (

Parameter	Description
SDCI ^(Note)	Options available: Disabled, Enabled, Auto. Default setting is Auto.
DisRmSteer	Options available: Disabled, Enabled, Auto. Default setting is Auto.

5-3-2-5 Probe Filter

AMD CBS	Aptio Setup — AMI	
Probe Filter Organization Periodic Directory Rinse (PDR) Tuning	[Auto] [Auto]	Specifies whether multiple memory/CXL channels will share probe filter storage. For memory sizes of 16TB or larger, this feature is ignored as it is auto-selected to 'shared'
		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit
Version	1 2.22.1294 Copyright (C) 2024 AM	ESU: EXIL

Parameter	Description
	Specifies whether multiple memory/CXL channels will share probe filter
Organization	storage.
	Options available: Auto, Dedicated, Shared. Default setting is Dedicated.
	Controls PDR settings that may impact performance by workload and/or
Periodic Directory Rinse (PDR) processor.	
Tuning	Options available: Memory-Sensitive, Cache-Bound, Neutral, Adaptive,
	Auto. Default setting is Auto.

5-3-3 UMC Common Options

Aptio Setup - AMI AMD CBS	
UMC Common Options > DDR Addressing Options > DDR Controller Configuration > DDR MBIST Options > DDR Res > DDR Bus Configuration > Enforce POR > DDR Training Options > DDR Security	DDR Addressing Options
▶ DDR MISCellaneous	++: Select Screen 11: 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
UMC Common Options	
DDR Addressing Options	Press [Enter] for configuration of advanced items.
DDR Controller Configuration	Press [Enter] for configuration of advanced items.
DDR MBIST Options	Press [Enter] for configuration of advanced items.
DDR RAS	Press [Enter] for configuration of advanced items.
DDR Bus Configuration	Press [Enter] for configuration of advanced items.
Enforce POR	Press [Enter] for configuration of advanced items.
DDR Training Options	Press [Enter] for configuration of advanced items.
DDR Security	Press [Enter] for configuration of advanced items.
DDR PMIC Configuration	Press [Enter] for configuration of advanced items.
DDR Miscellaneous	Press [Enter] for configuration of advanced items.

5-3-3-1 DDR Addressing Options

AMD CBS	Aptio Setup – AMI	
DDR Addressing Options	[Auto]	Interleave memory blocks across the DRAM chip
Address Hash Bank Address Hash CS	(Auto) (Auto) (Auto)	
Address Hash Subchannel BankSwapMode	(Auto) (Auto) (Auto)	
		++: Select Screen 11: Select Ttem
		Enter: Select +/-: Change Opt. F1: General Help
		F3: Previous Values F9: Optimized Defaults F10: Save & Exit
		ESC: Exit
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Parameter	Description
DDR Addressing Options	
Chipselect Interleaving	Interleaves memory blocks across the DRAM chip selects for node 0.
	Options available: Disabled, Auto. Default setting is Auto.
Address Hash Bank	Enable or disable bank addressing hashing.
	Options available: Disabled, Enabled, Auto. Default setting is Auto.
Address Hash CS	Enable or disable CS addressing hashing.
Address Hash 05	Options available: Auto, Enabled, Disabled. Default setting is Auto.
Address Hash RM	Enable or disable RM addressing hashing for 3DS DIMMs.
	Options available: Auto, Enabled, Disabled. Default setting is Auto.
Address Hash Subchannel	Enable or disable sub-channel addressing hashing.
	Options available: Auto, Enabled, Disabled. Default setting is Auto.
BankSwapMode	Options available: Auto, Disabled, Swap CPU. Default setting is Auto.

5-3-3-2 DDR Controller Configuration

AMD CBS	Aptio Setup – AMI	
DDR Controller Configuration > DDR Power Options > Memory Channel Disable > Refresh Management (RFM)		DDR Power Options
Memory Context Restore DRAM Survives Warm Reset	[Auto] [Disabled]	++: Select Screen T1: 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
DDR Controller Configuration	
DDR Power Options	Press [Enter] for configuration of advanced items.
Memory Channel Disable	Press [Enter] for configuration of advanced items.
Refresh Management (RFM)	Press [Enter] for configuration of advanced items.
Memory Context Restore	Options available: Disabled, Enabled, Auto. Default setting is Auto.
DRAM Survives Warm Reset	Options available: Disabled, Enabled. Default setting is Disabled .

5-3-3-2-1 DDR Power Options

AMD CBS	Aptio Setup – AMI	
DDR Power Options		Enable or disable DDR power down mode
Power Down Enable Sub Urgent Refresh Lower Bound Urgent Refresh Limit DRAM Refresh Rate Self-Refresh Exit Staggering DRAM 2x Refresh Temperature Threshold	[Auto] 1 4 [3.9 usec] [n = 9] [85' - 90']	++: 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	.22.1294 Copyright (C) 2024 AMI	

Parameter	Description
DDR Power Options	
Power Down Enable	Enable or disable DDR power down mode.
	Options available: Disabled, Enabled, Auto. Default setting is Auto.
Sub Urgent Refresh Lower Bound	Specifies the stored refresh limit required to enter sub-urgent refresh mode.
Urgent Refresh Limit	Specifies the stored refresh limit required to enter urgent refresh mode.
DRAM Refresh Rate	DRAM refresh rate: 1.95us or 3.9us.
	Options available: 3.9 usec, 1.95 usec. Default setting is 3.9 usec.
Self-Refresh Exit Staggering	Options available: Disabled, n=1~9. Default setting is n=9.
DRAM 2X Refresh Temperature Threshold	Options available: 85-100. Default setting is 85-90 .

5-3-3-2-2 Memory Channel Disable

Memory Channel Disable		▲ Float Power Good when channel is disabled by
		BIOS setup options.
Power Good Marany Channel Dischla Ditmack	0	
Remoting charmer bisable bitmask	U (Create Level)	
Sucket 0 Channel 0	(Enabled)	
Sucket 0 Channel 1	(Enabled)	
Socket 0 Channel 2	(Enabled)	
Sucket 0 Channel 3	(Enabled)	
SUCKEL U CHANNEL 4	(Enabled)	
Sucket 0 Channel 5	(Enabled)	
SOCKET U Channel 6	(Enabled)	
Socket U Unannel /	(Enabled)	
Socket U Channel 8	(Enabled)	++: Select Screen
Socket U Unannel 9	(Enabled)	1+: Select Item
Socket U Channel 10	(Enabled)	Enter: Select
Socket U Channel 11	(Enabled)	+/-: Unange Upt.
Socket 1 Channel U	[Enabled]	F1: General Help
Socket 1 Channel 1	(Enabled)	F3: Previous values
Socket 1 Channel 2	(Enabled)	F9: Uptimized Default
Socket 1 Channel 3	[Enabled]	F10: Save & Exit
Socket 1 Unannel 4	[Enabled]	ESU: EXIT
SOCKET 1 UNANNEL 5	[Enabled]	
Socket 1 Channel 6	[Enabled]	
Socket 1 Channel /	[Enabled]	
United) 9094 ANT

Memory Channel Disable		
Memory Channel Disable Float	Options available: Disabled, Enabled. Default setting is Disabled .	
Power Good		
Memory Channel Disable		
Bitmask		
CPU0/1 Channel_#	Press [Enter] to enable/disable specific memory channel.	

5-3-3-2-3 Refresh Management (RFM)

AMD CBS	Aptio Setup – AMI	
Refresh Management (RFM) Refresh Management Adaptive Refresh Management RAA Initial Management Threshold RAA Refresh Decrement Multiplier DRFM Enable Bounded Refresh Configuration DRFM Hash Enable	(Auto) (Auto) (Auto) (Auto) (Auto) (Auto) (BRC4) (Auto)	Auto Disable: Disable RFM for all Ranks. Enable: Enable RFM for Ranks which support RFM. Force Enable: Enable RFM for all Ranks regardless of support. Selecting 'Force Enable' will cause REFpb/REFsb to be disabled if all ranks +: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: Select Item Enter: Select F1: Select Defaults F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
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Parameter	Description
Refresh Management (RFM)	
	Configure Refresh Management.
Refresh Management	Options available: Enable, Disable, Auto, Force Enable. Default setting is
	Auto.
Adaptivo Potroch Managoment	Options available: Auto, Disable, ARFM Level A, ARFM Level B, ARFM
Adaptive Reliesh Management	Level C. Default setting is Auto.
RAA Initial Management	Override Rolling Accumulated ACT Initial Management Threshold.
Threshold	Options available: 32, 40, 48, 56, 64, 72, 80, Auto. Default setting is Auto.
RAA Maximum Management	Override Rolling Accumulated ACT Maximum Management Threshold.
Threshold	Options available: 3X, 4X, 5X, 6X, Auto. Default setting is Auto.
RAA Refresh Decrement	Override RAA Refresh Decrement Multiplier.
Multiplier	Options available: 0.5, 1, Auto. Default setting is Auto.
DRFM	Options available: Disable, Enable, Auto. Default setting is Auto.
Bounded refresh Configuration	Options available: BRC2, BRC3, BRC4 . Default setting is BRC4.
DRFM Hash Enable	Options available: Disable, Enable, Auto. Default setting is Auto.

5-3-3-3 DDR MBIST Options

AMD CBS	Aptio Setup – AMI	
AND CBS DDR MBIST Options HBIST Test Mode MBIST Test Mode MBIST Aggressors DDR Healing BIST DDR Healing BIST DDR Healing BIST Repair Type Data Eye	[Auto] [Auto] [Auto] [Disabled] [One Time] [Soft Repair]	Enable or disable Memory HBIST ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F9: Optimized Defaults F10: Save & Exit ESC: Exit
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Parameter	Description
DDR MBIST Options	
MBIST Enable	Enable/Disable the Memory MBIST function. Options available: Disabled, Enabled, Auto. Default setting is Auto .
MBIST Test Mode ^(Note1)	Selects MBIST Test Mode. Interface Mode: Tests Single and Multiple CS transactions and Basic Connectivity. Data Eye Mode: Measures Voltage vs. Timing. Options available: Auto, Both, Interface Mode, Data Eye Mode. Default setting is Auto.
MBIST Aggressors ^(Note1)	Enable/Disable MBIST Aggressor test. Options available: Auto, Enabled, Disabled. Default setting is Auto .
DDR Healing BIST	Options available: Disabled, PMU Mem BIST, Self-Healing Mem BIST, PMU and Self-Healing Mem BIST. Default setting is Disabled .
DDR Healing BIST Execution Mode ^(Note2)	Options available: One Time, Every boot. Default setting is One Time .
DDR Healing BIST Repair Type ^(Note2)	For DRAM errors found in the BIOS memory BIST select the repair type. Options available: Soft Repair, Hard Repair, No Repairs -Test only. Default setting is Soft Repair .

(Note1) This item appears when MBIST Enable is set to Enabled.

Parameter	Description
Data Eye	Press [Enter] to configure advanced items.

(Note2) This item appears when DDR Healing BIST is defined.

5-3-3-3-1 Data Eye

AMD CBS	Aptio Setup — AMI	
Data Eye		MBIST Data Eye Pattern Type. 0 – PRBS (default),
Pattern Select	[PRBS]	1 - SSO, 2 - Both
Pattern Length	3	
Aggressor Channel	[All Channels]	
Aggressor Static Lane Control	[Disabled]	
Aggressor Static Lane Select Upper 32 hits	0	
Aggressor Static Lane Select Lower 32 Bits	0	
Aggressor Static Lane Select ECC	0	
Aggressor Static Lane Value	0	
Target Static Lane Control	(Disabled)	
Target Static Lane Select Upper 32 bit	0	<pre>++: Select Screen ↑↓: Select Item</pre>
Target Static Lane Select Lower 32 Bits	0	Enter: Select +/-: Change Opt.
Target Static Lane Select ECC	0	F1: General Help
Target Static Lane Value	0	F3: Previous Values
Read Voltage Sweep Step Size	[1]	F9: Optimized Defaults
Read Timing Sweep Step Size	[1]	F10: Save & Exit
Write Voltage Sweep Step Size	[1]	ESC: Exit
Write Timing Sweep Step Size	[1]	
Silent Execution	[Disabled]	

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Parameter	Description
Data Eye	
Pattern Select	Options available: PRBS, SSO, Both. Default setting is PRBS .
Pattern Length	Determines the pattern length. The possible options are N=312.
Aggressor Channel	This item helps read the aggressors channels. Options available: One Sub-Channel, Half Channels, All Channels. Default setting is All Channels .
Aggressor Static Lane Control	Enable/Disable the Aggressor Static Lane Control function. Options available: Enabled, Disabled. Default setting is Disabled .
Aggressor Static Lane Select Upper 32 bits	This item is configurable when Aggressor Static Lane Control is set to Enabled .
Aggressor Static Lane Select Lower 32 bits	This item is configurable when Aggressor Static Lane Control is set to Enabled.
Aggressor Static Lane Select ECC	This item is configurable when Aggressor Static Lane Control is set to Enabled .
Aggressor Static Lane Value	This item is configurable when Aggressor Static Lane Control is set to Enabled .
Target Static Lane Control	Enable/Disable the Target Static Lane Control function. Options available: Enabled, Disabled. Default setting is Disabled .

Parameter	Description
Target Static Lane Select Upper 32 bits	This item is configurable when Target Static Lane Control is set to Enabled .
Target Static Lane Select Lower 32 bits	This item is configurable when Target Static Lane Control is set to Enabled .
Target Static Lane Select ECC	This item is configurable when Target Static Lane Control is set to Enabled .
Target Static Lane Value	This item is configurable when Target Static Lane Control is set to Enabled .
Read Voltage Sweep Step Size	Configures the step size for read Data Eye voltage sweep. Options available: 1, 2, 4. Default setting is 1 .
Read Timing Sweep Step Size	Configures the step size for read Data Eye timing sweep. Options available: 1, 2, 4. Default setting is 1 .
Write Voltage Sweep Step Size	Configures the step size for write Data Eye voltage sweep. Options available: 1, 2, 4. Default setting is 1 .
Write Timing Sweep Step Size	Configures the step size for write Data Eye timing sweep. Options available: 1, 2, 4. Default setting is 1 .
Silent Execution	Execute MBIST Data Eye silently without ABL log output. Options available: Enabled, Disabled. Default setting is Disabled .

5-3-3-4 DDR RAS

AMD CBS	Aptio Setup — AMI	
DDR RAS Data Poisoning DRAM Boot Time Post Package Repair DRAM Post Package Repair Config Initiator	(Auto) [Disable] [Disable] [In-Band]	Enable poison data creation on uncorrectable DDR DRAM ECC errors and poison propagation to CPU cores and caches. Requires ECC memory. When FALSE, a fatal error event will
RCD Parity White CRC Read CRC Memory Error Injection EcsStatus Interrupt	(Auto) (Disabled) (Disabled) (Auto) (False)	occur on DDR ECC errors sets UMC_CH::EccCtrl[UcFatalEn] when
 ECE Configuration DRAM Sorrected Error Counter Enable DRAM Corrected Error Counter Interrupt Enable 	(LeakMode) (True)	++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help
DRAM Corrected Error Counter Leak Rate DRAM Corrected Error Counter Start Count	7 FFF5	F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version ;	2.22.1294 Copyright (C) 2024 AM	I I I I I I I I I I I I I I I I I I I

Parameter	Description	
DDR RAS		
Data Poisoning	Enable/Disable the Data Poisoning function.	
	Options available: Auto, Enabled, Disabled. Default setting is Auto.	
DRAM Boot Time Post Package	Enable/Disable the DRAM Boot Time Post Package Repair function.	
Repair	Options available: Enable, Disable. Default setting is Disable.	
DRAM Runtime Post Package	Enable/Disable the DRAM Runtime Post Package Repair function.	
Repair	Options available: Enable, Disable. Default setting is Disable.	
DRAM Post Package Repair Config	Options available: In-Band, Out of Band. Default setting is In-Band .	
Initiator		
RCD Parity	Enable/Disable the RCD Parity function.	
	Options available: Auto, Enabled, Disabled. Default setting is Enabled .	
Write CRC	Options available: Auto, Enabled, Disabled. Default setting is Disabled .	
Read CRC	Options available: Auto, Enabled, Disabled. Default setting is Disabled .	
Memory Error Injection	Options available: False, True, Auto. Default setting is Auto.	
EcsStatus Interrupt	Options available: False, True. Default setting is False.	
ECC Configuration	Press [Enter] to configure advanced items.	
	DRAM ECC Symbol Size	
	 Configures the DRAM ECC Symbol Size. 	
	- Options available: Auto, x4, x16. Default setting is Auto.	

Parameter	Description	
ECC Configuration (continued)	 DRAM ECC Enable Enable/Disable DRAM ECC. When set to Auto, it will set ECC to enable. Options available: Auto, Enabled, Disabled. Default setting is Auto. DRAM UECC Retry Enable/Disable DRAM UECC Retry. Options available: Auto, Enabled, Disabled. Default setting is Disabled. Max DRAM UECC Error Replay^(Note) Default setting is 8. Memory Clear Options available: Auto, Enabled, Disabled. Default setting is Auto. Address XOR after ECC Options available: Auto, Enabled, Disabled. Default setting is Auto. CypherText Hiding Enable Options available: Disable, Enable. Default setting is Disable. 	
DRAM Scrubbers	 Options available: Disable, Enable. Default setting is Disable. Press [Enter] to configure advanced items. DRAM ECS Mode Options available: Auto, AutoECS, ManualECS, DisableECS Default setting is Auto. DRAM Redirect Scrubber Enable Options available: Auto, Enabled, Disabled. Default setting is Auto. DRAM Scrub Redirection Limit Options available: Auto, 8 Scrubs, 4 Scrubs, 2 Scrubs, 1 Scrub Default setting is Auto. DRAM Scrub Redirection Limit Options available: Disabled, 1 hour, 4 hours, 6 hours, 8 hours 12 hours, 16 hours, 24 hours, 48 hours. Default setting is 24 Hours. ECS Config DRAM Error Threshold Count Options available: Auto, ETC_4, ETC_16, ETC_64, ETC_256 ETC_1024, ETC_4096. Default setting is Auto. DRAM ECS Count Mode Options available: Auto, Row Count Mode, Code Word Cour Mode. Default setting is Auto. 	

(Note) This item available when DRAM UECC Retry is set to Enabled. BIOS Setup - 98 -

Parameter	Description	
	 DRAM ECS WriteBack Suppression 	
	» Options available: Auto, Enable, Disable. Default setting is	
DRAM Scrubbers	Auto.	
(continued)	 DRAM X4 WriteBack Suppression 	
	» Options available: Auto, Enable, Disable. Default setting is	
	Auto.	
DRAM Corrected Error Counter Enable	Configure DRAM Corrected Error Counter function.	
	Options available: Disable, NoLeakMode, LeakMode. Default setting is	
	LeakMode.	
DRAM Corrected Error Counter	Enable SMI when DRAM corrected Error Counter count exceeds the	
Interrupt Enable	threshold value.	
	Options available: False, True. Default setting is True.	
DRAM Corrected Counter Leak	Program Rate value for DRAM Corrected Error Counter function.	
Rate	Default setting is 7.	
DRAM Corrected Error Counter	Program starting value for DRAM Corrected Error Counter function.	
Start Count	Default setting is FFF5.	

5-3-3-5 DDR Bus Configuration

AMD CBS	Aptio Setup – AMI	
DDR Bus Configuration ▶ P-State 0 Dram ODT Impedance ▶ P-State 1 Dram ODT Impedance		P-State O Dram ODT Impedance
Processor ODT Pull Up Impedance Processor ODT Pull Down Impedance Dram DQ drive strengths	[Auto] [Auto] [Auto]	++: Select Screen 11: 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
DDR Bus Configuration	
P-State 0 Dram ODT Impedance	 Press [Enter] to configure advanced items. RTT_NOM_WR P-State 0 Default setting is Auto. RTT_NOM_RD P-State 0 Default setting is Auto. RTT_WR P-State 0 Default setting is Auto. RTT_PARK P-State 0 Default setting is Auto. PCF PARK P-State 0 Default setting is Auto. DQS_RTT PARK P-State 0 Default setting is Auto.
P-State 1 Dram ODT Impedance	 Press [Enter] to configure advanced items. RTT_NOM_WR P-State 1 Default setting is Auto. RTT_NOM_RD P-State 1 Default setting is Auto. RTT_WR P-State 1 Default setting is Auto. RTT_PARK P-State 1 Default setting is Auto. PQS_RTT PARK P-State 1 Default setting is Auto.

Parameter	Description
Processor ODT Pull Up impedance	Select the ODT impedance for all DBYTE IOs.
	Options available: Auto, High Impedance, 480 ohm, 240 ohm, 160 ohm,
	120 ohm, 96 ohm, 80 ohm, 68.6 ohm, 60 ohm, 53.3 ohm,48 ohm, 43.6 ohm,
	40 ohm, 36.9 ohm, 34.3 ohm, 32 ohm, 30 ohm, 28.2 ohm, 26.7 ohm,
	25.3 ohm. Default setting is Auto.
Processor ODT Pull Down impedance	Select the ODT pull down impedance for all DBYTE IOs.
	Options available: Auto, High Impedance, 480 ohm, 240 ohm, 160 ohm,
	$120 \ \text{ohm}, \ 96 \ \text{ohm}, \ 80 \ \text{ohm}, \ 68.6 \ \text{ohm}, \ 60 \ \text{ohm}, \ 53.3 \ \text{ohm}, \ 48 \ \text{ohm}, \ 43.6 \ \text{ohm},$
	40 ohm, 36.9 ohm, 34.3 ohm, 32 ohm, 30 ohm, 28.2 ohm, 26.7 ohm,
	25.3 ohm. Default setting is Auto.
	Select the Dram Pull-up and Pull-Down Output Driver Impedance for all DQ
Dram DQ drive strengths	and DMI IOs.
	Options available: Auto, 48 ohm, 40 ohm, 34 ohm, Default setting is Auto.

5-3-3-6 Enforce POR

Aptio Setup - AMI AMD CBS	
Enforce POR WARNING - DAMAGE CAUSED BY USE OF YOUR AMD PROCESSOR OUTSIDE OF SPECIFICATION OR IN EXCESS OF FACTORY SETTINGS ARE NOT COVERED UNDER YOUR AMD PRODUCT WARRANTY AND MAY NOT BE COVERED BY YOUR SYSTEM MANUFACTURER'S WARRANTY. Operating your AMD processor outside of specification or in excess of factory settings, including but not limited to overclocking, may damage or shorten the life of your processor or other system components, create system instabilities (e.g., data loss and corrupted images) and in extreme cases may result in total system failure. AMD does not provide support or service for issues or damages related to use of an AMD processor outside of processor specifications or in excess of factory settings. > Decline > Accept	Decline ++: 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
Enforce POR	Decline/Accept to configure the advanced items.
Accept	
Active Memory Timing	Active memory Timing Settings.
Settings ^(Note)	Options available: Auto, Enabled. Default setting is Auto.
	Specifies the memory target speed in MT/s.
Memory Target Speed	Options available: Auto, DDR3600, DDR4000, DDR4400, DDR4800,
	DDR5200, DDR5600, DDR6000, DDR6400. Default setting is Auto.
SPD Timing	Press [Enter] to configure advanced items.
Non-SPD Timing	Press [Enter] to configure advanced items.

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

 BIOS Setup
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5-3-3-7 DDR Training Options

AMD CBS	Aptio Setup – AMI	
DDR Training Options DRAM PDA Enumerate ID Programming Mode ▶ Periodic Phase Training	[Auto]	Specify PDA enumeration mode Auto: default 0: Continuous DQS toggling PDA enumeration mode (default) 1: Legacy PDA enumeration mode
		<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>
Version 2	.22.1294 Copyright (C) 2024 AMI	

Parameter	Description
DDR Training Options	
DRAM PDA Enumerate ID Programming Mode	Specify PDA enumeration mode. Options available: Auto, Toggling PDA enumeration mode, Legacy PDA enumeration mode. Default setting is Auto .
Periodic Phase Training	 Press [Enter] to configure advanced items. Periodic Training Mode Options available: Disabled Legacy. Default setting is Legacy. Periodic Interval Periodic Interval value in milli-second, in decimal. Range 100-4095 ms.

5-3-3-8 DDR Security

DDR Security TSME AES Data Scramble SME-MK	Aptio Setup – AMI	
TSME AES Data Scramble SME-MK		Transparent SME
	[Auto] [AES-256] [Enabled] [Disabled]	++: Select Screen
		14: Select Item Enter: Select +/-: Change Opt. F3: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
Security	
TSME	Enable/Disable Transparent SME.
	Options available: Auto, Enabled, Disabled. Default setting is Auto.
AES	Options available: AES-128, AES-256. Default setting is AES-256.
Data Scramble	Enable/Disable Data Scrambling.
	Options available: Enabled, Disabled. Default setting is Enabled .
SME-MK	Options available: Enabled, Disabled. Default setting is Disabled .

5-3-3-9 DDR PMIC Configuration

AMD CBS	Aptio Setup — AMI	
DDR PMIC Configuration PMIC Error Reporting PMIC Operation Mode PMIC Fault Recovery PMIC SMA/SM8 VDD Core PMIC SMA/SM8 VDD Core PMIC SM0 VPP PMIC Stagger Delay Max PMIC Power On	[Auto] [Secure Mode] [Always] 1100 1100 1800 5 FF	Enables support for PMIC Error Reporting.
		<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>
Vens	ion 2.22.1294 Copyright (C) 2	

Parameter	Description
DDR PMIC Configuration	
PMIC Error Reporting	Enables support for PMIC Error Reporting.
	Options available: Auto, False, True. Default setting is Auto.
PMIC Operation Mode	Options available: Secure Mode, Programmable Mode.
FINIC Operation mode	Default setting is Programmable Mode.
PMIC Fault Recovery	Options available: Always, Never, Once. Default setting is Always.
PMIC SWA/SWB VDD Core	Default setting is 1100 .
PMIC SWC VDDIO	Default setting is 1100.
PMIC SWD VPP	Default setting is 1800.
PMIC Stagger Delay	Default setting is 5.
Max PMIC Power On	Default setting is FF.

5-3-3-10 DDR Miscellaneous

AMD CBS	Aptio Setup – AMI	
DDR Miscellaneous		Dram MR4 Temperature
ODTS CMD Throttle Threshold		Command Thermal Throttlling
		+: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version	2.22.1294 Copyright (C) 2024 AM	Î

Parameter

Description

DDR Miscellaneous

ODTS CMD Throttle Threshold Options available: Auto, > 85'C, > 90'C, > 95'C. Default setting is Auto.

5-3-4 NBIO Common Options

AMD CBS	Aptio Setup – AMI	
NBIO Common Options > SMU Common Options > NBIO RAS Common Options > PCIE > nBif Common Options > IOMMU/Security = Enable Port Bifurcation > Link EQ Preset Options		SMU Common Options
PCIe loopback Mode Enable 2 SPC (Gen 4) Enable 2 SPC (Gen 5) Safe recovery upon a BERExceeded Error Periodic Calibration	(Auto) (Auto) (Auto) (Auto)	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save Exit ESC: Exit
Version	2.22.1294 Copyright (C) 2024 AMI	

Parameter	Description
NBIO Common Options	
SMU Common Options	Press [Enter] for configuration of advanced items.
NBIO RAS Common Options	Press [Enter] for configuration of advanced items.
PCIE	Press [Enter] for configuration of advanced items.
nBif Common Options	Press [Enter] for configuration of advanced items.
IOMMU/Security	Press [Enter] for configuration of advanced items.
Enable Port Bifuration	Press [Enter] for configuration of advanced items.
Link EQ Present Options	Press [Enter] for configuration of advanced items.
PCIe loopback Mode	Options available: Disabled, Enabled, Auto. Default setting is Auto.
Enable 2SPC (Gen 4)	Options available: Disabled, Enabled, Auto. Default setting is Auto.
Enable 2SPC (Gen 5)	Options available: Disabled, Enabled, Auto. Default setting is Auto.
Safe recovery upon a BERExceeed Error	Options available: Disabled, Enabled, Auto. Default setting is Auto.
Periodic Calibration	Options available: Disabled, Enabled, Auto. Default setting is Auto.

5-3-4-1 SMU Common Options

AMD CBS	Aptio Setup – AMI	
SMU Common Options		Power Policy Quick Setting
Power Policy Quick Setting TDP Control PFT Control Determinism Control XGMI Link Hidth Control APBDIS Power Profile Selection XGMI Pstate Control BoostFmaxEn DF PState Frequency Optimizer DF PStates CPPC HSMP Support SVI3 SVC Speed Control 3D V-Cache L3 BIST Diagnostic Mode GMI Folding Separate CPU power plane throttling DfPstate Range Control	[Standard] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto]	++: Select Screen 11: Select Item Enter: Select +/-: Change Oot. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
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Parameter	Description
SMU Common Options	
Power Policy Quick Setting	Options available: Standard, Best Performance, Energy Efficient. Default setting is Standard .
TDP Control	Options available: Manual, Auto. Default setting is Auto.
PPT Control	Options available: Manual, Auto. Default setting is Auto.
Determinism Control	Selects use the fused Determinism or set customized Determinism. Options available: Manual, Auto. Default setting is Auto .
xGMI Link Width Control	Options available: Manual, Auto. Default setting is Auto.
APBDIS	Options available: 0, 1, Auto. Default setting is Auto.
Power Profile Selection	Options available: High Performance Mode, Efficiency Mode, Maximum IO Performance Mode. Default setting is High Performance Mode .
xGMI Pstate Control	Options available: Manual, Auto. Default setting is Auto.
BoostFmaxEn	Options available: Manual, Auto. Default setting is Auto.
DF PState Frequency Optimizer	Options available: Auto, Enabled, Disabled. Default setting is Auto.
DF Cstates	Options available: Disabled, Enabled, Auto. Default setting is Disabled .
Parameter	Description
--	--
CPPC	Enable/Disable the CPPC feature. Options available: Disabled, Enabled, Auto. Default setting is Auto .
HSMP Support	Enable/Disable the HSMP support. Options available: Disabled, Enabled, Auto. Default setting is Auto .
SVI3 SVC Speed Control	Options available: Auto, Manual. Default setting is Auto.
3D V-Cache	Options available: Auto, Disable, 1 stack, 2 stack, 4 stack. Default setting is Auto .
L3 BIST	Options available: Auto, Disable, Enable. Default setting is Auto.
Diagnostic Mode	Options available: Disabled, Enabled, Auto. Default setting is Auto.
GMI Folding	Options available: Disabled, Enabled, Auto. Default setting is Auto.
Separate CPU power plane throttling	Options available: Auto, Disable, Enable. Default setting is Auto.
DfPstate Range Support	Options available: Disable, Enable, Auto. Default setting is Auto.

5-3-4-2 NBIO RAS Common Options

AMD CBS	Aptio Setup — AMI	
NBIO RAS Common Options NBIO RAS Control NBIO SyncFlood Generation NBIO SyncFlood Generating	(Auto) (Auto) (Auto)	(0) Disabled, (1) MCA
PCIE Aer Reporting Mechanism Edpc Control ACS RAS Request Value NBIO Poison Consumption Sync Flood on PCIE Fatal Error NBIO RAS Numerical Common Options	(Auto) (Auto) (Auto) (Auto) (Auto) (Disable)	
		++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version (2.22.1294 Copyright (C) 2024 AMI	

Parameter	Description
NBIO RAS Common Options	
NBIO RAS Control	Options available: Disabled, MCA, Auto. Default setting is Auto.
NBIO SyncFlood Generation	The value may be used to mask SyncFlood caused by NBIO RAS options. Options available: Enabled, Disabled, Auto. Default setting is Auto .
NBIO SyncFlood Reporting	The value may be used to enable SyncFlood reporting to APML. Options available: Enabled, Disabled, Auto. Default setting is Auto .
PCIe Aer Reporting Mechanism	Selects the method of reporting AER errors from PCI Express. Options available: Firmware First, Firmware First but allow OS First, OS First, Auto. Default setting is Auto .
Edpc Control	Options available: Disabled, Enabled, Auto. Default setting is Auto.
ACS RAS Request Value	Options available: Direct Request Access Enabled, Request Blocking Enabled, Request Redirect Enabled, Auto. Default setting is Auto .
NBIO Poison Consumption	Options available: Auto, Enabled, Disabled. Default setting is Auto.
Sync Flood on PCle Fatal Error	Options available: Auto, True, False. Default setting is Auto.
NBIO RAS Numerical Common Options	Options available: Disable, Manual. Default setting is Disable .

5-3-4-3 PCIE

AMD CBS	Aptio Setup – AMI	
PCIE		Data Object Exchange (DOE)
Data Object Exchange RTM Margining Support Multi Auto Speed Change On Last Rate Multi Upstream Auto Speed Change Allow Compliance EQ Bypass To Highest Rate Data Link Feature Cap SRIS ACS Enable PCIE Ten Bit Tag Support PCIE ARI Support PCIE ARI Support PCIE ARI Support Presence Detect Select mode Hot Plug Handling mode Presence Detect State Settle Time Hot Plug Port Settle Time Hot Plug Support Early Link Speed Enable AER Cap PCIE Langet Link Speed ASPM Control	(Auto) (Auto)	<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>

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and the second	Aptio Setup – AMI	
AMD CBS		
AND CBS Multi Auto Speed Change On Last Rate Multi Upstream Auto Speed Change Allow Compliance EQ Bypass To Highest Rate Data Link Feature Cap SRIS ACS Enable PDIE Ten Bit Tag Support PDIE ARI Enumeration PDIE ARI Enumeration PDIE ARI Support Presence Detect Select mode Hot Plug Handling mode Presence Detect State Settle Time Hot Plug Port Settle Time Hot Plug Port Settle Time Hot Plug Port Settle Time Hot Plug Support Early Link Speed Enable AER Cap PDIE Link Speed Capability PDIE Target Link Speed ASPM Control MCTP Enable Non-PCIE Compliant Support Limit Hotplug devices to PDIE boot speed	[Auto] [Auto]	 Enabled: Limit hotplug slots to Gen4 if system boated with only Gen4 devices, which optimizes idle power Disabled: Do not limit hotplug slots to Gen4 if system boated with only Gen4 devices, increases idle power **: Select Screen 11: 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	
PCIE		
Data Object Exchange	Options available: Auto, Disabled, Enabled. Default setting is Auto.	
RTM Margining Support	Options available: Auto, Disable, Enable. Default setting is Auto.	
Multi Auto Speed Change On Last Rate	Options available: Auto, Disable, Enable. Default setting is Auto.	
Multi Upstram Auto Speed Change	Options available: Auto, Disabled, Enabled. Default setting is Auto.	
Allow Compliance	When enabled, allows the PCIe RP to enter Polling.Compliance state. Options available: Auto, Disable, Enable. Default setting is Auto .	
EQ Bypass To Highest Rate	Options available: Disable, Enable, Auto. Default setting is Auto.	
Data Link Feature Cap	Options available: Auto, Disabled, Enabled. Default setting is Auto.	
SRIS	Options available: Auto, Disable, Enable. Default setting is Auto.	
ACS Enable	Enable/Disable ACS. Options available: Enable, Disabled, Auto. Default setting is Auto .	
PCIe Ten Bit Tag Support	Enable/Disable PCIe ten bit tags for supported devices. (Auto=Disabled) Options available: Disable, Enable, Auto. Default setting is Auto .	
PCIe ARI Enumeration	ARI Forwarding Enable for each downstream port. Options available: Disable, Enable, Auto. Default setting is Auto .	
PCIe ARI Support	Enable/Disable Alternative Routing-ID Interpretation. Options available: Disable, Enable, Auto. Default setting is Auto .	
Presence Detect Select mode	Controls the Presence Detect Select mode. Options available: OR, AND, Auto. Default setting is Auto .	
Hot Plug Handling mode	Controls the Hot Plug Handling mode. Options available: OS First, Firmware First/EDR if OS supports, Firmware First but allow OS First, System Firmware Intermediary, Auto. Default setting is Auto .	
Presence Detect State Settle Time	Options available: True, False, Auto. Default setting is Auto.	
Hot Plug Port Settle Time	Configure Hot Plug Port Settle Time.	
Hot Plug Support	Options available: Auto, Disabled. Default setting is Auto.	
Early Link Speed	Configures Early Link Speed. Options available: Auto, Gen1, Gen2. Default setting is Auto .	
Enable AER Cap	Enable/Disable Advanced Error Reporting Capability. Options available: Enable, Disabled, Auto. Default setting is Auto .	

Parameter	Description
PCIE Link Speed Capability	Options available: Maximum speed, Gen1, Gen2, Gen3, Gen4, Gen5, Auto. Default setting is Auto .
PCIE Target Link Speed	Options available: Maximum Speed, GEN1, GEN2, GEN3, GEN4, GEN5, Auto. Default setting is Auto .
ASPM Control	Options available: Disable, L0s, L1, Auto. Default setting is Auto.
MCTP Enable	Options available: Enable, Disable, Auto. Default setting is Disable.
Non-PCIe Compliant Support	Options available: Enable, Disable, Auto. Default setting is Auto.
Limit hotplug devices to PCIe boot speed	Options available: Enable, Disable, Auto. Default setting is Auto.

5-3-4-4 nBif Common Options

AMD CBS	Aptio Setup – AMI	
RCC_DEV0	4	Enable ACS enable for
ACS Rcc Dev0	[Auto]	STRAP ACS EN DN DEVO
AER Rcc Dev0	[Auto]	
DlfEnableStrap1	(Auto)	
Phy16GTStrap1	(Auto)	
MarginEnStrap1	(Auto)	
SourceValStrap5	(Auto)	
TranslationalBlockingStrap5	[Auto]	
P2pReq ACS Control	[Auto]	
P2pCompStrap5	[Auto]	
UpstreamFwdStrap5	[Auto]	
P2PEgressStrap5	(Auto)	
DirectTranslatedStrap5	(Auto)	↔+: Select Screen
SsidEnStrap5	(Auto)	↑↓: Select Item
PriEnPageReq	(Auto)	Enter: Select
PriResetPageReq	(Auto)	+/-: Change Opt.
SourceVal ACS cntl	(Auto)	F1: General Help
TranslationalBlocking ACS Control	(Auto)	F3: Previous Values
P2pComp ACS Control	(Auto)	F9: Optimized Defaults
UpstreamFwd ACS Control	(Auto)	F10: Save & Exit
P2PEgress ACS Control	(Auto)	ESC: Exit
P2pReqStrap5	[Auto]	
E2E_PREFIX	[Auto]	
EXTENDED_FMT	[Auto]	
Uproton 1	1 99 4984 Conuniabt (C) 9094 ANT	

Parameter	Description
RCC_DEV0	 ACS Rcc_Dev0 Options available: Auto, Disabled, Enabled. Default setting is Auto. AER Rcc_Dev0
	Options available: Auto, Disabled, Enabled. Default setting is Auto.DlfEnableStrap1
	Options available: Auto, Disabled, Enabled. Default setting is Auto.Phy16GTStrap1
•	Options available: Auto, Disabled, Enabled. Default setting is Auto.MarginEnStrap1
	Options available: Auto, Disabled, Enabled. Default setting is Auto.SourceValStrap5
	Options available: Auto, Disabled, Enabled. Default setting is Auto.TranslationalBlockingStrap5
•	 Options available: Auto, Disabled, Enabled. Default setting is Auto. P2pReq ACS Control
	 Options available: Auto, Disabled, Enabled. Default setting is Auto. P2pCompStrap5
	Options available: Auto, Disabled, Enabled. Default setting is Auto.UpstreamFwdStrap5
	- Options available: Auto, Disabled, Enabled. Default setting is Auto.

Parameter	Description
Parameter RCC_DEV0 (continued)	 Description P2PEgressStrap5 Options available: Auto, Disabled, Enabled. Default setting is Auto. DirectTranslatedStrap5 Options available: Auto, Disabled, Enabled. Default setting is Auto. SsidEnStrap5 Options available: Auto, Disabled, Enabled. Default setting is Auto. SsidEnStrap5 Options available: Auto, Disabled, Enabled. Default setting is Auto. PriEnPageReq Options available: Auto, Disabled, Enabled. Default setting is Auto. PriResetPageReq Options available: Auto, Disabled, Enabled. Default setting is Auto. SourceVal ACS cntl Options available: Auto, Disabled, Enabled. Default setting is Auto. TranslationalBlocking ACS Control Options available: Auto, Disabled, Enabled. Default setting is Auto. P2pComp ACS Control Options available: Auto, Disabled, Enabled. Default setting is Auto. UpstreamFwd ACS Control Options available: Auto, Disabled, Enabled. Default setting is Auto. UpstreamFwd ACS Control Options available: Auto, Disabled, Enabled. Default setting is Auto. P2PEgress ACS Control Options available: Auto, Disabled, Enabled. Default setting is Auto.
	 Options available: Auto, Disabled, Enabled. Default setting is Auto. P2PEgress ACS Control Options available: Auto, Disabled, Enabled. Default setting is Auto.
	 P2pReqStrap5 Options available: Auto, Disabled, Enabled. Default setting is Auto. E2E_PREFIX
	 Options available: Auto, Disabled, Enabled. Default setting is Auto. EXTENDED_FMT
	 Options available: Auto, Disabled, Enabled. Default setting is Auto. AtomicRoutingStrap5 Options available: Auto, Disabled, Enabled, Default setting is Auto
RCC_DEV0 (continued)	 Options available: Auto, Disabled, Enabled. Default setting is Auto. TranslationalBlocking ACS Control Options available: Auto, Disabled, Enabled. Default setting is Auto. P2pComp ACS Control Options available: Auto, Disabled, Enabled. Default setting is Auto. UpstreamFwd ACS Control Options available: Auto, Disabled, Enabled. Default setting is Auto. P2PEgress ACS Control Options available: Auto, Disabled, Enabled. Default setting is Auto. P2PEgress ACS Control Options available: Auto, Disabled, Enabled. Default setting is Auto. P2PReqStrap5 Options available: Auto, Disabled, Enabled. Default setting is Auto. P2pReqStrap5 Options available: Auto, Disabled, Enabled. Default setting is Auto. E2E_PREFIX Options available: Auto, Disabled, Enabled. Default setting is Auto. EXTENDED_FMT Options available: Auto, Disabled, Enabled. Default setting is Auto. AtomicRoutingStrap5 Options available: Auto, Disabled, Enabled. Default setting is Auto.

5-3-4-5 IOMMU/Security

AMD CBS	Aptio Setup – AMI	
IOMMU/Security SEV-SNP Support DRTM Memory Reservation DRTM Virtual Device Support DMA Protection IOMMU DMAr Support	(Auto) (Auto) (Auto) (Dissoled) (Auto)	Enables support for Secure Encrypted Virtualization and Secure Nested Paging
		++: 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
SEV-SNP Support	Enable/Disable the SEV-SNP support. Options available: Disable, Enable, Auto. Default setting is Auto .
DRTM Memory Reservation	Enable/Disable DRTM Memory reservation. Options available: Disabled, Enabled, Auto. Default setting is Auto .
DRTM Virtual Device Support	Enable/Disable DRTM ACPI virtual device. Options available: Disabled, Enabled, Auto. Default setting is Auto .
DMA Protection	Enable/Disable DMA remap support in IVRS IVinfo Field. Options available: Auto, Enabled, Disabled. Default setting is Auto .
IOMMU	Enable/Disable the IOMMU function. Options available: Disabled, Enabled. Default setting is Disabled .
DMAr Support ^(Note)	Enable/Disable DMAr system protection during POST. Options available: Disabled, Enabled, Auto. Default setting is Auto .

5-3-4-6 Enable Port Bifurcation

AMD CBS	Aptio Setup – AMI	
Enable Port Bifurcation Enable Port Bifurcation	(Auto)	Change the configuration of each PCIe link Individually. By default, each link is configured 1 port of 16 lanes. (x16)
		<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>
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Parameter	Description
Enable Bifurcation ^(Note)	Options available: Disable, Enable, Auto. Default setting is Auto.
Socket0 Slot Info Override	
Socket1 Slot Info Override	

5-3-4-7 Link EQ Preset Options

Link EQ Preset Options	GEN3
GEN4	
GEN5	
	the Colort Concor
	11: Select Item
	Enter: Select
	+/-: Change Opt.
	F1: General Help
	F3: Previous Values
	F9: Uptimized Defaults
	ESC: Exit
Version 2 22 1294 Pr	nuright (C) 2024 AMT

Parameter	Description
GEN3/4/5	 Press [Enter] to configure advanced items. Preset Search Mask Configuration Options available: Custom, Auto. Default setting is Auto.

5-3-5 FCH Common Options

Aptio Setup	- AMI
FCH Common Options > I3C/I2C Configuration Options > SATA Configuration Options > USB Configuration Options > Ac Power Loss Options > Wart Configuration Options > FCH RAS Options > FCH RAS Options	I3C/I2C Configuration Options
	++: 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
FCH Common Options	
I3C/I2C Configuration Options	Press [Enter] for configuration of advanced items.
SATA Configuration Options	Press [Enter] for configuration of advanced items.
USB Configuration Options	Press [Enter] for configuration of advanced items.
AC Power Loss Options	Press [Enter] for configuration of advanced items.
Uart Configuration Options	Press [Enter] for configuration of advanced items.
FCH RAS Options	Press [Enter] for configuration of advanced items.
Miscellaneous Options	Press [Enter] for configuration of advanced items.

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

AMD CBS	Aptio Setup — AMI	
ISC/I2C Configuration Options ISC/I2C 0 Enable ISC 0 Mode ISC/I2C 1 Enable ISC 1 Mode ISC/I2C 2 Enable ISC 2 Mode ISC/I2C 3 Enable ISC 3 Mode I2C 4 Enable I2C 5 Enable Release SPD Host Control PMFW Poll DDR5 Telemetry	[I3C Enabled] [I3C] [I3C] [I3C] [I3C] [I3C Enabled] [I3C Enabled] [I3C Enabled] [I3C] [Auto] [Auto] [Disabled] [Enabled]	Enable or disable Inter-Integrated Circuit Control 0 +: Select Screen 11: Select Item
I2C SDA Hold Override APML SB-TSI Mode I3C Push Pull HCNT Value I3C SDA Hold Value I3C SDA Hold Override	[Auto] [I3C] 8 2 [Auto]	Enter: Select +/-: Change Dpt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
I3C/I2C Configuration Option	3
I3C/I2C 0/1/2/3 Enable(Note)	Options available: Both Disabled, I3C Enabled, I2C Enabled, Auto. Default setting is I3C Enabled .
I2C 4/5 Enable	Options available: Disabled, Enabled, Auto. Default setting is Auto.
Release SPD Host Control	Options available: Disabled, Enabled. Default setting is Disabled .
PMFW Poll DDR5 Telemetry	Options available: Disabled, Enabled. Default setting is Enabled .
Ixc Telemetry Ports Fence Control	Options available: Disabled, Enabled. Default setting is Disabled .
I2C SDA Hold Override	Options available: Disabled, Enabled, Auto. Default setting is Auto.
APML SB-TSI & RMI Mode	Options available: I3C, I2C. Default setting is I3C.
I3C Mode Speed	Options available: SDR2(6MHz), SDR0(12.5MHz), Auto. Default setting is Auto .
I3C Push Pull HCNT Value	SCL push-pull High count for I3C transfers targeted to I3C devices.
I3C SDA Hold Value	Specifies I3C SDA Hold value.
I3C SDA Hold Override	Override I3C SDA Hold value. Options available: Disabled, Enabled, Auto. Default setting is Auto .

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

5-3-5-2 SATA Configuration Options

AMD CBS	Aptio Setup – AMI	
SATA Configuration Options		Disable or enable OnChip
SATA Enable		SHIR CONTROLLER
SATA RAS Support	[Auto]	
SATA Staggered Spin-up	[Auto]	
SATA Disabled AHCI Prefetch	[Auto]	
Function		
SATA Controller options		
		↔+: Select Screen
		↑↓: Select Item
		Enter: Select
		+/−: Change Opt.
		F1: General Help
		F3: Previous values
		F5. Uptimized Defaults
		ESC: Exit
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Description	
Enable/Disable OnChip SATA controller. Options available: Disabled, Enabled, Auto. Default setting is Auto .	
Options available: Disabled, Enabled, Auto. Default setting is Auto.	
Options available: Disabled, Enabled, Auto. Default setting is Auto.	
Options available: Disabled, Enabled, Auto. Default setting is Auto.	
Press [Enter] for configuration of advanced items. SATA Controller Enable SATA Controller eSATA SATA Controller DevSlp SATA Controller SCRIQ 	

5-3-5-3 USB Configuration Options

AMD CBS	Aptio Setup — AMI	
USB Configuration Options		Enable or disable USB3
XHCI Controller0 enable XHCI Controller1 enable ▶ MCM USB enable	(Auto] [Auto]	CONTROLLOR.
		<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>
Versio	n 2.22.1294 Copyright (C) 2024 AM]	

Parameter	Description
USB Configuration Options	
XHCI Controller0/1 enable	Enable/Disable USB controller. Options available: Enabled, Disabled, Auto. Default setting is Auto .
MCM USB enable	 Press [Enter] for configuration of advanced items. XHCl2/ XHCl3 enable (Socket1) Options available: Enabled, Disabled, Auto. Default setting is Auto.

5-3-5-4 AC Power Loss Options

AMD CBS	Aptio Setup – AMI	
Ac Power Loss Options		Select Ac Loss Control
Ac Loss Control Set Fch Power failed Shadow in ABL	(Power On) [Auto]	Method
		+: 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
AC Power Loss Options	
AC Loss Control	Selects the AC Loss Control Method. Options available: Power Off, Power On, Last State. Default setting is Last State .
Set FCH Power failed shadow in ABL	Enable/Disable set FCH power failed shadow by AC Loss control policy in ABL. Options available: Enabled, Disabled, Auto. Default setting is Auto .

5-3-5-5 Uart Configuration Options

Uart Configuration Option	s	Enable or disable Uart0.
Uart O Enable Uart I Enable Uart 2 Enable	(Auto) (Auto) (Auto)	Uart O has no HW flow control if Uart 2 is enabled
		++: Select Screen 1: 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
Uart Configuration Options	
Uart 0/1/2/3 Enable	Options available: Disabled, Enabled, Auto. Default setting is Auto.

5-3-5-6 FCH RAS Options

AMD CBS	Aptio Setup — AMI	
FCH RAS Options		Enable FCH A-Link parity
ALink RAS Support Reset After Sync-Flood	[Auto] [Auto]	entor
		<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>
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Parameter	Description
FCH RAS Options	
ALink RAS Support	Enable/Disable the ALink RAS Support. Options available: Disabled, Enabled, Auto. Default setting is Auto .
Reset After Sync-Flood	Enables AB to forward downstream sync-flood message to system controller. Options available: Enable, Disable, Auto. Default setting is Auto .

5-3-5-7 Miscellaneous Options

AMD CBS	Aptio Setup — AMI	
Miscellaneous Options		Select whether or not
FCH Spread Spectrum Boot Timer Enable	[Disabled] [Auto]	Feature
		<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>
Versio		

Parameter	Description
Miscellaneous Options	
FCH Spread Spectrum	Select whether or not Enable the Spread Spectrum Feature. Options available: Disabled, Enabled, Auto. Default setting is Disabled .
Boot Timer Enable	Enable/Disable Boot Timer. Options available: Disabled, Enabled, Auto. Default setting is Auto .

5-3-6 SOC Miscellaneous Control

AMD CBS	Aptio Setup – AMI	
Soc Miscellaneous Control		Enable : Enable ConsoleOut Function for ABL
ABL Console Out Control ABL Console Out Serial Port	[Auto]	Disable : Disable ConsoleDut Eurotion for ABL
ABL Console Out Serial Port IO	[Auto]	Auto : Keep default
ABL Serial port IO customized enabled	[Disabled]	behavior
ABL Basic Console Out Control	[Auto]	
ABL PMU message Control	[Auto]	
Control	[Maruliug message]	
PSP error injection support	[False]	
▶ Firmware Anti-rollback (FAR)		++: Select Screen
		↑↓: Select Item
		+/-: Change Opt.
		F1: General Help
		F3: Previous Values
		F9: Uptimized Defaults E10: Save & Evit
		ESC: Exit
Version 2 92 1294 Convright (P) 2024 AMT		

Parameter	Description
SOC Miscellaneous Control	
ABL Console Out Control ^(Note)	Enable/Disable the ConsoleOut function for ABL. Options available: Disable, Enable, Auto. Default setting is Auto .
ABL Console Out Serial Portl ^(Note)	Options available: eSPI, SOC UART0, SOC UART1, Auto. Default setting is Auto .
ABL Console Out Serial Port IO	Options available: 0x3F8, 0x2F8, 0x3E8, 0x2E8, Auto. Default setting is Auto .
ABL Serial port IO customized enabled	Options available: Disabled, Enabled. Default setting is Disabled .
ABL Basic Console Out Control	Enable/Disable the Basic ConsoleOut function for ABL. Options available: Disable, Enable, Auto. Default setting is Auto .
ABL PMU message Control	To Control the total number of PMU debug messages. Options available: Auto, Detailed debug message, Coarse debug message, Stage completion, Assertion messages, Firmware completion message only. Default setting is Auto .
ABL Memory Population message Control	Options available: Warning message, Fatal error. Default setting is Warning message.

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

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Parameter	Description	
PSP error injection support	Options available: False, True. Default setting is False.	
Firmware Anti-rollback (FAR)	 Press [Enter] for configuration of advanced items. FAR enforcement state Default setting is Enabled. SPL value in the CPU Fuse SPL value in the SPL table FAR Switch Options available: Disabled, Enabled, Auto. Default setting is Auto. 	

5-3-7 CXL Common Options

AMD CBS	Aptio Setup — AMI	
CXL Common Options		Force enablement of CXL on
CXL Control CXL Physical Addressing CXL Memory Attribute CXL Encryption CXL DVSEC Lock CXL HOM Decoder Lock On Commit Temp Gen5 Advertisement Sync Header Bypass Sync Header Bypass Compatibility Mode	[Auto] [Auto] [Auto] [Disabled] [Auto] [Auto] [Auto] [Auto] [Auto]	Disabled: Allow platforms to enable CKL by port Enabled: Force enablement of CKL on all ports.
▶ CXL RAS CXL Memory Online/Offline Override CXL Memory Size	[Disabled] [Auto]	++: 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
CXL Common Options	
CXL Control	Options available: Auto, Enabled, Disabled. Default setting is Auto.
CXL Physical Addressing	Options available: Normalized address, System address, Auto. Default setting is Auto .
CXL Memory Attribute	Options available: Auto, Enabled, Disabled. Default setting is Auto.
CXL Encryption	Options available: Enabled, Disabled. Default setting is Disabled .
CXL DVSEC Lock	Options available: Auto, Enabled, Disabled. Default setting is Auto.
CXL HDM Decoder Lock on Commit	Options available: Auto, Enabled, Disabled. Default setting is Auto.
Temp Gen5 Advertisement	Options available: Disabled, Enabled, Auto. Default setting is Auto.
Sync Header Bypass	Options available: Auto, Enabled, Disabled. Default setting is Auto.
Sync Header Bypass Compatibility Mode	Options available: Auto, Enabled, Disabled. Default setting is Auto.

Parameter	Description
CXL RAS	 Press [Enter] for configuration of advanced items. CXL Protocol Error Reporting Options available: Disabled, SameAsPcieAer, ForceAerFwFirstIfCxlPresent. Default setting is SameAsPcieAer. CXL Component Error Reporting Options available: Allow OS First, Force FW-First, Debug FW-First. Default setting is Debug FW-First. CXL Root Port Isolation Options available: Auto, Enabled, Disabled. Default setting is Auto. CXL Root Port Isolation FW Notification. Options available: Auto, Enabled, Disabled. Default setting is Auto.
CXL Memory Online/Offline	All 4 Plink sots support memory online/offline. Only slot4 of Amber supports hot plug CXL memory interleaving automatically disabled globally when this CBS is enabled. Options available: Enabled, Disabled. Default setting is Disabled .
Override CXL Memory Size	Options available: 32GB, 64GB, 128GB, Auto. Default setting is Auto.

5-4 AMD PBS Menu

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

Main Advanced AMD CBS	Aptio Setup – AMI AMD PBS Option Chipset Server Mgmt	Security Boot Save & Exit
AMD PBS AMD Variable Protection ▶ RAS ▶ Range Encryption	[Disabled]	Protect some AMD specific variables for CBS, PBS and ADD. If locked, some utilities like RU that modify variable at runtime do not work.
		++: 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	
AMD Variable Protection	Protect some AMD specific variables for CBS, PBS and AOD. If locked, some utilities like RU that modify variable at runtime do not work. Options available: Disabled, Enabled. Default setting is Disabled .	
RAS	Press [Enter] for configuration of advanced items.	
Range Encryption	Press [Enter] for configuration of advanced items. Range1/2/3/4/5/6/7 Configure the Range 1/2/3/4/5/6/7 Memory Base. Configure the Range 1/2/3/4/5/6/7 Memory Limit/Size. Start Range Encryption	

5-4-1 RAS

AMD PBS Op	Aptio Setup – AMI otion	
RAS Periodic SMI Control SMI Threshold SMI Scale SMI Scale Unit SMI Period GHES Notify Type GHES UnCorn Notify Type PCIE GHES Notify Type PCIE UnCorn GHES Notify Type PCIE Root Port Corn Ern Mask Reg PCIE Root Port UnCorn Ern Mask Reg	[Enabled] 5 1000 [millisecond] 100 [Polled] [NMI] [Polled] [NMI] FFFFFFFF 0	Enable/ disable Periodic SMI for polling [MCA Threshold] error
Pole Root Port UnCorr Error Sev Reg PCIE Device Corr Err Mask Reg PCIE Device UnCorr Err Mask Reg Pcie Device UnCorr Error Sev Reg CXL DP CIE Mask Enable DRAM Hard Post Package Repair HEST DMC Structure Support CXL Error Report Support	57EF6030 FFFFFFFF 0 57EF6030 [Chabled] [Disabled] [Disabled] [Disabled]	<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
RAS Periodic SMI Control	Enable/Disable the Periodic SMI for polling [MCA Threshold] error. Options available: Disabled, Enabled. Default setting is Enabled .
SMI Threshold	Configures the SMI Threshold value.
SMI Scale	Configures the SMI Scale value.
SMI Scale Unit	Defines the unit of time scale. Options available: millisecond, second, minute. Default setting is millisecond .
SMI Period	Configures the SMI Period.
GHES Notify Type	Selects the Notification type for deferred/ corrected errors. Options available: Polled, SCI. Default setting is Polled .
GHES UnCorr Notify Type	Selects the Notification type for uncorrected errors. Options available: Polled, NMI. Default setting is NMI .
PCIe GHES Notify Type	Selects the Notification type for PCIe corrected errors. Options available: Polled, SCI. Default setting is Polled .
PCIe UnCorr GHES Notify Type	Selects the Notification type for PCIe uncorrected errors. Options available: Polled, NMI. Default setting is NMI .
PCle Root Port Corr Err Mask Reg	Initialize the PCIe AER Corrected Error Mask register of Root Port.

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

5-5 Chipset Setup Menu

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

Main Advanced AMD CBS	Aptio Setup – AMI AMD PBS Option Chipset Server Mgmt	Security Boot Save & Exit
Main Advanced AMD CBS PCIe Compliance Mode Program All VR Power Button is shutdown ▶ North Bridge	AMD PBS Option Chipset Server: Mgmt [0ff] [Enabled] <	Security Boot Save & Exit PCIe Link Compliance Mode. PCIe Link Compliance Mode. ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESS: Exit

Parameter	Description
PCIe Compliance Mode	Options available: Off, On. Default setting is Off.
Program All VR	Enable/Disable program all VR on MB. Options available: Disabled, Enabled. Default setting is Enabled .
Power Button 1s shutdown	Enable/Disable Press power button 1 sec shutdown. Options available: Disabled, Enabled. Default setting is Enabled .
North Bridge	Press [Enter] for configuration of advanced items.

5-5-1 North Bridge

Aptio Setup - AMI Chipset		
North Bridge Configuration	View Information related	
Memory Information		
Total Memory: 32768 MB ▶ CPU 0 Information ▶ CPU 1 Information		
	<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>	
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Parameter	Description
North Bridge Configuration Memory Information	
Total Memory	Displays the total memory information.
CPU 0/1 Information	Press [Enter] to view information related to CPU 0/1.

5-6 Server Management Menu

Main Advanced AMD CBS	Aptio Setup AMD PBS Option Chipset	– AMI Server Mgmt <mark>S</mark>	Security Boot Save & Exit
FRB-2 Timer FRB-2 Timer timeout FRB-2 Timer Policy OS Watchdog Timer OS Witd Timer Timeout OS Witd Timer Policy Wait BMC Ready > System Event Log > View FRU Information > BMC VLAN Configuration > BMC vLAN Configuration > EMC network Configuration > IPv6 BMC Network Configur	(Enabled) 6 (Do Nothing) (Disebled) 10 (Reset) (2 minutes)		Enable or Disable FRB-2 timer(POST timer) ++: Select Screen 11: 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
FRB-2 Timer	Enable/Disable FRB-2 timer (POST timer). Default setting is Enabled .
FRB-2 Timer timeout	Configures the FRB-2 Timer timeout. Default setting is 20 minutes .
FRB-2 Timer Policy	Configures the FRB-2 Timer policy. Options available: Do Nothing, Reset, Power Down, Power Cycle. Default setting is Do Nothing .
OS Watchdog Timer	Enable/Disable OS Watchdog Timer function. Options available: Enabled, Disabled. Default setting is Disabled .
OS Wtd Timer Timeout ^(Note)	Configures OS Watchdog Timer. Options available: 5 minutes, 10 minutes, 15 minutes, 20 minutes. Default setting is 10 minutes .
OS Wtd Timer Policy ^(Note)	Configure OS Watchdog Timer Policy. Options available: Do Nothing, Reset, Power Down, Power Cycle. Default setting is Reset .
Wait BMC Ready	Post wait BMC ready and reboot system. Options available: Disabled, 2 minutes, 4 minutes, 6 minutes. Default setting is 2 minutes.

This item is configurable when **OS Watchdog Timer** is set to **Enabled**. BIOS Setup (Note)

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

5-6-1 System Event Log

	Aptio Setup – AMI Server Mgmt	
Enabling/Disabling Options SEL Components	[Enabled]	Change this to enable or disable event logging for error/progress codes
Erasing Settings Erase SEL When SEL is Full	[No] [Do Nothing]	during boot.
Custom EFI Logging Options Log EFI Status Codes	(Error code)	
NOTE: All values changed here do not effect until computer is resta	take rted.	
		++: Select Screen 11: 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
Enabling / Disabling Options	
SEL Components	Change this item to enable or disable all features of System Event Logging during boot. Options available: Disabled, Enabled. Default setting is Enabled .
Erasing Settings	
Erase SEL	Choose options for erasing SEL. Options available: No/Yes, On next reset/Yes, On every reset. Default setting is No .
When SEL is Full	Choose options for reactions to a full SEL. Options available: Do Nothing, Erase Immediately. Default setting is Do Nothing .
Custom EFI Logging Options	
Log EFI Status Codes	Enable/Disable the logging of EFI Status Codes (if not already converted to legacy). Options available: Disabled, Both, Error code, Progress code. Default setting is Error code .

5-6-2 View FRU Information

The FRU page is a simple display page for basic system ID information, as well as System product information. Items on this window are non-configurable.

Aptio Setup – AMI Server Mgmt		
FRU Information System Product Name System Version System Serial Number Board Manufacturer Board Product Name Board Product Name Board Serial Number Chassis Part Number Chassis Part Number Chassis Serial Number		+*: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Optimized Defaults F10: Save & Exit ESC: Exit
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5-6-3 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 11: 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
BMC VLAN Configuration	
BMC VLAN ID	Select to configure BMC VLAN ID. The valid range is from 0 to 4094. When set to 0, BMC VLAN ID will be disabled.
BMC VLAN Priority	Select to configure BMC VLAN Priority. The valid range is from 0 to 7. When BMC VLAN ID is set to 0, BMC VLAN Priority will not be selected.

5-6-4 BMC Network Configuration

	Aptio Setup – AMI Server Mgmt	
BMC network configuration select NCSI and bedicated LAN Lan channel 1 Configuration Address source Station IP address Subnet mask Router IP address Station MAC address	[Do Nothing] [DynamicBmcDhcp] 10.1.116.128 255.255.255.0 10.1.116.253 74-56-3C-88-3C-DF	Select to configure LAN Channel parameters statically or dynanically(OhCP). Do nothing option will not modify any BMC network parameters during BIOS phase
Real-time get BMC network address		++: Select Screen 11: 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
Select NCSI and Dedicated LAN	Options available: Do Nothing, Mode1 (Dedicated), Mode2 (NCSI), Mode3 (Failover). Default setting is Do Nothing .
Lan Channel 1	
Configuration Address source	Selects to configure LAN channel parameters statically or dynamically (DHCP). Do nothing option will not modify any BMC network parameters during BIOS phase. Options available: Unspecified, Static, DynamicBmcDhcp. Default setting is DynamicBmcDhcp .
Station IP address	Displays IP Address information.
Subnet mask	Displays Subnet Mask information. Please note that the IP address must be in three digitals, for example, 192.168.000.001.
Router IP address	Displays the Router IP Address information.
Station MAC address	Displays the MAC Address information.
VLAN Support	Set BMC to enable/disable VLAN support. Options available: Enabled, Disabled. Default setting is Disabled .
Real-time get BMC network address	Press [Enter] will set LAN mode and Address source and then get IP, Subnet, Gateway and MAC address.

5-6-5 IPv6 BMC Network Configuration

	Aptio Setup – AMI Server Mgmt	
IPv6 BMC Network Configuration IPv6 BMC Lan Channel 1: IPv6 BMC Lan Option IPv6 BMC Lan IP Address Source IPv6 BMC Lan IP Address/Prefix Length → [::/0]	[Enable] [Oynamic-Obtained by BMC running DHCP] ::/0	Enable/Disable IPv6 BMC LAN channel function. Disable option will not modify any BMC network during BIOS Phase
		++: 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
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 Enable.
IPv6 BMC Lan IP Address Source	Selects to configure LAN channel parameters statically or dynamically (by BIOS or BMC). Options available: Unspecified, Static, Dynamic-Obtained by BMC running DHCP. Default setting is Dynamic-Obtained by BMC running DHCP .
IPv6 BMC Lan IP Address/ Prefix Length	Check if the IPv6 BMC LAN IP address matches those displayed on the screen.

5-7 Security Menu

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

Main Advanced AMD CBS	Aptio Setup AMD PBS Option Chipset	– AMI Server Mgmt	Security Boot Save & Exit
Password Description If ONLY the Administrator	's password is set,		Set Administrator Password
In this section of the section of th			
have Administrator rights The password length must in the following range:	s. be		
Minimum length Maximum length	3 20		
Administrator Password User Password			++: Select Screen 14: Select Item Enter: Select
▶ Secure Boot			F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
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There are two types of passwords that you can set:

Administrator Password

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

User Password

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

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

5-7-1 Secure Boot

The Secure Boot feature is applicable if supported by your Operating System. If your Operating System is not supporting Secure Boot, the system will hang when starting the Operating System.

	Aptio Setup – AMI	Security
System Mode	Setup	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 > Enter Audit Mode > Expert Key Management	[Custom]	enrolled and the System is in User mode. The mode change requires platform reset
		++: Select Screen 11: 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
System Mode	Displays if the system is in User mode or Setup mode.
Secure Boot	Enable/ Disable the Secure Boot function. Options available: Enabled, Disabled. Default setting is Disabled .
Secure Boot Mode ^(Note)	Secure Boot requires all the applications that are running during the booting process to be pre-signed with valid digital certificates. This way, the system knows all files being loaded before the Operating System loads to the login screen have not been tampered with. When set to Standard, it will automatically load the Secure Boot keys form the BIOS databases. When set to Custom, you can customize the Secure Boot settings and manually load its keys from the BIOS database. Options available: Standard, Custom. Default setting is Standard .
Restore Factory Keys	Forces the system to user mode and installs factory default Secure Boot key database.
Reset To Setup Mode	Press [Enter] to reset the system mode to Setup mode.
Enter Audit Mode	Press [Enter] to set the system mode to audit mode.

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

5-8 Boot Menu

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

Main Advanced AMD CBS AMD PBS D	Aptio Setup – AMI ption Chipset Server Mgmt S	ecurity Boot Save & Exit
Boot Configuration Setup Promot Timeout Bootup NumLock State Quiet Boot	2 [On] [Enabled]	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Setup Flash Dump full Setup Data Dump non-default Setup Data Restore Setup Data Fast Boot	(Disabled)	
FIXED BOOT ORDER Priorities		
Boot Option #1	[Hard Disk]	↔+: Select Screen
Boot Option #2	[CD/DVD]	↑↓: Select Item
Boot Option #3	[USB Device]	Enter: Select
BOOT OPTION #4	Intel(R) Network	F1: General Help
Boot Option #5	(UEFI AP:UEFI: Built-in EFI Shell)	F9: Optimized Defaults F10: Save & Exit ESC: Exit
▶ UEFI NETWORK Drive BBS Priorities		
 UEFI Application Boot Priorities 		

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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 On .
Quiet Boot	Enable/Disable showing the logo during POST. Options available: Enabled, Disabled. Default setting is Enabled .
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 (cJson format).
Fast Boot	Options available: Disabled, Enabled. Default setting is Disabled .

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

5-9 Save & Exit Menu

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

Aptio Setup – A Main Advanced AMD CBS AMD PBS Option Chipset Se	MI rver Mgmt Security Boot Save & Exit
Save Options Exit system setup after saving the changes. Save Changes and Exit Save Changes Default Options Restore Defaults Boot Override UEFI: FXE IPv4 Intel(R) Network 74:56:30:86:98:7F UEFI: PXE IPv4 Intel(R) Network 74:56:30:86:98:80 UEFI: FXE IPv6 Intel(R) Network 74:56:30:86:98:80	
UFFI: BUILT-IN EFI Shell Launch EFI Shell from filesystem device	++: 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 Save Options Saves changes made and closes the BIOS setup. Save Changes and Exit Options available: Yes, No. Discards changes made and exits the BIOS setup. **Discard Changes and Exit** Options available: Yes, No. Saves changes done so far to any of the setup options. Save Changes Options available: Yes, No. **Default Options** 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 Restore Defaults and you choose to load these settings, the system might not function properly. Options available: Yes, No. Boot Override Press [Enter] to configure the device as the boot-up drive. Launch EFI Shell from Attempts to Launch EFI Shell application (Shell.efi) from one of the filesystem device available file system devices.

5-10 BIOS Recovery

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

Recovery Instruction:

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



5-11 BIOS POST Beep code (AMI standard)

5-11-1 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

5-11-2 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