GIGABYTE[™] R283-ZK0-AAL1

Rack Server - AMD EPYC[™] 9004 2U DP 8+4-Bay Gen5 NVMe/SATA/SAS-4

User Manual

Rev. 1.0

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Documentation Classifications

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

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

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

For More Information

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

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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:

NOTE! Pieces of additional information related to the current topic.	
CAUTION! Precautionary measures to avoid possible hardware or software problems.	
WARNING! Alerts to any damage that might result from doing or not doing specific actions.	

Server Warnings and Cautions

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



WARNING!

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

- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
- Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
- · Unplug the power cord from the power supply to disconnect power to the equipment.
- 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.

WARNING!

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



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



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.



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 touching any components or connectors. After removing a board from its protective ESD bag or from the system, place the board component side up on a grounded, static free surface. Use a conductive foam pad if available but not the ESD bag. Do not slide the board over any surface.

System power on/off: To service components within the server, please ensure the power has been disconnected.

e.g. Remove the node from the server chassis (to disconnect power) or disconnect the power from the server chassis.

Make sure the system is removed from the rack before opening the chassis, adding, or removing any non hot-plug components.

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

Electrostatic discharge (ESD) and ESD protection: ESD can damage drives, boards, and other parts. We recommend that you perform all procedures in this chapter only at an ESD work-station. 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 service guide and follow these procedures:

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

1-2 Product Specifications



NOTE:

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

System Dimension	 2U 438 (W) x 43.5 (H) x 815(D) mm
CPU	 AMD EPYC[™] 9004 Series Processors AMD EPYC[™] 9004 Series Processors with AMD 3D V-Cache[™] Technology Dual processor, 5nm technology *Up to 128 cores, 256 threads per processor cTDP up to 400W Ready for select 5th Generation AMD EPYC [™] Processors
	Note: If only 1 CPU is installed, some PCIe or memory functions might be unavailable.
Socket	 2 x LGA 6096 Socket SP5
Chipset	System on Chip
Security	 UEFI Secure Boot Silicon root of trust SNMP Support: V3
Memory	 48 x DIMM slots DDR5 memory supported only 12-Channel memory architecture RDIMM up to 96GB supported 3DS RDIMM up to 256GB supported Memory speed: Up to 4800 MT/s (1DPC), 3600 MT/s (2DPC)
LAN	Rear side: 2 x 1Gb/s LAN ports (1 x Intel® I350-AM2) Support NCSI function 1 x 10/100/1000 management LAN
Video Video	 Integrated in Aspeed® AST2600 1 x Mini-DP

Storage Storage	Front side: • 8 x 2.5" Gen5 NVMe/SATA*/SAS-4 hot-swappable bays • - (4 x NVMe from CPU_0, 4 x NVMe from CPU_1) • * *SATA/SAS support requires add-in cards. Rear side:
	 4 x 2.5" SATA/SAS-4 hot-swappable bays (SATA via CRS2810 from CPU_0)
	SAS card is required for SAS devices support
	Note: SATA hotplug utility can be downloaded on support page.
SAS	Depends on SAS add-in cards
Expansion Slot	PCle Cable x 4: 1 x PCle x16 (Gen5 x16) FHHL slot, from CPU_0 3 x PCle x16 (Gen5 x16) FHHL slots, from CPU_1 2 x OCP 3.0 slots with PCle Gen5 x16 bandwidth, from CPU_0 Support NCSI function 1 x M.2 slot: M-key PCle Gen3 x4, from CPU_0 Supports 2280/22110 cards Occupied by CRS2810 - 4 x SATA ports 1 x M.2 slot: M-key PCle Gen3 x4, from CPU_1 Supports 2280/22110 cards 1 x M.2 slot: M-key PCle Gen3 x4, from CPU_1 Supports 2280/22110 cards 1 x M.2 slot: M-key PCle Gen3 x4, from CPU_1 Supports 2280/22110 cards 1 x M.2 slot: M-key PCle Gen3 x2, from CPU_1 Supports 2280/22110 cards
Internal I/O	1 x TPM header

Front I/O	 2 x USB 3.2 Gen1 ports (Type-A) 1 x Power button with LED 1 x ID button with LED 1 x NMI button 1 x Reset button 2 x LAN activity LEDs 1 x Storage activity LED 1 x System status LED
Rear I/O	 2 x USB 3.2 Gen1 ports (Type-A) 1 x Mini-DP 2 x RJ45 1 x MLAN 1 x ID LED
Backplane I/O	 Speed and bandwidth: Front side - CBP2081: PCIe Gen5 x4 or SATA 6Gb/s or SAS-4 24Gb/s Rear side - CBP2025: PCIe Gen5 x4 or SATA 6Gb/s or SAS-4 24Gb/s
TPM	 1 x TPM header with SPI interface Optional TPM2.0 kit: CTM010
Power Supply	 1+1 2700W 80 PLUS Titanium redundant power supplies AC Input: 00-127V~/ 12A, 50-60Hz 200-240V~/ 16A, 50-60Hz DC Input: (Only for China) 240Vdc/ 16A DC Output: Max 1008W/ 100-127V~ +12V/ 84A +12Vsb/ 3A - Max 2700W/ 200-240V~ or 240Vdc Input +12V/ 225A +12Vsb/ 3A NOTE: The system power supply requires C19 power cord

System Management	Aspeed® AST2600 Baseboard Management Controller
Management	GIGABYTE Management Console web interface
	Dashboard
	 HTML5 KVM
	 Sensor Monitor (Voltage, RPM, Temperature, CPU Statusetc.)
	Sensor Reading History Data
	FRU Information
	SEL Log in Linear Storage / Circular Storage Policy
	Hardware Inventory
	Fan Profile
	System Firewall
	Power Consumption
	Power Control
	Advanced power capping
	 LDAP / AD / RADIUS Support
	Backup & Restore Configuration
	 Remote BIOS/BMC/CPLD Update
	Event Log Filter
	User Management
	Media Redirection Settings
	PAM Order Settings
	SSL Settings
	SMTP Settings
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.	Front Panel LEDs and Buttons
2.	USB 3.2 Gen1 Port x 2
3.	2.5" Hard Drives



Refer to section 2-3 Front Panel LEDs and Buttons for a detailed description of the function of the LEDs.



No.	Description	No.	Description
1.	Mini DislayPort	5.	Server Management LAN Port
2.	ID LED	6.	OCP 3.0 Slot (Option/SFF)
3.	USB 3.2 Gen1 Port x 2	7.	PCIe Slot
4.	1GbE LAN Port x 2	8.	2.5" Hard Drive Bay



Refer to section 2-5 Rear System LAN LEDs for a detailed description of the function of the LEDs.

2-3 Front Panel LEDs and Buttons



No.	Name	Color	Status	Description	
1.	Reset Button			Press this button to reset the system.	
2.	NMI button			Press this button for the server to generate a NMI to the processor. If multiple-bit ECC errors occur, the server wi effectively be halted.	
		Green	On	Indicates the system is powered on.	
3.	Power button	Green	Blink	System is in ACPI S1 state (sleep mode).	
•	with LED	N/A	Off	 System is not powered on or in ACPI S5 state (power off) System is in ACPI S4 state (hibernate mode) 	
4.	ID Button with	Blue	On	Indicates the system identification is active.	
4.			Indicates the system identification is disabled.		
		Green	On	Indicates locating the HDD.	
		Green	Blink	Indicates accessing the HDD.	
5.	HDD Status	Amber	On	Indicates HDD error.	
	LED(Note)	Green/ Amber	Blink	Indicates HDD rebuilding.	
		N/A	Off	Indicates no HDD access or no HDD error.	
6.	System Status LED			This LED represents the RoT function LED behavior. Please see the following section for detail LED behavior.	
7/0	LAN1/2 Active/	Green	On	Indicates a link between the system and the network or no access.	
7/8.	Link LED	Green	Blink	Indicates data trasmission or receiving is occuring.	
		N/A	Off	Indicates no data transmission or receiving is occuring.	
(Note)	(Note) If your server features RoT function, please see the following section for detail LED behavior.				

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2-4 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	
	Blinks Blue	Blinks Green	
Recovering BMC Active Flash	4 times per second	4 times per second	
Descusion BIOS Active Fleet	Blinks Blue	Blinks Green	
Recovering BIOS Active Flash	4 times per second	4 times per second	
Authentication (AUTH) Pass			
Recovering BIOS Active Flash	OFF	OFF	
BMC : AUTH pass after doing recovery	OFF	OFF	
BIOS : AUTH pass after doing recovery			
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					
DHO AUTUE (Note2)	Blinks Blue	Blinks Green			
BMC : AUTH Fail ^(Note2)	1 time per second	1 time per second			
	Blinks Blue	Blinks Amber			
BIOS : AUTH fail ^(Note2)	1 time per second	1 time per second			
	Blinks Blue	Blinks Green			
BMC : AUTH fail after doing recovery ^(Note3)	2 times per second	2 times per second			
• •	[ON OFF OFF]	[ON OFF OFF]			
	Blinks Blue	Blinks Amber			
BIOS : AUTH fail after doing recovery ^(Note3)	2 times per second	2 times per second			
	[ON OFF OFF]	[ON OFF OFF]			
Backup Flash Authentication Fail ^(Note4)					
	Blinks Blue	Blinks Green			
BMC : AUTH fail	2 times per second	2 times per second			
	[ON OFF ON OFF]	[ON OFF ON OFF]			
	Blinks Blue	Blinks Amber			
BIOS : AUTH fail	2 times per second	2 times per 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 CEC1702's bootloader load EC FW from BMC Flash1 when AC on. It must authenticate this FW firstly before run the FW. If the authenticate fail or not get the FW successfully, CEC1702 is not allowed to execute this FW and ECSTS_LED1 on the MB is OFF state.
- 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.

2-5 Rear System LAN LEDs



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

2-6 Power Supply Unit 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 updateing mode							
Amhar	AC cord unplugged or AC power lost; with a second power supply in parallel still with AC input power							
Amber	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							

2-7 Hard Disk Drive LEDs



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

LED #2	HDD Present	No HDD
Green	ON	OFF

NOTE:

- *1: Depends on HBA/Utility Spec.
- *2: Blink cycle depends on HDD's activity signal.
- *3: If HDD is pulled out during rebuilding, the disk status of this HDD is regarded as faulty.

Chapter 3 System Hardware Installation



Pre-installation Instructions

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

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

3-1 Removing and Installing the Chassis Cover



Before you remove or install the system cover

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

Follow these instructions to remove the chassis cover:

- 1. Remove the screw securing the chassis cover.
- 2. Unlock the plastic handle and pull the grip handle to open the panel cover.
- Slide the cover to the rear of the system and then remove the cover in the direction indicated by the arrow.
- 4. To reinstall the chassis cover follow steps 1-4 in reverse order.



3-2 Removing and Installing the Hard Disk Drive



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

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

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

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





3-3 Removing and Installing the Fan Duct

Follow these instructions to remove the fan duct:

- 1. Lift up to remove the fan duct.
- 2. To reinstall the fan duct, align the fan duct with the guiding groove. Push down the fan duct until it is firmly seated on the system.



3-4 Removing and Installing the Heat Sink



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

- 1. Loosen the 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 install 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.



3-5 Removing and Installing the CPU



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

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



WARNING!

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

Follow these instructions to install the CPU:

- 1. Loosen the three captive screws securing the CPU cover.
- 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.
- 8. Repeat steps 1-7 for the second CPU.
- 9. To remove the CPUs, follow steps 1-7 in reverse order.









- Lock the CPU by using a Torx T20 screwdriver to tighten screw.
- When installing the heatsink to CPU, use a Torx T20 screwdriver to tighten 6 captive nuts in sequence as 1-6.
- The screw tightening torque: 13.5 ± 0.5 kgf-cm.
- To ensure the system operates properly, make sure the heatsink is seated on the processor firmly.

3-6 Removing and Installing Memory



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

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

3-6-1 Twelves Channel Memory Configuration

This motherboard provides 48 DDR5 memory sockets and supports Twelves Channel Technology. After the memory is installed, the BIOS will automatically detect the specifications and capacity of the memory.



3-6-2 Removing and Installing a Memory Module



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 to this motherboard.

Follow these instructions to install a DIMM module:

- 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	JO												T												CF	PU1											
for each CPU	L1	LO	K1	КО	J1	IJ	0 11		0 +	11	HO	G1	G0	AO	A1	BO	B1	CC	C	D	D	1 E	0 E	1	0 F	1)	(1)	XO	V1	W0	V1	V0	U1	U0	T1	TO	S1	S 0	M	M	1 N(D N1	0	0	PO	P1	QO	Q1	R	R
1 DIMM						Т		Π	I	Τ					v				Γ		Г					Т													Γ	v								Г		Г
			Γ			Т	Г	Π	T	Τ		v			v				Г	Π	Г	T	Г	Т		Т	Т										v		Г	v		Г	Π			Г		Г	Π	Г
2 DIMM						Т		T	T					v	٧				Г	П	Г		T	Т		T	T												v	v		Г						Г	Π	Г
						Т	v	T	ľ	1		v			v				v	Т	t		T	T		T	1						v				v		T	v		E	T	v				Г	П	E
4 DIMM						Т		T	T			v	v	v	v				Г		t		T	T		T											v	v	v	v								Г	T	E
6 DIMM						T	v	T	T	v		v			v		v		v		L			T		T							v		v		v		T	v		v		v				Г		E
			v			Т	v	T	T	v		v			v		v		v		L		•	/		T			v				v		v		v		T	v		v		v				v		E
8 DIMM						П	v	١	ſ	1		v	v	v	v			v	v		L			T		1	1						v	v			v	v	v	v		F	v	v		F		F	T	E
10 DIMM			v		v		v	T	I	v		v			v		v		v		Ņ	/	ŀ	/		T			v		v		v		v		v		T	v		v		v		v		٧	T	Г
12 DIMM	٧		v		v		v	Π	T	v		v			v		٧		v	Π	Ņ	1	ŀ	1	Ņ	1	v		v		v		٧		v		v		Γ	v		v		v		v		٧		v
12 DIMM						П	v	١	ſ	v	v	v	٧	v	v	v	v	v	v		Г			T									v	v	v	v	v	v	v	v	v	v	v	v						Г
16 DIMM			v	v		П	v	١	1	v	v	v	v	v	v	v	v	v	v			1	<i>'</i> '	/		T	1		v	v			v	v	v	v	v	v	v	v	v	v	v	v			v	٧	T	Г
20 DIMM			v	v	v	v	v	١	1	v	v	v	v	v	v	v	v	v	v	v	Ņ	1	1	1		Τ	T		v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	٧	T	Г
24 DIMM	v	v	v	v	v	v	v	١	1	v	v	v	v	v	v	v	v	v	v	v	\ \	/ \	•	/ 1	v	, ,	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 Memory Population Table

DIMM Type	DIMM Population DIMM 0	Max EPYC 9004 DDR5 Frequency (MT/s)
RDIMM	1R (1 Rank)	4800
RDIIVIIVI	2R (2 Ranks)	4800
	2S2R (4 Ranks)	4800
3DS RDIMM	2S4R (8 Ranks)	4800
	2S8R (16 ranks)	4800

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

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

DIMM	DIMM Po	pulation	DDR5 Frequency (MT/s)										
Туре	DIMM 0	DIMM 1	14L 93mil high-Dk PCB stackup	14L 74mil high-Dk PCB stackup	16L 93mil high-Dk PCB stackup								
		1R	4800	4800	4800								
	1R	1R	4000	4000	4000								
RDIMM		2R	4400	4800	4800								
	1R	2R	3600	3600	3600								
	2R	2R	3600	3600	3600								
		2S2R (4 Ranks)	4400	4800	4800								
		2S4R (8 Ranks)	4400	4800	4800								
3DS		2S8R (16 Ranks)	4400	4800	4800								
RDIMM	2S2R (4 Ranks)	2S2R (4 Ranks)	3600	3600	3600								
	2S4R (8 Ranks)	2S4R (8 Ranks)	3600	3600	3600								
	2S8R (16 Ranks)	2S8R (16 Ranks)	3600	3600	3600								

3-7 Removing and Installing the PCIe 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 off and all power sources have been disconnected from the server prior to installing a
PCIe card.

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



• 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 a PCIe card:

- 1. Loosen the two thumbnail screws securing the riser bracket inside the system.
- 2. Lift up the riser bracket out of system.
- 3. Remove the screw securing the slot cover from riser bracket.
- Orient the PCIe card with the riser guide slot and push in the direction of the arrow until the PCIe card sits in the PCIe card connector.
 NOTE: Some riser brackets allow for single or multiple PCIe cards. Repeat steps 3-4 as necessary.
- 5. Secure the PCIe card with the screw.
- 6. Repeat steps 1-2 to install the PCIe card into the system.



3-8 Installing the Mezzanine Card

3-8-1 Installing the OCP 3.0 Mezzanine Card



- 1. Use of the following type of OCP 3.0 NIC is recommended:
 - OCP 3.0 SFF with pull tab
 - OCP 3.0 SFF with ejector latch
- 2. Save the black M3 screws in the event that you need to re-install the cover.

Follow these instructions to install an OCP 3.0 Mezzanine card:

- 1. Remove the two screws securing the OCP 3.0 card slot cover.
- 2. Remove the slot cover from the system.
- Insert the OCP 3.0 card into the card slot ensuring that the card is firmly connected to the connector on the motherboard.
- 4. Tighten the thumbnail screw to secure the OCP 3.0 card in place.
- 5. Reverse steps 3-4 to replace the OCP 3.0 card.


3-9 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.

Follow these instructions to install the M.2 device:

- 1. Insert the M.2 SSD module into the slot.
- 2. Secure it with the screw, tightening as necessary to fasten the M.2 SSD module in place.



3-9-1 M.2 device with Heatsink



WARNING:

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

• Please Go to for specific M.2 Slot location.

To install/remove the M.2 module and Heatsink use a No. 1 Phillips-head screwdriver with a screw torque of 1.5 ± 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.



3-10 Replacing the Fan Assembly



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

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

Follow these instructions to replace a fan assembly:

- 1. Flip the latches on the top of the fan outwards.
- 2. Using the latches, lift up the fan assembly from the chassis.
- 3. Reverse the previous steps to install the replacement fan assembly.



3-11 Removing and Installing the Power Supply

Follow these instructions to replace the power supply:

- 1. Flip up and then grasp the power supply handle.
- 2. Press the retaining clip on the right side of the power supply unit in the direction indicated.
- 3. Pull out the power supply unit using the handle.
- 4. Insert the replacement power supply unit firmly into the chassis. Connect the AC power cord to the replacement power supply.
- 5. Repeat steps 1-4 for replacement of the second power supply.



3-12 Cable Routing



A	Front Panel LEDs and Buttons Cable	Motherboard: FP_1 Front IO Board: FP_1
		Front IO Board: FP_1
в	Front Panel USB 3 Ports Cable	Motherboard: FUSB_1



А	HDD Backplane Board Power Cable	Motherboard: BP_ATX4
		Front HDD Board: ATX1
В	HDD Backplane Board Power Cable	Motherboard: BP_ATX3
		Rear HDD Board: BP_2X3
с	HDD Backplane Board Power Cable	Motherboard: BP_ATX2
U U		Rear HDD Board: BP_2X3



А	HDD Backplane Board Signal Cable	Motherboard: BP_1
		Front HDD Board: BP_1
В	HDD Backplane Board Signal Cable	Front HDD Board: BP_SERIES
		Rear Right HDD Board: BP_1
с	HDD Backplane Board Signal Cable	Rear Right HDD Board: BP_SERIES
, C		Rear Left HDD Board: BP_1



A	SATA Cable	A: M.2 type SATA card: SATA_RA4
		A1: Rear Right HDD Board: SL_SAS0
		A: M.2 type SATA card: SATA_RA4
		A2: Rear Left HDD Board: SL_SAS0



		Motherboard: U2_P0_P0_0		Motherboard: U2_P1_P1_0	
A	NVMe 0-1 Cable	Front HDD Board: A1: U.2_0 A2: U.2_1	С	NVMe 4-5 Cable	Front HDD Board: C1: U.2_4 C2: U.2_5
		Motherboard: U2_P0_P0_1			Motherboard: U2_P1_P1_1
В	NVMe 2-3 Cable	Front HDD Board: B1: U.2_2 B2: U.2_3	D	NVMe 6-7 Cable	Front HDD Board: D1: U.2_6 D2: U.2_7



		PCIe Riser Bracket: Slot 3
A		Motherboard: A1: U2_P1_P3_1 A2: U2_P1_P3_0
		PCIe Riser Bracket: Slot 4
В	B System Rear Side PCIe Cable D	Motherboard: B1: U2_P0_P2_0 B2: U2_P0_P2_1
		PCIe Riser Bracket: Slot 6
с		Motherboard: C1: U2_P1_P2_1 C2: U2_P1_P2_0
		PCIe Riser Bracket: Slot 11
D		Motherboard: D1: U2_P1_P0_1 D2: U2_P1_P0_0

Chapter 4 Motherboard Components

4-1 Motherboard Components



Item	Description
1	2 x 2 Pin P12V FAN Power Connector (FAN3)
2	2 x 2 Pin P12V FAN Power Connector (FAN4)
3	2 x 3 Pin ATX Backplane Power Connector (BP_ATX4)
4	2 x 7 Pin ATX Backplane Power Connector (BP_ATX1)
5	MCIO Connector (U2_P1_P0_1/U2_P1_P0_0/PCIe Gen5)
6	MCIO Connector (U2_P1_P1_0/U2_P1_P1_1/PCIe Gen5)
7	MCIO Connector (U2_P1_P2_1/U2_P1_P2_0/PCIe Gen5)
8	MCIO Connector (U2_P1_P3_1/U2_P1_P3_0/PCIe Gen5)
9	2 x 2 Pin P12V FAN Power Connector (FAN2)
10	2 x 2 Pin P12V FAN Power Connector (FAN1)
11	Front Panel USB 3.2 Gen1 Connector
12	HDD Backplane Board Connector

Item	Description
13	Front Panel Connector
14	M.2 Slot (PCIe Gen3 x4, NGFF-22110/Supports heatsink)
15	M.2 Slot (PCIe Gen3 x2, Supports NGFF-22110)
16	M.2 Slot (PCIe Gen3 x4, NGFF-22110/Supports heatsink)
17	PCIe Power Connector (PCIE2_PWR)
18	PCIe Power Connector (PCIE3_PWR)
19	PCIe Power Connector (PCIE1_PWR1)
20	P12V GPU Power Connector (P12V_S6)
21	2 x 3 Pin ATX Backplane Power Connector (BP_ATX2)
22	Power Supply Connector#1 (Primary)
23	OCP 3.0 Connector (OCP1/PCIe Gen5 x16)
24	IPMB Connector
25	G-SC Module Connector
26	TPM Module Connector (SPI Interface)
27	System Battery
28	MCIO Connector (U2_P0_P0_0/U2_P0_P0_1/PCIe Gen5)
29	OCP 3.0 Connector (OCP2/PCIe Gen5 x16)
30	Power Supply Connector#2 (Secondary)
31	MCIO Connector (U2_P0_P2_0/U2_P0_P2_1/PCIe Gen5)
32	PCIe Power Connector (PCIE6_PWR)
33	P12V GPU Power Connector (P12V_S11)
34	PCIe Power Connector (PCIE5_PWR)
35	PCIe Power Connector (PCIE4_PWR)
36	2 x 3 Pin ATX Backplane Power Connector (BP_ATX3)

4-2 Jumper Settings



J1		ON	OFF
1	HOST_SMBUS_SEL	BIO	S defined
2			
3	BIOS_PWD	Clear supervisor password	Normal [Default]
4	BIOS_RCVR	BIOS recovery mode	Normal [Default]

4-3 G-SC Module

4-3-1 CDCR114



Item	Description
1	10/100/1000 Server Management LAN Port
2	1GbE LAN Port #2
3	1GbE LAN Port #1
4	USB 3.2 Gen1 Port x 2
5	Mini DP Port

4-4 Backplane Board Storage Connector



4-4-1 CBP2081 (Front System Storage Board)

ltem	Description
1	MCIO 4i (SFF-TA1016/U.2_0)
2	MCIO 4i (SFF-TA1016/U.2_1)
3	MCIO 4i (SFF-TA1016/U.2_2)
4	MCIO 4i (SFF-TA1016/U.2_3)
5	MCIO 4i (SFF-TA1016/U.2_4)
6	MCIO 4i (SFF-TA1016/U.2_5)
7	MCIO 4i (SFF-TA1016/U.2_6)
8	MCIO 4i (SFF-TA1016/U.2_7)
9	SlimSAS 4i Connector (SFF-8654/SL_SAS1)
10	SlimSAS 4i Connector (SFF-8654/SL_SAS0)

4-4-2 CBP2025 (Rear System Storage Board)



ltem	Description	
1	MCIO 4i (SFF-TA1016/U_2_0)	
2	MCIO 4i (SFF-TA1016/U_2_1)	
3	SlimSAS 4i Connector (SFF-8654/SL_SAS0)	

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
<enter></enter>	Execute command or enter the submenu
<esc></esc>	Main Menu: Exit the BIOS Setup program
	Submenus: Exit current submenu
<f1></f1>	Show descriptions of general help
<f3></f3>	Restore the previous BIOS settings for the current submenus
<f9></f9>	Load the Optimized BIOS default settings for the current submenus
<f10></f10>	Save all the changes and exit the BIOS Setup program

Main

This setup page includes all the items 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 AM	Aptio Setup – AMI D PBS Option Chipset Server Mgmt	Security Boot Save & Exit
BIOS Information Project Name	MZK3-LMO-000	
Project Version	F02	
Build Date and Time	07/10/2024 16:32:35	
BMC Information		
BMC Firmware Version	13.06.02	
Processor Information		
CPU O Brand String	AMD Eng Sample:	
	100-00000996-01	
CPU 1 Brand String	AMD Eng Sample:	
	100-00000996-01	→+: Select Screen
		↑↓: Select Item
CPU Speed Processor Core	2150 MHz 192 Cores 384 Threads	Enter: Select
Microcode Patch	A101020	+/-: Change Opt. F1: General Help
hier bedde i' dren	1101020	F3: Previous Values
Total Memory	32768 MB (DDR5)	F9: Optimized Defaults
Memory Speed	4800 MT/s	F10: Save & Exit
		ESC: Exit
VR Information Version		
Version	G009	₩ ₩
	ersion 2.22.1292 Copyright (C) 2024	
	51310H 2722,1272 CUPyEight (C) 2024	

Main Advanced AMD CBS #	Aptio Setup – AMI AMD PBS Option Chipset Server Mgmt	Security Boot Save & Exit
CPU 1 Brand String	AMD Eng Sample: 100-000000996-01	Set the Time. Use Tab to switch between Time elements.
CPU Speed Processor Core Microcode Patch	2150 MHz 192 Cores 384 Threads A101020	
Total Memory Memory Speed	32768 MB (DDR5) 4800 MT/s	
VR Information Version	G009	
AGESA PI Version PI Version	1.0.0.C	++: Select Screen ↑↓: Select Item Enter: Select
Onboard LAN Information	74-56-30-57-97-96	+/-: Change Opt. F1: General Help
LAN2 MAC Address	74-56-30-57-97-97	F3: Previous Values F9: Optimized Defaults F10: Save & Exit
System Date System Time	[Man 01/01/2024] [16:05:37]	ESC: Exit

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.

When Boot Mode Select is set to UEFI (Default)



Aptio Setup – AMI Main <mark>Advanced</mark> AMD CBS AMD PBS Option Chipset Server Mgmt	Security Boot Save & Exit
 AST2600 Super IO Configuration SS RTC Wake Settings Serial Port Console Redirection CPU Configuration PCI Subsystem Settings USB Configuration Network Stack Configuration POst Report Configuration NWHe Configuration SATA Configuration Graphic Output Configuration 	▲ Configure IPv6 network parameters. (MAC:74563C579797)
 AND Mem Configuration Status Tis Auth Configuration RAM Disk Configuration ISCSI Configuration Intel(R) I350 Gigabit Network Connection - 74:56:30:57:97:96 VLAN Configuration (MAC:745630579796) MAC:745630579796-IPV4 Network Configuration MAC:745630579796-IPV6 Network Configuration Intel(R) I350 Gigabit Network Connection - 74:56:30:57:97:97 VLAN Configuration (MAC:745630579797) MAC:745630579797-IPV4 Network Configuration MAC:745630579797-IPV6 Network Configuration MAC:745630579797-IPV6 Network Configuration 	++: Select Screen f4: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version 2.22.1292 Copyright (C) 2024	AMI

When "Boot Mode Select" is set to Legacy in the Boot > Boot Mode Select section

Main Advanced AMD CBS AMD PE		etup – AMI pset Server	Mgmt Securi	ty Boot	Save & Exit
 Trusted Computing PSP Firmware Versions Legacy Video Select AST2600 Super ID Configuration SS RTC Make Settings Serial Port Console Redirection CPU Configuration PCI Subsystem Settings USB Configuration Network Stack Configuration NOME Configuration SATA Configuration AMD Mem Configuration Status TIS Auth Configuration RAM Disk Configuration ISCSI Configuration 				: Select : Select ter: Sele : Genera. : Previo	Item ect e Opt. l Help us Values zed Defaults
Versi	on 2.22.1292	Copyright (C) 2024 AMI		

5-2-1 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. O.S. will not show Security Device. TCG EFI protocol and INTIA interface will not be available.
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
Versi	ion 2.22.1292 Copyright (C) 2	024 AMI

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 .

5-2-2 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 Firmware Versions ABL Version SMU FW Version SEV FW Version PHY FW Version MPIO FW Version FM MPOMA FW Version GMI FW Version SEC FW Version SEC FW Version PMU FW Version EMCR FW Version UCode B0 Version	100C8014 00.29.00.97 04.47.78.00 01.01.37.24 00.01.37.00 01.00.28.BE 00.47.46.00 08.01.27.00 02.00.08.24 00.06.90.64 00.00.90.46 00.00.50.46 A101020	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F3: General Help F3: Previous Values F3: Optimized Defaults F10: Save & Exit ESC: Exit
Ve	ersion 2.22.1292 Copyright (C) 2	024 AMI

5-2-3 Legacy Video Select

Advanced	Aptio Setup – AMI	
OnBrd/Ext VGA Select	[Auto]	<pre>++: Select Screen t1: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
Ve	rsion 2.22.1292 Copyright (C) 24	024 AMI

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

⁽Note) This configurable option will be displayed when "Boot Mode Select" is set to Legacy in the Boot > Boot Mode Select section.

5-2-4 AST2600 Super IO Configuration



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

5-2-4-1 Serial Port 1 Configuration

Advanced	Aptio Setup – AMI	
Serial Port 1 Configuration		Enable or Disable Serial Port (COM)
Device Settings	IO=3F8h; IRQ=4;	
Change Settings	[Auto]	
		<pre>++: Select Screen 1↓: Select Item</pre>
		Enter: Select
		+/-: Change Opt.
		F1: General Help
		F3: Previous Values F9: Optimized Defaults
		F10: Save & Exit
		ESC: Exit
Vers	on 2.22.1292 Copyright (C) 20	24 AMI

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 .

5-2-5 S5 RTC Wake Settings

Advanced	Aptio Setup – AMI	
ake 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 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F3: Optimized Defaults F10: Save & Exit ESC: Exit
Vers	ion 2.22.1292 Copyright (C)	2024 AMT

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 .

5-2-6 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 Managemer Windows Emergency Management Services Console Redirection EMS ▶ Console Redirection Settings		++: Select Screen
		H: Select Steen H: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F3: Optimized Defaults F3: Save & Exit
Version 2.	22.1292 Copyright (C) 2024 AMI	ESC: Exit

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 always 1. Space: Parity bit is always 0. 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 stop the data flow. Once the buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals. Options available: None, Hardware RTS/CTS. Default setting is None. 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

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	Description	
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. 	

5-2-7 CPU Configuration

Advanced	Aptio Setup – AMI	
CPU Configuration		Enable/disable CPU Virtualization
SVM Mode CPU 0 Information CPU 1 Information		
		++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
	Version 2.22.1292 Copyright (C)	2024 AMI

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.

5-2-8 PCI Subsystem Settings

Advanced	Aptio Setup – AMI			
PCI Bus Driver Version	A5.01.28	▲ Change U2_P0_P0 PCIe lanes.		
U2_P0_P0 Lanes U2_P0_P0 I/O ROM U2_P0_P0 Link Speed	(Auto) [Enabled] [Auto]			
OCP1 Lanes OCP1 I/O ROM OCP1 Link Speed	[Auto] [Enabled] [Auto]			
U2_P0_P2 Lanes U2_P0_P2 I/O ROM U2_P0_P2 Link Speed	(Auto) [Enabled] [Auto]			
OCP2 Lanes OCP2 I/O ROM OCP2 Link Speed	[Auto] [Enabled] [Auto]	↔: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help		
U2_P1_P0 Lanes U2_P1_P0 I/O ROM U2_P1_P0 Link Speed	[Auto] [Enabled] [Auto]	F3: Previous Values F9: Optimized Defaults F10: Save & Exit		
U2_P1_P1 Lanes U2_P1_P1 I/O ROM U2_P1_P2 Link Speed	[Auto] [Enabled] [Auto]	ESC: Exit		
Version 2.22.1292 Copyright (C) 2024 AMI				
Advanced	Aptio Setup – AMI			
U2_P1_P0 Lanes U2_P1_P0 I/O ROM U2_P1_P0 Link Speed	[Auto] [Enabled] [Auto]	▲ Enables or Disables PCI Express Device Relaxed Ordering.		
U2_P1_P0 Lanes U2_P1_P0 I/O ROM	[Enabled]	Express Device Relaxed		
U2_P1_P0 Lanes U2_P1_P0 I/O ROM U2_P1_P0 Link Speed U2_P1_P1 Lanes U2_P1_P1 I/O ROM	[Enabled] [Auto] [Auto] [Enabled]	Express Device Relaxed		
U2_P1_P0 Lanes U2_P1_P0 I/0 R0M U2_P1_P0 Link Speed U2_P1_P1 Lanes U2_P1_P1 I/0 R0M U2_P1_P1 Link Speed U2_P1_P2 Lanes U2_P1_P2 I/0 R0M	[Enabled] [Auto] [Enabled] [Auto] [Auto] [Enabled]	Express Device Relaxed		
U2_P1_P0 Lanes U2_P1_P0 I/O ROM U2_P1_P0 Link Speed U2_P1_P1 Lanes U2_P1_P1 I/O ROM U2_P1_P1 Link Speed U2_P1_P2 Lanes U2_P1_P2 Link Speed U2_P1_P2 Link Speed U2_P1_P3 Lanes U2_P1_P3 I/O ROM	[Enabled] [Auto] [Auto] [Enabled] [Auto] [Enabled] [Auto] [Auto] [Auto] [Enabled]	<pre>Express Device Relaxed Ordering. ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values</pre>		
U2_P1_P0 Lanes U2_P1_P0 I/O ROM U2_P1_P0 Link Speed U2_P1_P1 Lanes U2_P1_P1 Lanes U2_P1_P1 I/O ROM U2_P1_P2 Lanes U2_P1_P2 Lanes U2_P1_P2 Link Speed U2_P1_P3 I/O ROM U2_P1_P3 Link Speed U2_P1_P3 Link Speed Onboard LAN Controller Onboard LAN Controller Onboard LAN I/O ROM PCI Devices Common Settings: Above 46 Decoding	[Enabled] [Auto] [Auto] [Enabled] [Auto] [Auto] [Auto] [Auto] [Enabled] [Auto] [Enabled] [Enabled] [Enabled]	Express Device Relaxed Ordering. 		
U2_P1_P0 Lanes U2_P1_P0 I/O ROM U2_P1_P0 Link Speed U2_P1_P1 Lanes U2_P1_P1 I/O ROM U2_P1_P1 I/O ROM U2_P1_P2 Lanes U2_P1_P2 Link Speed U2_P1_P2 Link Speed U2_P1_P3 Lanes U2_P1_P3 Lanes U2_P1_P3 Link Speed Onboard LAN Controller Onboard LAN I/O ROM Onboard LAN2 I/O ROM	[Enabled] [Auto] [Auto] [Auto] [Auto] [Auto] [Enabled] [Auto] [Auto] [Enabled] [Enabled] [Enabled] [Enabled]	<pre>Express Device Relaxed Drdering. **: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit</pre>		

Parameter	Description	
PCI Bus Driver Version	Displays the PCI Bus Driver version information.	
U2_P0_P0/2, U2_P1_P0/1/2/3	Change PCIe lanes.	
OCP#	Options available: Disabled, Auto, x16, x8x8, x8x4x4, x4x4x8,	
Lanes ^(Note1)	x4x4x4x4. Default setting is Auto .	
U2_P0_P0/2, U2_P1_P0/1/2/3	When enabled, this setting will initialize the device expansion ROM	
OCP#	for the related devices.	
I/O ROM ^(Note1)	Options available: Disabled, Enabled. Default setting is Enabled .	
U2_P0_P0/2, U2_P1_P0/1/2/3	Configure MCIO slot max link speed.	
OCP#	Options available: Auto, Gen5, Gen4, Gen3, Gen2, Gen1.	
Link Speed ^(Note1)	Default setting is Auto.	
Onboard LAN Controller ^(Note2)	Enable/Disable the onboard LAN devices.	
Onboard LAN Controller	Options available: Disabled, Enabled. Default setting is Enabled.	
Onboard LAN# I/O ROM ^(Note2)	Enable/Disable the onboard LAN devices, and initializes device	
	expansion ROM.	
	Options available: Disabled, Enabled. Default setting is Enabled .	
PCI Devices Common Settings		
	Enable/Disable memory mapped I/O to 4GB or greater address	
Above 4G Decoding	space (Above 4G Decoding).	
	Options available: Disabled, Enabled. Default setting is Enabled .	
Re-Size BAR Support	Enable/Disable Resizable BAR Support.	
	Options available: Disabled, Enabled. Default setting is Enabled .	
SR-IOV Support	If the system has SR-IOV capable PCIe devices, this item Enable/	
	Disable Single Root IO Virtualization Support.	
	Options available: Disabled, Enabled. Default setting is Enabled .	
Relaxed Ordering	Enable/Disable PCI express device relaxed ordering.	
	Options available: Disabled, Enabled. Default setting is Enabled .	

5-2-9 USB Configuration

Advanced	Aptio Setup – AMI	
USB Configuration		Enables Legacy USB support, AUTO option
USB Module Version	29	disables legacy support if no USB devices are
USB Controllers: 2 XHCIs		connected. DISABLE option will keep USB devices
USB Devices: 2 Drives, 2 Keyboards, 1 Mouse	、5 Hubs	available only for EFI applications.
Legacy USB Support		
XHCI Hand-off	[Enabled]	
USB Mass Storage Driver Support	[Enabled]	
USB hardware delays and time-outs:		++: Select Screen
USB transfer time-out	[20 sec]	†↓: Select Item
Device reset time-out	[20 sec]	Enter: Select
Device power-up delay	[Auto]	+/-: Change Opt. F1: General Help
Mass Storage Devices:		F3: Previous Values
AMI Virtual CDROMO 1.00	[Auto]	F9: Optimized Defaults
AMI Virtual HDiskO 1.00	[Auto]	F10: Save & Exit ESC: Exit
Version 2.22.1292 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 .
Mass Storage Devices	Displays the mass storage devices available on the system.

5-2-10 Network Stack Configuration

Advanced	Aptio Setup – AMI	
Network Stack IPv4 PXE Support IPv4 HTTP Support IPv6 PXE Support IPv6 HTTP Support PXE boot wait time Media detect count	[Enabled] [Enabled] [Disabled] [Enabled] [Disabled] 0 1	Enable/Disable UEFI Network Stack
		++: Select Screen f1: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
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.

5-2-11 Post Report Configuration

Advanced	Aptio Setup - AMI	
Post Report Configuration		Post Error Message Suppor Enabled/Disabled
Error Message Report		Enabled/Disabled
Post Error Message		
Halt On	[No Error]	
		++: Select Screen
		↑↓: Select Item
		Enter: Select
		+/-: Change Opt.
		F1: General Help
		F3: Previous Values
		F9: Optimized Defaults F10: Save & Exit
		ESC: Exit
		LOOT LALL
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Parameter	Description
Post Report Configuration	
Error Message Report	
Post Error Message	Enable/Disable the POST Error Message support. Options available: Enabled, Disabled. Default setting is Enabled .
Halt On	Options available: No Error, All Error. Default setting is No Error.

5-2-12 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 .

5-2-13 SATA Configuration



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

5-2-14 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 .	

5-2-15 AMD Mem Configuration Status

CPU 0 CPU 1		Socket-specific memory configuration status
Mbist Test Enable	Disabled, 0xC000	
Mbist Aggressor Enable	Disabled, 0xC000	
Mbist Per Bit Slave Die Report	0x00FF, 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, 0xC004	1↓: 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
Versio	n 2.22.1292 Copyright (C) 20	024 AMI

CPU 0/1

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

5-2-16 TIs Auth Configuration

Aptio Set Advanced	up – AMI
▶ Server CA Configuration	Press <enter> to configure Server CA.</enter>
- Client Cert Configuration	
	++: Select Screen t4: Select Item
	Enter: Select +/-: Change Opt. F1: General Help
	F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version 2.22.1292 Co	pyright (C) 2024 AMI

Parameter	Description
	Press [Enter] for configuration of advanced items.
	Enroll Cert
	 Press [Enter] to enroll a certificate
	Enroll Cert Using File
Conver CA Configuration	Cert GUID
Server CA Configuration	Input digit character in 1111111-2222-3333-4444-1234567890ab
	format.
	 Commit Changes and Exit
	 Discard Changes and Exit
	Delete Cert
Client Cert Configuration	Press [Enter] for configuration of advanced items.

5-2-17 RAM Disk Configuration

Aptio Setup – AMI	
[Boot Service Data]	Specifies type of memory to use from available
	memory pool in system to create a disk.
	++: Select Screen
	↑↓: Select Item Enter: Select
	+/-: Change Opt. F1: General Help
	F3: Previous Values
	F9: Optimized Defaults F10: Save & Exit ESC: Exit
	[Boot Service Data]

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.

5-2-18 iSCSI Configuration

Advanced	Aptio Setup - AMI
iSCSI Initiator Name	The worldwide unique name of iSCSI Initiator. Only
▶ Add an Attempt	IQN format is accepted. Range is from 4 to 223
▶ Delete Attempts	
▶ Change Attempt Order	
	++: 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		
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.		

5-2-19 Intel(R) I350 Gigabit Network Connection

Advanced	Aptio Setup – AMI	
▶ NIC Configuration		Click to configure the network device port.
Blink LEDs	0	חפרשטרא עפעונפ סטרנ.
UEFI Driver	Intel(R) PRO/1000 8.5.21 PCI-E	
Adapter PBA	211015-010	
Device Name	Intel(R) I350 Gigabit Network Connection	
Chip Type	Intel i350	
PCI Device ID	1521	
PCI Address	63:00:00	
Link Status	[Disconnected]	<pre>++: Select Screen t↓: Select Item</pre>
MAC Address	74:56:30:57:97:96	Enter: Select
Virtual MAC Address	00:00:00:00:00	+/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Ver	rsion 2.22.1292 Copyright (C) 2024 f	AMI

Advanced	Aptio Setup – AMI	
Link Speed Wake Dn LAN	(Auto Negotiated] [Enabled]	Specifies the port speed used for the selected boot protocol.
		++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F3: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description		
NIC Configuration	 Press [Enter] to configure advanced items. Link Speed Allows for automatic link speed adjustment. Options available: Auto Negotiated, 10 Mbps Half, 10 Mbps Full, 100 Mbps Half, 100 Mbps Full. Default setting is Auto Negotiated. 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: Disabled, Enabled. Default setting is Enabled. 		
Blink LEDs	Identifies the physical network port by blinking the associated LED. Press the numeric keys to adjust desired values.		
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.		

5-2-20 VLAN Configuration

Advanced	Aptio Setup – AMI	
Create new VLAN VLAN ID Priority Add VLAN Configured VLAN List Remove VLAN	0	VLAN ID of new VLAN or existing VLAN, valid value is 0~4094
		<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			
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. 			

5-2-21 MAC IPv4 Network Configuration

Advanced	Aptio Setup – AMI	
Configured Save Changes and Exit	[Disabled]	Indicate whether network address configured successfully or not.
		<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	
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.	

5-2-22 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.

Main Advanced AMD CBS	Aptio Setu AMD PBS Option Chipse		urity Boot Save & Exit
Main Advanced AMD CBS AMD CBS • CPU Common Options • DF Common Options • NBIO Common Options • RCH Common Options • Soc Miscellaneous Control • CXL Common Options	AMD PBS Option Chipse	t Server Mgmt Sec	<pre>urity Boot Save & Exit CPU Common Options ++: Select Screen f1: Select Item Enter: 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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5-3-1 CPU Common Options

Aptio Setup - AMI AMD CBS		
CPU Common Options		Performance
▶ Performance		
REP-MOV/STOS Streaming ▶ Prefetcher settings ▶ Core Watchdog	[Enabled]	
RedirectForReturnDis	[Auto]	
Platform First Error Handling	[Auto]	
Core Performance Boost	[Auto]	
Global C-state Control	[Auto]	
Power Supply Idle Control	[Auto]	
SEV-ES ASID Space Limit	1	
SEV Control	[Enabled]	→+: Select Screen
Streaming Stores Control	[Auto]	t↓: Select Item
Local APIC Mode	[Auto]	Enter: Select
ACPI _CST C1 Declaration	[Auto]	+/-: Change Opt.
ACPI CST C2 Latency	800	F1: General Help
MCA error thresh enable	[True]	F3: Previous Values
MCA error thresh count	0	F9: Optimized Defaults
MCA FruText	[True]	F10: Save & Exit
SMU and PSP Debug Mode	[Auto]	ESC: Exit
PPIN Opt-in	[Auto]	
SNP Memory (RMP Table) Coverage	[Auto]	
SMEE	[Auto]	*

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Power Supply Idle Control[Auto]SEV-ES ASID Space Limit1SEV-ES ASID Space Limit1SEV Control[Enabled]Streaming Stores Control[Auto]Local APIC Mode[Auto]ACPI CST C1 Declaration[Auto]ACPI CST C2 Latency800MCA error thresh enable[True]MCA error thresh count0MCA error thresh count0MCA FruText[True]SMU and PSP Debug Mode[Auto]PPIN Dot-in[Auto]SMEE[Auto]Action on BIST Failure[Auto]Enhanced REP MOVSB (FSRM)[Auto]Enhanced REP MOVSB (FSRM)[Auto]AVX512[Auto]MONITOR and MHAIT disable[Auto]Corrector Branch Predictor[Disabled]PAUSE Delay[Auto]CPU Speculative Store Modes[Auto]PU Speculative Store Modes[Auto]PU Speculative Store Modes[Auto]Prefetch/Request Throttle[Auto]Prefetch/Request Throttle

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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 .
SEV-ES ASID Space Limit	Configures the Space limit for SEV-ES ASIDs. Default setting is 1 .
SEV Control	Enable/Disable SEV control. Options available: Enable, Disable. Default setting is Enable .
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 .

Parameter	Description
PPIN Opt-in	Enable/Disable the PPIN feature.
	Options available: Disabled, Enabled, Auto. Default setting is Auto.
SNP Memory (RMP Table)	Enabled: Enter system memory is covered.
, , , ,	Options available: Disabled, Enabled, Custom, Auto.
Coverage	Default setting is Auto.
SMEE	Controls the Secure Memory Encryption Enable (SMEE) function.
SIVILL	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.
Fast Short REP MOVSB (FSRM)	Options available: Disabled, Enabled, Auto. Default setting is Auto.
Enhanced REP MOVSB/ STOSB (ERSM)	Options available: Disabled, Enabled, Auto. Default setting is Auto.
Log Transportert Errore	Enable/Disable the log Transparent errors function.
Log Transparent Errors	Options available: Auto, Disabled, Enabled. Default setting is Auto.
AVX512	Enable/Disable AVX512.
AVAJIZ	Options available: Disabled, Enabled, Auto. Default setting is Auto.
	The MONITOR, MWAIT, MONITORX and MWAITX opcodes become invalid
MONITOR and MWAIT disable	when enabled.
	Options available: Enabled, Disabled, Auto. Default setting is Auto
Small Hammer Configuration	Options available: Disabled, Enabled, Auto. Default setting is Auto.
Corrector Branch Predictor	Options available: Disable, Enable. Default setting is Disable .
	Number a cycles thread will be idle after a PAUSE instruction.
PAUSE Delay	Options available: Auto, Disable, 16 cycles, 32 cycles, 64 cycles, 128
	cycles. 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.
	Enables XI logic which calculates average latency, updates throttle level,
Prefetch/Request Throttle	and sends throttle level messages to L2.
	Options available: Disable, Enable, Auto. Default setting is Auto.

5-3-1-1 Performance

Performance		Select overclock operation
OC Mode · Custom Core Pstates · CCD/Core/Thread Enablement		modes
SMT Control	[Enabled]	
		++: Select Screen
		↑↓: Select Item Enter: Select +/-: Change Opt.
		F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit
		ESC: Exit

Parameter	Description
Performance	
OC Mode ^(Note)	Options available: Normal Operation, Customized. Default setting is Normal Operation .
Custom Core Pstates	Allows you to accept or decline enabling Custom Core Pstates. When accepted, you can disable or customize core pstates.
CCD/Core/Thread Enablement	 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 Options available: Auto, 2 CCDs, 4 CCDs, 6 CCDs, 8 CCDs, 10 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.
SMT Control	Can be used to disable symmetric multithreading. To re-enable SMT, a 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 .

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

5-3-1-2 Prefetcher Settings

Prefetcher settings		Option to Enable Disable
L1 Stream HW Prefetcher		L1 Stream HW Prefetcher
L1 Stride Prefetcher	[Auto]	
L1 Region Prefetcher	[Auto]	
L2 Stream HW Prefetcher	[Auto]	
L2 Up/Down Prefetcher	[Auto]	
L1 Burst Prefetch Mode	[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>

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
I 1 Stride Prefetcher	when each access is a constant distance from the previous.
	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
L1 Region Prefetcher	for a given instruction tends to be followed by other data accesses.
	Enable/Disable L1 Region Prefetcher.
	Options available: Disable, Enable, Auto. Default setting is Auto.
1.2 Ctroom LIW Drofotobor	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
L2 Up/Down Prefetcher	previous line for all memory accesses.
	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.
L1 Burst Prefetch Mode	Options available: Disable, Enable, Auto. Default setting is Auto.

5-3-1-3 Core Watchdog

Enable or disable CPU Watchdog Timer
Hatendog Filler
++: Select Screen ↑↓: Select Item
Enter: Select
+/-: Change Opt. F1: General Help
F3: Previous Values
F9: Optimized Defaults F10: Save & Exit
ESC: Exit
[Auto]

Parameter	Description
Core Watchdog	
	Enable/Disable CPU Watchdog Timer.
Core Watchdog Timer Enable ^(Note)	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

Aptio Setup - AMI AMD CBS		
DF Common Options		Memory Addressing
 Memory Addressing ACPI Link SDCI Probe Filter 		
DF Watchdog Timer Interval Disable DF to external IP SyncFloodPropagation	[Auto] [Auto]	
Sync Flood Propagation to DF Components	[Auto]	
Freeze DF module queues on error CC6 memory region encryption CCD B/W Balance Throttle Level	[Auto] [Auto] [Auto]	++: Select Screen 11: Select Irem 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 .

5-3-2-1 Memory Addressing

Memory Addressing		Specifies the number of desired NUMA nodes per
NUMA nodes per socket Memory interleaving ITB remap DRAM map inversion Location of private memory regions CXL Memory interleaving CXL Sublink interleaving	(Auto) [Auto] [Auto] [Auto] [Auto] [Auto] [Auto]	sockets together.
		++: Select Screen T4: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

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.
Memory interleaving	Enable/Disable the Memory interleaving feature.
	Options available: Disabled, Auto, Enabled. Default setting is Auto.
	Enable/Disable to remap DRAM out of the space just below the 1TB boundary.
	The ability to remap depends on DRAM configuration, NPS, and interleaving
1TB remap	selection, and may not always be possible.
	Options available: Do not remap, Attempt to remap, Auto.
	Default setting is Auto.
DRAM map inversion	Enable/Disable the DRAM map inversion function.
	Options available: Disabled, Enabled, Auto. Default setting is Auto.
Location of private memory regions	Controls whether or not the private memory regions (PSP, SMU and CC6) are
	at the top of DRAM or distributed.
Togions	Options available: Distributed, Consolidated, Auto. 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.

ACPI		Enabled: Each CCX in the
	[Auto] [Auto] [Auto]	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

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	
AMD CBS Link GMT encryption control xGMT encryption control XGMT Link Configuration 4-link xGMT max speed 9-link xGMT max speed xGMT 18GACOFC xGMT CRC Scale xGMT CRC Scale xGMT Preset Control xGMT Global Preset List xGMT Initial Preset xGMT Initial Preset xGMT TXEQ Search Mask xGMT TXEQ Search Mask	Aptio Setup - AMI [Auto] [Auto] [Auto] [Auto] [Auto] 5 25 [Enabled]	Control GMI link encryption
▶ xGMI Channel Type	ersion 2.22.1292 Copyright (0	Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
GMI encryption control	Enable/Disable GMI link encryption.
Givil encryption control	Options available: Disabled, Enabled, Auto. Default setting is Auto.
xGMI encryption control	Enable/Disable xGMI link encryption.
XGIVIT ETICI YPIIOTI COTITOT	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.
4-link xGMI max speed	Specifies the max speed of 4-link xGMI.
4-IIIK XOIVII IIIAX Speeu	Options available: 20Gbps, 25Gbps, 32Gbps, Auto. Default setting is Auto.
3-link xGMI max speed	Specifies the max speed of 3-link xGMI.
	Options available: 20Gbps, 25Gbps, 32Gbps, Auto. Default setting is Auto.
01440040050	Configures xGMI 18GACOFC.
xGMI 18GACOFC	Options available: Auto, Enable, Disable. Default setting is Auto.
xGMI CRC Scale	Configures leaky bucket scale for xGMI and WAFL CRC errors. Every scale
	milliseconds an error will leak from the CRC counter. Default setting is 5.
xGMI CRC Threshold	Configures leaky bucket threshold for xGMI and WAFL CRC errors. If link CRC
XGIVII CRC THIESHOLD	counter exceeds this threshold, an error will be logged. Default setting is 25.
xGMI Preset Control	Enable/Disable xGMI Preset control.
XGIMI Preset Control	Options available: Disabled, Enabled, Auto. Default setting is Enabled.
Parameter	Description
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.	
Press [Enter] to configure the xGMI AC/DC Coupled link.		
xGMI AC/DC Coupled Link xGMI AC/DC Coupl	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 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	
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

Probe Filter		Specifies whether multipl memory/CXL channels will
Organization Periodic Directory Rinse (PDR) Tuning	[Dedicated] [Auto]	share probe filter storage. For memory sizes of 16TB or larger, this feature is ignored as it is auto-selected to 'shared'
		++: 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	
	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

UMC Common Options	DDR Addressing Options
DDR Addressing Options DDR Controller Configuration DDR BUST Options DDR Bus Configuration Enforce POR DDR Training Options DDR Security DDR PMIC Configuration	
DDR Miscellaneous DDR PHY (CMN)	<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
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.
DDR PHY (CMN)	Press [Enter] for configuration of advanced items.

5-3-3-1 DDR Addressing Options

DDR Addressing Options		Interleave DRAM accesses across ranks within a
		memory channel if the
Address Hash Bank	[Auto]	configuration supports it
Address Hash CS	[Auto]	'Enable' will override
Address Hash RM	[Auto]	certain optimization
Address Hash Subchannel	[Auto]	policies, but cannot force
BankSwapMode	[Auto]	interleaving on
		configurations that do no
		support it.
		T4: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

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.
	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

Aptio Setu AMD CBS	ιρ – ΑΜΙ
DDR Controller Configuration	DDR Power Options
- DDR Power Options - Memory Channel Disable - Refresh Management (RFM)	
	++: Select Screen f1: 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.

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

DDR Power Options		Enable or disable DDR
Power Down Enable Sub Urgent Refresh Lower Bound Urgent Refresh Limit ORAM Refresh Rate Self-Refresh Exit Staggering	[Auto] 1 4 [3.9 usec] [n = 9]	power down mode
		++: Select Screen f1: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
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 .

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

Memory Channel Disable		 SPD reading will be skipped when channel is
Memory Channel Disable Bitmask	0	disabled.
CPU O Channel A		
CPU 0 Channel B	[Enabled]	
CPU 0 Channel C	[Enabled]	
CPU 0 Channel D	[Enabled]	
CPU 0 Channel E	[Enabled]	
CPU 0 Channel F	[Enabled]	
CPU 0 Channel G	[Enabled]	
CPU 0 Channel H	[Enabled]	
CPU 0 Channel I	[Enabled]	
CPU 0 Channel J	[Enabled]	
CPU 0 Channel K	[Enabled]	++: Select Screen
CPU 0 Channel L	[Enabled]	t↓: Select Item
CPU 1 Channel M	[Enabled]	Enter: Select
CPU 1 Channel N	[Enabled]	+/-: Change Opt.
CPU 1 Channel O	[Enabled]	F1: General Help
CPU 1 Channel P	[Enabled]	F3: Previous Values
CPU 1 Channel Q	[Enabled]	F9: Optimized Defaults
CPU 1 Channel R	[Enabled]	F10: Save & Exit
CPU 1 Channel S	[Enabled]	ESC: Exit
CPU 1 Channel T	[Enabled]	
CPU 1 Channel U	[Enabled]	
CPU 1 Channel V	[Enabled]	•
Levensio	n 2.22.1292 Copyright (C) 2024 AMI
ameter Descrip	tion	

Memory Channel Disable
Memory Channel Disable
Bitmask
CPU0/1 Channel_# Press [Enter] to enable/disable specific memory channel.

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

Refresh Management (RFM)		Auto: Disable Disable: Disable RFM for
		all Ranks.
RAA Initial Management Threshold	[Auto]	Enable: Enable RFM for
RAA Maximum Management Threshold	[Auto]	Ranks which support RFM.
RAA Refresh Decrement Multiplier	[Auto]	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
		14: Select Item
		Enter: Select
		+/-: Change Opt.
		F1: General Help F3: Previous Values
		F9: Optimized Defaults
		F10: Save & Exit
		ESC: Exit

Parameter	Description
Refresh Management (RFM)	
	Configure Refresh Management.
Refresh Management	Options available: Enable, Disable, Auto, Force Enable. 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.

5-3-3 DDR MBIST Options

	Enable or disable Memory MBIST
	IND 151
[Auto]	
[Auto]	
[Auto]	
[Disabled]	
[One Time]	
[Soft Repair]	
	**: Select Screen
	14: Select Item
	Enter: Select
	+/-: Change Opt.
	F1: General Help
	F3: Previous Values
	F9: Optimized Defaults
	F10: Save & Exit
	ESC: Exit
	[Auto] [Auto]

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 .
MBIST Per Bit Slave Die Reporting ^(Note1)	Enable/Disable to report 2D data eye results in ABL log for each DQ, Chipselect, and Channel. Options available: Auto, Enabled, Disabled. Default setting is Auto .
Data Eye	Press [Enter] to configure advanced items.
Memory Healing BIST	Enable/Disable memory healing BIST. Options available: Disabled, PMU Mem BIST, Self-Healing Mem BIST, PMU and Self-Healing Mem BIST. Default setting is Disabled .

(Note1) This item appears when MBIST Enable is set to Enabled.
Parameter	Description
DDR Healing BIST Execution Mode ^(Note2)	Options available: One Time, Every boot. Default setting is One Time .
PMU Mem BIST Algorithm ^(Note2)	Press [Enter] to enable/disable PMU Mem BIST Algorithm.
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 .

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

5-3-3-3-1 Data Eye

Aptio Setup - AMI AMD CBS		
Data Eye		MBIST Data Eye Pattern Type. 0 – PRBS (default),
	[PRBS]	1 - SSO, 2 - Both
Pattern Length	3	1. March 10 March 11
Aggressor Channel	[All Channels]	
Aggressor Static Lane Control	[Disabled]	
Aggressor Static Lane Select Upper 32 bits	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 f↓: 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
Worst Case Margin Granularity	[Per Chip Select]	F9: Optimized Defaults
Read Voltage Sweep Step Size	[1]	F10: Save & Exit
Read Timing Sweep Step Size	[1]	ESC: Exit
Write Voltage Sweep Step Size	[1]	
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 .
Worst Case Margin Granularity	Configures Worst Case Margin Granularity. Options available: Per Chip Select, Per Nibble. Default setting is Per Chip Select.
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

DDR RAS		Enable poison data
Data Poisoning		Creation on uncorrectable
DRAM Boot Time Post Package Repair	[Disabled]	poison propagation to CPU
DRAM Runtime Post Package Repair	[Disabled]	cores and caches. Requires
RCD Parity	[Enabled]	ECC memory. When FALSE, a
Max RCD Parity Error Replay	8	fatal error event will
Disable Memory Error Injection	[Auto]	occur on DDR ECC errors
ECC Configuration		sets
DRAM Scrubbers		UMC_CH::EccCtrl[UcFatalEn]
DRAM Connected Erron Counter	[LeakMode]	when
Enable		
DRAM Connected Error Counter	[True]	
Interrupt Enable		++: Select Screen
DRAM Corrected Error Counter Leak	7	↑↓: Select Item
Rate DRAM Corrected Error Counter		Enter: Select
Start Count	FFF5	+/-: Change Opt. F1: General Help
Stant Count		F3: Previous Values
		F9: Optimized Defaults
		F10: Save & Exit
		ESC: Exit

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 Repair	Enable/Disable the DRAM Boot Time Post Package Repair function. Options available: Enabled, Disabled. Default setting is Disabled .
DRAM Runtime Post Package Repair	Enable/Disable the DRAM Runtime Post Package Repair function. Options available: Enabled, Disabled. Default setting is Disabled .
RCD Parity	Enable/Disable the RCD Parity function. Options available: Auto, Enabled, Disabled. Default setting is Enabled .
Max RCD Parity Error Replay	Default setting is 8.
Disable Memory Error Injection	Options available: False, True, Auto. Default setting is Auto.
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. 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.

Parameter	Description
ECC Configuration (continued)	 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.
DRAM Scrubbers	 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 Time Options available: Disabled, 1 hour, 4 hours, 6 hours, 8 hours, 12 hours, 16 hours, 24 hours, 48 hours. Default setting is 24 Hours. DRAM Error Threshold Count Options available: Auto, Row Count Mode, Code Word Count Mode. Default setting is Auto. DRAM ECS Count Mode Options available: Auto, AutoEcs Disabled, AutoEcs Enabled. Default setting is Auto. DRAM AutoEcs during Self Refresh Options available: Auto, Enable, Disable. Default setting is Auto.

This item available when DRAM UECC Retry is set to Enabled. etup - 113 -

Parameter	Description
DRAM Corrected Error Counter	Configure DRAM Corrected Error Counter function.
	Options available: Disable, NoLeakMode, LeakMode. Default setting is
Enable	LeakMode.
DRAM Corrected Error Counter	Enable SMI when DRAM corrected Error Counter count exceeds the
	threshold value.
Interrupt Enable	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

DDR Bus Configuration		Select the DRAMs On-die
Dram ODT impedance RTT_NOH_WR Dram ODT impedance RTT_NOM_RD Dram ODT impedance RTT_MR Dram ODT impedance DS2_RTT_PARK Processor ODT impedance Dram DQ drive strengths	(Auto) (Auto) (Auto) (Auto) (Auto) (Auto) (Auto)	Termination impedance for RTT_NOM_WR
		++: 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
DDR Bus Configuration	
	Select the DRAMs On-die Termination impedance for RTT_NOM_WR.
Dram ODT impedance RTT_	Options available: Auto, RTT_OFF, RZQ (240), RZQ/2 (120), RZQ/3 (80)
NOM_WR	RZQ/4 (60), RZQ/5(48), RZQ/6(40), RZQ/7(34). Default setting is Auto .
	Select the DRAMs On-die Termination impedance for RTT_NOM_RD.
Dram ODT impedance RTT_	Options available: Auto, RTT_OFF, RZQ (240), RZQ/2 (120), RZQ/3 (80)
NOM_RD	RZQ/4 (60), RZQ/5(48), RZQ/6(40), RZQ/7(34).
	Default setting is Auto.
	Select the DRAMs On-die Termination impedance for RTT_WR.
Dram ODT impedance RTT_	Options available: Auto, RTT_OFF, RZQ (240), RZQ/2 (120), RZQ/3 (80)
WR	RZQ/4 (60), RZQ/5(48), RZQ/6(40), RZQ/7(34).
	Default setting is Auto.
	Select the DRAMs On-die Termination impedance for RTT_PARK.
Dram ODT impedance RTT_	Options available: Auto, RTT_OFF, RZQ (240), RZQ/2 (120), RZQ/3 (80)
PARK	RZQ/4 (60), RZQ/5(48), RZQ/6(40), RZQ/7(34).
	Default setting is Auto.
	Select the DRAMs On-die Termination impedance for DQS_RTT_PARK.
Dram ODT impedance DQS_	Options available: Auto, RTT_OFF, RZQ (240), RZQ/2 (120), RZQ/3 (80)
RTT_PARK	RZQ/4 (60), RZQ/5(48), RZQ/6(40), RZQ/7(34).
	Default setting is Auto.

Parameter	Description
	Select the ODT impedance for all DBYTE IOs.
	Options available: Auto, High Impedance, 480 ohm, 240 ohm, 160 ohm,
Processor ODT impedance	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.
	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



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, DDR3200, DDR3600, DDR4000, DDR4400,
	DDR4800, DDR5200, DDR5600. Default setting is Auto.
SPD Timing	Press [Enter] to configure advanced items.
Non-SPD Timing	Press [Enter] to configure advanced items.

5-3-3-7 DDR Training Options

DDR Training Options	Specify PDA enumeration
	mode Auto : default O : Continuous DQS toggling PDA enumeration mode (default) 1 : Legacy PDA enumeration mode
	<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
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 .

5-3-3-8 DDR Security

AMD CBS	Aptio Setup – AMI	
DDR Security		Transparent SME
TSME AES Data Scramble SME-MK	[Auto] [AES-256] [Enabled] [Disabled]	
		++: 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
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

DDR PMIC Configuration		Enables support for PMIC Error Reporting.
PMIC Error Reporting PMIC Operation Mode PMIC Fault Recovery PMIC SMC VDDIO PMIC SMA/SWB VDD Core PMIC Stagger Delay Max PMIC Power On	[Auto] [Programmable Mode] [Always] 1100 5 FF	error Reporting.
		++: 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
DDR PMIC Configuration	
DMIC Error Departing	Enables support for PMIC Error Reporting.
PMIC Error Reporting	Options available: Auto, False, True. Default setting is Auto.
DMIC Operation Made	Options available: Secure Mode, Programmable Mode.
PMIC Operation Mode	Default setting is Programmable Mode.
PMIC Fault Recovery	Options available: Always, Never, Once. Default setting is Always.
PMIC SWC VDDIO	Default setting is 1100 .
PMIC SWA/SWB VDD Core	Default setting is 1100 .
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 Survives Warm Reset	[Disəbled]	1 – Enabled (default); 0 – Disabled If enabled – Upon warm
ODTS CMD Throttle Threshold	[Auto]	r enabled - opportwarm reset DRAM content is preserved, Training values are saved & retrieved.
		++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F3: Optimized Defaults F10: Save & Exit ESC: Exit
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 Parameter
 Description

 DDR Miscellaneous
 DRAM Survives Warm Reset
 Options available: Enabled, Disabled. Default setting is Disabled.

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

5-3-3-11 DDR PHY (CMN)

DDR PHY (CMN)	Specifies Periodic
Periodic Training	Training config
	++: 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
DDR PHY (CMN)	
Periodic Training ^(Note)	Options available: Auto, Enabled, Disabled. Default setting is Auto.
Periodic Training Interval	Specifies the Periodic Training interval in millisecond.

5-3-4 NBIO Common Options

AMD CBS	Aptio Setup – AMI	
NBIO Common Options	A	Enable/Disable IOMMU
IOHMU DMAR Support DMA Protection DRTM Virtual Device Support DRTM Memory Reservation ACS Enable PCIE ARI Support PCIE ARI Enumeration PCIE Ten Bit Tag Support SMU Common Options Enable AER Cap Early Link Speed Hot Plug Handling mode Hot Plug Handling Hot Plug Handlin	(Enabled) [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [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

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NBIO RAS Common Options		▲ No help string
Enable AER Cap	[Auto]	
Early Link Speed	[Auto]	
Hot Plug Handling mode	[Auto]	
Hot Plug Allow FF in Synchronous	[Disabled]	
Presence Detect Select mode	[Auto]	
Data Link Feature Cap	[Auto]	
CV test	[Auto]	
SEV-SNP Support	[Auto]	
Allow Compliance	[Auto]	
SRIS	[Auto]	
Multi Upstream Auto Speed Change	[Auto]	
Multi Auto Speed Change On Last	[Auto]	
Rate		++: Select Screen
PCIE Link Speed Capability	[Auto]	t↓: Select Item
RTM Margining Support	[Auto]	Enter: Select
EQ Bypass To Highest Rate	[Auto]	+/-: Change Opt.
Non-PCIe Compliant Support	[Auto]	F1: General Help
PCIE Idle Power Setting	[Optimize for Perf/Power]	F3: Previous Values
nBif Common Options		F9: Optimized Defaults
Link EQ Preset Options		F10: Save & Exit
Enable 2 SPC (Gen 4)	[Auto]	ESC: Exit
Safe recovery upon a BERExceeded	[Auto]	
Error		
		*

Parameter	Description
NBIO Common Options	
IOMMU	Enable/Disable the IOMMU function. Options available: Disabled, Enabled. Default setting is Enabled .
DMAr Support	Enable/Disable DMAr system protection during POST. 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 .
DRTM Virtual Device Support	Enable/Disable DRTM ACPI virtual device. Options available: Disabled, Enabled, Auto. Default setting is Auto .
DRTM Memory Reservation	Enable/Disable DRTM Memory reservation. Options available: Disabled, Enabled, Auto. Default setting is Auto .
ACS Enable	Enable/Disable ACS. Options available: Enable, Disabled, Auto. Default setting is Auto .
PCIe ARI Support	Enable/Disable Alternative Routing-ID Interpretation. 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 Ten Bit Tag Support	Enable/Disable PCIe ten bit tags for supported devices. (Auto=Disabled) Options available: Disable, Enable, Auto. Default setting is Auto .
SMU Common Options	Press [Enter] for configuration of advanced items.
NBIO RAS Common Options	Press [Enter] for configuration of advanced items.
Enable AER Cap	Enable/Disable Advanced Error Reporting Capability. Options available: Enable, Disabled, Auto. Default setting is Auto .
Early Link Speed	Configures Early Link Speed. Options available: Auto, Gen1, Gen2. 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 .
Hot Plug Allow FF in Synchronous	Allows firmware first hot plug handling mode to operate in mode A and mode B synchronous mappings. Options available: Disabled, Enabled. Default setting is Disabled .
Presence Detect Select mode	Controls the Presence Detect Select mode. Options available: OR, AND, Auto. Default setting is Auto .

Parameter	Description
Data Link Feature Cap	Enable/Disable the data link feature capability. Options available: Enabled, Disabled, Auto. Default setting is Auto .
CV test	Enable/Disable the running PCIE CV tool support. Options available: Auto, Enabled, Disabled. Default setting is Auto .
SEV-SNP Support	Enable/Disable the SEV-SNP support. Options available: Disable, Enable. Default setting is Disable .
Allow Compliance	When enabled, allows the PCIe RP to enter Polling.Compliance state. Options available: Auto, Disable, Enable. Default setting is Auto .
SRIS	Options available: Auto, Disable, Enable. Default setting is Auto.
Multi Upstream Auto Speed Change	Defines the setting of this feature for all PCIe devices. Options available: Disabled, Enabled, Auto. Default setting is Auto .
Multi Auto Speed Change On Last Rate	Options available: Disable, Enable, Auto. Default setting is Auto.
PCIE Link Speed Capability	Options available: Maximum speed, Gen1, Gen2, Gen3, Gen4, Gen5, Auto. Default setting is Auto .
RTM Margining Support	Options available: Disable, Enable, Auto. Default setting is Auto.
EQ Bypass To Highest Rate	Options available: Disable, Enable, Auto. Default setting is Auto.
Non-PCIe Compliant Support	Options available: Disable, Enable, Auto. Default setting is Auto.
PCIE Idle Power Setting	Modify PCIE Power Savings Features that can impact lightly loaded latency. Options available: Optimize for Latency, Optimize for Perf/Power. Default setting is Optimize for Latency .
nBif Common Options	Press [Enter] for configuration of advanced items.
Link EQ Preset Options	Press [Enter] for configuration of advanced items.
Enable 2 SPC (Gen4)	Enable this setting to use 2 symbols per clock for devices at Gen4 speed. Options available: Auto, Enabled. Default setting is Auto .
Safe recovery upon a BERExceeded Error	Options available: Auto, Enabled, Disabled. Default setting is Auto.
Periodic Callbration	Options available: Auto, Enabled, Disabled. Default setting is Auto.

5-3-4-1 SMU Common Options

SMU Common Options		Power Policy Quick Setting
Power Policy Quick Setting TDP Control PPT Control Determinism Control XGMI Link Width Control APBDIS Diffstate Range Support Power Profile Selection BoostFmaken DF PState Frequency Optimizer DF Costates CPPC HSMP Support SVI3 SVD Speed Control SD V-Cache Diagnostic Mode PCIE Speed PMM Control	[Standard] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto]	++: Select Screen T4: Select Item Enter: Select +/-: Change Opt, F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

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.
DfPstate Range Support	Options available: Disable, Enable, 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 .
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 .	
Diagnostic Mode	Options available: Disabled, Enabled, Auto. Default setting is Auto.	
PCIE Speed PMM Control	Options available: Dynamic link speed determined by Power Management functionality, Static Target Link Speed (GEN4),Static Target Link Speed (GEN5), Auto. Default setting is Auto .	

5-3-4-2 NBIO RAS Common Options

NBIO RAS Common Options		(0) Disabled, (1) MCA
Egress Poison Severity High	30011	
Egress Poison Severity Low	4	
NBIO SyncFlood Generation	[Auto]	
NBIO SyncFlood Reporting	[Auto]	
Egress Poison Mask High	FFFCFFFF	
Egress Poison Mask Low	FFFFFFB	
Uncorrected Converted to Poison	30000	
Enable Mask High		
Uncorrected Converted to Poison	4	
Enable Mask Low		
System Hub Watchdog Timer	2600	++: Select Screen
PCIe Aer Reporting Mechanism	[Auto]	↑↓: Select Item
Edpc Control	[Auto]	Enter: Select
ACS RAS Request Value	[Auto]	+/-: Change Opt.
NBIO Poison Consumption	[Auto]	F1: General Help
Sync Flood on PCIe Fatal Error	[Auto]	F3: Previous Values
		F9: Optimized Defaults
		F10: Save & Exit
		ESC: Exit

Parameter	Description
NBIO RAS Common Options	
NBIO RAS Control	Options available: Disabled, MCA, Auto. Default setting is Auto.
Egress Poison Severity High	Configures the Egress Poison High Severity. Each bit set to 1 enables High severity on the associated IOHC egress port. A bit of 0 indicates LOW severity.
Egress Poison Severity Low	Configures the Egress Poison Low Severity. Each bit set to 1 enables High severity on the associated IOHC egress port. A bit of 0 indicates LOW severity.
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 .
Egress Poison Mask High	Enables mask for masking of errors logged in EGRESS_POISON_ STATUS. For each bit set to 1, errors are masked. For each bit set to 0, errors trigger response actions.
Egress Poison Mask Low	Enables mask for masking of errors logged in EGRESS_POISON_ STATUS. For each bit set to 1, errors are masked. For each bit set to 0, errors trigger response actions.

Parameter	Description
Uncorrected Converted to Poison Enable Mask High	Enables mask for masking of uncorrectable parity errors on internal arrays.
Uncorrected Converted to Poison Enable Mask Low	Enables mask for masking of uncorrectable parity errors on internal arrays.
System Hub Watchdog Timer	Specifies the timer interval of the SYSHUB Watchdog timer in milliseconds.
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.

5-3-4-3 nBif Common Options

Aptio Setup - AMI AMD CBS	
nBif Common Options	MPDMA-TF
▶ MPDMA-TF ▶ RCC_DEVO	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. 71: General Help 73: Previous Values 79: Optimized Defaults F10: Save & Exit SC: Exit</pre>
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Parameter	Description	
Parameter MPDMA-TF	 SRIOV Options available: Auto, Disabled, Enabled. Default setting is Auto. ARI Options available: Auto/Default, Disabled, Enabled. Default setting is Auto/Default. AER Options available: Auto, Disabled, Enabled. Default setting is Auto. ACS Options available: Auto, Disabled, Enabled. Default setting is Auto. ACS Options available: Auto, Disabled, Enabled. Default setting is Auto. ACS Options available: Auto, Disabled, Enabled. Default setting is Auto. ATS Options available: Auto, Disabled, Enabled. Default setting is Auto. PASID Options available: Auto, Disabled, Enabled. Default setting is Auto. RTR Options available: Auto, Disabled, Enabled. Default setting is Auto. PAGE_REQ Options available: Auto, Disabled, Enabled. Default setting is Auto. 	
	 Options available: Auto, Disabled, Enabled. Default setting is Auto. ATC_ENABLE Options available: Auto, Disabled, Enabled. Default setting is Auto. 	

Parameter	Description
MPDMA-TF (continued)	 SDXI Class Code Options available: Auto, Disabled, Enabled. Default setting is Auto. PASID Control Options available: Auto, Disabled, Enabled. Default setting is Auto. ATOMICOP_REQUEST Options available: Auto, Disabled, Enabled. Default setting is Auto.
	 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. DlfEnableStrap1 Options available: Auto, Disabled, Enabled. Default setting is Auto. Phy16GTStrap1 Options available: Auto, Disabled, Enabled. Default setting is Auto. MarginEnStrap1
RCC_DEV0	 UpstreamFwdStrap5 Options available: Auto, Disabled, Enabled. Default setting is Auto. P2PEgressStrap5 Options available: Auto, Disabled, Enabled. Default setting is Auto. DirectTranslatedStrap5 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. 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.

Parameter	Description	
RCC_DEV0 (continued)	 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. 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. 	

5-3-4-4 Link EQ Preset Options

AMD CBS	
Link EQ Preset Options GENS GEN4 GEN5	GEN3
	+: Select Screen 14: Select Item Enter: Select 4/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version 2.22.1292 Cor	yright (C) 2024 AMI

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

FCH Common Options I3C/I2C Configuration Options SATA Configuration Options USB Configuration Options	I3C/I2C Configuration Options
Ac Power Loss Options Uart Configuration Options ESPI Configuration Options FCH RAS Options Wiscellaneous Options	
	++: 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
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.
ESPI 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	
I3C/I2C Configuration Options I3C/I2C 0 Enable I3C/I2C 1 Enable I3C/I2C 2 Enable I3C/I2C 3 Enable I2C 4 Enable I2C 5 Enable Release SPD Host Control PHFW Poll DORS Telemetry IxC Telemetry Ports Fence Control I2C SDA Hold Override EML SB-TS1 & RHI Mode	(Auto) (Auto) (Auto) (Auto) (Auto) (Disabled) (Enabled) (Disabled) (Auto) (130)	Enable or disable Inter-Integrated Circuit Control O
I3C Mode Speed I3C Push Pull HONT Value I3C SOA Hold Override	[Auto] 8 [Auto]	++: Select Screen T4: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description	
I3C/I2C Configuration Options		
I3C/I2C 0/1/2/3 Enable	Options available: Both Disabled, I3C Enabled, I2C Enabled, Auto. Default setting is Auto .	
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 Override	Override I3C SDA Hold value. Options available: Disabled, Enabled, Auto. Default setting is Auto .	

5-3-5-2 SATA Configuration Options

SATA Configuration Options		Disable or enable OnChip
		Controller
SATA RAS Support	[Auto]	
SATA Staggered Spin-up	[Auto]	
SATA Disabled AHCI Prefetch	[Auto]	
Aggresive SATA Device Sleep P0	[Auto]	
Aggresive SATA Device Sleep P1 SATA Controller options	(Auto)	
		+: Select Screen f4: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Yalues
		F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description	
SATA Configuration Options		
SATA Enable	Enable/Disable OnChip SATA controller. Options available: Disabled, Enabled, Auto. Default setting is Auto .	
SATA RAS Support	Options available: Disabled, Enabled, Auto. Default setting is Auto.	
SATA Staggered Spin-up	Options available: Disabled, Enabled, Auto. Default setting is Auto.	
SATA Disabled AHCI Prefetch Function	Options available: Disabled, Enabled, Auto. Default setting is Auto.	
Aggressive SATA Device Sleep P0/P1	Options available: Disabled, Enabled, Auto. Default setting is Auto.	
	Press [Enter] for configuration of advanced items.	
	SATA Controller Enable	
SATA Controller options	SATA Controller eSATA	
	SATA Controller DevSlp	
	SATA Controller SGPIO	

5-3-5-3 USB Configuration Options

	controller.
	controller.
[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

Parameter	Description	
USB Configuration Options		
XHCI Controller0/1 enable	Enable/Disable USB controller. Options available: Enabled, Disabled, Auto. Default setting is Auto .	
USB ecc SMI Enable	Options available: Enable, Off, 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 Method
		in the the the
		++: Select Screen
		↑↓: 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 .

5-3-5-5 Uart Configuration Options

AMD CB	Aptio Setup – AMI S	
Uart Configuration Opti	ons	Enable or disable Uart0. Uart 0 has no HW flow
Uart O Enable Uart 1 Enable Uart 2 Enable Uart 3 Enable	[Auto] [Auto] [Auto] [Auto]	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
	Version 2.22.1292 Copyright (C	0) 2024 AMI
rameter	Description	
rt Configuration Options		

Uart 0/1/2/3 Enable

Options available: Disabled, Enabled, Auto. Default setting is Auto.

5-3-5-6 ESPI Configuration Options

AMD CBS	Aptio Setup – AMI	
ESPI Configuration Options		No help string
ESPI Enable		++: 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
ESPI Configuration Options	
ESPI Enable	Options available: Disabled, Enabled, Auto. Default setting is Auto.

5-3-5-7 FCH RAS Options

FCH RAS Options		Enable FCH A-Link parity
ALink RAS Support Reset After Sync-Flood	[Auto] [Auto]	ernor
		++: 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
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 .

5-3-5-8 Miscellaneous Options

Miscellaneous Options	Boot Timer enable.
	Enable : force PMx44 bit 27 = 1 Disable : force PMx44 bit 27 = 0 Auto:PMx44 bit 27 = PcdBootTimerEnable
	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F1: Save & Exit ESC: Exit

Parameter	Description
Miscellaneous Options	
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	
ABL Basic Console Out Control ABL PMU message Control ABL 2nd CPU PMU MsgBlock Log Control ABL Hemory Population message	[Auto] [Auto] [Auto] [Auto] [Auto] [Disabled] [Warning message]	Enable : Enable ConsoleOut Function for ABL Disable : Disable ConsoleOut Function for ABL Auto : Keep default behavior
Control PSP error injection support ▶ Firmware Anti-rollback (FAR)	[False]	<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
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 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 2nd CPU PMU MsgBlock Log Control	ABL print 2nd CPU PMU MsgBlock contents after training. Options available: Disabled, Enabled. Default setting is Disabled .
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.

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 CXL Control CXL SPM CXL Encryption CXL DVSEC Lock Temp Gen5 Advertisement Sync Header Bypass ▶ CXL RAS	(Auto) (Auto) (Disabled) (Auto) (Auto) (Auto)	Enable/Disable CXL on all ports
		<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	
CXL Common Options		
CXL Control	Options available: Auto, Enabled, Disabled. Default setting is Auto.	
CXL SPM	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.	
Temp Gen5 Advertisement	Options available: Disabled, Enabled, Auto. Default setting is Auto.	
Sync Header Bypass	Options available: Auto, Enabled, Disabled. Default setting is Auto.	
CXL RAS	 Press [Enter] for configuration of advanced items. CXL Protocol Error Reporting Options available: Disabled, SameAsPcieAer, ForceAerFwFirstlfCxlPresent. Default setting is SameAsPcieAer. CXL Component Error Reporting Options available: OS First, FW-First. Default setting is FW-First. 	

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.

AMD PBS		AMD CPM RAS related settings
RAS SPI Locking CXL Range Encryption	[Disabled]	Settings
		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Helo
		F3: Previous Values F3: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description	
RAS	Press [Enter] for configuration of advanced items.	
SPI Locking	Enable/Disable SPI Locking for protect ROM part. Options available: Disabled, Enabled. Default setting is Disabled .	
CXL 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 CXL Range Encryption 	

5-4-1 RAS

		Enable/ disable Periodic
SMI Threshold	5	SMI for polling [MCA
SMI Scale	1000	Threshold] error
SMI Scale Unit	[millisecond]	
SMI Period	1000	
GHES Notify Type	[Polled]	
GHES UnCorr Notify Type	[NMI]	
PCIe GHES Notify Type	[Polled]	
PCIe UnCorr GHES Notify Type	[NMI]	
PCIe Root Port Corr Err Mask Reg		
PCIe Root Port UnCorr Err Mask Reg		
Pcie Root Port UnCorr Error Sev	7EF6030	
Reg		++: Select Screen
PCIe Device Corr Err Mask Reg	FFFFFFF	↑↓: Select Item
PCIe Device UnCorr Err Mask Reg	100000	Enter: Select
Pcie Device UnCorr Error Sev Reg	7EF6030	+/-: Change Opt.
CXL DP CIE Mask Enable	[Enabled]	F1: General Help
DRAM Hard Post Package Repair	[Disabled]	F3: Previous Values
HEST DMC Structure Support		F9: Optimized Defaults F10: Save & Exit
CXL Error Report Support	[Disabled]	ESC: Exit
		ESU: EXIT

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 .
PCIe 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.
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 <mark>Chipset</mark> Server Mgm	t Security Boot Save & Exit
PCIe Compliance Mode Program All VR Power Button 1s shutdown > North Bridge > Fabric Resource	[Off] [Enabled] [Enabled]	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 ESC: Exit
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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.
Fabric Resource	Press [Enter] for configuration of advanced items.

5-5-1 North Bridge

North Bridge Configuration	View Information related to CPU 0
Memory Information	to CPU 0
Total Memory: 32768 MB CPU 0 Information CPU 1 Information	
	++: 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
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.

5-5-2 Fabric Resource

Aptio Setup - A Chipset	MI
Fabric Resource CPU0 NBIDO: Base Bus: 0x60	▲ Change CPUO NBIOO PCIe bus number
Prefetchable Mmio Above 4G Size: 2048 GB 10 Resource: 0x000 POIE Bus Number Porefetchable Mmio Above 4G size PCIE 10 Resource	
CPU0 NBI01: Base Bus: 0x40 Prefetchable Mmio Above 4G Size: 2048 GB IO Resource: 0x000 PCIE Bus Number 20 Prefetchable Mmio Above 4G Size [System Default] PCIE IO Resource FFFF	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help
CPU0 NBI02: Base Bus: 0x00 Prefetchable Mmio Above 4G Size: 2048 GB IO Resource: 0x000 PCIE Bus Number 20 Prefetchable Mmio Above 4G size [System Default] PCIE 10 Resource FFFF	F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Version 2.22.1292 Copyrigh	t (C) 2024 AMI
Aptio Setup – A Chipset	MI
CPUI NBIDI: Base Bus: 0xC0 Prefetchable Mmio Above 4G Size: 2048 GB IO Resource: 0x000 PCIe Bus Number 20 Prefetchable Mmio Above 4G Size [System Default] PCIe IO Resource FFFF	▲ Change CPU1 NBIO3 PCIe IO Resource
CPUI NBIO2: Base Bus: 0x80 Prefetchable Mmio Above 4G Size: 2048 GB IO Resource: 0x000 PCIE Bus Number 20 Prefetchable Mmio Above 4G Size [System Default] PCIE IO Resource FFFF	++: Select Screen T↓: Select Item Enter: Select
CPU1 NBI03: Base Bus: 0xA0 Prefetchable Mmio Above 4G Size: 2048 GB IO Resource: 0x000 PCIe Bus Number 20 Prefetchable Mmio Above 4G Size [System Default] PCIe IO Resource FFFF	+/-: Change Opt. F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

Parameter	Description
Fabric Resource	
CPU 0/1 NBIO_# PCIe Bus Number	Change CPU 0/1 NBIO_# PCIe Bus Number.
Prefetchable Mmio Above 4G size	Change CPU 0/1 NBIO_# Prefetchable MMIO Above 4G Size. Options available: System Default, 0, 1G, 2G, 4G, 8G, 16G, 32G, 64G, 128G, 256G, 512G, 1T, 2T, 4T, 8T. Default setting is System Default .
PCIe IO Resource	Change CPU 0/1 NBIO_# PCIe IO Resource.

5-6 Server Management Menu

Main Advanced AMD CBS AMD	Aptio Setup – AMI PBS Option Chipset <mark>Server Mgmt</mark>	Security Boot Save & Exit
FRB-2 Timer FRB-2 Timer timeout FRB-2 Timer Policy OS Watchdog Timer OS Wit Timer Policy Wait BMC Ready > System Event Log > View FRU information > BMC network configuration > IPv6 BMC Network Configuration	[Enabled] [20 minutes] [Do Nothing] [Disabled] [10 minutes] [Reset] [2 minutes]	Configure how the system should respond if the FRB-2 Timer expires. Not available if FRB-2 Timer is disabled.
		++: 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.

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

BIO	S	Se	tup
-	1	53	-

Parameter	Description
System Event Log	Press [Enter] to configure advanced items.
View FRU Information	Press [Enter] to view the FRU information.
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

	Change this to enable or
	disable all features of
	System Event Logging
[N=2]	during boot.
[bb Hothing]	
[Error code]	
	++ · Select Screen
estarted.	
	++: Select Screen
	t↓: Select Item Enter: Select
	+/-: Change Opt.
	F1: General Help
	F3: Previous Values
	F9: Optimized Defaults
	F10: Save & Exit ESC: Exit
	LSC. EXIC
	not take

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	Circ Computing	
System Manufacturer System Product Name System Version System Serial Number Board Manufacturer Board Version Board Serial Number Chassis Manufacturer Chassis Product Name Chassis Serial Number	Giga Computing M2K3-LNO-000 SM2K3LMOUR-000 01234567890123455789AB Giga Computing M2K3-LMO-000 123456789AB 0G6PA500005 Giga Computing 01234567 01234567890123456789AB	<pre>+*: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F3: Previous Values F3: Optimized Defaults F10: Save & Exit ESC: Exit</pre>
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5-6-3 BMC Network Configuration

BMC network configuration Select NCSI and Dedicated LAN		Select to configure LAN channel parameters
		statically or
Lan channel 1		dynamically(DHCP). Do
Configuration Address source	[DynamicBmcDhcp]	nothing option will not
Station IP address	10.1.6.48	modify any BMC network
Subnet mask	255.255.255.0	parameters during BIOS
Router IP address	10.1.6.253	phase
Station MAC address	10-ff-e0-39-3d-30	
VLAN Support	[Disabled]	
		++: Select Screen ↑↓: Select Item
		<pre>\$\$\$ \$\$\$ \$\$\$ \$\$\$ \$\$\$ \$\$\$\$ \$\$\$\$ \$\$\$\$ \$\$</pre>
		†↓: Select Item Enter: Select +/-: Change Opt. F1: General Help

Parameter	Description
BMC network configuration	
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 synchronize BMC network parameter values	Press [Enter] will set Address source(Static/DHCP) to BMC and then get Station IP address, Subnet mask and Router IP address from BMC.

5-6-4 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]	[Enabled] [Dynamic-Obtained by BMC running DHCP] ::/0	Enable/Disable IPv6 BMC LAN channel function. Disable option will not modify any BMC network during BIOS Phase
		<pre>++: Select Screen f1: 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
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, Disabled, Enabled. Default setting is Enabled .
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	Aptio Setup CBS AMD PBS Option Chipset		Security Boot Save & Exit
Password Description			Set Administrator Password
then this only limits only asked for when er If ONLY the User's pa- is a power on password boot or enter Setup. have Administrator rin The password length m in the following rang Winimum length	ssword is set, then this d and must be entered to In Setup the User will ghts. ust be e: 3		
Maximum length	20		→+: Select Screen 11: Select Item
Administrator Password User Password			Enter: Select +/-: Change Opt.
▶ Secure Boot			F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
	Version 2.22.1292 Conu	night (C) 2024	L ANT

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
Setup	Secure Boot feature is Active if Secure Boot is
[Disabled] Not Active	Enabled, Platform Key(PK) is enrolled and the System is
[Custom]	in User mode. The mode change requires
	platform reset
	++: Select Screen
	<pre>\$\$\$ \$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$</pre>
	F1: General Help F3: Previous Values
	F9: Optimized Defaults F10: Save & Exit
	ESC: Exit
	Setup [Disabled] Not Active

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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
Expert 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. Options available: Update, Append.

5-8 Boot Menu

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

Main Advanced AMD CBS AMD PBS 0 Boot Configuration Setup Promot Timeout Bootup NumLock State Quiet Boot Endless Retry Boot	Aptio Setup - AMI ption Chipset Server Mgmt Sec [0n] [Enabled] [Disabled]	urity Boot Save & Exit Number of seconds to wait for setup activation key. 65535(OKFFF) means indefinite waiting.
FIXED BOOT ORDER Priorities Boot Option #1 Boot Option #2 Boot Option #3 Boot Option #4 Boot Option #5	[Hand Disk] [CD/DVD] [USB Device] [Network:UEFI: PXE IPv4 Intel(R) Network 74:56:30:57:97:96] [UEFI AP:UEFI: Built-in EFI Shell]	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt.
▶ UEFI NETWORK Drive BBS Priorities ▶ UEFI Application Boot Priorities		F1: General Help F3: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit

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 .
Endless Retry Boot	Options available: Enabled, Disabled. 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 – AMI Main Advanced AMD CBS AMD PBS Option Chipset Server	Mgmt Security Boot Save & Exit
Save Options Save Changes and Exit Discard Changes and Exit Save Changes	Exit system setup after saving the changes.
Default Options Restore Defaults	
Boot Override UEFI: PXE IPV4 Intel(R) Network 74:56:30:57:97:96 UEFI: PXE IPV4 Intel(R) Network 74:56:30:57:97:97 UEFI: PXE IPV6 Intel(R) Network 74:56:30:57:97:96 UEFI: PXE IPV6 Intel(R) Network 74:56:30:57:97:97 UEFI: Built-in EFI Shell Launch EFI Shell from filesystem device	★: 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
Save Options	
Save Changes and Exit	Saves changes made and closes the BIOS setup. Options available: Yes, No.
Discard Changes and Exit	Discards changes made and exits the BIOS setup. Options available: Yes, No.
Save Changes	Saves changes done so far to any of the setup options. Options available: Yes, No.
Default Options	
Restore Defaults	Loads the default settings for all BIOS setup parameters. Setup Defaults are quite demanding in terms of resources consumption. If you are using low-speed memory chips or other kinds of low-performance components and you choose to load these settings, the system might not function properly. Options available: Yes, No.
Boot Override	Press [Enter] to configure the device as the boot-up drive.
Launch EFI Shell from filesystem device	Attempts to Launch EFI Shell application (Shell.efi) from one of the 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