Gooxi

SYR4108G-G3 GPU Server
User Manual

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Shenzhen Gooxi Digital Intelligence Technology Co., Ltd

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Foreword

This manual is the product technical manual for the SYR4108G-G3 GPU server, mainly introducing and explaining the appearance, structure, hardware installation, and basic configuration of this product.

This manual is intended for reference by professional technical personnel. Installation and maintenance of this product should only be carried out by experienced technical personnel.

Modification Record

Manual version	Release date	Modification
V1.0	2023/09/25	First release

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Contents

1. Product Introduction

1.1 Product Overview

SYR4108G-G3 is an AI computing server built on the AMD EPYC Milan platform, featuring powerful computing capabilities and highly flexible scalability. With a multi-CPU-GPU direct connection topology, it meets the application demands across various AI business scenarios. It is ideal for applications such as artificial intelligence, cloud computing, virtualization, big data analysis, and digital twins.

Main Configuration:

- Supports two AMD EPYC Milan series processors, compatible with Rome series processors, with a TDP of 280W
- Each CPU supports 12 DDR4 channels, with each channel supporting two DIMMs. A total of 32 slots are supported by two CPUs, supporting individual memory capacities of 16GB, 32GB, 64GB, and 128GB
- The front panel supports 12* 3.5" or 2.5" SAS/SATA/NVMe drives, with individual repairability for each drive
- Supports PCIe pass-through expansion boards, with 13 physical 16X standard connectors in the rear panel, which can be used to expand GPU cards, network cards, RAID cards, and more
- The rear I/O board offers optional configurations for two 10G RJ45 ports (X710 chip) and one optional OCP3.0 network card
- The BMC chip on the board uses ASPEED's AST2500 control chip for IPMI remote management

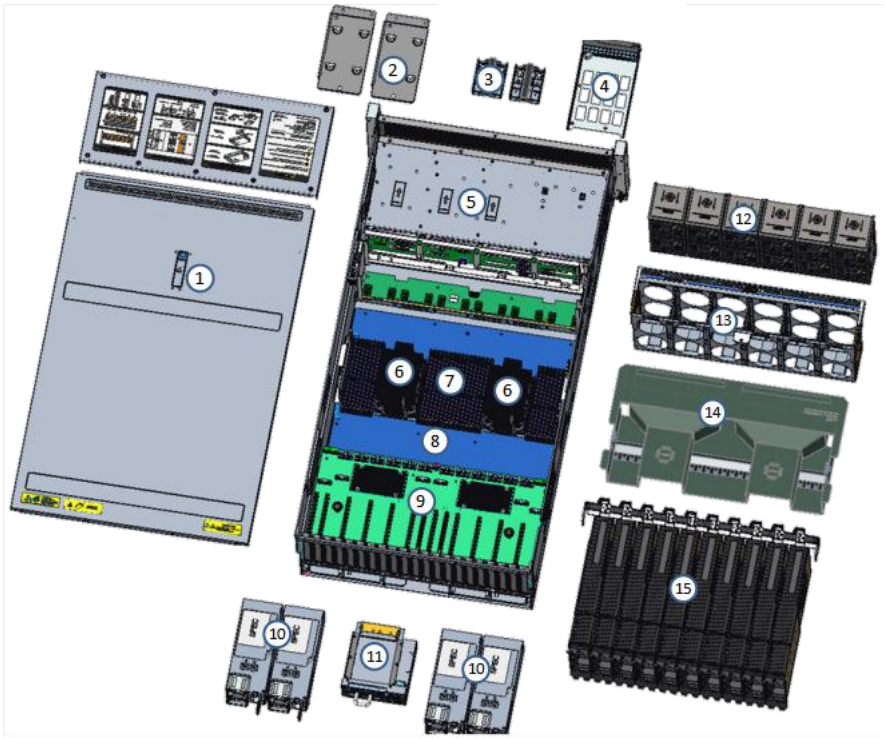
physical illustration of the server is shown below:

Front view 1-1

Rear view 1-2

1.2 Product Structure

The components of the SYR4108G-G3 server are shown in the image below:



Structure diagram 1-3

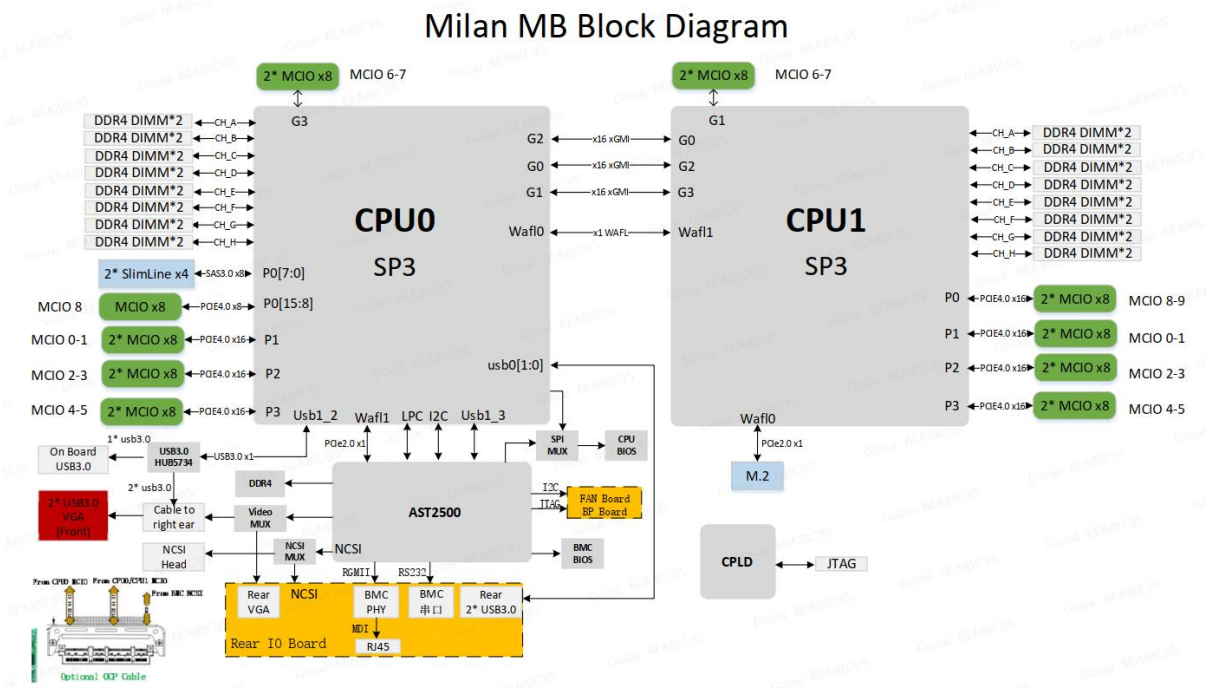
No.	Name	No.	Name
1	Top Cover	9	PCIe Pass-Through Expansion Board
2	RAID Card Bracket	10	Power Supply
3	Super Battery Bracket	11	Rear I/O Module
4	Front Hard Drive	12	Fan Module
5	Front Hard Drive Bracket Module	13	Fan Frame
6	CPU Cooling Module	14	Air Duct
7	Memory Module	15	GPU Module

8	Motherboard		

Table 1-1

1.3 Logical Structure

The logical layout of the SYR4108G-G3 server is shown in the image below:



Motherboard logic block diagram 1-4

- Supports two AMD EPYC Milan series processors, compatible with Rome series processors, with a TDP of 280W
- Each CPU supports 12 DDR4 channels, with each channel supporting 2 DIMMs. A total of 32 slots are supported by two CPUs, accommodating individual memory capacities of 16GB, 32GB, 64GB, and 128GB, with a maximum memory frequency of 3200 MHz
- CPU-GPU direct connection topology, supporting PCIe pass-through expansion boards, with 13 physical 16X standard connectors in the rear panel, which can be used to expand GPU cards, network cards, RAID cards, and more
- 8 SATA 3.0 ports (2 Slimline 4X connectors)
- 19 PCIe 4.0 x8 MCIO ports
- The rear I/O board provides optional configurations for two 10G RJ45 ports (X710 chip) and one optional OCP3.0 network card
- The BMC chip uses ASPEED's AST2500 control chip, supporting IPMI remote management

1.4 Product Specifications

Product Series	SYR4108G-G3
Form Factor	4U 12-bay
Dimension	850mm*444mm*176.4mm(D*W*H)
Processor	Supports two AMD EPYC Milan series processors, compatible with Rome series processors, with a TDP of 280W
Memory	32 DDR4 slots, supporting DDR4 RDIMM 3200MHz; supports individual capacities of 16GB, 32GB, 64GB, and 128GB
Internal Storage Interface	8 SATA 3.0 ports (2 Slimline 4X connectors) + 1 M.2 (PCIe 2.0 1X)
Front Hard Drive	12 hot-swappable 3.5"/2.5" SAS/SATA/NVMe drives
External Ports	Front Ports: 2 USB 3.0, 1 VGA port
	1 Serial port, 2 USB 3.0 ports, 1 VGA, 1 RJ45 management port (optional addition of 2 10G RJ45 network ports)
PCIe Expansion	Supports up to 13 PCIe expansion slots (OCP3.0 card can choose PCIe 4.0 x8 or x16, which is mutually exclusive with one of the PCIe 4.0 standard single-width slots)
Power Supply	3+1 or 2+2 redundant (2000W/2200W/2600W)
Fan	12 hot-swappable 6056 N+1 redundant fans as standard configuration
Security	Support TPM 2.0 module, cover-opening alarm, BMC /redundancy
Certification	CE, FCC, CQC
RoHS	Compliant with RoHS 2.0
Working Temperature& Humidity	Temperature: 5℃～35℃/Humidity: 30%～80%
Storage Temperature& Humidity	Temperature: -40℃ ~ +70℃ Humidity: 20%~90%(including packaging)

Table 1-2

2. Hardware Description

2.1 Front Panel

2.1.1 Appearance

- 12x3.5-inch hard drive configuration

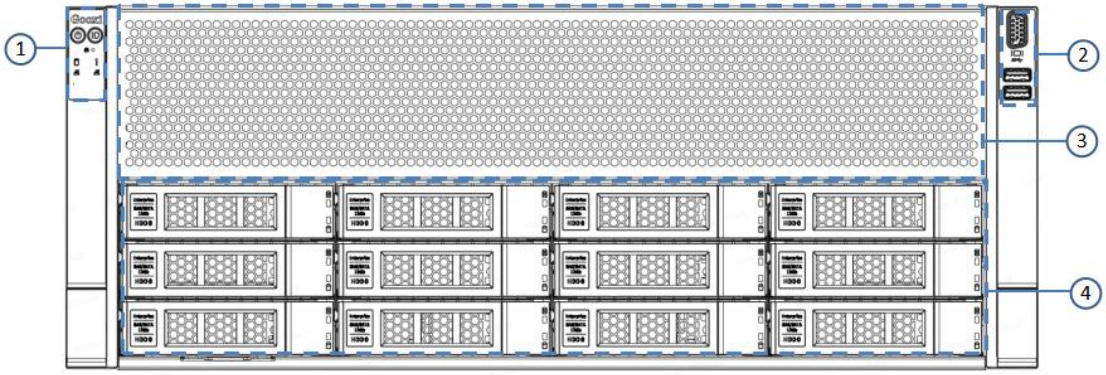


Figure 2-1

No.	Name	No.	Name
1	Left Ear Integrated Assembly	2	Right Ear Integrated Assembly
3	Front Panel	4	Hard Drive Module

Table 2-1

2.1.2 Indicator lights and buttons

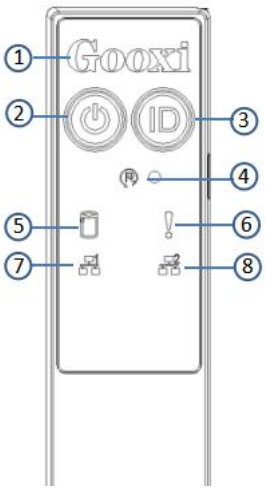


Figure 2-3

No.	Indicator/button	No.	Indicator/button
1	Gooxi Logo	5	M.2 Hard Drive Activity

			Indicator
2	Power Switch Button/Indicator	6	System Alarm Indicator
3	UID Button/Indicator	7	Network Port 1 Connection Status Indicator
4	Reset Button (Reboot Server)	8	Network Port 2 Connection Status Indicator

LED status description		
Logo	Indicator/button	Status description
Gooxi		Gooxi logo
	Power indicator	Description of the power indicator light: Green (steady on): Indicates that the device has been powered on normally. Green (blinking): Indicates that the device is in standby. Green off: Indicates that the device is not powered on. Power button description: Short press this button in the power-on state, and the OS will shut down normally. Press and hold the button for 6 seconds in the power-on state to force the server to Power off. Short pressing this button in the standby state allows for powering on.
ID	UID button/indicator	The UID button/indicator is used to conveniently locate the server to be operated, and the indicator can be turned off or on by manually pressing the UID button or remotely controlling the BMC command. Description of UID indicator light: Blue (steady on/blinking): Indicates that the server is located. Off: Indicates that the server is not located. UID button description: Short press this button to turn on/off the positioning light.
	Reset server button	Press to restart the server
	Hard drive indicator	Blinking green light: The hard drive is operating normally
	System alarm indicator light	System alarm indicator light. It includes system, fan, and power alarms, etc. Specific details can be viewed through the IPMI management software.
	Network port connection status indicator light	Indicator lights for Ethernet ports corresponding to the network card slots. Green (steady): Indicates a normal network connection. Off: Indicates an unused or faulty network port. Note: Corresponds to the two 1GE Ethernet ports on the motherboard.
	Network port connection status indicator light	Indicator lights for Ethernet ports corresponding to the network card slots. Green (steady): Indicates a normal network connection. Off: Indicates an unused or faulty network port. Note: Corresponds to the two 1GE Ethernet ports on the motherboard.

Table 2-2

2.1.3 Interface

- Interface location

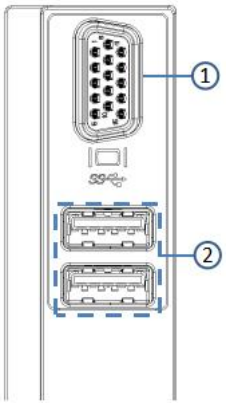


Figure 2-4

No.	Name	No.	Name
1	VGA Port	2	USB3.0 Interface

Table 2-3

- Interface description

Name	Type	Qty	Description
VGA Port	DB15	1	Used to connect display terminals, such as monitors or KVMs
USB Interface	USB3.0	2	Used to connect USB devices

Table 2-4

2.2 Rear Panel

2.2.1 Appearance

- Rear panel external interface

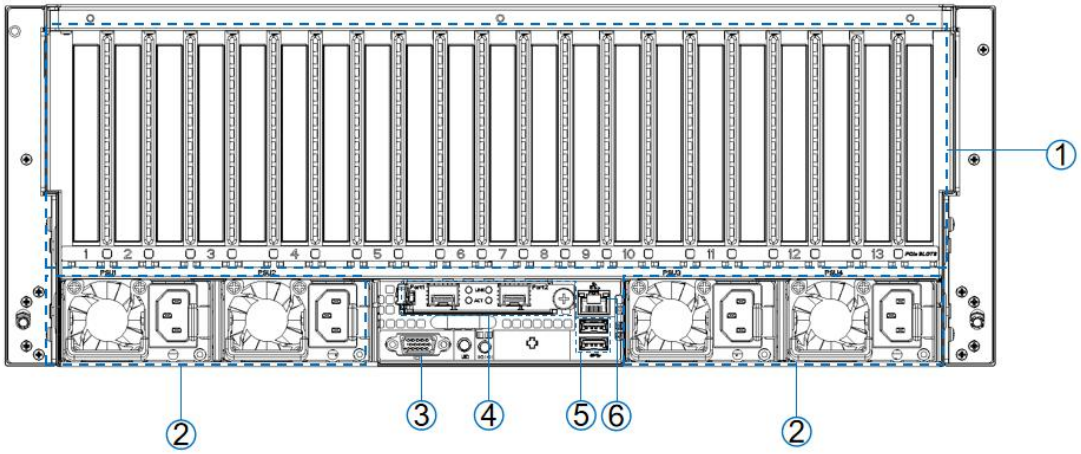


Figure 2-5

No.	Name	No.	Name

1	PCIe Rear Panel	4	IO Board
2	Power Module	5	USB 3.0 Interface
3	VGA Port	6	Management Network Port

Table 2-5

Note:

- The rear window of this product can be customized according to the needs. The above picture is for reference only, and the actual configuration shall prevail.
- Rear panel interface description

No.	Name	No.	Name
Name	Type	Qty	Description
VGA interface	DB 15	1	Used to connect a display terminal, such as a monitor or KVM.
Management network port	GE BASE -T	1	Provides an outgoing 1000Mbit/s Ethernet port. Through this interface, the local server can be managed.
USB interface	USB 3.0	2	Provides external USB interface, through which USB devices can be connected. Note: When using external USB devices, please ensure the USB device is in good condition, as otherwise it may lead to abnormal server operation.
RJ45 10 Gigabit network port	GEBASE-T	2	Optional server network ports.

Table 2-6

2.2.2 Indicator lights and buttons

- Rear Panel Indicators

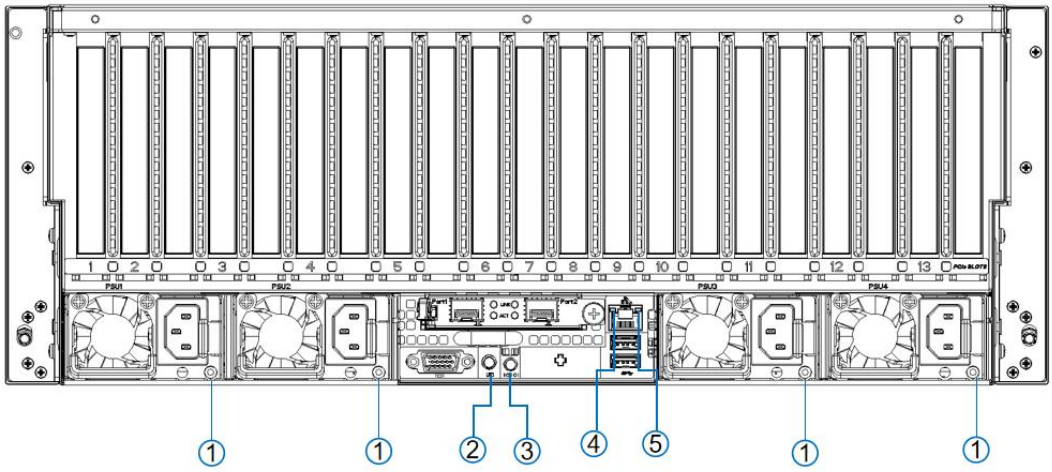


Figure 2-6

No.	Name	No.	Name
1	Power Module Indicator Light	2	UID Button
3	COM Port	4	Management Network Port Connection Status Indicator
5	Management Network Port Data Transmission Status Indicator		

Table 2-7

- Description of Power Module Indicators

Indicator light /button	Status description
Power module indicator	Green (steady): Indicates normal input and output. Orange (steady): Indicates AC power cord unplugged or power module missing. Only one parallel-connected power module has AC input. Power module malfunction leads to output shutdown, such as OVP, OCP, fan failure, etc. Green (1Hz/blinking): Indicates normal input, but low voltage (less than 12V) or the power supply is in intelligent on state. Green (2Hz/blinking): Indicates firmware online upgrade process. Orange (1Hz/blinking): Indicates continuous power-running warning events such as high temperature, high power, high current. Off: Indicates no AC power input.
Connection Status Indicator	Steady green: Indicates Gigabit Link. Steady orange: Indicates 100-megabit link. Off: Indicates 10-megabit link.
Data transmission status indicator	Yellow (blinking): Indicates that data is being transmitted. Off: Indicates no data transmission.
UID button	UID button on the server provides control
COM Port	Serial Communication Port

Table 2-8

2.3 Processors

- Supports two AMD EPYC Milan series processors, compatible with Rome series processors.
- When configuring with one processor, it must be installed in the CPU 0

position.

- The processors configured in the same server must be of the same model.
- For specific optional system components, please consult Gooxi sales.
- The processor locations are shown in the diagram below:

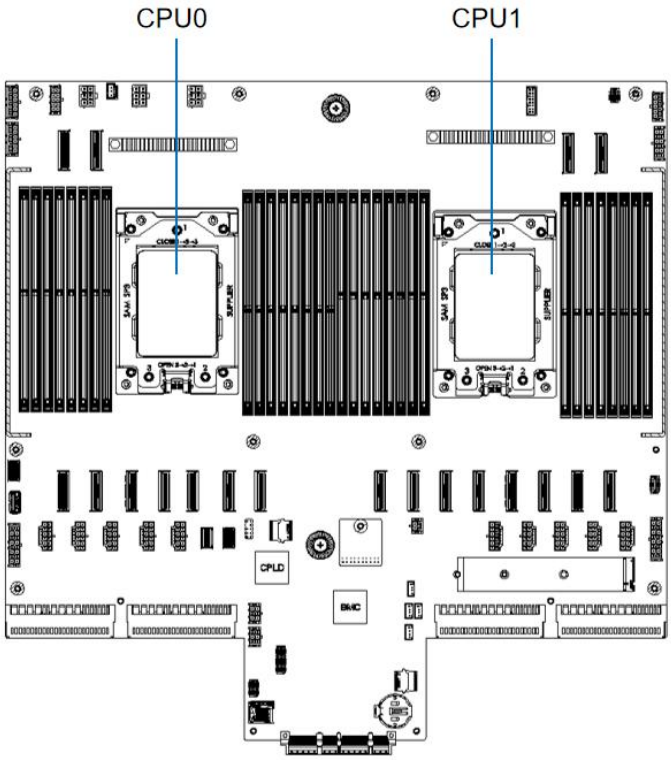


Figure 2-7

2.4 Memory

2.4.1 Memory slot location

Developed based on the AMD EPYC Milan platform, it supports two AMD EPYC Milan series processors and is compatible with Rome series processors. Each CPU supports 12 DDR4 channels, with each channel supporting 2 DIMMs, providing a total of 32 slots for two CPUs. Memory frequency supports up to 3200 MHz. The positions are shown in the diagram below:

- memory slot location

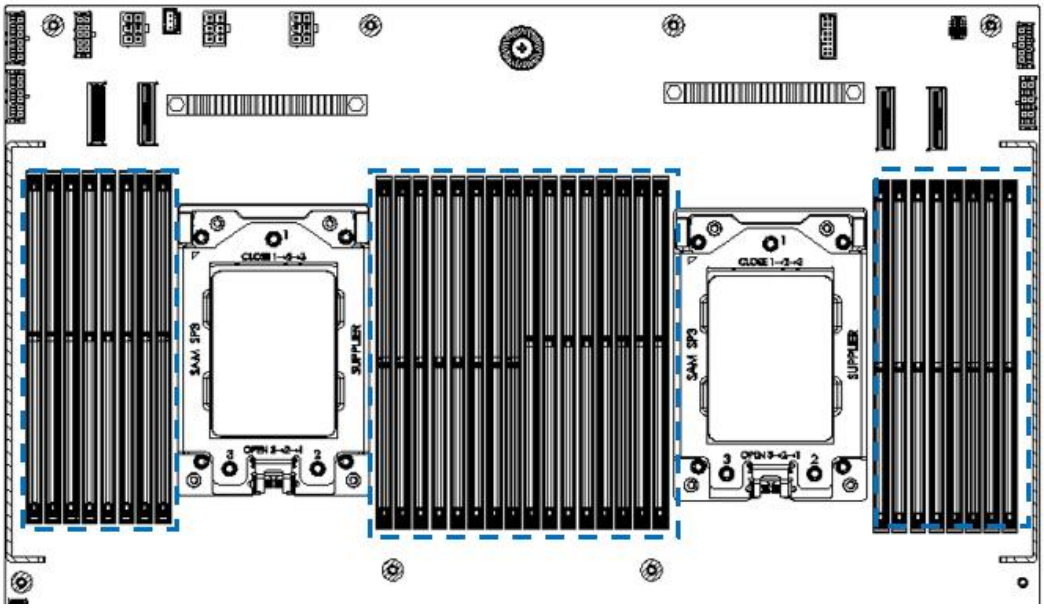


Figure 2-8

2.4.2 Memory compatibility information

Note:

- The same server must use the same model of DDR4 memory, and all memory must run at the same speed. Likewise, the velocity value is the lowest of the following.
- The memory speed supported by the specific CPU.
- Specific memory configuration maximum operating speed.
- Different types (RDIMM, LRDIMM) and different specifications (capacity, bit width, rank, height, etc.) of DDR4 memory is not supported.

2.4.3 Memory Installation Rules

The server can accommodate up to 32 DDR4 memory modules, and memory installation must follow the prescribed memory installation guidelines.

# Channels populated (with 1 or 2 DIMMs/ch)	Memory Channel M = total DIMM capacity on indicated channel and can be one or two DIMMs.								Interleave for selected NPS							Notes
	A	B	C	D	E	F	G	H	NPS=1	NPS=2		NPS=4				
1			M1						A	A			C			1
2			M1	M1					CD	CD			CD			2
			M1				M2		C, G	C	G		C		G	3
3			M1	M1			M2		CD, G	CD	G		CD		G	4
4	M1	M1	M1	M1					AB, CD	ABCD		AB	CD			
	M1	M1	M2	M2					AB, CD	AB, CD		AB	CD			5
	M1	M1			M2	M2			AB, EF	AB	EF	AB		EF		
	M1	M1					M2	M2	AB, GH	AB	GH	AB			GH	
			M1	M1	M2	M2			CD, EF	CD	EF		CD	EF		
			M1	M1			M1	M1	CDGH	CD	GH		CD		GH	6
			M1	M1			M2	M2	CD, GH	CD	GH		CD		GH	5
	M1	M1	M2		M3				AB, {C,D}, {E,F}	AB, {C,D}	{E,F}	AB	{C,D}	{E,F}		
	M1	M1	M2				M3		AB, {C,D}, {G,H}	AB, {C,D}	{G,H}	AB	{C,D}		{G,H}	
	M1	M1			M2		M3		AB, {E,F}, {G,H}	AB	{E,F}, {G,H}	AB		{E,F}	{G,H}	
	M1		M2	M2	M3				{A,B}, CD, {E,F}	{A,B}, CD	{E,F}	{A,B}	CD	{E,F}		
	M1		M2	M2			M3		{A,B}, CD, {G,H}	{A,B}, CD	{G,H}	{A,B}	CD		{G,H}	
	M1		M2		M3	M3			{A,B}, {C,D}, EF	{A,B}, {C,D}	EF	{A,B}	{C,D}	EF		
	M1		M2				M3	M3	{A,B}, {C,D}, GH	{A,B}, {C,D}	GH	{A,B}	{C,D}		GH	
	M1		M2		M3		M4		{A,B}, {C,D}, {E,F}, {G,H}	{A,B}, {C,D}	{E,F}, {G,H}	{A,B}	{C,D}	{E,F}	{G,H}	
5	M1	M1	M1	M1	M2 (in one of the 4 channels)				AB, CD, {E,F,G,H}	ABCD	{E,F,G,H}	AB	CD	{E,F,G,H}		
	M1	M1	M2	M2	M3				AB, CD, {E,F,G,H}	AB, CD	{E,F,G,H}	AB	CD	{E,F,G,H}		
	M1	M1	M2		M3	M3			AB, {C,D}, EF	AB, {C,D}	EF	AB	{C,D}	EF		
	M1	M1	M2				M3	M3	AB, {C,D}, GH	AB, {C,D}	GH	AB	{C,D}		GH	
	M1	M1			M2	M2	M3		AB, EF, {G,H}	AB	EF, {G,H}	AB		EF	{G,H}	
	M1	M1			M2		M3	M3	AB, {E,F}, GH	AB	{E,F}, GH	AB		{E,F}	GH	
	M1		M2	M2	M3	M3			{A,B}, CD, EF	{A,B}, CD	EF	{A,B}	CD	EF		
	M1		M2	M2			M3	M3	{A,B}, CD, GH	{A,B}, CD	GH	{A,B}	CD		GH	
	M1				M2	M2	M2	M2	{A,B,C,D}, EF, GH	{A,B,C,D}	EFGH	{A,B,C,D}		EF	GH	
	M1				M2	M2	M3	M3	{A,B,C,D}, EF, GH	{ABCD}	EF, GH	{A,B,C,D}		EF	GH	
6	M1	M1	M1	M1	M2	M2			AB, CD, EF	ABCD	EF	AB	CD	EF		
	M1	M1	M2	M2	M3	M3			AB, CD, EF	AB,CD	EF	AB	CD	EF		5
	M1	M1	M1	M1			M2	M2	AB, CD, GH	ABCD	GH	AB	CD		GH	
	M1	M1	M2	M2			M3	M3	AB, CD, GH	AB, CD	GH	AB	CD		GH	5
	M1	M1	M1	M1	M2		M3		AB, CD, {E,F}, {G,H}	ABCD	{E,F}, {G,H}	AB	CD	{E,F}	{G,H}	
	M1	M1	M2	M2	M3		M4		AB, CD, {E,F}, {G,H}	AB, CD	{E,F}, {G,H}	AB	CD	{E,F}	{G,H}	5
	M1	M1			M2	M2	M2	M2	AB, EF, GH	AB	EFGH	AB		EF	GH	
	M1	M1			M2	M2	M3	M3	AB, EF, GH	AB	EF, GH	AB		EF	GH	7
			M1	M1	M2	M2	M2	M2	CD, EF, GH	CD	EFGH		CD	EF	GH	
			M1	M1	M2	M2	M3	M3	CD, EF, GH	CD	EF, GH		CD	EF	GH	7
	M1		M2		M3	M3	M3	M3	{A,B}, {C,D}, EF, GH	{A,B}, {C,D}	EFGH	{A,B	{C,D}	EF	GH	
	M1		M2		M3	M3	M4	M4	{A,B}, {C,D}, EF, GH	{A,B}, {C,D}	EF,GH	{A,B	{C,D}	EF	GH	8
7	M1	M1	M1	M1	M2	M2	M3		AB, CD, EF, {G,H}	ABCD	EF, {G,H}	AB	CD	EF	{G,H}	
	M1	M1	M2	M2	M3	M3	M4		AB, CD, EF, {G,H}	AB, CD	EF, {G,H}	AB	CD	EF	{G,H}	5
	M1	M1	M1	M1	M2		M3	M3	AB, CD, {E,F}, GH	ABCD	{E,F}, GH	AB	CD	{E,F}	GH	
	M1	M1	M2	M2	M3		M4	M4	AB, CD, {E,F}, GH	AB, CD	{E,F}, GH	AB	CD	{E,F}	GH	5
	M1	M1	M2		M3	M3	M3	M3	AB, {CD}, EF, GH	AB, {C,D}	EFGH	AB	{C,D}	EF	GH	
	M1	M1	M2		M3	M3	M4	M4	AB, {C,D}, EF, GH	AB, {C,D}	EF, GH	AB	{C,D}	EF	GH	8
	M1		M2	M2	M3	M3	M3	M3	{A,B}, CD, EF, GH	{A,B}, CD	EFGH	{A,B}	CD	EF	GH	
	M1		M2	M2	M3	M3	M4	M4	{A,B}, CD, EF, GH	{A,B}, CD	EF, GH	{A,B}	CD	EF	GH	8
8	M1	M1	M1	M1	M1	M1	M1	M1	ABCDEFGH	ABCD	EFGH	AB	CD	EF	GH	6
	M1	M1	M1	M1	M2	M2	M2	M2	AB, CD, EF, GH	ABCD	EFGH	AB	CD	EF	GH	5
	M1	M1	M1	M1	M2	M2	M3	M3	AB, CD, EF, GH	ABCD	EF, GH	AB	CD	EF	CH	7
	M1	M1	M2	M2	M3	M3	M3	M3	AB, CD, EF, GH	AB, CD	EFGH	AB	CD	EF	CH	
	M1	M1	M2	M2	M3	M3	M4	M4	AB, CD, EF, GH	AB, CD	EF,GH	AB	CD	EF	CH	8

Figure 2-9

2.5 Storage

2.5.1 Hard drive configuration

SKU	Configuration	Description
1	2 NVMe SSDs 8 SATA/SAS HDDs/SSDs	SAS drives require an HBA or RAID card
2	4 NVMe SSDs	/
3	12 NVMe SSDs	Supports up to 6 GPUs

Table 2-9

2.5.2 Hard drive serial number

- 12x3.5-inch hard drive configuration

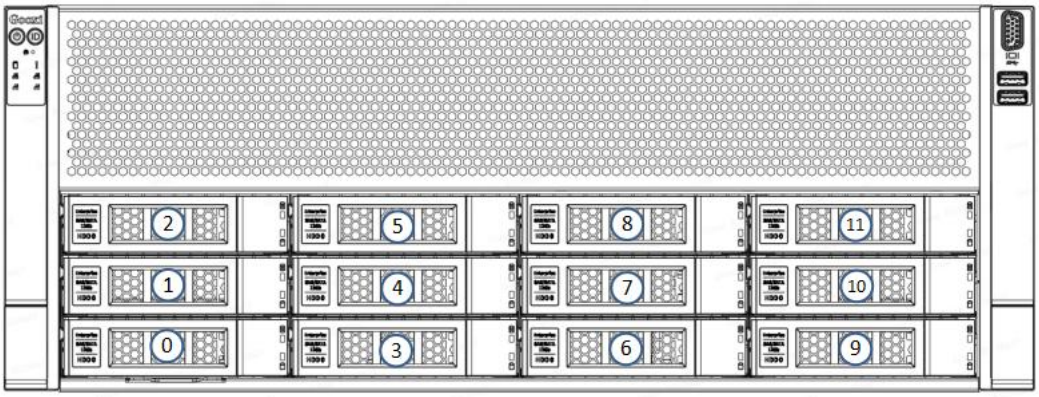


Figure 2-10

2.5.3 Hard drive status indicator

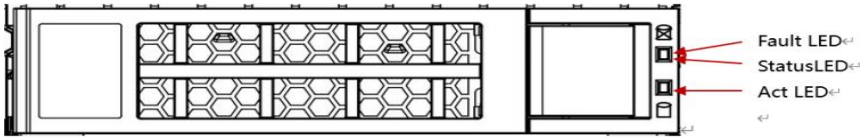


Figure 2-12

- Hard drive status indicator description

Function	Act LED	Fault LED	Status LED
Hard drive Presenting	Steady on	Off	Off
Hard drive activity	Blinking at 4Hz/sec	Off	Off
Hard drive positioning	Steady on	Blinking at 4Hz /sec	Off
Hard drive error	Steady on	Off	Steady on
Raid rebuilding	Steady on	Off	Blinking at 1Hz/sec

Table 2-10

2.6 Power Supply

- Supports 4 power modules.
- Supports AC or DC power modules.
- Hot-swappable support.
- When configuring with 4 power modules, supports 3+1 or 2+2 redundancy.
- Power modules configured in the same server must be of the same model.
- For specific optional system components, please consult Gooxi sales.
- The power module locations are shown in the diagram below:

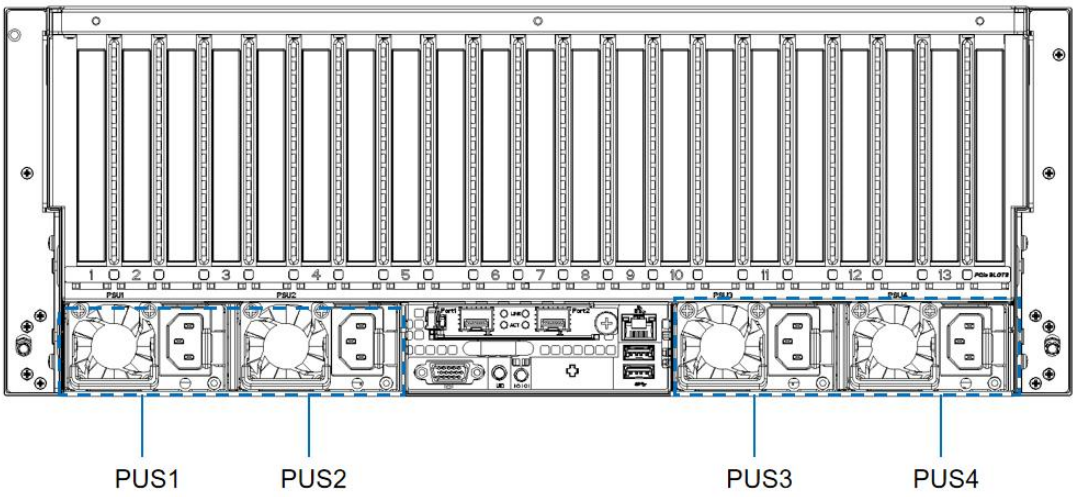


Figure 2-13

⚠ The device is equipped with two identical, hot-swappable power modules, which must supply power simultaneously for the product to function properly.

2.7 Fans

- The chassis supports 12*6506 fan modules.
- Hot-swappable support.
- Supports single fan failure.
- Supports variable fan speed.
- Fan modules configured in the same server must be of the same model.
- The fan locations are shown in the diagram below:

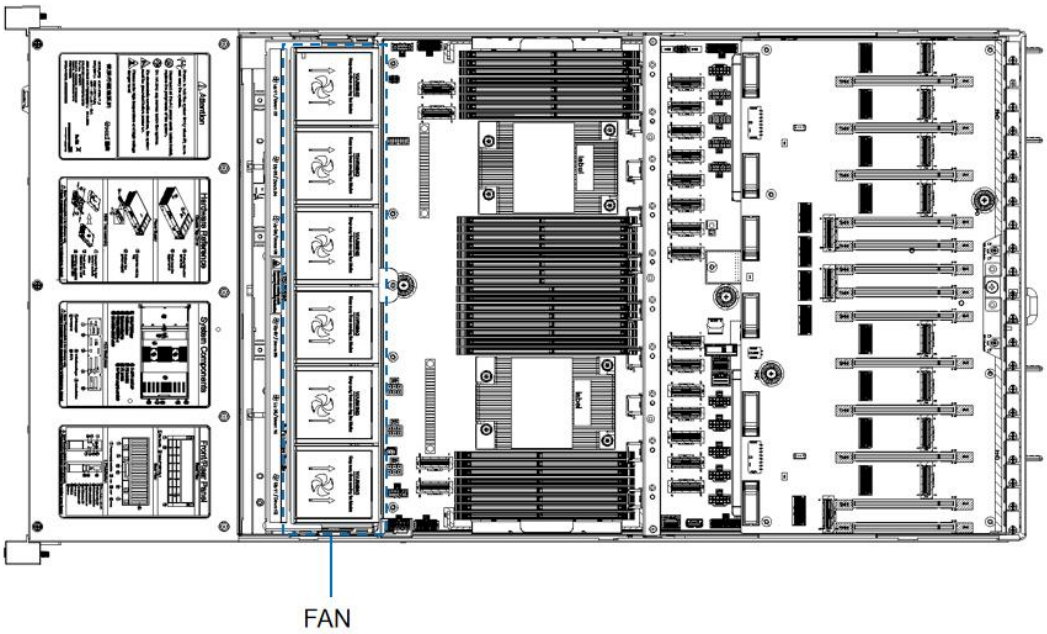


Figure 2-14

2.8 I/O expansion

2.8.1 PCIe slot location

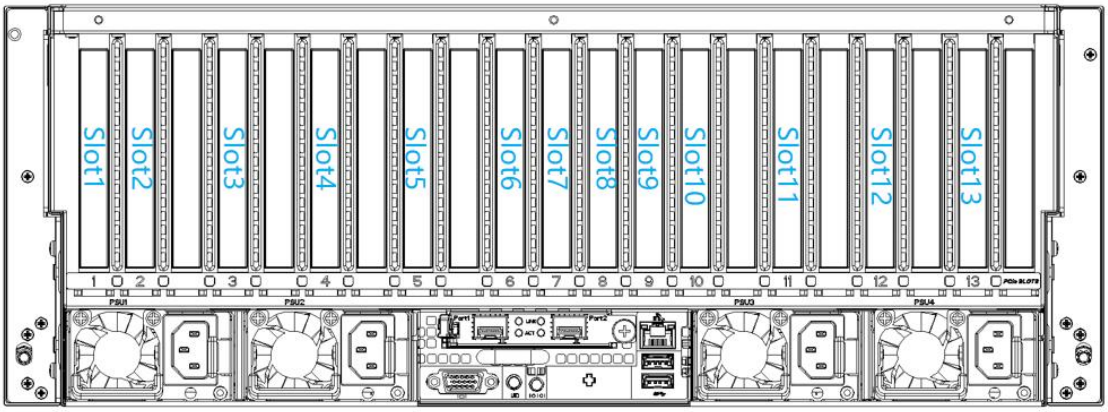


Figure 2-15

- 12-bay direct connection configuration: Provides slot 1 to slot 13, with a total of 13 PCIe slots. Slots 2 to 5 and slots 10 to 13 support dual-width GPUs, while slots 1, 7, and 8 support single-width PCIe cards.

2.8.2 PCIe slot description

Pass-through PCIe slot configuration

PCIe slot	Subordinate CPU	PCIe standard	Bus bandwidth	Slot size
Slot 1	CPU1	PCIe 4.0	X8	Single-width, full-height, full-length
Slot 2	CPU1	PCIe 4.0	X16	Dual-width, full-height, full-length
Slot 3	CPU1	PCIe 4.0	X16	Dual-width, full-height, full-length
Slot 4	CPU1	PCIe 4.0	X16	Dual-width, full-height, full-length
Slot 5	CPU1	PCIe 4.0	X16	Dual-width, full-height, full-length
Slot 7	CPU1	PCIe 4.0	X8	Single-width, full-height, full-length
Slot 9	CPU1	PCIe 4.0	X8	Single-width, full-height, full-length
Slot 10	CPU0	PCIe 4.0	X16	Dual-width, full-height, full-length
Slot 11	CPU0	PCIe 4.0	X16	Dual-width, full-height, full-length
Slot 12	CPU0	PCIe 4.0	X16	Dual-width,

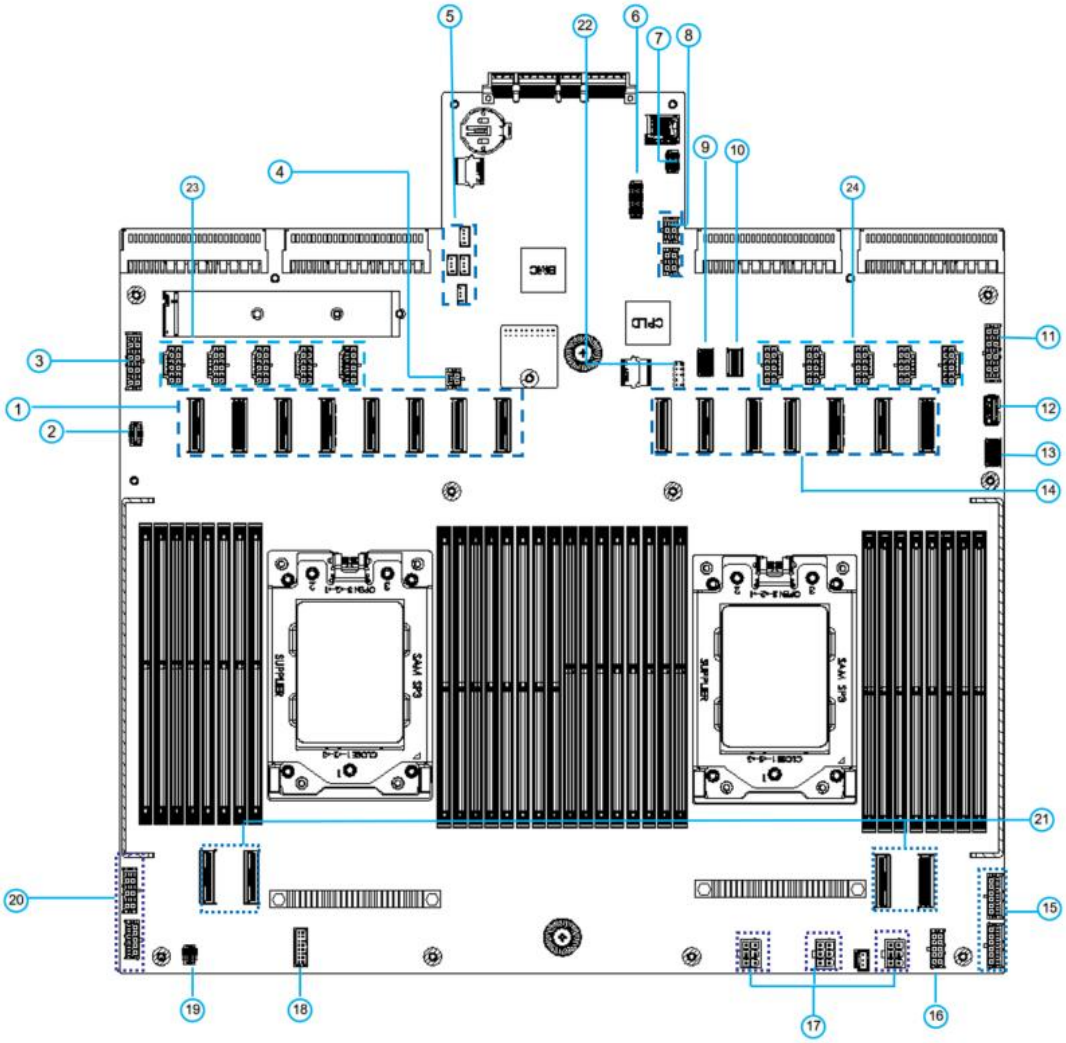
				full-height, full-length
Slot 13	CPU0	PCIe 4.0	X16	Dual-width, full-height, full-length

Note:
◆PCIe x16 slots are backward compatible with PCIe x8, PCIe x4, and PCIe x1 cards. However, upward compatibility is not supported, meaning the slot bandwidth cannot be smaller than the PCIe card's bandwidth.
◆Full-height, full-length PCIe slots are backward compatible with half-height, half-length PCIe cards.
◆All slots can supply up to 75W of power to PCIe cards, though the actual power consumption depends on the specific model of the PCIe card.
◆Equipped with 19 onboard PCIe 4.0 x8 MCIO ports and 2 PCIe 4.0 Slimline 4i ports; supports up to 13 PCIe 4.0 slots for expansion.

Table 2-11

2.9 PCBA

2.9.1 Motherboard



Motherboard Figure 2-16

No.	Name
1	PCIE 4.0 MCIO Connector
2	Left Ear Board Connector
3、11	PCIe Pass-through Board P12V Power Connector
4	Front Expansion
5	I2C Connector
6	NCSI Connector
7	VGA Connector
8	OCP NCSI
9	Slimline 4i
10	Slimline 4i
11	USB3.0 Connector
12	Right Ear Board Connector
14	MCIO Connector
15	Front Hard Drive Backplane Power Connector
16	Fan Board Power Connector
17	PCIe Riser Card Power Connector
18	Fan Board Power Connector
19	Backplane Data Connector
20	Fan Board Power Connector
21	MCIO Connector
22	SPI TPM Connector
23、24	GPU Power Connector

Table 2-12

2.9.2 Hard drive backplane

- 12 × 3.5-inch Front Hard Drive Backplane

TOP surface

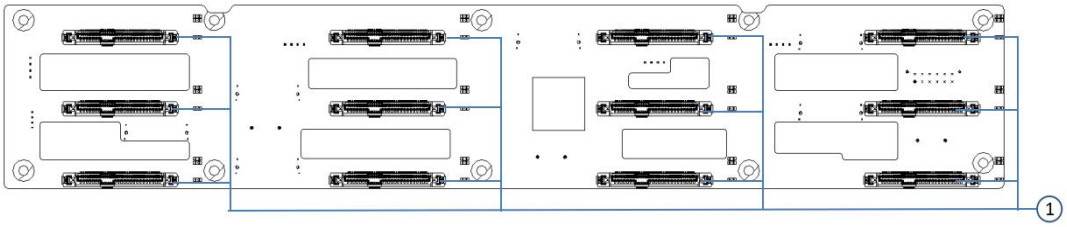


Figure 2-17

No.	Description	Function
1	SFF-8639 U.2 Drive Connector	Supports PCIe x4 and SAS/SATA U.2 interface, used for connecting HDD/SSD/NVMe

Table 2-13

Bottom surface

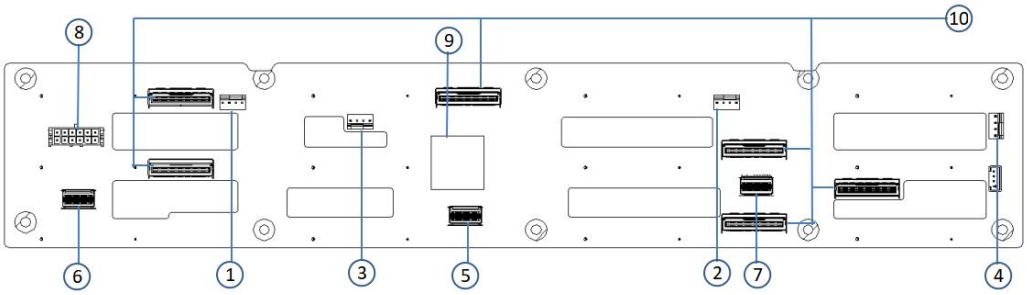


Figure 2-18

No.	Description	Function
1、2、3、4	Temperature-controlled Fan Sockets	For 4-pin fan interfaces
5、6、7	SFF-8654 Slimline Connectors	Provide SAS/SATA x4 interfaces for connecting to PCH or HBA/RAID cards
8	Power Connector	Backplane power transmission connector, used for 12V power transmission
9	CPLD Chip	Mainly used for lighting control of NVMe SSDs and SAS/SATA HDDs
10	MCIO Connector	Provides PCIe x8 interface for connecting to CPU and NVMe SSD

Table 2-14

3. Installation Instructions

3.1 Chassis Top Cover Installation

- Step 1: Lift the slot at the opening position, push and lift it in the direction indicated by the diagram.

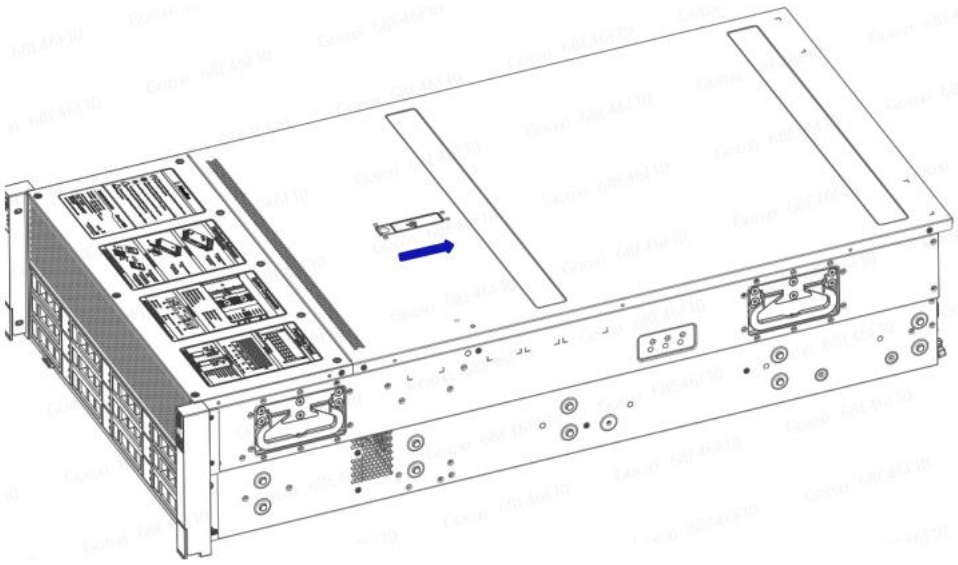


Figure 3-1

3.2 Installation of Accessories

3.2.1 CPU installation

Before starting the CPU installation, please read the following guidelines:

- Make sure the motherboard supports the CPU.
- Before installing the CPU, be sure to turn off the computer and unplug the power cord from the power outlet to prevent hardware damage.
- Disconnect all cables from the power socket.
- Disconnect all communication cables from their ports.
- Place the system unit on a flat and stable surface.
- Follow the instructions to turn on the system.

Warning!

Serious damage could result if the server is not properly shut down before beginning component installation. Unless you are a qualified maintenance technician, otherwise do not attempt the steps described in the following sections.

Follow the instructions below to install the CPU:

1. Loosen the three screws securing the CPU cover in the order of (3 → 2 → 1).
2. Flip open the CPU cover.
3. Use the handle on the CPU tray to detach the CPU tray from the CPU rack.

4. Using the handle on the CPU tray, insert the new CPU tray with the installed CPU back into the CPU rack.

⚠ Note: Ensure that the CPU is oriented correctly in the CPU tray, aligning the triangle on the CPU with the top left corner of the CPU carrier.

5. Flip the CPU rack containing the installed CPU into the correct position over the CPU socket.

6. Position the CPU cover over the CPU socket in the appropriate location.

7. Tighten the screws of the CPU cover in the order of (1 → 2 → 3) to secure the CPU cover in place. Torque: 16.1 kgf-cm (14.0 lbf-in).

8. Repeat steps 1-7 for the second CPU.

9. To remove the CPU, follow steps 1-7 in reverse order.

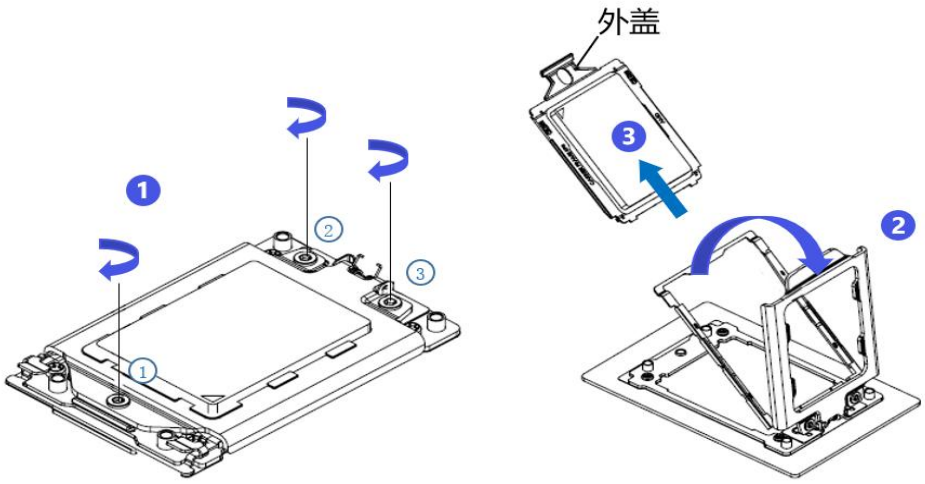


Figure (3-2)

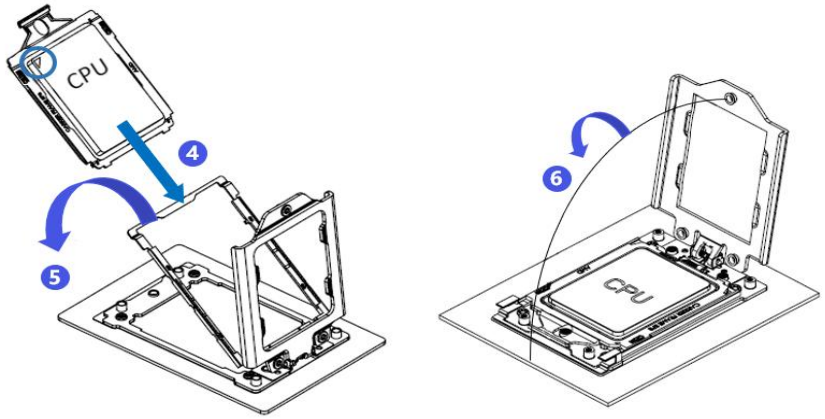


Figure (3-3)

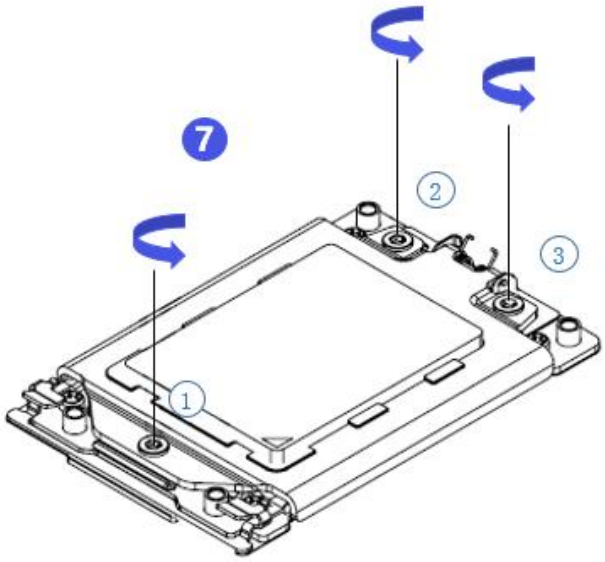


Figure （3-4）

3.2.2 Installation of heatsink

Before starting to install the heatsink, please read the following guidelines:

● Before installing the heatsink, please be sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the hardware.

● Unplug all cables from the power outlet.

● Disconnect all communication cables from their ports.

● Place the system unit on a flat and stable surface.

● Follow the instructions to turn on the system.

Warning!

Before beginning the component installation, attempting the steps described in the following sections without shutting down the server may lead to severe damage. Only qualified technicians should carry out these procedures.

Note: When installing the heatsink to the CPU, use a Phillips screwdriver to tighten the 4 retaining nuts in the order of 1-4.

Follow the instructions below to remove and install the heatsink:

1. Loosen the screws that secure the heatsink in reverse order (4 → 3 → 2 → 1).

2. Lift the heatsink and remove it from the system.

3. To install the heatsink, reverse steps 1-2, ensuring that you tighten the screws in the correct order (1 → 2 → 3 → 4), as shown in the diagram.

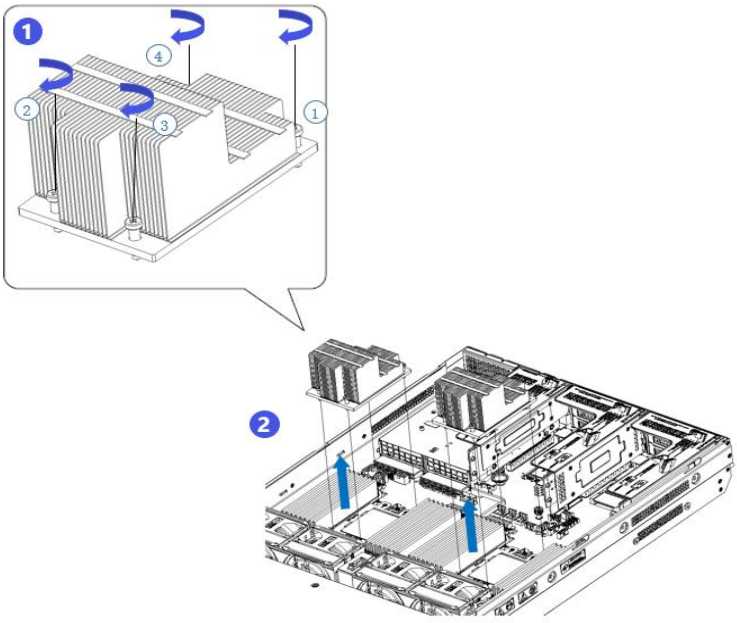


Figure 3-5

Note: The pins on the motherboard are extremely fragile and can be easily damaged. To avoid damaging the motherboard, do not touch the processor or the contacts in the processor socket.

3.2.3 Installation of memory

The 16 memory slots controlled by CPU 0 are: DIMM A1, A2, DIMM B1, B2, DIMM C1, C2, DIMM D1, D2, DIMM E1, E2, DIMM F1, F2, DIMM G1, G2, and DIMM H1, H2.
The 16 memory slots controlled by CPU 1 are: DIMM A3, A4, DIMM B3, B4, DIMM C3, C4, DIMM D3, D4, DIMM E3, E4, DIMM F3, F4, DIMM G3, G4, and DIMM H3, H4.

Ensure that the notch on the memory module aligns with the notch in the DIMM slot. Insert each DIMM module vertically into place to prevent improper installation.

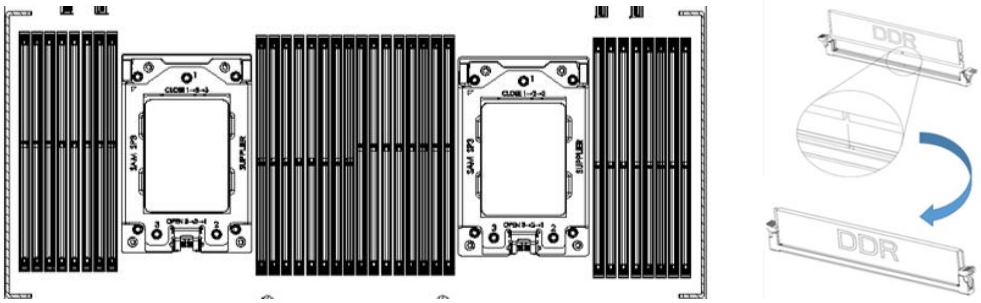


Figure 3-6

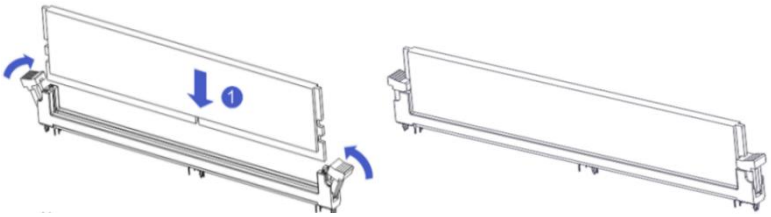


Figure 3-7

⚠ Note: For this motherboard, please use memory modules with the same CAS latency. It is recommended to use memory from the same manufacturer, with identical capacity and frequency.

⚠ Additionally, please note:
Within the same channel, the larger capacity memory must be installed in the first slot.

3.2.4 GPU card installation

- Step 1: Install according to the length of the GPU card to be installed.
- Step 2: Install the GPU card.

Insert the connector end of the GPU card into the motherboard connector, secure it with screws, as shown in the diagram below:

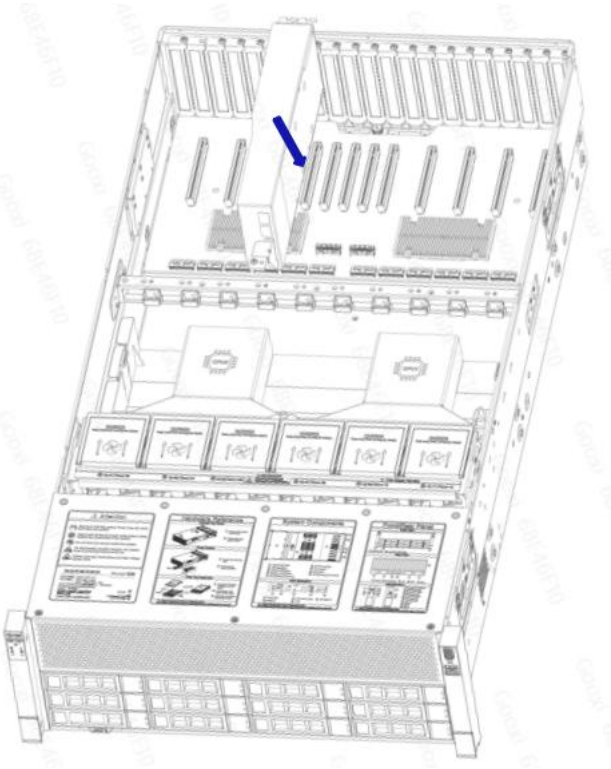


Figure 3-9

3.2.5 Server slide rail installation

- Step 1: Prepare two slide rails and pull out the inner rail.

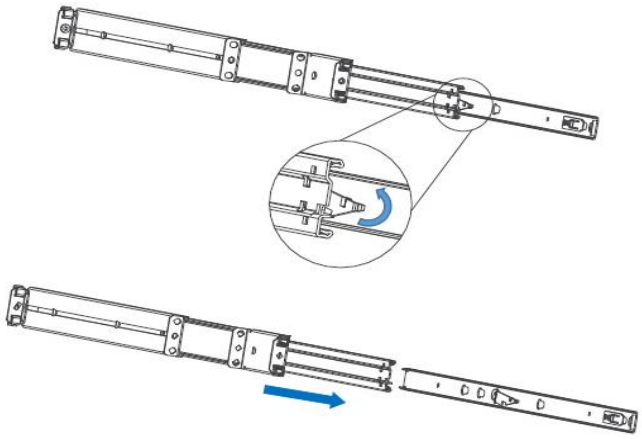


Figure 3-10

- Step 2: Fasten the inner rails to the sides of the chassis.

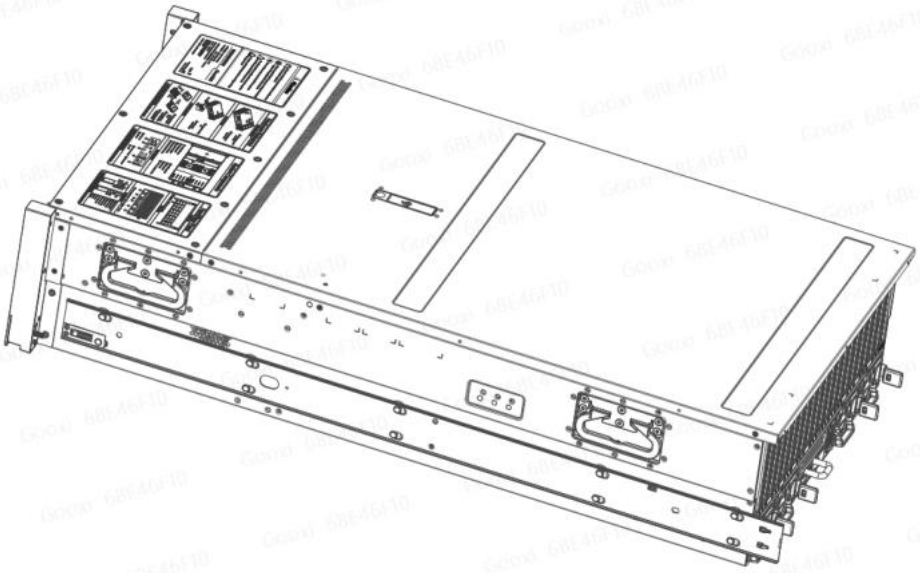


Figure 3-11

- Step 3: Install the outer rails on the cabinet brackets and secure the screws.

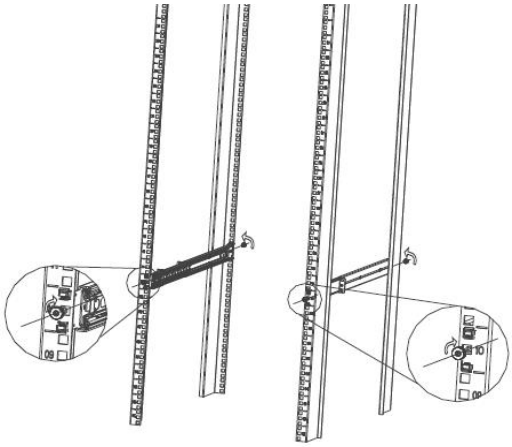


Figure 3-12

⚠ Note: When installing the guide rail, align it with the U-mark, and push it into

place until you hear a click sound. Secure it firmly using M5 screws.

- Step 4: Align the chassis with the inner rails installed with the outer rails for installation.

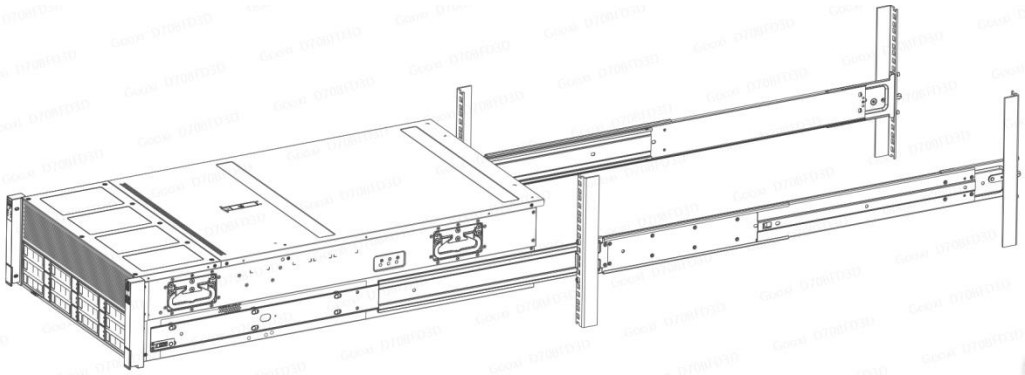


Figure 3-13

Note: When you push the chassis forward, you will hear a snapping sound. If you can't push it, you need to pull down the buckle of the inner rail to continue to push the chassis gently.

- Step 5: Push the chassis forward until it cannot slide and make sure that the screws are securely installed to complete the installation.

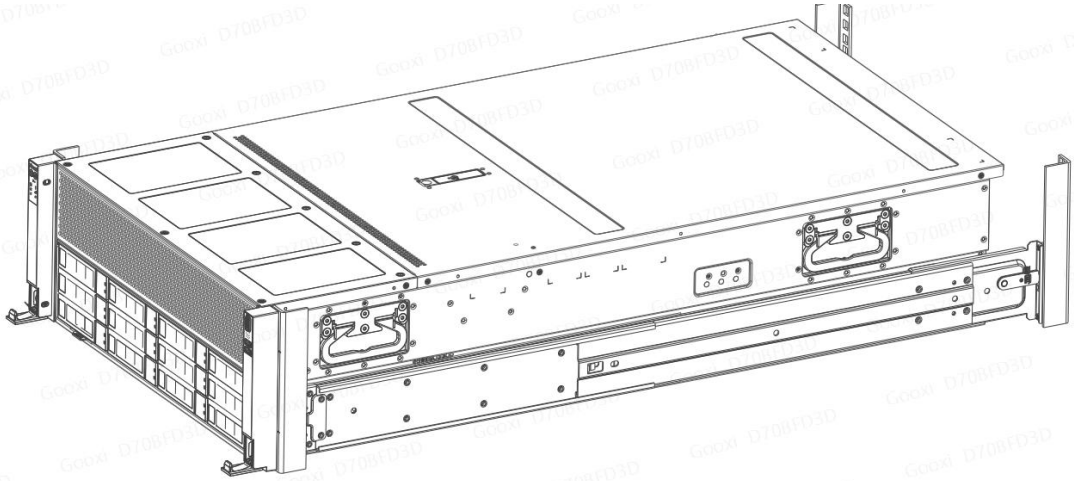


Figure 3-14

Note: During equipment maintenance, it is necessary to loosen the panel screws and pull the chassis lightly. Do not push or pull the chassis at random speed to avoid damage to the equipment.

4. Configuration Instructions

4.1 Initial Configuration

4.1.1 Power on and start

- Before powering on, it is necessary to ensure that all configurations of the server are installed in accordance with the corresponding specifications and standards, and keep the server turned off but not unplugged from the power supply. And all cables are connected properly, and the power supply voltage is consistent with that of the device.

- During the power-on process, please do not plug in hard drives, power modules, network cables or other external devices and cables.

- If the server has just been unplugged from the power supply, please wait for 1 minute before turning on the power.

- Server power-on power status:
  The power is on, but the server is not booting up. The power indicator light is yellow.
  Power on, the server starts up, and the power indicator light is green.

- How to power on the server:
  The server's default power-on policy is "Power-On Boot," which means the server will automatically power on when it receives power. Users can modify this setting in the BIOS Setup interface.

- Press the <DEL> or <ESC> key on the keyboard during the boot process to enter the BIOS Setup interface, and find the following interface:

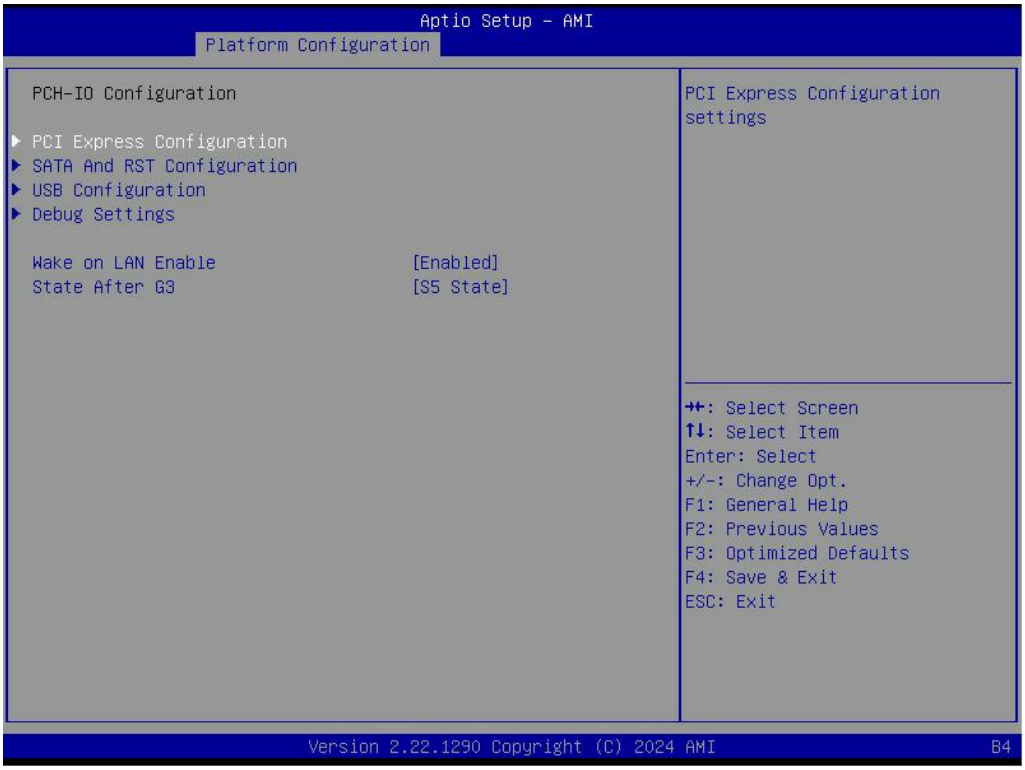


Figure 4-1

- State After G3

  The menu options for setting the state after entering G3 status are:

  S0 State：Power on and start up directly

  S5 State：You need to press the Power button to turn on the power

  Default: S5 State

- Logging into the iBMC management interface allows for remote power on/off control.
- Enter the BMC IP address -> enter the BMC account&password -> find the remote control interface -> power controller -> It can be executed according to requirements.

Figure 4-2

For detailed usage of BMC and BIOS, please refer to the corresponding user manual.

4.1.2 Initial data

- BMC default account: admin
- BMC default password: Gooxi@123.
- BMC default address: 192.168.100.1
- BIOS Default Password: N/A

4.1.3 Configure BIOS

Press the <DEL> or <ESC> key on the keyboard during power-on and start-up to enter the BIOS Setup interface, as shown below:

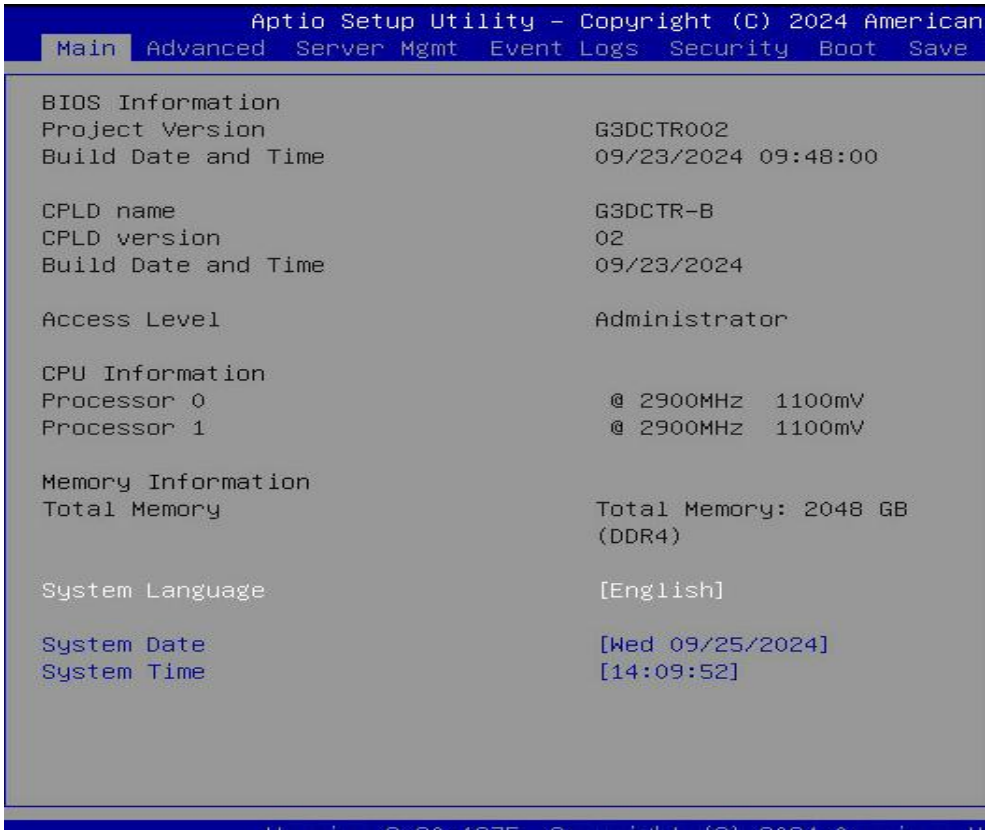


Figure 4-3

The Main interface contains the basic information of the BIOS system, such as the BIOS version number, CPU model, memory capacity, and the system time can be set. For detailed instructions, please refer to the "BIOS User Manual".

- Navigation key description:

→←: Select Screen

↑↓: Select Item

Enter: Select

+/-: Change Opt.

F1: General Help

F2: Previous Values

F3: Optimized Defaults

F4: Save & Reset

ESC: Exit

4.1.4 Configure BMC

When the server is powered on, make sure that the BMC dedicated management network port cable is properly connected.

Use another device, make sure it is in the same LAN as the BMC management network, and

enter the BMC IP address on the web page.

Check the BMC IP address as follows:

- After the server is powered on, turn it on. Pay attention to the POST process when starting the server. In the lower left corner of the logo screen, the IP address is displayed.

- After the server powers on, pay attention to the POST process. Press the <DEL> or <ESC> key on the keyboard to enter the BIOS Setup interface. Switch to the following screen:

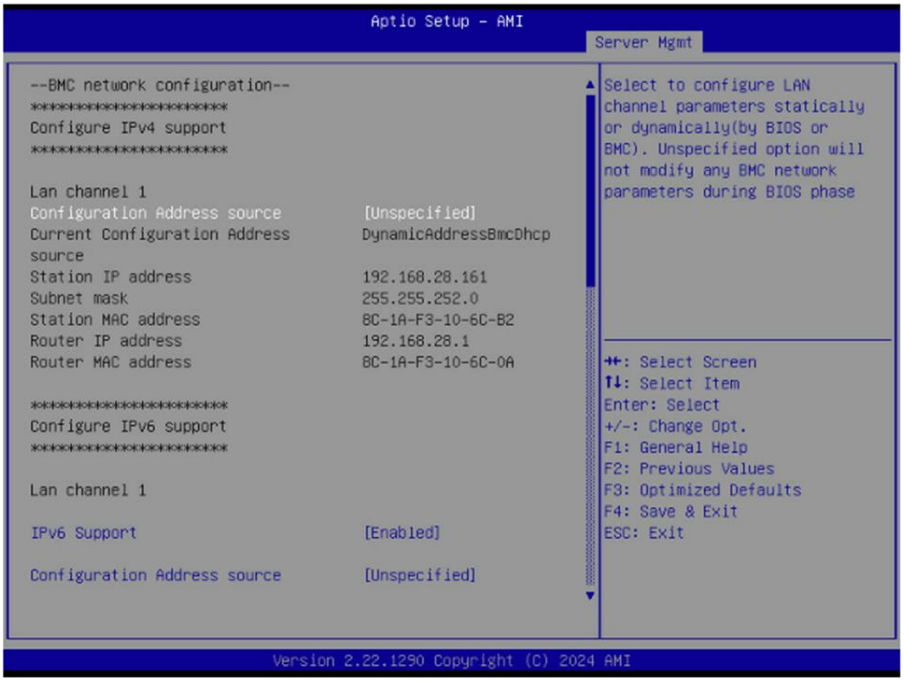


Figure 4-4

Configure IPV4 support：

- Configuration Address source
- Configure the BMC IP address allocation mode, the menu options are:

  Unspecified: Do not change BMC parameters

  Static: BIOS static IP setting

  DynamicBmcDhcp: BMC runs DHCP to dynamically assign IP

  DynamicBmcNonDhcp: BMC runs the Non-DHCP protocol to dynamically assign IP

  Default: Unspecified

When changing from "Unspecified" to other parameters, saving and rebooting will result in the options reverting to the "Unspecified" value. There is no need to configure the BMC IP during every startup process.

- When the "Configuration Address Source" option is set to "Unspecified," it will display the network parameters (IPv4) for the system's shared Ethernet

port. The displayed information includes the current IP configuration method, BMC IP, subnet mask, MAC address, router IP, and router MAC.

- BMC Dedicated Management Channel
- Configuration Address source
- Configure the BMC IP address allocation mode, the menu options are:

  Unspecified: No change to BMC parameters

  Static: BIOS static IP setting

  DynamicBmcDhcp: BMC runs DHCP to dynamically assign IP

  DynamicBmcNonDhcp: BMC runs the Non-DHCP protocol to dynamically assign IP

  Default: Unspecified
- When changing from "Unspecified" to other parameters, saving and rebooting will result in the options reverting to the "Unspecified" value. There is no need to configure the BMC IP during every startup process.

- When the "Configuration Address Source" option is set to "Unspecified," it will display the network parameters (IPv4) for the system's dedicated Ethernet port. The displayed information includes the current IP configuration method, BMC IP, subnet mask, MAC address, router IP, and router MAC.
- Configure IPV6 support
- IPV6 Support
- Choose whether to support IPV6, the menu options are:

  Enabeld: support IPV6

  Disabled: does not support IPV6

  Default: Enabeld
- When changing from "Unspecified" to other parameters, saving and rebooting will result in the options reverting to the "Unspecified" value. There is no need to configure the BMC IP during every startup process.

- When the "Configuration Address Source" option is set to "Unspecified," it will display the network parameters (IPv6) for the system's shared Ethernet port.
- IPV6 Support
- Choose whether to support IPV6, the menu options are:

  Enabeld: support IPV6

  Disabled: does not support IPV6

  Default: Enabeld
- When changing from "Unspecified" to other parameters, saving and rebooting

will result in the options reverting to the "Unspecified" value. There is no need to configure the BMC IP during every startup process.

- When the "Configuration Address Source" option is set to "Unspecified," it will display the network parameters (IPv6) for the system's dedicated Ethernet port.

Log in to the BMC management interface

Enter the IP address on the web page, as shown in the figure:

Figure 4-5

Enter the account password to enter the home page, and you can set the BMC IP address on the management interface.

On the left side of the interface, switch to "Settings Page" -> "Network Settings" -> "Network IP Settings". As shown below:

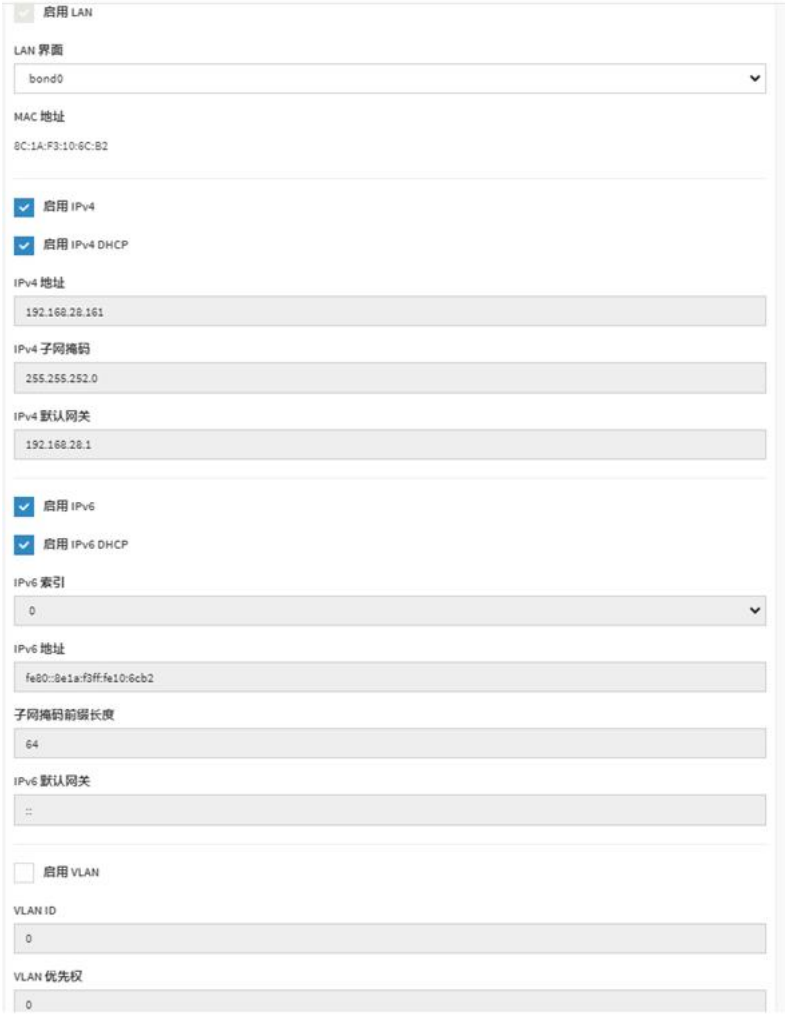


Figure 4-6

This page sets the IP address of the BMC management network port.

5. Appendix

(Common fault diagnosis)

No display after power on

- Make sure the monitor cable is properly connected and the power indicator on the monitor lights up when the monitor is powered on.
- Ensure the monitor is connected to the server.
- If the above steps do not resolve the issue, try replacing the monitor with a known working one to confirm if the original monitor is faulty.
- If the issue persists, please contact Gooxi's customer service department for resolution.

Front Panel Indicator Lights Alarm

- Refer to the instructions in the manual to determine the specific alarm information indicated by the front panel lights and buttons.
- For power failure indicator lights alarm, check if the power module indicator lights on the rear window of the server are abnormal.

  If the power module indicator lights are normal, please log in to the BMC web interface to check the BMC logs for any alarms. If there are alarms, please record the specific alarm information and contact Gooxi’s customer service department for resolution.

  If the power module indicator lights are not normal, please ensure that the server, power module, and power cords are functioning correctly.
- For system alarm indicator lights, first check the external environment.
- For other indicator light alarms, please contact Gooxi’s customer service department for resolution.

Abnormal Hard Drive Indicator Lights

- Ensure the hard drives are properly installed.
- Refer to the instructions in the manual to determine the specific alarm information indicated by the rear panel lights and buttons.
- Confirm if the RAID card is configured correctly.
- Check for any drive dropouts during OS installation. If this occurs, please contact Gooxi’s customer service department for resolution.

Unable to Use RAID Card

- Ensure the RAID card is properly installed.

- Try reseating the RAID card and PCIe adapter to confirm if they are functioning correctly.
- If replacing the known working RAID card doesn't resolve the issue, please restore to factory settings and update the BIOS version. If the problem persists contact Gooxi's customer service department for further assistance and resolution.

IPMI Connection Failure

- Confirm if the BMC function is correctly enabled in the BIOS.
- Check if the switch and network cables are functioning properly. If the regular IPMI connection is not effective, check the network environment.
- Set static or dynamic IP and ensure ping connectivity. If the web interface does not open, try using a newer version of Internet Explorer.
- If the problem is not resolved, please contact Gooxi's customer service department for further assistance and resolution.

6. Scrap Recycling

- For environmental protection and resource reuse, we earnestly ask you to properly handle discarded server products.
- Before discarding the server, we recommend that you completely demagnetize the storage media, clear data, and physically destroy them to ensure that your personal data is not leaked.
- In order to recycle and reuse, please hand over the discarded server to local recycling companies for processing. This will ensure that electronic waste is properly handled and can be put back into use after environmental treatment.