Intel Dual-Socket
4U 4-GPU Rackmount Server
User Manual

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Shenzhen Gooxi Information Security Co., Ltd.

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Foreword

This manual is the product technical manual for AS4104G Whitely platform 4U model servers. It primarily provides an introduction and explanation of the product's appearance, structure, hardware installation, and basic configuration.

Please note that this manual is intended for reference and research purposes for professional technical personnel. The installation and maintenance of this product should only be performed by experienced technical personnel.

Modification Record

Manual version	Release date	Modification instructions
V1.0	2023-07-25	Manual Released

Contents

1. Product Introduction

1.1 Product Overview

Gooxi Intel Whitley 4U Dual-Socket Standard Server supports 1/2 Intel® Xeon® Scalable processors from the third generation, with 16 DIMM DDR4 memory slots, integrated with 1 M.2 interface, 2 Gigabit Ethernet ports, 1 RJ45 management port, and 10 PCIe expansion slots. It is suitable for various applications including artificial intelligence, virtualization, cloud computing, big data processing, distributed storage, enterprise markets, or telecom business needs.

- Supports 1/2 Intel® Xeon® Scalable Series Processors (ICE Lake), with a maximum TDP of 205W.
- Supports 10 PCIe high-speed expansion slots, providing rich expansion performance.
- Supports 4 full-height double-width high-performance GPU cards to meet the needs of high computing power.
- Features 16 DDR4 memory slots, supporting memory frequencies of 2666/2933/3500MHz.

The physical illustration of the server with a 12-drive configuration is shown below:

Front view 1-1

Rear view 1-2

1.2 Product Structure

The physical structure of the Intel Whitely 4U dual-socket server is illustrated using the 12-drive model as an example, detailing various components of the server, as shown in the diagram below:
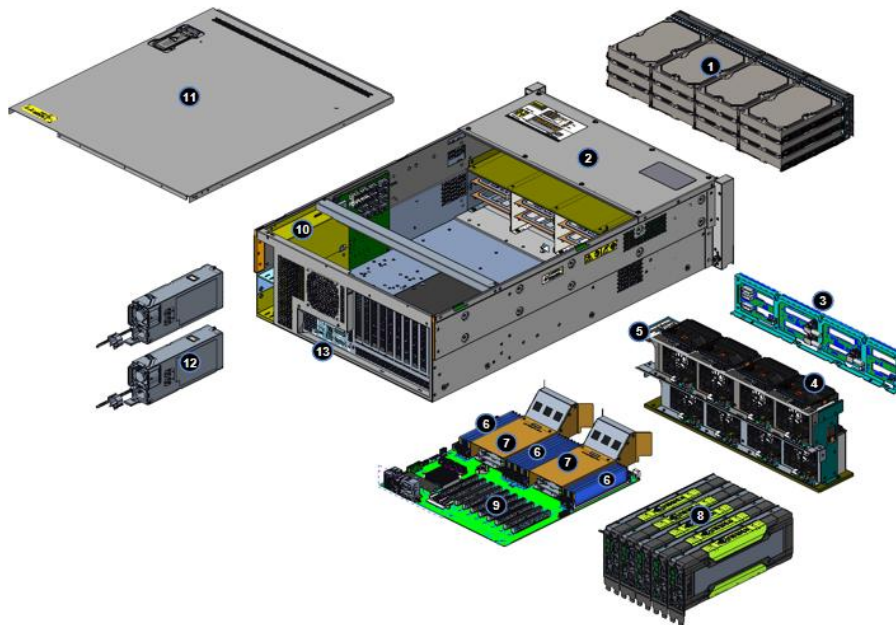
Structure diagram 1-3

No.	Name	No.	Name
1	Front Hard Drive	8	GPU
2	Front Hard Drive Bracket Module	9	PCIE Expansion Channels
3	Front Backplane Assembly	10	Power Supply Bracket Assembly
4	Fan Module	11	Top Cover
5	Fan Bracket	12	Power Supply
6	Memory Modules	13	Rear Window Assembly
7	CPU, Heatsink	-	-

Table 1-1

1.3 Logical Structure

The motherboard logic is as illustrated in the diagram below:
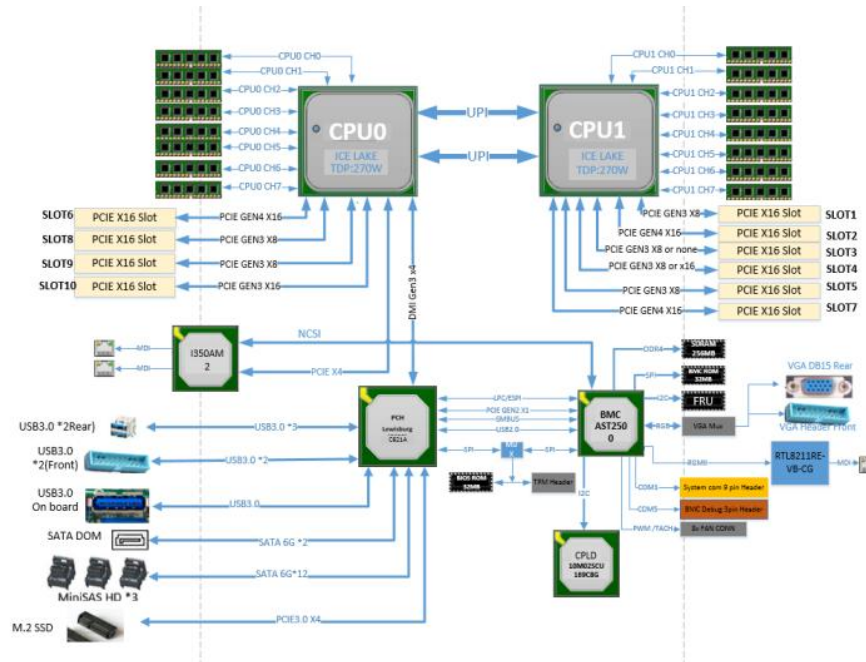
Motherboard logic block diagram 1-4

- The CPU adopts the third-generation Intel® Xeon® Scalable Processor, LGA4189 socket, with a TDP power consumption of 205W.
- A single CPU supports 8 DDR4 channels, with 2 CPUs supporting a total of 16 DDR4 slots. It supports single memory modules with capacities of 16GB, 32GB, 64GB, and 128GB.
- DDR4 types: DDR4 2400/2666/2933/3200MHz ECC-RDIMM/LRDIMM.
- 6*PCIe 3.0x8(in PCIe 3.0 x16 slot), 1*PCIe 3.0x16 and 3*PCIe 4.0x16.
- The G3DE-B motherboard provides 1 M.2 M Key SSD slot, supporting a size of 2280, and only supports PCIe X4 signal.
- The motherboard integrates 2 Gigabit Ethernet ports, using the I350 chip, sourced from the PCH.
- The PCH adopts the INTEL LEWISBURG C621 series chipset.
- The G3DE-B motherboard has 3 onboard MiniSAS SFF-8643 connectors and 2 SATA 6.0Gbps ports.
- The BMC chip on this board adopts the AST2500 control chip from ASPEED company for IPMI remote management. It includes a VGA output port and a dedicated Gigabit RJ45 management network port.

1.4 Product Specifications

Product Series	AS4104G-D12R-G3
Product Type	4U12-Bay

System Size	695*444*176.5mm(D*W*H)
Processor	Supports one or two third-generation Intel® Xeon® Scalable series processors, with a maximum CPU TDP of 205W
Memory	16 DDR4 memory slots, supporting DDR4 LRDIMM/RDIMM 2666/2933/3200 MHz
Internal Storage Interface	3 MiniSAS HD interfaces, 2 SATA DOM interfaces, 1 NVME PCIE 4.0 M.2 interface (2280)
External Hard Drive	Front support for 123.5/2.5-inch SATA/SAS hard drives
External Ports	Front ports: 2 USB 3.0
	Rear ports: 1 VGA, 1 COM port, 2 USB 3.0, 1 RJ45 Gigabit management port, 2 Gigabit RJ45 Network
PCIe Expansion	10 PCIe full-height versions: Support for 6 PCIe 3.0x8 (in PCIe 3.0 x16 slot), 1 PCIe 3.0x16, and 3 PCIe 4.0x16 (slot 2, 6, 7).
Power Supply	Supports AC 220V 1600W, 2000W, 2200W, 2600W redundant power supplies (adapted according to actual power)
Fan	Standard 8 hot-swappable N+1 redundant fans (optional rear 2*8038 fan modules)
Security	Supports TPM module
Certification	CCC
Working Temperature& Humidity	Temperature 5℃~35℃/humidity 20%~80% RH non-condensing
Storage Temperature& Humidity	Short-term storage (≤72 hours): Temperature -40°C ～ 70°C / Humidity 20% ～ 90% RH (non-condensing, including packaging) Long-term storage (>72 hours): Temperature 20°C ～ 28°C / Humidity 30% ～ 70% RH (non-condensing, including packaging)

Table 1-2

2. Hardware Description

2.1 Front Panel

2.1.1 Appearance

- 12x3.5-inch hard drive configuration
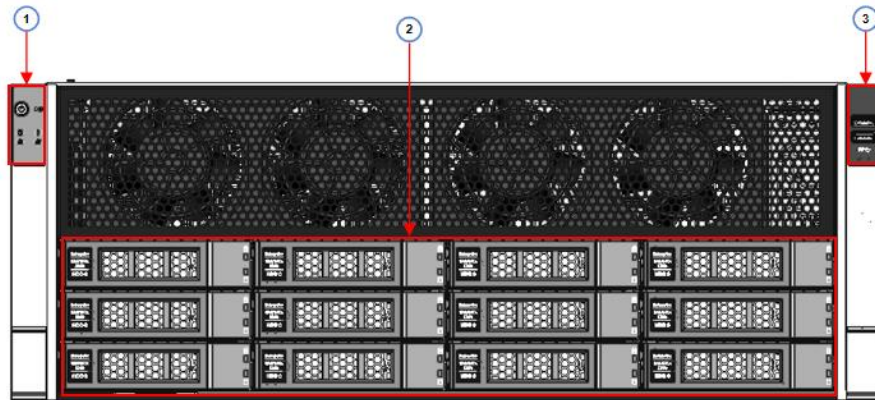
Figure 2-1

No.	Name	No.	Name
1	Left Ear Integrated Module	2	3.5-inch Hard Drive Module
3	Right Ear Integrated Module		

Table 2-1

2.1.2 Indicator lights and buttons
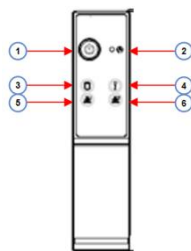
Figure 2-2

No.	Indicator light/button	No.	Indicator light/button
1	Power On/Off Button/Indicator	4	System Alarm Indicator
2	Reset Server Button	5	Network Port 1 Connection Status Indicator
3	Hard Drive Indicator Light	6	Network Port 2 Connection Status Indicator
LED status description			
Logo	Indicator	Status description	

	light/button	
	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: Press the button shortly 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. Press the button shortly in the power-on state to start the machine.
	Reset server button	Press to restart the server
	Hard drive indicator	Green Light Blinking: Hard Drive Running Normally
	System Alarm Indicator	System warning indicator. Including system alarms, fan alarms, power supply alarms, etc., which can be viewed through the IPMI management software
	Network Port Connection Status Indicator	Indicator lights for the Ethernet ports corresponding to the network card. Green (steady): Indicates a normal network port connection. Off: Indicates that the network port is not in use or is faulty. Note: Corresponds to the two 1 Gigabit Ethernet ports on the motherboard.
	Network Port Connection Status Indicator	Indicator lights for the Ethernet ports corresponding to the network card. Green (steady): Indicates a normal network port connection. Off: Indicates that the network port is not in use or is faulty. Note: Corresponds to the two 1 Gigabit Ethernet ports on the motherboard.

Table 2-2

2.1.3 Interface

● Interface location

Figure 2-3

No.	Name	No.	Name
1		USB 3.0 interface	

Table 2-3

● Interface description

Name	Type	Qty	Description
USB interface	USB 3.0	2	Used for connecting USB devices

Table 2-4

2.2 Rear Panel

2.2.1 Appearance

● Rear Panel Exterior Ports
● 4U chassis supporting 4 high-performance GPU cards of full-height, full-length, and dual-width.
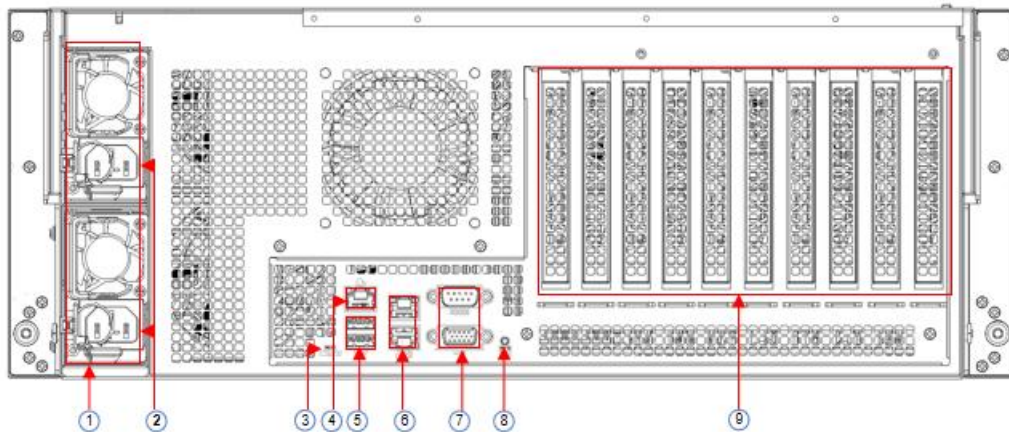
Figure 2-4

No.	Name	No.	Name
1	Power Module	6	RJ45 Gigabit Ethernet Ports
2	Power Module AC Interface	7	COM Port, VGA Interface
3	BMC Reset Button	8	UID Button
4	Management Port	9	Riser Module

5	USB3.0 Interface	-	-

<div align="center">Table 2-5</div>

Note：

● The rear window of this product can be customized according to requirements.

The above diagram is for reference only; the actual configuration prevails.

● Rear panel interface description

Name	Type	Qty	Description
VGA Interface	DB15	1	Used to connect display terminals, such as monitors or KVMs.
Management Network Port	GE BASE-T	1	Provides an outgoing 1000Mbit/s Ethernet port. This interface allows for server management.
USB Port	USB 3.0	2	Provides outgoing USB port, allowing connection of USB devices. Note: When using external USB devices, please ensure that the USB device is in good condition, otherwise it may cause abnormal server operation.
RJ45 Gigabit Ethernet port	GEBASE-T	2	Server network port.
Power Module AC Interface	/	1 or 2	You can choose the number of power supplies according to your actual needs, but make sure that the rated power of the power supply is greater than the rated power of the entire machine.
COM port		1	Serial communication port

<div align="center">Table 2-6</div>

2.2.2 Indicator lights and buttons

● Rear Panel Indicators

<div align="center">Figure 2-5</div>

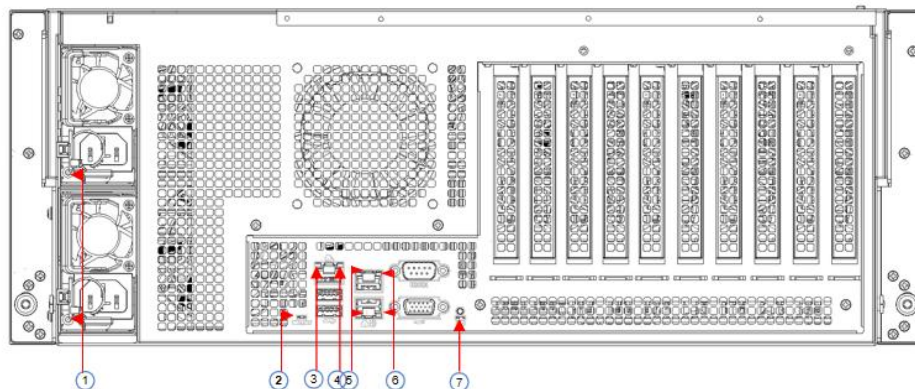| No.	Name	No.	Name
1	Power Module Indicator Light	2	BMC Reset Button
3	Connection Status Indicator Light	4	Data Transmission Status Indicator Light
5	Connection Status Indicator Light	6	Data Transmission Status Indicator Light
7	UID button	-	-

Table 2-7

● Description of Power Module Indicators

Indicator light/button	Status description
Power Module Indicator	Green (steady on): Indicates that the input and output are normal. Orange (steady on): Indicates that the AC power cord is unplugged or the power module is missing, and only one parallel-connected power module has AC input; the power module failure causes the output to be turned off, such as OVP, OCP, fan failure, etc. Green (1Hz/blinking): Indicates that the input is normal, the voltage is too low (less than 12V) or the power supply is in the intelligent standby mode. Green (2Hz/blinking): Indicates the firmware is undergoing online upgrade. Orange (1Hz/blinking): Indicates continuous power warning events during power operation, such as high temperature, high power, or large current. Off: Indicates no AC power input.
Connection Status Indicator Light	Solid Green: Indicates Gigabit Link Solid Orange: Indicates Fast Ethernet Link Off: Indicates 10 Mbps Link
Data Transmission Status Indicator Light	Flashing Yellow: Indicates data transmission is in progress Off: Indicates no data transmission
UID Button	UID button control on server
BMC Reset Button	BMC button control on server

Table 2-8

2.3 Processor

● Supports 1 or 2 Intel third-generation Xeon Scalable CPUs
● When configuring with 1 processor, it needs to be installed in CPU 0 position
● Processors installed in the same server must have the same model
● For specific optional system configurations, please consult Gooxi sales

● The processor positions are as illustrated in the following diagram:
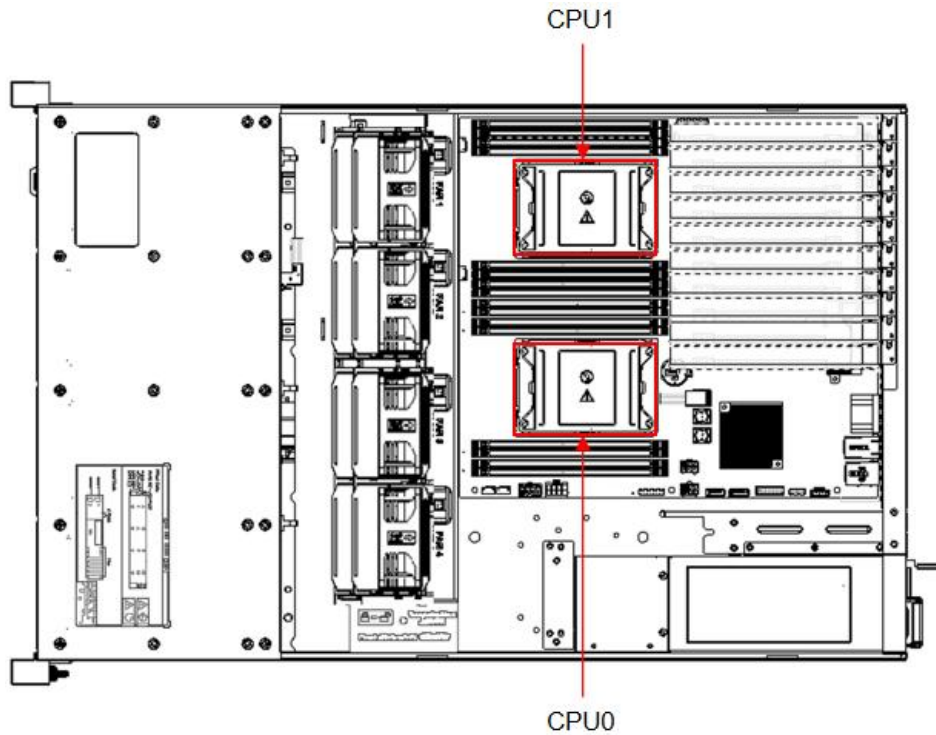
Figure 2-6

2.4 Memory

2.4.1 Memory slot location

This motherboard utilizes the Intel Whitely platform and is paired with Intel Xeon ICE Lake CPUs. Each CPU supports 8 channels, with 2 DIMMs per channel. The motherboard can support up to 16 DIMMs. When only one DIMM is inserted, it is preferred to be placed in the slot highlighted in blue in the diagram (the plastic color of the slot on the slot board is blue). It supports DDR4 ECC RDIMMs/LRDIMMs server memory, with memory frequencies of 2666/2933/3200MHz. The positions are as shown in the diagram below:

- memory slot location
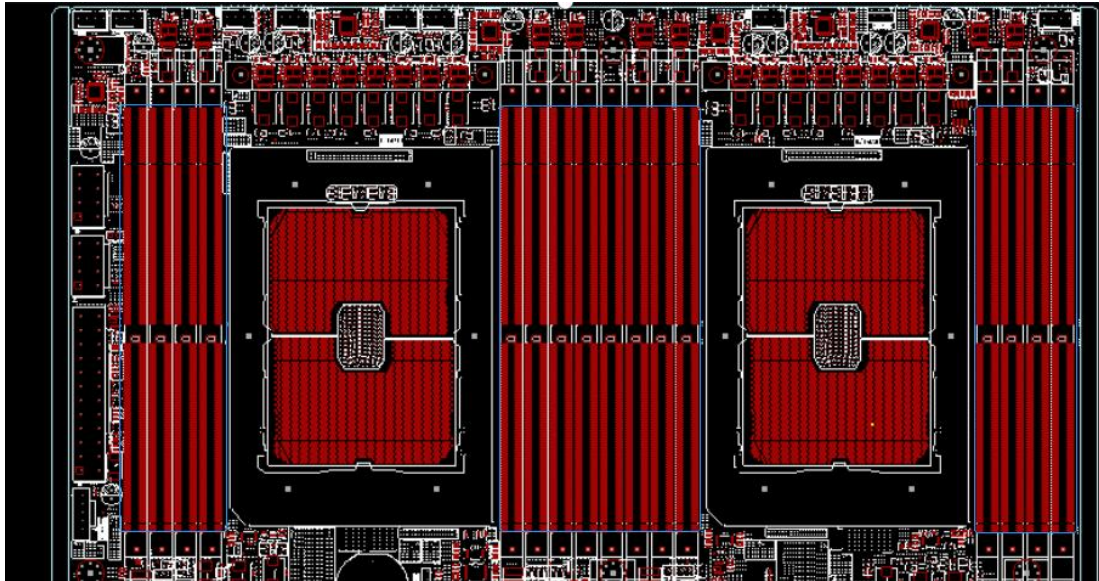
Figure 2-7

2.4.2 Memory Compatibility Information

The motherboard supports DDR4 RDIMM/LRDIMM server memory, with memory frequencies supported at 2666/2933/3200 MHz.

Note:
- The same server must use the same model of DDR4 memory, and all memory modules must operate at the same speed, which is the minimum value among the following:
- The memory speed supported by the specific CPU
- The maximum operating speed of the specific memory configuration
- Different types (RDIMM, LRDIMM) and different specifications (capacity, width, rank, height, etc.) of DDR4 memory are not compatible for mixed usage
- Different models of Intel® Xeon® Scalable processors support different maximum memory capacities.

2.5 Storage

2.5.1 Hard drive configuration

Configuration	Maximum Front Drive Qty	Maximum Rear Drive Qty	Description
12x3.5-inch hard drive direct-connect configuration	Front Drive Bays (12x3.5/2.5)–Slots 0 to 11 only support SAS/SATA hard drives	not supported	Requires optional SAS pass-through card or RAID card support
Note: *The maximum number of rear hard drives is affected by the type of NVMe/SAS/SATA hard drives.			

Table 2-9

2.5.2 Hard drive serial number

- 12x3.5/2.5-inch hard drive configuration
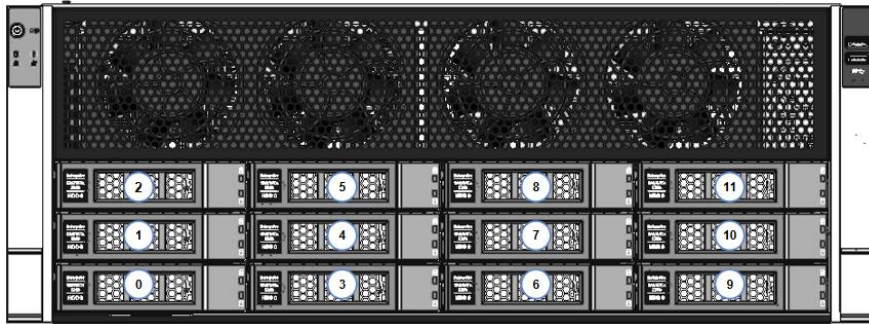
Figure 2-8

2.5.3 Hard drive status indicator
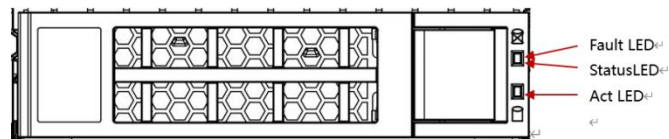
Figure 2-9

●   Hard drive status indicator description

Function	Act LED	Status LED	Fault LED
Hard drive in place	Steady on	OFF	OFF
Hard drive activity	Blinking at 4Hz/second	OFF	OFF
Hard drive positioning	Steady on	Blinking 4Hz/second	OFF
Hard drive error	Steady on	OFF	Steady on
RAID rebuild	Steady on	OFF	Blinking 1Hz/second

Table 2-10

2.6 Power Supply

●   Supports 1 or 2 power modules
●   Supports AC or DC power modules
●   Supports hot swapping
●   When configuring 2 power modules, supports 1+1 redundant backup
●   Power module models installed in the same server must be identical
●   For specific optional system configurations, please consult Gooxi sales

●   The power module locations are as shown in the following diagram:
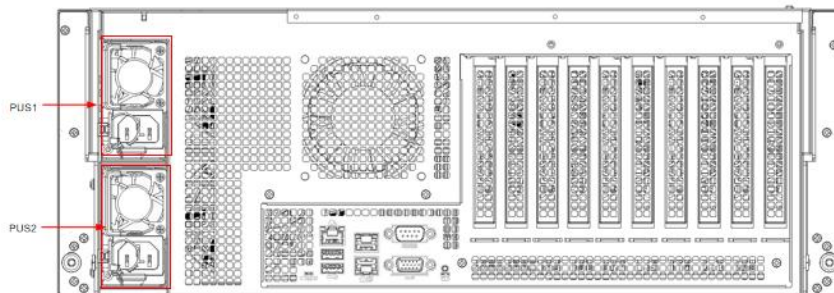
Figure 2-10

2.7 Fans

- Supports 8 fan modules
- Supports hot swapping
- Supports single fan failure
- Supports variable fan speed
- The fan module models installed in the same server must be identical

- The fan locations are as shown in the following diagram:
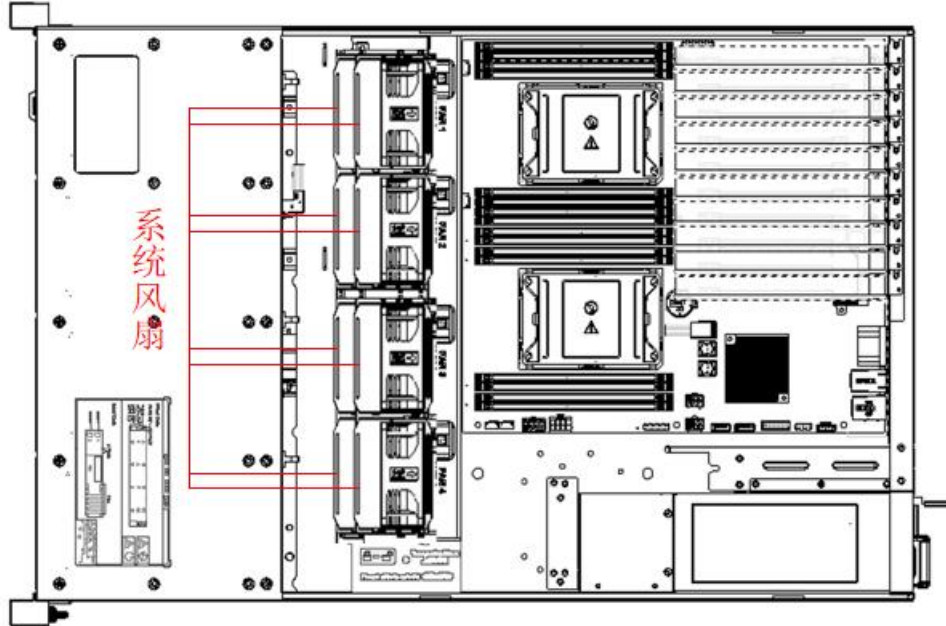
Figure 2-11

2.8 I/O Expansion

2.8.1 PCIe slot location
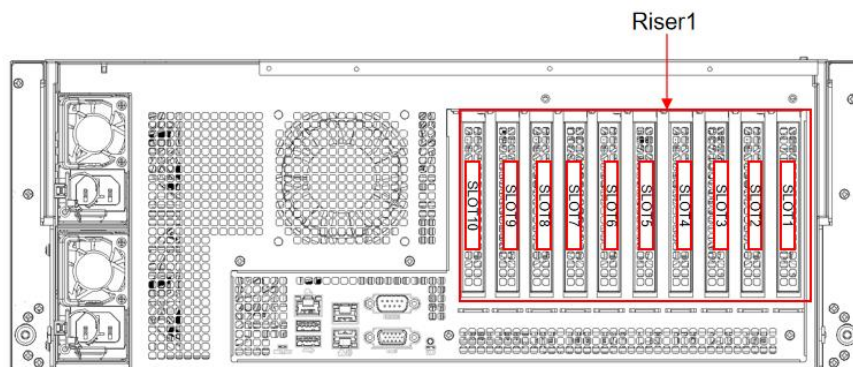
Figure 2-12

- The slots provided by Riser1 module are Slot0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10. When using dual-width GPUs, Slot1, 3, 5, 7, and 9 are not available.

2.8.2 PCIe slot description

When CPU1 is not in place, its corresponding PCIe slot is unavailable.

PCIe slot	Subordinate CPU	PCIe standard	Bus bandwidth	Slot size
Slot 1	CPU1	PCIe 3.0	X8	Half height half length
Slot 2	CPU1	PCIe 4.0	X16	Half height half length
Slot 3	CPU1	PCIe 3.0	X8	Half height half length
Slot 4	CPU1	PCIe 3.0	X8 or x16	Half height half length
Slot 5	CPU1	PCIe 3.0	X8	Half height half length
Slot 6	CPU0	PCIe 4.0	X16	Half height half length
Slot 7	CPU1	PCIe 4.0	X16	Half height half length
Slot 8	CPU0	PCIe 3.0	X8	Half height half length
Slot 9	CPU0	PCIe 3.0	X8	Half height half length
Slot 10	CPU0	PCIe 3.0	X16	Half height half length

Note:
◆Slots with a bus bandwidth of PCIe x16 are backward compatible with PCIe cards of PCIe x8, PCIe x4, and PCIe x1. It is not compatible upward, that is, the bandwidth of the PCIe slot cannot be less than the bandwidth of the inserted PCIe card.
◆PCIe slots of half-height half-length size are backward compatible with half-height half-length PCIe cards; PCIe slots of full-height half-length size are backward compatible with half-height half-length PCIe cards.
◆The power supply capability of all slots can support PCIe cards up to a maximum of 75W, and the power consumption of PCIe cards depends on the model of the PCIe card.
◆The horizontal expansion module can support double-width full-length PCIe cards.

Table 2-11

2.9 PCBA

2.9.1 Motherboard
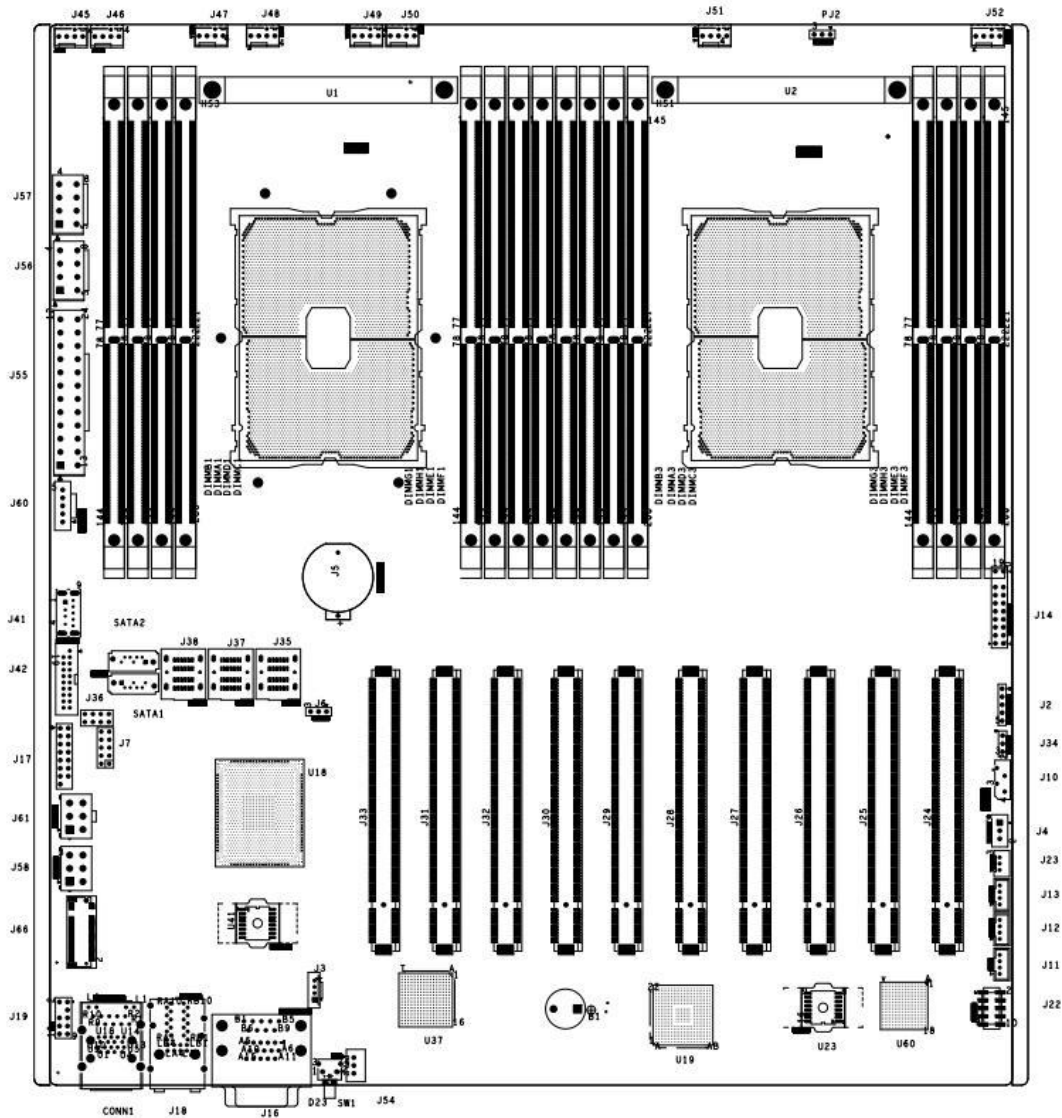
Motherboard Figure 2-13

No.	Name
J45~J52	System Fan Connectors: 1, 5, 2, 6, 3, 7, 4, 8
PJ2	VR Upgrade Programming I2C Connector
J56，J57	2X8Pin ATX CPU Power Connector
J55	2x12Pin ATX System Power Connector
J60	Power PMBus Connector
J41	On-board USB3.0 Connector
J42	Front USB3.0 Header x2
J17	Front Vga Connector
SATA1 SATA2	STAT DOM Connector
J66	M.2 Connector
J7	PCH Hardware Strapping

J61,J58	4U 12V Power Connector, Connectors for GPU power supply from ATX power
J3	RAID KEY Connector
J36	SSATA Sgpio Connector
J62	Rear window 2 hard disk small board power supply connector
J35	S-SATA port 0~3 Connector
J37,J38	ISATA PORT 0~7 Connector
J5	RTC Battery Connector
DIMMB1/A1/D1/C1	CPU0's 2,1,4,3changel Memory Connector
DIMMG1/H1/E1/F1	CPU0's 7,8,5,6changel Memory Connector
DIMMB3/A3/D3/C3	CPU1's 2,1,4,3changel Memory Connector
DIMMG3/H3/E3/F3	CPU1's 7,8,5,6changel Memory Connector
J14	Front panel Connector
J2	CPU1 NVME SSD side I2C
J34	Select PCIE SLOT4 and PCIE SLOT5 Pcie Lane Number Configuration Connector
J10	IPMB Connector
J8	Connector for Storing Jumpers
J4	Chassis Intrusion Connector
J23	BMC Debugging Serial Port
J11,J12,J13	Reserved SMBus and BMC I2C7, I2C13 Connectors
J22	CPLD Programming Connector
U1	CPU0
U2	CPU1
U18	PCH
U37	I350 Network Card Chip
U19	BMC
U60	CPLD
U23	BMC FLASH
U41	BIOS FLASH
J66	ME Update
SW2	BMC Reset Button
CONN1	2 USB3.0 and BMC Dedicated RJ45
J19	TPM Connector
J18	2 RJ45 Ports for the System
J16	VGA and System Serial Port
SW1	UID Button
J54	Reserved IPMB Device Power Supply Connector
J24	PCIe Slot1 (X8) LANE0 ~ 7 of CPU1 Port3
J25	PCIE SLOT2(x16)CPU1 PORT2
J26	PCIe Slot3 (X8) LANE8 ~ 15 of CPU1 PORT3
J27	PCIe Slot4 (X8 OR X16) Labe8 ~ 15 of CPU1 Port1
J28	PCIe Slot5 (X8 or None) Lane0 ~ 7 of CPU1 Port1

J29	PCIE SLOT6(x16)CPU0 PORT2
J30	PCIE SLOT7(x16)CPU1 PORT0
J31	PCIE SLOT8 (X8) Lane 8 ~ 15 of CPU0 Port1
J32	PCIe Slot9 (X8) LANE0 ~ 7 of CPU0 PORT1
J33	PCIE SLOT10(x16)CPU0 PORT0

<div align="center">Table 2-12</div>

2.9.2 Hard drive backplane

- 12×3.5-inch Backplane

TOP surface
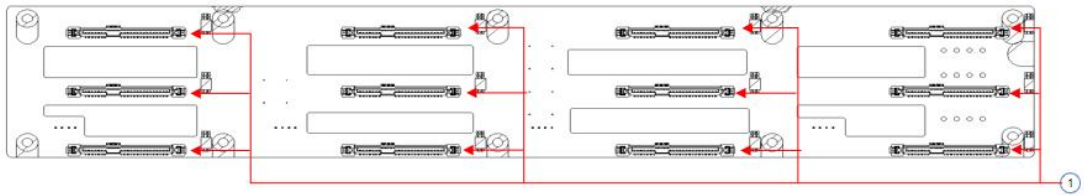
<div align="center">Figure 2-14</div>

No.	Description	Function
1	SAS/SATA hard drive connector	1. Up to 12G/b SAS hard drives 2. Up to 6G/b SATA hard drives 3. Supports hot-swappable SAS/SATA hard drives

<div align="center">Table 2-13</div>

Bottom surface
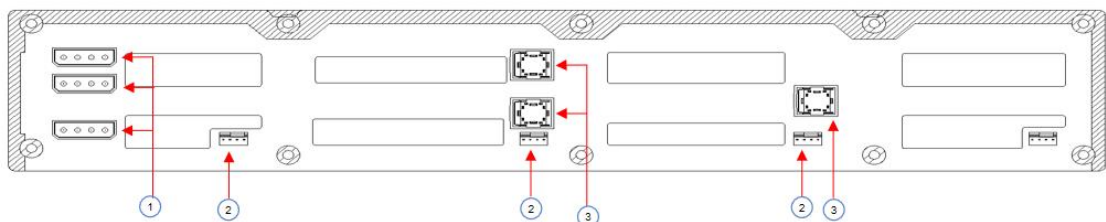
<div align="center">Figure 2-15</div>

No.	Description	Function
1	BP power supply interface	Backplane power transmission connector, used for transferring 12V and 5V power
2	Temperature-controlled fan socket	Used for 4-pin fan interface
3	SFF-8643 12Gb SAS interface	Used for transferring signals of 12G/b SAS or 6G/b SATA

<div align="center">Table 2-14</div>

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.
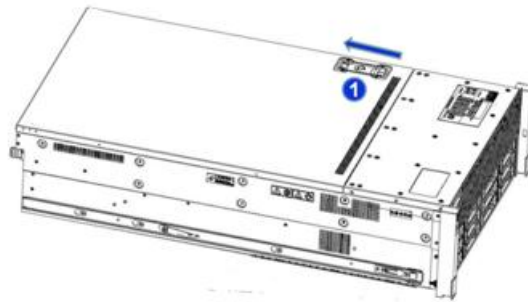
Figure 3-1

3.2 Installation of Accessories

3.2.1 CPU installation

- Step 1: Install the retention bracket and tilt the CPU at the angle shown in the diagram. Align corner A1 (indicated by a triangle mark) and place it on one end of the retention bracket. Press down on the other end of the retention bracket to secure the CPU onto the bracket.
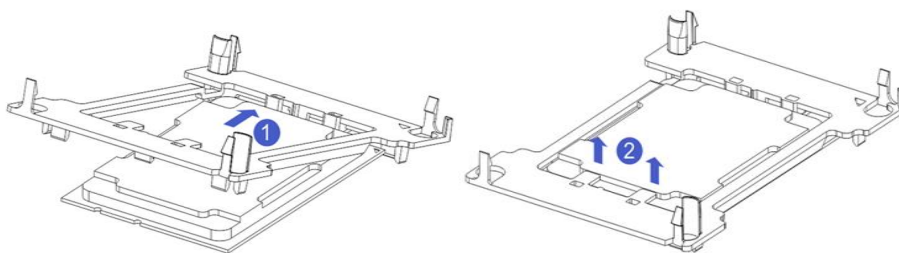
Figure 3-2

- Step 2: Install the CPU onto the heatsink, ensuring that both the CPU and heatsink surfaces are clean and free from oil or debris. Apply approximately 0.4ml of heat-conducting silicone grease to the CPU surface and spread it evenly.

- Step 3: Align corner A1 (indicated by a triangle mark) and buckle the CPU onto the heatsink. (As shown in the diagram below)
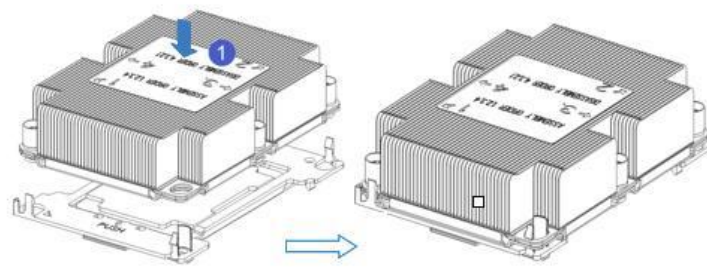
Figure 3-3

3.2.2 Heatsink installation

- Step 1: Remove the processor baffle (as shown in the figure below).
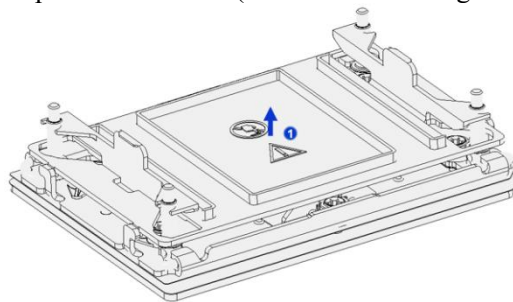
Figure 3-4

- Step 2: Align the heatsink with the mounting screws on the CPU socket bracket, and then tighten the heatsink's fixing screws in the indicated sequence (As shown below).
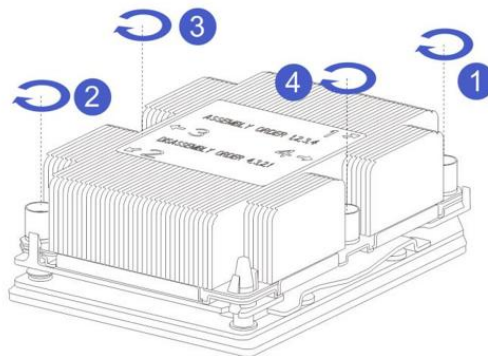
Figure 3-5

⚠ CAUTION: The pins on the motherboard are very delicate and prone to damage. To avoid damaging the motherboard, please do not touch the processor or the processor socket contacts.

3.2.3 Memory installation

The 8 memory slots controlled by CPU0 on the motherboard are as follows: DIMMA1、A2，DIMMB1，DIMM C1 和 DIMM D1、D2， DIMM E1，DIMM F1;

The 8 memory slots controlled by CPU1 on the motherboard are as follows:

DIMMA1、A2，DIMMB1，DIMM C1，和 DIMM D1、 D2，DIMM E1，DIMM F1。

Please ensure that the notch on the memory module matches the notch on the DIMM slot, and insert each DIMM module vertically into place to prevent incorrect installation.
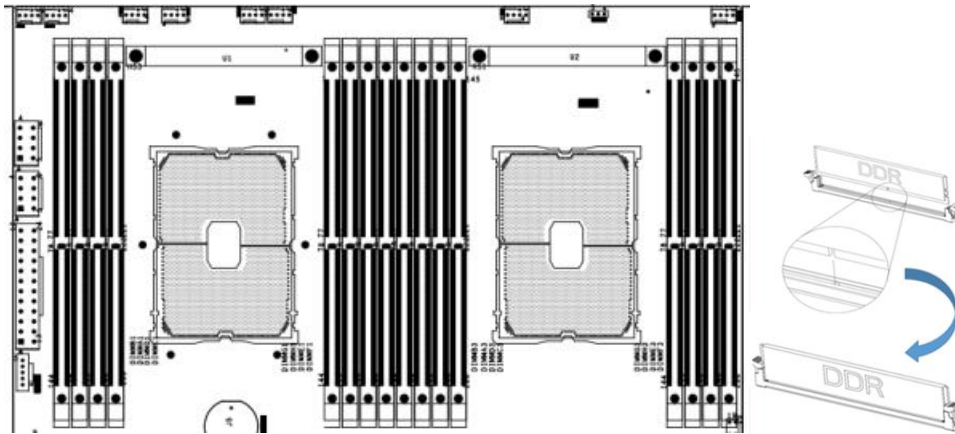
Figure 3-5
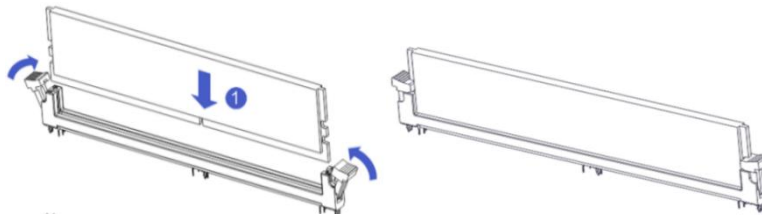
Figure 3-6

⚠ Note: On this motherboard, please use memory modules with the same CAS latency value. It is recommended to use memory of the same capacity and frequency produced by the same manufacturer.

The memory installation method is as follows:

内存条接入原则：（1个CPU）

处理器	内存通道	内存位置	内存数量（推荐：√ 不推荐：O）							
			√	√	√	√	O	√	O	√
			1	2	3	4	5	6	7	8
CPU0	A	CPU1 DIMM A1	x	x	x	x	x	x	x	x
		CPU1 DIMM A2							x	x
	B	CPU1 DIMM B1		x	x	x	x	x	x	x
	C	CPU1 DIMM C1			x		x	x	x	x
	D	CPU1 DIMM D1				x	x	x	x	x
		CPU1 DIMM D2								x
	E	CPU1 DIMM E1				x	x	x	x	x
	F	CPU1 DIMM F1						x	x	x

内存条接入原则：（2个CPU）

| 处理器	内存通道	内存位置	内存数量（推荐：√ 不推荐：O）															
			O	√	O	√	O	√	O	√	O	O	O	√	O	O	O	√
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
CPU0	A	CPU1 DIMM A1	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
		CPU1 DIMM A2													x	x	x	x
	B	CPU1 DIMM B1			x	x	x	x	x	x	x	x	x	x	x	x	x	x
	C	CPU1 DIMM C1					x	x			x	x	x	x	x	x	x	x
	D	CPU1 DIMM D1							x	x	x	x	x	x	x	x	x	x
		CPU1 DIMM D2															x	x
	E	CPU1 DIMM E1							x	x	x	x	x	x	x	x	x	x
	F	CPU1 DIMM F1											x	x	x	x	x	x
CPU1	A	CPU2 DIMM A1		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
		CPU2 DIMM A2														x	x	x
	B	CPU2 DIMM B1				x	x	x	x	x	x	x	x	x	x	x	x	x
	C	CPU2 DIMM C1						x	x			x	x	x	x	x	x	x
	D	CPU2 DIMM D1								x	x	x	x	x	x	x	x	x
		CPU2 DIMM D2																x
	E	CPU2 DIMM E1								x	x	x	x	x	x	x	x	x
	F	CPU2 DIMM F1												x	x	x	x	x

Table 3-1

⚠ Note:

In the same channel, memory modules with larger capacities must be inserted into the first slot.

3.2.4 M.2 installation

- Step 1: Install locating screw A according to the length of the M.2 card to be installed.

- Step 2: Install the M.2 card.

Insert the connector end of the M.2 card into the motherboard connector, as shown in the following diagram:
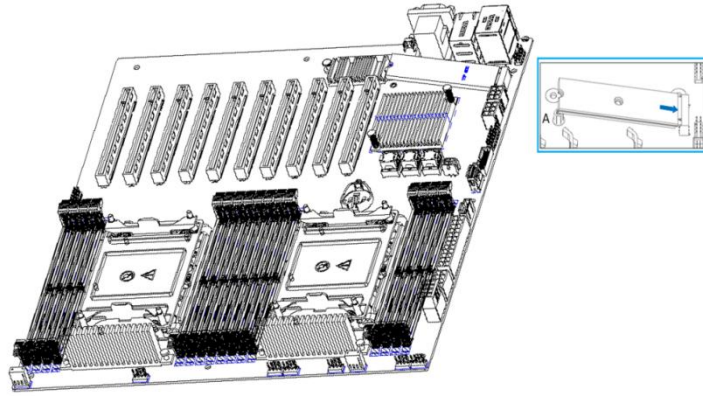
Figure 3-7

3.2.5 GPU installation

● Step 1: Install based on the length of the GPU card.

● Step 2: Install the GPU card.

Insert the connector end of the GPU card into the motherboard connector and secure it with screws. As shown in the diagram below:
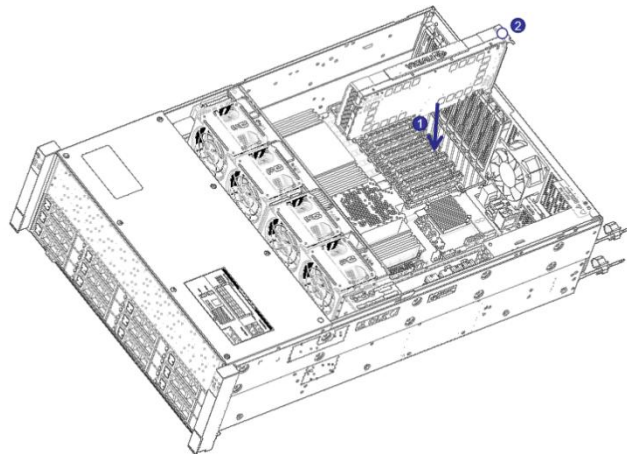
Figure 3-8

3.2.6 Server slide rail installation

● Step 1: Prepare two slide rails and pull out the inner rail.
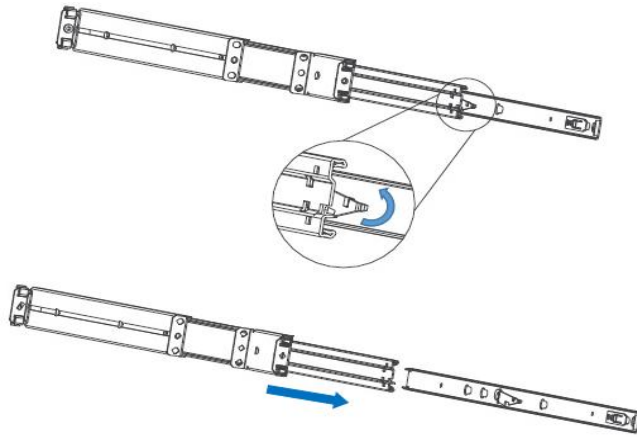
Figure 3-9

● Step 2: Fasten the inner rails to the sides of the chassis.
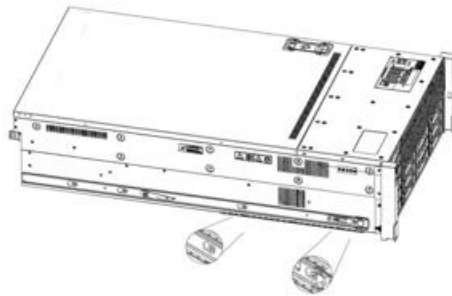
Figure 3-10

● Step 3: Install the outer rails on the cabinet brackets and secure the screws.
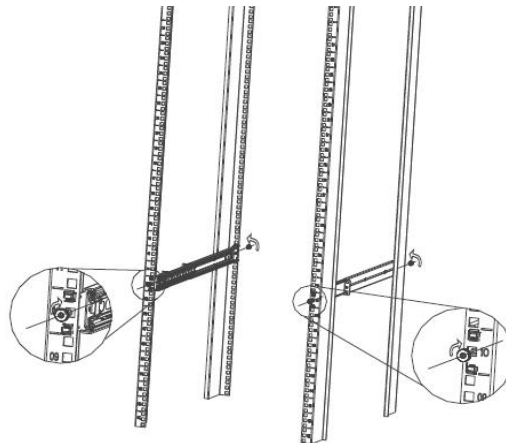
Figure 3-11

⚠ Note: When installing the guide rail, align it with the U mark, and when you hear a 'click', it's installed in place. Secure it with M5 screws. Step 4: Align the chassis with the outer rail and install.
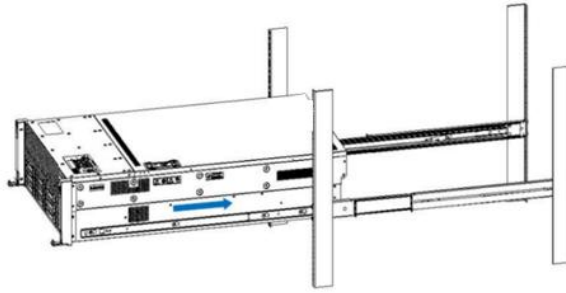
Figure 3-12

⚠ Note: When you push the chassis forward, you will hear a snapping sound.If unable to move forward, pull down the latch on the inner rail to continue pushing the chassis lightly.

● Step 5: Push the chassis forward until it cannot slide and make sure that the screws are securely installed to complete the installation.
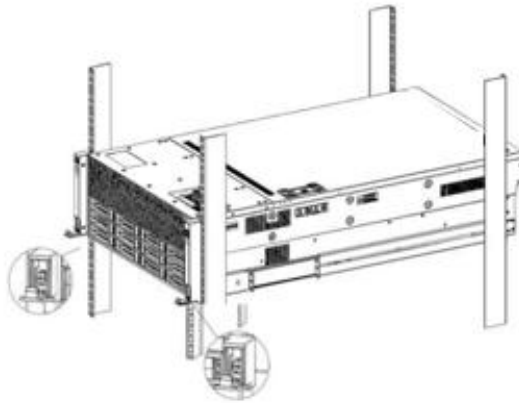
Figure 3-13

⚠ 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:
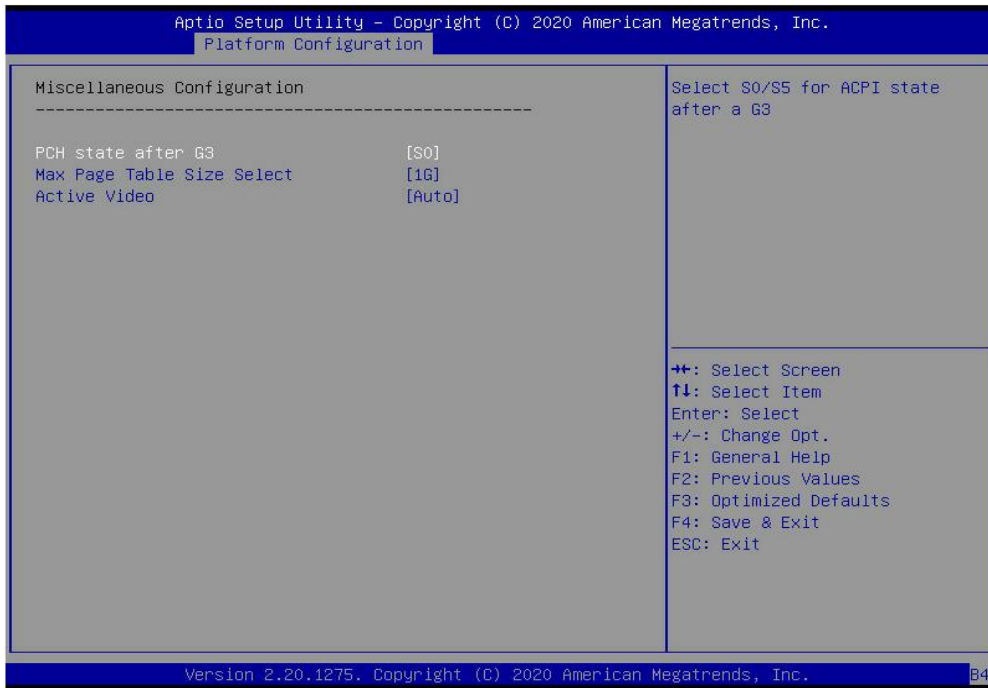
Figure 4-1

- PCH state after G3

    PCH state setting after G3, the menu options are:

    S0: Power on and start up directly

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

    leave power state unchanged: Leave the power state unchanged .

    Default: S0

- Log in to the iBMC management interface to perform remote power-on and power-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

⚠ Be mindful of password security and remember to update your login credentials!

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:

```
                              Aptio Setup - AMI
      Main Advanced  Platform Configuration  Socket Configuration  Server Mgmt  Security  Boot

      BIOS Information                                          Set the Date. Use Tab to
      Project Version           G3DE0 4.01 x64                  switch between Date elements.
      Build Date and Time       10/24/2022 19:38:04             Default Ranges:
      Access Level              Administrator                   Year: 1998-9999
                                                                Months: 1-12
      CPLD name                 G3DE                            Days: Dependent on month
      CPLD version              02                              Range of Years may vary.
      Build Date and Time       01/13/2022

      Platform Information
      Processor                 Intel(R) Xeon(R)
                                Platinum 8352V CPU @
                                2.10GHz
      Processor Info            606A6 - ICX D0                  ++: Select Screen
      PCH                       LBG QS/PRQ - C621A - B3         ↑↓: Select Item
      RC Revision               21.P16                          Enter: Select
                                                                +/-: Change Opt.
      Memory Information                                        F1: General Help
      Total Memory              131072 MB                       F2: Previous Values
                                                                F3: Optimized Defaults
      System Language           [English]                       F4: Save & Exit
                                                                ESC: Exit
      System Date               [Thu 12/01/2022]
      System Time               [02:09:34]



                      Version 2.22.1282 Copyright (C) 2022 AMI
```
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:

```
          Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
                                                              Server Mgmt

  --BMC network configuration--                          ▲ Select to configure LAN
  ****************************                              channel parameters statically
  Configure IPV4 support                                   or dynamically(by BIOS or
  ****************************                              BMC). Unspecified option will
                                                           not modify any BMC network
  BMC Sharelink Management channel                         parameters during BIOS phase
  Configuration Address source       [Unspecified]
  Current Configuration Address sour DynamicAddressBmcDhcp
  Station IP address                 0.0.0.0
  Subnet mask                        0.0.0.0
  Station MAC address                00-24-EC-F2-7D-DD
  Router IP address                  0.0.0.0
  Router MAC address                 00-00-00-00-00-00

  BMC Dedicated Management channel                       ++: Select Screen
  Configuration Address source       [Unspecified]       ↑↓: Select Item
  Current Configuration Address sour DynamicAddressBmcDhcp Enter: Select
  Station IP address                 192.168.1.210       +/-: Change Opt.
  Subnet mask                        255.255.255.0       F1: General Help
  Station MAC address                00-24-EC-F2-7D-DE    F2: Previous Values
  Router IP address                  192.168.1.1         F3: Optimized Defaults
  Router MAC address                 9C-A6-15-57-5B-D9    F4: Save & Exit
                                                          ESC: Exit
  ****************************
  Configure IPV6 support                                 ▼

          Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```
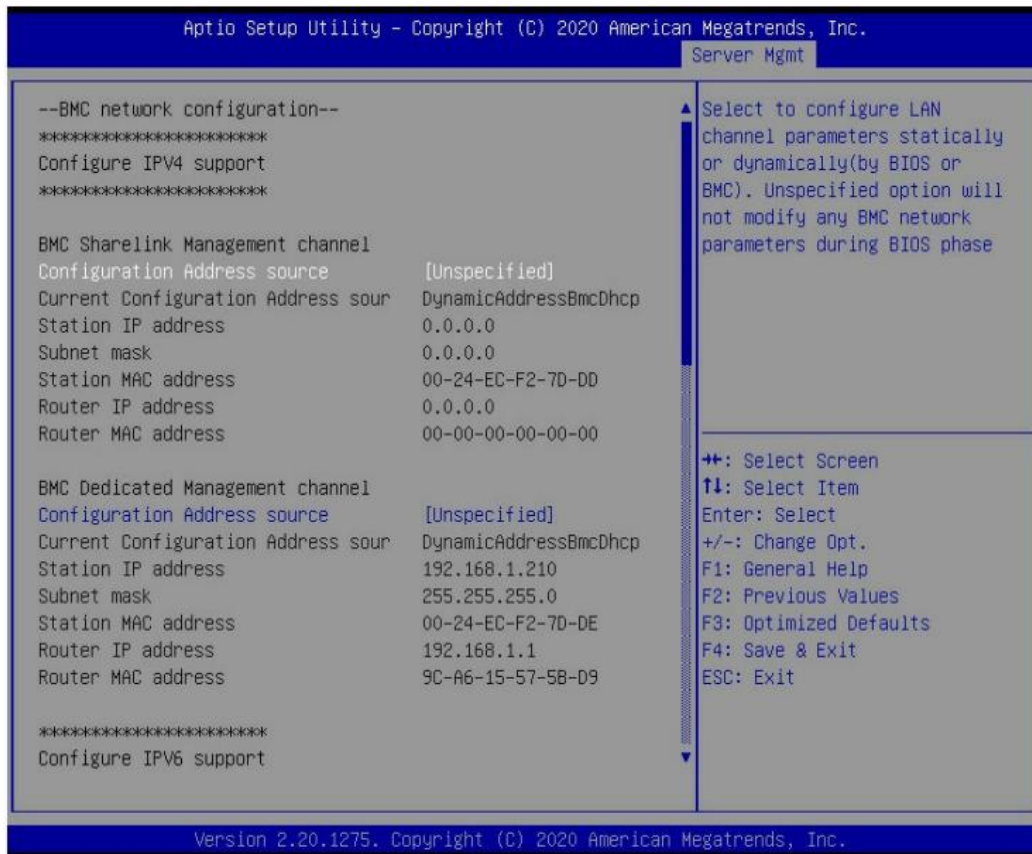
Figure 4-4

Configure IPV4 support :

● BMC sharelink Management Channel

● 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

- BMC Sharelink Management Channel

- 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.

● BMC Dedicated Management Channel

● 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

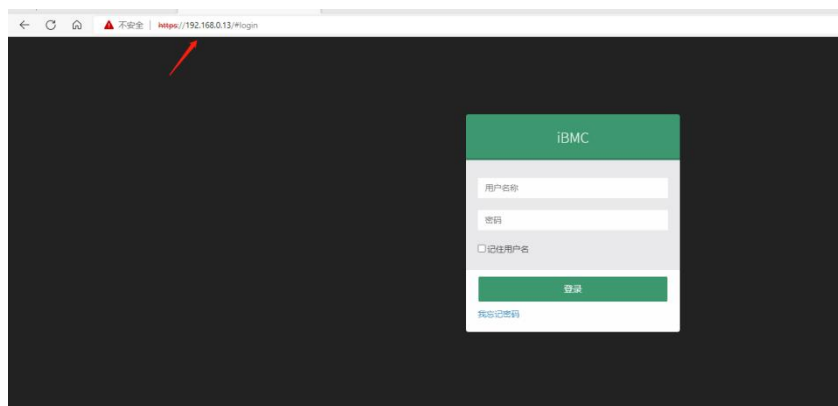Enter the IP address on the web page, as shown in the figure:

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:
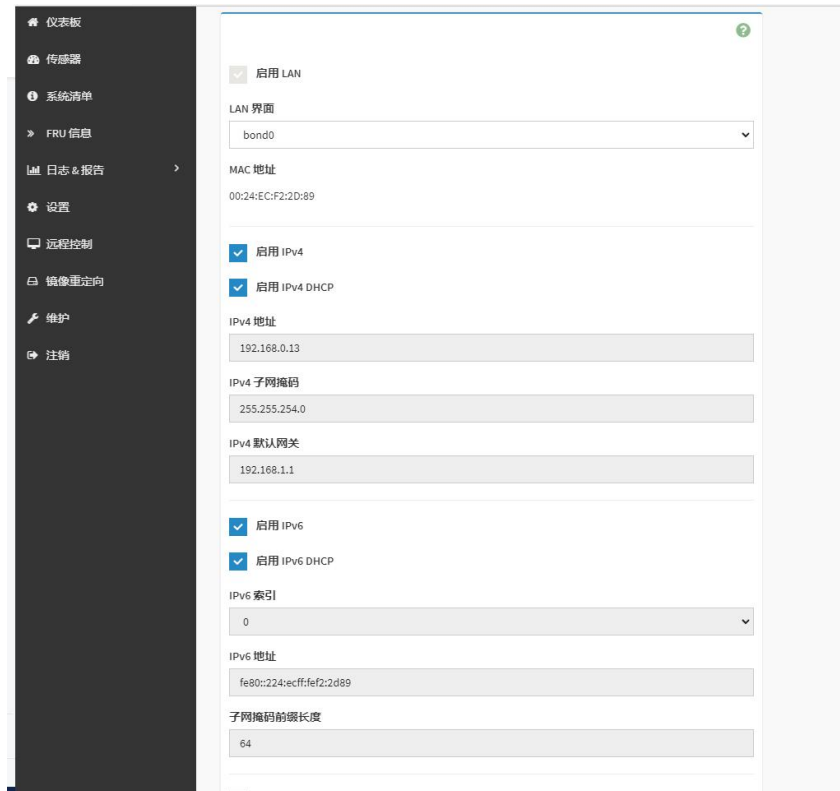
Figure 4-6

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.