Gooxi

SR401 4U
Rack Server User Manual

Document Version: 02
Release Date: 16/Nov/2022

Shenzhen Gooxi Information Security Co., Ltd.

Statement

Copyright Statement

Disclaimer

Gooxi provides this user manual on an "status quo" basis, and within the scope of the law, does not provide any express or implied guarantees and guarantees, including but not limited to commercial sales, suitability for specific purposes, non-infringement of any rights of others and any guarantee of the use of this user manual or the inability to use this user manual, and Gooxi does not provide guarantees for the results obtained from the use of this manual or the accuracy or reliability of any information obtained through this manual.

Due to the version upgrades or other reasons, the content of this manual maybe be updated from time to time. Unless otherwise agreed, this manual is only used as a guide, and the user shall bear all risks of using this user manual.

Trademark Statement

Gooxi® is a trademark of Shenzhen Gooxi Information Security Co., Ltd.

Microsoft® and Windows are trademarks of the Microsoft group of companies.

Linux® is a registered trademark of Linus Torvalds.

Aspeed® is a trademark of Aspeed Technology Inc.

Other trademarks are the property of their respective owners.

Foreword

This manual is the product technical manual of Gooxi SR401 4U rackmount server, which mainly describes the appearance, structure, hardware installation and basic configuration of this product.

This manual is for reference and research by professional technicians. This product should only be installed and maintained by experienced technicians.

Convention:

⚠ Note: it is used to transmit equipment or environmental safety warning messages, if not avoided, it may lead to equipment damage, data loss, equipment performance degradation or other unpredictable results.

⚠ Warning: indicates a potentially hazardous situation which, if not avoided, it may result in death or serious personal injury.

Red arrow: means pointing to a certain location.

Blue arrows: means the action of pulling out or inserting at an angle.

Dark blue rotation arrow 1: represents the action of turning the screw clockwise or pulling it outward.

Dark blue rotating arrow 2: represents the action of turning the screw counterclockwise or buckling inward.

⇨ Hollow arrow: represents the next action or result.

Modification record

Manual version	Release date	Remarks
01	2022/October/16	Initial release
02	2022/November/16	Optimized description

Contents

1 Product Description

1.1 Product overview

The SR401 4U rackmount server is a new generation of 2U dual-socket rack server with a wide range of uses launched by Gooxi for the needs of the Internet, IDC (Internet Data Center), cloud computing, enterprise market, and telecom business applications. It is suitable for IT core business, cloud computing virtualization, high-performance computing, distributed storage, big data processing, enterprise and telecom business applications and other complex workloads. The server has the advantages of low energy consumption, strong scalability, high reliability, easy management, easy deployment, etc.

The main configurations are:

·Supports 2 AMD EPYC™ 7003/7002/7001 processors.

·Up to 36* 3.5-inch hard drives

·The rear window supports expansion of 4*3.5-inch hard disks and 4*2.5-inch hard disks

·Up to 11 PCIE expansion slots, which can be used to expand GPU cards, network cards, etc.

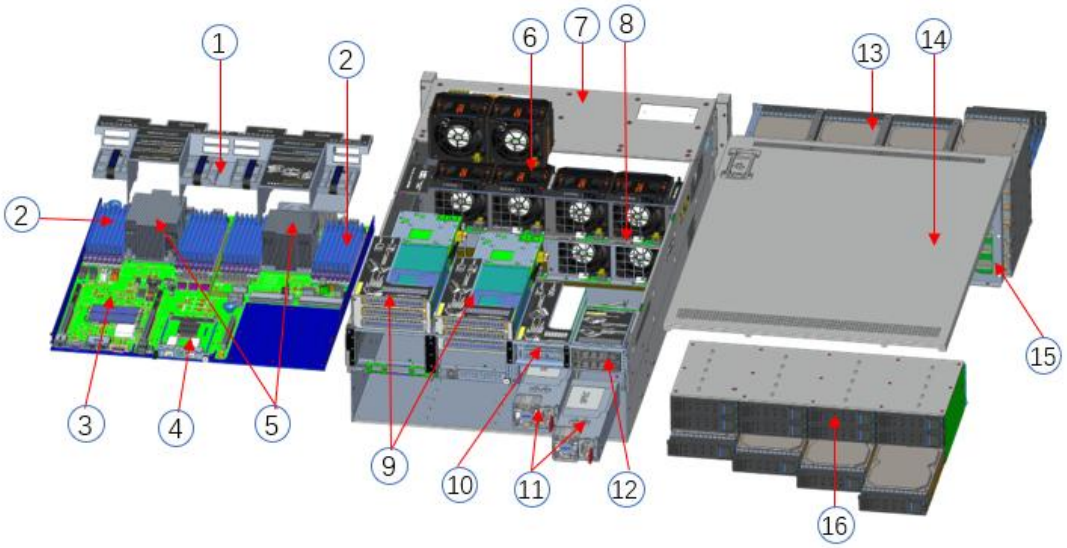
Front view (Figure 1-1)

24-bay rear view (Figure 1-2)

36-bay rear view (Figure 1-3)

1.2 Product structure

The physical structure of the SR401 4U rack-mounted server is different due to different requirements, and the configuration will be different. Taking the 36-model as an example, the components of the server shown in the figure below:



Structure diagram (1-4)

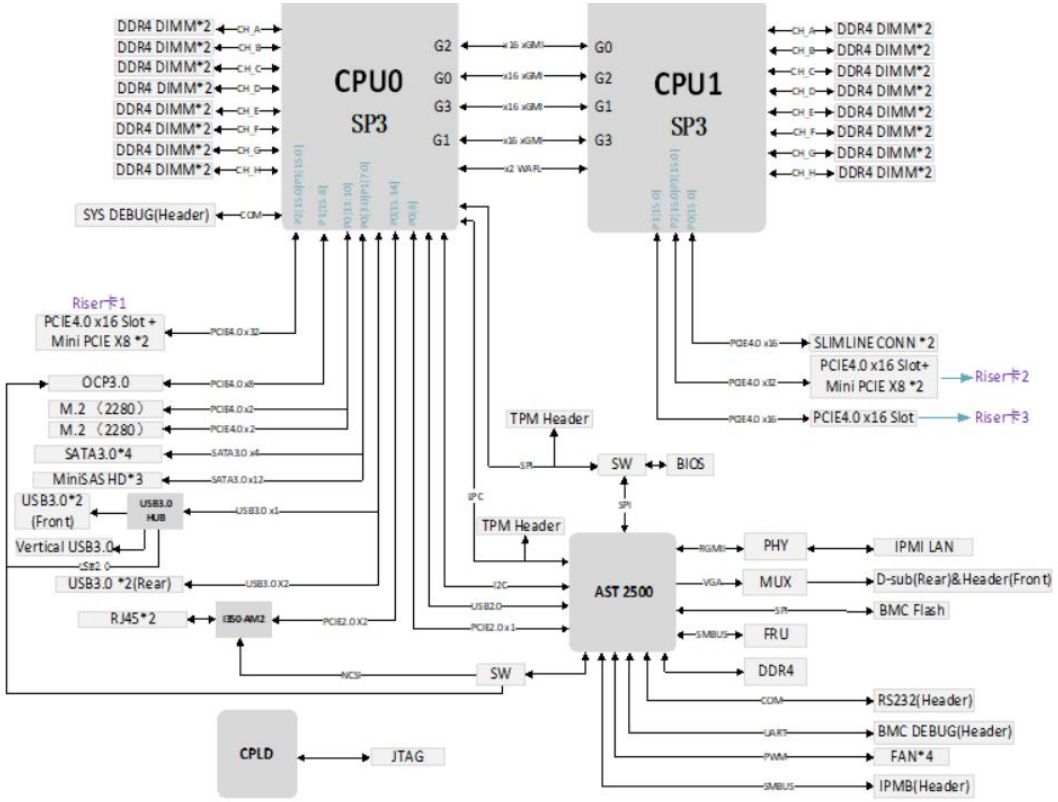
S/N	Name	S/N	Name
1	Wind shield	9	Full height PCIE module
2	RAM	10	Half height PCIE module
3	Motherboard (G1DLRO-B)	11	1+1 redundant power supply
4	OCP 3.0 network card (optional)	12	Rear 2.5 inch hard disk module
5	CPU heat sink	13	24 Hard disk box assembly

6	cooling fan	14	Chassis upper cover
7	Gooxi 4U 798mm chassis	15	24-bay expansion backplane
8	Fan bracket	16	12 Hard disk box assembly

Table (1-1)

1.3 Logical structure

The logic of SR401 4U rack server is shown in the figure below:



Motherboard logic block diagram (1-5)

·2 SP3 Sockets, supporting two AMD EPYC™ 7002 series processors;

·Single CPU supports 8 DDR4 channels, each channel supports 2 DIMMs, and the two CPUs support 32DIMM DDR4 memory;

·DDR4 type: DDR4 2400/2666/2933/3200MHz ECC-RDIMM/LRDIMM;

·There are 3 groups of PCIe RISER slots on the board, among which: 32 PCIE LANEs of RISER1 come from CPU0, 32 PCIE LANEs of RISER2 come from CPU1, 16 PCIE LANEs of RISER3 come from CPU1;

·G1DLRO-B motherboard provides 2 M.2 M Key SSD slots, only supports 2280 size, PCIe4.0 X2 signal;

·2 Gigabit Ethernet ports are integrated on the motherboard, using I350-AM2 chip;

·The BMC chip in this board adopts ASPEED company's AST2500 control chip, which is used

for IPMI remote management, VGA output port, and dedicated Gigabit RJ45 management network port.

1.4 Product parameters

System		
System model	SR401-D24RE	SR401-D36RE
Chassis	Gooxi 4U rackmount chassis	
Motherboard	G1DLRO-B	
CPU	Supports 2 AMD EPYC™ 7003/7002/7001 processors	
Memory	Type supports DDR4 RDIMM/LRDIMM; Frequency supports 2400/2666/2933/3200MHz; Support single capacity of 8G/16GB/32GB/64GB/128GB/256GB, and the maximum memory capacity of the whole machine is 8TB.	
Hard drive	Front 24* 3.5/2.5 inch hot-swap hard drives	
	4U24 rear supports four 3.5 inch and four 2.5 inch hot-swap hard drives	4U36 rear upper layer supports 4* 3.5 inch and 4* 2.5 inch hot-swap hard drives; the lower layer supports 12* 3.5/2.5 inch hot-swap hard disks
Internet function	2 RJ45 Gigabit Ethernet ports	
Management interface	1 RJ45 IPMI management network port	
Display function	Onboard Aspeed® AST2500 chip, support VGA output	
M.2	Support 2 M.2 ports (M key, only support 2280 size specifications)	
USB	Front 2 USB3.0 ports, built-in 1 USB3.0, rear USB3.0 port	
Expansion slot	Up to 11 PCIe expansion slots	
Power	System supports 550W, 800W, 1200W, 1300W, 1600W hot-swap redundant power supply	
Fan	Support 8* 8038 temperature-controlled fans (optional 8056 temperature-controlled fans)	
Size	798mm*444mm*176.5mm (length*width*height)	
Operating system support		
OS	CentOS 7.6/ CentOS 8.0 SLES11 SP4 Ubuntu 17.04/Ubuntu 18.04/ Ubuntu 20.04 Windows server 2016/Windows server 2019 VMware ESXi vSphere6/VMware ESXi vSphere7	
System environment parameters		
Operating temperature and humidity	Temperature 5℃ ~ 40℃; Humidity: 35% ~ 80% non-condensing	
Storage temperature and humidity	Short time (≤72 H): temperature -40℃～70℃/ Humidity 20%～90% non-condensing (including packaging) Long time (>72 H): temperature 20℃～28℃/ Humidity 30%～70% non-condensing (including packaging)	
Certification		
Certification	CE, CCC, ROHS	

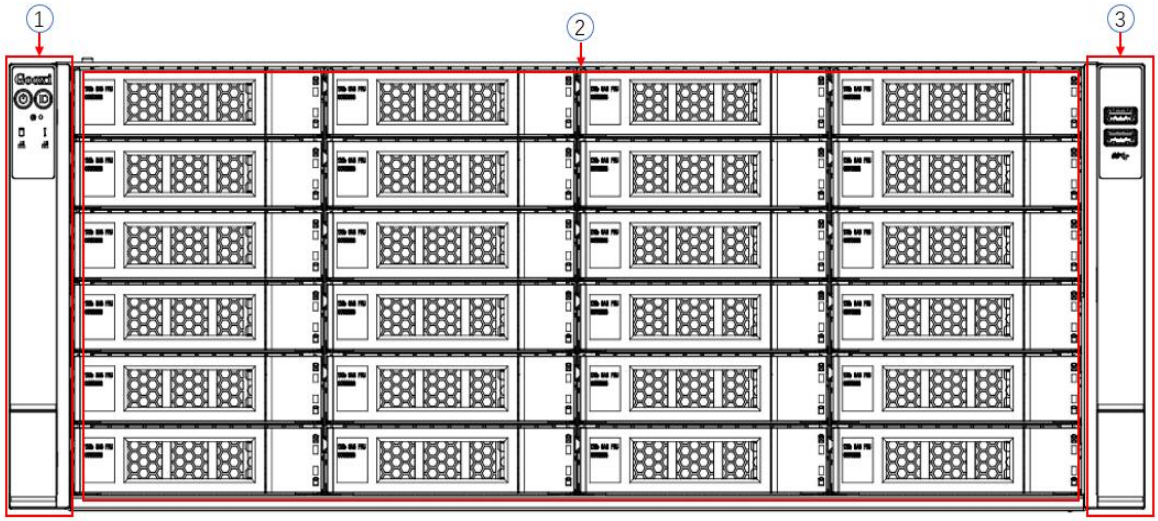
Table (1-2)

2 Hardware Description

2.1 Front panel

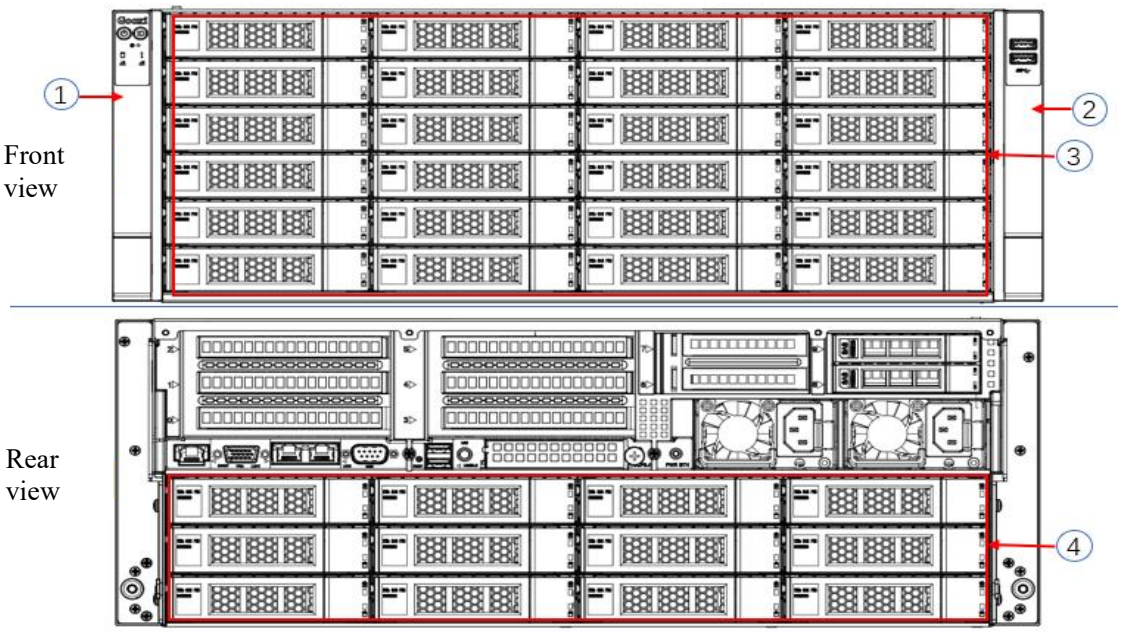
2.1.1 Appearance

- 24x3.5 inch hard drive configuration



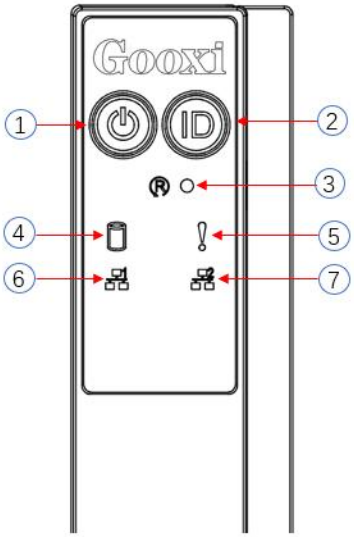
S/N	Name	S/N	Name
1	Left ear assembly	2	24* 3.5 inch hard disk boxes
3	Right ear assembly		

- 36x3.5 inch hard drive configuration



S/N	Name	S/N	Name
1	Left ear assembly	2	Right ear assembly
3	Front 24* 3.5 inch hard disk boxes	4	Rear 12* 3.5 inch hard disk boxes

2.1.2 LED and button



S/N	LED/button	S/N	LED/button
1	Power switch button/LED	5	System alarm LED
2	UID button/LED	6	Network port 1 connection status LED

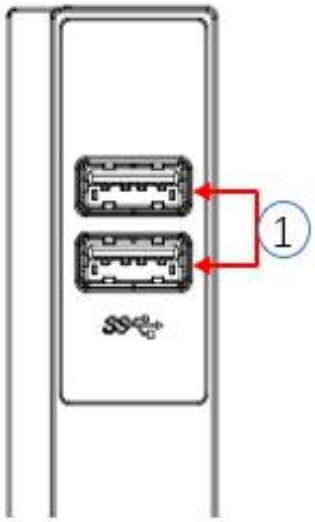
3	Reset server button	7	Network port 2 connection status LED
4	HDD LED		

LED status description		
Logo	LED/button	Status description
	Power LED	Description of the power LED: Green on: Indicates that the device has been powered on normally. Green flashing: 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.
	UID button/LED	The UID button/LED is used to conveniently locate the server to be operated, and the LED can be turned off or on by manually pressing the UID button or remotely controlling the BMC command. Description of UID LED: Blue (on/flashing): 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 restart server button	Press to restart the server
	HDD LED	Green flashing: The hard disk is operating normally
	System Alarm LED	System warning LED. Including system alarms, fan alarms, power supply alarms, etc., which can be viewed through the IPMI management software
	Network port connection status LED	Corresponds to the Ethernet port LED of the network card. Green on: Indicates that the network port is connected normally. Off: Indicates that the network port is not in use or faulty. Note: Corresponds to two 1GE network ports on the motherboard.
	Network port connection status LED	Corresponds to the Ethernet port LED of the network card. Green on: Indicates that the network port is

		connected normally. Off: Indicates that the network port is not in use or faulty. Note: Corresponds to two 1GE network ports on the motherboard.

2.1.3 Interface

- Interface location

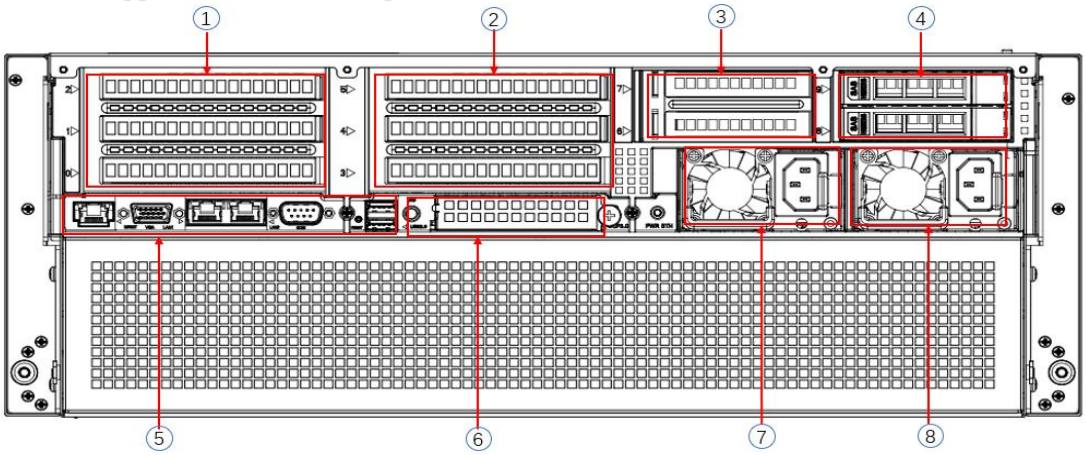


S/N	Name	S/N	Name
1	USB 3.0 interface	2	For accessing USB device

2.2 Rear panel

2.2.1 Appearance

- Appearance of the rear panel



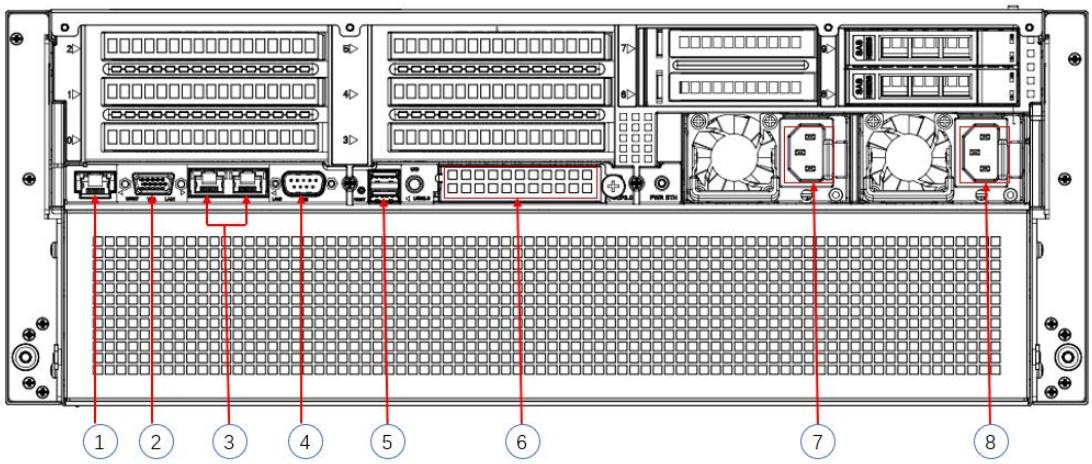
S/N	Name	S/N	Name
1	Riser 1 module	2	Riser 2 module
3	Riser 3 module	4	Riser 4 module
5	I/O port	6	OCP 3.0 network card (optional)
7	PSU1	8	PSU2

Description:

- 1. Riser1 module, Riser2 module, Riser3 module, Riser4 module can choose rear hard disk module or PCIe Riser module.
- 2. This picture is for reference only, the actual configuration shall prevail.

2.2.2 LED and button

- Rear panel LED



S/N	Name	S/N	Name
1	Connection status LED	5	UID LED
2	Data transmission status LED	6	OCP network port LED
3	Connection status LED	7	Power module LED
4	Data transmission status LED	8	Power module LED

- Description of power module LED

LED/button	Status description
Power module LED	Green (on): Indicates that the input and output are normal. Yellow (on): Indicates that the AC power cord is unplugged or the power module is lost, 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/flashing): Indicates that the input is normal, and the output is turned off due to power-on or in-position; the input is over-voltage or under-voltage. Green (2Hz/flashing): Indicates that the Firmware is being upgraded online. Yellow (1Hz/flashing): Indicates power supply warning events that the power supply continues to run; power supply over-temperature protection, power supply output overcurrent/overvoltage, and fan speed is slow.

	Off: Indicates no AC power input.
Connection status LED	Green on: Indicates 1000M Link. Orange on: Indicates a 100M link. Off: 10M Link.
Data transmission status LED	Yellow (flashing): Indicates data is being transmitted. Off: Indicates no data transmission.
UID LED	The blue LED is on when it is on. You can use the IPMI page Or the UID button control on the server
OCP network port LED	The upper two are connection status LEDs, and the lower two are data transmission status LEDs

2.2.3 Interface

- Rear panel interface

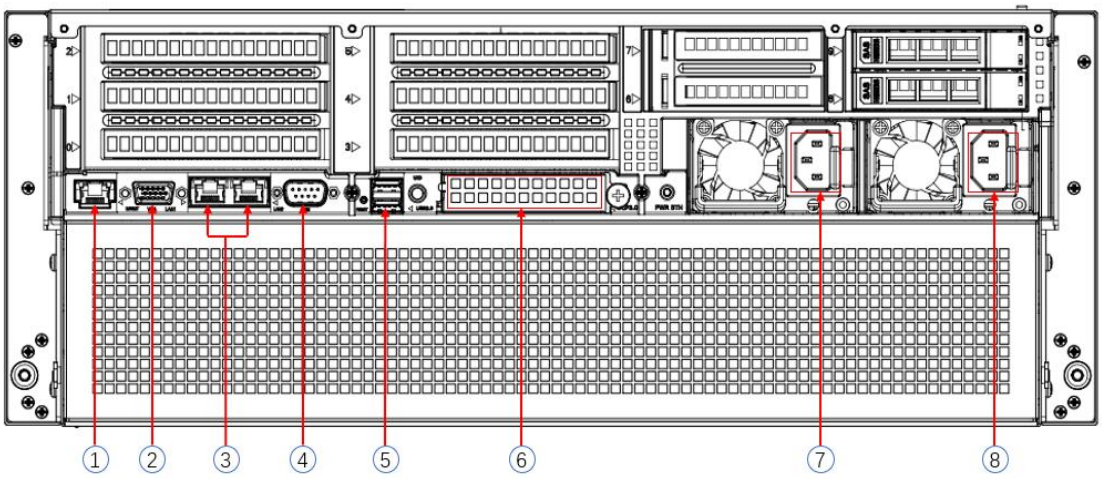


Figure (2-8)

S/N	Name	S/N	Name
1	Management network port	2	VGA interface
3	Gigabit Ethernet port	4	COM interface
5	USB 3.0 interface	6	OCP3.0 interface
7	Power module interface 1	8	Power module interface 2

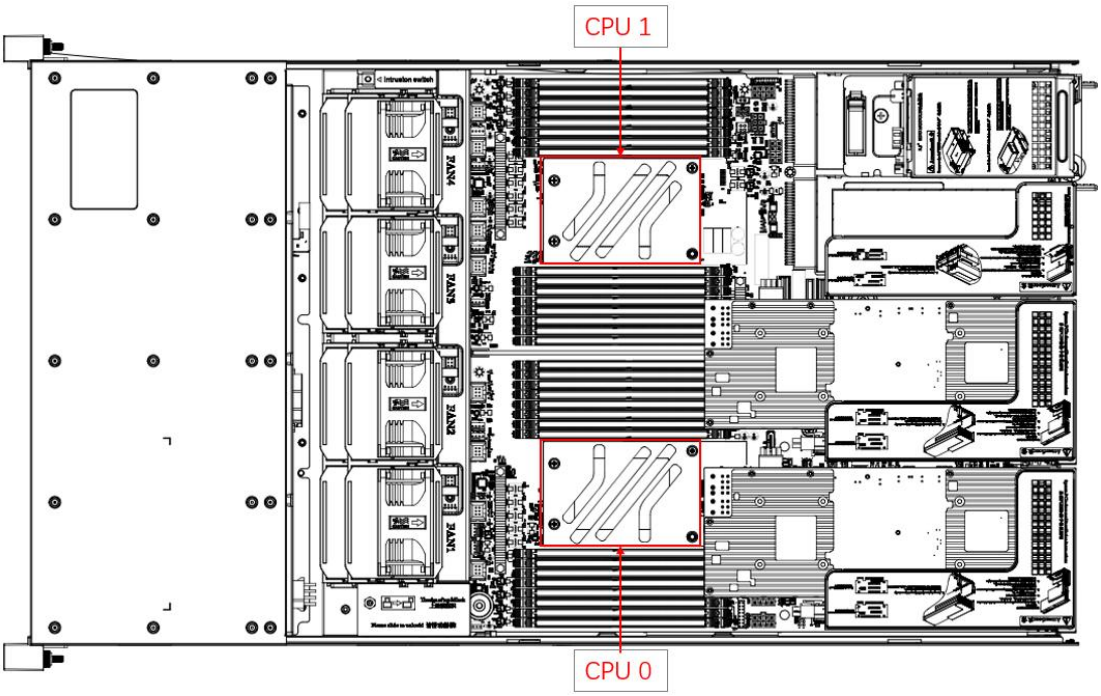
- Interface Description

Name	Type	No.	Description
VGA interface	DB15	1	Used to connect a display terminal, such as a monitor or KVM .
Management network port	GE BASE-T	1	Provide outgoing 1000Mbit/s Ethernet port. The server can be managed through this interface.
USB interface	USB 3.0	2	Provide an external USB interface through which USB devices can be connected. Notice:

			When using an external USB device, please make sure that the USB device is in good condition, otherwise the server may work abnormally.
RJ45 Gigabit Ethernet port	GE BASE-T	2	Server network port.
AC interface of the power module	/	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 whole machine.
COM port		1	Serial communication port
OCP3.0 interface		1	Install OCP3.0 network card

2.3 Processor

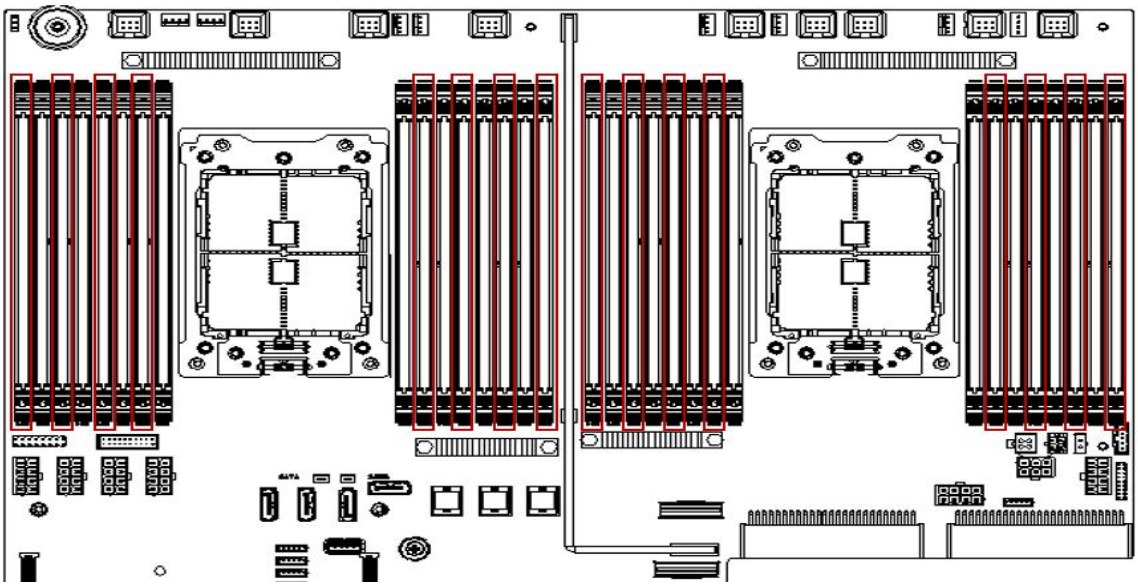
- Supports 2 AMD EPYC™ 7003/7002/7001 processors.
- When configuring 1 processor, it needs to be installed in the CPU 0 position.
- Processors configured on the same server must have the same model.
- For specific optional purchasing system options, please consult Gooxi sales rep.
- The location of the processor is shown in the figure below:



2.4 Memory

2.4.1 Memory slot location

The motherboard supports 16 DDR4 channels, each channel supports 2 DIMMs, and 2 CPUs support 32 DDR4 slots in total (when only one memory is inserted, insert the blue slot on the motherboard first).



2.4.2 Memory compatibility information

The motherboard supports DDR4 RDIMM/LRDIMM server memory, and the memory frequency supports 2400/2666/2933/3200;

Notice:

- The same server must use the same type of DDR4 memory, and all memory must run at the same speed, and the speed value is the lowest value of the following items:
- Memory speed supported by a particular CPU.
- Maximum operating speed for a specific memory configuration.
- Different types (RDIMM, LRDIMM) and specifications (capacity, bit width, rank, height, etc.) do not support mixed use.
- The maximum memory capacity supported by different models of AMD EPYC CPUs is different. (See attachment-AMD CPU memory installation guide for details)

# 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

Note:

1: M1 can be inserted in any slot, C or D is recommended.

2: M1, M2 can be inserted in any slot, C or G is recommended.

3: M1 can be in any slot, M2 can be inserted in any other slot.

4: M1 ≠ M2; M2 ≠ M3; M3 ≠ M4.

2.5 Storage

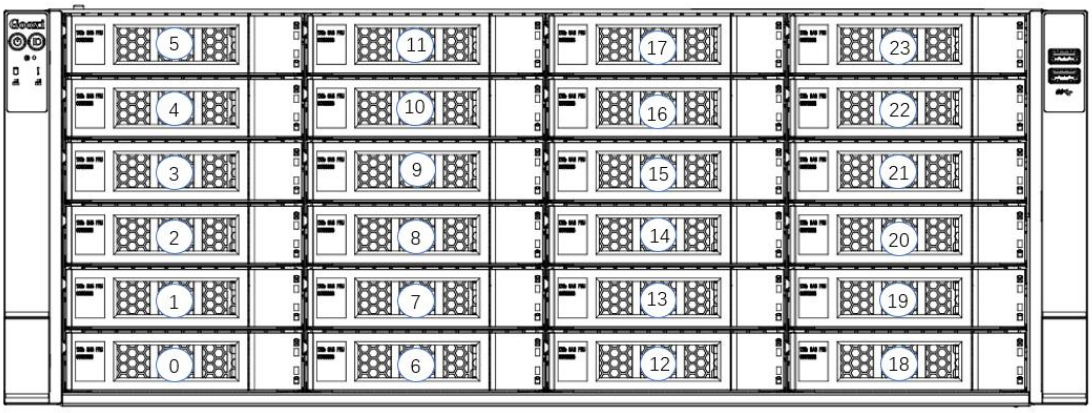
2.5.1 Hard disk configuration

Configuration	Max no. of front hard	*Max no. of rear hard disks (piece)	Description

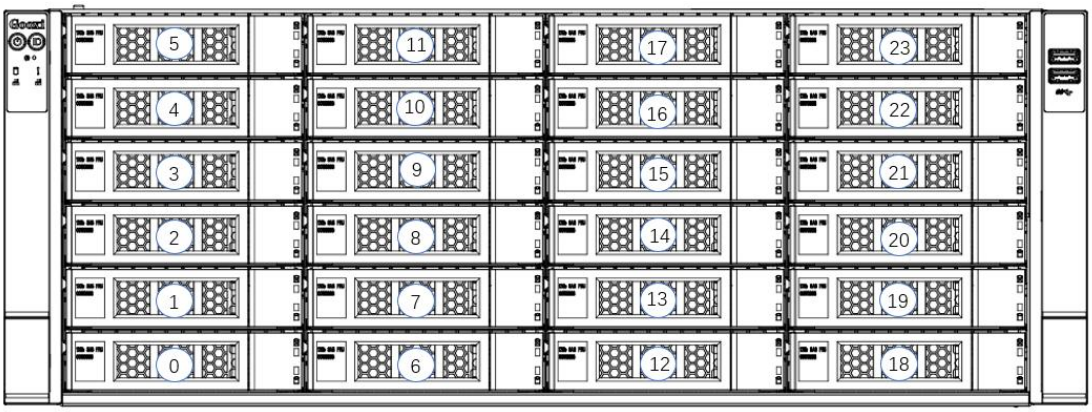
	disks (piece)		
24x3.5 inch hard drives	Front hard drive (24x3.5 or 2.5) : 0-23 slots support SAS/SATA hard drive	Riser 1/ Riser 2 : Support expansion of 4* 3.5 inch SAS/ SATA hard drives Riser 3/ Riser 4: Support expansion of 4* 2.5 inch SAS/ SATA / U.2 hard drive	SAS hard drives need to be supported by optional SAS pass-through card or RAID card.
36x3.5 inch hard drives	Front hard disk (36x3.5 or 2.5) : 0-35 slots support SAS/SATA hard drive	Riser 1/ Riser 2 : Support expansion of 4* 3.5 inch SAS/ SATA hard drives Riser 3/ Riser 4: Support expansion of 4* 2.5 inch SAS/ SATA / U.2 hard drive	
Note: *The maximum number of rear hard drives is affected by the type of NVMe /SAS/SATA hard drives.			

2.5.2 Hard disk serial number

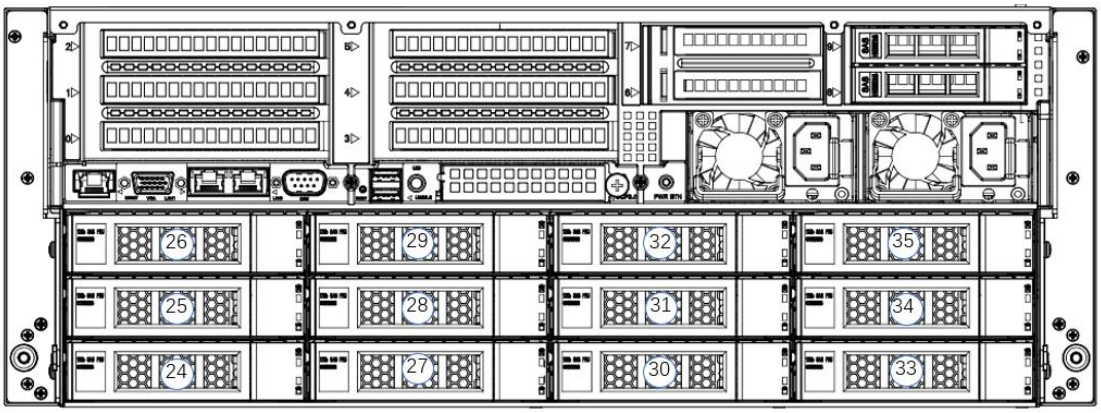
- 24x3.5 inch hard drive configuration



- 36x3.5 inch hard drive configuration

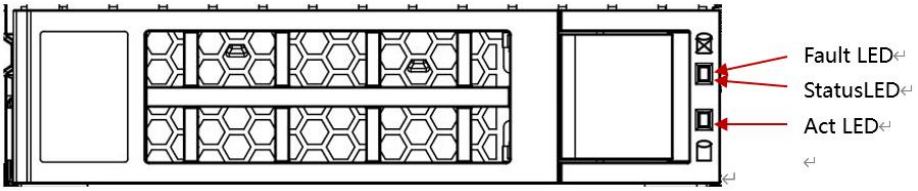


Front 24-bay view



Rear 12-bay view

2.5.3 Hard disk status LED



- Hard Disk Status LED Description

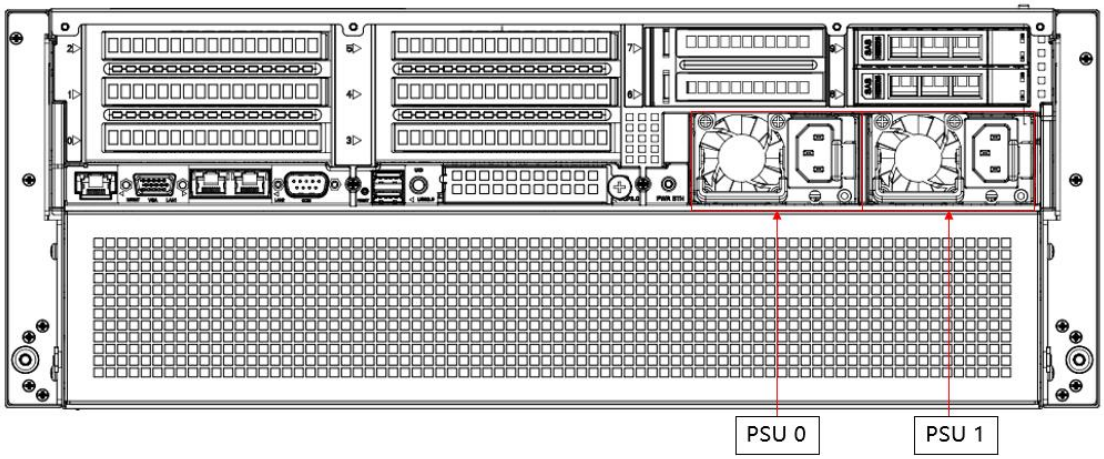
Function	Act LED	Fault LED	Status LED
Hard disk in place	On	Off	Off
Hard disk activity	On	Off	Off
Hard disk positioning	On	Flashing 4Hz/sec	Off
Hard disk error	On	Off	On
RAID rebuild	On	Off	Flashing 1Hz/second

2.6 Power supply

- Support 1 or 2 power modules;
- Supports AC or DC power modules;
- Support hot swap;
- When configuring 2 power modules, it supports 1+1 redundant backup;
- For power modules configured on the same server, the power module models must be the same;
- For specific optional purchasing system options, please consult Gooxi sales

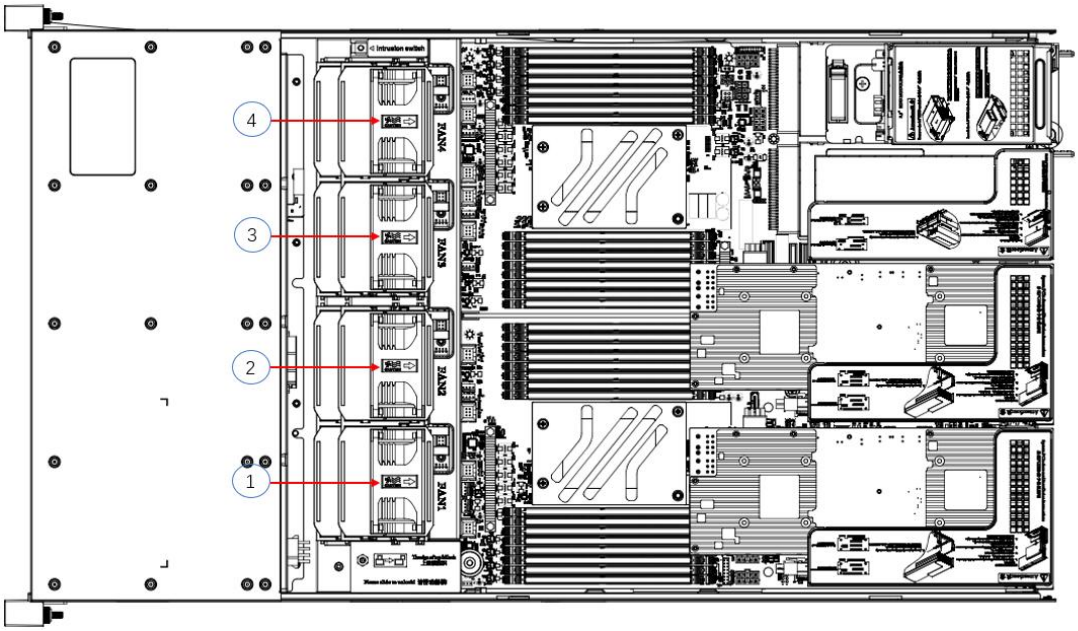
rep;

- The location of the power supply is shown in the figure below:



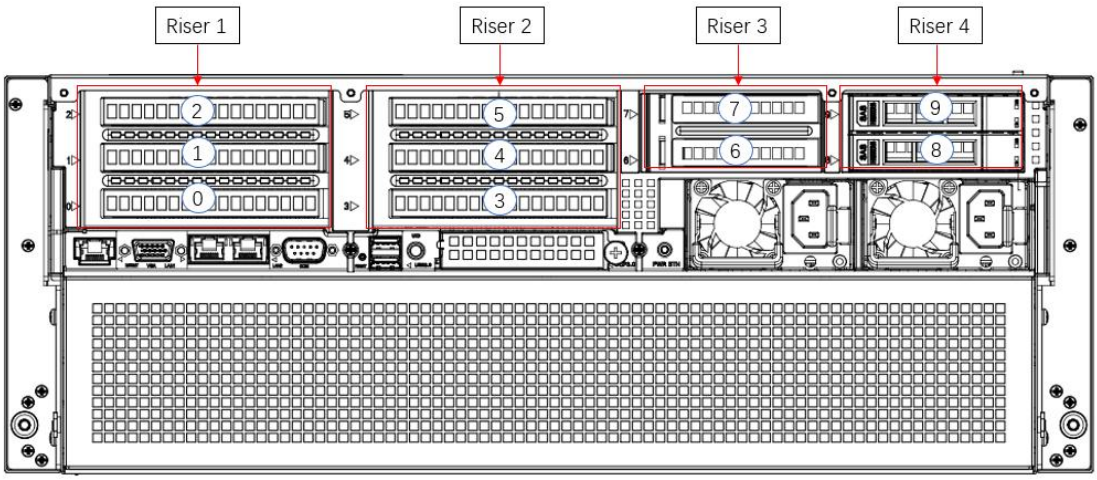
2.7 Fan

- Support 4 fan modules;
- Support hot swap;
- Support single fan failure;
- Support variable fan speed;
- For fan modules configured on the same server, the fan module models must be the same;
- The location of the fan is shown in the figure below:



2.8 I/O expansion

2.8.1 PCIe slot distribution



- Riser 1 provides slots Slot0-2; Riser2 provides slots Slot3-5; Riser3 provides slots Slot6-7; Riser4 provides slots Slot8-9.
- Riser 1 is optional: two 3.5 inch hard disk modules/PCIE full-height expansion modules (choose 1 from 2):

When selecting the PCIE expansion module, Slot0 can be connected to PCIe X8 or PCIe X16 devices, Slot1 can be connected to PCIe X8 devices, and Slot2 can be connected to PCIe X16 devices. When 3.5 inch hard disk module is selected (this module supports a maximum of two 3.5 inch SAS/SATA hard disk), Slot0-2 cannot be connected to any device.

- Riser 2 is the same as the configuration of Riser 1 above .
- Riser 3 is optional: two 2.5 inch hard disk modules/PCIE half-height expansion modules (choose 1 from 2):

When the PCIE expansion module is selected, Slot6 can be connected to PCIe X8 devices, and Slot7 can be connected to PCIe X16 devices.

Note: (the position of this motherboard is one PCIe X16, and the PCIE expansion module is one X16, one x8). When selecting 2.5-inch hard disk module (the module supports a maximum of Slot6-7 cannot be connected to any device.

- Riser 4 is optional: two 2.5 inch hard disk modules/PCIE half-height expansion modules (choose 1 from 2):

When the PCIE expansion module is selected, Slot8 can be connected to PCIe X8 devices, and Slot9 can be connected to PCIe X16 devices.

Note : (the position of motherboard is two Silmline X8, the PCIE expansion module is one X16, one X8). When choosing 2.5 inch hard disk module (this module supports two 2.5 inch SAS /SATA hard disks at most), Slot8-9 cannot be connected to any device.

2.8.2 PCIe slot description

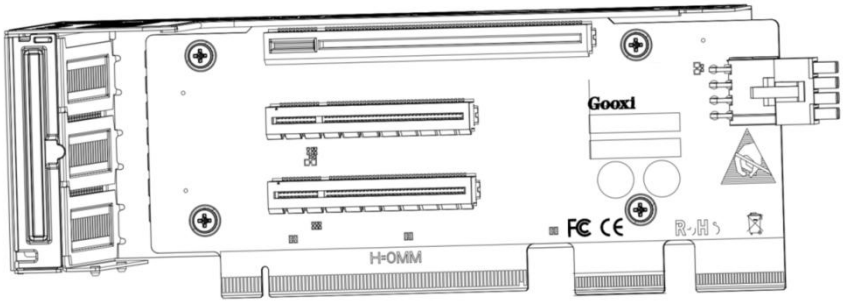
PCIe slot	Slave CPU	PCIe standard	Bus bandwidth	Slot size
Onboard network card	CPU 0	PCIe x2 (2.0)	2 RJ45	/
OCP network card	CPU 0	PCIe x8 (3.0/4.0)	1 OCP3.0	/
Riser 1	CPU 0	PCIe x32 (3.0/4.0)	2 PCIe X16 slots	Full height, full length
			1 PCIe X16 slot, 2 PCIe X8 slots	Full height, full length
			3 PCIe X8 slots	Full height, half length
Riser 2	CPU 1	PCIe x32 (3.0/4.0)	2 PCIe X16 slots	Full height, half length
			1 PCIe X16 slot, 2 PCIe X8 slots	Full height, full length
			3 PCIe X8 slots	Full height, full length
Riser 3	CPU 1	PCIe x 16 (3.0/4.0)	1 PCIe X16 slot	Half height, half length
	CPU 1		2 PCIe X8 slots	Half height, half length
Riser 4	CPU 1	2*Silmline X8	1 PCIe X16 slot	Half height, half length

	CPU 1		2 PCIe X8 slots	Half height, half length
Notice: ◆ The slot with bus bandwidth of PCIe x16 is backward compatible with PCIe cards of PCIe x8, PCIe x4 and PCIe x1. Up is incompatible, that is, the bandwidth of the PCIe slot cannot be smaller than the bandwidth of the inserted PCIe card. ◆ Full-height and full-length PCIe slots are backward compatible with full-height, half-length, half-height and half-length PCIe cards; slots with full-height and half- length PCIe slots are backward compatible with half-height and half-length PCIe cards. ◆ The power supply capacity of all slots can support PCIe card with a maximum of 75W, and the power of the PCIe card depends on the model of the PCIe card.				

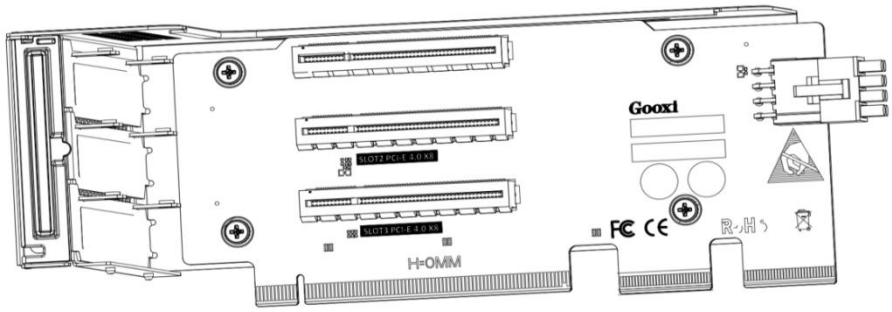
Note: When CPU1 is not in place, its corresponding PCIe slot is unavailable.

2.8.3 PCIe expansion module

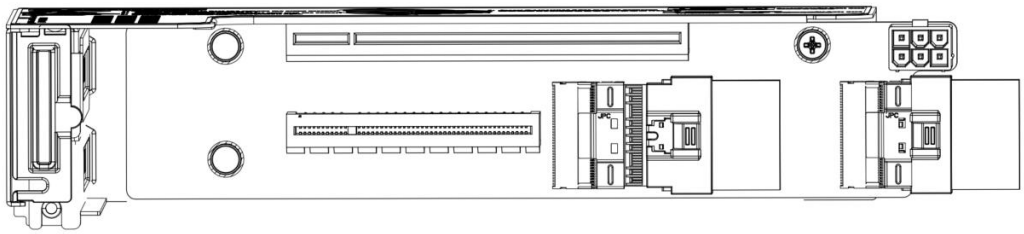
- PCIE expansion module 1
  From x32 to x16+ 2* x8 Riser card
  - Installed at Riser1, providing 1 PCIe X16 slot and 2 PCIe X8 slots ;
  - Installed at Riser2, providing 1 PCIe X16 slot and 2 PCIe X8 slots ;



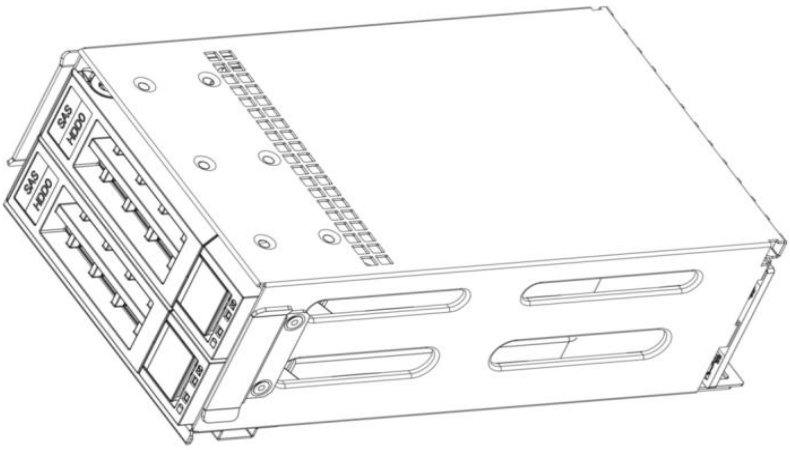
- PCIe expansion module 2
  x24 to x8+x8+x8 Riser card
  – Installed at the Riser1 position, providing 3 PCIe X8 slots for PCIe slots;
  – Installed at the Riser2 position, providing 3 PCIe X8 slots for PCIe slots.



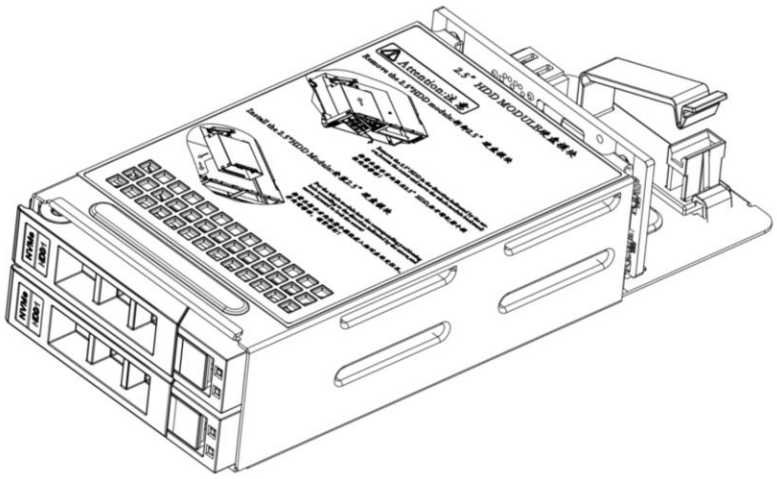
- PCIe expansion module 3
  2*Slimline x8 to 2*PCIe3.0x8 (1*x16 SLOT+1*x8 SLOT)
  – Installed at Riser3, providing 1 PCIe X16 slot and 1 PCIe X8 slot.



- 3.5 inch hard disk module

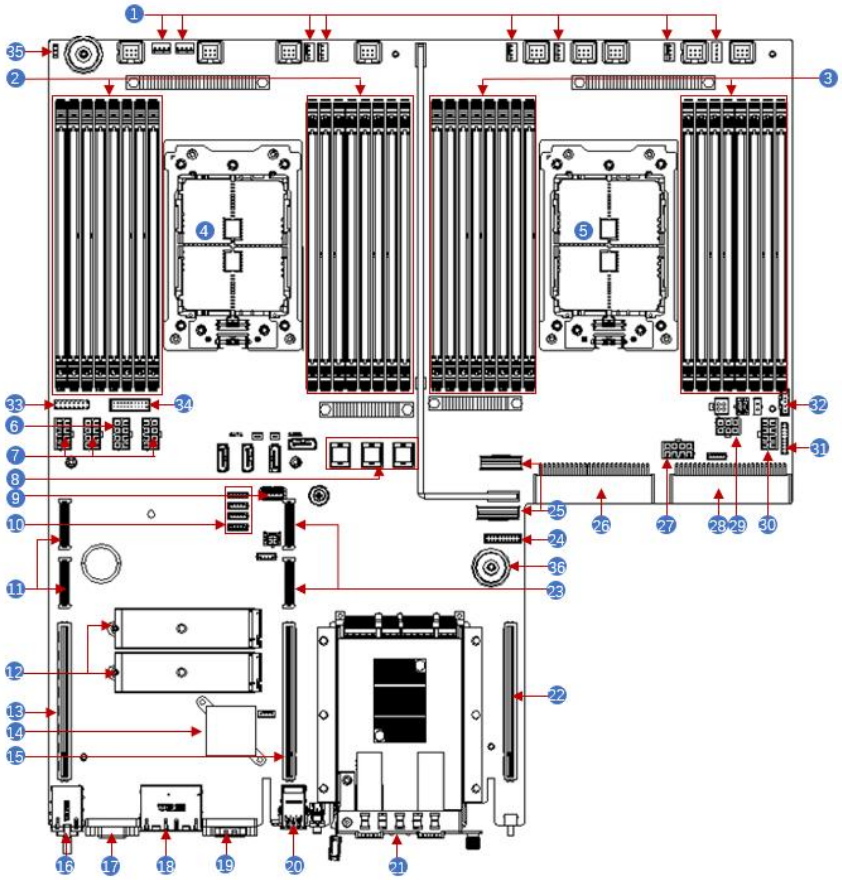


- 2.5 inch hard disk module



2.9 PCBA

2.9.1 Motherboard



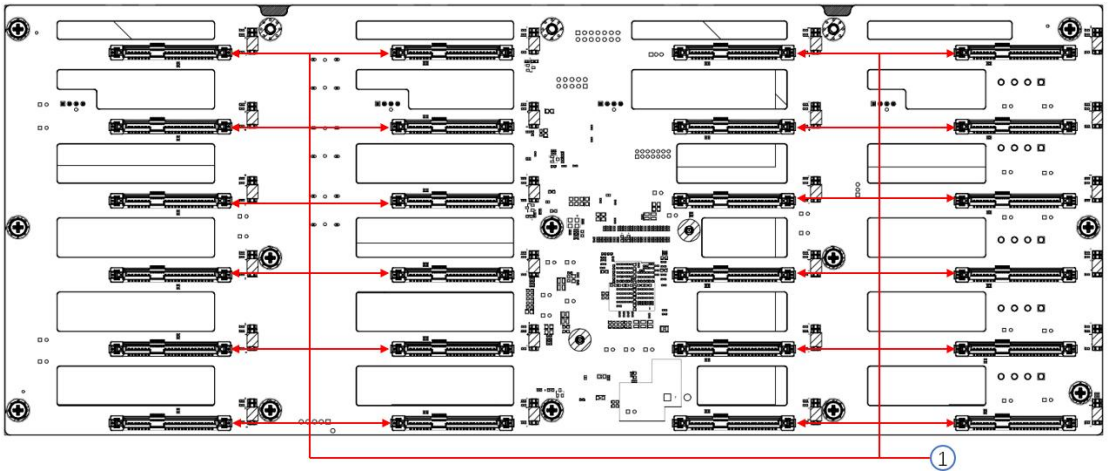
G1DLRO-B motherboard diagram

S/N	Name
1	4U chassis fan control 4 pin interface
2	Memory slot (corresponding to CPU 0)
3	Memory slot (corresponding to CPU1)
4	CPU0
5	CPU1
6	GPU Power 2*4 pin interfaces
7	BP Power 2*4pin interfaces
8	SFF8643 SATA interface
9	USB3.0 interface
10	BP I2C interface
11	PCIe4.0 X8
12	M.2
13	PCIe4.0 X16
14	I350

15	PCIe4.0 X16
16	IPMI RJ45 1Gb
17	VGA
18	LAN RJ45 1Gb*2
19	DB-9 COM port
20	USB3.0
21	OCP 82599
22	CPU1 PCIe4.0 X16
23	CPU1 PCIe4.0 X8
24	BP HDD LED
25	Slimline PCIe4.0 X8
26	CPRS PSU
27	GPU Power
28	CPRS PSU
29	RISER POW
30	BP Power
31	FP BIN LED
32	PMBUS/BP5 I2C
33	FP VGA
34	FP USB3.0
35	Chassis Intrusion
36	Motherboard handle

2.9.2 Hard disk backplane

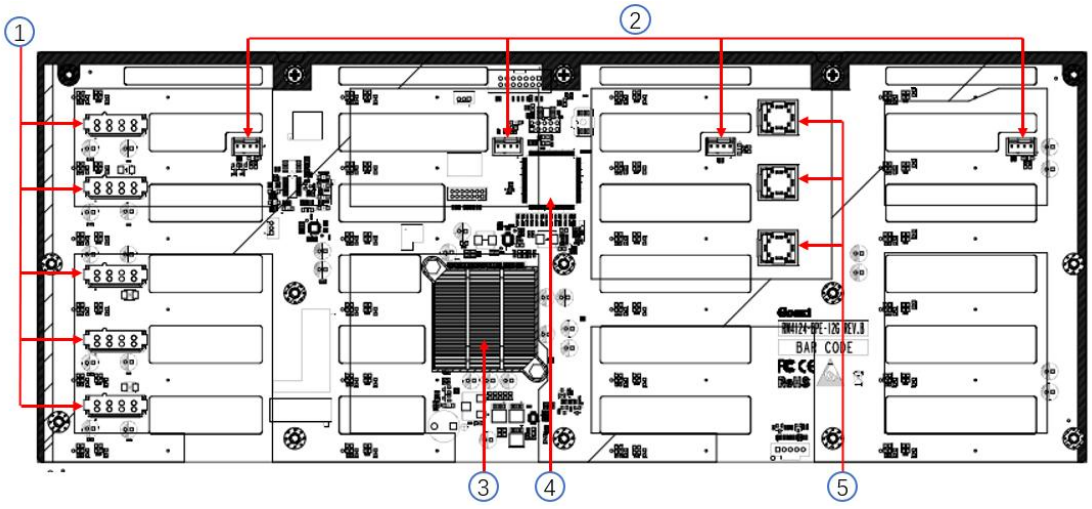
- Front 24× 3.5 inch HDD backplane
  TOP surface



S/N	Description	Function
1	SAS/SATA hard disk connector	1. Support 12Gb/s SAS hard disk; 2. Support 6Gb/s SATA hard disk; 3. Support SAS/SATA hard disk hot swap.

Table (2-14)

Bottom side

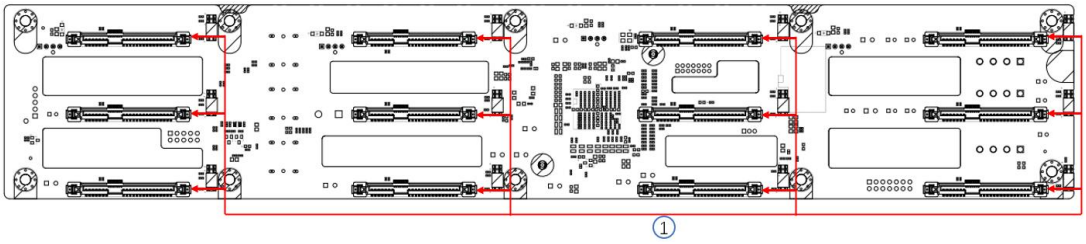


S/N	Description	Function
1	ATX power input	Backplane power transmission connector, used for 12V power transmission

2	Temperature-controlled fan socket	For 4pin fan interface
3	Expander chip controller	PM8044 SXP 24Sx12G 24-port 12G SAS Expander
4	CPLD	For data logic processing
5	MiniSAS HD high-speed connector	For 12Gb/s SAS or 6Gb/s SATA signal transmission

- Rear 12 x 3.5 inch backplane

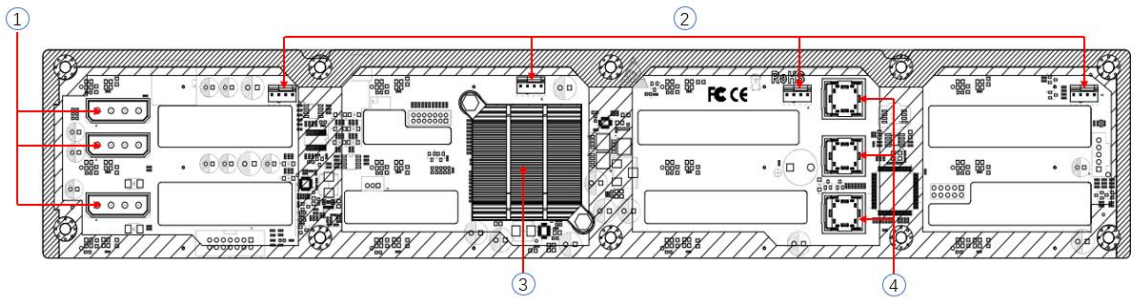
TOP surface



S/N	Description	Function
1	SAS/SATA hard disk connector	1. Support 12Gb/s SAS hard disk; 2. Support 6Gb/s SATA hard disk; 3. Support SAS/SATA hard disk hot swap.

- 12 x 3.5 inch backplane

Bottom side



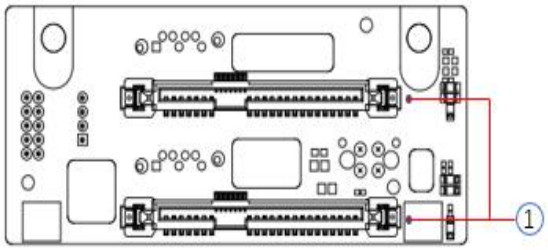
S/N	Description	Function
1	Power connector	Backplane power transmission connector, used for 12V power transmission
2	Temperature-controlled fan socket	For 4pin fan interface
3	Expander chip	PM8043 SXP 24Sx12G 24-port 12G SAS Expander
4	MINI SAS HD high-speed	Used for 12Gb/s SAS or 6Gb/s

	connector	SATA signal transmission

Note:*The expansion chip is not available for the direct connection backplane.

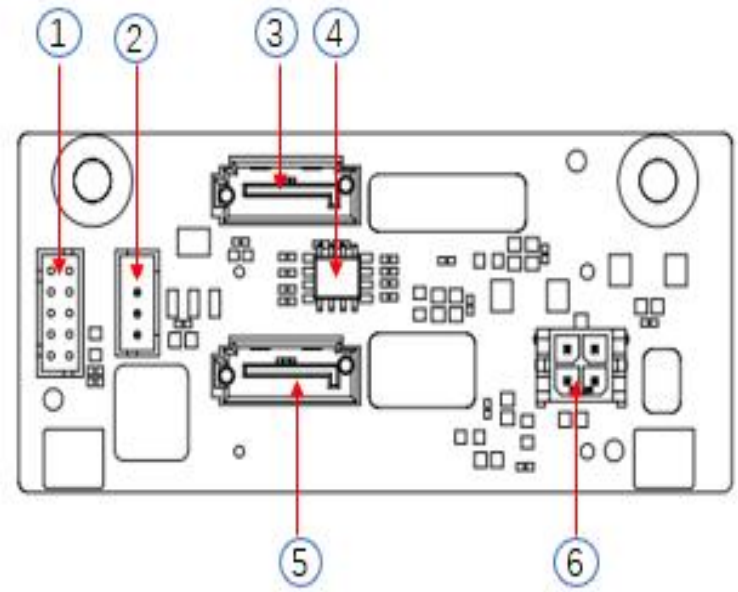
- 2 x 2.5 inch rear hard disk backplane

TOP surface



S/N	Description	Function
1	SAS/SATA hard disk connector	Support 12Gb/s SAS hard disk; 6Gb/s SATA hard disk

Bottom side



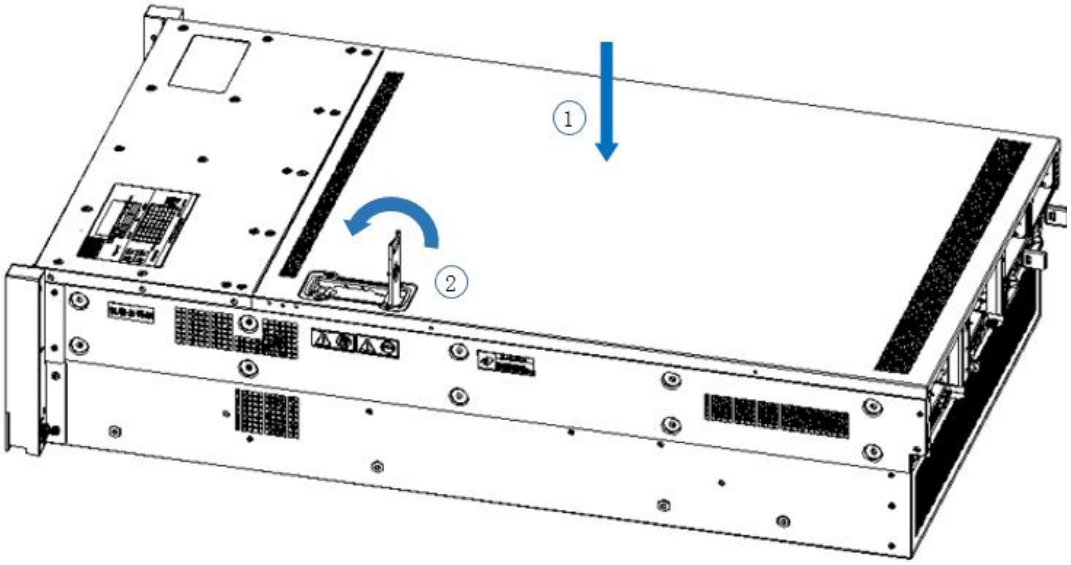
S/N	Description	Function
1	SGPIO lighting signal	It is used for hard disk LED positioning lighting and fault LED indication functions.
2	I2C interface	For I2C signal interface
3, 5	7PIN SATA interface	SATA disk signal cable interface
4	Temperature sensor IC	Temperature sensor chip
6	Power interface	Backplane power transmission connector, used for 12V power

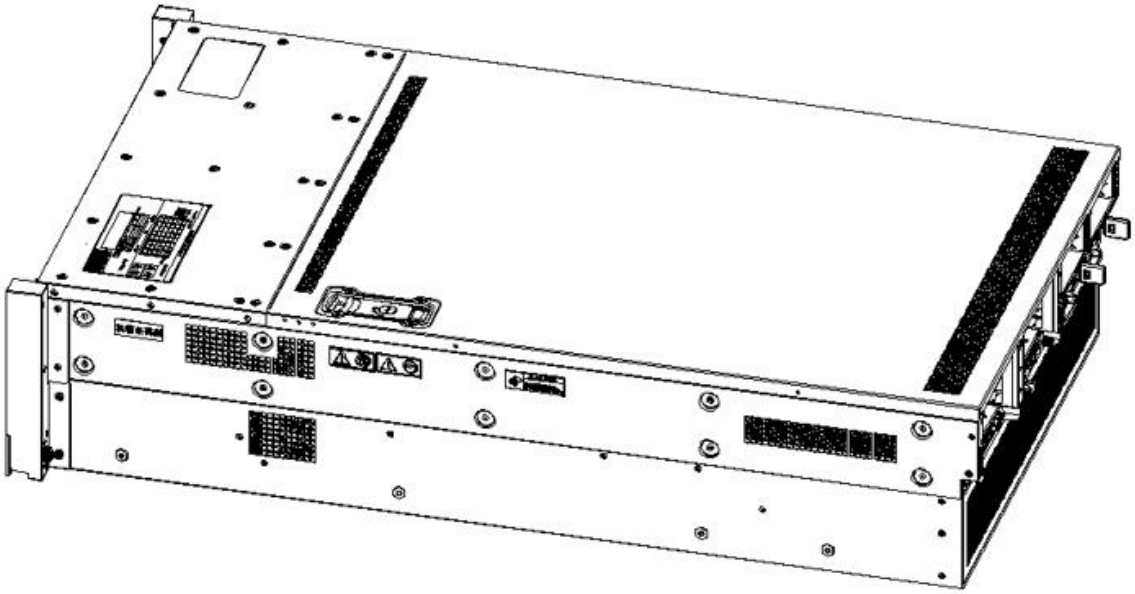
		transmission

3 Installation Notes

3.1 Chassis upper cover installation

- Step 1: Align the nails on the upper cover with the opening of the box and place it downwards;
- Step 2: Push forward to lock in the direction of the arrow.





3.2 Mounting accessories

3.2.1 Install the CPU

Starting to install the CPU, please read the following guides:

- 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 electrical outlet to prevent damage to the hardware.
- Unplug all cables from electrical outlets.
- 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!

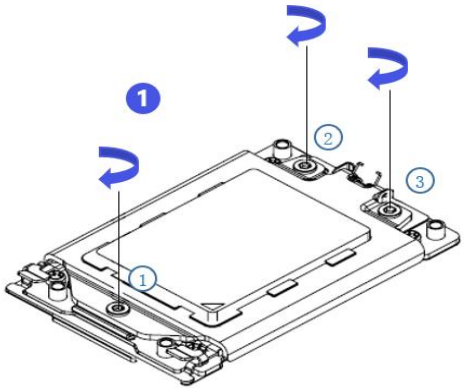
Serious damage could result if the server is not properly shut down before component installation begins. Do not attempt the procedures described in the following sections unless you are a qualified service technician.

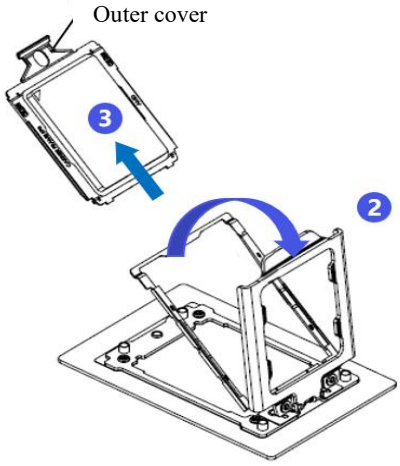
Follow the instructions below to install the CPU:

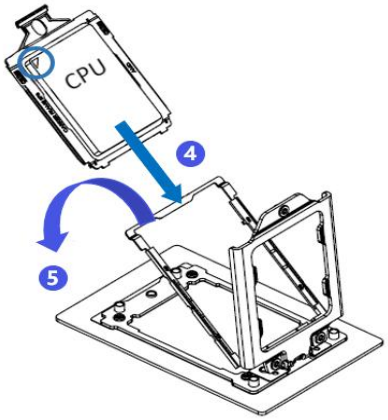
1. In sequence (3 → 2 → 1), loosen the 3 fixing screws that secure the CPU cover.
2. Flip open the CPU cover.
3. Use the handle on the CPU tray to remove the CPU tray from the CPU rack.
4. Using the handle on the CPU tray, insert the new CPU tray with the CPU installed into the CPU rack.

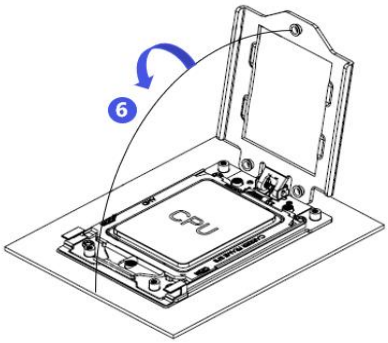
Note: Make sure the CPU is installed in the correct orientation in the CPU tray, with the triangle on the CPU aligned with the upper left corner of the CPU carrier.

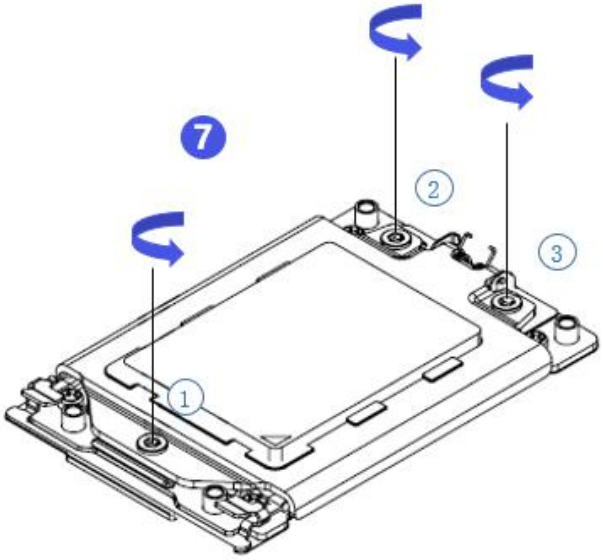
5. Flip the CPU rack with the CPU installed into the proper position in the CPU socket.
6. Flip the CPU cover into place over the CPU socket.
7. Tighten the CPU cover screws in sequence (1 → 2 → 3) to secure the CPU cover in place. Torque: 16.1 kgf-cm (14.0 lbf-in)
8. Repeat steps 1-7 for the second CPU.
9. To remove the CPU, perform steps 1-7 in reverse order.


1
2
3


Outer cover
3
2


CPU
4
5


6
CPU


7
2
3
1

3.2.2 Install heat-sink

Before starting to install the heat-sink, please read the following guidelines:

- Always turn off the computer and unplug the power cord from the electrical outlet before installing the heat sink to prevent damage to the hardware.
- Unplug all cables from electrical outlets.
- 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.

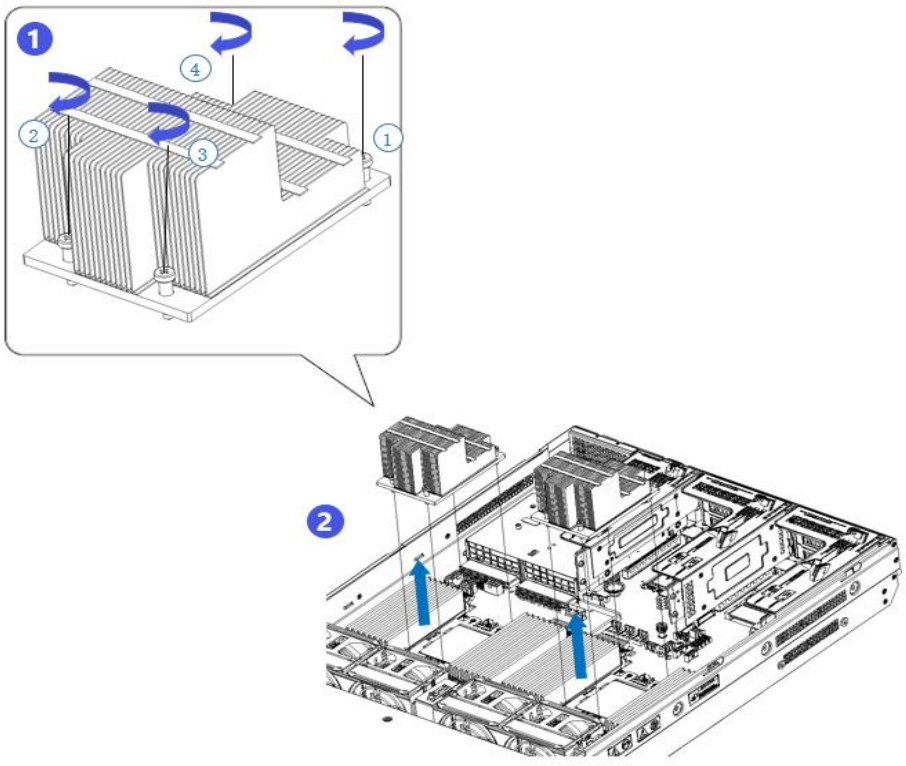
⚠Warning!

Failure to shut down the server before beginning component installation could result in serious damage. Do not attempt the procedures described in the following sections unless you are a qualified service technician.

⚠Note: When installing the heat-sink to the CPU, use a Phillips screwdriver to tighten the 4 fixing nuts in the order of 1-4.

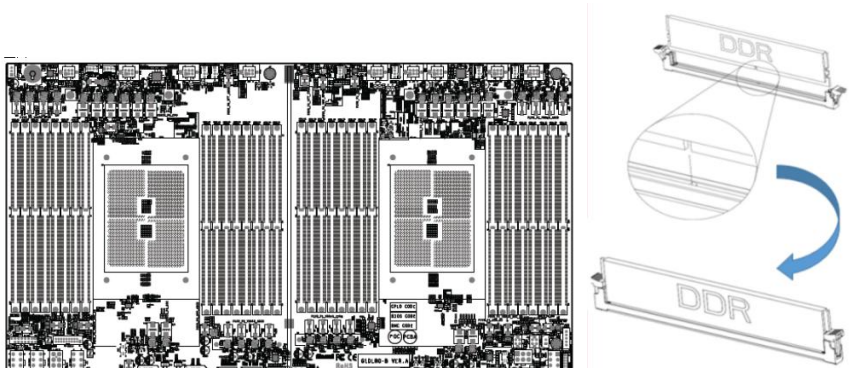
Follow the instructions below to disassemble and install the heat-sink:

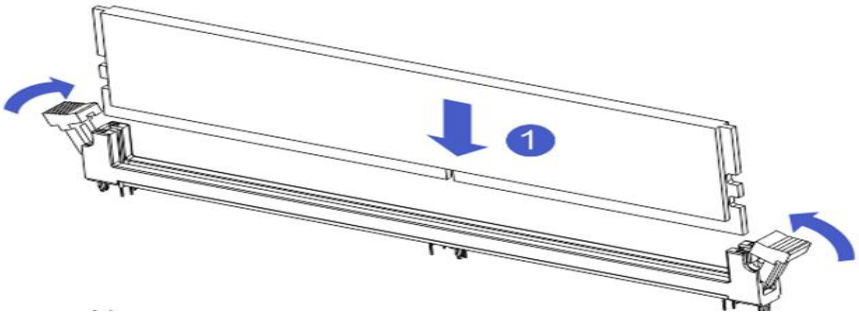
1. Loosen the screws holding the heat sink in place in reverse order (4 → 3 → 2 → 1).
2. Lift the heat sink and remove it from the system.
3. To install the heat-sink, reverse steps 1-2 while making sure to tighten the set screws in order (1 → 2 → 3 → 4) as shown in the image below.

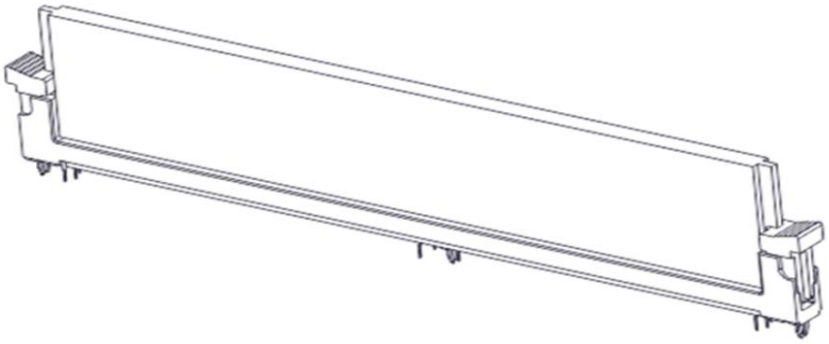


3.2.3 Install memory

The 16 memory slots controlled by CPU 0 of the motherboard are: DIMMA1, A2, DIMMB1, 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: DIMMA3, A4, DIMMB3, B4, DIMMC3, C4, DIMMD3, D4, DIMM E3, E4, DIMM F3, F4, DIMM G3, G4 and DIMM H3, H4. Note that the notch of the memory is consistent with the notch of the DIMM slot, and snap each DIMM module vertically into place to prevent incorrect installation

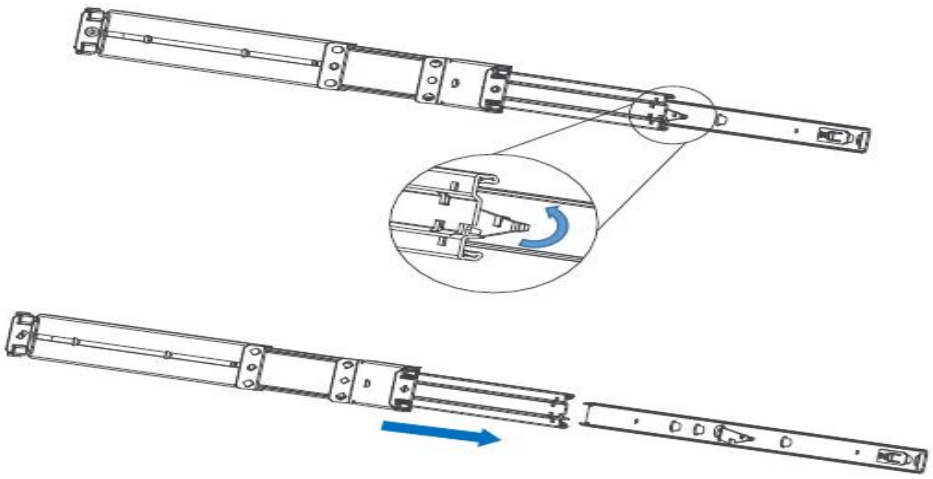




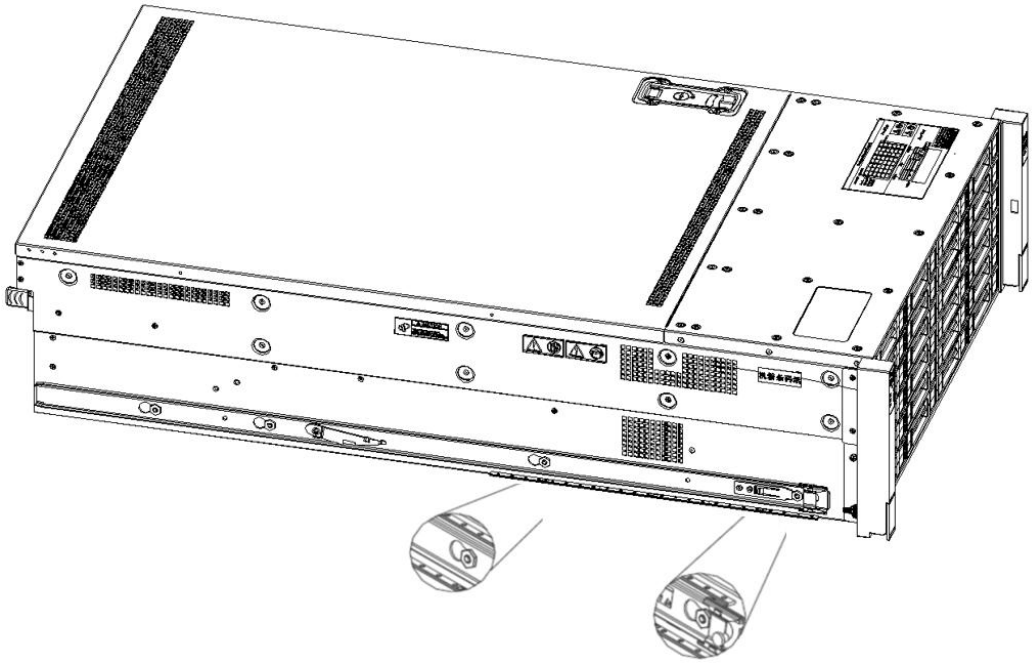


3.2.4 Install the server rails

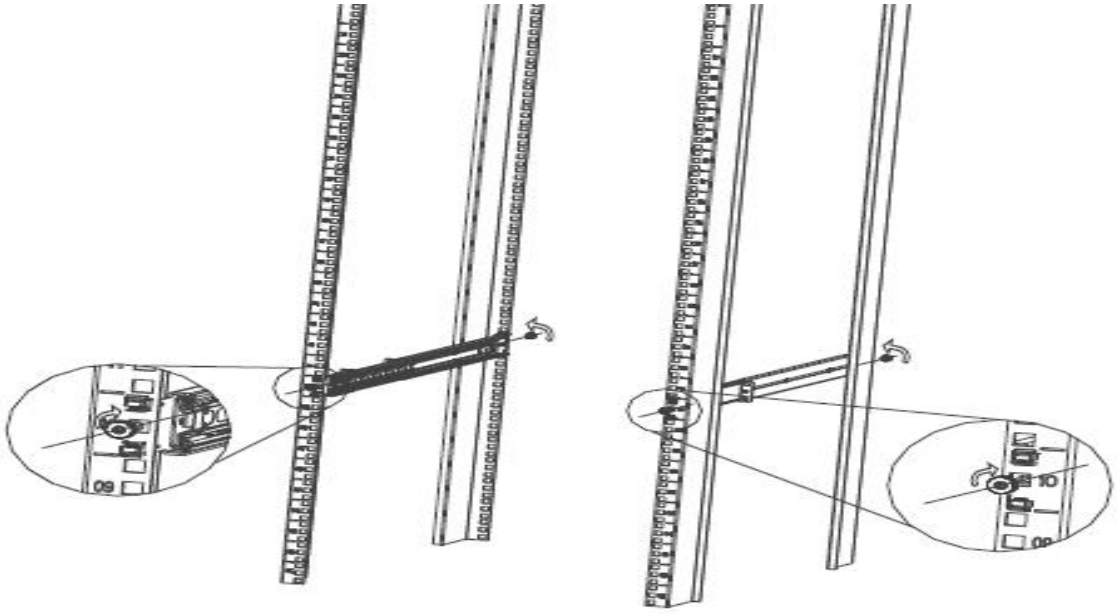
- Step 1: Prepare 2 slide rails and pull out the inner rail



- Step 2: Fasten the inner rails to the sides of the case

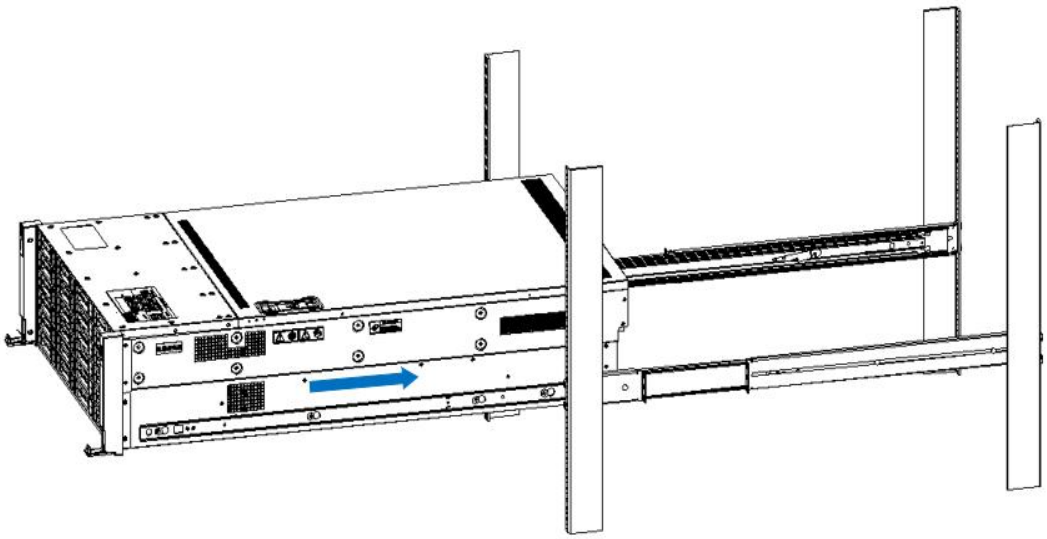


- Step 3: Install the outer rails on the cabinet brackets and secure the screws



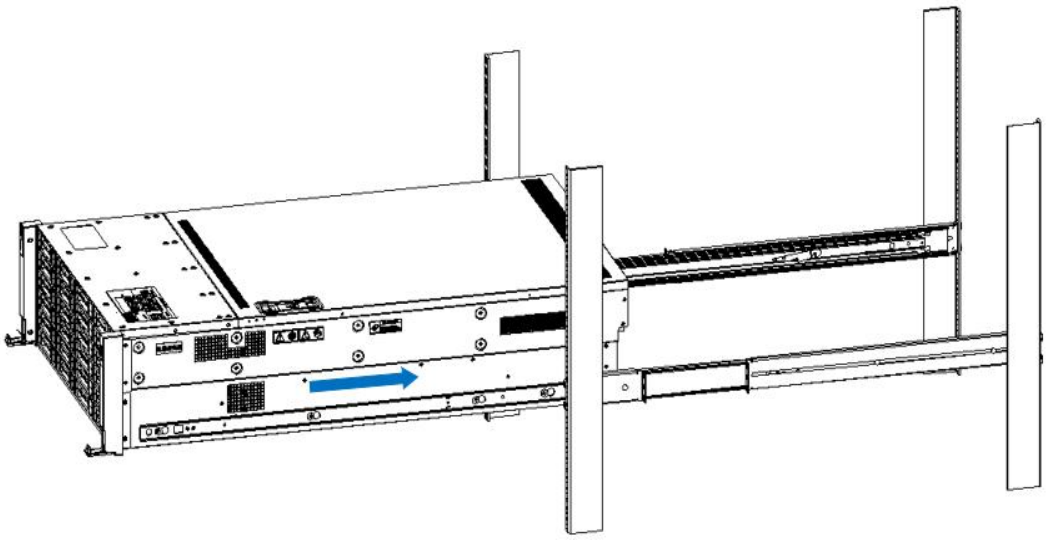
Note: When installing the guide rail, it is necessary to align with the U mark, and when it is installed in place with a snap, secure it with M5 screws.

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



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: When the chassis is pushed forward and cannot slide, the screws are firmly installed and the installation is complete



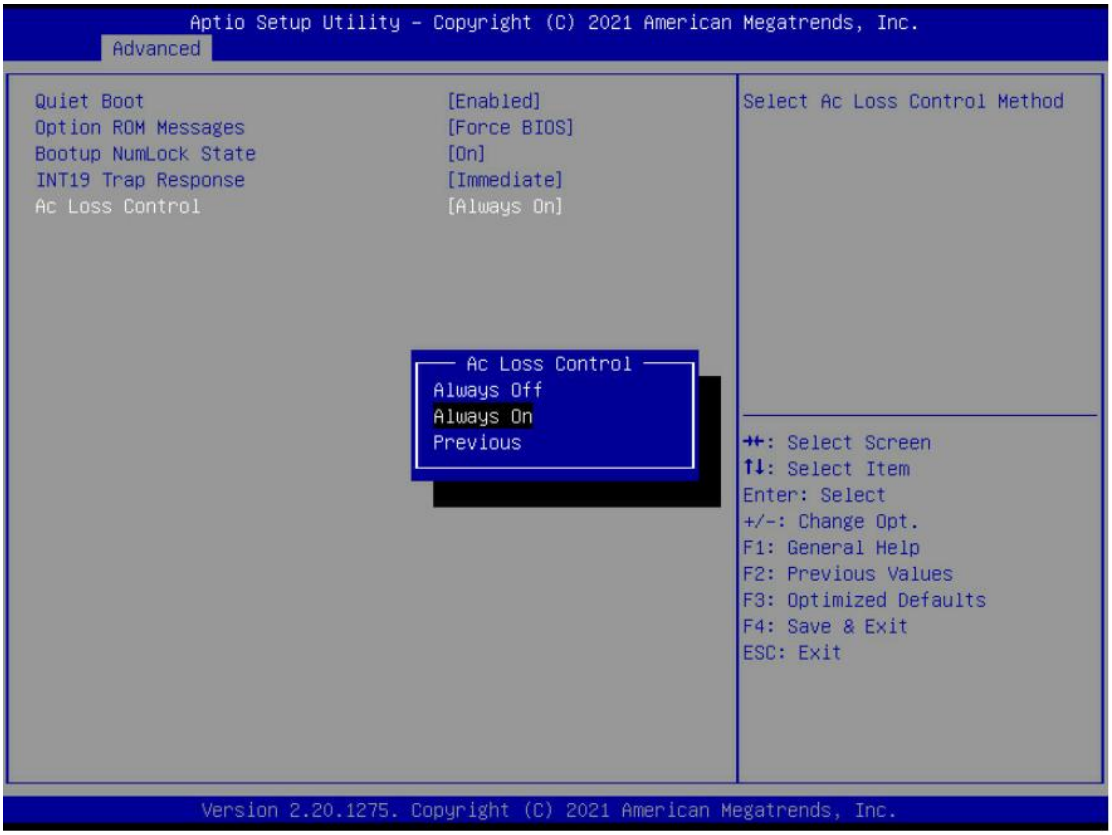
Note: During equipment maintenance, it is necessary to loosen the panel screws and pull the chassis lightly. Do not push or pull the chassis at random speed to avoid damage to the equipment.

4 Configuration Instructions

4.1 Initial configuration

4.1.1 Power on

- 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 disks, 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 supply is powered on, but the server is not turned on, and the power LED is yellow.
  Power on, the server starts up, and the power LED is green.
- How to power on the server:
  The server's system defaults to "power-on strategy", that is, the server will automatically start after power-on. Users can modify it on 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:



Pic 4-1

- AC Loss Control power-on control
  Status setting, the menu options are:
  Always off: power on directly
  Always on: You need to press the Power button to turn on the power
  Previous: Leave Power State Unchanged

- 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-> can execute according to requirements.

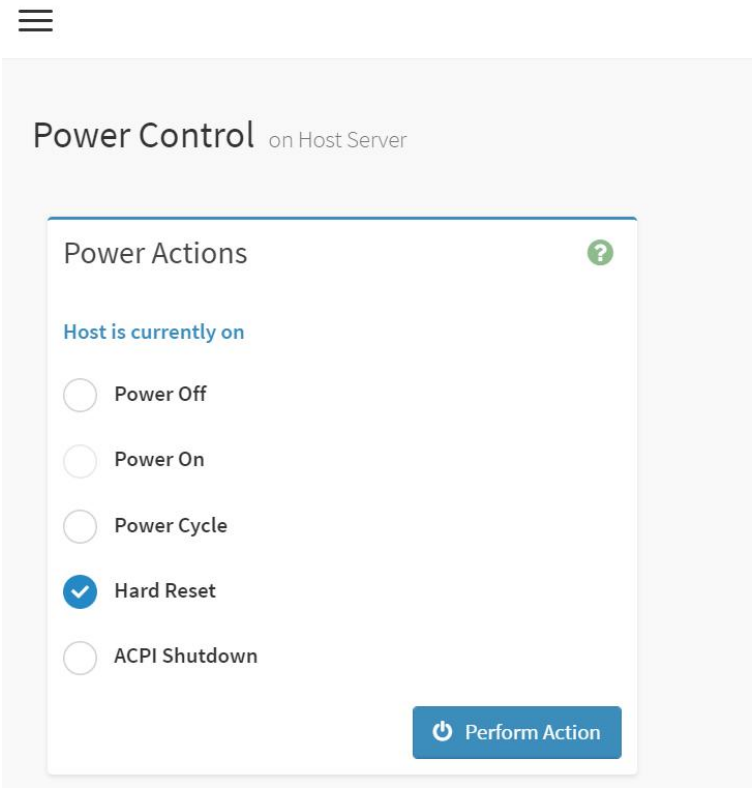


Figure 4-2

⚠ 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: admin
- BMC default address: 192.168.x.x
- BIOS Default Password: None

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:

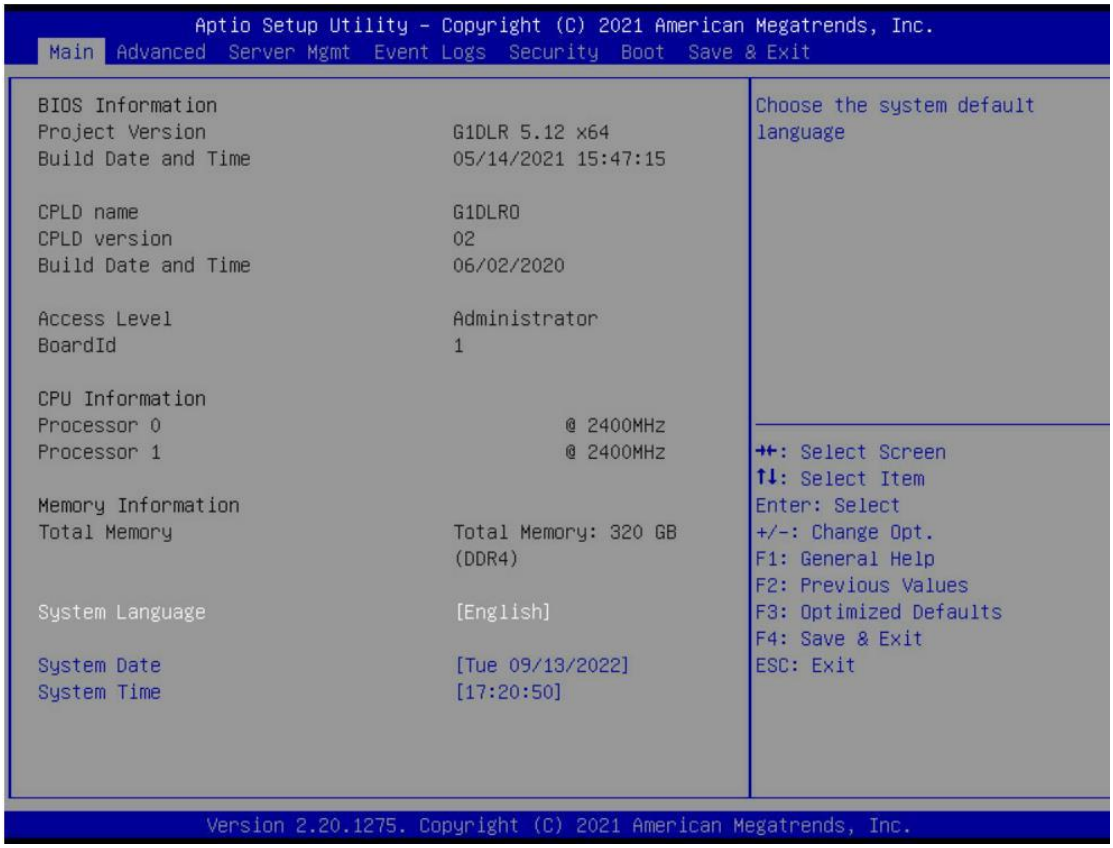


Figure 4-3

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 to enter the IP address in the same LAN as the BMC management network, and the login interface is as shown in the figure:

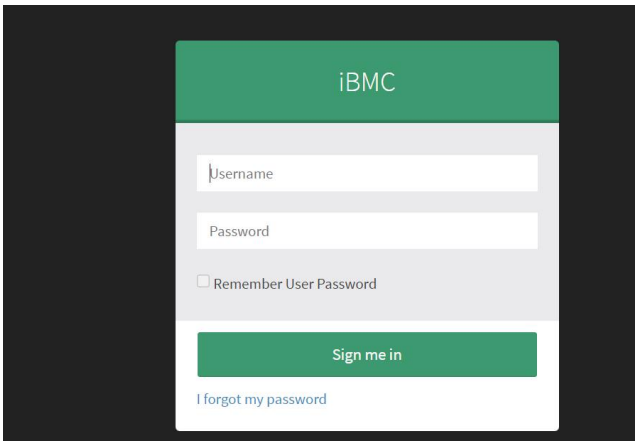


Figure (4-4)

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 :

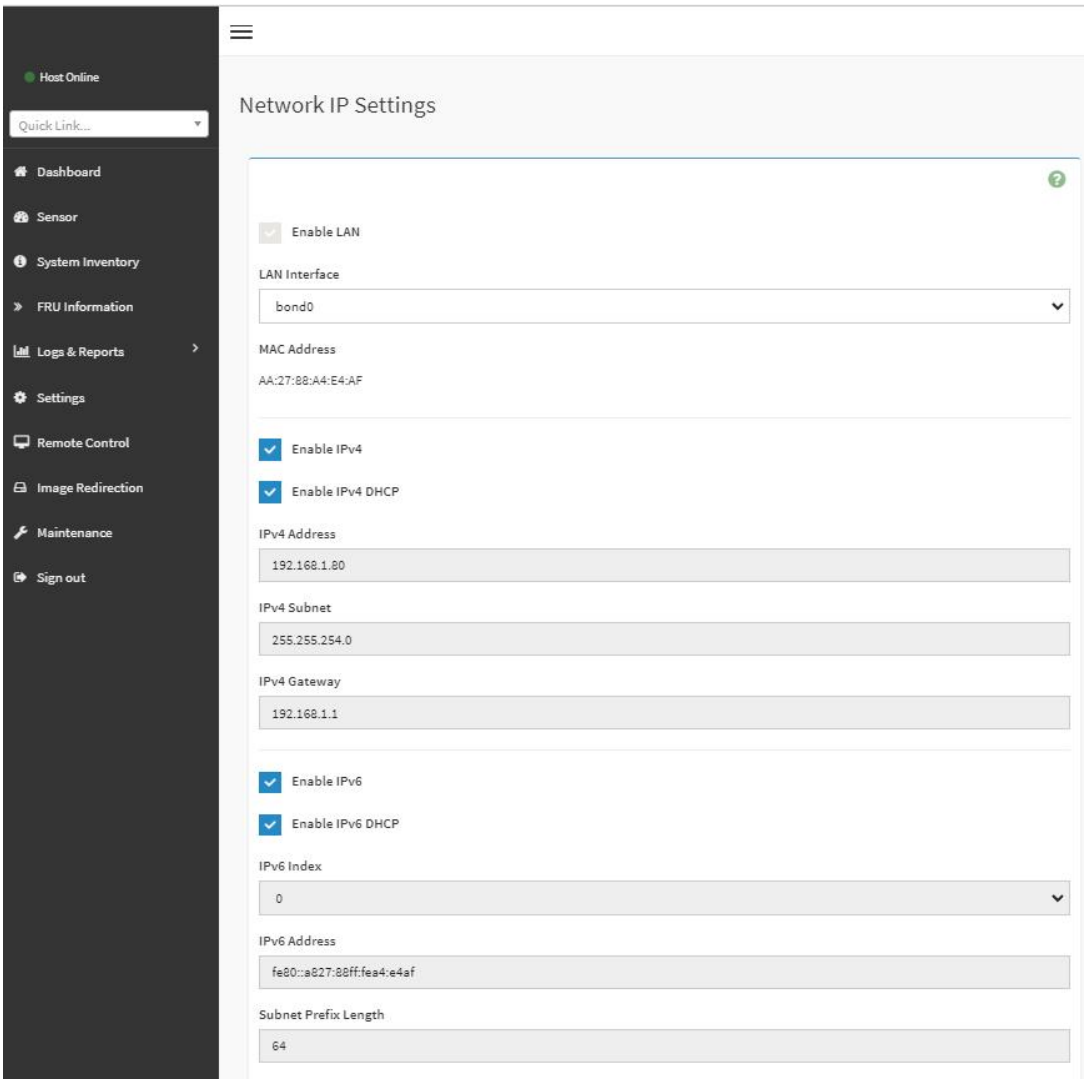


Figure (4-5)

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 is powered on, turn it on, pay attention to the POST process, press the keyboard <DEL> or <ESC> key, ready to enter the BIOS Setup interface, switch to the following interface :

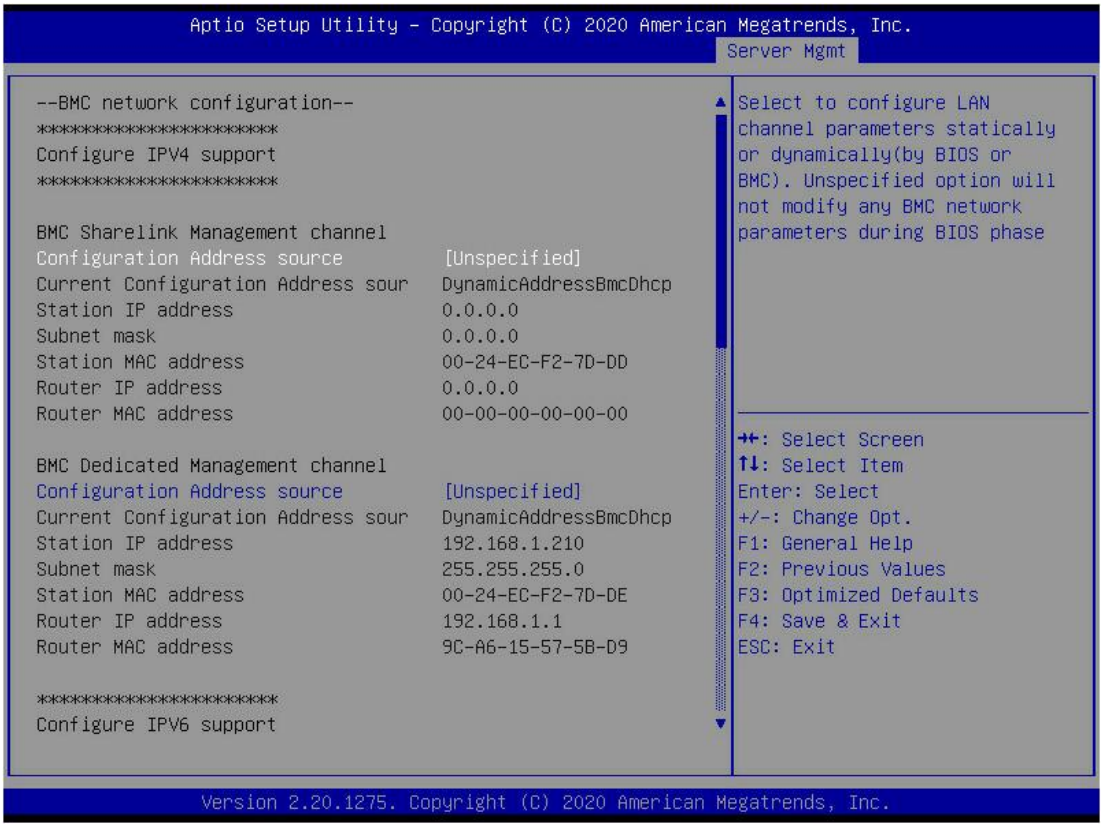


Figure (4-6)

- Configure IPV4 support
- BMC sharelink Management Channel
- Configuration Address source configures the BMC IP address allocation mode, the menu options are:

  Unspecified : Do not change BMC parameters (default)

  Static : BIOS static IP setting

  DynamicBmcDhcp : BMC runs DHCP to dynamically assign IP

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

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

Unspecified : Do not change BMC parameters (default)
Static : BIOS static IP setting
DynamicBmcDhcp : BMC runs DHCP to dynamically assign IP
DynamicBmcNonDhcp : BMC runs Non-DHCP protocol to dynamically assign IP

- Configure IPV6 support Choose whether to support IPV6, the menu options are:
  Enabled: support IPV6 (default)
  Disabled: does not support IPV6

⚠ Change from Unspecified to other parameters, save and restart the execution, the option will restore the value of Unspecified, no need to configure BMC IP every time the startup process. When the Configuration Address source option is Unspecified, it will display the network parameter information (IPV4) of the system shared network port, the current IP configuration mode, BMC IP, subnet mask, MAC address, routing IP, and routing MAC.

5 Appendix

Common fault diagnosis:
No display after power on

- Make sure the monitor cable is fully seated and that the monitor's power light is on when the monitor is powered on
- Make sure the monitor is connected to the server
- If the above operation does not solve the fault problem, it is recommended to replace the known correct monitor to confirm whether the original monitor is faulty
- If there are no problems, please contact Gooxi technical team to solve the problem

Warning light on the front panel

- Please confirm the specific alarm information of the alarm LED according to the instructions of the front panel LEDs and buttons in the manual
- The power failure LED warning, please check whether the LED of the power module on the rear window of the server is abnormal.
  -If the LED of the power module is normal, please contact Gooxi technical end to solve the problem
  -If the LED of the power module is abnormal, please confirm whether the server & power module & power cord are working normally
- The system alarm LED warning, please check the external environment first
- Other LED alarming, please contact Gooxi technical end to solve the problem

Hard disk LED is abnormal

- Make sure the hard drive is installed properly.
- Please confirm the specific alarm information of the alarm LED according to the instructions on the rear panel LEDs and buttons in the manual
- Please confirm whether the Raid card is configured correctly
- Install the OS to confirm whether there is a phenomenon of hard disk failure. If there is such a phenomenon, please contact Gooxi technical team to solve it

Raid card cannot be used

- Make sure that the Raid card assembly is in place

- Re-insert the Raid card & PCIe adapter card to confirm whether it can work normally
- Please replace the Raid card that is known to be available. After troubleshooting the problem of the card itself, it still cannot work normally. Please restore the factory settings and update the BIOS version, and contact Gooxi technical team to solve the problem.

IPMI connection failed

- Check whether the BMC function is enabled correctly in the BIOS.
- Confirm that the switch and network cable are normal, and the regular connection to the IPMI port is still invalid. Check the network environment.
- PING can be enabled by setting static or dynamic. If the WEB interface is invalid, please change to a new version of IE to connect.
- If the problem is still not resolved, please contact Gooxi technical team to solve it.