Gooxi

SL201-DXXR(E) Rack Server User Manual

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Shenzhen Gooxi Information Security Co., Ltd.

Statement

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Foreword

This manual is the product technical manual of Gooxi Purley platform 2U 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.

Modification record

Manual version	Release date	Remarks
V1.1	2022-10-30	Modification and improvement

Contents

1 Product Description

1.1 Product description

SL201 Purley 2U dual-socket rack 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 applications. It is suitable for IT core business, cloud computing virtualization, high-performance computing, distributed storage, big data processing, enterprise, telecom applications and other complex workloads. The server has the advantages of low energy consumption, strong scalability, high reliability, easy management, and easy deployment. The main configurations are:

- Support 2 Intel® Xeon® Scalable series processors (Sky Lake & Cascade Lake), and single CPU supports 12 DDR4 DIMMs.
- Support 3 types of panel box, 8*3.5” hard disk chassis box, 12*3.5” hard disk chassis box, 25*2.5” hard disk enclosure. Each hard disk can be maintained separately.
- Rear window supports expansion of 4*3.5” hard disk bays / 4*2.5” hard disk bays
- Support up to 11 PCIE expansion slots, which can be used to expand GPUs, network cards, Retimer cards, etc.

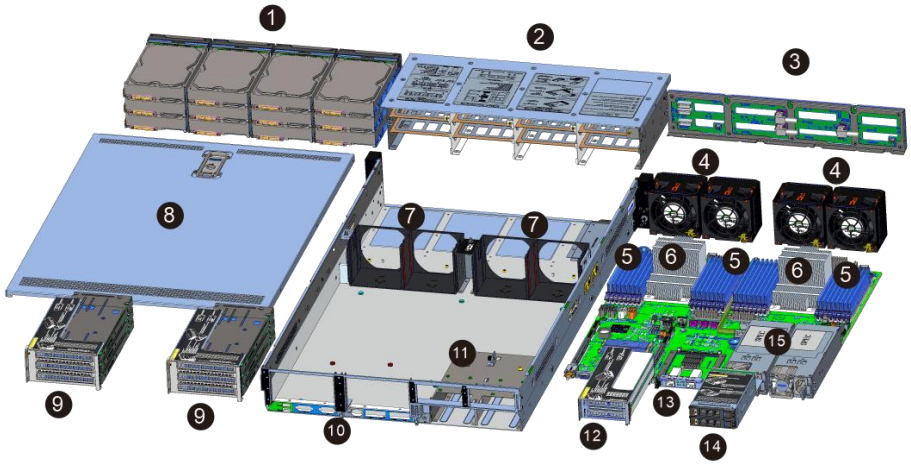
The physical picture of the server taking the 8-bay configuration as an example is as follows:

Front view 1-1

Rear view 1-2

1.2 Product structure

SL201 Purley 2U dual-socket server varies depending on the requirements, and the configuration maybe vary. Taking the 8-bay model as an example, the components of the server are described, as shown in the following figure:



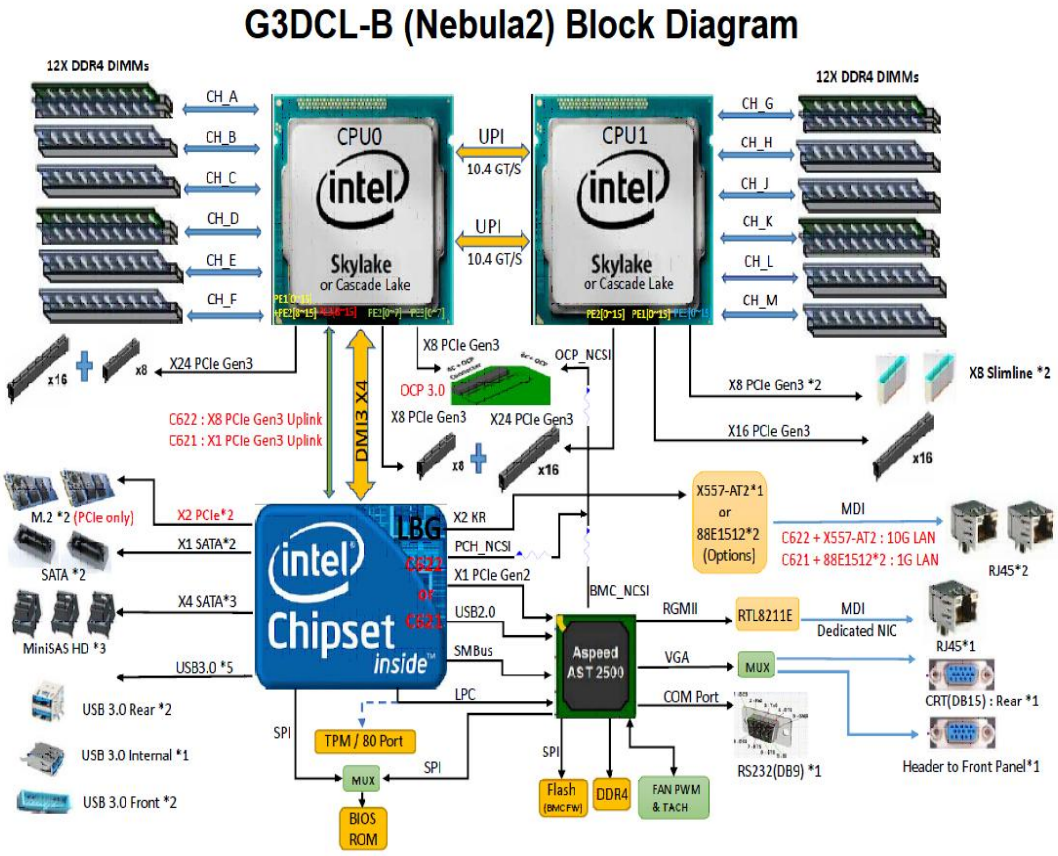
Structure diagram 1-3

S/N	Name	S/N	Name
1	Hard disk	9	Full-height PCIe module
2	HDD holder module	10	Rear window combination
3	Backplane combination	11	Power holder combination
4	Fan module	12	Half-height PCIe module
5	RAM	13	OCP3.0
6	CPU heat-sink	14	2.5 HDD modules
7	Fan bracket	15	Power supply
8	Upper cover		

Table 1-1

1.3 Logical structure

The logic structure of SL201 Purley 2U dual-socket rack server is shown in the figure below:



Motherboard logic block diagram 1-4

- The CPU adopts the first and second generation Intel® Xeon® scalable processors, LGA3647 socket, TDP 205W;
- Each CPU supports 12 channels of DDR4, and each channel supports 2 memory sticks, RDIMM/LRDIMM. Two CPUs support a maximum capacity of 9 TB (including Optane memory);
- DDR4 type: DDR4-2400/2666/2933 ECC-RDIMM, ECC-LRDIMM;
- There are 3 PCIE RISER slots on the board, of which: 24 PCIE LANEs of RISER1 are all from CPU0, 24 PCIE LANEs of RISER2, 8 PCIE LANEs are from CPU0, 16 PCIE LANEs are from CPU1, 16 PCIEs of RISER3 LANE from CPU1;
- The G3DCL-B motherboard provides 2 M.2 Key M SSD slots, supports 2280 size, and only PCIe X2 signals;
- 2 Gigabit Ethernet ports are integrated on the motherboard, using 88E1512 chip, from PCH;
- The PCH adopts Intel Lewisburg C621/C622 chipset;
- PCH leads to 14 SATA ports, maximum speed: 6Gb/s, compatible with SATA 1.5Gb/s, 3.0Gb/s; SATA Controller leads to 8 SATA PORTs, while SSATA leads to 6 SATA PORTs, of which 8 PORTs of SATA PORT lead to 2 SFF8643 connectors in order, while SSATA first 4 PORTs lead to 1 SFF8643 connector, and the last 2 PORTs lead to 7PIN SATA connectors for SATA DOM and DVD;
- The BMC chip in this board adopts the AST2500 control chip of ASPEED Inc., which is used for IPMI remote management. VGA output port, dedicated Gigabit RJ45 management network port, and connect to PCH through RMII/NCSI.

1.4 Product specification

Product series	SL201-D08R SL201-D08R-NV	SL201-D12R SL201-D12RE SL201-D12R-NV	SL201-D25RE
Product type	2U 8-bay	2U 12-bay	2U 25-bay
Size	748*433.4*87.6mm (D*W*H)		
Processor	Support one or two 1st or 2nd Generation Intel® Xeon® Scalable series processors		
Memory	24 DDR4 memory slots, support DDR4 LRDIMM/RDIMM 2400/2666/2933 MHz; the maximum capacity of a single slot is 256GB, compatible with Optane memory. The maximum memory capacity of the whole system is 9TB		
Internal storage interface	3 Mini SAS HD interfaces, 2 SATA DOMs, 2 M.2 (NVMe) interfaces		
External hard drive	Front 8 hot-swap 3.5/2.5-inch SAS/SATA/U.2 hard drives; Rear optional up to 2* 2×3.5-inch hard disk modules and 2* 2×2.5-inch hard disk modules	Front 12 hot-swap 3.5/2.5-inch SAS/SATA/U.2 hard drives; Rear optional 2* 2×3.5-inch hard disk modules or 2* 2×2.5-inch hard disk modules	Front 25 hot-swap 2.5-inch SAS/SATA hard drives; Rear optional 2* 2×3.5-inch hard disk modules or 2* 2×2.5-inch hard disk modules
External port	Front ports: 1 VGA, 2 USB3.0		
	Rear: 1 VGA, 1 COM port, 2 USB3.0, 1 RJ45 Gigabit management network port, 2 Gigabit RJ45 network ports		
*PCIe extension form	6* PCIe 3.0 full-height slots, 4* PCIe 3.0 half-height slots, 1* OCP 3.0 card		

*PCIe expansion specification	Riser1/2: 1*PCIe 3.0 x16 + 1*PCIe3.0 x8 or 3*PCIe 3.0 x8 Riser3: 1*PCIe 3.0 x16 or 1*PCIe 3.0 x8 + PCIe 3.0 x8 (PCIe3.0 x16 Slot) Riser4: 1*PCIe 3.0 x16 or 2*PCIe 3.0 x8
Safety	TPM module
Power supply	Support AC 220V 550W, 800W, 1300W, 1600W, 2200W redundant power supply (adapt according to the actual power); Support high voltage DC 240V~336V 550W 800W 1300W; Support low voltage DC-48V 550W 800 W 1300W
Fan	Standard 4* 8038 hot-swap N+1 redundant fans, optional 8056 hot-swap N+1 redundant fans
IPMI	IPMI 2.0
Management port	1 dedicated RJ45 management network port
Certification	CCC
RoHS	RoHS2.0
Operating temperature and humidity	Temperature 5℃ ~ 35℃/ humidity 20% ~ 80%RH non-condensing
Storage temperature and	Short-term storage (≤72H): temperature-40℃ ~ 70℃/ humidity 20% ~ 90%RH non-condensing (including packaging)

humidity	Long-term storage (>72H): temperature 20℃ ~ 28℃/humidity 30% ~ 70%RH non-condensing (including packaging)

Table 1-2

2 Hardware Description

2.1 Front panel

2.1.1 Appearance

- 8x3.5 inch hard drive configuration

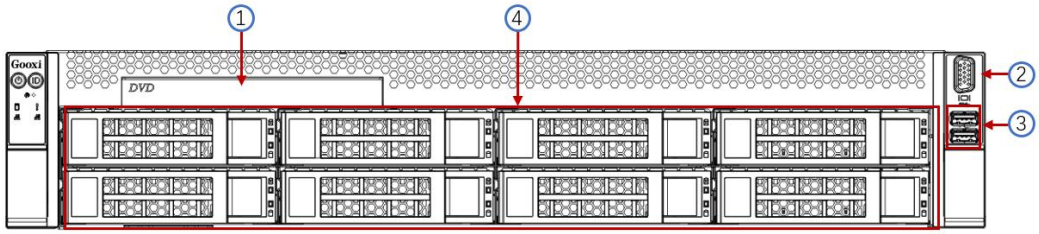


Figure 2-1

S/N	Name	S/N	Name
1	DVD drive	3	USB3.0 interface
2	VGA interface	4	3.5 inch hard drive

table 2-1

- 12x3.5 inch hard drive configuration

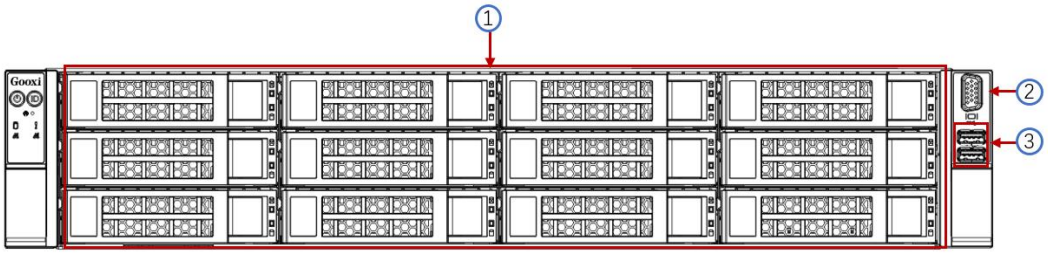


Figure 2-2

S/N	Name	S/N	Name
1	3.5 inch hard drive	3	USB3.0 interface
2	VGA interface		

Table 2-2

- 25x2.5 inch hard drive configuration

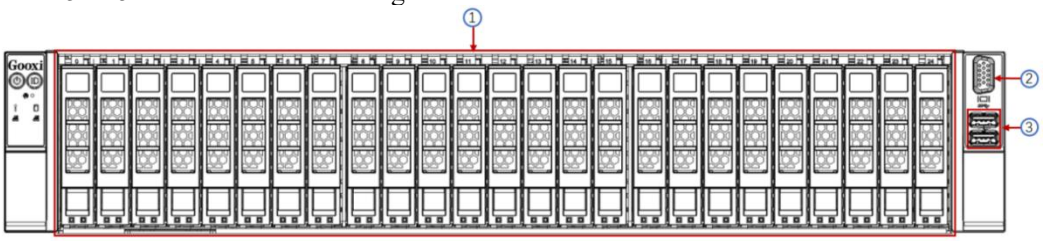


Figure 2-3

S/N	Name	S/N	Name
1	2.5 inch hard drive	3	USB3.0 interface
2	VGA interface		

Table 2-3

2.1.2 LED and button

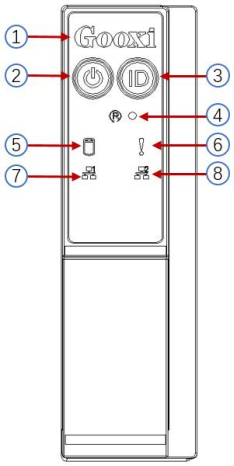


Figure 2-4

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 restart 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.

Table 2-4

2.1.3 Interface

- Interface location

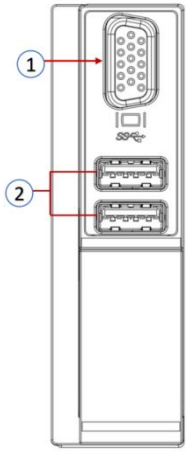


Figure 2-5

S/N	Name	S/N	Name
1	VGA interface	2	USB 3.0 interface

Table 2-5

- Interface description

Name	Type	No.	Description
VGA	DB15	1	For connection to a display terminal, such

interface			as a monitor or KVM
USB interface	USB 3.0	2	For accessing USB devices

Table 2-6

2.2 Rear panel

2.2.1 Appearance

- Appearance of the rear panel

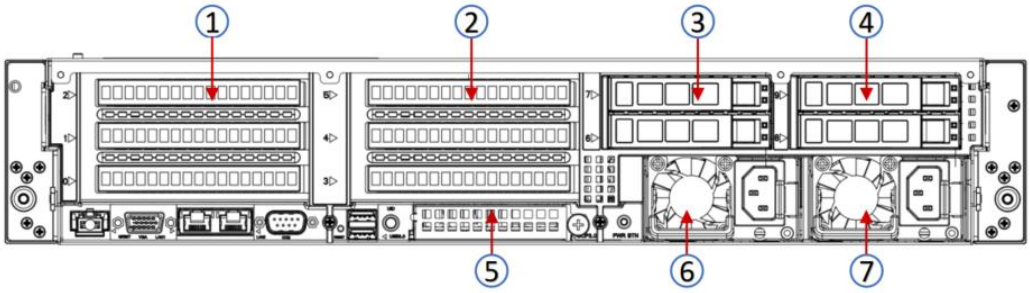


Figure 2-6

S/N	Name	S/N	Name
1	Riser1 module	2	Riser2 module
3	Riser3 module	4	Riser4 module
5	OCP network card (optional)	6	Power module 1
7	Power module 2	-	-

Table 2-7

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 LEDs

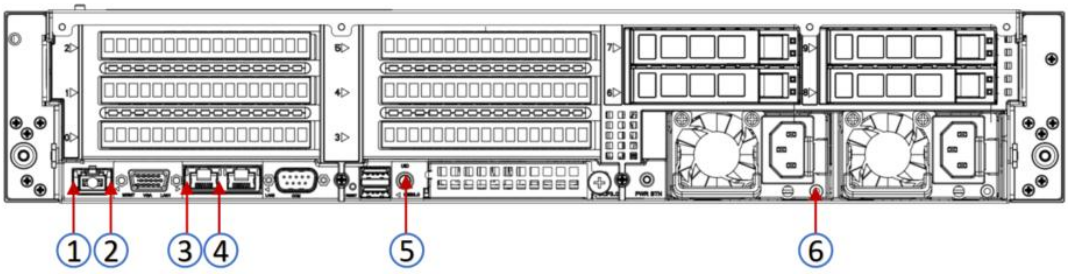


Figure 2-7

S/N	Name	S/N	Name
1	Management network port data transmission status LED	2	Management network port connection status LED
3	Service network port data transmission status LED	4	Service network port connection status LED
5	Reset button	6	Power module LED

Table 2-8

- 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.

Table 2-9

2.2.3 Interface

- Rear panel interface

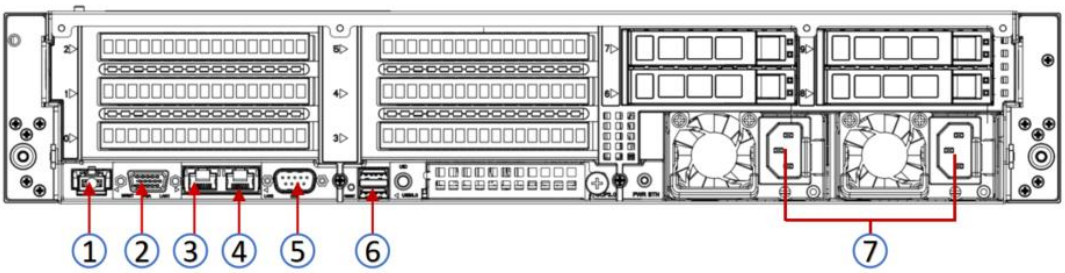


Figure 2-8

S/N	Name	S/N	Name
1	Management network port	2	VGA interface
3	Gigabit Ethernet port (Onboard Ethernet port 1)	4	Gigabit Ethernet port (Onboard Ethernet port 2)
5	COM interface	6	USB3.0 interface
7	Power module interface	-	-

Table 2-10

2.3 Processor

- Support 1 or 2 Intel first-generation, second-generation Xeon scalable CPU;
- 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 system options, please consult Gooxi sales rep.
- The location of the processor is shown in the figure below:

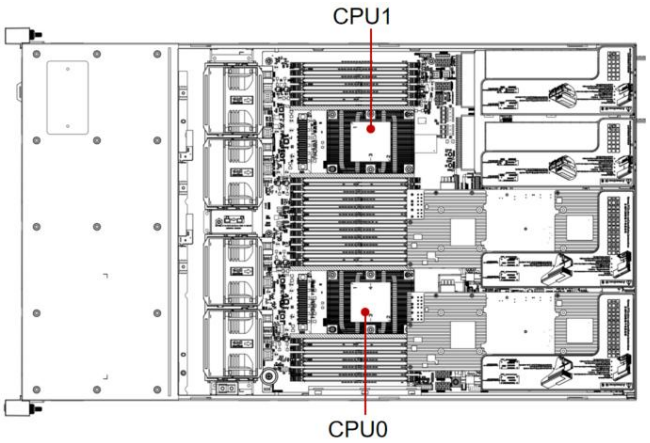


Figure 2-9

2.4 Memory

2.4.1 Memory slot location

The motherboard supports 12 DDR4 channels, each channel supports 2 DIMMs, and 2 CPUs support 24 DDR4 slots (when only one memory is inserted, the slot in the red box in the picture below is preferred, and the plastic color of the slot on the motherboard is blue color).

- Memory slot location

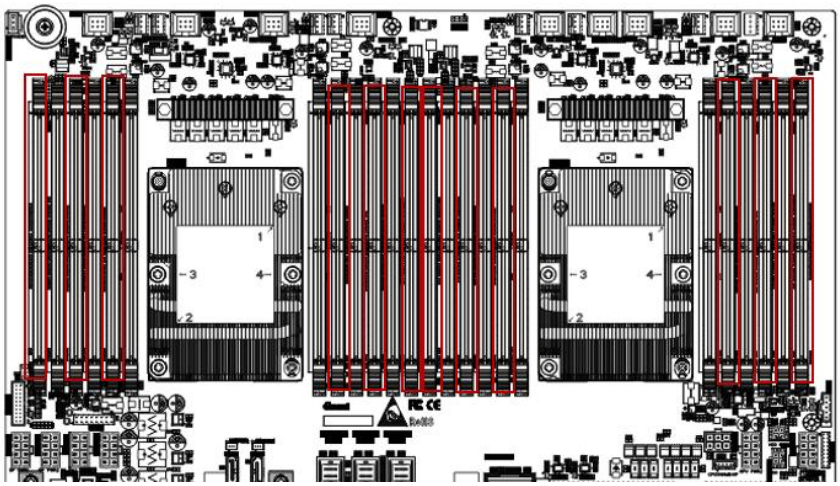


Figure 2-10

2.4.2 Memory compatibility information

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

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:
- The memory speed supported by the specific CPU.
- Specific memory configuration maximum operating speed.

- DDR4 memories of different types (RDIMM, LRDIMM) and specifications (capacity, bit width, rank, height, etc.) do not support mixed use.
- Different models of Intel® Xeon® Scalable processors (Sky Lake, Cascade Lake) support different maximum memory capacities.

– Sky Lake CPU

- M-series CPU support a memory capacity of 1.5TB/Socket
- Non-M-series CPU support a memory capacity of 768GB/Socket

– Cascade Lake CPU

- L-series CPU support a memory capacity of 4.5TB/Socket
- M-series CPU support a memory capacity of 2TB/Socket
- Other types of CPU support a memory capacity of 1TB/Socket
- The formula for calculating the total supported memory capacity is as follows: The total memory capacity is equal to the sum of the capacities of all DDR4 memories.

2.5 Storage

2.5.1 Hard disk configuration

Configuration	Maximum front hard drives	*Maximum rear hard drives	Description
8x3.5 inch HDD Pass-through configuration 1	Front hard drive (8x3.5 or 2.5)* 8 – Slot0 to slot7 only support SAS/SATA hard drives	Riser1 module (2x3.5 or 2.5)* 2 -Only support SAS/SATA hard drives Riser2 module (2x3.5 or 2.5)* 2 -Only support SAS/SATA hard drives Riser3 module (2x2.5)* 2 -Support NVMe/SAS/SATA hard drives Riser4 module (2x2.5)* 2 -Support NVMe/SAS/SATA hard drives	SAS hard drives need to be supported by optional SAS pass-through card or RIAD card.
8x3.5 inch HDD Pass-through configuration 2	Front hard drive (8x3.5 or 2.5)* 8 – Slot 0 to slot 7 support NVMe/SAS/SATA hard drives	Riser2 module (2x3.5 or 2.5)* 2 -Only support SAS/SATA hard drives Riser3 module (2x2.5)* 2 -Support NVMe/SAS/SATA hard drives Riser4 module (2x2.5)* 2 -Support NVMe/SAS/SATA hard drives	8-bay triple-mode backplane, NVMe/SAS/SATA hard drives need different cable support; SAS hard drives need optional SAS pass-through card or RAID card support.

12x3.5 inch HDD Pass-through configuration 1	Front hard drive (12x3.5 or 2.5)* 12 – Slot0 to slot11 only support SAS/SATA hard drives	Riser2 module (2x3.5 or 2.5)* 2 -Only support SAS/SATA hard drives Riser3 module (2x2.5)* 2 -Support NVMe/SAS/SATA hard drives Riser4 module (2x2.5)* 2 -Support NVMe/SAS/SATA hard drives	SAS hard drives need to be supported by optional SAS pass-through card or RAID card.
12x3.5 inch HDD Pass-through configuration 2	Front hard drive (12x3.5 or 2.5)* 12 – Slot0 to slot11 support NVMe/SAS/SATA hard drives	Riser3 module (2x2.5)* 2 -Support NVMe/SAS/SATA hard drives Riser4 module (2x2.5)* 2 -Support NVMe/SAS/SATA hard drives	12-bay triple-mode backplane, NVMe/SAS/SATA hard drives need different cable support; SAS hard drives need optional SAS pass-through card or RAID card support.
12x3.5 inch HDD EXP configuration	Front hard drive (12x3.5 or 2.5)* 12 – Slot0 to slot11 only support SAS/SATA hard drives	Riser2 module (2x3.5 or 2.5)* 2 -Only support SAS/SATA hard drives Riser3 module (2x2.5)* 2 -Support NVMe/SAS/SATA hard drives Riser4 module (2x2.5)* 2 -Support NVMe/SAS/SATA hard drives	SAS pass-through card or RAID card support is required.
25x2.5 inch HDD EXP configuration	Front hard drive (25x2.5) * 25 – Slot0 to slot14 only support SAS/SATA hard drives	Riser2 module (2x3.5 or 2.5)* 2 -Only support SAS/SATA hard drives Riser3 module (2x2.5)* 2 -Support NVMe/SAS/SATA hard drives Riser4 module (2x2.5)* 2 -Support NVMe/SAS/SATA hard drives	SAS pass-through card or RAID card support is required.
Note: *The maximum number of rear hard drives is affected by the type of NVMe/SAS/SATA hard drives.			

Table 2-10

2.5.2 Hard drive serial number

- 8x3.5 inch hard drive configuration

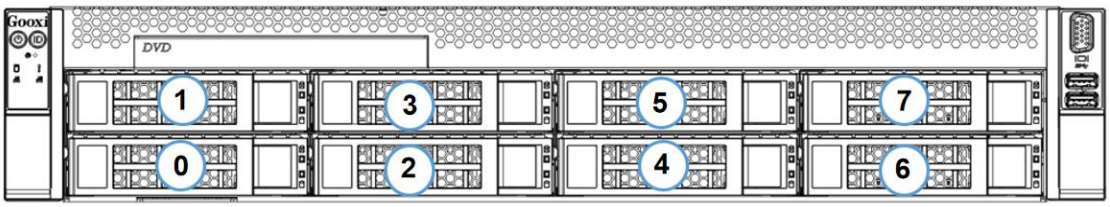


Figure 2-11

- 12x3.5 inch hard drive configuration

Figure 2-12

- 25x2.5 inch hard drive configuration

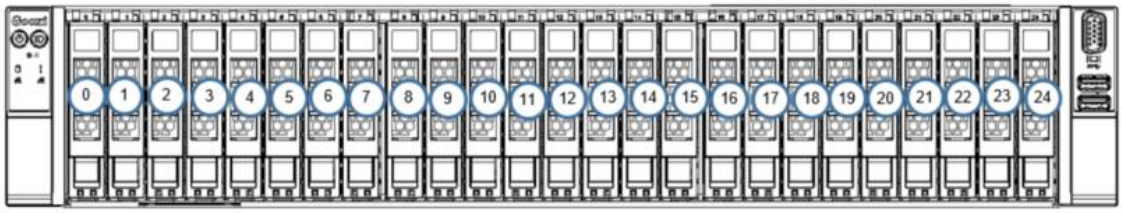


Figure 2-13

2.5.3 HDD status LED

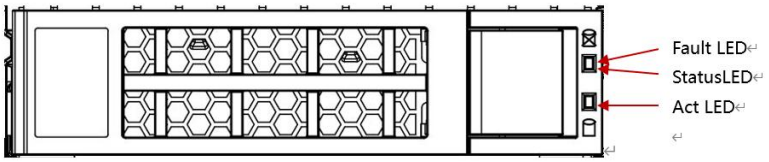


Figure 2-14

- Hard Disk Status LED Description

Function	Act LED	Fault LED	Status LED
Hard disk in-position	On	Off	Off
Hard disk activity	On	Off	Off
Hard disk positioning	On	Flashing 4Hz/sec	Off
Hard disk fault	On	Off	On
RAID rebuilt	On	Off	Flashing 1Hz/second

Table 2-11

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 system options, please consult Gooxi sales rep;
- The location of the power supply is shown in the figure below:

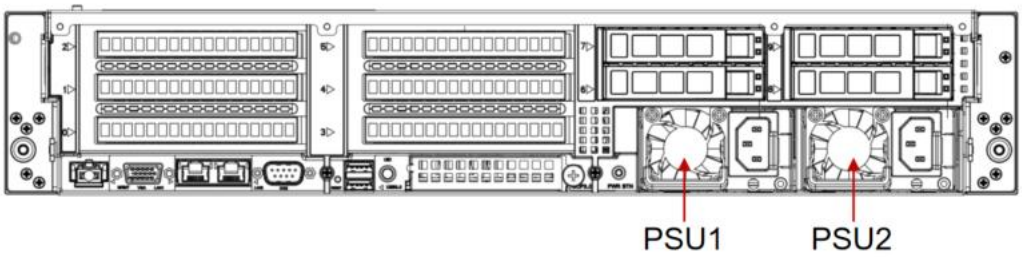


Figure 2-15

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:

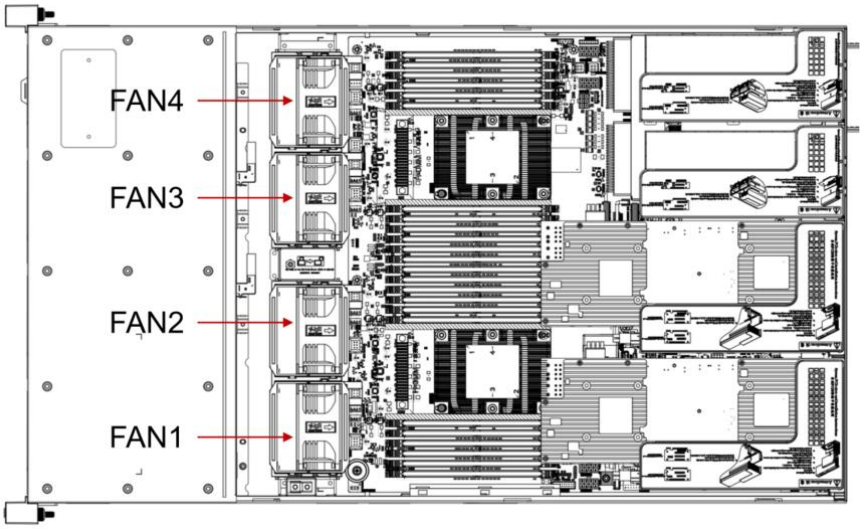


Figure 2-16

2.8 I/O expansion

2.8.1 PCIe slot location

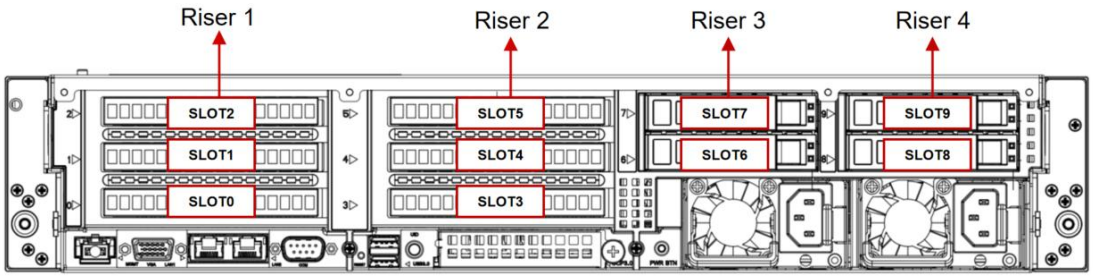


Figure 2-17

- The slots provided by the Riser1 module are Slot 0, Slot 1, and Slot 2. When using PCIE expansion module with 2 slots, Slot 1 is unavailable;
- The slots provided by the Riser2 module are Slot 3, Slot 4, and Slot 5. When using PCIE expansion module with 2 slots, Slot 4 is unavailable;
- The slots provided by the Riser3 module are Slot 6 and Slot 7. When using PCIE expansion module with 1 slot, Slot 6 is unavailable;
- The slots provided by the Riser4 module are Slot 8 and Slot 9. When PCIE expansion module with 1 slot is used, Slot 8 is unavailable.

2.8.2 PCIe slot description

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

PCIe slot	Slave CPU	PCIe standard	Bus bandwidth	Slot size
Onboard network card	CPU0	PCIe 3.0	X8	-
OCP network card	CPU0	PCIe 3.0	X8	-
Slot 0	CPU0	PCIe 3.0	PCIE expansion module with 2 slots: X16 3 slots PCIE expansion module: X8	Full height, full length
Slot 1	CPU0	PCIe 3.0	PCIE expansion module with 2 slots: NA 3 slots PCIE expansion module: X8	Full height, full length
Slot 2	CPU0	PCIe 3.0	X8	Full height, half length
Slot 3	CPU1	PCIe 3.0	X8	Full height, half length
Slot 4	CPU1	PCIe 3.0	PCIE expansion module with 2 slots: NA 3 slots PCIE expansion module:	Full height, full length

			X8	
Slot 5	CPU0	PCIe 3.0	PCIE expansion module with 2 slots: X16 3 slots PCIE expansion module: X8	Full height, full length
Slot 6	CPU1	PCIe 3.0	X8	Half height, half length
Slot 7	CPU1	PCIe 3.0	PCIE expansion module with 1 slot: X16 PCIE expansion module with 2 slots: X8	Half height, half length
Slot 8	CPU1	PCIe 3.0	X8	Half height, half length
Slot 9	CPU1	PCIe 3.0	PCIE expansion module with 1 slot: X16 PCIE expansion module with 2 slots: X8	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. Upward 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 and 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 the PCIe card with maximum 75W, and the power of the PCIe card depends on the model of the PCIe card.				

Table 2-12

2.8.3 PCIE expansion module

- PCIE expansion module 1
  Riser card for x24 to x16+x8
  – Installed at Riser1, providing PCIe slots as Slot 0 and Slot 2;
  – Installed at Riser2, providing PCIe slots as Slot 3 and Slot 5 .

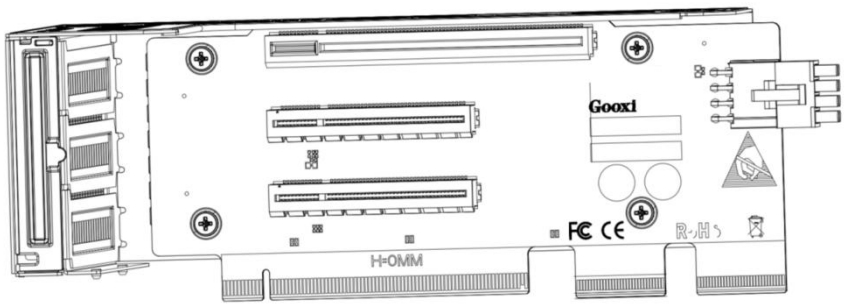


Figure 2-18

- PCIE expansion module 2
  Riser card for x24 to x8+x8+x8
  – Installed at Riser1, providing PCIe slots as Slot 0, Slot 1, and Slot 2;
  – Installed at Riser2, providing PCIe slots as Slot 3, Slot 4, and Slot 5 .

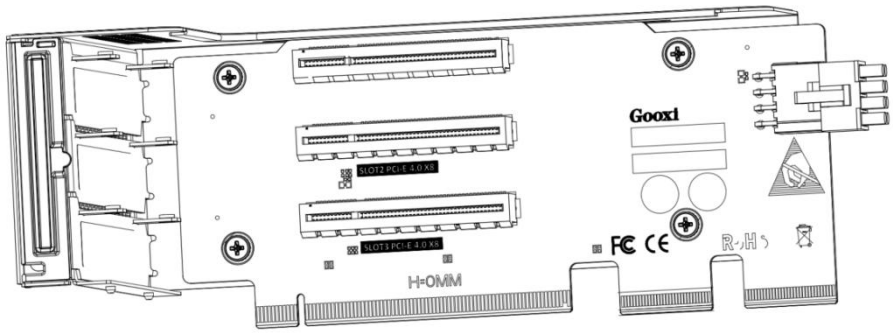


Figure 2-19

- PCIE expansion module 3
  Riser card for x16 to x8 (x16 slot)+x8
  – Installed at Riser3 and provides PCIe slots as Slot 6 and Slot 7 .

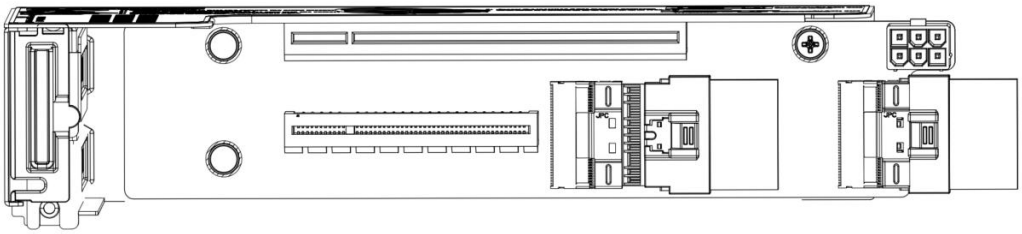


Figure 2-20

- PCIE expansion module 4
  – Installed at Riser4 and provides PCIe slots as Slot 6 and Slot 7 .

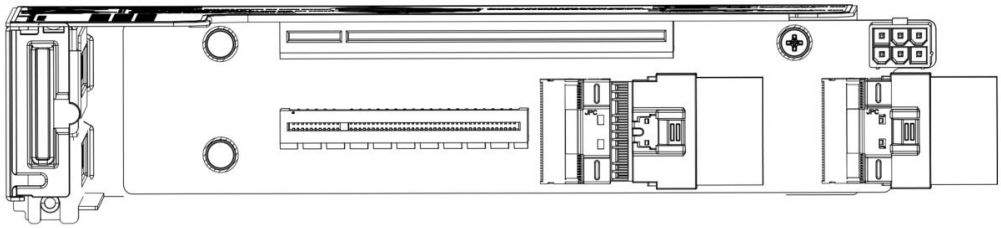


Figure 2-21

- 3.5 inch hard disk module

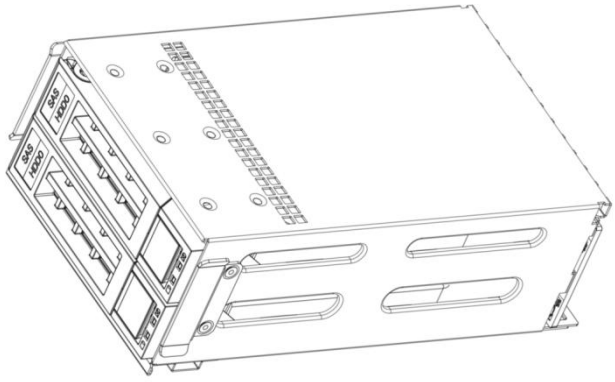


Figure 2-22

- 2.5 inch hard disk module

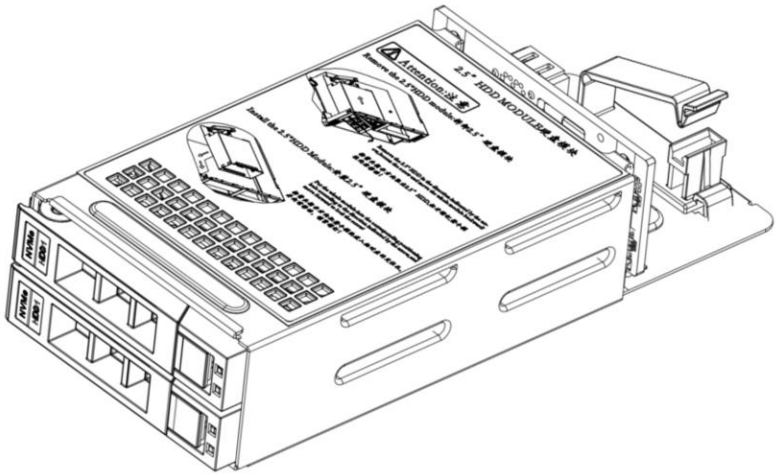
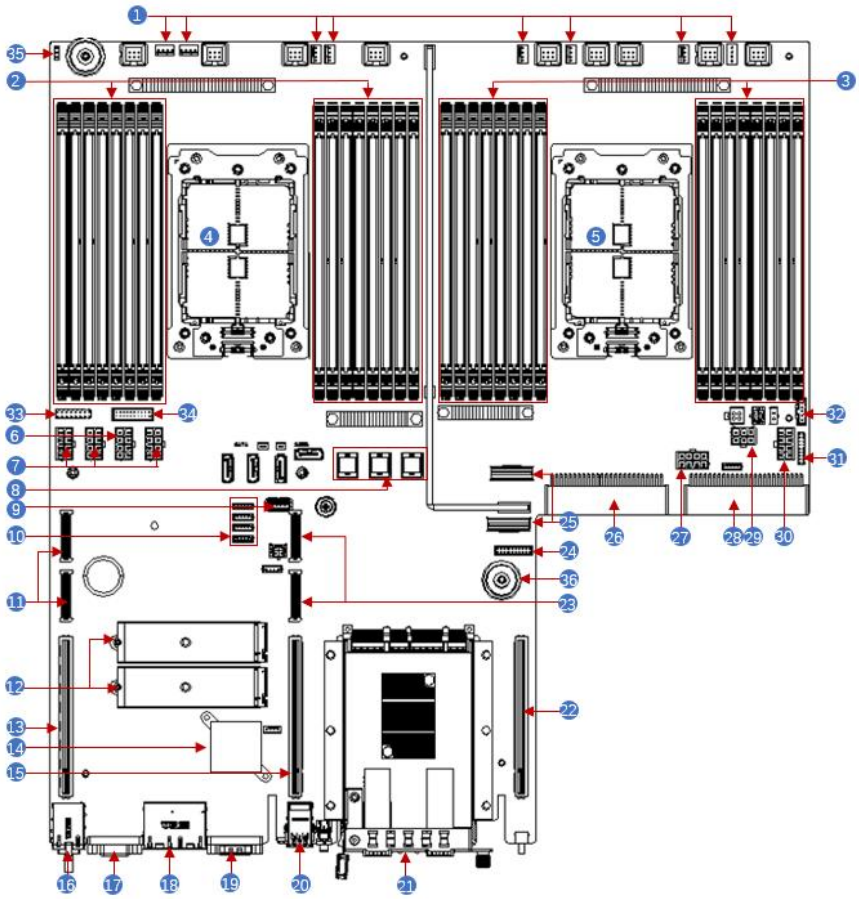


Figure 2-23

2.9 PCBA

2.9.1 Motherboard



Motherboard Figure 2-21

S/N	Name
1	4U chassis fan control 4pin interface
2	Memory slot (corresponding to CPU0)
3	Memory slot (corresponding to CPU1)
4	CPU0
5	CPU1
6	GPU Power 2*4pin 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

Table 2-13

2.9.2 Hard disk backplane

- 8 x 3.5 inch expansion backplane
  TOP surface

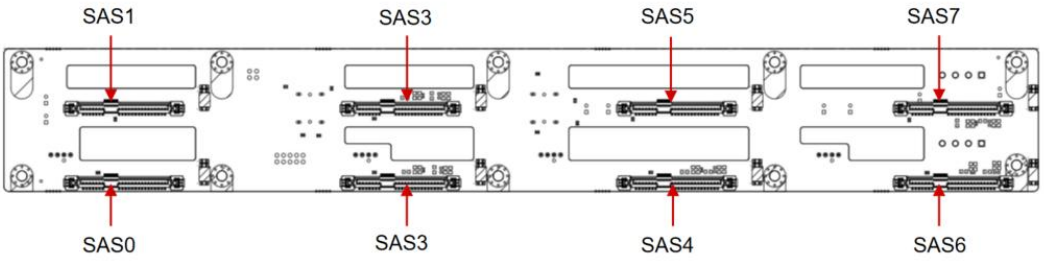


Figure 2-22

S/N	Description	Function
		1. Maximum 12Gb/s SAS hard disk;

SAS0~7	SAS/SATA hard disk connector	2. Maximum 6Gb/s SATA hard disk; 3. Support SAS/SATA hard disk hot swap.

Table 2-14

Bottom surface

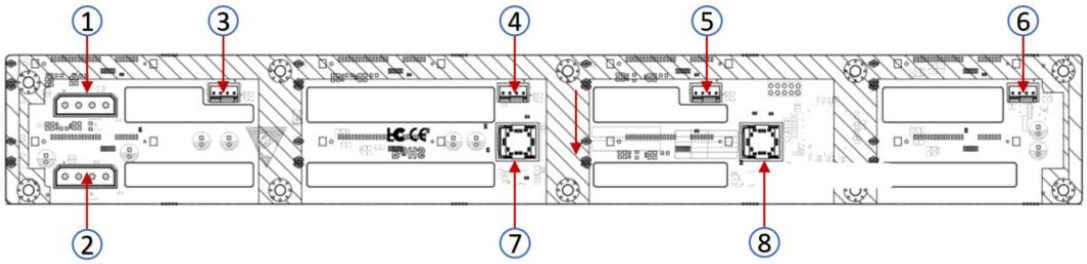


Figure 2-23

S/N	Description	Function
1, 2	ATX power input	Backplane power transmission connector, used for 12V power transmission
3, 4, 5, 6	Temperature-controlled fan socket	For 4pin fan interface
7, 8	SFF-8643 12Gb SAS interface	Backplane panel signal interface

Table 2-15

- 12×3.5 inch expansion backplane

TOP surface

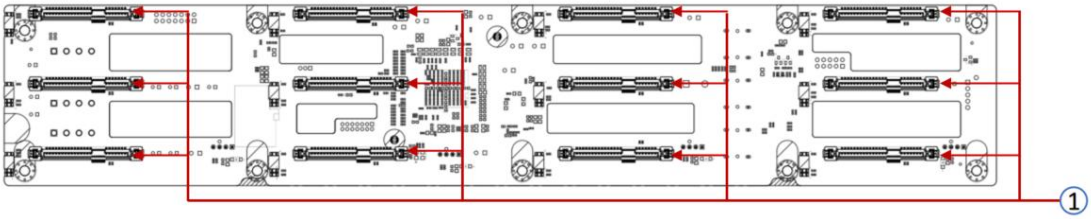


Figure 2-24

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

Table 2-16

Bottom surface

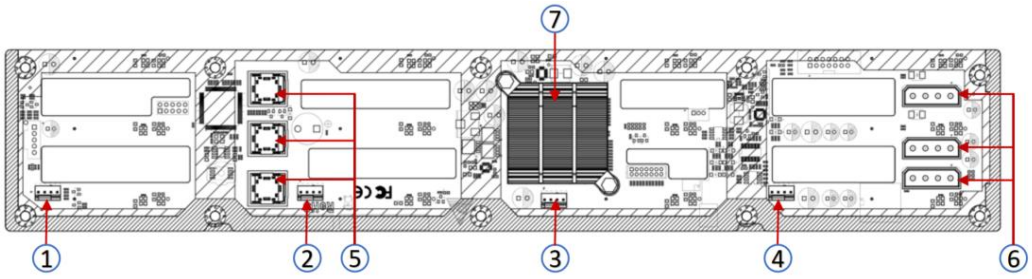


Figure 2-25

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

Note: *The passive backplane does not have this expansion chip.

Table 2-17

- 25 x 2.5 inch backplane
  TOP surface

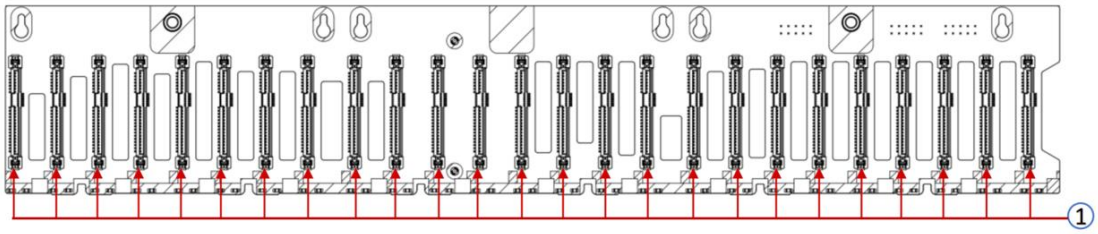


Figure 2-26

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

Table 2-18

Bottom surface

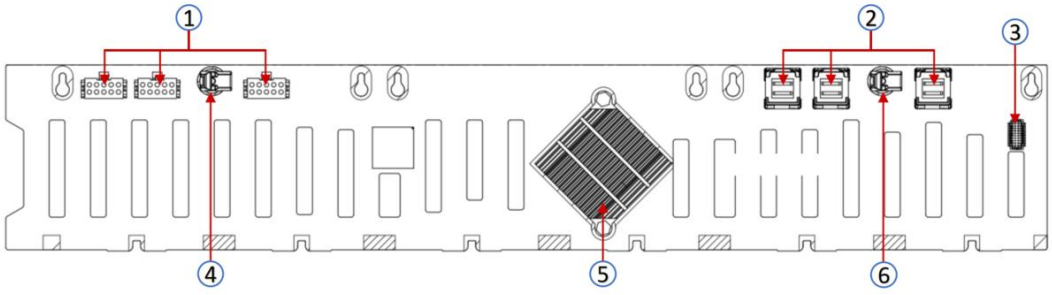


Figure 2-27

S/N	Description	Function
1	Power connector	Backplane power transmission connector, used for 12V power transmission
2	MINI SAS HD high-speed connector	Used for 12Gb/s SAS or 6Gb/s SATA signal transmission
3	Temperature-controlled fan socket	For 4pin fan interface
4,6	Back panel buckle	Fasten the backplane to the

		backplane bracket
5	Expander chip	PM8043 SXP 24Sx12G

Table 2-19

- 2×2.5 rear hard disk backplane-1
  TOP surface

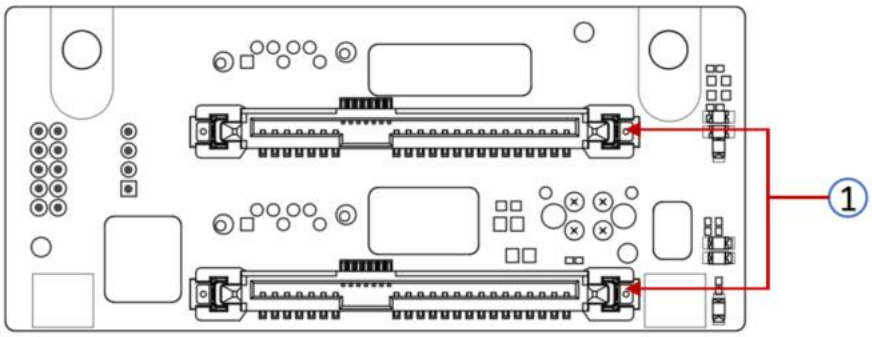


Figure 2-28

S/N	Description	Function
1	SAS/SATA hard disk connector	1. Maximum support for 12Gb/s SAS hard disk; 2. Maximum support for 6Gb/s SATA hard disk.

Table 2-20

Bottom surface

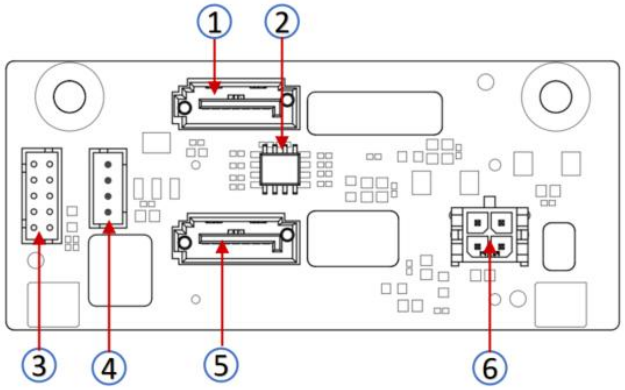


Figure 2-29

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

Table 2-21

3 Installation Notes

3.1 Chassis upper cover installation

- Step 1: Lift the card slot at the opening position, and push it up in the direction shown in the figure;

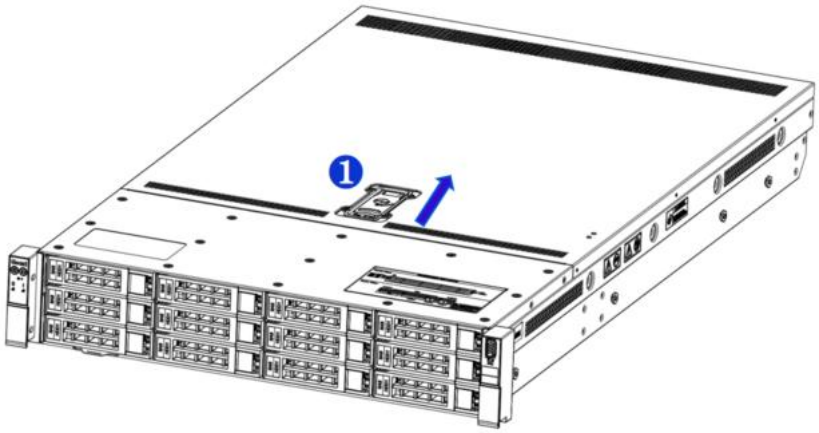


Figure 3-1

3.2 Mounting accessories

3.2.1 Install the CPU

- Step 1: Install the clamping piece, tilt the CPU angle as shown in the figure, align the A1 angle (triangular mark), clamp it on one end of the clamping piece, press the other end of the clamping piece, and fix the CPU to the clamping piece.

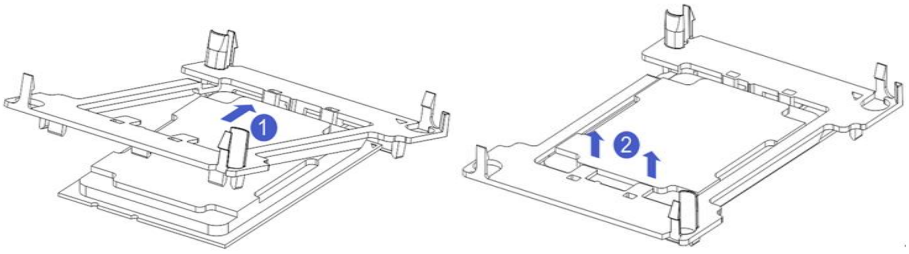


Figure 3-2

- Step 2: Install the CPU on the heat-sink, and ensure that the surfaces of the CPU and the heat-sink are clean, free of oil.
- Apply about 0.4ml of thermal grease on the CPU and smooth it evenly.
- Step 3: Align the A1 corner (triangle mark), and buckle the CPU on the heat-sink. (As shown below)

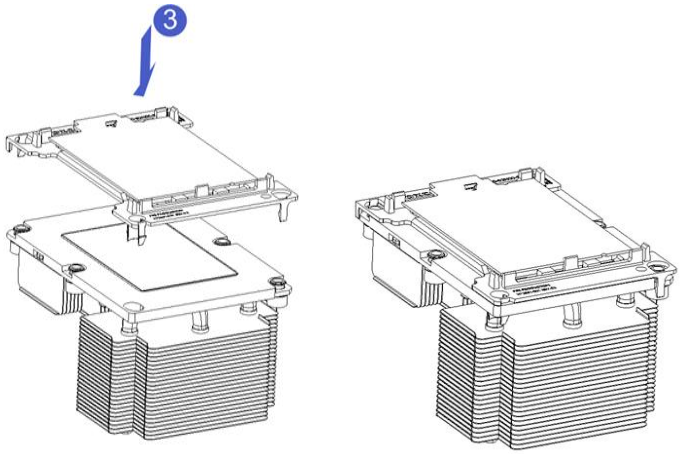


Figure 3-3

3.2.2 Install heat-sink

- Step 1: Remove the processor idle bezel (as shown in the figure below)

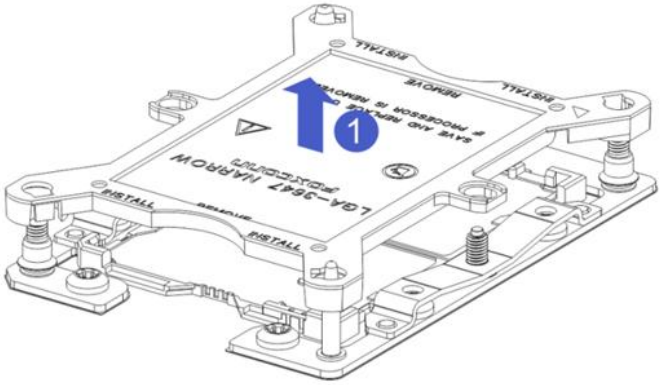


Figure 3-4

- Step 2: Align the heat-sink with the heat-sink fixing studs on the CPU base, and tighten the heat-sink fixing screws sequentially according to the instructions. (As shown below)

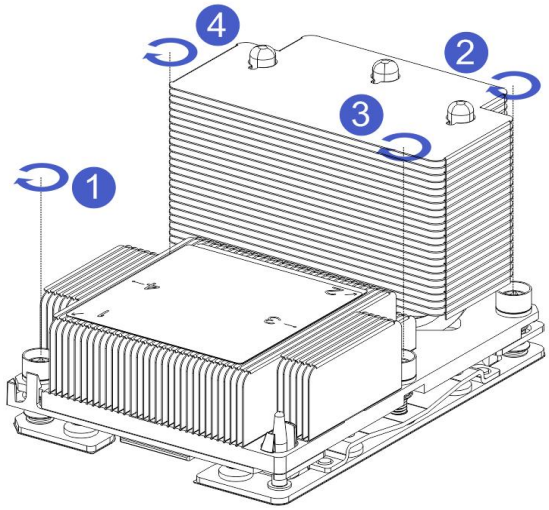


Figure 3-5

⚠ CAUTION: The pins on the motherboard are extremely fragile. To avoid damaging the motherboard, do not touch the processor or the processor socket contacts.

3.2.3 Install memory

The 8 memory slots controlled by CPU 1 of the motherboard are: DIMMA1, A2, DIMMB1, B2, DIMM C1, C2 and DIMM D1, D2; the 8 memory slots controlled by CPU 2 are: DIMME1, E2, DIMMF1, F2, DIMMG1, G2 and DIMMH1, H2, pay attention that the notch of the memory is consistent with the notch of the DIMM slot, and snap each DIMM module vertically in place to prevent incorrect installation.

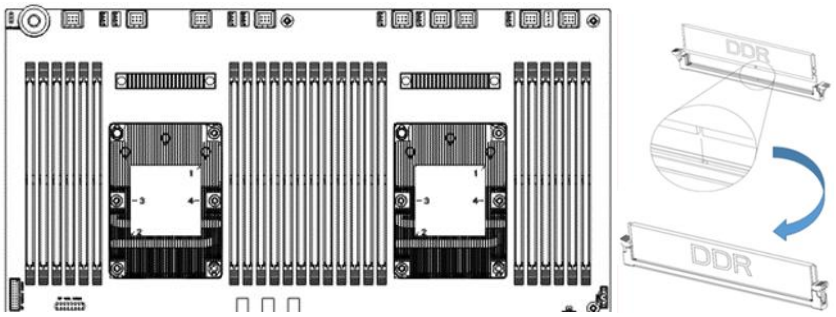


Figure 3-6

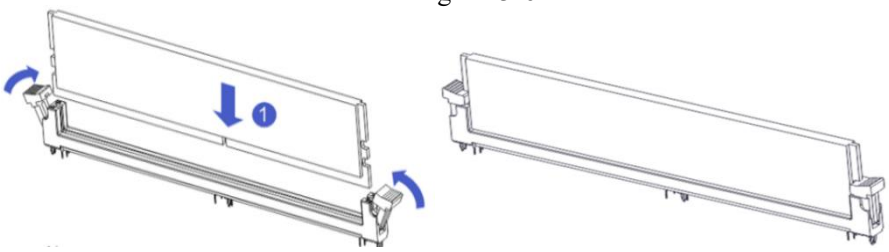


Figure 3-7

Note: Please use memory modules with the same CAS latency value on this motherboard. It is recommended that you use memory modules with the same capacity and the same frequency produced by the same manufacturer.

- It is recommended to install 1 CPU with the following settings:

Principles of memory stick access: (1 CPU)													
Processor	Channel	Memory location	Amount of memory (recommended:√ not recommended: O)											
			√	√	√	√	O	√	O	√	O	O	O	√
			1	2	3	4	5	6	7	8	9	10	11	12
CPU0	A	A1	●	●	●	●	●	●	●	●	●	●	●	●
		A2							●	●	●	●	●	●
	B	B1		●	●	●	●	●	●	●	●	●	●	●
		B2								●	●	●	●	●
	C	C1			●		●	●	●		●	●	●	●
		C2									●		●	●
	D	D1				●	●	●	●	●	●	●	●	●
		D2								●		●	●	●
	E	E1				●	●	●	●	●	●	●	●	●
		E2								●		●	●	●
	F	F1						●	●		●	●	●	●
		F2												●

Table 3-1

- When installing 1 CPU, there are many rules for memory installation. In order to achieve optimal performance, it is recommended to follow the following specifications:
  1 piece of memory: CPU0_A1

2 pieces of memory: CPU0_A1 / CPU0_B1
3 pieces of memory: CPU0_A1 / CPU0_B1 / CPU0_C1
4 pieces of memory: CPU0_A1 / CPU0_B1 / CPU0_D1 / CPU0_E1
5 pieces of memory: this configuration is not recommended
6 pieces of memory: CPU0_A1, B1 / CPU0_C1, D1 / CPU0_E1, F1
7 pieces of memory: this configuration is not recommended
8 pieces of memory: CPU0_A1, A2 / CPU0_B1, B2 / CPU0_D1, D2/CPU0_E1, E2
9/10/11 pieces of memory: this configuration is not recommended
12 pieces of memory: all inserted in.

Note: In the case of the 5th, 7th, 9th, 10th, and 11th memory mentioned above, the following rules must be followed:
The single-number memory is inserted into the blue on the motherboard;
The double-number memory can refer to the configuration of the most recent memory quantity above, and then increase the memory.

In addition, it is necessary to specify:
In the same Channel, memory with a large capacity must be inserted into the first one (such as A1/B1/C1/D1/E1/F1): blue;
Mixed use of RDIMM and LRDIMM is not allowed;

- It is recommended to install 2 CPUs with the following settings:

Principles of memory stick access: (2 CPUs)

Processor	Channel	Memory location	Amount of memory (recommended: √ not recommended: O)																							
			o	√	o	√	o	√	o	√	o	o	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	17	18	19	20	21	22	23	24
CPU0	A	A1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		A2													●	●	●	●	●	●	●	●	●	●	●	●
	B	B1			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		B2															●	●	●	●	●	●	●	●	●	●
	C	C1					●	●			●	●	●	●	●	●			●	●	●	●	●	●	●	●
		C2																	●	●			●	●	●	●
	D	D1							●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		D2															●	●			●	●	●	●	●	●
	E	E1							●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		E2															●	●			●	●	●	●	●	●
	F	F1											●	●	●	●			●	●	●	●	●	●	●	●
		F2																							●	●
CPU1	A	A1		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		A2														●	●	●	●	●	●	●	●	●	●	●
	B	B1				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		B2																●	●	●	●	●	●	●	●	●
	C	C1						●	●			●	●	●	●	●	●			●	●	●	●	●	●	●
		C2																		●	●		●	●	●	●
	D	D1								●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		D2																●	●			●	●	●	●	●
	E	E1								●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		E2																●	●			●	●	●	●	●
	F	F1												●	●	●	●			●	●	●	●	●	●	●
		F2																								●

Table 3-2

- When installing 2 CPUs, in order to achieve optimal performance, it is recommended to install double-number memory, and the memory quantity of each CPU should remain the same.

2 pieces of memory: CPU0_A1 / CPU1_A1
4 pieces of memory: CPU0_A1 / CPU0_B1 / CPU1_A1 / CPU1_B1
6 pieces of memory: CPU0/CPU 1_A1, CPU0/CPU1_B1, CPU0/CPU1_C1
8 pieces of memory: CPU0/CPU 1_A1, CPU0/CPU1_B1, CPU0/CPU1_D1, CPU0/CPU1_E1
10 pieces of memory: asymmetrical, this configuration is not recommended
12 pieces of memory: CPU0/CPU1_A1, CPU0/CPU1_B1, CPU0/CPU1_C1, CPU0/CPU1_D1, CPU0/CPU1_E1, CPU0/CPU1_F1
14 pieces of memory: asymmetrical: this configuration is not recommended

16 pieces of memory: CPU0_A1/A2, CPU0_B1/B2, CPU0_D1/D2, CPU0_E1/E2, CPU1_A1/A2, CPU1_B1/B2, CPU1_D1/D2, CPU1_E1/E2

18/20/22 pieces of memory: asymmetrical, this configuration is not recommended

24 pieces of memory: all inserted in.

⚠ Note: In the same Channel, memory with a large capacity must be inserted into the first one (such as A1/B1/C1/D1/E1/F1): blue

Mixed use of RDIMM and LRDIMM is not allowed; if there is only one memory, install it to CPU0_A1.

3.2.4 Install the server rails

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

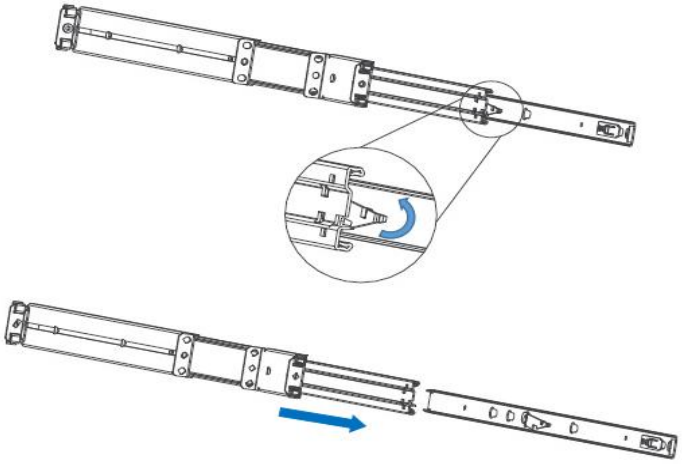


Figure 3-8

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

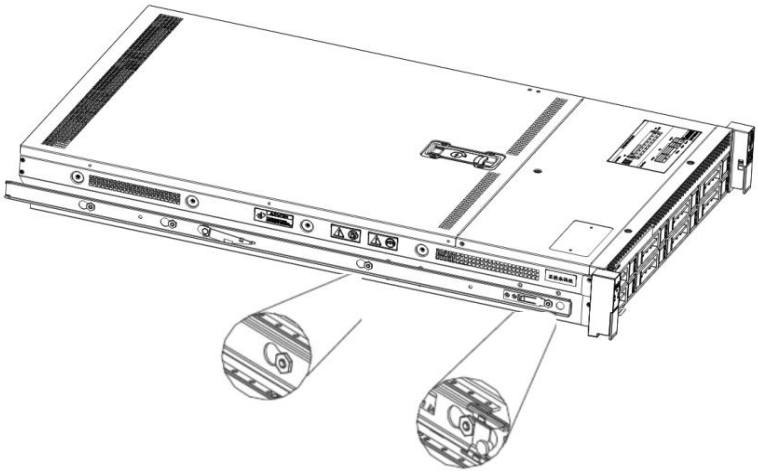


Figure 3-9

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

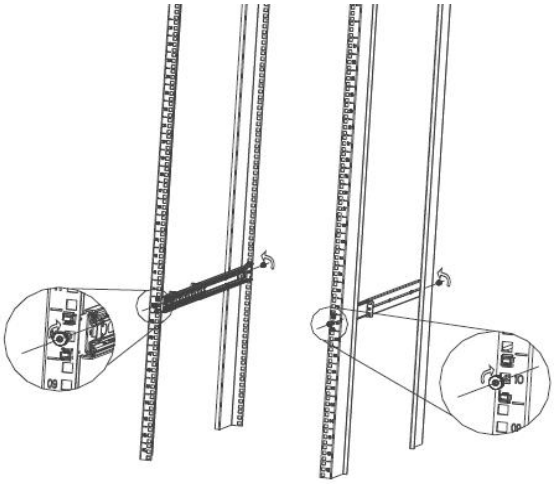


Figure 3-10

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

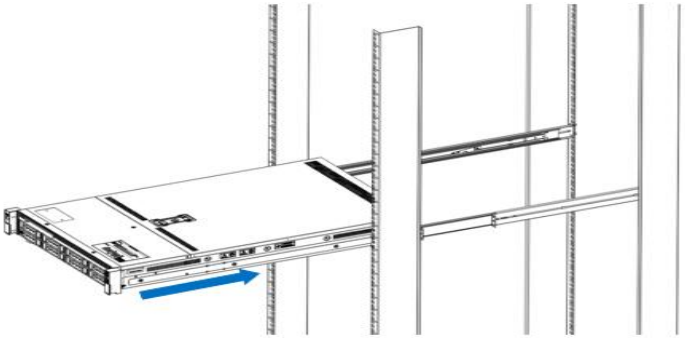


Figure 3-11

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

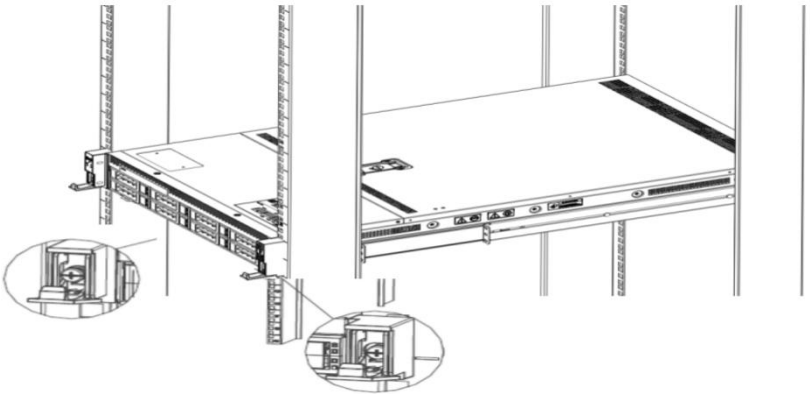


Figure 3-12

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:

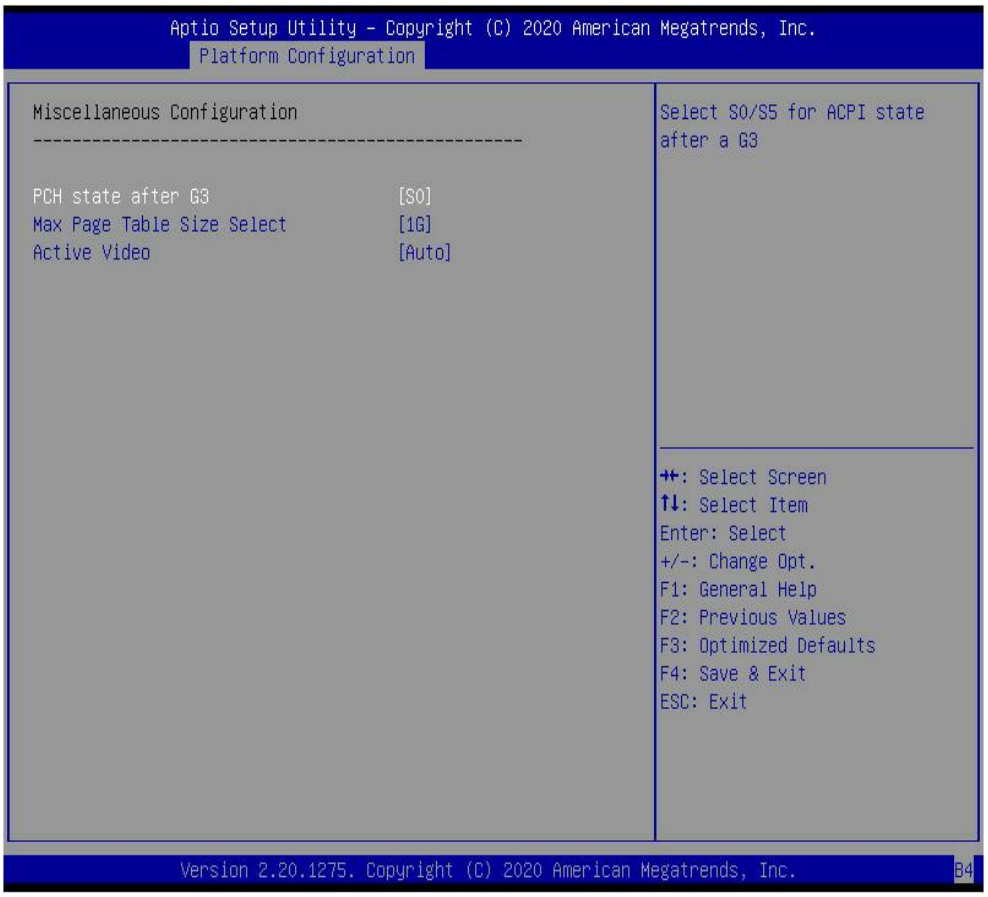


Figure 4-1

- **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
  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 -> can execute according to requirements.

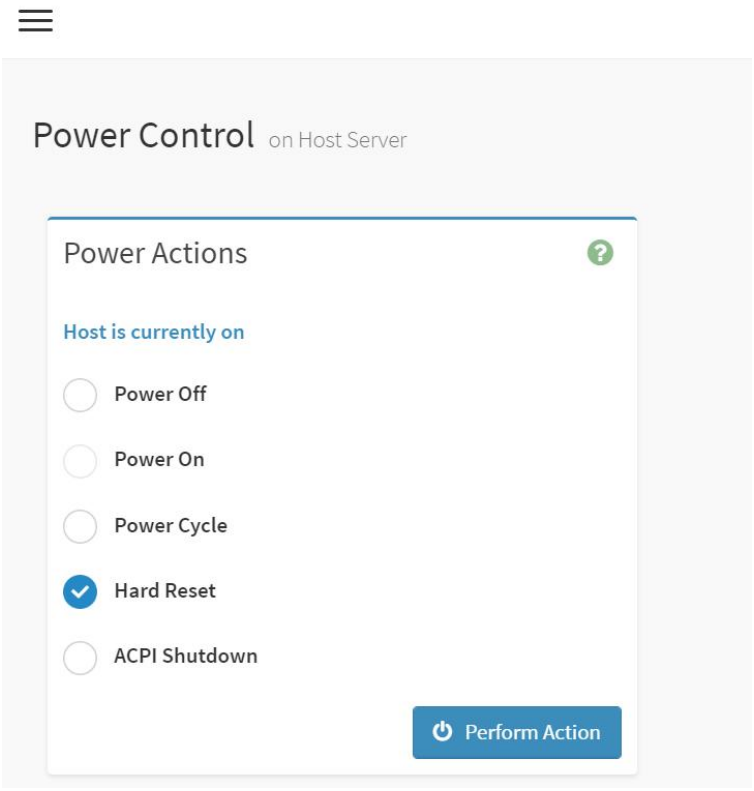


Figure 4-2

⚠ 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:

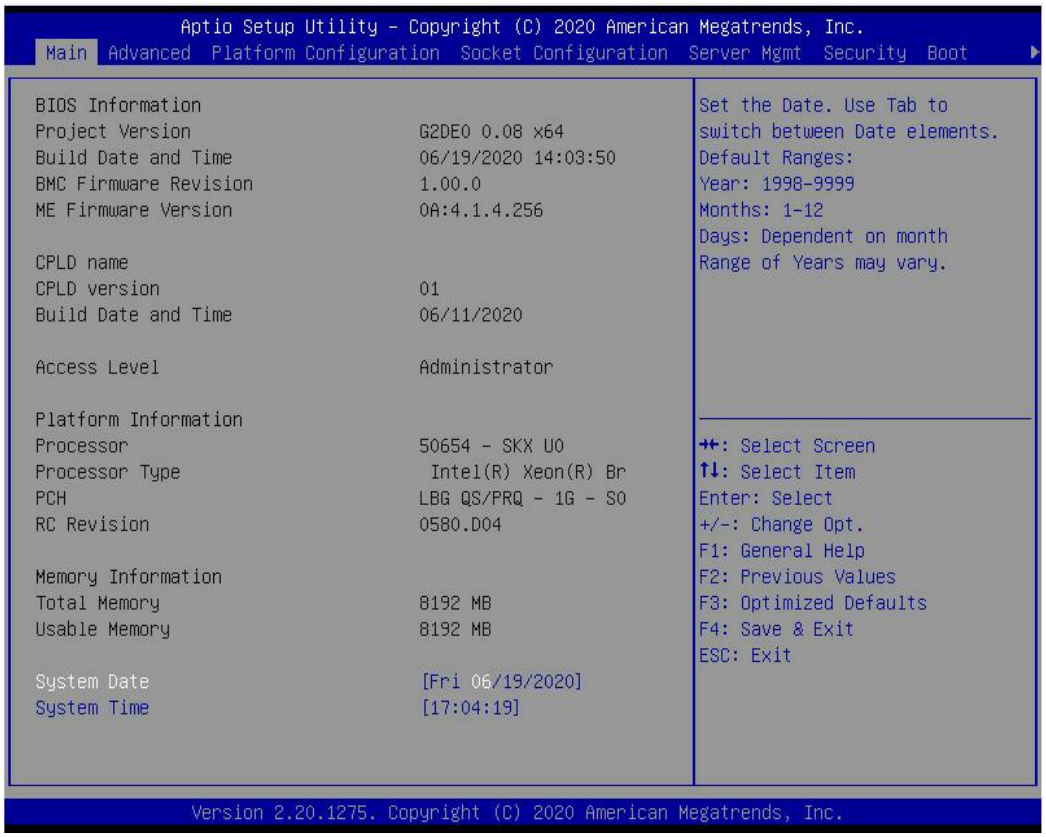


Figure 4-3

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 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:

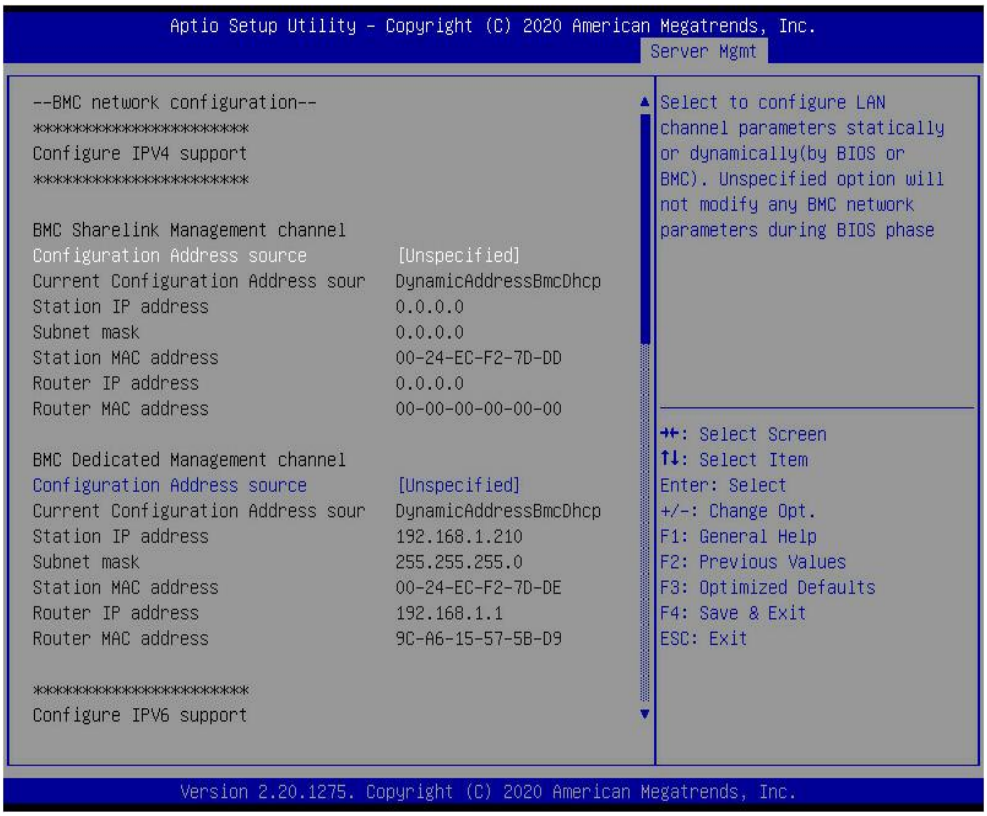


Figure 4-4

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 value: Unspecified

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, routing MAC;

- BMC Dedicated 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
- 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 dedicated network port, the current IP configuration mode, BMC IP, subnet mask, MAC address, routing IP, routing MAC;
- Configure IPV6 support
- BMC Sharelink Management Channel
- IPV6 Support
- Choose whether to support IPV6, the menu options are:
  Enabled: support IPV6
  Disabled: does not support IPV6
  Default: Enabled
- 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, the network parameter information (IPV6) of the system shared network port will be displayed;
- BMC Dedicated Management Channel
- IPV6 Support
- Choose whether to support IPV6, the menu options are:
  Enabled: support IPV6
  Disabled: does not support IPV6
  Default: Enabled
- 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, the network parameter information (IPV6) of the system dedicated network port will be displayed

Log in to the BMC management interface
Enter the IP address on the web page, as shown in the figure:

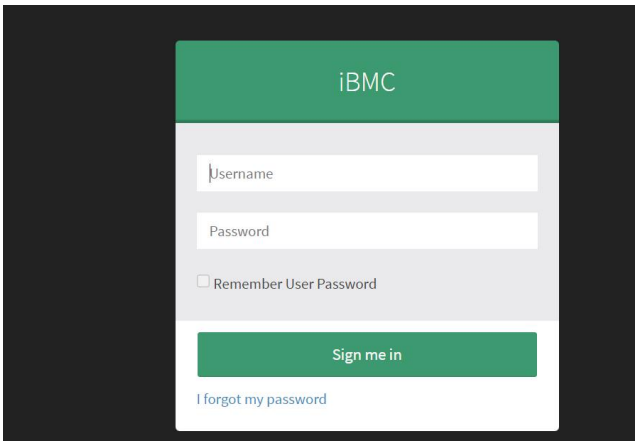


Figure 4-5

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:

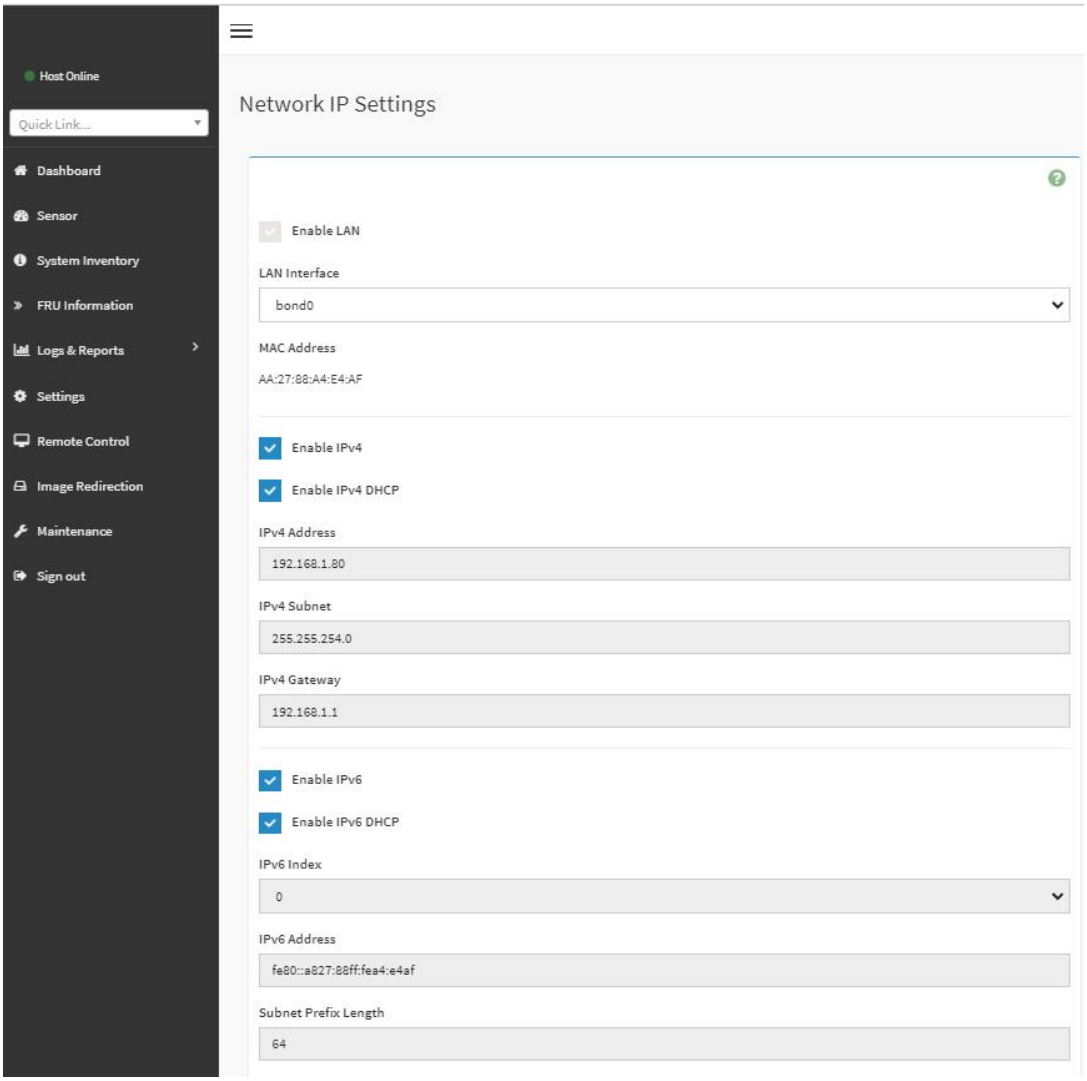


Figure 4-6
This page sets the IP address of the BMC management network port.

5 Appendix

(Common fault diagnosis)
No display after power on

- Make sure the monitor cable is 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.