

AS201-G3 Rackmount Server User Manual

Document version: 01

Release date: 2023/12/28

Shenzhen Gooxi Information Security Co., Ltd.



Statement

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Foreword

This manual is the product technical manual for the AS201 Whitley platform 2U model servers. It primarily provides an introduction and explanation of the product's appearance, structure, hardware installation, and basic configuration.

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

Modification Record

Manual version	Release date	Modification instructions
V1.0	2023-03-17	First release
V1.1	2023-12-28	Optimization

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1. Product Introduction

1.1 Product Overview

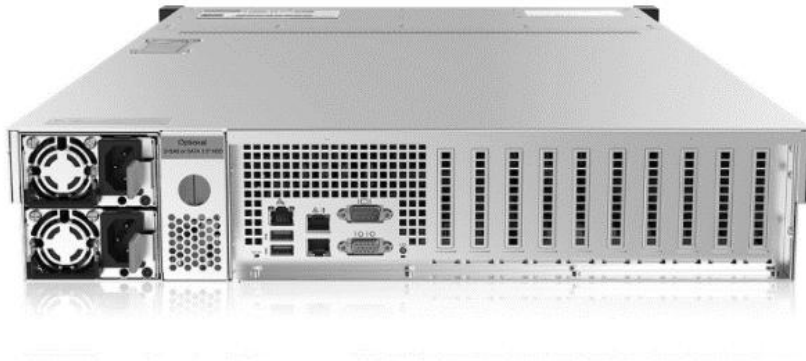
The AS201 Whitely 2U Dual-Socket Rackmount Server is a versatile next-generation 2U dual-socket rackmount server introduced by Gooxi to meet the demands of the internet, IDC (Internet Data Center), cloud computing, enterprise markets, and telecommunications applications. It is suitable for IT core operations, cloud computing virtualization, high-performance computing, distributed storage, big data processing, enterprise or telecom applications, and other complex workloads. This server features advantages such as low energy consumption, strong scalability, high reliability, easy management, and easy deployment. Its main configurations include:

- Supports two Intel® Xeon® Scalable processors (Ice Lake), with each single CPU supporting 8 DDR4 DIMMs.
- Supports two types of panel chassis with 8*3.5/2.5-inch hard drive chassis, 12*3.5/2.5-inch hard drive chassis, and 25*2.5-inch hard drive chassis, each hard drive individually serviceable.
- The rear window supports 2*2.5-inch hard drive bays.
- Up to 10 PCIe expansion slots for GPU cards, network cards, RAID cards, etc.
- The motherboard is equipped with 2 Gigabit Ethernet ports using the I350-AM2 chipset.
- The BMC chip on the board utilizes ASPEED's AST2500 control chip for IPMI remote management, VGA output, and a dedicated Gigabit RJ45 management port.

physical illustration of the server with a 8-bay configuration is shown below:



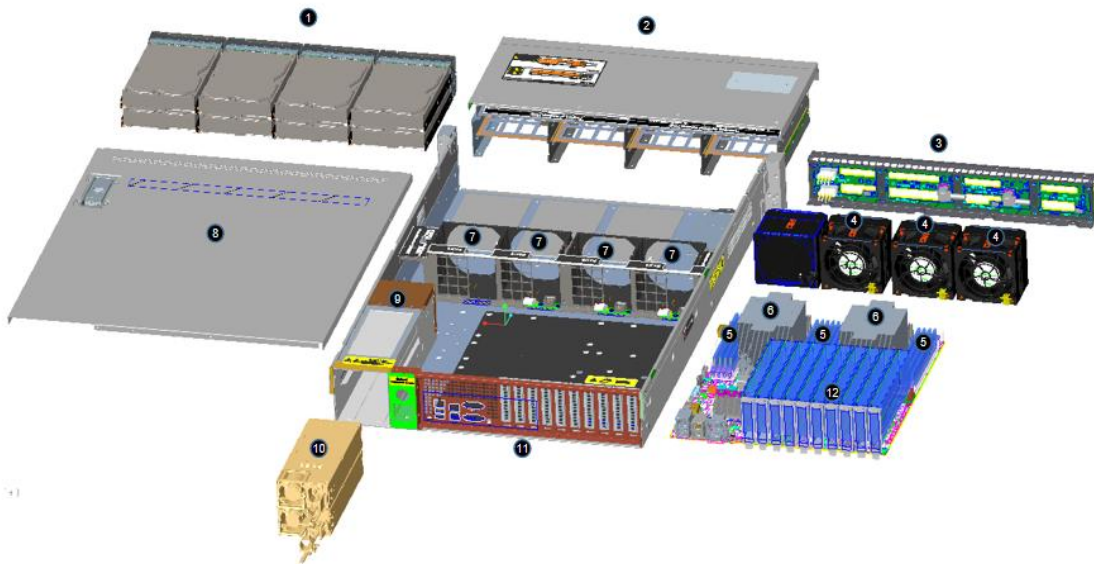
Front view 1-1



Rear view 1- 2

1.2 Product Structure

Physical structure of AS201 Whitely 2U dual-socket server varies according to different requirements. Taking the 8-bay model as an example, the description of various components of the server is as shown in the diagram below:



Structure diagram 1-3

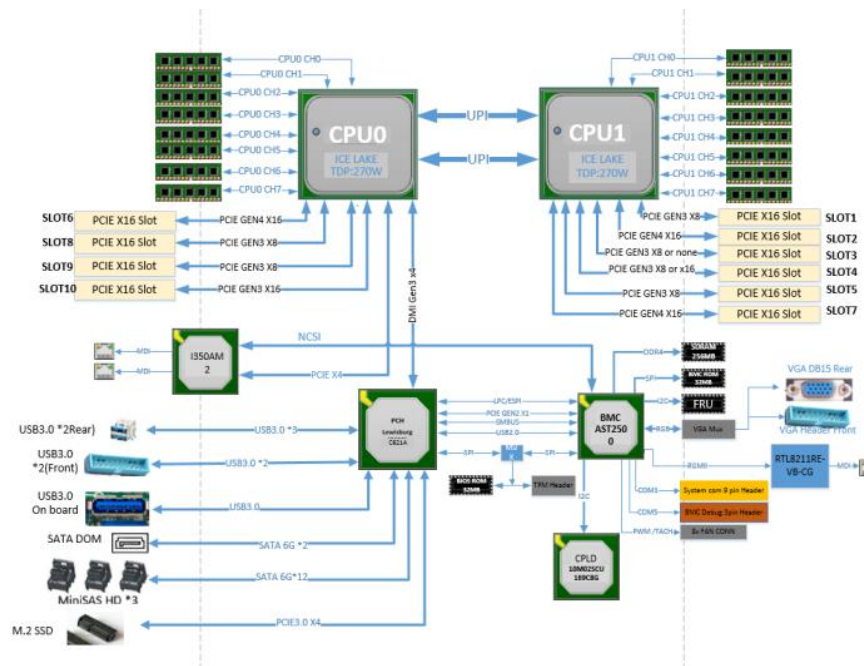
No.	Name	No.	Name
1	Hard Drive	7	Fan Bracket
2	Hard Drive Bracket Module	8	Top Cover
3	Backplane Assembly	9	Power Supply Bracket Assembly
4	Fan Module	10	Power Supply

5	Memory Module	11	Rear Window Assembly
6	CPU Heatsink	12	Half-Height PCIe Expansion Channel

Table 1-1

1.3 Logical Structure

The AS201 Whitley 2U dual-socket rackmount server is shown in the figure below:



Motherboard logic block diagram 1-4

- The CPU employs the third generation Intel® Xeon® Scalable processors, utilizing the LGA4189 socket, with a TDP power consumption of 270W.
- A single CPU supports 8 DDR4 channels, while 2 CPUs in total support 16 DDR4 slots. It accommodates individual module capacities of 16GB, 32GB, 64GB, 128GB, and 256GB.
- DDR4 Type: DDR4 2400/2666/2933/3200MHz ECC-RDIMM/LRDIMM.
- 6 half-height PCIe 3.0 x8 (in PCIe 3.0 x16 slot), 1 half-height PCIe 3.0 x16, and 3 half-height PCIe 4.0 x16; optionally supports 4 half-height PCIe 3.0 x8 (in PCIe 3.0 x16 slot) and 2 half-height PCIe 3.0 x16.
- The G3DE-B motherboard provides 1 M.2 M KeySSD slot, supports 2280 size, and only supports PCIe X4 signal.
- The motherboard is integrated with 2 Gigabit Ethernet ports, utilizing the I350 chipset from the PCH.
- The PCH employs the INTEL LEWISBURG C621 chipset series.
- The G3DE-B motherboard features 3 onboard MiniSAS SFF-8643 connectors and 2 SATA6.0Gbp connectors.
- The board incorporates the BMC chip, which utilizes ASPEED's AST2500 control

chip, serving the purpose of IPMI remote management. It includes a VGA output port, a dedicated Gigabit RJ45 management network port, and is also connected to the PCH via RMII/NCSI.

1.4 Product Specifications

Product Series	AS201-D08R-G3	AS201-D12RE-G3	AS201-D25RE-G3
Form Factor	2U 8-bay	2U 12-bay	2U 25-bay
Dimension	695*433.4*87.6mm(D*W*H)		
Processor	Supports one or two 3rd Generation Intel® Xeon® Scalable series processors		
Memory	The system features 16 DDR4 memory slots, supporting DDR4 LRDIMM/RDIMM with speeds of 2666/2933/3200 MHz. The maximum capacity per memory module is 256GB.		
Internal Storage Interface	3 MiniSAS HD interfaces, 2 SATA DOM interfaces, and 1 NVME PCIe 4.0 M.2 interface (2280)		
External Hard Drive	Front: 8 hot-swappable 3.5"/2.5" SAS/SATA drives, Rear: Optional 2×2.5" drive module	Front: 12 hot-swappable 3.5"/2.5" SAS/SATA drives, Rear: Optional 2×2.5" drive module	Front: 25 hot-swappable 2.5" SAS/SATA drives, Rear: Optional 2×2.5" drive module
External Port	Front port: 2 USB3.0 Rear: 1 VGA, 1 COM port, 2 USB 3.0, 1 RJ45 Gigabit management network port, 2 Gigabit RJ45 network ports.		
PCIe Expansion	<p>10 Half-Height PCIe Version: Supports 6 half-height PCIe 3.0x8 (in PCIe 3.0 x16 slot), 1 half-height PCIe 3.0x16, and 3 half-height PCIe 4.0x16; optional support for 4 half-height PCIe 3.0x8 (in PCIe 3.0 x16 slot) and 2 half-height PCIe 3.0x16</p> <p>7 Half-Height PCIe Version: Supports 4 half-height PCIe 3.0x8 (in PCIe 3.0 x16 slot) and 3 half-height PCIe 4.0x16; optional support for 2 half-height PCIe 3.0x8 (in PCIe 3.0 x16 slot), 1 half-height PCIe 3.0x16, and 3 half-height PCIe 4.0x16</p> <p>1 Full-Height Dual-Wide PCIe Version: Supports 1 full-height dual-wide PCIe 3.0 x16, 6 half-height PCIe 3.0x8 (in PCIe x16 slot), 1 half-height PCIe 3.0x16, and 2 half-height PCIe 4.0x16</p> <p>2 Full-Height Dual-Wide PCIe Version: Supports 1 full-height dual-wide PCIe 4.0 x16, 1 full-height dual-wide PCIe 3.0 x16, and 3 half-height PCIe x8</p>		
Power Supply	Supports AC 220V redundant power supplies with 550W, 800W, 1300W, 1600W, and 2200W options (based on actual power requirements). Supports high-voltage DC 240V-336V with 550W, 800W, and 1300W options. Supports low-voltage DC -48V with 550W, 800W, and 1300W options.		
System Fan	Comes standard with 3 hot-swappable N+1 redundant 8038 fans, with optional 8056 hot-swappable N+1 redundant fans available		
Security	Supports TPM module		
Certification	CCC		

RoHS	Comply with RoHS2.0
Working Temperature & Humidity	Temperature 5°C~35°C/humidity 20%~80% RH non-condensing
Storage Temperature & Humidity	Short-term storage (≤ 72 H): temperature -40°C~70°C/humidity 20%~90% RH non-condensing (including packaging) Long-term storage (> 72 H): temperature 20°C~28°C/humidity 30%~70% RH non-condensing (including packaging)

Table 1-2

2. Hardware Description

2.1 Front Panel

2.1.1 Appearance

- 8 x 3.5" hard drive configuration

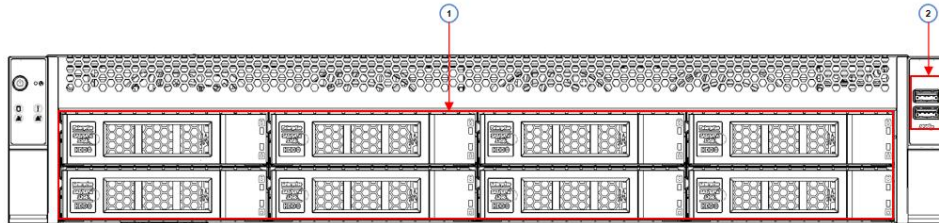


Figure 2-1

No.	Name	No.	Name
1	3.5 inch hard drive	2	USB 3.0 port _

Table 2-1

- 12 x 3.5" hard drive configuration

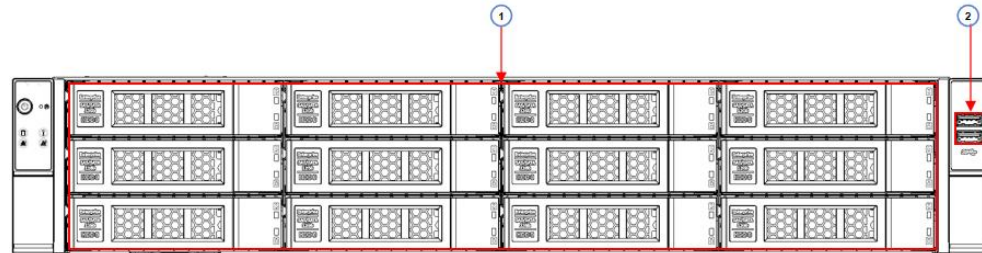


Figure 2-2

No.	Name	No.	Name
1	3.5 inch hard drive	2	USB 3.0 port _

Table 2-2

- 25 x 2.5" hard drive configuration

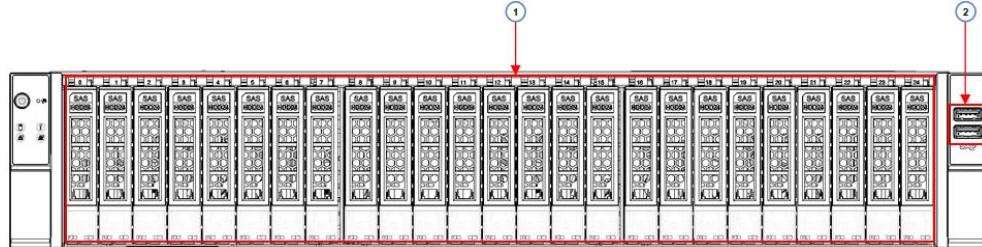


Figure 2-3

No.	Name	No.	Name
1	2.5 inch hard drive	2	USB 3.0 port _

Table 2-3

2.1.2 Indicator lights and buttons

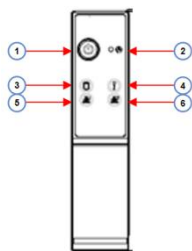







Figure 2-4

No.	Indicator/button	No.	Indicator/button
1	Power button/indicator	4	System alarm indicator
2	Reset server button	5	Network port 1 connection status indicator
3	Hard drive indicator	6	Network port 2 connection status indicator
LED status description			
Logo	Indicator/button	Status description	
	Power indicator	<p>Description of the power indicator light:</p> <p>Green (steady on): Indicates that the device has been powered on normally.</p> <p>Green (blinking): Indicates that the device is in standby.</p> <p>Green off: Indicates that the device is not powered on.</p> <p>Power button description:</p> <p>Short press this button in the power-on state, and the OS will shut down normally.</p> <p>Press and hold the button for 6 seconds in the power-on state to force the server to Power off.</p> <p>Short pressing this button in the standby state allows for powering on.</p>	
	Reset server button	Press to restart the server	
	Hard drive indicator	Blinking green light: The hard drive is operating normally	
	System alarm indicator light	System alarm indicator light. It includes system, fan, and power alarms, etc. Specific details can be viewed through the IPMI management software.	
	Network port connection status indicator light	<p>Indicator lights for Ethernet ports corresponding to the network card slots.</p> <p>Green (steady): Indicates a normal network connection.</p> <p>Off: Indicates an unused or faulty network port.</p>	


		Note: Corresponds to the two 1GE Ethernet ports on the motherboard.
	Network port connection status indicator light	Indicator lights for Ethernet ports corresponding to the network card slots. Green (steady): Indicates a normal network connection. Off: Indicates an unused or faulty network port. Note: Corresponds to the two 1GE Ethernet ports on the motherboard.

Table 2-4

2.1.3 Interface

- Interface location



Figure 2-5

No.	Name	No.	Name
1			USB 3.0 interface

Table 2-5

- Interface description

Name	Type	Quantity	Description
USB interface	USB 3.0	2	For accessing USB devices

Table 2-6

2.2 Rear Panel

2.2.1 Appearance

- Appearance interface on the rear panel
- 2U supports 2 dual-width high-performance GPU cards

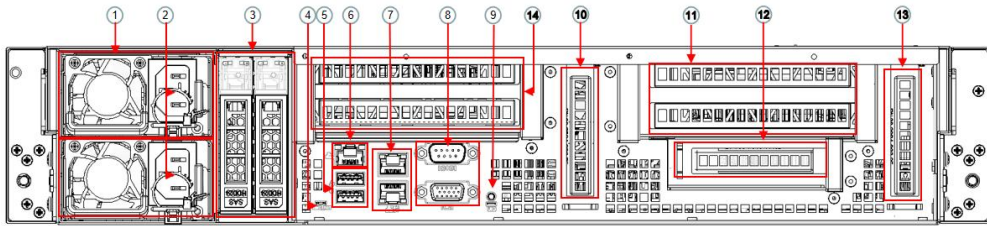


Figure 2-6

- 2U supports 1 double-width high-performance GPU card + 4 half-height single-width high-performance GPU cards

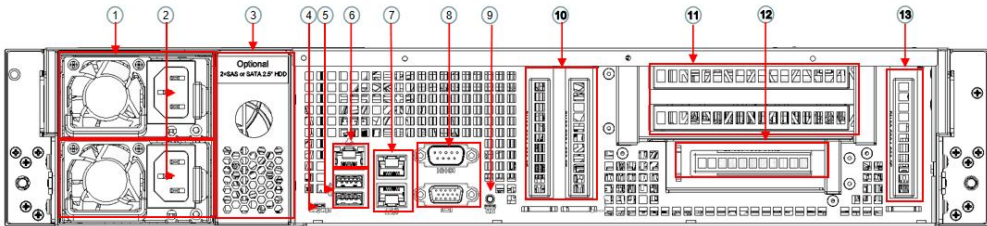


Figure 2-7

- 2U supports 1 double-width high-performance GPU card + 9 half-height single-width high-performance GPU cards

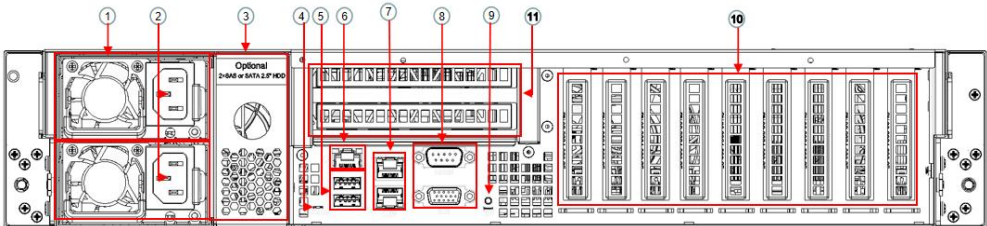


Figure 2-8

- 2U supports 10 half-height full-length high-performance GPU cards

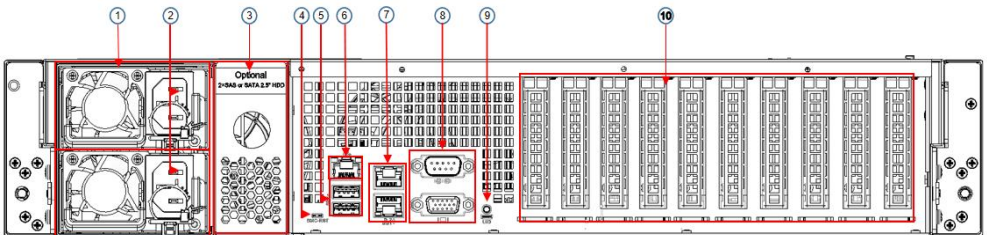


Figure 2-9

No.	Name	No.	Name
1	Power module	8	COM port, VGA interface
2	Power module AC interface	9	UID button
3	2.5- inch hard drive module(optional)	10	Riser module
4	BMC Reset button	11	Riser module
5	USB3.0 interface	12	Riser module
6	Management network port	13	Riser module

7	RJ45 Gigabit network port	14	Riser module
---	---------------------------	----	--------------

Table 2-7 (Refer to Figure 2-6)

Note:

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

Name	Type	Quantity	Description
VGA interface	DB 15	1	Used to connect a display terminal, such as a monitor or KVM.
Management network port	GE BASE -T	1	Provides an outgoing 1000Mbit/s Ethernet port. Through this interface, the local server can be managed.
USB interface	USB 3.0	2	Provides external USB interface, through which USB devices can be connected. Note: When using external USB devices, please ensure the USB device is in good condition, as otherwise it may lead to abnormal server operation.
RJ45 Gigabit Ethernet port	GE BASE -T	2	Server network port.
Power module AC port	/	1 or 2	You can select the number of power supplies according to your actual needs, but it is essential to ensure that the rated power of the power supplies is greater than the rated power of the whole system.
COM port		1	Serial communication port

Table 2-8

2.2.2 Indicator lights and buttons

- Rear Panel Indicators

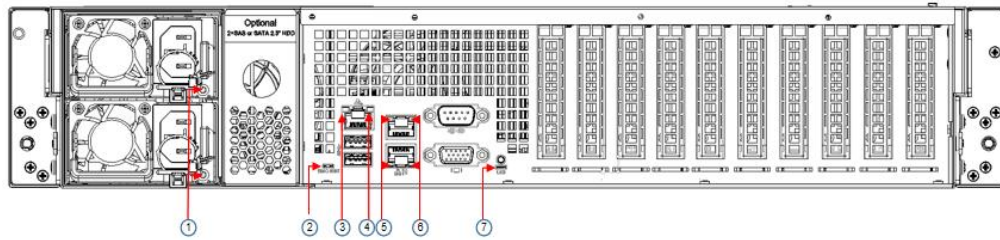


Figure 2-10

No.	Name	No.	Name
1	Power module indicator	2	BMC reset button
3	Connection Status Indicator	4	Data transmission status indicator
5	Connection Status Indicator	6	Data transmission status indicator
7	UID button		

Table 2-9

- Description of Power Module Indicators

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

Table 2-10

2.3 Processors

- Supports 1 or 2 Intel third-generation Xeon scalable CPU.
- When configuring 1 processor, it needs to be installed in CPU 0 position.
- Processors configured on the same server must have the same model.
- For specific available system options, please consult Gooxi sales.

- The location of the processor is shown in the figure below:

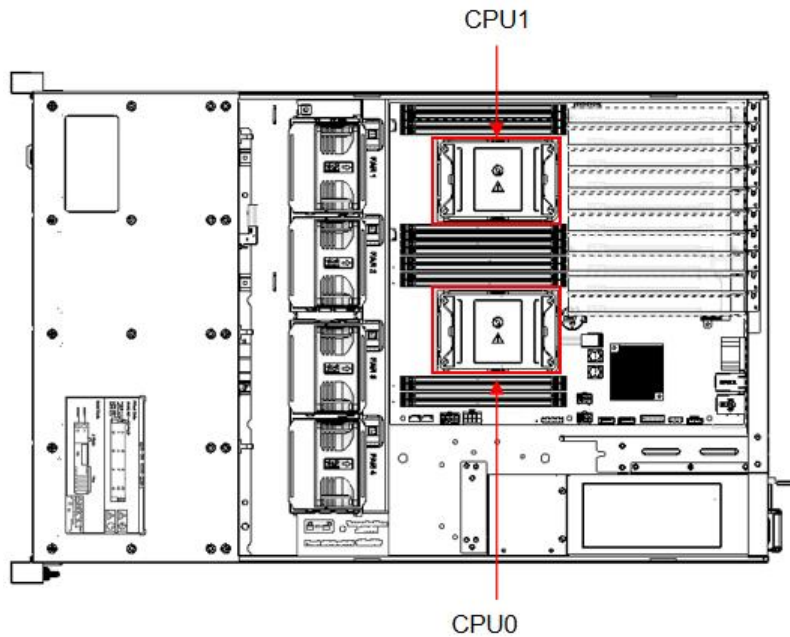


Figure 2-11

2.4 Memory

2.4.1 Memory slot location

This motherboard utilizes the Intel Whitely platform, paired with Intel Xeon ICE Lake CPUs. Each CPU supports 8 channels, and each channel supports 2 DIMMs. The motherboard can accommodate up to 16 DIMMs. When using a single memory module, it is recommended to prioritize installation in the blue-bordered slots as indicated in the diagram below (slots with blue-colored plastic on the slot board). It supports DDR4 ECC RDIMMs/LRDIMMs server memory with memory frequencies of 2666/2933/3200MHz. The placement is illustrated in the following diagram:

- memory slot location

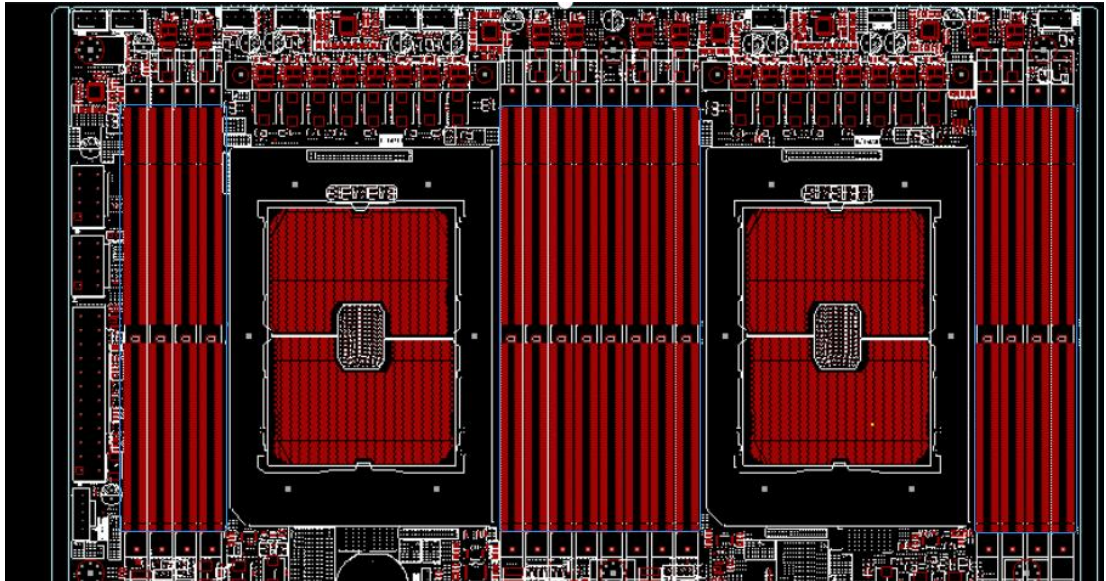


Figure 2-12

2.4.2 Memory compatibility information

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

Note:

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

2.5 Storage

2.5.1 Hard drive configuration

Configuration	Maximum front hard drive quantity (units)	Maximum rear hard drive quantity (units)	Description
8 x 3.5-inch Hard Drives Pass-through Configuration 1	Front Hard Drives (8 x 3.5/2.5) – Slots 0 to 7 support only SAS/SATA drives	Rear Hard Drive Module (2 x 2.5) – Supports NVMe/SAS/SATA drives	SAS drives require optional SAS pass-through card or RAID card support.

8 x 3.5-inch Hard Drives Pass-through Configuration 2	Front Hard Drives (8 x 3.5/2.5) – Slots 0 to 7 support SAS/SATA drives	Rear Hard Drive Module (2 x 2.5) – Supports NVMe/SAS/SATA drives	8-bay tri-mode backplane, NVMe/SAS/SATA drives require different cables; SAS drives require optional SAS pass-through card or RAID card support.
12 x 3.5-inch Hard Drives Pass-through Configuration 1	Front Hard Drives (12 x 3.5/2.5) – Slots 0 to 11 support only SAS/SATA drives	Rear Hard Drive Module (2 x 2.5) – Supports NVMe/SAS/SATA drives	SAS drives require optional SAS pass-through card or RAID card support.
12 x 3.5-inch Hard Drives Pass-through Configuration 2	Front Hard Drives (12x3.5/2.5) *12–Slots 0 to 11 support SAS/SATA drives	Rear Hard Drive Module (2 x 2.5) – Supports NVMe/SAS/SATA drives	12-bay tri-mode backplane, NVMe/SAS/SATA drives require different cables; SAS drives require optional SAS pass-through card or RAID card support.
12 x 3.5-inch Hard Drives EXP Configuration	Front Hard Drives (12 x 3.5/2.5) – Slots 0 to 11 support only SAS/SATA drives	Rear Hard Drive Module (2 x 2.5) – Supports NVMe/SAS/SATA drives	SAS drives require optional SAS pass-through card or RAID card support.
25 x 2.5-inch Hard Drives EXP Configuration	Front Hard Drives (25 x 2.5) – Slots 0 to 14 support only SAS/SATA drives	Rear Hard Drive Module (2 x 2.5) – Supports NVMe/SAS/SATA drives	SAS drives require optional SAS pass-through card or RAID card support.
Note: *The maximum rear hard drive quantity is affected by the type of NVMe/SAS/SATA drives.			

Table 2-11

2.5.2 Hard drive serial number

- 8x3.5-inch hard drive configuration

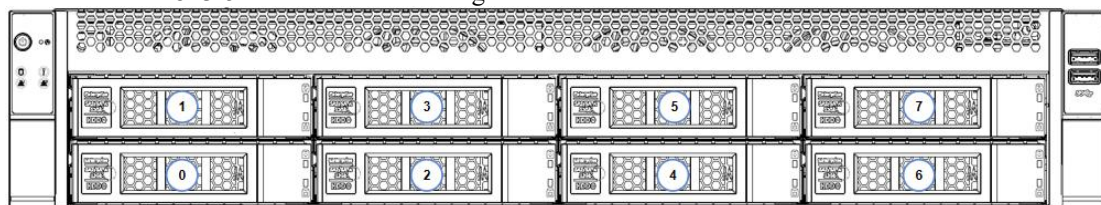


Figure 2-13

- 12x3.5-inch hard drive configuration

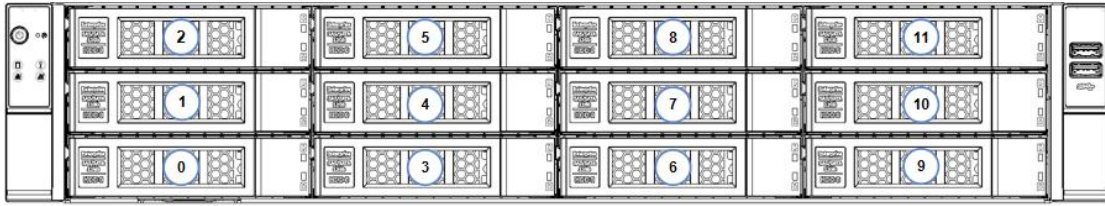


Figure 2-14

- 25x2.5-inch hard drive configuration

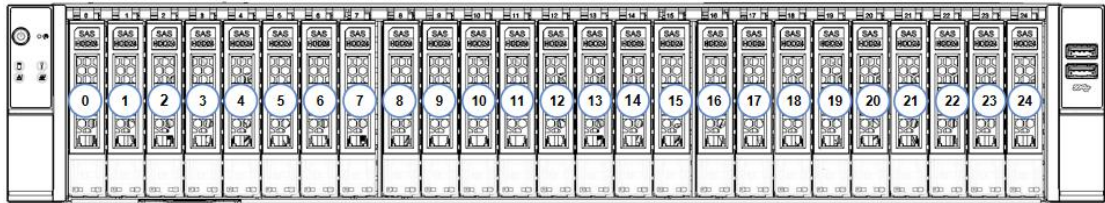


Figure 2-15

2.5.3 Hard drive status indicator

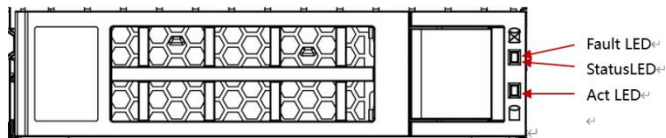


Figure 2-16

- Hard drive status indicator description

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

Table 2-12

2.6 Power Supply

- Supports 1 or 2 power modules.
- Supports AC or DC power modules.
- Supports 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.

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

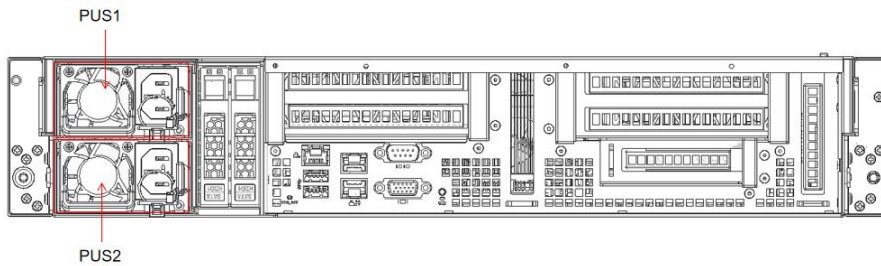


Figure 2-17



The device is equipped with two identical pluggable power modules, both of which must be powered on simultaneously for the product to function correctly. Using a single power module alone is prohibited.

2.7 Fans

- Supports 4 fan modules
- Supports hot swap
- Supports single fan failure
- Supports 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:

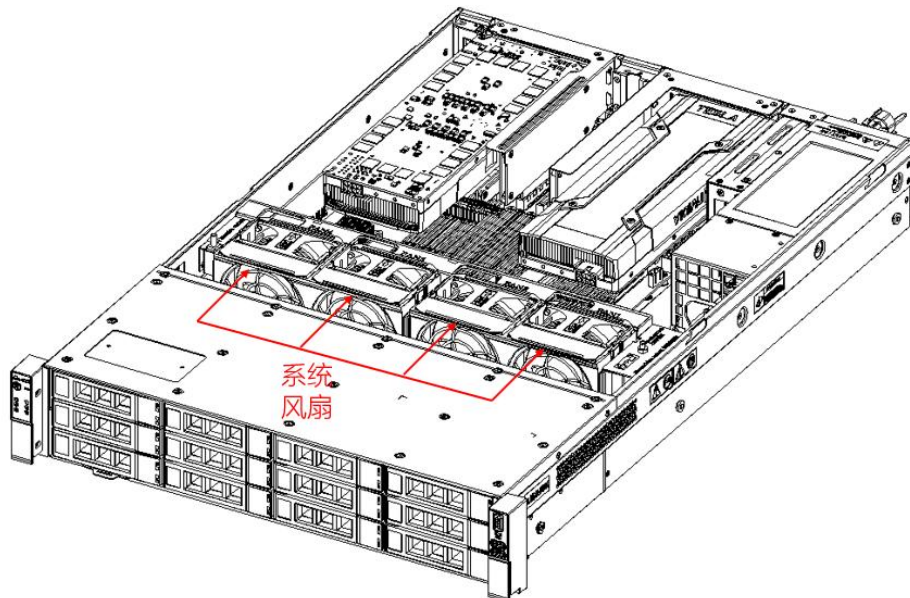


Figure 2-18

2.8 I/O expansion

2.8.1 PCIe slot location

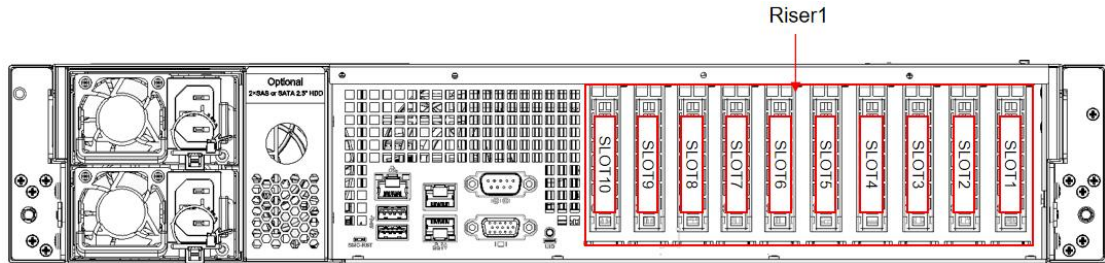


Figure 2-19

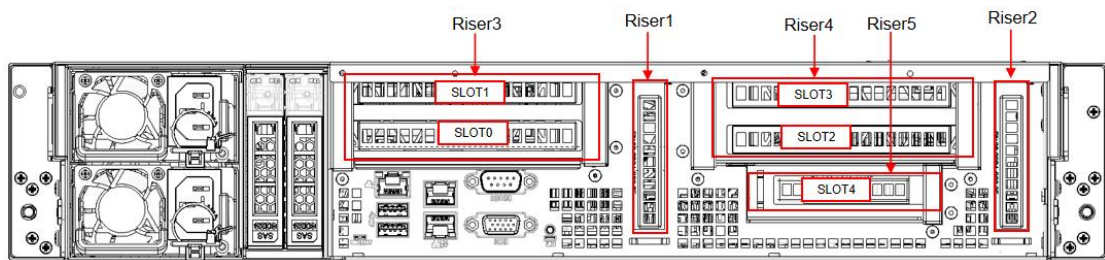


Figure 2-20

- The slot position provided by the Riser3 module is slot0 and slot1. When using a two-slot PCIe expansion module, Slot0 is unavailable.
- The slot position provided by the Riser4 module is slot3 and slot4. When using a two-slot PCIe expansion module, Slot3 is unavailable.
- The slot position provided by the Riser5 module is slot4.

2.8.2 PCIe slot description

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

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

Slot 7	CPU1	PCIe 4.0	X16	half height half length
Slot 8	CPU0	PCIe 3.0	X8	half height half length
Slot 9	CPU0	PCIe 3.0	X8	half height half length
Slot 10	CPU0	PCIe 3.0	X16	half height half length

Note:

- ◆ The bus bandwidth is PCIe x16 slot backward compatible with PCIe x8 , PCIe x4, PCIe x1 PCIe card. Upward is incompatible, that is, the bandwidth of the PCIe slot cannot be smaller than the bandwidth of the inserted PCIe card.
- ◆ The PCIe slot whose slot size is half-height and half-length is backward compatible with half-height and half-length and half-height and half-length PCIe cards; Full-height half-length PCIe slots are backward compatible with half-height half-length PCIe cards.
- ◆ The power supply capacity of all slots can support a PCIe card with a maximum of 75W, and the power of the PCIe card depends on the model of the PCIe card.
- ◆ The horizontal expansion module can support double-width full-length PCIe cards.

Table 2-13 (see Figure 2-20 for table description)

2.8.3 PCIE expansion module

- PCIE expansion module 1
x16 to x16 adapter card

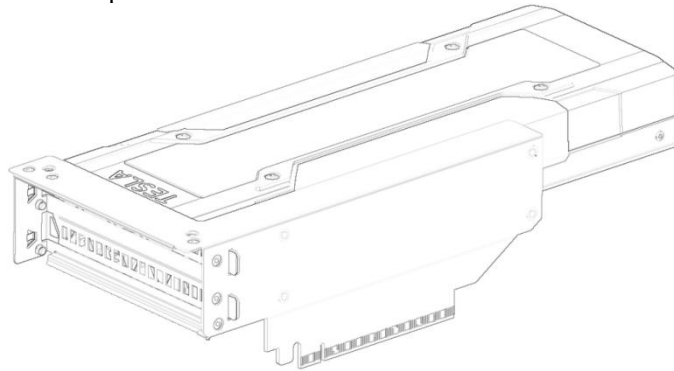


Figure 2-21

- PCIE expansion module 2
– half-height x16 to x16 adapter card

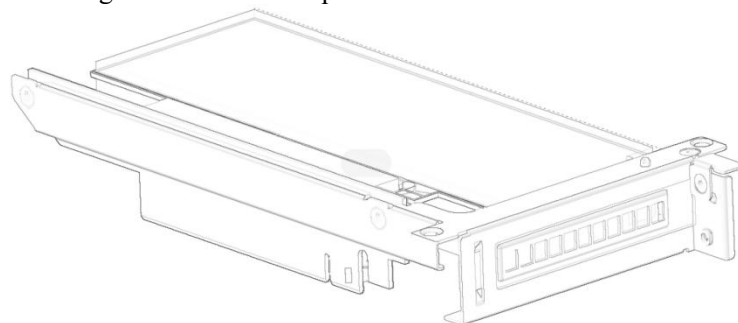


Figure 2-22

- 2.5-inch hard drive module

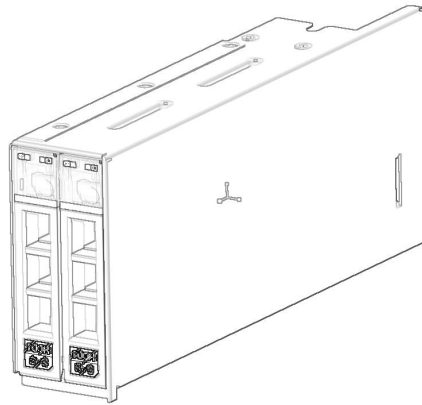
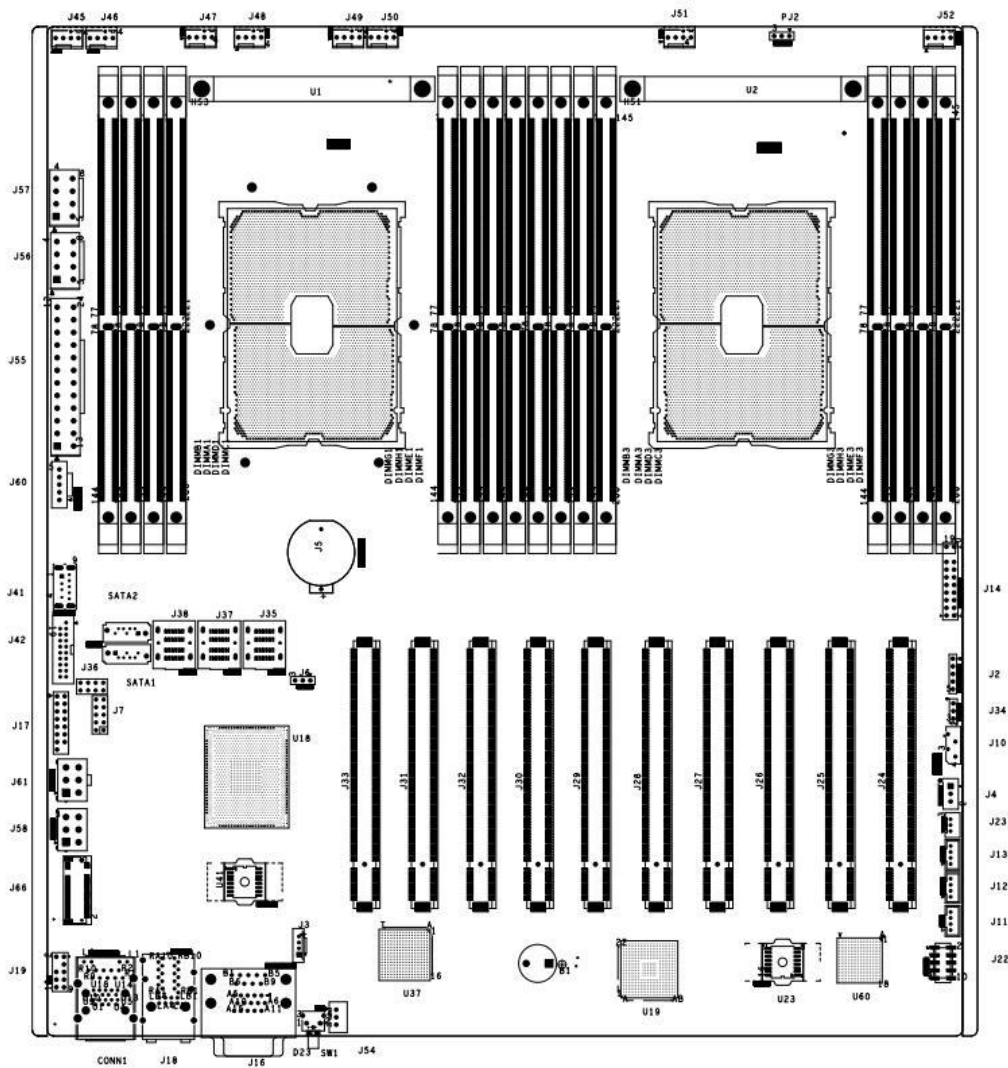


Figure 2-23

2.9 PCBA

2.9.1 Motherboard



Motherboard Figure 2-24

No.	Name
J45~J52	Connectors for system fans 1, 5, 2, 6, 3, 7, 4, 8 in order
PJ2	VR upgrade programming I2C connector
J56, J57	2X 8Pins ATX CPU power connector
J55	2x 12Pins ATX system power connector
J60	Power PMBus Connector
J41	Onboard USB 3.0 connector
J42	Front USB 3.0 Header x2
J17	Front VGA connector
SATA1 SATA2	SATA DOM connector
J66	M.2 connector
J7	PCH hardware strapping
J61, J58	4U 12V Power connector, GPU power connector for atx power supply
J3	RAID KEY connector
J36	SSATA Sgpio connector
J62	Rear window 2 hard drive small board power supply connector
J35	S-SATA port 0~3 connector
J37, J38	ISATA PORT 0~7 connector
J5	RTC battery connector
DIMMB1/A1/D1/C1	The 2,1,4,3 channel memory of CPU0 is connected to the machine
DIMMG1/H1/E1/F1	The 7,8,5,6 channel memory of CPU0 is connected to the machine
DIMMB3/A3/D3/C3	The 2,1,4,3 channel memory of CPU1 is connected to the machine
DIMMG3/H3/E3/F3	The 7,8,5,6 channel memory of CPU1 is connected to the machine
J14	Front panel connector
J2	CPU1 NVME SSD Sideband I2C
J34	Select the PCIe lane configuration connector for PCIE SLOT4 and PCIE SLOT5
J10	IPMB Connector
J8	Connector for storing jumper caps
J4	Chassis Intrusion Connector
J23	BMC Debug serial port
J11, J12, J13	Reserved SMBus and BMC I2C7, I2C13 connectors
J22	The programming connector for the CPLD
U1	CPU 0
U2	CPU 1
U18	PCH
U37	I350 network card chip
U19	BMC
U60	CPLD
U23	BMC FLASH
U41	BIOS FLASH
J66	ME update
SW2	BMC reset button

CONN1	2 RJ45 for USB3.0 and BMC
J19	TPM connector _
J18	2 RJ45 for the system
J16	VGA and system serial port
SW1	UID button
J54	Reserved IPMB Device Power Connector
J24	Lane0~7 of PCIE SLOT1(x8)CPU1 PORT3
J25	PCIE SLOT2(x16) CPU1 PORT2
J26	PCIE Slot3 (X8) LANE8 ~ 15 of CPU1 PORT3
J27	PCIE Slot4 (X8 OR X16) Labe8 ~ 15 of CPU1 Port1
J28	PCIE Slot5 (X8 or None) Lane0 ~ 7 of CPU1 Port1
J29	PCIE SLOT6(x16)CPU0 PORT2
J30	PCIE SLOT7(x16)CPU1 PORT0
J31	PCIE SLOT8(x8) lane 8~15 of CPU0 PORT1
J32	PCIE SLOT9(x8) lane 0~7 of CPU0 PORT1
J33	PCIE SLOT10(x16) CPU0 PORT0

Table 2-14

2.9.2 Hard drive backplane

- 8×3.5 inch expansion backplane

TOP

面

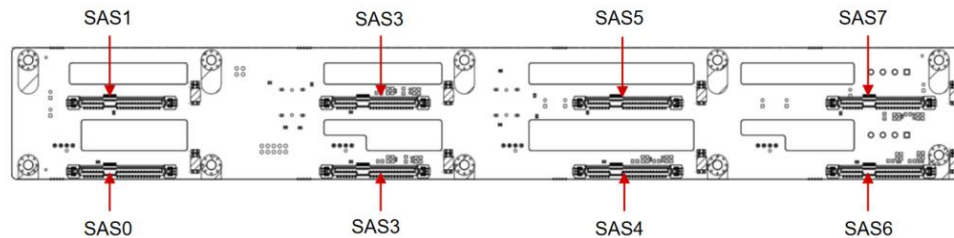


Figure 2-25

No	Description	Function
SAS0~7	SAS/SATA Hard Drive Connector	1.Up to 12G/b SAS hard drive 2.Up to 6G/b SATA hard drive 3.Supports SAS/SATA hard drive hot swap

Table 2-15

Bottom surface

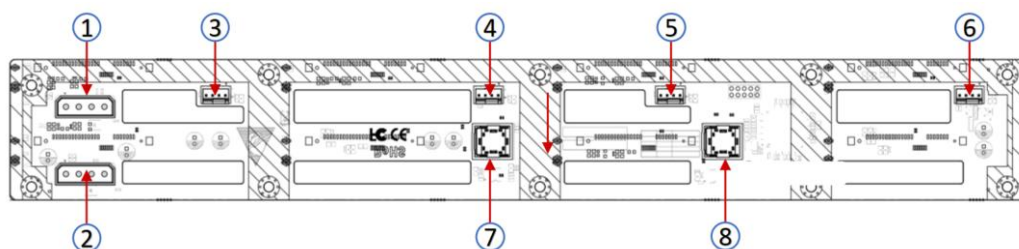


Figure 2-26

No.	Description	Function
1、2	ATX power input	Backplane power transmission connector, used for 12V power transmission
3、4、5、6	Temperature-controlled fan socket	Used for 4pin fan interface
7、8	SFF-8643 12Gb SAS interface	Backplane disk signal interface

Table 2-16

- 12×3.5-inch expansion backplane
TOP surface

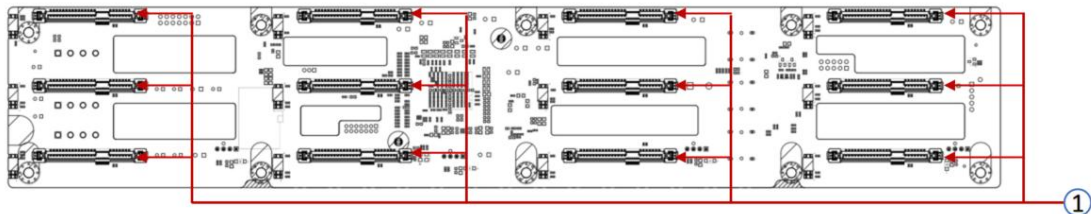


Figure 2-27

No.	Description	Function
1	SAS/SATA Hard Drive Connector	1.Up to 12G/b SAS hard drive 2.Up to 6G/b SATA hard drive 3.Supports SAS/SATA hard drive hot swap

Table 2-17

Bottom surface

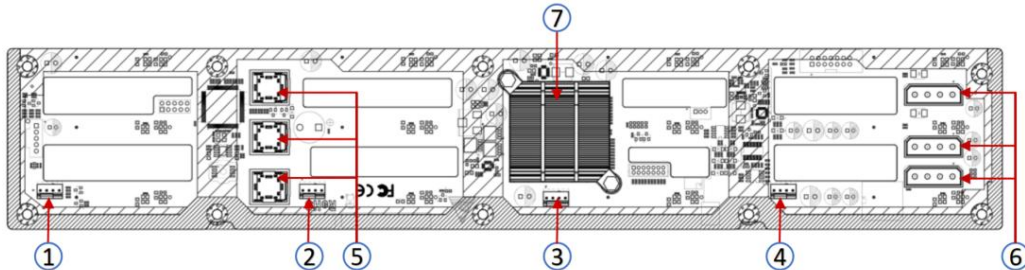


Figure 2-28

No.	Description	Function
1、2、3、4	Temperature-controlled fan socket	Used for 4pin fan interface
5	MINI SAS HD high-speed connector	used for transferring 12G/b SAS or 6G/b SATA signals
6	Power connector	backplane power transmission connector, used for 12V power transmission
7	EXPANDER chip	PM8043 SXP 24Sx12G 24-port 12G SAS Expander

Note: *Direct-connected backplanes do not have this expansion chip.

Table 2-18

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

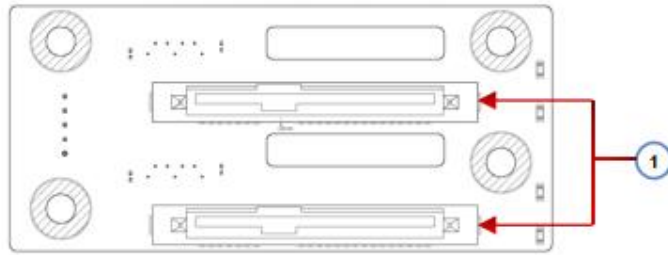


Figure 2-29

No.	Description	Function
1	SAS/SATA Hard Drive Connector	1.Up to 12G/b SAS hard drive 2.Up to 6G/b SATA hard drive

Table 2-19

Bottom surface

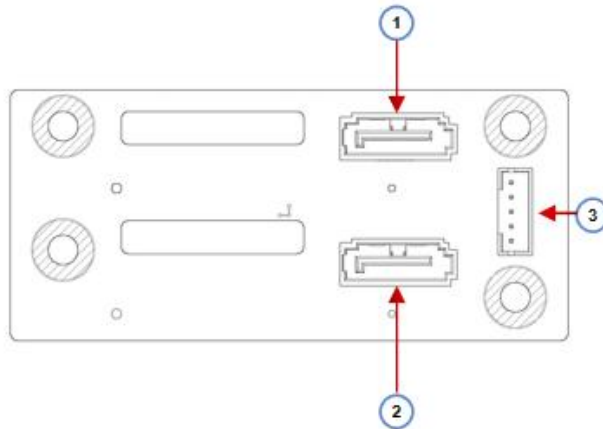


Figure 2-30

No.	Description	Function
1, 2	7PIN SATA interface	SATA disk signal cable interface
3	5 pin interface	Backplane power transmission connector, used for transmitting 12V power

Table 2-20

3. Installation Instructions

3.1 Chassis Top Cover Installation

- Step 1: Lift the card slot at the opening position, push up in the direction indicated by the diagram.

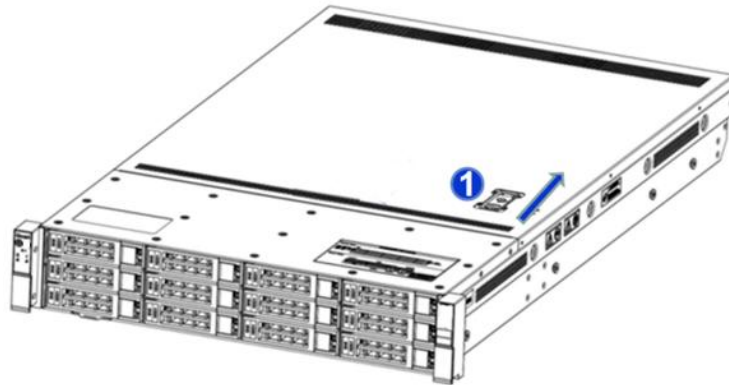


Figure 3-1

3.2 Installation of Accessories

3.2.1 CPU installation

- Step 1: Install the retention clip. Tilt the CPU at an angle as shown in the illustration, aligning the A1 corner (triangle mark) with one end of the retention clip. Press down on the other end of the retention clip to secure the CPU onto the retention clip.

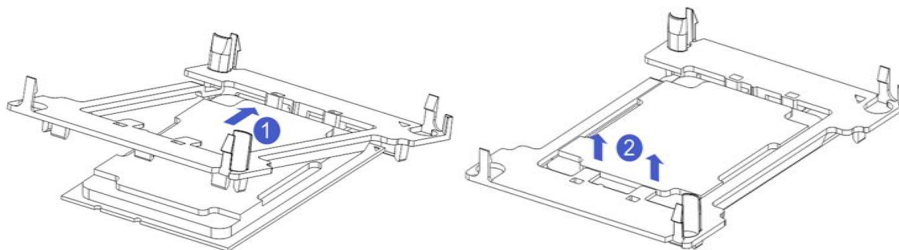


Figure 3-2

- Step 2: Install the CPU on the radiator, and ensure that the surfaces of the CPU and the radiator are clean, free of oil and foreign objects .
- Apply about 0.4 ml of thermal grease on the CPU and smooth it evenly.
- Step 3: Align the A 1 corner (triangle mark), and buckle the CPU on the radiator. (As shown below)

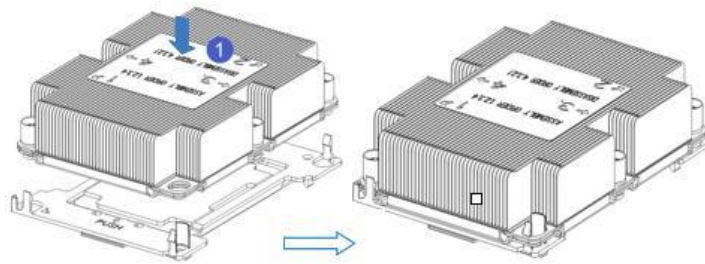


Figure 3-3

3.2.2 Heatsink installation

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

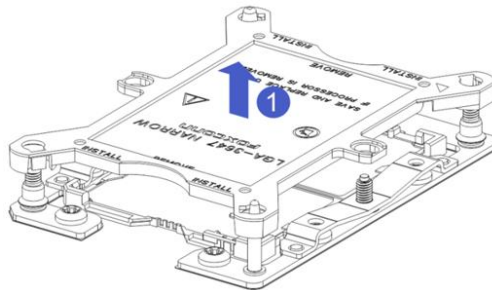


Figure 3-4

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

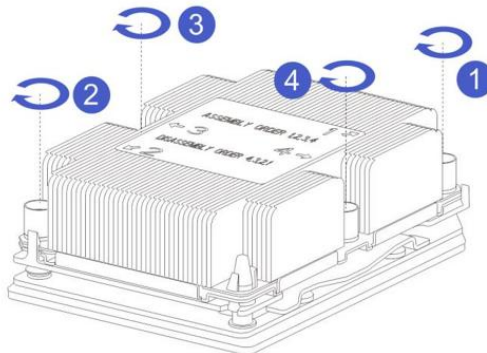


Figure 3-5

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

3.2.3 Memory installation

The 8 memory slots controlled by CPU0 on the motherboard are as follows: DIMM A1, A2, DIMM B1, DIMM C1 and DIMM D1, D2, DIMM E1, DIMM F1.

The 8 memory slots controlled by CPU1 on the motherboard are as follows: DIMM A1, A2, DIMM B1, DIMM C1, and DIMM D1, D2, DIMM E1, DIMM F1.

It's important to ensure that the notch on the memory module matches the notch on the DIMM slot. Insert each DIMM module vertically into place to prevent incorrect installation.

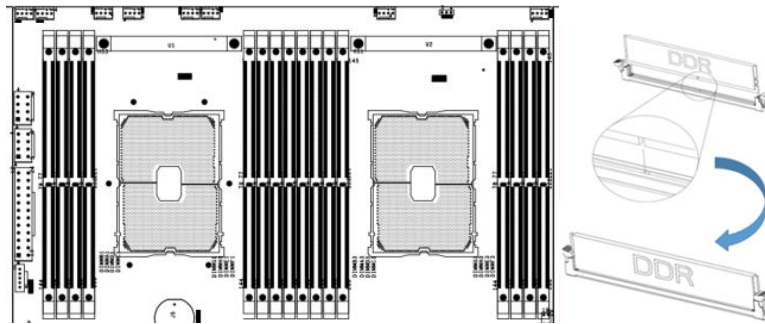


Figure 3-6

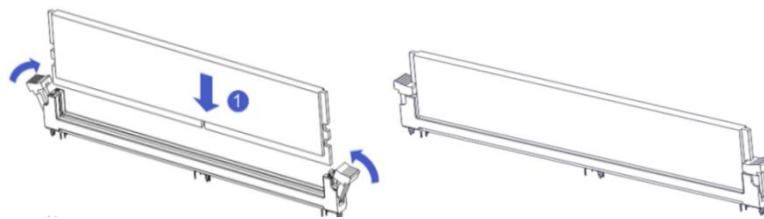


Figure 3-7



Note:

Use memory modules with identical CAS latency values on this motherboard. We recommend using memory modules of the same capacity, frequency, and from the same manufacturer.

The method for inserting the memory is as follows:

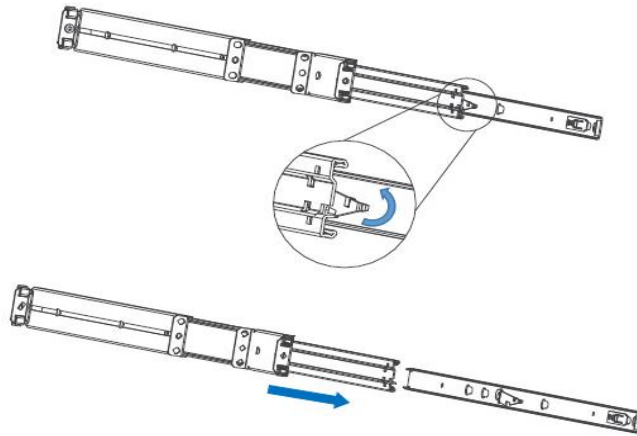


Figure 3-9

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

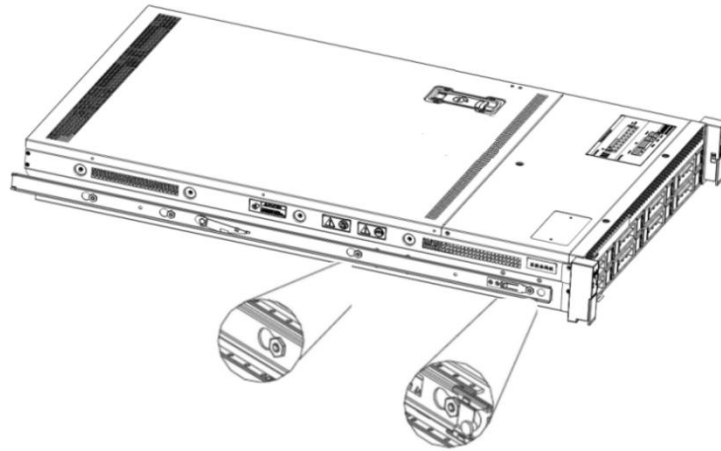


Figure 3-10

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

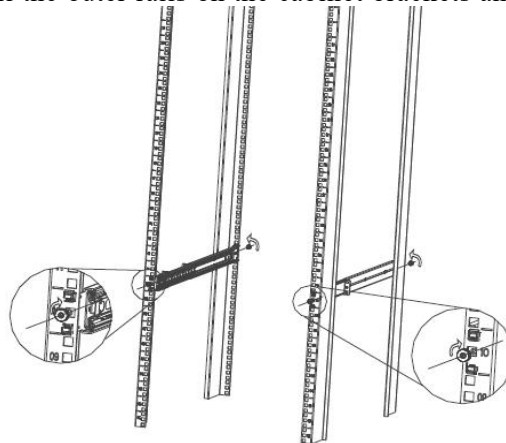



Figure 3-11

 Note: When installing the guide rail, align it with the U-mark, and push it into place until you hear a click sound. Secure it firmly using M5 screws.

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

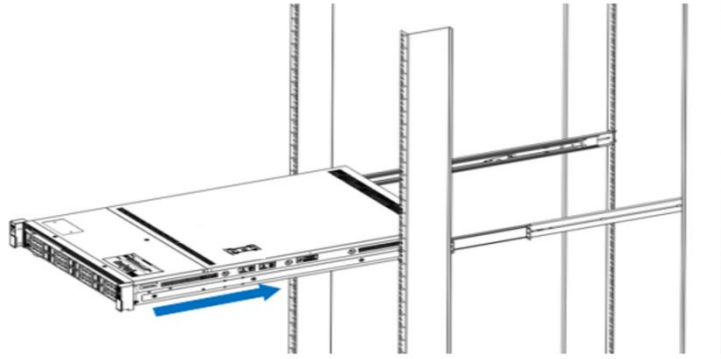


Figure 3-12

- ⚠ Note: When you push the chassis forward, you will hear a snapping sound. If you can't push it, you need to pull down the buckle of the inner rail to continue to push the chassis gently.
- Step 5: Push the chassis forward until it cannot slide and make sure that the screws are securely installed to complete the installation.

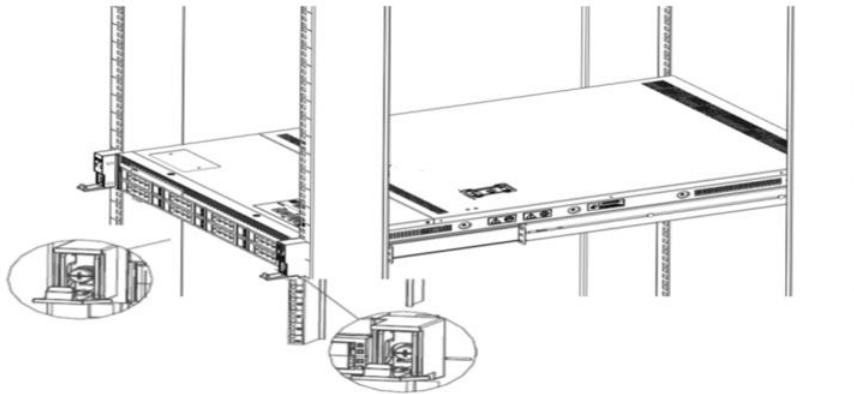


Figure 3-13

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

4. Configuration Instructions

4.1.1 Power on and start

- Before powering on, it is necessary to ensure that all configurations of the server are installed in accordance with the corresponding specifications and standards, and keep the server turned off but not unplugged from the power supply. And all cables are connected properly, and the power supply voltage is consistent with that of the device.
- During the power-on process, please do not plug in hard drives, power modules, network cables or other external devices and cables.
- If the server has just been unplugged from the power supply, please wait for 1 minute before turning on the power.
- Server power-on power status:
The power is on, but the server is not booting up. The power indicator light is yellow.
Power on, the server starts up, and the power indicator light is green.
- How to power on the server:
The server's default power-on policy is "Power-On Boot," which means the server will automatically power on when it receives power. Users can modify this setting in the BIOS Setup interface.
- Press the or <ESC> key on the keyboard during the boot process to enter the BIOS Setup interface, and find the following interface:

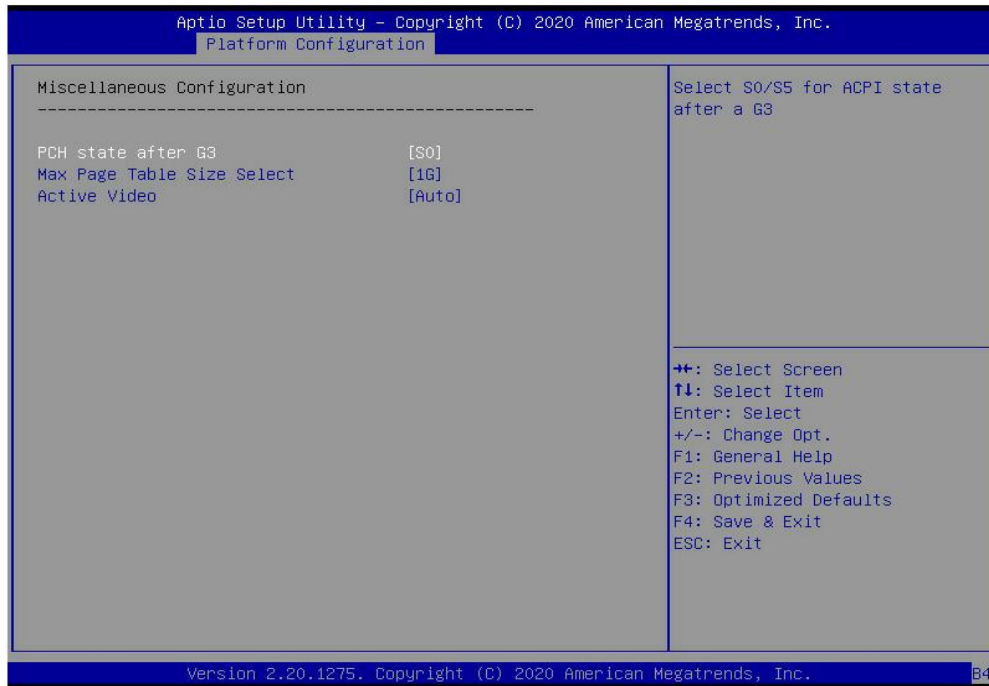


Figure 4-1

- PCH state after G3
PCH state setting after G3, the menu options are:
S0: Power on and start up directly
S5: You need to press the Power button to turn on the power
leave power state unchanged: Leave the power state unchanged .
Default: S0
- Log in to the iBMC management interface to perform remote power-on and power-off control.
- Enter the BMC IP address -> enter the BMC account&password -> find the remote control interface -> power controller -> It can be executed according to requirements.



Figure 4-2



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

4.1.2 Initial data

- BMC default account: admin
- BMC default password: admin
- BMC default address: 192.168.100.1
- BIOS Default Password: N/A

4.1.3 Configure BIOS

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

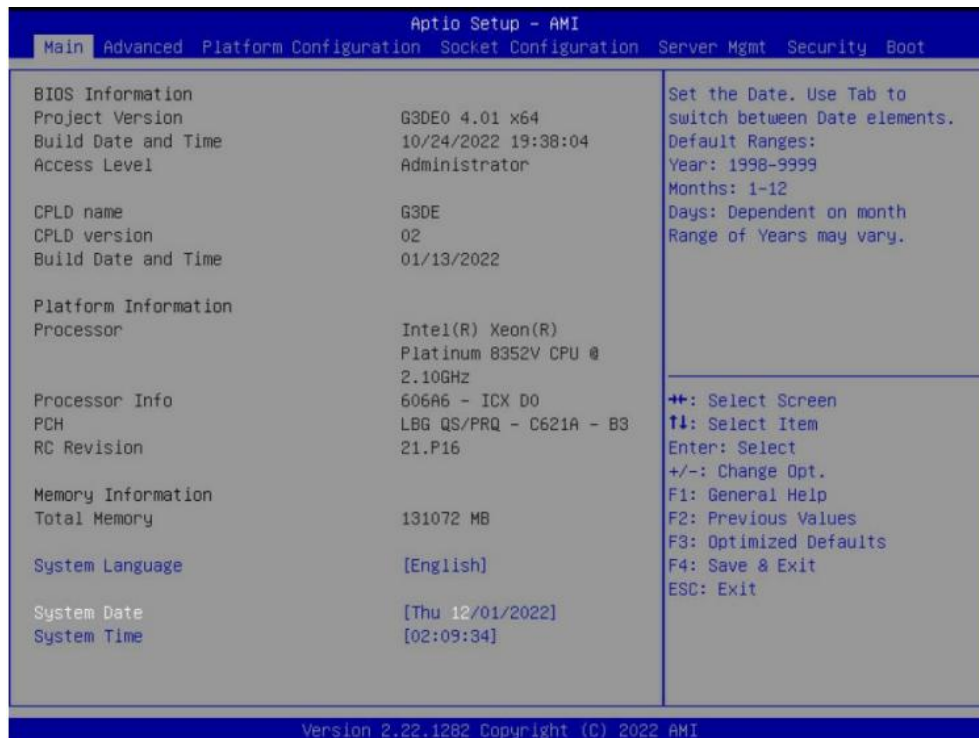


Figure 4-3

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

- Navigation key description:

- ←: Select Screen
- ↑↓: Select Item
- Enter: Select
- +/-: Change Opt.
- F1: General Help
- F2: Previous Values
- F3: Optimized Defaults
- F4: Save & Reset
- ESC: Exit

4.1.4 Configure BMC

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

Use another device, make sure it is in the same LAN as the BMC management network, and enter the BMC IP address on the web page.

Check the BMC IP address as follows:

- After the server is powered on, turn it on. Pay attention to the POST process

when starting the server. In the lower left corner of the logo screen, the IP address is displayed.

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

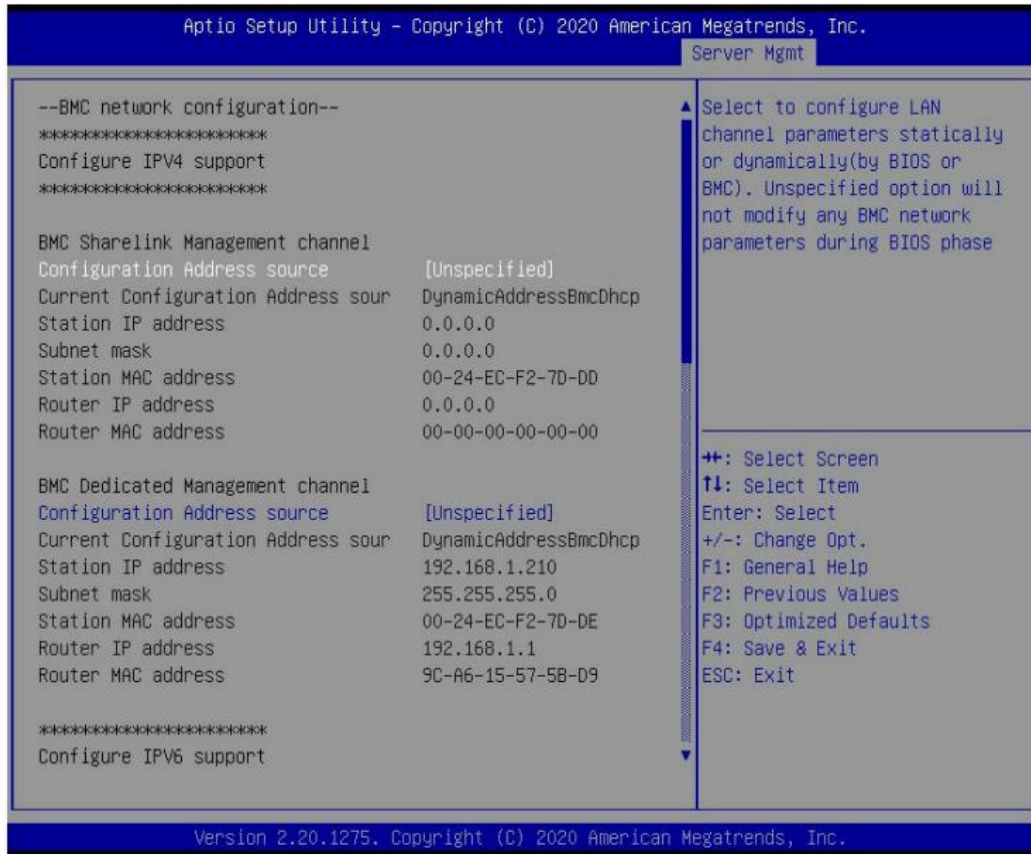


Figure 4-4

Configure IPV4 support :

- BMC sharelink Management Channel
- Configuration Address source
- Configure the BMC IP address allocation mode, the menu options are:
 - Unspecified: Do not change BMC parameters
 - Static: BIOS static IP setting
 - DynamicBmcDhcp: BMC runs DHCP to dynamically assign IP
 - DynamicBmcNonDhcp: BMC runs the Non-DHCP protocol to dynamically assign IP
 - Default: Unspecified

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

during every startup process.

- When the "Configuration Address Source" option is set to "Unspecified," it will display the network parameters (IPv4) for the system's shared Ethernet port. The displayed information includes the current IP configuration method, BMC IP, subnet mask, MAC address, router IP, and router MAC.
- BMC Dedicated Management Channel
- Configuration Address source
- Configure the BMC IP address allocation mode, the menu options are:
 - Unspecified: No change to BMC parameters
 - Static: BIOS static IP setting
 - DynamicBmcDhcp: BMC runs DHCP to dynamically assign IP
 - DynamicBmcNonDhcp: BMC runs the Non-DHCP protocol to dynamically assign IPDefault: Unspecified
- When changing from "Unspecified" to other parameters, saving and rebooting will result in the options reverting to the "Unspecified" value. There is no need to configure the BMC IP during every startup process.
- When the "Configuration Address Source" option is set to "Unspecified," it will display the network parameters (IPv4) for the system's dedicated Ethernet port. The displayed information includes the current IP configuration method, BMC IP, subnet mask, MAC address, router IP, and router MAC.
- Configure IPV6 support
- BMC Sharelink Management Channel
- IPV6 Support
- Choose whether to support IPV6, the menu options are:
 - Enabeld: support IPV6
 - Disabled: does not support IPV6Default: Enabeld
- When changing from "Unspecified" to other parameters, saving and rebooting will result in the options reverting to the "Unspecified" value. There is no need to configure the BMC IP during every startup process.
- When the "Configuration Address Source" option is set to "Unspecified," it

will display the network parameters (IPv6) for the system's shared Ethernet port.

- BMC Dedicated Management Channel
- IPV6 Support
- Choose whether to support IPV6, the menu options are:
Enabled: support IPV6
Disabled: does not support IPV6
Default: Enabled
- When changing from "Unspecified" to other parameters, saving and rebooting will result in the options reverting to the "Unspecified" value. There is no need to configure the BMC IP during every startup process.
- When the "Configuration Address Source" option is set to "Unspecified," it will display the network parameters (IPv6) for the system's dedicated Ethernet port.

Log in to the BMC management interface

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

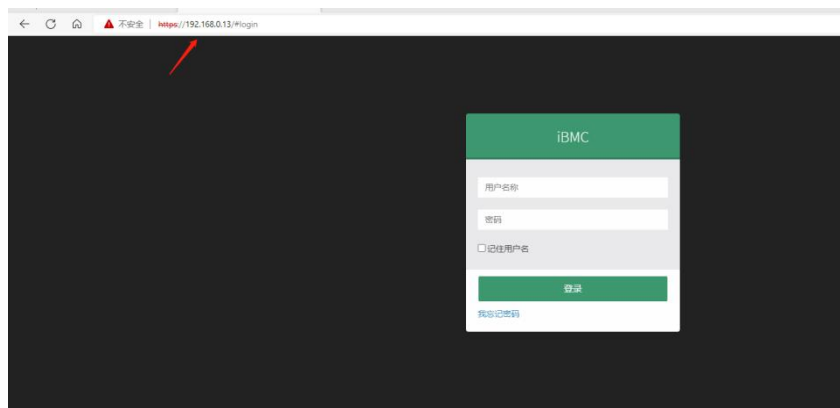


Figure 4-5

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

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

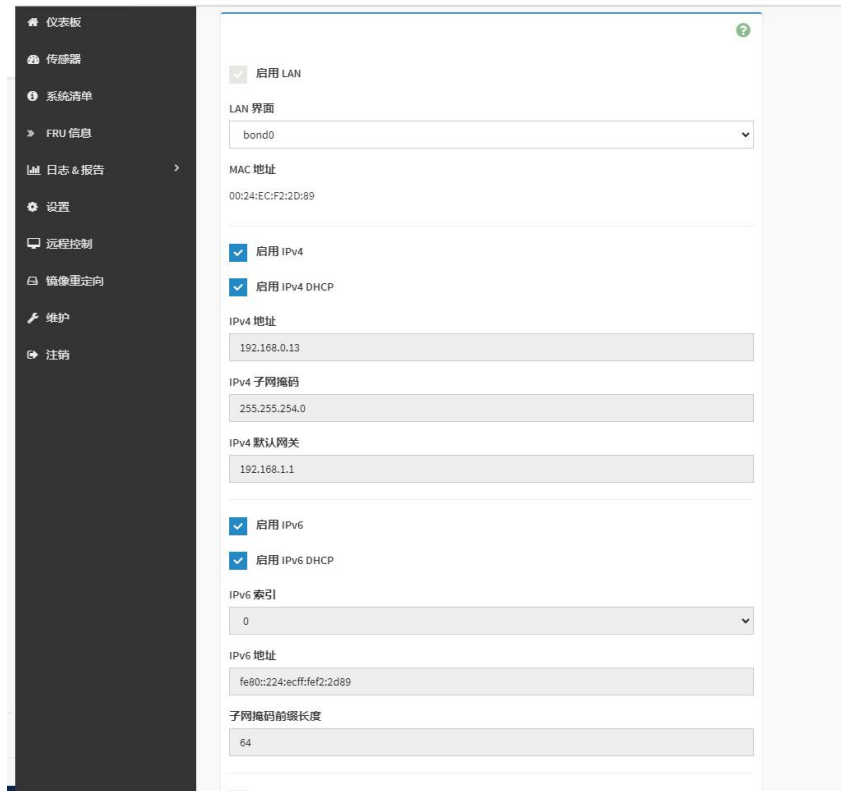


Figure 4-6

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

5. Appendix

(Common fault diagnosis)

No display after power on

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

Front Panel Indicator Lights Alarm

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

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

If the power module indicator lights are not normal, please ensure that the server, power module, and power cords are functioning correctly.

- For system alarm indicator lights, first check the external environment.
- For other indicator light alarms, please contact Gooxi's customer service department for resolution.

Abnormal Hard Drive Indicator Lights

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

Unable to Use RAID Card

- Ensure the RAID card is properly installed.

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

IPMI Connection Failure

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

6. Scrap Recycling

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