SNR-LEG-G4

User manual

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1. Safety Statement

1.1 General safety matters

To prevent the risk of significant personal and property damage, it is important to follow the recommendations below.

- Please do not open the system cover by yourself. This should be done by professionally trained maintenance technicians. Triangular sign with lightning symbol Note that there may be high voltage or electric shock, please do not touch it.
- Never push objects of any kind into system openings. If objects are inserted, internal components may short out, resulting in fire or electric shock.
- Remember: Disconnect all cables before servicing. (There may be more than one cable)
- It is strictly prohibited to perform live operations such as starting the machine before the cover is closed.
- When it is necessary to open the lid, please wait for the internal equipment to cool down before doing so, otherwise it may cause burns to you.
- Do not use this device in humid environments.
- If an extension cable needs to be used, use a three-wire cable and make sure it is properly grounded.
- Make sure the server is well grounded. Different grounding methods are possible, but the requirement is that it must be physically connected to the ground. If you are not sure whether a safe grounding protection is in place, please contact the appropriate agency or electrician to confirm. Please use a three-core power cord and socket with grounding protection. Improper grounding may cause leakage, burning , explosion or even personal injury.
- Please ensure that the power socket and power interface are in tight contact. Loose contact may cause a fire hazard.
- Please use the equipment under 220V AC voltage. Working under inappropriate voltage will cause electric shock, fire, or even damage to the equipment.
- The equipment is required to be well ventilated and away from heat and fire sources. Do not block the cooling fan, otherwise the equipment may cause smoke or overheating due to overheating. Risk of fire or other damage.
- Please keep the power cord and plug clean and intact, otherwise there may be a risk of electric shock or fire.

- Note: There is a risk of explosion if the battery is improperly replaced. Only use replacement parts of the same or equivalent type recommended by the manufacturer. Used batteries will pollute the environment. Please follow the relevant instructions to set up the replaced old battery.
- Keep your computer away from electromagnetic fields.
- Stay away from electronic noise and interference caused by high-frequency equipment such as air conditioners, fans, motors, radio stations, TV stations, and transmission towers.
- Please do not plug or unplug internal connecting parts or mobile devices while the device is running, otherwise it may cause device downtime or damage to the device.
- Please try to avoid frequent restarting or switching on and off to extend the service life of the device.
- Please keep the environment clean and avoid dust. The operating environment temperature of the equipment is 5 ℃ ~ 35 ℃, and the humidity is 35% ~ 80%.
- Users are requested to back up important data in a timely manner. Tongtaiyi Information Technology Co., Ltd. is not responsible for data loss caused by any circumstances.

1.2 Toxic and Hazardous Substances Statement

During the 10-year environmental protection use period, the toxic and harmful substances or elements contained in the product will not leak or mutate under normal use conditions, and the user's use of the equipment will not cause serious pollution to the environment or cause serious harm to people or property. damage.

Part Name	Harmful Substance					
	lead	HG	cadmium	Hexavalent chromium	polybrominated biphenyls	Polybrominated diphenyl ethers
	(Pb)	(Hg)	(Cd)	(Cr VI)	(PBB)	(PBDE)
Chassis / Bezel	X	O	O	O	O	O
Mechanical components (fans,	X	O	O	O	O	O

radiators, motors, etc.)						
Printed Circuit Components - PCA*	X	O	O	O	O	O
Cables / Wires / Connectors	X	O	O	O	O	O
Hard disk drive	X	O	O	O	O	O
Media reading / storage devices (CDs, etc.)	X	O	O	O	O	O
Power supply / power adapter	X	O	O	O	O	O
power source	X	O	O	O	O	O
Fixed point equipment (mouse mark, etc.)	X	O	O	O	O	O
key box	X	O	O	O	O	O
Complete machine rack / instruction equipment	X	X	O	O	O	O

O Indicates that the content of the toxic and hazardous substance in all homogeneous materials of the component is below the limit requirements specified in GB/T26572-2011 "Limit Requirements for Restricted Substances in Electronic and Electrical Products".

× means that the content of the toxic and hazardous substance in at least one homogeneous material of the component exceeds the limit requirements specified in GB/T26572-2011 "Limit Requirements for Restricted Substances in Electronic and Electrical Products". But it complies with the EU RoHS directive (including its exemption provisions).

Illustrat

This table shows the status of toxic and hazardous substances contained in all parts that may be used in the equipment. Customers can refer to this table to check the status of toxic and hazardous substances contained in each part of the purchased product.

1.3 warning notice

WARNING: In a residential environment, operation of this equipment may cause radio interference.

Location restrictions: This device is not suitable for use in locations where children may be present.

Fan warning : When the fan is rotating, keep body parts away from the fan blades

1.4 Climate and environmental requirements

temperature	
Operating temperature	5℃ to 35 °C, with a maximum temperature gradient of 10 °C per hour.
Continuous operating temperature range (When the altitude is below 950 meters or 3117 feet)	When the equipment is not exposed to direct light, 5℃ to 35 ℃.
Storage temperature range	–40 ℃ to 65 ℃.
humidity	
storage	a maximum dew point of 33 °C and a relative humidity of 5% to 95% , the air must remain non-condensing.
Continuous operating humidity percentage range	a maximum dew point of 26 °C , the relative humidity is 10% to 80%.

Illustrat

Certain configurations have been verified for performance at a temperature of 40°C and a humidity of 90% (29°C maximum dew point).

Notice

- If the device is used in an environment with poor or no lightning protection facilities, please shut down the device during thunderstorms and unplug the power cord, network cable, telephone line, etc. connected to the device.
- Please use genuine operating systems and software, and configure them correctly. Tong Taiyi Information Technology Co., Ltd. is not responsible for server failures caused by operating systems and software.
- Please do not disassemble the chassis or add or remove server hardware configuration by yourself. Tongtaiyi Information Technology Co., Ltd. is not responsible for the damage to hardware and data caused by this.
- When the equipment fails, please first check the contents of this manual to identify and eliminate common faults. If you are not sure of the cause of the fault, please contact the technical support department in time for help.
- Choose a suitable environment for your computer to help it run stably and extend its service life.

1.5 Other important descriptions

If the equipment is marked with this logo, it means that the equipment with this logo is only designed and evaluated for safety at an altitude of 2000m. Therefore, it is only suitable for safe use below an altitude of 2000m. When used above an altitude of 2000m, there may be safety hazards.

If the equipment is marked with this mark, it means that the equipment with this mark is only designed and evaluated for safety in non-tropical climate conditions. Therefore, it is only suitable for safe use in non-tropical climate conditions. When used in tropical climate conditions, there may be safety hazards. .

2. Product Introduction

2.1 introduction

SNR-LEG-G4 is a flagship 4U dual-socket AI server product, built on the latest AMD EPYC™ 9004 series processors, adapted to high-performance GPUs such as A800 and H800, and fully upgraded in CPU, GPU and I/O specifications. , has the characteristics of high computing power, strong scalability, rich configuration and high reliability, and is suitable for application scenarios such as artificial intelligence, high-performance computing, and data analysis.

2.2 Features

Extreme performance born for AI

- Supports 2 AMD EPYC™ 9004 series processors, adopts Zen 4 new core architecture, 5nm new process, supports up to 400W models, and has strong computing performance;
- Supports 10 450W double-width, full-height and full-length GPUs, greatly improving heterogeneous computing power;
- Supports GPU to CPU x32 transmission bandwidth, which is double the industry x16, meeting the requirements of high communication bandwidth scenarios between CPU and GPU;
- Supports 24 DDR5 memories, with frequencies up to 4800MHz, and memory bandwidth increased by 50% compared to the previous generation.

Leading architecture and flexible configuration

- Supports 8-card direct connection and 10-card Switch solutions, supports multiple GPU topology configurations, and flexibly matches the needs of different application scenarios;
- Ultra-high expansion capability, supporting up to 15 standard PCIe slots, which can be configured with 8 double-wide GPUs + 7 PCIe standard plug-in cards + 1 OCP 3.0 network card;
- The storage configuration can be flexibly replaced according to needs to meet large-capacity and high-performance local storage requirements. It supports up to 8 U.2 NVMe.

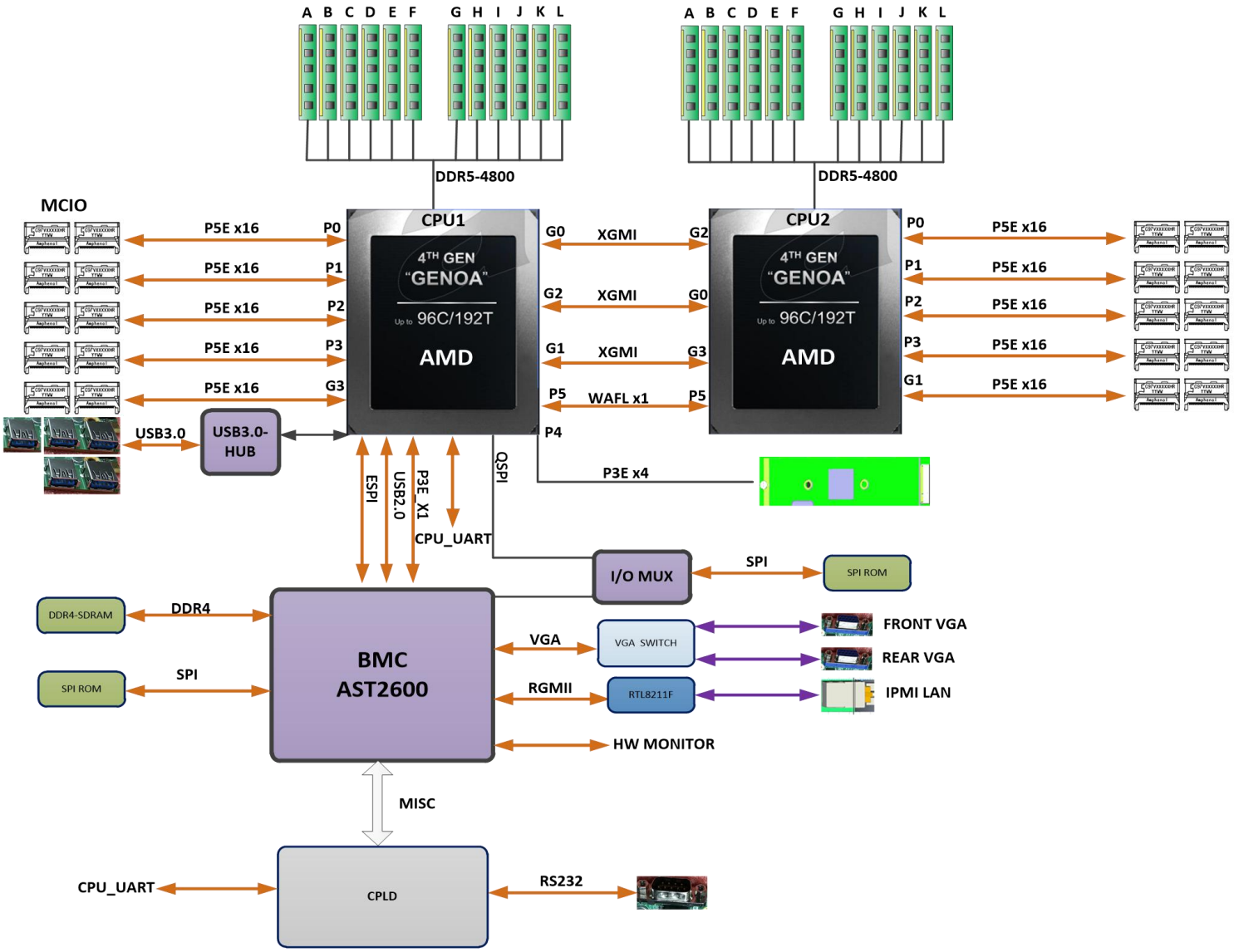
Stable and reliable intelligent management

- The key components of the system adopt redundant and hot-swappable designs,

and support tool-free disassembly and assembly, which improves fault maintenance efficiency and system availability ;

- Integrated intelligent management chip, provides an open management platform, supports IPMI2.0, Redfish, SNMP and other management protocols;
- It supports various management functions such as remote KVM, virtual media, key component status monitoring, and abnormal alarms, realizing comprehensive remote system-level intelligent management.

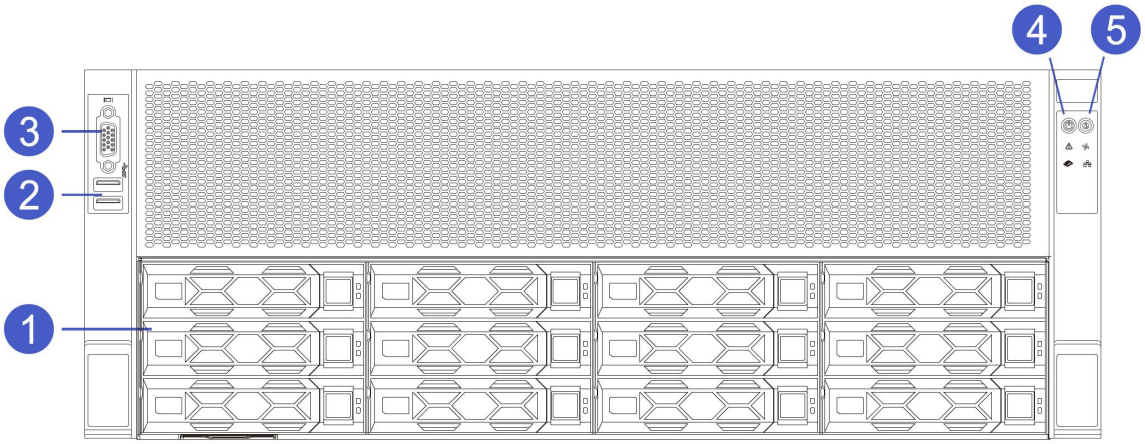
2.3 System topology block diagram



3. System Components

3.1 front panel components

- 4 U 12- bay 3.5 -inch disk model



serial number	module name	serial number	module name
1	3.5- inch hard drive bay	2	Front USB interface
3	Front VGA interface	4	power on/off key
5	UID button		

Illustrate

The 3.5-inch hard drive bay can accommodate 3.5/2.5-inch hard drives.

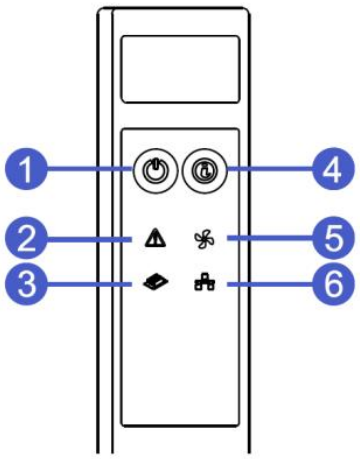
- Front panel interface description

name	type	illustrate
VGA interface	DB15	For connecting to a monitor .
USB interface	USB 3.0	Provides a USB interface through which USB devices can be connected.

Notice

When using an external USB device, please make sure that the USB device is in good condition, otherwise the server may work abnormally.

- Front panel indicator lights and button descriptions

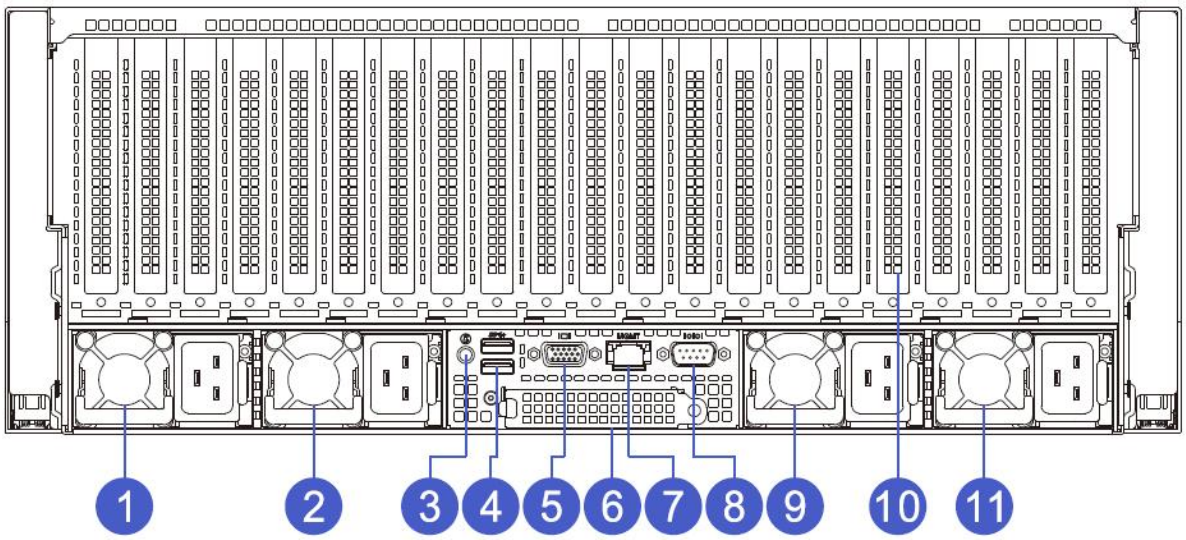


serial number	module name	serial number	module name
1	On/off button and indicator light	4	U ID button and indicator light
2	System alarm indicator light	5	Fan alarm indicator
3	Memory alarm indicator light	6	Network port status indicator light

logo	Indicator lights / buttons	Status description
	Power switch button / indicator light	Power button description: ✓ Short press this button when the system is powered on, and the OS will shut down normally. ✓ Press and hold this button for 6 seconds while the server is powered on to force the server to power off. ✓ When the power is on, press this button briefly to start the machine. Power indicator light description: ✓ Green (steady on): Indicates that the device is powered on normally. ✓ Green (flashing): Indicates the device is in standby mode. ✓ Green off: The device is not powered on.

	UID button / indicator	The UID button / indicator light is used to conveniently locate the server to be operated. The light can be turned off or on remotely by manually pressing the UID button or iBMC command. UID button description: ✓ Short press the UID button to turn on / off the positioning light. ✓ Press and hold the UID button for 6 seconds to reset the server BMC management system . UID indicator light description: ✓ Blue (steady on / flashing): Indicates that the server is located. ✓ Off: Indicates that the server has not been located.
	System fault indicator light	✓ Off: Indicates that the device is operating normally. ✓ Steady red : Indicates that the device is faulty. ✓ Flashing red : Indicates that the device has an abnormal alarm.
	Fan fault indicator light	✓ Off: The fan is normal. ✓ Steady red: The fan is faulty .
	Memory fault light	✓ Off: Indicates that the system memory is normal. ✓ Steady red: Indicates that the system memory is faulty.
	Network status indicator	✓ Steady green: Indicates that the network card connection is normal and there is no data communication. ✓ Flashing green: Indicates that the network card connection is normal and there is data communication. ✓ Off: Indicates no network connection/no network module .

3.2 rear panel components



serial number	module name	serial number	module name
1	Power supply PSU1	6	OCP NIC 3.0 network card
2	Power supply PSU2	7	IPMI management network port
3	Rear U ID button indicator light	8	COM interface
4	Rear USB interface	9	Power supply PSU3
5	Rear VGA interface	1 0	PCIe slot
		11	Power supply PSU4

- Rear panel interface description:

name	type	quantity	illustrate
VGA interface	DB15	1	For connecting to a display terminal such as a monitor or KVM.
Management network port	GEBASE-T	1	Provides an outgoing 1000Mbit/s Ethernet port. This server can be managed through this interface.

USB interface	USB 3.0	2	Provides an external USB interface through which USB devices can be connected.
Power interface	CRPS	4	You can select the number of power supplies according to your actual needs, but be sure that the rated power of the power supply is greater than the maximum power of the entire machine.

- Rear panel indicator lights and button description :

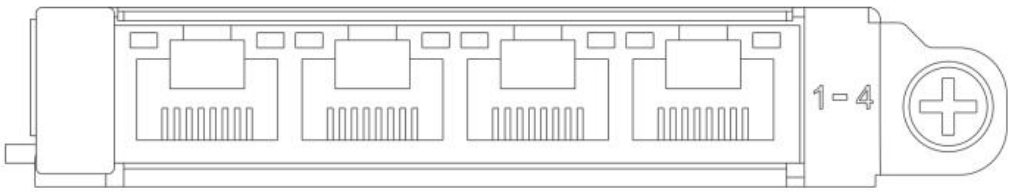
Indicator lights / buttons	Status description
Power module indicator light	✓ Green (steady on): Indicates input and output are normal. ✓ Off: Indicates no AC power input. ✓ Green (flashing /1Hz): ● Indicates that the server is in standby state . ● Indicates that the power supply is in cold standby status . ✓ Green (flashing /2Hz): Indicates that the power supply is upgrading firmware. ✓ Red (always on): ● Indicates that the power supply has no output. Possible reasons include power supply over-temperature protection, power supply output over-current / short circuit, output over-voltage, device failure (excluding all device failures) , etc. ● Indicates that the power cord is not connected or the power cord is disconnected . ✓ Red (flashing /1Hz): Indicates an alarm signal in the power supply. The power module may have abnormalities such as high temperature, high load, high current, or low fan speed.
UID buttons and indicators	✓ The UID indicator light is used to conveniently locate the server to be operated. The light can be turned off or on remotely by manually pressing the UID button or iBMC command. ✓ Blue (steady on / flashing): Indicates that the server is

	located. ✓ Off: Indicates that the server has not been located.
Network connection status indicator light	✓ Steady green: Indicates Gigabit Link. ✓ Solid orange: Indicates 100M Link. ✓ Off: 10M Link / no network connection.
Network activity status light	✓ Yellow (flashing): Indicates data is being transmitted. ✓ Off: Indicates no data transmission.

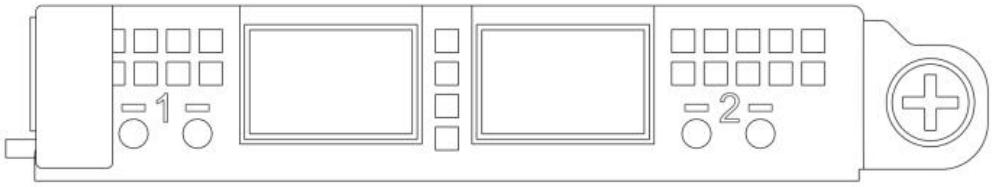
- O CP NIC 3.0 network card

The SNR-LEG-G4 server supports standard OCP NIC 3.0 SFF network cards, including the following two T TY self-developed model network cards and other manufacturers' standard OCP NIC 3.0 network cards.

◆ Four Gigabit electrical port network card

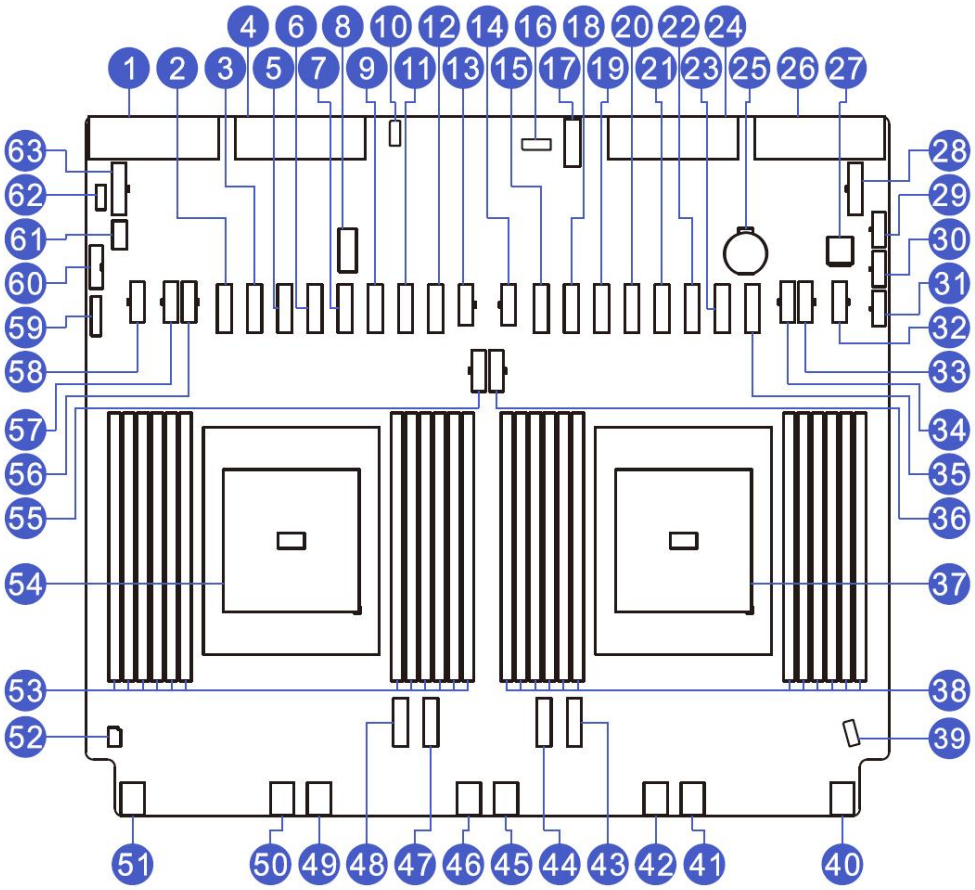


◆ Dual 25G optical port network card



3.3 motherboard components

SNR-LEG-G4 motherboard components, the interface description is as follows:



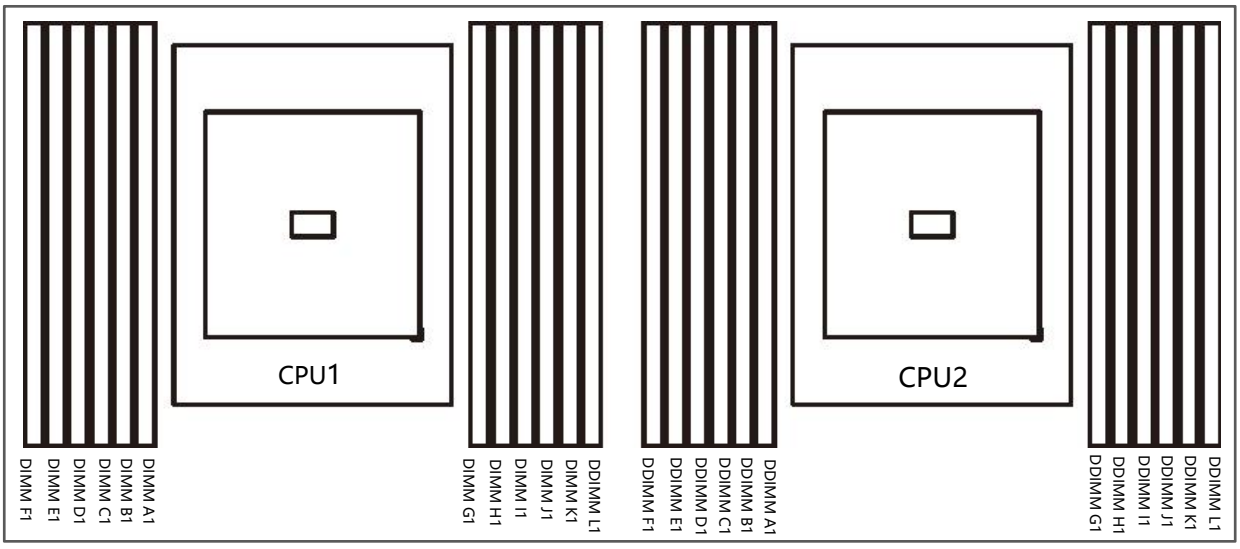
serial number	module name	serial number	module name
1	PSU4 interface	2	CPU1 MCIO connector (CPU1 MCIO 0)
3	CPU1 MCIO connector (CPU1 MCI O 1)	4	PSU3 interface
5	CPU1 MCIO connector (CPU1 MCIO 2)	6	CPU1 MCIO connector (CPU1 MCIO 3)
7	CPU1 MCIO connector (CPU1 MCIO 4)	8	M.2 slot (PCIE x4)
9	CPU1 MCIO connector (CPU1	10	OCP SBC Connector

	MCIO 5)		
11	CPU1 MCIO connector (CPU1 MCIO 6)	12	CPU1 MCIO connector (CPU1 MCI O 7)
13	GPU power connector (GPU PWR 4)	14	GPU power connector (GPU PWR 7)
15	CPU2 MCIO connector (CPU2 MCIO 0)	16	NCSI connector
17	Rear IO interface	18	CPU2 MCIO connector (CPU2 MCIO 1)
19	CPU2 MCIO connector (CPU2 MCIO 2)	20	CPU2 MCIO connector (CPU2 MCIO 3)
21	CPU2 MCIO connector (CPU2 MCIO 4)	22	CPU2 MCIO connector (CPU2 MCIO 5)
23	CPU2 MCIO connector (CPU2 MCIO 6)	24	PS U2 interface
25	battery socket	26	PSU1 interface
27	BMC SD slot	28	GPU breakout board power connector (EP PWR2)
29	Front backplane power interface (BP PWR3)	30	Front backplane power interface (BP PWR2)
31	Front backplane power interface (BP PWR1)	32	GPU power connector (GPU PWR10)
33	GPU power connector (GPU PWR9)	34	GPU power connector (GPU PWR 8)
35	CPU2 MCIO connector (CPU2 MCIO 7)	36	GPU power connector (GPU PWR6)
37	CPU2	38	Memory slot (corresponding to CPU2)
39	Front light board signal connector (FP CONN)	40	Fan connector (FAN14/15)
41	Fan connector (FAN12/13)	42	Fan connector (FAN10/11)
43	CPU2 MCIO connector (CPU2 MCIO 8)	44	CPU2 MCIO connector (CPU2 MCIO 9)
45	Fan connector (FAN8/9)	46	Fan connector (FAN6/7)

47	CPU1 MCIO connector (CPU1 MCIO8)	48	CPU1 MCIO connector (CPU1 MCIO9)
49	Fan connector (FAN4/5)	50	Fan connector (FAN2/3)
51	Fan connector (FAN 0/1)	52	Intrusion switch interface (INTRUDER CONN)
53	Memory slot (corresponding to CPU1)	54	CPU1
55	GPU power connector (GPU PWR 5)	56	GPU power connector (GPU PWR 3)
57	GPU power connector (GPU PWR2)	58	GPU power connector (GPU PWR 1)
59	Front VGA interface (FP VGA)	60	Front USB3.0 interface (FP USB3.0)
61	Built-in USB3.0 interface	62	TPM/TCM interface (SPI TPM)
63	GPU adapter board power connector (EP PWR1)		

3.4 Memory DIMM slot

The server provides 24 DIMM slots, and each CPU supports 12 DDR5 memories. The corresponding slot sequence is as shown in the figure below:



Point

- The same server is not allowed to mix memory of different types (RDIMM, 3DS RDIMM) and different specifications (capacity, bit width, Rank, etc.)

3.4.1 Memory installation requirements

- The same server must use the same model of DDR5 memory.
- RDIMM and 3DS RDIMM cannot be mixed.
- Memory installation guidelines must be followed when installing memory.

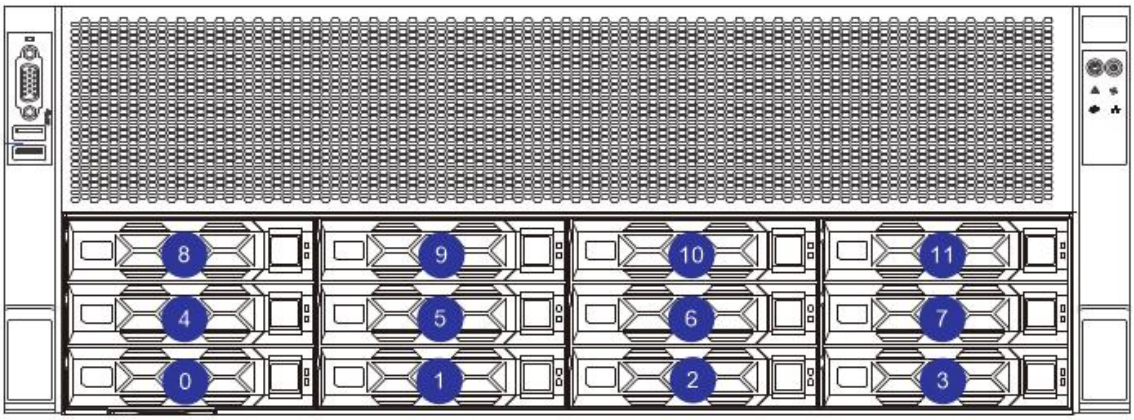
3.4.2 Memory installation principles

DIMM Population Guide												
Type	Channel											
	F1	E1	D1	C1	B1	A1	G1	H1	I1	J1	K1	L1
When 1 CPU is installed												
CPU1&1DIMM						.						
CPU1&2DIMM						.	.					
CPU1&4DIMM				.		.	.		.			
CPU1&6DIMM				.	.	.	.	.	.			
CPU1&8DIMM		.		.	.	.	.	.	.		.	
CPU1&10DIMM		.	.	.	.	.	.	.	.	.	.	
CPU1&12DIMM	.	.	.	.	.	.	.	.	.	.	.	.
When 2 CPUs are installed												
CPU1&8DIMM				.		.	.		.			
CPU2&8DIMM				.		.	.		.			
CPU1&16DIMM		.		.	.	.	.	.	.		.	
CPU2&16DIMM		.		.	.	.	.	.	.		.	
CPU1&24DIMM	.	.	.	.	.	.	.	.	.	.	.	.
CPU2&24DIMM	.	.	.	.	.	.	.	.	.	.	.	.

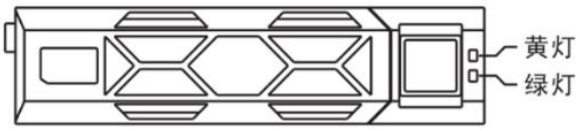
Populating RDIMM/3DS RDIMM DDR5 Memory Modules with Genoa Processor					
	DIMM Population	DDR5 Frequency MT/s			Capacity (16Gb x4 devices)
DIMM Type	DIMM 0				1 channel / 12 channels
RDIMM	1R (1 rank)	4800	4800	4800	32GB/384GB
	2R (2 ranks)	4800	4800	4800	64GB/768GB
3DSRDIMM	2S2R (4 ranks)	4800	4800	4800	128GB/1.5TB
	2S4R (8 ranks)	4800	4800	4800	256GB/3TB

3.5Hard drive label

- 4 U 12- bay 3.5 -inch disk model



3.6 Hard drive indicator light



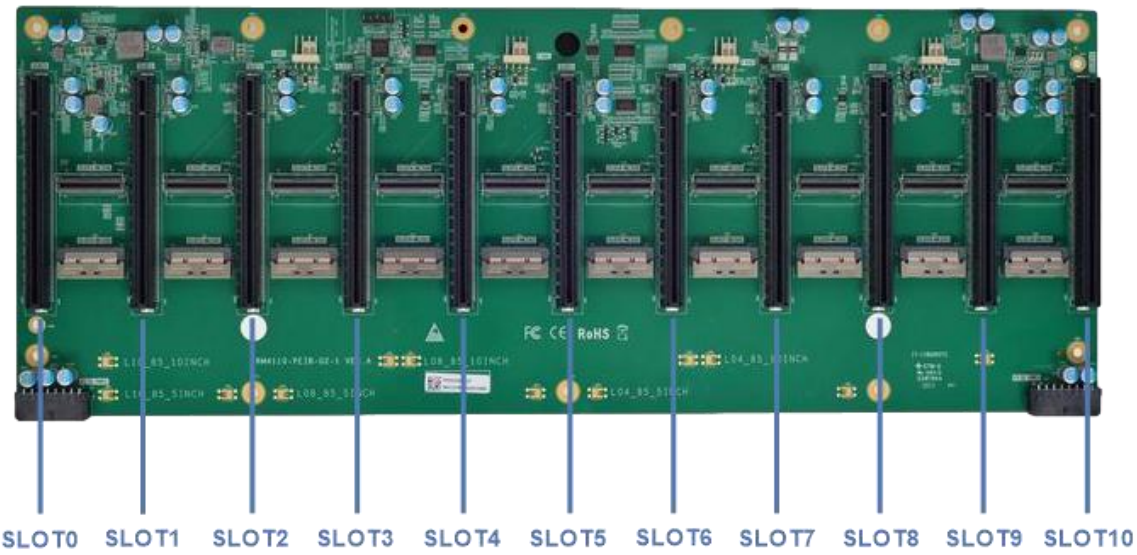
Hard disk status	Hard drive Active indicator (green)	Hard drive Fault indicator light (yellow)
The hard disk is not in place	go out	go out
The hard drive is in place, but there is no data activity	Always on	go out
The hard drive is in place and functioning normally	flashing	go out

Hard drive failure	Always on	Always on
The hard drive is located	Always on	Flashing (4Hz)
The hard disk is in Rebuild state	Always on	Flashing (1Hz)

3.7 Post-IO expansion components

PCIe expansion component slot numbers are as shown in the figure below :

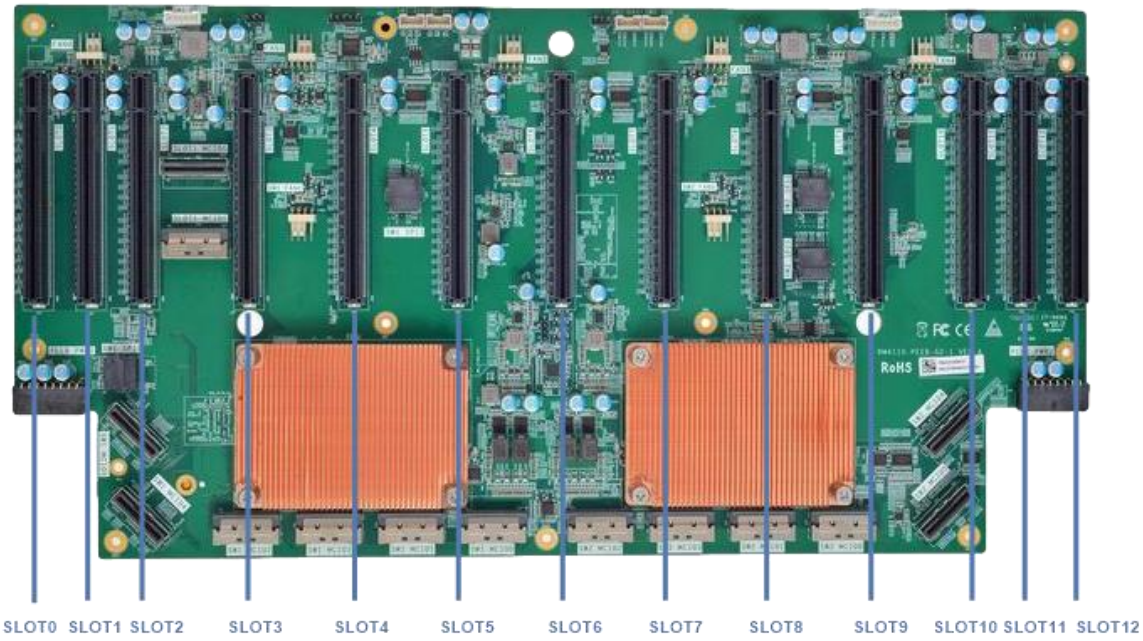
Direct extension:



Remark	
1	The pass-through solution optionally supports 1 built-in Raid card
2	The MCIO interface on the north side of the CPU is fixedly connected to the GPU expansion board and is not used for other purposes.
3	The Raid card is installed in slot 0/1/2 by default, priority: Slot 0>Slot1>Slot 2
4	The configuration of front-end 2.5 is not tested yet, and will be tested again if necessary.

PCIe switch extension :

Remark



1	Regarding NVMe support, it all comes from the Switch chip, half of which is for each Switch.
2	Default wiring method of 2 built-in Riad card modules (CPU1 G3 A, CPU2 G1 A)
3	By default, GPU expansion boards slot 0, slot1, slot2 and 2 built-in standard PCIe are used to support the raid card priority: slot 0> slot1> slot2> built-in standard card slot @CPU1> built-in standard card slot @CPU2
4	Slot2 is only used when customer demand exceeds 12 standard cards (for example: 8*GPU+4*IB+1*Raid Card)
5	1 and slot 11 cannot be used when 10 double-width GPUs are configured.
6	Hard disk configuration numbers 5 and 7 default to the leftmost backplane supporting SAS (front view)
7	CPU to Switch interconnect signal is x32

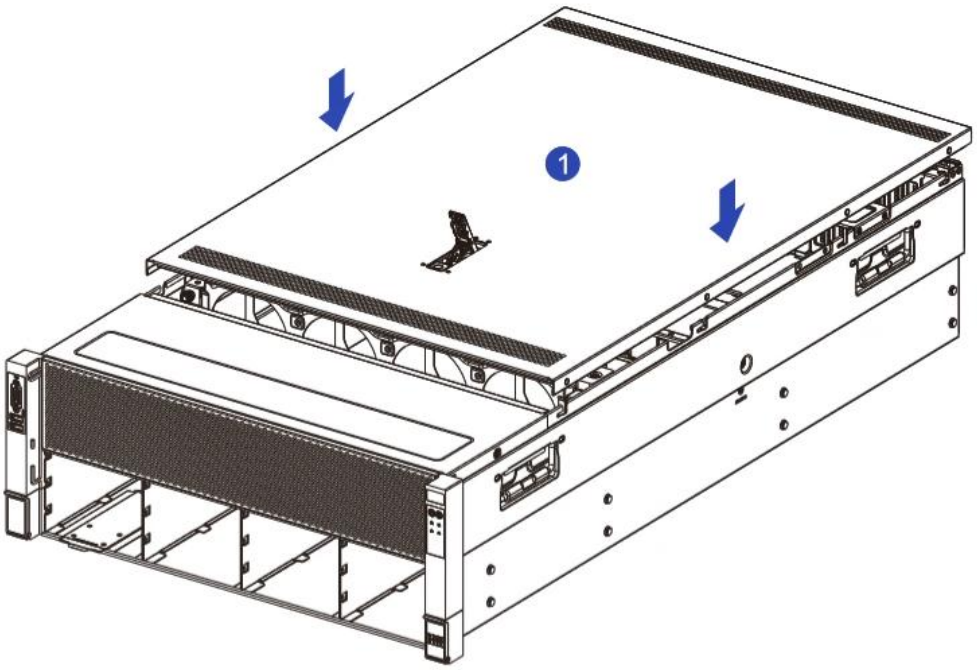
4. Install system components

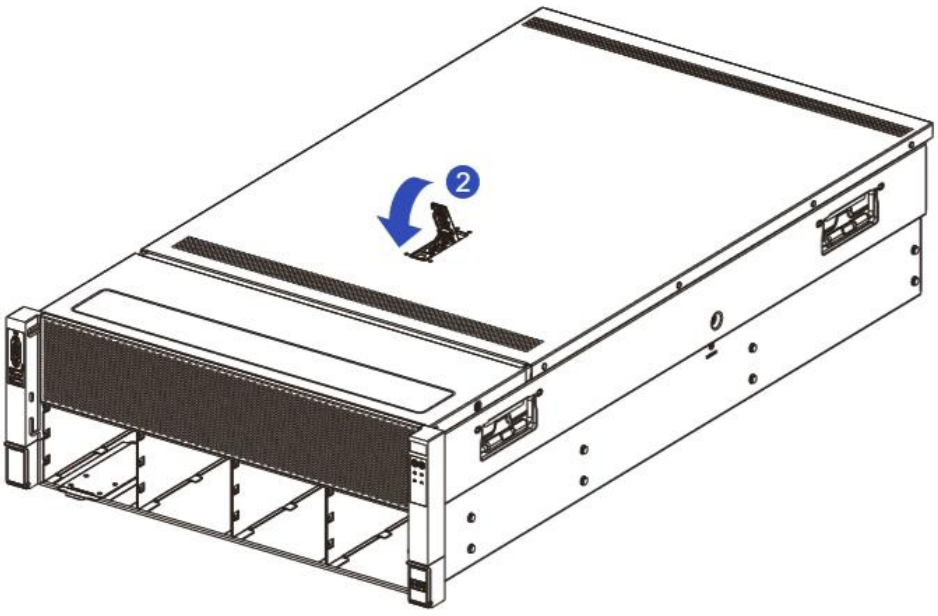
4.1 Chassis cover installation

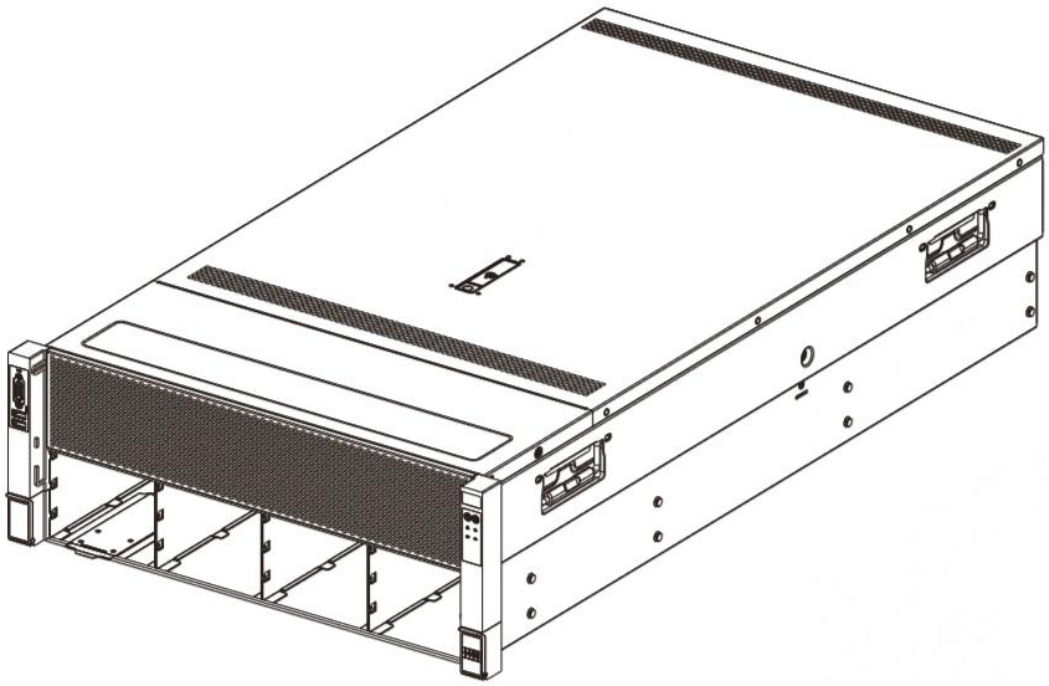
Step 1: Install the chassis rear cover

1-1. Align the hanging nails of the upper cover with the opening of the box and place it downward ;

1-2. Rotate the upper cover lock in the direction of the arrow to lock it in place .







Warning

To reduce the risk of personal injury from overheating server surfaces, allow the drives and internal system components to cool before touching them.

4.2 CPU installation

Install the processor:

Step 1: CPU installation

1-1 . Tilt the CPU as shown in the figure and snap it onto one end of the clamping piece. The A1 corner (triangle mark) of the CPU should be aligned with the corner with the triangular hole on the clamping piece. Make sure that the groove on the processor is aligned with the buckle of the clamping piece. protrusion ; _

1-2. Along the direction of the arrow, bend and press the other end of the clamping piece to fix the CPU to the clamping piece ;

1-3. Loosen the clamping piece and hook the other end of the clamping piece into the CPU groove.

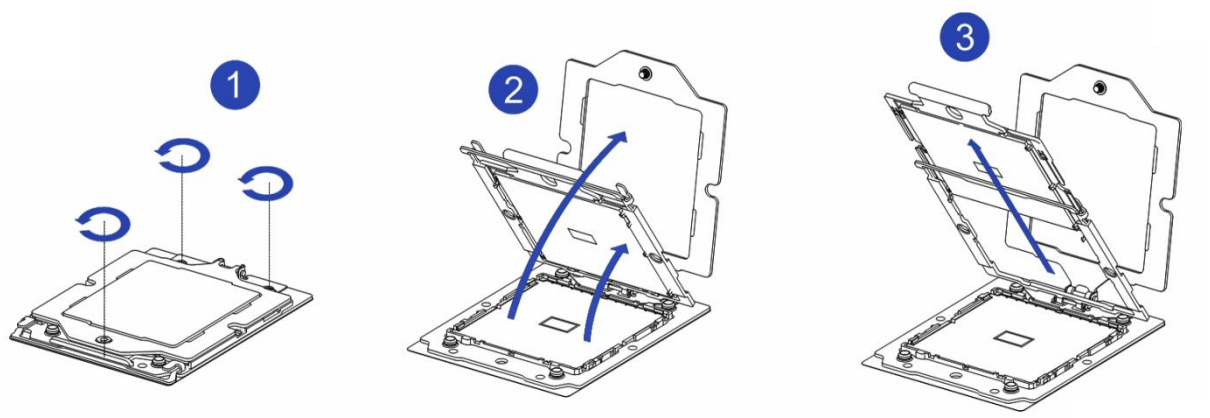
Step 2: Install the CPU onto the radiator, ensuring that the CPU and radiator surfaces are clean, oil-free and free of foreign matter

2-1. Apply about 0.4ml of thermal conductive silicone grease on the CPU and smooth it evenly ;

2-2. Align the A1 corner (triangle mark) and buckle the CPU onto the radiator ;

2-3. Carefully check the installation of the clamping piece and the radiator to ensure

that the clamping piece is completely tight and flat .



4.3 Radiator installation

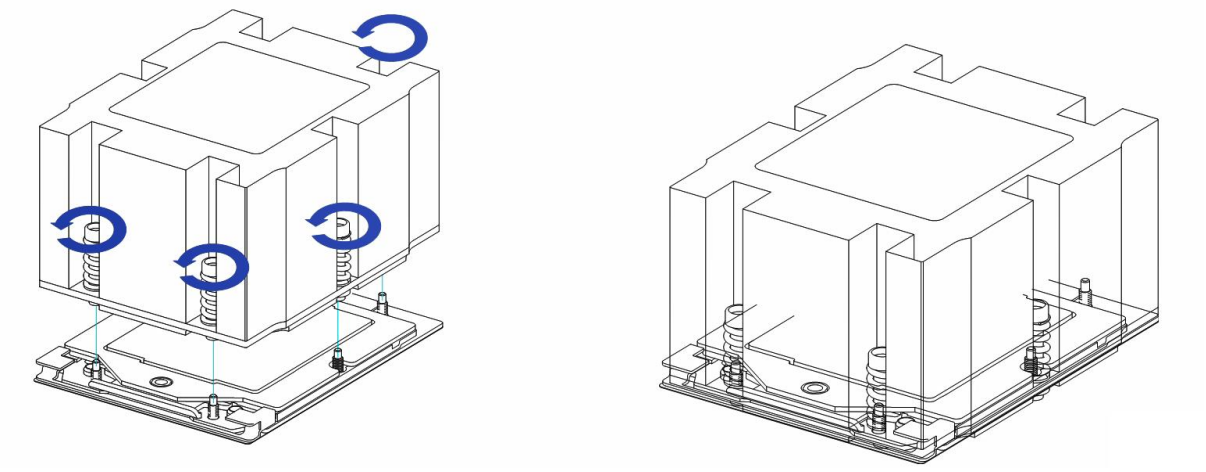
- installation steps:

1. Press the protective cover in the direction of the arrow and remove the protective cover upward ;

2. Turn the fastening lock on the radiator in the direction of the arrow. The fastening lock is in the vertical position. Align the radiator with the radiator fixing studs on the CPU base and place it vertically downward on the base ;

3. Press the fastening lock on the radiator in the direction of the arrow to lock it with the hook on the processor base ;

4. Use a T30 Torx screwdriver to tighten the screws securing the heat sink .



Notice

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

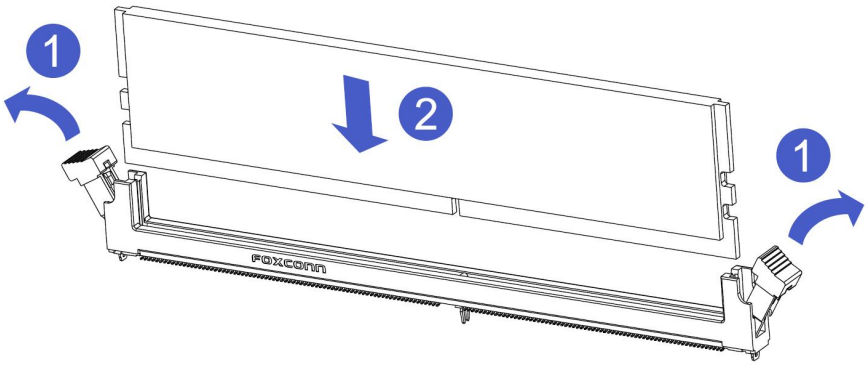
Danger

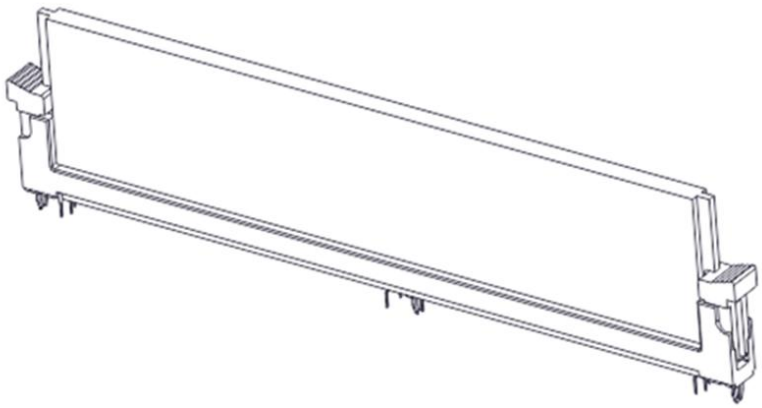
The heat sink might be hot when the server is disconnected from power. Please allow the radiator to cool down for a few minutes before installing.

4.4 Memory installation

Step 1. Open the wrenches on both sides of the memory slot and align the memory with the memory slot. Pay attention to the correspondence between the notch on the memory module and the memory slot;

Step 2. Firmly insert the memory vertically into the memory slot until you hear the sound of the memory wrench locking .



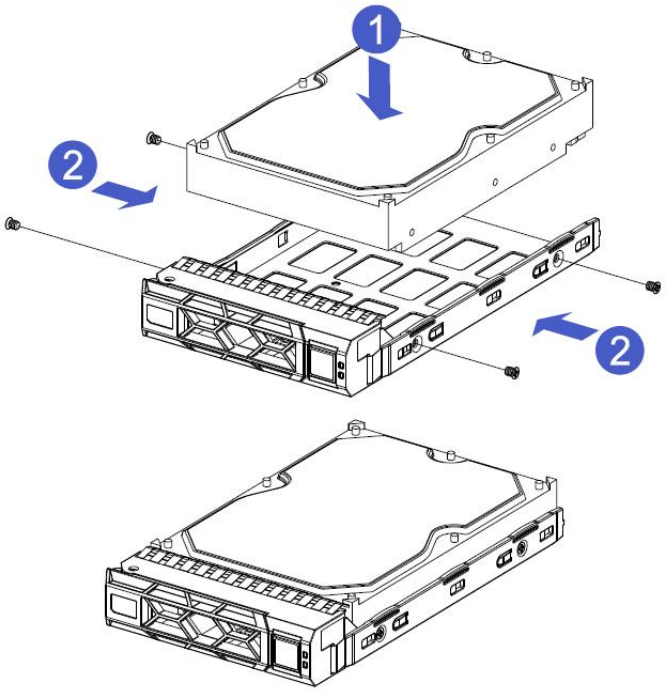


4.5 Hard drive installation

- Install 3.5-inch hard drive

1-1. Place the hard drive in the tray ;

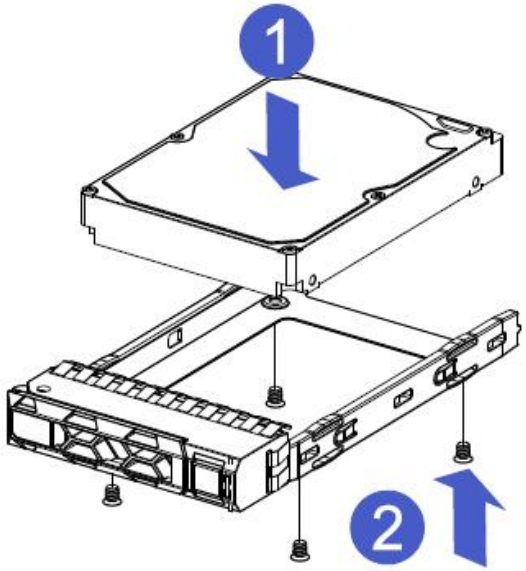
1-2. There are 4 countersunk head screws on the left and right sides to lock the hard drive (the screw heads must not protrude from the surface of the slide rails on both sides of the tray) .



- Install 2.5-inch hard drive

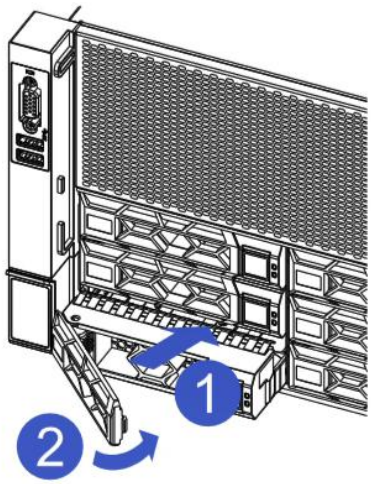
1-1. Place the hard drive in the tray ;

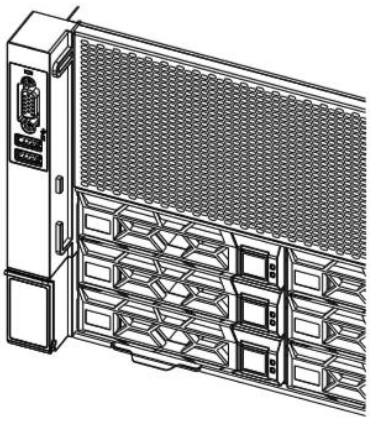
2-2. Lock the hard drive with 4 countersunk head screws at the bottom (the screw heads protrude from the bottom of the tray) .



- Hard drive tray assembly installed into chassis

1. With the hard disk wrench open, push it into the chassis ;
2. When the golden finger of the hard disk touches the backplane device, turn the wrench in the direction of the arrow ;
3. Schematic diagram of hard disk installation in place .





4.6 M.2 installation

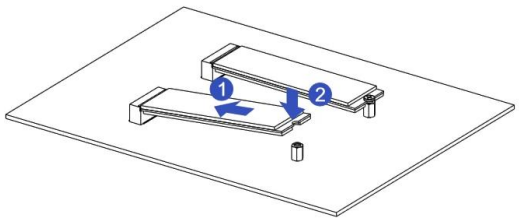
step 1. Install the positioning studs according to the length of the M.2 card to be installed ;

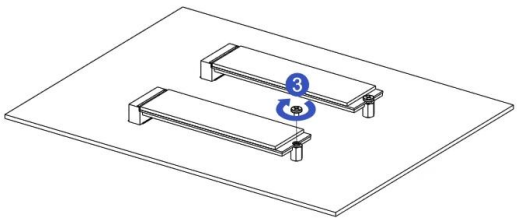
Step 2: Install M.2 Card

2-1. As shown in the figure, insert the M.2 card connector end into the motherboard connector ;

2-2. Press the other end of the M.2 card to the positioning stud plane in step 1.

Step 3: Install the fixing screws of the M.2 card.





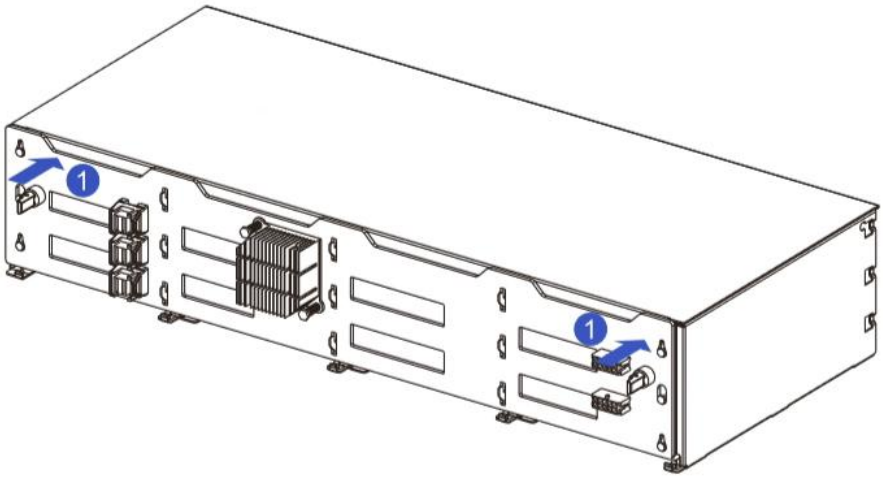
4.7 Installation of hard drive backplane

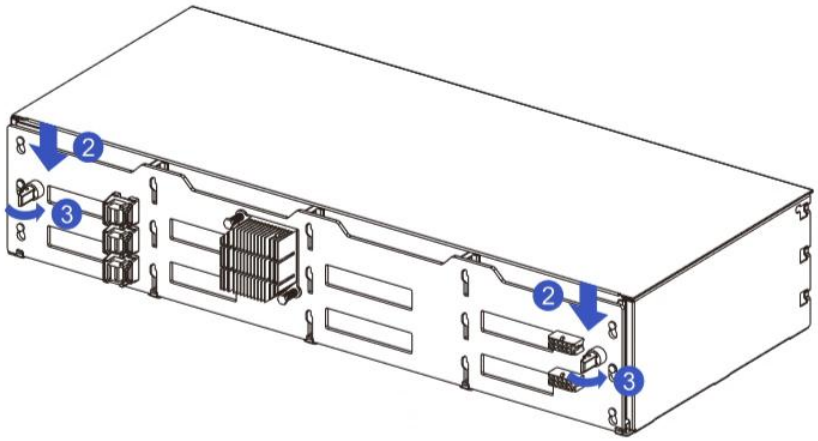
- Front hard drive backplane installation

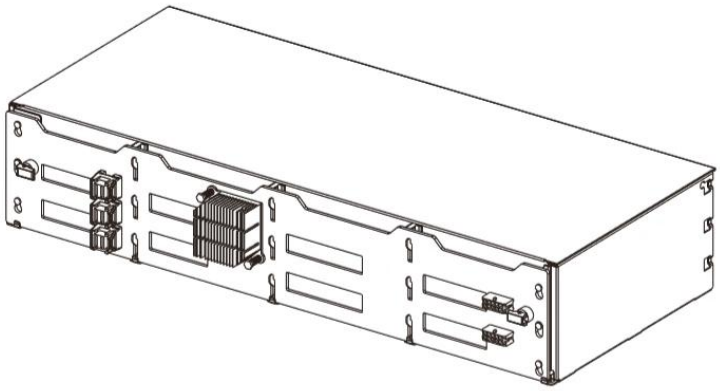
step 1. Align the gourd holes and hanging holes on the left and right sides of the hard drive backplane with the hanging nails on the hard drive frame, and push in the direction of the arrow ;

Step 2. After the hard drive backplane is pushed all the way into place, press the backplane downward until the gourd nails and hanging holes on both sides are all in place ;

Step 3 . Turn over the fixing parts on the left and right sides of the hard drive backplane and lay them flat.

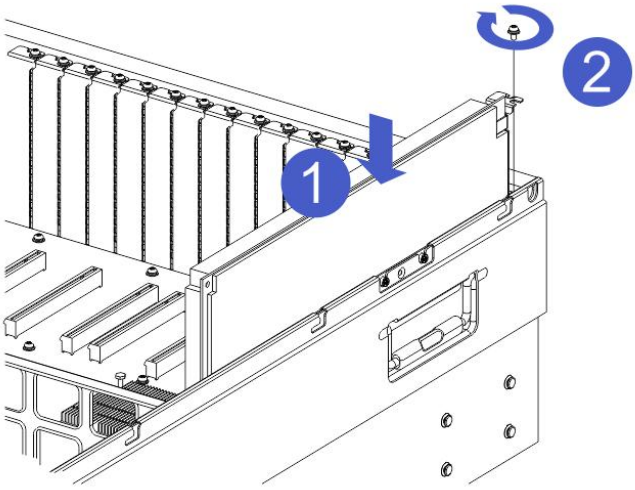






4.8 PCIe expansion card installation

step. Place the rear window PCIE module vertically downward - align it with the PCIE slot and tighten the fixing screws .



4.9 Rail assembly installation

Step 1. Install the guide rails into the rack (the left and right guide rails are symmetrical, please repeat the installation)

1-1. Push the hook at the rear of the guide rail as indicated by the arrow, align it with the rack holes, and install the guide rail into the rack;

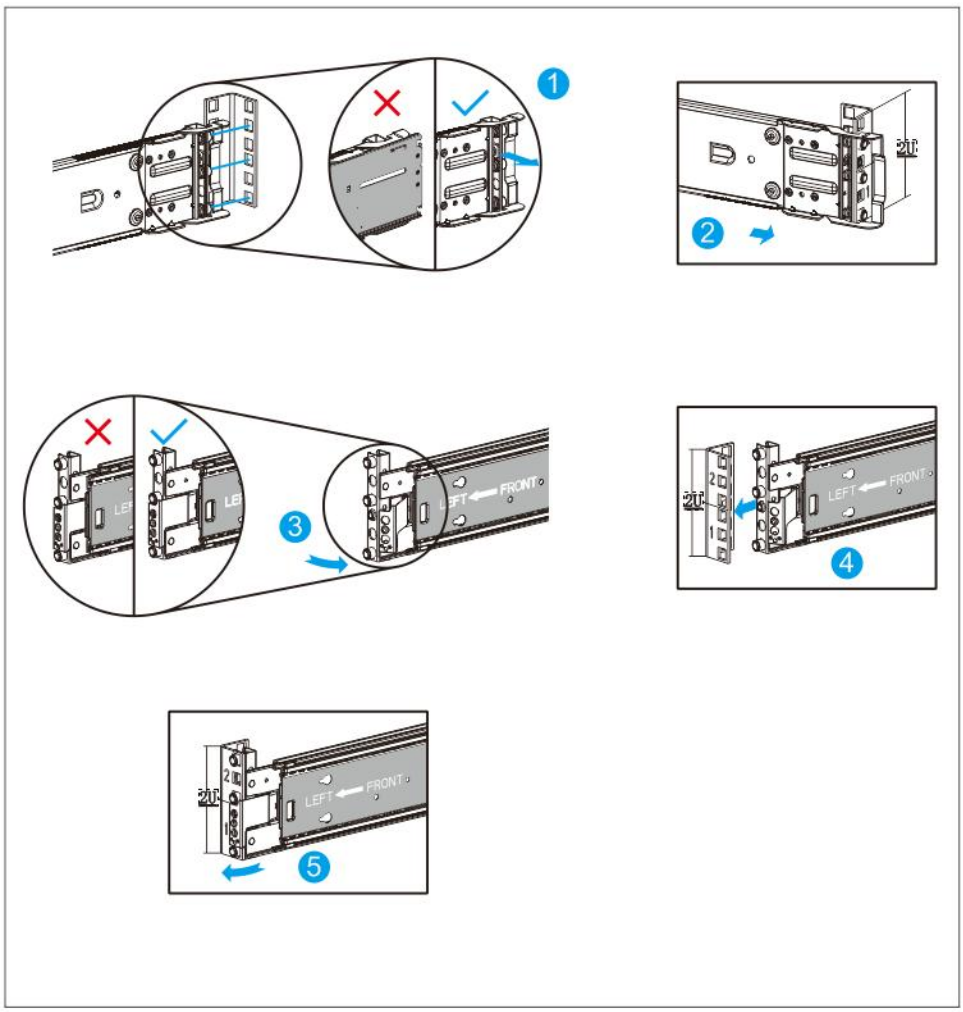
1-2. Install the guide rail into the rear end of the rack and complete the installation of the rear end of the guide rail after hearing a click sound;

1-3. Push the hook at the front of the guide rail as indicated by the arrow, align the guide rail with the rack hole, and install the guide rail into the rack;

1-4. Install the guide rail into the front of the rack and complete the steps after hearing a

click sound;

1-5. Reset the hook at the front end of the guide rail.

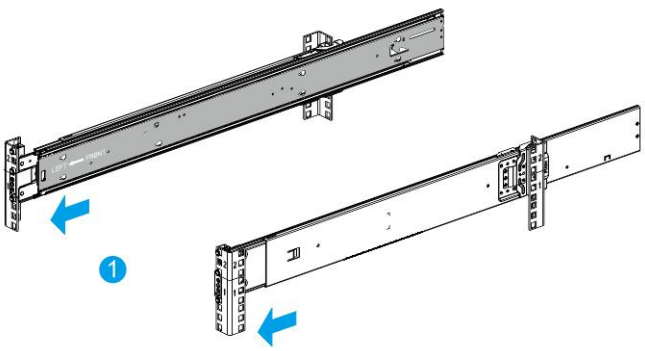


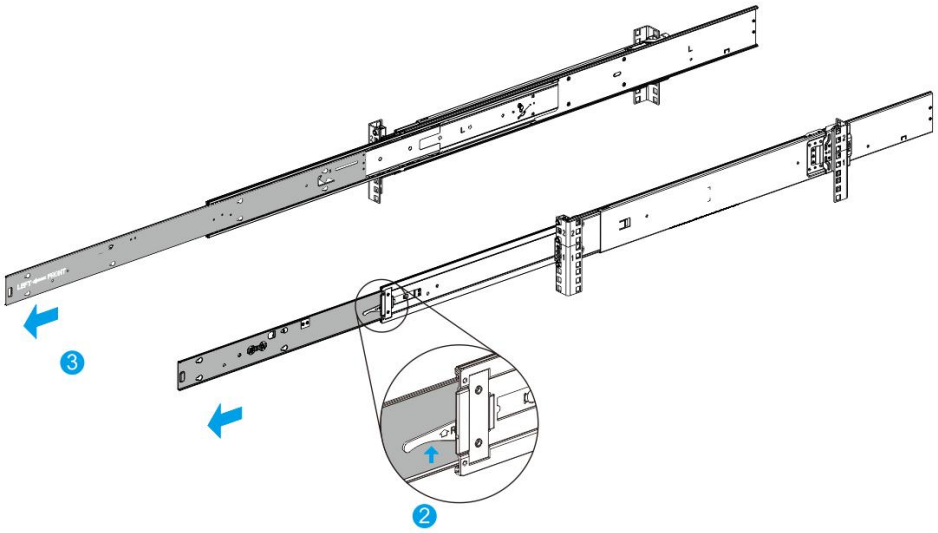
Step 2. Remove the inner rail from the rail

2-1. Pull the inner rail out from the guide rail until it stops after hearing a click sound;

2-2. Push the button in the direction of the arrow (the button is indicated by an arrow) and completely pull out the inner rail;

2-3. Complete the removal of the inner rail.

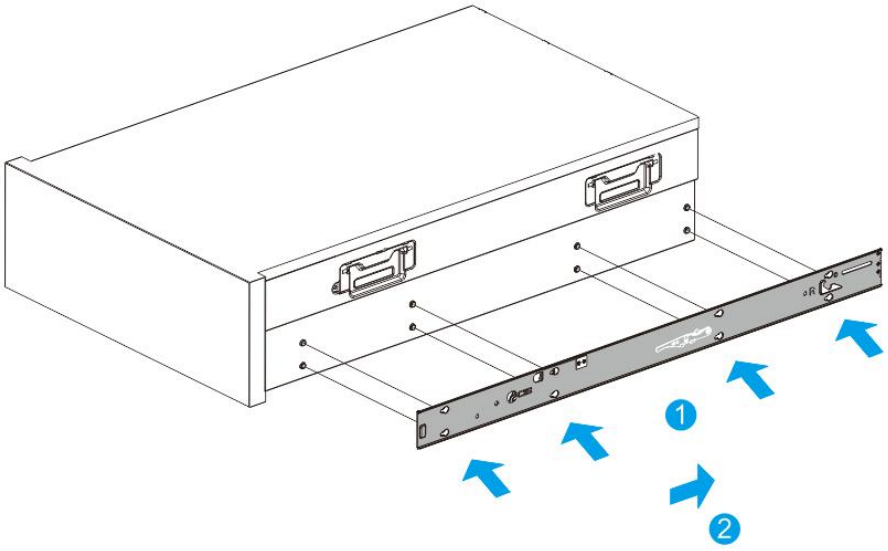




Step 3. Install the inner rails to the chassis (the left and right inner rails are the same, please repeat the installation)

3-1. Align the positioning holes of the inner rail with the 4 rows of hanging nails on the side of the chassis, and install it on the chassis in the direction of the arrow;

3-2. Push the inner rail in the direction of the arrow. A click sound will be heard when the installation is completed. Make sure it is installed in place.



Step 4. Install the server into the rack.

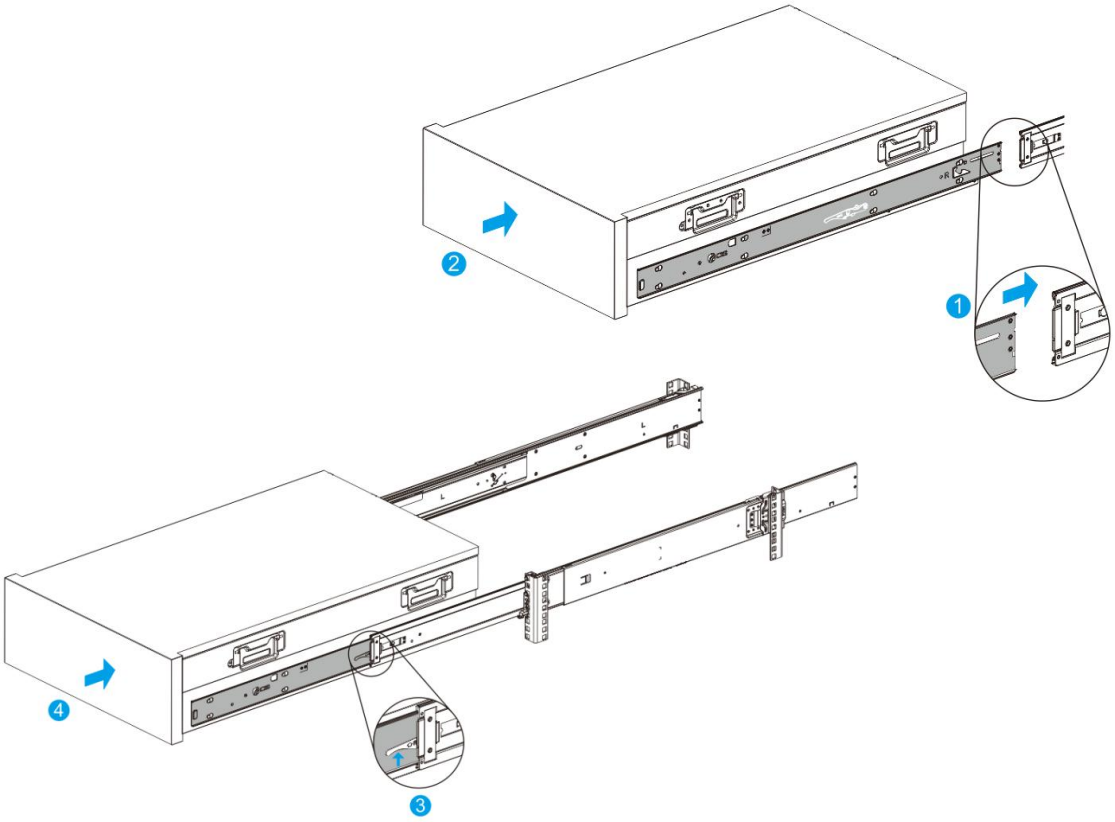
4-1. Align the chassis with the inner rails installed to the middle rail of the guide rail on the rack;

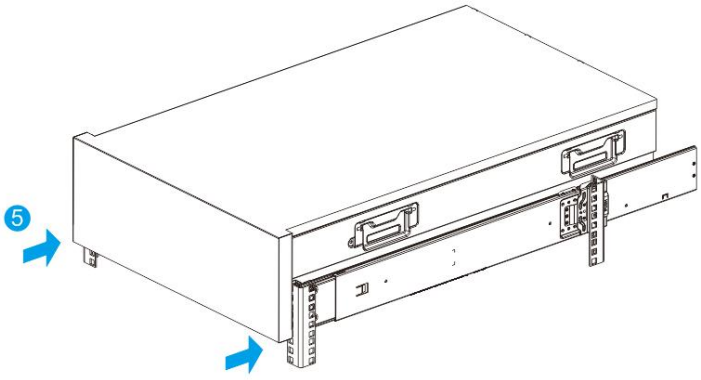
4-2. After alignment, push the chassis into the guide rail in the direction of the arrow;

4-3. After pushing the chassis into the middle rail stop, push the button in the direction of the arrow;

4-4. Press and hold the button while pushing the server into the rack;

4-5. Open the front mounting ears on both sides, use a screwdriver to tighten the screws, and complete step 4.





5. Operation precautions and common troubleshooting

5.1 Operation precautions

- SNR-LEG-G4 needs to be connected to two PSUs before it can be powered on. BMC can be used normally when a single PSU is powered ;
- SNR-LEG-G4 does not have a rear window backplane configuration. The rear window backplane does not need to be considered in the BMC web page FRU information model of this project ;
- Automatic fan control: fan duty cycle is uniformly controlled and speed-regulated;
- Manual fan control: When switching to manual control mode for the first time, the fan speed will run according to the last manually set speed, and the manually controlled fan speed duty cycle is set to a unified setting;
- Manually control the fan speed, the lowest settable duty cycle is 20% ;
- The single fan of SNR-LEG-G4 is a twin design, and the maximum speed of the front and rear fans is different;
- SNR-LEG-G4 is designed with dual BMC chips. It starts up by Flash 1 by default . If Flash 1 is abnormal, it will automatically switch to Flash 2 to start up ;
- The network indicator light on the right mounting ear of SNR-LEG-G4 only supports displaying the network status of the O CP network card;
- When controlling the hard disk lighting through the RAID card, there will be a delay in the information synchronization of the BM C interface, and the WE EB interface display can be refreshed ;
- When logging into BMC WEB via http , it will automatically jump to https for login;
- Due to the limitations of BMC's mechanism for recording hard drive insertion and removal logs, it is not advisable to quickly insert and remove multiple hard drives at the same time, otherwise some plug-in disk logs may not be recorded in time;
- When hot-swapping hard disks, do not quickly plug and pull multiple hard disks at the same time, and keep a certain distance between the disks;
- the server is under BIOS Setup and the hard disk is hot-swapped, the BMC web page will not record the hard disk plug-in log;
- If NVMe U.2 SSD is configured on SNR-LEG-G4, the information will be displayed in the hard disk device - NVMe device list;

- BMC WEB interface GPU device information, GPU power consumption display needs to install the driver in the OS, NVIDIA GPU device needs to use the command nvidia-smi -pm 1 to set the GPU card to persistent mode , so that the corresponding GPU power consumption can be normal Obtain.
- BMC WEB interface GPU device information, graphics card type devices do not support obtaining SN information (limited by the graphics card itself) ;
- BMC WEB If you need to record S OL logs, you need to connect the SD card to the motherboard and perform correct partitioning as required;
- The SNR-LEG-G4 server needs to be used with an air guide cover as required;
- It is recommended that the SNR-LEG-G4 server memory be installed according to AMD memory installation rules;
- Broadcom LSI 9560 -8i & 16i RAID card does not support Legacy mode management;
- When using the direct-connect backplane with the L SI 9560-8 i & 16 i RAID card , after setting the hard drive to offline status, the fault light on the hard drive will not light up. The fault light on the expander backplane will light up after the same operation;
- LSI 9560 RAID card is hot-swapped and inserted into the hard disk in JBOD mode , the failure light will light up, but you need to wait for a while before inserting it. If the card is unplugged and inserted too quickly, the failure light will not light up;
- The SNR-LEG-G4 motherboard provides 1 M.2 interface and only supports one specification : PCIE3.0 N VM e;
- After BMC WEB saves the DNS related settings, the network will reconnect, and you need to wait for a certain period of time (1 to 2 minutes is recommended) before performing the next operation;
- BMC After NTP-related configuration is performed on the WEB, the corresponding service will be restarted, and you need to wait for a certain period of time (1 minute is recommended) before performing the next operation;
- If you need to enable SNMP permissions under the default admin user, you need to change its password first, because the password length of SNMP is required to be more than 8 characters, and the default password length of the admin user does not meet this requirement;
- After installing the in-band software in the system (querying the hard disk usage), BMC There is a certain error in the device usage rate obtained by the WEB corresponding sensor;
- BMC's local video log can only record two items (the new log will overwrite the old

log), and to download the video log, you need to wait for the video to finish playing before downloading;

- The BMC video log takes about 20 seconds to complete and cannot be viewed until it is generated;
- The manufacturers of SATA hard disks in RAID management on BMC's web page are displayed as ATA according to specifications ;
- Use ipmitool to change the BMC user password. You cannot change the same password as before;
- Try to avoid installing multiple operating systems on one machine. If you must install them, you need to ensure that the boot partition and data partition of each system belong to the same hard disk.
- The SNR-LEG-G4 server has separate alarm lights for the memory and fan, which are not shared with the system alarm light. The memory alarm light is on the motherboard, and the system alarm light is on the mounting ear;
- When the SNR-LEG-G4 server is connected to the power supply but the power cord is not plugged in, the system alarm light flashes red;
- SNR-LEG-G4 can use the NCSI function with a network card that complies with the O CP NIC 3.0 specification . The standard PC IE network card does not support the NCSI function;
- SNR-LEG-G4 can be equipped with a rear fan, and its rotation speed is 50 % by default ;
- about 30 seconds to update the corresponding rear fan information on the web page ;
- PCIE S lot 0 and Slot 1 of the SNR-LEG-G4 direct-connect model is x 8 ;
- The SNR-LEG-G4 BMC web page will display the 4 byte post code information of all startup processes this time to facilitate troubleshooting;
- T SNR-LEG-G4 U.2 NVME does not support system command lighting ;
- After T SNR-LEG-G4 U.2 NVME is hot-swapped, there is an error log under BMC&OS , which is normal;
- LOT0/1/2 of the T SNR-LEG-G4 PEIB/PEEB expansion board is connected to the R AID card, and other slots are connected. The R AID management function cannot be used on the BMC interface ;
- When using the IPMI tool to burn a FRU file for the first time , there will be a "bad header CHECKSUM" prompt, which will not appear in subsequent updates ;

- The first boot speed is slow. The memory needs to be trained in ABL, and then it will go through Memory Training quickly. However, if you update the BIOS, change the CPU, Clear CMOS, or have a memory error, it will take a long time to complete the training again;
- BMC IPMItool needs to add sol activate usesolkeepalive to activate SOL to keep SOL online ;
- When Above 4GB decoding is set to "Disabled", the PCIE device with video memory exceeding 4GB will be unable to decode and stuck at the early POST position, resulting in the inability to enter BIOS Setup or OS;
- SNR-LEG-G4 no longer supports updating BIOS firmware under DOS;

5.2 Common troubleshooting

5.2.1 Common hardware failures

- The VGA on the rear of the server cannot be displayed

Fault description: After the server is powered on, the status indicator light displays normally, but the rear VGA has no display output;

When the front VGA and rear VGA are connected at the same time, only one of the two VGAs can be output, and the front VGA has priority;

Solution: Unplug the front VGA, and the rear VGA will display normally;

- The operating system cannot start

Fault description: After configuring RAID on the RAID card and installing the operating system, the operating system cannot start;

Cause of failure: The RAID card is not configured with the installation disk as the preferred boot hard drive;

Solution: Enter LSI In the RAID card management interface, set the RAID disk where the system is installed as the preferred boot disk to enter the system normally;

- BMC Web cannot obtain NCSI IP

Fault description: BMC WEB cannot obtain NCSI IP;

Cause of the problem: There may be two reasons;

  - If the server is equipped with a standard PCIE network card, it does not

support the NCSI function;

- OCP network card itself does not support the NCSI function;

Solution: First confirm that if you are using a standard PCIE network card, the server itself is designed in such a way that it does not support the NCSI function;

If you use an O CP network card, you need to confirm whether the network card itself supports the NCSI function. If it does not support the NCSI function, replace it with a network card that supports the NCSI function and you can obtain the NCSI IP normally ;

- GPU card PCIe slowdown

Fault description: The GPU or graphics card is Gen2 when viewed under the OS;

Cause of the fault: The system will activate the energy-saving mode of the GPU card or graphics card. After the GPU card or graphics card is loaded, it will automatically increase to the Spec rate;

Solution: Normal phenomenon, no need to solve;

- The memory status light on the motherboard turns red

Fault description: The motherboard memory status light turns red, and there is a memory alarm record in the BMC log;

Cause of failure: There are three possible causes of failure:

- Memory failure or abnormality
- Motherboard slot failure or abnormality

Solution: BMC Confirm the memory slot where the error is reported in the WEB log, then shut down the server, exchange the memory in the slot with the problem with memory in other slots, and verify whether the error is reported with the memory slot or the memory itself;

- The server mounting ear indicator light is red.

Fault description: The status indicator light on the right mounting ear of the server lights up red;

Cause of failure: There are four possible causes of failure:

- Fan abnormal alarm
- PSU abnormal alarm
- Memory exception alarm
- Chassis cover abnormal alarm

Solution: Follow the following inspection steps to determine the fault

- If the mounting ear memory status light and the system status light alarm at the same time, you need to enter the memory fault handling process.
- If the system status light is solid red, you need to confirm whether the PSU is in place and whether the chassis intrusion is abnormal.
- If the system status light flashes red, you need to confirm whether the PSU power cord is connected abnormally.

- After manually offline the hard disk through the RAID card , the hard disk alarm light does not light up.

Fault description: The server uses a direct-connected hard disk backplane configuration and is connected with an LSI 9560 RAID card. After manually Offlining the hard disk in the BIOS RAID card setup, the hard disk alarm light does not light up;

Cause of failure: LSI 9560 RAID card is designed in this way;

Solution: RAID itself has limitations and cannot be solved;

- After the hard disk positioning light is turned on, other status lights of the hard disk will be replaced.

Fault description: After the Locate light of the hard disk is turned on, other status lights such as rebuild and failure of the hard disk will be replaced;

Cause of failure: The server is designed in such a way that it adopts a high-priority mechanism for the hard drive Locate light. When the hard drive location light is on, other status lights will be replaced to facilitate users to locate abnormal hard drives;

Solution: Normal phenomenon, no need to solve;

- BMC WEB can log in normally, but there is no response when clicking on boot.

Fault description: The BMC WEB server is in the power off state, and there is no response when clicking the power button.

Cause of failure: The platform is designed so that the server does not support booting when only one power supply is connected. It needs to be connected to 2 or more power supplies before it can be booted normally.

Solution: Plug in other power supplies and power them on, ensuring that the number of

powered power supplies is greater than or equal to 2 .

5.2.2 Common software failures

- the BMC WEB FRU field is incorrectly displayed;

Fault description: BMC FRU does not have machine model information;

Cause of failure: The corresponding FRU file is not burned ;

Solution: Burn the corresponding F RU file;

- BMC log time is inconsistent with the actual time

Fault description: The BMC log generation time is abnormal and inconsistent with the current Beijing time;

Cause of failure: Time configuration is not synchronized;

Solution: There are two solutions:

- Configure the time under the OS to Beijing time and enable NTP synchronization;
- Execute the command timedatectl set-local-rtc 1 under the Linux operating system to synchronize time;

- BMC Web cannot log in

Fault description: BMC WEB cannot log in;

Cause of the problem: There may be two reasons;

- The username and password are incorrect;
- BMC IP DHCP has changed;

Solution: First confirm whether the user name and password of the BMC are accurate. After the boot display is displayed, go to the server P OST interface or BIOS. Check the current IP of BMC under Setup, and use this IP to log in to BMC Web again ;

- BMC WEB cannot manage RAID card

Fault description: The server is in BIOS Setup status, BMC WEB cannot obtain RAID management functions;

Cause of failure: In BIOS During the Setup phase, BMC has not yet completed initialization of the RAID management function. Only after entering the operating system can BMC manage the RAID function normally;

Solution: Normal phenomenon, no need to deal with;

- BMC Web RAID card management function abnormality

Fault description: When LSI and PMC RAID cards are used on the same server, BMC Web management function abnormality;

Cause of failure: AMI code function limitation. On the same machine, the BMC management function cannot adapt to cards from different manufacturers;

Solution: Use a single brand of RAID card in the same server ;

- BMC GPU device information cannot be obtained after S N

Fault description: BMC WEB does not support displaying the SN number of the graphics card , and only supports obtaining the SN number of the GPU ;

Cause of failure: The actual connected device is the graphics card;

Solution: graphics card design limitations;

- BMC ipmi log is no longer recorded

Fault description: BMC WEB no longer records recent ipmi logs;

Cause of failure: BMC WEB log storage has set a linear storage policy (Linear Storage Policy) , which needs to be set to a circular storage policy (Circular Storage Policy) ;

Solution: BMC WEB log storage is set to Circular Storage Policy