Operation and Maintenance Guide

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Dear users:

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Preface

Summarize

This manual introduces the fault phenomenon of Inspur server and the corresponding diagnosis, treatment methods, upgrading and inspection guidance.

According to this manual, you can carry out routine maintenance, take corresponding measures to deal with alarms and faults, understand patrol inspection related matters, and upgrade corresponding software.

Audience

This manual is mainly applicable to the

following engineers: Technical support

engineers

Service engineers

Sign convention

The following signs may appear in this article, and their meanings are as follows.

Symbol	Instruction
⚠ Danger	It is used to warn of urgent and dangerous situations. If it is not avoided, It will result in death or serious personal injury.
⚠ Warning	It is used to warn of potential dangerous situations. If it is not avoided, May cause death or serious personal injury.
⚠ Caution	It is used to warn of potential dangerous situations. If it is not avoided, May cause moderate or minor personal injury.

Symbol	Instruction
⚠ Attention	It is used to transmit safety warning information of equipment or environment, which, if not avoided, may lead to equipment damage, data loss, equipment performance degradation or other unpredictable knots. Fruit. "Attention" does not involve personal injury.
📖 Directions	Used to highlight important/critical information, best practices, tips, etc. The "instructions" are not safety warning information and do not involve personal, equipment and environmental injury information.

Directory

1 Safety

1.1 General declaration

When operating equipment, local regulations and codes shall be strictly observed. the safety precautions described in the manual are only supplementary to local safety codes. The "danger", "warning", "caution" and "attention" items described in the manual are only supplementary instructions for all safety precautions.

In order to ensure personal and equipment safety, please strictly follow all safety precautions described in the identification and manual on the equipment during the operation of the equipment.

Operators of special types of work (e.g. electricians, electric forklift operators, etc.) must obtain the qualification certificate approved by the local government or authoritative institutions.

This is a class a product, which may cause radio interference in living environment. In this case, users may need to take practical measures against their interference.

1.2 Equipment safety

Safety precautions for equipment are as follows:

In order to protect equipment and personal safety, please use matching power cables. Before touching the equipment, server equipment, and are prohibited from being used on other equipment.

Before touching the equipment, wear anti-static overalls and anti-static gloves to prevent damage to the equipment caused by static electricity.

When handling the equipment, hold the handle of the equipment or hold the

bottom edge of the equipment, instead of holding the handle of installed

modules (such as power supply

module, fan module, hard disk or motherboard) in the equipment.

When using tools, be sure to follow the correct operation mode to avoid

damaging the equipment.

In order to ensure the reliability of equipment operation, the power cord

needs to be connected to different PDU(Power distribution unit) in a

primary and standby mode.

Before switching on the power supply, the equipment must be grounded,

otherwise it will endanger the safety of the equipment.

1.3 Matters needing attention in equipment relocation

Improper relocation of equipment may easily cause equipment damage.

Please contact the original factory for specific precautions before relocation.

Equipment relocation includes but is not limited to the following precautions:

Hire a regular logistics company to relocate the equipment. The

transportation process must conform to the international standards for

electronic equipment transportation.

Avoid equipment inversion, bumping, dampness, corrosion or package

damage, pollution, etc.

The equipment to be moved shall be packed in original factory.

Chassis, blade-shaped equipment and other components with large weight

and volume, optical modules, PCIe(GPU or SSD)

Vulnerable parts such as cards need to be packaged separately.

It is strictly prohibited to move the equipment with electricity, and It is

strictly prohibited to bring objects that may lead to danger in the relocation

process.

1.4 Maximum weight allowed to be carried by a single person

Caution

The maximum weight allowed to be carried by a single person shall be subject to local laws or regulations. The identification on the equipment and the description information in the document are all suggestions.

Table 1-1 lists the regulations of some organizations on the maximum weight allowed to be carried by adults at a time for reference.

Table 1-1Provisions of Some Organizations on the Maximum Weight Allowed for Adults to Carry at a Time

Organization name	Weight (kg/lb)
CEN(European Committee for Standardization）	25/55.13
ISO（International Organization for Standardization）	25/55.13
NIOSH（National Institute for Occupational Safety and Health）	23/50.72
HSE（Health and Safety Executive）	25/55.13
general administration of quality supervision, inspection and quarantine of the people's republic of china	male: 15/33.01 female: 10/22.05

2 Processing flow

Fault handling refers to the use of reasonable methods to gradually find out the cause of the fault and solve it. Its guiding ideology is to reduce (or isolate) a large set of possible causes of faults into several small subsets, so as to reduce the complexity of the problem rapidly, finally find the root cause of the problem, and take appropriate measures to eliminate it.

Table 2-1 Description of Process Flow Steps

step	Instruction
Processing	Prepare manuals and tools required for troubleshooting and
Collect information	Collect complete information helpful for fault diagnosis and
Diagnosing and	Using fault location method to find the root cause of the fault,
Get Inspur Technical Support	If problems that are difficult to determine or solve are encountered in the process of equipment maintenance or fault handling, and cannot be solved through the guidance of documents, please contact

3 Processing preparation

3.1 Operational scenario

Before starting troubleshooting, the customer needs to make relevant preparations. Equipment including tools (screwdriver, anti-static clothes, anti-static bracelet, etc.), firmware to be upgraded, etc.

3.2 Basic skills

The following basic skills are required for server failure

handling operations: Familiar with server product knowledge.

Familiar with equipment danger signs

and grades. Familiar with equipment

hardware architecture. Familiar with

front and rear panel alarm indication.

Familiar with the system running on

the equipment.

Familiar with the normal operation conditions of the equipment.

Familiar with common hardware operations, such as power

on and off, etc. Familiar with common software operations,

such as upgrading, etc.

Familiar with the process of equipment maintenance.

3.3 Required reading materials

The required data for daily maintenance of the server are shown in Table 3-1.

Table 3-1   of Required Data for Daily Operation and Maintenance

Document type	Instruction	Obtain
Product information	Basic product information of the server, including detailed configuration,	Visit Inspur official website:https://en.inspur.com/
	product characteristics, etc.	

3.4   Toolpreparation

Electrostatic bracelet, insulated Phillips screwdriver, monitor, keyboard, network cable and other tools.

Electrostatic bracelet, as shown in figure 3-1.

Figure 3-1

3.4.1 Hardware tools

CD, U disk, keyboard, monitor, network cable, screwdriver, etc

3.4.2 Software tool

FW refresh files, etc.

4 Fault diagnosis and treatment

4.1 Diagnostic principle

⚠️ **Attention**

All operations shall ensure that business data will not be lost or backed up.

When troubleshooting, please follow the following basic principles:

diagnose the outside first, then diagnose the inside. When diagnosing faults, external possible factors, such as power supply interruption and docking equipment faults, should be eliminated first.

diagnose the network first, then the network element.

According to the network topology diagram, analyze whether the network environment is normal and whether the interconnection equipment fails, and locate which network element in the network has failed as accurately as possible.

high speed part first, then low speed part.

It can be seen from the alarm signal flow that the alarm of high-speed signal often causes the alarm of low-speed signal. Therefore, in the fault diagnosis, the fault of the high-speed part should be eliminated first.

analyze high-level alarms first, then analyze low-level alarms.

When analyzing alarms, first analyze high-level alarms, such as emergency alarms and serious alarms, and then analyze low-level alarms, such as minor alarms.

4.2 Troubleshooting according to the alarm

According to the management system (BMC) of the server, the alarm information is checked, and diagnosis and fault location are carried out.

The BMC event log can be viewed in the BMC interface and is divided into three levels: information, warning and critical

1、 The information log mainly contains normal records, including the startup and shutdown of the server and the normal status monitored by some hardware (hard disk, power supply, etc.) during startup.

2、 The warning log mainly contains some problems that are alarming but do not cause machine downtime, but need attention and repair. At this time, the alarm indicator on the front panel of the machine will give an alarm. Including non-serious error

reporting, memory correctable ECC error, etc.

3、 The critical log mainly contains critical errors or unrecoverable errors that may cause machine downtime, including low/high fan speed, high/low temperature, high/low voltage, uncorrectable ecc errors in memory, etc.

4.3 Locate the fault according to the indicator

4.3.1 Front panel indicator

Locate the fault according to all kinds of indicators on the server panel. Figure below shows the indicators on the front panel of NF8480M5. The specific lighting meanings are shown in Table5-1.

3.5x4 NF5180M5 All indicators on front panel
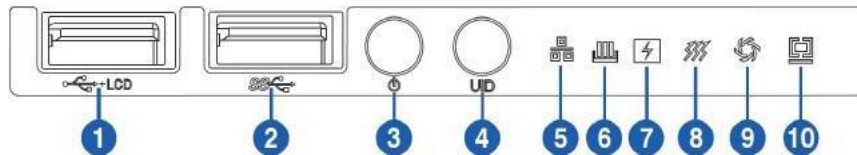
Table 3.5 NF8480M5 front panel indicator functions

Numbering	Module name	Functional description
3	Power switch button	In the power-on state, the indicator is green. In standby mode, indicator is orange Press 4s long to force shutdown.

4	UID │ RST Button	Enable/disable UID, it`s blue or off. Press 6s long to force the system to restart.
5	Network status indicator	Network connection is normal when the indicator is solid green or blinking green. If there is no network connection, indicator will be off. * Note：This only indicates the PHY CARD status
6	Memory fault indicator	Normal not bright When a fault occurs, it is always bright red. Red flashes when a warning occurs
7	Power failure indicator	Normal not bright The power supply fails and is always bright red. The power supply status is abnormal, and red flashes
8	System overheat indicator	Normal not bright CPU/ Memory Overheated, Always Bright Red
9	Fan fault indicator	Normal not bright Unable to read rotation speed, usually bright red Abnormal reading speed, red blinking
10	System fault indicator	Normal not bright When a fault occurs, it is always bright red. Red flashes when a warning occurs

2.5x10   NF5180M5 All indicators on front panel
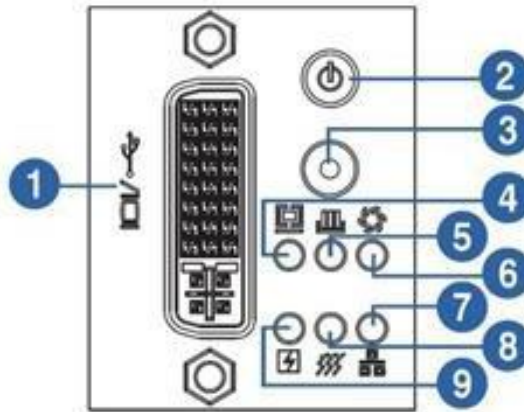
Table 2.5x10 NF5180M5 function of each indicator lamp on the front panel

Numbering	Module name	Functional description
2	Power switch button	In the power-on state, the indicator is green. In standby mode, indicator is orange Press 4s long to force shutdown.
3	UID │ RST Button	Enable/disable UID, it`s blue or off. Press 6s long to force the system to restart.
4	System fault indicator	Normal not bright When a fault occurs, it is always bright red.

		Red flashes when a warning occurs
5	Memory fault indicator	Normal not bright When a fault occurs, it is always bright red. Red flashes when a warning occurs
6	Fan fault indicator	Normal not bright Unable to read rotation speed, usually bright red Abnormal reading speed, red blinking
7	Network status indicator	Network connection is normal when the indicator is solid green or blinking green. If there is no network connection, indicator will be off. * Note：This only indicates the PHY CARD status
8	System overheat indicator	Normal not bright CPU/ Memory Overheated, Always Bright Red
9	Power failure indicator	Normal not bright The power supply fails and is always bright red. The power supply status is abnormal, and red flashes

According to the above chart, the fault components and causes can be diagnosed and located according to the status of the fault lights on the front panel of the machine.

4.3.2 Hard drive status indicator

The hard disk status indicator lamp is shown in Figure 5-5, and the specific function description is shown in Table 5-2.

Figure 4-5

Table 4-2 Function Description of Hard Disk Status Indicator

Numbering	Name	Function and description
1	Hard disk failure alarm indicator	Solid red: hard disk failure Solid Blue: Hard Disk Positioning

		Solid blue: RAID Rebuilding
2	Hard Drive Activity Indicator	Solid red: hard disk failure
		Solid Blue: Hard Disk Positioning
		Solid blue: RAID Rebuilding

4.3.3 Power Status Indicator

The power indicator is on the power module at the rear of the chassis, as shown in Figure 5-6.

Figure 4-6
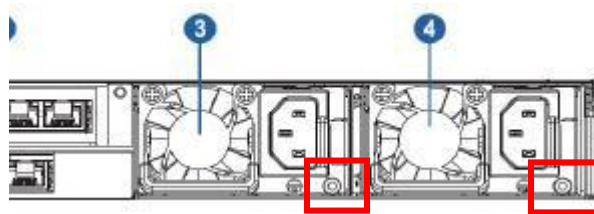
The input and output current/voltage/power consumption are abnormal, and the indicator is always on and red.

The power supply temperature, fan, CML and other conditions are abnormal, and the indicator blinks red.

4.3.4 Network port indicator

See Table5-3 for network port status indicators, where GE port represents Gigabit Ethernet port.

Table 4-3 Network Port Indicators

Module indicator	indicator status	Meaning
GE network port connection status indicator	Indicator is solid green.	Indicates that the network connection is normal.
	Off	Indicates that the network port is not in use or the connection is abnormal
GE network port data transmission indicator lamp	Blinking orange	Indicates that data is currently being transmitted.
	Off	Indicates that there is currently no data transmission
10GE Port Rate Indicator	Green (solid bright)	Indicates that the current Link link rate is 10G.

| | Yellow (solid bright) | Indicates that the current Link link rate is 1G. |
| | Off | Indicates that the current Link link rate is 10/100M m. |

Module indicator	indicator status	Meaning
10GE Electrical Port Connection Status Indicator/Data Transfer Status Indicator	Green (solid bright)	Indicates normal network connectivity
	Green (blinking)	Indicates that data is currently being transmitted.
	Off	Indicates that there is currently no data transmission or the network is not connected.
10GE Light Port Connection Status Indicator	Indicator is solid green.	Indicates that the interface connection is normal
	Off	Indicates an interface connection exception
10GE Optical Port Data Transmission Status Indicator	Blinking orange	Indicates that the interface is sending or receiving data
	Off	Indicates that the interface has no data transmission

4.4 According to the phenomenon processing fault

4.4.1 Power supply problem

Equipment status terms are described as follows:

Power on: the equipment is powered on, and the indicator of the power button is on. Standby: the equipment is powered on, and the power button indicator is yellow and always on.

Power on: the equipment is powered on, and the power button indicator is always green. POST: power-on self-test.

Please diagnose according to the following fault phenomena.

Table 4-4 Troubleshooting of Power Supply Problems

Failure phenomenon	Processing steps
Single power module failure (no output, health status	1. Check the LED status of the power module and record BMC alarm information. Please refer to the indicator lamp for the specific status of the indicator lamp.

indicator red blinking)	2. Check if there is an AC loss alarm. Yes, check whether the power cord is plugged in firmly and whether the PDU has power. No, execute no.3. 3. Replace the power supply of spare parts to see if the problem is solved. Yes, processed. No, execute no.4. 4. Replace the power backplane. For products without power supply backplane, please replace the motherboard to see if the problem is solved. Yes, that's it. No, please contact Inspur Technical Engineer
The rack equipment is not powered on (All indicators are off)	1. Check whether the external power supply is normal Yes, execute 2 No, solve the problem of external power supply 2. Cross-verify the power module, i.e. replace the normal power module to see if the fault has been resolved. Yes, processed. No, execute 3. 3. Replace the motherboard and power backplane to see if the problem has been resolved. Yes, processed. No, please contact Inspur technical support engineer.

4.4.2 Memory error problem

For faults related to memory errors, please diagnose according to the following conditions.

Table 4-5 Memory Error Fault Diagnosis Processing

Failure phenomenon	Processing steps
The system memory is less than the installed physical memory	1. Check if memory is included in the server compatibility list Yes, execute 2. No, replace the memory with a component in the server compatibility list 2. Check whether the memory installation location meets the configuration rules. Yes, execute 3. No, reinstall the memory according to the configuration rules. 3. Check if the BMC generates Correctable ECC. Yes, replace the failed memory. No, execute 4.

	4．Check whether the memory slot is abnormal, and if so, replace the motherboard.
Warning of memory uncorrectable ECC	1. Install the fault memory to another channel slot and use the pressure measuring tool to verify. if the fault phenomenon follows the memory, replace the memory module. if the fault occurs in the same memory slot, check the memory slot, if there is obvious damage, replace the motherboard or memory board. 2. Check the CPU slot to which the memory belongs for bent pins. Yes, replace the motherboard. No, execute 3. 3. Replace the CPU.

4.4.3 Hard disk problem

For hard disk-related failures, please diagnose according to the following conditions.

Table 4-6 Hard Disk Related Fault Diagnosis and Treatment

Failure phenomenon	Processing steps
Single hard drive red light alarm or single or partial hard drive in Not recognized in RAID card	1. The unrecognized hard disk is swapped with other hard disks and cross-checked to determine whether the problem is on the hard disk. if the problem follows the hard disk, it is recommended to replace the hard disk to solve it. if the problem follows the slot, check all SAS on the hard disk backplane. Are all ports properly connected to SAS cables otherwise, execute 2 2. Replace RAID card, SAS cable and hard disk backplane in turn to solve the problem.
All hard disks are not recognized in the RAID card.	1. Verify that the power supply cable and hard disk are properly installed 2. Otherwise, replace RAID card, SAS cable and hard disk backplane in turn to solve the problem.

5 Upgrade

Refer to Table 6-1 for software/firmware and data to be upgraded for the server.

Table 5-1 Server Upgradeable Software/Firmware

Server type	Upgradeable software/firmware	Reference material
NF5280M5	The upgradeable firmware of the server includes BMC, BIOS and the drivers of the add-in card it matches.	Reference InspurOfficial Website:http://en.inspur.com/

The following figure is a firmware and driver download interface. In this interface, users can download relevant drivers, BIOS and BMC firmware, user manuals, etc. At the same time, users can also view the machine configuration information according to the machine serial number.
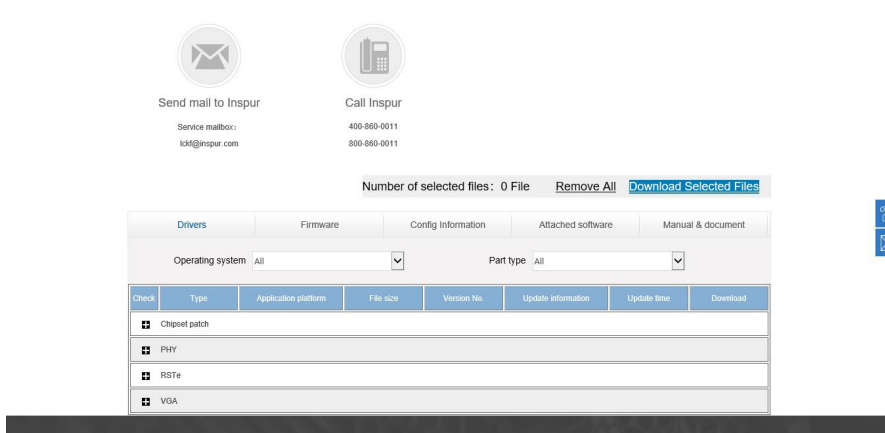
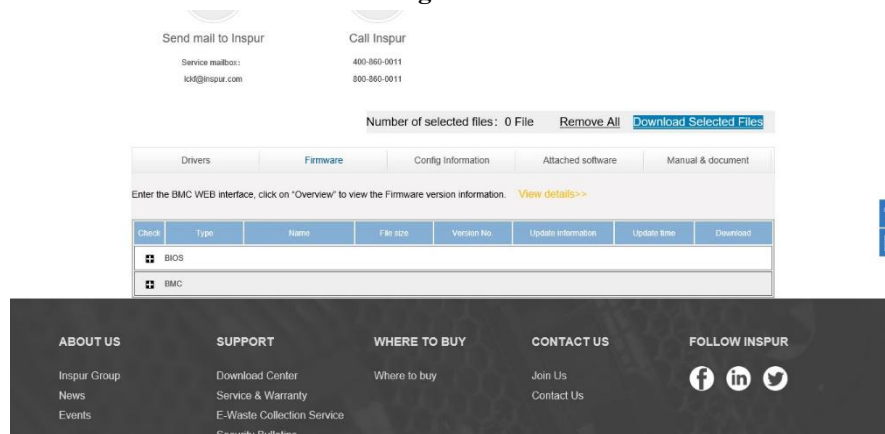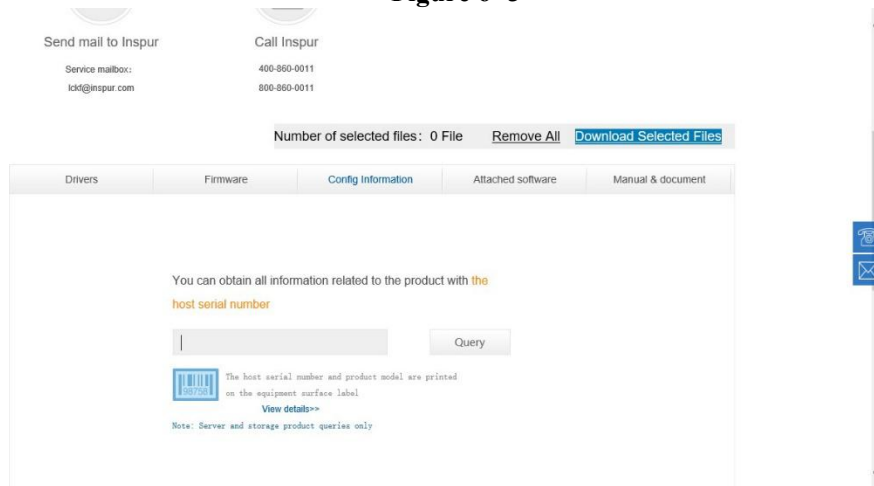**Figure 6-1**

Figure 6- 2

Figure 6- 3

Drivers are divided into Linux and windows versions, which need to be downloaded

accordingly.

BIOS and BMC are provided with refresh methods, which can be refreshed under the system and under the Web interface. Please refer to the firmware upgrade manual for details.

Figure 6- 4

6 Inspection guide

Through routine maintenance inspection, you can detect the failure of server equipment and diagnose and deal with it in time.

 Attention

Please do a good job in electrostatic protection and machine protection during the whole operation.

6.1 Inspection of Computer Room Environment and Cable Layout

6.1.1 Precautions for Patrol Inspection

Before patrol inspection, In order to avoid potential hazards, please be familiar with the safety information symbols listed in the following table. The following symbols may appear on some parts of the server.

Table 6-1 security information symbol

Icon	Instruction
	Prompt for dangerous electrical appliances. Please pay attention to prevent electric shock hazard. Do not open this device. Warning: All devices bearing this mark are in danger of electric shock. There are no maintainable devices in the marked area!
	Prompt for hazardous devices. This device may cause electric shock hazard. There is no serviceable device in the marked area, please do not open this device. Warning: Please pay attention to prevent the danger of electric shock and do not open this device!
	Suggest high temperature surface. Warning: Be careful of scalding. Please wait for the device to cool before contacting it!

	This identification is a grounding identification outside the equipment. The two ends of the grounding cable are respectively connected to different equipment, indicating that the equipment must be grounded through the grounding point to ensure the normal operation of the equipment and the personal safety of the operators.
	This mark is the grounding mark inside the equipment. Both ends of the grounding cable are connected to different components on the same equipment, indicating that the equipment must be grounded through the grounding point to ensure the normal operation of the equipment and the personal safety of the operators.
	This sign indicates an electrostatic sensitive area. Do not touch the equipment with your bare hands. When operating in this area, please take strict anti-static measures, such as wearing anti-static wrist bands or anti-static gloves.

6.1.2 Environmental Inspection of Computer Room

The computer room environment mainly includes air conditioning and

power supply equipment inside the computer room.

6.1.3 Cable layout inspection

For cable inspection, visual inspection is recommended. Reseat if necessary.

In order to prevent cable damage before inspecting cable layout, the

following matters should be paid attention to:

1、 Check the power cord
Ensure that the joint surface of the three-wire power supply
grounding wire is good. Make sure the power cord is of the correct
type.

Make sure that the insulation on the surface of the power cord is not damaged.

2 、 Ensure that cables are far away from heat sources, cables are not

tight and are kept moderately loose.

3、 Do not use too much force when plugging or unplugging cables.

4、 Plug and unplug cables through the connection ports as

much as possible.

5、 Under no circumstances should cables be twisted or

pulled.

6、 Proper wiring ensures that the parts to be removed or replaced will not touch the

cables and that all power cables are connected correctly.

6.2 Server patrol

6.2.1 Precautions for Patrol Inspection

Before the server patrol, the IP address and root account password of the

BMC of the patrol machine need to be obtained in advance.

6.2.2 Inspect indicator

The front and rear panels of Inspur Server provide UID button/indicator,

system fault indicator, network port indicator, power status indicator, fan

indicator, etc. The status of the current server is preliminarily diagnosed

by observing the status of the indicator. Please refer to 5.4 to locate the

fault according to the indicator for specific indicator status and treatment

methods.

Front panel indicator

Front panel indicator check item items:

1、 System fault indicator

2、 Memory fault indicator

3、 Power button/indicator

4、 Fan fault indicator

5、 System overheat indicator

6、 Network status indicator

7、 Hard drive indicator

Rear panel indicator

1、 Power indicator

2、 Network port/light port status indicator

6.2.3 Check health status through BMC

Through BMC monitoring platform, check the monitoring status of BMC, sensor information and BMC system event log to confirm the health status of the server. The following figure shows the status of memory sensor and fan sensor respectively. The status of other sensors such as hard disk, network, CPU and power supply can also be viewed in this interface.

Figure 7- 1
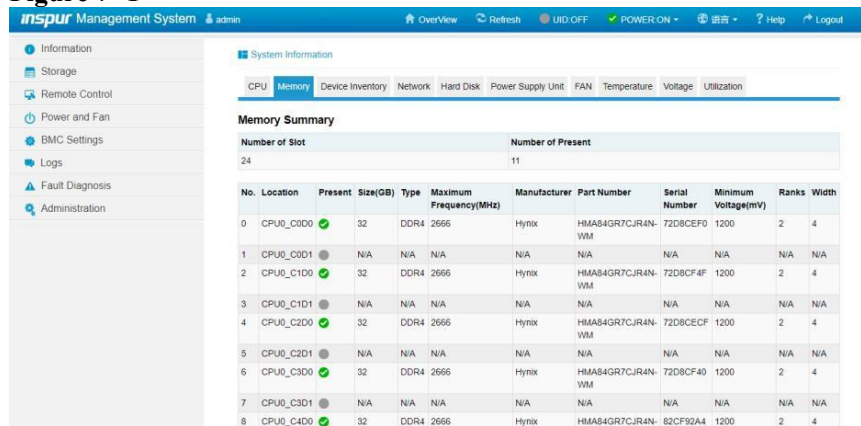
Figure 7- 2
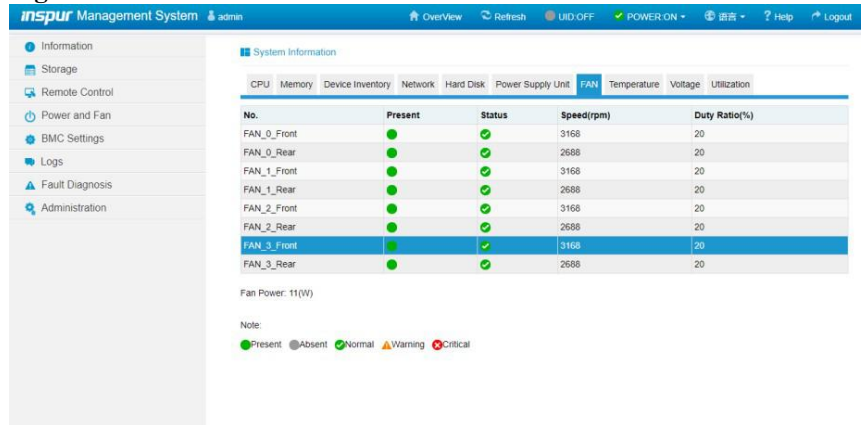
6.3 Inspection report

6.3.1 Patrol information

Inspection Issues	Inspection contents
Room environmental inspection	• Check the room environment (temperature, humidity, power supply, front and rear space of cabinet, equipment grounding, room noise, chemical environment, equipment cleanliness, etc.);
Equipment status check	• Record equipment information (model, serial number, etc.); • Check whether the equipment failure indicator lamp is normal; • Check whether the indicators of all parts of the equipment and the interface status indicators are normal; • Check whether there are other relevant factors affecting the equipment status; • Hardware log collection (what the server device needs to check separately: ➢ Motherboard /BMC/Raid Card Log/Disk SMART Information, etc.); ➢ Software log collection (operating system, etc.); • The software and hardware maintenance after the equipment failure is found (if the failure cannot be solved, call the Inspur service hotline for repair);
Firmware Version Check (Preventive Maintenance)	• Check the firmware version of the device. If it is found that the firmware version of the device needs to be updated to prevent faults, upgrade the firmware to the latest version.

7 Common operation

7.1 Simple configuration query

Some simple configurations of the machine can be found in the configuration query interface according to SN query, and the website is https://en.inspur.com/

For example, as shown in Figure 8-1. Click Configuration Query and enter the serial number to view the machine configuration.

Figure 8- 1
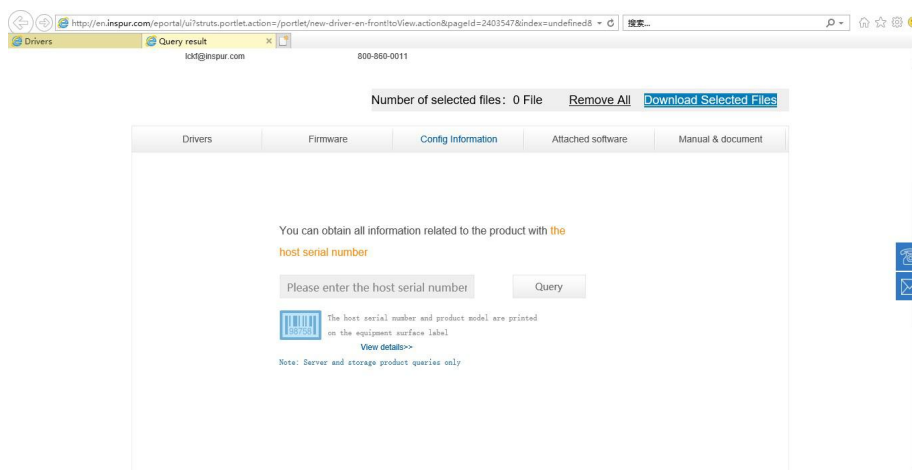
Figure 8- 2
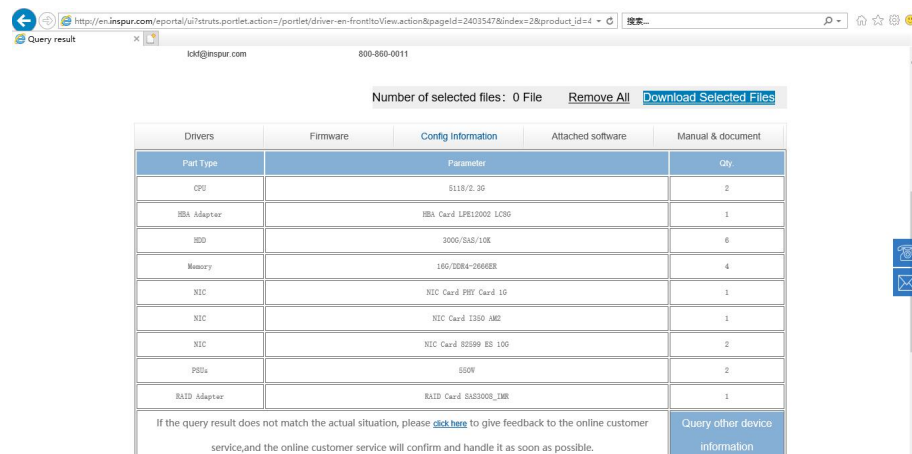
7.2 Management port/multIPlexing port ip

The BMC management port IP address, if static, the customer should remember; If it is dynamic, IP can be assigned. So as to perform BMC login and relevant information check, etc.

Operating steps

1、   IP is dynamic. Connect the notebook computer with the server management port directly, and an IP address will be assigned to the server management port at this time. You can check the current IP of the management port by restarting self-checking or

entering BIOS. BIOS check BMC's IP address interface as shown in Figure 8-3. If the server cannot be restarted, you can call Inspur No Hotline for support.

Figure 8- 3
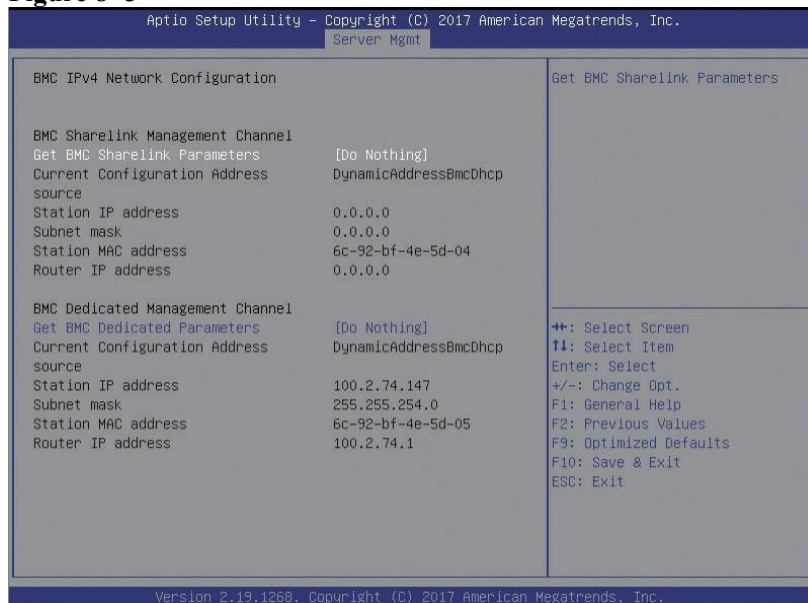
2. IP is static, first confirm whether notebook IP and management port IP are on the same network segment, otherwise change to the same network segment. Ensure that the notebook computer can ping with the server.

7.3 BMC login

Enter IP in the browser, open the login interface, enter the user name and

password, and log in to enter the BMC management interface.

Figure 7-4
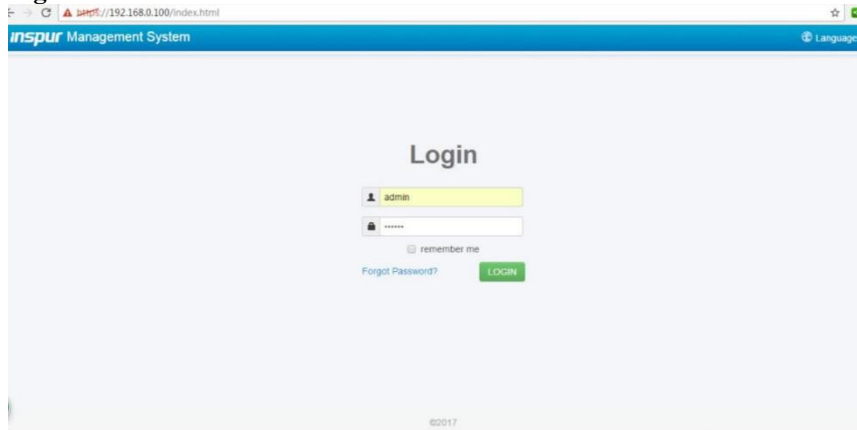
7.4 KVM control platform

In BMC interface, click the console redirection button, use JAVA to open

the corresponding program and enter the server system, which can act as a

display screen for monitoring and operation.

Figure 7-5
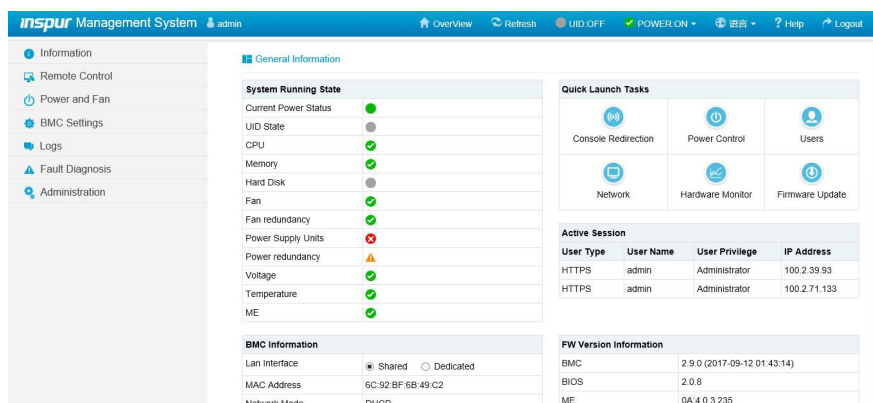
7.5 Introduction to BMC management interface

The introduction of BMC can refer to the user manual, which can be

downloaded in official website. Official website:https://en.inspur.com/

8 Component maintenance

8.1 Upper panel

Figure 9-1 shows the schematic diagram of the upper panel disassembly.

Figure 9- 1
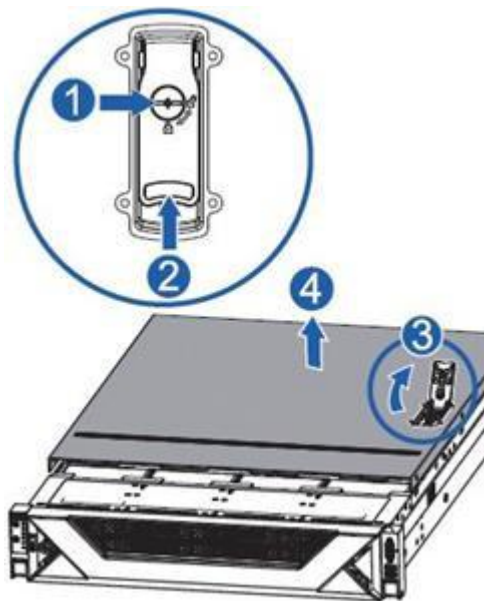
8.2 Cable maintenance

During cable maintenance, pay attention to fixing the cables according to

the original routing method after replacement.

8.3 Board maintenance

8.3.1 Bracket and baffle

Board cards include adapter cards, Raid cards, network cards, etc. When in use, they need to be matched with a bracket or a blocking piece, for example, the adapter card needs to be fixed by the bracket, while the Raid card and some network cards need corresponding blocking pieces.

Figure 9- 2
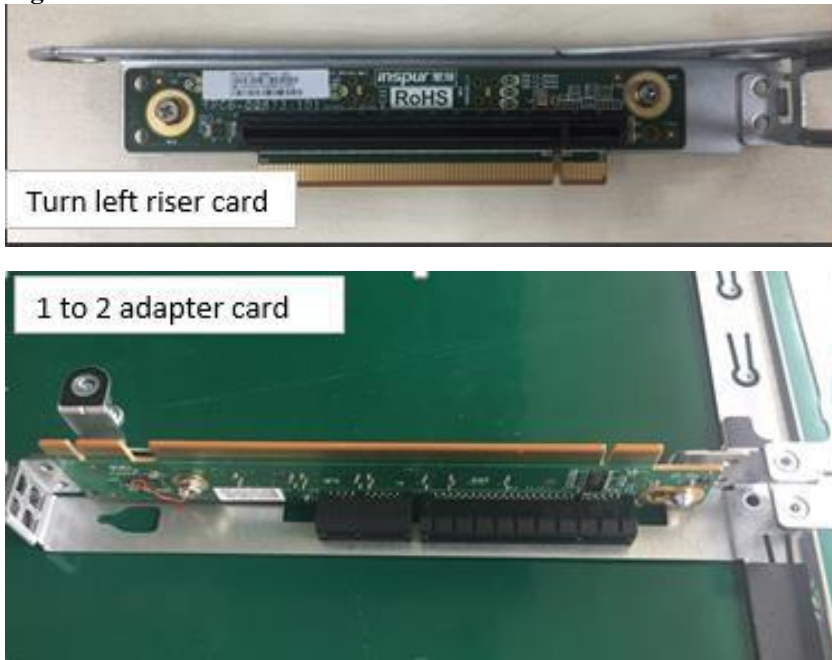
Figure 9- 3

8.3.2 Gold finger type

The board has PCIE interface and non-PCIE interface. For example, fig. 9.4 is a transfer card that is not a PCIE interface, while both card interfaces shown in fig. 9.1 are PCIE interfaces

Figure 9- 4

8.3.3 Installation rules

The standard right turn adapter card expands to 1 X16 slot;

Optional butterfly card (1-to-2 adapter card) is available.

Butterfly card 1 expands to 1 X8+X1 slot, butterfly card 2

expands to 1 X8+X1 slot and 1 X16 slot, as shown in the

following figure.

The priority of PCIE add-in card installation sequence is as

follows: According to the order of RAID card > network card

(1G, 10G, 25G, 40G, 100G)>HBA card > HCA card > video card

> PCIE hard disk, install the add- in card into PCIE slot from left

to right.

If X16 PCIE card is selected, X16 card is preferentially

connected to X16 card slot on the right side and X16 card slot

on the left side.

Figure 9- 5

Turn right riser card	Butterfly card 2	
X16 slot	X8+x1 slot	X16 slot
	Front of the case	

Turn right riser card	Butterfly card 2	
X16 slot	X8+x1 slot	NVME OCP 插座
	Front of the case	
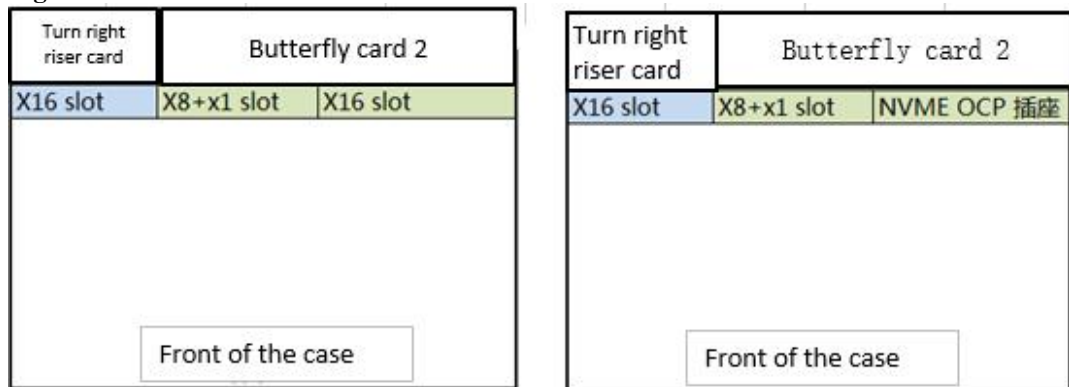
8.4 CPU maintenance

Maintenance steps:

Step 1: Match the Clip triangle logo with the corner logo on the CPU, and

then assemble the Clip with the CPU.

Step 2: The position of "1" on the heat sink label corresponds to the triangle mark on the Clip, and then the locating hole on the heat sink module corresponds to the Clip vertically and is pressed and assembled together.

Step 3: vertically mount the assembled heat dissipation module on the CPU base, and the position of numeral 1 on the label of the heat dissipation module corresponds to the triangular mark on the CPU base of the mainboard; Then lock the screws in the order of 1, 2, 3 and 4 listed on the label.

8.5 Memory maintenance

The same machine can only use the same type of memory. Specific memory installation and combination principles are as follows:

A, priority white slot, CPU1 memory and CPU0 symmetric installation.

(b) For a single CPU, the internal memory is in the order of silk printing: CPU0_C0D0, CPU0_C1D0, CPU0_ C2D0, CPU0_C3D0, CPU0_C4D0, CPU 0 _ C5D0; CPU0_C0D1、 CPU0_C1D1……

Figure 9- 6

Memory slot		Memory quantity											
		1	2	3	4	5	6	7	8	9	10	11	12
CPU0	C0D0	●	●	●	●	●	●	●	●	●	●	●	●
	C0D1						●	●	●	●	●	●	●
	C1D0			●	●	●	●	●	●	●	●	●	●
	C1D1							●	●	●	●	●	●
	C2D0			●		●	●	●	●	●	●	●	●
	C2D1									●		●	●
	C3D0		●		●	●	●	●	●	●	●	●	●
	C3D1										●	●	●
	C4D0					●	●	●	●	●	●	●	●
	C4D1										●	●	●
	C5D0						●	●	●	●	●	●	●
	C5D1												●

(c) When there are two CPUs, the memory in CPU0 position shall be in silk screen order: CPU0_C0D0, CPU0_C1D0, CPU 0 _ C2D0 ...;

The CPU1 location memory installation should be symmetrical with the CPU0 memory installation: CPU1_ C0D0, CPU1_C1D0, CPU 1 _ C2D0 ...

Figure 9- 7

Memory slot		Memory quantity																							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
CPU0	C0D0	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	C0D1													●	●	●	●	●	●	●	●	●	●	●	●
	C1D0			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	C1D1														●	●	●	●	●	●	●	●	●	●	●
	C2D0				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	C2D1																●	●	●	●	●	●	●	●	●
	C3D0							●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	C3D1																		●	●	●	●	●	●	●
	C4D0								●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	C4D1																					●	●	●	●
	C5D0										●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	C5D1																							●	●
CPU1	C0D0		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	C0D1													●	●	●	●	●	●	●	●	●	●	●	●
	C1D0			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	C1D1														●	●	●	●	●	●	●	●	●	●	●
	C2D0					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	C2D1																●	●	●	●	●	●	●	●	●
	C3D0							●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	C3D1																		●	●	●	●	●	●	●
	C4D0									●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	C4D1																					●	●	●	●
	C5D0											●	●	●	●	●	●	●	●	●	●	●	●	●	●
	C5D1																								●

8.6 Hard disk maintenance

8.6.1 Hard disk installation rules

According to the type, model, size and rotating speed of the hard disk, the installation of the hard disk should follow certain rules:

The order of the hard disk label is as follows: from the 0 disk position, from left to right, from top to bottom, install the hard disk with the bracket installed into the hard disk slot of the chassis, and press the handle inwards to clamp the hard disk after full insertion.

A. installation priority of different types of hard disks: SSD->SAS->SATA.

B. priority order of hard disk installation for the same model

and different capacities: the small capacity comes first and the

large capacity comes second.

    C. priority order of hard disk installation with the same model and

capacity: the low rotating speed comes first and the high rotating speed

comes second.

8.6.2 Hard disk bit order

1), 3.5*4 backplane 1: YZBB-00777-101 backplane

_Inspur_5270M5_3.5*4_4*NVMe This backplane supports up to 4
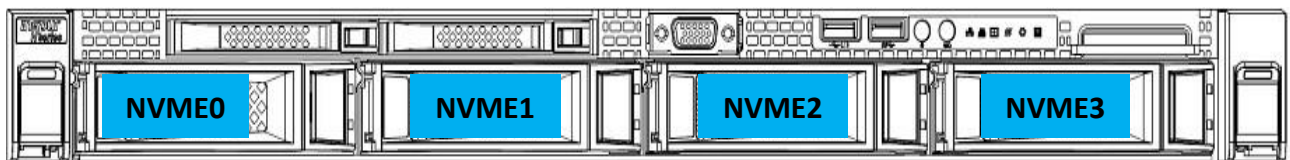
NVME hard drives

A. when there is only NVME hard disk, install it to NVME0, NVME1, NVME2

and NVME3 in sequence

B, when there is a common hard disk (SAS/SATA/SSD) mixed with

NVME hard disk: Ordinary hard disk (SAS/SATA/SSD): installed in the

order of NVME0-NVME3

    NVME hard disk: installed in NVME3-NVME0 order

2), 3.5*4 backplane 2: YZBB-00760-101 backplane _ inspur _ 5180 M5 _ 3.5
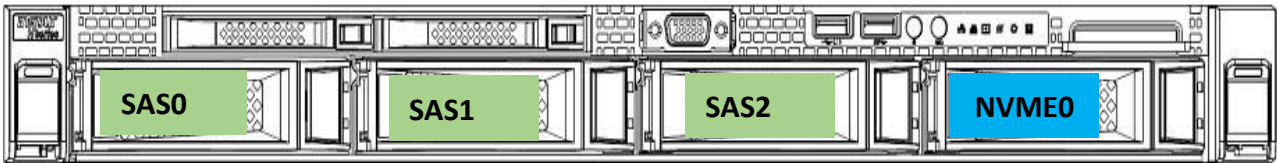
* 4 _ 3 * SAS+1 * nvme

This backplane supports up to 1 NVME hard disk

A, only NVME hard disk or ordinary hard disk (SAS/SATA/SSD):

    Ordinary hard disk (SAS/SATA/SSD): installed to SAS0-SAS2 and NVME0 in

sequence

    NVME hard disk: only installed in NVME0 location

B, when a common hard disk (SAS/SATA/SSD) and an NVME hard disk are

mixed on the backplane, the common hard disk (SAS/SATA/SSD) is first followed

by the NVME hard disk, and NVME can only be installed at NVME0 position

3), 2.5*10 Backplane 1: YZBB-00871-101 Backplane _Inspur_5180M5_NVME Backplane

_2.5X10_10NVME This Backplane Supports Up to 10 NVME Hard Drives

A. The backplane does not mix hard disks, and NVME hard disks are installed in NVME0-

9 in sequence.
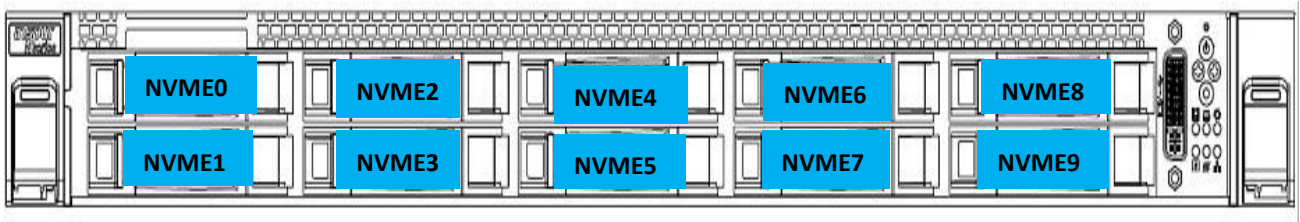
4), 2.5*10 backplane 2: YZBB-00778-101 backplane

_Inspur_2.5*10_2*SAS+8*NVME The backplane supports a maximum of 8

NVME hard drives, which is optional only when
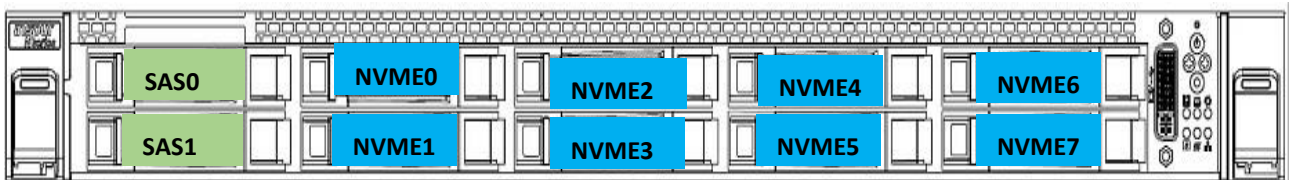
the number of NVME hard drives is greater than 4.

A. when there is only NVME hard disk:

NVME Hard Disk: Installed in NVME0-7 in sequence

B, when there is a common hard disk (SAS/SATA/SSD) mixed with NVME

hard disk: Ordinary hard disk (SAS/SATA/SSD): installed in the order

of SAS0-SAS1 and

NVME0-NVME7

- NVME hard disk: installed in NVME7-NVME0 order

5), 2.5*10 Backplane III: YZBB-00872-101 Backplane _ INSPUR _ 5180 M5

_ 2.5x10 _ 4 NVME _ 6AS/SATA The Backplane supports up to 4 NVME Hard

Drives, which is required when the number of NVME Hard Drives is less than 5.

A when only NVME hard disk or ordinary hard disk (SAS/SATA/SSD) is

available: Ordinary Hard Disk (SAS/SATA/SSD): Install to SAS0-5 and

NVME0-3 in sequence NVME hard disk: installed in NVME0-3 in

sequence "

B, when there is a common hard disk (SAS/SATA/SSD) mixed with NVME

hard disk: Ordinary hard disk (SAS/SATA/SSD): installed in the order

of SAS0-SAS5 and

NVME0-NVME3

NVME hard disk: installed in NVME3-NVME0 order
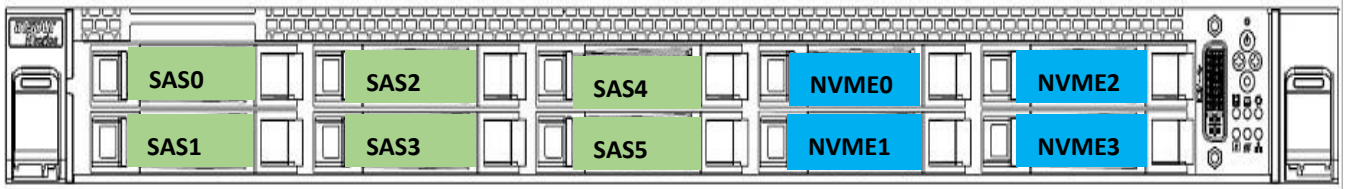
8.6.3 Hard disk backplane

3.5×4 model

The 3.5x4 model uses a 3.5x4 backplane, with an optional
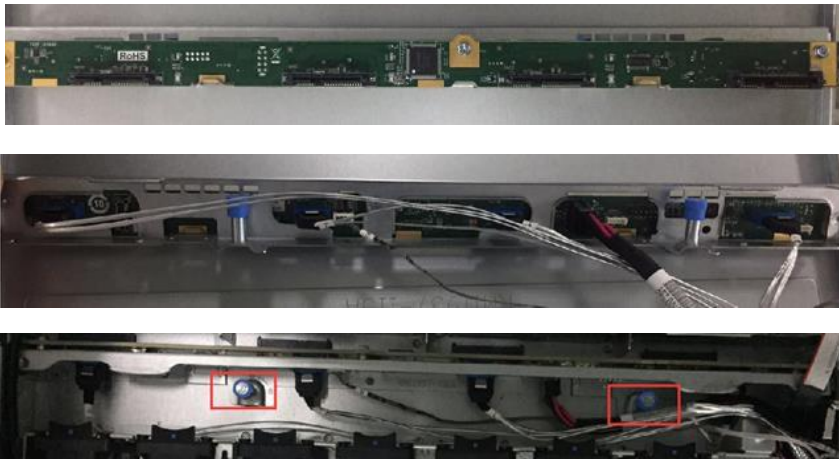
front 2.5x2 backplane.

1. 3.5x4 backplane

A. Assemble the back plate and the back plate bracket

together and fix them with 3 screws;

B due to structural problems, the cables (SAS cable, power

cable, I2C cable) must be inserted into the socket

corresponding to the backplane before placing the

backplane into the chassis.

C, loading the backboard module of the assembled cable

into a chassis; Tighten the two hand screws clockwise.

D lock the two sides of the backboard bracket and the

chassis with screws. as shown in the figure, fix the two sides

of the chassis with two screws respectively.

2. Install the front 2.5x2 backplane:
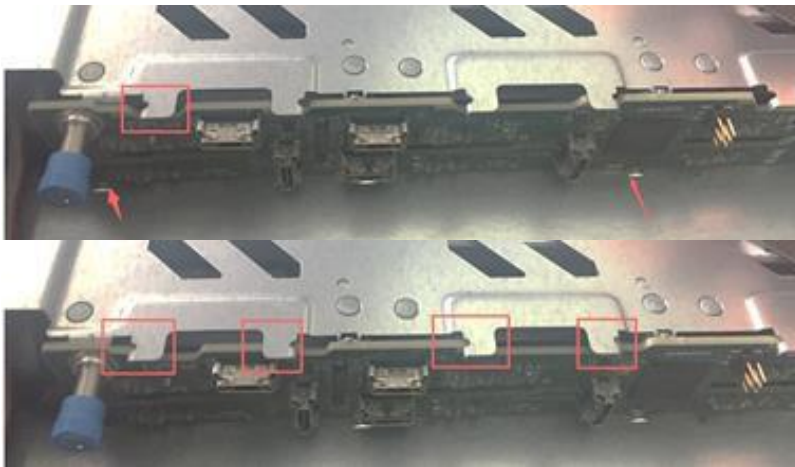
A align the backplane with the fixing screw hole on the

cage of the chassis front hard disk and fix it with two

screws.

2.5 ×10 model

The 2.5x10 model uses a 2.5x10 backplane, with an optional

rear 2.5x2 backplane.

1. Install the 2.5x10 backplane

A. Place the back plate at the fixing bracket with the fixing

buckle aligned with the gap on the back plate;

B, move the back plate to the right to make the buckle

clamp the back plate tightly;

C turn the screw inward by pressing the blue hands on

both sides and lock it clockwise.

2. Install the rear 2.5x2 backplane

A align the back plate with the fixing screw hole of the rear

hard disk cage and fix it with two screws.

B, fix the rear hard disk cage into the chassis and fix it with screws.

8.7   Power supply maintenance

NF5180M5 can be equipped with two power supplies, and the power supply sequence is shown in the following figure. priority PUS0>PUS1. pay attention to the buckle during operation, and be careful during disassembly or installation, and pull and insert at a constant speed.

Figure 9-25
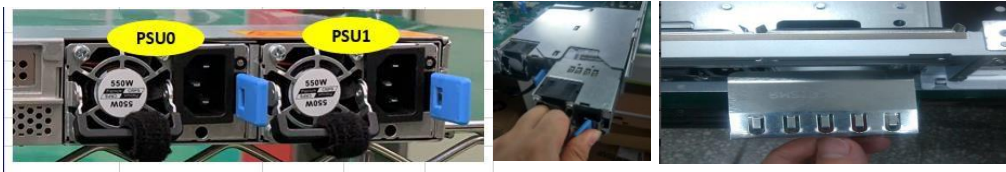
9 Appendix: Environmental Protection Statement

To protect the environment and recycle resources for the benefit of mankind. This product and its packaging can be recycled. This product is designed to have a recycling rate of not less than 80% and a recycling rate of not less than 70%. At the end of the product life cycle, it should not be mixed with other wastes. You can learn the recycling method and location from the seller or the local government department, or contact our customer service for recycling.

Names and content of harmful substances in products						
Part name	Harmful substance					
	Lead（Pb）	Mercury（Hg）	Cadmium (Cd)	Hexavalent chromium (Cr(VI))	Polybrominated biphenyl (PBB)	Polybrominated diphenyl ether (PBDE)
Chassis	×	○	○	○	○	○
Main board	×	○	○	○	○	○
Memory	○	○	○	○	○	○
Hard disk	○	○	○	○	○	○
Power supply	×	○	○	○	○	○
Power cord	○	○	○	○	○	○
U disk	×	○	○	○	○	○
cd-rom	×	○	○	○	○	○
Plug-in network card	×	○	○	○	○	○
External memory card	○	○	○	○	○	○
Connecting cards	×	○	○	○	○	○
Data cable	×	○	○	○	○	○
Keyboard	×	○	○	○	○	○

Mouse	×	○	○	○	○	○
Central processing unit	×	○	○	○	○	○
Processor heat sink	×	○	○	○	○	○
Guide	○	○	○	○	○	○
Printed matter	○	○	○	○	○	○
CD	○	○	○	○	○	○
Packing box	○	○	○	○	○	○
Packing liner	○	○	○	○	○	○
Packaging plastic bags	○	○	○	○	○	○

Description:

1. This form is compiled according to SJ/T 11364.

2. ○ Indicates that the content of the harmful substance in all homogeneous materials of the component is below the limit specified in GB/T 26572.

3. x: indicates that the content of the harmful substance in at least one homogeneous material of the component exceeds the limit requirement specified in GB/T 26572.

4. The above components are possible configuration components in the product. Please refer to the configuration label for actual product configuration.

10 Supporting documents

Serial number	File name
1	Tide Information Overseas official website