Inspur Server NF5280M/LM6 White Paper

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Preface

Abstract

This white paper describes the NF5280M/LM6 server's appearance, features, performance parameters, and software and hardware compatibility, providing in-depth information of NF5280M/LM6.

Intended Audience

This white paper is intended for:

- Inspur pre-sales engineers

- Pre-sales engineers of channel partners

- Enterprise pre-sales engineers

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
⚠ DANGER	A potential for serious injury, or even death if not properly handled
⚠ WARNING	A potential for minor or moderate injury if not properly handled
⚠ CAUTION	A potential loss of data or damage to equipment if not properly handled
ⓘ IMPORTANT	Operations or information that requires special attention to ensure successful installation or configuration
🗒 NOTE	Supplementary description of document information

Revision History

Version	Date	Description of Changes
V1.0	2022/04/03	Initial release
V1.1	2022/12/28	Added the NF5280LM6 model

Table of Contents

1 Product Overview

The Inspur NF5280M/LM6 is a high-end 2-socket rack server that features the 3rd Gen Intel Xeon Scalable processors. It is suitable for most industries and is designed for high-end IT application scenarios such as cloud computing, big data, data mining, and deep learning. The server is applicable to various business scenarios and complex workloads. It meets customer requirements for high network bandwidth, high computing performance and large memory capacity and is also a perfect solution for customers with server density and storage demands.

It flexibly provides air-cooled model NF5280M6 and liquid-cooled model NF5280LM6, which can meet the different needs of customers' air-cooled and liquid-cooled data centers. The liquid-cooled model has the advantages of fast heat dissipation, high performance, low noise, high stability and high density, which helps customers build green data centers.

The NF5280M/LM6 delivers superior performance, reliability, expandability, and manageability.

Figure 1-1 NF5280M/LM6 - 12 × 3.5-inch Drive Configuration
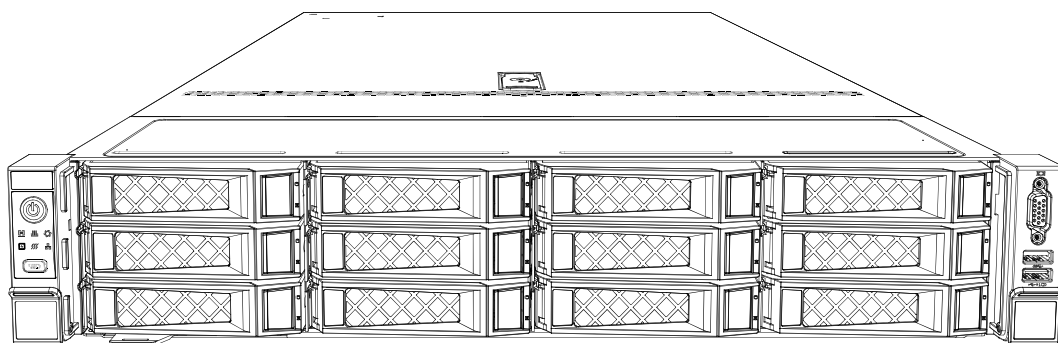
Figure 1-2 NF5280M/LM6 - 24 × 2.5-inch Drive Configuration
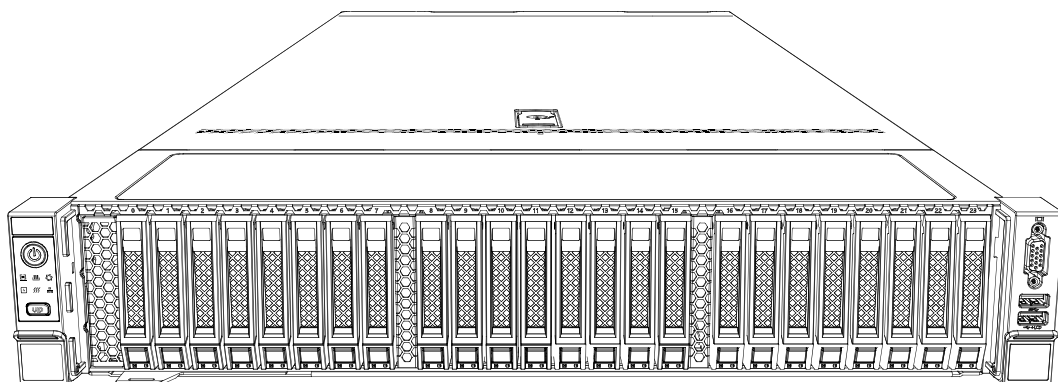
Figure 1-3 NF5280M/LM6 - 8 × 3.5-inch Drive + GPU Configuration
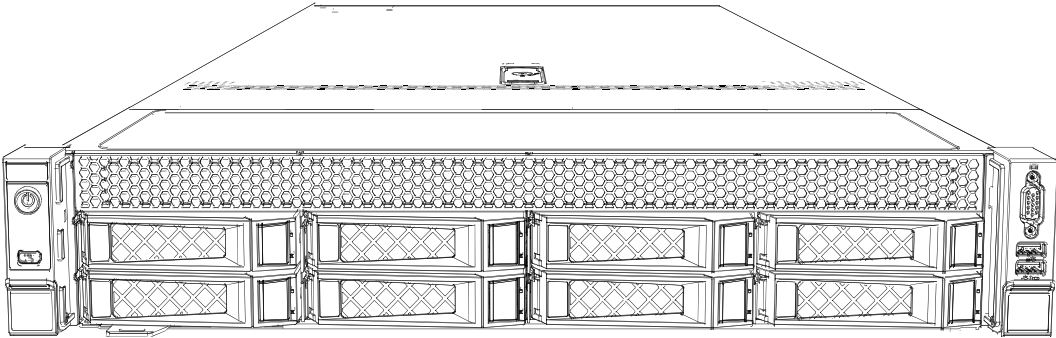
Figure 1-4 NF5280M6 - 25 × 2.5-inch Drive Configuration
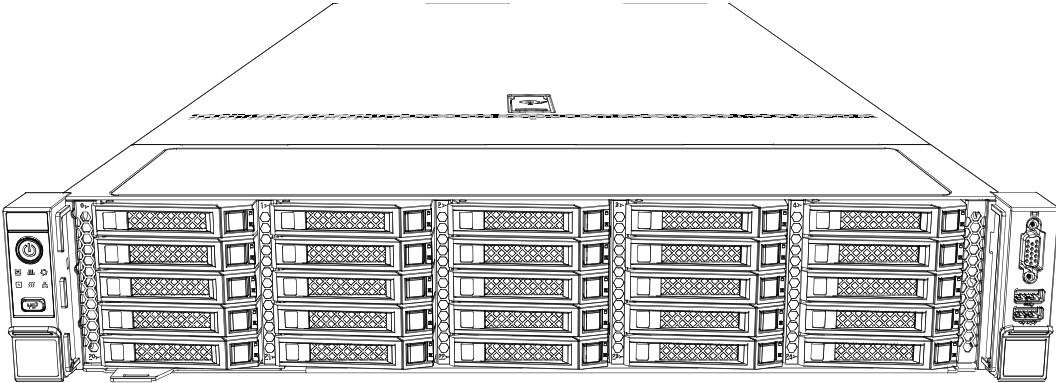
2 Features

2.1 Scalability and Performance

- Features the 3rd Gen Intel Xeon Scalable processors (Ice Lake), with up to 40 cores per processor, a maximum TDP of 270 W, a maximum base frequency of 3.6 GHz, an L3 cache of 60 MB, and up to 3 UPI links at 11.2 GT/s, delivering unrivaled processing performance.

  - Supports up to 2 processors with 80 cores and 160 threads, maximizing the concurrent execution of multi-threaded applications.

  - Increased L2 cache. Each core can exclusively occupy 1.25 MB of L2 cache and at least 1.5 MB of L3 cache.

  - Supports Intel Turbo Boost Technology 2.0, allowing processor cores to run faster than the marked frequency when the processors are working in the power, temperature, and specification limits of the thermal design power (TDP).

  - Supports Intel Hyper-Threading Technology, allowing up to 2 threads to run on each core to improve the performance of multi-threaded applications.

  - Supports Intel Virtualization Technology that provides hardware assist to the virtualization software, allowing the operating system to better use hardware to handle virtualized workloads.

  - Supports Intel Advanced Vector Extensions 512 (Intel AVX-512), significantly accelerating the workloads that are strongly floating point compute intensive.

  - Supports Intel DL Boost (VNNI) instructions, improving the performance for deep learning applications.

  - Supports Intel SGX that provides more granular data protection by isolating specific application code and data in memory and Intel TME that provides protection against physical attacks through total memory protection.

- Supports up to 32 DIMMs and multiple DIMM types.

  - Up to 32 DDR4 ECC DIMMs (3,200 MT/s, RDIMMs or LRDIMMs), providing superior speed, high availability, and a memory capacity up to 8,192 GB, with a theoretical memory bandwidth of 400 GB/s.

  - The NF5280M6 supports up to 16 Intel Optane Persistent Memory 200

Series modules (PMem modules for short), which must be used with DDR4 DIMMs. When used with DDR4 DIMMs, the total memory capacity supported is up to 12 TB (calculated based on a maximum of 256 GB capacity per DDR4 DIMM and a maximum of 512 GB capacity per PMem module).

- Flexible drive configurations, providing elastic and scalable storage solutions to meet different capacity and upgrade requirements.

- Supports the use of up to 28 all-flash hot-swap NVMe SSDs that provides higher I/O performance than the use of all HDDs or a combination of HDDs and SSDs. SSDs can support nearly 100-fold input/output operations per second (IOPS) compared to typical HDDs.

- 12 Gbps serial attached SCSI (SAS), doubling the data transfer rate of internal storage of 6 Gbps SAS solution and maximizing the performance of storage I/O-intensive applications.

- With Intel integrated I/O technology, the processors integrate the PCIe 4.0 controller to shorten I/O latency and enhance overall system performance.

- The NF5280M6 supports up to 11 standard PCIe slots (up to 5 PCIe 4.0 x16 slots), 1 OCP 3.0 slot, and 1 mezz RAID card slot. The NF5280LM6 supports up to 5 standard PCIe slots (up to 4 PCIe 4.0 x16 slots) and 1 OCP 3.0 slot.

- Optional rear M.2 or E1.S SSDs, satisfying diverse storage demands.

2.2 Availability and Serviceability

- Supports hot-swap SAS/SATA/NVMe drives with RAID cache and data protection enabled by the super-capacitor in case of power failures. SAS/SATA drives can be configured to RAID 0/1/1E/10/5/50/6/60 depending on the RAID controller card in use.

- SSDs are much more reliable than traditional HDDs, enabling longer system uptime.

- The UID and status LEDs for fault diagnosis on the front panel, the plug-in LCD module, and the ISBMC Web GUI indicate the status of key components and quickly lead technicians to failed (or failing) components, thus simplifying maintenance, speeding up troubleshooting, and enhancing system availability.

- The ISBMC management port on the rear panel enables local ISBMC O&M, improving O&M efficiency.

- Provides 2 hot-swap PSUs with 1+1 redundancy and 4 hot-swap fan modules with N+1 rotor redundancy, improving overall system availability.

- The onboard ISBMC monitors system parameters in real time and sends alerts in advance, enabling technicians to take appropriate measures to ensure system stable operation and minimize system downtime.

- Based on humanization design, the server allows tool-less maintenance. The modular structural parts enable quick removal/installation, greatly reducing O&M time.

- Inspur's unique intelligent control technology combined with the cutting-edge air-cooling technology creates an optimum operating environment to ensure stable running of the server.

For documentation of the NF5280M/LM6 system, such as product marketing materials, user manuals, product drivers, firmware, and product certifications, visit Inspur website: https://en.inspur.com.

2.3 Manageability and Security

- The onboard ISBMC monitors system operating status and enables remote management.

- Supports the NC-SI feature that is disabled by default and can be enabled/disabled through the BIOS or ISBMC.

- Integrates the industry-standard UEFI, improving the efficiency of setup, configuration and update, and simplifying the error handling process.

- Supports Trusted Platform Module (TPM) 2.0 and Trusted Cryptography Module (TCM) that provide advanced encryption.

- Supports Intel Trusted Execution Technology that provides enhanced security through hardware-based resistance to malicious software attacks.

- Supports Intel Software Guard Extensions (SGX) technology that allows applications to run in private memory spaces, helping prevent malicious theft and modification of critical codes and data.

- Supports the firmware update mechanism based on digital signatures to prevent unauthorized firmware updates.

- Supports UEFI Secure Boot to protect the system from malicious bootloaders.

- Supports hierarchical password protection in BIOS, ensuring system boot and management security.

- Supports BIOS Secure Flash and BIOS Lock Enable (BLE), reducing attacks from malicious software on the BIOS flash region.

- Supports dual-image mechanism for BMC and BIOS, recovering firmware upon detection of firmware damage.

- Supports BMC Secure Boot, protecting BMC from malicious tampering.

- Supports flexible BMC access control policies, improving BMC management security.

- Supports chassis intrusion detection, enhancing physical security.

📋 NOTE

The service port with NC-SI enabled supports:
- Any network port on the OCP NIC card or other PCIe NICs that support the NC-SI feature can be configured as the service port with NC-SI enabled.
- Enabling, disabling, and setting of the VLAN ID, which is 0 and disabled by default.
- Both IPv4 and IPv6 addresses, of which the IP address, subnet mask, and default gateway can be configured, as well as the prefix length of IPv6 address.

2.4 Energy Efficiency

- Equipped with 80 Plus Platinum power supplies (550 W to 2,000 W) with power efficiency up to 94% at a load of 50%.

- Supports AC/DC power supplies.

- Features the high-efficiency single-board voltage regulator down (VRD) solution, reducing DC-DC conversion loss.

- Supports Proportional-Integral-Derivative (PID) intelligent fan speed control and intelligent CPU frequency scaling, conserving energy.

- Offers a fully-optimized system cooling design with energy-efficient cooling fans, lowering energy consumption of system cooling.

- Offers power capping and power control measures.

- Supports staggered spin-up of drives, reducing power consumption of server startup.

- Supports Intel Intelligent Power Capability (IIPC) to optimize energy usage in the processor cores by turning computing functions on only when needed.

- Supports low-voltage 3rd Gen Intel Xeon Scalable processors (Ice Lake), consuming less energy and meeting the demands of data centers and telecommunications environments constrained by power and thermal limitations.

- The power consumption of an SSD is 80% lower than that of a traditional HDD.

3 System Parts Breakdown

Figure 3-1 NF5280M6 Exploded View (12 × 3.5-inch Drive Configuration)
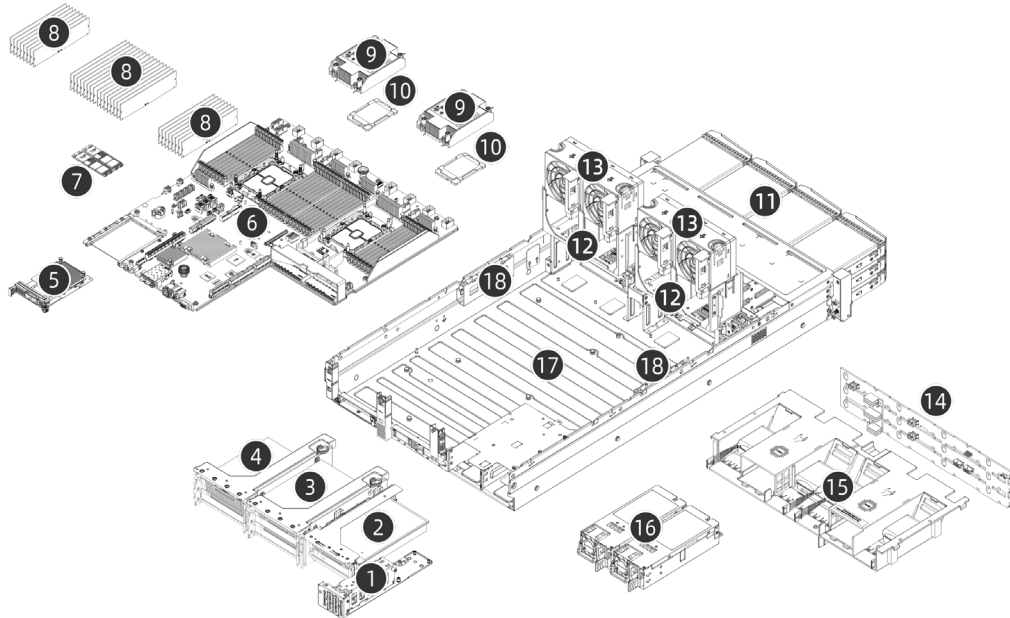
Item	Feature	Item	Feature
1	Rear M.2 SSDs	2	PCIe Riser Module 2
3	PCIe Riser Module 1	4	PCIe Riser Module 0
5	OCP NIC Card	6	Motherboard
7	Internal M.2 SSDs	8	DIMMs
9	Processor Heatsinks	10	Processors
11	Front Drives	12	Fan Cages
13	Fans	14	Drive Backplane
15	Air Duct	16	PSUs
17	Chassis	18	Cable Guides

Figure 3-2 NF5280M6 Exploded View (24 × 2.5-inch Drive Configuration)
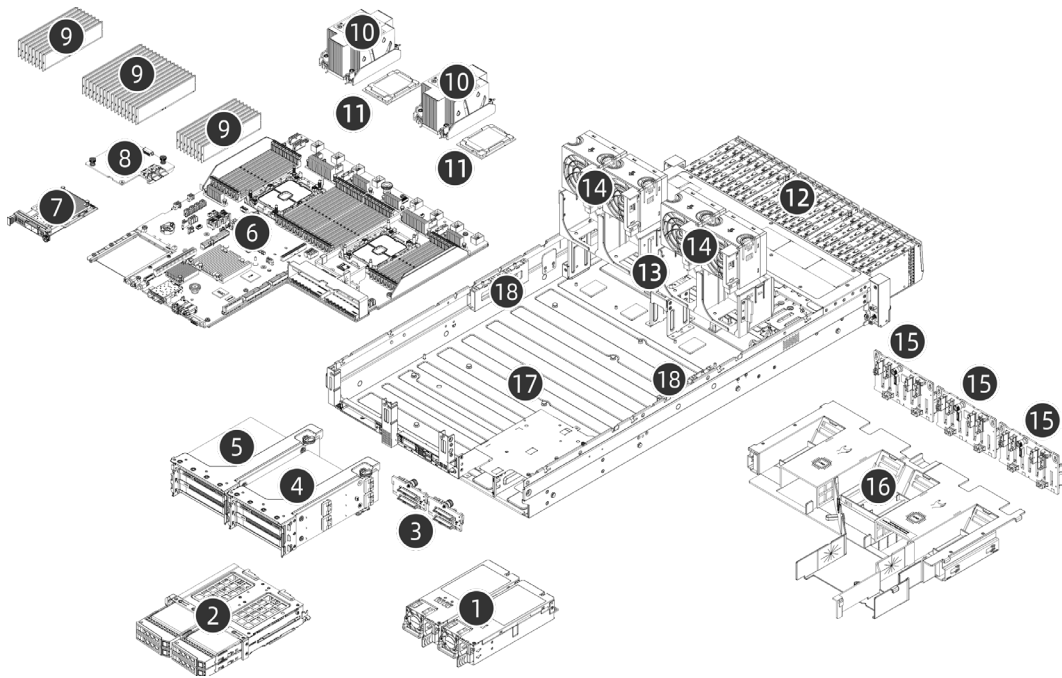
Item	Feature	Item	Feature
1	PSUs	2	Rear Drives
3	Drive Backplanes	4	PCIe Riser Module 1
5	PCIe Riser Module 0	6	Motherboard
7	OCP NIC Card	8	Internal Mezz RAID Card
9	DIMMs	10	Processor Heatsinks
11	Processors	12	Front Drives
13	Fan Cages	14	Fans
15	Drive Backplanes	16	Air Duct
17	Chassis	18	Cable Guides

Figure 3-3 NF5280M6 Exploded View (25 × 2.5-inch Drive Configuration)
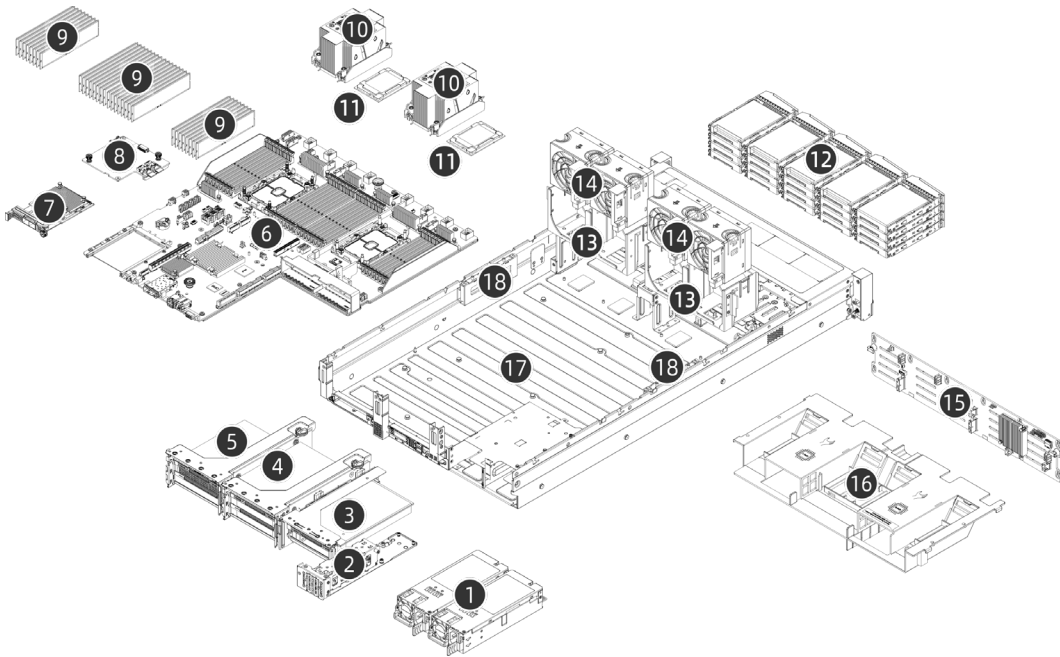
Item	Feature	Item	Feature
1	PSUs	2	Rear M.2 SSDs
3	PCIe Riser Module 2	4	PCIe Riser Module 1
5	PCIe Riser Module 0	6	Motherboard
7	OCP NIC Card	8	Internal Mezz RAID Card
9	DIMMs	10	Processor Heatsinks
11	Processors	12	Front Drives
13	Fan Cages	14	Fans
15	Drive Backplane	16	Air Duct
17	Chassis	18	Cable Guides

Figure 3-4 NF5280M6 Exploded View (8 × 3.5-inch Drive + 4 × GPU Configuration)
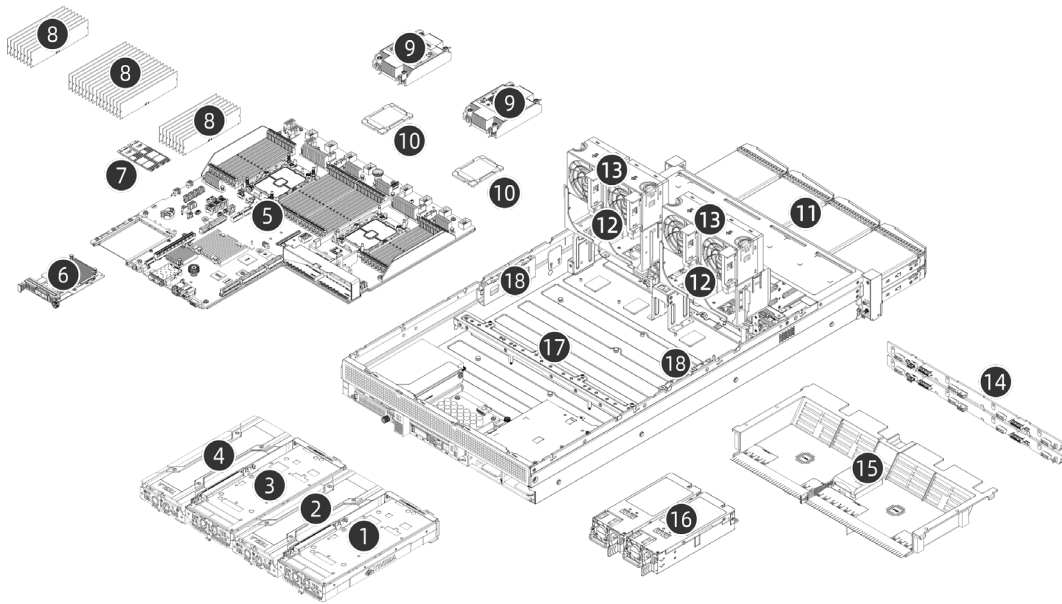
Item	Feature	Item	Feature
1	GPU3	2	GPU2
3	GPU1	4	GPU0
5	Motherboard	6	OCP NIC Card
7	Internal M.2 SSDs	8	DIMMs
9	Processor Heatsinks	10	Processors
11	Front Drives	12	Fan Cages
13	Fans	14	Drive Backplanes
15	Air Duct	16	PSUs
17	Chassis	18	Cable Guides

Figure 3-5 NF5280LM6 Exploded View (12 × 3.5-inch Drive Configuration)
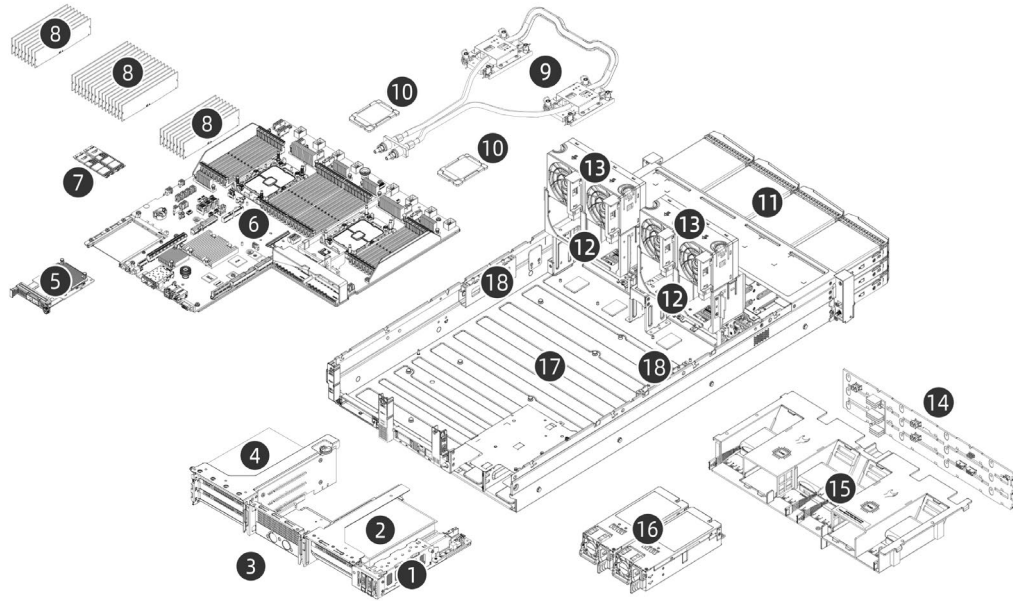
Item	Feature	Item	Feature
1	Rear M.2 SSDs	2	PCIe Riser Module 1
3	Quick Disconnect Bracket	4	PCIe Riser Module 0
5	OCP NIC Card	6	Motherboard
7	Internal M.2 SSDs	8	DIMMs
9	Liquid Cooled Heatsink Module	10	Processors
11	Front Drives	12	Fan Cages
13	Fans	14	Drive Backplane
15	Air Duct	16	PSUs
17	Chassis	18	Cable Guides

Figure 3-6 NF5280LM6 Exploded View (24 × 2.5-inch Drive Configuration)
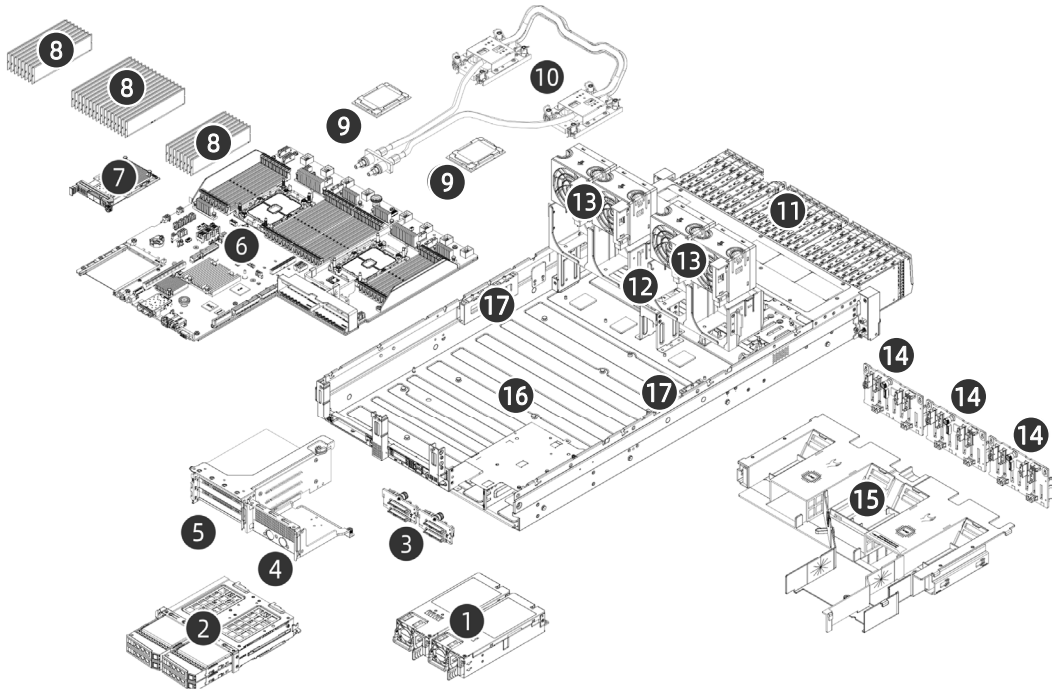
Item	Feature	Item	Feature
1	PSUs	2	Rear Drives
3	Drive Backplanes	4	Quick Disconnect Bracket
5	PCIe Riser Module 0	6	Motherboard
7	OCP NIC Card	8	DIMMs
9	Processors	10	Liquid Cooled Heatsink Module
11	Front Drives	12	Fan Cages
13	Fans	14	Drive Backplanes
15	Air Duct	16	Chassis
17	Cable Guides		

Figure 3-7 NF5280LM6 Exploded View (8 × 3.5-inch Drive + 4 × GPU Configuration)

Item	Feature	Item	Feature
1	GPU3	2	GPU2
3	GPU1	4	GPU0
5	Motherboard	6	OCP NIC Card
7	Internal M.2 SSDs	8	DIMMs
9	Liquid Cooled Heatsink Module	10	Processors
11	Front Drives	12	Fan Cages
13	Fans	14	Drive Backplanes
15	Air Duct	16	PSUs
17	Chassis	18	Cable Guides

4 System Logical Diagram

Figure 4-1 System Logical Diagram
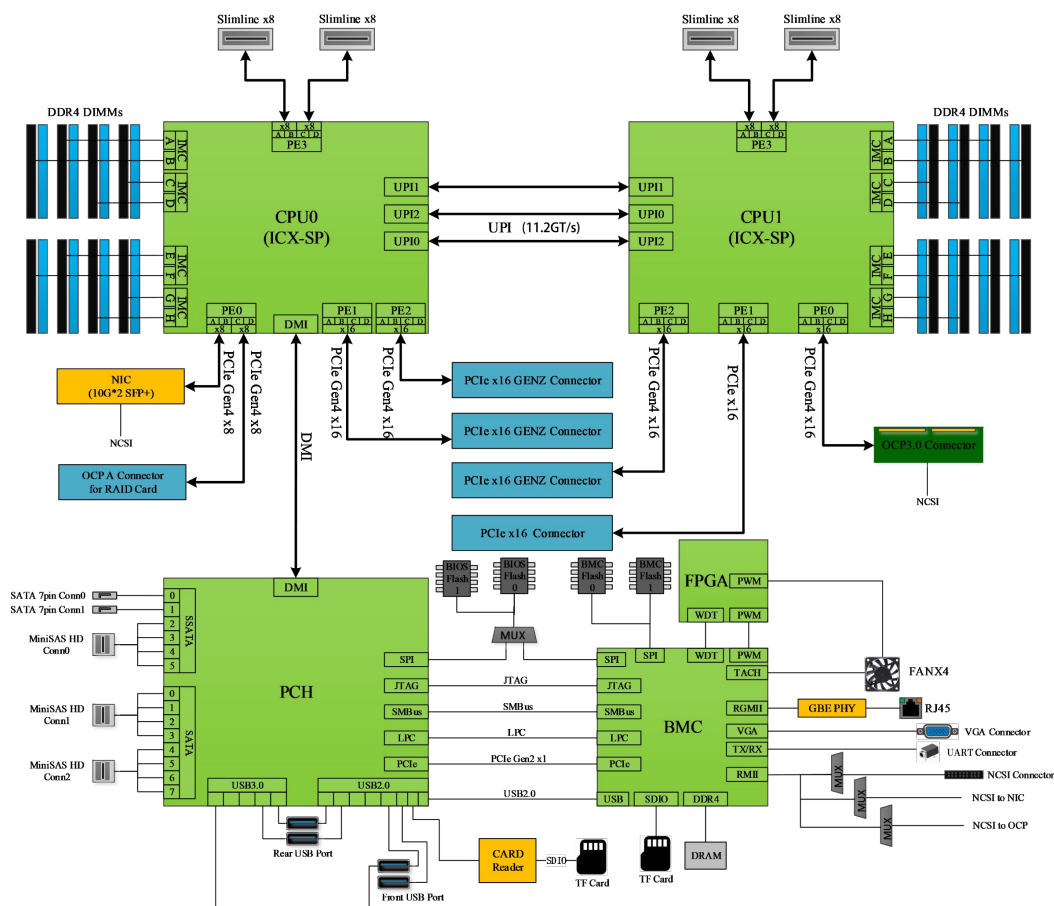
- The NF5280M6 supports one or two 3rd Gen Intel Xeon Scalable processors (Ice Lake), and the NF5280LM6 supports two 3rd Gen Intel Xeon Scalable processors (Ice Lake).

- Up to 32 DIMMs.

- 3 UPI links at up to 11.2 GT/s.

- The NF5280M6 supports up to 11 standard PCIe slots (up to 5 PCIe 4.0 x16 slots), 1 OCP 3.0 slot, and 1 mezz RAID card slot. The NF5280LM6 supports up to 5 standard PCIe slots (up to 4 PCIe 4.0 x16 slots) and 1 OCP 3.0 slot.

- For the NF5280M6, the mezz RAID card is connected to CPU0 via the PCIe bus, and is connected to the drive backplane via the SAS signal cable. Multiple local storage configurations are supported through different drive backplanes.

- The motherboard integrates the LBG-R Platform Controller Hub (PCH) to support 3 USB 3.0 ports.

- The motherboard integrates a BMC management chip which supports a VGA port, a management network port, a serial port, a TF card slot, and other connectors.

5 Hardware Description

5.1 Front Panel

5.1.1 Front View

● NF5280M/LM6 (12 × 3.5-inch Drive Configuration)

Figure 5-1 Front View
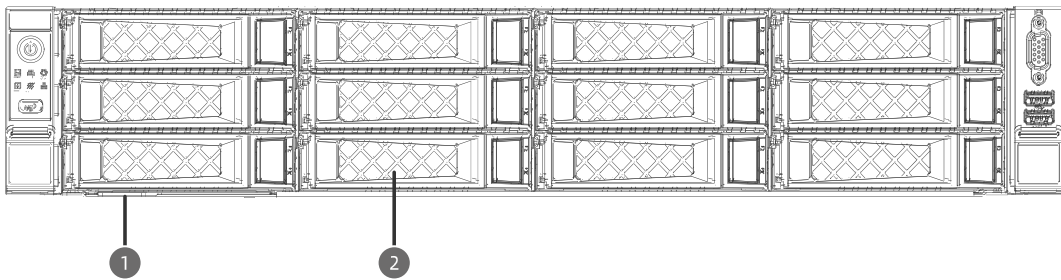
Item	Feature	Item	Feature
1	Serial Label Pull Tag (with an SN label)	2	Drive Bay × 12

● NF5280M/LM6 (24 × 2.5-inch Drive Configuration)

Figure 5-2 Front View
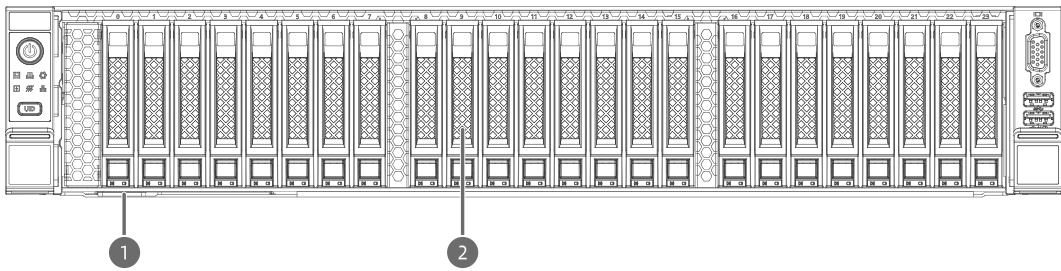
Item	Feature	Item	Feature
1	Serial Label Pull Tag (with an SN label)	2	Drive Bay × 24

● NF5280M6 (25 × 2.5-inch Drive Configuration)

Figure 5-3 Front View
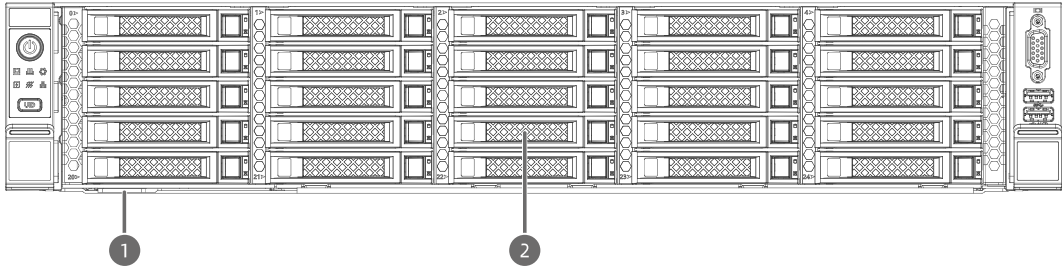
Item	Feature	Item	Feature
1	Serial Label Pull Tag (with an SN label)	2	Drive Bay × 25

● NF5280M/LM6 (8 × 3.5-inch Drive + GPU Configuration)

Figure 5-4 Front View
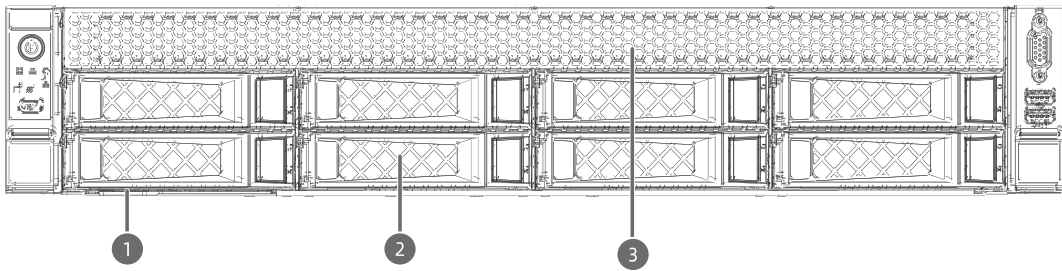
Item	Feature	Item	Feature
1	Serial Label Pull Tag (with an SN label)	2	Drive Bay × 8
3	Front Bezel		

5.1.2 LEDs & Buttons

- NF5280M/LM6 (12 × 3.5-inch Drive Configuration)

Figure 5-5 Front Panel LEDs and Buttons
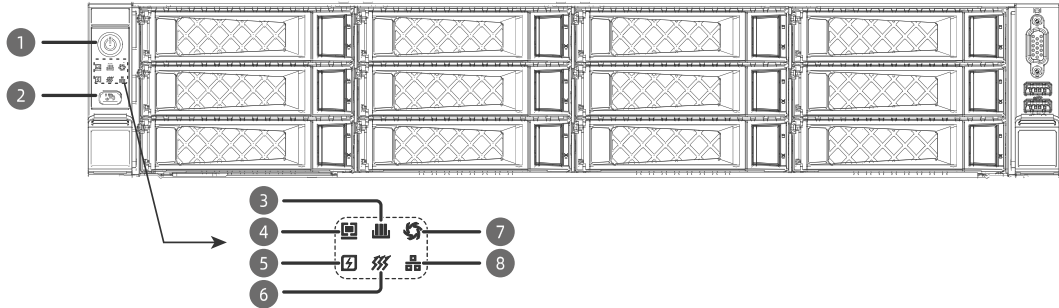
Item	Feature	Item	Feature
1	Power Button and LED	2	UID/BMC RST Button and LED
3	Memory Status LED	4	System Status LED
5	Power Status LED	6	System Overheat LED
7	Fan Status LED	8	Network Status LED

- NF5280M/LM6 (24 × 2.5-inch Drive Configuration)

Figure 5-6 Front Panel LEDs and Buttons
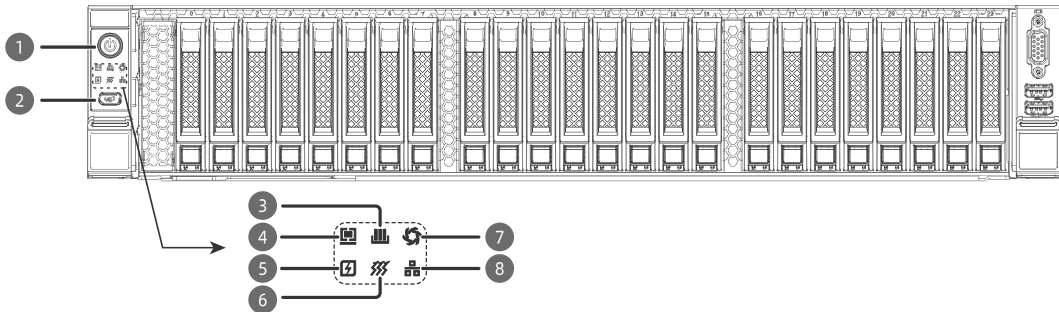
Item	Feature	Item	Feature
1	Power Button and LED	2	UID/BMC RST Button and LED
3	Memory Status LED	4	System Status LED
5	Power Status LED	6	System Overheat LED
7	Fan Status LED	8	Network Status LED

● NF5280M6 (25 × 2.5-inch Drive Configuration)

Figure 5-7 Front Panel LEDs and Buttons
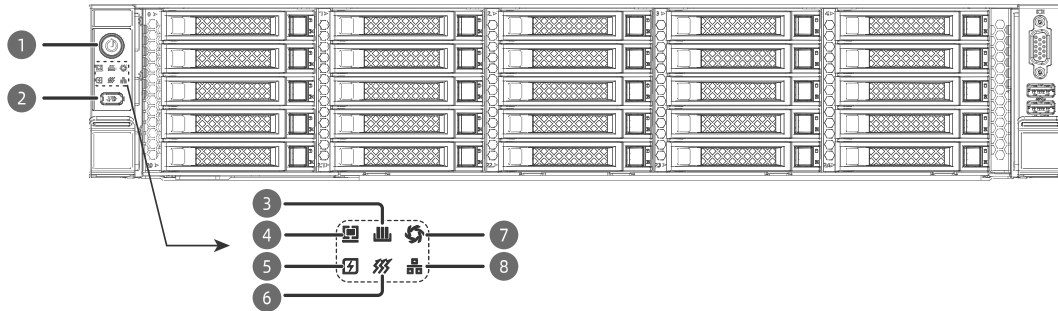
Item	Feature	Item	Feature
1	Power Button and LED	2	UID/BMC RST Button and LED
3	Memory Status LED	4	System Status LED
5	Power Status LED	6	System Overheat LED
7	Fan Status LED	8	Network Status LED

● NF5280M/LM6 (8 × 3.5-inch Drive + GPU Configuration)

Figure 5-8 Front Panel LEDs and Buttons
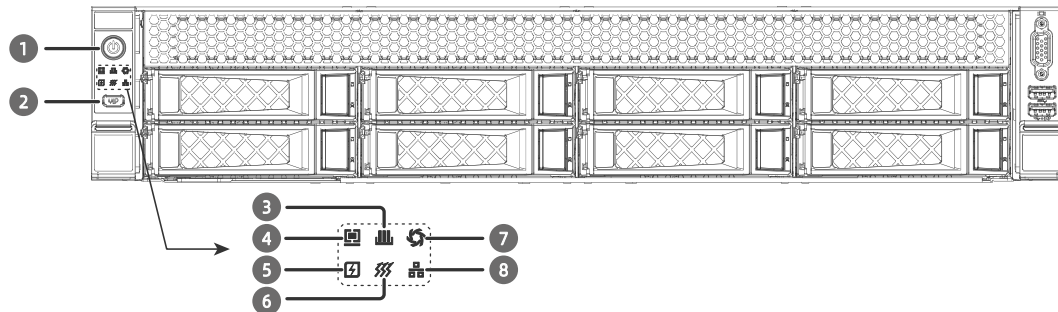
Item	Feature	Item	Feature
1	Power Button and LED	2	UID/BMC RST Button and LED
3	Memory Status LED	4	System Status LED
5	Power Status LED	6	System Overheat LED
7	Fan Status LED	8	Network Status LED

1. LED and Button Description

Table 5-1 Front Panel LED and Button Description

Icon	LED & Button	Description
⏻	Power Button and LED	Power LED: • Off = No power • Solid green = Power-on state • Solid orange = Standby state Power button: Long press the button for over 4 seconds to force a shutdown from the power-on state. Notes: • Follow the prompt under the OS to shut it down. • Short press the power button to power on the system in standby state.
UID	UID/BMC RST Button and LED	The UID LED is used to identify the device to be operated. • Off = System unit not identified • Solid blue = System unit identified • Flashing blue = System unit being operated remotely Notes: • The UID LED turns on when activated by the UID button or via ISBMC remotely. • Long press the UID button for over 6 seconds to reset the BMC.
⛁	Memory Status LED	• Off = Normal • Flashing red (1 Hz) = A non-critical warning occurs • Solid red = A critical warning occurs
▣	System Status LED	• Off = Normal • Flashing red (1 Hz) = A non-critical warning occurs • Solid red = A critical warning occurs
⚡	Power Status LED	• Off = Normal

Icon	LED & Button	Description
		• Flashing red (1 Hz) = A non-critical warning occurs • Solid red = A critical warning occurs
ϟϟϟ	System Overheat LED	• Off = Normal • Flashing red (1 Hz) = A non-critical warning occurs • Solid red = A critical warning occurs
⟳	Fan Status LED	• Off = Normal • Flashing red (1 Hz) = A non-critical warning occurs • Solid red = A critical warning occurs
⊟	Network Status LED	• Off = No network connection or abnormal network • Flashing green = Data being transmitted Note: It only indicates the working status of LOM (LAN on Motherboard).

5.1.3 Ports

● NF5280M/LM6 (12 × 3.5-inch Drive Configuration)

Figure 5-9 Front Panel Ports
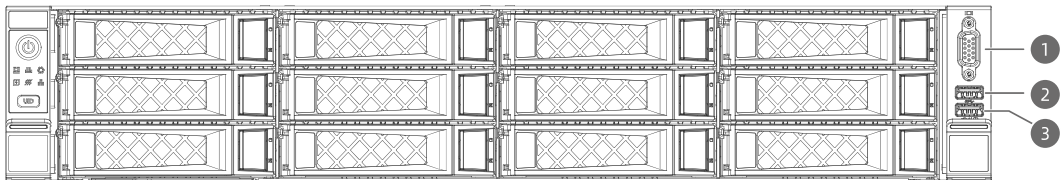
Item	Feature	Item	Feature
1	VGA Port	2	USB 3.0 Port
3	USB 2.0/LCD Port		

- NF5280M/LM6 (24 × 2.5-inch Drive Configuration)

Figure 5-10 Front Panel Ports
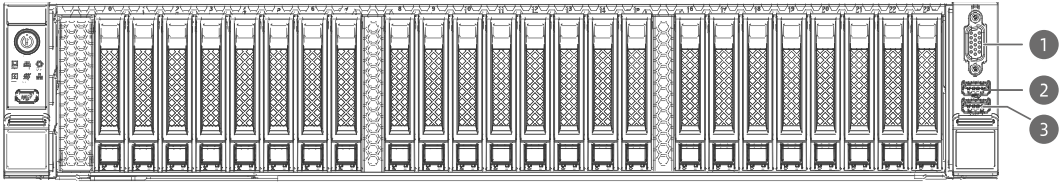
Item	Feature	Item	Feature
1	VGA Port	2	USB 3.0 Port
3	USB 2.0/LCD Port		

- NF5280M6 (25 × 2.5-inch Drive Configuration)

Figure 5-11 Front Panel Ports
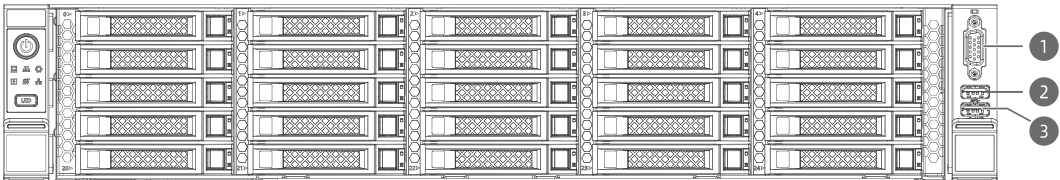
Item	Feature	Item	Feature
1	VGA Port	2	USB 3.0 Port
3	USB 2.0/LCD Port		

- NF5280M/LM6 (8 × 3.5-inch Drive + GPU Configuration)

Figure 5-12 Front Panel Ports
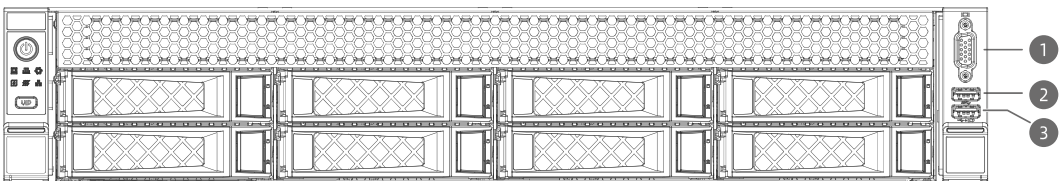
Item	Feature	Item	Feature
1	VGA Port	2	USB 3.0 Port
3	USB 2.0/LCD Port		

1. Port Description

Table 5-2 Front Panel Port Description

Feature	Type	Quantity	Description
VGA Port	DB15	1	Enables you to connect a display terminal, for example, a monitor or KVM, to the system.
USB 3.0 Port	USB 3.0	1	Enables you to connect a USB 3.0 device to the system. Note: Make sure that the USB device is in good condition or it may cause the server to work abnormally.
USB 2.0/LCD Port	USB 2.0	1	• Enables you to connect a USB 2.0 device to the system. Note: Make sure that the USB device is in good condition or it may cause the server to work abnormally. • Enables you to connect an Inspur exclusive LCD module to the system.

5.2 Rear Panel

5.2.1 Rear View

Figure 5-13 NF5280M6 Rear View 1
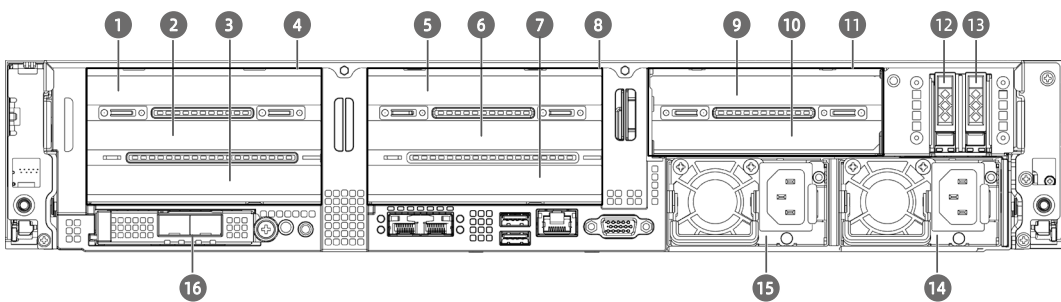
Item	Feature	Item	Feature
1	PCIe Slot 2	2	PCIe Slot 1
3	PCIe Slot 0	4	Left PCIe Riser Module
5	PCIe Slot 5	6	PCIe Slot 4
7	PCIe Slot 3	8	Middle PCIe Riser Module
9	PCIe Slot 7	10	PCIe Slot 6

Item	Feature	Item	Feature
11	Right PCIe Riser Module	12	M.2/Ruler SSD0
13	M.2/Ruler SSD1	14	PSU1
15	PSU0	16	OCP 3.0 Slot

Figure 5-14 NF5280M6 Rear View 2
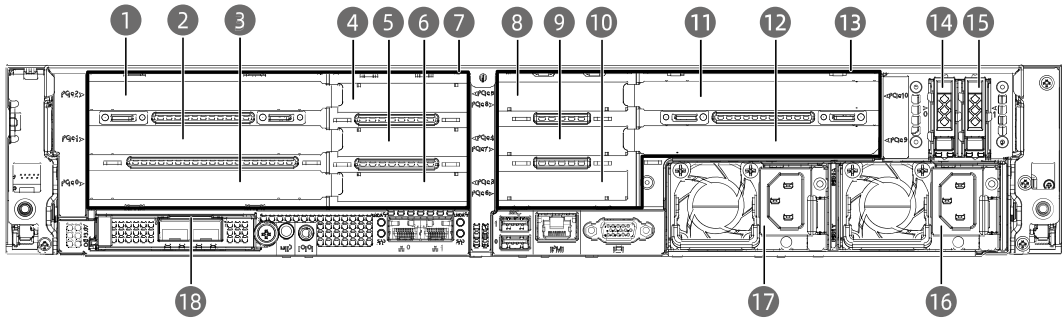
Item	Feature	Item	Feature
1	PCIe Slot 2	2	PCIe Slot 1
3	PCIe Slot 0	4	PCIe Slot 5
5	PCIe Slot 4	6	PCIe Slot 3
7	Left PCIe Riser Module	8	PCIe Slot 8
9	PCIe Slot 7	10	PCIe Slot 6
11	PCIe Slot 10	12	PCIe Slot 9
13	Right PCIe Riser Module	14	M.2/Ruler SSD0
15	M.2/Ruler SSD1	16	PSU1
17	PSU0	18	OCP 3.0 Slot

NOTE

- The 2 butterfly PCIe riser modules (left one with 6 slots and right one with 5 slots) can be replaced with 3 PCIe riser modules (left, middle and right) optionally.
- When configured with 3 PCIe riser modules, the left and middle ones can be replaced with 3.5-inch drive modules optionally.
- 2.5-inch drive modules can be configured in the upper 1U space optionally.
- This figures are for reference only. The actual configuration may differ.

Figure 5-15 NF5280M6 Rear View 3
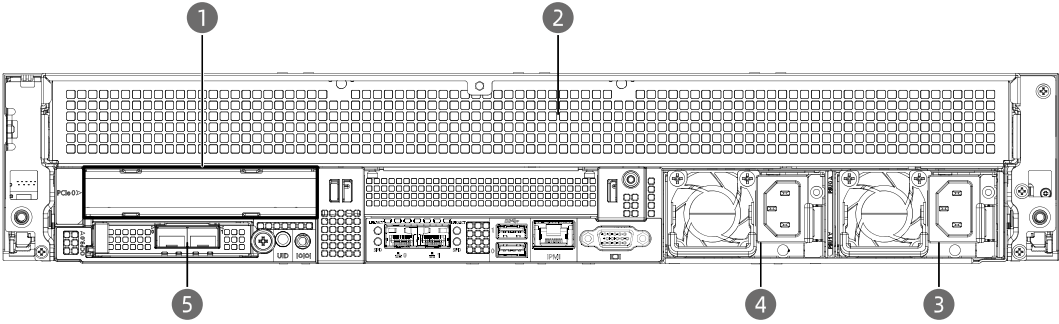
Item	Feature	Item	Feature
1	PCIe Riser Module	2	GPUs
3	PSU1	4	PSU0
5	OCP 3.0 Slot		

Figure 5-16 NF5280LM6 Rear View 1
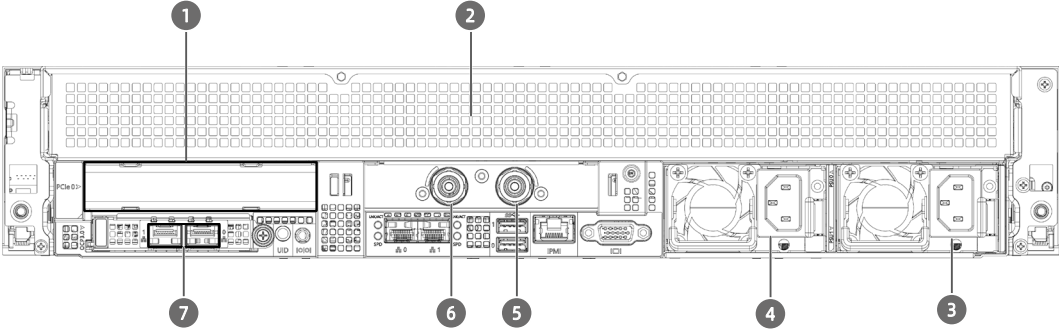
Item	Feature	Item	Feature
1	PCIe Riser Module	2	GPUs
3	PSU1	4	PSU0
5	Quick Disconnect (inlet)	6	Quick Disconnect (outlet)
7	OCP 3.0 Slot		

Figure 5-17 NF5280LM6 Rear View 2
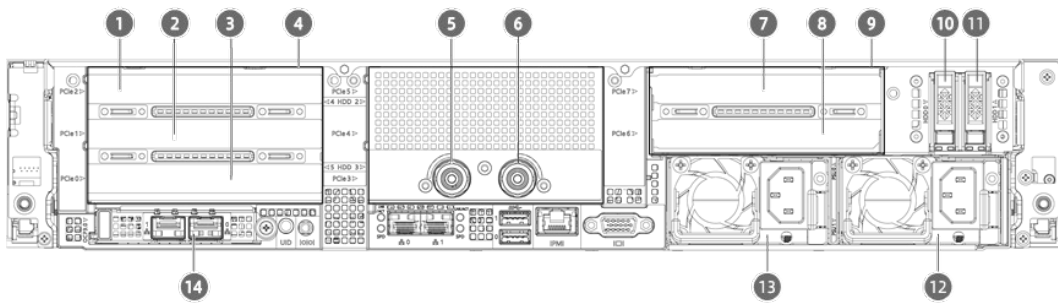
Item	Feature	Item	Feature
1	PCIe Slot 2	2	PCIe Slot 1
3	PCIe Slot 0	4	Left PCIe Riser Module
5	Quick Disconnect (outlet)	6	Quick Disconnect (inlet)
7	PCIe Slot 7	8	PCIe Slot 6
9	Right PCIe Riser Module	10	M.2/Ruler SSD0
11	M.2/Ruler SSD1	12	PSU1
13	PSU0	14	OCP 3.0 Slot

5.2.2 LEDs & Buttons

Figure 5-18 NF5280M6 Rear Panel LEDs and Buttons 1
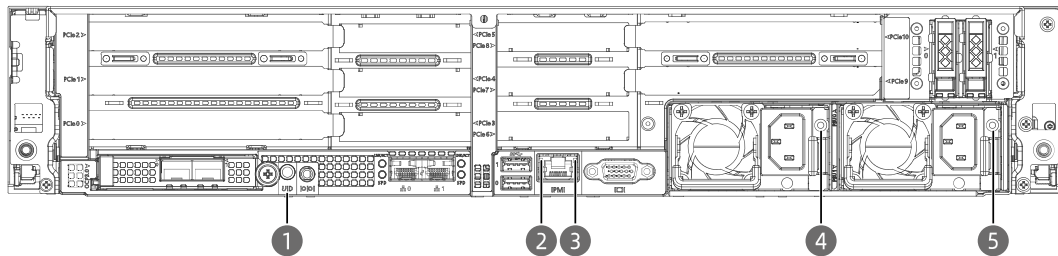
Item	Feature	Item	Feature
1	UID/BMC RST Button and LED	2	Management Network Port Link Speed LED
3	Management Network Port Link Activity LED	4	PSU LED0
5	PSU LED1		

Figure 5-19 NF5280M6 Rear Panel LEDs and Buttons 2
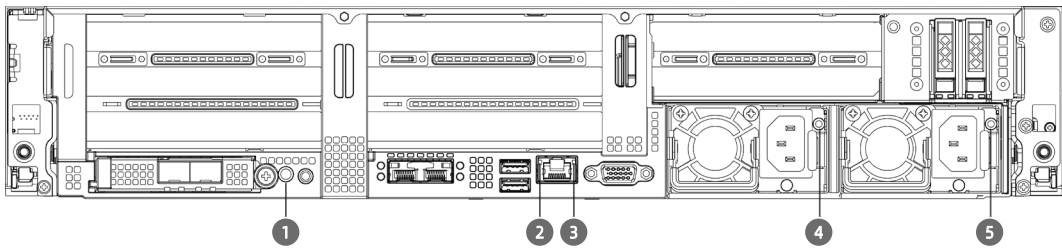
Item	Feature	Item	Feature
1	UID/BMC RST Button and LED	2	Management Network Port Link Speed LED
3	Management Network Port Link Activity LED	4	PSU LED0
5	PSU LED1		

Figure 5-20 NF5280M6 Rear Panel LEDs and Buttons 3
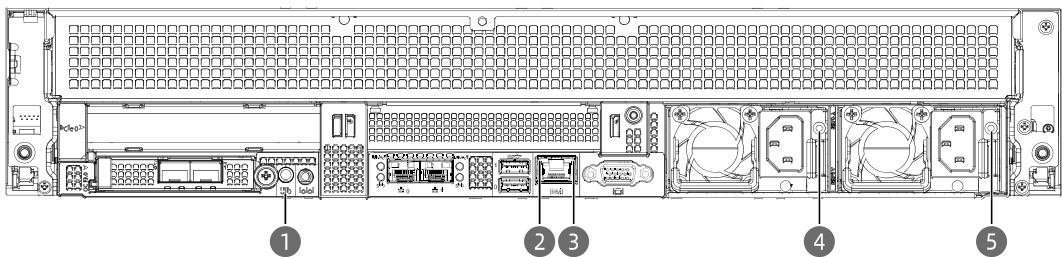
Item	Feature	Item	Feature
1	UID/BMC RST Button and LED	2	Management Network Port Link Speed LED
3	Management Network Port Link Activity LED	4	PSU LED0
5	PSU LED1		

Figure 5-21 NF5280LM6 Rear Panel LEDs and Buttons 1
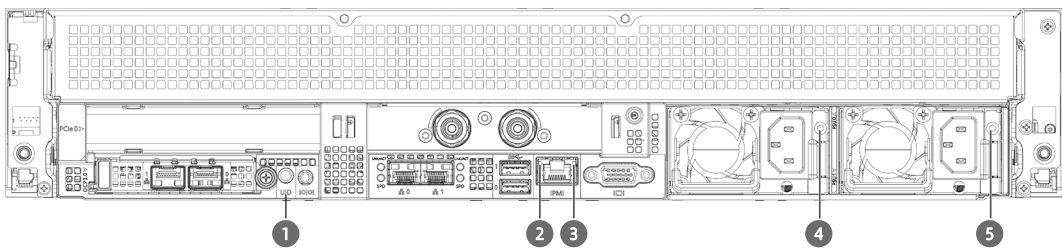
Item	Feature	Item	Feature
1	UID/BMC RST Button and LED	2	Management Network Port Link Speed LED
3	Management Network Port Link Activity LED	4	PSU LED0
5	PSU LED1		

Figure 5-22 NF5280LM6 Rear Panel LEDs and Buttons 2
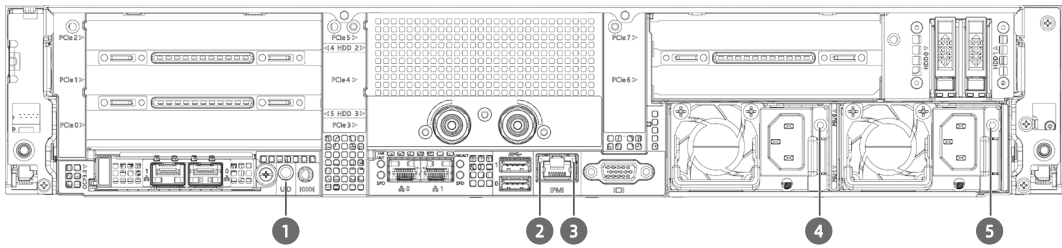
Item	Feature	Item	Feature
1	UID/BMC RST Button and LED	2	Management Network Port Link Speed LED
3	Management Network Port Link Activity LED	4	PSU LED0
5	PSU LED1		

1. LED and Button Description

Table 5-3 Rear Panel LED and Button Description

LED & Button	Description
UID/BMC RST Button and LED	The UID LED is used to identify the device to be operated. • Off = System unit not identified • Solid blue = System unit identified • Flashing blue = System unit being operated remotely Notes: • The UID LED turns on when activated by the UID button or via ISBMC remotely. • Long press the UID button for over 6 seconds to reset the BMC.
Management Network Port Link Speed LED	• Off = No network connection • Solid green = Network connected with link speed at 1,000 Mbps

LED & Button	Description
	• Solid orange = Network connected with link speed at 10/100 Mbps
Management Network Port Link Activity LED	• Off = No network connection • Solid green = Network connected without data being transmitted • Flashing green = Network connected with data being transmitted
PSU LED	• Off = No AC power to PSU • Flashing green (1 Hz) = PSU operating in standby state with normal AC input • Flashing green (2 Hz) = PSU firmware updating • Flashing green (off for 1 second and on for 2 seconds) = PSU in cold redundant state • Solid green = Normal input and output • Flashing amber (1 Hz) = PSU warning event where the PSU continues to operate (possible causes: PSU overtemperature, PSU output overcurrent, excessively high or low fan speed) • Solid amber = PSU critical event causing a shutdown (possible causes: PSU overtemperature protection, PSU output overcurrent or short circuit, output overvoltage, short circuit protection, component (not all components) failure)

5.2.3 Ports

1. Port Locations

Figure 5-23 NF5280M6 Rear Panel Ports 1
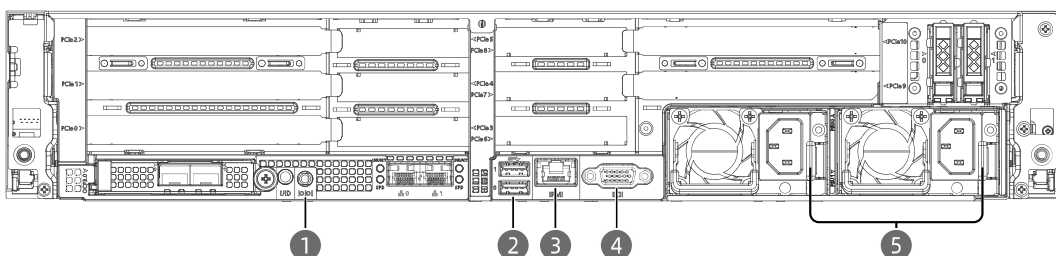
Item	Feature	Item	Feature
1	System/BMC Serial Port	2	USB 3.0 Ports
3	Management Network Port	4	VGA Port
5	PSU Sockets		

Figure 5-24 NF5280M6 Rear Panel Ports 2
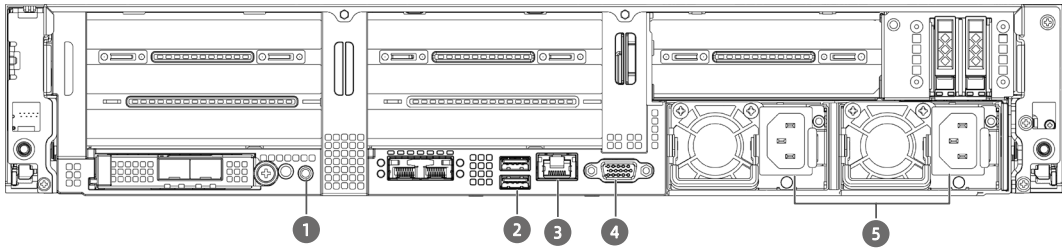
Item	Feature	Item	Feature
1	System/BMC Serial Port	2	USB 3.0 Ports
3	Management Network Port	4	VGA Port
5	PSU Sockets		

Figure 5-25 NF5280M6 Rear Panel Ports 3
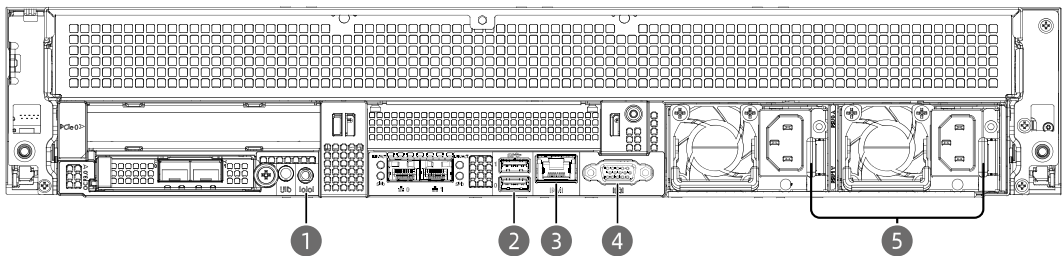
Item	Feature	Item	Feature
1	System/BMC Serial Port	2	USB 3.0 Ports
3	Management Network Port	4	VGA Port
5	PSU Sockets		

Figure 5-26 NF5280LM6 Rear Panel Ports 1
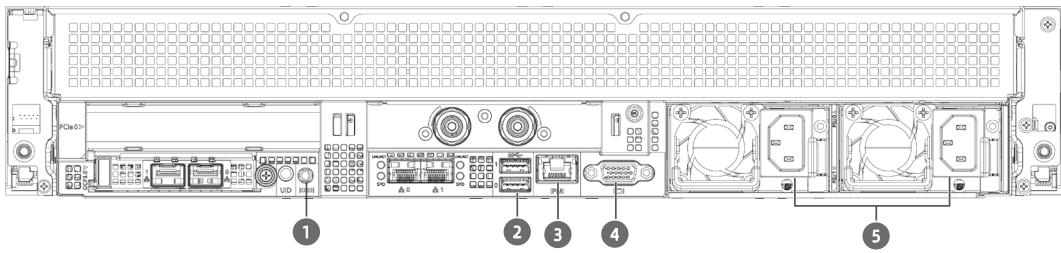
Item	Feature	Item	Feature
1	System/BMC Serial Port	2	USB 3.0 Ports
3	Management Network Port	4	VGA Port
5	PSU Sockets		

Figure 5-27 NF5280LM6 Rear Panel Ports 2
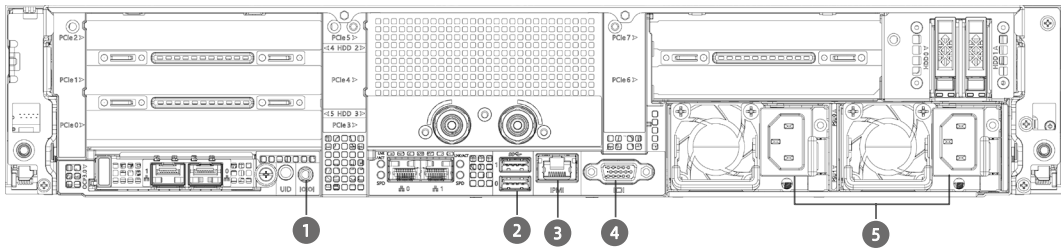
Item	Feature	Item	Feature
1	System/BMC Serial Port	2	USB 3.0 Ports
3	Management Network Port	4	VGA Port
5	PSU Sockets		

2. Port Description

Table 5-4 Rear Panel Port Description

Feature	Type	Quantity	Description
System/BMC Serial Port	Audio jack	1	Enables you to capture system logs and use the BMC debugging function. Note: The serial port is an audio jack with a default baud rate of 115,200 bit/s.
USB Port	USB 3.0	2	Enables you to connect a USB 3.0 device to the system. Note:

Feature	Type	Quantity	Description
			Make sure that the USB device is in good condition or it may cause the server to work abnormally.
Management Network Port	RJ45	1	ISBMC management network port, used to manage the server. Note: It is a Gigabit Ethernet port that supports 100 Mbps and 1000 Mbps auto-negotiation.
VGA Port	DB15	1	Enables you to connect a display terminal, for example, a monitor or KVM, to the system.
PSU Socket	N/A	2	Connected through a power cord. Users can select the PSUs as needed. Note: Make sure that the total rated power of the PSU(s) in use is greater than that of the server.

5.3 Processors

- The NF5280M6 supports 1 or 2 processors, and the NF5280LM6 supports 2 processors.

- If only 1 processor is configured, install it in CPU0 socket.

- The processors used in a server must be of the same model.

For specific system processor options, consult your local Inspur sales representative or refer to .

Figure 5-28 Processor Locations
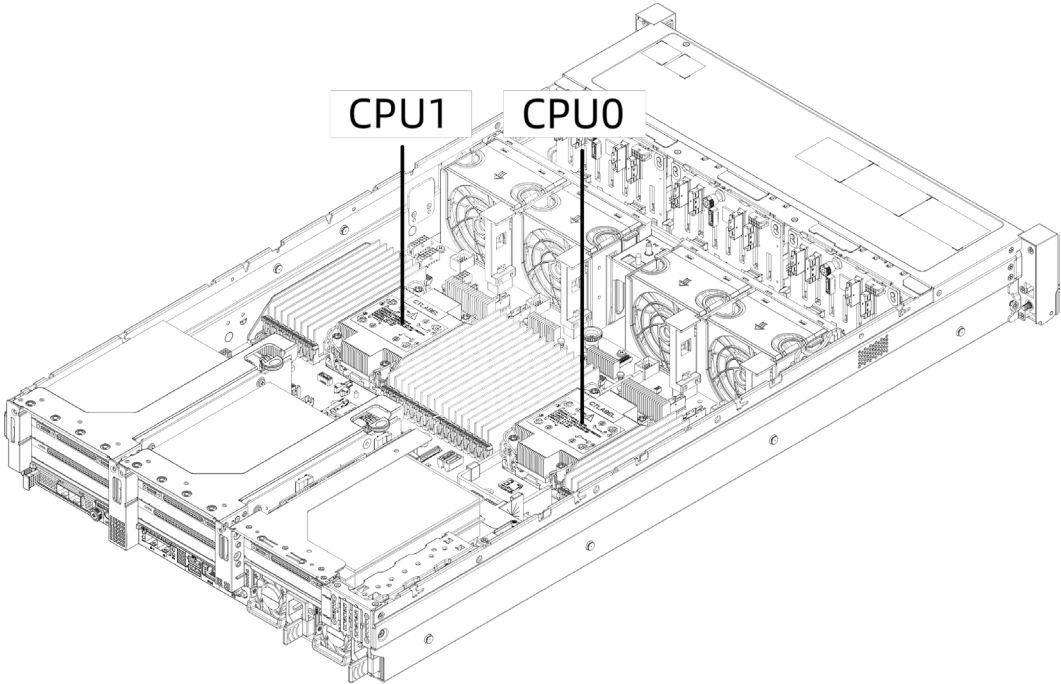
5.4 Memory

5.4.1 DDR4 DIMMs

1. Identification

To determine DIMM characteristics, refer to the label attached to the DIMM and the following figure and table.

Figure 5-29 DIMM Identification
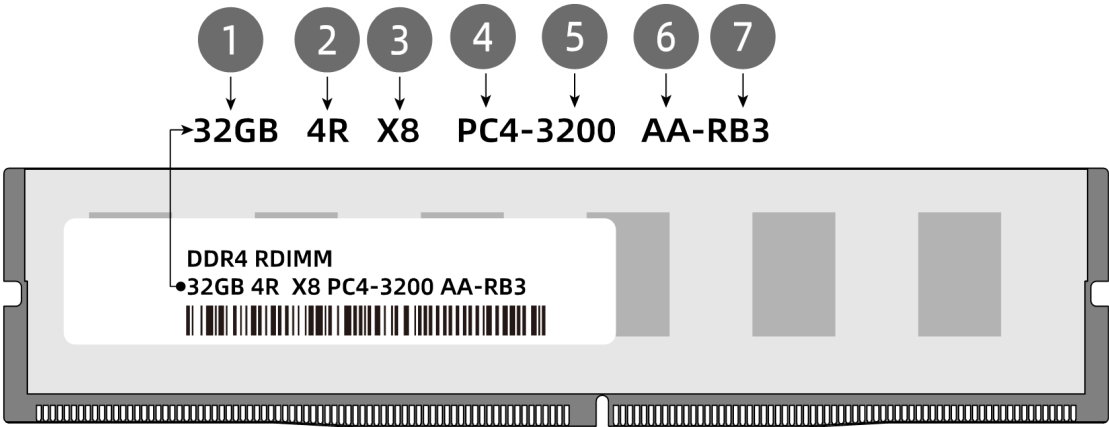
Item	Description	Example
1	Capacity	• 16 GB • 32 GB • 64 GB • 128 GB • 256 GB
2	Rank(s)	• 1R = Single rank • 2R = Dual rank • 2S2R = Two ranks of two high stacked 3DS DRAM • 4DR = Four ranks of dual die packaged DRAM • 4R = Quad rank • 8R = Octal rank
3	Data width of DRAM	• x4 = 4 bits • x8 = 8 bits
4	DIMM slot type	PC4 = DDR4
5	Maximum memory speed	• 2,933 MT/s • 3,200 MT/s
6	CAS latency	SDP-chip-based: • V = CAS-19-19-19 • Y = CAS-21-21-21 • AA = CAS-22-22-22 3DS-chip-based: • V = CAS-22-19-19 • Y = CAS-24-21-21 • AA = CAS-26-22-22

Item	Description	Example
7	DIMM type	• R = RDIMM • L = LRDIMM

2. Memory Subsystem Architecture

The server supports 32 DIMM slots and 8 channels per CPU.

Within a channel, populate the DIMM slot with its silk screen ending with D0 first and second the DIMM slot with its silk screen ending with D1. For instance, within CPU0 Channel 0, populate CPU0_C0D0 first and second CPU0_C0D1.

Table 5-5 DIMM Slot List

CPU	Channel ID	Silk Screen
CPU0	Channel 0	CPU0_C0D0
		CPU0_C0D1
	Channel 1	CPU0_C1D0
		CPU0_C1D1
	Channel 2	CPU0_C2D0
		CPU0_C2D1
	Channel 3	CPU0_C3D0
		CPU0_C3D1
	Channel 4	CPU0_C4D0
		CPU0_C4D1
	Channel 5	CPU0_C5D0
		CPU0_C5D1
	Channel 6	CPU0_C6D0
		CPU0_C6D1
	Channel 7	CPU0_C7D0
		CPU0_C7D1
CPU1	Channel 0	CPU1_C0D0
		CPU1_C0D1
	Channel 1	CPU1_C1D0
		CPU1_C1D1
	Channel 2	CPU1_C2D0
		CPU1_C2D1
	Channel 3	CPU1_C3D0
		CPU1_C3D1
	Channel 4	CPU1_C4D0
		CPU1_C4D1
	Channel 5	CPU1_C5D0

CPU	Channel ID	Silk Screen
		CPU1_C5D1
	Channel 6	CPU1_C6D0
		CPU1_C6D1
	Channel 7	CPU1_C7D0
		CPU1_C7D1

3. Compatibility

Refer to the following rules to configure the DDR4 DIMMs.

(i) IMPORTANT

- A server must use DDR4 DIMMs with the same part number (P/N code). All DDR4 DIMMs operate at the same speed, which is the lowest of:
  - Memory speed supported by a specific CPU.
  - Maximum operating speed of a memory module.
- Mixing DDR4 DIMM types (RDIMM, LRDIMM) or mixing DDR4 DIMM specifications (capacity, bit width, rank, height, etc.) is not supported.
- For specific system memory options, consult your local Inspur sales representative or refer to 7.2 Hardware Compatibility.

- Supports being used with the 3rd Gen Intel Xeon Scalable processors (Ice Lake) with different models supporting the same maximum memory capacity.

- Total memory capacity is the sum of the capacities of all DDR4 DIMMs.

- The total memory capacity cannot exceed the maximum memory capacity supported by the CPU(s).

- The maximum number of DIMMs supported varies with the CPU type, DIMM type and rank quantity.

NOTE

Maximum number of DIMMs supported per channel ≤ Maximum number of ranks supported per channel/Number of ranks per DIMM.

Table 5-6 DDR4 DIMM Specifications

Item	Value			
Capacity per DDR4 DIMM (GB)	16	32	64	128

Item	Value			
Type	RDIMM	RDIMM	RDIMM	RDIMM
Rated speed (MT/s)	3,200	3,200	3,200	3,200
Operating voltage (V)	1.2	1.2	1.2	1.2
Maximum number of DDR4 DIMMs supported in a server[a]	32	32	32	32
Maximum capacity of DDR4 DIMMs supported in a server (GB)[b]	512	1,024	2,048	4,096
Actual speed (MT/s) 1DPC[c]	3,200	3,200	3,200	3,200
Actual speed (MT/s) 2DPC	3,200	3,200	3,200	3,200
a: The maximum number of DDR4 DIMMs supported is based on the 2-processor configuration. The number is halved for the 1-processor configuration. b: It indicates the maximum DDR4 memory capacity supported when all DIMM slots are populated. c: DIMM Per Channel (DPC) is the number of DIMMs per memory channel. The above information is for reference only, consult your local Inspur sales representative for details.				

4. Population Rules

📋 NOTE

This section describes the DIMM population rules when only DDR4 DIMMs are populated in a server. If mixing DDR4 DIMMs and PMems is required, refer to 4 Population Rules in 5.4.2.

General population rules for DDR4 DIMMs:

● Install DIMMs only when the corresponding processor is installed.

● Mixing LRDIMMs and RDIMMs is not supported.

● Install dummies in the empty DIMM slots.

Population rules for DDR4 DIMMs in specific modes:

● Memory sparing

- Follow the general population rules.

- Each channel must have a valid online spare configuration.

- Each channel can have a different online spare configuration.

- Each channel with a DIMM installed must have a spare rank.

- Memory mirroring

  - Follow the general population rules.

  - Each processor supports 2 integrated memory controllers (IMCs). Each IMC has 2 channels to be populated with DIMMs which must be identical in size and organization.

  - In a multi-processor configuration, each processor must have a valid memory mirroring configuration.

- Memory scrubbing

  - Follow the general population rules.

5. DIMM Slot Layout

Up to 32 DDR4 DIMMs can be installed in a server. Balance the total memory capacity between the installed processors for optimal memory performance. DIMM configuration must be compliant with the DIMM population rules.

ⓘ IMPORTANT

Each CPU must have at least 1 DDR4 DIMM installed.

Figure 5-30 DIMM Slot Layout
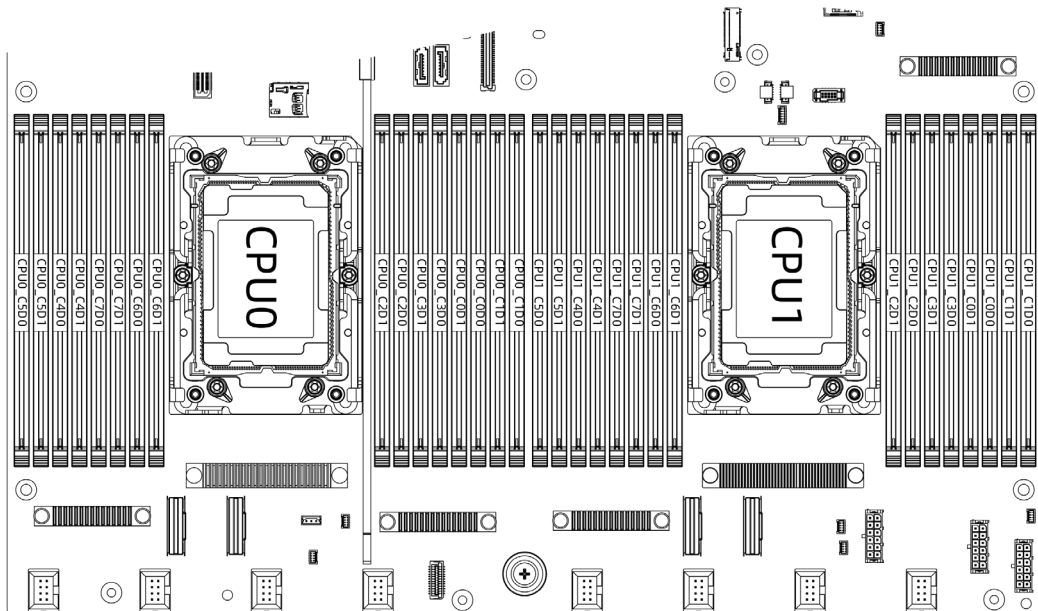
Table 5-7 DDR4 DIMM Population Rules (1-Processor Configuration)

Processor	Channel ID	Memory Slot	DIMM Quantity															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
CPU0	Channel 0	CPU0_C0D0	●	●		●		●		●				●				●
		CPU0_C0D1												●				●
	Channel 1	CPU0_C1D0						●		●				●				●
		CPU0_C1D1												●				●
	Channel 2	CPU0_C2D0				●		●		●				●				●
		CPU0_C2D1												●				●
	Channel 3	CPU0_C3D0								●								●
		CPU0_C3D1																●
	Channel 4	CPU0_C4D0		●		●		●		●				●				●
		CPU0_C4D1												●				●
	Channel 5	CPU0_C5D0						●		●				●				●
		CPU0_C5D1												●				●
	Channel 6	CPU0_C6D0				●		●		●				●				●
		CPU0_C6D1												●				●
	Channel 7	CPU0_C7D0								●								●
		CPU0_C7D1																●

Table 5-8 DDR4 DIMM Population Rules (2-Processor Configuration)

Processor	Channel ID	Memory Slot	DIMM Quantity														
			2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32
CPU0	Channel 0	CPU0_C0D0	●	●		●		●		●				●				●
		CPU0_C0D1												●				●
	Channel 1	CPU0_C1D0						●		●				●				●
		CPU0_C1D1												●				●
	Channel 2	CPU0_C2D0				●		●		●				●				●
		CPU0_C2D1												●				●
	Channel 3	CPU0_C3D0								●								●
		CPU0_C3D1																●
	Channel 4	CPU0_C4D0		●		●		●		●				●				●
		CPU0_C4D1												●				●
	Channel 5	CPU0_C5D0						●		●				●				●
		CPU0_C5D1												●				●
	Channel 6	CPU0_C6D0				●		●		●				●				●
		CPU0_C6D1												●				●
	Channel 7	CPU0_C7D0								●								●
		CPU0_C7D1																●
CPU1	Channel 0	CPU1_C0D0	●	●		●		●		●				●				●
		CPU1_C0D1												●				●
	Channel 1	CPU1_C1D0						●		●				●				●
		CPU1_C1D1												●				●
	Channel 2	CPU1_C2D0				●		●		●				●				●
		CPU1_C2D1												●				●
	Channel 3	CPU1_C3D0								●								●
		CPU1_C3D1																●
	Channel 4	CPU1_C4D0		●		●		●		●				●				●
		CPU1_C4D1												●				●
	Channel 5	CPU1_C5D0						●		●				●				●
		CPU1_C5D1												●				●
	Channel 6	CPU1_C6D0				●		●		●				●				●
		CPU1_C6D1												●				●
	Channel 7	CPU1_C7D0								●								●
		CPU1_C7D1																●

5.4.2 PMems

📝 NOTE

The NF5280LM6 does not support PMem modules.

1. Identification

Figure 5-31 PMem Identification
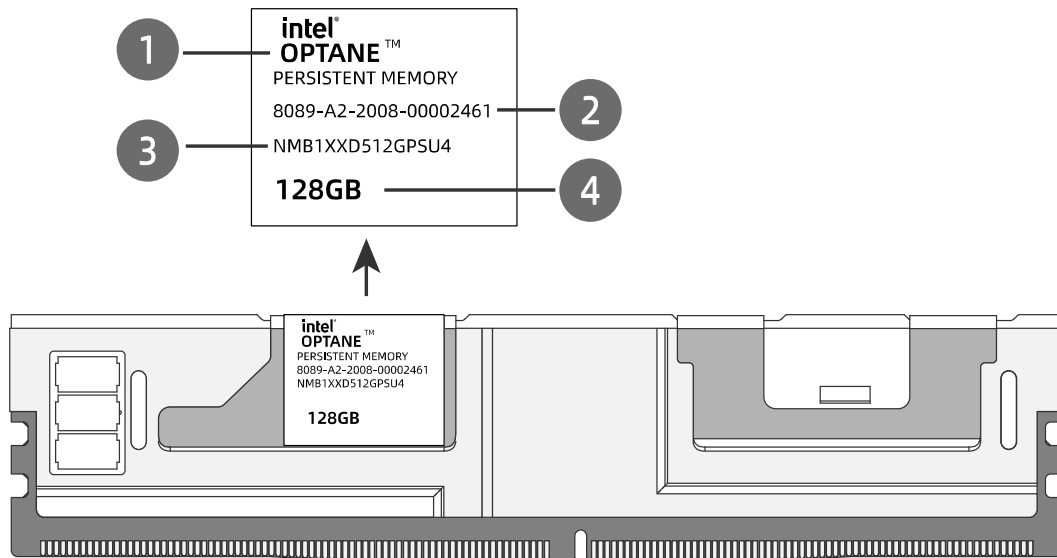
Item	Description	Example
1	Component name	Intel Optane Persistent Memory
2	Serial number	8089-A2-2008-00002461
3	Model	NMB1XXD512GPSU4
4	Capacity	128 GB

2. Memory Subsystem Architecture

The server supports 32 DIMM slots and 8 channels per CPU. Only 1 PMem can be populated in each channel.

PMems must be used with DDR4 DIMMs.

Table 5-9 DIMM Slot List

CPU	Channel ID	Silk Screen
CPU0	Channel 0	CPU0_C0D0
		CPU0_C0D1
	Channel 1	CPU0_C1D0
		CPU0_C1D1
	Channel 2	CPU0_C2D0
		CPU0_C2D1
	Channel 3	CPU0_C3D0
		CPU0_C3D1
	Channel 4	CPU0_C4D0
		CPU0_C4D1

CPU	Channel ID	Silk Screen
	Channel 5	CPU0_C5D0
		CPU0_C5D1
	Channel 6	CPU0_C6D0
		CPU0_C6D1
	Channel 7	CPU0_C7D0
		CPU0_C7D1
CPU1	Channel 0	CPU1_C0D0
		CPU1_C0D1
	Channel 1	CPU1_C1D0
		CPU1_C1D1
	Channel 2	CPU1_C2D0
		CPU1_C2D1
	Channel 3	CPU1_C3D0
		CPU1_C3D1
	Channel 4	CPU1_C4D0
		CPU1_C4D1
	Channel 5	CPU1_C5D0
		CPU1_C5D1
	Channel 6	CPU1_C6D0
		CPU1_C6D1
	Channel 7	CPU1_C7D0
		CPU1_C7D1

3. Compatibility

Refer to the following rules to configure the PMems.

- PMems must be used with DDR4 DIMMs.

- PMems must be used with the 3rd Gen Intel Xeon Scalable processors (Ice Lake) with different CPU models supporting the same maximum memory capacity.

- PMems can only be configured in two modes: App Direct Mode (AD) and Memory Mode (MM), and the calculation formula for the total memory capacity is as follows:

  - AD: Total memory capacity = Sum of all PMem capacities + Sum of all DDR4 DIMM capacities.

  - MM: Total memory capacity = Sum of all PMem capacities (DDR4 DIMMs operate as cache only and do not count toward the total memory capacity).

- For details about the capacity of a single PMem, consult Inspur Customer Service.

Table 5-10 PMem Specifications

Item	Value		
Capacity per PMem (GB)	128	256	512
Rated speed (MT/s)	3,200	3,200	3,200
Operating voltage (V)	1.2	1.2	1.2
Maximum number of PMems supported in a server[a]	16	16	16
Maximum capacity of PMems supported in a server (GB)[b]	2,048	4,096	8,192
Actual speed (MT/s)	3,200	3,200	3,200
a: The maximum number of PMems supported is based on the 2-processor configuration. The number is halved for the 1-processor configuration. b: The maximum capacity of PMems supported varies with the operating mode of PMems. The above information is for reference only, consult your local Inspur sales representative for details.			

4. Population Rules

- General population rules for PMems:

    - DDR4 DIMM types used with PMems include RDIMMs and LRDIMMs.

    - A server must use PMems with the same part number (P/N code).

    - In a server, DDR4 DIMMs used with PMems must have the same part number (P/N code).

- Population rules for PMems in a specific mode:

    - AD: In a server, the recommended capacity ratio of DDR4 DIMMs to PMems is between 1:1 and 1:8.

    - MM: In a server, the recommended capacity ratio of DDR4 DIMMs to PMems is between 1:4 and 1:16.

5. DIMM Slot Layout

Up to 16 PMems can be installed in a server, and PMems must be used with DDR4 DIMMs. PMem configuration must be compliant with the PMem population rules.

Figure 5-32 DIMM Slot Layout
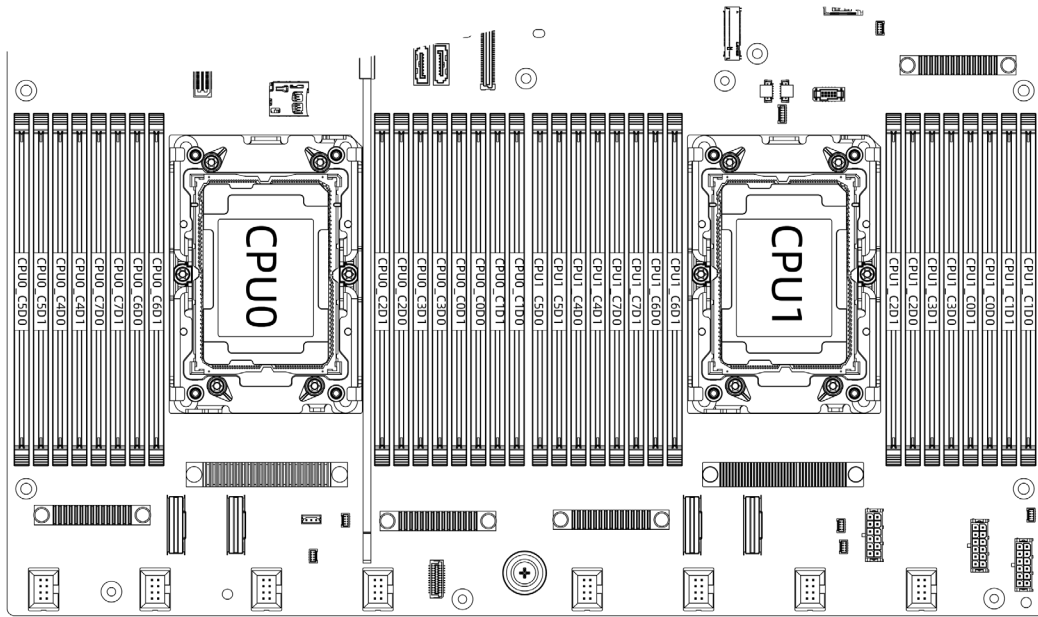
Table 5-11 PMem Population Rules (1-Processor Configuration)

Processor	Channel ID	Memory Slot	Population Rules ●: DDR4 DIMM ○:PMem								
			AD	MM	AD	AD	AD	MM	AD	MM	AD
			4+4	4+4	6+1	8+1	8+4	8+4	8+8	8+8	12+2
CPU0	Channel 0	CPU0_C0D0	●		●	●	●		●		●
		CPU0_C0D1				○	○		○		●
	Channel 1	CPU0_C1D0	○		●	●	●		●		○
		CPU0_C1D1							○		
	Channel 2	CPU0_C2D0	●		●	●	●		●		●
		CPU0_C2D1					○		○		●
	Channel 3	CPU0_C3D0	○		○	●	●		●		●
		CPU0_C3D1							○		●
	Channel 4	CPU0_C4D0	●		●	●	●		●		●
		CPU0_C4D1					○		○		●
	Channel 5	CPU0_C5D0	○		●	●	●		●		○
		CPU0_C5D1							○		
	Channel 6	CPU0_C6D0	●		●	●	●		●		●
		CPU0_C6D1					○		○		●
	Channel 7	CPU0_C7D0	○			●	●		●		●
		CPU0_C7D1							○		●

Table 5-12 PMem Population Rules (2-Processor Configuration)

Population Rules
●: DDR4 DIMM ○:PMem

Processor	Channel ID	Memory Slot	AD	MM	AD	AD	AD	MM	AD	MM	AD
			8+8		12+2	16+2	16+8		16+16		24+4
CPU0	Channel 0	CPU0_C0D0	●		●	●	●		●		●
		CPU0_C0D1				○		○		○	●
	Channel 1	CPU0_C1D0	○		●	●	●		●		○
		CPU0_C1D1								○	
	Channel 2	CPU0_C2D0	●		●	●	●		●		●
		CPU0_C2D1						○		○	●
	Channel 3	CPU0_C3D0	○		○	●	●		●		●
		CPU0_C3D1								○	●
	Channel 4	CPU0_C4D0	●		●	●	●		●		●
		CPU0_C4D1						○		○	●
	Channel 5	CPU0_C5D0	○		●	●	●		●		○
		CPU0_C5D1								○	
	Channel 6	CPU0_C6D0	●		●	●	●		●		●
		CPU0_C6D1						○		○	●
	Channel 7	CPU0_C7D0	○			●	●		●		●
		CPU0_C7D1								○	●
CPU1	Channel 0	CPU1_C0D0	●		●	●	●		●		●
		CPU1_C0D1				○		○		○	●
	Channel 1	CPU1_C1D0	○		●	●	●		●		○
		CPU1_C1D1								○	
	Channel 2	CPU1_C2D0	●		●	●	●		●		●
		CPU1_C2D1						○		○	●
	Channel 3	CPU1_C3D0	○		○	●	●		●		●
		CPU1_C3D1								○	●
	Channel 4	CPU1_C4D0	●		●	●	●		●		●
		CPU1_C4D1						○		○	●
	Channel 5	CPU1_C5D0	○		●	●	●		●		○
		CPU1_C5D1								○	
	Channel 6	CPU1_C6D0	●		●	●	●		●		●
		CPU1_C6D1						○		○	●
	Channel 7	CPU1_C7D0	○			●	●		●		●
		CPU1_C7D1								○	●

5.5 Storage

5.5.1 Drive Configurations

Table 5-13 Drive Configurations

Configuration	Front Drives	Rear Drives	Internal Drives	Drive Management Mode
12 × 3.5-inch Drive Configuration	12 × 3.5-inch SAS/SATA drive	4 × 2.5- or 3.5-inch SAS/SATA drive or 2 × M.2/Ruler SSD	NVMe M.2 SSDs: supported by the M.2 riser card	SAS/SATA drives: SAS/RAID controller card/directly connected to PCH; internal M.2 SSDs: directly connected to CPUs
12 × 2.5-inch Drive Configuration	12 × 2.5-inch NVMe drive	2 × M.2 SSD	/	NVMe drives: directly connected to CPUs
24 × 2.5-inch Drive Configuration	24 × 2.5-inch SAS/SATA drive	4 × 2.5-inch SAS/SATA drive or 2 × M.2/Ruler SSD	NVMe M.2 SSDs: supported by the M.2 riser card	SAS/SATA drives: SAS/RAID controller card/directly connected to PCH; internal M.2 SSDs: directly connected to CPUs
24 × 2.5-inch Drive Configuration	24 × 2.5-inch NVMe drive	/	NVMe M.2 SSDs: supported by the M.2 riser card	NVMe drives: directly connected to CPUs; internal M.2 SSDs: directly connected to CPUs

Configuration	Front Drives	Rear Drives	Internal Drives	Drive Management Mode
25 × 2.5-inch Drive Pass-Through Configuration	25 × 2.5-inch SAS/SATA drive	2 × M.2/Ruler SSD	NVMe M.2 SSDs: supported by the M.2 riser card	SAS/SATA drives: SAS/RAID controller card/directly connected to PCH; internal M.2 SSD: directly connected to CPUs
8 × 3.5-inch Drive Pass-Through Configuration	8 × 3.5-inch SAS/SATA drive	/	NVMe M.2 SSDs: supported by the M.2 riser card	SAS/SATA drives: SAS/RAID controller card/directly connected to PCH; internal M.2 SSDs: directly connected to CPUs

▤NOTE

The NF5280LM6 does not support the 25 × 2.5-inch drive configuration.

5.5.2 Drive Numbering

- NF5280M/LM6 12 × 3.5-inch Drive Configuration (12 × SAS/SATA Drive)

Figure 5-33 Drive Numbering

Physical Drive No.	Drive No. Identified by the ISBMC	Drive No. Identified by the RAID Controller Card
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10
11	11	11

- NF5280M/LM6 24 × 2.5-inch Drive Pass-Through Configuration (24 × NVMe Drive)

Figure 5-34 Drive Numbering

Physical Drive No.	Drive No. Identified by the ISBMC	Drive No. Identified by the RAID Controller Card
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	0
9	9	1

Physical Drive No.	Drive No. Identified by the ISBMC	Drive No. Identified by the RAID Controller Card
10	10	2
11	11	3
12	12	4
13	13	5
14	14	6
15	15	7
16	16	0
17	17	1
18	18	2
19	19	3
20	20	4
21	21	5
22	22	6
23	23	7

- NF5280M6 25 × 2.5-inch Drive Pass-Through Configuration (25 × SAS/SATA Drive)

Figure 5-35 Drive Numbering

Physical Drive No.	Drive No. Identified by the ISBMC	Drive No. Identified by the RAID Controller Card
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7

Physical Drive No.	Drive No. Identified by the ISBMC	Drive No. Identified by the RAID Controller Card
8	8	8
9	9	9
10	10	10
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16
17	17	17
18	18	18
19	19	19
20	20	20
21	21	21
22	22	22
23	23	23
24	24	24

- NF5280M/LM6 8 × 3.5-inch Drive + GPU Configuration (8 × SAS/SATA Drive)

Figure 5-36 Drive Numbering

Physical Drive No.	Drive No. Identified by the ISBMC	Drive No. Identified by the RAID Controller Card
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4

Physical Drive No.	Drive No. Identified by the ISBMC	Drive No. Identified by the RAID Controller Card
5	5	5
6	6	6
7	7	7

5.5.3 Drive LEDs

1. SAS/SATA Drive LEDs

Figure 5-37 SAS/SATA Drive LEDs

— Activity LED
— Error LED
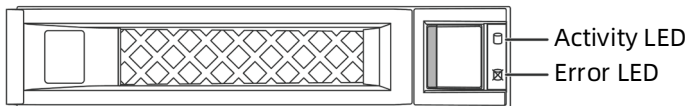
Table 5-14 SAS/SATA Drive LEDs

Activity LED (Green)	Error LED (Blue/Red)			Description
	Blue	Red		
Off	Off	RAID	No RAID	Drive absent
		Solid on	Off	
Solid on	Off	Off		Drive present but not in use
Flashing	Off	Off		Drive present and in use
Flashing	Solid pink			Copyback/Rebuild in progress
Solid on	Solid on	Off		Drive selected but not in use
Flashing	Solid on	Off		Drive selected and in use
Any status	Off	Solid on		Drive failed

2. NVMe Drive LEDs

Figure 5-38 NVMe Drive LEDs

— Activity LED
— Error LED
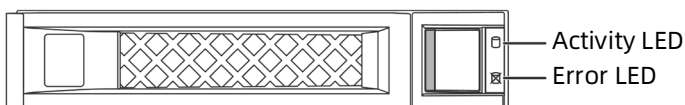
When the VMD function is enabled with the latest VMD driver installed, the NVMe drives support surprise hot swap.

Table 5-15 NVMe Drive LEDs (VMD Enabled)

Activity LED (Green)	Error LED (Blue/Red)		Description
	Blue	Red	
Off	Off	Off	Drive absent
Solid on	Off	Off	Drive present but not in use
Flashing	Off	Off	Drive present and in use
Flashing	Solid pink		Copyback/Rebuild/Initializing/ Verifying in progress
Solid on	Solid on	Off	Drive selected but not in use
Flashing	Solid on	Off	Drive selected and in use
Any status	Off	Solid on	Drive failed

5.5.4 RAID Controller Cards

The RAID controller card provides functions such as RAID configuration, RAID level migration, and drive roaming. For specific RAID controller card options, consult your local Inspur sales representative or refer to 7.2 Hardware Compatibility.

5.6 Network

NICs provide network expansion capabilities.

● The OCP I/O slot supports the OCP 3.0 card. Users can select the OCP 3.0 card as needed.

● The PCIe expansion slots support PCIe NICs. Users can select the PCIe cards as needed.

● For specific network options, consult your local Inspur sales representative or refer to 7.2 Hardware Compatibility.

5.7 I/O Expansion

5.7.1 PCIe Cards

PCIe cards provide system expansion capabilities.

● The NF5280M6 supports up to 11 standard PCIe expansion slots (up to 5 PCIe 4.0 x16 slots), 1 OCP 3.0 slot, and 1 mezz RAID card slot.

- The NF5280LM6 supports up to 5 standard PCIe slots (up to 4 PCIe 4.0 x16 slots) and 1 OCP 3.0 slot

- For specific PCIe card options, consult your local Inspur sales representative or refer to 7.2 Hardware Compatibility.

5.7.2 PCIe Slots

1. PCIe Slot Locations

Figure 5-39 NF5280M6 PCIe Slots - General Configuration
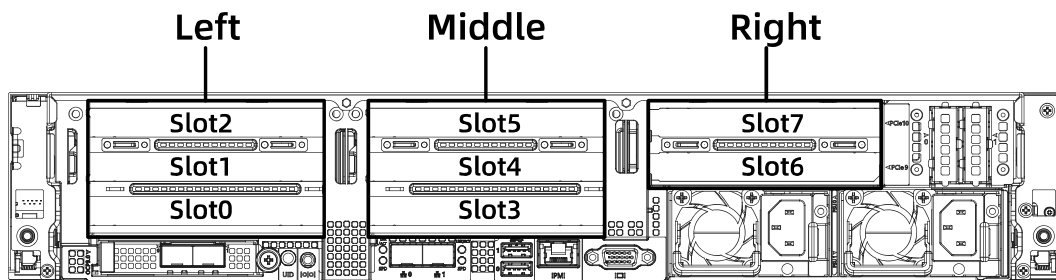
- The left PCIe riser module provides Slot 2, Slot 1, and Slot 0.

- The middle PCIe riser module provides Slot 5, Slot 4, and Slot 3.

- The right PCIe riser module provides Slot 7 and Slot 6.

Figure 5-40 NF5280M6 PCIe Slots – 11 × PCIe Configuration
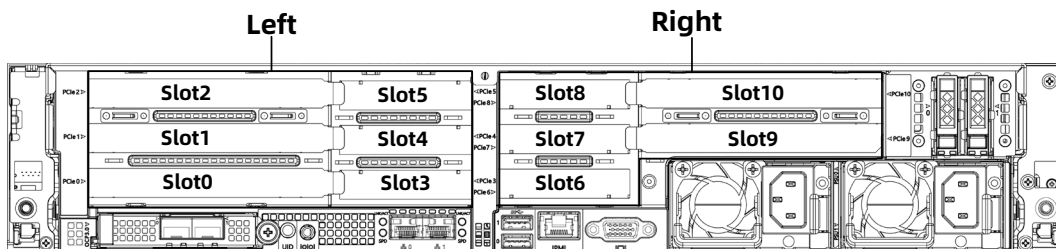
- The left PCIe riser module provides Slot 5, Slot 4, Slot 3, Slot 2, Slot 1, and Slot 0.

- The right PCIe riser module provides Slot 10, Slot 9, Slot 8, Slot 7 and Slot 6.

Figure 5-41 NF5280M6 PCIe Slots - GPU Configuration
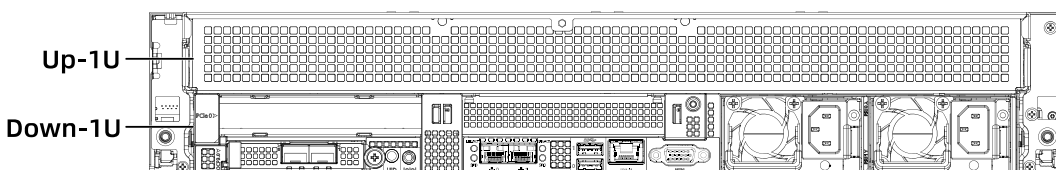
- Four dual-slot GPUs are supported in the upper 1U space.

- One FHHL PCIe expansion card is supported in PCIe Slot 0 on the left of the lower 1U space.

Figure 5-42 NF5280LM6 PCIe Slots - 5 × PCIe Configuration
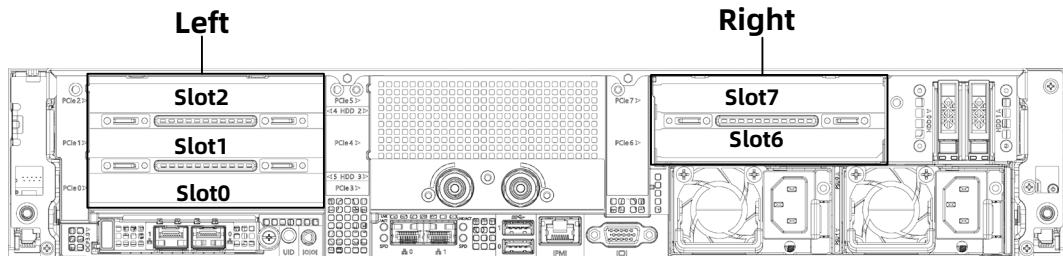
- The left PCIe riser module provides Slot 2, Slot 1, and Slot 0.

- The right PCIe riser module provides Slot 7 and Slot 6.

Figure 5-43 NF5280LM6 PCIe Slots - GPU Configuration
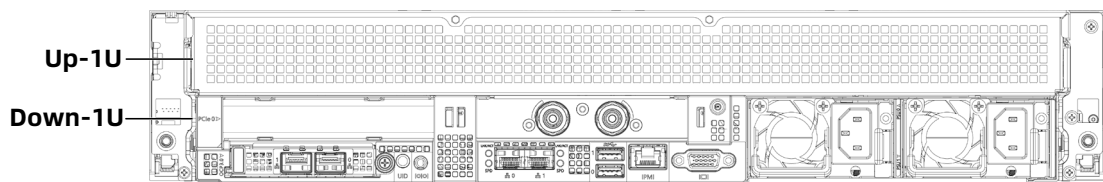
- Four dual-slot GPUs are supported in the upper 1U space.

- One FHHL PCIe expansion card is supported in PCIe Slot 0 on the left of the lower 1U space.

2. PCIe Riser Modules (for configurations with PCIe riser modules on the rear panel)

- NF5280M/LM6 PCIe Riser Module 1 (3-Slot)

  - Provides Slot 0, Slot 1, and Slot 2 when installed in the left.

Figure 5-44 PCIe Riser Module 1
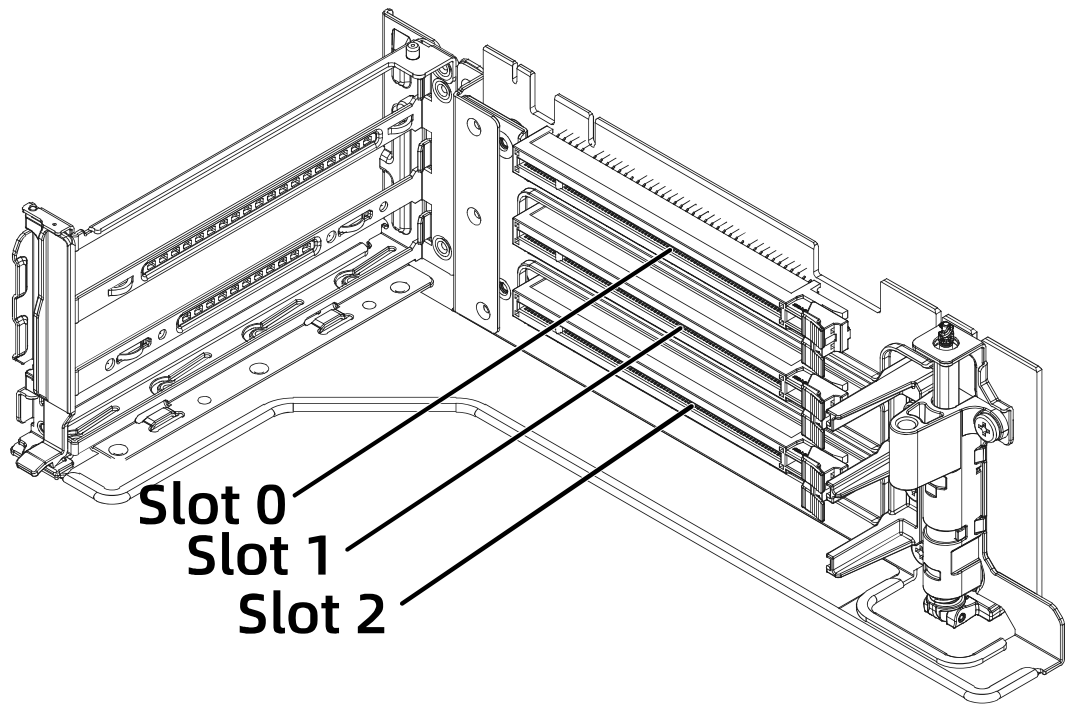
Slot 0
Slot 1
Slot 2

- NF5280M/LM6 PCIe Riser Module 2 (2-Slot).

    - Provides Slot 0 and Slot 1 when installed in the left.

Figure 5-45 PCIe Riser Module 2

Slot 0
Slot 1
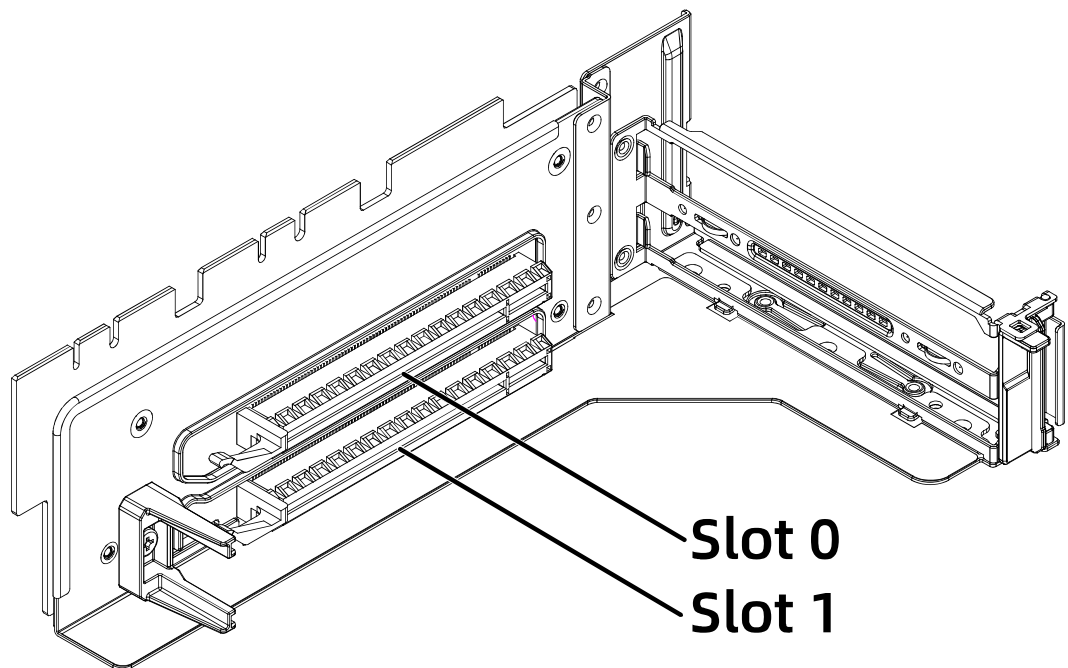
- NF5280M6 PCIe Riser Module 3 (3-Slot)

- Provides Slot 3, Slot 4, and Slot 5 when installed in the middle.

Figure 5-46 PCIe Riser Module 3
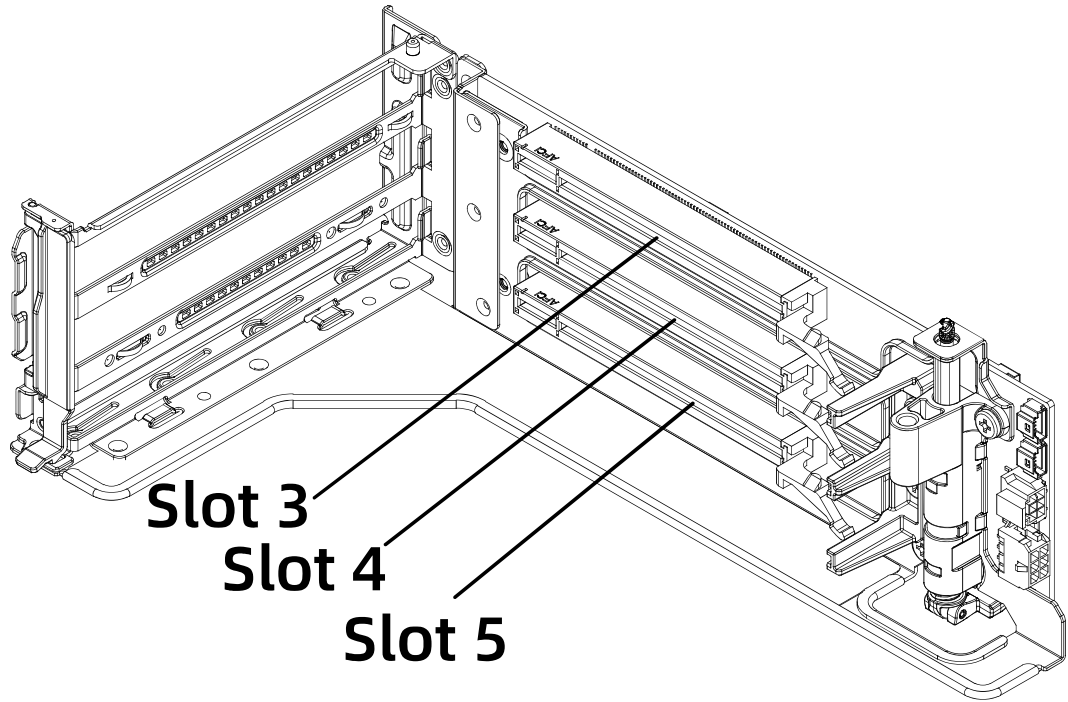
Slot 3
Slot 4
Slot 5

- NF5280M/LM6 PCIe Riser Module 4 (2-Slot)

  - Provides Slot 6 and Slot 7 when installed in the right.

Figure 5-47 PCIe Riser Module 4
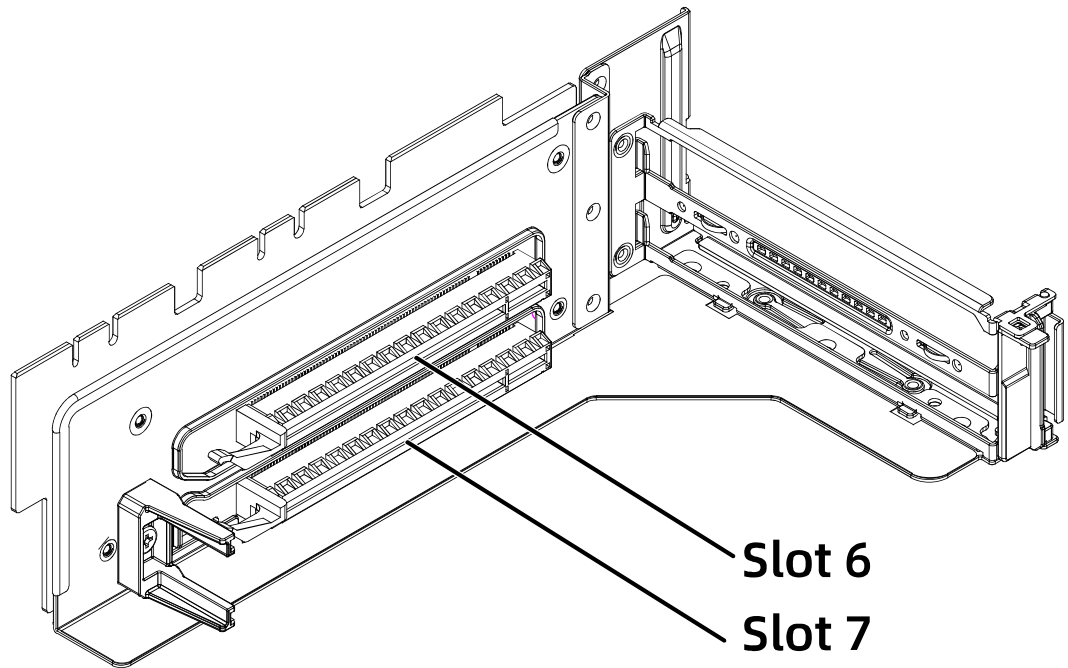
Slot 6
Slot 7

- NF5280M6 PCIe Riser Module 5 (Butterfly Riser, 6-Slot)

  - Provides Slot 0, Slot 1, Slot 2, Slot 3, Slot 4, and Slot 5.

  Figure 5-48 PCIe Riser Module 5
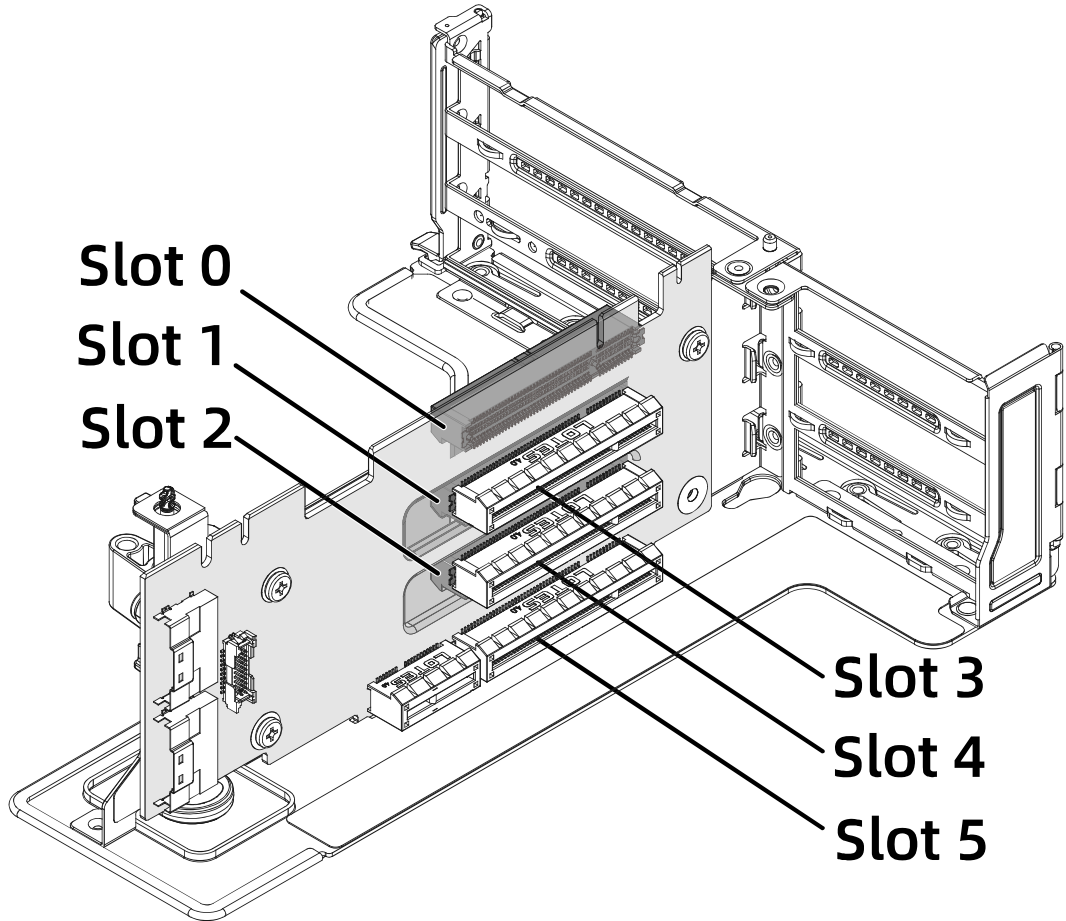
- NF5280M6 PCIe Riser Module 6 (Butterfly Riser, 5-Slot)

  - Provides Slot 6, Slot 7, Slot 8, Slot 9, and Slot 10.

Figure 5-49 PCIe Riser Module 6
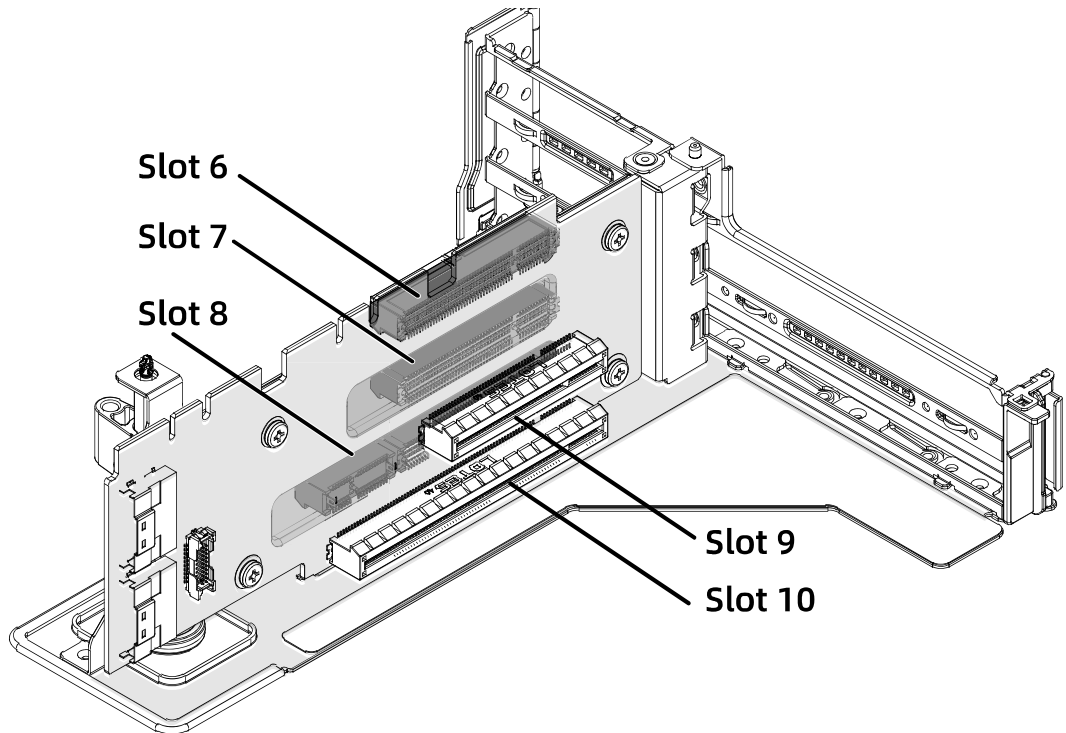
- NF5280M/LM6 PCIe Riser Module 7 (1-Slot)

  - Provides Slot 0.

Figure 5-50 PCIe Riser Module 7
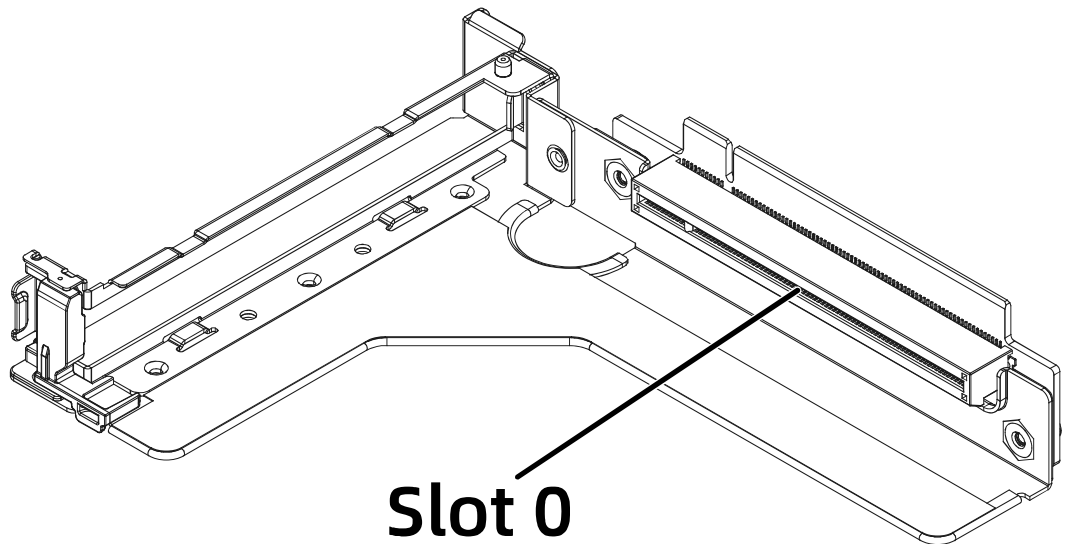
5.7.3 PCIe Slot Description

⊟NOTE

When CPU1 is absent, the corresponding PCIe slots are not available.

For configurations with PCIe riser modules on the rear panel:

Table 5-16 NF5280M/LM6 PCIe Slot Description - General Configuration

PCIe Slot	CPU	PCIe Standard	Connector Width	Bus Width	Port No.	Slot Size
Slot 0	CPU1	PCIe 3.0/4.0	x16	x8	PE2	FHHL
Slot 1	CPU1	PCIe 3.0/4.0	x16	x16	PE1	FHHL
Slot 2	CPU1	PCIe 3.0/4.0	x16	x8	PE2	FHHL
Slot 3	CPU0	PCIe 4.0	x16	x8	PE3	FHHL
Slot 4	CPU1	PCIe 4.0	x16	x16	PE3	FHHL
Slot 5	CPU0	PCIe 4.0	x16	x8	PE3	FHHL
Slot 6	CPU0	PCIe 4.0	x16	x16	PE1	FHHL
Slot 7	CPU0	PCIe 4.0	x16	x16	PE2	FHHL
OCP 3.0 Slot	CPU1	PCIe 4.0	x16	x16	PE0	Standard OCP 3.0 specs

- PCIe x16 slots are compatible with PCIe x16/x8/x4/x1 cards. It is not upward compatible, that is, the PCIe slot width cannot be smaller than the PCIe card link width.

- FHFL PCIe slots are compatible with FHFL PCIe cards, FHHL PCIe cards, and HHHL PCIe cards.

- FHHL PCIe slots are compatible with FHHL PCIe cards and HHHL PCIe cards.

- The maximum power supply capacity of each PCIe slot is 75 W.

- The NF5280LM6 does not support Slot 3, Slot 4 and Slot 5.

Table 5-17 NF5280M6 PCIe Slot Description - 2 × Butterfly Riser Configuration

PCIe Slot	CPU	PCIe Standard	Connector Width	Bus Width	Port No.	Slot Size
Slot 0	CPU1	PCIe 3.0	x8	x8	PE1	FHHL
Slot 1	CPU1	PCIe 3.0	x8	x8	PE2	FHHL
Slot 2	CPU1	PCIe 3.0	x8	x8	PE2	FHHL
Slot 3	CPU1	PCIe 3.0	x8	x8	PE1	HHHL

PCIe Slot	CPU	PCIe Standard	Connector Width	Bus Width	Port No.	Slot Size
Slot 4	CPU1	PCIe 3.0	x8	x8	PE3	HHHL
Slot 5	CPU1	PCIe 3.0	x8	x8	PE3	HHHL
Slot 6	CPU0	PCIe 3.0	x8	x8	PE1	HHHL
Slot 7	CPU0	PCIe 3.0	x8	x8	PE1	HHHL
Slot 8	CPU0	PCIe 3.0	x8	x8	PE2	HHHL
Slot 9	CPU0	PCIe 3.0	x8	x8	PE2	FHHL
Slot 10	CPU0	PCIe 3.0	x8	x8	PE3	FHHL
OCP 3.0 Slot	CPU1	PCIe 3.0	x16	x16	PE0	Standard OCP 3.0 specs

- PCIe x16 slots are compatible with PCIe x16/x8/x4/x1 cards. It is not upward compatible, that is, the PCIe slot width cannot be smaller than the PCIe card link width.

- FHFL PCIe slots are compatible with FHFL PCIe cards, FHHL PCIe cards, and HHHL PCIe cards.

- FHHL PCIe slots are compatible with FHHL PCIe cards and HHHL PCIe cards.

- The maximum power supply capacity of each PCIe slot is 75 W.

5.8 PSUs

- The server supports 1 or 2 PSUs.

- The server supports AC or DC power input.

- The PSUs are hot-swappable.

- The server supports 2 PSUs with 1+1 redundancy (some configurations do not support).

- The server must use PSUs with the same part number (P/N code).

Figure 5-51 PSU Locations
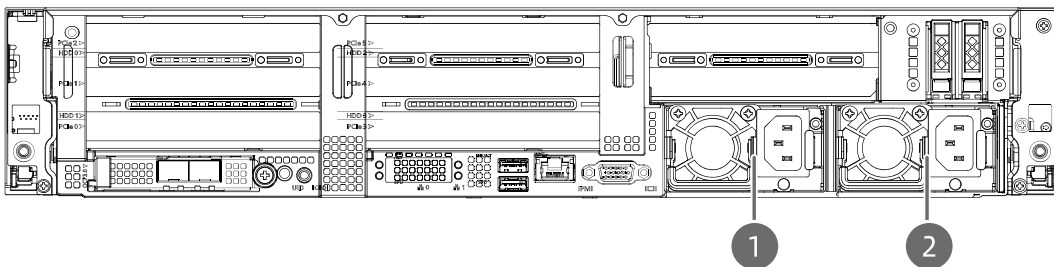
Item	Feature	Item	Feature
1	PSU0	2	PSU1

5.9 Fans

- The server supports 4 fans. Users can select low- or high-performance 8056 fans according to the actual configuration.

- The fans are hot-swappable.

- The server supports fans in N+1 rotor redundancy, which means that the server can continue working properly when a single fan rotor fails.

- The server supports intelligent fan speed control.

- The server must use fans with the same part number (P/N code).

Figure 5-52 Fan Module Locations
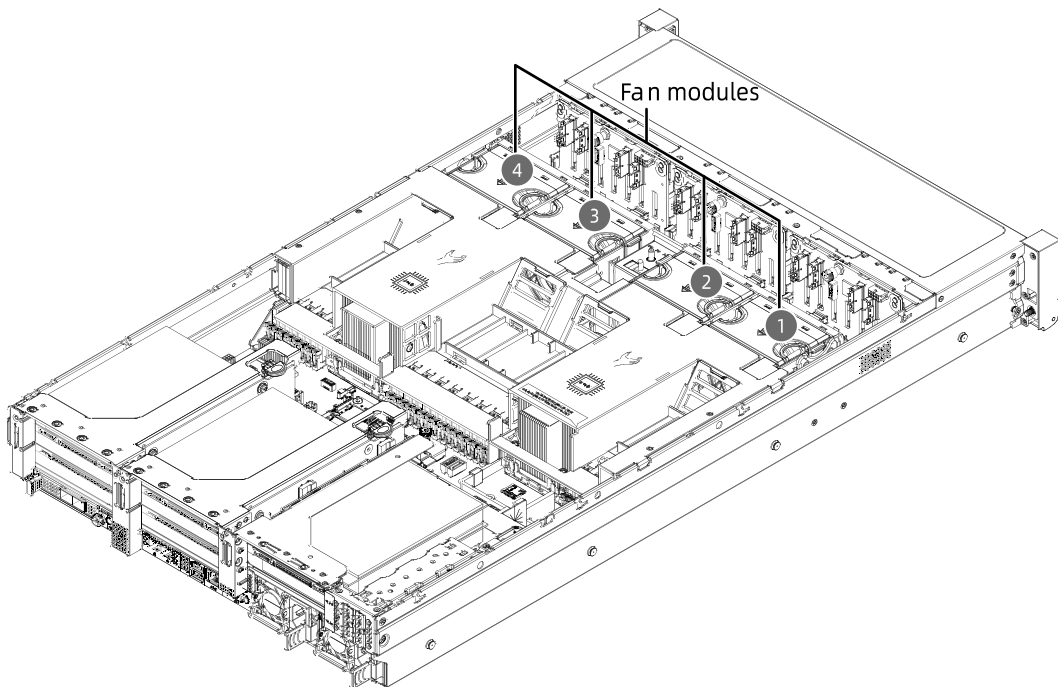
5.10 LCD Module (Optional)

5.10.1 Function

The LCD module reads server-related information from the BMC, such as the operating status of processors and memories, network status, logs, and alerts, and transmits the information to client mobile terminals via Bluetooth.

The LCD module synchronizes information with the ISBMC through I^{2}C and can display information on an LCD screen or in the app. The server's basic information, system status and alert diagnosis can be displayed in the app via Bluetooth, facilitating the operation and maintenance.

Figure 5-53 How LCD Subsystem Works
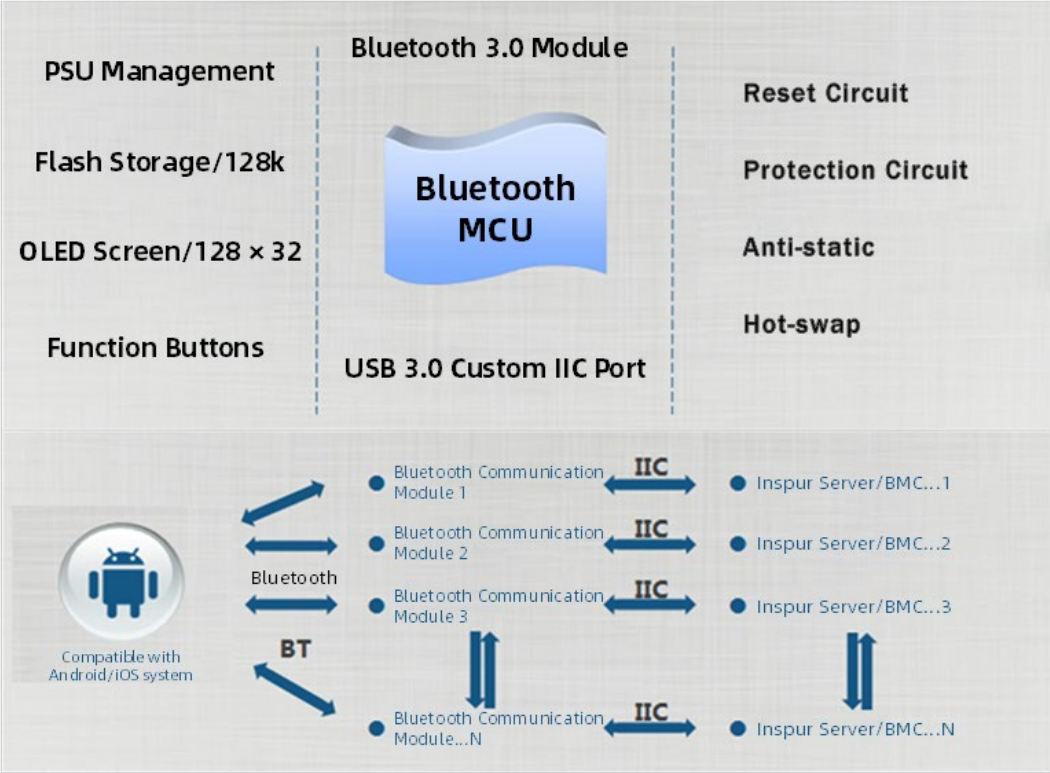
5.10.2 Interface

Figure 5-54 App Home Screen
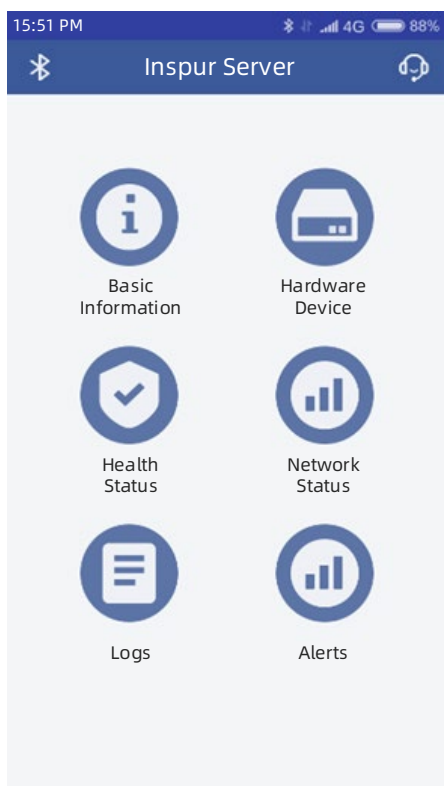
5.11 Boards

5.11.1 Motherboard

Figure 5-55 Motherboard Layout
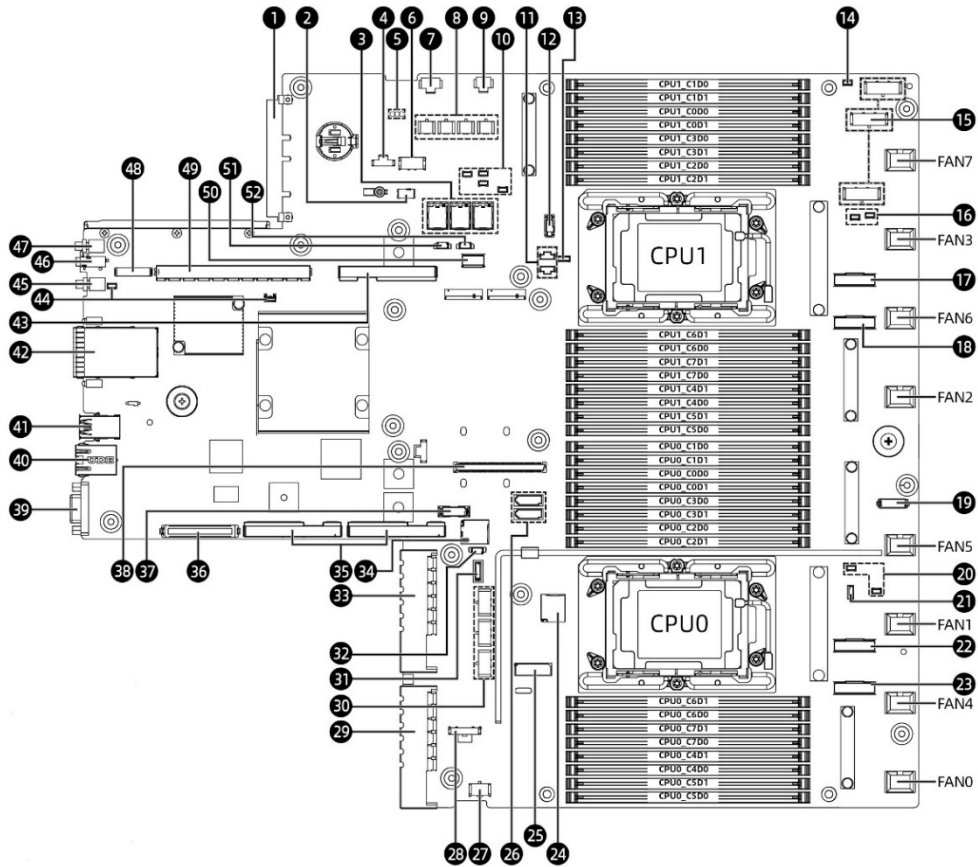
Item	Feature	Item	Feature
1	OCP 3.0 Slot	27	B_M.2 & 3BP & GPU_RISER3 Power Connector
2	TPM Connector	28	Capacitor Board Connector
3	Mini_SAS Connector × 3	29	PSU1 Connector
4	GPU_RISER0 Power Connector	30	GPU Power Connector × 3
5	CLR_CMOS	31	RAID Key Connector
6	GPU0 & MID_PCIe Power Connector	32	I2C4_GPU2 Connector
7	Middle Backplane Power Connector	33	PSU0 Connector
8	Rear Backplane Power Connector × 4	34	BMC TF Card Slot

Item	Feature	Item	Feature
9	GPU0_RISER1 & MID_PCIe Power Connector	35	PCIe0_CPU0 Slot × 2
10	I^{2}C Connector × 4	36	PCIe0_CPU0 Power Connector
11	CLK Connector × 2	37	NC-SI Connector
12	VPP Connector	38	OCPA_CPU0 Slot
13	SGPIO Connector	39	VGA Port
14	Sensor Connector	40	BMC Management Network Port
15	Front Backplane Power Connector × 3	41	USB 3.0 Port × 2
16	I^{2}C Connector × 2	42	SFP+ Connector
17	SLIM0_CPU1 Connector	43	PCIe1_CPU1 Slot
18	SLIM1_CPU1 Connector	44	Leak Detection Connector × 2
19	Left Control Panel Signal Cable Connector	45	Power Button and LED
20	I^{2}C Connector × 2	46	System/BMC Serial Port
21	Intrusion Switch Connector	47	UID/BMC RST Button and LED
22	SLIM0_CPU0 Connector	48	PCIe1_CPU1 Power Connector
23	SLIM1_CPU0 Connector	49	PCIe0_CPU1 Slot
24	SYS_TF Card Button	50	Right Control Panel Signal Cable Connector
25	Debug Connector	51	I2C4_GPU4 Connector
26	SATA Connector × 2	52	I^{2}C Connector

5.11.2 Drive Backplanes

1. Front Drive Backplanes

Figure 5-56 4 × 3.5-inch Drive Pass-Through Backplane (4 × SAS/SATA Drive)
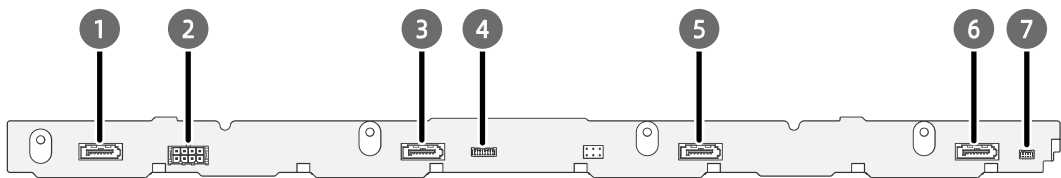
Item	Feature	Item	Feature
1	7-Pin SATA Connector 0	2	Power Connector
3	7-Pin SATA Connector 1	4	SGPIO Connector
5	7-Pin SATA Connector 2	6	7-Pin SATA Connector 3
7	BMC I^{2}C Connector		

Figure 5-57 4 × 3.5-inch Drive Pass-Through Backplane (4 × SAS/SATA/NVMe Drive)
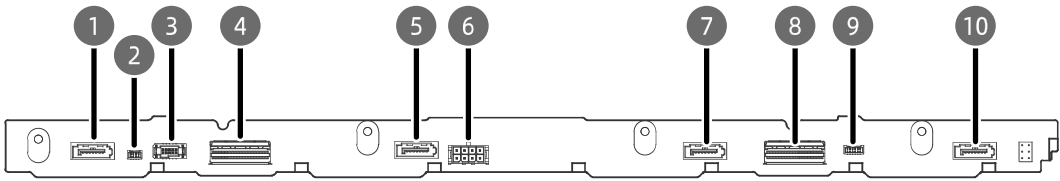
Item	Feature	Item	Feature
1	7-Pin SATA Connector 0	2	BMC I^{2}C Connector
3	VPP Connector	4	Slimline x8 Connector 0
5	7-Pin SATA Connector 1	6	Power Connector
7	7-Pin SATA Connector 2	8	Slimline x8 Connector 1
9	SGPIO Connector	10	7-Pin SATA Connector 3

Figure 5-58 8 × 2.5-inch Drive Pass-Through Backplane (6 × SAS/SATA Drive + 2 × NVMe Drive)
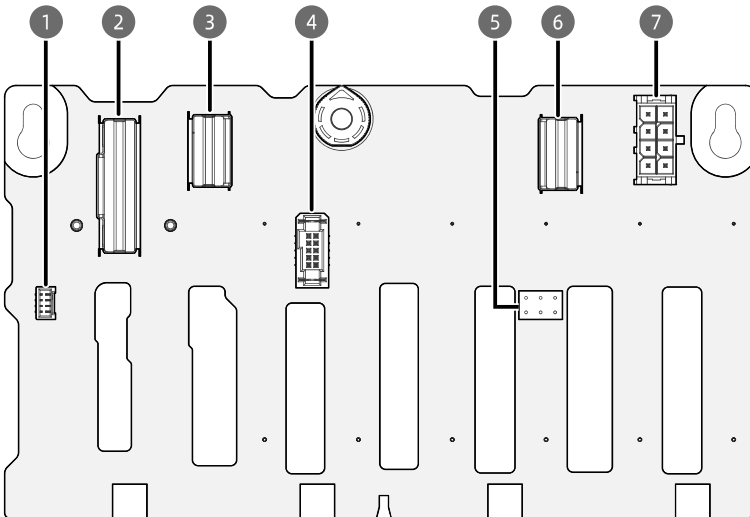
Item	Feature	Item	Feature
1	BMC I^{2}C Connector	2	Slimline x8 Connector
3	Slimline x4 Connector 0	4	VPP Connector
5	CPLD JTAG Connector	6	Slimline x4 Connector 1
7	Power Connector		

Figure 5-59 8 × 2.5-inch Drive Pass-Through Backplane (8 × SAS/SATA/NVMe Drive)
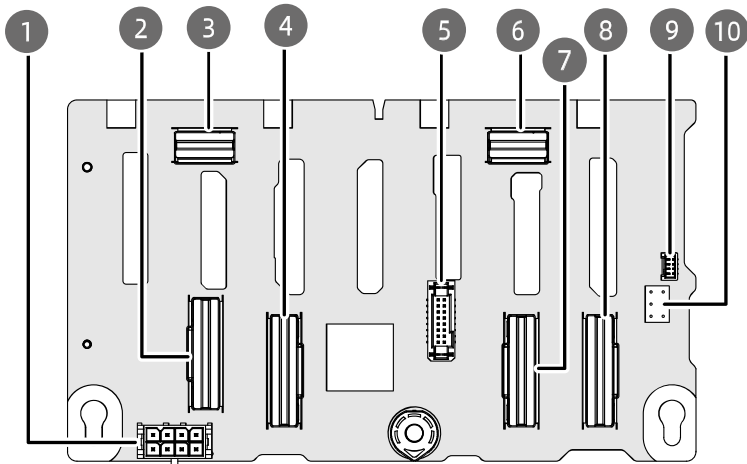
Item	Feature	Item	Feature
1	Power Connector	2	Slimline x8 Connector 0
3	Slimline x4 Connector 0	4	Slimline x8 Connector 1
5	VPP Connector	6	Slimline x4 Connector 1
7	Slimline x8 Connector 2	8	Slimline x8 Connector 3
9	BMC I^{2}C Connector	10	CPLD JTAG Connector

Figure 5-60 12 × 3.5-inch Drive Expander Backplane (12 × SAS/SATA Drive)
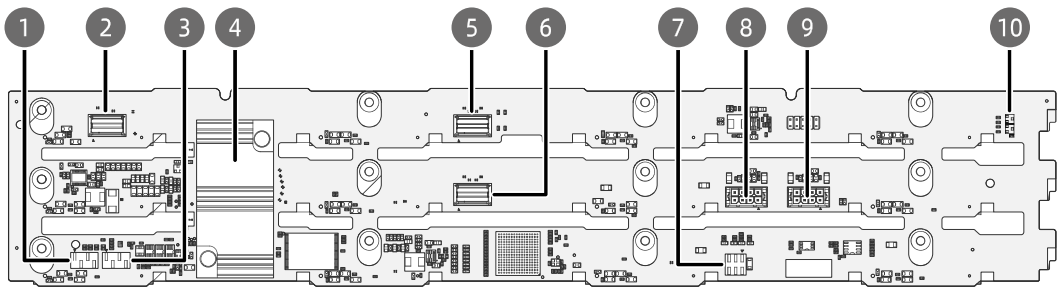
Item	Feature	Item	Feature
1	Expander Debug Connector 0	2	Slimline x4 Connector 0
3	Expander Debug Connector 1	4	Expander Chip
5	Slimline x4 Connector 1	6	Slimline x4 Connector 2
7	CPLD JTAG Connector	8	Power Connector 0
9	Power Connector 1	10	BMC I^{2}C Connector

Figure 5-61 12 × 3.5-inch Drive Pass-Through Backplane (12 × SAS/SATA Drive)
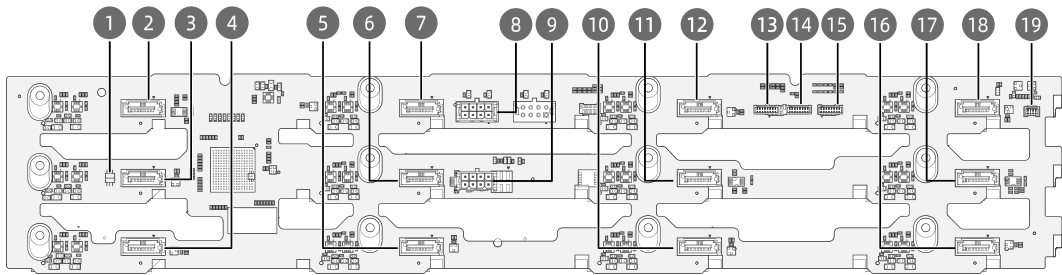
Item	Feature	Item	Feature
1	CPLD JTAG Connector	2	7-Pin SATA Connector 0
3	7-Pin SATA Connector 1	4	7-Pin SATA Connector 2
5	7-Pin SATA Connector 3	6	7-Pin SATA Connector 4
7	7-Pin SATA Connector 5	8	Power Connector 0
9	Power Connector 1	10	7-Pin SATA Connector 6
11	7-Pin SATA Connector 7	12	7-Pin SATA Connector 8
13	SGPIO Connector 0	14	SGPIO Connector 1
15	SGPIO Connector 2	16	7-Pin SATA Connector 9
17	7-Pin SATA Connector 10	18	7-Pin SATA Connector 11
19	BMC I^{2}C Connector		

Figure 5-62 25 × 2.5-inch Drive Backplane (21 × SAS/SATA Drive + 4 × SAS/SATA/NVMe Drive)
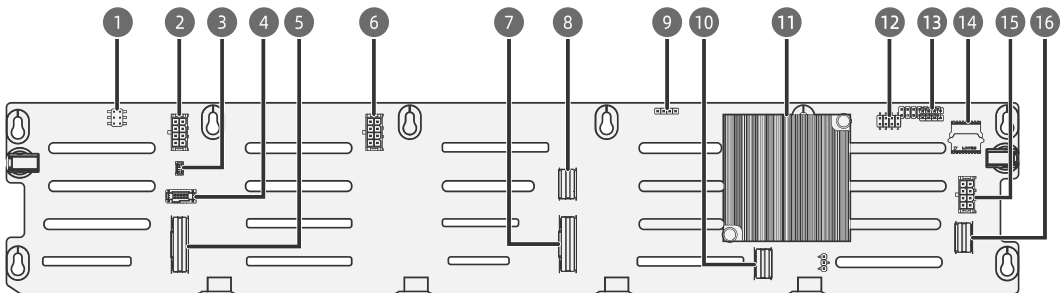
Item	Feature	Item	Feature
1	CPLD JTAG Connector	2	Power Connector 0
3	BMC I^{2}C Connector	4	VPP Connector
5	Slimline x8 Connector 0	6	Power Connector 1
7	Slimline x8 Connector 1	8	Slimline x4 Connector 0
9	Expander Debug Connector 0	10	Slimline x4 Connector 1
11	Expander Chip	12	Expander Debug Connector 1

Item	Feature	Item	Feature
13	Expander Debug Connector 2	14	Expander Flash
15	Power Connector 2	16	Slimline x4 Connector 2

NOTE

The NF5280LM6 does not support the 25 × 2.5-inch drive configuration.

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2. Rear Drive Backplanes

Figure 5-63 2 × 3.5-inch Drive Pass-Through Backplane (2 × SAS/SATA Drive)
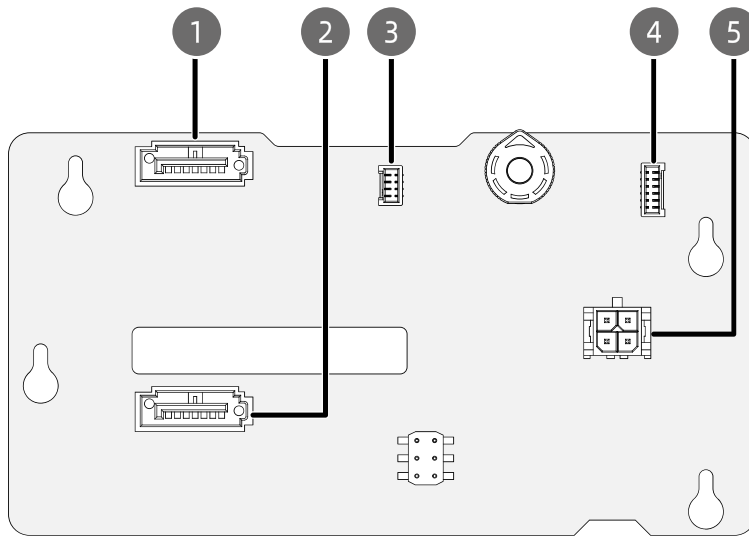
Item	Feature	Item	Feature
1	7-Pin SATA Connector 0	2	7-Pin SATA Connector 1
3	BMC I^{2}C Connector	4	SGPIO Connector
5	Power Connector		

NOTE

The NF5280LM6 does not support the 2 × 3.5-inch drive pass-through configuration.

Figure 5-64 2 × M.2 Drive Pass-Through Backplane (2 × SATA/NVMe M.2 SSD)
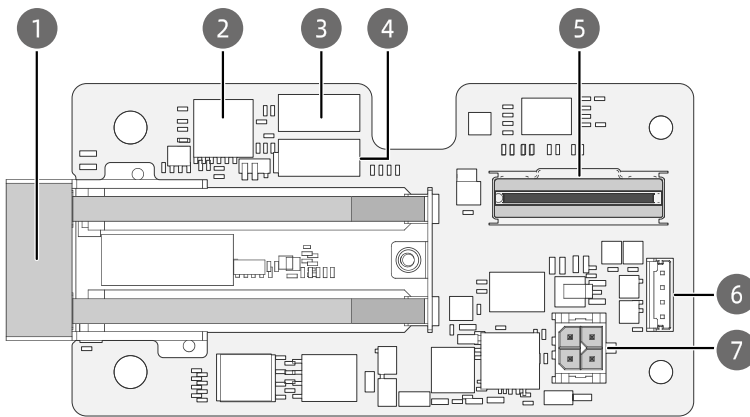
Item	Feature	Item	Feature
1	M.2 SSD Connector × 2	2	CPLD JTAG Connector
3	VPP Connector 0	4	VPP Connector 1
5	Slimline x8 Connector	6	BMC I^{2}C Connector
7	Power Connector		

Figure 5-65 2 × 2.5-inch Drive Pass-Through Backplane (2 × SAS/SATA Drive)
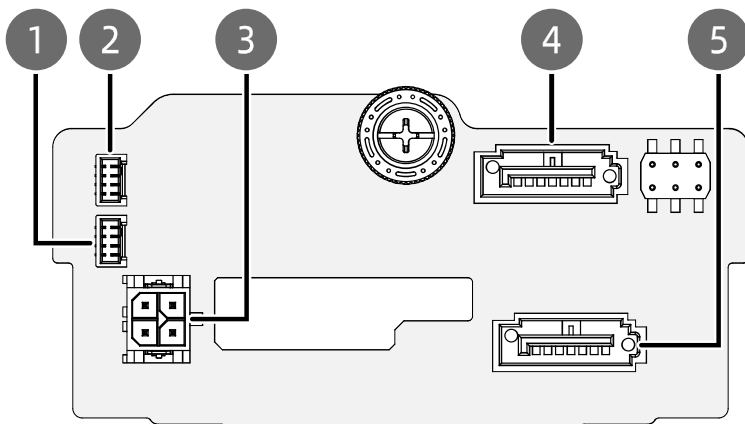
Item	Feature	Item	Feature
1	BMC I^{2}C Connector	2	SGPIO Connector
3	Power Connector	4	7-Pin SATA Connector 0
5	7-Pin SATA Connector 1		

Figure 5-66 2 × 2.5-inch Drive Pass-Through Backplane (2 × NVMe Drive)
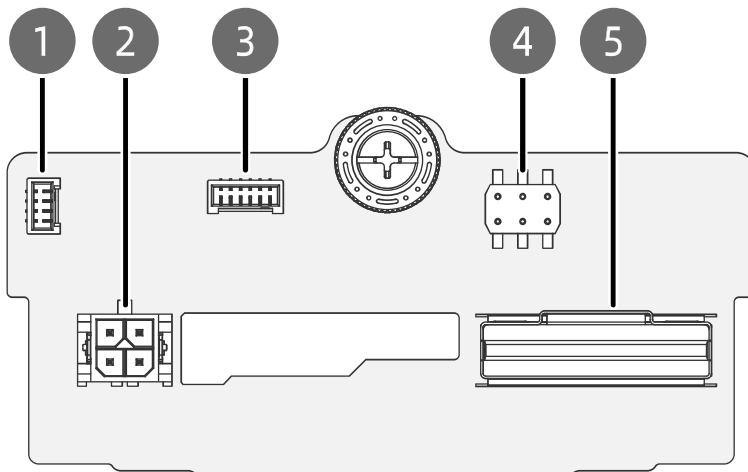
Item	Feature	Item	Feature
1	BMC I^{2}C Connector	2	Power Connector
3	SGPIO Connector	4	CPLD JTAG Connector
5	Slimline x8 Connector		

Figure 5-67 8 × 2.5-inch Drive Pass-Through Backplane (8 × SAS/SATA Drive)
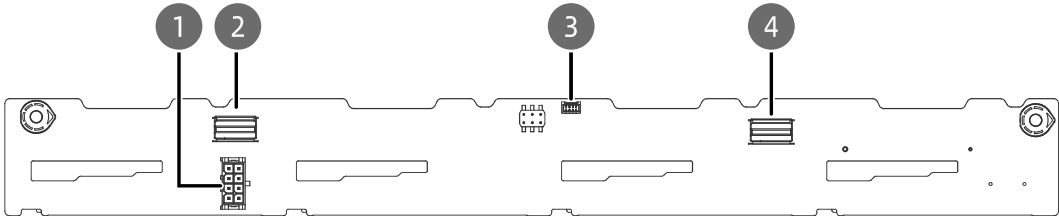
Item	Feature	Item	Feature
1	Power Connector	2	Slimline x4 Connector 0
3	BMC I^{2}C Connector	4	Slimline x4 Connector 1

NOTE

The NF5280LM6 does not support the 8 × 2.5-inch drive pass-through configuration.

Figure 5-68 2 × Ruler Drive Backplane
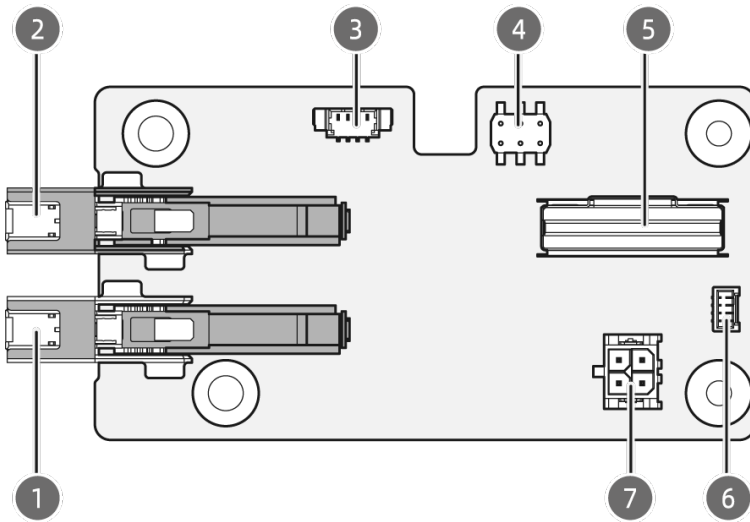
Item	Feature	Item	Feature
1	Ruler SSD Connector 0	2	Ruler SSD Connector 1
3	BMC I^{2}C Connector	4	CPLD JTAG Connector
5	Slimline x8 Connector	6	VPP Connector
7	Power Connector		

3. Internal Drive Backplane

Figure 5-69 2 × M.2 Drive Pass-Through Backplane (2 × SATA/NVMe M.2 SSD)
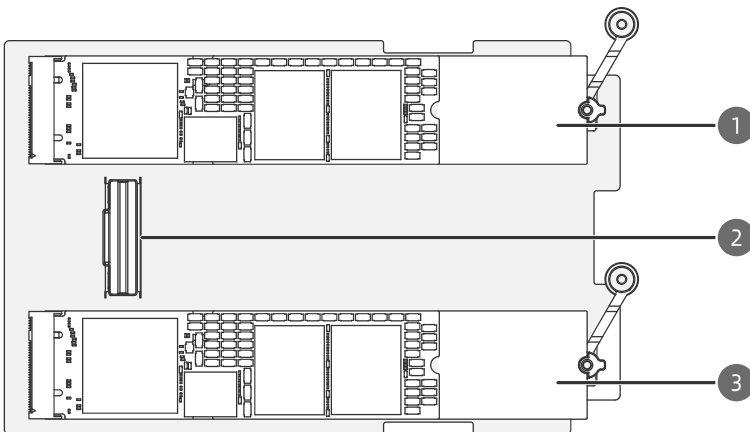
Item	Feature	Item	Feature
1	M.2 SSD 0	2	Slimline x8 Connector
3	M.2 SSD 1		

6 System Specifications

6.1 Technical Specifications

Table 6-1 NF5280M6 System Specifications

Item	Description
Form Factor	2U rack server
Chipset	Intel C621A
Processor	Supports 1 or 2 processors. • 3rd Gen Intel Xeon Scalable processors (Ice Lake) • Integrated memory controllers and 8 memory channels per processor • Integrated PCIe controllers with PCIe 4.0 supported and 64 lanes per processor • 3 UPI links at up to 11.2 GT/s • Up to 40 cores • Maximum base frequency at 3.6 GHz • Minimum L3 cache per core of 1.5 MB • TDP up to 270 W Note: The information above is for reference only, consult Inspur Customer Service for details about component compatibility.

Memory	Supports 32 DIMM slots.
	
	• Up to 32 DDR4 DIMMs
	
	   - 8 memory channels per processor and up to 2 DIMM slots per channel
	
	   - Up to 3,200 MT/s
	
	   - RDIMM or LRDIMM
	
	   - Mixing DDR4 DIMMs of different types (RDIMM and LRDIMM) and specifications (such as capacity, bit width, rank, and height) is not supported.
	
	   - A server must use DDR4 DIMMs with the same part number (P/N code).

Item	Description

	• Up to 16 PMems
	
	   - PMems must be used with DDR4 DIMMs and up to 1 PMem can be installed in each memory channel.
	
	   - PMems support AD mode or MM mode.
	
	   - Up to 3,200 MT/s
	
	   - Mixing PMems of different specifications (such as capacity and rank) is not supported.
	
	Note:
	The information above is for reference only, consult Inspur Customer Service for details about component compatibility.

Storage	Supports multiple drive configurations, see 5.5.1 Drive Configurations for details.
	
	• Supports 2 M.2 SSDs
	
	   - When the server is configured with an SND 9230 RAID controller card, the M.2 SSDs support RAID configuration.
	
	   - When the M.2 SSDs are directly connected to CPUs, the M.2 SSDs support VROC (SATA/PCIe RAID) configuration.
	
	• Supports hot-swappable SAS/SATA/NVMe drives
	
	• Supports multiple models of RAID controller cards, consult Inspur Customer Service for details.
	
	• Onboard PCH supports 14 SATA connectors (2 × 7-pin SATA + 3 × Mini-SAS HD).
	
	• Onboard Intel NVMe controller with Intel NVMe RAID key as optional
	
	Note:
	Intel NVMe RAID Key: RAID 0/1/10_Black or RAID 0/1/5/10_Red.

Network	Supports multiple types of networks for expansion. • 1 optional OCP 3.0 card (1/10/25/40/100/200 Gb) • 2 onboard 10 GbE ports • Standard PCIe NICs (1/10/25/40/100/200 Gb)
I/O Expansion	Supports PCIe expansion slots. • Up to 11 PCIe slots (10 PCIe x8 + 1 PCIe x16) • 4 dual-slot GPUs or 8 single-slot GPUs

Item	Description
	• 1 OCP 3.0 x16 card Note: The information above is for reference only, see 5.7.2 PCIe Slots and 5.7.3 PCIe Slot Description for details.

Port	Supports multiple ports.
	
	 • Front panel ports:
	
	    - 1 × USB 2.0 port
	
	    - 1 × USB 3.0 port
	
	    - 1 × DB15 VGA port
	
	 • Rear panel ports:
	
	    - 2 × USB 3.0 port
	
	    - 1 × DB15 VGA port
	
	    - 1 × audio jack
	
	 Note:
	 OS installation on the USB storage media is not recommended.

Fan	4 hot-swappable 8056 fans with N+1 rotor redundancy
Power Supply	Supports 550/800/1,300/1,600/2,000 W CRPS power supplies with 1+1 redundancy • 110 to 230 VAC: 90 to 264 VAC • 240 VDC: 180 to 320 VDC • 336 VDC: 260 to 400 VDC • -48 VDC: -40 to -72 VDC
System Management	• UEFI • ISBMC • NC-SI • Inspur Physical Infrastructure Manager
Operating System	For supported operating systems, see 7.1 Supported Operating Systems.

Table 6-2 NF5280LM6 System Specifications

Item	Description
Form Factor	2U rack server
Chipset	Intel C621A
Processor	Supports 2 processors. • 3rd Gen Intel Xeon Scalable processors (Ice Lake) • Integrated memory controllers and 8 memory channels per processor • Integrated PCIe controllers with PCIe 4.0 supported and 64 lanes per processor • 3 UPI links at up to 11.2 GT/s • Up to 40 cores • Maximum base frequency at 3.6 GHz • Minimum L3 cache per core of 1.5 MB • TDP up to 270 W Note: The information above is for reference only, consult Inspur Customer Service for details about component compatibility.

Memory	Supports 32 DIMM slots.
	
	• Up to 32 DDR4 DIMMs
	
	  - 8 memory channels per processor and up to 2 DIMM slots per channel
	
	  - Up to 3,200 MT/s
	
	  - RDIMM or LRDIMM
	
	  - Mixing DDR4 DIMMs of different types (RDIMM and LRDIMM) and specifications (such as capacity, bit width, rank, and height) is not supported.
	
	  - A server must use DDR4 DIMMs with the same part number (P/N code).
	
	Note:
	The information above is for reference only, consult Inspur Customer Service for details about component compatibility.

Storage	Supports multiple drive configurations, see 5.5.1 Drive Configurations for details. • Supports 2 M.2 SSDs

Item	Description
	- When the server is configured with an SND 9230 RAID controller card, the M.2 SSDs support RAID configuration. - When the M.2 SSDs are directly connected to CPUs, the M.2 SSDs support VROC (SATA/PCIe RAID) configuration. • Supports hot-swappable SAS/SATA/NVMe drives • Supports multiple models of RAID controller cards, consult Inspur Customer Service for details. • Onboard PCH supports 14 SATA connectors (2 × 7-pin SATA + 3 × Mini-SAS HD). • Onboard Intel NVMe controller with Intel NVMe RAID key as optional Note: Intel NVMe RAID Key: RAID 0/1/10_Black or RAID 0/1/5/10_Red.
Network	Supports multiple types of networks for expansion. • 1 optional OCP 3.0 card (1/10/25/40/100/200 Gb) • 2 onboard 10 GbE ports • Standard PCIe NICs (1/10/25/40/100/200 Gb)
I/O Expansion	Supports PCIe expansion slots. • Up to 5 PCIe slots • 4 dual-slot GPUs • 1 OCP 3.0 x16 card Note: The information above is for reference only, see 5.7.2 PCIe Slots and 5.7.3 PCIe Slot Description for details.
Port	Supports multiple ports. • Front panel ports: - 1 × USB 2.0 port - 1 × USB 3.0 port - 1 × DB15 VGA port • Rear panel ports: - 2 × USB 3.0 port - 1 × DB15 VGA port

Item	Description
	- 1 × audio jack Note: OS installation on the USB storage media is not recommended.
Fan	4 hot-swappable 8056 fans with N+1 rotor redundancy
Power Supply	Supports 550/800/1,300/1,600/2,000 W CRPS power supplies with 1+1 redundancy • 110 to 230 VAC: 90 to 264 VAC • 240 VDC: 180 to 320 VDC • 336 VDC: 260 to 400 VDC • -48 VDC: -40 to -72 VDC
System Management	• UEFI • ISBMC • NC-SI • Inspur Physical Infrastructure Manager
Operating System	For supported operating systems, see 7.1 Supported Operating Systems.

6.2 Environmental Specifications

6.2.1 NF5280M6 Environmental Specifications

Table 6-3 NF5280M6 Environmental Specifications

Parameter	Description
Temperature[1,2,3]	• Operating: 5℃ to 45℃ (41℉ to 113℉) (ASHRAE Classes A2 to A4 compliant) • Storage (packed): -40℃ to +70℃ (-40℉ to +158℉) • Storage (unpacked): -40℃ to +55℃ (-40℉ to +131℉)
Relative Humidity (RH, non-condensing)	• Operating: 5% to 90% RH • Storage (packed): 5% to 95% RH

Parameter	Description
	• Storage (unpacked): 5% to 95% RH
Operating Altitude	≤ 3,050 m (10,006.56 ft)
Noise[4,5,6]	Noise emissions are measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). Listed are the declared A-weighted sound power levels (LWAd) at a server operating temperature of 23°C (73.4°F): • Idle: LWAd: 6.45 B for standard configuration; 6.90 B for high-performance configuration • Operating: LWAd: 6.52 B for standard configuration; 6.95 B for high-performance configuration

Notes:

1. Not all configurations support an operating temperature range of 5°C to 45°C (41°F to 113°F). Configurations with GPUs support an operating temperature range of 10°C to 35°C (50°F to 95°F) and some configurations with high TDP CPUs support an operating temperature range of 10°C to 35°C (50°F to 95°F).

2. The maximum temperature gradient is 20°C/h (36°F/h).

3. Altitude:

   - ≤ 3,050 m (10,006.56 ft), according to the ASHRAE 2015 Thermal Guidelines:

   When the server configuration complies with ASHRAE Class A2 and the altitude is above 950 m (3,116.80 ft), the highest operating temperature decreases by 1°C (1.8°F) for every increase of 300 m (984.25 ft).

   When the server configuration complies with ASHRAE Class A3 and the altitude is above 950 m (3,116.80 ft), the highest operating temperature decreases by 1°C (1.8°F) for every increase of 175 m (574.15 ft).

   When the server configuration complies with ASHRAE Class A4 and the altitude is above 950 m (3,116.80 ft), the highest operating temperature decreases by 1°C (1.8°F) for every increase of 125 m (410.11 ft).

   - Both the maximum operating altitude and the maximum temperature gradient vary with the server configuration.

   - HDDs are not supported at an altitude of above 3,000 m (9,842.52 ft).

4. This document lists the LWAd of the product at a 23℃ (73.4℉) ambient environment. All measurements are conducted in conformance with ISO 7779 (ECMA 74) and declared in conformance with ISO 9296 (ECMA 109). The listed sound levels apply to the standard configuration. Additional options may result in increased sound levels. Contact your sales representative for more information.

5. The sound levels shown here were measured based on specific configurations of the server. Sound levels vary with server configuration. These values are for reference only and subject to change without notice.

6. Product conformance to cited normative standards is based on sample testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.

6.2.2 NF5280LM6 Environmental Specifications

Table 6-4 NF5280LM6 Environmental Specifications

Parameter	Description
Temperature[1,2,3]	• Operating: 5℃ to 45℃ (41℉ to 113℉) (ASHRAE Classes A2 to A4 compliant) Note: Water inlet temperature: 40℃ (104℉), 1.2 LPM (for 8368Q CPU) • Storage (packed): -40℃ to +70℃ (-40℉ to +158℉) • Storage (unpacked): -40℃ to +55℃ (-40℉ to +131℉) Note: Using non-liquid-cooled CPUs with a liquid-cooled solution, the supported water temperature and corresponding flow rate are dependent on the customer's site conditions.
Relative Humidity (RH, non-condensing)	• Operating: 5% to 90% RH • Storage (packed): 5% to 95% RH • Storage (unpacked): 5% to 95% RH
Operating Altitude	≤ 3,050 m (10,006.56 ft)
Noise[4,5,6]	Noise emissions are measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). Listed are the declared A-weighted sound power levels (LWAd) at a server operating temperature of 23℃ (73.4℉): • Idle:

Parameter	Description
	LWAd: 6.45 B for standard configuration; 6.90 B for high-performance configuration • Operating: LWAd: 6.52 B for standard configuration; 6.95 B for high-performance configuration

Notes:

1. Not all configurations support an operating temperature range of 5°C to 45°C (41°F to 113°F). Configurations with GPUs support an operating temperature range of 10°C to 35°C (50°F to 95°F) and some configurations with high TDP CPUs support an operating temperature range of 10°C to 35°C (50°F to 95°F). For the specific operating temperature specifications of the liquid-cooled configurations, see Table 11-2.

2. The maximum temperature gradient is 20°C/h (36°F/h).

3. Altitude:

    - ≤ 3,050 m (10,006.56 ft), according to the ASHRAE 2015 Thermal Guidelines:

      When the server configuration complies with ASHRAE Class A2 and the altitude is above 950 m (3,116.80 ft), the highest operating temperature decreases by 1°C (1.8°F) for every increase of 300 m (984.25 ft).

      When the server configuration complies with ASHRAE Class A3 and the altitude is above 950 m (3,116.80 ft), the highest operating temperature decreases by 1°C (1.8°F) for every increase of 175 m (574.15 ft).

      When the server configuration complies with ASHRAE Class A4 and the altitude is above 950 m (3,116.80 ft), the highest operating temperature decreases by 1°C (1.8°F) for every increase of 125 m (410.11 ft).

    - Both the maximum operating altitude and the maximum temperature gradient vary with the server configuration.

    - HDDs are not supported at an altitude of above 3,000 m (9,842.52 ft).

4. This document lists the LWAd of the product at a 23°C (73.4°F) ambient environment. All measurements are conducted in conformance with ISO 7779 (ECMA 74) and declared in conformance with ISO 9296 (ECMA 109). The listed sound levels apply to the standard configuration. Additional options may result in increased sound levels. Contact your sales representative for more information.

5. The sound levels shown here were measured based on specific configurations of a server. Sound levels vary with server configuration. These values are for reference only and subject to change without notice.

6. Product conformance to cited normative standards is based on sample testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.

6.3 Physical Specifications

Table 6-5 Physical Specifications

Item	Description
Dimensions (W × H × D)	• Chassis: 435 × 87 × 780 mm (17.13 × 3.43 × 30.71 in.) • Outer packaging: 651 × 295 × 991 mm (25.63 × 11.61 × 39.02 in.)
Installation Dimension Requirements	• Installation requirements for the cabinet are as follows: - General cabinet compliant with the International Electrotechnical Commission 297 (IEC 297) standard - Width: 482.6 mm (19 in.) - Depth: Above 1,100 mm (43.31 in.) • Installation requirements for the server rails are as follows: - L-bracket static rail kit: applicable to cabinets with a distance of 609 to 914 mm (23.98 to 35.98 in.) between the front and rear mounting flanges - Ball-bearing rail kit: applicable to cabinets with a distance of 609 to 914 mm (23.98 to 35.98 in.) between the front and rear mounting flanges
Weight	• Net weight: - Maximum weight of the 12 × 3.5-inch front drive configuration: 29.2 kg (64.37 lbs) - Maximum weight of the 24 × 2.5-inch front drive configuration: 27.5 kg (60.63 lbs) - Maximum weight of the 25 × 2.5-inch front drive configuration: 24.8 kg (54.67 lbs)

Item	Description
	- Maximum weight of the 8 × 3.5-inch front drive configuration: 28 kg (61.73 lbs) • Packaging materials: 9.5 kg (20.94 lbs)
Power Consumption	Power consumption varies with configurations. Consult Inspur Customer Service for details.

7 Operating System and Hardware Compatibility

This section describes the OS and hardware compatibility of the NF5280M/LM6. For the latest compatibility configuration and the component models not listed in this document, contact your local Inspur sales representative.

(i)IMPORTANT

- Using incompatible components may cause the server to work abnormally, and such failures are not covered by technical support or warranty.
- The server performance is strongly influenced by application software, middleware and hardware. The subtle differences in them may lead to performance variation in the application and test software.
  - For requirements on the performance of specific application software, contact Inspur sales representatives to confirm the detailed hardware and software configurations during the pre-sales phase.
  - For requirements on hardware performance consistency, define specific configuration requirements (for example, specific drive models, RAID controller cards, or firmware versions) during the pre-sales phase.

7.1 Supported Operating Systems

Table 7-1 Supported Operating Systems

OS Manufacturer	Version
Microsoft	Windows Server 2019
Red Hat	Red Hat Enterprise Linux 7.9
	Red Hat Enterprise Linux 8.2
	Red Hat Enterprise Linux 8.3
	Red Hat Enterprise Linux 8.4
SUSE	SLES 15 SP2
	SLES 12 SP5
Ubuntu	Ubuntu 20.04
	Ubuntu 18.04
VMware	VMware 7.0

7.2 Hardware Compatibility

7.2.1 CPU Specifications

Table 7-2 CPU Specifications

Model	Cores	Threads	Base Frequency	Max. Turbo Frequency	Cache	TDP
8380	40	80	2.30 GHz	3.40 GHz	60 MB	270 W
8352Y	32	64	2.20 GHz	3.40 GHz	48 MB	205 W
8360Y	36	72	2.40 GHz	3.50 GHz	54 MB	250 W
8352V	36	72	2.10 GHz	3.50 GHz	54 MB	195 W
8368	38	76	2.40 GHz	3.40 GHz	57 MB	270 W
8362	32	64	2.80 GHz	3.60 GHz	48 MB	265 W
8351N	36	72	2.40 GHz	3.50 GHz	54 MB	225 W
8358P	32	64	2.60 GHz	3.40 GHz	48 MB	240 W
8358	32	64	2.60 GHz	3.40 GHz	48 MB	250 W
8352S	32	64	2.20 GHz	3.40 GHz	48 MB	205 W
8352V	36	72	2.10 GHz	3.50 GHz	54 MB	195 W
6342	24	48	2.80 GHz	3.50 GHz	36 MB	230 W
6336Y	24	48	2.40 GHz	3.60 GHz	36 MB	185 W
6314U	32	64	2.30 GHz	3.40 GHz	48 MB	205 W
6354	18	36	3.00 GHz	3.60 GHz	39 MB	205 W
6348	28	56	2.60 GHz	3.50 GHz	42 MB	235 W
6338	32	64	2.00 GHz	3.20 GHz	48 MB	205 W
6330N	28	56	2.20 GHz	3.40 GHz	42 MB	165 W
6338N	32	64	2.20 GHz	3.50 GHz	48 MB	185 W
6338T	24	48	2.10 GHz	3.40 GHz	36 MB	165 W
6330	28	56	2.00 GHz	3.10 GHz	42 MB	205 W
6346	16	32	3.10 GHz	3.60 GHz	24 MB	205 W
6312U	24	48	2.40 GHz	3.60 GHz	36 MB	185 W
6334	8	16	3.60 GHz	3.70 GHz	18 MB	165 W
6326	16	32	2.90 GHz	3.50 GHz	24 MB	185 W
5317	12	24	3.00 GHz	3.60 GHz	18 MB	150 W
5318N	24	48	2.10 GHz	3.40 GHz	36 MB	150 W
5318S	24	48	2.10 GHz	3.40 GHz	36 MB	165 W
5315Y	8	16	3.20 GHz	3.60 GHz	12 MB	140 W
5320	26	52	2.20 GHz	3.40 GHz	39 MB	185 W
5320T	20	40	2.30 GHz	3.50 GHz	30 MB	150 W
5318Y	24	48	2.10 GHz	3.40 GHz	36 MB	165 W

Model	Cores	Threads	Base Frequency	Max. Turbo Frequency	Cache	TDP
4316	20	40	2.30 GHz	3.40 GHz	30 MB	150 W
4309Y	8	16	2.80 GHz	3.60 GHz	12 MB	105 W
4310	12	24	2.10 GHz	3.30 GHz	18 MB	120 W
4310T	10	20	2.30 GHz	3.40 GHz	15 MB	105 W
4314	16	32	2.40 GHz	3.40 GHz	24 MB	135 W

7.2.2 DIMM Specifications

Table 7-3 DIMM Specifications

Type	Capacity	Frequency	Data Width	Organization
RDIMM	16 GB	3,200 MHz	x72	1R x4/2R x8
RDIMM	16 GB	2,933 MHz	x72	1R x4/2R x8
RDIMM	32 GB	3,200 MHz	x72	2R x4
RDIMM	32 GB	2,933 MHz	x72	2R x4
RDIMM	64 GB	3,200 MHz	x72	2R x4
RDIMM	64 GB	2,933 MHz	x72	2R x4
BPS	128 GB	3,200 MHz	-	-
BPS	256 GB	3,200 MHz	-	-
BPS	512 GB	3,200 MHz	-	-

NOTE

The NF5280LM6 does not support BPS memory modules.

7.2.3 Drive Specifications

Table 7-4 NF5280M6 SAS HDD Specifications

Model	Speed in rpm	Capacity	Max. Qty.
2.5-inch SAS HDD	10K	600 GB/1.2 TB/1.8 TB/2.4 TB	39
	15K	600 GB/900 GB	39

Table 7-5 NF5280LM6 SAS HDD Specifications

Model	Speed in rpm	Capacity	Max. Qty.
2.5-inch SAS HDD	10K	600 GB/1.2 TB/1.8 TB/2.4 TB	28
	15K	600 GB/900 GB	28

Table 7-6 NF5280M6 SATA SSD Specifications

Model	Capacity	Max. Qty.
SATA SSD	240 GB	39
SATA SSD	480 GB	39
SATA SSD	960 GB	39
SATA SSD	1.92 TB	39
SATA SSD	3.84 TB	39
SATA SSD	7.68 TB	39

Table 7-7 NF5280LM6 SATA SSD Specifications

Model	Capacity	Max. Qty.
SATA SSD	240 GB	28
SATA SSD	480 GB	28
SATA SSD	960 GB	28
SATA SSD	1.92 TB	28
SATA SSD	3.84 TB	28
SATA SSD	7.68 TB	28

Table 7-8 NF5280M6 U.2 NVMe SSD Specifications

Model	Capacity	Max. Qty.
U.2 NVMe SSD	960 GB	28
U.2 NVMe SSD	1 TB	28
U.2 NVMe SSD	1.6 TB	28
U.2 NVMe SSD	1.92 TB	28
U.2 NVMe SSD	2 TB	28
U.2 NVMe SSD	3.2 TB	28
U.2 NVMe SSD	3.84 TB	28
U.2 NVMe SSD	4 TB	28
U.2 NVMe SSD	6.4 TB	28
U.2 NVMe SSD	7.68 TB	28

Model	Capacity	Max. Qty.
U.2 NVMe SSD	8 TB	28

Table 7-9 NF5280LM6 U.2 NVMe SSD Specifications

Model	Capacity	Max. Qty.
U.2 NVMe SSD	960 GB	24
U.2 NVMe SSD	1 TB	24
U.2 NVMe SSD	1.6 TB	24
U.2 NVMe SSD	1.92 TB	24
U.2 NVMe SSD	2 TB	24
U.2 NVMe SSD	3.2 TB	24
U.2 NVMe SSD	3.84 TB	24
U.2 NVMe SSD	4 TB	24
U.2 NVMe SSD	6.4 TB	24
U.2 NVMe SSD	7.68 TB	24
U.2 NVMe SSD	8 TB	24

Table 7-10 M.2 SSD Drive Specifications

Model	Capacity	Max. Qty.
M.2 SATA SSD	240 GB	2
M.2 SATA SSD	480 GB	2
M.2 SATA SSD	960 GB	2
M.2 SATA SSD	1.92 TB	2
M.2 PCIe SSD	960 GB	2
M.2 PCIe SSD	1.9 TB	2
M.2 PCIe SSD	3.8 TB	2
M.2 PCIe SSD	1 TB	2
M.2 PCIe SSD	2 TB	2

7.2.4 SAS/RAID Controller Card Specifications

Table 7-11 SAS/RAID Controller Card Specifications

Type	Manufacturer	Model
SAS Controller Card	Inspur	3408IT
		MT0800M6H
		MT0801M6E

Type	Manufacturer	Model
		PM8222_SmartHBA
		PM8222_HBA
		SAS3008+IR
		SAS3008+IT
	Broadcom	9400-8i
		9400-16i
RAID Controller Card	Inspur	3508MR_4GB
		MT0804M6R _4GB
		MT0808M6R _8GB
		PM8204_2GB
		PM8204_4GB
	Broadcom	9460-8i_2GB
		9460-16i_4GB
		9361-8i_1G
		9361-8i_2G
	Marvell	9230

7.2.5 NIC Specifications

Table 7-12 OCP NIC Specifications

Type	Model	Speed (Gbps)	Port Qty.
OCP 3.0 Card	I350	1	2
	I350	1	4
	Andes _X710_10G	10	2
	10G_X710- OCPx8	10	2
	25G_MCX562AOCPx16	25	2
	25G_E810XXVDA2OCPx8	25	2
	Andes _E810_25GOCPx8	25	2
	25G_MCX4621AOCPx8	25	2
	BROADCM_25GOCPx16	25	2
	25G_MCX631432AOCPx8	25	2
	100G_MCX566AOCPx16	100	2
	100G_MCX623436AOCPx16	100	2
	200G_MCX623435AOCPx16	200	1

Table 7-13 PCIe NIC Specifications

Type	Model	Speed (Gbps)	Port Qty.
PCIe NIC	I350AM4_1G_RJ45	1	4
	1G_I350	1	2
	Fortville_X710_10G	10	2
	82599ES_10G	10	2
	10G_X550T2	10	2
	Pyxis_X550_10G	10	2
	10G_X710DA2	10	2
	10G_MCX4121A	10	2
	25G_MCX4121A	25	2
	25G_MCX512A	25	2
	BRCM_25G_57414	25	2
	25G_MCX631102A	25	2
	E810_25G	25	2
	25G_9250	25	2
	40G_XL710	40	1
	40G_XL710	40	2
	100G_MCX516ACDAT	100	2
	100G_MCX623106A	100	2
	100G_MCX515A	100	1
	100G_MCX516A	100	2
	100G_MCX623106	100	2

7.2.6 HBA/HCA Card Specifications

Table 7-14 HBA Card Specifications

Type	Model
HBA Card	4R1_QLE2690
	4R2_QLE2692
	QLE2772_FC32G
	LPE35002_FC32G
	QLE2742
	LPE31000
	LPE31002
	LPE32002
	LPE32000

Table 7-15 HCA Card Specifications

Type	Model	Speed (Gbps)	Port Qty.
HCA Card	MCX653105A-ECAT	100	1
	MCX653106A-ECAT	100	2
	MCX653105A-HDAT	200	1
	MCX653106A-HDAT	200	2

7.2.7 GPU/Graphics Card Specifications

Table 7-16 NF5280M6 GPU/Graphics Card Specifications

Type	Model	Max. Qty.
GPU	GPU_NV_32G_NVIDIA-V100S-PCIe3_4096b	4
	GPU_NV_16GB_Tesla-T4_256b_P	8
	GPU_NV_24G_NVIDIA-A10-PCIe4_384b	4
	GPU_NV_48G_NVIDIA-A40-PCIe4_384b	4
	GPU_NV_24G_NVIDIA-A30-PCIe4_3072b	4
	GPU_NV_40G_NVIDIA-A100-PCIe4_5120b	4
	GPU_NV_80G_NVIDIA-A100-PCIe4_5120b	4
	GPU_NV_80G_NVIDIA-A800-PCIe4_5120b	4
Graphics Card	Video_NV_2G_P620_128b_P_PG178	2
	Video_NV_5G_P2200_160b_P	2
	Video_ASUS_24G_RTX3090_384b_P	4
	Video_CF_24G_RTX3090_384b_P	4
	Video_GA_24G_RTX3090_384b_P	2

Table 7-17 NF5280LM6 GPU/Graphics Card Specifications

Type	Model	Max. Qty.
GPU	GPU_NV_32G_NVIDIA-V100S-PCIe3_4096b	4
	GPU_NV_24G_NVIDIA-A10-PCIe4_384b	4
	GPU_NV_48G_NVIDIA-A40-PCIe4_384b	4
	GPU_NV_24G_NVIDIA-A30-PCIe4_3072b	4
	GPU_NV_40G_NVIDIA-A100-PCIe4_5120b	4
	GPU_NV_80G_NVIDIA-A100-PCIe4_5120b	4
	GPU_NV_80G_NVIDIA-A800-PCIe4_5120b	4
Graphics Card	Video _NV_2G_P620_128b_P_PG178	2
	Video _NV_5G_P2200_160b_P	2
	Video _ASUS_24G_RTX3090_384b_P	4

Type	Model	Max. Qty.
	Video _CF_24G_RTX3090_384b_P	4
	Video _GA_24G_RTX3090_384b_P	2

NOTE

For GPU configurations, the system memory capacity should be at least 1.5 times (preferably over 2 times) that of the video memory in the same NUMA architecture. Besides, dual-channel memory configuration is recommended.

7.2.8 PSU Specifications

The NF5280M/LM6 supports up to 2 hot-swap PSUs in 1+1 redundancy (not supported by some 3-/4-GPU configurations) that follow the Intel Common Redundant Power Supply (CRPS) specification with standard electrical and structural design. The CRPS PSUs are 80 Plus Platinum rated with various output powers, allowing customers to choose as needed. The PSUs will lock automatically after being inserted into the power bay, enabling tool-less maintenance.

- The following rated 110 VAC/230 VAC and 240 VDC PSUs in 1+1 redundancy are supported:

  - 550 W Platinum PSU: 550 W (110 VAC), 550 W (230 VAC), 550 W (240 VDC for China)

  - 800 W Platinum PSU: 800 W (110 VAC), 800 W (230 VAC), 800 W (240 VDC for China)

  - 1,300 W Platinum PSU: 1,000 W (110 VAC), 1,300 W (230 VAC), 1,300 W (240 VDC for China)

  - 1,600 W Platinum PSU: 1,000 W (110 VAC), 1,600 W (230 VAC), 1,600 W (240 VDC for China)

  - 2,000 W Platinum PSU: 1,000 W (110 VAC), 2,000 W (230 VAC), 2,000 W (240 VDC for China)

  - 800 W Titanium PSU: 800 W (110 VAC), 800 W (230 VAC), 800 W (240 VDC for China)

  - 1,300 W Titanium PSU: 1,000 W (110 VAC), 1,300 W (230 VAC), 1,300 W (240 VDC for China)

□ NOTE

At a rated input voltage of 110 VAC, the output power of a 1,300/1,600/2,000 W PSU will be derated to 1,000 W.

- Operating voltage range:

  110 to 230 VAC: 90 to 264 VAC

  240 VDC: 180 to 320 VDC

● The following rated 336 VDC PSUs in 1+1 redundancy are supported:

- 800 W PSU: 800 W (336 VDC)

- 1,300 W PSU: 1,300 W (336 VDC)

- Operating voltage range:

  336 VDC: 260 to 400 VDC

● The following rated -48 VDC PSUs in 1+1 redundancy are supported:

- 800W PSU: 800W (-48 VDC)

- 1,300W PSU: 1,300W (-48 VDC)

- Operating voltage range:

  -48 VDC: -40 to -72 VDC

8 Regulatory Information

8.1 Safety

8.1.1 General

- Strictly comply with local laws and regulations while installing the equipment. The safety instructions in this section are only a supplement to local safety regulations.

- To ensure personal safety and to prevent damage to the equipment, all personnel must strictly observe the safety instructions in this section and on the device labels.

- People performing specialized activities, such as electricians and electric forklift operators, must possess qualifications recognized by the local government or authorities.

8.1.2 Personal Safety

- Only personnel certified or authorized by Inspur are allowed to perform the installation procedures.

- Stop any operation that could cause personal injury or equipment damage. Report to the project manager and take effective protective measures.

- Working during thunderstorms, including but not limited to handling equipment, installing cabinets and installing power cords, is forbidden.

- Do not carry the weight over the maximum load per person allowed by local laws or regulations. Arrange appropriate installation personnel and do not overburden them.

- Installation personnel must wear clean work clothes, work gloves, safety helmets and safety shoes, as shown in Figure 8-1.

Figure 8-1 Protective Clothing

- Before touching the equipment, put on ESD clothes and ESD gloves or an ESD wrist strap, and remove any conductive objects such as wrist watches or metal jewelry, as shown in Figure 8-2, in order to avoid electric shock or burns.

Figure 8-2 Removing Conductive Objects
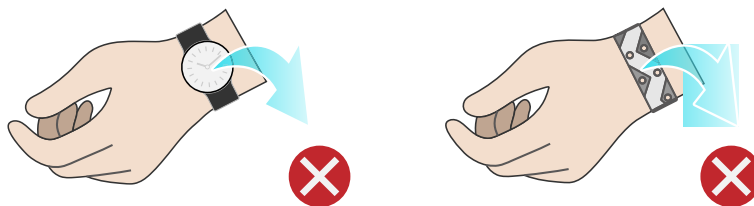
How to put on an ESD strap (Figure 8-3).

a. Put your hand through an ESD wrist strap.

b. Tighten the strap buckle to ensure a snug fit.

c. Plug the alligator clip of the ESD wrist strap into the corresponding jack on the grounded cabinet or grounded chassis.

Figure 8-3 Wearing an ESD Wrist Strap
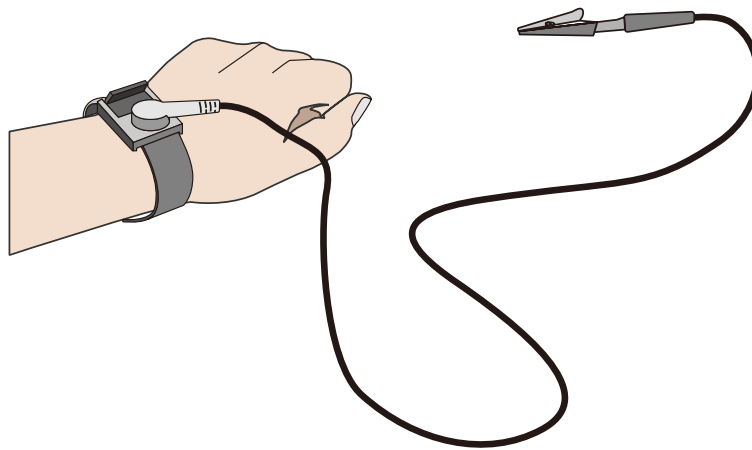
- Use tools correctly to avoid personal injury.

- When moving or lifting equipment above shoulder height, use lifting devices and other tools as necessary to avoid personal injury or equipment damage due to equipment slippage.

- The power sources of the server carry a high voltage. Direct contact or indirect contact through damp objects with the high-voltage power source is fatal.

- To ensure personal safety, ground the server before connecting power.

- When using ladders, always have someone hold and guard the bottom of the ladders. In order to prevent injury, never use a ladder alone.

- When connecting, testing or replacing optical fiber cable, avoid looking into the optical port without eye protection in order to prevent eye damage from laser light.

8.1.3 Equipment Safety

- To ensure personal safety and prevent equipment damage, use only the power cords and cables that come with the server. Do not use them with any other equipment.

- Before touching the equipment, put on ESD clothing and ESD gloves to prevent static electricity from damaging the equipment.

- When moving the server, hold the bottom of the server. Do not hold the handles of any module installed in the server, such as PSUs, fan modules, drive modules, or motherboard. Handle the equipment with care at all times.

- Use tools correctly to avoid damage to the equipment.

- Connect the power cords of active and standby PSUs to different PDUs to ensure high system reliability.

- To ensure equipment safety, always ground the equipment before powering it on.

8.1.4 Transportation Precautions

Contact the manufacturer for precautions before transportation as improper transportation may damage the equipment. The precautions include but not limited to:

- Hire a trusted logistics company to move all equipment. The transportation process must comply with international transportation standards for electronic equipment. Always keep the equipment being transported upright. Avoid collision, moisture, corrosion, packaging damage or contamination.

- Transport the equipment in its original packaging.

- If the original packaging is unavailable, separately package heavy and bulky components (such as chassis, blade servers and blade switches), and fragile components (such as optical modules and PCIe cards).

- Power off all equipment before shipping.

8.1.5 Manual Handling Weight Limits

⚠️ CAUTION

Observe local laws or regulations regarding the manual handling weight limits per person. The limits shown on the equipment and in the document are recommendations only.

Table 8-1 lists the manual handling weight limits per person specified by some organizations.

Table 8-1 Manual Handling Weight Limits per Person

Organization	Weight Limit (kg/lbs)
European Committee for Standardization (CEN)	25/55.13
International Organization for Standardization (ISO)	25/55.13
National Institute for Occupational Safety and Health (NIOSH)	23/50.72
Health and Safety Executive (HSE)	25/55.13
General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ)	• Male: 15/33.08 • Female: 10/22.05

8.2 Warranty

For information about warranty policies, refer to Chapter 9 Inspur Limited Warranty in *Inspur Server NF5280M6 & NF5280LM6 User Manual*.

9 System Management

9.1 Intelligent Management System ISBMC

ISBMC, an Inspur self-developed remote server management system, supports mainstream management specifications in the industry such as IPMI 2.0 and Redfish 1.8. ISBMC features high operational reliability, easy serviceability for different business scenarios, accurate and comprehensive fault diagnosis capabilities, and industry-leading security reinforcement capabilities.

ISBMC supports:

- IPMI 2.0

- Redfish 1.8

- SNMP v1/v2c/v3

- HTML5/Java remote consoles (Keyboard, Video, Mouse)

- Remote virtual media

- Login via web browsers

- Intelligent fault diagnosis

Table 9-1 ISBMC Features

Feature	Description
Management Interface	Supports extensive remote management interfaces for various server O&M scenarios. The supported interfaces include: • IPMI • SSH CLI • SNMP • HTTPS • Web GUI • Redfish • RESTful • DCMI • Syslog

Feature	Description
Accurate and Intelligent Fault Location	IDL, a self-developed fault diagnosis system, offers accurate and comprehensive hardware fault location capabilities, and outputs detailed fault causes and handling suggestions.
Alert Management	Supports rich automatic remote alert capabilities, including proactive alerting mechanisms such as SNMP Trap (v1/v2c/v3), email alerts and syslog remote alerts to ensure 24 × 7 reliability.
Remote Console KVM	Supports HTML5- and Java-based remote console to remotely control and operate the monitor/mouse/keyboard of the server, providing highly available remote management capabilities without on-site operation.
Virtual Network Console (VNC)	Supports mainstream third-party VNC clients without relying on Java, improving management flexibility.
Remote Virtual Media	Supports virtualizing images, USB devices, folders and local media devices as media devices of remote servers, simplifying OS installation, file sharing, and other O&M tasks.
Web GUI	Supports the visual management interface developed by Inspur, displaying abundant information of the server and components, and offers easy-to-use Web GUIs.
Crash Screenshot and Manual Screenshot	Supports automatic crash screenshot with the last screen before crash saved, and provides manual screenshot, which can quickly capture the screen for easy inspection at scheduled time.
Dual Flash and Dual Image	Supports dual flash and dual image, enabling automatic flash failover in case of software faults or flash damage, improving operational reliability.
Power Capping	Supports power capping, increasing deployment density and reducing energy consumption.
IPv4/IPv6	Supports both IPv4 and IPv6, enhancing network deployment flexibility.
Auto-Switching of Management Network Port	Supports auto-switching between the dedicated management network port and shared management network port, providing customers with flexible network deployment solutions for different management network deployment scenarios.
ISBMC Self-Diagnosis and Self-Recovery System	• Supports the reliable dual watchdog mechanism for hardware and software, enabling automatic restoration of BMC in case of BMC abnormality. • Provides a thermal protection mechanism, which is automatically triggered when the BMC is abnormal to

Feature	Description
	ensure that the fan operates at safe speeds to avoid system overheating. • Supports self-diagnosis of processors, memory modules, and storage devices of ISBMC, and automatically cleans the workload to restore to normal when the device usage rate is too high.
Power Supply Control	Supports virtual power buttons for startup, shutdown, restart, and restart after shutdown.
UID LED and Remote Control LED	Supports remote lighting of the UID LED for locating the server in the server room, and supports remote control LED. The UID LED flashes when a user remotely logs in via web, KVM, or SSH to inform the on-site personnel that an administrator is accessing the server.
Secure Firmware Update	Supports firmware update based on secure digital signatures, mismatch prevention mechanism for firmware from different manufacturers and firmware for different server models, and firmware update of BMC/BIOS/CPLD/PSU.
Serial Port Redirection	Supports remote redirection of the system serial port, BMC serial port and other serial ports, and directs the server-side serial port output to the local administrator via the network for server debugging.
Storage Information Display	Displays RAID logical array information and drive information, supports remote RAID creation for improved deployment efficiency.
User Role Management	Supports user detail management based on user roles and flexible creation of user roles with different privileges, and provides more user roles to allow administrators to grant different privileges to O&M personnel.
Security Feature	Adopts the industry-leading Inspur server security baseline standard V2.0. SSH, HTTPS, SNMP and IPMI use secure and reliable algorithms. ISBMC offers capabilities including secure update and boot and security reinforcement mechanisms such as anti-replay, anti-injection, and anti-brute force.

9.2 Inspur Physical Infrastructure Manager (ISPIM)

The NF5280M/LM6 server is compatible with the latest version of Inspur Physical

Infrastructure Manager (ISPIM).

ISPIM is a new-generation infrastructure O&M management platform for industry data centers. Based on cutting-edge O&M concepts, ISPIM provides users with leading and efficient overall management solutions for data centers to ensure the advanced infrastructure management. This platform provides a rich set of functions such as centralized resource management, in-depth fault diagnosis, second-level performance monitoring, intelligent power consumption management, 3D automatic topology, and stateless automatic deployment. With these functions, users can implement centralized O&M of servers, storage devices, network devices, security devices, and edge devices, effectively improving O&M efficiency, reducing O&M costs, and ensuring the secure, reliable, and stable operation of data centers. ISPIM has the following key features:

● Lightweight deployment in multiple scenarios and full lifecycle management of devices

● High reliability and on-demand node scalability enabled by 1 to N data collectors

● Intelligent asset management and real-time tracking of asset changes

● Comprehensive monitoring for overall business control

● Intelligent fault diagnosis for reduced maintenance time

● Second-level performance monitoring for real-time status control of devices

● Batch configuration, deployment and update, shortening the deployment time

● Improved version management efficiency

● Standardized northbound interfaces for easy integration and interfacing

Table 9-2 ISPIM Features

Feature	Description
Centralized Device Management	Supports centralized management of network-wide devices, including servers (the full range of Inspur server family, including general-purpose rack servers, AI servers, blade servers, all-in-one servers and other high-end server products, and third-party servers), storage devices (Inspur general-purpose disk arrays, distributed storage devices, and storage devices of other manufacturers), and network devices (Inspur switches, third-party switches, and third-party firewall devices).
Monitoring	Supports centralized display, search, blocking and email notifications of device alerts, creation of alert rules, notification rules and blocking rules, alert severity level

Feature	Description
	setting, alert forwarding and southbound settings, device performance monitoring, and distributed monitoring.
Stateless Computing	Supports BMC/BIOS update and configuration of Inspur servers, RAID configuration of Inspur servers, firmware configuration templates, automatic firmware baseline management and the repository for update files.
OS Deployment	Supports batch deployment of OSs via BMC interfaces, one-click deployment with automatic and detailed logging and with no manual intervention needed, and concurrent deployment of up to 40 devices.
Asset Management	Supports part-level asset management, multi-dimensional asset report, 3D data centers and asset maintenance management.
Inspection	Supports active inspection, alert-triggered passive inspection, intelligent fault diagnosis and analysis, and call home.
Security Management	Implements security control of ISPIM via a set of security policies such as user management, role management, authentication management (local authentication and LDAP authentication) and certificate management.

9.3 Inspur Server Intelligent Boot (ISIB)

The NF5280M/LM6 server is compatible with the latest version of Inspur Server Intelligent Boot (ISIB) system, a self-developed automatic O&M management system throughout the server lifecycle. Based on the SSH and PXE technologies, it is compatible with the full range of Inspur servers, and offers more efficient and reliable automatic deployment and software and hardware configuration management. ISIB has the following key features:

● Full lifecycle management from deployment to automatic O&M

● One-stop and one-click deployment for bare metal servers

● Flexible task scheduling with O&M capabilities in multiple scenarios

● Large-scale deployment of technical architecture, shortening the deployment time

● Zero network deployment with plug-and-play support

● Accurate logging and instruction-level tracing of execution results

● Rich built-in O&M scripts and management schemes

Table 9-3 ISIB Features

Feature	Description
Home	Provides multi-dimensional report of assets, repositories, operations and jobs, displays jobs 24 hours dynamically and column bars of jobs in the last 30 days.
Asset	Supports automatic device discovery, OS information collection, and out-of-band/in-band power supply management.
Repository	Enables you to manage images, software, firmware, configuration files, scripts and sources for easy OS deployment and firmware update.
Operation	• Firmware update • Hardware configuration • Automatic OS installation via PXE • Installation template management • Image cloning and restoration
Task	• Supports job scheduling, and scheduled and periodic task execution. • Provides visual multi-dimensional task display and detailed logging.

10 Certifications

Table 10-1 NF5280M6 Certifications

Country/Region	Certification	Mandatory/Voluntary
China	CCC	Mandatory
	China Environmental Labelling	Voluntary
	CECP	Voluntary
International Mutual Recognition	CB	Voluntary
EU	CE	Mandatory
US	FCC	Mandatory
	UL	Voluntary
	Energy Star	Voluntary
Russia	EAC	Mandatory
	FSS	Mandatory
South Korea	E-Standby	Mandatory
	KC	Mandatory
India	BIS	Mandatory
Australia	RCM	Mandatory
Israel	SII	Mandatory
Mexico	NOM	Mandatory
Taiwan, China	BSMI	Mandatory
UK	UKCA	Mandatory
Canada	IC	Mandatory
South Africa	LOA	Mandatory
	SABS	Mandatory

11 Appendix A

11.1 Operating Temperature Specification Limits

Table 11-1 NF5280M6 Operating Temperature Specification Limits

Configuration	Max. Operating Temp. 30°C (86°F)	Max. Operating Temp. 35°C (95°F) (ASHRAE Class A2 Compliant)	Max. Operating Temp. 40°C (104°F) (ASHRAE Class A3 Compliant)	Max. Operating Temp. 45°C (113°F) (ASHRAE Class A4 Compliant)
8 × 3.5-inch/16 × 2.5-inch Drive Configuration	All options supported	• Non-GPU configurations: All options supported • GPU configurations: CPUs with a TDP > 205 W not supported	Options not supported: • PCIe SSDs • Fanless GPUs • CPUs with a TDP > 185 W (for GPU configurations) • Internal and rear NVMe drives	Options not supported: • PCIe SSDs, Smart NICs and accelerator cards with a TDP > 25 W • Fanless GPUs • Internal and rear drives • CPUs with a TDP ≥165 W • DIMMs (including BPS) with a TDP > 8 W

Configuration	Max. Operating Temp. 30°C (86°F)	Max. Operating Temp. 35°C (95°F) (ASHRAE Class A2 Compliant)	Max. Operating Temp. 40°C (104°F) (ASHRAE Class A3 Compliant)	Max. Operating Temp. 45°C (113°F) (ASHRAE Class A4 Compliant)
12 × 3.5-inch Drive Configuration	BPS not supported	Options not supported: • Internal and rear NVMe drives (for some configurations) • DIMMs (including BPS) with a TDP > 8 W	Options not supported: • PCIe SSDs • Internal and rear drives • DIMMs (including BPS) with a TDP > 8 W • CPUs with a TDP > 205 W	Not supported
24 × 2.5-inch Drive Configuration	All options supported			
25 × 2.5-inch Drive Configuration	All options supported			
24 × 2.5-inch NVMe Drive Configuration	DIMMs (including BPS) with a TDP > 8 W not supported	Options not supported: • PCIe SSDs • Internal and rear drives • DIMMs (including BPS) with a TDP > 8 W	Not supported	

☰ NOTE

• The maximum operating temperature is 5°C (9°F) lower than the rated value if a single fan rotor fails.
• For GPU configurations, single fan rotor failure may affect system performance.
• It is recommended to deploy your servers at 1U space intervals to reduce server noise and improve energy efficiency.
• When using the front bezel with 100 GbE OCP NIC card(s), GPU(s) and all front drives (24-drive/25-drive configuration) installed, the maximum

operating temperature is 3°C (5.4°F) lower than the rated value.

Table 11-2 NF5280LM6 Operating Temperature Specification Limits

Configuration	Max. Operating Temp. 30°C (86°F)	Max. Operating Temp. 35°C (95°F) (ASHRAE Class A2 Compliant)	Max. Operating Temp. 40°C (104°F) (ASHRAE Class A3 Compliant)	Max. Operating Temp. 45°C (113°F) (ASHRAE Class A4 Compliant)
8 × 3.5-inch/16 × 2.5-inch Drive Configuration	All options supported	All options supported	Options not supported: • PCIe SSDs • Fanless GPUs • Internal and rear NVMe drives	Options not supported: • PCIe SSDs, Smart NICs and accelerator cards with a TDP ＞25 W • Fanless GPUs • Internal and rear drives • DIMMs (including BPS) with a TDP ＞8 W
12 × 3.5-inch Drive Configuration	BPS not supported	Options not supported: • Internal and rear NVMe drives (for some configurations) • DIMMs (including BPS) with a TDP ＞8 W	Options not supported: • PCIe SSDs • Internal and rear drives • DIMMs (including BPS) with a TDP ＞8 W	Not supported
24 × 2.5-inch Drive Configuration	All options supported			

Configuration	Max. Operating Temp. 30°C (86°F)	Max. Operating Temp. 35°C (95°F) (ASHRAE Class A2 Compliant)	Max. Operating Temp. 40°C (104°F) (ASHRAE Class A3 Compliant)	Max. Operating Temp. 45°C (113°F) (ASHRAE Class A4 Compliant)
24 × 2.5-inch NVMe Drive Configuration	DIMMs (including BPS) with a TDP > 8 W not supported	Options not supported: • PCIe SSDs • Internal and rear drives • DIMMs (including BPS) with a TDP > 8 W	Not supported	

📋 NOTE

- The maximum operating temperature is 5°C (9°F) lower than the rated value if a single fan rotor fails.
- For GPU configurations, single fan rotor failure may affect system performance.
- It is recommended to deploy your servers at 1U space intervals to reduce server noise and improve energy efficiency.
- When using the front bezel with 100 GbE OCP NIC card(s), GPU(s) and all front drives (24-drive configuration) installed, the maximum operating temperature is 3°C (5.4°F) lower than the rated value.

11.2 Model

Table 11-3 Model

Certified Model	Description
NF5280M6	Global
NF5280LM6	Global

11.3 RAS Features

The NF5280M/LM6 supports a variety of RAS (Reliability, Availability, and Serviceability) features. By configuring these features, the NF5280M/LM6 can provide greater reliability, availability, and serviceability.

11.4 Sensor List

Table 11-4 Sensor List

Sensor	Description	Sensor Location
Inlet_Temp	Air inlet temperature	Right mounting ear
Outlet_Temp	Air outlet temperature	Motherboard
PCH_Temp	PCH temperature	Motherboard
CPUN_Temp	CPUn core temperature	CPUn n indicates the CPU number with a value of 0 - 1
CPUN_DTS	CPUn DTS value	CPUn n indicates the CPU number with a value of 0 - 1
CPUN_DDR_DIMM_T	CPUn DIMM temperature	DIMM (CPUn) n indicates the CPU number with a value of 0 - 1
PSUN_Temp	PSUn temperature	PSUn n indicates the PSU number with a value of 0 - 1
HDD_MAX_Temp	The maximum temperature among all drives	Drives attached to drive backplane
OCP_NIC_Temp	OCP NIC temperature	OCP NIC
OCP_RAID_Temp	OCP RAID controller card temperature	Motherboard OCP RAID controller card
PCIe_NIC_Temp	PCIe NIC temperature	Motherboard PCIe NIC
RAID_Temp	Temperature of all PCIe RAID controller cards	Motherboard PCIe RAID controller cards
GPU_Temp	Temperature of all GPUs	Motherboard PCIe GPUs
Accelerate_Temp	The maximum temperature among all accelerator cards	Accelerator Cards

Sensor	Description	Sensor Location
PCIe_SSD_Temp	The maximum temperature among all PCIe SSDs	PCIe SSDs on motherboard
SYS_12V	12 V voltage supplied by motherboard to CPU	Motherboard
SYS_5V	5 V voltage supplied by motherboard to BMC	Motherboard
SYS_3V3	3.3 V voltage supplied by motherboard to BMC	Motherboard
CPUN_DDR_VDDQ1	1.2 V DIMM voltage	Motherboard n indicates the CPU number with a value of 0 - 1
CPUN_DDR_VDDQ2	1.2 V DIMM voltage	Motherboard n indicates the CPU number with a value of 0 - 1
CPUN_DDR_VPP1	DIMM VPP1 voltage	Motherboard n indicates the CPU number with a value of 0 - 1
CPUN_DDR_VPP2	DIMM VPP2 voltage	Motherboard n indicates the CPU number with a value of 0 - 1
CPUN_Vcore	CPUn Vcore voltage	Motherboard n indicates the CPU number with a value of 0 - 1
CPUN_VCCIO	CPUn VCCIO voltage	Motherboard n indicates the CPU number with a value of 0 - 1
PSUN_VIN	PSUn input voltage	Motherboard n indicates the PSU number with a value of 0 - 1
PSUN_VOUT	PSUn output voltage	Motherboard n indicates the PSU number with a value of 0 - 1
RTC_Battery	RTC battery voltage	RTC battery on motherboard
FANN_Speed FANN_F_Speed FANN_R_Speed	FANn speed	FANn n indicates the fan module number with a value of 0 - 3
Total_Power	Total input power	PSUs
PSUN_PIN	PSUn input power	PSUn n indicates the PSU number with a value of 0 - 1
PSUN_POUT	PSUn output power	PSUn

Sensor	Description	Sensor Location
		n indicates the PSU number with a value of 0 - 1
FAN_Power	Total fan power	Fans
CPU_Power	Total CPU power	Motherboard
Memory_Power	Total memory power	Motherboard
Disk_Power	Total drive power	Motherboard
CPUN_Status	CPUn status	CPUn n indicates the CPU number with a value of 0 - 1
CPU_Config	CPU configuration status	CPUs
CPUN_MEM_Hot	CPUn DIMM overtemperature	CPUn n indicates the CPU number with a value of 0 - 1
CPUN_CXDY	CPUn DIMM status	The corresponding DIMM for CPUn n indicates the CPU number with a value of 0 - 1; x indicates the memory channel number under the CPU with a value of 0 - 7; y indicates the DIMM number with a value of 0 – 1
FANN_Status	FANn failure status	FANn n indicates the fan number with a value of 0 - 3
FAN_Redundant	Fan redundancy lost alert status	Fans
PCIe_Status	PCIe card status error	PCIe card
Power_Button	Power button pressed	Motherboard
Watchdog2	Watchdog	Motherboard
Sys_Health	BMC health status	BMC
UID_Button	UID button status	Motherboard
PWR_Drop	Voltage drop status	Motherboard
PWR_On_TMOUT	Power-on timeout	Motherboard
PWR_CAP_Fail	Power capping status	Motherboard
BP_F_Disk_Stat	Front drive backplane status	Drive Backplane
PSU_Redundant	PSU redundancy lost alert status	PSUs
PSU_Mismatch	PSU model mismatch	PSUs
PSUN_Status	PSUn failure status	PSUn

Sensor	Description	Sensor Location
		n indicates the PSU number with a value of 0 - 1
Intrusion	Chassis-opening activity	Motherboard
SysShutdown	Reason for system shutdown	/
ACPI_PWR	ACPI status	
ME_FW_Status	ME status	
SysRestart	Reason for system restart	
BIOS_Boot_Up	BIOS boot up complete	
System_Error	Emergency system failure	
POST_Status	POST status	
BMC_Boot_Up	Record the BMC boot event	/
SEL_Status	Record the event that system event logs are almost full/cleared	
BMC_Status	BMC status	/
Leakage_Detect	Leakage detection status	Motherboard (applicable to NF5280LM6 only)

12 Appendix B Acronyms and Abbreviations

A

AC	Alternating Current
ACPI	Advanced Configuration and Power Interface
AD	App Direct
AI	Artificial Intelligence
AQSIQ	General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China
AVX	Advanced Vector Extensions

B

BIOS	Basic Input Output System
BIS	Bureau of Indian Standards
BLE	BIOS Lock Enable
BMC	Baseboard Management Controller
BPS	Barlow Pass
BSMI	The Bureau of Standards, Metrology and Inspection

C

CAS	Column Address Strobe
CB	Certification Body
CCC	China Compulsory Certificate

CE	Conformitè Europëenne
CECP	China Energy Conservation Program
CEN	European Committee for Standardization
CLI	Command-Line Interface
CLK	Clock
CMOS	Complementary Metal-Oxide-Semiconductor
CPLD	Complex Programmable Logic Device
CPU	Central Processing Unit
CRPS	Common Redundant Power Supply

D

DC	Direct Current
DCMI	Data Center Manageability Interface
DDR4	Double Data Rate 4
DIMM	Dual In-line Memory Module
DL	Deep Learning
DPC	DIMM Per Channel
DRAM	Dynamic Random Access Memory
DTS	Digital Thermal Sensor

E

EAC	Eurasian Conformity
ECC	Error-Correcting Code
ECMA	European Computer Manufacturers Association
ESD	Electrostatic Discharge
E1.S	Enterprise & Data Center SSD Form Factor 1 Unit Short

F

FCC	Federal Communications Commission
FHFL	Full-Height Full-Length
FHHL	Full-Height Half-Length
FSS	Federal Security Service
FW	Firmware

G

GbE	Gigabit Ethernet
GPU	Graphics Processing Unit
GUI	Graphical User Interface

H

HBA	Host Bus Adapter
HCA	Host Channel Adapter
HDD	Hard Disk Drive
HHHL	Half-Height Half-Length
HSE	Health and Safety Executive
HTML	HyperText Markup Language
HTTPS	Hypertext Transfer Protocol Secure

I

I/O	Input/Output
IC	Industry Canada
IDL	Inspur Diagnosis Log

IEC	International Electrotechnical Commission
IIPC	Intel Intelligent Power Capability
IMC	Integrated Memory Controller
IOPS	Input/Output Operations Per Second
IP	Internet Protocol
IPMI	Intelligent Platform Management Interface
IPV4	Internet Protocol version 4
IPv6	Internet Protocol version 6
ISBMC	Inspur Server Baseboard Management Controller
ISIB	Inspur Server Intelligent Boot
ISO	International Organization for Standardization
ISPIM	Inspur Physical Infrastructure Manager
ISQP	Inspur Server Quick Provisioning

J

JTAG	Joint Test Action Group

K

KC	Korea Certification
KVM	Keyboard Video Monitor

L

LAN	Local Area Network
LCD	Liquid Crystal Display
LDAP	Lightweight Directory Access Protocol
LED	Light Emitting Diode

LOA	Letter of Authority
LRDIMM	Load-Reduced Dual In-line Memory Module

M

ME	Management Engine
MM	Memory Mode

N

NC-SI	Network Controller Sideband Interface
NIC	Network Interface Card
NIOSH	National Institute for Occupational Safety and Health
NOM	Norma Oficial Mexicana
NUMA	Non-Uniform Memory Access
NVMe	Non-Volatile Memory Express

O

OCP	Open Compute Project
OS	Operating System

P

PCH	Platform Controller Hub
PCIe	Peripheral Component Interconnect Express
PDU	Power Distribution Unit
PID	Proportional-Integral-Derivative
PMem	Persistent Memory

POST	Power-On Self-Test
PSU	Power Supply Unit
PXE	Pre-boot Execution Environment

R

RAID	Redundant Arrays of Independent Disks
RAS	Reliability, Availability, Serviceability
RCM	Regulatory Compliance Mark
RDIMM	Registered Dual In-line Memory Module
RH	Relative Humidity
RHEL	Red Hat Enterprise Linux
RJ45	Registered Jack 45
RST	Reset
RTC	Real Time Clock

S

SABS	South African Bureau of Standards
SAS	Serial Attached SCSI
SATA	Serial Advanced Technology Attachment
SCSI	Small Computer System Interface
SEL	System Event Log
SFP	Small Form-Factor Pluggable
SGPIO	Serial General Purpose Input/Output
SGX	Software Guard Extensions
SII	The Standards Institution of Israel
SN	Serial Number

SNMP	Simple Network Management Protocol
SSD	Solid State Drive
SSH	Secure Shell
Syslog	System Log

T

TCM	Trusted Cryptography Module
TDP	Thermal Design Power
TF	TransFlash
TME	Total Memory Encryption
TPM	Trusted Platform Module

U

UEFI	Unified Extensible Firmware Interface
UID	Unit Identification
UKCA	UK Conformity Assessed
UL	Underwriters Laboratories
UPI	Ultra Path Interconnect
USB	Universal Serial Bus

V

VGA	Video Graphics Array
VLAN	Virtual Local Area Network
VMD	Volume Management Device
VNC	Virtual Network Console
VNNI	Vector Neural Network Instructions

VPP	Virtual Pin Port
VRD	Voltage Regulator-Down
VROC	Virtual RAID on CPU