Environmental Protection

Please dispose of product packaging by recycling at a local recycling center for a greener planet.

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All other trademarks or registered trademarks mentioned herein are the property of their respective holders.

Security Statement

Inspur is intensely focused on server product safety and has placed a high priority on this. For a better understanding of our server products, carefully read through the following security risk statements.

- When servers are to be repurposed or retired, it is recommended to restore their firmware factory settings, delete information and clear logs from BIOS and BMC to protect data privacy. Meanwhile, we recommend you to wipe the drive data thoroughly and securely with trusted third-party erasing tools.

- The products, services or features you purchased may obtain or use some personal data (such as email address for alerts and IP address) during operation or fault locating. There should be user privacy policies in place with adequate measures implemented in accordance with the applicable laws to ensure that users’ personal data are fully protected.

- For server open source software statements, please contact Inspur Customer Service.

- Some interfaces and commands for production, assembly and return-to-depot, and advanced commands for locating faults, if used improperly, may cause equipment abnormality or business interruption. This is not described herein. Please contact Inspur for such information.

- External interfaces of Inspur servers do not use private protocols for communication.

- Inspur has established emergency response procedures and action plans for
security vulnerabilities, so that product safety issues can be dealt with in a timely manner. Please contact Inspur Customer Service for any safety problems found or necessary support on security vulnerabilities when using our products.

Inspur will remain committed to the safety of our products and solutions to achieve better customer satisfaction.

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Some product configurations, services, and features can be available only when specific conditions (such as configuration, limitation, and temperature) are satisfied, as described in Chapter 6 Product Specifications of this document. Inspur has no liability for any issues arising therefrom.

Technical Support

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Address: No. 1036, Langchao Road, Jinan, China
           Inspur Electronic Information Industry Co., Ltd.
Postal Code: 250101
Email: serversupport@inspur.com
Abstract

This white paper describes the NF5468A5 server’s appearance, features, performance parameters, and software and hardware compatibility, providing in-depth information of NF5468A5.

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.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="DANGER" /></td>
<td>A potential for serious injury, or even death if not properly handled</td>
</tr>
<tr>
<td><img src="image" alt="WARNING" /></td>
<td>A potential for minor or moderate injury if not properly handled</td>
</tr>
<tr>
<td><img src="image" alt="CAUTION" /></td>
<td>A potential loss of data or damage to equipment if not properly handled</td>
</tr>
<tr>
<td><img src="image" alt="IMPORTANT" /></td>
<td>Operations or information that requires special attention to ensure successful installation or configuration</td>
</tr>
<tr>
<td><img src="image" alt="NOTE" /></td>
<td>Supplementary description of manual information</td>
</tr>
</tbody>
</table>

Revision History

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Description of Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1.0</td>
<td>2022/09/07</td>
<td>Initial release</td>
</tr>
<tr>
<td>Version</td>
<td>Date</td>
<td>Description of Changes</td>
</tr>
<tr>
<td>---------</td>
<td>------------</td>
<td>-------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| V1.1    | 2022/10/10 | • Updated name of Table 7-11 from GPU and Graphics Card Specifications to GPU Specifications  
          |            | • Added a note under Figure 5-4                           |
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6. Product Specifications ................................................................................................. 35
1 Product Overview

The Inspur NF5468A5 is a heterogeneous computing platform built on AMD EPYC Rome and Milan CPUs with up to 8 PCIe 4.0 AI accelerator cards. Thanks to its superior PCIe device compatibility, it can host accelerator cards from NVIDIA and other manufacturers to meet diversified needs in AI training, AI inference, and video encoding & decoding, making it our most versatile and best-selling AI server.

With supremely optimized links, the NF5468A5 boasts excellent GPU/accelerator expansion capabilities. Direct CPU-GPU connection maximizes the CPU-to-GPU bandwidth and reduces communication latency for optimal performance, providing customers with a platform that features supreme computing power. The system supports twenty-four 2.5-inch drives or twelve 3.5-inch drives, offering large-capacity local storage solutions.

Figure 1-1 24 × 2.5-inch Drive Configuration

Figure 1-2 12 × 3.5-inch Drive Configuration
2 Features

2.1 Scalability and Performance

- Features AMD EPYC Rome or Milan processors, with up to 64 cores and 128 threads per processor, TDP up to 280 W, a max base frequency of 3.1 GHz and up to 3 xGMI links at up to 18 GT/s, providing powerful processing capabilities.

- CPUs are directly connected to GPUs, demonstrating AMD's topology advantage in PCIe expansion. A single CPU supports up to 80 PCIe 4.0 lanes, effectively reducing costs and improving energy efficiency.

- Up to 32 DDR4 ECC DIMMs (RDIMM/LRDIMM, 4 TB max., up to 128 GB per DIMM), delivering superior speeds and high availability.

- Up to 8 hot-swap NVMe SSDs with IOPS ten times that of high-end enterprise-class SATA SSDs, bringing a giant leap in storage I/O performance.

- Up to 12 × 3.5-inch drive or 24 × 2.5-inch drive at the front.

- An optional OCP 3.0 module with multiple network port options (1G/10G/25G/40G/100G), delivering a more flexible network architecture for different applications.

- Up to 10 PCIe 4.0 expansion cards, including up to 8 FHFL GPU cards with a max. total graphics card power of 350 W, further enhancing I/O performance.

   **IMPORTANT**

   A technical review is required for the 8-NVMe drive configuration.

2.2 Availability and Serviceability

- 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.

- The server supports up to 12 × 3.5-inch or 24 × 2.5-inch hot-swap storage drives and RAID controller cards with RAID levels 0/1/1E/10/5/50/6/60, RAID
cache and data protection enabled by the super-capacitor in case of power failures.

- With the latest BMC technology, technicians can quickly identify the faulty system via the BMC Web GUI, locate the faulty system via the UID LED on the front panel, and then identify the components that have failed (or are failing) via LEDs for fault diagnosis, enabling simple, quick, and efficient O&M.

- The BMC can monitor system parameters and send alerts in advance to enable technicians to take appropriate actions, minimizing system downtime and ensuring stable running of the system.

For information about warranty policies, refer to Chapter 9 Inspur Limited Warranty in *Inspur Server NF5468A5 User Manual*.

For other product resources (such as product marketing materials, user manuals, drivers, firmware, and product certifications), visit [https://en.inspur.com](https://en.inspur.com).

### 2.3 Manageability and Security

- The motherboard and backplane feature overcurrent and overvoltage protection functions, and the onboard connectors and cables are designed to be foolproof, thus preventing potential circuit hazards.

- A hood latch is added to the top cover and an intrusion switch connector is integrated on the motherboard to monitor chassis-opening activities, preventing unauthorized operations.

- BIOS image files are signed using secure encryption algorithms before release, and the signature must be validated before firmware update, thus ensuring the integrity and legitimacy of the firmware.

- The BMC intelligent management system provides various security features such as identification and authentication, authorization and access control, web security configuration, and log audit, offering industry-leading security capability.

- All physical I/O ports are clearly defined.

- Optional Trusted Platform Module (TPM) 2.0 is provided for data security, enabling secure boot of servers.

### 2.4 Energy Efficiency

- Equipped with 80 PLUS Platinum PSUs (1,600 W - 3,000 W) with power efficiency up to 94% at a load of 50%.

- Features efficient voltage regulator down (VRD) solutions, reducing DC-DC conversion loss.
• Supports intelligent fan speed control to conserve energy.
### System Parts Breakdown

**Figure 3-1 NF5468A5 Parts Breakdown (Demonstrated with 24 x 2.5-inch Drive Configuration)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature</th>
<th>Item</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lower 2U Air Vent Bezel</td>
<td>2</td>
<td>Air Duct</td>
</tr>
<tr>
<td>3</td>
<td>Super-Capacitor</td>
<td>4</td>
<td>Internal M.2 SSD Module</td>
</tr>
<tr>
<td>5</td>
<td>Fan Modules</td>
<td>6</td>
<td>PSUs</td>
</tr>
<tr>
<td>7</td>
<td>GPUs</td>
<td>8</td>
<td>PCIe Add-in Cards</td>
</tr>
<tr>
<td>9</td>
<td>GPU Board</td>
<td>10</td>
<td>GPU Tray</td>
</tr>
<tr>
<td>11</td>
<td>Processor Heatsinks</td>
<td>12</td>
<td>Motherboard</td>
</tr>
<tr>
<td>13</td>
<td>DIMMs</td>
<td>14</td>
<td>Drive Backplane</td>
</tr>
<tr>
<td>15</td>
<td>Front Drives</td>
<td>16</td>
<td>Chassis</td>
</tr>
</tbody>
</table>
Supports 2 AMD Rome or Milan CPUs.

Supports 32 DIMMs.

The 2 processors are interconnected through 3 xGMI links.

Supports three 8 × 2.5-inch drive backplanes or one 12 × 3.5-inch drive backplane on the front panel.

Supports up to 8 GPUs.

Supports up to 2 x16 NICs or 1 x16 NIC + 2 x8 NICs.
5 Hardware Description

5.1 Front Panel

5.1.1 Appearance

- 24 × 2.5-inch Drive Configuration

Figure 5-1 Front View

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature</th>
<th>Item</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Service Tag (including SN label and drive numbers)</td>
<td>2</td>
<td>Drive Bay × 24</td>
</tr>
</tbody>
</table>


- **12 x 3.5-inch Drive Configuration**

Figure 5-2 Front View

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature</th>
<th>Item</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Service Tag (including SN label and drive numbers)</td>
<td>2</td>
<td>Drive Bay x 12</td>
</tr>
</tbody>
</table>

### 5.1.2 LEDs & Buttons

#### 1. LED and Button Location

Figure 5-3 Front Panel LEDs and Buttons
<table>
<thead>
<tr>
<th>Item</th>
<th>Feature</th>
<th>Item</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power Button and LED</td>
<td>2</td>
<td>UID Button and LED</td>
</tr>
<tr>
<td>3</td>
<td>System Reset Button</td>
<td>4</td>
<td>System Health LED</td>
</tr>
</tbody>
</table>

### 2. LED and Button Description

**Table 5-1 Front Panel LED and Button Description**

<table>
<thead>
<tr>
<th>Icon</th>
<th>LED &amp; Button</th>
<th>Description</th>
</tr>
</thead>
</table>
| ![Power Button Icon](image.png) | Power Button and LED | Power LED:  
- Off = No power  
- Solid green = Power-on state  
- Solid orange = Standby state  
Power button:  
- Long press 4 seconds to force a shutdown from the power-on state.  

**NOTE**  
Follow the prompt under the OS to shut it down.  
Short press the power button to power on the system in standby state. |
| ![UID Icon](image.png) | UID 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  

**NOTE**  
The UID LED turns on or off when activated by the UID button or via ISBMC remotely.  
Long press the UID button for over 6 seconds to reset the BMC. |
| ![RST Icon](image.png) | System Reset Button | Press the button to reset the system |
| ![System Health LED Icon](image.png) | System Health LED |  
- Off = Normal  
- Red = System error |
5.1.3 Ports

1. Port Location

Figure 5-4 Front Panel Ports (Demonstrated with 24 × 2.5-inch Drive Configuration)

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature</th>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>VGA Port</td>
<td>1</td>
<td>Enables you to connect a display terminal, for example, a monitor or KVM, to the system</td>
</tr>
<tr>
<td>2</td>
<td>USB 3.0 Port</td>
<td>1</td>
<td>USB 3.0</td>
</tr>
<tr>
<td>3</td>
<td>USB 3.0 Port</td>
<td>1</td>
<td>Enables you to connect a USB 3.0 device to the system</td>
</tr>
<tr>
<td>4</td>
<td>System Serial Port</td>
<td>1</td>
<td>Captures BMC logs and provides the BMC debugging function</td>
</tr>
</tbody>
</table>

NOTE

The ports are identical for the 24 × 2.5-inch drive configuration and 12 × 3.5-inch drive configuration.

2. Port Description

Table 5-2 Front Panel Port Description

<table>
<thead>
<tr>
<th>Port</th>
<th>Type</th>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VGA Port</td>
<td>DB15</td>
<td>1</td>
<td>Enables you to connect a display terminal, for example, a monitor or KVM, to the system</td>
</tr>
<tr>
<td>USB 3.0 Port</td>
<td>USB 3.0</td>
<td>2</td>
<td>Enables you to connect a USB 3.0 device to the system</td>
</tr>
<tr>
<td>System Serial Port</td>
<td>RJ45</td>
<td>1</td>
<td>Captures BMC logs and provides the BMC debugging function</td>
</tr>
</tbody>
</table>

(i) **IMPORTANT**

Make sure the USB device is in good condition or it may cause the server to work abnormally.
5.2 Rear Panel

5.2.1 Appearance

Figure 5-5 Rear View

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature</th>
<th>Item</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PSU × 4</td>
<td>2</td>
<td>USB 3.0 Port × 2</td>
</tr>
<tr>
<td>3</td>
<td>BMC Management Network Port</td>
<td>4</td>
<td>OCP 3.0 Card Hot-Plug Button and LED</td>
</tr>
<tr>
<td>5</td>
<td>OCP 3.0 Card</td>
<td>6</td>
<td>VGA Port</td>
</tr>
<tr>
<td>7</td>
<td>BMC Serial Communication Port</td>
<td>8</td>
<td>UID Button and LED</td>
</tr>
<tr>
<td>9</td>
<td>GPU Slots</td>
<td>10</td>
<td>Add-in Card Slots</td>
</tr>
</tbody>
</table>
5.2.2 LEDs and Buttons

Figure 5-6 Rear Panel LEDs and Buttons

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature</th>
<th>Item</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PSU LED × 4</td>
<td>2</td>
<td>Data Transmit Rate LED of BMC Management Network Port</td>
</tr>
<tr>
<td>3</td>
<td>Connection Status LED of BMC Management Network Port</td>
<td>4</td>
<td>OCP 3.0 Card Hot-Plug Button and LED</td>
</tr>
<tr>
<td>5</td>
<td>UID Button and LED</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. LED and Button Description

Table 5-3 Rear Panel LED and Button Description

<table>
<thead>
<tr>
<th>Icon</th>
<th>LED</th>
<th>Description</th>
</tr>
</thead>
</table>
| UID  | UID 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  

NOTE: 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.
<table>
<thead>
<tr>
<th>Icon</th>
<th>LED</th>
<th>Description</th>
</tr>
</thead>
</table>
| Hot Plug    | OCP 3.0 Card Hot-Plug Button and LED | - Button:  
  - Enables the hot-swap function of the OCP 3.0 Card  
  - LED:  
  - Solid blue = OCP card is powered on  
  - Flashing blue = OCP card power being removed or connected  
  - Off = OCP NIC is not powered on |
| N/A         | Data Transmit Rate LED of BMC Management Network Port | - Off = No network connection  
  - Solid green = Normal network connection (1000 Mbps)  
  - Solid orange = Normal network connection (100 Mbps/10 Mbps) |
| N/A         | Connection Status LED of BMC Management Network Port | - Off = No network connection  
  - Solid green = Normal network connection  
  - Flashing green = Data transmission in progress |
| N/A         | PSU LED                  | - Off = No AC power to PSU  
  - Flashing green (1 Hz) = PSU operating in standby state with normal AC input.  
  - 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 Location

Figure 5-7 Rear Panel Ports

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature</th>
<th>Item</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PSU Socket × 4</td>
<td>2</td>
<td>USB 3.0 Port × 2</td>
</tr>
<tr>
<td>3</td>
<td>BMC Management Network Port</td>
<td>4</td>
<td>VGA Port</td>
</tr>
<tr>
<td>5</td>
<td>BMC Serial Communication Port</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Port Description

Table 5-4 Rear Panel Port Description

<table>
<thead>
<tr>
<th>Port</th>
<th>Type</th>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMC Serial Communication Port</td>
<td>3.5 mm Jack</td>
<td>1</td>
<td>Enables you to capture BMC logs and debug the BMC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>NOTE</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The serial port uses a standard 3.5 mm Jack with a default baud rate of 115,200 bit/s.</td>
</tr>
<tr>
<td>USB Port</td>
<td>USB 3.0</td>
<td>2</td>
<td>Enables you to connect a USB 3.0 device to the system</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>IMPORTANT</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The maximum current supported by the USB port is 0.9 A.</td>
</tr>
</tbody>
</table>
|                                        |               |          | Make sure the USB device is in good condition or it may cause the server to work abnormally.
<p>| BMC Management Network Port            | RJ45          | 1        | ISBMC management network port to manage the server                           |
|                                        |               |          | <strong>NOTE</strong>                                                                     |
|                                        |               |          | It is a Gigabit Ethernet port of 100/1000 Mbps (auto-negotiation).           |</p>
<table>
<thead>
<tr>
<th>Port</th>
<th>Type</th>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VGA Port</td>
<td>DB15</td>
<td>1</td>
<td>Enables you to connect a display terminal, for example, a monitor or KVM, to the system</td>
</tr>
<tr>
<td>PSU Socket</td>
<td>N/A</td>
<td>4</td>
<td>Connected with a power cord. User can select the PSUs as needed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Note</strong> Make sure that the total rated power of the PSUs is greater than that of the server.</td>
</tr>
</tbody>
</table>

### 5.3 Processors

- Supports 2 processors.
- The processors configured in the same server must be of the same model.
- Supports up to 64 cores (with a max base frequency of 3.1 GHz).
- 3 xGMI links at up to 18 GT/s.
- Up to 256 MB of L3 cache (64 cores).
- TDP up to 280 W.
- For specific system processor options, consult Inspur sales representative or refer to [7.2 Hardware Compatibility](#).
5.4 Memory

5.4.1 DDR4 DIMM

1. Identification

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

Figure 5-9 Memory Identification

![Memory Identification Diagram]
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Capacity</td>
<td>• 32 GB&lt;br&gt;• 64 GB&lt;br&gt;• 128 GB</td>
</tr>
<tr>
<td>2</td>
<td>Rank(s)</td>
<td>• 1R = Single rank&lt;br&gt;• 2R = Dual rank&lt;br&gt;• 2S2R = Two ranks of two high stacked 3DS DRAM&lt;br&gt;• 4DR = Four ranks of dual die packaged DRAM&lt;br&gt;• 4R = Quad rank</td>
</tr>
<tr>
<td>3</td>
<td>Data width on the DRAM</td>
<td>• x4 = 4 bits&lt;br&gt;• x8 = 8 bits</td>
</tr>
<tr>
<td>4</td>
<td>DIMM slot type</td>
<td>PC4 = DDR4</td>
</tr>
<tr>
<td>5</td>
<td>Maximum memory speed</td>
<td>3200 MT/s</td>
</tr>
<tr>
<td>6</td>
<td>CAS latency</td>
<td>SDP-chip-based&lt;br&gt;• V = CAS-19-19-19&lt;br&gt;• Y = CAS-21-21-21&lt;br&gt;• AA = CAS-22-22-22&lt;br&gt;3DS-chip-based&lt;br&gt;• V = CAS-22-19-19&lt;br&gt;• Y = CAS-24-21-21&lt;br&gt;• AA = CAS-26-22-22</td>
</tr>
<tr>
<td>7</td>
<td>DIMM type</td>
<td>• R = RDIMM&lt;br&gt;• L = LRDIMM&lt;br&gt;• RBx = Gerber Revision</td>
</tr>
</tbody>
</table>
2. Memory Subsystem Architecture

The NF5468A5 supports 32 DIMM slots and 8 channels per CPU with 2 DIMM slots per channel. 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 A, populate CPU0_CAD0 first and second CPU0_CAD1.

Table 5-5 DIMM Slot List

<table>
<thead>
<tr>
<th>CPU</th>
<th>Channel ID</th>
<th>Silk Screen</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Channel A</td>
<td>CPU0_CAD0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CPU0_CAD1</td>
</tr>
<tr>
<td>CPU0</td>
<td>Channel B</td>
<td>CPU0_CBD0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CPU0_CBD1</td>
</tr>
<tr>
<td></td>
<td>Channel C</td>
<td>CPU0_CCD0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CPU0_CCD1</td>
</tr>
<tr>
<td></td>
<td>Channel D</td>
<td>CPU0_CDD0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CPU0_CDD1</td>
</tr>
<tr>
<td></td>
<td>Channel E</td>
<td>CPU0_CED0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CPU0_CED1</td>
</tr>
<tr>
<td></td>
<td>Channel F</td>
<td>CPU0_CFD0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CPU0_CFD1</td>
</tr>
<tr>
<td></td>
<td>Channel G</td>
<td>CPU0_CGD0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CPU0_CGD1</td>
</tr>
<tr>
<td></td>
<td>Channel H</td>
<td>CPU0_CHD0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CPU0_CHD1</td>
</tr>
<tr>
<td></td>
<td>Channel A</td>
<td>CPU1_CAD0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CPU1_CAD1</td>
</tr>
<tr>
<td>CPU1</td>
<td>Channel B</td>
<td>CPU1_CBD0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CPU1_CBD1</td>
</tr>
<tr>
<td></td>
<td>Channel C</td>
<td>CPU1_CCD0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CPU1_CCD1</td>
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<td></td>
<td>Channel D</td>
<td>CPU1_CDD0</td>
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<tr>
<td></td>
<td></td>
<td>CPU1_CDD1</td>
</tr>
<tr>
<td></td>
<td>Channel E</td>
<td>CPU1_CED0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CPU1_CED1</td>
</tr>
<tr>
<td></td>
<td>Channel F</td>
<td>CPU1_CFD0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CPU1_CFD1</td>
</tr>
<tr>
<td></td>
<td>Channel G</td>
<td>CPU1_CGD0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CPU1_CGD1</td>
</tr>
<tr>
<td></td>
<td>Channel H</td>
<td>CPU1_CHD0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CPU1_CHD1</td>
</tr>
</tbody>
</table>
3. Compatibility

Refer to the following rules to select the DDR4 DIMMs:

**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 configuration
- 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.

**IMPORTANT**

- An RDIMM supports up to 4 ranks and an LRDIMM supports up to 8 ranks.
- Maximum number of DIMMs supported per channel ≤ Maximum number of ranks supported per channel/Number of ranks per DIMM.

**NOTE**

One quad-rank LRDIMM provides the same electrical load on a memory bus as a single-rank RDIMM.

Table 5-6 DDR4 DIMM Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity per DDR4 DIMM (GB)</td>
<td>32</td>
</tr>
<tr>
<td>Type</td>
<td>RDIMM/LRDIMM</td>
</tr>
<tr>
<td>Rated speed (MT/s)</td>
<td>3200</td>
</tr>
<tr>
<td>Operating voltage (V)</td>
<td>1.2</td>
</tr>
<tr>
<td>Maximum number of DDR4 DIMMs supported in the servera</td>
<td>32</td>
</tr>
<tr>
<td>Maximum capacity of DDR4 DIMMs supported in the server (GB)b</td>
<td>1024</td>
</tr>
</tbody>
</table>

a: Maximum number of DIMMs supported per channel
b: Maximum capacity of DIMMs supported per channel
<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual speed (MT/s)</td>
<td></td>
</tr>
<tr>
<td>1DPC</td>
<td>3200</td>
</tr>
<tr>
<td>2DPC</td>
<td>3200</td>
</tr>
</tbody>
</table>

- a: The maximum number of DDR4 DIMMs supported is based on the 2-processor configuration. For the 1-processor configuration, the number should be halved.
- b: It indicates the maximum DDR4 memory capacity supported when all DDR4 DIMMs are populated. The maximum DDR4 capacity varies with the CPU type.
- c: DIMM Per Channel (DPC) is the number of DIMMs per memory channel.

The above information is for reference only, please consult your local Inspur sales representative for details.

---

**4. Population Rules**

General population rules for DDR4 DIMMs:

- Install DIMMs only when the corresponding processor is installed.
- Mixing LRDIMMs and RDIMMs is not allowed.
- Install dummies in the DIMM slots where no DIMMs are installed.

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

- **Memory mirroring**
  - Follow the general population rules.
  - Each processor supports 4 channels via 2 integrated memory controllers (IMCs). DIMMs installed must be of the same size and specifications.
  - In a multi-processor configuration, each processor must have a valid memory mirroring configuration.
5. DIMM Slot Layout

Up to 32 DDR4 DIMMs can be installed in the 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**

At least one DDR4 DIMM must be installed in the DIMM slot(s) corresponding to each CPU.

Figure 5-10 DIMM Slot Layout

![DIMM Slot Layout Diagram](image)

Table 5-7 DDR4 DIMM Population Rules (2-Processor Configuration)

<table>
<thead>
<tr>
<th>DIMM Qty</th>
<th>CPUU</th>
<th>CPU0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CD</td>
<td>CC</td>
</tr>
<tr>
<td>2</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>4</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>6</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>8</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>10</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>12</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>14</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>16</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>24</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>32</td>
<td>V</td>
<td>V</td>
</tr>
</tbody>
</table>

21
5.5 Storage

5.5.1 Drives

NOTE

The NF5468A5 supports not only front drives, but also 2 internal M.2 SSDs, with the capacity of up to 960 GB per M.2.

Table 5-8 Drives

<table>
<thead>
<tr>
<th>Form Factor</th>
<th>Quantity</th>
<th>Configuration</th>
<th>Slot</th>
<th>Drive Management Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NVMe</td>
<td>SAS/SATA</td>
<td>NVMe</td>
<td>SAS/SATA</td>
</tr>
<tr>
<td>2.5</td>
<td>4</td>
<td>/</td>
<td>0 - 3</td>
<td>/</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>8</td>
<td>/</td>
<td>0 - 7</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>4</td>
<td>0 - 3</td>
<td>8 - 15</td>
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<tr>
<td></td>
<td>16</td>
<td>16</td>
<td>/</td>
<td>0 - 15</td>
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<td></td>
<td>18</td>
<td>2</td>
<td>0 - 1</td>
<td>8 - 23</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>4</td>
<td>0 - 3</td>
<td>8 - 23</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>24</td>
<td>/</td>
<td>0 - 23</td>
</tr>
</tbody>
</table>

Directly connected to CPU1

1 × 8i RAID controller card (standard)

SAS/SATA drive: 1 × 8i RAID controller card (standard)
NVMe drive: Directly connected to CPU1

2 × 8i RAID controller card (standard) or 1 × 16i RAID controller card (standard)

SAS/SATA drive: 1 × 16i RAID controller card (standard) or 2 × 8i RAID controller card (standard)
NVMe drive: Directly connected to CPU1

SAS/SATA drive: 1 × 16i RAID controller card (standard)
NVMe drive: Directly connected to CPU1

1 × 8i RAID controller card (standard) + 1 × 16i RAID controller
<table>
<thead>
<tr>
<th>Form Factor</th>
<th>Quantity</th>
<th>Configuration</th>
<th>Slot</th>
<th>Drive Management Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NVMe</td>
<td>SAS/SATA</td>
<td>NVMe</td>
<td>SAS/SATA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td>4</td>
<td>/</td>
<td>0 - 3</td>
<td>/</td>
</tr>
<tr>
<td></td>
<td>Directly connected to CPU1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>/</td>
<td>0 - 7</td>
<td>1 × 8i RAID controller card (standard)</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>/</td>
<td>0 - 11</td>
<td>2 × 8i RAID controller card or 1 × 16i RAID controller card (standard)</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>4</td>
<td>0 - 3</td>
<td>4 - 11</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>8</td>
<td></td>
<td>SAS/SATA drive: 1 × 8i RAID controller card (standard) NVMe drive: Directly connected to CPU1</td>
</tr>
</tbody>
</table>

**NOTE**

- If 2 NVMe drives are configured, CPU1 SLOT_6 on the GPU board is not available.
- If 4 NVMe drives are configured, CPU1 SLOT_6 and CPU1 SLOT_7 on the GPU board are not available.

### 5.5.2 Drive Numbering

- 24 × 2.5-inch Drive Pass-Through Configuration (24 × SAS/SATA Drive)
Figure 5-11 Drive Numbering

<table>
<thead>
<tr>
<th>Physical Drive No.</th>
<th>Drive No. Identified by the ISBMC</th>
<th>Drive No. Identified by the Standard 8i + 16i RAID Controller Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
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<tr>
<td>4</td>
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<tr>
<td>22</td>
<td>22</td>
<td>14</td>
</tr>
</tbody>
</table>
### Physical Drive No.

<table>
<thead>
<tr>
<th>Physical Drive No.</th>
<th>Drive No. Identified by the ISBMC</th>
<th>Drive No. Identified by the Standard 8i + 16i RAID Controller Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>23</td>
<td>15</td>
</tr>
</tbody>
</table>

- 12 × 3.5-inch Drive Pass-Through Configuration (12 × SAS/SATA Drive)

#### Figure 5-12 Drive Numbering

![Drive Numbering Diagram](image)

<table>
<thead>
<tr>
<th>Physical Drive No.</th>
<th>Drive No. Identified by the ISBMC</th>
<th>Drive No. Identified by the Standard 8i RAID Controller Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
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<td>10</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>11</td>
<td>3</td>
</tr>
</tbody>
</table>

#### 5.5.3 Drive LEDs

#### Figure 5-13 SAS/SATA Drive LEDs

![Drive LED Diagram](image)
<table>
<thead>
<tr>
<th>Item</th>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1    | Activity LED| • Solid green = Drive is present but not in use  
|      |             | • Flashing green = Drive is present and in use                               |
| 2    | Error LED   | • Solid red = Drive error or failure  
|      |             | • Solid blue = Drive is being located  
|      |             | • Solid pink = RAID rebuilding                                                |

### 5.5.4 RAID Controller Card

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

### 5.6 Network

The OCP 3.0 card allows for network expansion capabilities.

- The FLEX I/O card slot supports the OCP 3.0 card, which can be selected as required.
- For specific OCP 3.0 card options, consult your local Inspur sales representative or refer to 7.2 Hardware Compatibility.
- For details on the OCP 3.0 card, see the documentation of each OCP 3.0 card.

---

**NOTE**

If an OCP NIC card is selected, CPU0_SLOT_5 on the motherboard is not available.

### 5.7 I/O Expansion

#### 5.7.1 PCIe Cards

The PCIe cards provide system expansion capabilities.

- Supports up to 2 PCIe 4.0 x16 expansion slots or 2 PCIe 4.0 x8 expansion slots + 1 PCIe 4.0 x16 expansion slot (including 1 dedicated slot for an OCP 3.0 card).
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 Layout

Figure 5-14 PCIe Slots - Standard Configuration

- GPU slots: Slot0, Slot1, Slot2, Slot3, Slot4, Slot5, Slot6, and Slot7.
- Standard add-in card slots: PCIe0, PCIe1, and PCIe2.

Table 5-9 PCIe Slots

<table>
<thead>
<tr>
<th>PCIe Slot</th>
<th>Corresponding CPU</th>
<th>PCIe Standard</th>
<th>Connect or Bandwidth</th>
<th>Bus Bandwidth</th>
<th>Port No.</th>
<th>Root Port (B/D/F)</th>
<th>Slot Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slot 0</td>
<td>CPU0</td>
<td>PCIe 4.0</td>
<td>x16</td>
<td>x16</td>
<td>1</td>
<td>60:3:1 FHFL</td>
<td></td>
</tr>
<tr>
<td>Slot 1</td>
<td>CPU0</td>
<td>PCIe 4.0</td>
<td>x16</td>
<td>x16</td>
<td>2</td>
<td>40:1:1 FHFL</td>
<td></td>
</tr>
<tr>
<td>Slot 2</td>
<td>CPU0</td>
<td>PCIe 4.0</td>
<td>x16</td>
<td>x16</td>
<td>3</td>
<td>00:1:1 FHFL</td>
<td></td>
</tr>
<tr>
<td>Slot 3</td>
<td>CPU0</td>
<td>PCIe 4.0</td>
<td>x16</td>
<td>x16</td>
<td>4</td>
<td>20:3:1 FHFL</td>
<td></td>
</tr>
<tr>
<td>Slot 4</td>
<td>CPU1</td>
<td>PCIe 4.0</td>
<td>x16</td>
<td>x16</td>
<td>8</td>
<td>E0:3:1 FHFL</td>
<td></td>
</tr>
<tr>
<td>Slot 5</td>
<td>CPU1</td>
<td>PCIe 4.0</td>
<td>x16</td>
<td>x16</td>
<td>9</td>
<td>C0:1:1 FHFL</td>
<td></td>
</tr>
<tr>
<td>PCIe Slot</td>
<td>Corresponding CPU</td>
<td>PCIe Standard</td>
<td>Connect or Bandwidth</td>
<td>Bus Bandwidth</td>
<td>Port No.</td>
<td>Root Port (B/D/F)</td>
<td>Slot Size</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------------</td>
<td>---------------</td>
<td>----------------------</td>
<td>---------------</td>
<td>----------</td>
<td>------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Slot 6</td>
<td>CPU1</td>
<td>PCIe 4.0</td>
<td>x16</td>
<td>x16</td>
<td>A</td>
<td>80:1:1</td>
<td>FHFL</td>
</tr>
<tr>
<td>Slot 7</td>
<td>CPU1</td>
<td>PCIe 4.0</td>
<td>x16</td>
<td>x16</td>
<td>B</td>
<td>A0:3:1</td>
<td>FHFL</td>
</tr>
<tr>
<td>PCIe 0</td>
<td>CPU0</td>
<td>PCIe 4.0</td>
<td>x16</td>
<td></td>
<td></td>
<td>20:1:1</td>
<td>FHHL</td>
</tr>
<tr>
<td>PCIe 1</td>
<td>CPU1</td>
<td>PCIe 4.0</td>
<td>x16</td>
<td></td>
<td></td>
<td>20:1:1</td>
<td>FHHL</td>
</tr>
<tr>
<td>PCIe 2</td>
<td>CPU1</td>
<td>PCIe 4.0</td>
<td>x16</td>
<td>x8</td>
<td>7</td>
<td>C0:3:1</td>
<td>FHHL</td>
</tr>
<tr>
<td>OCP 3.0 Slot</td>
<td>CPU0</td>
<td>PCIe 3.0</td>
<td>x16</td>
<td>x16</td>
<td>5</td>
<td>20:1:1</td>
<td>Standard OCP 3.0</td>
</tr>
</tbody>
</table>
5.8 PSUs

- Supports up to 4 PSUs.
- Supports AC PSUs.
- The PSUs are hot-swappable.
- Supports 4 PSUs in 2+2 redundancy.
- PSUs in a server must have the same Part No. (P/N code).

Figure 5-15 PSU Layout

5.9 Fan Modules

- Supports twelve 6056 fan modules.
- The fan modules are hot-swappable.
- Supports N+1 rotor redundancy, which means that the server can operate properly when a single fan module fails.
- Supports intelligent fan speed control.
- Fan modules in a server must have the same Part No. (P/N code).
5.10 Boards

5.10.1 Motherboard

Figure 5-17 NF5468A5 Motherboard
<table>
<thead>
<tr>
<th>Item</th>
<th>Feature</th>
<th>Item</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Slimline Connector × 2</td>
<td>2</td>
<td>CPU1 VR Heatsink</td>
</tr>
<tr>
<td>3</td>
<td>Memory VR Heatsink</td>
<td>4</td>
<td>Memory VR Heatsink</td>
</tr>
<tr>
<td>5</td>
<td>Slimline Connector × 8</td>
<td>6</td>
<td>Front Control Panel Connector</td>
</tr>
<tr>
<td>7</td>
<td>Intrusion Switch Connector</td>
<td>8</td>
<td>Smart NIC Power Connector</td>
</tr>
<tr>
<td>9</td>
<td>Chassis Temperature Detector Connector</td>
<td>10</td>
<td>RAID Controller Card Power Connector</td>
</tr>
<tr>
<td>11</td>
<td>TPM Connector</td>
<td>12</td>
<td>Backplane I²C Connector</td>
</tr>
<tr>
<td>13</td>
<td>Backplane Power Connector</td>
<td>14</td>
<td>Backplane I²C Connector</td>
</tr>
<tr>
<td>15</td>
<td>Backplane Power Connector</td>
<td>16</td>
<td>Backplane I²C Connector</td>
</tr>
<tr>
<td>17</td>
<td>Backplane Power Connector</td>
<td>18</td>
<td>Backplane I²C Connector</td>
</tr>
<tr>
<td>19</td>
<td>Clock Connector</td>
<td>20</td>
<td>VPP Connector</td>
</tr>
<tr>
<td>21</td>
<td>Slimline Connector × 8</td>
<td>22</td>
<td>Clock Connector</td>
</tr>
<tr>
<td>23</td>
<td>Memory VR Heatsink</td>
<td>24</td>
<td>Slimline Connector</td>
</tr>
<tr>
<td>25</td>
<td>Slimline Connector</td>
<td>26</td>
<td>PSU0 Connector</td>
</tr>
<tr>
<td>27</td>
<td>CPU0 VR Heatsink</td>
<td>28</td>
<td>PSU1 Connector</td>
</tr>
<tr>
<td>29</td>
<td>Memory VR Heatsink</td>
<td>30</td>
<td>Front Control Panel Connector</td>
</tr>
<tr>
<td>31</td>
<td>CPU HDT Header</td>
<td>32</td>
<td>NIC NC-SI Connector</td>
</tr>
<tr>
<td>33</td>
<td>Battery Socket</td>
<td>34</td>
<td>OCP Interposer Card Connector</td>
</tr>
<tr>
<td>35</td>
<td>UID Button and LED</td>
<td>36</td>
<td>Serial Communication Port</td>
</tr>
<tr>
<td>37</td>
<td>VGA Port</td>
<td>38</td>
<td>OCP 3.0 Card Hot-Plug Button</td>
</tr>
<tr>
<td>39</td>
<td>OCP 3.0 Card Hot-Plug Attention LED</td>
<td>40</td>
<td>BMC Management Network Port</td>
</tr>
<tr>
<td>41</td>
<td>USB 3.0 Port</td>
<td>42</td>
<td>TF Card Connector (for BMC)</td>
</tr>
<tr>
<td>43</td>
<td>Radsok Connector</td>
<td>44</td>
<td>M.2 Backplane Connector</td>
</tr>
<tr>
<td>45</td>
<td>TF Card Connector (for CPU)</td>
<td>46</td>
<td>PSU2 Connector</td>
</tr>
<tr>
<td>47</td>
<td>PSU3 Connector</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 5.10.2 Drive Backplane

#### 1. Front Drive Backplane

- **8 x 2.5-inch Drive (8 x SAS/SATA/NVMe Drive) Pass-Through Backplane**
Figure 5-18 8 × 2.5-inch Drive (8 × SAS/SATA/NVMe Drive) Pass-Through Backplane

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BMC I²C Connector</td>
</tr>
<tr>
<td>2</td>
<td>CPLD JTAG Connector</td>
</tr>
<tr>
<td>3</td>
<td>Slimline x8 Connector 1</td>
</tr>
<tr>
<td>4</td>
<td>Slimline x8 Connector 2</td>
</tr>
<tr>
<td>5</td>
<td>Slimline x4 Connector 1</td>
</tr>
<tr>
<td>6</td>
<td>VPP Connector</td>
</tr>
<tr>
<td>7</td>
<td>CPLD</td>
</tr>
<tr>
<td>8</td>
<td>Slimline x8 Connector 3</td>
</tr>
<tr>
<td>9</td>
<td>Slimline x8 Connector 4</td>
</tr>
<tr>
<td>10</td>
<td>Power Connector</td>
</tr>
<tr>
<td>11</td>
<td>Slimline x4 Connector 2</td>
</tr>
</tbody>
</table>

Figure 5-19 12 × 3.5-inch Drive Pass-Through Backplane

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BMC I²C Connector</td>
</tr>
<tr>
<td>2</td>
<td>VPP Signal Connector</td>
</tr>
<tr>
<td>3</td>
<td>Power Connector × 2</td>
</tr>
<tr>
<td>4</td>
<td>Slimline Connector × 12</td>
</tr>
<tr>
<td>5</td>
<td>Mini SAS Connector × 6</td>
</tr>
</tbody>
</table>

32
2. Internal Drive Backplane

- 2 × M.2 Drive (2 × SATA/NVMe Drive) Pass-Through Backplane

Figure 5-20 Front View of 2 × M.2 Drive (2 × SATA/NVMe Drive) Pass-Through Backplane

Figure 5-21 Rear View of 2 × M.2 Drive (2 × SATA/NVMe Drive) Pass-Through Backplane

Table 5-10 Connectors on Internal Drive Backplane

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature</th>
<th>Item</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M.2_1 Connector</td>
<td>2</td>
<td>M.2_2 Connector</td>
</tr>
</tbody>
</table>
5.10.3 GPU Board

Figure 5-22 GPU Board Layout

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature</th>
<th>Item</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GPU Card Power Connector 1</td>
<td>2</td>
<td>GPU Card Power Connector 2</td>
</tr>
<tr>
<td>3</td>
<td>Radsok Connector</td>
<td>4</td>
<td>GPU Card Power Connector 3</td>
</tr>
<tr>
<td>5</td>
<td>GPU Card Power Connector 4</td>
<td>6</td>
<td>Slimline Connectors</td>
</tr>
<tr>
<td>7</td>
<td>PCIe Slots</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## 6 Product Specifications

### 6.1 Technical Specifications

Table 6-1 Technical Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form Factor</td>
<td>4U rack server</td>
</tr>
<tr>
<td>Processor</td>
<td>• 2 AMD Rome or Milan processors</td>
</tr>
<tr>
<td></td>
<td>• Up to 64 cores</td>
</tr>
<tr>
<td></td>
<td>• Max base frequency at 3.1 GHz</td>
</tr>
<tr>
<td></td>
<td>• Up to 256 MB of L3 cache</td>
</tr>
<tr>
<td></td>
<td>• Up to 3 xGMI links at up to 18 GT/s</td>
</tr>
<tr>
<td></td>
<td>• TDP up to 280 W</td>
</tr>
<tr>
<td></td>
<td><strong>NOTE</strong></td>
</tr>
<tr>
<td></td>
<td>The above information is for reference only, see 7.2 Hardware Compatibility for details.</td>
</tr>
<tr>
<td>Memory</td>
<td>• 16 × DIMM slot per processor, 32 in total</td>
</tr>
<tr>
<td></td>
<td>• 8 × memory channel per processor, 16 in total</td>
</tr>
<tr>
<td></td>
<td>• Supports DDR4 RDIMM/LRDIMM (3200 MT/s, 1 DPC)</td>
</tr>
<tr>
<td></td>
<td><strong>NOTE</strong></td>
</tr>
<tr>
<td></td>
<td>The above information is for reference only, see 7.2 Hardware Compatibility for details.</td>
</tr>
<tr>
<td>Storage</td>
<td>• Supports multiple drive configurations, see 5.5.1 Drive Configuration for details.</td>
</tr>
<tr>
<td></td>
<td>• Hot-swap SAS/SATA/NVMe drives.</td>
</tr>
<tr>
<td></td>
<td>• Front: 24 × 2.5-inch drive or 12 × 3.5-inch drive, where 8 drive bays support U.2 NVMe SSDs (A technical review is required if more than 4 NVMe SSDs are installed);</td>
</tr>
<tr>
<td></td>
<td>• Internal: 2 × M.2 SATA SSD.</td>
</tr>
<tr>
<td></td>
<td>• Supports multiple models of RAID controller cards.</td>
</tr>
<tr>
<td></td>
<td><strong>NOTE</strong></td>
</tr>
<tr>
<td></td>
<td>• The M.2 SSD is only used as the boot device for installing the OS.</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>• The M.2 SSD has low endurance and cannot be used as a data storage device. It may be worn out within a short period of time in scenarios where frequent data erase and write occur.</td>
</tr>
<tr>
<td></td>
<td>• For data storage, use enterprise-class SSDs or HDDs with higher DWPD.</td>
</tr>
<tr>
<td></td>
<td>• Write-intensive service software will cause the M.2 SSD to reach write endurance and wear out; therefore, the M.2 SSD is not recommended for such service scenarios.</td>
</tr>
<tr>
<td></td>
<td>• Do not use the M.2 SSD as caching.</td>
</tr>
<tr>
<td></td>
<td>• A standard RAID controller card provides functions such as RAID configuration, RAID level migration, and disk roaming.</td>
</tr>
<tr>
<td></td>
<td>• A standard RAID controller card offers data protection enabled by the super-capacitor in case of power failures.</td>
</tr>
<tr>
<td></td>
<td>• A standard RAID controller card occupies 1 PCIe slot.</td>
</tr>
<tr>
<td></td>
<td>• The above information is for reference only. For details on RAID controller cards, see 7.2 Hardware Compatibility.</td>
</tr>
<tr>
<td>Network</td>
<td>• Multiple network expansion capabilities</td>
</tr>
<tr>
<td></td>
<td>• Standard NICs (1/10/25/40/100G)</td>
</tr>
<tr>
<td></td>
<td>• 1 hot-swap OCP 3.0 card (occupying 1 slot) can be selected as needed</td>
</tr>
<tr>
<td>NOTE</td>
<td>Supports multiple OCP 3.0 cards, see 7.2 Hardware Compatibility for details.</td>
</tr>
<tr>
<td>IO Expansion</td>
<td>Up to 11 × PCIe slot (standard), including 1 OCP 3.0 card slot:</td>
</tr>
<tr>
<td></td>
<td>• 8 × FHFL PCIe 4.0 x16 card</td>
</tr>
<tr>
<td></td>
<td>• 1 × FHHL PCIe 4.0 x16 card (cannot be installed when OCP 3.0 card is installed)</td>
</tr>
<tr>
<td></td>
<td>• 1 × FHHL PCIe 4.0 x16 card or 2 × FHHL PCIe 4.0 x8 card</td>
</tr>
<tr>
<td>NOTE</td>
<td>The above information is for reference only, see 7.2 Hardware Compatibility for details.</td>
</tr>
<tr>
<td>Port</td>
<td>Supports multiple ports</td>
</tr>
<tr>
<td></td>
<td>• Front panel:</td>
</tr>
<tr>
<td></td>
<td>‐ 2 × USB 3.0 port</td>
</tr>
<tr>
<td></td>
<td>‐ 1 × VGA port</td>
</tr>
<tr>
<td></td>
<td>‐ 1 × system serial port</td>
</tr>
<tr>
<td></td>
<td>• Rear panel:</td>
</tr>
<tr>
<td></td>
<td>‐ 2 × USB 3.0 port</td>
</tr>
<tr>
<td></td>
<td>‐ 1 × VGA port</td>
</tr>
<tr>
<td></td>
<td>‐ 1 × 3.5 mm jack</td>
</tr>
</tbody>
</table>
### Item Description

- **BMC management network port**

**NOTE**
OS installation on the USB mobile storage media is not recommended.

### Fan
12 × 6056 Fan

### System Management
Provides a dedicated Ethernet management port, which supports remote control, SMTP, KVM, management via SNMP, and virtual media

### Power Supply
Four 1600/2000/2200/3000 W Platinum level PSUs in 2+2 redundancy

---

## 6.2 Environmental Specifications

Table 6-2 Environmental Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temperature</strong>(1, 2, 3)</td>
<td>- Operating: 5°C to 35°C (41°F to 95°F)</td>
</tr>
<tr>
<td></td>
<td>- Storage (packed): -40°C to +70°C (-40°F to +158°F)</td>
</tr>
<tr>
<td></td>
<td>- Storage (unpacked): -40°C to +55°C (-40°F to +131°F)</td>
</tr>
<tr>
<td><strong>Relative Humidity (RH, non-condensing)</strong></td>
<td>Operating: 10% - 90% RH</td>
</tr>
<tr>
<td></td>
<td>Storage (packed): 10% - 93% RH</td>
</tr>
<tr>
<td></td>
<td>Storage (unpacked): 10% - 93% RH</td>
</tr>
<tr>
<td><strong>Operating Altitude</strong></td>
<td>≤ 3050 m (10000 ft)</td>
</tr>
<tr>
<td></td>
<td>- 0 - 950 m (0 – 3,117 ft): The maximum allowable ambient temperature is 35°C (95°F)</td>
</tr>
<tr>
<td></td>
<td>- 950 - 3,050 m (3,117 - 10,000 ft): The maximum allowable ambient temperature decreases by 1°C per 300 m (1°F per 546 ft)</td>
</tr>
<tr>
<td><strong>Corrosive Gaseous Contaminants</strong></td>
<td>Maximum growth rate of corrosion film thickness:</td>
</tr>
<tr>
<td></td>
<td>- Copper coupon: 300 Å/month (compliant with the gaseous corrosivity level of G1 defined in ANSI/ISA-71.04-2013)</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>• Silver coupon: 200 Å/month (compliant with the gaseous corrosivity level of G1 defined in ANSI/ISA-71.04-2013)</td>
</tr>
<tr>
<td>Particulate</td>
<td>• Comply with the data centre cleaning standard ISO 14644-1 Class 8</td>
</tr>
<tr>
<td>Contaminants</td>
<td>• The server room must be free of explosive, conductive, magnetic, and corrosive dust</td>
</tr>
<tr>
<td></td>
<td><strong>NOTE</strong></td>
</tr>
<tr>
<td></td>
<td>It is recommended to hire a professional organization to monitor the particulate contaminants in the server room.</td>
</tr>
<tr>
<td>Noise (4, 5, 6, 7)</td>
<td>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) and the declared average bystander position A-weighted sound pressure levels (LpAm) at a server operating temperature of 23°C (73.4°F):</td>
</tr>
<tr>
<td></td>
<td>• Idle:</td>
</tr>
<tr>
<td></td>
<td>- LWAd: 5.9 Bels</td>
</tr>
<tr>
<td></td>
<td>- LpAm: 54.9 dBA</td>
</tr>
<tr>
<td></td>
<td>• Operating:</td>
</tr>
<tr>
<td></td>
<td>- LWAd: 7.3 Bels</td>
</tr>
<tr>
<td></td>
<td>- LpAm: 67.2 dBA</td>
</tr>
</tbody>
</table>

**NOTE**

1. Not all configurations support the operating temperature range of 5°C to 35°C (41°F to 95°F). The GPU configuration supports the operating temperature range of 10°C to 35°C (50°F to 95°F).

2. Standard operating temperature:
   - 10°C to 35°C (50°F to 95°F) is the standard operating temperature at sea level. For temperatures between 10°C and 35°C (50°F and 95°F), de-rate the maximum allowable temperature by 1°C per 305 m (1°F per 556 ft) above sea level. The maximum temperature gradient is 20°C/h (36°F/h) and the maximum operating altitude is 3,050 m
(10,000 ft), both varying with server configuration.

- Any fan failure or operations above 30°C (86°F) may lead to system performance degradation.

3. Expanded operating temperature:

- As for certain approved configurations, the supported operating temperature can be expanded to 5°C to 10°C (41°F to 50°F) and 35°C to 45°C (95°F to 113°F) at sea level. At an altitude of 900 - 3,050 m (2,953 - 10,000 ft), de-rate the maximum allowable operating temperature by 1.0°C per 175 m (1°F per 319 ft).

- Any fan failure or operations under expanded environments may lead to system performance degradation.

4. This document lists the LWAd and the LpAm 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).

5. The sound levels shown here were measured based on specific testing configurations and will 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 6-3 Physical Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>Chassis Dimensions (W × H × D):</td>
</tr>
<tr>
<td></td>
<td>• 2.5-inch drive configuration with mounting ears: 483 × 175.5 × 846.75 mm (19.02 × 6.91 × 33.34 in.)</td>
</tr>
<tr>
<td></td>
<td>• 2.5-inch drive configuration without mounting ears: 447.6 × 175.5 × 819.25 mm (17.62 × 6.91 × 32.25 in.)</td>
</tr>
<tr>
<td></td>
<td>• 3.5-inch drive configuration with mounting ears: 483 × 175.5 × 871.75 mm (19.02 × 6.91 × 34.32 in.)</td>
</tr>
<tr>
<td></td>
<td>• 3.5-inch drive configuration without mounting ears: 447.6 × 175.5 × 844.25 mm (17.62 × 6.91 × 33.24 in.)</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Weight</td>
<td>• Outer packaging (L × W × H): 1200 × 800 × 480 mm (47.24 × 31.50 × 18.90 in.)</td>
</tr>
<tr>
<td></td>
<td>Chassis:</td>
</tr>
<tr>
<td></td>
<td>• Maximum weight of the 12 × 3.5-inch front drive configuration: 54 kg (119.05 lbs)</td>
</tr>
<tr>
<td></td>
<td>• Maximum weight of the 24 × 2.5-inch front drive configuration: 51 kg (112.44 lbs)</td>
</tr>
<tr>
<td></td>
<td>Packaging materials: 32 kg (70.55 lbs) (including packaging box + rails + accessory box)</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>Power consumption varies with configurations.</td>
</tr>
</tbody>
</table>
7 Operating System and Hardware Compatibility

This section describes the OS and hardware compatibility information. For the latest compatibility configuration and the component models not listed in this manual, 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 System

<table>
<thead>
<tr>
<th>OS</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows</td>
<td>Windows Server 2019, 64 bit</td>
</tr>
<tr>
<td>Red Hat</td>
<td>Redhat 7.8, 64 bit</td>
</tr>
<tr>
<td></td>
<td>Redhat 8.2, 64 bit</td>
</tr>
<tr>
<td></td>
<td>Redhat 8.3, 64 bit</td>
</tr>
<tr>
<td>Ubuntu</td>
<td>Ubuntu 20.04, 64 bit</td>
</tr>
<tr>
<td>CentOS</td>
<td>CentOS 7.8, 64 bit</td>
</tr>
<tr>
<td></td>
<td>CentOS 8.2, 64 bit</td>
</tr>
<tr>
<td></td>
<td>CentOS 8.3, 64 bit</td>
</tr>
</tbody>
</table>
7.2 Hardware Compatibility

7.2.1 CPU Specifications

- Supports up to 2 AMD EPYC processors.
- Supports up to 64 cores.
- Max base frequency at 3.1 GHz.
- 3 xGMI links at up to 18 GT/s.
- Up to 256 MB of L3 cache.
- TDP up to 280 W.

Table 7-2 CPU Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Cores</th>
<th>Threads</th>
<th>Base Frequency (GHz)</th>
<th>Max Boost Frequency (GHz)</th>
<th>Cache (MB)</th>
<th>TDP (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7402</td>
<td>24</td>
<td>48</td>
<td>2.8</td>
<td>3.35</td>
<td>128</td>
<td>180</td>
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<tr>
<td>7282</td>
<td>16</td>
<td>32</td>
<td>2.8</td>
<td>3.2</td>
<td>64</td>
<td>120</td>
</tr>
<tr>
<td>7742</td>
<td>64</td>
<td>128</td>
<td>2.25</td>
<td>3.4</td>
<td>256</td>
<td>225</td>
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<tr>
<td>7702</td>
<td>64</td>
<td>128</td>
<td>2.0</td>
<td>3.35</td>
<td>256</td>
<td>225</td>
</tr>
<tr>
<td>7542</td>
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<td>64</td>
<td>2.9</td>
<td>3.4</td>
<td>128</td>
<td>225</td>
</tr>
<tr>
<td>7H12</td>
<td>64</td>
<td>128</td>
<td>2.6</td>
<td>3.3</td>
<td>256</td>
<td>280</td>
</tr>
<tr>
<td>7502</td>
<td>32</td>
<td>64</td>
<td>2.5</td>
<td>3.35</td>
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<td>7642</td>
<td>48</td>
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<td>3.3</td>
<td>256</td>
<td>225</td>
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<td>7302</td>
<td>16</td>
<td>32</td>
<td>3.0</td>
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<td>74</td>
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<tr>
<td>7352</td>
<td>24</td>
<td>48</td>
<td>2.3</td>
<td>3.2</td>
<td>96</td>
<td>155</td>
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<tr>
<td>7252</td>
<td>8</td>
<td>16</td>
<td>3.1</td>
<td>3.2</td>
<td>32</td>
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<td>7532</td>
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<td>3.3</td>
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<td>7272</td>
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<td>24</td>
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<td>3.2</td>
<td>64</td>
<td>120</td>
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<tr>
<td>7543</td>
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<td>64</td>
<td>2.8</td>
<td>3.7</td>
<td>256</td>
<td>225</td>
</tr>
<tr>
<td>7552</td>
<td>48</td>
<td>96</td>
<td>2.2</td>
<td>3.3</td>
<td>192</td>
<td>200</td>
</tr>
<tr>
<td>7313</td>
<td>16</td>
<td>32</td>
<td>3.0</td>
<td>3.7</td>
<td>128</td>
<td>155</td>
</tr>
<tr>
<td>75F3</td>
<td>32</td>
<td>64</td>
<td>2.95</td>
<td>4.0</td>
<td>256</td>
<td>280</td>
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<td>3.6</td>
<td>256</td>
<td>225</td>
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<td>256</td>
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<td>32</td>
<td>64</td>
<td>2.8</td>
<td>3.7</td>
<td>256</td>
<td>225</td>
</tr>
</tbody>
</table>
7.2.2 DIMM Specifications

The NF5468A5 supports up to 32 DDR4 RDIMMs/LRDIMMs (3200 or 2933 MT/s). Each processor supports 8 memory channels with 2 DIMM slots per channel. The following memory protection technology is supported:

- Error-Correcting Code (ECC)

Table 7-3 Memory Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Capacity (GB)</th>
<th>Speed</th>
<th>Data Width</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>RDIMM</td>
<td>16</td>
<td>3200</td>
<td>x72</td>
<td>1R x4/2R x8</td>
</tr>
<tr>
<td>RDIMM</td>
<td>32</td>
<td>3200</td>
<td>x72</td>
<td>2R x4/2R x8</td>
</tr>
<tr>
<td>RDIMM</td>
<td>64</td>
<td>3200</td>
<td>x72</td>
<td>2R x4</td>
</tr>
<tr>
<td>RDIMM</td>
<td>128</td>
<td>3200</td>
<td>x72</td>
<td>4R x4</td>
</tr>
</tbody>
</table>

7.2.3 Drive Specifications

Table 7-4 HDD Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Speed in rpm</th>
<th>Capacity</th>
<th>Max. Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5-inch SAS Drive</td>
<td>10k</td>
<td>600 GB/1.2 TB/1.8 TB/2.4 TB</td>
<td>24</td>
</tr>
<tr>
<td>2.5-inch SAS Drive</td>
<td>15k</td>
<td>300 GB/600 GB</td>
<td>24</td>
</tr>
</tbody>
</table>

Table 7-5 SSD Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity</th>
<th>Max. Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.2 SSD</td>
<td>240 GB</td>
<td>2</td>
</tr>
<tr>
<td>M.2 SSD</td>
<td>480 GB</td>
<td>2</td>
</tr>
<tr>
<td>M.2 SSD</td>
<td>960 GB</td>
<td>2</td>
</tr>
<tr>
<td>SATA SSD</td>
<td>240 GB</td>
<td>24</td>
</tr>
<tr>
<td>SATA SSD</td>
<td>480 GB</td>
<td>24</td>
</tr>
<tr>
<td>SATA SSD</td>
<td>960 GB</td>
<td>24</td>
</tr>
<tr>
<td>SATA SSD</td>
<td>1.92 TB</td>
<td>24</td>
</tr>
<tr>
<td>SATA SSD</td>
<td>3.84 TB</td>
<td>24</td>
</tr>
<tr>
<td>SATA SSD</td>
<td>7.68 TB</td>
<td>24</td>
</tr>
</tbody>
</table>
Table 7-6 U.2 NVMe SSD Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity</th>
<th>Max. Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.2 NVMe SSD</td>
<td>0.96 TB</td>
<td>4</td>
</tr>
<tr>
<td>U.2 NVMe SSD</td>
<td>1 TB</td>
<td>4</td>
</tr>
<tr>
<td>U.2 NVMe SSD</td>
<td>1.92 TB</td>
<td>4</td>
</tr>
<tr>
<td>U.2 NVMe SSD</td>
<td>2 TB</td>
<td>4</td>
</tr>
<tr>
<td>U.2 NVMe SSD</td>
<td>3.84 TB</td>
<td>4</td>
</tr>
<tr>
<td>U.2 NVMe SSD</td>
<td>4 TB</td>
<td>4</td>
</tr>
<tr>
<td>U.2 NVMe SSD</td>
<td>6.4 TB</td>
<td>4</td>
</tr>
<tr>
<td>U.2 NVMe SSD</td>
<td>7.68 TB</td>
<td>4</td>
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<tr>
<td>U.2 NVMe SSD</td>
<td>8 TB</td>
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</tr>
</tbody>
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7.2.4 SAS/RAID Controller Card Specifications

Table 7-7 SAS/RAID Controller Card Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Manufacturer</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS Controller Card</td>
<td>LSI</td>
<td>9400-8i</td>
</tr>
<tr>
<td></td>
<td>LSI</td>
<td>9400-16i</td>
</tr>
<tr>
<td></td>
<td>Inspur</td>
<td>SAS3008</td>
</tr>
<tr>
<td></td>
<td>Inspur</td>
<td>PM8222_SmartHBA</td>
</tr>
<tr>
<td></td>
<td>Inspur</td>
<td>PM8222</td>
</tr>
<tr>
<td>RAID Controller Card</td>
<td>Inspur</td>
<td>SAS3108_2GB</td>
</tr>
<tr>
<td></td>
<td>Inspur</td>
<td>SAS3008</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM8204-2GB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM8204-4GB</td>
</tr>
<tr>
<td></td>
<td>LSI</td>
<td>9460-16i_4GB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9460-8i_2GB</td>
</tr>
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<td></td>
<td></td>
<td>9560-8i_4GB</td>
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<td></td>
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<td>9361-8i-1GB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9361-8i-2GB</td>
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7.2.5 NIC Specifications

Table 7-8 OCP NIC Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Speed (Gb/s)</th>
<th>Network Port Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCP 3.0 Card</td>
<td>I350</td>
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<td>2</td>
</tr>
<tr>
<td></td>
<td>X710_10G</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>BROADCM_25G</td>
<td>25</td>
<td>2</td>
</tr>
</tbody>
</table>
### Table 7-9 PCIe NIC Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Speed (Gb/s)</th>
<th>Network Port Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCIe NIC</td>
<td>25G_MCX562A-ACAB</td>
<td>25</td>
<td>2</td>
</tr>
<tr>
<td>PCIe NIC</td>
<td>25G_MCX631432AN</td>
<td>25</td>
<td>2</td>
</tr>
<tr>
<td>PCIe NIC</td>
<td>I350-T4V2</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>PCIe NIC</td>
<td>I350AM4</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>PCIe NIC</td>
<td>EX710DA2</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>PCIe NIC</td>
<td>82599ES</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>PCIe NIC</td>
<td>X710DA4FH</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>PCIe NIC</td>
<td>X550T2</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>PCIe NIC</td>
<td>X550</td>
<td>10</td>
<td>2</td>
</tr>
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<td>MCX512A-ACAT</td>
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<td>2</td>
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<tr>
<td>PCIe NIC</td>
<td>MCX631102AN</td>
<td>25</td>
<td>2</td>
</tr>
<tr>
<td>PCIe NIC</td>
<td>MCX4121A-ACAT</td>
<td>25</td>
<td>2</td>
</tr>
<tr>
<td>PCIe NIC</td>
<td>MCX516A-GCAT</td>
<td>50</td>
<td>2</td>
</tr>
<tr>
<td>PCIe NIC</td>
<td>MCX516A-CCAT</td>
<td>100</td>
<td>2</td>
</tr>
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### 7.2.6 HCA Card Specifications

Table 7-10 HCA Card Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCA Card</td>
<td>MCX653105A-ECAT</td>
</tr>
<tr>
<td>HCA Card</td>
<td>MCX653106A-ECAT</td>
</tr>
<tr>
<td>HCA Card</td>
<td>MCX653105A-HDAT</td>
</tr>
<tr>
<td>HCA Card</td>
<td>MCX653106A-HDAT</td>
</tr>
</tbody>
</table>

### 7.2.7 GPU Specifications

Table 7-11 GPU Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Max. Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPU Card</td>
<td>Tesla-A100</td>
<td>8</td>
</tr>
<tr>
<td>GPU Card</td>
<td>NVIDIA-A100</td>
<td>8</td>
</tr>
<tr>
<td>GPU Card</td>
<td>NVIDIA-A30</td>
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</tr>
<tr>
<td>GPU Card</td>
<td>NVIDIA-A40</td>
<td>8</td>
</tr>
<tr>
<td>Type</td>
<td>Model</td>
<td>Max. Qty.</td>
</tr>
<tr>
<td>----------</td>
<td>----------</td>
<td>-----------</td>
</tr>
<tr>
<td>GPU Card</td>
<td>Tesla-T4</td>
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</tr>
<tr>
<td>GPU Card</td>
<td>NVIDIA-A10</td>
<td>8</td>
</tr>
</tbody>
</table>

### 7.2.8 PSU Specifications

The NF5468A5 supports up to four hot-swap Intel® CRPS 80 PLUS Platinum PSUs in 2+2 redundancy, with standard electrical and structural design, allowing customers to choose based on the actual configuration. 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 power supplies in 2+2 redundancy are supported:

- 1600 W Platinum Level PSUs: 1000 W (110 VAC), 1600 W (230 VAC), 1600 W (240 VDC for China)
- 2200 W Platinum Level PSUs: 1000 W (110 VAC), 2200 W (230 VAC), 2200 W (240 VDC for China)
- 3000 W Platinum Level PSUs: 1500 W (110 VAC), 3000 W (230 VAC), 3000 W (240 VDC for China)

⚠️ **CAUTION**

- At a rated voltage of 110 VAC, a 1600/2000/2200/3000 W PSU will be derated.
- Input voltage range:
  - 110 VAC - 230 VAC (rated voltage): 90 V - 264 V (operating voltage)
  - 240 VDC (rated voltage): 180 V - 320 V (operating voltage)
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.
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).

1. Put your hand through an ESD wrist strap.

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

3. 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:

- Use 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

<table>
<thead>
<tr>
<th>Organization</th>
<th>Weight Limit (kg/lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>European Committee for Standardization (CEN)</td>
<td>25/55.13</td>
</tr>
<tr>
<td>International Organization for Standardization (ISO)</td>
<td>25/55.13</td>
</tr>
<tr>
<td>National Institute for Occupational Safety and Health (NIOSH)</td>
<td>23/50.72</td>
</tr>
<tr>
<td>Health and Safety Executive (HSE)</td>
<td>25/55.13</td>
</tr>
<tr>
<td>General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ)</td>
<td>15/33.08, 10/22.05</td>
</tr>
</tbody>
</table>
8.2 Maintenance and Warranty

For information about warranty policies, refer to Chapter 9 Inspur Limited Warranty in *Inspur Server NF5468A5 User Manual*. 
9 System Management

9.1 Intelligent Management System ISBMC

The NF5468A5 is integrated with Inspur’s new-generation BMC intelligent management system (ISBMC). ISBMC is a self-developed remote server management system by Inspur. Compatible with the server management standard IPMI 2.0, ISBMC features reliable and intelligent hardware monitoring and management.

ISBMC supports:
- IPMI 2.0
- redirection of keyboard, video, mouse (KVM) and text console
- remote virtual media
- Redfish
- SNMP
- login to BMC via web browsers

Table 9-1 ISBMC Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management Interface</td>
<td>Supports a variety of management interfaces for integration with any standard management system. The supported interfaces include:</td>
</tr>
<tr>
<td></td>
<td>• IPMI</td>
</tr>
<tr>
<td></td>
<td>• CLI</td>
</tr>
<tr>
<td></td>
<td>• SNMP</td>
</tr>
<tr>
<td></td>
<td>• HTTPS</td>
</tr>
<tr>
<td></td>
<td>• Redfish</td>
</tr>
<tr>
<td>Accurate and Intelligent Fault Location</td>
<td>IDL, a self-developed fault diagnosis system, offers accurate and comprehensive hardware fault location capabilities, and outputs detailed fault causes and handling suggestions</td>
</tr>
<tr>
<td>Alert Management</td>
<td>Supports alert management and various alerting mechanisms such as SNMP Trap (v1/v2c/v3), email alerts, and syslog alerts to ensure 24 x 7 device reliability</td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Remote Console KVM</td>
<td>Provides convenient remote maintenance without on-site operation in case of system failure</td>
</tr>
<tr>
<td>Remote Virtual Media</td>
<td>Supports virtualizing images, USB devices, folders and local media devices as media devices of remote servers, simplifying OS installation, file sharing, and other O&amp;M tasks</td>
</tr>
<tr>
<td>Web GUI</td>
<td>Supports the visual management interface developed by Inspur, displaying abundant information of the server and components, and offers easy-to-use Web GUIs</td>
</tr>
<tr>
<td>Crash Screenshot and Manual Screenshot</td>
<td>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</td>
</tr>
<tr>
<td>Dual Flash and Dual Image</td>
<td>Supports dual flash and dual image, enabling automatic flash failover in case of software faults or flash damage, improving operational reliability</td>
</tr>
<tr>
<td>IPv6</td>
<td>Supports IPv6 and an IPv6-only environment can be built, providing customers with abundant IP resources</td>
</tr>
<tr>
<td>Auto-Switching of Management Network Ports</td>
<td>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</td>
</tr>
<tr>
<td>Hardware Monitoring Timer</td>
<td>Full speed is activated for fans when BMC is unresponsive beyond the preset timeout period</td>
</tr>
<tr>
<td>Power Supply Control</td>
<td>Supports virtual power buttons for startup, shutdown, restart, and restart after shutdown.</td>
</tr>
</tbody>
</table>
| UID LED and Remote Control LED | • Supports remote lighting of the UID LED for locating the server in the server room  
• 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  
• Supports firmware update of BMC, BIOS, CPLD, etc |
<p>| Serial Port Redirection        | Supports remote redirection of the system serial port, BMC serial port, and other serial ports, and directs the server-side                                                                                 |</p>
<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>serial port output to the local administrator via the network for server debugging</td>
</tr>
<tr>
<td>Storage Information</td>
<td>Displays RAID logical array information and drive information, supports remote RAID creation for improved deployment efficiency</td>
</tr>
</tbody>
</table>

9.2 Inspur Physical Infrastructure Manager (ISPIM)

The NF5468A5 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 advancement of their infrastructure management. This platform delivers a rich set of functions such as centralized resource management, in-depth fault diagnosis, second-level performance monitoring, intelligent energy consumption management, 3D automatic topology, and stateless automatic deployment. With these functions, users can implement central 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 of devices.
- Batch update, configuration and deployment for reduced deployment time.
- Version management for improved version management efficiency.
- Standardized northbound interfaces for easy integration and interfacing.
### Table 9-2 ISPIM Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centralized Device Management</td>
<td>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)</td>
</tr>
</tbody>
</table>
| Monitoring            | • Centralized display, search, blocking and email notifications of device alerts  
                          • Creation of alert rules, notification rules, and blocking rules  
                          • Alert severity level setting  
                          • Alert forwarding and southbound settings  
                          • Device performance monitoring  
                          • Distributed monitoring |
| Stateless Computing    | • BMC/BIOS update and configuration of Inspur servers  
                          • RAID configuration of Inspur servers  
                          • Firmware configuration templates  
                          • Automatic firmware baseline management  
                          • Repository for update files |
| OS Deployment          | • Batch deployment of OSs via BMC interfaces  
                          • One-click deployment with automatic and detailed logging and with no manual intervention needed  
                          • Concurrent deployment of up to 40 devices |
| Asset Management       | • Part-level asset management and multi-dimensional asset report  
                          • 3D data centers  
                          • Asset maintenance management |
### Feature | Description
--- | ---
Fault Diagnosis | Powered by the Inspur expert pool, this feature provides Inspur 360° expert services to enable intelligent fault diagnosis, fault cause location, expert repair suggestions, and automatic repair reporting for the Inspur servers.

| Power Consumption Management | • Multi-dimensional report of power consumption  
• Intelligent power capping strategies  
• A variety of power consumption optimization analyses, including cooling analysis, server utilization analysis, server power consumption analysis, and load distribution analysis  
• Intelligent power consumption prediction |

| Security Management | Implements security control of ISPIM by using 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 NF5468A5 server is compatible with the latest version of Inspur Server Intelligent Boot (ISIB), 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>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Home** | • Provides multi-dimensional reports of assets, repositories, operations and jobs  
           • Displays jobs 24 hours dynamically  
           • Displays 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  
                  • Software distribution  
                  • Configuration changes  
                  • System inspection |
| **Task** | • Supports job scheduling, and scheduled and periodic task execution  
            • Provides visual multi-dimensional task display and detailed logging |
Table 10-1 Certifications

<table>
<thead>
<tr>
<th>Country/Region</th>
<th>Certification</th>
<th>Logo</th>
<th>Mandatory/Voluntary</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>China Environmental Labelling</td>
<td><img src="China_Logo.png" alt="Logo" /></td>
<td>Voluntary</td>
</tr>
<tr>
<td>International Mutual Recognition</td>
<td>CB</td>
<td><img src="CB_Logo.png" alt="Logo" /></td>
<td>Voluntary</td>
</tr>
<tr>
<td>EU</td>
<td>CE</td>
<td><img src="CE_Logo.png" alt="Logo" /></td>
<td>Mandatory</td>
</tr>
<tr>
<td>US</td>
<td>FCC</td>
<td><img src="FCC_Logo.png" alt="Logo" /></td>
<td>Mandatory</td>
</tr>
<tr>
<td></td>
<td>UL</td>
<td><img src="UL_Logo.png" alt="Logo" /></td>
<td>Voluntary</td>
</tr>
<tr>
<td>Russia</td>
<td>EAC</td>
<td><img src="EAC_Logo.png" alt="Logo" /></td>
<td>Mandatory</td>
</tr>
<tr>
<td></td>
<td>FSS</td>
<td><img src="FSS_Logo.png" alt="Logo" /></td>
<td>Mandatory</td>
</tr>
<tr>
<td>South Korea</td>
<td>KC</td>
<td><img src="KC_Logo.png" alt="Logo" /></td>
<td>Mandatory</td>
</tr>
</tbody>
</table>
11 Appendix A

11.1 Operating Temperature and Specification Limits

Table 11-1 Operating Temperature and Specification Limits

<table>
<thead>
<tr>
<th></th>
<th>Max. Operating Temperature: 35°C (95°F)</th>
<th>Max. Operating Temperature: 40°C (104°F)</th>
<th>Max. Operating Temperature: 45°C (113°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All configurations supported</td>
<td>• CPUs with TDP higher than 165 W not supported</td>
<td>• Passive-cooling GPUs and FPGA cards not supported</td>
<td>• Passive-cooling GPUs not supported</td>
</tr>
<tr>
<td></td>
<td>• Passive-cooling GPUs higher than 12 W not supported</td>
<td>• Passive-cooling CPUs with TDP higher than 165 W not supported</td>
<td>• Passive-cooling DIMMs higher than 12 W not supported</td>
</tr>
</tbody>
</table>

11.2 Model

Table 11-2 Model

<table>
<thead>
<tr>
<th>Certified Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NF5468A5</td>
<td>Global</td>
</tr>
</tbody>
</table>

11.3 RAS Features

The NF5468A5 supports a variety of RAS (Reliability, Availability, and Serviceability) features. By configuring these features, the NF5468A5 can provide greater reliability, availability, and serviceability.
# 11.4 Sensor List

Table 11-3 Sensor List

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Description</th>
<th>Sensor Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inlet.Temp</td>
<td>Air inlet temperature</td>
<td>Right mounting ear</td>
</tr>
<tr>
<td>Outlet.Temp</td>
<td>Air outlet temperature</td>
<td>BMC card</td>
</tr>
<tr>
<td>CPUn.Temp</td>
<td>CPUn core temperature</td>
<td>CPUn (n) indicates the CPU number with a value of 0 - 1</td>
</tr>
<tr>
<td>CPUn_VR.Temp</td>
<td>CPUn VR temperature</td>
<td>CPUn (n) indicates the CPU number with a value of 0 - 1</td>
</tr>
<tr>
<td>CPUn_DIMM.Temp</td>
<td>CPUn DIMM temperature</td>
<td>DIMM (CPUn) (n) indicates the CPU number with a value of 0 - 1</td>
</tr>
<tr>
<td>CPUn_DIMMVR.Temp</td>
<td>CPUn DIMM VR temperature</td>
<td>DIMM (CPUn) (n) indicates the CPU number with a value of 0 - 1</td>
</tr>
<tr>
<td>PSUn.Temp</td>
<td>PSUn temperature</td>
<td>The corresponding power supply for PSUn (n) indicates the PSU number with a value of 0 - 3</td>
</tr>
<tr>
<td>HDD_MAX.Temp</td>
<td>Maximum temperature among all drives</td>
<td>Drive attached to the drive backplane</td>
</tr>
<tr>
<td>OCP.Temp</td>
<td>OCP card temperature</td>
<td>OCP card</td>
</tr>
<tr>
<td>HDD_BP2.Temp</td>
<td>HDD BP2 backplane temperature</td>
<td>HDD BP2 backplane</td>
</tr>
<tr>
<td>RAID.Temp</td>
<td>Current maximum temperature on the RAID controller card</td>
<td>PCIe RAID controller card</td>
</tr>
<tr>
<td>GPU_Temp</td>
<td>Current maximum temperature on the GPU card</td>
<td>PCIe GPU card</td>
</tr>
<tr>
<td>PCIe_Zone_Inlet</td>
<td>PCIe zone inlet temperature</td>
<td>M.2 backplane</td>
</tr>
<tr>
<td>PCIe_Zone_Temp</td>
<td>PCIe zone central temperature</td>
<td>Motherboard</td>
</tr>
<tr>
<td>MB_Outlet.Temp</td>
<td>Motherboard outlet temperature</td>
<td>Motherboard</td>
</tr>
<tr>
<td>HDD_BP0.Temp</td>
<td>HDD BP0 backplane temperature</td>
<td>HDD BP0 backplane</td>
</tr>
<tr>
<td>HDD_BP1.Temp</td>
<td>HDD BP1 backplane temperature</td>
<td>HDD BP1 backplane</td>
</tr>
<tr>
<td>SYS_12V</td>
<td>12 V voltage supplied by motherboard to CPU</td>
<td>Motherboard</td>
</tr>
<tr>
<td>Sensor</td>
<td>Description</td>
<td>Sensor Location</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>SYS_5V</td>
<td>5 V voltage supplied by motherboard to BMC</td>
<td>Motherboard</td>
</tr>
<tr>
<td>SYS_3V3</td>
<td>3.3 V voltage supplied by motherboard to BMC</td>
<td>Motherboard</td>
</tr>
<tr>
<td>CPUn_PVDDCR</td>
<td>CPUn core voltage</td>
<td>Motherboard</td>
</tr>
<tr>
<td></td>
<td>n indicates the CPU number with a value of 0 - 1</td>
<td></td>
</tr>
<tr>
<td>CPUn_PVDDCR_SOC</td>
<td>CPUn memory controller voltage</td>
<td>Motherboard</td>
</tr>
<tr>
<td></td>
<td>n indicates the CPU number with a value of 0 - 1</td>
<td></td>
</tr>
<tr>
<td>CPUn_1.8V</td>
<td>1.8 V CPUn voltage</td>
<td>Motherboard</td>
</tr>
<tr>
<td></td>
<td>n indicates the CPU number with a value of 0 - 1</td>
<td></td>
</tr>
<tr>
<td>CPUn_1.8V_AUX</td>
<td>IO input and output voltage of CPUn channel 13/14</td>
<td>Motherboard</td>
</tr>
<tr>
<td></td>
<td>n indicates the CPU number with a value of 0 - 1</td>
<td></td>
</tr>
<tr>
<td>PSUn_VIN</td>
<td>PSUn input voltage</td>
<td>Motherboard</td>
</tr>
<tr>
<td></td>
<td>n indicates the PSU number with a value of 0 - 3</td>
<td></td>
</tr>
<tr>
<td>PSUn_VOUT</td>
<td>PSUn output voltage</td>
<td>Motherboard</td>
</tr>
<tr>
<td></td>
<td>n indicates the PSU number with a value of 0 - 3</td>
<td></td>
</tr>
<tr>
<td>FANn_0</td>
<td>FANn speed</td>
<td>FANn</td>
</tr>
<tr>
<td>FANn_1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n indicates the fan module number with a value of 0 - 11</td>
<td></td>
</tr>
<tr>
<td>Total_Power</td>
<td>Total power of the server</td>
<td>The server power consumption components include PSUs, memories, drives, GPUs, CPUs, fans, PCIe cards, etc</td>
</tr>
<tr>
<td>PSUn_POUT</td>
<td>PSUn output power</td>
<td>PSUn</td>
</tr>
<tr>
<td></td>
<td>n indicates the PSU number with a value of 0 - 3</td>
<td></td>
</tr>
<tr>
<td>FAN_Power</td>
<td>Total fan power</td>
<td>Fans</td>
</tr>
<tr>
<td>Sensor</td>
<td>Description</td>
<td>Sensor Location</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>CPU_Power</td>
<td>Total CPU power</td>
<td>CPU</td>
</tr>
<tr>
<td>GPU_Power</td>
<td>Total GPU power</td>
<td>GPU</td>
</tr>
<tr>
<td>MEM_Power</td>
<td>Total memory power</td>
<td>Memory</td>
</tr>
<tr>
<td>Disk_Power</td>
<td>Total drive power</td>
<td>Drives</td>
</tr>
<tr>
<td>PSUn_Power</td>
<td>Power consumption of PSUn</td>
<td>PSUn n indicates the PSU number with a value of 0 - 3</td>
</tr>
<tr>
<td>CPUn_Status</td>
<td>CPUn status</td>
<td>CPUn n indicates the CPU number with a value of 0 - 1</td>
</tr>
<tr>
<td>PSUn_Status</td>
<td>PSUn status</td>
<td>PSUn n indicates the PSU number with a value of 0 - 3</td>
</tr>
<tr>
<td>DISKn_Status</td>
<td>Drive fault status</td>
<td>Drive n n indicates the drive number with a value of 0 - 23</td>
</tr>
<tr>
<td>IPMI_Watchdog</td>
<td>Watchdog</td>
<td>Motherboard</td>
</tr>
<tr>
<td>Intrusion</td>
<td>Monitor the chassis-opening activity</td>
<td>Motherboard</td>
</tr>
<tr>
<td>SYS_Shutdown</td>
<td>Reason for system shutdown</td>
<td></td>
</tr>
<tr>
<td>ACPI_State</td>
<td>System ACPI PSU status</td>
<td></td>
</tr>
<tr>
<td>SYS_Restart</td>
<td>Reason for system restart</td>
<td></td>
</tr>
<tr>
<td>BIOS_Boot_Up</td>
<td>BIOS boot up complete</td>
<td></td>
</tr>
<tr>
<td>POST_Status</td>
<td>POST status</td>
<td></td>
</tr>
<tr>
<td>BMC_Boot_Up</td>
<td>Record the BMC startup boot events</td>
<td></td>
</tr>
<tr>
<td>SEL_Status</td>
<td>Record the event that when SELs are almost full/cleared</td>
<td></td>
</tr>
<tr>
<td>BMC_Status</td>
<td>BMC status</td>
<td></td>
</tr>
</tbody>
</table>
## Appendix B - Abbreviations

### 12.1 A - E

<table>
<thead>
<tr>
<th>A</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AC</td>
<td>Alternating Current</td>
</tr>
<tr>
<td>AI</td>
<td>Artificial Intelligence</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B</th>
<th>-------------------</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS</td>
<td>Basic Input Output System</td>
</tr>
<tr>
<td>BMC</td>
<td>Baseboard Management Controller</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C</th>
<th>-------------------</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS</td>
<td>Column Access Strobe</td>
</tr>
<tr>
<td>CE</td>
<td>Conformite Europeenne</td>
</tr>
<tr>
<td>CPLD</td>
<td>Complex Programmable Logic Device</td>
</tr>
<tr>
<td>CPU</td>
<td>Central Processing Unit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D</th>
<th>-------------------</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB15</td>
<td>D-subminiature 15-pin</td>
</tr>
<tr>
<td>DC</td>
<td>Direct Current</td>
</tr>
<tr>
<td>DDR4</td>
<td>Double Data Rate 4</td>
</tr>
<tr>
<td>DIMM</td>
<td>Dual In-line Memory Module</td>
</tr>
<tr>
<td>DRAM</td>
<td>Dynamic Random-Access Memory</td>
</tr>
<tr>
<td>ECC</td>
<td>Error-Correcting Code</td>
</tr>
<tr>
<td>------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>ECMA</td>
<td>European Computer Manufacturer Association</td>
</tr>
<tr>
<td>EN</td>
<td>European Norm</td>
</tr>
</tbody>
</table>

### 12.2 F - J

<table>
<thead>
<tr>
<th>FHFL</th>
<th>Full Height Full Length</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>GE</th>
<th>Gigabit Ethernet</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPU</td>
<td>Graphics Processing Unit</td>
</tr>
<tr>
<td>GUI</td>
<td>Graphical User Interface</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HDD</th>
<th>Hard Disk Drive</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDT</td>
<td>Hardware Debug Tool</td>
</tr>
<tr>
<td>HTTPS</td>
<td>Hypertext Transfer Protocol Secure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IOPS</th>
<th>Input/Output Operations per Second</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP</td>
<td>Internet Protocol</td>
</tr>
<tr>
<td>IPMI</td>
<td>Intelligent Platform Management Interface</td>
</tr>
<tr>
<td>ISBMC</td>
<td>Inspur Baseboard Management Controller</td>
</tr>
<tr>
<td><strong>JTAG</strong></td>
<td>Joint Test Action Group</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

### 12.3 K - O

#### K

<table>
<thead>
<tr>
<th><strong>KVM</strong></th>
<th>Keyboard, Video and Mouse</th>
</tr>
</thead>
</table>

#### L

<table>
<thead>
<tr>
<th><strong>LC</strong></th>
<th>Lucent Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LRDIMM</strong></td>
<td>Load-Reduced Dual In-line Memory Module</td>
</tr>
<tr>
<td><strong>LED</strong></td>
<td>Light Emitting Diode</td>
</tr>
</tbody>
</table>

#### N

<table>
<thead>
<tr>
<th><strong>NC-SI</strong></th>
<th>Network Controller Sideband Interface</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NIC</strong></td>
<td>Network Interface Card</td>
</tr>
<tr>
<td><strong>NVMe</strong></td>
<td>Non-Volatile Memory Express</td>
</tr>
</tbody>
</table>

#### O

<table>
<thead>
<tr>
<th><strong>OCP</strong></th>
<th>Open Compute Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>O&amp;M</strong></td>
<td>Operations and Maintenance</td>
</tr>
<tr>
<td><strong>OS</strong></td>
<td>Operating System</td>
</tr>
</tbody>
</table>

### 12.4 P - T

#### P

<table>
<thead>
<tr>
<th><strong>PCle</strong></th>
<th>Peripheral Component Interconnect Express</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PSU</strong></td>
<td>Power Supply Unit</td>
</tr>
<tr>
<td>PXE</td>
<td>Preboot Execution Environment</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>R</td>
<td></td>
</tr>
<tr>
<td>RAID</td>
<td>Redundant Array of Independent Disks</td>
</tr>
<tr>
<td>RAS</td>
<td>Reliability, Availability and Serviceability</td>
</tr>
<tr>
<td>RDIMM</td>
<td>Registered Dual In-line Memory Module</td>
</tr>
<tr>
<td>RJ45</td>
<td>Registered Jack 45</td>
</tr>
<tr>
<td>RoHS</td>
<td>Restriction of Hazardous Substances</td>
</tr>
<tr>
<td>S</td>
<td></td>
</tr>
<tr>
<td>SAS</td>
<td>Serial Attached Small Computer System Interface</td>
</tr>
<tr>
<td>SATA</td>
<td>Serial Advanced Technology Attachment</td>
</tr>
<tr>
<td>SMTP</td>
<td>Simple Mail Transfer Protocol</td>
</tr>
<tr>
<td>SN</td>
<td>Serial Number</td>
</tr>
<tr>
<td>SNMP</td>
<td>Simple Network Management Protocol</td>
</tr>
<tr>
<td>SSD</td>
<td>Solid-State Drive</td>
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<tr>
<td>T</td>
<td></td>
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<tr>
<td>TDP</td>
<td>Thermal Design Power</td>
</tr>
<tr>
<td>TF</td>
<td>TransFlash</td>
</tr>
<tr>
<td>TPM</td>
<td>Trusted Platform Module</td>
</tr>
</tbody>
</table>

### 12.5 U - Z

<p>| U                   |                               |
| UID                 | Unit Identification           |</p>
<table>
<thead>
<tr>
<th>USB</th>
<th>Universal Serial Bus</th>
</tr>
</thead>
<tbody>
<tr>
<td>VGA</td>
<td>Video Graphics Array</td>
</tr>
<tr>
<td>VPP</td>
<td>Virtual Pin Port</td>
</tr>
<tr>
<td>VR</td>
<td>Voltage Regulator</td>
</tr>
<tr>
<td>VRD</td>
<td>Voltage Regulator-Down</td>
</tr>
<tr>
<td>xGMI</td>
<td>External Global Memory Interconnect</td>
</tr>
</tbody>
</table>