# NETAŞ NCS6721A N6

## Rack Server

## Product Description

Version: R1.1

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## LEGAL INFORMATION



Statement on the Use of Third-Party Embedded Software:

If third-party embedded software such as Oracle, Sybase/SAP, Veritas, Microsoft, VMware, and Redhat is delivered together with this product of NETAŞ, the embedded software must be used as only a component of this product. If this product is discarded, the licenses for the embedded software must be void either and must not be transferred. NETAŞ will provide technical support for the embedded software of this product.

## Revision History

| Revision No. | Revision Date | Revision Reason |
|---|---|---|
| R1.1 | 2025-07-31 | Updated "5.3 Environmental Specifications" |
| R1.0 | 2025-07-05 | First edition. |

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# Contents

# About This Manual

## Purpose

This manual describes the NCS6721A N6 rack server, including its role, characteristics, structure, software functions, product specifications, environmental requirements, and compliant standards, helping you to fully learn about the NCS6721A N6 server.

## Intended Audience

This manual is intended for:

- Network planning engineers
- Installation engineers
- Maintenance engineers

## What Is in This Manual

This manual contains the following chapters.

| | |
|---|---|
| Chapter 1, Product Overview | Describes the purpose, characteristics, and features of the NCS6721A N6 rack server. |
| Chapter 2, External Views | Describes the front panel and rear panel of the NCS6721A N6 rack server, including the indicators, buttons, and physical interfaces on the front and rear panels. |
| Chapter 3, Product Structure | Describes the physical structure and logical structure of the NCS6721A N6 rack server. |
| Chapter 4, Software Functions | Describes the software functions of the NCS6721A N6 rack server. |
| Chapter 5, Product Specifications | Describes the specifications of the NCS6721A N6 rack server, including the physical, technical, environmental and reliability specifications. |
| Chapter 6, Compliant Standards | Describes the standards that the design of the NCS6721A N6 rack server complies with. |
| Chapter 7, Product Recycling | Describes how to contact technical support for the recycling of NCS6721A N6 rack server related products. |

## Conventions

This manual uses the following conventions.

| Symbol | Description |
|---|---|
|  | Danger: indicates an imminently hazardous situation. Failure to comply will result in death or serious personal injury.<br>Warning: indicates a potentially hazardous situation. Failure to comply can result in death or serious personal injury.<br>Caution: indicates a potentially hazardous situation. Failure to comply can result in moderate or minor personal injury. |
|  | Notice: indicates equipment or environment safety information. Failure to comply can result in equipment damage, data loss, equipment performance degradation, environmental contamination, or other unpredictable results.<br>Failure to comply will not result in personal injury. |
|  | Note: provides additional information about a topic. |

# Chapter 1
# Product Overview

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## 1.1 Purpose

The NCS6721A N6 is a 2U 1-channel general rack server based on the AMD Turin processor. With a high-density, modular, and compact design, the server boasts high performance, high reliability, easy expandability, and convenient management. It is widely used in fields such as cloud computing, big data, virtualization, and AI inference.

Figure 1-1 shows an external view of the NCS6721A N6 server.

**Figure 1-1 External View of the NCS6721A N6 Server**

**CAUTION**

The operation of this device in a residential environment may cause radio interference.

# 1.2 Product Characteristics

### High Density and High Performance

- One AMD EPYC Turin SP5 processor is supported, which provides up to 192 cores.
- Twelve DDR5 memory modules are supported, with a maximum speed of 6400 MT/s per module.
- High-speed I/O interfaces and high-performance NVMe SSDs are supported.

### Easy Expandability and High Bandwidth

- A maximum of thirty-five 2.5-inch disk slots, or sixteen 3.5-inch disk slots and four 2.5-inch disk slots are provided, meeting the requirements for large-capacity storage.
- A maximum of thirty-two E1.S/E3.S SSDs are supported, which provide high-speed I/O interfaces, making disk access faster.
- Multiple storage combinations and RAID controller card configurations are supported, facilitating flexible configuration of local storage in accordance with service requirements.
- A maximum of sixteen PCIe 5.0 slots are supported for flexible configuration of network and storage resources.
- A maximum of four high-performance GPUs are supported, providing excellent computing power.

### High Availability and High Reliability

- Key parts such as hard disks, PSUs, and fans support hot swapping, ensuring high availability of the system.
- Multiple data protection mechanisms are available. For example, RAID 0, RAID 1, RAID 5, RAID 6, RAID 10, RAID 50, and RAID 60 are supported, and protection against a power supply failure is provided.
- Intelligent heat dissipation design increases system reliability and effectively extends component life, reducing costs.
- PSUs support 1+1 redundancy and fan units support N+1 redundancy, improving system reliability.
- TPM and TCM are supported.
- Intrusion detection is supported.

### Convenient Management and Easy Maintenance

- A smart management platform is provided, implementing out-of-band monitoring of CPUs, memory modules, hard disks, fans, PSUs, networks, and other resources.
- Standard interfaces such as IPMI, SNMP, and Redfish are provided, supporting integration with a third-party management system.

- Automatic deployment, firmware upgrade, and remote operations are supported, improving deployment and O&M efficiency.
- The powerful KVM function is provided.
- The connection to an LCD and tool-less installation are supported.

**Energy-Saving and Environmentally Friendly**

- The 80 PLUS platinum and titanium PSUs are used, supporting power capping.
- HVDC and LVDC technologies are supported, improving energy utilization.
- High-performance silent fans with intelligent speed regulation are provided.
- A proven liquid cooling solution is provided, meeting the heat dissipation requirements for CPUs.
- Lead-free design is used, helping protect the environment.

## 1.3 Product Features

The NCS6721A N6 server supports active shutdown at a high temperature. After this function is enabled, when the ambient temperature of the equipment room exceeds the high-temperature threshold, the server is shut down actively. To ensure service continuity, this function is disabled on the NCS6721A N6 server by default.

# Chapter 2
# External Views

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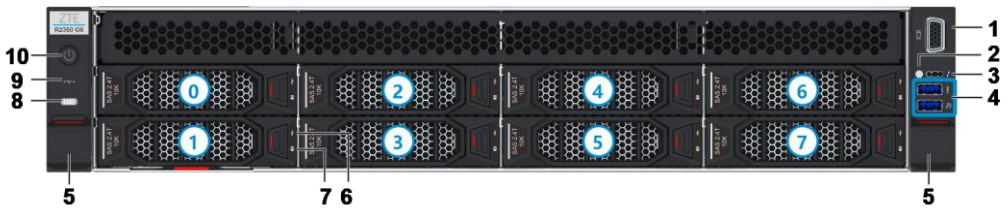
## 2.1 Front Panel

In accordance with the installation mode and number of hard disks, the front panel of the NCS6721A N6 server supports the following configurations:

- Horizontal layout (8 hard disks)

  The front panel provides eight 3.5-inch SAS/SATA disk slots (compatible with 2.5-inch hard disks), which also support NVMe SSDs, as shown in Figure 2-1Figure 2-1

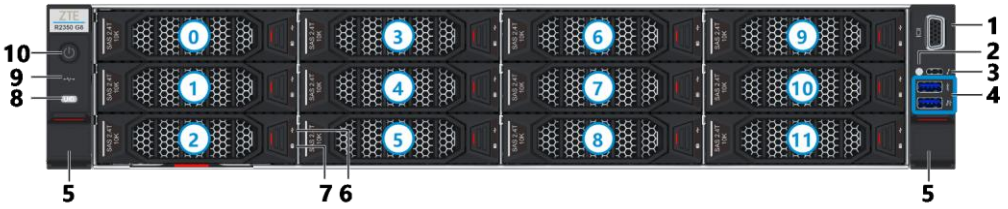
**Figure 2-1 Front Panel with Eight Horizontal Disk Slots**




- Horizontal layout (12 hard disks)

  The front panel provides twelve 3.5-inch SAS/SATA disk slots (compatible with 2.5-inch hard disks), which also support NVMe SSDs, as shown in Figure 2-2.

**Figure 2-2 Front Panel with Twelve Horizontal Disk Slots**




- Vertical layout (8 hard disks)

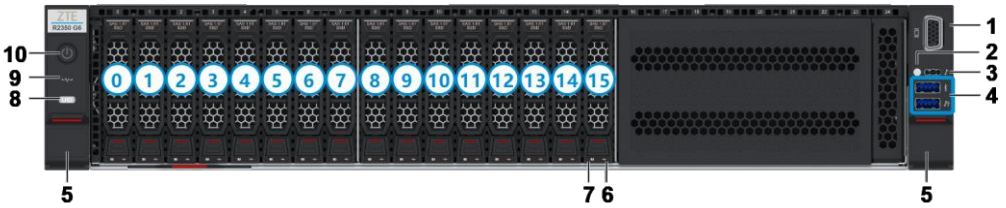
  The front panel provides eight 2.5-inch SAS/SATA disk slots, which also support NVMe SSDs, as shown in Figure 2-3.

**Figure 2-3 Front Panel with Eight Vertical Disk Slots**


- Vertical layout (16 hard disks)

  The front panel provides sixteen 2.5-inch SAS/SATA disk slots, which also support NVMe SSDs, as shown in Figure 2-4.

**Figure 2-4 Front Panel with Sixteen Vertical Disk Slots**




- Vertical layout (24 hard disks)

  The front panel provides twenty-four 2.5-inch SAS/SATA disk slots, which also support NVMe SSDs, as shown in Figure 2-5.

**Figure 2-5 Front Panel with Twenty-Four Vertical Disk Slots**


- Vertical layout (25 hard disks)

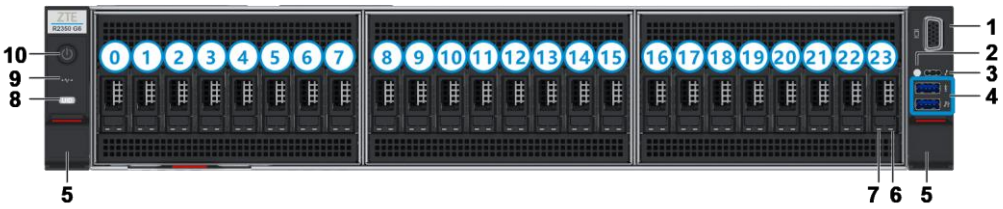
  The front panel provides twenty-five 2.5-inch SAS/SATA disk slots, which also support NVMe SSDs, as shown in Figure 2-6.

**Figure 2-6 Front Panel with Twenty-Five Vertical Disk Slots**


- Vertical layout (E1.S)

  The front panel provides twenty-four E1.S disk slots, as shown in Figure 2-7.

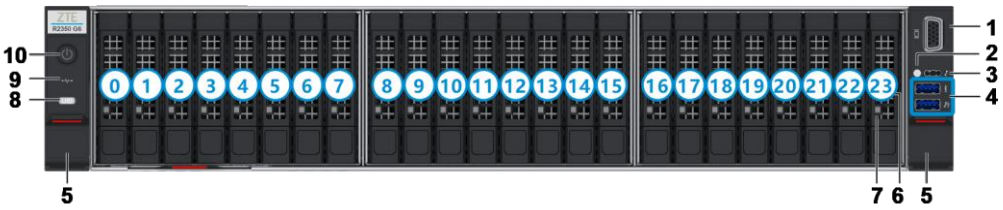
**Figure 2-7 Front Panel with Twenty-Four E1.S Disk Slots**




- Vertical layout (E3.S)

  The front panel provides twenty-four E3.S disk slots, as shown in Figure 2-8.

**Figure 2-8 Front Panel with Twenty-Four E3.S Disk Slots**




**Note**

The circled numbers in the above figures indicate the hard disk slot IDs.

For a description of the interfaces and indicators on the front panel of the server, refer to Table 2-1.

**Table 2-1 Front Panel Interface and Indicator Descriptions**

| No. | Name | Description |
|---|---|---|
| 1 | VGA interface | Used to connect to a display. |
| 2 | Type-C interface indicator | The states of the management interface that directly connects the BMC to a terminal device (local PC):<br>● Off: No terminal device is connected.<br>● Off after flashing green for three seconds: The port function is disabled.<br>● Steady green: A terminal device is connected.<br>The states of the management interface that directly connects the BMC to a USB device:<br>● Flashing red (slowly): A task fails, or a task is completed but an error is reported.<br>● Flashing green (fast): A task is being executed.<br>● Off after flashing green for three seconds: The port function is disabled.<br>● Steady green: A server configuration file is being copied from the USB device, or a task is completed successfully. |

| No. | Name | Description |
|---|---|---|
| 3 | Type-C interface | USB 2.0 interface in type-C format, which can be connected to a USB storage device, mobile phone, Wi-Fi device, or Bluetooth module. |
| 4 | USB interface | ● The upper interface is a USB 3.0 interface, which is connected to a USB 3.0 device, for example, USB flash drive for system boot.<br>● The lower interface is a USB 2.0 interface, which is connected to a USB mouse or keyboard to facilitate lightweight maintenance of the server and rapid fault location and analysis. |
| 5 | Chassis mounting screw shield | Used to shield the mounting screws on the chassis. |
| 6 | Hard disk status indicator | For a SAS/SATA/NVMe SSD, the states of this indicator are as follows:<br>● Off: The hard disk is operating properly.<br>● Flashing blue at 1 Hz: The RAID group that the hard disk belongs to is being rebuilt.<br>● Flashing blue at 4 Hz: The hard disk is being positioned.<br>● Steady red: The hard disk is faulty.<br>For an E1.S/E3.S SSD, the states of this indicator are as follows:<br>● Off: The hard disk is operating properly.<br>● Flashing amber at 1 Hz: The RAID group that the hard disk belongs to is being rebuilt.<br>● Flashing amber at 4 Hz: The hard disk is being positioned.<br>● Steady amber: The hard disk is faulty. |
| 7 | Hard disk activity indicator | The states of this indicator are as follows:<br>● Off: The hard disk is not present or is faulty.<br>● Flashing green: Data is being read from or written to the hard disk, or synchronized between hard disks. (The green indicator of a SAS/SATA SSD flashes at 4 Hz, and the green indicator of an NVMe SSD flashes at an undefined frequency.)<br>● Steady green: The hard disk is present but inactive. |
| 8 | UID button or indicator | The button is also used as an indicator. The states of this indicator are as follows:<br>● Steady blue: The server is being positioned. You can press the UID button or perform the corresponding operation on the Web portal of the BMC to position the server.<br>● Flashing blue at 1 Hz: The server is being remotely accessed through KVM, Web, or SSH. Remote login to the server can be controlled on the Web portal of the BMC.<br>● Flashing blue at 4 Hz: The server is in debugging mode. The serial interface on the rear panel of the server serves as the BMC debugging serial interface.<br>● Flashing blue at 8 Hz: The server is in BMC reset mode. |

| No. | Name | Description |
|---|---|---|
| | | ● Blue indicator off: No positioning, remote login, or reset operation is triggered for the server.<br>The UID button supports the following operations:<br>● Pressing and holding the button for less than 4 seconds: performs server positioning or cancels the current function (cancels positioning or the BMC debugging status of the serial port).<br>● Pressing and holding the button for 4 to 10 seconds: switches the serial interface on the rear panel to BMC debugging status.<br>● Pressing and holding the button for 10 or more seconds: resets the BMC.<br>● Pressing and holding the button for 4 to 10 seconds and then pressing and holding it for 10 or more seconds: resets the BMC and keeps the serial interface on the rear panel in BMC debugging status. |
| 9 | Health status indicator | The states of this indicator are as follows:<br>● Steady green: The server is operating properly.<br>● Flashing red at 1 Hz: The server has a minor alarm.<br>● Flashing red at 4 Hz: The server has a critical alarm.<br>● Off: The server is not operating properly. |
| 10 | Power button or indicator | The button is also used as an indicator. The states of this indicator are as follows:<br>● Yellow: The server is powered on in standby mode (the host is not powered on).<br>● Green: The server is powered on in payload mode (the host is powered on).<br>● Off: The server is not powered on or a PSU is not operating properly.<br>You can press the power button to power on the server. The power button supports the following operations:<br>● Pressing and holding the button for less than 4 seconds: powers on the server.<br>● Pressing and holding the button for 4 or more seconds: shuts down the server forcibly. |

**Note**

To ensure hard disk reliability, the storage duration of a mechanical hard disk must not exceed six months.

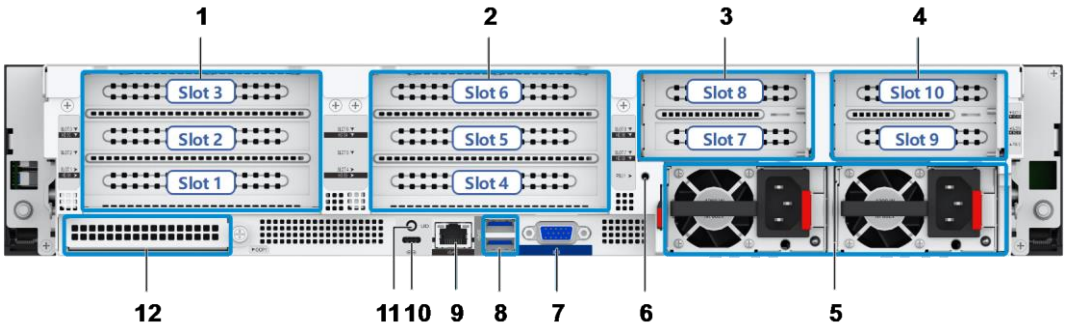
# 2.2 Rear Panel

## 2.2.1 Rear Panel of the General Model

The I/O modules on the rear panel of the NCS6721A N6 server can be configured in the following modes as required:

- All are configured as PCIe 5.0 expansion slots, as shown in Figure 2-9 and Figure 2-10.
- All are configured as hard disk expansion slots, as shown in Figure 2-11.
- Some are configured as standard PCIe 5.0 card expansion slots, and the others are configured as hard disk expansion slots.

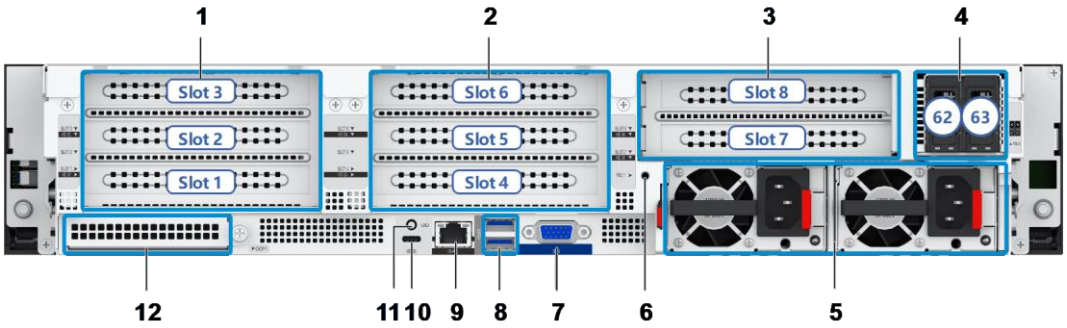
**Figure 2-9 Rear Panel with Six Full-Height PCIe Cards and Four Half-Height PCIe Cards**




**Note**

As shown in Figure 2-9, slot 1 through slot 10 indicate the PCIe slot IDs.

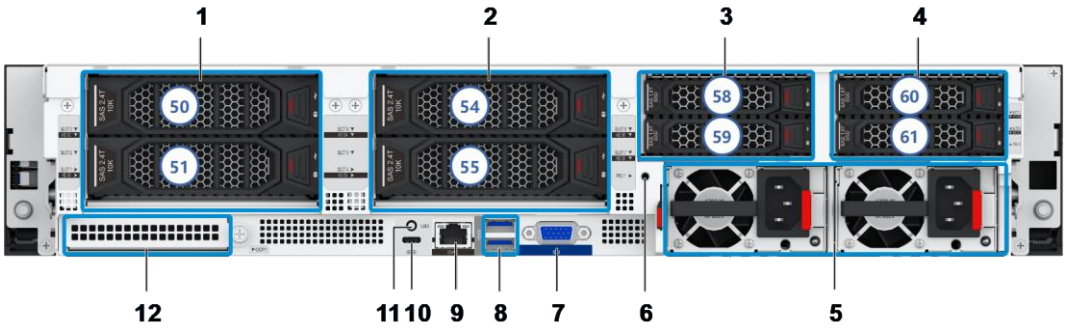
**Figure 2-10 Rear Panel with Eight Full-Height PCIe Cards**




**Note**

As shown in Figure 2-10, slot 1 through slot 8 indicate the PCIe slot IDs.

**Figure 2-11 Rear Panel with Hard Disks**




**Note**

As shown in Figure 2-11, circled numbers indicate the hard disk slot IDs.

For a description of the interfaces and indicators on the rear panel of the NCS6721A N6 server, refer to Table 2-2.

**Table 2-2 Rear Panel Descriptions**

| No. | Name | Description |
|---|---|---|
| 1 | I/O module 1 | Both I/O module 1 and I/O module 2 support the following configurations:<br>● One full-height half-length single-width PCIe 5.0 ×16 standard card and two full-height half-length single-width PCIe 5.0 ×8 standard cards.<br>● Two full-height 3/4-length single-width PCIe 5.0 ×16 standard cards.<br>● One full-height 3/4-length double-width PCIe 5.0 ×16 standard card and one full-height half-length single-width PCIe 5.0 ×16 standard card.<br>● Two 3.5/2.5-inch SAS/SATA/NVMe SSDs. |
| 2 | I/O module 2 | |
| 3 | I/O module 3 | I/O module 3 supports the following configurations (optional):<br>● Two half-height half-length PCIe 5.0 x8 standard cards.<br>● Two full-height half-length PCIe 5.0 x8 standard cards.<br>● Two 2.5-inch SAS/SATA/NVMe SSDs. |
| 4 | I/O module 4 | I/O module 4 supports the following configurations (optional):<br>● Two half-height half-length PCIe 5.0 x8 standard cards.<br>● Two 2.5-inch SAS/SATA/NVMe SSDs.<br>● One M.2 adapter that supports two SAS/SATA/PCIe M.2 or E1.S SSDs. |
| 5 | PSU | ● Platinum and titanium PSUs are used, supporting various specifications, including 550 W, 800 W, 1200 W, 1600 W, 2000 W, 2700 W, and 3200 W.<br>● 100–127 V and 200–240 V (50 Hz to 60 Hz) AC power inputs are supported.<br>● 240 V and 336 V HVDC power inputs are supported. |

| No. | Name | Description |
|---|---|---|
| | | ● –48 V LVDC power input is supported.<br>● 1+1 redundancy is supported.<br>● Hot swapping is supported. |
| 6 | Auxiliary grounding terminal interface | Used to install the auxiliary grounding terminal for the chassis, enhancing the EMC performance of the chassis by improving interference discharge. |
| 7 | VGA interface | Used to connect to a display. |
| 8 | USB 3.0 interface | Used to connect to a USB mouse, a USB keyboard, or a peripheral storage device (for example, a USB flash drive for system boot). |
| 9 | iSAC management interface | A network cable is used to interconnect the iSAC management interface with a debugging PC so you can log in to the Web portal of the iSAC management interface through a browser on the debugging PC and configure the server.<br>The states of the indicator are as follows:<br>● Left indicator:<br>➔ Off: No data is being transmitted over the network.<br>➔ Flashing green at 2 Hz: Data is being transmitted over the network.<br>● Right indicator:<br>➔ Off: The network interface connection is abnormal.<br>➔ Steady green: The transmission rate of the network interface is 1000 Mbps.<br>➔ Steady yellow: The transmission rate of the network interface is 10 Mbps or 100 Mbps. |
| 10 | Serial port | A type-C serial cable is used to connect the serial port to the debugging PC. The server can be configured on the HyperTerminal of the PC. |
| 11 | UID button or indicator | The button is also used as an indicator. The states of the indicator are as follows:<br>● Steady blue: The server is being positioned. You can press the UID button or perform the corresponding operation on the Web portal of the BMC to position the server.<br>● Flashing blue at 1 Hz: The server is being remotely accessed through KVM, Web, or SSH. Remote login to the server can be controlled on the Web portal of the BMC.<br>● Flashing blue at 4 Hz: The server is in debugging mode. The serial interface on the rear panel of the server serves as the BMC debugging serial interface.<br>● Flashing blue at 8 Hz: The server is in BMC reset mode.<br>● Blue indicator off: No positioning, remote login, or reset operation is triggered for the server. |

| No. | Name | Description |
|---|---|---|
| | | The UID button supports the following operations:<br>● Pressing and holding the button for less than 4 seconds: performs server positioning or cancels the current function (cancels positioning or the BMC debugging status of the serial port).<br>● Pressing and holding the button for 4 to 10 seconds: switches the serial interface on the rear panel to BMC debugging status.<br>● Pressing and holding the button for 10 or more seconds: resets the BMC.<br>● Pressing and holding the button for 4 to 10 seconds and then pressing and holding it for 10 or more seconds: resets the BMC and keeps the serial interface on the rear panel in BMC debugging status. |
| 12 | OCP card 1 | Used to install various OCP 3.0 NICs and provides GE, 10 GE, 25 GE, and 100 GE interfaces. |

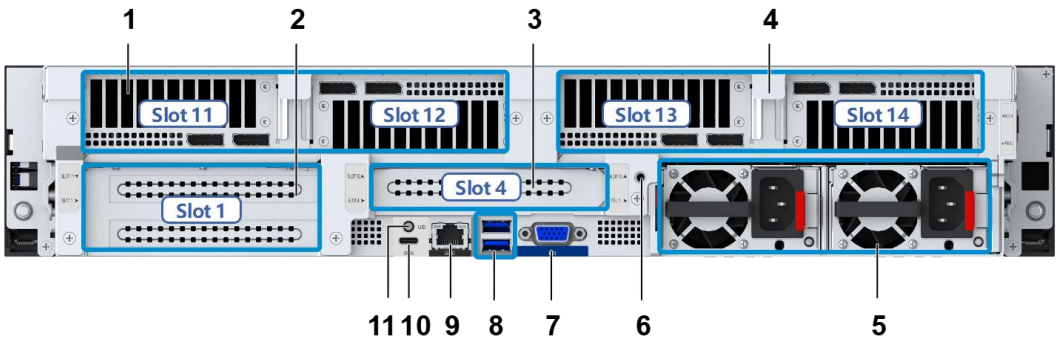
**Note**

To ensure hard disk reliability, the storage duration of a mechanical hard disk must not exceed six months.

## 2.2.2 Rear Panel of the 4-GPU Model

Figure 2-12 shows an external view of the rear panel of the 4-GPU server.

**Figure 2-12 Rear Panel of the 4-GPU Model**




**Note**

As shown in Figure 2-12, slot 1, slot 4, and slot 11 through slot 14 indicate the PCIe slot IDs.

For a description of the interfaces and indicators on the rear panel of the NCS6721A N6 server, refer to Table 2-3.

**Table 2-3 Rear Panel Descriptions**

| No. | Name | Description |
|---|---|---|
| 1 | I/O module 1 | I/O module 1 supports up to two full-height, full-length, double-width PCIe 5.0 ×16 GPU cards in slots 11 and 12 (optional). |
| 2 | I/O module 2 | I/O module 2 supports one full-height, half-length, single-width, or full-height 3/4-length, double-width PCIe 5.0 ×16 standard card in slot 1 ( optional). |
| 3 | I/O module 3 | I/O module 3 supports one full-height, half-length, single-width or full-height, 3/4-length, single-width standard PCIe 5.0 ×16 card with the actual bandwidth meeting the ×8 or ×4 specification in slot 4 (optional). |
| 4 | I/O module 4 | I/O module 4 supports up to two full-height, full-length, double-width PCIe 5.0 ×16 GPU cards in slot 13 and slot 14 (optional). |
| 5 | PSU | ● Platinum and titanium PSUs are used, supporting various specifications, including 800 W, 1200 W, 1600 W, 2000 W, 2700 W, and 3200 W.<br>● 100–127 V and 200–240 V (50 Hz to 60 Hz) AC power inputs are supported.<br>● 240 V and 336 V HVDC power inputs are supported.<br>● –48 V LVDC power input is supported.<br>● 1+1 redundancy is supported.<br>● Hot swapping is supported. |
| 6 | Auxiliary grounding terminal interface | Used to install the auxiliary grounding terminal for the chassis, enhancing the EMC performance of the chassis by improving interference discharge. |
| 7 | VGA interface | Used to connect to a display. |
| 8 | USB 3.0 interface | Used to connect to a USB mouse, a USB keyboard, or a peripheral storage device (for example, a USB flash drive for system boot). |
| 9 | iSAC management interface | A network cable is used to interconnect the iSAC management interface with a debugging PC so you can log in to the Web portal of the iSAC management interface through a browser on the debugging PC and configure the server.<br>The states of the indicator are as follows:<br>● Left indicator:<br>➔ Off: No data is being transmitted over the network.<br>➔ Flashing green at 2 Hz: Data is being transmitted over the network.<br>● Right indicator:<br>➔ Off: The network interface connection is abnormal.<br>➔ Steady green: The transmission rate of the network interface is 1000 Mbps. |

| No. | Name | Description |
|---|---|---|
| | | ➔ Steady yellow: The transmission rate of the network interface is 10 Mbps or 100 Mbps. |
| 10 | Serial port | A type-C serial cable is used to connect the serial port to the debugging PC. The server can be configured on the HyperTerminal of the PC. |
| 11 | UID button or indicator | The button is also used as an indicator. The states of the indicator are as follows:<br>● Steady blue: The server is being positioned. You can press the UID button or perform the corresponding operation on the Web portal of the BMC to position the server.<br>● Flashing blue at 1 Hz: The server is being remotely accessed through KVM, Web, or SSH. Remote login to the server can be controlled on the Web portal of the BMC.<br>● Flashing blue at 4 Hz: The server is in debugging mode. The serial interface on the rear panel of the server serves as the BMC debugging serial interface.<br>● Flashing blue at 8 Hz: The server is in BMC reset mode.<br>● Blue indicator off: No positioning, remote login, or reset operation is triggered for the server.<br>The UID button supports the following operations:<br>● Pressing and holding the button for less than 4 seconds: performs server positioning or cancels the current function (cancels positioning or the BMC debugging status of the serial port).<br>● Pressing and holding the button for 4 to 10 seconds: switches the serial interface on the rear panel to BMC debugging status.<br>● Pressing and holding the button for 10 or more seconds: resets the BMC.<br>● Pressing and holding the button for 4 to 10 seconds and then pressing and holding it for 10 or more seconds: resets the BMC and keeps the serial interface on the rear panel in BMC debugging status. |

**Note**

To ensure hard disk reliability, the storage duration of a mechanical hard disk must not exceed six months.

# Chapter 3
# Product Structure

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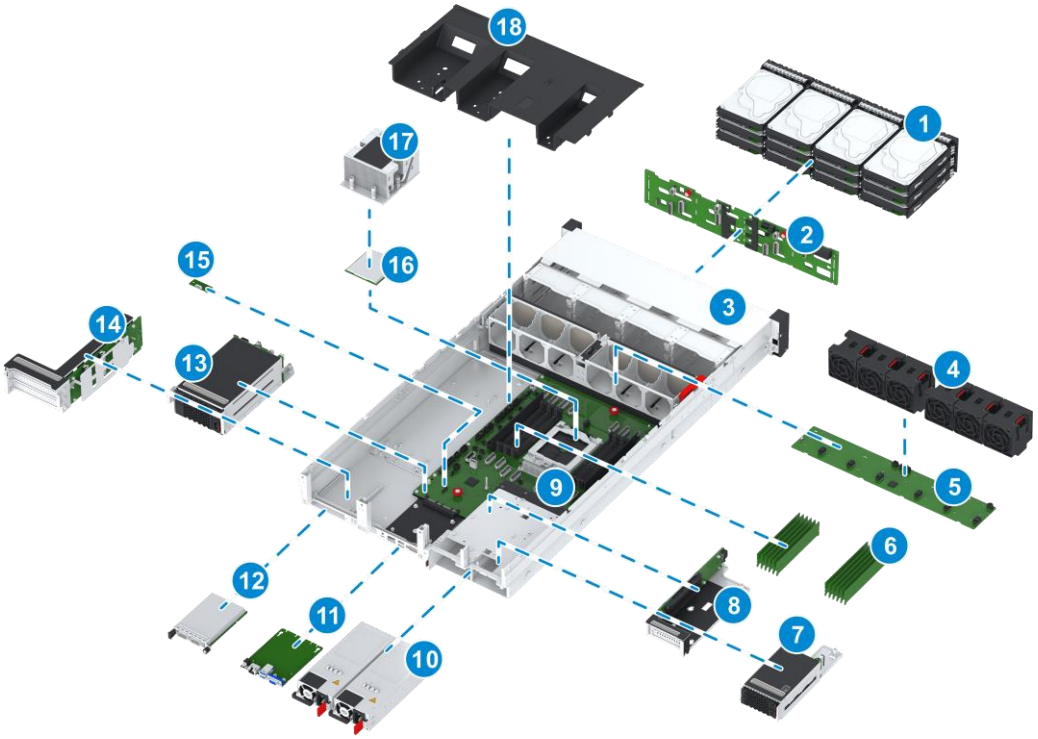
## 3.1 Physical Structure

### 3.1.1 Physical Structure of the General Model

Figure 3-1 shows the internal components of the NCS6721A N6 server (horizontal 12-disk standard model).

**Figure 3-1 Physical Structure**



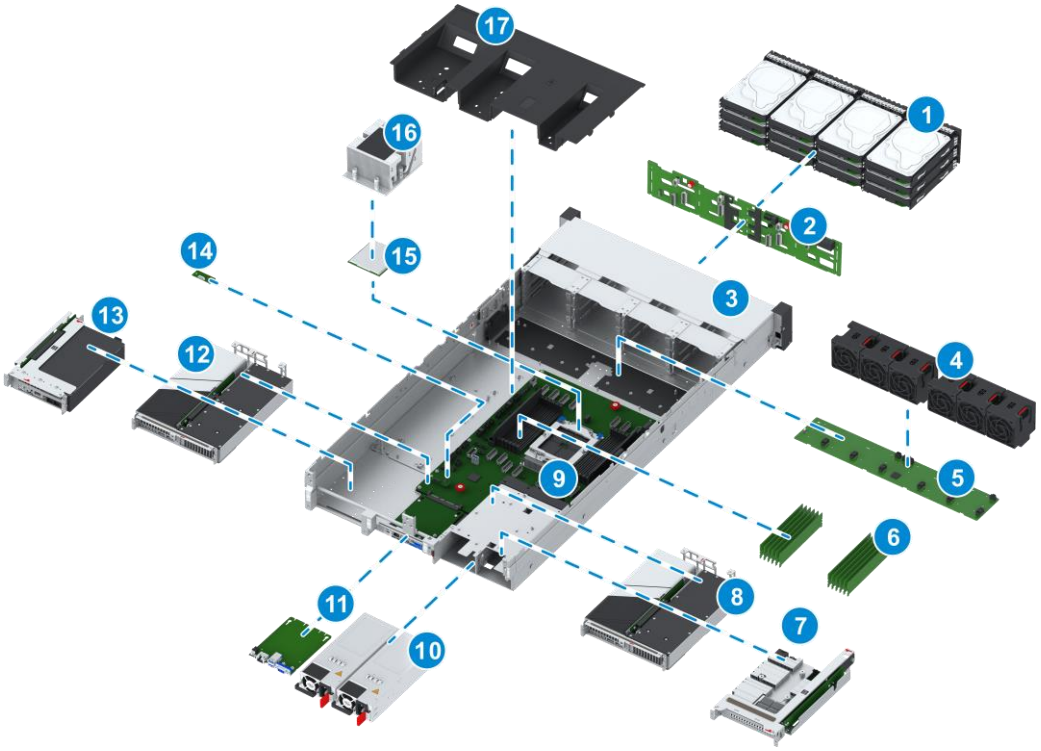

| No. | Component | No. | Component |
|---|---|---|---|
| 1 | Front hard disk | 2 | Front-disk backplane |

| No. | Component | No. | Component |
|---|---|---|---|
| 3 | Chassis | 4 | Fan unit |
| 5 | Fan backplane | 6 | Memory |
| 7 | I/O module 4 | 8 | I/O module 3 |
| 9 | Mainboard | 10 | PSU |
| 11 | BMC card | 12 | OCP card 1 |
| 13 | I/O module2 | 14 | I/O module 1 |
| 15 | TPCM card | 16 | CPU |
| 17 | CPU heat sink | 18 | Air baffle |

## 3.1.2 Physical Structure of the 4-GPU Model

Figure 3-2 shows the internal components of the NCS6721A N6 4-GPU server.

**Figure 3-2 Physical Structure**



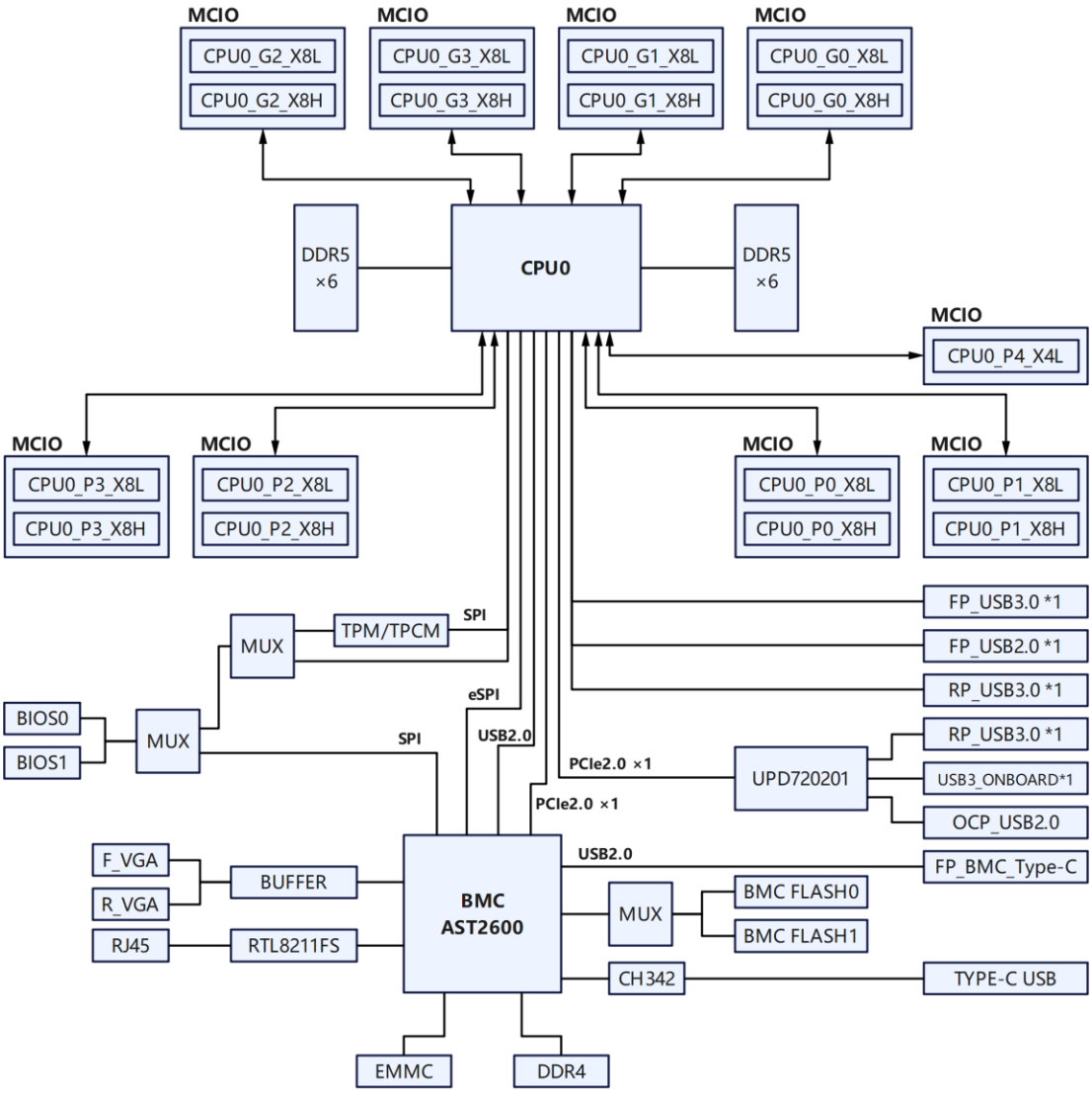

| No. | Component | No. | Component |
|---|---|---|---|
| 1 | Front hard disk | 2 | Front-disk backplane |
| 3 | Chassis | 4 | Fan unit |
| 5 | Fan backplane | 6 | Memory |
| 7 | I/O module 3 | 8 | I/O module 4 |

| No. | Component | No. | Component |
|---|---|---|---|
| 9 | Mainboard | 10 | PSU |
| 11 | BMC card | 12 | I/O module 1 |
| 13 | I/O module 2 | 14 | TPCM card |
| 15 | CPU | 16 | CPU heat sink |
| 17 | Air baffle | - | - |

## 3.2 Logical Structure

Figure 3-3 shows the system modules of the NCS6721A N6 server and the logical relationships among these modules.

**Figure 3-3 Logical Structure**




For a description of these modules, refer to Table 3-1.

**Table 3-1 Module Descriptions**

| Module | Description |
|---|---|
| CPU | Central processing unit, as the calculation and control core of the server, used for processing information and running programs. The NCS6721A N6 server supports one CPU. |
| DDR5 | Used for storing computational data in the CPUs and the data exchanged with external storage devices such as hard disks. The NCS6721A N6 server provides 12 DDR5 memory slots. |
| Riser | Extended PCIe module, used for installing standard PCIe cards. |
| USB | Used for exchanging data between the server and external devices. The NCS6721A N6 server provides one USB 2.0 interface and four USB 3.0 interfaces. |
| BIOS | Most basic input/output system of the server, providing the most basic and direct hardware configuration and control for the server. |
| BMC | Used for upgrading server firmware and viewing device information when the server is not powered on. |
| RTL8211FS | Onboard NIC, which provides a GE electrical interface. |
| CH342 | Serial interface controller, which provides a CH342 serial interface. |
| VGA | VGA interface, which is used for connecting to an external display. |
| Type-C USB | Serial interface module of the server, providing a serial interface for debugging the server. |

# Chapter 4
# Software Functions

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## 4.1 BMC Software

The CPUs, EPLDs, sensors and other components on the mainboard of the NCS6721A N6 server are connected to the BMC through different channels to implement out-of-band management of the mainboard. Based on the hardware platform using the ARM AST2600 processor and the embedded Linux system, the BMC supports IPMI 2.0, KVM, and virtual media functions, and provides external interfaces for users.

The BMC software provides the following functions:

- Internally, it manages, tracks, and controls the FRU modules in the chassis, and the public modules of the chassis, especially PSUs and heat dissipation components.
- Externally, it provides IPMI, Redfish and SNMP interfaces and a Web portal to manage and monitor boards and modules.

For a description of the functions provided by the BMC software, refer to Table 4-1.

**Table 4-1 BMC Software Function Descriptions**

| Function | Description |
|---|---|
| Basic information display | This function allows you to view the following information:<br>● Board name, product name, manufacturer, and asset label<br>● Production date, board SN, and product SN<br>● GUID<br>● Power-on/off status, and real-time power<br>● Boot mode<br>● Alarm status of the system |
| Real-time monitoring | This function monitors the following information in real time:<br>● Sensor information<br>● CPU usage<br>● Memory usage<br>● Hard disk usage |

| Function | Description |
| --- | --- |
| Component information display | This function allows you to view the following information:<br>● Hard disk<br>● Memory<br>● CPU<br>● Network interface<br>● Fan |
| System configuration | This function allows you to perform the following configurations:<br>● BMC network configuration<br>● DNS configuration<br>● Time configuration<br>● Power and power supply control<br>● Power-on policy and power-on delay parameter configuration<br>● UID indicator configuration<br>● Boot mode configuration<br>● Resetting to default settings |
| System management | This function allows you to manage the following information:<br>● Accounts, versions, and logs<br>● IPMI information, SNMP information, Redfish information, ACL rules, and port information<br>● HTTPS certificate |
| Soft buttons | The following soft buttons are available:<br>● Power-on<br>● Power-off<br>● Restart |
| Reliability | VRRP is supported. |
| KVM support | The KVM and virtual media functions are supported.<br>HTML5 and Java clients are provided externally. |
| Alarm management | This function allows you to manage alarms and perform related operations. |
| Performance management | This function provides statistics on historical power consumption. |
| Diagnosis and maintenance | The following functions are supported: last-screen snapshot, one-click data export, configuration backup, and restoration to factory defaults. |

## 4.2 BIOS Software

Complying with the modern UEFI BIOS standard, the BIOS of the NCS6721A N6 rack server is responsible for initializing hardware, loading device drivers, and booting up devices and systems.

The functions of the BIOS software include:

- Security
- BIOS management
- ECC memory
- Power ACPI management
- Console redirection
- Boot mode selection
- Asset collection
- SEL record
- SMBIOS information
- Black box
- PCIe hotplug

# Chapter 5
# Product Specifications

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## 5.1 Physical Specifications

For the physical specifications of the NCS6721A N6 server, refer to Table 5-1.

**Table 5-1 Physical Specifications**

| Item | Description |
|---|---|
| Dimensions (Width x Height x Depth) | • Excluding lugs: 447.4 mm x 87 mm x 830 mm<br>• Including lugs: 482.6 mm x 87 mm x 830 mm |
| Weight | Standard model: ≤40 kg (full configuration without rails) |
| Color | • Silver chassis<br>• Black panels |
| Installation requirements | • The server can be installed in a general-purpose cabinet meeting the IEC 297 standard and with a depth equal to or greater than 1000 mm.<br>• A clearance of 800 mm is required for both the front and rear doors of the cabinet for heat dissipation and equipment maintenance. |

## 5.2 Technical Specifications

For the technical specifications of the NCS6721A N6 server, refer to Table 5-2.

**Table 5-2 Physical Specifications**

| Item | Description |
|---|---|
| Type | 2U rack server |
| Processor | A maximum of one AMD EPYC Turin processor is supported, which provides up to 192 cores. |

| Item | Description |
|---|---|
| Memory | The server supports a maximum of 12 DDR5 memory modules, with the rate of up to 6400 MT/s per module. |
| Storage controller | The server supports RAID 0, RAID 1, RAID 5, RAID 6, RAID 10, RAID 50, and RAID 60, and supports protection against a power supply failure. |
| Storage | ● The server supports a maximum of thirty-five 2.5-inch hard disks, or sixteen 3.5-inch hard disks and four 2.5-inch hard disks.<br>● The server supports a maximum of thirty-two E1.S/E3.S SSDs. |
| Network | ● One IPMI gigabit Ethernet interface is integrated.<br>● The server has an OCP 3.0 NIC, which supports PCIe 5.0 ×8 lanes or PCIe 5.0 ×16 lanes. |
| I/O expansion | The server supports a maximum of 16 PCIe expansion slots, including 1 dedicated OCP slot. |
| Interface | The server provides multiple interfaces:<br>● Interfaces on the front panel:<br>➔ One type-C interface<br>➔ One USB 2.0 interface<br>➔ One USB 3.0 interface<br>➔ One VGA interface<br>● Interfaces on the rear panel:<br>➔ Two USB 3.0 interfaces<br>➔ One iSAC management interface<br>➔ One VGA interface<br>➔ Two OCP 3.0 interfaces<br>➔ One serial port<br>● Internal interfaces:<br>One USB 3.0 interface |
| PSU | ● Platinum and titanium PSUs are used, supporting various specifications, including 550 W, 800 W, 1200 W, 1600 W, 2000 W, 2700 W, and 3200 W.<br>● 110 V/220 V AC power supply, 240 V/336 V HVDC power supply, and –48 V DC power supply are supported.<br>● 1+1 redundancy is supported.<br>● Hot swapping is supported. |
| Fan | Six efficient fans operate in N+1 redundancy mode, and are equipped with an intelligently adjustable heat dissipation system. |
| Video card | The server provides an integrated graphics card and supports standard PCIe graphics cards. |

| Item | Description |
| --- | --- |
| Supported operating systems | The server is compatible with mainstream server operating systems, including but not limited to Microsoft Windows Sever, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, CentOS, VMware ESXi, and CGSL. For a more detailed operating system compatibility list, you can use the Server Operating System Compatibility Tool provided by the server and storage portal. |

## 5.3 Environmental Specifications

For the environmental specifications of the NCS6721A N6 server, refer to Table 5-3.

**Table 5-3 Environmental Specifications**

| Item | Description |
| --- | --- |
| Temperature | ● Operating temperature: 5 °C through 45 °C (Meets the ASHRAE Class A2/A3/A4 requirements)<br>● Storage temperature: –40°C through +70°C<br>● Maximum temperature change rate: 20°C/h<br>The limit on the operating temperature of servers varies with different configurations. For details, refer to Table 5-4. |
| Relative humidity | ● Operating environment: 8% through 90%, non-condensing (Meets the ASHRAE Class A2/A3/A4 requirements)<br>● Non-operating environment: 5% through 95%, non-condensing |
| Altitude | ≤ 3000 m.<br>The operating temperature is reduced by 1°C per 300 m above 900 m altitude, and no mechanical hard disk is supported when the altitude is above 3000 m. |
| Noise | When the operating temperature is 23°C, the LWAd is as follows:<br>● In operating state: 68 dBA<br>● In idle state: 66 dBA<br>Note: The actual operating noise varies with the configuration, load, and ambient temperature. |
| Corrosive gas contaminants | The requirements of the airborne contaminant level G1 defined in ANSI/ISA-71.04-2013 are met. The maximum thickness growth rate of corrosive airborne contaminants should be as follows:<br>● Copper coupon: 300 Å/month<br>● Silver coupon: 200 Å/month |
| Particulate pollutants | ● The requirements of the data center cleanliness standard ISO 14644-1 Class 8 are met.<br>● There must be no explosive, electrically or magnetically conducive, or corrosive dust in the equipment room. |

**Table 5-4 Operating Temperatures for Different Server Configurations**

| Model | | Maximum Operating Temperature: 30°C | Maximum Operating Temperature: 35°C | Maximum Operating Temperature: 40°C | Maximum Operating Temperature: 45°C |
|---|---|---|---|---|---|
| General model | Vertical layout (8 hard disks) | All configurations are supported. | All configurations are supported. | The following configurations are not supported:<br>● Rear hard disks such as HDDs and SSDs, including NVMe SSDs and M.2 SSDs<br>● Rear 100 Gbps (or higher) OCP card, smart NIC, and DPU<br>● Memory module with a capacity of 128 GB or above<br>● PSU whose Ta is 50°C | The following configurations are not supported:<br>● 300 W (or above) CPUs<br>● Rear standard card, OCP card, and smart NIC<br>● Front HDD and NVMe SSD<br>● Rear hard disks such as HDDs and SSDs, including NVMe SSDs and M.2 SSDs<br>● Memory module with a capacity of 128 GB or above<br>● PSU whose Ta is 50°C |
| | Vertical layout (16 hard disks) | All configurations are supported. | All configurations are supported. | The following configurations are not supported:<br>● Rear hard disks such as HDDs and SSDs, including NVMe SSDs and M.2 SSDs<br>● Rear 100 Gbps (or higher) standard card, 100 Gbps (or higher) OCP card, smart NIC, and DPU | The following configurations are not supported:<br>● 300 W (or above) CPUs<br>● Rear standard card, OCP card, and smart NIC<br>● Front HDD and NVMe SSD<br>● Rear hard disks such as HDDs and SSDs, including NVMe SSDs and M.2 SSDs |

| Model | | Maximum Operating Temperature: 30°C | Maximum Operating Temperature: 35°C | Maximum Operating Temperature: 40°C | Maximum Operating Temperature: 45°C |
|---|---|---|---|---|---|
| | | | | ● Memory module with a capacity of 128 GB or above<br>● PSU whose Ta is 50°C | ● Memory module with a capacity of 128 GB or above<br>● Memory module with a capacity of 128 GB or above<br>● PSU whose Ta is 50°C<br>● Device stacking |
| | Vertical layout (24/25 hard disks) | All configurations are supported. | The following configurations are not supported:<br>● PSU whose Ta is 50°C | The following configurations are not supported:<br>● 400 W (or above) CPUs<br>● Rear hard disks such as HDDs and SSDs, including NVMe SSDs and M.2 SSDs<br>● Rear 100 Gbps (or higher) standard card, 100 Gbps (or higher) OCP card, smart NIC, and DPU<br>● Memory module with a capacity of 128 GB or above<br>● PSU whose Ta is 50°C<br>● GPU<br>● Device stacking | Not supported |
| | Horizontal layout | All configurations are supported. | The following configurations are not supported: | The following configurations are not supported: | Not supported |

| Model | | Maximum Operating Temperature: 30°C | Maximum Operating Temperature: 35°C | Maximum Operating Temperature: 40°C | Maximum Operating Temperature: 45°C |
|---|---|---|---|---|---|
| | (12 hard disks) | | ● PSU whose Ta is 50°C | ● 400 W (or above) CPU<br>● Front NVMe SSD (both 3.5-inch and 2.5-inch disk slots are supported)<br>● Rear hard disks such as HDDs and SSDs, including NVMe SSDs and M.2 SSDs<br>● Rear 100 Gbps (or higher) standard card, 100 Gbps (or higher) OCP card, smart NIC, and DPU<br>● Memory module with a capacity of 128 GB or above<br>● PSU whose Ta is 50°C<br>● GPU<br>● Device stacking | |

1. When a fan fails, the operating temperature supported is reduced by 5 °C. In this case, the GPU performance may be degraded.
2. If a GPU needs to be installed, you must select a GPU-enabled server. A general server does not support GPUs. For the supported GPU-enabled server models, contact technical support.
3. Fans and heat sinks should be selected in accordance with the specific configuration.
4. To ensure hard disk reliability, the storage duration of a mechanical hard disk must not exceed six months.
5. If servers are stacked, heat dissipation conditions are subject to the power density inside the cabinet and the heat dissipation capacity of the cabinet. The maximum operating temperature supported by the servers may be reduced. Therefore, it is recommended that servers be installed at 1U intervals in a cabinet.

6. If you need any other models of servers, contact technical support.

## 5.4 Reliability Specifications

For a description of the reliability specifications of the NCS6721A N6 server, refer to Table 5-5.

**Table 5-5 Reliability specifications**

| Item | Specification |
|---|---|
| System availability | >99.999% |
| MTTR | ≤60 min |
| MTBF | >110000 h |

# Chapter 6
# Compliant Standards

For the standards that the NCS6721A N6 rack server complies with, refer to Table 6-1.

**Table 6-1 Compliant Standards**

| Standard Name | Standard Number |
|---|---|
| CE Certification | EN 62368-1:2014+A11:2017 |
| | EN 300 386 V1.6.1 |
| | EN 300 386 V2.2.1 |
| | EN IEC 63000:2018 |
| | (EU) 2019/424 |
| | EN 303 470 V1.1.1 |
| CB Certification | IEC 62368-1 |
| ETL Certification | UL 62368-1 |

# Chapter 7
# Product Recycling

To better care for and protect the earth, if this product is no longer needed or has reached the end of its service life, please dispose it in compliance with national or local laws and regulations related to the recycling and disposal of electronic waste, and deliver it to a manufacturer with recycling and disposal qualification to ensure proper treatment.
In accordance with relevant laws and regulations, NETAŞ can recycle the electronic information products that it has produced and sold. If necessary, contact the local technical support office for product recycling.
Contact information:
Headquarters Tel: +90 216-5222000
For local office phone numbers, please Contact - Netas Telekomünikasyon A.Ş.

Address:
Headquarters address: Yenisehir Mahallesi, Osmanli Bulvari Aeropark Sitesi B Blok No:11B Ic Kapi No:40 34912 PENDIK/ISTANBUL

For local office addresses, please visit Contact - Netas Telekomünikasyon A.Ş.

# Glossary

**ACL**

- Access Control List

**ACPI**

- Advanced Configuration and Power Interface

**ARM**

- Advanced RISC Machines

**BIOS**

- Basic Input/Output System

**BMC**

- Baseboard Management Controller

**CB**

- Certification Bodies' Scheme

**CE**

- CONFORMITE EUROPENDE

**CGSL**

- Carrier Grade Server Linux

**CPU**

- Central Processing Unit

**DDR**

- Double Data Rate

**DNS**

- Domain Name System

**DPU**

- Data Processing Unit

**ECC**

- Error Check and Correction

**EMC**

- Electromagnetic Compatibility

**EPLD**

- Erasable Programmable Logic Device

**ETL**

- Electrical Testing Laboratories

**FRU**

- Field Replaceable Unit

**GPU**

- Graphics Processing Unit

**GUID**

- Globally Unique Identifier

**HDD**

- Hard Disk Drive

**HTML**

- HyperText Markup Language

**HVDC**

- High-Voltage Direct Current

**I/O**

- Input/Output

**IEC**

- International Electrotechnical Commission

**IPMI**

- Intelligent Platform Management Interface

**iSAC**

- Integrated Server Administrator Controller

**KVM**

- Keyboard, Video and Mouse

**LCD**

- Liquid Crystal Display

**LVDC**

- Low-Voltage Direct Current

**LWAd**

- declared A-Weighted sound power levels

**MTBF**

- Mean Time Between Failures

**MTTR**

- Mean Time To Recovery

**NVMe**

- Non-Volatile Memory Express

**OCP**

- Open Computer Project

**PC**

- Personal Computer

**PCIe**

- Peripheral Component Interconnect Express

**PSU**

- Power Supply Unit

**RAID**

- Redundant Array of Independent Disks

**SAS**

- Serial Attached SCSI

**SATA**

- Serial ATA

**SEL**

- System Event Log

**SMBIOS**

- System Management BIOS

**SNMP**

- Simple Network Management Protocol

**SSD**

- Solid State Drive

**SSH**

- Secure Shell

**TCM**

- Trusted Cryptography Module

**TPCM**

- Trusted Platform Control Module

**TPM**

- Trusted Platform Module

**UEFI**

- Unified Extensible Firmware Interface

**UID**

- Unit Identification Light

**USB**

- Universal Serial Bus

**VGA**

- Video Graphic Adapter

**VRRP**

- Virtual Router Redundancy Protocol