

NETAŞ NCS6721 N6

Rack Server

Product Description

Version: R1.0

NETAŞ TELEKOMÜNİKASYON A.Ş Yenişehir Mahallesi Osmanlı Bulvarı Aeropark Sitesi

B Blok No:11B İç Kapı No:40

Postcode: 34912

Tel: +90 (216) 522 20 00

URL: https://destek.netas.com.tr E-mail: info@netas.com.tr **LEGAL INFORMATION**

Copyright 2025 NETAŞ CORPORATION.

The contents of this document are protected by copyright laws and international treaties. Any reproduction or

distribution of this document or any portion of this document, in any form by any means, without the prior written

consent of NETAŞ CORPORATION is prohibited. Additionally, the contents of this document are protected by

contractual confidentiality obligations.

All company, brand and product names are trade or service marks, or registered trade or service marks, of

NETAŞ CORPORATION or of their respective owners.

This document is provided as is, and all express, implied, or statutory warranties, representations or conditions are

disclaimed, including without limitation any implied warranty of merchantability, fitness for a particular purpose,

title or non-infringement. NETAŞ CORPORATION and its licensors shall not be liable for damages resulting from

the use of or reliance on the information contained herein.

NETAŞ CORPORATION or its licensors may have current or pending intellectual property rights or applications

covering the subject matter of this document. Except as expressly provided in any written license between

NETAŞ CORPORATION and its licensee, the user of this document shall not acquire any license to the subject

matter herein.

NETAŞ CORPORATION reserves the right to upgrade or make technical change to this product without further

notice. Users may visit the NETA\$ technical support website https://support.Neta\$.com.cn to inquire for related

information. The ultimate right to interpret this product resides in NETAŞ CORPORATION.

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 R1.0 2025-08-06 First edition.

Serial Number: SJ-20250226111650-001

Publishing Date: 2025-08-06 (R1.0)

Contents

1 Product Overview	
1.1 Product Role	1
1.2 Product Characteristics	2
1.3 Product Features	3
2 External Views	4
2.1 Front Panel	4
2.2 Rear Panel	10
2.2.1 Rear Panel of the General Model	10
2.2.2 Rear Panel of the 4-GPU Model	14
3 Product Structure	18
3.1 Physical Structure	18
3.1.1 Physical Structure of the General Model	18
3.1.2 Physical Structure of the 4-GPU Model	
3.2 Logical Structure	20
4 Software Functions	23
4.1 BMC Software	23
4.2 BIOS Software	24
5 Product Specifications	26
5.1 Physical Specifications	
5.2 Technical Specifications	26
5.3 Environmental Specifications	28
5.4 Reliability Specifications	33
6 Compliant Standards	
7 Product Recycling	
Glossary	36

About This Manual

Purpose

This manual describes the NCS6721 N6 rack server, including its role, characteristics, structure, software functions, product specifications, and compliant standards, helping you to fully learn about the NCS6721 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 product role, characteristics, and features of the NCS6721 N6 server.
Chapter 2, External Views	Describes the front panel and rear panel of the NCS6721 N6 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 NCS6721 N6 server.
Chapter 4, Software Functions	Describes the software functions of the NCS6721 N6 server.
Chapter 5, Product Specifications	Describes the product specifications of the NCS6721 N6 server, including the physical, technical, environmental and reliability specifications.
Chapter 6, Compliant Standards	Describes the standards that the design of the NCS6721 N6 server complies with.
Chapter 7, Product Recycling	Describes how to contact technical support for the recycling of NCS6721 N6 server–related products.

Conventions

This manual uses the following conventions.

Danger: indicates an imminently hazardous situation. Failure to comply will result in death or serious personal injury. Warning: indicates a potentially hazardous situation. Failure to comply can result in death or serious personal injury. 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. Failure to comply will not result in personal injury.
Note: provides additional information about a topic.



Chapter 1 Product Overview

Table of Contents

Product Role	1
Product Characteristics	2
Product Features	3

1.1 Product Role

The NCS6721 N6 server is a 2U 1-channel general rack server based on the Intel Xeon Scalable processor (Granite Rapids-AP 6900P/ Sierra Forest-AP 6900E). 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 NCS6721 N6 server.

Figure 1-1 External View of the NCS6721 N6 Server





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

1.2 Product Characteristics

High Density and High Performance

- A maximum of one Intel Xeon 6 performance-core processor (Granite Rapids-AP 6900P)
 is supported. A single processor can have a maximum of 128 cores.
- A maximum of one Intel Xeon 6 efficiency-core processor (Sierra Forest-AP 6900E) is supported. A single processor can have a maximum of 288 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 forty-five 2.5-inch disk slots, or twenty 3.5-inch disk slots and four 2.5-inch disk slots are provided, meeting the requirements for large-capacity storage.
- A maximum of twenty-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 twelve PCle 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 TPCM 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.

Energy-Saving and Environmentally Friendly

- The 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 NCS6721 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 NCS6721 N6 server by default.

Chapter 2 External Views

Table of Contents

Front Panel		4	
Rear Panel	. 1	0	i

2.1 Front Panel

In accordance with the installation mode and number of hard disks, the front panel of the NCS6721 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 2-1.

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)

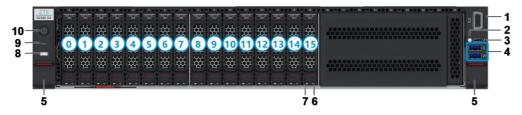
The front panel provides eight 2.5-inch SAS/SATA disk slots, which also support NVMe SSDs, as shown in Figure 2-3.

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

Figure 2-4 Front Panel with Sixteen Vertical Disk Slots

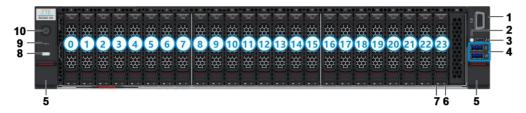


Vertical layout (24 hard disks)

SSDs, as shown in Figure 2-4.

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.

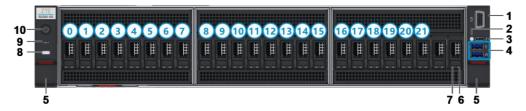
Figure 2-6 Front Panel with Twenty-Five Vertical Disk Slots



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





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): Off: No terminal device is connected. Off after flashing green for three seconds: The port function is disabled. Steady green: A terminal device is connected. The states of the management interface that directly connects the BMC to a USB device: Flashing red (slowly): A task fails, or a task is completed but an error is reported.

No.	Name	Description
		 Flashing green (fast): A task is being executed. Off after flashing green for three seconds: The port function is disabled. Steady green: A server configuration file is being copied from the USB device, or a task is completed successfully.
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. 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: Off: The hard disk is operating properly. Flashing blue at 1 Hz: The RAID group that the hard disk belongs to is being rebuilt. Flashing blue at 4 Hz: The hard disk is being positioned. Steady red: The hard disk is faulty.

No.	Name	Description
		 For an E1.S/E3.S SSD, the states of this indicator are as follows: Off: The hard disk is operating properly. Flashing amber at 1 Hz: The RAID group that the hard disk belongs to is being rebuilt. Flashing amber at 4 Hz: The hard disk is being positioned. Steady amber: The hard disk is faulty.
7	Hard disk activity indicator	The states of this indicator are as follows: Off: The hard disk is not present or is faulty. 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.) 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: 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. 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. Flashing blue at 4 Hz: The server is in debugging mode.

No.	Name	Description
		The serial interface on the rear panel of the server serves as the BMC debugging serial interface. Flashing blue at 8 Hz: The server is in BMC reset mode. Blue indicator off: No positioning, remote login, or reset operation is triggered for the server. The UID button supports the following operations: 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). Pressing and holding the button for 4 to 10 seconds: switches the serial interface on the rear panel to BMC debugging status. Pressing and holding the button for 10 or more seconds: resets the BMC. 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: Steady green: The server is operating properly. Flashing red at 1 Hz: The server has a minor alarm. Flashing red at 4 Hz: The server has a critical alarm.

No.	Name	Description
		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: Yellow: The server is powered on in standby mode (the host is not powered on). Green: The server is powered on in payload mode (the host is powered on). Off: The server is not powered on or a PSU is not operating properly. You can press the power button to power on the server. The power button supports the following operations: Pressing and holding the button for less than 4 seconds: powers on the server. Pressing and holding the button for 4 or more seconds: shuts down the server forcibly.



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

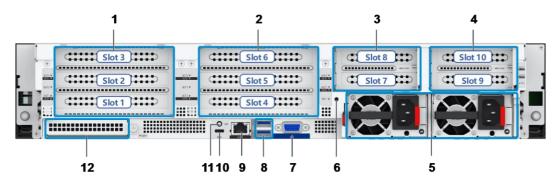
2.2 Rear Panel

2.2.1 Rear Panel of the General Model

The I/O modules on the rear panel of the NCS6721 N6 server can be configured in the following modes as required:

- All are configured as PCle 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.

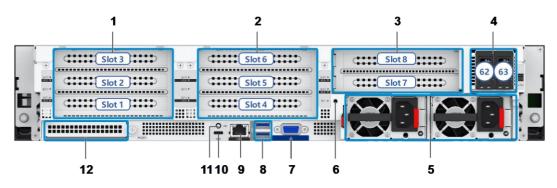
Figure 2-9 Rear Panel with Six Full-Height PCIe Cards and Four Half-Height PCIe Cards





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

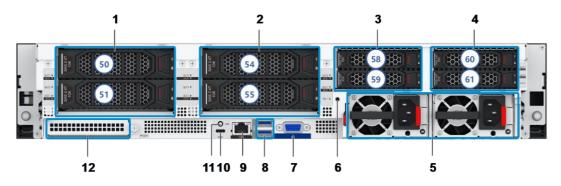
Figure 2-10 Rear Panel with Eight Full-Height PCle Cards





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

Figure 2-11 Rear Panel with Hard Disks





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 NCS6721 N6 server, refer to Table 2-2.

Table 2-2 Rear Panel Descriptions

No.	Name	Description
1 2	I/O module 1 I/O module 2	Both I/O module 1 and I/O module 2 support the following configurations (optional): One full-height half-length single-width PCle 5.0 ×16 standard card, one full-height full-length single-width PCle 5.0 ×8 standard card, and one full-height half-length single-width PCle 5.0 ×8 standard card. Two full-height 3/4-length single-width PCle 5.0 ×16 standard card and one full-height 3/4-length double-width PCle 5.0 ×16 standard card and one full-height half-length single-width PCle 5.0 ×16 standard card. Two 3.5/2.5-inch SAS/SATA/NVMe SSDs.
3	I/O module 3	 I/O module 3 supports the following configurations (optional): Two half-height half-length PCle 5.0 x8 standard cards. One of the slots can be extended to PCle 5.0 x16 if necessary. Two 2.5-inch SAS/SATA/NVMe SSDs.
4	I/O module 4	 I/O module 4 supports the following configurations (optional): Two half-height half-length PCle 5.0 x8 standard cards. One of the slots can be extended to PCle 5.0 x16 if necessary. Two 2.5-inch SAS/SATA/NVMe SSDs. One M.2 adapter that supports two SAS/SATA/PCle M.2 or E1.S SSDs.
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. 100–127 V and 200–240 V (50 Hz to 60 Hz) AC power inputs are supported. 240 V and 336 V HVDC power inputs are supported. –48 V LVDC power input is supported. 1+1 redundancy is supported. 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).

No.	Name	Description
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. The states of the indicator are as follows: ■ Left indicator: ■ Off: No data is being transmitted over the network. ■ Flashing green at 2 Hz: Data is being transmitted over the network. ■ Right indicator: ■ Off: The network interface connection is abnormal. ■ Steady green: The transmission rate of the network interface is 1000 Mbps. ■ 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: 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. 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. 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. Flashing blue at 8 Hz: The server is in BMC reset mode. Blue indicator off: No positioning, remote login, or reset operation is triggered for the server. The UID button supports the following operations: 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). Pressing and holding the button for 4 to 10 seconds: switches the serial interface on the rear panel to BMC debugging status. Pressing and holding the button for 10 or more seconds: resets the BMC. 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.

No.	Name	Description	
12	OCP card	Used to install various OCP 3.0 NICs and provides GE, 10 GE, 25 GE,	
		and 100 GE interfaces.	

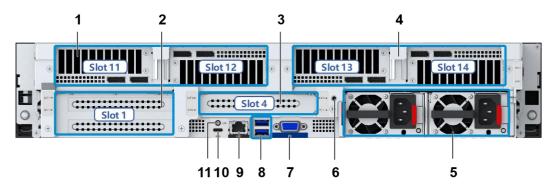


To ensure hard disk reliability, the storage duration of a mechanical hard disk must not exceed six months.

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





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 NCS6721 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 PCle 5.0 x16 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 PCle 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

No.	Name	Description
		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 PCle 5.0 x16 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. 100–127 V and 200–240 V (50 Hz to 60 Hz) AC power inputs are supported. 240 V and 336 V HVDC power inputs are supported. –48 V LVDC power input is supported. 1+1 redundancy is supported. 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

No.	Name	Description
		browser on the debugging PC and configure the server. The states of the indicator are as follows: ■ Left indicator: → Off: No data is being transmitted over the network. → Flashing green at 2 Hz: Data is being transmitted over the network. ■ Right indicator: → Off: The network interface connection is abnormal. → Steady green: The transmission rate of the network interface is 1000 Mbps. → 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: 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. 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.

No.	Name	Description
		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.
		Flashing blue at 8 Hz: The
		server is in BMC reset mode.
		Blue indicator off: No
		positioning, remote login, or
		reset operation is triggered for
		the server.
		The UID button supports the
		following operations:
		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).
		 Pressing and holding the button
		for 4 to 10 seconds: switches
		the serial interface on the
		rear panel to BMC debugging
		status.
		Pressing and holding the button
		for 10 or more seconds: resets
		the BMC.
		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.
		222233.9 0.0.00



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

Chapter 3 Product Structure

Table of Contents

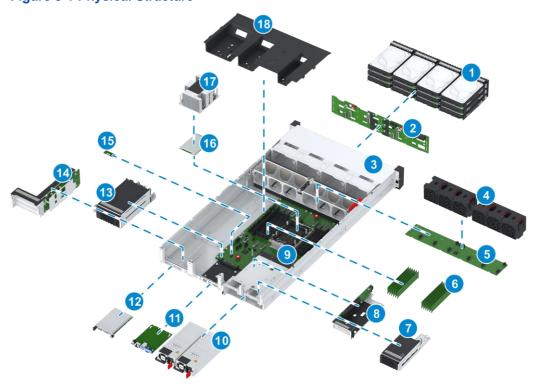
Physical Structure	1	18
Logical Structure		20

3.1 Physical Structure

3.1.1 Physical Structure of the General Model

Figure 3-1 shows the internal components of the NCS6721 N6 server (horizontal 12-disk standard model).

Figure 3-1 Physical Structure



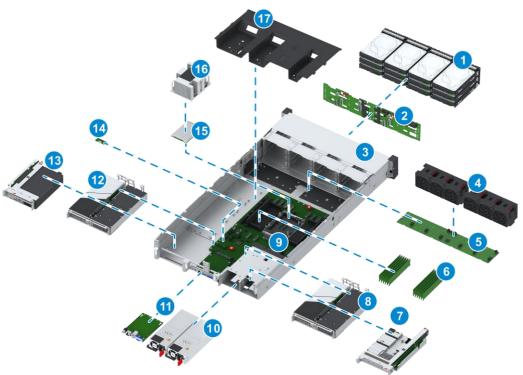
No.	Component	No.	Component
1	Front hard disk	2	Front-disk backplane

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 NCS6721 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 NCS6721 N6 server and the logical relationships among these modules.

MCIO MCIO MCIO MCIO CPU0 x8 PE3AB CPU0 x8 PE1AB CPU0 x8 PE2AB CPU0 x8 PE0AB CPU0 x8 PE3CD CPU0 x8 PE1CD CPU0 x8 PE2CD CPU0 x8 PE0CD DDR5 ΑP DDR5 ×6 CPU0 ×6 MCIO MCIO CPU0 x8 PE4CD CPU0 x8 PE5AB CPU0 x8 PE5CD PCle ×4 CPU0 ×4 PE4A TPM/ Common RTC **TPCM** eSPI1 MUX OCP Debug/Smart BIOS **EPLD** MUX NIC/Expander UART Flash LPC PCIe ×1 Front USB 2.0×1 PCIe ×1 Front Type-C Front USB 3.0×1 PCle(×1) to USB 2.0 ×1 USB Bridge Inner USB 3.0 ×1 NCSI0 (MAC3) + HUB SmartNIC Rear USB 3.0 ×2 NCSI1 (MAC4) OCP Card OCP USB 2.0 вмс **AST2600** Front VGA **I3C HUB** RGMII RJ45 Rear VGA PHY вмс вмс **EMMC** DDR4 FLASH0 FLASH1

Figure 3-3 Logical Structure

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

Table 3-1 Module Descriptions

Module	Descriptions
CPU	Central processing unit, as the calculation and control core of the server, used for processing information and running programs. The NCS6721 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 NCS6721 N6 server provides 12 DDR5 memory slots.

Module	Descriptions
Riser	Extended PCIe module, used for installing standard PCIe cards.
USB	Used for exchanging data between the server and external devices. The NCS6721 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.
ВМС	Used for upgrading server firmware and viewing device information when the server is not powered on.
BMC GE	Provides a GE electrical 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.
OCP	Supports various OCP NIC 3.0 cards.

Chapter 4 Software Functions

Table of Contents

BMC Software	23
BIOS Software	24

4.1 BMC Software

The CPUs, EPLDs, sensors and other components on the mainboard of the NCS6721 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: Board name, product name, manufacturer, and asset label Production date, board SN, and product SN GUID Power-on/off status, and real-time power Boot mode Alarm status of the system
Real-time monitoring	This function monitors the following information in real time: Sensor information CPU usage Memory usage Hard disk usage

Function	Description
Component information display	This function allows you to view the following information: Hard disk Memory CPU Network interface Fan
System configuration	This function allows you to perform the following configurations: BMC network configuration DNS configuration Time configuration Power and power supply control Power-on policy and power-on delay parameter configuration UID indicator configuration Boot mode configuration Resetting to default settings
System management	This function allows you to manage the following information: Accounts, versions, and logs IPMI information, SNMP information, Redfish information, ACL rules, and port information HTTPS certificate
Soft buttons	The following soft buttons are available: Power-on Power-off Restart
Reliability	VRRP is supported.
KVM support	The KVM and virtual media functions are supported. 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 NCS6721 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

Table of ContentsPhysical Specifications26Technical Specifications26Environmental Specifications28Reliability Specifications33

5.1 Physical Specifications

For the physical specifications of the NCS6721 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 Including lugs: 482.6 mm x 87 mm x 830 mm
Weight	 Standard model: ≤40 kg (full configuration without rails) 4-GPU Model: ≤48 kg (full configuration without rails)
Color	Silver chassisBlack 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. 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 NCS6721 N6 server, refer to Table 5-2.

Table 5-2 Physical Specifications

Item	Description
Туре	2U rack server
Processor	A maximum of one Intel Xeon 6 performance-core processor (Granite Rapids-AP 6900P) is supported. A single processor can have a maximum of 128 cores.

Item	Description			
	 A maximum of one Intel Xeon 6 efficiency-core processor (Sierra Forest-AP 6900E) is supported. A single processor can have a maximum of 288 cores. 			
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 forty-five 2.5-inch hard disks, or twenty 3.5-inch hard disks and four 2.5-inch hard disks. The server supports a maximum of twenty-two E1.S/E3.S SSDs. 			
Network	 One IPMI gigabit Ethernet interface is integrated. One OCP 3.0 NIC is supported. The interface supports PCIe 5.0 x8 lanes or PCIe 5.0 x16 lanes. Multi-host NICs are also supported. 			
I/O expansion	The server supports a maximum of 16 PCIe expansion slots, including 1 dedicated OCP slot.			
Interface	The server provides multiple interfaces: Interfaces on the front panel: One type-C interface One USB 2.0 interface One USB 3.0 interface One VGA interface Interfaces on the rear panel: Two USB 3.0 interfaces One iSAC management interface One VGA interface Two OCP 3.0 interfaces One serial port Internal interfaces: One USB 3.0 interface			
PSU	 Platinum and titanium PSUs are used, supporting various specifications, including 800 W, 1200 W, 1600 W, 2000 W, 2700 W, and 3200 W. 110 V/220 V AC power supply, 240 V/336 V HVDC power supply, and – 48 V DC power supply are supported. 1+1 redundancy is supported. 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 NCS6721 N6 server, refer to Table 5-3.

Table 5-3 Environmental Specifications

Item	Description
Temperature	 Operating temperature: → Standard model: 5 °C through 45 °C (Meets the ASHRAE Class A2/A3/A4 requirements) → 4-GPU model: 5 °C through 35 °C (Meets the ASHRAE Class A2 requirements) Storage temperature: -40°C through +65°C Maximum temperature change rate: 20°C/h 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) Non-operating environment: 5% through 95%, non-condensing
Altitude	≤ 3000 m. 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: In operating state: 68 dBA In idle state: 66 dBA 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: Copper coupon: 300 Å/month Silver coupon: 200 Å/month

Item	Description
Particulate pollutants	 The requirements of the data center cleanliness standard ISO 14644-1 Class 8 are met. 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	Maximum	Maximum	Maximum
		Operating Tem	Operating Tem	Operating Tem	Operating Tem
		perature: 30°C	perature: 35°C	perature: 40°C	perature: 45°C
General model	Vertical layout (8 hard disks)	All configuration s are supported.	All configuration s are supported.	The following configurations are not supported: Rear hard disks such as HDDs and SSDs, including NVMe SSDs and M.2 SSDs Rear 100 Gbps (or higher) OCP card, smart NIC, and DPU Memory module with a capacity of 128 GB or above PSU whose Ta is 50°C	The following configurations are not supported: 500 W (or above) CPUs Rear standard card, OCP card, and smart NIC Front HDD and NVMe SSD Rear hard disks such as HDDs and SSDs, including NVMe SSDs and M.2 SSDs Memory module with a capacity of 128 GB or above PSU whose Ta is 50°C
	Vertical layout (16 hard disks)	All configuration s are supported.	All configuration s are supported.	The following configurations are not supported: Rear hard disks such	The following configurations are not supported: 500 W (or above) CPUs

Model		Maximum	Maximum	Maximum	Maximum
		Operating Tem	Operating Tem	Operating Tem	Operating Tem
		perature: 30°C	perature: 35°C	perature: 40°C	perature: 45°C
				as HDDs and SSDs, including NVMe SSDs and M.2 SSDs Rear 100 Gbps (or higher) standard card, 100 Gbps (or higher) OCP card, smart NIC, and DPU Memory module with a capacity of 128 GB or above PSU whose Ta is 50°C	 Rear standard card, OCP card, and smart NIC Front HDD and NVMe SSD Rear hard disks such as HDDs and SSDs, including NVMe SSDs and M.2 SSDs Memory module with a capacity of 128 GB or above Memory module with a capacity of 128 GB or above Memory module with a capacity of 128 GB or above PSU whose Ta is 50°C Device stacking
	Vertical layout (24/25 hard disks)	All configuration s are supported.	The following configurations are not supported: PSU whose Ta is 50°C	The following co nfigurations are not supported:	Not supported.

Model		Maximum	Maximum	Maximum	Maximum
		Operating Tem	Operating Tem	Operating Tem	Operating Tem
		perature: 30°C	perature: 35°C	perature: 40°C	perature: 45°C
				NVMe SSDs and M.2 SSDs Rear 100 Gbps (or higher) standard card, 100 Gbps (or higher) OCP card, smart NIC, and DPU Memory module with a capacity of 128 GB or above PSU whose Ta is 50°C GPU Device stacking	
	Horizontal layout (12 hard disks)	All configuration s are supported.	The following configurations are not supported: PSU whose Ta is 50°C	The following configurations are not supported: 500 W (or above) CPU Front NVMe SSD (both 3.5-inch and 2.5-inch disk slots are supported) Rear hard disks such as HDDs and SSDs, including NVMe SSDs	Not supported.

Model		Maximum	Maximum	Maximum	Maximum
		Operating Tem	Operating Tem	Operating Tem	Operating Tem
		perature: 30°C	perature: 35°C	perature: 40°C	perature: 45°C
				and M.2 SSDs Rear 100 Gbps (or higher) standard card, 100 Gbps (or higher) OCP card, smart NIC, and DPU Memory module with a capacity of 128 GB or above PSU whose Ta is 50°C GPU Device stacking	
GPU Model	Horizontal layout (8 hard disks)	All configuration s are supported.	Not supported.	Not supported.	Not supported.

- 1. When a fan fails, the operating temperature supported is reduced by 5 °C. In this case, the GPU performance may be degraded.
- 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. If rear mechanical hard disks are configured and stacked, the fan must be set to performance mode.
- 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. The specifications are for only common CPU models. If you need any special CPUs, contact technical support.

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

5.4 Reliability Specifications

For a description of the reliability specifications of the NCS6721 N6 server, refer to Table 5-5.

Table 5-5 Reliability specifications

Item	Specification
System availability	>99.999%
MTTR	≤60 min
MTBF	>140000 h

Chapter 6 Compliant Standards

For the standards that the NCS6721 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

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

PCle

- 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

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