NETAŞ NCS6742G N4

Rack Server

Product Description

Version: R1.8

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

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
R1.8	2025-10-16	Updated "3.3.2 Switch Boards".
R1.7	2025-07-31	Updated "5.3 Environmental Specifications".
R1.6	2025-06-10	Updated "6 Compliant Standards".
R1.5	2024-11-15	Added "1.3 Product Features".
R1.4	2024-09-30	Updated "2 External Views".
R1.3	2024-07-29	Updated "5.3 Environmental Specifications".

Revision No.	Revision Date	Revision Reason
R1.2	2024-05-10	Updated "2.2 Rear Panel".
R1.1	2024-01-17	Updated "2.2 Rear Panel" and "5.2 Technical Specifications".
R1.0	2023-12-12	First edition.

Serial Number: SJ-20231204193201-001

Publishing Date: 2025-10-16 (R1.8)

Contents

About This Manual

Purpose

This manual describes the NCS6742G N4 rack server (hereinafter referred to as the NCS6742G N4 server), including its role, characteristics, structure, software functions, product specifications, environmental requirements, and compliant standards, helping you to fully learn about the NCS6742G N4 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 NCS6742G N4 server.
Chapter 2, External Views	Describes the front panel and rear panel of the NCS6742G N4 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 NCS6742G N4 server.
Chapter 4, Software Functions	Describes the software functions of the NCS6742G N4 server.
Chapter 5, Product Specifications	Describes the product specifications of the NCS6742G N4 server, including the physical, technical, environmental and reliability specifications.
Chapter 6, Compliant Standards	Describes the standards that the design of the NCS6742G N4 complies with.
Chapter 7, Product Recycling	Describes how to contact technical support for the recycling of NCS6742G N4 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

1.1 Product Role

The NCS6742G N4 server is an AI-driven dual-CPU rack server designed and developed based on the Intel® Xeon® Scalable processors (Sapphire Rapids/Emerald Rapids). With a high-density, modular, and compact design, the NCS6742G N4 server is characterized by high performance, high reliability, high expandability, and easy management. The NCS6742G N4 server is a server product intended for carriers and enterprises and applicable to fields such as IT, energy and finance.

Figure 1-1 shows an external view of the NCS6742G N4 server.

Figure 1-1 External View of the NCS6742G N4 Server

CAUTION

In a living environment, the operation of this device may cause radio jamming.

1.2 Product Characteristics

High Density and High Performance

- Two Intel® Xeon® Scalable processors are supported, each of which has a maximum of 64 cores.
- Thirty-two DDR5 DIMM slots are provided. The maximum rate of a DIMM can reach 5600 MT/s.
- Two CPUs are interconnected through up to three UPI links, with the maximum transmission rate of 20 GT/s per link.
- High-speed I/O interfaces and high-performance NVMe SSDs are supported.

High Expandability and High Bandwidth

- A maximum of twenty-five 2.5-inch hard disk slots are provided to meet the requirements for large-capacity storage.
- A maximum of thirteen PCIe slots are supported for flexible configuration of network and storage resources
- One standard OCP NIC 3.0 card is supported, providing PCIe x8 or x16 lanes.
- A maximum of 12 NVMe SSDs are supported and high-speed I/O interfaces are provided to make disk access faster.
- A maximum of ten high-performance GPUs are supported, providing excellent computing power

High Availability and High Reliability

- Key parts such as hard disks, power modules, 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 and RAID 50 are supported, and protection against a power supply failure is provided.
- Intelligent heat dissipation design increases system reliability and effectively extends component life and reducing costs.
- Power modules support 2+2 redundancy, improving system reliability.

Convenient Management and Easy Maintenance

- Out-of-band centralized management is supported to manage and monitor resources such as CPUs, memory modules, hard disks, fans, power supplies, and NICs.
- The KVM function allows the administrator to redirect local virtual media to a remote server to upgrade software for the remote system or install and maintain an operating system.

- The server supports Web-based system management, including the viewing of log files and real-time monitoring of sensor parameters of modules.
- The server supports IPMI 2.0 for out-of-band management. In addition, the server provides the RMCP and SNMP interfaces, which can be used to integrate with a third-party management system to provide local management tools, including:
  - ➔ Fault analysis and recovery
  - ➔ System diagnosis, system configuration, device management, and user management
  - ➔ Network management and firmware management
  - ➔ Power consumption monitoring

Energy-Saving and Environmentally Friendly

- The server uses high-performance, low-power-consumption and low-noise fans whose rotational speed can be adjusted intelligently.
- The server supports 80 PLUS platinum power modules. The conversion efficiency is up to 94%, and power capping is supported.
- HVDC and LVDC technologies are supported, improving energy utilization.
- Lead-free design is used, helping protect the environment.

1.3 Product Features

The NCS6742G N4 supports active shutdown in response to high temperatures. When enabled, this function automatically shuts down the server if the ambient temperature in the equipment room exceeds a predefined high-temperature threshold. To ensure service continuity, this function is disabled by default in all BMC V4 versions.

Chapter 2
External Views

Table of Contents

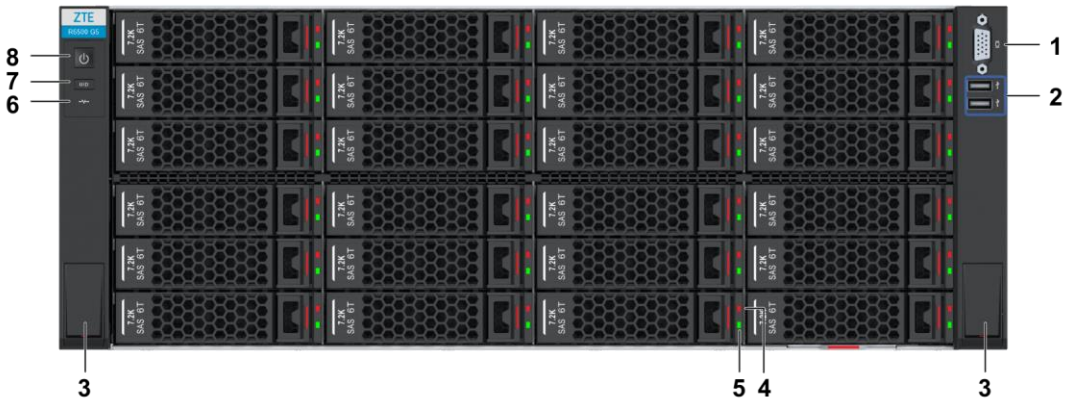
2.1 Front Panel

In accordance with the installation mode and number of hard disks, the front panel of the NCS6742G N4 server supports the following configurations:

- Horizontal layout (24 hard disks)

  The front panel provides twenty-four 3.5-inch SAS/SATA disk slots (compatible with 2.5-inch disks) that support NVMe SSDs, as shown in Figure 2-1.

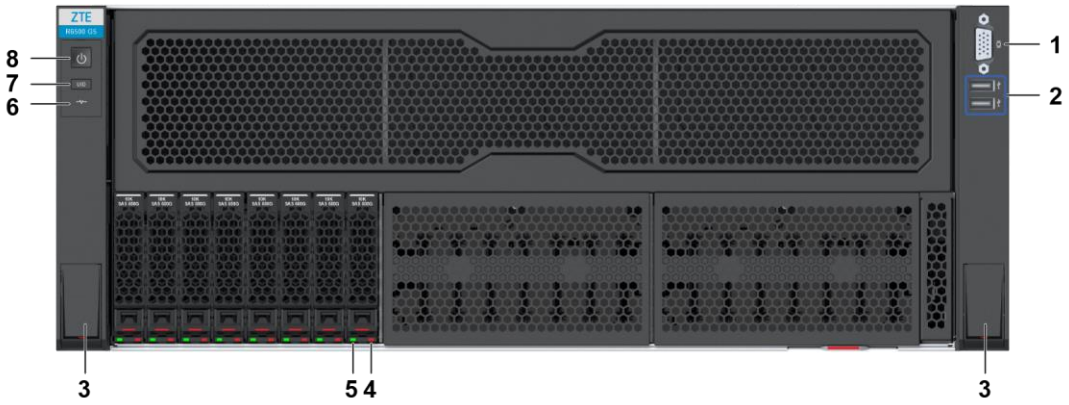
Figure 2-1 Front Panel with Twenty-four Horizontal Disk Slots



- Vertical layout (8 hard disks)

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

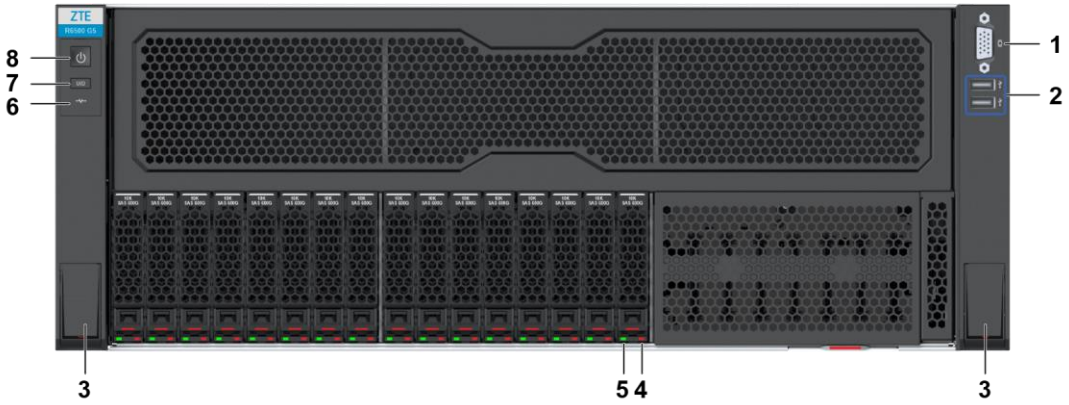
Figure 2-2 Front Panel with Eight Vertical Disk Slots



- Vertical layout (16 hard disks)

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

Figure 2-3 Front Panel with Sixteen Vertical Disk Slots



- Vertical layout (24 hard disks)

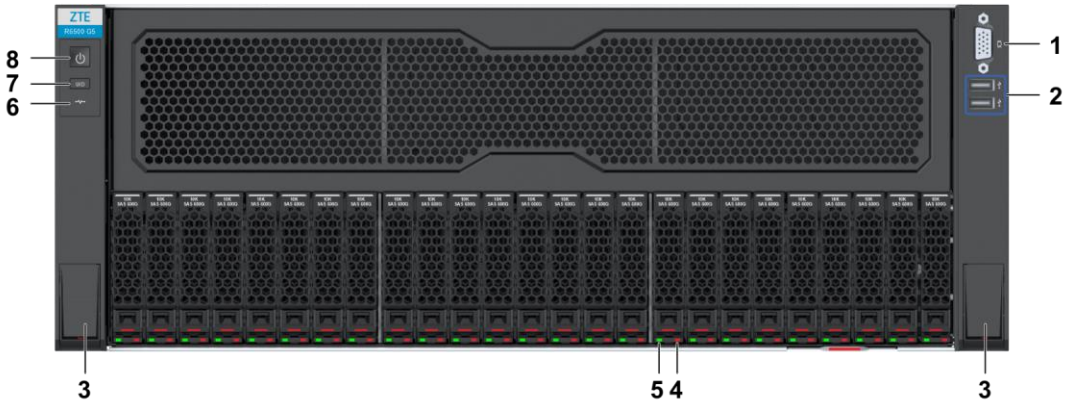
  The front panel provides twenty-four 2.5-inch SAS/SATA disk slots that support NVMe SSDs, as shown in Figure 2-4.

Figure 2-4 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 that support NVMe SSDs, as shown in Figure 2-5.

Figure 2-5 Front Panel with Twenty-Five Vertical Disk Slots



For a description of the interfaces and indicators on the front panel of the NCS6742G N4 server, refer to Table 2-1.

Table 2-1 Front Panel Descriptions

No.	Name	Description
1	VGA interface	Connected to a display.
2	USB interface	● The upper interface is a USB 3.0 interface, which is connected to a USB 3.0 device, for example, a system boot USB flash drive. ● 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.
3	Chassis installation screw shield	Shields a screw installed on the chassis.
4	Hard disk status indicator	This indicator can be in the following status: ● 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 located. ● Steady red: The hard disk is faulty.
5	Hard disk activity indicator	This indicator can be in the following status: ● 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 the SAS/SATA hard disk flashes at 4 Hz, and the green indicator of the NVMe hard disk flashes at an undefined frequency).

No.	Name	Description
		● Steady green: The hard disk is present but inactive.
6	Health status indicator	This indicator can be in the following status: ● 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. ● Off: The server is not operating properly.
7	UID button/indicator	The button is also used as an indicator. This indicator can be in the following status: ● Steady on: The server is being located. ● Flashing at 1 Hz: The server is being remotely maintained or the firmware is being upgraded through a PC. ● Flashing at 4 Hz: The server is in debugging mode. The serial port on the panel serves as the BMC debugging serial port. ● Off: No positioning operation is triggered on the server. The UID button supports the following operations: ● Press and hold the button for less than 4 seconds: Perform server positioning or cancel the current function (cancel positioning or the BMC debugging status of the serial port). ● Press and hold the button for 4 (inclusive) to 10 seconds: Switch the serial port on the panel to BMC debugging status. ● Press and hold the button for at least 10 seconds: Reset the BMC. ● Press and hold the button for 4 (inclusive) to 10 seconds, release it, and then press and hold it for at least 10 seconds: Reset the BMC and keep the serial port on the panel in BMC debugging status.
8	Power button/indicator	The button is also used as an indicator. This indicator can be in the following status: ● Steady yellow: The server is powered on in standby mode (the host is not powered on). ● Steady green: The server is powered on in payload mode (the host is powered on). ● Off: The server is not powered on or the power module is not operating properly. Press the power button to power on the server. The power button supports the following operations: ● Press and hold for less than 4 seconds: Power on the server. ● Press and hold for 4 through 10 seconds: Shut down the server forcibly.

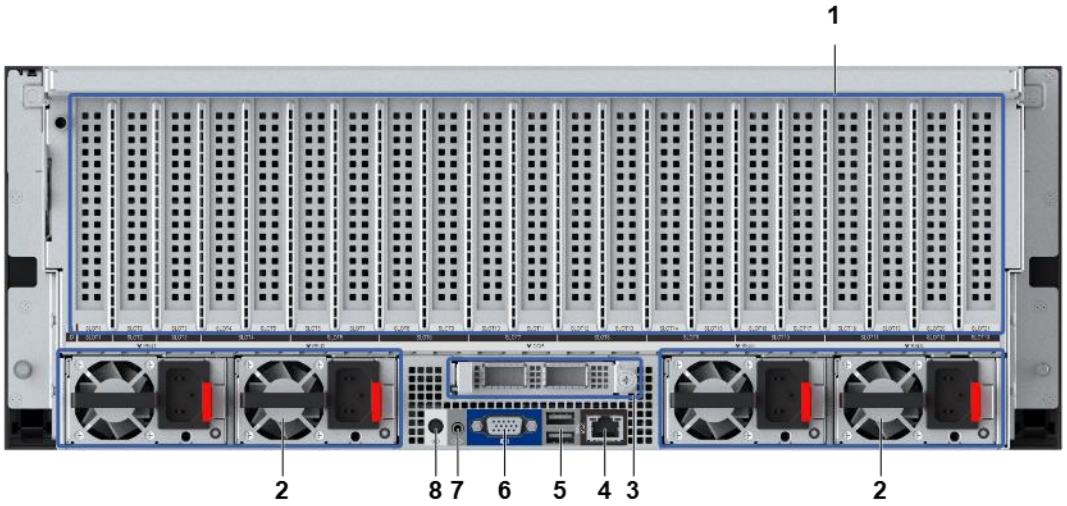
Note

To ensure drive availability, the storage duration of a hard disk drive cannot exceed six months before use.

2.2 Rear Panel

Figure 2-6 shows the rear panel of the NCS6742G N4 server.

Figure 2-6 Rear Panel of the Server



For a description of the interfaces and indicators on the rear panel of the NCS6742G N4 server, refer to Table 2-2.

Table 2-2 Rear Panel Interface and Indicator Descriptions

No.	Item	Description
1	I/O module	The I/O module supports the following configurations: ● Thirteen PCIe 5.0 slots are provided, which support the following configurations: ➔ Ten dual-slot GPUs and one standard PCIe card. ➔ Eight dual-slot GPUs and five standard PCIe cards. ● Twenty one PCIe 4.0 slots are provided, which support the following configurations: ➔ Twenty single-slot and half-length GPUs and one standard PCIe card. ➔ Sixteen single-slot and full-length GPUs and five standard PCIe cards. ● Twelve PCIe 5.0 slots are provided, which support the following configurations: ➔ Eight dual-slot GPUs and four standard PCIe cards. ➔ Eight single-slot GPUs and four standard PCIe cards.
2	Power module	A maximum of four power modules are supported. These power modules support "N+N" redundancy and hot swapping. 220 V AC power modules or 240 V DC power modules can be used, supporting 1300 W, 2000 W, 2700 W, or 3200 W power supply.

No.	Item	Description
3	OCP card	Various standard OCP NIC 3.0 cards are supported through OCP slots, and provide GE, 10 GE, and 25 GE interfaces.
4	iSAC network interface	The network cable is used to interconnect the iSAC network interface with a debugging PC so you can log in to the Web portal of the iSAC network interface through a browser on the debugging PC and configure the server.
5	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 booting the system).
6	VGA interface	Used to connect to a display.
7	Serial port	The 3.5 mm audio serial cable is used to connect the serial port to the debugging PC. The server can be configured on the HyperTerminal of the debugging PC.
8	UID button/indicator	● Steady on: The server is being located. ● Flashing at 1 Hz: The server is being remotely maintained or the firmware is being upgraded through a PC. ● Flashing at 4 Hz: The server is in debugging mode. The serial port on the panel serves as the BMC debugging serial port. ● Off: No positioning operation is triggered on the server.

Note

To ensure drive availability, the storage duration of a hard disk drive cannot exceed six months before use.

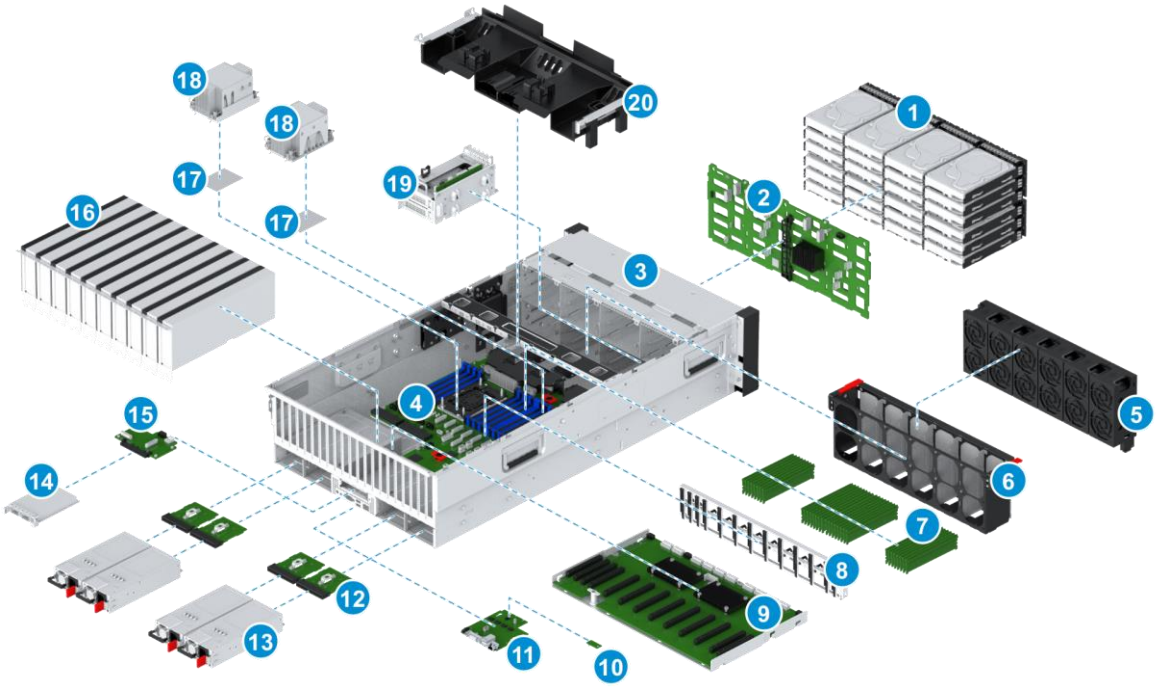
Chapter 3
Product Structure

Table of Contents

3.1 Physical Structure

Figure 3-1 shows the internal components of the NCS6742G N4 server.

Figure 3-1 Internal Layout



No.	Component	No.	Component
1	Front hard disk	2	Front hard disk backplane
3	Chassis	4	Mainboard
5	Fan unit	6	Fan tray
7	Memory module	8	GPU bracket

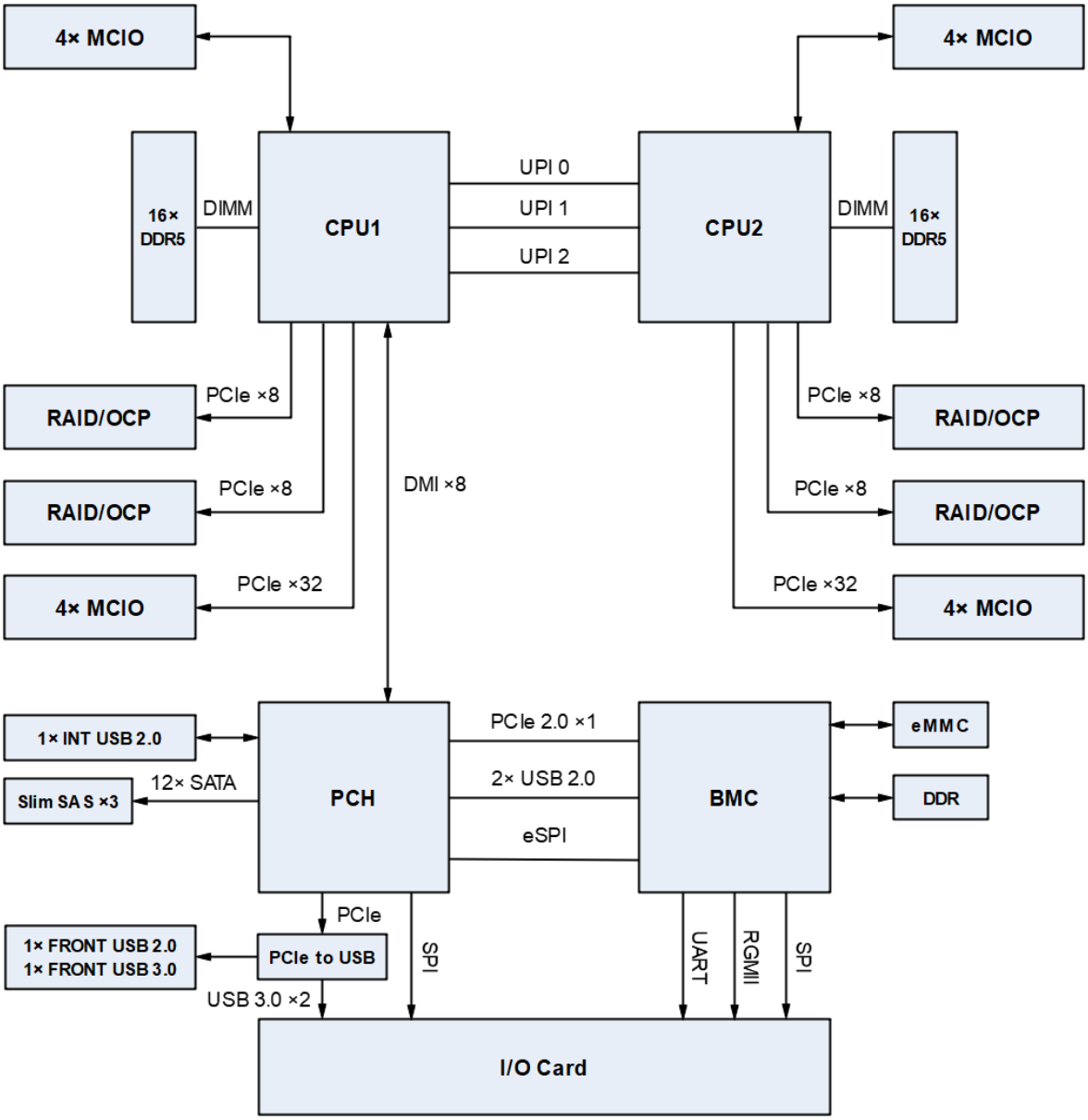
No.	Component	No.	Component
9	PCIe switch board	10	TPM card
11	I/O card	12	Power adapter
13	Power module	14	OCP card
15	OCP adapter	16	GPU
17	CPU	18	Heat sink
19	RAID controller card module	20	Air duct

3.2 Logical Structure

3.2.1 Mainboard

Figure 3-2 shows the system modules of the NCS6742G N4 server and the logical relationships among these modules.

Figure 3-2 Logical Structure



For a description of the modules of the NCS6742G N4 server, refer to Table 3-1.

Table 3-1 Module Descriptions

Module	Description
CPU	Used for processing information and running programs as the calculation and control core of the server. The NCS6742G N4 server supports a maximum of two CPUs, which are interconnected through three UPI links, with the maximum transmission rate of 20 GT/s per link.
DDR5	Used for storing computational data in the CPUs and the data exchanged with external storage such as hard disks. The NCS6742G N4 server provides 32 DDR5 DIMM slots.

Module	Description
MCIO	High-speed signal connector, which is connected to the hard disk backplane and switch board.
RAID	Hard disk RAID controller, which protects storage device data and supports common RAID levels such as RAID 0, RAID 1, RAID 5, RAID 6, RAID 10, RAID 50 and RAID 60.
OCP	Used for expanding the network capacity of the server. The NCS6742G N4 server supports various standard OCP NIC 3.0 cards.
PCH	Southbridge chipset on the mainboard of the server. SATA, PCIe, and USB interfaces can be integrated into it. The NCS6742G N4 server uses the Emmitsburg chipset.
USB	Exchanges data between the server and external devices. The NCS6742G N4 server provides one USB 2.0 interface and three USB 3.0 interfaces.
SlimSAS	High-speed signal connector, which is connected to the hard disk backplane and RAID adapter.
SATA	Hard disk interface specification. The NCS6742G N4 server provides twenty SATA 3.0 interfaces.
BIOS	Provides 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.
DDR	Supports BMC operation.
I/O Card	Provides one standard VGA interface and two standard USB 3.0 interfaces.

3.2.2 Switch Boards

Through a PCIe switch board, the NCS6742G N4 server can provide standard PCIe slots to extend system functions.

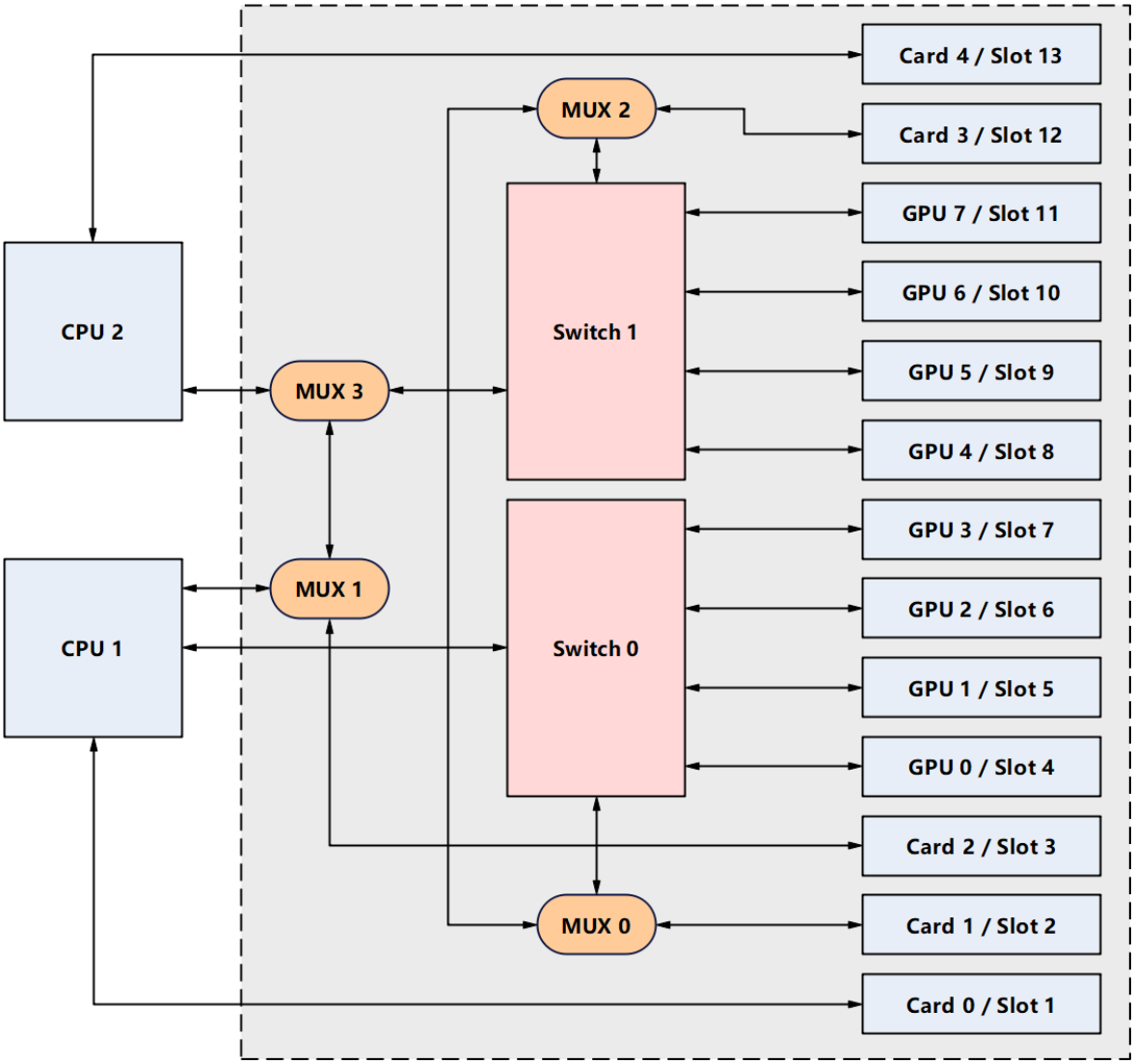
The NCS6742G N4 server supports the following types of switch boards:

- 3.2.2.1 13-Slot PCIe 4.0 Switch Board
- 3.2.2.2 13-Slot PCIe 5.0 Switch Board
- 3.2.2.3 21-Slot PCIe 4.0 Switch Board
- 3.2.2.4 12-Slot PCIe 5.0 Pass-Through Board

3.2.2.1 13-Slot PCIe 4.0 Switch Board

Figure 3-3 shows the logical structure of a 13-slot PCIe 4.0 switch board.

Figure 3-3 Logical Structure of a 13-Slot PCIe 4.0 Switch Board

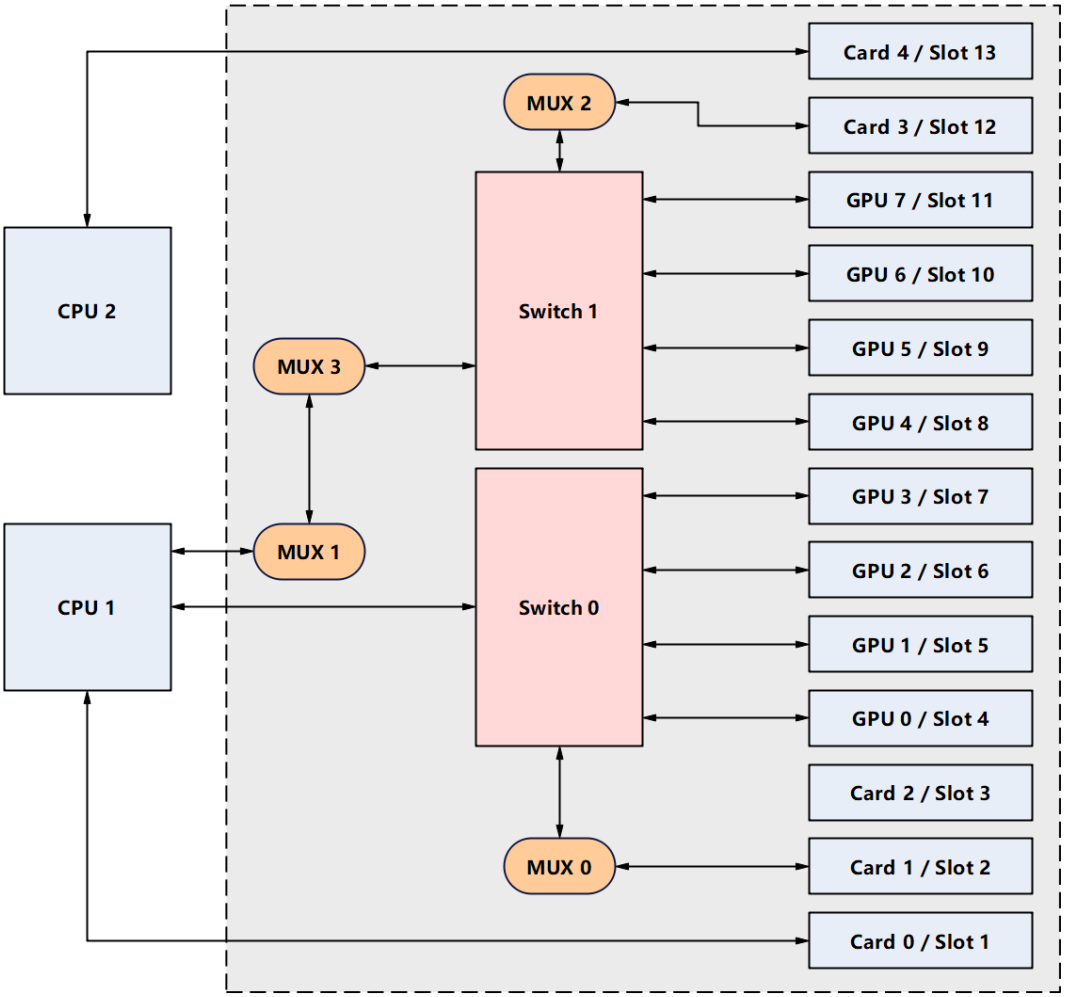


The 13-slot PCIe 4.0 switch board supports working mode change in one click. The switch board operates in one of the following three modes:

- **Normal mode**

  In normal mode, the server enables point-to-point communication between GPUs while guaranteeing sufficient I/O bandwidth between CPUs and GPUs. Figure 3-4 shows the logical structure of the switch board in this mode.

Figure 3-4 Logical Structure in Normal Mode



For the relationships between connectors and the slots on the 13-slot PCIe 4.0 switch board in normal mode, refer to Table 3-2.

Table 3-2 Relationships Between Connectors and the Slots on the 13-Slot PCIe 4.0 Switch Board—Normal Mode

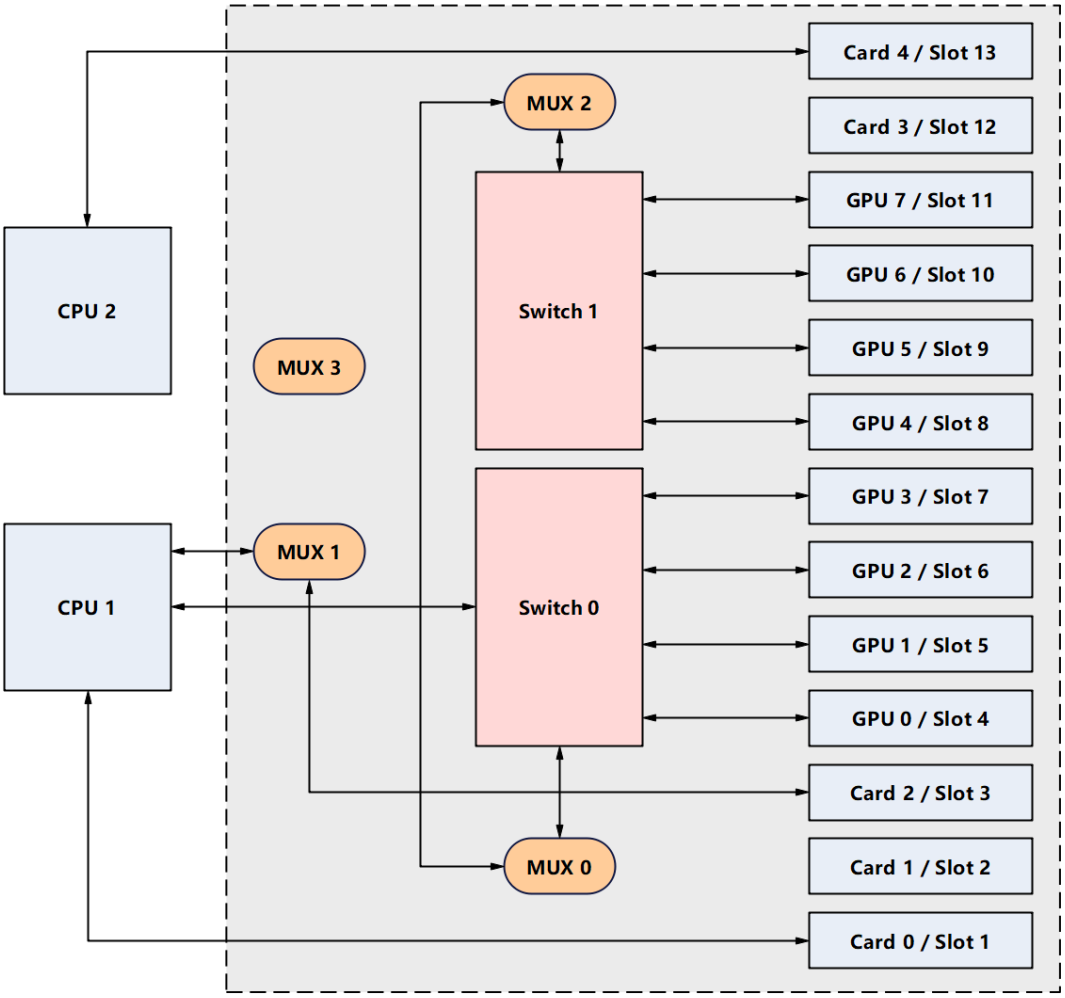
Slot ID	Connector Position ID on the Switch Board	Connector Position ID on the Mainboard
Slot 1	X5	X14
	X7	X48
Switch 1: Slot 8–Slot 12	X2	X42
	X4	X46
Switch 0: Slot2, Slot 4–Slot 7	X1	X41
	X3	X44
-	X6	X70

Slot ID	Connector Position ID on the Switch Board	Connector Position ID on the Mainboard
-	X8	X55
Slot 13	X4	X53
	X10	X54

- **Cascading mode**

  In cascading mode, the server preferentially ensures point-to-point communication between GPUs, effectively reducing their communication delay. Figure 3-5 shows the logical structure of the switch board in this mode.

Figure 3-5 Logical Structure in Cascading Mode



For the relationships between connectors and the slots on the 13-slot PCIe 4.0 switch board in cascading mode, refer to Table 3-3.

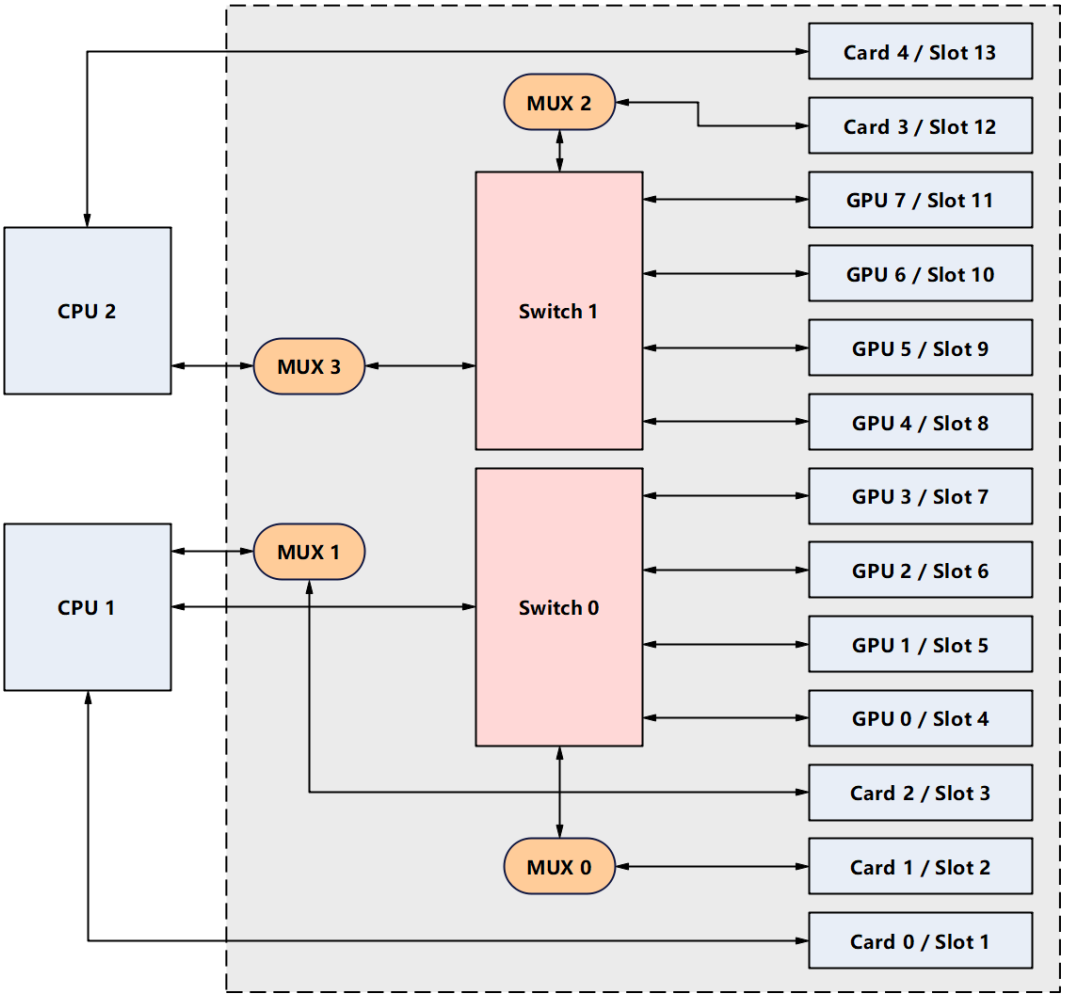
Table 3-3 Relationships Between Connectors and the Slots on the 13-Slot PCIe 4.0 Switch Board—Cascading Mode

Slot ID	Connector Position ID on the Switch Board	Connector Position ID on the Mainboard
Slot 1	X5	X14
	X7	X48
Switch 0 and Switch 1: Slot 4–Slot 11	X2	X42
	X4	X46
	X1	X41
	X3	X44
Slot 3	X6	X70
	X8	X55
Slot 13	X4	X53
	X10	X54

- **Balanced mode**

  In balanced mode, the server provides better I/O bandwidth between CPUs and GPUs. Figure 3-6 shows the logical structure of the switch board in this mode.

Figure 3-6 Logical Structure in Balanced Mode



For the relationships between connectors and the slots on the 13-slot PCIe 4.0 switch board in balanced mode, refer to Table 3-4.

Table 3-4 Relationships Between Connectors and the Slots on the 13-Slot PCIe 4.0 Switch Board—Balanced Mode

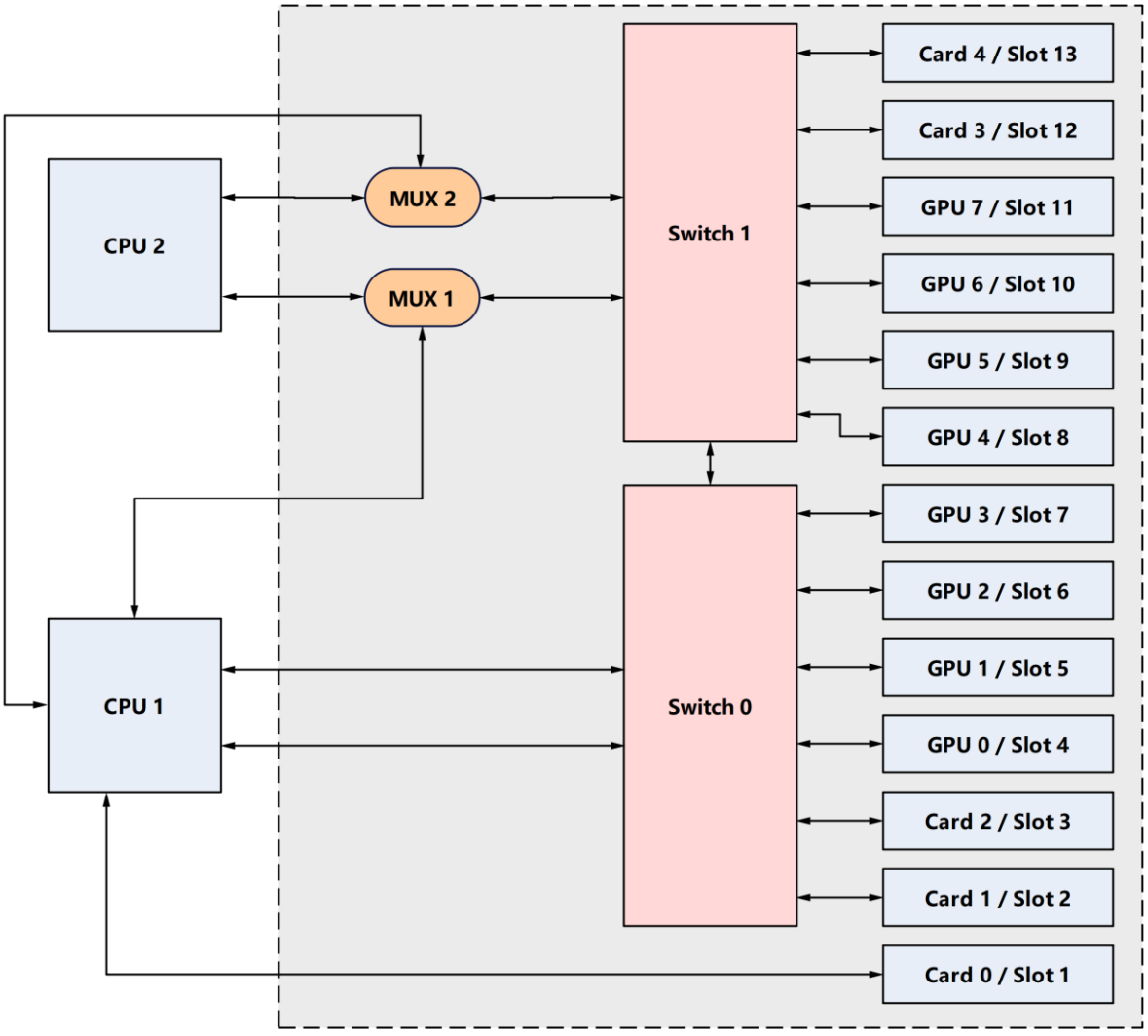
Slot ID	Connector Position ID on the Switch Board	Connector Position ID on the Mainboard
Slot 1	X5	X14
	X7	X48
Slot 3	X2	X42
	X4	X46
Switch 0: Slot 2, Slot 4–Slot 7	X1	X41
	X3	X44
Switch 1:	X6	X70

Slot ID	Connector Position ID on the Switch Board	Connector Position ID on the Mainboard
Slot 8–Slot 12	X8	X55
Slot 13	X4	X53
	X10	X54

3.2.2.2 13-Slot PCIe 5.0 Switch Board

Figure 3-7 shows the logical structure of a 13-slot PCIe 5.0 switch board.

Figure 3-7 Logical Structure of a 13-Slot PCIe 5.0 Switch Board



The 13-slot PCIe 5.0 switch board supports working mode change in one click. The switch board operates in one of the following three modes:

- **Normal mode**

In normal mode, the server enables point-to-point communication between GPUs while guaranteeing sufficient I/O bandwidth between CPUs and GPUs. Figure 3-8 and Figure 3-9 show the logical structure of the switch board in this mode.

Figure 3-8 Logical Structure in Dual Uplink Normal Mode

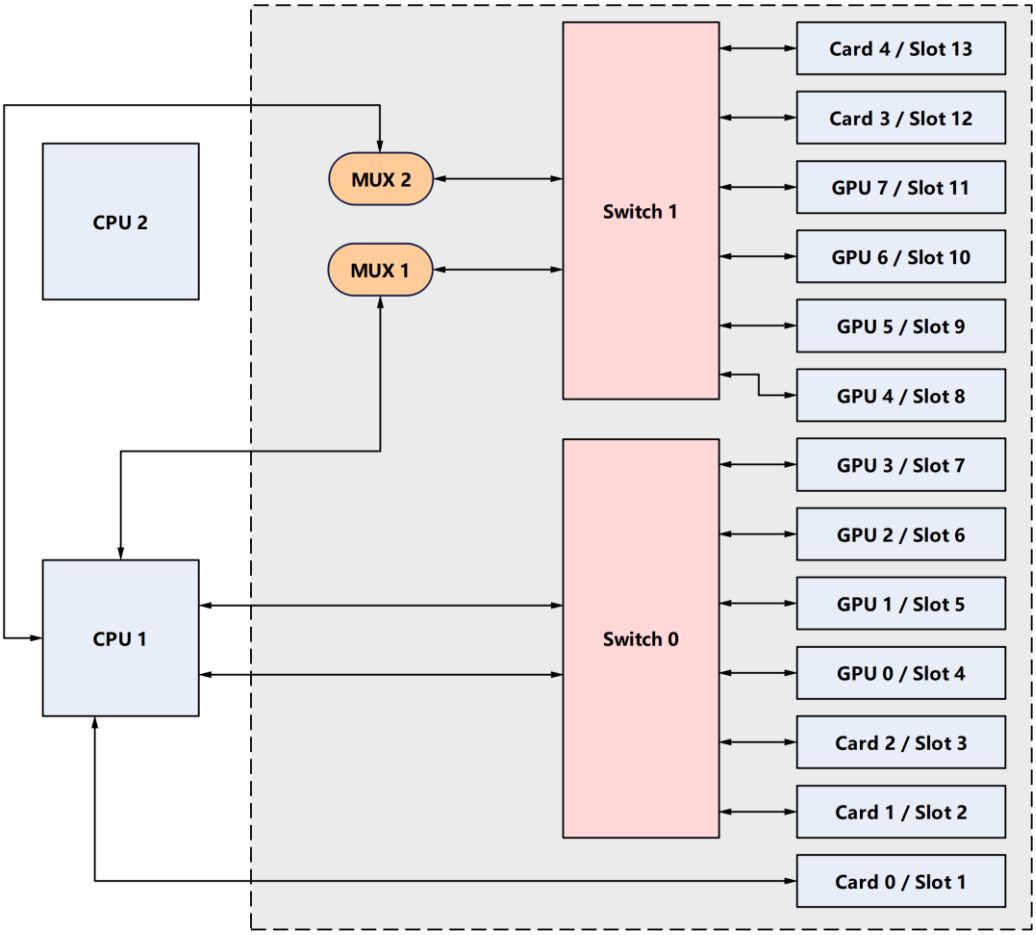
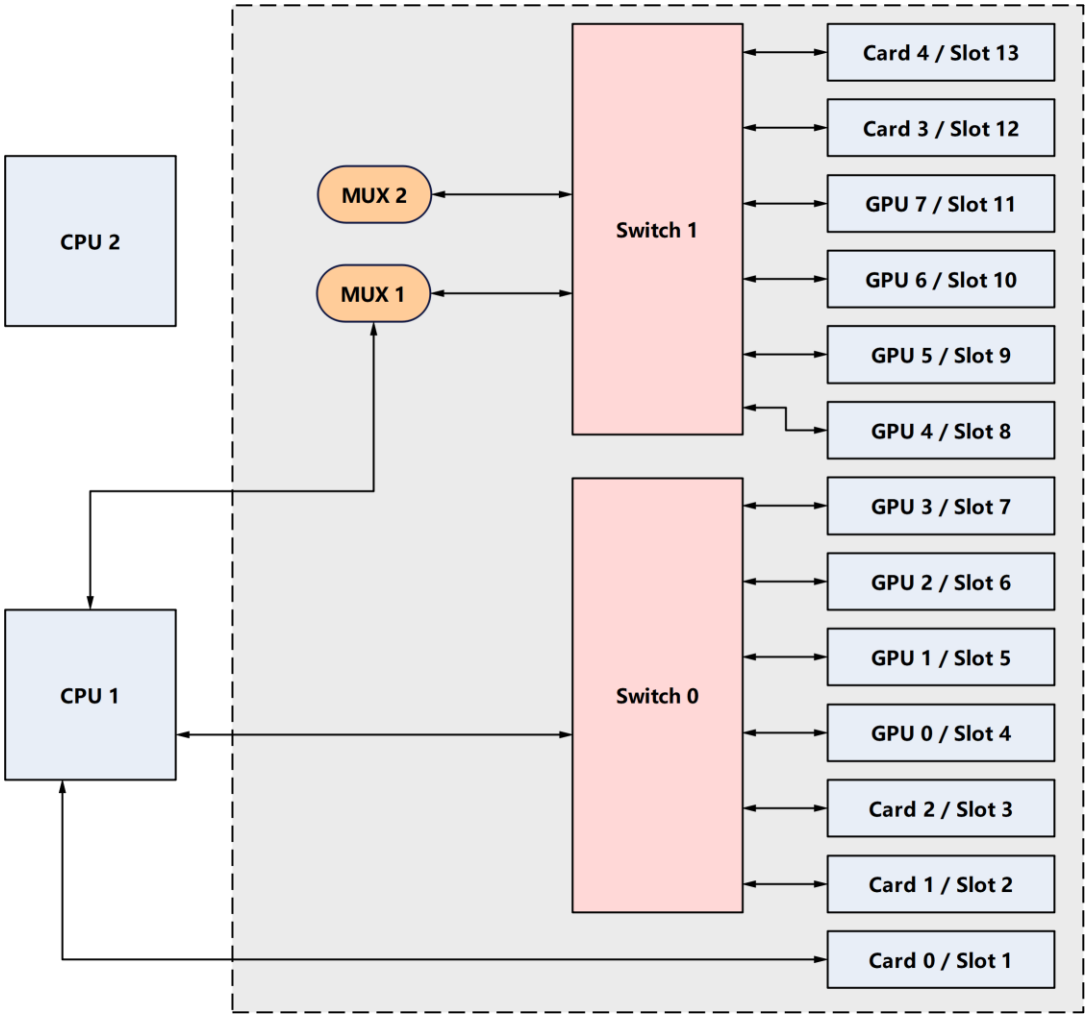


Figure 3-9 Logical Structure in Single Uplink Normal Mode



For the relationships between connectors and the slots on the 13-slot PCIe 5.0 switch board in normal mode, refer to Table 3-5.

Table 3-5 Relationships Between Connectors and the Slots on the 13-Slot PCIe 5.0 Switch Board—Normal Mode

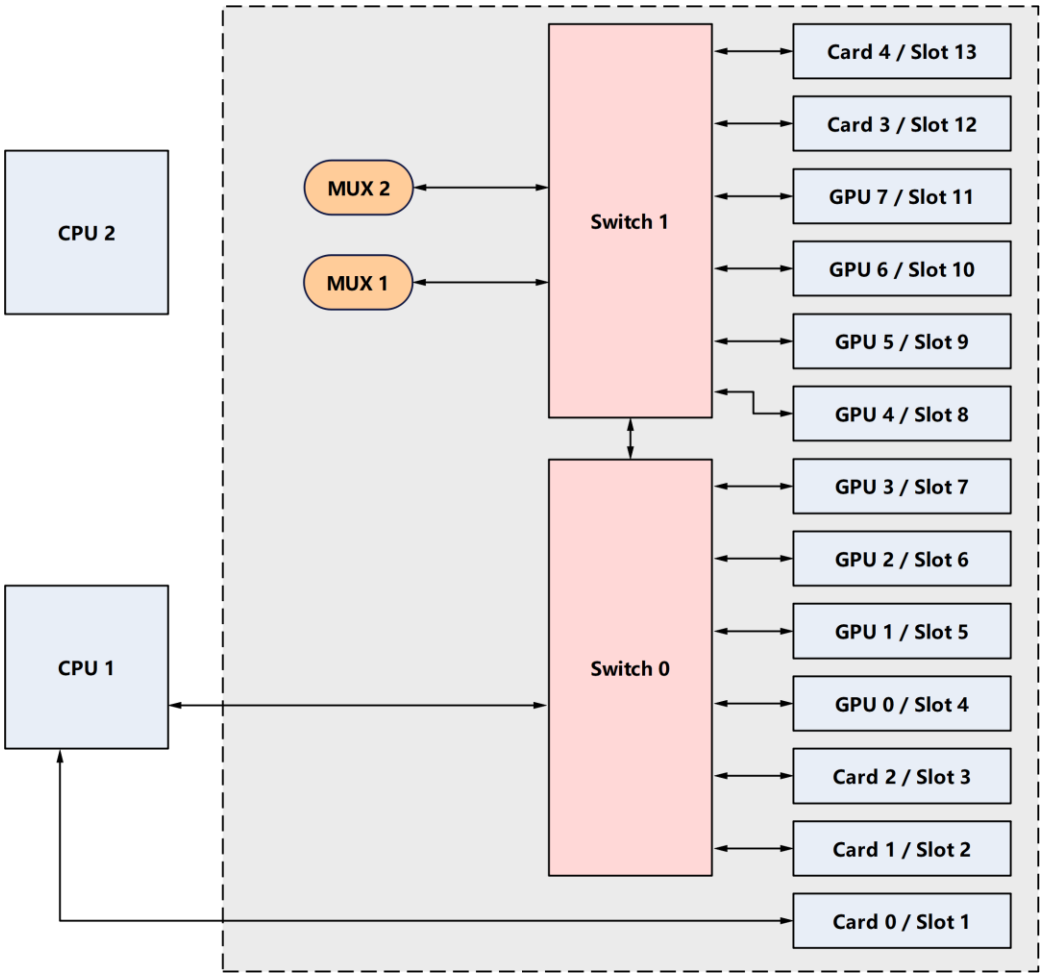
Slot ID	Connector Position ID on the Switch Board	Connector Position ID on the Mainboard
Slot 1	X5	X14
	X7	X48
Switch 1: Slot 8–Slot 13	X8	X8
	X6	X47
Switch 0: Slot 2–Slot 7	X2	X42
	X4	X46
	X1	X41

Slot ID	Connector Position ID on the Switch Board	Connector Position ID on the Mainboard
	X3	X44
Switch 1: Slot 8–Slot 13	X54	X56
	X55	X36
-	X47	X70
-	X9	X55
-	X10	X53
-	X48	X54

- **Cascading mode**

  In cascading mode, the server preferentially ensures point-to-point communication between GPUs, effectively reducing their communication delay. Figure 3-10 shows the logical structure of the switch board in this mode.

Figure 3-10 Logical Structure in Cascading Mode



For the relationships between connectors and the slots on the 13-slot PCIe 5.0 switch board in cascading mode, refer to Table 3-6.

Table 3-6 Relationships Between Connectors and the Slots on the 13-Slot PCIe 5.0 Switch Board—Cascading Mode

Slot ID	Connector Position ID on the Switch Board	Connector Position ID on the Mainboard
Slot 1	X5	X14
	X7	X48
-	X8	X8
-	X6	X47
Switch 0 and Switch 1: Slot 2–Slot 13	X2	X42
	X4	X46
-	X1	X41
-	X3	X44
-	X54	X56
-	X55	X36
-	X47	X70
-	X9	X55
-	X10	X53
-	X48	X54

- Balanced mode

  In balanced mode, the server provides better I/O bandwidth between CPUs and GPUs. Figure 3-11 and Figure 3-12 show the logical structure of the switch board in this mode.

Figure 3-11 Logical Structure in Dual Uplink Balanced Mode

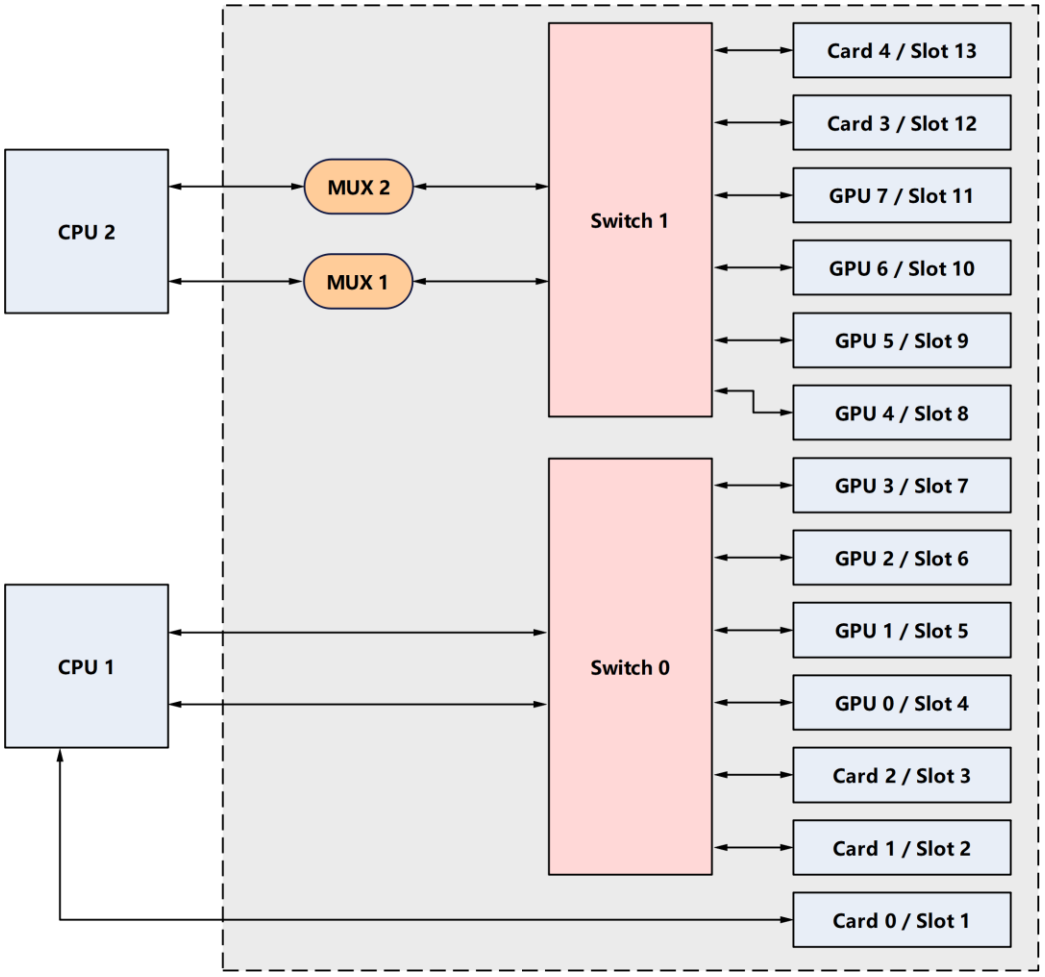
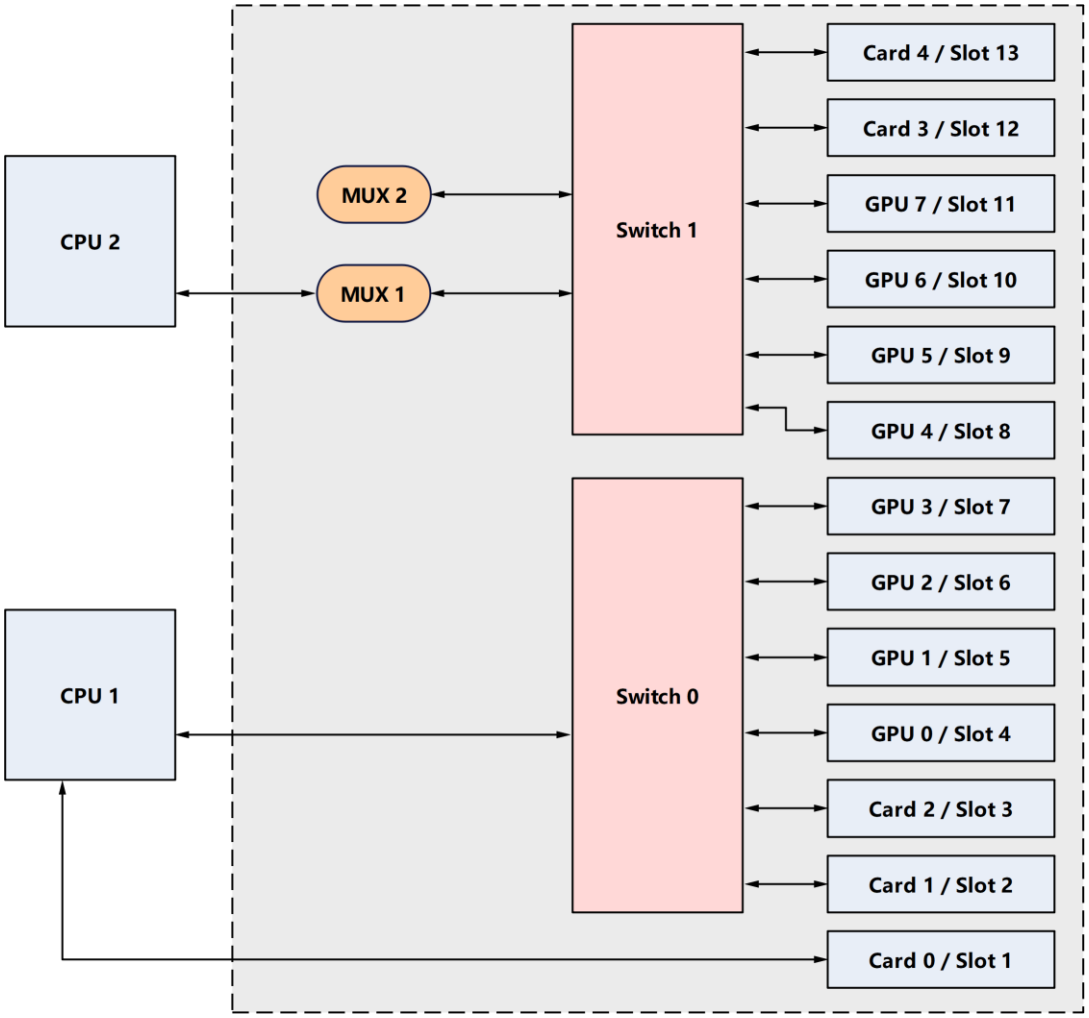


Figure 3-12 Logical Structure in Single Uplink Balanced Mode



For the relationships between connectors and the slots on the 13-slot PCIe 5.0 switch board in balanced mode, refer to Table 3-7.

Table 3-7 Relationships Between Connectors and the Slots on the 13-Slot PCIe 5.0 Switch Board—Balanced Mode

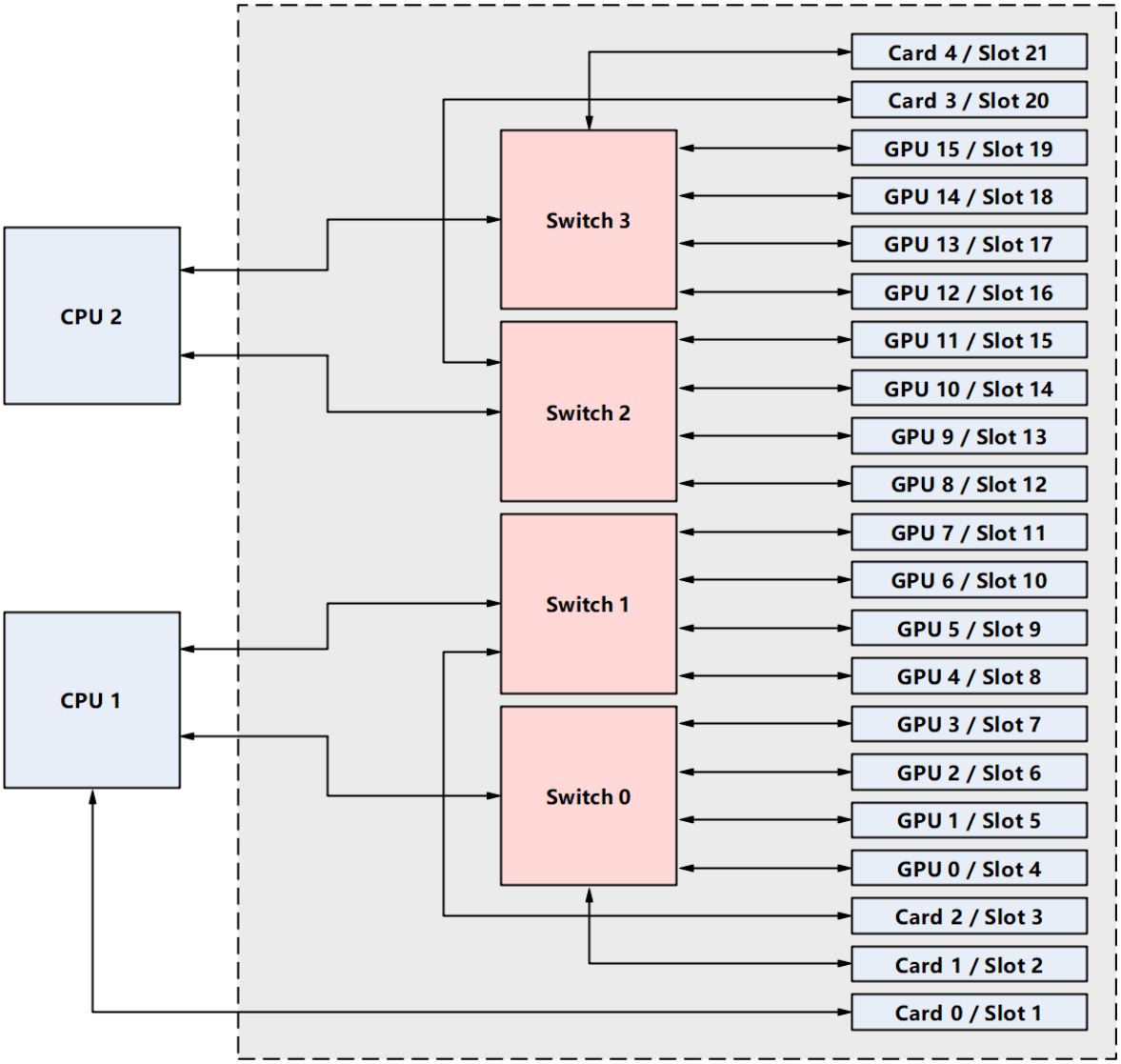
Slot ID	Connector Position ID on the Switch Board	Connector Position ID on the Mainboard
Slot 1	X5	X14
	X7	X48
-	X8	X8
-	X6	X47
Switch 0: Slot 2–Slot 7	X2	X42
	X4	X46
	X1	X41

Slot ID	Connector Position ID on the Switch Board	Connector Position ID on the Mainboard
	X3	X44
-	X54	X56
-	X55	X36
Switch 1: Slot 8–Slot 13	X47	X70
	X9	X55
	X10	X53
	X48	X54

3.2.2.3 21-Slot PCIe 4.0 Switch Board

Figure 3-13 shows the logical structure of a 21-slot PCIe 4.0 switch board.

Figure 3-13 Logical Structure of a 21-Slot PCIe 4.0 Switch Board



For the relationships between connectors and the slots on the 21-slot PCIe 4.0 switch board, refer to Table 3-8.

Table 3-8 Relationships Between Connectors and the Slots on the 21-Slot PCIe 4.0 Switch Board

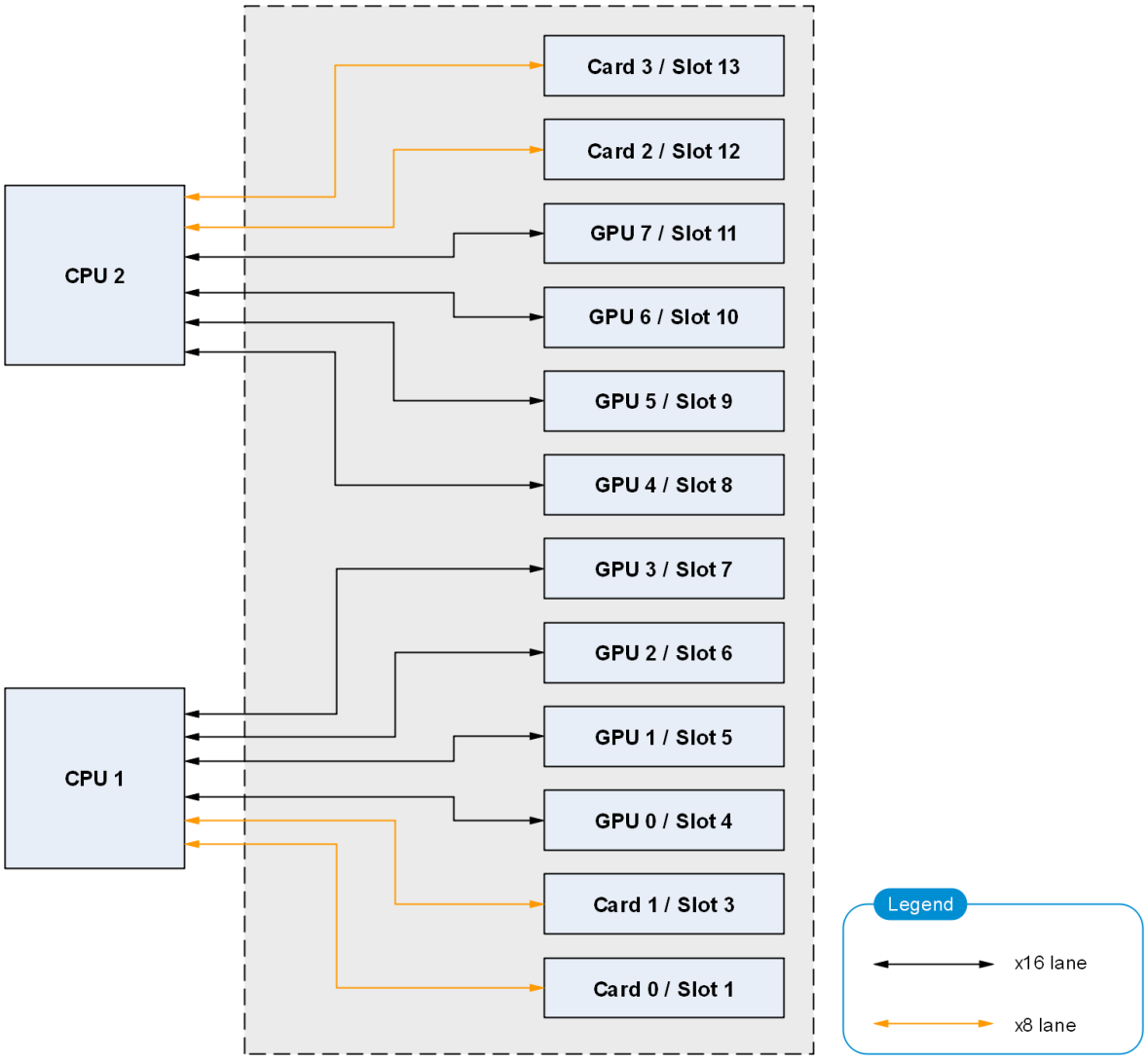
Slot ID	Connector Position ID on the Switch Board	Connector Position ID on the Mainboard
Slot 1	X73	X14
	X7	X48
Switch 0: Slot 2, Slot 4–Slot 7	X2	X42
	X4	X46
Switch 1:	X1	X41

Slot ID	Connector Position ID on the Switch Board	Connector Position ID on the Mainboard
Slot 3, Slot 8–Slot 11	X3	X44
Switch 2: Slot 12–Slot 15, Slot 20	X6	X70
	X8	X55
Switch 3: Slot 16–Slot 19, Slot 21	X9	X53
	X10	X54

3.2.2.4 12-Slot PCIe 5.0 Pass-Through Board

Figure 3-14 shows the logical structure of a 12-slot PCIe 5.0 pass-through board.

Figure 3-14 Logical Structure of a 12-Slot PCIe 5.0 Pass-Through Board



For the relationships between connectors and the slots on the 12-slot PCIe 5.0 pass-through board, refer to Table 3-9.

Table 3-9 Relationships Between Connectors and the Slots on the 12-Slot PCIe 5.0 Pass-Through Board

Slot ID	Connector Position ID on the Pass-Through Board	Connector Position ID on the Mainboard
Slot 1	X7	X14
	X5	X48
Slot 3	X6	X48
Slot 4	X8	X8
	X10	X47
Slot 5	X9	X42
	X11	X46
Slot 6	X14	X41
	X12	X44
Slot 7	X13	X56
	X15	X36
Slot 8	X17	X58
	X19	X28
Slot 9	X16	X70
	X18	X55
Slot 10	X20	X53
	X22	X54
Slot 11	X21	X13
	X23	X18
Slot 12	X25	X50
Slot 13	X24	X49
	X26	X50

Chapter 4
Software Functions

Table of Contents

4.1 BMC Software

The CPUs, bridge chips, EPLD, sensors and other components on the mainboard of the NCS6742G N4 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 implements IPMI 2.0 server management, KVM, and virtual media functions with the support of the Tulip platform, and provides external user interfaces.

The BMC chassis management software provides the following functions:

- Internally, the chassis management software manages, tracks, and controls the FRU modules in the chassis, and the public structures of the chassis, especially power supplies and heat dissipation devices.
- Externally, the chassis management software provides external IPMI, Redfish and SNMP interfaces and the web portal to manage and monitor the boards and modules.

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

Table 4-1 Descriptions of the Chassis Management Software Functions

Function	Description
Basic information viewing function	This function allows you to view the following information: ● Board name, product name, manufacturer, and asset label ● Production date, board serial number, and product serial number ● GUID ● Power-on/off status, and real-time power ● Boot mode ● Alarm status of the system
Real-time monitoring function	This function monitors the following information in real time: ● Sensor information ● CPU usage

Function	Description
	• Memory usage
Component information viewing function	This function allows you to view the following information: • Hard disk information • Memory information • CPU Information • Network interface information • Fan information
System configuration function	This function allows you to perform the following operations: • BMC network configuration • DNS configuration • Time configuration • Power and power supply control • Power-on strategy and power-on delay parameters • UID indicator • Boot mode • Resetting defaults
System management function	This function allows you to manage the following information: • Accounts, versions, and logs • SNMP, ACL rules, and ports
Button functions	The following buttons are available: • Board power-on • Board power-off
Reliability function	This function enables the BMC firmware redundancy and backup.
KVM	This function enables the support for KVM.
Alarm management function	This function manages alarms.
Performance management function	This function provides statistics on historical power consumption.

4.2 BIOS Software

Complying with the modern UEFI BIOS standard, the BIOS of the NCS6742G N4 server is responsible for initializing hardware, loading device drivers and leading the booting of bootable devices or 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
- Support for PCIe hot swapping

Chapter 5
Product Specifications

Table of Contents

5.1 Physical Specifications

For the physical specifications of the NCS6742G N4 server, refer to Table 5-1.

Table 5-1 Physical Specifications

Item	Description
Dimensions (Width x Height x Depth)	● 435 mm x 175 mm x 830 mm (lugs excluded) ● 482.6 mm x 175 mm x 830 mm (lugs included)
Weight	● The net weight is about 65.5 kg in full configuration. ● The gross weight is about 80 kg in full configuration with guide rails, accessories, and packaging.
Color	● Silver chassis ● 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. ● A clearance of 1200 mm and 800 mm is required for the front and rear doors respectively of the cabinet for heat dissipation and device maintenance.
Power consumption	≤ 6000 W

5.2 Technical Specifications

For the technical specifications of the NCS6742G N4 server, refer to Table 5-2.

Table 5-2 Technical Specifications

Item	Description
Height and type	4 U rack server

Item	Description
Chipset	Emmitsburg C741
CPU	The server supports a maximum of two Intel® Xeon® Scalable processors (Sapphire Rapids/Emerald Rapids), each of which has a maximum of 64 cores.
Memory	The server supports a maximum of 32 DDR5 DIMMs, each of which supports a rate of up to 5600 MT/s.
Storage	● The server supports twenty-five 2.5-inch SAS/SATA disks, including twelve 2.5-inch NVMe disks. ● The server supports twenty-four 2.5-inch SAS/SATA disks, including eight 2.5-inch NVMe disks. ● The server supports twenty-four 3.5-inch SAS/SATA disks, including eight 2.5-inch NVMe disks.
Network	The server provides an IPMI Gigabit Ethernet interface.
I/O expansion	The server supports a maximum of 13 PCIe slots.
Power supply	The server supports a maximum of four power modules. These power modules support "N+N" redundancy and hot swapping. The server supports 220 V AC power modules or 240 V DC power modules, providing 1300 W, 2000 W, 2700 W, or 3200 W power supply.
Interface	The server provides multiple interfaces: ● Interfaces on the front panel: ➔ One USB 3.0 interface ➔ One USB 2.0 interface ➔ One VGA interface ● Interfaces on the rear panel: ➔ One RJ45 IPMI management interface ➔ Two USB 3.0 interfaces ➔ One VGA interface ➔ One 3.5 mm audio serial interface
Video card	The server provides an integrated graphics card.
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.

5.3 Environmental Specifications

For the environmental specifications of the NCS6742G N4 server, refer to Table 5-3.

Table 5-3 Environmental Specifications

Item	Description
Temperature	● Operating temperature: 5 ºC through 35 ºC (Meets the ASHRAE Class A2 requirements) ● Storage temperature: -40 ºC through +70 ºC ● Maximum temperature change rate: 20 ºC/h The limit on the operating temperature of servers with different configurations varies. 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 decreases by 1 °C per 300 m when the altitude is above 900 m, and hard disk drive configuration is not supported when the altitude is above 3000 m.
Corrosive gas contaminants	Meets the requirements of the airborne corrosion level G1 defined in ANSI/ISA-71.04-2013. The maximum thickness growth rate of corrosive airborne contaminants should be as follows: ● Copper coupon: 300 Å/month ● Silver coupon: 200 Å/month
Particulate pollutants	● Meets the requirements of the data center cleaning standard ISO 14644-1 Class 8. ● 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)
Horizontal layout (24 hard disks)	The A40 GPU is not supported.	Stacking is not supported.	Not supported
Vertical layout (8/16/24/25 hard disks)	All configurations are supported.	The A40 GPU is not supported.	The following configurations are not supported: ● A10/A40 GPU ● CPU with the TDP greater than 270 W

1. When a fan fails, the operating temperature supported is reduced by 5°C. In this case, the GPU performance may be degraded.
2. To ensure drive availability, the storage duration of a hard disk drive cannot exceed six months before use.

5.4 Reliability Specifications

For the reliability specifications of the NCS6742G N4 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 NCS6742G N4 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, we 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: +86-755-26771900
- Address: NETAŞ Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, P.R.China

Glossary

AC

- Alternating Current

ACL

- Access Control List

ACPI

- Advanced Configuration and Power Interface

AI

- Artificial Intelligence

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

DC

- Direct Current

DDR

- Double Data Rate

DIMM

- Dual Inline Memory Module

DNS

- Domain Name System

ECC

- Error Check and Correction

EPLD

- Erasable Programmable Logic Device

ETL

- Electrical Testing Laboratories

FRU

- Field Replaceable Unit

GPU

- Graphics Processing Unit

GUID

- Globally Unique Identifier

HVDC

- High-Voltage Direct Current

I/O

- Input/Output

IEC

- International Electrotechnical Commission

IPMI

- Intelligent Platform Management Interface

iSAC

- Integrated Server Administrator Controller

IT

- Information Technology

KVM

- Keyboard, Video and Mouse

LVDC

- Low-Voltage Direct Current

MTBF

- Mean Time Between Failures

MTTR

- Mean Time To Recovery

NIC

- Network Interface Card

NVMe

- Non-Volatile Memory Express

OCP

- Open Computer Project

PC

- Personal Computer

PCH

- Platform Controller Hub

PCIe

- Peripheral Component Interconnect Express

RAID

- Redundant Array of Independent Disks

RMCP

- Remote Management Control Protocol

SAS

- Serial Attached SCSI

SATA

- Serial ATA

SEL

- System Event Log

SMBIOS

- System Management BIOS

SNMP

- Simple Network Management Protocol

SSD

- Solid State Drive

TPM

- Trusted Platform Module

UEFI

- Unified Extensible Firmware Interface

UID

- Unit Identification Light

UPI

- Ultra Path Interconnect

USB

- Universal Serial Bus

VGA

- Video Graphic Adapter