NETAŞ NCS6722A N4

Rack Server

Product Description

Version: R1.0

LEGAL INFORMATION

Revision History

Revision No.	Revision Date	Revision Reason
R1.0	2023-12-27	First edition.

Serial Number: SJ-20231205160658-001

Publishing Date: 2023-12-27 (R1.0)

Contents

About This Manual

Purpose

This manual describes the R5350 G5 rack server, including its role, characteristics, structure, software functions, product specifications, environmental requirements, and compliant standards, helping you to fully learn about the R5350 G5 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 and characteristics of the R5350 G5 server.
Chapter 2, External Views	Describes the front panel and rear panel of the R5350 G5 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 R5350 G5 server.
Chapter 4, Software Functions	Describes the software functions of the R5350 G5 server.
Chapter 5, Product Specifications	Describes the product specifications of the R5350 G5 server, including the physical, technical, environmental and reliability specifications.

Chapter 6, Compliant Standards	Describes the standards that the design of the R5350 G5 server complies with.
Chapter 7, Product Recycling	Describes how to contact NETAŞ for the recycling of R5350 G5-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

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1.1 Product Role

The R5350 G5 server is an enterprise-class general purpose rack server. It is developed by NETAŞ based on AMD's new generation EPYC Genoa SP5 processors. With a high-density, modular, and compact design, the R5350 G5 server is characterized by high performance, high reliability, easy expandability, and easy management. It 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 R5350 G5 server.

Figure 1-1 External View of the R5350 G5 Server

![CAUTION icon] **CAUTION**

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

 Notice

 : For security purposes, this product is only applicable to the areas with an altitude equal to or lower than 3000 m.

1.2 Product Characteristics

High Density and High Performance

- Up to two AMD EPYC Genoa SP5 processors are supported. Each processor has a maximum of 96 cores.
- One CPU is integrated with a maximum of 128 PCIe 5.0 lanes.
- Twenty-four DDR5 DIMM slots are provided. The maximum rate of a DIMM can reach 4800 MT/s.
- High-speed I/O interfaces and high-performance NVMe SSDs are supported.

High Expandability and High Bandwidth

- A maximum of thirty-three 2.5-inch hard disk slots, or sixteen 3.5-inch hard disk slots plus four 2.5-inch hard disk slots are provided to meet the requirements for large-capacity storage.
- A maximum of twenty-eight NVMe SSDs are supported and high-speed I/O interfaces are provided to make disk access faster.
- Multiple storage combinations and RAID card configuration options are supported, and local storage can be configured flexibly in accordance with service requirements.
- Multiple mainboard options are available to meet different configuration needs.
- The total number of PCIe slots can be increased to ten to meet the requirements for flexible expansion of the network and storage.
- Two OCP NIC 3.0 cards are supported. Multi-host OCP NICs can be selected as options.
- A maximum of four 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 can be deployed in 1+1 redundancy mode.
- TPM and TCM are supported.
- Intrusion detection is supported.

Convenient Management and Easy Maintenance

- Out-of-band management is supported for centralized management and monitoring of resources such as CPUs, memory modules, hard disks, fans, power modules, and NICs.
- The KVM function allows the administrator to redirect local virtual media to a remote server to upgrade software or install and maintain an operating system for the remote 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. It provides the RMCP and SNMP interfaces, which can be used to integrate with a third-party management system to provide local management tools, including:

  → Error analysis and recovery → System diagnosis, system configuration, device management, and user management → Network 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 power supply efficiency is up to 94%, and power capping is supported.
- High-voltage and low-voltage DC technologies are supported, improving energy utilization.
- Lead-free design is used, helping protect the environment.

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 R5350 G5 server supports the following configurations:

- Horizontal layout (12 hard disks)

  The front panel provides twelve 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 Twelve 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
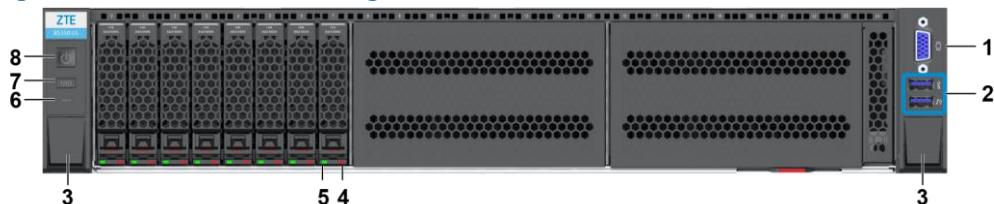
- Vertical layout (16 hard disks)

  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.

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. |

Figure 2-4 Front Panel with Twenty-Four Vertical Disk Slots
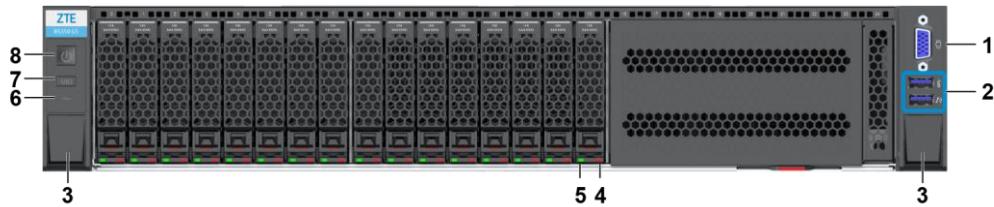

- Vertical layout (25 hard disks)

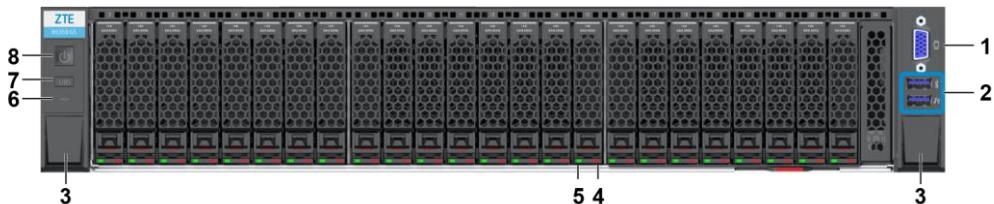 The front panel provides twenty-five 2.5-inch SAS/SATA disk slots that support NVMe SSDs, as shown in Figure 2-5.

Figure 2-5 Front Panel with Twenty-Five Vertical Disk Slots
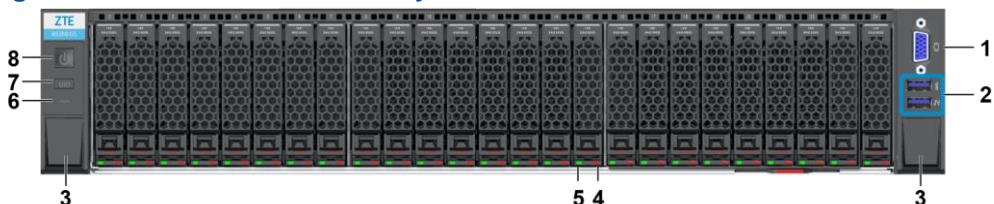
For a description of the interfaces and indicators on the front panel of the R5350 G5 server, refer to Table 2-1.

Table 2-1 Front Panel Descriptions

No.	Name	Description
4	Hard disk status indicator	This indicator can be in the following states: • 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.
5	Hard disk activity indicator	This indicator can be in the following states: • 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). • Steady green: The hard disk is present but inactive.

No.	Name	Description
6	Health status indicator	This indicator can be in the following states: ● 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 states: ● Steady blue: The server is being positioned. It can be controlled through the UID button or the BMC Web interface. ● Flashing blue at 1 Hz: The server is being remotely accessed through KVM, Web, or SSH. It can be controlled through the BMC Web interface. ● 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: ● Press and hold the button for less than 4 seconds: Performs server positioning or cancel the current function (cancel positioning or the BMC debugging status of the serial interface). ● Press and hold the button for 4 through 10 seconds: Switch the serial interface on the rear panel to BMC debugging status. ● Press and hold the button for 10 seconds: Reset the BMC. ● Press and hold the button for 4 through 10 seconds and then press and hold for 10 seconds: Reset the BMC and keep the serial interface on the rear panel in BMC debugging status.

8	Power button/indicator	The button is also used as an indicator. This indicator can be in the following states:
		● Yellow on and green off: The server is powered on in standby mode (the host is not powered on).
		● Yellow off and green on: The server is powered on in payload mode (the host is powered on).
		● Yellow off and flashing green at 1 Hz: The system is in sleep mode.
		● Green off and flashing yellow at 1 Hz: The system is in hibernation mode.
		● Yellow off and green off: The server is not powered on or the power module is not operating properly.
		You can press the power button to power on the server. The power button supports the following operations:
		● Press and hold the button for less than 4 seconds: Power on/off the server.
		● Press and hold the button for 4 or more seconds: Shut down the server forcibly.

2.2 Rear Panel

The I/O modules on the rear panel of the R5350 G5 server can be configured in the following modes as required:

- All are configured as PCIe 5.0 expansion slots, as shown in Figure 2-6.
- All are configured as hard disk expansion slots, as shown in Figure 2-7.
- Some are configured as PCIe 5.0 expansion slots and the others are configured as hard disk expansion slots.

Figure 2-6 Rear Panel with PCIe Slots Only
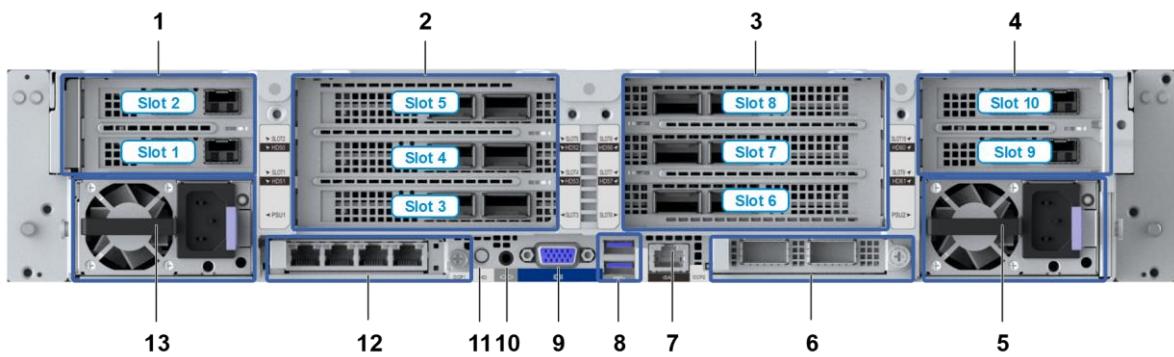
Note

Slot 1 through Slot 10 in Figure 2-6 indicate the rear PCIe slot numbers.

Figure 2-7 Rear Panel with Hard Disk Slots Only
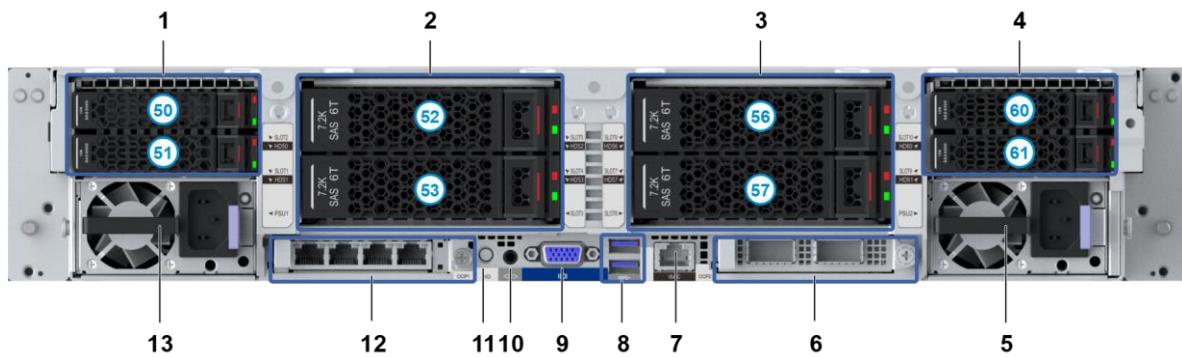
Note

Numbers 50–53, 56, 57, 60, and 61 in Figure 2-7 indicate the rear hard disk slot numbers.

For a description of the components on the real panel of the R5350 G5 server, refer to Table 2-2.

Table 2-2 Rear Panel Descriptions

No.	Name	Description
1	I/O module 1	I/O module 1 supports any of the following configurations: ● Two half-height half-length PCIe 5.0 x8 standard cards. One of the slots can be used as a PCIe 5.0 x16 slot. ● Two 2.5-inch SAS/SATA/NVMe hard disks. ● One M.2 adapter that supports two M.2 SAS/SATA hard disks.
2	I/O module 2	I/O module 2 supports any of the following configurations: ● One full-height full-length PCIe 5.0 x16 standard card, and one fullheight full-length PCIe 5.0 x8 standard card and one full-height halflength PCIe 5.0 x8 standard card. ● One full-height full-length PCIe 5.0 x16 standard card and one fullheight half-length PCIe 5.0 x16 standard card. ● Two 3.5/2.5-inch SAS/SATA/NVMe hard disks.
3	I/O module 3	I/O module 3 supports any of the following configurations: ● One full-height full-length PCIe 5.0 x16 standard card, and one fullheight full-length PCIe 5.0 x8 standard card and one full-height halflength PCIe 5.0 x8 standard card. ● One full-height full-length PCIe 5.0 x16 standard card and one fullheight half-length PCIe 5.0 x16 standard card. ● Two 3.5/2.5-inch SAS/SATA/NVMe hard disks.

| 4 | I/O module 4 | I/O module 4 supports any of the following configurations:
• Two half-height half-length PCIe 5.0 x8 standard cards. One of the slots can be used as a PCIe 5.0 x16 slot.
• Two 2.5-inch SAS/SATA/NVMe hard disks. |

No.	Name	Description
		• One M.2 adapter that supports two M.2 SAS/SATA hard disks.
5	Power module 2	• 550 W, 800 W, 1200 W, 1600 W, 2000 W, and 2600 W power modules are supported. • 80 PLUS platinum and titanium power modules are supported. • 100 V–127 V and 200 V–240 V (50 Hz to 60 Hz) AC power inputs are supported. • 240 V and 336 V high-voltage DC power inputs are supported. • The –48 V low-voltage DC power input is supported. • The server supports 1+1 redundancy for power modules. • Power modules support hot swapping.
6	OCP card 2	Various OCP NIC 3.0 cards (GE/10GE/25GE/100GE) can be installed in the OCP card slot.
7	iSAC management interface	The 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.
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 booting the system).
9	VGA interface	Used to connect to a display.
10	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.

11	UID button/indicator	The button is also used as an indicator. This indicator can be in the following states:
		• Steady blue: The server is being positioned. It can be controlled through the UID button or the BMC Web interface.
		• Flashing blue at 1 Hz: The server is being remotely accessed through KVM, Web, or SSH. It can be controlled through the BMC Web interface.
		• 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:
		• Press and hold for less than 4 seconds: Perform server positioning or cancel the current function (cancel positioning or the BMC debugging status of the serial port).

No.	Name	Description
		• Press and hold for 4 through 10 seconds: Switch the serial interface on the rear panel to BMC debugging status.
		• Press and hold for 10 seconds: Reset the BMC.
		• Press and hold for 4 through 10 seconds and then press and hold for 10 seconds: Reset the BMC and keep the serial interface on the rear panel in BMC debugging status.
12	OCP card 1	Various OCP NIC 3.0 cards (GE/10GE/25GE/100GE) can be installed in the OCP card slot.
13	Power module 1	• 550 W, 800 W, 1200 W, 1600 W, 2000 W, and 2600 W power modules are supported.
		• 80 PLUS platinum and titanium power modules are supported.
		• 100 V–127 V and 200 V–240 V (50 Hz to 60 Hz) AC power inputs are supported.
		• 240 V and 336 V high-voltage DC power inputs are supported.
		• The –48 V low-voltage DC power input is supported.
		• The server supports 1+1 redundancy for power modules.
		• Power modules support hot swapping.

Chapter 3
Product Structure

3.1 Physical Structure

Figure 3-1 shows the internal components of the R5350 G5 server.
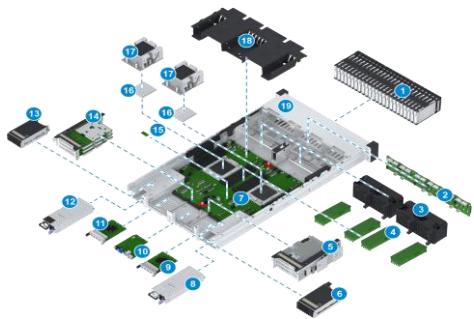
Figure 3-1 Internal Layout

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

No.	Component	No.	Component
3	Fan unit	4	Memory module
5	I/O module 3	6	I/O module 4
7	Mainboard	8	Power module 2
9	OCP card 2	10	I/O card
11	OCP card 1	12	Power module 1
13	I/O module 1	14	I/O module 2
15	TPM card	16	CPU
17	Heat sink	18	Air baffle
19	Chassis	20	-

3.2 Logical Structure

Figure 3-2 shows the logical structure of the R5350 G5 server.

Module	Description
CPU	Used for processing information and running programs as the calculation and control core of the server. The R5350 G5 server supports a maximum of two AMD EPYC Genoa SP5 CPUs. The two CPUs exchange data through XGMI links, and the maximum rate of each XGMI link can reach 32 GT/s.

Figure 3-2 Logical Structure

DDR5	
	Used for storing computational data in the CPUs and the data exchanged with external storage devices such as hard disks. The R5350 G5 server provides twenty-four DDR5 DIMM slots.
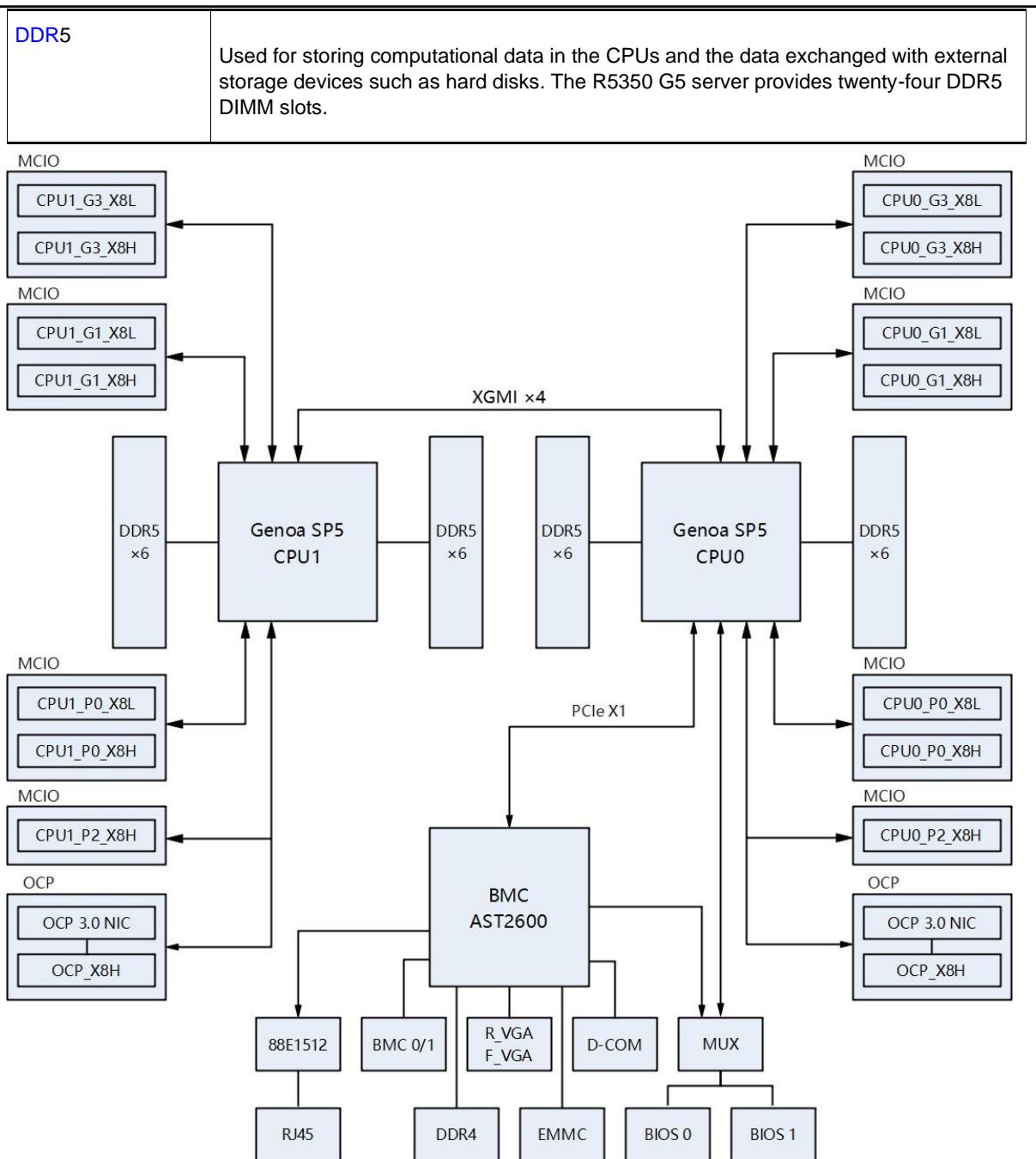
For a description of the modules of the R5350 G5 server, refer to Table 3-1.

Table 3-1 Module Descriptions

Module	Description
OCP	NIC that meets the OCP design specification and can be used for expanding the network capacity of the server. The R5350 G5 server supports various OCP NIC 3.0 cards.

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.
88E1512	Onboard NIC that provides a GE electrical interface.
VGA	VGA interface, which is used for connecting to an external display.
COM	Serial interface module of the server, providing a serial interface for server commissioning.

Chapter 4
Software Functions

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4.1 BMC Software

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 ● Memory usage

The CPUs, EPLDs, sensors and other components on the mainboard of the R5350 G5 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
	● Disk 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: ● Account, version and logs ● IPMI, SNMP, Redfish, ACL rules, and ports ● Https certificate
Button functions	The following buttons are available: ● Board power-on ● Board power-off ● Restart
Reliability function	This function enables the BMC firmware redundancy and backup.
KVM function	This function enables the support for KVM. This function provides HTML5 clients and Java clients.
Alarm management function	This function manages alarms.
Performance management function	This function provides statistics on historical power consumption.
Diagnosis and maintenance functions	The following functions are supported: the last screen function, the one-click data export function, the configuration backup function, and the factory default configuration restoration function.

4 Software Functions

4.2 BIOS Software

Complying with the modern UEFI BIOS standard, the BIOS of the R5350 G5 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

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5.1 Physical Specifications

For the physical specifications of the R5350 G5 server, refer to Table 5-1.

Item	Description
Height and type	2U rack server

CPU	A maximum of two AMD EPYC Genoa SP5 processors are supported. Each processor has a maximum of 96 cores.

Table 5-1 Physical Specifications

Item	Description
Dimensions (Width x Height x Depth)	● 432 mm x 87.6 mm x 780 mm (lugs excluded) ● 482.6 mm x 87.6 mm x 780 mm (lugs included)
Weight	≤ 40 kg (full configuration without rails)
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 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 R5350 G5 server, refer to Table 5-2.

Table 5-2 Technical Specifications

Item	Description
Memory	The server supports a maximum of 24 DDR5 DIMM modules, with a rate of up to 4800 MT/s per module.
Interconnection bus	The server provides four XGMI links. The maximum rate of each link can reach 32 GT/s.

Item	Description
Storage	- Front hard disks: → Eight 2.5-inch hard disk slots, supporting both SAS/SATA disks and NVMe SSDs. The hard disks support hot swapping. → Sixteen 2.5-inch hard disk slots, supporting both SAS/SATA disks and NVMe SSDs. The hard disks support hot swapping. → Twenty-four 2.5-inch hard disk slots, supporting both SAS/SATA disks and NVMe SSDs. The hard disks support hot swapping. → Twenty-five 2.5-inch hard disk slots. All slots support SAS/SATA disks, and eight of the slots support NVMe SSDs. The hard disks support hot swapping. → Twelve 3.5-inch hard disk slots, supporting both SAS/SATA disks and NVMe SSDs. The hard disks support hot swapping. - Rear hard disks (optional): → Four 2.5-inch hard disk slots, supporting both SAS/SATA disks and NVMe SSDs. The hard disks support hot swapping. → Four 3.5-inch hard disk slots (compatible with 2.5-inch hard disks), supporting both SAS/SATA disks and NVMe SSDs. The hard disks support hot swapping.
Network	- The server provides one IPMI gigabit Ethernet interface. - The server supports two optional OCP NIC 3.0 cards, which can be multi-host NICs.
I/O expansion	- A maximum of ten standard PCIe 5.0 slots. - Two OCP-dedicated slots.
Power module	550 W, 800 W, 1200 W, 1600 W, 2000 W, and 2600 W power modules are supported. 80 PLUS platinum and titanium power modules are supported. 100–127 V or 200–240 V (50 Hz to 60 Hz) AC power inputs are supported. 240 V and 336 V high-voltage DC power inputs are supported. - The –48 V low-voltage DC power input is supported. - The server supports 1+1 redundancy for power modules. - Power modules support hot swapping.
Interface	The server provides multiple interfaces: Interfaces on the front panel: → One USB 2.0 interface → One USB 3.0 interface

Item	Description

	→ One VGA interface ● Interfaces on the rear panel: → Two USB 3.0 interfaces → One iSAC management interface → One VGA interface → Two OCP card interfaces → One 3.5 mm audio serial interface ● Internal interfaces: One USB 3.0 interface
Video card	The server has 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 R5350 G5 server, refer to Table 5-3.

Table 5-3 Environmental Specifications

Item	Description
Temperature	● Operating temperature: 5°C through 35°C ● Storage temperature: –40°C through +65°C ● Maximum temperature change rate: 20°C/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 ● 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.
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	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: ● Rear hard disks such as HDD , SSD, NVMe SSD and M.2 ● Rear OCP card with the capacity of 100GB or above ● Memory module: 128 GB or above	The following configurations are not supported: ● CPU with a TDP of over 250 W ● Rear FPGA card and OCP card ● Front HDD and NVMe SSD ● Rear hard disks such as HDD, SSD, NVMe SSD and M.2 ● Memory module: 128 GB or above
	Vertical layout (16 hard disks)	All configurations are supported.	All configurations are supported.	The following configurations are not supported: ● Rear hard disks such as HDD, SSD, NVMe SSD and M.2 ● Rear FPGA card, and OCP card with the capacity of 100GB or above ● Memory module: 128 GB or above ● Device stacking	The following configurations are not supported: ● Device stacking ● CPU with a TDP of over 225 W ● Rear FPGA card and OCP card ● Front HDD and NVMe SSD ● Rear hard disks such as HDD, SSD, NVMe SSD and M.2 ● Memory module: 128 GB or above
	Vertical layout (24/25 hard disks)	All configurations are supported.	All configurations are supported.	The following configurations are not supported: ● CPU with a TDP of over 350 W ● Rear hard disks such as HDD,	Not supported

NETAŞ R5350 G5 Product Description

Model		Maximum Operating Temperature 30°C	Maximum Operating Temperature 35°C	Maximum Operating Temperature 40°C	Maximum Operating Temperature 45°C
				SSD, NVMe SSD and M.2 ● Rear FPGA card, and OCP card with the capacity of 100GB or above ● Memory module: 128 GB or above ● Device stacking	
	Horizontal layout (12 hard disks)	All configurations are supported.	All configurations are supported.	The following configurations are not supported: ● CPU with a TDP of over 350 W ● Front NVMe SSD ● Rear hard disks such as HDD, SSD, NVMe SSD and M.2 ● Rear FPGA card, and OCP card with the capacity of 100GB or above ● Memory module: 128 GB or above ● Device stacking	Not supported
GPU model	Vertical layout (8 hard disks)	All configurations are supported.	Three or more double-width GPUs, such as A100 and A40 GPUs, are not supported.	Not supported	Not supported.

		Maximum Operating Temperature 30°C	Maximum Operating Temperature 35°C	Maximum Operating Temperature 40°C	Maximum Operating Temperature 45°C
	Horizontal layout (12 hard disks)	The following configurations are not supported: ● A100, A10 and A40 GPUs when	The following configurations are not supported: ● A10 GPU	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**
		devices are stacked. ● Three or more GPUs ● CPU with a TDP of over 250 W	● T4, A100, and A40 GPUs when devices are stacked. ● Three or more GPUs		

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 server of the GPU model. A server of the general model does not support GPUs. For the supported models of GPUs, contact NETAŞ technical support.

3. When a server with rear mechanical hard disks is installed in stacking mode, you must enable performance mode for the fans of the server.

4. 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.

5. The above data applies to only general CPU models. To customize a CPU for the server, you can contact NETAŞ technical support.

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

5.4 Reliability Specifications

For the reliability specification descriptions of the R5350 G5 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 R5350 G5 complies with, refer to Table 6-1.

Table 6-1 Compliant Standards

Standard Name	Standard Number
CE Certification	EN 60950-1/EN 62368-1
	EN 300 386 V2.1.1
	IEC 62321:2008
	EN IEC 63000:2018
CCC Certification	GB 4943.1-2011
	GB/T 9254.1-2021
	GB 17625.1-2012
FCC Certification	FCC 47 CFR part15, subpart B
ISO Certification	ISO 9001:2015
	ISO 14001 2004 + Cor.1 2009
	ISO 27001 2013

Chapter 7
Product Recycling

In accordance with relevant laws and regulations, NETAŞ Corporation can recycle the electronic information products that it has produced and sold.

If necessary, contact the local NETAŞ office for product recycling.

Contact information:

● Headquarters tel: +86 755-26771900

● For local office phone numbers, please visit www.NETAŞ.com.cn.

Address:

● Headquarters address: NETAŞ Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, P.R.China

● For local office addresses, please visit www.NETAŞ.com.cn.

Glossary

AC

- Alternating Current

ACL

- Access Control List

ACPI

- Advanced Configuration and Power Interface

ARM

- Advanced RISC Machines

BIOS

- Basic Input/Output System

BMC

- Baseboard Management Controller

CCC

- China Compulsory Certificate

CE

- CONFORMITE EUROPENDE

CFR

- Code of Federal Regulations

CGSL

- Carrier Grade Server Linux

COM

- Component Object Model

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

FCC

- Federal Communication Commission

FPGA

- Field Programmable Gate Array

FRU

- Field Replaceable Unit

GPU

- Graphics Processing Unit

GUID

- Globally Unique Identifier

HDD

- Hard Disk Drive

HTML

- HyperText Markup Language

I/O

- Input/Output

IEC

- International Electrotechnical Commission

IPMI

- Intelligent Platform Management Interface

ISO

- International Organization for Standardization

IT

- Information Technology

KVM

- Keyboard, Video and Mouse

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

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

SSH

- Secure Shell

TCM

- Trusted Cryptography Module

TPM

- Trusted Platform Module

UEFI

- Unified Extensible Firmware Interface

UID

- Unit Identification Light

USB

- Universal Serial Bus

VGA

- Video Graphic Adapter

XGMI

- Socket to Socket Global Memory Interface

NETAŞ

- Zhongxing Telecommunications

Equipment**iSAC**

- Integrated Server Administrator Controller