Lenovo Storage N4610
Lenovo Press Product Guide

With the introduction of the Lenovo® Storage N4610 offering, clients can now get an optimized unified storage solution that precisely matches their specific needs. Built on proven Lenovo ThinkServer® platform and preinstalled with Microsoft® Windows® Storage Server 2012 R2, the N4610 delivers enterprise-class storage management technology in an affordable and reliable all-in-one, 2U rack-mount solution. It is a great choice for your business, regardless of whether you are a first-time user of network-attached storage (NAS) or you are deploying advanced storage solutions.

The following figure shows the Lenovo Storage N4610.

Figure 1. Lenovo Storage N4610

Did you know?

The N4610, which is a unified storage platform that is based on ThinkServer and Windows Storage Server 2012 R2 innovations, offers the flexible choice of storage protocols (iSCSI, SMB, CIFS, and NFS) and can provide required performance levels for the most demanding server applications while significantly lowering deployment and support costs.

The N4610 features up to 72 TB of internal storage capacity (raw) in a dense 2U rack form-factor, a Lenovo AnyRAID™ advanced RAID controller, Lenovo AnyFabric™ 4x Gigabit Ethernet (1 GbE,) or 2x 10 Gigabit Ethernet (10 GbE) network ports (model-dependent). More network connectivity options also are available (2-port and 4-port 1 GbE with RJ-45 connectors and 2-port 10 GbE with SFP+ or RJ-45 connectors) and I/O scalability with up to eight PCIe 3.0 slots.

The N4610 can be scaled up to 372.8 TB of storage with the optional Lenovo ThinkServer SA120 Storage Enclosure units (up to four units are supported).

Unlike Windows Server 2012 R2, Windows Storage Server 2012 R2 does not require client access licenses and provides a virtually unlimited number of supported clients for storage sharing purposes.

Windows Storage Server 2012 R2 provides flexible support for Microsoft and ISV anti-virus and backup applications.

Key features

The N4610 offers storage-rich capabilities with internal storage and external scale-up storage expansion. It can perform file serving tasks hosting SMB and NFS file shares for Windows, Linux, and Mac based clients, SMB file shares for server applications (SQL over SMB and Hyper-V over SMB), and iSCSI storage targets for the server applications that require block I/O. Client and server applications can use cost-efficient Ethernet LAN infrastructure (Gigabit Ethernet, 10 GbE, or mixed).

Data Deduplication service can be enabled on the N4610 to allow the most efficient use of the storage space (especially for software distribution packages, image repositories, and archives because they often are characterized by high data redundancy and infrequent changes). Optionally, if the storage server is at the central office and is a part of the distributed environment, more services (such as DFS replication) can be enabled to synchronize the content between the central and remote locations for the purpose of centralized backup operations (from the remote to the central location) and software delivery (from the central to the remote location).

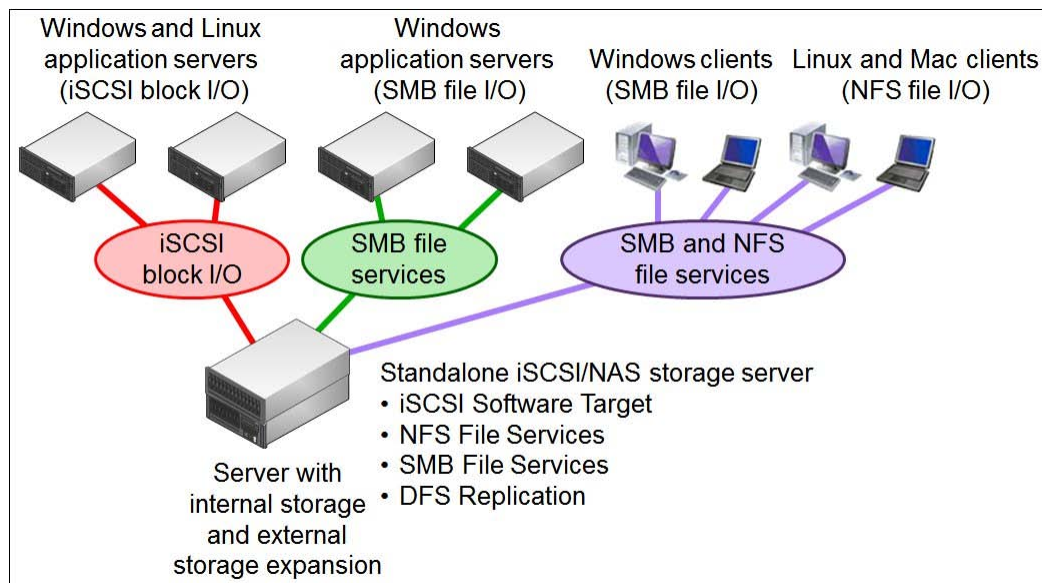The following figure shows an N4610 unified storage server solution.

Figure 2. N4610 unified storage server solution

With enhanced storage manageability features, the N4610 reduces the time spent on IT administration, helping your business to perform the following tasks:

- Consolidate file-sharing resources on Windows Storage Server even in mixed, heterogeneous computing environments
- Speed access to data across your entire network infrastructure, while improving control of files and compliance via a single management interface
- Make the most of simplicity, ease of use, and low-cost scalability to use your organization's current IT skills to efficiently support a growing user base

The N4610 that is running Windows Storage Server 2012 R2 includes the following key features and benefits:

- An affordable and reliable unified network-attached and block-level storage solution with the following features:
  - Reliable storage servers that are built on the proven Lenovo ThinkServer hardware platform.
  - Drive trays that are common with ThinkServer servers.
  - A common set of ThinkServer memory, storage, and network connectivity options.
  - Advanced hardware-based RAID configurations for protecting critical data.
- A dedicated and optimized file and print server. Windows Storage Server 2012 R2 has all function unrelated to file serving removed (while keeping essential infrastructure services for easier deployments), which helps increase reliability and lower the overhead on the server's processor.
- Flexible installation and deployment:
  - Flexible configuration options enable clients to finely tune their storage server hardware to meet cost and performance needs.
  - The storage servers can be configured remotely via Windows Server Manager, which makes them ideal for branch office, department, and store deployments.
- Easy integration into your existing IT infrastructures:
  - Integrates easily into Active Directory environments.
  - You can use your existing backup tools and antivirus software on Windows Storage Server to protect your investments.
  - Files can be shared across heterogeneous file system environments and different operating system platforms through the integration of SMB and NFS protocols.
  - Compatible with existing Ethernet infrastructure.
- Easy to use and manage:
  - Factory-integrated, pre-configured, and delivered to the clients with Microsoft Windows Storage Server 2012 R2 preinstalled.
  - All storage tools are integrated into a single interface of Windows Server Manager.
  - Centralized administration and unified user experience in managing stand-alone storage servers.
- Lower total cost of ownership (TCO):
  - Lenovo storage servers are a cost-effective storage consolidation solution in a network environment and enable centralization of storage and storage management.
  - No extra licenses are required for users, which can help to significantly reduce Client Access License costs.
- Fast data recovery:
  - Built-in data "Snapshot" technology. Volume Shadow Copy Services (VSS) provides enhanced data protection through high-fidelity backups, rapid data restores, and data transport.
  - By using the VSS for Server Message Block (SMB) File Shares feature, deleted or corrupted files can be restored within minutes, instead of hours.

The N4610 uses Windows Storage Server 2012 R2 operating system is based on Windows Server 2012 R2 core technologies and is optimized for providing block- and file-level storage services to the users and server applications. The following components and capabilities are included in Windows Storage Server 2012 R2:

- Storage protocols:

  - iSCSI Software Target offers low-cost shared storage for applications that require block-level access to it.

  - SMB File Services provide network shares for the Windows-based user and server application environments:
    - Microsoft SQL Server supports placement of log and data files onto an SMB network share (SQL over SMB).
    - Microsoft Hyper-V supports placement of virtual machine files onto an SMB network share (Hyper-V over SMB).

  - Network File System (NFS) File Services provide network shares for the Linux- or Mac-based user or Linux-based server application environments. VMware vSphere virtual machine files can be placed onto an NFS network share.

- Availability and performance:

  - Microsoft iSCSI Software Target supports Multipath I/O (MPIO) which allows iSCSI clients to use multiple network paths to a storage server for high availability, fault tolerance, and load balancing purposes.

  - SMB Multichannel allows the use of multiple redundant network paths between application server SMB clients and SMB file shares that are hosted on Windows Storage Servers for better throughput while maintaining network availability.

  - Vendor-independent network teaming allows combining of multiple network interfaces into a single fault-tolerant or load-balancing group for better performance and availability.

  - NTFS in Windows Server 2012 R2 improves availability by performing online corruption scanning, the use of self-healing techniques, and reducing file system repair times.

- Data management:

  - Data Deduplication can help to significantly improve the efficiency of storage space usage.

  - Volume Shadow Copy Service (VSS) for SMB file shares allows backup operations by using the snapshots of remote file shares that are supporting SMB-based server applications (for example, SQL over SMB).

  - DFS Replication provides synchronization capabilities across limited bandwidth network connections in the distributed environments.

  - Microsoft BranchCache® optimizes the use of WAN links by caching the remote data locally based on predefined policies.

Locations of key components and connectors

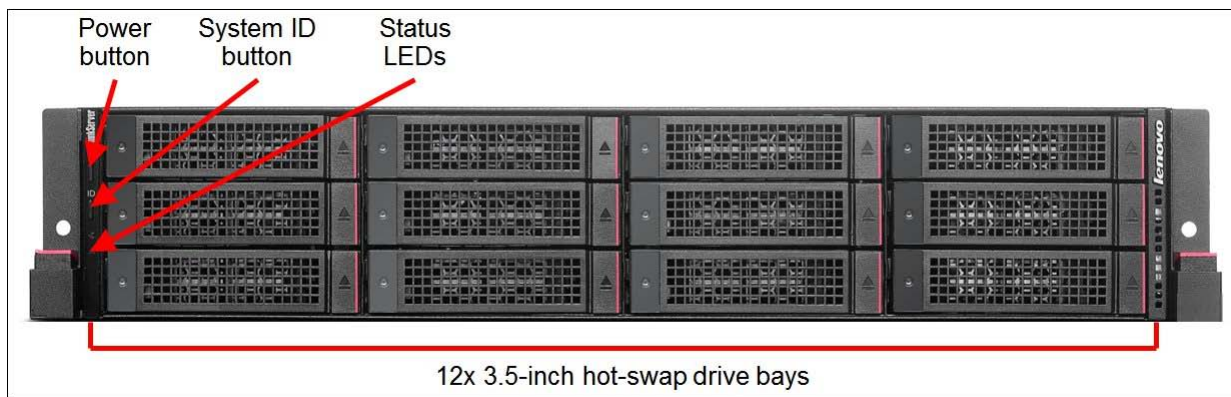The following figure shows the front of the N4610 storage server.

Figure 3. Front view of the N4610

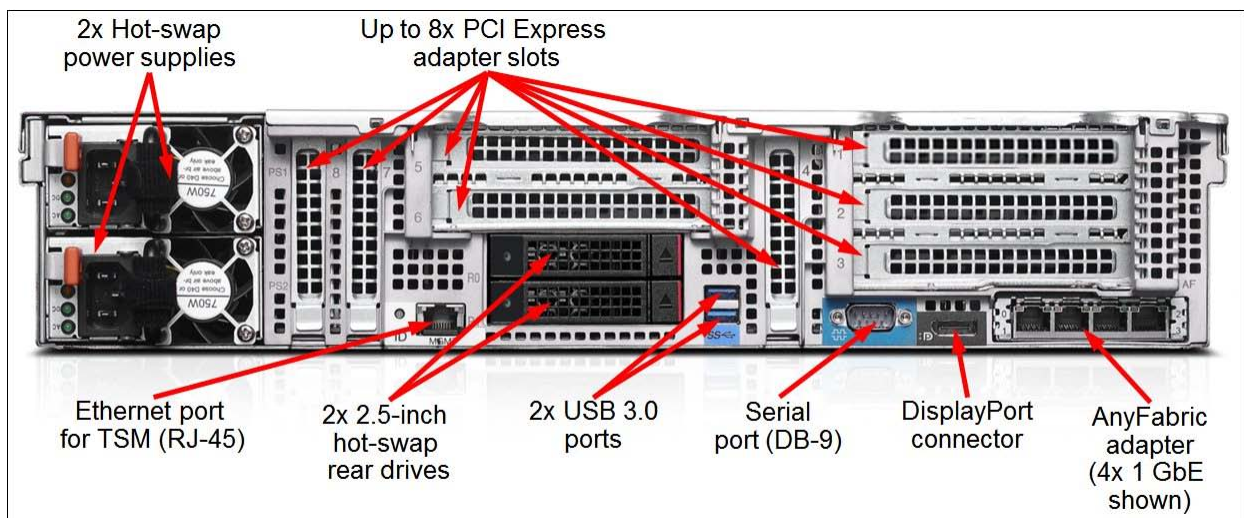The following figure shows the rear of the N4610 storage server.

Figure 4. Rear view of the N4610

The following figure shows the locations of key components inside the N4610 storage server.
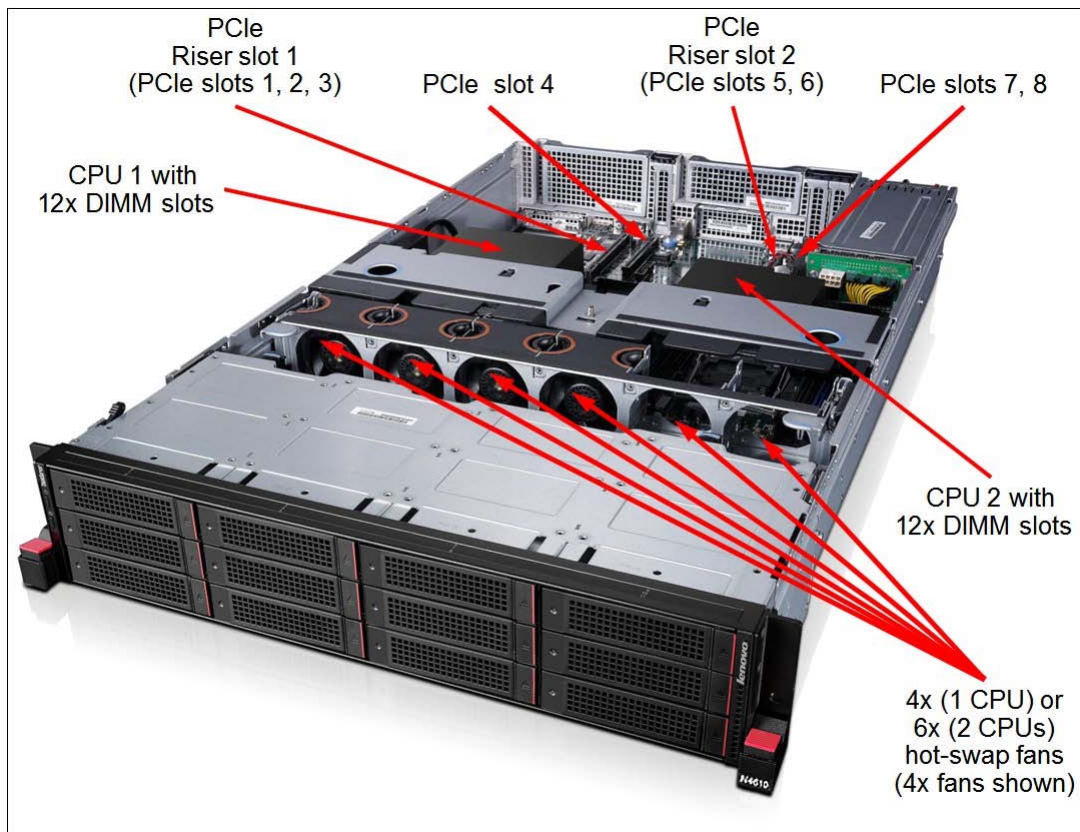
Figure 5. Inside view of the N4610

Standard specifications

The following table lists the N4610 standard specifications.

Table 1. Standard specifications (Part 1)

Components	Specification
Form factor	2U Rack.
Processor	Intel Xeon processor E5-2603 v3 (6 cores, 1.6 GHz core speed, 15 MB last level cache, 1600 MHz memory speed, 85 W thermal design power, 2x 6.4 GT/s QPI links). Up to two processors.
Chipset	Intel C610 Series.
Memory	Up to 24 DIMM sockets (12 DIMMs per processor). Only RDIMMs are supported.
Memory maximums	Up to 192 GB with 24x 8 GB RDIMMs and two processors.
Memory protection	ECC, Lockstep, memory mirroring, patrol scrubbing, and demand scrubbing.
Disk drive bays	12x 3.5-inch SAS/SATA hot-swap drive bays (front) + 2x 2.5-inch SATA hot-swap drive bays for operating system preload (rear).
Maximum internal storage	Up to 72 TB with 12x 6 TB 3.5-inch SAS/SATA HDDs. Intermix of SAS/SATA is supported.
Storage controller	RAID 0, 1, 10, 5, 50, 6, and 60 with 720ix AnyRAID with 1 GB non-backed read-only cache. Optional 1 GB, 2 GB, and 4 GB flash-backed read/write cache upgrades with FastPath feature are available for 720ix.
Optical drive bays	None. Support for an external USB optical drive.
Tape drive bays	None.
Network interfaces	Dual-port 10 GbE SFP+ or quad-port GbE RJ-45 card (model dependent; for more information, see Table 2 and Table 3) that is installed in the AnyFabric slot.
Expansion slots	1x AnyFabric slot (PCIe 3.0 x8). Up to eight PCIe slots. Slots 4, 7, and 8 are the standard slots on the system planar, and the remaining slots depend on the riser cards installed. The slots feature the following configuration: ● Slot 1: PCIe 3.0 x8; full-height, full-length ● Slot 2: PCIe 3.0 x8; full-height, full-length ● Slot 3: PCIe 3.0 x8; full-height, half-length ● Slot 4: PCIe 3.0 x8; low profile (vertical slot on system planar) ● Slot 5: PCIe 3.0 x8; full-height, full-length ● Slot 6: PCIe 3.0 x8; full-height, full-length ● Slot 7: PCIe 3.0 x8; low profile (vertical slot on system planar) ● Slot 8: PCIe 3.0 x8; low profile (vertical slot on system planar) Slots 4, 5, 6, 7, and 8 require the second processor to be installed.
Ports	Rear: 2x USB 3.0 ports, 1x DisplayPort video port, 1x RJ-45 systems management port, 1x DB-9 serial port; 4x RJ-45 1 GbE or 2x RJ-45 10 GbE or 2x SFP+ 10 GbE depending on the AnyFabric card installed.
Cooling	Four (with one CPU) or six (with two CPUs) N+1 redundant hot-swap fans.
Power supply	Up to two redundant hot-swap 550 W or 750 W Platinum AC power supplies, or 750 W Titanium AC power supplies.

Table 1. Standard specifications (Part 2)

Components	Specification
Video	ASPEED AST2400 with 16 MB memory integrated into the ThinkServer System Manager, which is also known as Baseboard Management Controller (BMC). Maximum resolution is 1920x1200 at 60 Hz.
Hot-swap parts	Hard drives, power supplies, and fans.
Systems management	UEFI, ThinkServer System Manager (TSM), status and diagnostic LED indicators. Optional TSM Premium upgrade for remote presence (keyboard, video, mouse, and remote drive) and ThinkServer Energy Manager support.
Security features	Administrator's password. Optional intrusion switch.
Operating system	Microsoft Windows Storage Server 2012 R2
Limited warranty	Three-year customer-replaceable unit, onsite limited warranty with 9x5 next business day (NBD).
Service and support	Optional warranty service upgrades are available through Lenovo: 4-hour or 8-hour response time, 1-year or 2-year warranty extensions, priority technical support, Keep Your Drive.
Dimensions	- Height: 87 mm (3.4 in) - Width: 482 mm (19.0 in) - Depth: 783 mm (30.8 in)
Weight	- Minimum configuration: 16 kg (35.3 lb) - Maximum: 32 kg (70.1 lb)

The N4610 ships with the following items:

- North America and Latin America:
  - Getting Started Guide
  - Rack Installation Instructions
  - Documentation CD
  - Slide Rail Kit
  - Two 1.8 m country-specific power cords
- China:
  - Lenovo Help Manual
  - Warranty Flyer
  - Infrastructure Management Flyer
  - Documentation CD
  - Static Rail Kit (TopSeller models only)
  - Two 1.8 m IEC 320-C13 to C14 rack power cords

Relationship models

The following table (Parts 1 and 2) lists the relationship models of the N4610.

Table 2. Relationship models (Part 1: United States and China)

Part number	Intel Xeon processor (2 maximum)	RAM	RAID	Drive bays	Drives	AnyFabric NIC	I/O slots (std / max)	Power supply
United States relationship models								
70G1000LUS	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 1TB 6Gb SAS 3.5"† 2x 500 GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G1000MUS	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 1TB 6Gb SATA 3.5"† 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G1000PUS	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 2TB 6Gb SAS 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G1000GUS	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 2TB 6Gb SATA 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G1000HUS	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 4TB 6Gb SAS 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G1000NUS	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 4TB 6Gb SATA 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G1000KUS	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 6TB 12Gb SAS 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G1000JUS	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 6TB 6Gb SATA 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
China relationship models								
70G1000ECN*	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 2TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 550 W HS
70G1000FCN*	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 2TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	2x 10 GbE (SFP+)**	0/8	2x 550 W HS

† Factory-configured in a RAID 5 array.
§ Factory-configured in a RAID 1 array for operating system preload.
†† Includes one PCIe 3.0 x8/x8/x8 Riser Card that is installed in the riser slot 1.
‡ Factory-configured in a RAID 6 array.
* Includes the intrusion switch.
# No factory-configured RAID array.
** Includes one SW optical transceiver with LC connector.

Table 2. Relationship models (Part 2: Latin America)

Part number	Intel Xeon processor (2 maximum)	RAM	RAID	Drive bays	Drives (RAID level)	AnyFabric NIC	I/O slots (std / max)	Power supply
Argentina (xx = AR), Brazil (xx = BR), Chile (xx = CL), Venezuela (xx = LD) relationship models								
70G10003xx	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 2TB 6Gb SAS 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G10000xx*	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 2TB 6Gb SATA 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G10004xx	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 4TB 6Gb SAS 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G10001xx*	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 4TB 6Gb SATA 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G10005xx	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 6TB 12Gb SAS 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G10002xx	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 6TB 6Gb SATA 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
Colombia relationship models								
70G10009LD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 2TB 6Gb SAS 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G10000LD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 2TB 6Gb SATA 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G1000ALD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 4TB 6Gb SAS 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G10001LD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 4TB 6Gb SATA 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G1000BLD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 6TB 12Gb SAS 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G10008LD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 6TB 6Gb SATA 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
Mexico relationship models								
70G1000CLD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 2TB 6 b SATA 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G1000DLD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 4TB 6Gb SATA 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS

‡ Factory-configured in a RAID 6 array.
§ Factory-configured in a RAID 1 array for operating system preload.
* Not available in Venezuela.

See the Specifications section for information about standard features of the storage server.

TopSeller models

The following table (Parts 1 and 2) lists the TopSeller™ models of the N4610.

Table 3. TopSeller models (Part 1: United States and China)

Part number	Intel Xeon processor (2 maximum)	RAM	RAID	Drive bays	Drives	AnyFabric NIC	I/O slots (std / max)	Power supply
United States TopSeller models								
70G0001SUS	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 1TB 6Gb SAS 3.5"† 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G0001PUS	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 1TB 6Gb SATA 3.5"† 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G0001MUS	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 4TB 6Gb SATA 3.5"† 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G0001NUS	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 6TB 6Gb SATA 3.5"† 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G0001QUS	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 4TB 6Gb SATA 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G0001RUS	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 2TB 6Gb SAS 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G0001TUS	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 3TB 6Gb SATA 3.5"† 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G0001UUS	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 2TB 6Gb SATA 3.5"† 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G0001VUS	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 4TB 6Gb SAS 3.5"† 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G0001WUS	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 6TB 6Gb SATA 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G0001XUS	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 5TB 6Gb SATA 3.5"† 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G0001YUS	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 3TB 6Gb SAS 3.5"† 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G00020US	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 6TB 12Gb SAS 3.5"† 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G00021US	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5-" HS	12x 2TB 6Gb SATA 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G00022US	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 6TB 12Gb SAS 3.5"‡ 2x 500GB6 Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G00023US	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 2TB 6Gb SAS 3.5"† 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3/8††	2x 750 W HS
70G00024US	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 4TB 6Gb SAS 3.5"‡ 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	3 / 8††	2x 750 W HS

Table 3. TopSeller models (Part 1: United States and China continued)

Part number	Intel Xeon processor (2 maximum)	RAM	RAID	Drive bays	Drives	AnyFabric NIC	I/O slots (std / max)	Power supply
China TopSeller models								
70G0001HCN*	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 4TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 550 W HS
70G0001JCN*	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 2TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 550 W HS
70G0001KCN*	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 4TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	2x 10 GbE (SFP+)**	0/8	2x 550 W HS
70G0001LCN*	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 2TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	2x 10 GbE (SFP+)**	0/8	2x 550 W HS

† Factory-configured in a RAID 5 array.
§ Factory-configured in a RAID 1 array for operating system preload.
†† Includes one PCIe 3.0 x8/x8/x8 Riser Card that is installed in the riser slot 1.
‡ Factory-configured in a RAID 6 array.
* Includes the intrusion switch.
# No factory-configured RAID array.
** Includes one SW optical transceiver with LC connector.

Table 3. TopSeller models (Part 2: Latin America)

Part number	Intel Xeon processor (2 maximum)	RAM	RAID	Drive bays	Drives	AnyFabric NIC	I/O slots (std / max)	Power supply
Colombia TopSeller models								
70G0001ELD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 1TB 6Gb SAS 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G0001FLD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 2TB 6Gb SAS 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G0001GLD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 3TB 6Gb SAS 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G00019LD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 4TB 6Gb SAS 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G0001ALD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 6TB 12Gb SAS 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G0001BLD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 2TB 6Gb SAS 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G0001CLD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 4TB 6Gb SAS 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G00013LD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 4TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G00014LD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 5TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G0001DLD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 6TB 12Gb SAS 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G00015LD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 6TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS

Table 3. TopSeller models (Part 2: Latin America continued)

Part number	Intel Xeon processor (2 maximum)	RAM	RAID	Drive bays	Drives	AnyFabric NIC	I/O slots (std / max)	Power supply
Argentina (xx = AR), Brazil (xx = BR), Chile (xx = CL), Mexico (xx = LD) TopSeller models								
70G00009xx	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 1TB 6Gb SAS 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G0000Axx	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 2TB 6Gb SAS 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G00000xx*	1x E5-2603 v3	2x 4GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 2TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G0000Bxx	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 3TB 6Gb SAS 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G00001xx*	1x E5-2603 v3	2x 4GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 3TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G0000Cxx	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 4TB 6Gb SAS 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G00002xx*	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 4TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G00003xx*	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 5TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G0000Dxx	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 6TB 12Gb SAS 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G00004xx*	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	8x 4TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G00005xx*	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	8x 5TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G0000Exx	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 2TB 6Gb SAS 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G0000Fxx	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 4TB 6Gb SAS 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G00006xx	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 4TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G00007xx	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 5TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G0000Gxx	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 6TB 12Gb SAS 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G00008xx	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	12x 6TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750W HS
Peru TopSeller models								
70G00011LD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	8x 4TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G00012LD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	8x 5TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS

Table 3. TopSeller models (Part 2: Latin America continued)

Part number	Intel Xeon processor (2 maximum)	RAM	RAID	Drive bays	Drives	AnyFabric NIC	I/O slots (std / max)	Power supply
Venezuela TopSeller models								
70G00016LD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 1TB 6Gb SAS 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G00017LD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 2TB 6Gb SAS 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G00018LD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	4x 3TB 6Gb SAS 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G00004LD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	8x 4TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS
70G00005LD	1x E5-2603 v3	1x 8GB	720ix 1GB Cache	12x 3.5" HS 2x 2.5" HS	8x 5TB 6Gb SATA 3.5"# 2x 500GB 6Gb SATA 2.5"§	4x GbE (RJ-45)	0/8	2x 750 W HS

§ Factory-configured in a RAID 1 array for operating system preload.
* Not available in Mexico.
# No factory-configured RAID array.

See the Specifications section for information about standard features of the storage server.

Processor options

The N4610 supports up to two processors. Standard models ship with one Intel® Xeon® processor E5-2603 v3. The second processor can be ordered if required (see the following table). The second processor option includes two extra cooling fans.

Table 4. Processor options

Part number	Description
4XG0F28821	Lenovo ThinkServer RD650 Intel Xeon E5-2603 v3 (6C, 85W, 1.6GHz) Processor Option Kit

Memory options

The N4610 supports up to 192 GB of DDR4 memory. The storage server supports up to 12 DIMMs when one processor is installed and up to 24 DIMMs when two processors are installed. Each processor has four memory channels and there are three DIMMs per channel.

The following rules apply when the memory configuration is selected:

- The storage server supports RDIMMs only.

- The maximum quantity of RDIMMs that can be installed in the storage server depends on the number of processors.

- All RDIMMs in the storage server operate at the same 1600 MHz speed, which is the maximum memory speed that is supported by the Intel Xeon E5-2603 v3 processor.

The following memory protection technologies are supported:

- ECC
- Lockstep
- Memory mirroring
- Patrol scrubbing
- Demand scrubbing

If lockstep or memory mirroring is used, RDIMMs must be installed in pairs (a minimum of one pair per each processor), and both RDIMMs in a pair must be identical in type and size. Lockstep and memory mirroring modes are mutually exclusive. Only one operational memory mode can be enabled on a storage server, and it is a system-wide setting.

The following table lists available memory options for the N4610.

Table 5. Memory options

Part number	Description	Maximum supported
4X70F28588	Lenovo ThinkServer 4GB DDR4-2133MHz (1Rx8) RDIMM	24 (12 per CPU)
4X70F28589	Lenovo ThinkServer 8GB DDR4-2133MHz (1Rx4) RDIMM	24 (12 per CPU)

Internal storage

The N4610 storage server supports up to 12x 3.5-inch SAS or SATA hot-swap drives (HDDs or SSDs) on the front and two 2.5-inch SATA hot-swap drives on the rear. For relationship and TopSeller models of the N4610, the rear drives are configured in a RAID 1 array, which contains Windows Storage Server 2012 R2 preload.

Both front and rear drives are connected to the Lenovo ThinkServer RAID 720ix AnyRAID Adapter with Expander that comes standard with the N4610. The RAID 720ix controller has the following specifications:

- Eight internal 12 Gbps SAS/SATA ports (support for 12, 6, or 3 Gbps SAS speeds and 6 or 3 Gbps SATA speeds)

- Up to 12 Gbps throughput per port

- Supports connections to 12x 3.5-inch SAS and SATA HDDs and SSDs on the front and 2x 2.5-inch SATA HDDs or SSDs on the rear with the integrated SAS Expander

- Supports RAID 0, 1, 10, 5, 50, 6, and 60

- Supports optional 1 GB non-backed read-only cache upgrade or 1 GB, 2 GB, or 4 GB flash-backed cache upgrades (1 GB non-backed read-only cache comes standard with the relationship and TopSeller models that are listed in this product guide)

- Supports FastPath and CacheCade Pro 2.0 when a cache upgrade is installed

- PCIe 3.0 x8 host interface

- Based on the LSI SAS3108 12 Gbps ROC controller

The following table lists upgrade options for the RAID 720ix AnyRAID Adapter.

Table 6. RAID 720ix AnyRAID upgrade options

Part number	Description	Maximum supported
4XB0F28695	Lenovo ThinkServer RAID 720i 1GB Modular DRAM Upgrade	1
4XB0F28696	Lenovo ThinkServer RAID 720i 1GB Modular Flash and Supercapacitor Upgrade	1
4XB0F28697	Lenovo ThinkServer RAID 720i 2GB Modular Flash and Supercapacitor Upgrade	1
4XB0F28698	Lenovo ThinkServer RAID 720i 4GB Modular Flash and Supercapacitor Upgrade	1

The following table lists available internal drive options for the N4610.

Table 7. Internal drive options (Part 1)

Part number	Description	Maximum supported
3.5-inch hot-swap SAS HDDs		
4XB0G45716	Lenovo ThinkServer Gen 5 3.5" 1TB 7.2K Enterprise SAS 6Gbps HS HDD	12
4XB0G45717	Lenovo ThinkServer Gen 5 3.5" 2TB 7.2K Enterprise SAS 6Gbps HS HDD	12
4XB0G45718	Lenovo ThinkServer Gen 5 3.5" 3TB 7.2K Enterprise SAS 6Gbps HS HDD	12
4XB0G45719	Lenovo ThinkServer Gen 5 3.5" 4TB 7.2K Enterprise SAS 6Gbps HS HDD	12
4XB0G88715	Lenovo ThinkServer Gen 5 3.5" 6TB 7.2K Enterprise SAS 12Gbps HS HDD	12
3.5-inch hot-swap SATA HDDs		
4XB0F28712	Lenovo ThinkServer Gen 5 3.5" 1TB 7.2K Enterprise SATA 6Gbps HS HDD	12
4XB0F28713	Lenovo ThinkServer Gen 5 3.5" 2TB 7.2K Enterprise SATA 6Gbps HS HDD	12
4XB0F28714	Lenovo ThinkServer Gen 5 3.5" 3TB 7.2K Enterprise SATA 6Gbps HS HDD	12
4XB0G45715	Lenovo ThinkServer Gen 5 3.5" 4TB 7.2K Enterprise SATA 6Gbps HS HDD	12
4XB0G88712	Lenovo ThinkServer Gen 5 3.5" 5TB 7.2K Enterprise SATA 6Gbps HS HDD	12
4XB0G88713	Lenovo ThinkServer Gen 5 3.5" 6TB 7.2K Enterprise SATA 6Gbps HS HDD	12
3.5-inch hot-swap SAS Enterprise SSDs		
4XB0G45733	Lenovo ThinkServer Gen 5 3.5" 200GB Enterprise Performance SAS 12Gbps HS SSD	12
4XB0G45734	Lenovo ThinkServer Gen 5 3.5" 400GB Enterprise Performance SAS 12Gbps HS SSD	12
4XB0G45735	Lenovo ThinkServer Gen 5 3.5" 800GB Enterprise Performance SAS 12Gbps HS SSD	12
3.5-inch hot-swap SATA Value SSDs		
4XB0G45742	Lenovo ThinkServer Gen 5 3.5" 120GB Value Read-Optimized SATA 6Gbps HS SSD	12
4XB0G45743	Lenovo ThinkServer Gen 5 3.5" 240GB Value Read-Optimized SATA 6Gbps HS SSD	12
4XB0G45744	Lenovo ThinkServer Gen 5 3.5" 300GB Value Read-Optimized SATA 6Gbps HS SSD	12
4XB0G45745	Lenovo ThinkServer Gen 5 3.5" 480GB Value Read-Optimized SATA 6Gbps HS SSD	12
4XB0G45746	Lenovo ThinkServer Gen 5 3.5" 600GB Value Read-Optimized SATA 6Gbps HS SSD	12
4XB0G45747	Lenovo ThinkServer Gen 5 3.5" 800GB Value Read-Optimized SATA 6Gbps HS SSD	12

Table 7. Internal drive options (Part 2)

Part number	Description	Maximum supported
2.5-inch hot-swap SATA HDDs		
4XB0G45720	Lenovo ThinkServer Gen 5 2.5" 500GB 7.2K Enterprise SATA 6Gbps HS HDD	2
4XB0G45721	Lenovo ThinkServer Gen 5 2.5" 1TB 7.2K Enterprise SATA 6Gbps HS HDD	2
2.5-inch hot-swap SATA Value SDDs		
4XB0G45736	Lenovo ThinkServer Gen 5 2.5" 120GB Value Read-Optimized SATA 6Gbps HS SSD	2
4XB0G45737	Lenovo ThinkServer Gen 5 2.5" 240GB Value Read-Optimized SATA 6Gbps HS SSD	2
4XB0G45738	Lenovo ThinkServer Gen 5 2.5" 300GB Value Read-Optimized SATA 6Gbps HS SSD	2
4XB0G45739	Lenovo ThinkServer Gen 5 2.5" 480GB Value Read-Optimized SATA 6Gbps HS SSD	2
4XB0G45740	Lenovo ThinkServer Gen 5 2.5" 600GB Value Read-Optimized SATA 6Gbps HS SSD	2
4XB0G45741	Lenovo ThinkServer Gen 5 2.5" 800GB Value Read-Optimized SATA 6Gbps HS SSD	2

Optical drives

The N4610 storage server does not support an internal optical drive; an external USB optical drive drive can be included in the order, if required (see the following table).

Table 8. Optical drive options

Part number	Description	Maximum supported
4XA0E97775	ThinkPad UltraSlim USB DVD Burner	1

I/O expansion options

The N4610 supports an AnyFabric slot and up to eight PCIe slots: three PCIe slots on the system planar and up to five PCIe slots with riser cards that are installed into two riser sockets on the system planar (one riser socket supports installation of one riser card). The following slot form factors are available:

- Slot 1: PCIe 3.0 x8; full-height, full-length
- Slot 2: PCIe 3.0 x8; full-height, full-length
- Slot 3: PCIe 3.0 x8; full-height, half-length
- Slot 4: PCIe 3.0 x8; low profile (vertical slot on system planar)
- Slot 5: PCIe 3.0 x8; full-height, full-length
- Slot 6: PCIe 3.0 x8; full-height, full-length
- Slot 7: PCIe 3.0 x8; low profile (vertical slot on system planar)
- Slot 8: PCIe 3.0 x8; low profile (vertical slot on system planar)

Note: Slots 4, 5, 6, 7, and 8 require the second processor to be installed. If only one processor is installed and there are no riser cards installed, only the AnyFabric slot can be used.

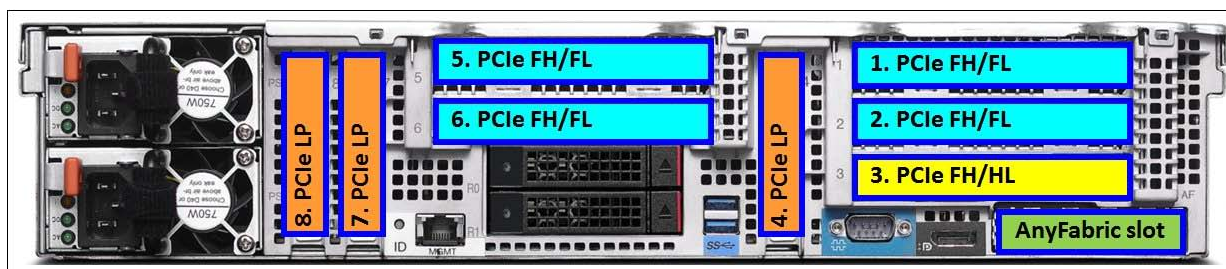The locations of the expansion slots are shown in the following figure.

Figure 6. Slot locations

Riser 1 supplies slots 1, 2, and 3, and Riser 2 supplies slots 5 and 6. Some relationship and TopSeller models include one PCIe 3.0 x8/x8/x8 riser card that is installed in the riser slot 1 (for more information, see Table 2 and Table 3). The following table lists the available PCIe riser card option.

Table 9. Riser card option

Part number	Description	Maximum supported
4XF0G45881	Lenovo ThinkServer 2U x8/x8/x8 PCIe Riser Kit	2

Network adapters

The N4610 supports an AnyFabric slot for integrated NIC solution. This slot supports AnyFabric adapters with two 10 Gb ports or four Gigabit Ethernet ports and supports direct connectivity to the TSM service processor for out-of-band systems management. Relationship and TopSeller models come standard with one AnyFabric adapter (model dependent). For custom or Special Bid models, one AnyFabric adapter must be selected. The following table lists the supported network adapters.

Table 10. Network adapter options

Part number	Description	Maximum supported
AnyFabric adapters		
4XC0F28740	Lenovo ThinkServer I350-T4 AnyFabric 1Gb 4 Port Base-T Ethernet Adapter by Intel	1
4XC0F28741	Lenovo ThinkServer X540-T2 AnyFabric 10Gb 2 Port Base-T Ethernet Adapter by Intel	1
4XC0F28742	Lenovo ThinkServer X520-DA2 AnyFabric 10Gb 2 Port SFP+ Ethernet Adapter by Intel*	1
PCIe adapters		
4XC0F28730	Lenovo ThinkServer I350-T2 PCIe 1Gb 2 Port Base-T Ethernet Adapter by Intel	8
4XC0F28731	Lenovo ThinkServer I350-T4 PCIe 1Gb 4 Port Base-T Ethernet Adapter by Intel	8
4XC0F28732	Lenovo ThinkServer X540-T2 PCIe 10Gb 2 Port Base-T Ethernet Adapter by Intel	8
4XC0F28733	Lenovo ThinkServer X520-SR2 PCIe 10Gb 2 Port SFP+ Ethernet Adapter by Intel	8
4XC0F28734	Lenovo ThinkServer X520-DA2 PCIe 10Gb 2 Port SFP+ Ethernet Adapter by Intel*	8

* Requires a supported SFP+ Direct Attach Copper (DAC) cable or Lenovo ThinkServer 10Gb Optical Module by Intel (part number 4XC0F28735). Up to two cables or modules supported per adapter.

Note: Maximum quantity is achieved with two processors installed. With one processor, the maximum quantity is limited to three (this limit does not apply to AnyFabric adapters).

Power supplies

The N4610 storage server supports up to two redundant power supplies. Relationship and TopSeller models come with two 550 W or 750 W Platinum AC power supplies (model dependent). The following table lists the power supplies.

Table 11. Power supplies

Part number	Description	Maximum supported
4X20F28579	Lenovo ThinkServer Gen 5 550W Platinum Hot Swap Power Supply	2
4X20F28575	Lenovo ThinkServer Gen 5 750W Platinum Hot Swap Power Supply	2
4X20F28576	Lenovo ThinkServer Gen 5 750W Titanium Hot Swap Power Supply	2

The following power supply rules apply:

- A minimum of one power supply and a maximum of two power supplies are needed per system.
- If two power supplies are installed, the power supplies must be identical.

Important: It is highly recommended to validate system configuration for specific power requirements by using the latest version of the ThinkServer Power Planner, which is available at this website: http://support.lenovo.com/us/en/downloads/ds101155

Completing this validation ensures that the correct power supply is chosen for optimal performance.

Systems management

The storage server contains ThinkServer System Manager (TSM), which provides advanced service-processor control, monitoring, and an alerting function. If an environmental condition exceeds a threshold or if a system component fails, the TSM lights LEDs to help you diagnose the problem, records the error in the event log, and alerts you to the problem. Optionally, the TSM also provides a virtual presence capability for remote storage server management capabilities.

The TSM provides remote storage server management through the following industry-standard interfaces:

- Intelligent Platform Management Interface (IPMI) Version 2.0
- Simple Network Management Protocol (SNMP) Version 3
- Data Center Management Interface (DCMI) Version 1.0
- Web browser

The optional TSM Premium is required for enabling remote presence and energy monitoring and management. The TSM Premium feature provides the following functions:

- Remotely viewing video with graphics resolutions up to 1920x1200 at 60 Hz with up to 24 bits per pixel colors

- Remotely accessing the system by using the keyboard and mouse from a remote client

- Mapping the CD or DVD drive, diskette drive, and USB flash drive on a remote client, and mapping ISO and diskette image files as virtual drives that are available for use by the system

- Support for power monitoring and management with the ThinkServer Energy Manager standalone tool

The following table lists the Premium management option.

Table 12. Premium management option

Part number	Description	Maximum supported
4XF0G45867	Lenovo ThinkServer System Manager Premium	1

Rack-mount options

Relationship and TopSeller models of the N4610 listed in this product guide ship without cable management arms. Also, China relationship models ship without a rack-mount kit. The following table lists rack-mount options that are available for the N4610.

Table 13. Rack-mount options

Part number	Description	Maximum supported
4XF0G45872	Lenovo ThinkServer Gen 5 2U 4-Post Slide Rail Kit	1
4XF0G45873	Lenovo ThinkServer Gen 5 4-Post Static Rail Kit	1
4XF0G45875	Lenovo ThinkServer Gen 5 2U Cable Management Arm	1
4XF0G45876	Lenovo ThinkServer Gen 5 Cable Management Bar	1

Physical and electrical specifications

Dimensions and weight (approximate):

- Height: 87 mm (3.4 in.)
- Width: 482 mm (19.0 in.)
- Depth: 783 mm (30.8 in.)
- Weight:
    - Minimum configuration: 16 kg (35.3 lb)
    - Maximum configuration: 32 kg (70.1 lb)

Supported environment:

- Air temperature:

  - Operating: 5 °C - 45 °C (41 °F - 113 °F); for altitudes above 900 m (2,953 ft), decrease the maximum ambient temperature as follows:

    - By 1 °C for every 300-m (984-ft) increase in altitude for up to 35 °C (95 °F) temperature range

    - By 1 °C for every 175-m (574-ft) increase in altitude for 35 °C to 40 °C (95 °F to 104 °F) temperature range

    - By 1 °C for every 125-m (410-ft) increase in altitude for 50 °C to 45 °C (104 °F to 1113 °F) temperature range

  - Maximum altitude: 3,048 m (10,000 ft)
  - Storage: -40 °C - +60 °C (-40 °F - 140 °F)

- Humidity:

  - Operating: 8% - 90% (non-condensing)
  - Storage: 8% - 90% (non-condensing)

- Electrical:

  - 100 - 127 (nominal) V AC; 50 Hz - 60 Hz
  - 200 - 240 (nominal) V AC; 50 Hz - 60 Hz

- Noise level:

  - 6.1 bels (operating)
  - 5.7 bels (idle)

Warranty options

The N4610 has a three-year onsite warranty with 9x5/next business day (NBD) terms. Lenovo offers the service upgrades through warranty maintenance upgrades and post-warranty maintenance agreements with a well-defined scope of services, including service hours, response time, term of service, and service agreement terms and conditions.

Lenovo warranty service upgrade offerings are country-specific; that is, each country might have its own service types, service levels, response times, and terms and conditions. Not all covered types of warranty service upgrades might be available in a particular country or area. For more information about Lenovo warranty service upgrade offerings that are available in your country, see following the Lenovo Quick Pick website:

http://www.lenovoquickpick.com/

The following table lists the warranty service options.

Table 14. Warranty service definitions

Term	Description
Onsite repair	A service technician comes to the server's location for equipment repair.
24x7x4 hour	A service technician is scheduled to arrive at the client's location within four hours after remote problem determination is completed. Lenovo provides service around the clock, every day, including Lenovo holidays.
24x7x8 hour	A service technician is scheduled to arrive at the client's location within eight hours after remote problem determination is completed. Lenovo provides service around the clock, every day, including Lenovo holidays.
9x5x4 hour	A service technician is scheduled to arrive at the client's location within four business hours after remote problem determination is completed. Lenovo provides service from 8:00 a.m. - 5:00 p.m. in the client's local time zone, Monday - Friday, excluding Lenovo holidays.
9x5 next business day	A service technician is scheduled to arrive at the client's location on the business day after Lenovo receives your call, following remote problem determination. Lenovo provides service from 8:00 a.m. - 5:00 p.m. in the client's local time zone, Monday - Friday, excluding Lenovo holidays. Calls received after 4:00pm local time require an extra business day for service dispatch. Next business day service is not guaranteed.

The following types of Lenovo warranty service upgrades are available:

● Warranty and maintenance service upgrades:
  o Three, four, or five years of 9x5 or 24x7 service coverage
  o Onsite repair from next business day to 8 or 4 hours
  o One or two years of warranty extension

● Priority technical support

  Lenovo's Priority Support Offering enhances our award-winning call center support to provide top priority queue assignment to specialized Lenovo technicians. Priority support accelerates call center troubleshooting to get your problems resolved quickly, and includes other value added support for Lenovo provided software tools. Priority support can be purchased stand-alone to match the base warranty of your system or in convenient bundles with our same-day response services.

● Keep Your Drive Multi-Drive

  Lenovo's ThinkServer Keep Your Drive Multi-Drive service is a multi-drive hard drive retention offering that ensures your data is always under your control, regardless of the number of hard drives that are installed in your ThinkServer system. In the unlikely event of a hard drive failure, you retain possession of your hard drive while Lenovo replaces the failed drive part. Your data stays safely on your premises, in your hands. Keep Your Drive Multi-Drive can be purchased stand-alone to match the base warranty of your system or in convenient bundles with our same-day response services.

Regulatory compliance

The N4610 storage server conforms to the following regulations:

- Energy Star V2.0
- FCC class A: USA FCC 47 CFR Part 15-Subpart B; ANSI C63.4
- ICES class A: Canada ICES-003 Issue 5
- CB
- UL/cTUVus
- Germany GS
- Russia EAC
- Argentina AR-S
- Mexico NOM
- EU CE: EN55022; EN55024; EN61000-3-2;EN61000-3-3;
- International: CISPR22; CISPR 24
- Brazil (voluntary)
- China CCC: GB 9254
- CECP
- CELP

External storage expansion

The N4610 supports attachment to up to four Lenovo ThinkServer SA120 Storage Array storage expansion enclosures by using the Lenovo ThinkServer 9286CV-8e PCIe 6Gb 8 Port External SAS RAID Adapter. The following table lists ordering information for the 9286CV-8e controller.

Table 15. RAID controllers and options for external storage expansion

Part number	Description	Maximum supported
4XB0F28699	Lenovo ThinkServer 9286CV-8e PCIe 6Gb 8 Port External SAS RAID Adapter by LSI	1
4XB0F28700	Lenovo ThinkServer CacheVault Data Protection Upgrade	1
4XB0F28701	Lenovo ThinkServer RAID FastPath Key	1

The ThinkServer 9286CV-8e PCIe 6Gb 8 Port External SAS RAID Adapter has the following specifications:

- Eight external 6 Gbps SAS/SATA ports
- Up to 6 Gbps data transfer rates
- Two external x4 mini-SAS connectors (SFF-8088)
- Onboard 1 GB DDR3 cache
- Supports RAID levels 0, 1, 5, 10, 50, 6, and 60
- Supports optional CacheVault data protection (flash-backed cache)
- Supports optional FastPath feature for solid-state drives (SSDs)
- PCIe 3.0 x8 host interface
- Based on the LSI SAS2208 6 Gbps ROC controller
- Supports connectivity to the SA120 storage expansion enclosures

For more information about the ThinkServer SA120, see the Product Guide *Lenovo ThinkServer SA120 Storage Array*, which is available at this website:
http://www.redbooks.ibm.com/abstracts/tips1234.html

Lenovo Financial Services

Lenovo Financial Services reinforces Lenovo's commitment to deliver pioneering products and services that are recognized for their quality, excellence, and trustworthiness. Lenovo Financial Services offers financing solutions and services that complement your technology solution anywhere in the world.

We are dedicated to delivering a positive finance experience for customers like you who want to maximize your purchase power by obtaining the technology you need today, protect against technology obsolescence, and preserve your capital for other uses.

We work with businesses, non-profit organizations, governments and educational institutions to finance their entire technology solution. We focus on making it easy to do business with us. Our highly experienced team of finance professionals operates in a work culture that emphasizes the importance of providing outstanding customer service. Our systems, processes and flexible policies support our goal of providing customers with a positive experience.

We finance your entire solution. Unlike others, we allow you to bundle everything you need from hardware and software to service contracts, installation costs, training fees, and sales tax. If you decide weeks or months later to add to your solution, we can consolidate everything into a single invoice.

We differ from others by allowing you full, easy access to information you need to understand and manage your financed assets. Throughout the life of the transaction, you have electronic access to your lease documents, payment histories, and asset information. All of that information and more is available 24/7 through our customer service web portal, QDS.

Our Premier Client services provide large accounts with special handling services to ensure these complex transactions are serviced properly. As a premier client, you have a dedicated finance specialist who manages your account through its life, from first invoice through asset return or purchase. This specialist develops an in-depth understanding of your invoice and payment requirements. For you, this dedication provides a high-quality, easy, and positive financing experience.

Ask your Lenovo sales representative or your technology provider about the use of Lenovo Financial Services. For more information, see the following Lenovo website:
http://www.lenovo.com/services_warranty/us/en/financial_services.html

Related publications and links

For more information, see the following resources:

- Lenovo Storage N4610 product page:
  http://shop.lenovo.com/us/en/servers/network-storage/lenovoemc/n4610/

- Lenovo Storage N4610 Quick Pick:
  http://www.lenovoquickpick.com/usa/system/lenovoemc/n-series-racks/n4610

- Lenovo Storage N4610 support:
  http://support.lenovo.com

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This document was created or updated on February 9, 2015.

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