

Datasheet



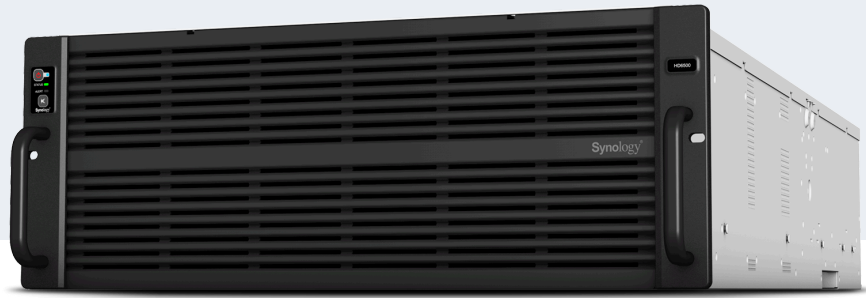
High Density

HD6500

Synology

High Density

HD6500



Fast and Scalable 4U Storage Server for Multi-Petabyte Applications

The Synology HD6500 is a high-density data storage solution for large-scale applications. The 60-bay 4U rackmount server easily scales to 300 drives. Support for fast networking options and built-in high-availability tools make it reliable for warm and cold storage. Native data protection software for PCs, servers, and VMs makes it a powerful centralized backup server. HD6500 is backed by Synology's 5-year limited warranty.¹

- **High-Performance Solution**
Leverage dual Intel Xeon Silver 10-core processors and up to 512 GB DDR4 ECC RDIMM memory
- **Versatile Storage Server**
Great for full system backups, video post-production, and large surveillance deployments
- **Easy Capacity Expansion**
Easily add up to 4 RX6022sas Expansion Units and leverage a maximum of 300 bays
- **Flexible Networking Options**
Add 10/25GbE SFP+/SFP28 connectivity or Fibre Channel ports with 4 PCIe slots²
- **Native Backup Solutions**
Reliably protect PCs, servers, VMs, and SaaS applications with Active Backup Suite

Reliable and Scalable Mass Storage Solution

Simultaneously large and highly scalable, the HD6500 is the perfect solution for organizations looking to consolidate their warm and cold data storage on a single, highly reliable, and highly capable platform.

- Over **6,500/6,800 MB/s sequential read/write performance** supports large data transfer volumes³
- Features **60 drive bays** and can be expanded on the fly to up to **300 drives**⁴ with four Synology RX6022sas expansion units⁵
- With **dual Intel Xeon Silver 10-core processors** and 64 GB built-in DDR4 ECC RDIMM memory, expandable up to 512 GB, the HD6500 performs all storage operations with ease
- Its **advanced Btrfs file system** supports **volumes up to 1 PB** by default, allowing you to consolidate large archives and accommodate fast growing data stores on a single volume⁶
- Built-in **dual 10GbE RJ-45 ports** and **three Gigabit Ethernet ports** can be supplemented with additional network interfaces using **10GbE SFP+/RJ-45** and **25GbE SFP28 NICs**, and **Fibre Channel** adapters on the four PCIe slots²
- Supports adding **2.5" Synology SATA SSDs** as storage volumes or as read/write cache for HDD storage volumes with optional 2.5" drive trays, to speed up high random I/O applications.⁷
- Dedicated **out-of-band management** (OOB) port helps system administrators reduce maintenance and troubleshooting efforts
- **Redundant power supply units** and system fans, support for **automatic failover between network ports**, and redundant links to expansion units thanks to **SAS multipathing** prevent single points of hardware failure

Built Around Data Protection and Integrity

Safeguard your critical data with the **powerful storage management features** of Synology DiskStation Manager (DSM), built on the advanced **Btrfs** file system.

- **Advanced snapshot technology** provides schedulable and near-instantaneous data protection for shared folders and LUNs
- **File and folder-level data restoration** enables recovery of specific files or folders
- **Configurable storage quotas** help admins manage available space by specifying storage limits for shared folders
- **File self-healing** detects and recovers corrupted files using mirrored metadata and RAID configurations

- **Inline compression** minimizes storage consumption and extends the life of drives by compressing data before it is written to the storage pool

Comprehensive Tools for Uptime Protection

The HD6500 is built for easy remote monitoring and management, and offers a free high-availability solution to keep your systems running 24/7.

- **Synology High Availability** provides fast failover between two identical HD6500 units configured in an active-passive cluster to minimize downtime in case of planned maintenance, updates, or disaster
- **Synology Active Insight** lets you monitor system performance and health, login activities, and backup task status for all your Synology servers safely in the cloud, with automated alerts and notifications in case of potential issues or suspicious events⁸
- The **out-of-band management console** allows you to power on, power off, and reboot the device over LAN, and access a system console for further troubleshooting, independently from DSM

Complete IT Infrastructure Backup Solutions

The HD6500 comes with native comprehensive **backup solutions** for your Synology systems and a large range of endpoints.

- **Active Backup Suite** consolidates backup tasks and offers rapid restoration of Windows and Linux endpoints, VMs, Synology servers, and SaaS applications
- **Snapshot Replication** creates point-in-time copies of shared folders and LUNs to protect them from accidental modifications or ransomware incidents⁶
- **Hyper Backup** protects your NAS by backing up data and configurations to multiple destinations with efficiency delivered by built-in deduplication, integrity checks, compression, and versioning
- **C2 Storage for Hyper Backup** offers a dedicated and secure public cloud destination for Synology NAS backup data⁹

Local and Hybrid File Syncing and Sharing

Synology DSM comes with efficient solutions for file management, syncing, and sharing, whether on premises or across multiple different sites.

- **Synology Drive** is a private cloud file management solution that supports remote data access, synchronization, on-demand file restoration, and backup
- **Synology Hybrid Share** combines reliable on-premises storage and efficient syncing of shared folders in the cloud to enable seamless cross-site synchronization and local file access at LAN speed⁹

Private Video Surveillance Solution

Transform the HD6500 into a powerful Network Video Recorder solution with support for up to 150 IP cameras with **Synology Surveillance Station**.¹⁰

- **8,700+ supported camera models**
- ONVIF support prevents vendor lock-in
- Private, subscription-free storage of recordings
- Access through web browsers, desktop clients, or mobile apps
- Event-based rules to trigger specific actions
- Email, SMS, or push notification options

Backed by Synology's 5-Year Limited Warranty

Maximize your return on investment with the comprehensive hardware replacement and premium technical support services offered under Synology's 5-year limited hardware warranty.¹

Notes:

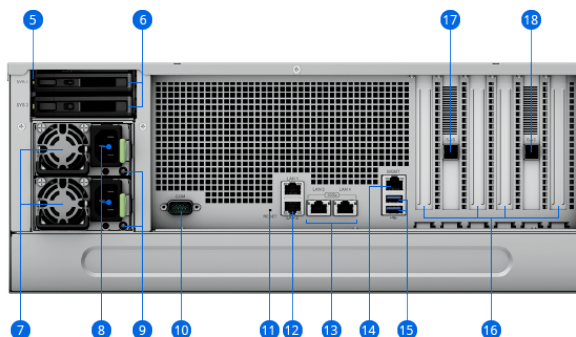
1. The warranty period starts from the date of purchase as stated on your purchase receipt. Visit <https://www.synology.com/company/legal/warranty> for more information.
2. For the most up-to-date list of compatible NICs and Fibre Channel HBAs, please check our [compatibility list](#).
3. Performance figures are obtained through internal testing by Synology. Actual performance may vary depending on the testing environment, usage, and configuration. See [performance charts](#) for more information.
4. Check our [compatibility list](#) for supported drives.
5. HD6500 supports up to 300 drives by connecting four Synology RX6022sas expansion units, sold separately.
6. Volumes between 200 TB and 1 PB make use of the [Btrfs \(Peta Volume\)](#) file system and support a limited selection of applications, services, and configurations. Snapshot Replication, shared folder encryption, file compression, and other functions are not available for volumes over 200 TB. For more information and restrictions, refer to [this article](#).
7. To install 2.5" SATA SSDs, optional 2.5" drive trays must be purchased separately. [Learn more](#)
8. Synology Active Insight is currently in Beta with all features available for evaluation. Certain functionalities may require a subscription upon official release.
9. C2 Storage for Hyper Backup and Hybrid Share requires purchase of an annual or monthly [subscription](#). A free trial is available for each newly registered device.
10. Surveillance Station includes two free licenses. Connecting more cameras and devices requires additional licenses. [Learn more](#)

Hardware Overview

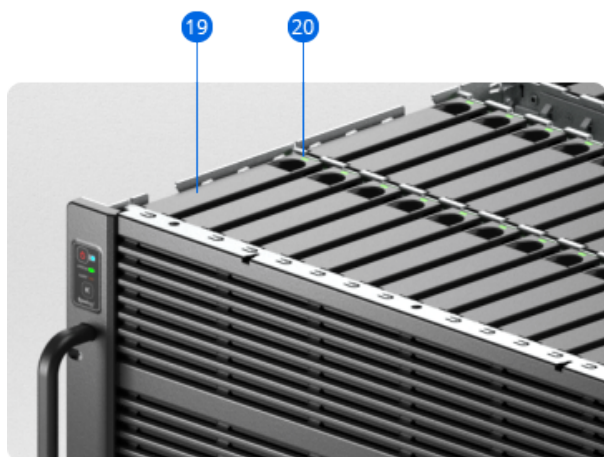
Front



Rear



Top



No.	Name	No.	Name
1.	Power button and indicator	11.	Reset Button
2.	Status Indicator	12.	1GbE RJ-45 Ports
3.	Alert Indicator	13.	10GbE RJ-45 Ports
4.	Mute Button	14.	Management Port
5.	System Drive Status Indicators	15.	USB 3.2 Gen 1 Ports
6.	System Drive Trays	16.	PCI Express Expansion Slots
7.	PSU Fans	17.	SAS OUT Port (Primary)

8.	Power Port	18.	SAS OUT Port (secondary)
9.	PSU Indicators	19.	Drive Trays
10.	Console Port	20.	Drive Status Indicators

Technical Specifications

Hardware

CPU	
CPU Model	Intel Xeon Silver 4210R
CPU Quantity	2
CPU Core	10
CPU Architecture	64-bit
CPU Frequency	2.4 (base) / 3.2 (turbo) GHz
Hardware Encryption Engine	Yes

Memory	
System Memory	64 GB DDR4 ECC RDIMM
Memory Module Pre-installed	64 GB (32 GB x 2)
Total Memory Slots	16
Maximum Memory Capacity	512 GB (32 GB x 16)
Notes	Please select Synology memory modules for optimum compatibility and reliability. Synology will not provide complete product warranty or technical support if non-Synology memory modules are used for memory expansion.

Storage	
Drive Bays	60
Maximum Drive Bays with Expansion Unit	300 (RX6025sas x 4)
SAS multipathing	Yes
Drive Type	<ul style="list-style-type: none"> • 3.5" SAS HDD • 2.5" SATA SSD
Hot Swappable Drive	Yes
Notes	<ul style="list-style-type: none"> • To install 2.5" SATA SSDs, optional 2.5" drive trays (R5) must be purchased separately. Learn more • Two Synology SATA SSDs are included in the accessory pack for use as system drives. • Synology only guarantees full functionality, reliability, and performance for Synology drives listed on the compatibility list. The use of non-validated components may limit certain functionality and result in data loss and system instability.

External Ports	
RJ-45 1GbE LAN Port	2
RJ-45 10GbE LAN Port	2
Out-of-Band Management LAN Port	1
USB 3.2 Gen 1 Port	2
Expansion Port	2

PCIe	
PCIe Expansion	<ul style="list-style-type: none"> • 2 x Gen3 ×16 slot (x16 link) • 2 x Gen3 ×8 slots (x8 link)

Appearance

Form Factor (RU)	4U
Size (Height x Width x Depth)	176 mm x 482 mm x 1020 mm
Weight	37.9 kg
Rack Installation Support	4-post 19" rack (Synology Rail Kit - RKS-03)

Others

System Fan	80 mm x 80 mm x 38 mm x 4 pcs
AC Input Power Voltage	200V to 240V AC
Power Frequency	50/60 Hz, Single Phase

Temperature	
Operating Temperature	0°C to 35°C (32°F to 95°F)
Storage Temperature	-20°C to 60°C (-5°F to 140°F)
Operating Humidity	8% to 80% RH
Storage Humidity	5% to 95% RH
Maximum Operating Altitude	5,000 m

General DSM Specifications

Storage Management	
Maximum Single Volume Size	<ul style="list-style-type: none"> 1 PB (for RAID 6 groups only) 200 TB
Maximum Internal Volume Number	256
SSD Read/Write Cache (Determining cache size)	Yes
Supported RAID Type	Basic, JBOD, RAID 0, RAID 1, RAID 5, RAID 6, RAID 10
Notes	<ul style="list-style-type: none"> Actual maximum storage pool and volume sizes depend on drive sizes used, the number of drive bays available, and the RAID configuration. Usable capacity for each volume will be lower than the maximum volume size and is dependent on the filesystem and the amount of system metadata stored. SSD cache support requires DSM 7.1.1-42962 Update 4 or later versions. When Peta Volume is enabled, validated services and packages are required. Please refer to this article for more information on limitations.

File System	
Internal Drives	Btrfs
External Drives	Btrfs, ext4, ext3, FAT32, NTFS, HFS+, exFAT

File Services

File Protocol	SMB,AFP,NFS,FTP,WebDAV,Rsync
Maximum Number of SMB Connections (FSCT-Based)	10,000
Windows Access Control List (ACL) Integration	Yes
NFS Kerberos Authentication	Yes

Account & Shared Folder

Maximum Local User Accounts	15,360
Maximum Local Groups	512
Maximum Shared Folder	512
Maximum Shared Folder Sync Tasks	32

Virtualization

VMware vSphere	ESXi 8.0 U2, ESXi 8.0 U1, ESXi 8.0, ESXi 7.0 U3, ESXi 7.0 U2, ESXi 7.0 U1, ESXi 7.0
Microsoft Hyper-V	Windows Server 2022, Windows Server 2019, Windows Server 2016
Citrix XenServer	XenServer 8, Citrix Hypervisor 8.2 LTSR CU1
OpenStack	Cinder

Security

Firewall, encryption shared folder, SMB encryption, FTP over SSL/TLS, SFTP, rsync over SSH, login auto block, Let's Encrypt support, HTTPS (customizable cipher suite)

General Specifications

Supported Protocols	SMB1 (CIFS), SMB2, SMB3, NFSv3, NFSv4, NFSv4.1, NFS Kerberized sessions, iSCSI, Fibre Channel, HTTP, HTTPs, FTP, SNMP, LDAP, CalDAV
Supported Browsers	Chrome,Firefox,Edge,Safari
Supported Language	English, Deutsch, Français, Italiano, Español, Dansk, Norsk, Svenska, Nederlands, Русский, Polski, Magyar, Português do Brasil, Português Europeu, Türkçe, Český, ภาษาไทย, 日本語, 한국어, 繁體中文, 简体中文
Notes	For an updated list of supported browser versions, check the DSM Technical Specifications .

Packages and Applications

Synology AI Console

Centralize AI management with flexible configurations for AI model integration, user access control, data privacy, usage policies, and resource allocation

Third-Party AI Model Integration	v
Maximum De-Identification Rate	10,000 words per second
Notes	<ul style="list-style-type: none">De-identification performance measurement: Filters for Credit Card Numbers, IBAN, Individual Taxpayer Identification Number, SSN, and Names applied to a 4,355-word English text.To enable de-identification, your device must have at least 8 GB of memory and Container Manager installed.

Synology Drive

Synchronizes files across Windows®, macOS®, Linux®, Android™ and iOS. The built-in cross-platform portal allows access to data anytime and anywhere

Maximum Number of Users	18,000
Maximum Number of Hosted Files	100,000,000 (applies to files indexed or hosted by Synology Drive . For file access through other standard protocols, refer to the File Services section above)

File Station

Provides virtual drives, remote folders, Windows® ACL editor, compression/extraction of archived files, bandwidth control for specific users/groups, creation of sharing links, and transfer logs

Hybrid Share

Synchronize data across multiple sites for fast and efficient multi-site teamwork. Powered by Synology C2 Storage, Hybrid Share requires purchase of a monthly or annual subscription

SAN Manager

Maximum iSCSI Target Number	256
Maximum LUN	512
LUN Clone/Snapshot, Windows ODX	Yes

Virtual Machine Manager

Recommended Virtual Machine Instances	40 (Learn more)
Recommended Virtual DSM Number (Licenses required)	40 (including 1 Free License)

Hyper Backup

Supports local backup, network backup, and data backup to other servers and public clouds, including C2 Storage

Snapshot Replication

Maximum Snapshots per Shared Folder	1,024
Maximum of System Snapshots	65,536

Synology High Availability

Reduces service downtime by combining two identical NAS into a high-availability cluster

Synology Chat

Maximum Number of Users	500
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Synology Office

Maximum Number of Users	17,500
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Synology MailPlus / MailPlus Server

A secure, reliable, and private mail solution featuring high-availability, load balancing, security, and filtering options

Free Email Accounts	5 (Additional accounts require purchase of licenses)
Maximum Number of Users	21,000

Surveillance Station

Default Licenses	2 (Additional cameras require purchase of licenses)
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Suggested Maximum IP Cameras and Total FPS (H.264)	<ul style="list-style-type: none">• 1080p: 500 channels, 5000 FPS• 3M: 450 channels, 4500 FPS• 5M: 300 channels, 3000 FPS• 4K: 220 channels, 2200 FPS
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Suggested Maximum IP Cameras and Total FPS (H.265)	<ul style="list-style-type: none">• 1080p: 600 channels, 16200 FPS• 3M: 500 channels, 5000 FPS• 5M: 450 channels, 4500 FPS• 4K: 300 channels, 3000 FPS
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Central Management System

Provides a single interface to manage and monitor multiple Synology NAS

VPN Server

Maximum Connections

32

Other packages

Additional 3rd-party packages are available in the Package Center

Environment & Packaging

Environment safety

RoHS Compliant

Packaging Content

- Main Unit X 1
- Synology SATA SSD X 2
- Rail Kit Sliding: RKS-03 X 1
- Accessory Pack X 1
- AC Power Cord X 2
- Quick Installation Guide X 1

Optional Accessories

- DDR4 ECC RDIMM: [D4ER01-32G](#)
- Expansion Units: [RX6025sas](#)
- Enterprise Series 3.5" SAS HDD: [HAS5300 Series](#)
- Enterprise Series 2.5" SATA SSD: [SAT5200 Series](#)
- 25GbE Network Interface Card: [E25G30-F2](#)
- 10GbE Network Interface Card: [E10G30-F2/E10G30-T2](#)

Notes

- For multi-module memory configurations, all modules must be identical and share the same model number. Check the [Product Manual](#) of your Synology product for recommended memory configurations.
- To install 2.5" SATA SSDs, optional 2.5" drive trays (R5) must be purchased separately. [Learn more](#)

Warranty

5 Years

Notes

The warranty period starts from the purchase date as stated on your purchase receipt. [\(Learn more\)](#)

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