# Synology®

## DiskStation
# DS1520+



## Capacity-scalable NAS with SSD Cache Acceleration Capability

Synology DiskStation DS1520+ is an ideal network-attached storage solution, suitable for small office and IT enthusiasts. Two built-in M.2 SSD slots and Synology SSD Cache technology allow you to boost system I/O and application performance. With scalable storage design, DS1520+ lets you start small and expand storage capacity with the Synology DX517 as your data grows[1].
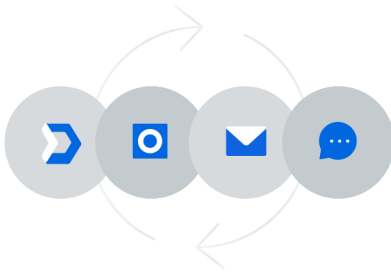
## Highlights

- **Accelerated Application Performance**
  Average 16% performance boost to photo indexing and other computing-intensive operations, as well as database response time[2]
- **Reach Optimal Performance and Capacity with SSD Cache**
  Built-in M.2 2280 NVMe SSD slots permit cache acceleration without occupying storage drive bays
- **Expand Storage with Ease**
  Flexibly scale up to fifteen drives to increase storage capacity as demand grows
- **Empower Collaboration and Productivity**
  Build an on-premises, multi-user collaboration environment with fined-grained control
- **Protect and Restore Data in a Snap**
  Back up critical data and reduce Recovery Time Objective (RTO) with Snapshot Replication
- **Ready to Go Virtualized**
  Set up and run mainstream virtual machines on your Synology NAS
- **Safeguard Your Physical Asset with 24/7 Surveillance**
  Feature-rich Surveillance Station with user-friendly management tools

## Streamline Your Data Management Experience

Synology DS1520+ is a powerful 5-bay desktop NAS that brings you a fast and smooth data management experience. Featuring four 1GbE LAN ports with network failover support, DS1520+ provides **451.28 MB/s sequential read** and **451.21 MB/s sequential write** throughput with Link Aggregation enabled[3]. DS1520+ also benefits computing-intensive applications, speeding up **Synology Drive** and **Moments** by an average 16%[2], and boosting **Web PHP response efficiency** by about 126% as compared to its predecessor, making data management simple and efficient.

DS1520+ comes with two built-in **M.2 SSD slots** with **Synology SSD Cache technology**. Random IO responsiveness can be boosted 20 times faster than spinning drives, with no need to occupy front drive bays. You can add up to 15 drives with two Synology DX517 for higher storage capacity[1].

## On-premises Collaboration & Synching Solution

DS1520+ comes with **Synology Collaboration Suite**, the productivity and file sharing solution that powers team collaboration while leveraging the advantages of the private cloud to fully control data and prevent data leaks -- through HTTPS support, a built-in firewall, and multiple IP and account intrusion auto-blocking mechanisms.

- **Synology Drive** enables data synchronization and backup via web portal and desktop applications across Windows®, macOS®, and Linux® platforms. Intelliversioning saves historical versions while minimizing storage space use and supports on-demand data restoration.
- **Synology Office** includes Documents, Spreadsheets, and Slides. Its online editing environment allows multiple users to edit, comment, and share company data simultaneously -- at no additional license fee.
- **Synology MailPlus** is a reliable mail server, accessible through an intuitive web-based client, that helps users to manage emails and increase productivity. MailPlus supports deployment in High-Availability clusters.
- **Synology Chat** enables instant conversations and optimizes team communications with powerful features including message encryption, pinning, forwarding, reminders, and scheduling.
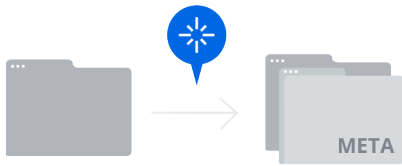


Synology Collaboration Suite

*A powerful and secure private cloud solution that lets teams collaborate, sync files, and communicate with others anytime, anywhere.*

**Next-Generation File System**

*Btrfs is a modern file system designed to safeguard data integrity through metadata mirroring, file self-healing, and fast snapshot replication.*

## Establish a Strong Storage Foundation with Btrfs

DS1520+ features a **Btrfs file system** optimized by Synology to offer you high reliability and high performance. Btrfs supports advanced storage technologies that meet the needs of modern business:

- **Advanced snapshot technology** provides schedulable and near-instantaneous data protection of shared folders and LUNs.
- **File and folder level data restoration** offers users who wish to restore only a specific file or folder more flexibility.
- **Flexible Shared Folder** and **User Quota System** provide comprehensive quota control on all user accounts and shared folders.
- **File self-healing** allows Btrfs file systems to auto-detect corrupted files using mirrored metadata and to recover broken data using RAID configurations.
- **Inline compression** compresses data before writing them to the drive, to optimize storage use and reduce write commands to the drives.

**Synology Backup Suite**

*A centralized, integrated, and license-free backup solution to protect every bit of your data.*

## Full Backup Suite

DS1520+ offers users a range of backup solutions for cloud and physical, on-premises environments. Backing up and restoring data is effortless – and completely free of licenses on compatible NAS models:

- Back up your cloud data: **Cloud Sync** enables users to seamlessly back up or synchronize data between a local Synology NAS and other cloud services.
- Back up your PCs and servers: **Synology Drive Client** backs up your Windows®, Mac®, and Linux® desktop devices to safeguard important computer files.
- Back up your Synology NAS: **Hyper Backup** offers a wide range of destinations for backups of your NAS, including on-premises and cloud.

## Virtualization-Ready Platform

*Synology's native hypervisor, Virtual Machine Manager, allows you to manage multiple virtual machines on your DS1520+ and run Windows®, Linux®, and Virtual DSM applications on your Synology NAS.*

## Always On Guard

*Protect your home and office with Synology's reliable and intuitive security solution. Surveillance Station combines intelligent monitoring and video management tools to safeguard your valuable assets.*

## Running & Protecting Virtual Machines

**Synology Virtual Machine Manager (VMM)** is an intuitive hypervisor application that lets users easily set up virtual machines and run operating systems including **Windows**®, **Linux**®, and **Virtual DSM**. With VMM, users can build up a cluster environment with multiple Synology systems while keeping the flexibility to scale out online and migrate virtual machines for load balancing and resource allocation. Disaster recovery features including instant snapshot, replication, cloning, restore and failover help you fully protect each virtual machine and safeguard your digital assets at no additional cost.

**VMM Pro** licenses give access to advanced features including remote replication, remote storage migration, high availability and live migration, helping users further minimize the risk of service downtime and manage IT resources with maximum flexibility.

## Automated Video Surveillance System

With Synology Surveillance Station, DS1520+ can act as a full-featured video surveillance system. Simply add network-connected cameras and you can monitor their live feeds, play back recordings, and receive instant event alerts right away[4].

- **Works with more than 7,300 IP cameras:** Pick any compatible model that suits your requirements and budget, or use the LiveCam app to turn an old smartphone into an IP camera.
- **No subscription fee:** Unlike security cameras that require monthly cloud storage subscription, all your recordings are stored on the DS1520+, 100% under your control.
- **Remote monitoring & control:** Access your surveillance system from a web browser, the desktop client, or the DS cam mobile app anytime, anywhere.
- **Automation & notification:** Set up rules to trigger specific actions when predefined events occur, such as automatically taking snapshots when motion is detected. Get notified by email, SMS, or push notification so that you can intervene in time.

# Hardware Overview

**Front**
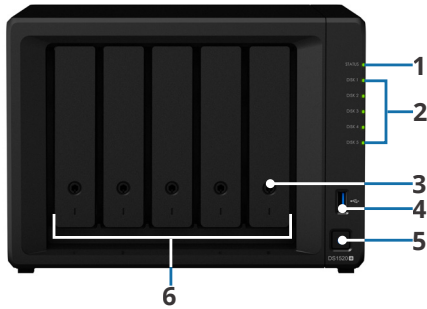


**Rear**
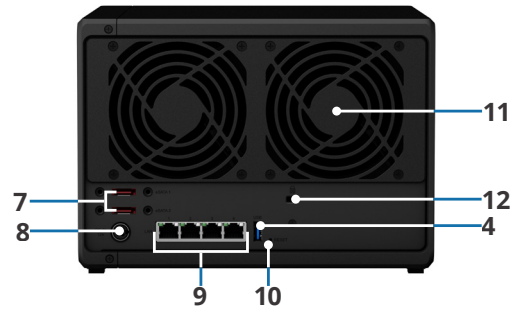


| 1 | Status indicator | 2 | Drive status indicator | 3 | Drive tray lock | 4 | USB 3.0 port |
|---|---|---|---|---|---|---|---|
| 5 | Power button and indicator | 6 | Drive tray | 7 | eSATA port | 8 | Power port |
| 9 | 1GbE RJ-45 port | 10 | Reset button | 11 | System fan | 12 | Kensington Security Slot |

# Technical Specifications

## Hardware

| | |
|---|---|
| CPU | Intel Celeron J4125 4-core 2.0 GHz, burst up to 2.7 GHz |
| Hardware encryption engine | Yes (AES-NI) |
| Memory | 8 GB DDR4 non-ECC (4 GB onboard & 4 GB SO-DIMM) |
| Compatible drive type | • 5 x 3.5" or 2.5" SATA HDD/SSD (drives not included)<br>• 2 x M.2 2280 NVMe SSD (drives not included) |
| Hot swappable drive | Yes |
| External port | • 2 x USB 3.0<br>• 2 x eSATA |
| Size (HxWxD) | 166 x 230 x 223 mm |
| Weight | 2.62 kg |
| LAN port | 4 x 1GbE RJ-45 |
| Wake on LAN/WAN | Yes |
| Scheduled power on/off | Yes |
| System fan | 2 (92 x 92 x 25 mm) |
| AC input power voltage | 100 V to 240 V AC |
| Power frequency | 50/60 Hz, single phase |
| Operating temperature | 0°C to 40°C (32°F to 104°F) |
| Storage temperature | -20°C to 60°C (-5°F to 140°F) |
| Relative humidity | 5% to 95% RH |
| Maximum operating altitude | 5,000 m (16,400 ft) |

## General DSM specification

| | |
|---|---|
| Networking protocol | SMB, AFP, NFS, FTP, WebDAV, CalDAV, iSCSI, Telnet, SSH, SNMP, VPN (PPTP, OpenVPN ™ , L2TP) |
| File system | • Internal: Btrfs, ext4<br>• External: Btrfs, ext4, ext3, FAT32, NTFS, HFS+, exFAT[5] |
| Supported RAID type | Synology Hybrid RAID (SHR), Basic, JBOD, RAID 0, RAID 1, RAID 5, RAID 6, RAID 10 |
| Storage management | • Maximum single volume size: 108 TB<br>• Maximum system snapshots: 65,536[6]<br>• Maximum internal volume: 64 |
| SSD cache | • Read/write cache support<br>• M.2 NVMe SSD support |
| File sharing capability | • Maximum local user account: 2,048<br>• Maximum local group: 256<br>• Maximum shared folder: 512<br>• Maximum concurrent SMB/NFS/AFP/FTP connection: 2,000 |
| Privilege | Windows Access Control List (ACL), application privilege |
| Directory service | Windows® AD integration: Domain users login via SMB/NFS/AFP/FTP/File Station, LDAP integration |
| Virtualization | VMware vSphere® 6.5, Microsoft Hyper-V® , Citrix®, OpenStack® |
| Security | Firewall, shared folder encryption, SMB encryption, FTP over SSL/TLS, SFTP, rsync over SSH, login auto block, Let's Encrypt support, HTTPS (customizable cipher suite) |
| Supported client | Windows 7 onwards, macOS® 10.12 onwards |
| Supported browser | Chrome®, Firefox®, Edge®, Internet Explorer® 10 onwards, Safari® 10 onwards; Safari (iOS 10 onwards), Chrome (Android™ 6.0 onwards) on tablets |
| Interface Language | English, Deutsch, Français, Italiano, Español, Dansk, Norsk, Svensk, Nederlands, Русский, Polski, Magyar, Português do Brasil, Português Europeu, Türkçe, Český, ภาษาไทย, 日本語, 한국어, 繁體中文, 简体中文 |

## Packages and Applications

| File Server & Synchronization | |
|---|---|
| Synology Drive | Provide a universal portal to synchronize your files across various platforms, including Windows, macOS, Linux, Android and iOS. The built-in universal portal allows you to access data anytime and anywhere.<br>• Maximum number of hosted files: 500,000<br>• Maximum number of concurrent connections for PC clients: 600 |
| File Station | Virtual drive, remote folder, Windows ACL editor, compressing/extracting archived files, bandwidth control for specific users or groups, creating sharing links, transfer logs |
| FTP Server | Bandwidth control for TCP connections, custom FTP passive port range, anonymous FTP, FTP SSL/TLS and SFTP protocol, boot over the network with TFTP and PXE support, transfer logs |
| Presto File Server[7] | High-speed data transfer over WAN with exclusive SITA technology between Synology NAS and desktop |
| Cloud Sync | One or two-way synchronization with public cloud storage providers including Alibaba Cloud OSS, Amazon S3-compatible storage, Backblaze B2, Baidu Cloud, Box, Dropbox, Google Cloud Storage, Google Drive, hubiC, MegaDisk, Microsoft OneDrive, OpenStack Swift-compatible storage, Tencent COS, WebDAV servers, Yandex Disk |
| Universal Search | Offer global search into applications and files |

| iSCSI Storage & Virtualization | |
|---|---|
| iSCSI Manager | • Maximum iSCSI target: 128<br>• Maximum iSCSI LUN: 256<br>• iSCSI LUN clone/snapshot support |
| Virtual Machine Manager | Deploy and run various virtual machines on Synology NAS, including Windows, Linux, or Virtual DSM |

| Data Protection & Backup Solution | |
|---|---|
| Hyper Backup | Support local backup, network backup, and backup data to public clouds |
| Backup tools | DSM configuration backup, macOS Time Machine support, Synology Drive Client desktop application<br>Shared folder sync - maximum task number: 32 |
| Snapshot Replication | • Maximum of shared folder snapshots: 1,024<br>• Maximum of Replication: 32 |
| Synology High Availability | Reduce service downtime by setting up two identical NAS into one high-availability cluster |
| Active Backup for G Suite | Support G Suite My Drive and Team Drive backup and restoration |

| | |
|---|---|
| Active Backup for Office 365 | Support Office 365 OneDrive for Business, mail, contacts, and calendar backup and restoration |
| Active Backup for Business | All-in-one backup solution designed for heterogeneous business IT environment, enabling IT admins to remotely manage and monitor protection over PC, servers and VM on one centralized console |

## Productivity & Collaboration

| | |
|---|---|
| Collaboration tools | Collaborate with instant message service Chat, online editor Office, and scheduling assistant Calendar<br>• Chat maximum user: 1,500<br>• Office maximum user: 3,400<br>• Calendar: support CalDAV and access via mobile devices |
| Note Station | Rich-text note organization and versioning, encryption, sharing, media embedding and attachments |
| Synology MailPlus Server | Secure, reliable, and private mail solution with high-availability, load balancing, security and filtering design (Includes 5 free email account licenses; additional accounts require the purchasing of additional licenses) |
| Synology MailPlus | Intuitive webmail interface for MailPlus Server, customizable mail labels, filters, and user interface |

## Multimedia

| | |
|---|---|
| Moments | Support smart AI album with facial and subject recognition, photo editing and sharing features, similar photo detection, auto-editing functions such as color correction and angle adjustments, and AI selection of the best photos. Mobile applications are available on iOS and Android devices |
| Other packages | Video Station, Photo Station, Audio Station, iTunes® Server |

## Surveillance

| | |
|---|---|
| Surveillance Station | Maximum IP camera: 40 (total of 1,200 FPS at 720p, H.264) (Including two free camera licenses; additional cameras require the purchasing of additional licenses) |

## All-in-One Server

| | |
|---|---|
| Synology Directory Server | Provide a flexible and cost-effective domain controller solution |
| Central Management System | Provide a single interface to manage and monitor multiple Synology NAS |
| VPN Server | Maximum connection: 30, supported VPN protocol: PPTP, OpenVPN™, L2TP/IPSec |
| Mail Server | Supported Mail Server Protocols: POP3, SMTP, IMAP, Support LDAP/AD account |
| Mail Station | Webmail interface for Mail Server to receive emails from multiple POP3 mailboxes, customizable SMTP server |
| Web Station | Virtual host (up to 30 websites), PHP/MariaDB®, third-party applications support |
| Other packages | DNS Server, RADIUS Server, Log Center |

## Others

| | |
|---|---|
| Storage Analyzer | Volume and quota usage, total size of files, volume usage and trends based on past usage, size of shared folders, large files, most recently modified files, least recently accessed files |
| Antivirus Essential | Full system scan, scheduled scan, white list customization, virus definition auto update |
| iOS/Android™ applications | Synology Drive, Synology MailPlus, Synology Chat, Synology LiveCam, Moments, DS audio, DS photo, DS video, DS cam, DS file, DS finder, DS note |
| Other packages | Additional 3rd-party packages available on Package Center |

## Environment and Packaging

| | |
|---|---|
| Environment safety | RoHS compliant |
| Package content | • DS1520+ main unit x 1<br>• Quick Installation Guide x 1<br>• Accessory pack x 1<br>• AC power adapter x 1<br>• AC power cord x 1<br>• RJ-45 LAN x 2 |
| Optional accessories[8] | • Expansion Unit: DX517<br>• M.2 2280 NVMe SSD: SNV3400<br>• 2.5" SATA SSD: SAT5200<br>• VisualStation: VS960HD/VS360HD<br>• Surveillance Device License Pack<br>• Synology MailPlus License Pack<br>• Virtual DSM License Pack |
| Warranty | 3 years[9] |

*Model specifications are subject to change without notice. Please refer to www.synology.com for the latest information.

1.  DS1520+ supports up to two Synology Expansion Unit DX517, sold separately.

2. Performance figures are based on the average percentage improvement of DS1520+ relative to its predecessor, as tested at Synology labs. Test items include file indexing in Synology Drive and photo indexing in Moments.
3. Performance figures may vary depending on environment, usage, and configuration.
4. Licenses may need to be purchased depending on the use case. To learn more, visit https://www.synology.com/products/Device_License_Pack
5. exFAT Access can be purchased separately in Package Center.
6. System snapshots include snapshots taken by iSCSI Manager, Snapshot Replication, and Virtual Machine Manager. Availability of these packages varies by model.
7. Presto File Server license can be purchased separately in Package Center.
8. Please refer to www.synology.com/compatibility for the latest optional accessories list.
9. 5-year warranty is available as an optional bundle with EW201, a 2-year Extended Warranty service add-on. Visit https://www.synology.com/en-global/products/Extended_Warranty for more information on availability. The warranty period starts from the purchase date as stated on your receipt of purchase. Visit https://www.synology.com/company/legal/warranty for more information.