

Product Specifications



# RS1221+

Synology

# Hardware Specs

CPU	
CPU Model	AMD Ryzen V1500B
CPU Quantity	1
CPU Cores	4
CPU Threads	8
CPU Architecture	64-bit
CPU Frequency	2.2 GHz
Hardware Encryption Engine	v

Memory	
System Memory	4 GB DDR4 ECC SODIMM
Memory Module Pre-installed	4 GB (4 GB x 1)
Total Memory Slots	2
Maximum Memory Capacity	32 GB (16 GB x 2)
Notes	<ul style="list-style-type: none"> <li>• Synology may revise pre-installed memory module specifications in response to component lifecycle and supply conditions. All revised components undergo the same rigorous validation to ensure equivalent compatibility, stability, and performance.</li> <li>• 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.</li> <li>• For multi-module memory configurations, all modules must be identical and share the same model number. Check the <a href="#">Product Manual</a> of your Synology product for recommended memory configurations.</li> </ul>

Storage	
Drive Bays	8
Maximum Drive Bays with Expansion Unit	12 (RX418 x 1)
Drive Type ( <a href="#">See all supported drives</a> )	<ul style="list-style-type: none"> <li>• 3.5" SATA HDD</li> <li>• 2.5" SATA HDD</li> <li>• 2.5" SATA SSD</li> </ul>
Hot Swappable Drive*	v

## External Ports

RJ-45 1GbE LAN Port	4
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USB 3.2 Gen 1 Port	2
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Expansion Port	1
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Expansion Port Type	eSATA
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## PCIe

PCIe Expansion	1 x Gen3 x8 slot (x4 link)
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## Appearance

Form Factor (RU)	2U
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Size (Height x Width x Depth)	88 mm x 482 mm x 306.6 mm
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Weight	6.9 kg
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Rack Installation Support*	<ul style="list-style-type: none"><li>• 4-post 19" rack (Synology Rail Kit - <a href="#">RKM114/RKS-02</a>)</li><li>• 2-post 19" rack (direct mounting)</li></ul>
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Notes	The rail kit is sold separately
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Others	
System Fan	80 mm x 80 mm x 2 pcs
Fan Speed Mode	<ul style="list-style-type: none"> <li>• Full-Speed Mode</li> <li>• Cool Mode</li> <li>• Quiet Mode</li> </ul>
Power Recovery	v
Noise Level*	37.8 dB(A)
Scheduled Power On / Off	v
Wake on LAN / WAN	v
Power Supply Unit / Adapter	250 watts
AC Input Power Voltage	100 V to 240 V AC
Power Frequency	50/60 Hz, Single Phase
Power Consumption	49.89 watts (Access) 22.64 watts (HDD Hibernation)
British Thermal Unit	170.23 BTU/hr (Access) 77.25 BTU/hr (HDD Hibernation)
Notes	<ul style="list-style-type: none"> <li>• Power consumption is measured when it is fully loaded with Western Digital 1TB WD10EFRX hard drive(s).</li> <li>• Noise Level Testing Environment: Fully loaded with Seagate 2TB ST2000VN000 hard drive(s) in the idle state. Two G.R.A.S. Type 40AE microphones, each set up 1 meter away from the Synology NAS at the front and rear. Background noise: 16.49-17.51 dB(A); Temperature: 24.25-25.75°C; Humidity: 58.2-61.8%</li> </ul>

## Temperature

Operating Temperature	0°C to 35°C (32°F to 95°F)
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Storage Temperature	-20°C to 60°C (-5°F to 140°F)
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Operating Humidity	8% to 80% RH
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Storage Humidity	5% to 95% RH
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## Certification

- FCC
- CE
- BSMI
- VCCI
- RCM
- EAC
- CCC
- KC
- BIS
- UL

## Warranty

3-year hardware warranty, extendable to 5 years with [EW202](#) or [Extended Warranty Plus](#)

### Notes

- The warranty period starts from the purchase date as stated on your purchase receipt. ([Learn more](#))
- [Extended Warranty Plus](#) is only available in Europe and North America. [EW201/EW202](#) is only available in Asia, Africa, and Oceania. For exact availability information please visit their respective websites.

## Environment

RoHS Compliant

## Packaging Content

- Main Unit X 1
- Accessory Pack X 1
- AC Power Cord X 1
- C13 to C14 power cord X 1
- Quick Installation Guide X 1

## Optional Accessories

- DDR4 ECC SODIMM: [D4ES04-4G/D4ES01-8G/D4ES03-16G](#)
- Expansion Units: [RX418](#)
- Enterprise Series 3.5" SATA HDD: [HAT5300 Series](#)
- Plus Series 3.5" SATA HDD: [HAT3300 Series](#)
- Enterprise Series 2.5" SATA SSD: [SAT5200 Series](#)
- M.2 SSD & 10GbE Combo Adapter Card: [E10M20-T1](#)
- M.2 SSD Adapter Card: [M2D20/M2D18](#)
- 25GbE Network Interface Card: [E25G30-F2](#)
- 10GbE Network Interface Card: [E10G30-F2/E10G30-T2/E10G18-T1](#)
- Rail Kit Sliding: [RKS-02](#)
- Rail Kit Mounted: [RKM114\\*](#)

## Notes

- Certain items may not be available in your location. Please contact your local distributors for more information.
- All memory modules will operate at the maximum frequency specified by the CPU manufacturer.
- Upgrade to DSM 7.2-64551 or later before installing the M2D18.

# Software Specs

## DSM Specifications

Storage Management	
Maximum Single Volume Size	108 TB
Maximum Internal Volume Number	64
SSD Read/Write Cache (Determining cache size)	v
SSD TRIM	v
Supported RAID Type	<ul style="list-style-type: none"><li>• Synology Hybrid RAID</li><li>• Basic</li><li>• JBOD</li><li>• RAID 0</li><li>• RAID 1</li><li>• RAID 5</li><li>• RAID 6</li><li>• RAID 10</li></ul>
RAID Migration	<ul style="list-style-type: none"><li>• Basic to RAID 1</li><li>• Basic to RAID 5</li><li>• RAID 1 to RAID 5</li><li>• RAID 5 to RAID 6</li></ul>
Volume Expansion with Larger HDDs	<ul style="list-style-type: none"><li>• Synology Hybrid RAID</li><li>• RAID 1</li><li>• RAID 5</li><li>• RAID 6</li><li>• RAID 10</li></ul>
Volume Expansion by Adding a HDD	<ul style="list-style-type: none"><li>• Synology Hybrid RAID</li><li>• JBOD</li><li>• RAID 5</li><li>• RAID 6</li></ul>

Global Hot Spare Supported RAID Type	<ul style="list-style-type: none"> <li>• Synology Hybrid RAID</li> <li>• RAID 1</li> <li>• RAID 5</li> <li>• RAID 6</li> <li>• RAID 10</li> </ul>
Notes	<ul style="list-style-type: none"> <li>• Each internal volume (may consist of multiple drives) is expandable up to 108TB.</li> <li>• Actual maximum storage pool and volume sizes depend on drive sizes used, the number of drive bays available, and the RAID configuration.</li> <li>• 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.</li> </ul>

File System	
Internal Drives	<ul style="list-style-type: none"> <li>• Btrfs</li> <li>• ext4</li> </ul>
External Drives	<ul style="list-style-type: none"> <li>• Btrfs</li> <li>• ext4</li> <li>• ext3</li> <li>• FAT32</li> <li>• NTFS</li> <li>• HFS+</li> <li>• exFAT</li> </ul>

## File Services

File Protocol	<ul style="list-style-type: none"><li>• SMB</li><li>• AFP</li><li>• NFS</li><li>• FTP</li><li>• WebDAV</li><li>• Rsync</li></ul>
Maximum Number of SMB Connections (FSCT-Based)	180
Windows Access Control List (ACL) Integration	v
NFS Kerberos Authentication	v
Notes	<ul style="list-style-type: none"><li>• Connection value of this model is tested with Synology SATA HDD fully populated and all onboard network ports</li><li>• Models with expandable memory are tested with the maximum supported quantity installed.</li><li>• SMB performance was evaluated using Microsoft File Server Capacity Tool (FSCT) version 1.3, with the following configuration:<ul style="list-style-type: none"><li>◦ Test workload: HomeFolder scenario provided by the FSCT tool</li><li>◦ Test duration: 600 seconds</li><li>◦ Domain controller &amp; FSCT controller: Windows Server 2022</li><li>◦ FSCT clients: 8 × Windows 10 machines</li><li>◦ SMB feature: Directory leasing enabled</li></ul></li></ul>

### Account & Shared Folder

Maximum Local User Accounts	1,024
Maximum Local Groups	256
Maximum Shared Folder	256
Maximum Shared Folder Sync Tasks	8

### Hybrid Share

Maximum Hybrid Share Folders	10
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### Hyper Backup

Folder and Package Backup	v
Entire System Backup	v
Notes	Full-system backup requires DSM 7.2 or later.

### High Availability

Synology High Availability	v
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### Log Center

Syslog Events per Second	1,000
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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, ESXi 6.7 U3, ESXi 6.7 U2, ESXi 6.7 U1, ESXi 6.7, ESXi 6.5 U3, ESXi 6.5 U2, ESXi 6.5 U1, ESXi 6.5
Microsoft Hyper-V	Windows Server 2022, Windows Server 2019, Windows Server 2016
Citrix XenServer	XenServer 8, Citrix Hypervisor 8.2 LTSR CU1
OpenStack	Cinder

General Specifications	
Supported Protocols	SMB1 (CIFS), SMB2, SMB3, NFSv3, NFSv4, NFSv4.1, NFS Kerberized sessions, iSCSI, HTTP, HTTPs, FTP, SNMP, LDAP, CalDAV
Supported Browsers	<ul style="list-style-type: none"> <li>• Chrome</li> <li>• Firefox</li> <li>• Edge</li> <li>• Safari</li> </ul>
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 <a href="#">DSM Technical Specifications</a> .

Add-on Packages [view the complete package list](#)

### Central Management System

v

## Synology AI Console

Third-Party AI Model Integration	v
Maximum De-Identification Rate	180 words per second
Notes	<ul style="list-style-type: none"><li>• 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.</li><li>• To enable de-identification, your device must have at least 8 GB of memory and Container Manager installed.</li></ul>

## Synology Chat

Maximum Number of Users	150
Notes	<ul style="list-style-type: none"><li>• Measured with simulated users, each with an average record of 20,000 messages, emojis, or stickers. The required server response time is below ten seconds.</li><li>• Models with expandable memory are tested with the maximum supported quantity installed.</li></ul>

## Download Station

Maximum Concurrent Download Tasks	80
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## SAN Manager

Maximum iSCSI Target Number	64
Maximum LUN	128
LUN Clone/Snapshot, Windows ODX	v

## Synology MailPlus / MailPlus Server

Free Email Accounts	5 ( <a href="#">Additional accounts require purchase of licenses</a> )
Maximum Number of Users	380
Notes	<ul style="list-style-type: none"><li>• The suggested maximum number of users is based on the following workload: 20% of users with a 20,000 item mailbox randomly performing actions and receiving 240 emails per day, and 80% of users receiving 20 emails per day. <a href="#">Learn more</a></li><li>• Models with SSD support are tested with a single SSD volume.</li><li>• Models with expandable memory are tested with the maximum supported quantity installed. <a href="#">Learn more about memory requirements.</a></li><li>• Operating in high-availability mode will incur additional overhead.</li><li>• Features enabled during evaluation: anti-spam, anti-virus, DNSBL, greylist, content scanning, and full-text search (English).</li></ul>

## Media Server

DLNA Compliance	v
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## Synology Photos

Facial Recognition	v
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Object Recognition	v
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## Snapshot Replication

Maximum Snapshots per Shared Folder	256
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Maximum Snapshots per LUN	64
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Maximum Snapshots per System	4,096
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Maximum Replication Tasks for Shared Folders	32
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Maximum Replication Tasks for LUNs	16
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Maximum Replication Tasks per System	32
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## Surveillance Station

Default Licenses	2 (Additional cameras require purchase of licenses)
Maximum IP Cameras and Total FPS (H.264)	<ul style="list-style-type: none"><li>• 1080p: 40 channels, 1050 FPS</li><li>• 3M: 40 channels, 600 FPS</li><li>• 5M: 40 channels, 440 FPS</li><li>• 4K: 32 channels, 320 FPS</li></ul>
Maximum IP Cameras and Total FPS (H.265)	<ul style="list-style-type: none"><li>• 1080p: 40 channels, 1200 FPS</li><li>• 3M: 40 channels, 1120 FPS</li><li>• 5M: 40 channels, 600 FPS</li><li>• 4K: 40 channels, 480 FPS</li></ul>
Notes	<ul style="list-style-type: none"><li>• Performance figures are obtained from testing conducted with the device fully populated with drives, with their default memory configuration, and under a continuous recording setup. Actual system capabilities may vary based on configuration, drive performance, enabled features, and the presence of additional workloads.</li><li>• Use <a href="#">NVR Selector</a> to quickly find a suitable model based on your requirements.</li><li>• The number of video channels that can be viewed simultaneously is double the maximum number of cameras for the same codec and resolution.</li></ul>

## Synology Drive

Maximum Number of Users

320

Maximum Number of Hosted Files

5,000,000 (applies to files indexed or hosted by [Synology Drive](#). For file access through other standard protocols, refer to the File Services section above)

Notes

- The suggested maximum number of users is based on the following workload: 20% of users randomly perform file operations (upload, download, move, and delete), and 80% of users are logged in but idle. [Learn more](#)
- Models with SSD support are tested with a single SSD volume.
- Models with expandable memory are tested with the maximum supported quantity installed.
- Exceeding the recommended numbers above will not block application operations, but may result in longer response time.
- Btrfs file system and non-encrypted shared folders were used during the aforementioned testing.

## Synology Office

Maximum Number of Users

320

Notes

- The suggested maximum number of users is based on the following workload: 20% of users are executing random actions at an average of 30-second intervals, and 80% of users are logged in and viewing a file. [Learn more](#)
- Models with SSD support are tested with a single SSD volume.
- Models with expandable memory are tested with the maximum supported quantity installed.
- Client performance may affect maximum simultaneous editing users. Client PCs used for testing: Intel Core i3-3220 / 8GB RAM

## Virtual Machine Manager

Recommended Virtual Machine Instances

8 ([Learn more](#))

Recommended Virtual DSM Number ([Licenses required](#))

8 (including 1 Free License)

Notes

The specifications vary depending on system configuration and memory size.

## VPN Server

Maximum Connections

8