3.5" SATA HDD

HAT5300

High-performance and reliable hard drives for Synology systems
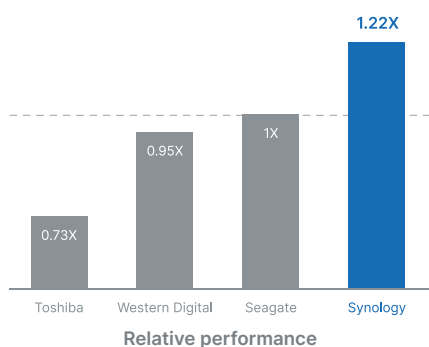
Synology

Why Synology drives?

Tailoring storage media to our hardware and software solutions keeps system variability under manageable levels, enabling us to optimize more effectively for performance and reliability. More predictability also allows us to overcome the challenge of constantly validating third-party drives, which are often marketed under similar names even when manufacturing processes, recording technologies, and the firmware change. Synology drives ensure that our storage systems are more reliable, easier to maintain, and have an edge in performance.

+36%
sequential read performance[1]

Firmware optimization for Synology hardware and software results in the highest performance achievable within the Synology ecosystem when tackling demanding applications such as enterprise file serving, multimedia post-production, and large-scale video surveillance.

-19%
support issues[2]

With full control over all elements of the storage system — hardware components, the Synology DSM operating system, and storage media — Synology engineers were able to achieve a level of integration otherwise impossible, ensuring reliability under all circumstances.

A testing regimen designed to replicate heavy data center use provides increased chances to identify and resolve deficiencies in how each drive responds in demanding environments.

Seamless
firmware updates

Firmware updates are critical in protecting the system against data corruption and in enabling users to leverage performance and functional enhancements as soon as they are available. Direct integration with DSM provides a convenient and simple update process.

Relative performance

	0.73X	0.95X	1X	1.22X
	Toshiba	Western Digital	Seagate	Synology

	Synology HAT5300	3rd-party drives
	Notifications for critical updates	Manual checking for updates required
	On-system update	Drives must be connected to a PC
	Batch updating with built-in updater	Individual update with dedicated tool

Stress tests
1,000+
cycles

Cumulative testing
300K+
hours

One-stop support

Single contact window for support on the entire solution.

No back-and-forth between vendors when drive issues arise.

Reliable supply backed by continuous testing and validation.

Faster troubleshooting with Synology's expertise in storage technology.

Product specifications

Model number	HAT5300-4T	HAT5300-8T	HAT5300-12T	HAT5300-16T
Capacity[3]	4 TB	8 TB	12 TB	16 TB
Form factor[4]	3.5"			
Interface	SATA 6 Gb/s			
Sector size	512e			
Performance				
Rotational speed	7,200 rpm			
Interface speed	6.0 Gb/s, 3.0 Gb/s, 1.5 Gb/s			
Buffer size[5]	256 MiB			512 MiB
Maximum sustained data transfer speed (Typ.)	243 MiB/s	230 MiB/s	242 MiB/s	262 MiB/s
Reliability				
Mean Time to Failure (MTTF)[6]	2,000,000 hours	2,500,000 hours		
Workload rating[7]	550 total TB transferred per year			
Warranty[8]	5 years			
Power consumption				
Supply voltage	12 V (±10%) / 5 V (+10/-7%)			
Active Idle (Typ.)	4.07 W	6.38 W	4.25 W	4.00 W
Random Read/Write 4KB Q1 (Typ.)	7.76 W	9.10 W	7.83 W	7.63 W
Environmental conditions				
Temperature — Operating	5°C to 60°C (41°F to 140°F)			
Temperature — Non-operating	-40°C to 70°C (-40°F to 158°F)			
Shock — Operating	686 m/s^2 {70 G} (2 ms duration)			
Shock — Non-operating	2,940 m/s^2 {300 G} (2 ms duration)	2,450 m/s^2 {250 G} (2 ms duration)		
Vibration — Operating	7.35 m/s^2 {0.75 G} (5 to 300 Hz), 2.45 m/s^2 {0.25 G} (300 to 500 Hz)			
Vibration — Non-operating	29.4 m/s^2 {3.0 G} (5 to 500 Hz)			
Altitude — Operating	-305 m to 3,048 m			
Altitude — Non-operating	-305 m to 12,192 m			
Relative humidity — Operating	5% to 90% R.H. (no condensation)			
Relative humidity — Non-operating	5% to 95% R.H. (no condensation)			
Others				
Size (H x W x D)	26.1 mm x 101.85 mm x 147 mm			
Weight	693 g	770 g	720 g	
Certification	CE, RCM, BSMI, KC, EAC, UL, TUV, ICES, UKCA, RoHS			

Please note: Model specifications are subject to change without advance notice. Please refer to **www.synology.com** for the latest information. Product images are for illustrative purposes only. Actual product may appear with different labeling or housing, which do not affect the performance characteristics of the product.

1. Compared to industry average. Performance testing was conducted by Synology with IOMeter (64 KB blocks) using 12 drives on an SA3600, configured using RAID 5 and a Btrfs file system, against the following drives: Western Digital Ultrastar DC HC520 (HUH721212ALE600), Seagate Exos X12 (ST12000NM0007), and Toshiba MG07 (MG07ACA12TE). Results are for reference only. Actual performance may vary depending on workload, testing methods, and how devices and software are configured.
2. Based on support tickets submitted to Synology. Comparison made between average number of storage and drive-related issues from devices with the more stringent compatibility policy versus without during the same time period.
3. Definition of capacity: Hard drives define a terabyte (TB) as 1,000,000,000,000 bytes. A computer operating system, however, reports storage capacity using powers of 2 for the definition of 1GB = 2^{30} = 1,073,741,824 bytes and therefore shows less storage capacity. Available storage capacity will vary based on file size, formatting, settings, software, and operating system. Actual formatted capacity may vary.
4. "3.5-inch" is the form factor of HDDs. It does not indicate the drive's physical size.
5. A mebibyte (MiB) means 2^{20} bytes, or 1,048,576 bytes. MB/s is 10^6 bytes.
6. Mean Time to Failure (MTTF) is not a guarantee or estimate of product life; it is a statistical value related to mean failure rates for a large number of products which may not accurately reflect actual operation. Actual operating life of the product may be different from the MTTF.
7. Workload is defined as the amount of data written, read, or verified by commands from the host system.
8. The warranty period starts from the purchase date as stated on the receipt of purchase. Visit **https://www.synology.com/company/legal/warranty** for more information.