Synology®

M.2 NVMe SSD
Enterprise Series

Durable SSDs Built for Demanding Caching Workloads

Synology Enterprise Series M.2 NVMe SSDs are designed to handle demanding caching workloads in 24/7 high-concurrency scenarios. Their strong sustained I/O performance makes them ideal for systems used as high-performance file servers, database storage, and virtualization environments. These drives feature advanced lifetime analytics[1] and are backed by Synology's 5-year limited warranty[2].

Highlights

- **High Performance**
  Up to 660,000/120,000 sustained 4K random read/write IOPS[3]

- **Enterprise-Grade Endurance**
  Suitable for intensive caching workloads with up to 2,900 TBW[4]

- **Robust Data Protection**
  End-to-end data protection ensures data integrity

- **Lifetime Analytics**
  Stay on top of drive health with lifetime wear analytics and notifications[1]

- **Built for Synology Systems**
  Proven interoperability through rigorous validation and automatic firmware updates[5] through Synology DSM

Caching for Enterprise Workloads

Enterprise Series M.2 NVMe drives are engineered to deliver reliable, high-speed caching in demanding 24/7 environments, enhancing I/O performance and minimizing latency. With up to **660,000/120,000 4K random read/write IOPS**[3] and up to a **2,900 TBW** endurance rating,[4] these drives offer a robust caching solution ideal for multi-user environments, all without occupying 3.5" drive bays.

Data Integrity Safeguards

SSD caching boosts system read/write performance by storing transient data in solid-state drives to increase retrieval efficiency and by reducing reoccurring requests to the primary storage. Data integrity is important, as cached data are continuously relocated. Synology Enterprise Series M.2 NVMe SSDs drives offer **end-to-end data protection** to safeguard data integrity over the entire transfer path. SNV5400 Series drives feature a **power loss protection circuit design**[6] with **dedicated capacitors**. This system prevents data corruption during abnormal shutdowns by ensuring data-in-flight is safely written to NAND flash. Additionally, the firmware enables a proper restart upon the next power-up.

Real-World Workload Analytics

Full integration with **Synology DiskStation Manager (DSM)** operating system allows Synology systems to provide lifetime analytics[1] based on actual workloads. This enables easy monitoring, allowing users to track SSD usage and make optimal use of each drive. Additionally, the system provides timely notifications of drive health and remaining life, aiding system administrators in planning ahead for replacements to ensure uninterrupted system performance.

Purpose-Built for Synology Systems

Synology M.2 NVMe SSDs are rigorously tested for compatibility with Synology systems following each engineering change, with firmware and component changes strictly managed to ensure optimal performance and reliability. Firmware updates can be easily installed through Synology DiskStation Manager (DSM) with a single click.[5] All products undergo intensive I/O stress, power cycling, and temperature trials to meet Synology's strictest standards for quality and reliability, guaranteeing consistent performance and compatibility.

Technical Specifications

Hardware specifications

Series	SNV3400		SNV5400		
Model number	SNV3410-400G	SNV3410-800G	SNV5420-400G	SNV5420-800G	SNV5420-1600G
Capacity	400 GB	800 GB	400 GB	800 GB	1600 GB
Form factor	M.2 2280				
Interface	NVMe PCIe 3.0 ×4				
Performance[7,8]					
Sequential read (128 KB, QD32)[3]	3,000 MB/s	3,100 MB/s		3,000 MB/s	
Sequential write (128 KB, QD32)[3]	750 MB/s	1000 MB/s	650 MB/s	1,000 MB/s	
Random read (4 KB, QD256)[3]	225,000 IOPS	400,000 IOPS	225,000 IOPS	400,000 IOPS	660,000 IOPS
Random write (4 KB, QD256)[3]	45,000 IOPS	70,000 IOPS	45,000 IOPS	70,000 IOPS	120,000 IOPS
Endurance and Reliability					
Terabytes Written (TBW)[4]	491 TB	1,022 TB	>700 TB	>1,400 TB	>2,900 TB
Mean Time Between Failures (MTBF)[9]	1,800,000 hours		3,000,000 hours		
Uncorrectable Bit Error Rates (UBER)	<1 sector per 10^{17} bits read				
Power loss protection[6]	-		Yes		
Warranty[2]	5 years				
Power Consumption					
Supply voltage	3.3 V (± 5%)				
Active read (Typ.)	3.5 W	5.5 W	5.0 W	5.0 W	5.0 W
Active write (Typ.)	3.3 W	4.6 W	5.5 W	5.5 W	5.5 W
Idle power average	1.6 W	1.6 W	2.5 W	2.5 W	2.5 W

Temperature		
Operating temperature	0°C to 70°C (32°F to 158°F)	0°C to 85°C (32°F to 185°F)
Storage temperature	-40°C to 85°C (-40°F to 185°F)	
Others		
Size (H x W x D)	3.5 mm x 22 mm x 80 mm	
Certification	FCC, CE, EAC, BSMI, VCCI, KC, RoHS, UKCA, UL	

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

1. Lifetime analytics are available in DSM 6.2.3-25426 and above.

2. The warranty period starts from the purchase date as stated on your receipt of purchase. The 5-year limited warranty provides coverage until the end of the warranty period or until the endurance usage of the drive has been reached, whichever comes first. Learn more about our limited product warranty policy.

3. Performance measured using FIO on Linux with Queue Depth 32 (128 KB = 131,072 bytes; 4 KB = 4,096 bytes).

4. The TBW specifications denote the baseline endurance levels for Synology SSDs and are calculated using the JESD219A enterprise workload.

5. One-click firmware updates are available in DSM 6.2.4-25556 and above.

6. Power loss protection circuit design is available on SNV5400 Series drives to further prevent data corruption in case of power failure.

7. The specifications have undergone thorough review and verification by Synology to ensure they meet the performance demands and compatibility standard of each Synology system while providing high reliability.

8. All performance measurements refer to sustained performance achieved in a steady state, as defined by test specifications in accordance with the Storage Networking Industry Association (SNIA). Performance specifications represent single-unit SSD results obtained from Synology's testing environment; actual performance may vary depending on the host system's hardware and software configuration.

9. Mean time between failures (MTBF) is not an estimate or guarantee of product life. It is a statistical value related to mean failure rates for a large number of products and may not accurately reflect actual operation. Actual operating life of the product may be different from the MTBF.

Safety Information

Waste Electrical and Electronic Equipment recycling (WEEE)

The following information is only for EU-member states:

The use of the symbol indicates that this product may not be treated as household waste. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. For more detailed information about recycling this product, please contact your local city office, household waste disposal service, or the shop where you purchased the product.

Electrostatic Discharge Warning

Storage drives are susceptible to damage from electrostatic discharge (ESD) during handling. To protect against ESD, take appropriate measures when handling or installing drives. Ensure you are grounded using, e.g., an anti-static wrist wrap and refrain from touching connectors or the circuit board.