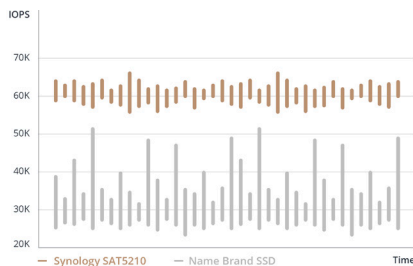# Synology®

2.5" SATA SSD

SAT5210

High Performance SSDs with Enterprise-Grade Endurance and Reliability

Synology SAT5210 series SSDs offer stable I/O performance while reducing the latency of critical services and applications. They are built to handle mixed and intensive I/O workloads without compromising on endurance, providing a streamlined storage experience on Synology systems and minimizing service disruptions. SAT5210 SSDs come with advanced lifetime analytics[3] and are backed by Synology's 5-year limited warranty.[5]

Highlights

- **Stable High Performance**
  Stable performance of up to 67,000 4K random write IOPS for demanding I/O[1]
- **Enterprise-Grade Endurance**
  Suitable for intensive and mixed storage workloads with up to 8,533 TBW[2]
- **Robust Data Protection**
  End-to-end data protection and power loss protection prevent data corruption
- **Lifetime Analytics**
  Actionable insight helps make optimal use of SAT5210 SSD performance and longevity[3]
- **Built for Synology Systems**
  Proven interoperability through rigorous validation and automatic firmware updates via Synology DSM[4]
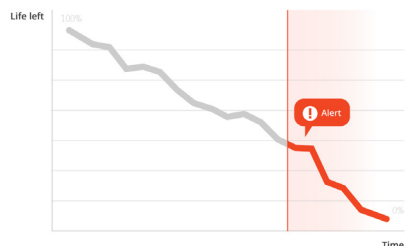
Consistent Performance

Synology SAT5210 drives deliver twice the IOPS and much more stable performance when compared with name brand SSDs.

SSD Lifetime Analytics

Full integration with Synology DSM allows for SSD remaining lifetime analytics based on each SAT5210 unit's actual workload.

Stable High Performance for Demanding Workloads

Engineered for demanding workloads such as multimedia post-production, online transaction processing (OLTP) databases, and virtualization deployments, Synology SAT5210 SSDs improve the performance and responsiveness of I/O intensive applications. They allow firms to modernize their existing storage infrastructure and boost performance at a competitive per-unit cost. At up to **67,000 4K random write IOPS**,[1] SAT5210 drives deliver stable, consistent performance, and twice the IOPS of name brand SSDs.

Enterprise-Grade Endurance and Data Protection

Synology SAT5210 SSDs are built to withstand 24/7 intensive and mixed workloads in all-flash storage and cache applications with an enterprise endurance of up to **8,533 TBW**.[2] SAT5210 SSDs support **end-to-end data protection** to safeguard data integrity over the entire transfer path. **Power loss protection circuit design** prevents data corruption. **Dedicated capacitors** provide power to flush data-in-flight into NAND flash in a power loss event and firmware is designed to enable a correct restart on the next power-up.

Lifetime Analytics Based on Your Workload

Full integration with **Synology DiskStation Manager (DSM)** allows Synology systems to provide lifetime analytics[3] based on actual workloads for each SAT5210 drive. Timely notifications allow you to plan further ahead for uninterrupted system performance and longevity. Easy monitoring allows you to make optimal use of each SSD.

Purpose-Built for Synology Systems

Firmware versions and component changes can over time cause SSD compatibility issues. Synology SAT5210 drives are thoroughly tested for compatibility with our systems following each engineering change, while firmware and component changes are strictly managed. Firmware updates can be installed through Synology DSM at a touch of a button.[4] Intensive I/O stress, power cycling, and temperature trials ensure that all products meet our strictest standards for quality and reliability.

Technical Specifications

Hardware specifications

Model number	SAT5210-480G	SAT5210-960G	SAT5210-1920G	SAT5210-3840G
Capacity	480 GB	960 GB	1.92 TB	3.84 TB
Form factor	2.5" 7 mm			
Interface	SATA 6 Gb/s			
Performance				
Sequential read (128 KB, QD32)[1]	530 MB/s			
Sequential write (128 KB, QD32)[1]	500 MB/s			
Random read (4 KB, QD32)[1]	96,000 IOPS	98,000 IOPS	98,000 IOPS	98,000 IOPS
Random write (4 KB, QD32)[1]	55,000 IOPS	67,000 IOPS	60,000 IOPS	60,000 IOPS
Endurance and Reliability				
Terabytes Written (TBW)[2]	1,097 TB	2,194 TB	4,800 TB	8,533 TB
Mean Time Between Failures (MTBF)	1.5 million hours			
Uncorrectable Bit Error Rates (UBER)	<1 sector per 10^{17} bits read			
Power loss protection	Yes			
Warranty	5 years[5]			
Power Consumption				
Supply voltage	5 V (±5%)			
Active read (Typ.)	2.4 W	2.7 W	2.8 W	2.8 W
Active write (Typ.)	2.8 W	2.8 W	3.1 W	3.3 W
Idle	1.3 W	1.4 W	1.4 W	1.4 W
Temperature				
Operation temperature	0°C to 70°C (32°F to 158°F)			
Storage temperature	-40°C to 85°C (-40°F to 185°F)			
Others				
Dimension (H x W x D)	7.0 mm x 69.85 mm x 100 mm			
Environment	RoHS compliant			
Certification	FCC, CE, EAC, BSMI, VCCI, RCM, KC, UKCA			

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

1. Performance measured using FIO on Linux with Queue Depth 32 (128 KB = 131,072 bytes; 4 KB = 4,096 bytes).
2. The endurance rating is calculated based on JESD219A enterprise workload.
3. Lifetime analytics are available in DSM 6.2.3-25426 and above.
4. Automatic firmware updates are available in DSM 6.2.4-25556 and above.
5. 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.

SAT5210-2021-ENU-REV001