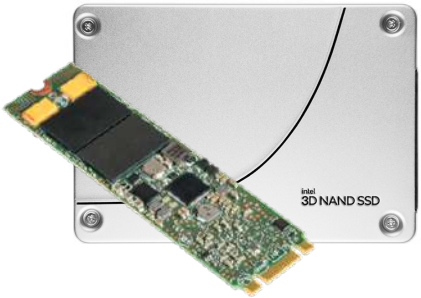
Product Brief

Intel® SSD D3-S4520 and Intel® SSD D3-S4620
Data Center, SATA, 144-Layer TLC Intel® 3D NAND

Storage Inspired. Infrastructure Optimized.

Replace HDDs with the highly-efficient Intel® SSD D3-S4520 and Intel® SSD D3-S4620 to reduce storage operating costs and accelerate read-intensive and mixed-use workloads with power-efficient performance.



Featuring the latest-generation 144-Layer, TLC, Intel® 3D NAND, Intel® SSD D3-S4520 and D3-S4620 Series are designed to reduce storage operating cost, accelerate read-intensive and mixed workloads with power-efficient performance, and improve overall system reliability and flexibility, while preserving legacy infrastructure.

These reliable SSDs meet demanding service level requirements while increasing server efficiency. The fourth-generation Intel controller and innovative firmware paired with the latest generation of Intel® 3D NAND make the SSD D3-S4520 and D3-S4620 Series compatible with existing SATA deployments for an easy storage upgrade.

Reduce operating costs while preserving infrastructure investment

Built for compatibility with legacy infrastructures, the SSD D3-S4520 and D3-S4620 reduce the costs associated with modernizing your data center. Available in a variety of capacities from 240GB up to 7.68TB, and in standard 2.5-inch and M.2 80mm form factors, the larger capacity drives consume up to 5x lower power and have up to 5x lower cooling requirements than 2.5-inch HDDs.[1] The SSD D3-S4520 also enables 3.2x more data to be stored in the same amount of space.[2]

Accelerate read-intensive workloads with power-efficient performance

Simply by integrating SSDs into the environment, organizations can improve server agility with up to 245x more IOPS/TB than HDDs,[3] supporting more users and better services to grow the business without expanding the server footprint. The SSD D3-S4520 & D3-S4620 are up to 6.7x more bandwidth-efficient in sequential workloads as well,[4] allowing an upgrade to hybrid or all-flash to more easily fit within existing cooling solutions.

Additionally, the Flex Workload feature enables a common drive type to cover more workloads with flexible capacity, endurance, and power-efficient performance.

Improve system reliability and flexibility

The reliability of the SSD D3-S4520 and D3-S4620 reduces the need for drive replacement that is necessary with HDDs. With an actual annualized failure rate (AFR) up to 1.9x lower than HDDs,[5] IT departments will spend less time and expense replacing or upgrading storage devices. Equally important, once the SSDs are installed, the innovative SATA firmware completes updates without reset, reducing downtime.

Minimize service disruptions

For years, Intel has been a leader in providing trusted data center SSDs that maximize data continuity in enterprise and cloud data centers. That reputation continues with the SSD D3-S4520 and D3-S4620 and their key capabilities that help ensure more uptime:

- Consistently delivers durable performance to optimize service level continuity
- End-to-end data protection helps keep data safe—even in the event of a sudden power loss
- Up to 1.9x lower annualized failure rates (AFR) means fewer drive replacements[5]
- Innovative firmware completes updates without server reset, reducing downtime
- Simplified configurations reduce risk of component failure and streamline maintenance

Features At-a-Glance		
Model	**Intel® SSD D3-S4520**	**Intel® SSD D3-S4620**
Capacity and Form Factor	2.5" 7mm: 240GB, 480GB, 960GB, 1.92TB, 3.84TB, 7.68TB M.2 80mm: 240GB, 480GB	2.5" 7mm: 480GB, 960GB, 1.92TB, 3.84TB
Interface	SATA III (6 Gb/s)	SATA III (6 Gb/s)
Media	Intel® 3D NAND Technology, 144-layer, TLC	Intel® 3D NAND Technology, 144-layer, TLC
Performance	128K Sequential R/W up to 550/510 MB/s	128K Sequential R/W up to 550/510 MB/s
	4KB Random R/W up to 92K/48K IOPS	4KB Random R/W up to 91K/60K IOPS
Endurance	>1 DWPD, up to 36.5 PBW	>3 DWPD, up to 35.1 PBW
Reliability	UBER: 1 sector per 10^{17} bits read MTBF: 2 million hours	UBER: 1 sector per 10^{17} bits read MTBF: 2 million hours
Power	Avg. Active Write: Up to 4.3W Idle: Up to 1.4W	Avg. Active Write: Up to 3.9W Idle: Up to 1.3W
Warranty	5-year limited warranty	5-year limited warranty

Learn more now at intel.com/ssd

1. Power and cooling claims are based on datasheet figures versus a market-available HDD. Comparing max sequential read data transfer rate & typical sequential read power consumption for Intel® SSD D3-S4520 1.92TB 2.5" and Seagate Enterprise Performance 10K HDD 1.8TB 2.5" SAS 12Gb/s Model ST1800MM0129. The benefit calculated as a function of the workload efficiency ratio by lower power ratio. Source for Intel® SSD D3-S4520 – Intel datasheet. Source for Seagate drive – https://www.seagate.com/files/www-content/product-content/enterprise-performance-savvio-fam/ent-perf-10k-hdd-v9-skybolt/en-us/docs/100818015f.pdf.

2. Source – Intel. Increase data stored per rack unit up to 3.2x vs. 2.5" HDDs; Intel® SSD D3-S4520 2.5" 7.68TB vs. Seagate Enterprise Performance 10K SAS HDD 2.5" 2.4TB. Assuming both configurations use 24 drives, the SSD configuration would have 3.2x the capacity of the HDD configuration.

3. Performance per 1TB claim is based on datasheet figures versus a market-available HDD. Comparing 4KB random read performance for Intel® SSD D3-S4520 1.92TB 2.5" and theoretical max 4KB random read performance for Seagate Enterprise Performance 10K HDD 1.8TB 2.5" SAS 12Gb/s Model ST1800MM0129 based on average rotational latency. HDD IOPS calculation: 1/2.9ms = 345 IOPS. Source for Intel® SSD D3-S4520 – Intel datasheet. Source for Seagate drive – https://www.seagate.com/files/www-content/product-content/enterprise-performance-savvio-fam/ent-perf-10k-hdd-v9-skybolt/en-us/docs/100818015f.pdf.

4. Performance per watt claim is based on datasheet figures versus a market-available HDD. Comparing 128KB sequential read performance for Intel® SSD D3-S4520 1.92TB 2.5" and Seagate Enterprise Performance 10K HDD 1.8TB 2.5" SAS 12Gb/s Model ST1800MM0129. The benefit calculated as a function of the workload efficiency ratio by lower power ratio.

5. Based on datasheet Annualized Failure Rate (AFR) target of 0.44% for Intel® SSD D3-S4520 vs Q1'21 industry average AFR (0.85%): Source for Intel® SSD D3-S4520 AFR – Intel, source for industry average AFR - Backblaze.com https://www.backblaze.com/b2/hard-drive-test-data.html. For this claim, "better reliability" means a lower AFR for the product.

Performance varies by use, configuration and other factors. Learn more at www.Intel.com/PerformanceIndex.

Performance results are based on testing as of dates shown in configurations and may not reflect all publicly available updates. See backup for configuration details. No product or component can be absolutely secure.

Your costs and results may vary.

Intel does not control or audit third-party data. You should consult other sources to evaluate accuracy.

Intel technologies may require enabled hardware, software, or service activation.

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