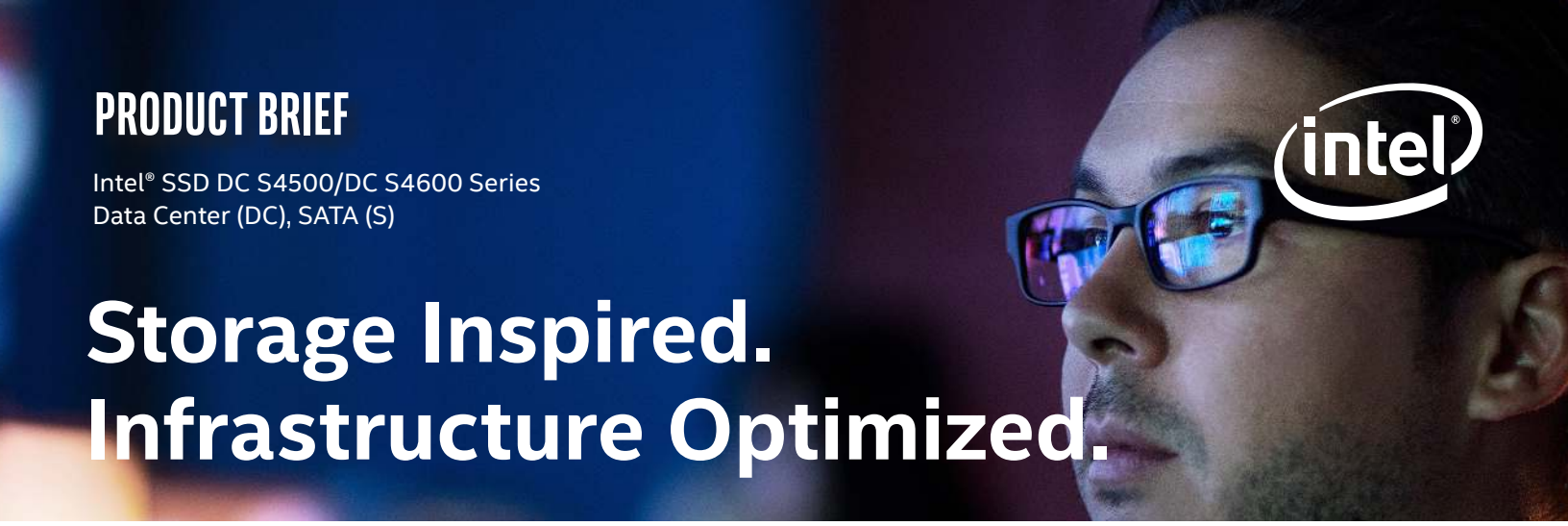
PRODUCT BRIEF

Intel® SSD DC S4500/DC S4600 Series
Data Center (DC), SATA (S)



Storage Inspired. Infrastructure Optimized.

Switch from legacy HDDs to the trusted Intel® SSD DC S4500/DC S4600 Series to reduce costs, increase server efficiency, and improve data reliability.



2nd Gen Intel® 3D NAND SSD Family

Protect your data center investment by replacing legacy HDDs with the trusted Intel® SSD DC S4500 and DC S4600 Series. The newest members of the 2nd Gen Intel® 3D NAND SSD family feature a new Intel-developed SATA controller, innovative SATA firmware, and the industry's highest density 3D NAND. Highly reliable, these storage inspired SSDs enable data centers to reduce costs, increase server efficiency, and minimize service disruptions.

The Intel SSD DC S4500 and DC S4600 Series storage inspired devices enable data centers to optimize legacy infrastructures while enabling their business growth.

Reduce Cost with Infrastructure Compatibility

Built for compatibility in legacy infrastructures, the SSD DC S4500 and DC S4600 Series with a SATA interface enable easy storage upgrades that minimize the costs associated with modernizing your data center. These latest generation enterprise-grade SSDs reduce power demand and cooling requirements by up to 3.2x,[1] lowering operational costs that scale across the data center.

Increase Server Efficiency and Do More Per Server

Based on TLC Intel® 3D NAND technology, the SSD DC S4500 and DC S4600 Series offer a variety of capacities, from 240GB up to 4TB, in a standard 2.5-inch form factor. With larger capacities, data centers can significantly increase data stored per rack unit versus standard 2.5-inch, 2TB HDDs. Simply by integrating SSDs into the environment, IT can improve server agility with up to 209x more IOPS/TB,[2] supporting more users and greater services to grow the business without expanding the server footprint.

Improve Data Reliability

With a 3.2x lower Annualized Failure Rate (AFR) compared to HDDs,[3] IT departments will spend less time and expense replacing or upgrading storage devices. Intel SATA SSDs install seamlessly so you can reduce risk of component failures. Equally important, once the SSDs are installed, the innovative SATA firmware completes updates without reset and reduces 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 DC S4500 and DC S4600 Series with 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 power loss
- Up to 3.2x lower Annualized Failure Rates (AFR)[3] means fewer drive replacements
- Innovative firmware completes updates without server reset and reduces downtime
- Simplified configurations reduce risk of component failure and streamline maintenance

New Intel-Designed SATA Controller

A new SATA controller for the DC S4500 and DC S4600 Series delivers the convergence of scalable capacity and manageability. With Intel's SATA controller, the DC S4600 delivers up to 30% faster mixed workloads,[4] increasing service delivery performance and efficiency.

Integrate Intel® 3D NAND SSDs Today

SATA has long been the cost-effective, industry-standard interface for data center storage. Simply replacing existing HDDs with larger capacity and higher performing Intel SSD DC S4500 and DC S4600 Series SATA-based solutions can maximize existing infrastructure investments, while reducing future costs and boosting what IT can deliver to their customers.

Features At-a-Glance	
Capacity	S4500: 240GB, 480GB, 960GB, 2TB (1.92TB), 4TB (3.84TB)
	S4600: 240GB, 480GB, 960GB, 2TB (1.92TB)
Performance[5, 6]	128KB Sequential Read/Write – up to 500/490 MB/s
	S4500: 4k Random Read/Write – up to 72K/33K IOPS
	S4600: 4k Random Read/Write – up to 72K/65K IOPS
Reliability	Designed for end-to-end data protection from silent data corruption, uncorrectable bit error rate < 1 sector per 10^{17} bits read
Power	S4500: Active power 5.6W; Idle power 1.1W
	S4600: Active power 5W; Idle power 1W
Interface	SATA 6Gb/s
Form Factor	2.5in x 7mm
Media	Intel 3D NAND, TLC
Endurance	S4500: 1 DWPD
	S4600: 3 DWPD
Warranty	5-year warranty

1. Intel TCO tool comparing Intel SSD DC S4500 960GB and Seagate Savvio* 10K.6 900 GB 10k SAS HDD. The workload equates 128 KB (131,072 bytes) Queue Depth equal to 32 sequential writes. Average power for Seagate* drive from http://www.tomshardware.com/charts/enterprise-hdd-charts/-19-Power-Requirement-at-Database,3389.html, http://estimator.intel.com/ssddc/
2. Intel SSD DC S4500 960GB vs. Seagate Savvio* 10K.6 900 GB 10k SAS HDD and Intel SSD DC S4600 960GB vs. Seagate Savvio* 10K.6 900 GB 10k SAS HDD. Comparing Intel spec 4k random Read IOPS at QD 32 vs Toms Hardware data of Seagate* drive from http://www.tomshardware.com/charts/enterprise-hdd-charts/-27-IOMeter-2006.07.27-4K-Random-Reads,3397.html
3. Based on inital product AFR of .66% vs. Industry AFR Average (2.11%): Source - Backblaze.com https://www.backblaze.com/blog/hard-drive-failure-rates-q1-2017/
4. Intel® SSD DC S4600 2TB vs. Intel® SSD DC S3610 1.6TB. Mixed workload performance measured using FIO* on Linux* with Queue Depth 32. System Configuration for all performance testing: Intel® Xeon™ CPU E5-2699v3 @ 2.30GHz on Intel® S2600WT2 motherboard, Intel® C612 Chipset, BIOS Version SE5C610.86B.01.01.0014.121820151719, 32GB DDR4, FIO* version 2.18, CentOS* 7.0, Kernel 4.8.6 (DAS patch). Measurments are performed on a full Logical Block Address (LBA) span of the drive.

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