



# Intel® SSD Data Center Family for SATA (S3710, S3610, S3510 Series) Non-Volatile Memory Storage Solutions

## PRODUCT BRIEF

### Consistently Amazing

#### Cost-Effective Performance and Reliability for the Data Center

Experience low total cost of ownership, exceptional performance and strong data protection with the #1 Chosen Intel® SSD DC Family for SATA.



#### Optimized Data Center Endurance

Demanding applications require highly reliable storage coupled with consistent performance. The Intel® SSD DC Family for SATA offers a full range of endurance and performance levels<sup>1</sup>, designed to meet the needs of your data center workloads.

The Intel® SSD DC S3710 Series with 10 full drives writes per day (DWD) is the perfect choice for applications demanding high write performance such as High Performance Computing (HPC), High Definition Imaging and Video (HDIV), high data rate analytics and databases, large scale virtualization, and Video on Demand content delivery.

The Intel® SSD DC S3610 with 3 full DWD delivers the ideal balance of endurance and performance for mixed read-write workloads such as virtualization and e-commerce.

Additionally, the Intel® SSD DC S3510 with .3 full DWD is optimized for read-intensive applications such as boot, web servers, lower data rate operational databases and analytics.

#### Stress-Free Data Protection

All of the products in the Intel® SSD DC Family for SATA protect data with full end-to-end data protection, 256-bit encryption Advanced Encryption Standard (AES) technology, sophisticated error protection schemes, and enhanced power loss and thermal monitoring features.

#### High Reliability – Low Total Cost of Ownership

Intel® SSDs are known industry wide for quality and reliability. The Intel® SSD DC Family for SATA is engineered to reduce downtime as a result of storage-related failures and designed to meet an Annualized Failure Rate (AFR)<sup>2</sup> of 0.44%. The Intel® SSD DC Family for SATA significantly reduces Total Cost of Ownership (TCO)<sup>3</sup>. Held to the highest validation standards, the Intel SSD DC Family for SATA is analyzed in more than 5,000 unique tests and is fully supported with Intel's 5-year limited warranty and customer support.

#### Power-Efficient Performance

The Intel® SSD DC Family for SATA accelerates data center performance with read-write throughput speeds up to 550/520<sup>1</sup> megabytes per second (MB/s) and 4K random read-write input/output operations per second (IOPs) up to 85,000/45,000<sup>1</sup>. Applications benefit from 55 μs typical latency with max read latencies<sup>4</sup> of 500 μs 99.9%<sup>5</sup> of the time. Combining performance with low typical active power (less than 6.9 watts<sup>1,6</sup>), the Intel SSD DC Family for SATA improves data center efficiency with superior quality of service, reduced energy costs, and is ideal for server or application upgrades.

#### Product Spotlight

- Low Total Cost of Ownership
- Proven Quality and Reliability
- Optimized for Data Center Applications

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# Intel® SSD Data Center Family for SATA (S3710, S3610, S3510 Series)

Technical Specifications <sup>1</sup>			
Series Name	Intel® SSD DC 3710 Series	Intel® SSD DC 3610 Series	Intel® SSD DC 3510 Series
Capacities	2.5": 200, 400, 800 GB, 1.2 TB	2.5": 200, 400, 480, 800 GB 1.2, 1.6 TB 1.8": 200, 400, 800 GB	2.5": 80, 120, 240, 480, 800 GB 1.2, 1.6 TB
NAND Flash Memory	20nm NAND Flash Memory Multi-Level Cell (MLC) with High Endurance Technology (HET)		16nm NAND Flash Memory Multi-Level Cell (MLC) with Standard Endurance Technology (SET)
Sustained Sequential Reads / Writes (MB/s)			
Bandwidth <sup>5</sup>	Up to 550 / 520	Up to 540 / 520	Up to 500 / 460 MB/s
4KB Reads / Writes (IOPS)			
Random I/O Operations per Second <sup>1</sup>	Up to 85,000 / 45,000	Up to 84,000 / 28,000	Up to 68,000 / 20,000
Interface	SATA 6Gb/s, compatible with SATA 3Gb/s		
Form Factor	2.5-inch		1.8-inch
Height and Weight	Up to 7 mm / Up to 96 grams		Up to 5 mm / Up to 96 grams
Life Expectancy	2 million hours Mean Time Between Failures (MTBF)		
Lifetime Endurance <sup>2</sup>	Up to 10 Drive Writes per Day Up to 24.3 Petabytes Written	Up to 3 Drive Writes per Day Up to 10.7 Petabytes Written	Up to .3 Drive Writes per Day Up to 880 TBW
Power Consumption <sup>6</sup>	Active: Up to 6.9 W Typical    Idle: 700 mW Typical		
Operating Temperature	0° C to 70° C		
RoHS Compliance	Meets the requirements of European Union (EU) RoHS Compliance Directives		
Product Health Monitoring	Self-Monitoring, Analysis and Reporting Technology (S.M.A.R.T.) commands		
Product Ordering Information	To order, visit <a href="http://intel.com/ssd">intel.com/ssd</a>		

1. Technical Specifications based on:  
Intel® SSD DC S3710 Series Product Specification: <http://www.intel.com/content/www/us/en/solid-state-drives/ssd-dc-s3710-spec.html>  
Intel® SSD DC S3610 Series Product Specification: <http://www.intel.com/content/www/us/en/solid-state-drives/ssd-dc-s3610-spec.html>  
Intel® SSD DC S3510 Series Product Specification: <http://www.intel.com/content/www/us/en/solid-state-drives/ssd-dc-s3510-spec.html>
2. All documented endurance test results are obtained in compliance with JESD218 Standards. See [www.jedec.org](http://www.jedec.org) for detailed definitions of JESD218 Standards.
3. J. Gold Associates White Paper, *Investing in Solid State Drive Offers Significant Cost Advantage*
4. Device measured by Intel using IOMeter\* with 4K Random Writes QD=32 across 100% span of the drive. Latency measured using write transfer size of 4KB (4,096 bytes) and queue depth set to 1.
5. Performance measured by Intel using IOMeter\* with 128K (131,072 bytes) of transfer size with Queue Depth 32.
6. Based on 5 volt power supply, measured on highest capacity SSD, see product specification for specific SKU information.

Tests document performance of components on a particular test, in specific systems. Differences in hardware, software, or configuration will affect actual performance. Consult other sources of information to evaluate performance as you consider your purchase.

**System Configuration for all performance testing:** Intel® Core™ i7-3960x on Intel® DX79SI desktop motherboard, BIOS Version 0537 – SIX7910J.86A.0537.2012.0723.1217 8GB DDR3 LSI 9265-8i, FW 3.190.25-1776, Intel® SSD DC S3710 FW G2010110; Intel® SSD DC S3610 FW G2010110 (2.5" SKUs) and G2010120 (1.8" SKUs); Intel® SSD DC S3510 FW G2010130

All documented endurance test results are obtained in compliance with JESD218 Standards. See [www.jedec.org](http://www.jedec.org) for detailed definitions of JESD218 Standards.

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