## **PRODUCT BRIEF**

Intel® Solid State Drive Data Center Family for SATA (S3710, S3610, S3510 Series)



# Consistently Amazing

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

Intel's Solid State Drives deliver breakneck speed with unparalleled reliability and security directly to where you need it most.





### **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 levels¹, 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 readintensive applications such as boot, web servers, lower data rate operational databases and analytics.

## **Product Spotlight**

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

### 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)² of 0.44%. The Intel SSD DC Family for SATA significantly reduces Total Cost of Ownership (TCO)³. 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 550/5201 megabytes per second (MB/s) and 4K random read-write input/ output operations per second (IOPs) up to 85,000/45,0001. Applications benefit from 55 µs typical latency with max read latencies4 of 500 µs 99.9%5 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.

#### 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": 100, 200, 400, 480, 800 GB 1.2, 1.6 TB	2.5": 80, 120, 240, 480, 800 GB 1.2, 1.6 TB
		1.8": 200, 400, 800 GB	
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 / WRIT	res (MB/S)		
Bandwidth⁵	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 3 Drive Writes per Day	Up to .3 Drive Writes per Day
	Up to 24.3 Petabytes Written	Up to 10.7 Petabytes Written	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 intel.com/ssd		

Solid State Drive Computing Starts with Intel Inside®. For more information, visit www.intel.com/ssd



### 1Technical 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 for detailed definitions of JESD218 Standards.
- ${\tt 3\,J.\,Gold\,Associates\,White\,Paper,Investing\,in\,Solid\,State\,Drive\,Offers\,Significant\,Cost\,Advantage}$
- 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.
- $5\,Performance\,measured\,by\,Intel\,using\,IOMeter^{\star}\,with\,128K\,(131,\!072\,bytes)\,of\,transfer\,size\,with\,Queue\,Depth\,32.$
- $6\,Based\,on\,5\,volt\,power\,supply,\,measured\,on\,highest\,capacity\,SSD, see\,product\,specification\,for\,specific\,SKU\,information.$

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® 17-3960x 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  $^{\rm o}$  SSD DC S3510 FW G2010130

All documented endurance test results are obtained in compliance with JESD218 Standards. See www.jedec.org for detailed definitions of JESD218 Standards. See when the standard of the stand

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