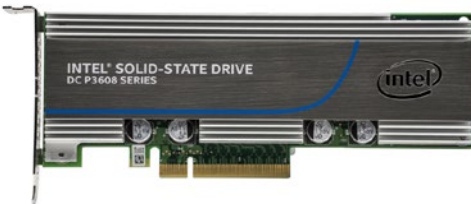


# Extreme Performance Extraordinary Capacity

## Intel® Solid State Drive Data Center P3608 Series Product Brief



**FASTER DATA MEANS  
FASTER RESULTS**



- High Performance Computing
- Big Data Analytics
- Database

### Extreme Performance – Moving Data Closer to the CPU

The Intel® SSD DC P3608 Series taps into the power of the NVMe™ interface to deliver new levels of PCIe® performance and ultra-low latency. When paired with multi-core Intel® Xeon® processors, the SSD's unique NVMe dual controller architecture enables highly efficient scalability, evenly distributing I/O across the PCIe 3.0 x8 link to obtain real-world transfers of over 5GB/s bandwidth and up to 850,000 random read IOPS.

**5 GB/s READ**  
**3 GB/s WRITE**

### Extraordinary Capacity – Doubling the Max Capacity

Enabling capacities of 1.6, 3.2, and 4TB in a single PCIe 3.0 x8 low profile add-in card, the Intel SSD DC P3608 Series can provide twice the capacity in the same physical volume versus the Intel® SSD DC P3600 Series.

**4TB**

### Exceptionally Easy – Upgrade Existing Systems Today!

The Intel SSD DC P3608 Series are ready to be deployed right out of the box. They come in a common, industry-standard form factor: PCIe 3.0 x8, half-height, half-length, low-profile add-in card. And they're designed to work with industry-standard NVMe software and drivers.



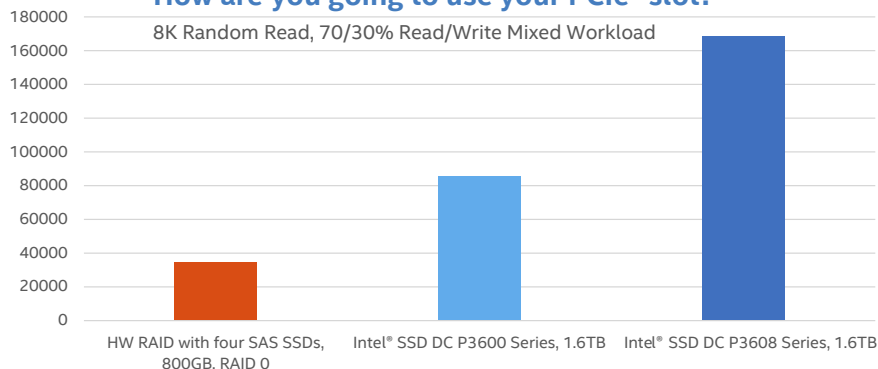
### The Need for High-Performance Storage in the Data Center

The digital service economy is driving the move to cloud computing, benefiting a wide range of users. Developers can launch innovative new services in minutes. IT can reduce operational and capital expenditures, while increasing resource utilization. And consumers and business users can instantly access new, rich, high-value services from anywhere.

Cloud services are also driving increased demand for real-time analytics and High-Performance Computing (HPC) capabilities. These compute- and data-intensive workloads help businesses solve their most complex challenges. By 2018, 60% of businesses are forecast to require HPC solutions, and 40% of HPC will be available on demand in the cloud<sup>1</sup> – workloads that require new levels of storage performance and capacity.



## How are you going to use your PCIe<sup>®</sup> slot?<sup>2</sup>



### Raising High-Performance Computing Even Higher

The Intel<sup>®</sup> SSD DC P3608 Series delivers the extreme performance and extra-ordinary capacity today's real-time analytics and HPC workloads need.

The PCIe 3.0 x8 interface doubles available bandwidth to reduce I/O bottlenecks, while NVMe fuels the CPU with data much faster than SAS or SATA. In one HPC burst buffer use case, a single node achieved a total write bandwidth

of up to 6GB/sec using two Intel SSD DC P3608 Series.

Coupling high-performance Intel SSD DC P3608 Series storage with the world's largest supercomputers can help solve some of HPC's biggest scalability challenges, including cost, performance, resiliency, and energy efficiency.

## DATA CENTER FEATURES

### FEATURES

#### Enhanced Power Loss Management

### BENEFITS<sup>2</sup>

Protection from unplanned power loss called PLI (Power Loss Imminent) is obtained using a propriety combination of hardware, firmware algorithms, built in self-test, and the robust validation at a multitude of corner cases.

#### 20nm HET MLC NAND (High-Endurance Technology)

Up to 3 DWPD (Drive Writes Per Day) over 5 years. The endurance is based on the JEDEC enterprise workload, and real world endurance is application based and may exceed the rated value. The Intel<sup>®</sup> SSD DC P3608 Series 4TB can write up to 21.9PB over the life of the drive before wearing out.

#### End-to-End Data Protection

End-to-end data protection and ECC (Error Correction Code) on all internal and external memories in the data path for protection at every layer.

#### Dual NVMe Controller

The NVMe protocol is more efficient than SATA or SAS, providing more IOPS at a lower CPU utilization. The dual controller architecture allows the SSD to simultaneously transfer data with this improved efficiency, and can be aggregated through the Intel<sup>®</sup> RSTe software.

## PRODUCT SPECIFICATIONS<sup>3</sup>

PRODUCT	CAPACITY	4K RANDOM READ IOPS	4K RANDOM WRITE IOPS	SEQ READ/WRITE MB/S	ENDURANCE (PBW)	POWER (READ/WRITE)	POWER IDLE
Intel <sup>®</sup> SSD DC P3608 Series	1.6TB	850,000	150,000	5000/2000	8.76	18/30W	11.5W
Intel <sup>®</sup> SSD DC P3608 Series	3.2TB	850,000	80,000	4500/2600	17.52	18/35W	11.5W
Intel <sup>®</sup> SSD DC P3608 Series	4TB	850,000	50,000	5000/3000	21.90	20/40W	11.5W

<sup>1</sup> Diane Bryant, Senior VP and GM, Data Center Group, Intel Corporation: IDF 2015 Keynote: "Data Center: The Future is Software Defined"

<sup>2</sup> 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. For more complete information about performance and benchmark results, visit <http://www.intel.com/performance>. Tests performed by Intel. Test and System Configurations: Intel<sup>®</sup> Core™ i7-4770 CPU at 3.4 GHz, 8GB DDR3 at 1600 MHz, Intel<sup>®</sup> SSD DC P3608 Series 1.6TB.

<sup>3</sup> Product specifications can be found on [intel.com/ssd](http://intel.com/ssd)

All documented endurance test results are obtained in compliance with JEDEC218 Standards. See [www.jedec.org](http://www.jedec.org) for detailed definitions of JEDEC218 Standards.

The products described in this document may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request. Contact your local Intel sales office or your distributor to obtain the latest specifications and before placing your product order. Benchmark results were obtained prior to implementation of recent software patches and firmware updates intended to address exploits referred to as "Spectre" and "Meltdown". Implementation of these updates may make these results inapplicable to your device or system.

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.

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