Consistently Amazing

Intel® SSD Data Center Family for PCIe* provides breakthrough performance to modernize data center storage from an industry leader.

Breakthrough Performance

The Intel® Solid-State Drive (SSD) Data Center Family for PCIe* brings extreme data throughput directly to Intel® Xeon® processors with up to six times faster data transfer speed than 6 Gbps SAS/SATA SSDs[1]. The Intel SSD DC Family for PCIe* is capable of reading data up to 2.8GB/s and 460k Input/Output Operations Per Second (IOPS) and writing up to 1.9GB/s and 175k IOPS.

The performance of a single drive from the Intel SSD DC Family for PCIe*, specifically the Intel® Solid-State Drive Data Center P3700 Series (460K IOPS), can replace the performance of 7 SATA SSDs aggregated through an HBA (~500K IOPS). At 200 IOPS per Hard Disk Drive (HDD), 2,300 15K HDDs would be needed to match the performance of one Intel SSD DC Family for PCIe* device.

Intel SSD DC Family for PCIe's* consistently amazing performance provides fast, unwavering data streams directly to Intel Xeon processors making server data transfers efficient. SSD performance consistency provides scalable throughput when multiple SSDs are unified into a single storage volume. The massive storage bandwidth increase feeds Intel Xeon processor systems giving data center servers a performance boost. Servers can now support more users simultaneously, compute on larger data sets, and address high-performance computing at lower Total Cost of Ownership (TCO).

Modernizes Data Center Storage

Intel led the industry in creation of a new Non-Volatile Memory Express* (NVMe*) storage interface standard. NVMe* is engineered for current and future Non-Volatile Memory (NVM) technologies, unlike SAS/SATA SSDs. NVMe* overcomes SAS/SATA SSD performance limitations by optimizing hardware and software to take full advantage of NVM SSD technology. Intel Xeon processors efficiently transfer data in fewer clock cycles with the NVMe* optimized software stack compared to the legacy Advance Host Controller Interface (AHCI) stack, reducing latency and overhead. Direct CPU connection also eliminates Host-Bus-Adapter (HBA) cards, further reducing latency and TCO.

Comprehensive Solution

Intel is driving transition to NVMe* SSDs by providing a comprehensive product line, enabling extensive system compatibility, delivering Intel drivers as well as supporting industry driver development, and completing numerous industry standard compliance certifications. The Intel SSD DC Family for PCIe* includes the Intel® Solid-State Drive Data Center P3700, P3600, and P3500 Series providing a full range of endurance up to 10 full-capacity writes per day, capacity up to 2TB, and 2.5" and Add-In-Card (AIC) form-factors. Intel-enabled NVMe* software drivers are provided by major operating system vendors including Microsoft* Server 2012 and 2008, Red Hat* 6.5, UEFI* 2.3.1, and the Linux* Open Source development community. The new 2.5" form-factor with hot-swap capability provides convenient front panel serviceability allowing quick, uninterrupted installation. The AIC form-factor conveniently fits in half-height, half-length slots.
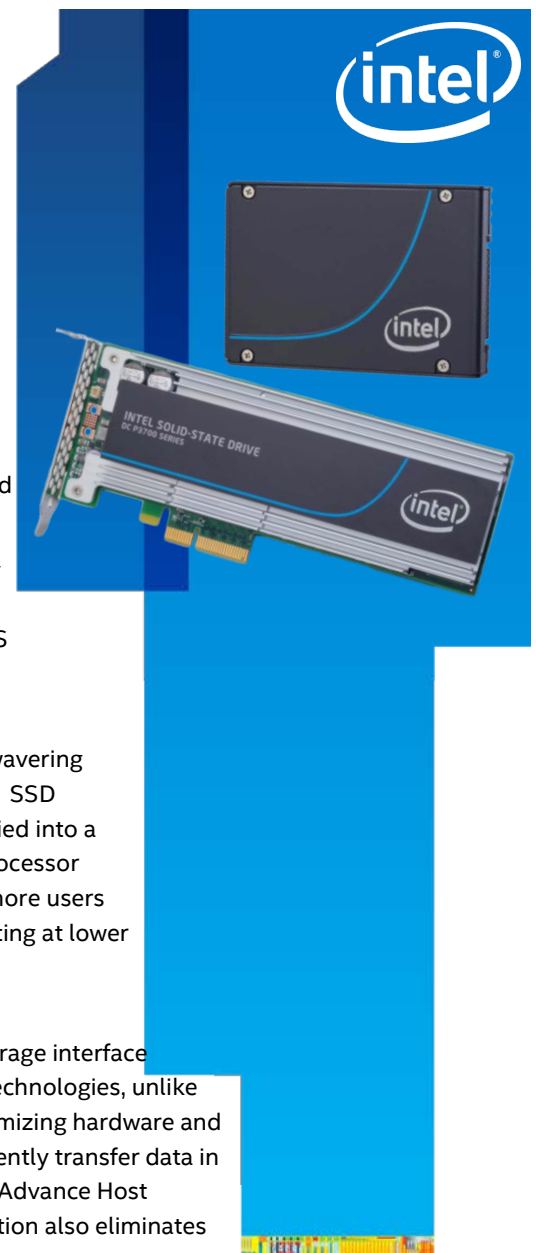
Proven Quality and Reliability

Intel SSD Data Center Family for PCIe* devices are based on Intel-developed controller, firmware, and leading manufacturing process NAND flash memory. Rigorous qualification and compatibility testing ensures a highly reliable SSD. By combining SSD NAND management techniques and NAND silicon enhancements, High Endurance Technology (HET) enables the DC P3700 Series to achieve 10 drive writes per day over a 5 year drive life. Intel® SSD Data Center Tool, available at www.intel.com/design/flash/nand/managessd.htm, provides a powerful set of management capabilities.

[1] Based on the Intel® Solid-State Drive S3700 Series Product Specifications.
*Other names and brands are property of their respective owners

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

Intel® Solid-State Drive

Technical Specifications[1]

		Intel® SSD DC P3500 Series	Intel® SSD DC P3600 Series	Intel® SSD DC P3700 Series
Product Family		Intel® Solid-State Drive Data Center Family for PCIe*		
Series Name		Intel® SSD DC P3500 Series	Intel® SSD DC P3600 Series	Intel® SSD DC P3700 Series
Capacities (GB)		400, 1200, 2000	400, 800, 1200, 1600, 2000	400, 800, 1600, 2000
Sequential	Read	Up to 2500	Up to 2600	Up to 2800
Sustained	Write	Up to 1700	Up to 1700	Up to 1900
Performance[2,3] (MB/s)				
Random I/O	Read	Up to 450	Up to 450	Up to 460
Operations	Write	Up to 35	Up to 56	Up to 175
70/30	Read/Write	Up to 85	Up to 160	Up to 250
per Second 4KB K-IOPS[2,3]				
Lifetime Endurance[7]	Up to:	1095 TBW	3 Drive Writes Per Day	10 Drive Writes Per Day
Latency[4]	Read/Write	20μs / 20μs		
Interface		Non-Volatile Memory express (NVMe*) PCIe* 3.0 x4		
Form Factor		**2.5 inch**	**AIC**	
Height / Weight		15mm/up to 125 grams	Half Height Half Length (HHHL) /195 grams	
Life Expectancy		2 million hours Mean Time Between Failures (MTBF), 230 years		
Power Consumption[5]		Active: <25W (Write) / <11W (Read)	Idle: 4W Typical	
NAND Flash Memory		Intel® NAND Flash Memory Multi-Level Cell (MLC) 20nm		
Operating Temperature[6]		**2.5" FF**: 0° C to 35° C ambient temperature with suggested airflow, 0° to 70° C case temperature. **AIC**: 0° C to 55° C ambient temperature with suggested airflow		
RoHS Compliance		Meets the requirements of European Union (EU) RoHS Compliance Directives		
Software Support		Intel® Solid-State Drive Data Center Tool, NVMe* Drivers: www.intel.com		
Product ordering		Solid-State Drive Computing Starts with Intel Inside®. To order visit **www.intel.com/ssd**		

1   Based on the Intel Solid-State Drive DC P3500, P3600 and P3700 Series Product Specifications. Random I/O Operations based on Thousand (K) IOPS

2   Performance varies by capacity and is measured using Iometer* with Queue Depth 128, for sequential workload Queue Depth 128 with single worker. For Random workload Queue Depth 32, with 4 workers.

3   Measurements are performed on full span of logical block address (LBA) range on an SSD that is filled to capacity with data.

4   Average latency measured with 4KB sequential I/O at Queue Depth 1

5   Active power measured during execution of Full Sequential Workload with 128KB transfer size, idle power is measured when there is no I/O to SSD.

6   For suggested airflow please refer to the product specification document.

7   Using JESD218 standard with JESD219 workload, Terabytes Written (TBW)

8   SAS/SATA 6 Gbps SSDs are limited to typical throughput up to 550MB/s and 80k IOPS