

Intel Expands Portfolio of Solid State Drives (SSDs)

New SSDs Targeted at Cloud, Internet of Things, Consumer and Enterprise Applications

March 31, 2016 — In today's digital world, it is essential to have a fast and dependable way to access and store data, whether in the cloud, in a data center, on a PC or on a connected device. From banking and healthcare applications to social media and streaming entertainment, a data storage solution must be reliable, responsive and cost-effective and also offer the right capacity.

During Intel's [Cloud Day event](#) on March 31, Intel unveiled new SSDs optimized for cloud and enterprise workloads for fast and dependable access to data. The [Intel® SSD DC P3320 Series](#), Intel's first SSD to utilize 3D NAND technology, brings a new ratio of price and performance compared to previous Intel SSDs, while maintaining the quality of service, data integrity and reliability that Intel SSDs are known for. Intel also introduced the Intel® SSD DC [D3700](#) and [D3600](#) Series, Intel's first dual-port PCI Express* (PCIe*) SSDs using the NVM Express* (NVMe*) protocol, to meet the needs of mission-critical private cloud and high-availability storage deployments. Additionally, Intel expanded its solid state drive portfolio with new offerings for entry-level cloud and data center deployments, consumer applications, enterprise PCs and Internet of Things (IoT) applications.

Intel® SSD Data Center P3320 and P3520 Series

The [Intel SSD DC P3520 and P3320 Series](#) are the first Intel SSDs built on the industry's highest-density 3D NAND. The DC P3320 Series has been optimized for cost-effective performance and is targeted at read-intensive applications in cloud and data analytics. With a PCIe Gen 3x4 interface that offers fast access to data and low latency, the DC P3320 delivers up to 5 times faster performance and up to 3.2 times faster sequential reads over mainstream SATA SSDs¹, which enables customers to realize up to 3.45 times faster business analytics². The Intel SSD DC P3520 Series will deliver significant performance and latency improvements over the DC P3320, making it well-suited for applications in cloud computing environments that require higher levels of performance, such as storage virtualization and web hosting. These new 3D NAND storage offerings also make Intel SSDs more of an affordable option when deploying multiple NVMe storage arrays that need to process large sets of data.

Intel® SSD Data Center D3700 and D3600 Series

The Intel® SSD DC [D3700](#) and [D3600](#) Series are Intel's first dual-port PCIe SSDs. They are designed for mission-critical cloud and enterprise storage solutions that demand 24 hours a day, seven days a week accessibility, and failover recovery. Redundancy is a critical requirement for applications such as online transaction processing (OLTP) and private cloud storage, where it is essential to minimize the threat of data loss due to a single point of failure. To ensure data is accessible at all times and without interruption, the DC D3700 and D3600 Series feature an active/active dual-port design that connects to two host systems simultaneously. This simultaneous connection allows run-time recovery during failover when one of the hosts is unavailable. Customer systems using the D3700 can see up to a 6-times increase in performance³ over today's dual-port SAS solutions. As the first Intel drive to support NVMe specification 1.2 implementation, the DC D3700 and D3600 Series offers features designed specifically for high-availability storage, including Dynamic Multiple Namespaces Management with

Reservations, scatter/gather IO list (SGL) support, consistently high IOPS and throughput with sustained low latency, power-loss data protection with self-test and thermal throttling and monitoring.

Intel® SSD Data Center S3100 Series

SSDs eliminate a key performance bottleneck for enterprises, but cost has been a barrier to entry for many smaller enterprises and small- to medium-sized businesses. The [Intel® SSD DC S3100 Series](#) is designed for entry-level cloud and data center deployments and offers a path to transition from hard disk drives (HDDs) while keeping the total cost of ownership low. It is Intel's first three-level cell (TLC) SATA SSD for the data center and is ideal for applications such as OS boot, edge caching and search index that require mid-level endurance, low latency and high reliability.

Intel® SSD 540s Series

Designed for a range of devices from Ultrabook™ systems to desktops and laptops, the [Intel® SSD 540s Series](#) delivers a low-power storage solution that also meets the performance, quality and reliability requirements demanded by today's consumer devices. The SSDs utilize a uniquely architected combination of single-level cell (SLC) cache and TLC NAND to offer an optimized balance of performance and value. It is available in both the 2.5-inch and M.2 form factors and has storage capacities ranging from 120GB to 1TB.

Intel® SSD Pro 5400s Series

In today's demanding business environment, there is a growing need for reliable, secure and high-speed storage. The [Intel® SSD Pro 5400s Series](#) meets a wide range of business client needs by offering high performance as well as enhanced security and manageability, including support for the Trusted Computing Group's Opal 2.0* protocol and Microsoft eDrive*. It is available in both the 2.5-inch and M.2 form factors and has storage capacities ranging from 120GB to 1TB.

Intel® SSD E 5400s and E5410s Series

The [Intel® SSD E 5400s Series](#) and [Intel® SSD E 5410s Series](#) are the first in a new family of SSDs that are targeted at embedded and IoT applications. With flexible form factors and capacities that range from 48GB to 180GB, the Intel SSD E 5400s Series is targeted at applications such as smart signage, ATMs, point-of-sale devices and more. For applications requiring additional power loss protection, Intel SSD E 5410s Series integrates Power Loss Imminent (PLI) technology to significantly reduce the possibility of data loss during a power failure. Over time, Intel plans to continue expanding its SSD offerings to meet the specific needs of embedded and IoT applications.

¹ Performance comparison between 2TB Intel® SSD DC P3320 with 1.6TB Intel® SSD DC S3510. Performance results have been simulated using an IOMeter and Intel® CoFluent™ modeling. Any differences in your system hardware, software or configuration may affect your actual performance.

² Configuration – Intel® Xeon® processor E5-2699 v3 at 2.30GHz, 768GB RAM, Microsoft SQL Server Enterprise*, Microsoft SQL Server Management Studio* 12.0.4100.1 using maximum DRAM memory (50GB), HammerDB v2 with TPC-H settings of 6 virtual users, MAXDOP 18, Database Scaleout Factor 300. One configuration using Intel® SSD DC S3510 and the other using Intel® SSD DC P3320. Comparing average time to complete 1 query set for 6 users.

³ Source: X-IO Technologies*Project Axellio using Intel SSD DC D3700 vs. SAS SSD performance comparison. Configuration - External Host running Windows* server 2008. External host specifications: HP DL360, G7 with dual Intel Xeon processor E5-2620

and 25GB ram. Storage array system using E52699v3 with 40 Intel SSD DC D3700 10 DWPD 800GB & Storage array system using E52699v3 with 40 SAS 10 DWPD 400 GB. Test included 8K transfer with 80/20 Read/Write workload on QD 1,2,4 accessing 1 volume on the shared storage array. Measured by an IOMeter workload generator.

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