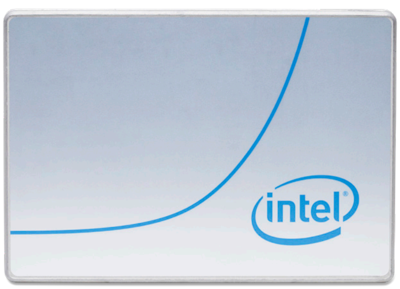
PRODUCT BRIEF

Intel® 3D NAND SSD DC P4600 Series
Data Center (DC), PCI Express* (P)

Cloud Inspired. Caching Optimized.

Designed for modern cloud storage solutions such as software-defined and converged infrastructures.



Pairing a new Intel developed controller, unique firmware innovations, and industry-leading 3D NAND density, the Intel® SSD Data Center P4600 Series—a member of the 2nd Gen Intel® 3D NAND SSD family—delivers an all new design to support the data caching needs of cloud storage and software-defined infrastructures. The Intel SSD DC P4600 Series is stacked with a combination of performance, capacity, manageability, and reliability to help data centers fast-track their business and meet the overall demands of their digital business.

An SSD Optimized for Cloud Storage Architectures

The cloud continues to drive innovation, new services, and agility for businesses which are seeing the need to deploy services faster, scale effectively, and reduce the human costs of managing assets. Multi-cloud has become a core element for any enterprise strategy, with top cloud providers openly embracing PCIe*/NVMe*-based SSDs because of the scalable performance, low latency, and continued innovation.

Within the shift to the cloud is an increased adoption of software-defined and converged infrastructures. This fast adoption is being driven by the need to increase efficiency, refresh existing hardware, deploy new workloads, and reduce operational expenditures. The DC P4600 significantly increases server agility and utilization, while also accelerating applications, across a wide range of cloud workloads.

Optimized for Caching Across a Range of Workloads

This cloud-inspired SSD is built with an entirely new NVMe controller that is optimized for mixed workloads commonly found in data caching and is architected to maximize CPU utilization.

With controller support for up to 128 queues, the DC P4600 helps minimize the risk of idle CPU cores and performs most effectively on Intel platforms with Intel® Xeon® processors. The queue pair-to-CPU core mapping supports high drive count and also supports multiple SSDs scaling on Intel platforms.

With the DC P4600, data centers can accelerate caching to enable more users, add more services, and perform more workloads per server. Now you can cache faster and respond faster.

Manageability to Maximize IT Efficiency

The DC P4600 is built for software-defined cloud infrastructures across the multi-cloud environment to enable greater efficiency within existing server footprints.

New firmware manageability features help reduce server downtime through improved update processes and expanded monitoring capabilities.

SMART management and Intel custom log pages provide advanced drive telemetry to manage thermals, monitor endurance, and track drive health status. Management coverage is now expanded across a wider range of drive states with support for the NVMe-Management Interface (NVMe-MI) specification, an industry standard way to manage the SSD out-of-band.

Industry-leading Reliability and Security

As capacity per server continues to scale, the risk of data corruption and errors increases. With an eye toward this risk, Intel has built industry-leading end-to-end data protection into the DC P4600.[1] This includes protection from silent data corruption which can cause catastrophic downtime and errors in major businesses.

Power Loss Imminent (PLI) provides protection from unplanned power loss, and is obtained through a propriety combination of power management chips, capacitors, firmware algorithms, and a built-in PLI self-test. Intel's PLI feature provides data centers with high confidence of preventing data loss during unplanned power interrupts.

Designed for Today's Modern Data Centers

The DC P4600 is Intel's new 3D NAND SSD for mixed workloads that are common to the data caching needs of cloud-driven data centers. The mix of performance, capacity, endurance, manageability, and reliability make it the ideal solution for data caching in software-defined and converged infrastructures. Learn more now at www.intel.com/ssd

Features At-a-Glance	
Capacity	1.6, 2, 3.2 TB in U.2 form factor
	2, 4 TB in AIC form factor
Performance[2, 3]	64k Sequential Read/Write – up to 3280/2100 MB/s
	4k Random Read/Write – up to 702,500/257,000 IOPS
Manageability	Support for NVM Express* Management Interface (NVMe-MI), NVMe SMART / Health and Log Pages
Reliability	End-to-end data protection from silent data corruption, uncorrectable bit error rate < 1 sector per 10^{17} bits read
Interface	PCIe 3.1 x4, NVMe 1.2
Form Factors	U.2 2.5in x 15mm (for serviceability, hot-plug, and density)
	Add-in-Card: Half-Height Half-Length, low-profile (for legacy and mainstream server compatibility)
Media	Intel 3D NAND, TLC
Endurance	Random/JEDEC up to 2.9 DWPD (5 Years) / 21.7 PBW, sequential workload up to 4 DWPD (5 Years) / 29.2 PBW
Power	Max sequential read/write 9.9W / 20.7W
Warranty	5 year warranty

1. Source - Intel. End-to-end data protection refers to the set of methods used to detect and correct the integrity of data across the full path as it is read or written between the host and the SSD controller and media. Test performed on Intel® SSD DC S3520, Intel® SSD DC P3520, Intel® SSD DC P3510, Intel® SSD DC P4500, Samsung* PM953, Samsung PM1725, Samsung PM961, Samsung PM863, Micron* 7100, Micron 510DC, Micron 9100, HGST* SN100, Seagate* 1200.2, SanDisk* CS ECO drives. Claim is based on average of Intel drive error rates vs. average of competitor drive error rates. Neutron radiation is used to determine silent data corruption rates and as a measure of overall end-to-end data protection effectiveness. Among the causes of data corruption in an SSD controller are ionizing radiation, signal noise and crosstalk, and SRAM instability. Silent errors were measured at run-time and at post-reboot after a drive "hang" by comparing expected data vs actual data returned by drive. The annual rate of data corruption was projected from the rate during accelerated testing divided by the acceleration of the beam (see JEDEC standard JESD89A).
2. Test and System Configuration: Processor: Intel® Xeon® E5-2699 v3, Speed: 2.30GHz, Intel BIOS: Internal Release, DRAM: DDR3 – 32GB, OS: Linux* Centos* 7.0 kernel 4.6, Intel® SSD DC P4500 Series
3. Performance measured with QD=1, and QD=256 (QD=64, workers=4). Measurements performed on the full Logical Block Address (LBA) span of the drive.

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at intel.com.

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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