PRODUCT BRIEF

Intel® SSD DC P4610 Series
Data Center (DC), PCI Express* (P), 64-Layer TLC 3D NAND

Cloud Inspired. Storage Optimized.

Designed to meet today's increasingly demanding service levels and support broader cloud workloads, while reducing storage costs.

Built from the success of its cloud-inspired predecessor – the Intel® SSD DC P4600 Series – and architected with 64-layer TLC Intel® 3D NAND technology, the Intel® SSD DC P4610 Series delivers performance, quality of service (QoS), and capacity improvements to further optimize storage efficiency, enabling data centers to do more per server, minimize service disruptions, and efficiently manage at scale.

Built on NVMe* specification 1.2, these PCIe* SSDs are available in 1.6TB, 3.2TB, 6.4TB, and 7.68TB in the U.2 2.5" (15mm) form factor.

An SSD Built for Cloud Storage Architectures

Multi-cloud has become a core element for any enterprise strategy, and top cloud providers have responded by openly embracing PCIe/NVMe-based SSDs with scalable performance, low latency, and continued innovation.

As software-defined and converged infrastructures are swiftly adopted, the need increases to maximize efficiency, revitalize existing hardware, deploy new workloads, and yet reduce operational expenditures.

The SSD DC P4610 Series meets these requirements. It significantly increases server agility and utilization, and accelerates applications across a wide range of cloud workloads.

Do More per Server

Intel's 64-layer TLC 3D NAND technology enables the DC P4610 to increase available capacity up to 20% more compared to its immediate predecessor, the Intel SSD DC P4600.[1] This increased density is the key to supporting broader workloads, allowing cloud and enterprise service providers to increase users, and improve data service levels. Better QoS is ensured with an intelligent firmware algorithm that keeps host and background data reads and writes at an optimum balance.

With the DC P4610, host applications will not only have access to higher capacity, but will also be serviced at up to 35% faster write rate, up to 35% more endurance per drive, and up to 4x reduction of service time at a QoS metric of 99.99% availability for random access workload.[2,3,4]

With this level of workload ability and agility, data centers can refresh existing hardware and reduce operational expenditures.

Minimize Service Disruptions

To ensure telemetry information without disrupting ongoing I/Os, the DC P4610 includes enhanced SMART monitoring of drive health and status, using an in-band mechanism and out-of-band access. A power loss imminent (PLI) protection scheme – with a built-in self-test – guards against data loss if system power is suddenly cut.

Coupled with our industry-leading end-to-end data path protection scheme, PLI features enable ease of deployment into resilient data centers where data corruption from system-level glitches is not tolerated.[5] The DC P4610 combines firmware enhancements with new 3D NAND features to prioritize host workload and ensure better service levels.

Efficiently Manage at Scale[6]

To help data centers make the most of increased SSD capacity per server, dynamic namespace management delivers the flexibility to enable more users and scale deployment. The DC P4610 also provides security features like TCG Opal* 2.0 and built-in AES-XTS 256-bit encryption engine, required by some secure platforms.

With the capability to manage multiple firmware versions on a drive and to support updates without a reset, the DC P4610 improves integration and increases the ease and efficiency of deploying at scale.

Choose the DC P4610 for Data Center Storage

With the increased density of 64-layer Intel® 3D NAND and enhanced firmware features, the DC P4610 is built to handle mixed workloads and beyond. The DC P4610 creates greater quality of service, bandwidth, and performance, leading data centers through their evolving transformation.[1,2,3]

Features At-a-Glance	
Model	Intel® Solid State Drive DC P4610 Series
Capacity	1.6TB, 3.2TB, 6.4TB, and 7.68TB
Performance[7]	128k Sequential Read/Write – up to 3200/3200 MB/s
	Random 4KB R/W: Up to 654K/220K IOPs
Reliability[5]	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 Factor	U.2 2.5in x 15mm (for serviceability, hot-plug, and density)
Media	Intel® 3D NAND technology, 64-layer, TLC
Endurance	Up to 3 DWPD (JESD219 workload)
Power[8]	Up to 15 Watt
Warranty	5-year limited warranty

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1. Intel test: Comparing Intel® SSD DC P4610 Series 7.68TB and Intel® SSD DC P4600 Series 6.4TB.
2. Intel test: Comparing 128KB Sequential Write Bandwidth at queue depth 128, between Intel® SSD DC P4610 Series 6.4TB and Intel® SSD DC P4600 Series 6.4TB. Measured bandwidth was 3.04GB/sec and 2.2GB/sec on Intel® SSD DC P4610 and P600 Series respectively. FIO* was used using the configuration listed on footnote 7.
3. Intel test: Comparing JEDEC enterprise workload endurance between Intel® SSD DC P4610 Series 6.4TB and Intel® SSD DC P4600 Series 6.4TB.
4. Intel Test: Comparing 4KB Random Read and 70/30 Random Read/Write queue depth 1 latency at 99.99% percentile, between Intel® SSD DC P4610 Series 6.4TB and Intel® SSD DC P4600 Series 6.4TB. For example, measured latency for 99.99% was 0.72ms and 3.13ms for Intel® SSD DC P4610 and P4600 Series, respectively. Results have been measured for 15min run for all capacities Any differences in your system hardware, software or configuration may affect your actual performance. Intel expects to see certain level of variation in data measurement across multiple drives. FIO* uses the configuration listed on footnote 7.
5. 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. 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. 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).
6. All manageability features are not available at the time of the product release but will be available in future maintenance release. Please refer to product specification for details about feature description and availability.
7. Test and System Configuration: Processor: Intel®Xeon® Gold 6140 CPU @ 2.30GHz, DRAM: DDR4 – 32GB, OS: Linux* Centos* 7.3 kernel 4.8.6/4.15.rc1, Intel® SSD DC P4610 Series, firmware version VDV10140. Intel BIOS Patch rev13 was used -https://ark.intel.com/products/89010/Intel-Server-System-R2208WFTZS.
8. Average power measured by sequential write workload with transfer size of 128KB and queue depth of 128. FIO* uses the configuration listed in footnote 7.