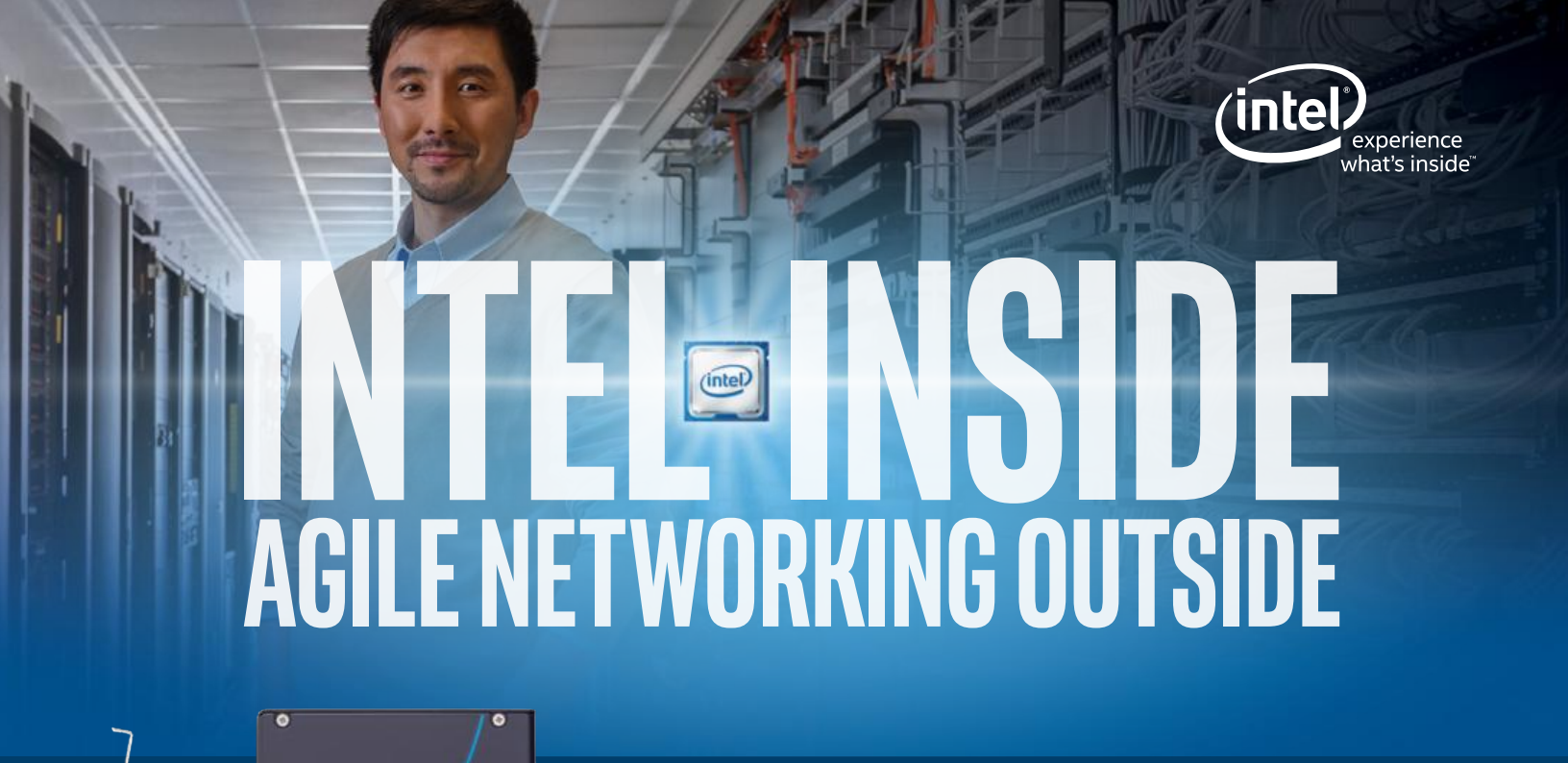

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# INTEL INSIDE
# AGILE NETWORKING OUTSIDE


## Improve data center performance with upgrades to the storage infrastructure.

A responsive and agile data center requires enterprise connectivity and performance that delivers transformative results. Using servers as storage arrays can offer businesses greater flexibility, but without the right components, these servers may not be able to deliver the performance needed for today's demanding workloads and applications. Help customers boost performance and productivity with upgrades to the processor, storage, and network connection.

**6x** FASTER WITH PCIe* DRIVES THAN SATA[1]

### Less Time to Transfer

Leveraging NVMe* technology, the Intel® SSD DC Family for PCIe* can achieve up to 6x faster data transfer speeds than SATA drives, delivering real-world transfers of over 5GB/s bandwidth and 4K random read performance up to 850,000 IOPS.[1,2]

**2x** THE THROUGHPUT WITH INTEL® ETHERNET[3]

### Greater Bandwidth

With the Intel® Ethernet Converged Network Adapter XL710 Series, enterprises can double throughput and alleviate I/O bottlenecks to support virtualization and server consolidation—benefits that may be furthered by moving from one to four 10GbE network connections.[3,4]

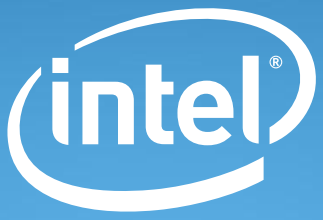
**54.5%** MORE TRANSACTIONS PER MINUTE[4]

### Increased Productivity

When businesses upgrade both the storage drive and network connection while also moving to the latest-generation Intel® Xeon® processor E5 family, they can experience significant improvements to productivity, with up to 54.5% more transactions completed per minute.[4]

Build a better network with a new storage infrastructure. Help your customers boost performance and productivity with the right combination of upgrades.

**Build a Better Network ›**

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Software and workloads used in performance tests may have been optimized for performance only on Intel® microprocessors. Performance tests, such as SYSmark* and MobileMark*, are measured using specific computer systems, components, software, operations, and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For more complete information, visit intel.com/performance.

Intel is a sponsor and member of the BenchmarkXPRT Development Community, and was the major developer of the XPRT family of benchmarks. Principled Technologies is the publisher of the XPRT family of benchmarks. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases.

1. Based on comparisons of latency, density, and write-cycling metrics amongst memory technologies recorded on published specifications of in-market memory products against internal Intel® specifications. Tests performed by Intel. Configurations: Performance claims obtained from data sheet, sequential read/write at 128k block size for NVMe* and SATA, 64k for SAS. Intel® SSD DC P3700 Series 2TB, SAS Ultrastar* SSD1600MM, Intel® SSD DC S3700 Series SATA 6 Gbps. Intel® Core™ i7-3770K CPU @ 3.50GHz, 8GB of system memory, Windows Server* 2012, IOMeter. Random performance is collected with 4 workers each with 32 QD. For more information, visit http://www.intel.com/content/www/us/en/solid-state-drives/intel-ssd-dc-family-for-pcie-brief.html.

2. Transfer speeds and read performance based on the Intel® SSD DC P3608 specifications. Test performed by Intel. Test and System Configurations: Intel® Core™ i7-4770 CPU at 3.4 GHz, 8GB DDR3 at 1600 MHz, Intel® SSD DC P3608 Series 1.6TB. For more information, visit http://www.intel.com/content/www/us/en/solid-state-drives/ssd-dc-p3608-brief.html.

3. Throughput compared to the Intel® Ethernet CNA X520 based on a comparison between PCIe* architectures: The Intel® Ethernet CNAs X710/XL710 have a PCIe* 3.0 x8 host interface compared to the Intel® Ethernet CNA X520, which has a PCIe* 2.0 x8 host interface. PCIe* 3.0 doubles the maximum data transfer rate over its predecessor, PCIe* 2.0, with transfer rates up to 8GT/s.

Summary of bit rates and approximate bandwidths from PCI-SIG:

PCIe* 2.0 architecture – Raw bit rate: 5.0GT/s. Interconnect bandwidth: 4Gbps. Bandwidth per lane per direction: ~500MB/s. Total bandwidth for x16 link: ~16GB/s.

PCIe* 3.0 architecture – Raw bit rate: 8.0GT/s. Interconnect bandwidth: 8Gbps. Bandwidth per lane per direction: ~1GB/s. Total bandwidth for x16 link: ~32GB/s.

Source: "PCI Express 3.0: How does the PCIe 3.0 8GT/s 'double' the PCIe 2.0 5GT/s bit rate?" section from "PCI Express 3.0 Frequently Asked Questions" at https://pcisig.com/faq?keys=3.0. Retrieved July 25, 2016.

4. Based on tests performed by Principled Technologies, December 2014. Report available at http://www.principledtechnologies.com/Intel/Xeon_E5-2600_v3_1014_v2.pdf. Upgraded configuration: Intel® Server Board S2600WTT with 2x Intel® Xeon® processor E5-2695 v3, Microsoft Windows Server* 2012 R2, Intel® SSD DC P3700 Series 800GB (SSDPEDMD800G4), and Intel® Ethernet CNA X710 Series for 10GbE in a 4x10Gbps NIC setup. Base configuration: Dell PowerEdge* R720 with 2x Intel® Xeon® processor E5-2680 v2, Microsoft Windows Server* 2012 R2, Intel® SSD DC S3700 Series 800GB (SSDSC2BA800G), and Intel® Gigabit 10G Quad Port NIC D57446-001 in a 1x10Gbps NIC setup.