INTEL® XEON® D-1600 PROCESSORS

Product 30-3-30 | April 2, 2019

30 Second Product Overview

PROCESS EVERYTHING
Introducing Intel® Xeon® D-1600 Processors

WORKLOAD OPTIMIZED

Enhanced performance for edge **network**, mid-range **storage**, control plane, security and more

Up to **1.29X increase in compute performance** over prior generation[1]

HIGH DENSITY SYSTEM-ON-A-CHIP

Designed for **lower power** and **space constrained** solutions

2-8 cores serving thermal design points (TDPs) of 27-65W with **high per core performance**

INTEGRATION FOR THE INTELLIGENT EDGE

Intel® QuickAssist technology

Up to 4x10Gbps Intel® Ethernet

Intel® Virtualization technology

For more complete information about performance and benchmark results, visit www.intel.com/benchmarks.

3 Minute Product Overview

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Introducing Intel® Xeon® D-1600 Processors

INTEL® QUICKASSIST TECHNOLOGY
INTEL® ETHERNET
INTEL® VIRTUALIZATION TECHNOLOGY
INTEL® SERVER PLATFORM SERVICES

UP TO **1.29X** COMPUTE PERFORMANCE IMPROVEMENT VS. D-1500 NS[1]

UP TO **3.2** GHZ WITH INTEL® TURBO BOOST TECHNOLOGY 2.0

2-8 CORES

HIGHLY INTEGRATED **SOC** 1-CHIP SOLUTION

UP TO **128 GB DDR4** UP TO **2400** MT/S

UP TO **30** GBPS CRYPTOGRAPHY **ACCELERATION** WITH INTEL® QUICKASSIST TECHNOLOGY

UP TO **4X10** GBPS INTEGRATED GIGABIT **ETHERNET**

EXTENDED TEMPERATURE SUPPORT AVAILABLE **-40 C** TO **+85 C**

OPTIMIZED PER CORE PERFORMANCE FOR HIGH DENSITY, LOW POWER WORKLOADS OUT TO THE INTELLIGENT EDGE

For more complete information about performance and benchmark results, visit www.intel.com/benchmarks.

30 Minute Product Overview

Intel: Accelerating Data-Centric Transformation

MOVE FASTER

- ETHERNET
- SILICON PHOTONICS
- OMNI-PATH FABRIC

STORE MORE

- OPTANE™ DC PERSISTENT MEMORY
- OPTANE™ DC SOLID STATE DRIVE
- DC SERIES SSD QLC 3D NAND DRIVE

PROCESS EVERYTHING

- INTEL® XEON® SCALABLE PROCESSORS
- INTEL® XEON® D PROCESSORS
- INTEL ATOM® C PROCESSORS
- INTEL® FPGAs
- INTEL® NERVANA™ NNP
- INTEL® MOVIDIUS™ TECHNOLOGY

HARDWARE ENHANCED SECURITY | SOFTWARE AND SYSTEM-LEVEL OPTIMIZED | FASTER TIME TO VALUE

intel select solution

PROCESS EVERYTHING
Introducing Intel® Xeon® D-1600 Processors

WORKLOAD OPTIMIZED

Enhanced performance for edge **network**, mid-range **storage**, control plane, security and more

Up to **1.29X increase in compute performance** over prior generation[1]

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Up to 4x10Gbps Intel® Ethernet

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Introducing Intel® Xeon® D-1600 Processors

INTEL® QUICKASSIST TECHNOLOGY
INTEL® ETHERNET
INTEL® VIRTUALIZATION TECHNOLOGY
INTEL® SERVER PLATFORM SERVICES

UP TO **1.29X** COMPUTE PERFORMANCE IMPROVEMENT VS. D-1500 NS[1]

UP TO **3.2** GHZ WITH INTEL® TURBO BOOST TECHNOLOGY 2.0

2-8 CORES

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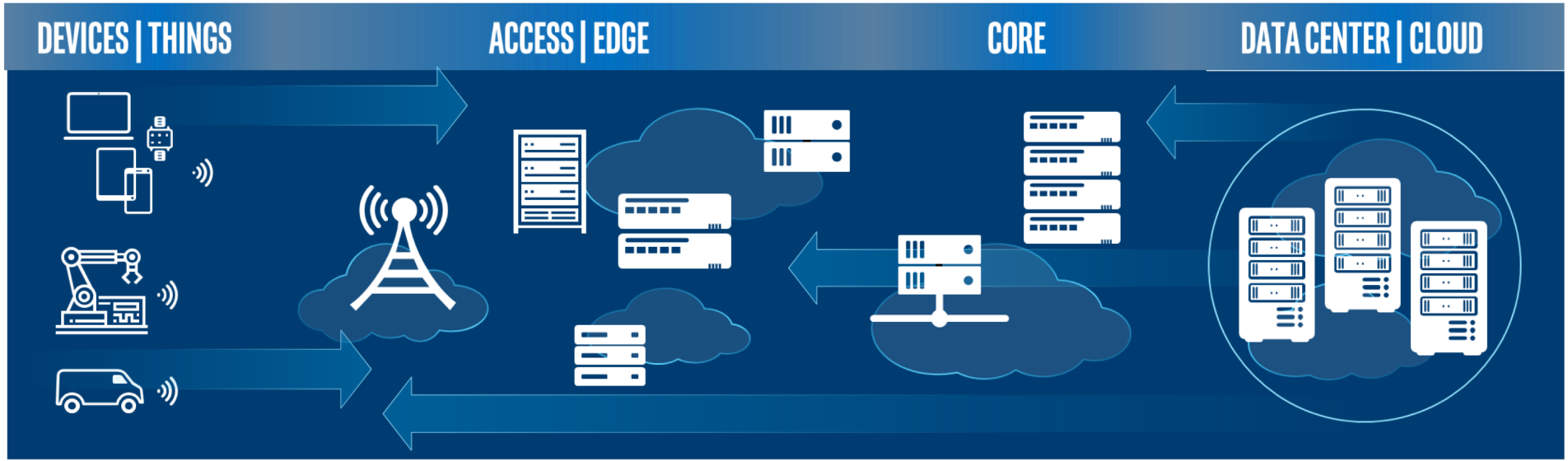
OPTIMIZED PER CORE PERFORMANCE FOR HIGH DENSITY, LOW POWER WORKLOADS OUT TO THE INTELLIGENT EDGE

For more complete information about performance and benchmark results, visit www.intel.com/benchmarks.

Intelligent Edge & the Path to 5G



Enabling Edge Network Infrastructure with New Intel® Xeon® D-1600 Processors

SWITCHES & ROUTERS

Control Plane
Branch Office Router
Edge Router
Router Services Module

SECURITY APPLIANCES

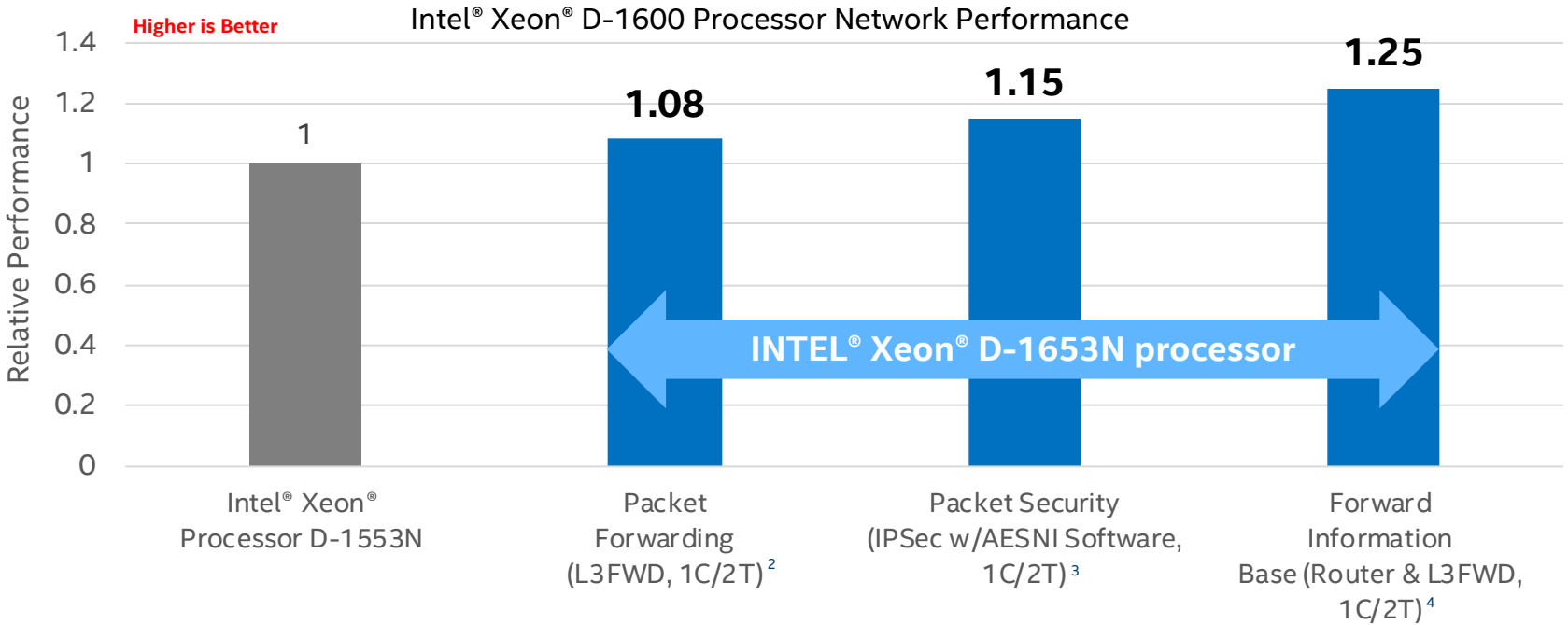
Next Generation Firewall
Wide Area Network Acceleration
Intrusion Detection & Prevention
Content Security
Application Delivery

WIRELESS ACCESS

Telco & Enterprise Edge
Macro Base Station
Cloud Radio Access Network

POWER-EFFICIENT PERFORMANCE IS CRITICAL ON THE PATH TO 5G

Upgrade Network Edge Infrastructure for Improved Per Core Throughput



ACHIEVE HIGHER PERFORMANCE PER CORE FOR SAME TDP

For more complete information about performance and benchmark results, visit www.intel.com/benchmarks.

Enabling Mid-Range Storage Solutions with New Intel® Xeon® D-1600 Processors

HIGH DENSITY SYSTEM-ON-A-CHIP

Built-in Intel® Ethernet
Eliminate the need for PCIe-connected Ethernet devices

Intel® QuickAssist Technology
Offload computationally intensive compression algorithms to allow more compute cycles for Software-Defined Storage, SAN, and NAS workloads

PLATFORM STORAGE EXTENSIONS

Asynchronous DRAM Self-Refresh (ADR)
Extend time to access and save critical data in DRAM during a power failure

Non-Transparent Bridge
Provide failover support between nodes

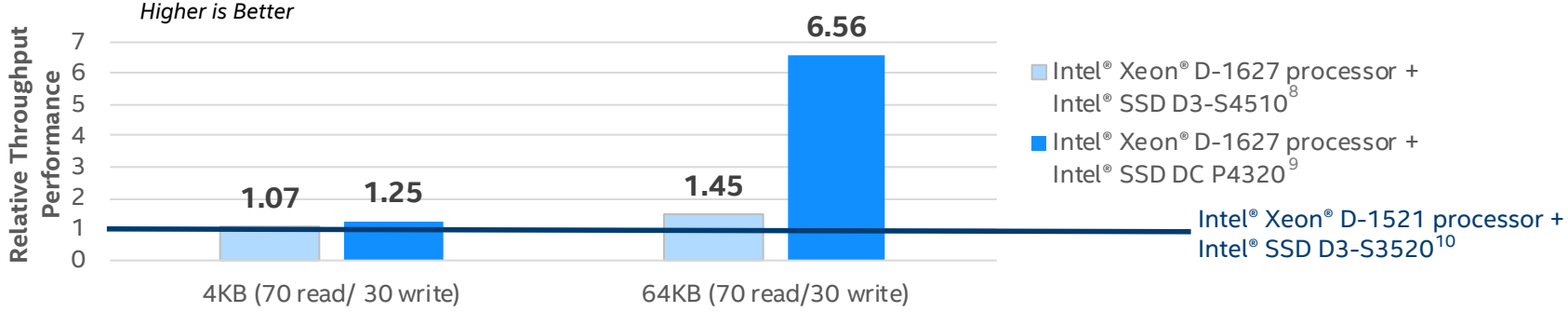
Intel® QuickData Technology
Eliminate processor overhead when transferring data, freeing CPU cycles for higher value operations

PCI Express* (PCIe) Dual Cast
Deliver data to two PCIe devices simultaneously

CLOUD BACKUP • VIDEO ON DEMAND • VIRTUALIZED STORAGE • SAN • NAS

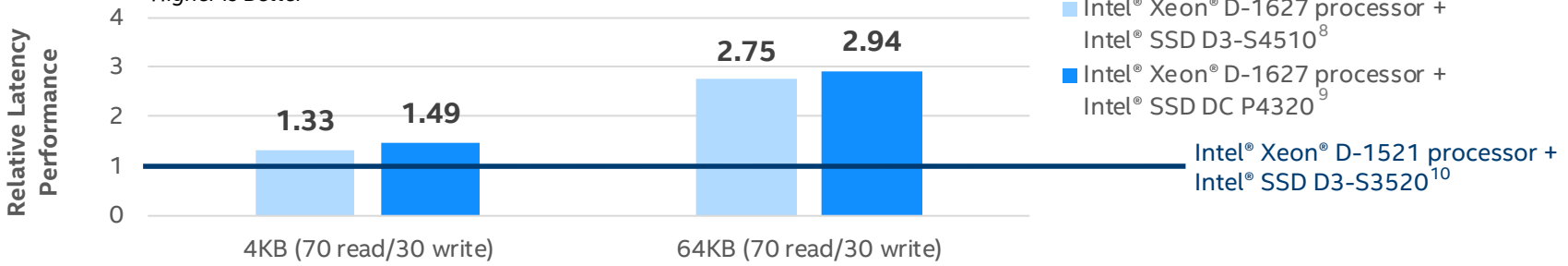
Intel® Xeon® D-1600 Processors: Local IOPS – Throughput Improvement

Higher is Better



Intel® Xeon® D-1600 Processors: IOPS – Latency Improvement

Higher is Better



INTEL® XEON® D-1600 PROCESSORS + INTEL® SSD DATA CENTER SERIES

BOOST STORAGE HARDWARE THROUGHPUT PERFORMANCE AND REDUCE LATENCY

For more complete information about performance and benchmark results, visit www.intel.com/benchmarks.

Intel® QuickAssist Technology (Intel® QAT)

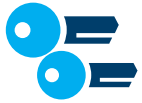
CRYPTOGRAPHIC CIPHERS & AUTHENTICATION

Symmetric (Bulk) Cryptography

Ciphers
Ciphers for AES{128,192,256}, 3DES/DES2, RC4
Wireless Ciphers for KASUMI, Snow 3G, ZUC
Storage Encryption for AES-XTS

Hashes
Hashes for MD5, SHA1, SHA2x, SHA3
Authenticated Encryption for AES-GCM, AES-CCM

Algorithm Chaining
Cipher and Hash in a Single Operation



PUBLIC KEY CRYPTOGRAPHY & KEY MANAGEMENT

Asymmetric (Public Key) Crypto, Secure Private Keys

Modular Exponentiation
Diffie-Hellman (DH), RSA, Key Generation, Encryption/Decryption and Digital Signature Generation/Verification

Elliptic Curve Cryptography
ECDSA, ECDHE, SM2

Digital Signature Algorithm (DSA)
Parameter Generation and Digital Signature Generation and Verification

COMPRESSION ACCELERATION

Lossless Data Compression

Deflate/Inflate
Lossless Algorithm for Compression & Decompression

Data in Flight
WAN Acceleration
Content Delivery

Data at Rest
Mid-Range Storage Compression

BUILT-IN HARDWARE ACCELERATION OF COMPUTE INTENSIVE WORKLOADS

Intel® QuickAssist Technology

New Intel® Xeon® D-1600 Processors

Networking Security
IPsec, DTLS, SSL/TLS

Storage Security & Compression

Wireless Access & Infrastructure
KASUMI, Snow 3G, ZUC

Cloud Security

Enterprise Security

Content Delivery

Crypto Performance[3]	Intel® Xeon® D-1600 Processor
SSL/IPSec	**30 Gbps**
RSA Decrypt	**30K Ops/sec 2K Keys**
TLS Handshakes (PFS) Perfect Forward Secrecy	**ECDHE_RSA2K: 30K Ops/sec** **ECDHE + ECDSA: 38K Ops/sec**

Verified Compression/Decompression Performance[3]	Intel® Xeon® D-1600 Processor
Verified Compression Deflate	**19 Gbps**
Decompression Deflate	**30 Gbps**

Concurrent Performance[3]	Intel® Xeon® D-1600 Processor
SSL/IPSec + Compression + PKE	**Total 30 Gbps + 30K Ops/sec**

[3] Results have been estimated based on internal Intel analysis and are provided for informational purposes only. Any difference in system hardware or software design or configuration may affect actual performance. No product or component can be absolutely secure.

Upgrade Per Core Performance with New Intel® Xeon® D-1600 Processors

INTEL® XEON® D-1500 PROCESSORS

Standard and Network Series processors
4-16 Cores
128 GB Memory Capacity
TDPs up to 65W

Throughput **Performance** **UPGRADE**

INTEL® XEON® D-2100 PROCESSORS

4-16 Cores Optimized for Throughput Performance
512 GB Memory Capacity, TDPs of 60-110W
Introduced in 2018

Per Core **Performance** **UPGRADE**

INTEL® XEON® D-1600 PROCESSORS

NEW!

2-8 Cores Optimized for Per Core Performance, Network & Storage Workloads
128 GB Memory Capacity, TDPs of 27-65W

New Intel® Xeon® D-1600 Processors

POWER-EFFICIENT PROCESSING FOR THE PATH TO 5G

WORKLOAD OPTIMIZED

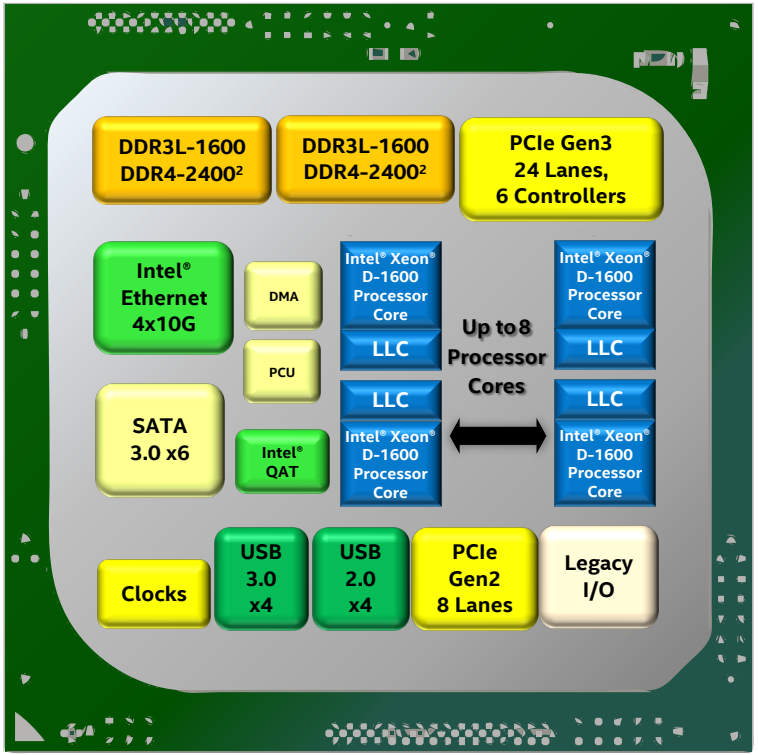
HIGH DENSITY SYSTEM-ON-A-CHIP

INTEGRATION FOR THE INTELLIGENT EDGE

Additional Content

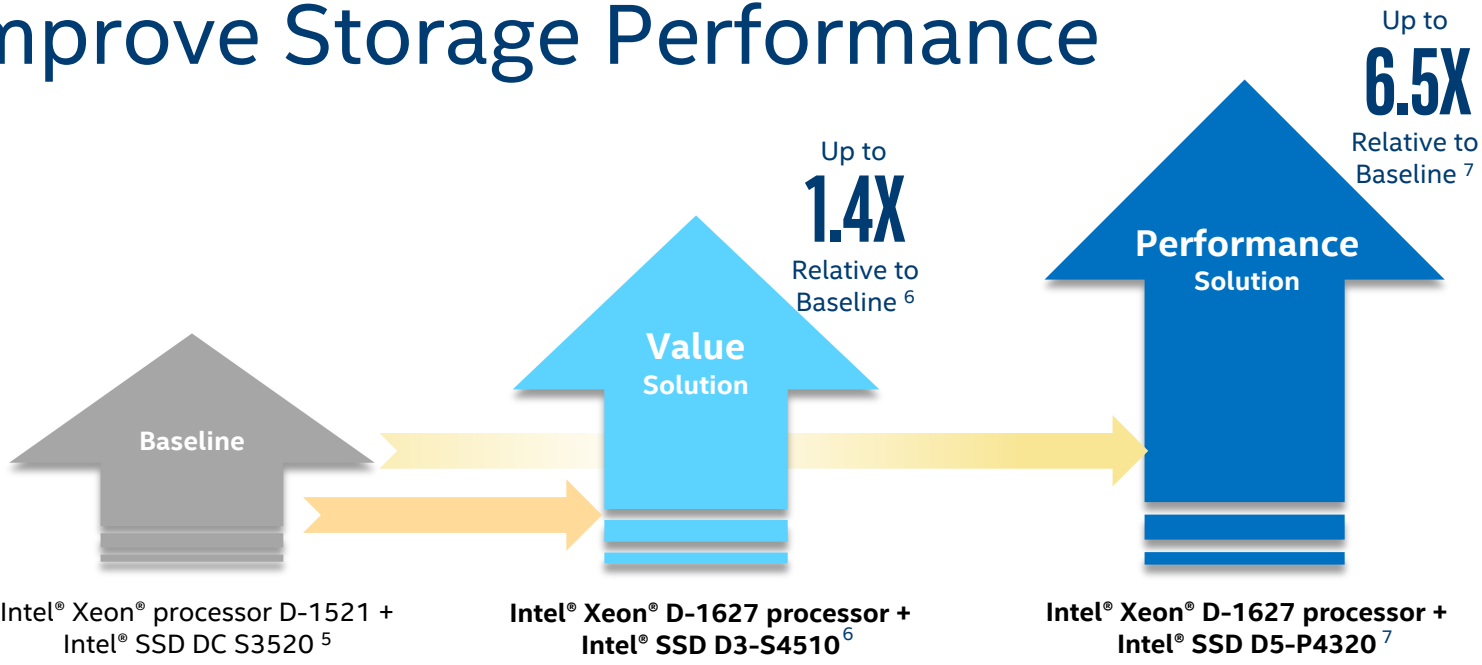
Intel® Xeon® D-1600 Processor Architecture

CPU	2-8 Core Intel® Xeon™ (14nm) CPUs
Frequency	Base Frequency: up to 2.9 GHz; Turbo Frequency: up to 3.2 GHz
L1 cache	32K data, 32k instruction per core
L2 cache	256K per core
LLC cache	1.5MB per core
Addressing	46 bits physical / 48 bits virtual
Memory	DDR4 up to 2400[2] MT/s DDR3L up to 1600 MT/s Two Channels (2 DIMMs/Channel)
Memory Capacity	RDIMM: 128 GB (32 GB/DIMM) UDIMM/SODIMM: 64 GB (16 GB/DIMM)
DIMM Types	SODIMM, UDIMM, RDIMM with ECC and non-ECC
Memory RAS	Enhanced ECC Single bit Error Correction – Dual bit Error Detection (SEC-DED) covers address and data paths, DDR scrambler to reduce error rate
PCIe*	x24 PCIe Gen3 with up to 6 controllers x8 PCIe Gen 2 with up to 8 controllers
Integrated IO	x4 Intel® Ethernet 10GbE/1GbE {10G-KR only}, x4 USB 3.0, x4 USB 2.0, and x6 SATA 3
Technologies	Intel® VT, Core RAPL, PECI over SMBUS, PSE
Crypto	Intel® QAT - Up to 30G bulk crypto @ 1K packet size + 30kops RSA 2k PKE
Compression	Intel® QAT - Up to 19G total verified compression or decompression
Power Management	FIVR, PCPS, EET, UFS Hardware PM
Legacy I/O	SPI for boot flash, SMBus, UART LPC, GPIO, 8259, I/O APIC, 8254 Timer, RTC



[2] DDR4-2400 is only available on select SKUs

Improve Storage Performance



INTEL® XEON® D-1600 PROCESSORS + INTEL® SSDs FOR DATA CENTERS

ENHANCE READ & WRITE IOPS THROUGHPUT PERFORMANCE OF DISTRIBUTED OBJECT INFRASTRUCTURE

For more complete information about performance and benchmark results, visit www.intel.com/benchmarks.

INTEL® XEON® D-1600 PROCESSOR SKU & PRICING INFORMATION

For Networking and Storage Workloads

Processor Number	CPU Cores	Base Frequency	All-Core Intel® Turbo Boost Technology 2.0 Frequency	TDP Power (in Watts)	Memory Support (Up to 128GB DDR4 ECC)	Integrated Intel® Ethernet	Integrated Intel® QuickAssist Technology	eTemp Support	Recommended Customer Pricing
Intel® Xeon® D-1653N Processor	8	2.8 GHz	3.1 GHz	65W	2400 MT/s, 2 CH	4 x 10 GbE	Up to 30G	No	$748
Intel® Xeon® D-1649N Processor	8	2.3 GHz	2.5 GHz	45W	2133 MT/s, 2 CH	4 x 10 GbE	Up to 20G	Yes	$705
Intel® Xeon® D-1633N Processor	6	2.5 GHz	2.8 GHz	45W	2133 MT/s, 2 CH	4 x 10 GbE	Up to 10G	No	$470
Intel® Xeon® D-1637 Processor	6	2.9 GHz	3.2 GHz	55W	2400 MT/s, 2 CH	4 x 10 GbE	No	No	$406
Intel® Xeon® D-1623N Processor	4	2.4 GHz	2.7 GHz	35W	1866 MT/s, 2 CH	4 x 10 GbE	Up to 10G	No	$256
Intel® Xeon® D-1627 Processor	4	2.9 GHz	3.2 GHz	45W	2133 MT/s, 2 CH	4 x 10 GbE	No	No	$202
Intel® Xeon® D-1622 Processor	4	2.6 GHz	2.9 GHz	40W	2133 MT/s, 2 CH	No	No	No	$170
Intel® Xeon® D-1602 Processor	2	2.5 GHz	2.8 GHz	27W	2133 MT/s, 2 CH	No	No	No	$106

Please visit www.intel.com/xeond for the latest product information.

INTEL® XEON® D-1600 PROCESSORS

Intel® Turbo Boost Technology 2.0 Frequencies (GHz)

Processor	CPU Cores	NUMBER OF CORES RUNNING TURBO							
		1	2	3	4	5	6	7	8
Intel® Xeon® D-1653N Processor	8	3.2	3.2	3.1	3.1	3.1	3.1	3.1	3.1
Intel® Xeon® D-1649N Processor	8	3.0	3.0	2.9	2.8	2.7	2.6	2.5	2.5
Intel® Xeon® D-1633N Processor	6	3.2	3.2	3.2	3.2	3.2	3.2		
Intel® Xeon® D-1637 Processor	6	3.2	3.2	3.1	3.0	2.9	2.8		
Intel® Xeon® D-1623N Processor	4	3.2	3.2	3.2	3.2				
Intel® Xeon® D-1627 Processor	4	3.2	3.2	2.9	2.7				
Intel® Xeon® D-1622 Processor	4	3.2	3.2	3.0	2.9				
Intel® Xeon® D-1602 Processor	2	3.2	2.8						

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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 product or component can be absolutely secure.

Tests document performance of components on a particular test, in specific systems. Differences in hardware, software, or configuration will affect actual performance. For more complete information about performance and benchmark results, visit http://www.intel.com/benchmarks .

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 http://www.intel.com/benchmarks .

Intel® Advanced Vector Extensions (Intel® AVX)* provides higher throughput to certain processor operations. Due to varying processor power characteristics, utilizing AVX instructions may cause a) some parts to operate at less than the rated frequency and b) some parts with Intel® Turbo Boost Technology 2.0 to not achieve any or maximum turbo frequencies. Performance varies depending on hardware, software, and system configuration and you can learn more at http://www.intel.com/go/turbo.

Intel's compilers may or may not optimize to the same degree for non-Intel microprocessors for optimizations that are not unique to Intel microprocessors. These optimizations include SSE2, SSE3, and SSSE3 instruction sets and other optimizations. Intel does not guarantee the availability, functionality, or effectiveness of any optimization on microprocessors not manufactured by Intel. Microprocessor-dependent optimizations in this product are intended for use with Intel microprocessors. Certain optimizations not specific to Intel microarchitecture are reserved for Intel microprocessors. Please refer to the applicable product User and Reference Guides for more information regarding the specific instruction sets covered by this notice.

Cost reduction scenarios described are intended as examples of how a given Intel-based product, in the specified circumstances and configurations, may affect future costs and provide cost savings. Circumstances will vary. Intel does not guarantee any costs or cost reduction.

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PERFORMANCE BENCHMARK DISCLOSURES, 1 OF 2

Performance results are based on testing by Intel as of 3/20/2019 and may not reflect all publicly available security updates. See configuration disclosure for details. No product or component can be absolutely secure. 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 www.intel.com/benchmarks.

1. Compute (SPECrate*2017): 1x Intel® Xeon® D-1623N processor, Platform: Echo Canyon, 2 x 32GB DDR4 2400 ECC(64GB Total Memory) ,OS: Red Hat 7.6 with Kernel: 3.10.0-957.5.1.el7.x86_64, Bios: GNVDTRL1.86B.0010.D75.1902060802, uCode: 0xe00000c, Benchmark: SPECrate*2017_int_base (Estimated), Compiler: ICC 19.0.1.144, Storage: Intel® SSD D3-S4510 Series 1.92TB, Score: 19.7 (Estimated) compared to 1x Intel® Xeon® D-1513N processor, Platform: Echo Canyon, 2 x 32GB DDR4 2400 ECC(64GB Total Memory) ,OS: Red Hat 7.6 with Kernel: 3.10.0-957.5.1.el7.x86_64, Bios: GNVDTRL1.86B.0010.D75.1902060802, uCode: 0xe00000c, Benchmark: SPECrate*2017_int_base (Estimated), Compiler: ICC 19.0.1.144, Storage: Intel® SSD D3-S4510 Series 1.92TB, Score: 15.2 (Estimated)

2. Packet Forwarding (L3FWD): 1x Intel® Xeon® D-1653N processor, Platform: Echo Canyon, 2 x 32GB DDR4 2400 ECC(64GB Total Memory) ,OS: Ubuntu 18.04 LTS with Kernel: 4.15.0-42-generic x86_64, Bios: GNVDTRL1.86B.0010.D52.1708180300, uCode: 0xE00000A, Benchmark: IPV4 L3FWD, Compiler: DPDK 18.11, Network: 2x Intel® Ethernet Controller X552 (4x 10G ports), Storage: Intel® SSD D3-S4510 Series 240GB, Score: 33.5 (1Core/2T Mpackets/s (64B)) compared to 1x Intel® Xeon® D-1553N processor, Platform: Echo Canyon, 2 x 32GB DDR4 2400 ECC(64GB Total Memory) ,OS: Ubuntu 18.04 LTS with Kernel: 4.15.0-42-generic x86_64, Bios: GNVDTRL1.86B.0010.D52.1708180300, uCode: 0xE00000A, Benchmark: IPV4 L3FWD, Compiler: DPDK 18.11, Network: 2x Intel® Ethernet Controller X552 (4x 10G ports), Storage: Intel® SSD D3-S4510 Series 240GB, Score: 30.9 (1Core/2T Mpackets/s (64B))

3. Forward Information Base (Router & L3FWD): 1x Intel® Xeon® D-1653N processor, Platform: Echo Canyon, 2 x 32GB DDR4 2400 ECC(64GB Total Memory) ,OS: Ubuntu 18.04 LTS with Kernel: 4.15.0-42-generic x86_64, Bios: GNVDTRL1.86B.0010.D52.1708180300, uCode: 0xE00000A, Benchmark: VPP 18.10 IPV4 FIB, Compiler: DPDK 18.08, Network: 2x Intel® Ethernet Controller X552 (4x 10G ports), Storage: Intel® SSD D3-S4510 Series 240GB, Score: 17.3 (1Core/2T Mpackets/s (64B)) compared to 1x Intel® Xeon® D-1553N processor, Platform: Echo Canyon, 2 x 32GB DDR4 2400 ECC(64GB Total Memory) ,OS: Ubuntu 18.04 LTS with Kernel: 4.15.0-42-generic x86_64, Bios: GNVDTRL1.86B.0010.D52.1708180300, uCode: 0xE00000A, Benchmark: VPP 18.10 IPV4 FIB, Compiler: DPDK 18.08, Network: 2x Intel® Ethernet Controller X552 (4x 10G ports), Storage: Intel® SSD D3-S4510 Series 240GB, Score: 13.8 (1Core/2T Mpackets/s (64B))

4. Packet Security (IPSec w/AESNI software): 1x Intel® Xeon® D-1653N processor, Platform: Echo Canyon, 2 x 32GB DDR4 2400 ECC(64GB Total Memory) ,OS: Ubuntu 18.04 LTS with Kernel: 4.15.0-42-generic x86_64, Bios: GNVDTRL1.86B.0010.D52.1708180300, uCode: 0xE00000A, Benchmark: VPP IPSec 18.10 (AES128-CBC-HMAC-SHA1), Compiler: DPDK 18.08, Network: 2x Intel® Ethernet Controller X552 (4x 10G ports), Storage: SSD S4510 Series 250GB, Score: 2.3 (1Core/2T Mpackets/s (64B)) compared to 1x Intel® Xeon® D-1553N processor, Platform: Echo Canyon, 2 x 32GB DDR4 2400 ECC(64GB Total Memory) ,OS: Ubuntu 18.04 LTS with Kernel: 4.15.0-42-generic x86_64, Bios: GNVDTRL1.86B.0010.D52.1708180300, uCode: 0xE00000A, Benchmark: VPP IPSec 18.10 (AES128-CBC-HMAC-SHA1), Compiler: DPDK 18.08, Network: 2x Intel® Ethernet Controller X552 (4x 10G ports), Storage: SSD S4510 Series 250GB, Score: 2 (1Core/2T Mpackets/s (64B))

5. Baseline: 1x Intel® Xeon® D-1521 processor, Platform: Echo Canyon, 2 x 32GB DDR4 2400 ECC(64GB Total Memory) ,OS: Red Hat 7.6 with Kernel: 3.10.0-957.5.1.el7.x86_64, Bios: GNVDTRL1.86B.0010.D75.1902060802, uCode: 0xe00000c, Benchmark: Local IOPS (FIO 3.1) Compiler: Red Hat 4.8.5-36-GCC, Q-depth=32, Storage: Intel® SSD D3-S4510 1.92TB (boot), 3x Intel® SSD DC S3520 800GB (Application), Score: 16421.33 (IOPS) for Sequential 64K 70Read/30Write

6. Value: 1x Intel® Xeon® D-1627 processor, Platform: Echo Canyon, 2 x 32GB DDR4 2400 ECC(64GB Total Memory) ,OS: Red Hat 7.6 with Kernel: 3.10.0-957.5.1.el7.x86_64, Bios: GNVDTRL1.86B.0010.D75.1902060802, uCode: 0xe00000c, Benchmark: Local IOPS (FIO 3.1) Compiler: Red Hat 4.8.5-36-GCC, Q-depth=32, Storage: Intel® SSD D3-S4510 1.92TB (boot), 3x Intel® SSD D3-S4510 1.92TB (Application), Score: 23834.66 (IOPS) for Sequential 64K 70Read/30Write

PERFORMANCE BENCHMARK DISCLOSURES, 2 OF 2

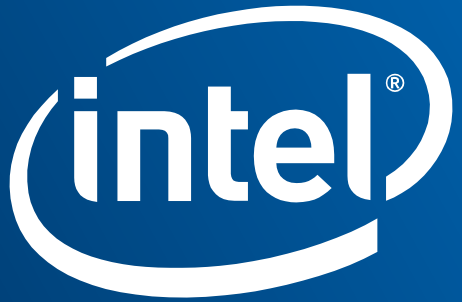
Performance results are based on testing by Intel as of 3/20/2019 and may not reflect all publicly available security updates. See configuration disclosure for details. No product or component can be absolutely secure. Software and workloads used in performance tests may have been optimized for performance 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 www.intel.com/benchmarks.

7. Performance: 1x Intel® Xeon® D-1627 processor, Platform: Echo Canyon, 2 x 32GB DDR4 2400 ECC(64GB Total Memory) ,OS: Red Hat 7.6 with Kernel: 3.10.0-957.5.1.el7.x86_64, Bios: GNVDTRL1.86B.0010.D75.1902060802, uCode: 0xe00000c, Benchmark: Local IOPS (FIO 3.1) Compiler: Red Hat 4.8.5-36-GCC, Q-depth=32, Storage: Intel® SSD D3-S4510 1.92TB (boot), 3x Intel® SSD D5-P4320 7.68TB (Application), Score: 107818.66 (IOPS) for Sequential 64K 70Read/30Write

8. S4510 + Xeon® D-1627: 1x Intel® Xeon® D-1627 processor, Platform: Echo Canyon, 2 x 32GB DDR4 2400 ECC(64GB Total Memory) ,OS: Red Hat 7.6 with Kernel: 3.10.0-957.5.1.el7.x86_64, Bios: GNVDTRL1.86B.0010.D75.1902060802, uCode: 0xe00000c, Benchmark: Local IOPS (FIO 3.1) Compiler: Red Hat 4.8.5-36-GCC, Q-depth=32, Storage: Intel® SSD D3-S4510 1.92TB (boot), 3x Intel® SSD D3-S4510 1.92TB (Application), Score: 162645.33(IOPS) & 2351.66us (99th Latency) for Random 4K 70Read/30Write and 23834.66 (IOPS) & 9962.44us (99th Latency) for Sequential 64K 70Read/30Write

9. 4320 + Intel® Xeon® D-1627: 1x Intel® Xeon® D-1627 processor, Platform: Echo Canyon, 2 x 32GB DDR4 2400 ECC(64GB Total Memory) ,OS: Red Hat 7.6 with Kernel: 3.10.0-957.5.1.el7.x86_64, Bios: GNVDTRL1.86B.0010.D75.1902060802, uCode: 0xe00000c, Benchmark: Local IOPS (FIO 3.1) Compiler: Red Hat 4.8.5-36-GCC, Q-depth=32, Storage: Intel® SSD D3-S4510 1.92TB (boot), 3x Intel® SSD D5-P4320 7.68TB (Application), Score: 190208(IOPS) & 2112.55us (99th Latency) for Random 4K 70Read/30Write and 107818.66 (IOPS) & 9329.66us (99th Latency) for Sequential 64K 70Read/30Write

10. S3520 + Xeon® D-1521: 1x Intel® Xeon® D-1521 processor, Platform: Echo Canyon, 2 x 32GB DDR4 2400 ECC(64GB Total Memory) ,OS: Red Hat 7.6 with Kernel: 3.10.0-957.5.1.el7.x86_64, Bios: GNVDTRL1.86B.0010.D75.1902060802, uCode: 0xe00000c, Benchmark: Local IOPS (FIO 3.1) Compiler: Red Hat 4.8.5-36-GCC, Q-depth=32, Storage: Intel® SSD D3-S4510 1.92TB (boot), 3x Intel® SSD DC S3520 800GB (Application), Score: 151296(IOPS) & 3148.11us (99th Latency) for Random 4K 70Read/30Write and 16421.33 (IOPS) & 27493.44us (99th Latency) for Sequential 64K 70Read/30Write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