LISA SPELMAN
VICE PRESIDENT
GENERAL MANAGER, XEON PRODUCTS
NEW OPPORTUNITIES AT THE INTELLIGENT EDGE

NETWORK EDGE

IOT EDGE
“Intel’s Xeon Scalable Processor and Intel Optane DC Persistent Memory are a great fit for our CDN because it enables us to **dynamically and efficiently deliver content** using our mid-cache servers **reducing TCO** while significantly increasing performance.”
THE INTELLIGENT IOT EDGE

DRIVERS FOR EDGE
LATENCY, BANDWIDTH,
SECURITY, CONNECTIVITY

SMART CITIES

MEDICAL

INDUSTRIAL

RETAIL

AUTONOMOUS

#datacentric
EXPANDING PORTFOLIO BREADTH

INTEL® ETHERNET
800 SERIES

INTEL® XEON® D-1600

INTEL® AGILEX™
DRIVING WORKLOAD INNOVATION

- Advanced, Multi-Function Accelerators
- Flexibility for Highly-Differentiated Products
- H/W Re-Programmability for Evolving Market Requirements & Changing Standards
INTEL® AGILEX™ FPGA
INTEL INNOVATION FOR ULTIMATE AGILITY & FLEXIBILITY

HIGH PERFORMANCE COMPUTE
10NM PROCESS TECHNOLOGY
COMPUTE EXPRESS LINK (CXL)
MEMORY-COHERENT ACCELERATION
MASSIVE BANDWIDTH

ADVANCED 3D PACKAGING
ANY-TO-ANY INTEGRATION
ANY NODE, ANY SUPPLIER, ANY IP
RAPID INTEL® eASIC™ DEVICES OPTIMIZATION

ANY DEVELOPER
INTEL® QUARTUS® PRIME
DESIGN TOOL FOR HW DEVELOPERS
ONEAPI
FOR SW DEVELOPERS
Converged Workload Acceleration

Infrastructure Acceleration
Network | Security | Remote Memory Access

Application Acceleration
AI | Search | Video Transcode | Database
40 TFLOPS of DSP Performance

Storage Acceleration
Compression | Decompression | Encryption
Memory Hierarchy Management

World’s First FPGA with Coherent Attach
And Comprehensive Memory Support with Intel® Xeon® Scalable Processors

#datacentric | Intel
Intel® Xeon® D-1600 Processor

Intel® QuickAssist Technology | Intel® Ethernet | Intel® Virtualization Technology

**1.29X More**
Up to 1.29X More Integer Throughput

**1.25X More**
Up to 1.25X More Packet Forwarding

**1.4X Higher**
Up to 1.4X Higher Read/Write Throughput

**2.7X Lower**
Up to 2.7X Lower Latency

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.
INTEL® ETHERNET ADAPTER 800 SERIES

100GBE FOUNDATIONAL ETHERNET

WITH ADQ

>45% LATENCY REDUCTION

>30% MORE THROUGHPUT

APPLICATION DEVICE QUEUES

DELIVERING CONSISTENT APPLICATION RESPONSE TIME

ADDITIONAL ADVANCED CAPABILITIES

ENHANCED DYNAMIC DEVICE PERSONALIZATION (DDP)

IWARP & ROCE V2 RDMA SUPPORT

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.

#datacentric
DATA CENTRIC APPLICATION INNOVATION
THE MODERNIZATION OPPORTUNITY

5 YEARS AVERAGE SERVER LIFECYCLE

5 YEARS AGO >9M SERVERS WERE SOLD

$900B UNTAPPED BUSINESS POTENTIAL

Source: IDC, Worldwide Quarterly Server Tracker Final Historical Pivot 2018Q4, March 2019
THE VALUE OF REFRESH

ENTERPRISE IT

3.77X
OLTP DATABASE\(^6\)

CLOUD INFRASTRUCTURE

3.52X
VM DENSITY\(^7\)

COMMS SERVICE PROVIDER

2.36X
DPDK L3 FORWARDING\(^8\)

TECHNICAL COMPUTING

11X
LINPACK\(^9\)

---

*Intels' 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.*
SECURITY EMBEDDED IN ALL OUR PRODUCTS

HARDWARE ENHANCED SECURITY FEATURES DESIGNED TO BUILD A MORE TRUSTED FOUNDATION FOR COMPUTING

SECURITY MITIGATIONS

CPU ARCHITECTURE UPDATES TO ENHANCE PROTECTION

DATA PROTECTIONS

ENCRYPTION IN FLIGHT, AT REST, IN USE

INTEL® SGX CARD

TRUSTED PLATFORM

MULTI-LAYERED, OPEN SOURCE SECURITY LIBRARIES FOR DATA CENTER

THREAT DETECTION PLATFORM INTEGRITY DATA SOVEREIGNTY

FULL-STACK SOLUTIONS

HARDENED VIRTUALIZATION HOSTING PLATFORM WITH LOCKHEED MARTIN

#datacentric | intel
LISA DAVIS
VICE PRESIDENT AND GENERAL MANAGER,
DIGITAL TRANSFORMATION & SCALE SOLUTIONS
HAR DENED SECURITY SOLUTION
HAR DENED VIRTUALIZATION PLATFORM ADDressing FULL RANGE OF SECURITY CONTROLS

AVAILABILITY
DETERMINISTIC QUALITY
OF SERVICE

INTEGRITY
TRUSTED BOOT
THROUGH RUNTIME

CONFIDENTIALITY
VM ENCRYPTION
& ISOLATION

INTEL® XEON® SCALABLE PROCESSOR
INTEL® BOOT GUARD
INTEL® RDT
INTEL® AES-NI

HAR DENED BIOS
HAR DENED HYPERVISOR

INTEL® AES-NI

INTEL® AES-NI
ADDRESSING INFRASTRUCTURE COMPLEXITY

49% BETTER SYSTEM PERFORMANCE

PRE-CONFIGURED & VERIFIED SOLUTIONS

46% FASTER TIME TO VALUE

Source: Forrester, Reduce Complexity To Maximize Performance, Dec 2018
INTEL® SELECT SOLUTIONS

BOOST IT VELOCITY
WITH PRE-DEFINED AND VERIFIED INFRASTRUCTURE SOLUTION STACKS AVAILABLE FROM A RANGE OF PARTNERS

INCREASE SYSTEM LEVEL PERFORMANCE
WITH HIGHLY OPTIMIZED CONFIGURATIONS OF INDUSTRY-LEADING INTEL DATA CENTER TECHNOLOGIES

VERIFIED PARTNER SOLUTIONS
>50

UNPARALLELED HW/SW ECOSYSTEM
TO ACCELERATE YOUR PACE OF INNOVATION ACROSS CRITICAL BUSINESS WORKLOADS
MAKING WORKLOAD ACCELERATION EASY WITH INTEL® SELECT SOLUTIONS

ANALYTICS
- MICROSOFT SQL SERVER WINDOWS SERVER
- MICROSOFT SQL SERVER LINUX*
- SAP HANA*

ARTIFICIAL INTELLIGENCE
- BIGDL ON APACHE SPARK
- AI INFERENCING

HYBRID CLOUD
- MICROSOFT AZURE STACK
- RED HAT OPENShift CONTAINER PLATFORM
- VMWARE VSAN
- MICROSOFT AZURE STACK HCI
- HUAWEI FUSIONSTORAGE

NETWORK TRANSFORMATION
- UNIVERSAL CUSTOMER PREMISES EQUIPMENT
- NFVI: RED HAT
- NFVI: UBUNTU
- NFVI: FUSIONSPHERE
- VISUAL CLOUD DELIVERY NETWORK

HPC
- SIMULATION & MODELING*
- PROFESSIONAL VISUALIZATION*
- GENOMICS ANALYTICS*
- HPC & AI CONVERGED CLUSTERS

* Coming Soon
S. MURARI
VICE PRESIDENT OF ENGINEERING IN STORAGE & AVAILABILITY
INTEL® SELECT SOLUTIONS PARTNER DELIVERY

ISV/OSV

BROAD INSTITUTE
ubuntu
HUawei
LOCKNEED MARTIN
Microsoft
Red Hat
SAP
vmware

OEM

ADVANTECH
Fujitsu
Hitachi
HUAWEI
Inspur
Lanner
Lenovo
NEC
Nokia
Silicon Motion
Sugon

SCALE

ADLink
advania
avanade
atipa
caswell
CDW
dataON
datamark
EQUUS
H3C
MEGWARE
Mercury Systems
NEXCOM
NOR-TECH
QNAP
RSC
shi
Wortmann AG
World Wide Technology
ZTE
SUMMARY

SPANNING INTELLIGENT EDGE TO CLOUD
UNMATCHED PORTFOLIO TO MOVE, STORE, PROCESS DATA

2ND GENERATION INTEL® XEON® SCALABLE PROCESSORS WITH INTEL® DEEP LEARNING BOOST
THE ONLY CPU WITH INTEGRATED AI ACCELERATION

NETWORK-OPTIMIZED TECHNOLOGY
WINNING 5G WITH THE INDUSTRY’S PLATFORM OF CHOICE

INTEL® OPTANE™ PERSISTENT MEMORY
BREAKING THROUGH MEMORY AND STORAGE BARRIERS
NOTICES AND DISCLAIMERS

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'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.

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.

Intel does not control or audit third-party benchmark data or the web sites referenced in this document. You should visit the referenced web site and confirm whether referenced data are accurate.

Intel, the Intel logo, Intel Optane, and Intel Xeon are trademarks of Intel Corporation in the U.S. and/or other countries.

*Other names and brands may be claimed as property of others.

Intel and the Intel logo are trademarks of Intel Corporation in the United States and other countries.

© 2019 Intel Corporation.
NOTICES AND DISCLAIMERS

Performance results are based on testing as of dates shown in configuration 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 Up to 29% more compute integer throughput with Intel® Xeon® D-1623N processor compared with Intel® Xeon® D-1513N processor. Tested by Intel Corp as of 3/20/2019. 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 Up to 25% performance improvement with Intel® Xeon® D-1653N processor compared with Intel® Xeon® D-1553N processor on router and packet forwarding. Tested by Intel Corp as of 3/20/2019. 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)).

3 Up to 1.4X higher read & write throughput & 2.7X lower in latency response with Intel® Xeon® D-1627 processor compared with Intel® Xeon® D-1521 processor. Tested by Intel Corp as of 3/20/2019. 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) & 9962.44us (99th Latency) for Sequential 64K 70Read/30Write, compared to 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) & 27493.44us (99th Latency) for Sequential 64K 70Read/30Write.
> **45% latency reduction** with Open Source Redis using 2nd gen Intel® Xeon® Scalable Processors and Intel® Ethernet 800 Series with ADQ. Calculation: (new - old) / old x 100% Rtt Average Latency across all run for baseline vs ADQ (382-1249)/1249 * 100% = -69% Reduction in Rtt Average Latency

> **30% throughput improvement** with Open Source Redis using 2nd gen Intel® Xeon® Scalable Processors and Intel® Ethernet 800 Series with ADQ. Calculation: (new - old) / old x 100% Transaction Request Rate across all run for baseline vs ADQ (79601-44345)/44345 * 100% = 80% Throughput Improvement

Source: Intel internal testing as of February 2019

Configuration details provided in the following tables:

## NOTICES AND DISCLAIMERS

<table>
<thead>
<tr>
<th>Test by</th>
<th>SUT</th>
<th>Client</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel</td>
<td>Intel</td>
<td>Intel</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Date</th>
<th>2/11/2019</th>
<th>2/11/2019</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Platform</th>
<th>Intel® Server Board S2600WFTF</th>
<th>Dell® PowerEdge® R720</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th># Nodes</th>
<th>11</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th># Sockets</th>
<th>2</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>CPU</th>
<th>2nd Generation Intel® Xeon® Scalable processor 8268 @ 2.80GHz</th>
<th>Intel® Xeon® processor E5-2697 v2</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Cores/socket, Threads/socket</th>
<th>24/48</th>
<th>12 / 24</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>cache size</th>
<th>0x30000009</th>
<th>0x428</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>MT</th>
<th>On</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Turbo</th>
<th>On</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>BIOS version</th>
<th>SE5C620.86B.01.00.0033.051120182255</th>
<th>2.5.4</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>System DDR Mem Config: slots / cap / run-speed</th>
<th>8 slots / 128GB / 2400MT/s</th>
<th>16 slots / 128GB / 1600MT/s</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>System DCMM Config: slots / cap / run-speed</th>
<th>2 slots / 1024GB</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Total Memory/Node (DDR+DCMM)</th>
<th>1024GB</th>
<th>128GB</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Storage - boot</th>
<th>1x Intel SSD (OS Drive 64GB)</th>
<th>1x Dell (OS Drive 512GB)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Storage - application drives</th>
<th>1x Intel® Ethernet Network Adapter E810-CQDA2</th>
<th>1x Intel® Ethernet X520-DA2</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>NIC</th>
<th>1x Intel® C620 Series Chipset</th>
<th>1x Intel® C600 Series Chipset</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>PCH</th>
<th>Intel® C620 Series Chipset</th>
<th>Intel® C600 Series Chipset</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Other HW (Accelerator)</th>
<th>OS</th>
<th>CentOS 7.6</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Kernel</th>
<th>4.19.16 (Linux.org Stable)</th>
<th>3.10.0-693.21.1.el7</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>IBRS (0=disable, 1=enable)</th>
<th>1</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>eIBRS (0=disable, 1=enable)</th>
<th>1</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Retpoline (0=disable, 1=enable)</th>
<th>1</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>IBPB (0=disable, 1=enable)</th>
<th>1</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>PTI (0=disable, 1=enable)</th>
<th>1</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Mitigation variants (1,2,3,3a,4, L1TF)</th>
<th>1,2,3,1TF</th>
<th>1,2,3,1TF</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Workload &amp; version</th>
<th>Redis 4.0.10</th>
<th>redis-benchmark 4.0.10</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Compiler</th>
<th>gcc (GCC) 4.8.5 20150623</th>
<th>-</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>NIC Driver</th>
<th>ice 08.15</th>
<th>ixege 4.4.0-k-rh7.4</th>
</tr>
</thead>
</table>
Performance results are based on testing as of dates shown in configuration 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.

6. HammerDB OLTP Database: 1-node, 2x Intel(R) Xeon(R) CPU E5-2697 v2 on Canoe Pass with 256 GB (16 slots / 16 GB / 1866) total memory, ucode 0x42d on RHEL7.6, 3.10.0-957.el7.x86_64, 2 x Intel DC P3700 PCE-ESS for DATA, 2 x Intel DC P3700 PCE-ESS for REDO, HammerDB 3.1, HT on, Turbo on, result: OLTP Warehouse workload=2.24M, test by Intel on 2/1/2019. 1-node, 2x Intel(R) Xeon(R) CPU E5-2699 v4 on Wildcat Pass with 384 GB (24 slots / 16 GB / 2133) total memory, ucode 0xb00002e on RHEL7.6, 3.10.0-957.el7.x86_64, 2 x Intel DC P3700 PCE-ESS for DATA, 2 x Intel DC P3700 PCE-ESS for REDO, HammerDB 3.1, HT on, Turbo on, result: OLTP Warehouse workload=5.08M, test by Intel on 2/1/2019. 1-node, 2x Intel(R) Xeon(R) Platinum 8280 CPU on Wolf Pass with 384 GB (12 slots / 32 GB / 2933) total memory, ucode 0x4000013 on RHEL7.6, 3.10.0-957.el7.x86_64, 2 x Intel SSD DC P4610 for DATA, 2 x Intel SSD DC P4610 for REDO, HammerDB 3.1, HT on, Turbo on, result: OLTP Warehouse workload=8.45M, test by Intel on 2/1/2019.

7. Virtualized Infrastructure: 1-node, 2x Intel® Xeon® Processor E5-2697 v2 on Canon Pass with 256 GB (16 slots / 16 GB / 1600) total memory, ucode 0x42c on RHEL7.6, 3.10.0-957.el7.x86_64, 1x Intel 400GB SSD OS Drive, 2x P4500 4TB PCIe, 2*82599 dual port Ethernet, Virtualization Benchmark, VM kernel 4.19, HT on, Turbo on, result: VM density=21, test by Intel on 1/15/2019. 1-node, 2x Intel® Xeon® Processor E5-2699 v4 on Wildcat Pass with 512 GB (16 slots / 32GB / 2133) total memory, ucode 0xb00002e on RHEL7.6, 3.10.0-957.el7.x86_64, 1x Intel 400GB SSD OS Drive, 2x P4500 4TB Optane PCIe, 2*82599 dual port Ethernet, Virtualization Benchmark, VM kernel 4.19, HT on, Turbo on, result: VM density=53, test by Intel on 1/15/2019. 1-node, 2x Intel® Xeon® Platinum 8280 Processor on Wolf Pass with 768 GB (24 slots / 32GB / 2666) total memory, ucode 0x2000056 on RHEL7.6, 3.10.0-957.el7.x86_64, 1x Intel 400GB SSD OS Drive, 2x P4500 4TB PCIe, 2*82599 dual port Ethernet, Virtualization Benchmark, VM kernel 4.19, HT on, Turbo on, result: VM density=74, test by Intel on 1/15/2019.


9. Intel® Distribution of Linpack: 1-node, 2x Intel Xeon processor E5-2697 v2 on Canoe Pass with 768 GB (24x 32GB 2933) total memory, ucode 0x42d on RHEL7.6, 3.10.0-957.el7.x86_64, IC19u1, AVX512, HT off, Turbo on, score: Linpack GF/s=546, test by Intel on 2/1/2019. 1-node, 2x Intel Xeon processor E5-2699 v4 on Wildcat Pass with 384 GB (12 X 32GB 2666 (2400)) total memory, ucode 0xb00002e on RHEL7.6, 3.10.0-957.el7.x86_64, IC18u2, AVX2, HT off, Turbo on, score: Linpack GF/s=1434, test by Intel on 2/16/2019. 1-node, 2x Intel® Xeon® Platinum 9282 cpu on Walker Pass with 768 GB (24x 32GB 2933) total memory, ucode 0x400000A on RHEL7.6, 3.10.0-957.el7.x86_64, IC18u2, AVX2, HT off, Turbo on, score: Linpack GF/s=6411, test by Intel on 2/16/2019.